CAPITAL AREA REGIONAL TOLLING AUTHORITY

BOARD MEETING

Thursday, February 15, 2024, at 12:00 P.M.
SACOG Board Room, 1415 L Street, Suite 300, Sacramento, CA 95814

Consistent with California Government Code Section 54953 a meeting of the board will be held in person.

Attend or watch

- Attend the meeting at the location noted above
- Watch on CARTA's YouTube channel where the meeting will be streamed. If you do not see the live broadcast, indicated by the red "live" icon, refresh your browser.

Provide public comment – Note: No public comment will be taken by telephone or through YouTube. Comments will be taken on the item at the time it is taken up by the board. Members of the public can participate in the meeting via written or verbal comments as described below:

- ***In-person***:
  Public comment may be made in person at the meeting location. You will have 3:00 minutes to speak, unless a different time is set by the Chair. Please complete a speaker form and provide it to the clerk. If attending at an alternative meeting location, please inform an agency official in attendance that you request to speak.
- ***Written comments***
  May be submitted via email to the clerk at rtadevich@sacog.org. Comments requested to be read at the meeting will be limited to 250 words. Comments requested to be distributed to the board members will be shared with members if they are received at least 24 hours prior to the meeting. Otherwise, they will be shared after the meeting. Any writings or documents provided to a majority of this board regarding any item on this agenda (other than writings legally exempt from public disclosure) are available on CARTA's website.

Agenda Timing: Time durations are estimates only. Action may be taken on any item on this agenda. The board may take up any agenda item at any time, regardless of the order listed.

Accessibility and Title VI: CARTA provides access to all agenda and meeting materials online at www.captollauthority.org. Additionally, interested persons can sign up for email notifications at www.captollauthority.org/about. CARTA provides modification or accommodation, auxiliary aids or services, including receiving this agenda and attachments in an alternative format accommodation in order to participate in this meeting. CARTA also provides services/accommodations to individuals who are limited-English proficient who wish to address agency matters. For accommodations or translations assistance, please call (916) 321-9000, or for TDD/TTY dial 711, or email at contact@captollauthority.org. We require three working days' notice to accommodate your request.

La CARTA puede proveer asistencia/facilitar la comunicación a las personas y los individuos con conocimiento limitado del inglés quienes quieran dirigirse a la agencia. Para asistencia, por favor llame al número 916.321.9000 o para TDD/TTY llame al numero 711, o email a contact@captollauthority.org. Requerimos que solicite asistencia con tres días hábiles de anticipación para poderle proveer asistencia.

Pledge of Allegiance

Roll Call: Directors Aceves, Chapman, Early, Kennedy, Villegas and Ex-Officio Members Click, Deloria and Guerra

Oath of Office

Public Communications: Any person wishing to address the committee on any item not on the agenda may do so at this time. After ten minutes of testimony, any additional testimony will be heard following the action items.

Action:

1. Election of Chair/Vice Chair and Designation of Secretary, Auditor/Controller and Treasurer and Lead Agency
2. Adoption of Bylaws
3. Adoption of Meeting Schedule
4. Approval of Yolo 80 Facility Application

Receive and File:

5. Draft Conflict of Interest Code
6. JPA Formation Activities

Other Matters

Adjournment

The next meeting of CARTA will be held on Thursday, May 16, 2024, at 12:00 p.m. in the SACOG Board Room, 1415 L Street, Suite 300, Sacramento, CA.

This agenda and attachments are available on CARTA's website at www.captollauthority.org. CARTA is accessible to the disabled. As required by Section 202 of the Americans with Disabilities Act of 1990 and the Federal Rules and Regulations adopted in implementation thereof, a person who requires a modification or accommodation, auxiliary aids or services in order to participate in a public meeting, including receiving this agenda and attachments in an alternative format, should contact CARTA by phone at (916) 321-9000, email contact@captollauthority.org or in person as soon as possible and preferably at least 72 hours prior to the meeting. Parking is available at 15th and K Streets. To take transit to a meeting, go to google.com/maps.

Capital Area Regional Tolling Authority

Meeting Date: February 15, 2024
Agenda Item: 1

Elect CARTA Chair and Vice Chair, Designate Secretary and Auditor/Controller and Treasurer

Prepared By: Erik Johnson, Sacramento Area Council of Governments
Attachments: No

Recommendation:
Staff recommend that the board:

- Elect a Chair and Vice Chair;
- Designate the SACOG Executive Director as Secretary;
- Designate Sacramento County as Auditor/Controller and Treasurer;
- Designate SACOG as the lead agency to conduct the day-to-day affairs of the JPA until such time as the board appoints an Executive Director.

Background:
Section 5.7, subdivision (a), of the CARTA Joint Exercise of Powers Agreement provides that a Chair and Vice Chair shall be elected from among the membership of the board to preside over the meetings of the board.

Staff from SACOG, YoloTD and Caltrans have identified the need for a single agency to take the lead on administrative functions of CARTA. At a staff level, SACOG has been identified as the agency to serve in this capacity initially. Ultimately, the board has the discretion to determine how to staff the organization. This is likely to evolve depending on what decisions the board makes regarding staffing in the future.

Section 5, subdivision (d), of the CARTA Joint Exercise of Powers Agreement provides that the board shall select a Secretary. The Secretary must countersign contracts signed on behalf of the Authority and is the official custodian of all records of the Authority. The Secretary will attend to such filings as required by applicable law. The Secretary will perform such other duties as may be imposed by the board.

Section 5.9 of the CARTA Joint Exercise of Powers Agreement designates the Treasurer of Sacramento County as Auditor/Controller and Treasurer of the Authority. SACOG's finance director, budget analysts and accountants will provide support to CARTA, but payments from the Authority to vendors will be processed through Sacramento County. This is similar to the relationship that SACOG has with the Treasurer of Sacramento County. In May, staff intends to return with a proposed budget for fiscal year 2024-2025 for the Authority.

Discussion:
Staff recommend that the board elect a Chair to preside over the meetings of the board. In addition, staff recommend that the board elect a Vice Chair to preside over the meetings of the board in the absence of the Chair. The CARTA Joint Exercise of Powers Agreement does not require any rotation among members, but the board may wish to consider having geographic representation be a factor in its selection. This item may be discussed among board members at the meeting.

Staff recommend that the board designate SACOG to conduct the day-to-day affairs of the JPA until such time as the board appoints an Executive Director. Staff recommend that the board designate the Executive Director of SACOG as the Secretary of the JPA and Sacramento County as the Auditor/Controller and Treasurer.

Capital Area Regional Tolling Authority

Meeting Date: February 15, 2024
Agenda Item: 2

Adoption of Bylaws

Prepared By: Michael Maurer, General Counsel, Sacramento Area Council of Governments
Attachments: Yes

Recommendation:
Staff recommend that the board adopt the Bylaws (Attachment A).

Background:
Section 5.5(d) of the Joint Exercise of Powers Agreement for Capital Area Regional Tolling Authority ("Agreement") authorizes the board to adopt "bylaws, rules and regulations for the conduct of meetings of the board and of the affairs of the Authority consistent with [the] Agreement and other applicable law."

Discussion:
The Bylaws are being presented to the board for consideration and adoption at its initial meeting to guide the conduct of meetings and the Authority's affairs. As requested by the SACOG board when approving the Joint Exercise of Powers Agreement, the Bylaws specify the applicable requirements of AB 194 (Streets & Highways Code section 149.7), which is the law that governs regional toll authorities.

The board should consider the Bylaws to be a "living document" that gets updated from time-to-time as conditions warrant. This version is intended to be an initial document, but staff anticipates that as CARTA begins operations, the Bylaws will likely need to be updated to better reflect operational practices. Staff recommend adoption.

The proposed Bylaws are included as Attachment A to this staff report and contain articles concerning the following:

Article I	Definitions for Bylaws
Article II	Offices
Article III	Board of Directors, including provisions on Directors, alternates, vacancies, and nonvoting Directors, and statutory requirements for tolling (AB 194)
Article IV	Meetings, including provisions on Brown Act compliance, closed session, quorum, vote requirements, and meeting rules of order and procedures using Rosenberg's Rules of Order
Article V	Officers of the Board

BYLAWS

OF
CAPITAL AREA REGIONAL TOLLING AUTHORITY

PREAMBLE

The Capital Area Regional Tolling Authority (Authority") was established on January 24, 2024, pursuant to the Joint Exercise of Powers Act, Government Code section 6500 et seq. for the purpose of creating a joint powers agency to apply to the California Transportation Commission to develop and operate tolling facilities within the Capital region in accordance with Streets and Highways Code section 149.7.

ARTICLE I
DEFINITIONS

Unless otherwise expressly provided, the definition of terms used in these Bylaws shall be the same as are contained in the Agreement, as amended and restated.

ARTICLE II
OFFICES

Section 1. **Principal Office.** The principal office of the Authority shall be located at the Sacramento Area Council of Governments, 1415 L Street, Suite 300, Sacramento, CA 95814.

Section 2. **Additional Offices.** The Authority may also have offices at such other places within the State, as the Board may from time to time determine or the business of the Authority may require.

ARTICLE III
BOARD

Section 1. **Power and Duties of the Board.** The Board shall have the responsibility for the general management of the affairs, property and business of the Authority and may, from time to time, adopt and modify these Bylaws and other rules and regulations for that purpose and for the conduct of its meetings as it may deem proper. The Board may exercise and shall be vested with all powers of the Authority insofar as not inconsistent with law, the Agreement or these Bylaws.

Section 2. **Directors and Advisory Directors**.

(a) **Directors.** Directors of the Board are appointed to serve as Directors of the Authority in accordance with the provisions of Section 5.2(b) of the Agreement.

(b) **Alternate Directors.** Each Member may appoint one alternate Director. In the absence of an appointed Director, the alternate for that Member may act as a full voting Director.

(c) **Vacancies.** Each Director will cease to be a member of the Authority Board if and when such Director ceases to hold office on the legislative body of the appointing Member, or in the case of Caltrans, ceases to be employed by Caltrans. Vacancies will be filled in the same manner as appointments.

(d) **Nonvoting Directors.** Before becoming a Member, Placer County Transportation Planning Agency ("PCTPA"), El Dorado County Transportation Commission ("EDCTC"), and Sacramento Transportation Authority ("STA") may each appoint a nonvoting Director who serves on its governing board or is employed as staff.

Nonvoting Directors shall not be counted towards quorum, but shall receive all meeting notices and may participate in all public discussions. Nonvoting Directors shall not be entitled to receive confidential information of the Authority or participate in closed sessions. The Board may approve the inclusion of additional nonvoting Directors at its discretion.

Section 3. **Organization.** Each meeting of the Board shall be presided over by the Chair or, in the Chair's absence, by the Vice-Chair, or in the absence of both the Chair and Vice-Chair, by any member of the Board selected to preside by vote of a majority of the members of the Board present. The Secretary shall act as secretary of the meeting. The Secretary may delegate any duties of the office to a board clerk of a member agency or other appropriate designee.

Section 4. **Statutory Requirements for Tolling (AB 194).** The Board shall operate the Authority in accordance with AB 194 (2015), codified at Streets and Highways Code section 149.7, and as may be amended from time to time, which contains certain legal restrictions on regional transportation agencies that develop and operate toll lanes. The current language of AB 194 provides that:

- The sponsoring agency shall be responsible for establishing, collecting, and administering tolls, and may include discounts and premiums for the use of the toll facility.

- The revenue generated from the operation of the toll facility shall be available to the sponsoring agency for the direct expenses related to the following:
    - Debt issued to construct, repair, rehabilitate, or reconstruct any portion of the toll facility, payment of debt service, and satisfaction of other covenants and obligations related to indebtedness of the toll facility;
    - The development, maintenance, repair, rehabilitation, improvement, reconstruction, administration, and operation of the toll facility, including toll collection and enforcement; and
    - Reserves for the purposes specified above.
- All remaining revenue generated by the toll facility shall be used in the corridor from which the revenue was generated pursuant to an expenditure plan developed by the sponsoring agency. For a toll facility sponsored by a regional transportation agency, the regional transportation agency shall:
    - Develop the expenditure plan in consultation with the California Department of Transportation; and
    - The governing board of the regional transportation agency shall review and approve the expenditure plan and any updates.
- The sponsoring agency's administrative expenses related to operation of a toll facility shall not exceed three percent (3%) of the toll revenues.
- A sponsoring agency that develops or operates a toll facility pursuant to Streets and Highways Code section 149.7 shall provide any information on or data requested by the California Transportation Commission or the Legislative Analyst.
- Before submitting an application to the California Transportation Commission to develop and operate toll facilities, a regional transportation agency shall consult with every local transportation authority designated pursuant to Division 12.5 (commencing with Section 131000) or Division 19 (commencing with Section 180000) of the Public Utilities Code and every congestion management agency whose jurisdiction includes the toll facility that the regional transportation agency proposes to develop and operate.
- A regional transportation agency or the California Department of Transportation may require any vehicle accessing a toll facility authorized under this section to have an electronic toll collection transponder or other electronic device for enforcement or tolling purposes.

ARTICLE IV

ARTICLE III. MEETINGS OF THE BOARD OF DIRECTORS

Section 1. **Regular Meetings**.

(a) **Time Held**. As required by Section 5.5 of the Agreement, regular meetings of the Board shall be held at least quarterly. The date, time and place of

regular meetings of the Board will be designated on a meeting calendar adopted at the first Board meeting of the year.

(b) **Business to be Transacted**. At the first regular meeting during each year, the Board shall elect the Chair and Vice-Chair from among its members. If no election of the Chair and Vice-Chair is held at the first regular meeting, the existing Chair and Vice-Chair shall remain officers of the Board until a new election is held. The Board shall appoint a Secretary who may, but need not be, a member of the Board.

(c) The Board shall adopt an operating budget for the Authority for the next fiscal year by the end of the current fiscal year. The Board may revise this budget from time to time.

(d) At any regular meeting, the Board may take such action as is permitted by law.

(e) **Notices**. Notice of regular meetings of the Board shall be in accordance with the provisions of the Ralph M. Brown Act (Government Code Section 54950 et seq.) ("Brown Act").

Section 2. **Special Meetings**. A special meeting of the Board may be called at any time by the Chair of the Board or by a majority of the Members of the Board. Notice of special meetings of the Board shall be in accordance with the provisions of the Brown Act. In addition, notice of a special meeting shall be provided to each Member of the Board by delivering personally, or by mail or e-mail, written notice at least twenty-four (24) hours in advance of the meeting.

Section 3. **Closed Session**. All information received by a Director in a closed session related to the information presented to the Board in closed session shall be confidential pursuant to Section 5.5(f) of the Agreement. However, a Director may disclose information obtained in a closed session that has direct financial or liability implications to his/her Member agency to the following individuals:

(a) Legal counsel of that Member agency for purposes of obtaining advice on whether the matter has direct financial or liability implications for that Member;

(b) Other members of the Member agency's governing body present in a closed session of that Member agency.

(c) A designed alternate Director attending in the Director's absence

Section 4. **Place of Meeting**. Each regular or special meeting of the Board shall be held at a place within the State of California designated in the notice for that meeting.

Teleconference Board meetings may be held in compliance with the provisions of Brown Act.

Section 5. **Quorum**. As required by Sections 5.5(c) and 5.6 of the Agreement, a majority of the Board shall constitute a quorum for the transaction of business.

Section 6. **Vote Required**. Except as provided in the following sentences, all actions of the Board shall require an affirmative vote of a majority of a quorum that is present and voting. The actions of the Board set forth in Section 5.6(c) of the Agreement require an affirmative vote of a majority of all Directors of the Board, and include: the adoption or amendment of a budget or an expenditure plan, adoption of an ordinance, or approval of an agreement with a successor agency as a prerequisite for dissolution of the Authority. To approve the expenditure of Excess Net Toll Revenue, there must be both: (i) a majority vote of the full Board, and (ii) an affirmative vote of at least two Directors from each county within the respective corridor that has an operating toll facility.

Section 7. **Adjournments and Adjourned Meetings.** The Board may adjourn any regular, adjourned regular, special or adjourned special meeting to a time and place specified by the Board in accordance with law. If less than a majority is present at a meeting, a majority of those members of the Board present may adjourn the meeting from time to time.

Section 8. **Conduct of Meetings; Rules of Procedure for Meetings**. Conduct of Board meetings shall be in accordance with the provisions of the Brown Act. The Chair shall resolve questions of order and decorum. All meetings of the Board shall generally be conducted in accordance with Rosenberg's Rules of Order, provided that in the event of a conflict, such rules shall be superseded by order of the Chair, majority action to suspend the rules, the Agreement, these Bylaws, any resolution of the Board and California law.

ARTICLE V
OFFICERS OF THE BOARD

Section 1. **Definitions**. "Officer" shall mean and refer to the Chair of the Board, the Vice-Chair of the Board, the Secretary to the Board, and the Auditor/Controller and Treasurer to the Board.

Section 2. **Chair**. The Chair shall preside over and conduct all meetings of the Board. The Chair shall perform all duties assigned by the Agreement and these Bylaws.

Section 3. **Vice-Chair**. In the absence of the Chair, the Vice-Chair shall perform all duties assigned to the Chair by the Agreement and these Bylaws.

Section 4. **Secretary**. The Secretary shall prepare the minutes for Board meetings and perform other secretarial duties.

Section 5. **Auditor/Controller and Treasurer**. The Auditor/Controller and Treasurer shall have custody of all accounts, funds, and money of the Authority.

Section 6. **Terms of Office**. As required by Section 5.7(a) of the Agreement, the terms of office of the Chair and Vice-Chair shall be one (1) year. If no successor is named by the conclusion of the term, the Chair or Vice-Chair shall continue in office until a successor is named. The term of the Secretary shall be one (1) year, or until a successor is named. The Auditor/Controller and Treasurer shall serve for as long as he or she serves in the capacity of Treasurer of Sacramento County.

ARTICLE VI
COMMITTEES

Section 1. **Establishment of Committees**. The Board shall establish such standing committees as it deems appropriate in conducting the business of the Authority. When establishing a standing committee, the Board shall designate the method for appointing committee members, the scope of the duties and responsibility of the committee, and such other matters as the Board may deem appropriate. The Chair may assign Directors to ad hoc committees in accordance with the Brown Act.

Section 2. **Other Duties.** Committees shall perform such other duties as are specified from time to time by the Board.

ARTICLE VII
MISCELLANEOUS

Section 1. **Execution of Contracts**. The Chair shall sign all contracts on behalf of the Authority, except contracts that the Board authorizes an officer, agent or employee of the Authority to sign. The Secretary shall countersign all contracts executed by the Chair.

Section 2. **Authorization of Payments**. The Treasurer of Sacramento County shall serve as the Auditor/Controller and Treasurer of the Authority and perform the functions specified in Section 5.9 of the Agreement.

ARTICLE VIII
FISCAL YEAR

The fiscal year of the Authority shall be from July 1 to June 30.

ARTICLE IX
AMENDMENTS

These Bylaws may be amended at any time by a majority vote of the Board. Following adoption of an amendment, the Secretary shall prepare and distribute revised Bylaws to Directors.

ARTICLE X
SEVERABILITY; CONFLICT

Any adjudication that these Bylaws or any part thereof is invalid shall not affect the validity of the remainder of these Bylaws. To the extent any of any inconsistency between these Bylaws and the Agreement, the Agreement shall control.

CERTIFICATE OF SECRETARY

I, the undersigned, certify that I am presently the Secretary of the Capital Area Regional Tolling Authority and that the above Bylaws, consisting of six pages are Bylaws of the Authority as adopted at a meeting of the Board of Directors held on February 15, 2024.

DATED:_____ _____

Secretary

Capital Area Regional Tolling Authority

Meeting Date: February 15, 2024
Agenda Item: 3

2024 CARTA Meeting Schedule

Prepared By: Kathleen Hanley, Sacramento Area Council of Governments
Attachments: Yes

Recommendation:
Staff recommend that the board approve the meeting schedule and adopt the resolution.

Background:
The Ralph M. Brown Act (Government Code Section 54954) requires a legislative body to adopt its regular meeting schedule by resolution. As part of Item 1 on this agenda, the board will consider designating Sacramento Area Council of Governments (SACOG) as the administrative lead for CARTA until CARTA acquires its own staff or otherwise adopts a different means to execute administrative activities. The SACOG board typically meets the third Thursday of each month at their office. The CARTA Joint Powers Authority agreement states the CARTA board will meet quarterly, or more often as needed.

Discussion:
Staff recommend the CARTA Board meet on the following dates in 2024, following the SACOG board meetings:

Thursday, May 16, 2024, at 12:00 pm
Thursday, September 19, 2024, at 12:00 pm
Thursday, November 14, 2024, at 12:00 pm.

A 2025 meeting schedule will be presented for board consideration at the November 14, 2024, meeting.

CAPITAL AREA REGIONAL TOLLING AUTHORITY

RESOLUTION NO. 1-2024

ADOPTING THE CARTA BOARD OF DIRECTORS AND COMMITTEE SCHEDULE FOR 2024

WHEREAS, the Ralph M. Brown Act (Government Code Section 54954) requires that the CARTA board adopt its Board and Committee Meeting Schedule by resolution; and

WHEREAS, the CARTA board wishes to adopt its Board and Committee Meeting Schedule for 2024 at the February 15, 2024, board meeting;

NOW THEREFORE, BE IT RESOLVED that CARTA does hereby adopt the CARTA Board of Directors meetings for 2024 as indicated below:

Thursday, May 16, 2024 at 12pm
Thursday, September 19, 2024 at 12pm
Thursday, November 14, 2024 at 12pm.

PASSED AND ADOPTED this 15th day of February 2024, by the following votes of the Board of Directors:

AYES:

NOES:

ABSTAIN:

ABSENT:

_____	_____
Printed Name: Chair	James Corless Secretary

Capital Area Regional Tolling Authority
Meeting Date: February 15, 2024
Agenda Item: 4

Authorize Submission of a Toll Facility Application for the Yolo 80 Corridor Improvement Project

Prepared By: Kathleen Hanley, Sacramento Area Council of Governments
Attachments: Yes

Recommendation:
Staff recommend that the Board authorize the Secretary to submit a Toll Facility Application to the California Transportation Commission (CTC) for the Yolo 80 Corridor Improvement Project (Yolo 80) pursuant to Assembly Bill (AB) 194.

Background:
The CTC was delegated authority to approve tolled facilities on the state highway system through AB 194. The CTC requires each tolled facility, or project, seek approval prior to construction. Toll Facility Project Applications may be submitted by a Regional Transportation Planning Agency (RTPA), a Joint Powers Authority with the consent of the RTPA, or the California Department of Transportation (Caltrans). Toll Facility Project Applications are lengthy and must demonstrate the project meets the following minimum criteria:

- Improves highway performance through increased throughput or reduced delay
- Is in the constrained portion of the RTP (or MTP/SCS)
- Evidence of cooperation between the RTPA and Caltrans
- Compliance with AB 194 Project initiation document
- Funding plan

AB 194 allows the CTC to establish guidelines for tolling applications that include additional criteria beyond the minimum requirements, and therefore the CTC will consider additional factors in its evaluation including:

- Compliance with state law
- Compatibility with present and planned transportation systems
- Corridor performance improvement
- Technical feasibility
- Financial feasibility
- Support in existing regional plans and from community

The CTC's approval process also requires a public hearing on each Toll Facility Project Application prior to the CTC commission meeting when the approval is considered.

The Yolo 80 is the first project in the region that will seek approval from the CTC to toll. The project proposes adding a lane on Interstate 80 in Yolo County to improve throughput, increase travel options, and improve travel reliability over the Yolo Causeway, one of the most congested segments in the Sacramento region. At their December 11, 2023, meeting, the Yolo Transportation District (YoloTD) board selected a preferred alternative that adds a high-occupancy toll (HOT) lane in each direction. The HOT lane would be free to use for transit vehicles and passenger vehicles with three or more passengers, and other vehicles would be required to pay a toll. This type of lane is currently in operations on several corridors in the Bay Area. The project has received $86 million in federal INFRA funds, which requires the project to begin construction in September 2024 or risk forfeiture of the funds. In order to meet this deadline, the project must go out to bid in April 2024. To meet this delivery schedule, a Toll Facility Application for Yolo 80 must be submitted to the CTC by February 16th.

Discussion:
Staff have been working collaboratively with staff from Sacramento Area Council of Governments (SACOG), YoloTD, and Caltrans to develop a Toll Facility Application for the Yolo 80 project. This work has been supported by consultants from WSP, who were procured by YoloTD to support this work. The final application (Attachment B) meets the requirements of AB 194 and the CTC's guidelines. Staff have also consulted with CTC staff on the development of this application to ensure it is responsive to their requirements. Staff believe the application is ready for approval by the CTC and request authorization to submit. Staff have developed a factsheet (Attachment A) that summarizes the information contained within the application.

The application details how beneficial the Yolo 80 project will be to the traveling public in the Sacramento Region. The project will cut vehicle delay in half, from 44,300 vehicle-hours of delay a year to 21,900. The project will dramatically improve travel time reliability, particularly for the six bus routes that run on I-80. In addition to improving travel on the corridor for existing users, the Yolo 80 project will make historic investments in transportation equity and expanded public transit. The project commits to using future toll revenue to create an equity program so toll lanes are accessible to all residents. The project will also use future toll revenue to fund more frequent Capitol Corridor train service between Sacramento and Oakland, a 25% increase in transit service in Yolo County including on the popular Causeway Connection, monthly transit pass subsidies, and lower transit fares. With these investments, Yolo 80 commits to prioritizing toll revenue for VMT mitigation and an equity program once state-mandated expenditures are covered.

Following submission of the application, the CTC will schedule a public hearing near the Yolo 80 corridor to inform their decision on the Toll Facility Application. Staff have been working with CTC staff to identify a date, time, and location for this public hearing. While these details have not been finalized, staff anticipate the hearing will be in West Sacramento in mid-March. The public hearing will be formally noticed at least 10 days prior by the CTC and details on the public hearing will be made available on the CARTA website. The CTC will consider approval of this application at their May 16-17, 2024, meeting in Orange County.

YOLO 80 CORRIDOR IMPROVEMENT PROJECT: PHASE 1

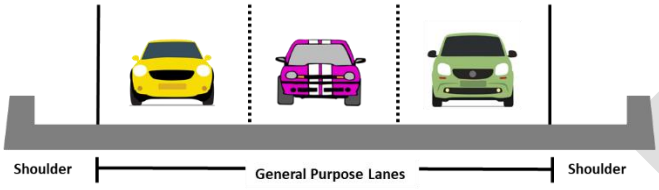
EASTBOUND: BETWEEN YOL-80-PM-0.00 AND YOL-80-PM 9.51
WESTBOUND: BETWEEN YOL-80-PM-2.93 AND YOL-80-PM 9.51

PROJECT OVERVIEW

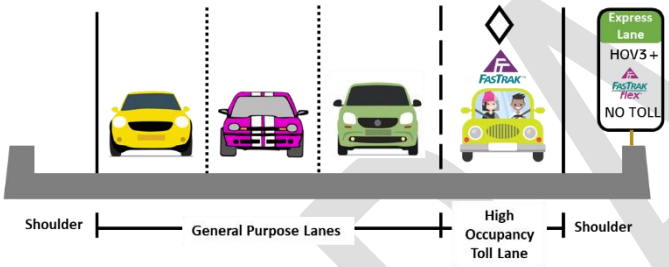
The Yolo 80 Corridor Improvements Project is being undertaken by the Capital Area Regional Tolling Authority (CARTA), a partnership between YoloTD, SACOG, and Caltrans.

The Project is located on the I-80 corridor from the Yolo-Solano County Line to the US-50 and I-5 in Sacramento County. Phase 1 of the Project includes 17 lane miles of High Occupancy Toll (HOT) lanes between YOL-80-PM-0.00 and YOL-80-PM 9.51 in the eastbound direction and between YOL-80-PM-2.93 and YOL-80-PM 9.51 in the westbound direction.

Existing Cross Section



Proposed Cross Section



PROJECT BENEFITS

- Increases peak-period throughput by 5 – 30%
- Reduces peak-period travel time by 15.44 – 69.2 minutes
- Increases peak hour speeds by 5 to 8.4mph
- Reduces congested vehicle-miles traveled (VMT) from about 1,074,800 vehicle-miles to 588,300 vehicle-miles.
- Reduces vehicle-hours traveled (VHT) from about 117,000 vehicle-hours to 96,200 vehicle-hours.
- Decreases vehicle hours of delay (VHD) from about 44,300 vehicle-hours to 21,900 vehicle-hours.

NEED

To address:

- Inefficient movement of goods and services
- Demands that exceed current design capacity
- Operational inefficiencies lead to the formation of bottlenecks
- Limited multimodal facilities for transit, carpool, bicycle, and pedestrians
- Lack of real-time traveler information and coordinated traffic communication systems

PROJECT COST

- Planning & Environmental: $9 million
- Project Design: $3 million
- Phase 1 Construction: $188 million

PROJECT FUNDING

- Trade Corridor Enhancement Program (TCEP) = $105 million
- Federal (INFRA) = $86 million
- Congestion Mitigation and Air Quality (CMAQ) = $4 million
- Covid Relief Fund (STIP) = $4 million
- SACOG (RSTP) = $1 million

PROJECT SCHEDULE

- MARCH 2024 – Final Project Report and Environmental Document
- MAY 2024 – CTC Approval of Toll Authority
- OCTOBER 2024 – Begin Construction
- JUNE 2025 – O&M Agreement
- MARCH 2028 – Express Lanes Open

ENVIRONMENTAL PROCESS

The anticipated environmental document will be an Environmental Impact Report/Environmental Assessment (EIR/EA)

STAY CONNECTED

EMAIL:
contact@captollauthority.org

ONLINE:
https://www.captollauthority.org/

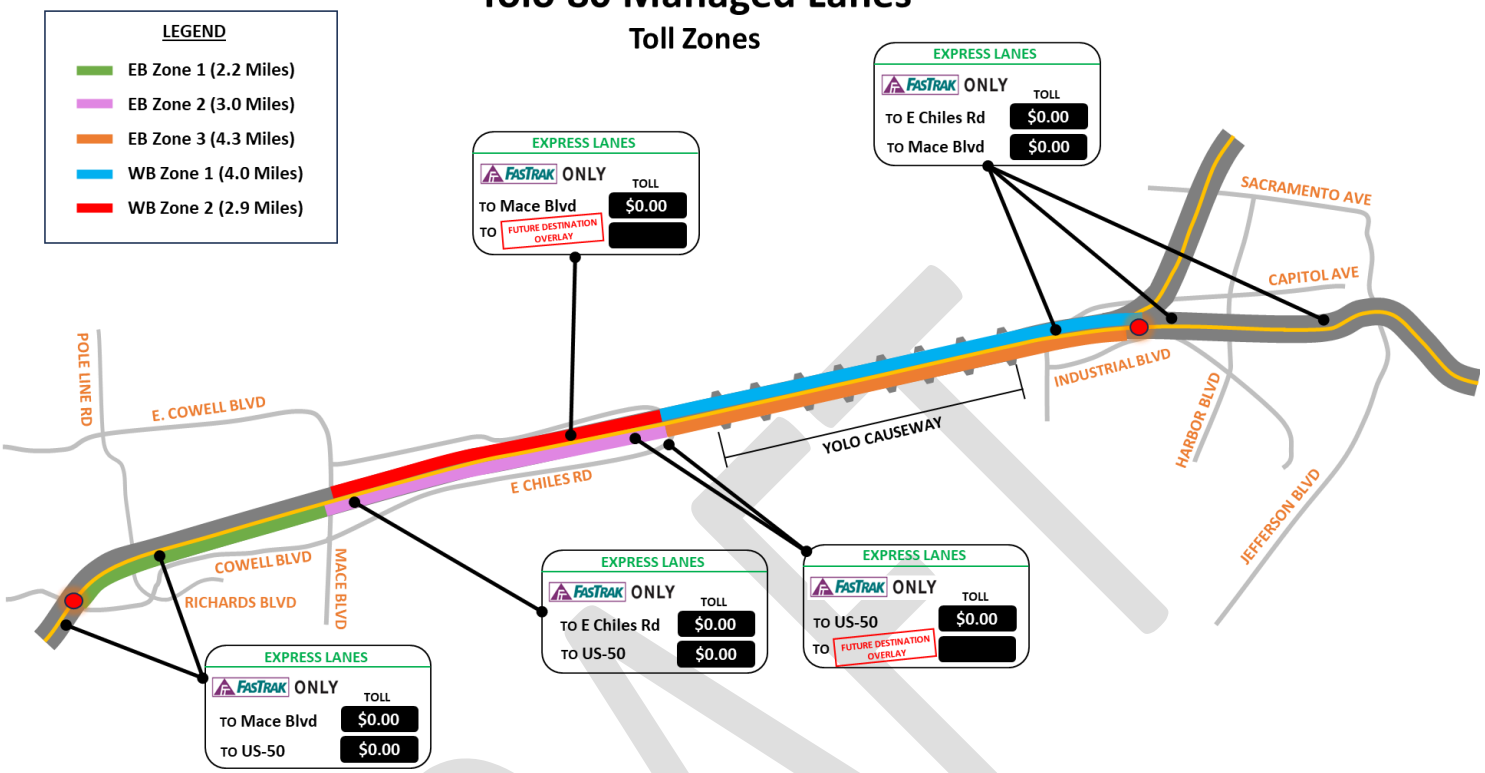
CARTA
Capital Area Regional Toll Authority

YOLO 80 CORRIDOR IMPROVEMENT PROJECT: PHASE 1

EASTBOUND: BETWEEN YOL-80-PM-0.00 AND YOL-80-PM 9.51
WESTBOUND: BETWEEN YOL-80-PM-2.93 AND YOL-80-PM 9.51

Yolo 80 Managed Lanes

Toll Zones



CTC Approval Requirements:

Conformity with Regional Plans

- Metropolitan Transportation Plan Sustainable Community Strategy (MTP SCS)
- Included in the MTC, SACOG, SJCOG "Megaregion Dozen"
- Included in several regional General Plans

Project Improves Corridor Performance

- Reduces congestion
- Improves reliability
- Increases throughput

Interagency Cooperation & Community Outreach

- CARTA's historic partnership between SACOG, Caltrans, and YoloTD
- Continued community outreach efforts with local agencies and affected communities

Demonstrates Technical Feasibility

- Preliminary facility design complete
- Draft Concept of Operations

Adheres to Procedural Requirements

- Complies with Streets and Highway Code
- Completed Project Initiation Document

Financial Plan

- Project leverages local, state, and federal discretionary funds
- VMT mitigation commitment
- Established expenditure plan framework

FOR MORE INFORMATION

The Project describes the following in greater detail in its CTC Initial Findings for Tolling Concept and Concept of Operations

Capital Area Regional Toll Authority

California Transportation Commission Initial Findings for Tolling Concept DRAFT

Yolo 80 Corridor Improvements Project Phase 1

04-SOL-80 PM 40.7 - R44.77, 03-YOL-80 PM 0.00 – 11.72, 03-YOL-50 PM 0.00 - 3.12, 03-SAC-80 PM M0.00 – M1.36, and 03-SAC-50 PM 0.00 – L0.617

Submitted by:
Capital Area Regional Toll Authority

[CARTA Logo]

Prepared for:

February 2024

February 2023

Tanisha Taylor
Executive Director, California Transportation Commission
1120 North Street, MS 52
Sacramento, CA 95814

Toll Facility Application for the Yolo 80 Managed Lanes Project

Director Taylor,

On behalf of Capital Area Regional Toll Authority (CARTA), I am pleased to submit the enclosed toll facility application for the Interstate 80 Managed Lanes Project (Yolo 80) for consideration by the California Transportation Commission (CTC) in accordance with Assembly Bill 194 guidelines. CTC approval of this toll facility project is critical to the timely delivery of $86 million in discretionary federal INFRA funding awarded to the project.

I-80 is the only freeway connection between the San Francisco Bay Area and the Sacramento Metropolitan region. The route also links the Bay Area with critical destinations in Northern California by providing connections to Highway 50 (US-50) and Interstate 5. The corridor is currently experiencing recurring congestion and inefficient movement of goods and services which impedes regional and interstate economic sustainability. Yolo 80 will improve mobility and trip reliability by adding 34 miles of high occupancy toll lanes in Yolo County and Sacramento County. CARTA is requesting toll authority for Phase 1 of Yolo 80, which includes 17 lane-miles between Richards Boulevard and I-80/US-50 split.

Yolo 80 is included in the 'Megaregion Dozen', a list of 12 projects jointly adopted by Sacramento Area Council of Governments (SACOG), San Joaquin Council of Governments, and the Metropolitan Transportation Commission to improve travel in the Northern California Megaregion. Yolo 80 demonstrates a commitment to collaborative and coordinated efforts to address statewide transportation challenges. The project is also a core investment of SACOG's Metropolitan Transportation and Sustainable Community Strategy (MTP SCS). It will be the first toll lane in the Sacramento Region and is an essential first step towards building a modern multimodal transportation system in the region. Yolo 80 has a complete funding plan, revenue projections that ensure the facility's long-term sustainability, and an operations structure that will create seamless usability for the traveling public.

The enclosed application provides the information required to meet, and in many areas, exceed the minimum eligibility criteria as well as supporting application information, as requested through the toll facility guidelines. We appreciate your consideration of this toll facility application and enclosed materials and hope to receive your favorable response. If you need any additional information or have any questions on the information in this submittal, please contact Autumn Bernstein (abernstein@yctd.org>.

Sincerely,

US-50US-50Revision History

Revision	Date	Description	Submitted By
0	11/17/2023	First Draft for YoloTD Review	Jef Nazareno
1	12/6/2023	Response to YoloTD, SACOG and Caltrans D3 Comments	Jef Nazareno
1.1	12/12/2024	Admin Draft for Stakeholder Review	Autumn Bernstein/Brian Abbanat
1.2	1/26/2024	Response to Stakeholder Review	Jef Nazareno
2	2/16/2024	Final Draft	Autumn Bernstein/Brian Abbanat

Quality Control

Revision	Prepared By	Quality Reviewed By	Approved and Released By
0	Andrew Nelson	Lauren Stafford, Ning Zhang	Jef Nazareno
1	Andrew Nelson	Lauren Stafford, Ning Zhang	Jef Nazareno
1.1	Andrew Nelson	Lauren Stafford, Ning Zhang	Jef Nazareno
1.2	Andrew Nelson	Lauren Stafford, Ning Zhang	Jef Nazareno
2			

Contents

Figures

Tables

Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
Alameda CTC	Alameda County Transportation Commission
BA	Biological Assessment
BAIFA	Bay Area Infrastructure Financing Authority
BATA	Bay Area Toll Authority
BSA	Biological Study Area
CA MUTCD	California Manual on Uniform Traffic Control Devices
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARTA	Capital Area Regional Tolling Authority
CAV	Clean Air Vehicle
CCP	Congested Corridor Plan
CCTV	Closed-Circuit Television
CD	Consistency Determination
CEQA	California Environmental Quality Act
CHP	California Highway Patrol
CM	Construction Manager
CMAQ	Congestion Mitigation and Air Quality (Improvement Program)
CMB	Change Management Board
CMS	Changeable Message Sign
CR	County Road
CRHR	California Register of Historical Resources
CSC	Customer Service Center
CTC	California Transportation Commission
CTOC	California Toll Operators Committee
CVC	California Vehicle Code
DMT	Design Management Team
DMV	Department of Motor Vehicles
EA	Environmental Assessment
EEA	Exploratory Equity Action
EIR	Environmental Impact Report
FBO	Financial Back Office
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FSP	Freeway Service Patrol
GC	General Contractor
GHG	Greenhouse Gas
GP	General Purpose
HDM	Highway Design Manual
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
INFRA	Infrastructure for Rebuilding America (Grant Program)
IPDT	Integrated Project Development Team
ITP	Incidental Take Permit
ITS	Intelligent Transportation System
JPA	Joint Powers Authority
LPR	License Plate Recognition
LRDP	Long Range Development Plan
MTC	Metropolitan Transportation Commission

MTP	Metropolitan Transportation Plan
MTIP	Metropolitan Transportation Improvement Program
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOD	Notice of Determination
NOP	Notice of Preparation
NRHP	National Register of Historic Places
PA/ED	Project Approval/Environmental Document
PDT	Project Development Team
PID	Project Initiation Document
PM	Particulate Matter
PMT	Project Management Team
PRM	Project Risk Management
PS&E	Plan, Specification and Estimate
PSR	Project Study Report
RFQ	Request for Qualifications
RIP	Regional Improvement Program
ROW	Right of Way
RTP	Regional Transportation Plan
RTSI	Roadside Toll System Integrator
SACOG	Sacramento Area Council of Governments
SCCP	Solutions for Congested Corridor Program
SCS	Sustainable Communities Strategy
SHOPP	State Highway Operation and Protection Program
SHPO	State Historic Preservation Office
SHS	State Highway System
SMCELJPA	San Mateo County Express Lanes Joint Powers Authority
SOV	Single Occupancy Vehicle
STAA	Surface Transportation Assistance Act
STIP	State Transportation Improvement Program
T&R	Traffic and Revenue (Study)
TAR	Transportation Analysis Report
TIFIA	Transportation Infrastructure Finance and Innovation Act
TMS	Transportation Management Systems
UAIC	United Auburn Indian Community
UC	University of California
USFWS	US Fish and Wildlife Service
VHD	Vehicle Hours of Delay
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VTA	(Santa Clara) Valley Transportation Authority
YoloTD	Yolo Transportation District

PART A. Minimum Eligibility Criteria

The Commission must find, at a minimum, that the criteria identified in AB 194 are met. Therefore, every application should clearly discuss how it meets the following minimum criteria:

1. Demonstration of Improvement in Corridor Performance

A demonstration that the proposed toll facility will improve the corridor's performance by, for example, increasing passenger throughput or reducing delays for freight shipments and travelers, especially those traveling by carpool, vanpool, and transit.

The Yolo 80 Corridor Improvements Project ("Project") will:

- Support reliable transport of goods and services throughout the region;
- Ease congestion and improve overall freight and person throughput [1];
- Improve safety by reducing congestion-related collision types;
- Improve freeway operations on the mainline, ramps, and at system interchanges;
- Improve modality[2] and travel time reliability; and
- Provide expedited traveler information and monitoring systems.

This will be accomplished through the addition of managed lanes on I-80 and US-50 by a combination of median and shoulder reconstruction, lane conversion, and restriping.

The Project is being implemented in response to several reasons, including:

- Inefficient movement of goods and services impedes regional and interstate economic sustainability.
- Recurring congestion during the AM and PM peak periods and during weekend recreational peak seasons exceeds current design capacity, limiting freight and person throughput.
- Increased congestion contributes to safety concerns, including the most common type in the project area, rear-end collisions.
- Operational inefficiencies lead to the formation of bottlenecks due to short weaving and merging areas as well as lane drops.
- The corridor users rely heavily on single occupancy vehicles, with limited multi-modal options such as transit, carpool, bicycle, and pedestrian facilities resulting in unreliable travel times.
- Lack of real time traveler information and coordinated traffic communication systems impedes timely response to roadway incidents resulting in secondary collisions and increased non-recurring congestion.

The Project is anticipated to yield several corridor performance enhancements by year 2049 in comparison to the no-build scenario. While the analysis which supports this statement – including traffic and revenue analysis, environmental analysis, and the concept of operations – reflects the full planned build of the Project, this Application is intended to secure tolling authority for Phase 1 of the Project only, covering 17 lane-miles of a single lane toll facility (see PART B.4.B, PART B.4.C, and PART B.5.A for more on project phasing). As progress continues, CARTA will advance to subsequent project phases as

[1] Throughput is the number of people moving efficiently through a region.
[2] Modality is the variety in modes of transportation. This includes access and multiple options for the movement of people and goods. Examples include access to transit, carpool, bicycle, and pedestrian facilities.

soon as scheduling and funding sources align. Subsequently, an additional AB194 application(s) will be submitted to CTC to secure tolling authority for the project's extension phases. Therefore, PART B.3, PART B.4.A, PART B.6.B, and PART B.6.D of this application will be supported by data analysis regarding the full Project, while plans necessary for the approval of tolling authority, including PART B.4.B and PART B.5.A will refer only to Phase 1 of the Project.

The Project is anticipated to yield the following corridor performance enhancements and increase in truck throughput along the corridor in the year 2049 compared to the no-build scenario. Because of significant growth in regional trips along the corridor, Horizon Year No Build conditions would yield typical travel times significantly higher than what they are today in the Project area during the AM and PM peak hours. The preferred alternative is Alternative 4B (See PART A.5 for more information on alternatives). The below analysis of Alternative 4 approximates results from 4B, providing significant operational benefits.

- Improved traffic flow: Increased Eastbound Peak Period Throughput from 19,300 to 21,000 vehicles in the AM Peak Period and from 16,400 to 21,400 vehicles in the PM Peak Period; and increased Westbound Peak Period Throughput from 23,700 to 27,400 vehicles in the AM Peak Period and from 20,400 to 21,400 vehicles in the PM Peak Period.
- Reduced peak-period travel time: Reduction of up to 15 minutes average travel time in the westbound direction AM peak hour (US-50 Westbound to I-80 Westbound, SR51 On-ramp to Kidwell Rd Off-ramp) and up to 69 minutes average travel time in the eastbound direction PM peak hour (I-80 Eastbound to US-50 Eastbound, Kidwell Rd to SR99 Off-ramp).
- Increased average speeds: Increased average speeds of 47 miles per hour compared to 39 miles per hour in the eastbound direction AM Peak and 20 mph compared to 15 mph in the PM Peak; and 29 miles per hour compared to 23 miles per hour in the westbound direction AM Peak and 36 mph compared to 29 mph in the PM Peak.
- Reduced daily congested vehicle-miles traveled (VMT): The Project reduces Daily Congested Vehicle Miles Traveled (VMT), corridor wide, over the No Build conditions for users in both the general purpose and express lanes. The Project will decrease Congested Vehicle Miles Traveled from about 1,074,800 vehicle-miles to 588,300 vehicle-miles.
- Reduced vehicle-hours traveled (VHT): The Project reduces Vehicle Hours Traveled (VHT), corridor wide, over the No Build conditions for users in both the general purpose and express lanes. The Project will decrease Vehicle Hours Traveled from about 117,000 vehicle-hours to 96,200 vehicle-hours.
- Decreased vehicle hours of delay (VHD): The Project reduces Vehicle Hours of Delay (VHD), corridor wide, over the No Build conditions for users in both the general purpose and express lanes. The Project will decrease Vehicle Hours of Delay from about 44,300 vehicle-hours to 21,900 vehicle-hours.

Corridor performance is described in detail in PART B.3.

2. Proposed Toll Facility in Conforming Regional Transportation Plan

A requirement that the proposed toll facility is contained in the constrained portion of a conforming regional transportation plan prepared pursuant to Section 65080 of the Government Code.

The Project is in the constrained portion of the adopted Metropolitan Transportation Plan Sustainable Community Strategy (MTP SCS) with the title “I-80 and US-50 Managed Lanes” as ID CAL21276. The scope is listed as follows: “On I-80 just west of Davis in both directions from the Kidwell Rd IC in Solano

County (D4) to the US-50/I-5 interchange and I-80/West El Camino interchange in Sacramento: Construct managed lanes, pedestrian/bicycle facilities and ITS elements (project description may change based on results from the Managed Lanes Study. Project is being evaluated for Expressed Toll Lanes, High Occupancy Toll Lanes, HOV lanes and reversible lanes). EA 3H900."

The Project is also included in the Sacramento Area Council of Governments' (SACOG) 2023-2026 Metropolitan Transportation Plan (MTP) adopted on September 15, 2022,[3] with the title "I-80 and US-50 Managed Lanes" as ID CAL21276. The scope is listed as follows: "On I-80 just from the I-80/Kidwell Road interchange in Solano County, through Yolo County, and to the W. El Camino interchange; also on US-50 from the I80/US-50 interchange to the I-5/US-50 interchange in Sacramento County: Construct improvements consisting of managed lanes in each direction, pedestrian/bicycle facilities, park-n-ride, and Intelligent Transportation System (ITS) elements."

3. Cooperation between the Regional Transportation Agency and Caltrans

For projects involving the state highway system, evidence of cooperation between the applicable regional transportation agency and Caltrans. Examples of acceptable evidence of cooperation could be in the form of a completed cooperative agreement or a signed letter between the parties to demonstrate that the parties are working cooperatively on the development of the toll facility.

The Yolo Transportation District (YoloTD), the California Department of Transportation (Caltrans), and SACOG have been regularly participating and contributing to meetings since June 2022 in recognition of the potential benefits of implementing a managed lane under this Project. Regular meetings have occurred throughout the preparation and writing of the Project Concept of Operations to review design, tolling operational characteristics, business rules, and various other topics relevant to the implementation and operations of the Project.

In 2024, Caltrans, YoloTD, and SACOG formed a joint partnership called the Capital Area Regional Tolling Authority (CARTA) through a joint powers authority agreement to implement and manage the Project. This will be accomplished in a collaborative and efficient manner through resource pooling, coordinating regional efforts, unifying management structure, sharing costs, and ensuring public accountability. Subsequent agreements, including cooperative agreements, project-related agreements, and vendor agreements, are planned to be executed as part of the regular course of business for CARTA and its Board, and executed in advance of toll facility operations. Limited specific estimated timeframes for such executions are described in PART B.4.B.

Caltrans District 3 fully supports this Project, as evidenced by their direct involvement in planning, environmental analysis, design, construction, and operations. The Director has approved and signed the Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact (FONSI) approved on [XXXX]. As a member of CARTA, Caltrans will continue to be directly involved in management of the facility going forward.

4. Requirements of Streets and Highways Code Section 149.7

A discussion of how the proposed toll facility meets the requirements of Streets and Highways Code Section 149.7.

[3] 2023_mtip__amenment_1_to_mtp-scs_adopted_9-15-22.pdf (sacog.org)

This tolling application adheres to Streets and Highways Code Section 149.7, with details included in PART B.1.

5. Project Initiation Document

A complete project initiation document for the proposed toll facility.

After completion of the PID phase of the project, the PA/ED phase of the project was initiated on November 13, 2017 and thirteen near-term build alternatives were studied. This is inclusive of alternatives 2 through 7, which were each evaluated with an assumption of a "B" alternative, which would further improve operations with managed lane direct connectors at the I-80/US-50 interchange.

- No-Build Alternative 1: Maintain existing conditions.
- Build Alternative 2a: Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more occupants (HOV 2+).
- Build Alternative 2b: Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more occupants (HOV 2+) and build an I-80 managed lane direct connector.
- Build Alternative 3a: Add a high-occupancy toll lane in each direction for free use by vehicles with two or more occupants (HOT 2+). Single-occupied vehicles would pay a fee for lane usage.
- Build Alternative 3b: Add a high-occupancy toll lane in each direction for free use by vehicles with two or more occupants (HOT 2+) and build an I-80 managed lane direct connector. Single-occupied vehicles would pay a fee for lane usage.
- Build Alternative 4a: Add a high-occupancy toll lane in each direction for free use by vehicles with three or more occupants (HOT 3+). Vehicles with less than three occupants would pay a fee for lane usage.
- Build Alternative 4b: Add a high-occupancy toll lane in each direction for free use by vehicles with three or more occupants (HOT 3+) and build an I-80 managed lane direct connector. Vehicles with less than three occupants would pay a fee for lane usage.
- Build Alternative 5a: Add an express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of the number of occupants).
- Build Alternative 5b: Add an express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of number of occupants) and build an I-80 managed lane direct connector.
- Build Alternative 6a: Add a transit-only lane in each direction.
- Build Alternative 6b: Add a transit-only lane in each direction and build an I-80 managed lane direct connector.
- Build Alternative 7a: Repurpose the current number one general-purpose lane for use by vehicles with two or more occupants (HOV 2+); no new lanes would be constructed.
- Build Alternative 7b: Repurpose the current number one general-purpose lane for use by vehicles with two or more occupants (HOV 2+); no new lanes would be constructed. Build an I-80 managed lane direct connector.

Table 1 describes access policies used for each alternative under study.

Table 1: Managed Lane Access by Alternative in Project Area

Alternative	SOV	Trucks (2-axle only)	HOV2	HOV3+	Transit
1	-	-	-	-	-
2	No	No	Yes	Yes	Yes
3	Toll	Double Toll	Yes	Yes	Yes
4	Toll	Double Toll	Half Toll	Yes	Yes
5	Toll	Double Toll	Toll	Toll	Yes
6	No	No	No	No	Yes
7	No	No	Yes	Yes	Yes

The Project Development Team evaluated all the alternatives above and narrowed highly considered alternatives to be inclusive of tolled express lane alternatives.

6. Complete Funding Plan

A complete funding plan for development and operation of the toll facility.

Capitol Area Regional Tolling Authority (CARTA) has developed a comprehensive funding plan for the design, construction, and operations of Phase 1 of the Project, comprising federal, state, local, and toll-revenue funding (operations). Further details are provided in PART B.5.

PART B. Supporting Application Information

In evaluating applications, the Commission will consider all provided information to determine whether to approve the proposed toll facility. Accordingly, in conjunction with responding to the statutorily defined minimum criteria, applications should address the following questions whenever applicable.

1. Compliance with State Law

Has the applicant demonstrated that the proposed project is consistent with the established standards, requirements, and limitations that apply to the toll facilities in Section 149.7 of the Streets and Highways Code as well as all other applicable sections of state law?

CARTA is seeking approval from the Commission to establish and manage a toll facility along Interstate 80 (I-80) from the United States Route 50 (US-50) interchange to Mace Boulevard in the westbound direction and from Richards Boulevard to the US-50 interchange in the eastbound direction, US-50as outlined in California Streets and Highways Code Section 149.7.

Formed in January 2024 as a joint powers authority (JPA) between the YoloTD, Caltrans, and SACOG, CARTA was established to assume responsibility for policy decisions related to express lanes in the Sacramento Area, including project sequencing, toll rates, penalties, and financing.
US-50US-50
YoloTD is Yolo County's congestion management agency in charge of funding and implementing transit and capital projects, programs, and services. Caltrans is the transportation agency for the state of

California, managing more than 50,000 miles of California's highways and freeways lanes, providing intercity rail services, and permitting more than 400 public-use airports and special-use hospital heliports. SACOG is the regional transportation planning agency for Sacramento, Yolo, Yuba, and Sutter Counties as per California Government Code section 66500 et seq. As a JPA, CARTA holds the powers granted by its member agencies, YoloTD, Caltrans, and SACOG, in compliance with California Government Code Section 6500 et seq. and satisfies the criteria of Sections 149.7(a) and 149.7(k)(4) of the California Streets and Highways Code.

Section 149.7(c) requires that guidelines established by the Commission for approval include the following, each of which is addressed in this application as indicated.

1. *A demonstration that the proposed toll facility will improve the corridor's performance by, for example, increasing passenger throughput or reducing delays for freight shipments and travelers, especially those traveling by carpool, vanpool, and transit.*

   The project meets these criteria, and this topic is covered in detail in PART B.3.

2. *A requirement that the proposed toll facility is contained in the constrained portion of a conforming RTP prepared pursuant to Section 65080 of the Government Code.*

   The project meets these criteria, and this topic is covered in detail in PART A.2.

3. *Evidence of cooperation between the applicable regional transportation agency and the Caltrans.*

   The project meets these criteria, and this topic is covered in detail in PART A.3.

4. *A discussion of how the proposed toll facility meets the requirements of this section (under Streets and Highways Code Section 149.7).*

   The project meets these criteria, and this topic is discussed throughout this section.

5. *A requirement that a Project initiation document has been completed for the proposed toll facility.*

   The project meets these criteria, and this topic is covered in detail in PART A.5.

6. *A demonstration that a complete funding plan has been prepared.*

   The project meets these criteria, and this topic is covered in detail in PART B.5.A.

Various elements of Section 149.7 provide additional requirements pertinent to the Project:

7. *That the regional transportation agency shall enter into an agreement with the California Highway Patrol (CHP) for enforcement services related to the toll facility and reimbursement to CHP for its costs.*

   CARTA will execute all necessary agreements, such as cooperative agreements and agreements for the provisions of service and goods. CARTA plans to contract with an existing toll operator for project operations. CARTA will ensure appropriate agreements with CHP are made, whether with CARTA or its selected project operations provider, to secure enforcement resources comparable to those in the region.

8. *That the regional transportation agency shall enter into an agreement with Caltrans addressing "all matters related to design, construction, maintenance, and operation of the toll facility, including, but not limited to, liability, financing, repair, rehabilitation, and reconstruction" and reimbursement of Caltrans expenses by the regional transportation agency.*

   Cooperative agreements covering Environmental, Design, Right-of-Way, and Construction are planned to be executed subsequent to JPA establishment as outlined in Part A, Section 3.

   Prior to the facility opening to traffic, an Operations and Maintenance Agreement will be formulated and executed among JPA parties. This agreement is expected to resemble other Operations and Maintenance agreements for express lanes facilities in Northern California.

9. *That the sponsoring agency shall be responsible for activities related to toll collection.*

   CARTA will adopt a toll policy prior to the express lanes' operations. It will consult with potential regional toll operators to ensure regionally consistent policies, enabling seamless travel in a future regional network.

   Following the execution of the JPA Agreement, and prior to Express Lanes Go-Live, CARTA will contract with an existing toll facility's Financial Back Office (FBO) for the operations of the FBO and Customer Service Center (CSC). The FBO and CSC typically receive roadside transactions, post transactions to accounts or send out invoices, provide account management functions for account holders, perform transponder fulfillment, and provide customer service for all regional patrons. It is anticipated that a partnership with a California toll facility FBO and CSC, would be entered into for management and operations of similar functions on behalf of CARTA.

10. *That the revenue generated by the tolls will be used to cover debt obligations of the toll facility and "development, maintenance, repair, rehabilitation, improvement, reconstruction, administration, and operation of the toll facility" and a reserve fund with all remaining funds used in the corridor pursuant to an expenditure plan developed by the sponsoring agency.*

    CARTA is dedicated to managing toll revenue in strict compliance with Streets and Highways Code Section 149.7. Remaining funds will be expended in the Yolo I-80 Corridor as specified in

the expenditure plan for net excess revenues. The management of net toll revenue is detailed in Part B Section 5B.

11. *That "[f]or any project under this section involving the conversion of an existing high-occupancy vehicle lane to a high-occupancy toll lane, the sponsoring agency shall demonstrate that the project will, at a minimum, result in expanded efficiency of the corridor in terms of travel time reliability, passenger throughput, or other efficiency benefit."*

    This requirement does not apply, as the Project does not include conversion of HOV to HOT. A segment of the existing HOV2+ lanes west of the W El Camino Avenue interchange on I-80 and the under construction HOV2+ lanes on US-50 between I-5 and SR 99 will be used as transition zones to connect to the existing HOV lane outside of the project limits. This will provide space for vehicles to safely merge into and out of the lane to meet occupancy or toll requirements.

12. *That the sponsoring agency will provide information to the Commission or Legislative Analyst upon request.*

    CARTA will provide information as requested in support of CTC reporting requirements, as requested by the Commission or Legislative Analyst.

13. *That a regional transportation agency may issue bonds to finance construction and construction-related expenditures but that the bond must not pledge the full faith and credit of the State of California.*

    The construction of the facility is planned to be funded by a combination of federal, state, and local funds, and toll revenue backed bonds, as detailed in Part B Section 5A.

14. *That a regional transportation agency will consult with local transportation authorities and congestion management agencies whose jurisdictions include the toll Facility.*

    CARTA comprises an agreement among the Yolo County Transportation District (YoloTD), the Sacramento Area Council of Governments (SACOG), and the California Department of Transportation (Caltrans). YoloTD is the designated congestion management agency for Yolo County. SACOG is the designated regional transportation planning agency and metropolitan planning organization for Yolo and Sacramento Counties, and the designated congestion management agency for Sacramento County.

Clean Air Vehicle Requirements
Sections 21655.9 and 5205.5 of the California Vehicle Code permit vehicles displaying DMV-issued stickers, which meet specific low and zero emissions standards, to utilize exclusive or preferential HOV lanes, irrespective of vehicle occupancy.

Both sections are set to be repealed by September 30, 2025, per their respective provisions.

Consequently, as the project is anticipated to be operational in 2029, these sections of the California Vehicle Code will be inapplicable, disallowing single-occupant vehicles, even those adhering to low and zero emissions standards, from accessing the HOV lanes.

In any case, as described in Section 4.C, CARTA may offer a toll discount based on CVC § 5205.5 as well as regional consistency with other express lane facilities in the Bay Area. However, the ultimate CAV toll policy will be determined later in project development pending the results of detailed T&R study findings.

Privacy of Personal Information
CARTA and its contractors shall process toll transactions for the Project in compliance with relevant state and federal statutes concerning the protection of personally identifiable information.

2. System Compatibility

If on the state system, has the applicant demonstrated that the project is consistent with State Highway System requirements? Does this project propose improvements that are compatible with the present and planned transportation system? Does the project provide continuity with existing and planned state and local facilities?

Comprehensive Multimodal Corridor Plans (CMCPs) signify a collaborative commitment toward formulating a comprehensive corridor management vision for state-owned and operated facilities. The I-80 CMCP envisions the future state of the corridor through different scenarios that includes high-occupancy vehicle (HOV) lanes, high-occupancy toll (HOT) lanes, improvements to the parallel Capitol Corridor line, and transportation demand management (TDM) strategies. Each scenario is analyzed with a baseline set of projects that was developed in partnership with the public and local, regional, and state partners along the corridor. I-80 should continue to operate as a freight corridor of significance, provide improved connectivity between modes, relieve congestion, provide economic benefits, and enhance safety improvements, particularly through the development of innovative technologies.

Caltrans District 3 is in the process of developing a managed lanes system plan (MLSP) for the Sacramento region that includes the I-80 corridor in Yolo and Sacramento counties. The MLSP is consistent with the I-80 CMCP but will more broadly look at developing pricing strategies for the region.

The Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 2020 update from the Sacramento Area Council of Governments (SACOG) prioritizes a diverse array of transportation options, aiming to enhance connectivity between people and places. Consequently, the plan envisions reduced congestion times, improved air quality, a decrease in per capita greenhouse gas (GHG) emissions, a revitalized and efficient transit system, and expanded opportunities for residents to opt for walking or cycling for their daily commutes. SACOG regards priced managed lanes as a pivotal component of its regional strategy, designed to generate adequate revenue for the construction and maintenance of the region's transportation infrastructure, bolster resident mobility, dynamically manage traffic and congestion, and contribute to the achievement of state mandated GHG reduction targets. The comprehensive scope of the Yolo County portion of the project is encapsulated in the 2020 MTP/SCS and in SACOG's current Metropolitan Transportation Improvement Program (MTIP), which was last adopted on November 16, 2023.

The Solano County segment of the project falls within the Solano County Metropolitan Transportation Commission (MTC) area, and we note that the Solano County portion of the Project is only for advanced

toll signage and other ITS elements. The managed lane would not be physically located in Solano County. With this in mind, the 2017 Solano County Regional Transportation Plan (RTP) does not incorporate managed lanes from the Kidwell Road interchange to the Yolo County line. While Caltrans District 3 is actively collaborating with Caltrans District 4, Solano County, and MTC to ensure the inclusion of managed lanes in this project segment, the segment is also part of the current project limits to install advance warning signs for the potential toll lane operation that would begin at the Solano/Yolo County line.

Furthermore, the Project has been planned with consideration of the need for future connectivity with potential priced managed lanes in other counties within the Sacramento Area Council of Governments (SACOG) jurisdiction (Sacramento, Yolo, Sutter, Yuba, Placer, and El Dorado) and potential Bay Area Infrastructure Financing Authority (BAIFA) priced managed lanes on I-80 in Solano County. These enhancements may ultimately lead to the establishment of a continuous facility on I-80 stretching from the Bay Bridge to Placer County, as well as on US 50 traversing through Sacramento and El Dorado Counties. The segments will be synchronized in terms of implementing infrastructure elements such as signage, electrical work, and communication systems, ensuring that the operation of priced managed lanes across all segments is experienced as a cohesive and seamless process by commuters. CARTA will ratify a tolling policy designed to uphold consistency with the operations of other priced managed lanes in the region.

Consistency with existing plans is further detailed in Part B Section 6A.

3. Corridor Improvement

AB 194 specified the Legislature's intent that highway tolling should be employed for the purpose of optimizing the performance of the transportation system on a transportation corridor and should not be employed strictly as a revenue generating facility. Has the applicant provided compelling evidence that demonstrates that the proposed toll facility will significantly improve the corridor's performance?

The Yolo 80 Corridor Improvements Project aims to improve freight movement, reduce congestion, improve safety, enhance traffic flow, and improve overall transportation efficiency along I-80 and US-50. By adding managed lanes through lane conversion, restriping, and reconstruction, the project seeks to address recurring congestion, operational inefficiencies, and inefficient movement of goods and services. The implementation will support reliable transport, improve modality and travel time reliability, and provide expedited traveler information systems. Key challenges include bottleneck formations, limited multi-modal options, and the lack of real-time traffic communication. The project anticipates significant improvements by 2049, including increased throughput, reduced travel time, higher average speeds, and decreased congested vehicle miles and hours traveled. These enhancements are crucial for regional economic sustainability, addressing current traffic challenges, and ensuring smoother travel experiences for corridor users.

As noted in PART A.1, the preferred project alternative has been selected as Alternative 4B. To describe the project impacts of the project compared to existing conditions, we use results from analysis of Alternative 4A, which approximate the impacts of 4B. See 0.PART A.5 for more information on alternatives. Henceforth, Alternative 4B will be denoted as the "preferred alternative."

Existing Conditions:
The project encompasses I-80 from west of the Solano/Yolo County line near Davis to west of West El Camino Avenue in Sacramento County, as well as US-50 from I-80 in West Sacramento to east of I-5 in Sacramento. The traffic study area extends further west and east to encompass changes in travel

patterns on adjacent facilities.

Several bottlenecks cause delays for travelers during the AM and PM peak periods in the project area. The bottlenecks and their approximate duration of congestion include:

- *Eastbound I-80 at Mace Boulevard: 7:30-8:00 AM, 2:30-6:30 PM
- Eastbound I-80 at County Road 32B: 3:30-6:30 PM
- Eastbound I-80 at Reed Avenue: 4:15-6:15 PM
- Eastbound US-50 at I-5: 3:15-6:00 PM
- *Westbound I-80 at West Capitol Avenue: 6:30-10:00 AM[4], 5:00-6:15 PM
- Westbound US-50 at Jefferson Boulevard: 5:15-6:15 PM

Starred bottlenecks above also form on weekends.

Bottlenecks also exist in both directions on I-80 at I-5 and on US-50 in downtown Sacramento between I-5 and SR 51/SR 99. The most severe congestion occurs eastbound during the PM peak hour, with average travel time from I-80 at Kidwell Road to US-50 at SR 51/SR 99 being approximately twice the travel time at free-flow speeds.

Opening Year 2029 Conditions:
In the AM peak period, eastbound I-80 and US-50 will experience the same bottleneck locations as existing conditions, with congestion in the project area under the no-build alternative remaining similar. The preferred alternative will eliminate 45 minutes of congestion at Mace Boulevard compared to the no-build alternative. In addition, during the AM peak period on Eastbound I-80 the preferred alternative will move 1,300 more people at Mace Boulevard when compared to the no-build alternative.

Westbound I-80 congestion at the Yolo Causeway will increase under the no-build alternative, extending outside the AM peak period and upstream to I-5 on both US-50 and I-80. The preferred alternative will only extend upstream to Harbor Boulevard on US-50, representing a reduction of 2.5 miles of queuing compared to the no-build alternative. During the AM peak period on Westbound I-80 the preferred alternative will move 4,400 more people at the Yolo Causeway when compared to the no-build alternative.

During the PM peak period, congestion on eastbound I-80 at Mace Boulevard and County Road 32B will extend outside the PM peak period under the no-build alternative. The preferred alternative will increase throughput at Mace Boulevard and eliminate the County Road 32B bottleneck. In addition, during the PM peak period on Eastbound I-80 the preferred alternative will move 4,700 more people at Mace Boulevard when compared to the no-build alternative, roughly 16% more people than the no-build.

In the westbound direction, the no-build alternative has reduced congestion at West Capitol due to upstream congestion on US-50. The preferred alternative similarly has less than an hour of congestion at West Capitol Avenue interchange. During the PM peak period on Westbound I-80 the preferred alternative will move 5,100 more people at the Yolo Causeway when compared to the no-build alternative, almost 18% more people than the no-build.

[4] Note that peak period traffic operations analysis for AM was 6-10 AM, so this bottleneck could last beyond 10 AM

Horizon Year 2049 Conditions:
In the AM peak period, eastbound I-80 congestion under the no-build alternative at Mace Boulevard will grow to two-and-a-half hours, and congestion at the County Road 32B bottleneck will be about an hour. Eastbound US-50 congestion from the I-5 bottleneck will extend back to I-80. The preferred alternative will eliminate congestion at Mace Boulevard and County Road 32B, with I-5 congestion extending only to Jefferson Boulevard. In addition, during the AM peak period on Eastbound I-80 the preferred alternative will move 2,400 more people at Mace Boulevard when compared to the no-build alternative.

Westbound I-80 AM peak period congestion at the Yolo Causeway will grow under the no-build alternative, extending outside the AM peak period and upstream to SR 51/SR 99 on US-50 and merging with a bottleneck at West El Camino Avenue on I-80 to extend upstream beyond Northgate Boulevard. Under the preferred alternative, congestion at the Yolo Causeway bottleneck will reduce. The preferred alternative will move 3,900 more people at the Yolo Causeway when compared to the no-build alternative, with a maximum reduction of up to 15.44 minutes average travel time. The addition of the managed lane connector shows a huge benefit in the AM peak period on Westbound I-80 as well, this connector limits the number of maneuvers Westbound vehicles have to make, which optimizes the throughput and reliability of the facility.

In the PM peak period, congestion on eastbound I-80 at Mace Boulevard, County Road 32B, and South River Road will expand to outside the PM peak period under the no-build alternative. Congestion at Mace Boulevard will extend upstream of Pedrick Road in Solano County by 4:00 PM. Under the preferred alternative, congestion at the County Road 32B and South River Road bottlenecks will be reduced, but the congestion at the I-80/US-50 interchange due to queuing from the I-5/I-80 and I-80/Reed Avenue interchanges will be similar to the no-build alternative. The preferred alternative will move 7,000 more people at Mace Boulevard during the PM peak period compared to the no-build, roughly 27% more people, with a maximum reduction of up to 69.2 minutes average travel time.

In the westbound direction during the PM peak period, a new bottleneck at the Jefferson Boulevard and I-80 off-ramps on US-50 will have one-and-a-half hours of congestion under the no-build alternative. Congestion on I-80 at the Yolo Causeway will last more than three hours and extend upstream to US-50. Congestion at the Yolo Causeway will be reduced to two-and-a-half hours or less under the preferred alternative. In summary, the preferred alternative will move more people during the PM peak period at the Yolo Causeway and improve travel time and reliability.

Safety Impacts:
In the five-year period from 2015 to 2019, the I-80 segment between the Solano County line and US-50 recorded 1,504 collisions, including 10 fatality-related incidents. The eastbound direction exhibits higher fatal and injury collision rates than the statewide average, while the westbound direction has a collision rate below the statewide average. Notable collision hotspots include Richards Boulevard and Mace Boulevard in the eastbound direction and the Enterprise Boulevard/West Capitol Avenue interchange in the westbound direction, a bottleneck location at the beginning of the Yolo Causeway.

Moving from US-50 to the start of the HOV lane on I-80, 75 percent of the 539 collisions occurred in the westbound direction, with three involving fatalities. The eastbound collision rate is below the statewide average, while the westbound collision rate surpasses it for all categories. Major collision sites include Reed Avenue and the downstream end of the Bryte Bend Bridge in the eastbound direction and the connector ramp merging with westbound US-50 in the westbound direction.

For the US-50 segment, 868 collisions were documented over the five-year period, evenly distributed between eastbound and westbound directions. The eastbound direction experienced four fatality-related collisions, and the westbound direction had eight. Both directions exhibited collision rates higher than the statewide average for all categories. Prominent collision locations include the Jefferson Boulevard off-ramp and the I-5 off-ramp in the eastbound direction, and collisions are frequent at US-50 in the westbound direction.

Under the no-build alternative, collision rates would likely be the same or higher than existing conditions. With the forecasted increase in traffic volumes, congestion and congestion-related collisions would increase. The freeway segments with higher-than-average collision rates would continue to experience the same collision rates, and segments with increased congestion would likely have an increased collision rate.

The preferred alternative would reduce congestion compared to the no-build alternative. Reducing congestion and increasing the average speed to or near the free-flow speed would reduce congestion-related collision types, such as the most common type in the project area, rear-end collision. The Highway Safety Manual (AASHTO, 2014) equations that predict the safety performance of freeways show that having more freeway lanes is associated with lower collision frequency for most collision types. As a result, the preferred alternative would be expected to lower the collision rate since these alternatives add a lane.

In addition, the preferred alternative makes several improvements which will lead to increased safety outcomes, including adding ramp meters, auxiliary lanes, ITS elements that improve incident response time, improved concrete median barrier, and added CCTVs and changeable message signs. As the preferred alternative includes a direct connector element, this additionally reduces the likelihood of weaving behavior.

Transit Impacts:

Although transit service was not changed among the analysis years, transit ridership will differ based on the travel time performance under the project alternatives. The preferred alternative would have similar transit ridership to existing conditions, and increase compared to the no-build alternative, where transit ridership would likely decrease due to increasing congestion.

The traffic operations model was used to measure travel time savings for bus routes. Route 138, the Causeway Connection between the UC Davis main campus and the medical center in Sacramento, would have a PM peak hour travel time savings of about 57 minutes in the eastbound direction and an AM peak hour travel time savings of about 22 minutes in the westbound direction under horizon year 2049 for the preferred alternative.

The preferred alternative includes the construction of a mobility hub in the southeast quadrant of the I-80/Enterprise Boulevard interchange. The mobility hub would provide 300 parking spaces, e-scooter and e-bike parking, and a transit transfer station. The additional parking spaces would help to meet the park-and-ride demand for this location.

Bicycle and Pedestrian Impacts:

The preferred alternative includes improvements to the Class IV bicycle/pedestrian path on the Yolo Causeway. The pavement would be rehabilitated, and the concrete barrier height would be raised to meet current design standards. On the west end, a new connection would be constructed along the

County Road 32A off-ramp. The new connection would provide a more direct connection to County Road 32A and eliminate the need for eastbound bicyclists and pedestrians to cross County Road 32A. Westbound bicyclists and pedestrians could choose the existing connection to avoid crossing County Road 32A or use the new connection to cross County Road 32A at the I-80 Westbound Ramps intersection which is designed to safely accommodate both bicyclists. Pedestrians, and vehicles.

Freight Impacts:
I-80 and US-50 serve as important regional connections for freight distribution, are designated National Network Surface Transportation Assistance Act (STAA) routes, national Primary Highway Freight System routes, and state-designated Priority Interregional Facilities. I-80 is the only all-weather crossing of the Sierra Nevada mountains, providing critical connection between the Port of Oakland and the continental US. Davis and West Sacramento have warehouse and manufacturing land uses adjacent to I-80 and US-50, including the Port of West Sacramento, which is accessed via the US-50/Harbor Boulevard interchange. Traffic congestion under the preferred alternative would affect trucks similarly to passenger vehicles in the GP lanes.

Caltrans' Project Programming Request included several performance indicators and measures related to freight. Compared to the no-build alternative, the preferred alternative allowed for 6% increase in truck volume, a reduction in daily truck hours of delay of 84%, and a reduction in total cargo transport time of 18%. The Reliability Index for Truck Travel Time also improved from 1.73 to 1.19 compared to the no-build alternative. The enhanced reliability facilitates a more streamlined flow of goods, contributing to a dynamic and expanding economy.

4. Technical Feasibility

4.A Project Definition

Has the applicant described the proposed facility in sufficient detail to determine the type and size of the project, the location, all proposed interconnections with other transportation facilities, the communities that may be affected, and alternatives (e.g., alignments) that may need to be evaluated?

Project Overview

The Project is in Solano, Yolo, and Sacramento Counties on the I-80 corridor between Kidwell Road in Solano County and West El Camino Avenue in Sacramento County. In addition, the project is located on the US-50 corridor between the I-80/I-50 interchange in Yolo County and the US-50/I-5 interchange in Sacramento County. The total Project length is approximately 17 centerline miles.

I-80 is the critical link between the Sacramento region and the San Francisco Bay Area. The corridor serves as a primary connection for east-west travel in Solano, Yolo, and Sacramento Counties and is part of a major transportation route between the Tahoe regions to the east of the state capital and the San Francisco Bay Area to the west. The route also links the Bay Area with recreational destinations in the Sierra Nevada Mountains and other destinations in Northern California by usingSR-113 to access I-5 in Yolo County and SR 99 in Sacramento County.

Because of its designation as a primary east-west route, the corridor accommodates many transportation modes, including freight trucks, park-and-ride users, bicyclists, personal vehicles, Capital Corridor trains, and public transportation.

I-80 is the primary freeway serving the movement of people and goods between Northern California and the eastern United States. I-80 and US-50 serve as important regional connections for freight distribution between warehouse, agricultural and manufacturing industries in the Central Valley, the Bay

Area, and major ports (e.g., Oakland, Richmond, Stockton, West Sacramento). Both I-80 and US-50 are National Network Surface Transportation Assistance Act (STAA) routes. Freight trucks travel through and throughout the region 24 hours a day, seven days a week, transporting large quantities of goods. The tonnage of goods expected to travel via the I-80 corridor is expected to increase over time.

Freight trucks also access and transfer cargo from the port of West Sacramento, which is part of the Foreign Trade Zone and specializing in the import and export of bulk agricultural-and construction - related products. The port of West Sacramento is located south of I-80 off of Harbor Boulevard. The segment of I-80 within the project limits is a primary access route to the Sacramento International Airport and other large distribution centers.

Within the Sacramento region, I-80 serves interregional, regional, and local commute traffic, recreational traffic to and from the Bay Area and the Lake Tahoe Basin and is a primary corridor for goods movement. The section of I-80 within the project limits also connects faculty, staff, and students commuting to either the University of California at Davis or Sacramento State University. Within the corridor, the Yolo Bypass Wildlife Area and floodplain limits east–west linkages. Without parallel alternatives, many modes and forms of transportation are funneled into the narrow I-80 corridor between the cities of Davis and West Sacramento.

There are almost no east-west alternatives in the project area.

Project Characteristics

I-80 is a critical link to regional and interregional traffic as the only freeway connection between the San Francisco Bay Area and the Sacramento Metropolitan region. In Solano County within the project limits, I-80 varies from three to four eastbound and westbound lanes with a standard shoulder, separated by a 20- to 35-foot-wide paved and/or unpaved center median with a guardrail or concrete barrier. In Yolo County within the project limits, I-80 is a six-lane freeway with three lanes in the eastbound and westbound directions. I-80 has variable 10- to 15-foot-wide outside shoulders in each direction. The corridor travels through the cities of Davis and West Sacramento. County Road (CR) 32A is located north of I-80 and east of the Mace Boulevard interchange and acts as a frontage road to the Yolo Bypass where I-80 becomes a causeway. East Chiles Road connects via bypass to the eastern end of CR 32A, and similarly acts as a frontage road running parallel to I-80 on the southern side. East Chiles Road connects to Chiles Road, and together run parallel to I-80 for approximately 4 miles, continuing to Drummond Avenue in Davis.

In Sacramento County within the project limits, I-80 is a six-lane freeway with three eastbound and three westbound lanes separated by a variable 35- to 60-foot paved center median with concrete and/or guardrail center median barriers. Travel lanes are roughly 12 feet wide, and each direction of travel has variable 10- to 15-foot-wide paved outside shoulders. Primary providers of bus and rail transit include Amtrak, Fairfield/Suisun Transit, Solano Express Bus, Yolobus, Unitrans, Sacramento Regional Transit, and Greyhound Bus. Bicycle and pedestrian accessibility are provided via the surrounding arterial network.

Within the Sacramento region, I-80 serves local and commute traffic, traffic to and from the Bay Area, recreational traffic to and from the Lake Tahoe Basin, and is a primary corridor for goods movement. Within the corridor, the Yolo Bypass Wildlife Area and floodplain limits east–west linkages, funneling many modes and forms of transportation into the narrow I-80 corridor between the cities of Davis and West Sacramento. I-80/US-50 is also an essential part of the goods movement system, connecting major ports from the Bay Area/Sacramento region to the eastern United States.

I-80 provides direct linkages between agricultural and manufacturing industries in the Central Valley, the Bay Area, and major ports (e.g., Oakland, Richmond, Stockton, West Sacramento). Freight trucks travel

through and throughout the region 24 hours a day, seven days a week, transporting large quantities of goods. The tonnage of goods expected to travel via the I-80 corridor is expected to increase over time.

Project History

The project has obtained funding under the STIP Regional Improvement Program (RIP), CMAQ, FHWA, and other competitive funding sources. The project has obtained SACOG funding for Project Approval and Environmental Document (PA&ED) support costs and Federal Highway Administration (FHWA) Infrastructure for Rebuilding America (INFRA) grant funding for a portion of the project Plan, Specification and Estimate (PS&E), Right of Way and Construction phases. Other competitive funding sources, such as TCEP, are being sought to supplement the PS&E and construction phases.

Goals and Objectives

The purpose of the proposed project is to:

- Support reliable transport of goods and service through the region
- Ease congestion and improve overall freight and person throughput
- Improve safety by reducing congestion-related collision types
- Improve freeway operation on the mainline, ramps, and at system interchanges
- Improve modality and travel time reliability
- Provide expedited traveler information and monitoring systems.

The proposed project is needed for the following reasons:

- Inefficient movement of goods and services impedes regional and interstate economic sustainability.
- Recurring congestion during morning and afternoon peak periods exceeds current design capacity limiting freight and person throughput.
- Operational inefficiencies lead to the formation of bottlenecks due to short weaving and merging areas and lane drops.
- The corridor users rely heavily on single-occupancy vehicles with limited multimodal options such as transit, carpool, bicycle, and pedestrian facilities, resulting in unreliable travel times.
- Lack of real-time traveler information and coordinated traffic communication systems impede timely response to roadway incidents resulting in secondary collisions and increased non-recurring congestion.

Alternatives

The Project has considered multiple improvement alternatives for the I-80 corridor, including implementation of new high occupancy vehicle (HOV) lanes, high occupancy toll (HOT) lanes, transit only lanes, and conversion of existing general-purpose lane to HOV only.

“No-Build” Alternative 1 would maintain existing conditions and no work would be conducted to relieve current traffic congestion to improve traffic flow. Build Alternatives 2a, 3a, 4a, 5a, and 6a propose the same geometric footprint, but would incorporate different managed lane types. Build Alternatives 2b, 3b, 4b, 5b, and 6b propose the same geometric footprint, include an I-80 managed lane direct connector (to provide a direct connection of the HOV 2+ managed lane with managed lane direct connectors at the I-80/US-50 interchange) but would incorporate different managed lane types. Build Alternatives 7a and 7b would not construct new lanes but would repurpose an existing lane instead; however, Build Alternative 7b would include the I-80 managed lane direct connector.

- No-Build Alternative 1: Maintain existing conditions.
- Build Alternative 2a: Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more occupants (HOV 2+).
- Build Alternative 2b: Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more occupants (HOV 2+) and build an I-80 managed lane direct connector.
- Build Alternative 3a: Add a high-occupancy toll lane in each direction for free use by vehicles with two or more occupants (HOT 2+). Single-occupied vehicles would pay a fee for lane usage.
- Build Alternative 3b: Add a high-occupancy toll lane in each direction for free use by vehicles with two or more occupants (HOT 2+) and build an I-80 managed lane direct connector. Single-occupied vehicles would pay a fee for lane usage.
- Build Alternative 4a: Add a high-occupancy toll lane in each direction for free use by vehicles with three or more occupants (HOT 3+). Vehicles with less than three occupants would pay a fee for lane usage.
- Build Alternative 4b: Add a high-occupancy toll lane in each direction for free use by vehicles with three or more occupants (HOT 3+) and build an I-80 managed lane direct connector. Vehicles with less than three occupants would pay a fee for lane usage.
- Build Alternative 5a: Add an express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of the number of occupants).
- Build Alternative 5b: Add an express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of number of occupants) and build an I-80 managed lane direct connector.
- Build Alternative 6a: Add a transit-only lane in each direction.
- Build Alternative 6b: Add a transit-only lane in each direction and build an I-80 managed lane direct connector.
- Build Alternative 7a: Repurpose the current number one general-purpose lane for use by vehicles with two or more occupants (HOV 2+); no new lanes would be constructed.
- Build Alternative 7b: Repurpose the current number one general-purpose lane for use by vehicles with two or more occupants (HOV 2+); no new lanes would be constructed. Build an I-80 managed lane direct connector.

Preferred Alternative

The preferred alternative is Build Alternative 4B. The preferred alternative will provide improvements on I-80 and US-50 from Kidwell Road near the eastern Solano County boundary (near Dixon), through Yolo County, and to West El Camino Avenue on I-80 and on US-50 to I-5 in Sacramento County. The project would add managed lanes on I-80 and US-50 by a combination of median and shoulder reconstruction, lane conversion, and restriping. Drainage modifications would be required due to median reconstruction in the locations to which sheet flow currently drains. Existing ITS elements and infrastructure would be modified, and new ITS elements would be added, including ramp meters, fiber-optic conduit and cables, and overhead signs.

Project features include:

- Managed Lanes: Highway facilities, or a set of lanes, where operational strategies are implemented to manage overall traffic congestion or in response to changing conditions (FHWA 2008). Managed lanes can include pricing, vehicle eligibility, or access control concepts. The lanes have flexibility to be used by different types of vehicles, depending on the need, and can

be actively managed to accommodate peak travel demands. Managed lanes would be distinguished from general purpose lanes using signage and striping.

- Intelligent Transportation System/Transportation Management Systems: Ramp meters and other ITS/Transportation Management Systems (TMS) such as closed-circuit television (CCTV) and changeable message signs. Several maintenance vehicle pullouts are proposed adjacent to I-80 on-ramps to accommodate an electrical cabinet for proposed ramp meters or other ITS/TMS infrastructure.
- Structure Modifications: Improvements to existing structures to accommodate proposed managed lanes, including placing fiberoptic conduit and retaining wall construction
- Ramp Modifications
- Bicycle/Pedestrian Facilities
- Mobility Hub
- Signage: Roadside signs and overhead changeable message signs (CMS)
- Street Lighting
- Utilities: Up to four 115-kilovolt overhead utility towers may be relocated near the new I-80 managed lane direct connector
- Fiberoptic Cable
- Drainage: Extending existing culverts and adding new drainage inlets and culverts

Planned Project Phasing

The Project will be implemented in multiple phases, culminating in the construction of the Yolo 80 Managed Lanes direct connector. This section's purpose is to delineate the Project facility design for its initial phase of construction, which includes reduced project limits and excludes the construction of a direct connector. As the design plans for future phases of the Project become more finalized, the Project Concept of Operations will be updated to reflect proposed final facility design features. See Note: Project scope in Solano County is limited to advanced warning signs for managed lane.

below for project limits of initial design as compared to final design.

Table 2: Initial vs Final Design Project Limits

Phase	Project Limits	Centerline miles	Lane Miles
Initial Design	Sol-80 PM 42.7 – 44.7 Yol-80 PM 0.0 - 9.5 Yol-50 PM 0.0 – 0.17	8.5 miles	17 miles
Final Design	Sol-80 PM 40.7 – 44.7 Yol-80 PM 0.0 – 11.72 Sac-80 PM 0.0 – 1.36 Yol-50 PM 0.0 – 3.12 Sac-50 PM 0.0 – 0.617	17 miles	34 miles

Note: Project scope in Solano County is limited to advanced warning signs for managed lane.

Please note that this Application only seeks to secure tolling authority for Initial Design (Phase 1) of the Project. Additional tolling authority for future phases will be sought in future applications.

4.B Proposed Project Timeline

Is the time frame for project completion clearly outlined? Is the proposed schedule reasonable given the scope and complexity of the project? Does the proposal contain adequate assurances that the project will be completed on time?

Table 3 below provides the current schedule for Phase 1 of the Project, leading to the opening of the toll facility in 2029.

Table 3: Phase 1 Schedule

PROJECT ACTIVITIES	TIMELINE
PROJECT INITIATION	
PSR	September 24, 2019
ENVIRONMENTAL	
Begin Environmental	December 2018
Final PR	March 2024
Final Concept of Operations	March 2024
Final EIR	March 2024
Final EA	March 2024
FINANCIAL	
Final T&R	January 2024
Preliminary Finance Plan	January 2024
Final AB 194 Application for Tolling Authority	March 2024
SB-1 Cycle 4 Advance TCEP Allocation	May 2024
INFRA Obligation Deadline	September 30, 2024
DESIGN/CONSTRUCTION/PROCUREMENT	
Ready to List (RTL) for Advertisement	April 2024
Advertise	May 2024
Bid Opening	July 2024
Contract Award	September 2024
Begin Construction	October 2024
Substantial Construction Completion	October 2027

TOLLING IMPLEMENTATION	
CARTA Inaugural Meeting	February 15, 2024
Commission Approval of Tolling Authority	May 2024
Toll Ordinance	January 2025
O&M Agreement	June 2025
Express Lanes Go-Live	March 2028

The CARTA JPA Agreement (Attachment A) establishes the roles and responsibilities of the partner agencies and organization to deliver the Yolo 80 Corridor Improvements Project.

CARTA's Governing Board made up of Directors appointed by YoloTD, SACOG, and Caltrans, will oversee the Authority. The Board will meet quarterly, or more often if necessary, at a location specified in meeting notices under the Brown Act. Regular meeting details will be on a yearly calendar adopted by the Board. A majority of Directors constitutes a quorum for decision-making. The Board will establish bylaws and rules, consistent with the Agreement and applicable law. All Board actions need a quorum, and, in most cases, require a majority vote. Proxy or absentee votes by Board members are not allowed. Certain decisions, like budget adoption or dissolution, require the approval of a majority of all Directors.

CARTA Members acknowledge that differences between them and among the Board members may arise from time to time and agree to make good faith efforts to resolve any such differences via good faith negotiations among the Members or Board members, as the case may be. If such negotiations do not resolve the dispute, and no Member gives a notice to dissolve the Authority as provided in this Agreement, then the Members may resolve disputes in any manner permitted by law or in equity.

The following four subsections describe a potential approach to project controls to be undertaken by CARTA. Note that these are subject to change pending the development of cooperative agreements following the inaugural meeting of CARTA.

Project Management and Reporting:
Periodic reports will be prepared to assess and track the Project's status, progress, costs, budgets, schedules, quality, environmental mitigation, safety, and labor compliance. These reports, which will cover periods ranging from one week to one year, include special reports prepared as necessary or requested. CARTA staff will ensure these reports are prepared by the Project Management Consultant, designer, civil contractor, Caltrans, and/or toll system integrator, as appropriate.

A formal cost, schedule, and status report will be reviewed quarterly with the CARTA Technical Advisory Committee (TAC), which will consist of executives from YoloTD, SACOG, Caltrans District 3, Sacramento Transportation Authority, Placer County Transportation Planning Agency, and El Dorado County Transportation Commission. These status reports will also be presented to the CARTA Board.

A Project Management Team (PMT) with representatives from YoloTD, SACOG, Caltrans District 3 will meet monthly. The project management structure will include the Integrated Project Development Team (IPDT), Design Management Team (DMT), Change Management Board (CMB), and Construction Team Meeting, each meeting weekly or monthly. The CMB, which will be established to control changes and claims, will operate under specific procedures that do not conflict with Caltrans Standards or

Manuals requirements.

Status Meetings:
The PMT will hold regular status meetings to discuss costs, schedules, quality issues, compliance with federal and state requirements, and other status items. The meetings ensure all involved parties are fully aware of significant issues and actions planned to mitigate adverse impacts. Project managers prepare a monthly status report for these meetings, which may change format as the Project progresses and new topics are identified. The report includes an Executive Summary, Activities and Deliverables, Risk Management, Action Items/Outstanding Issues, Schedule Adherence, Cost Adherence, Quality Adherence, and Safety Summary.

Weekly Progress Meetings:
Project delivery teams hold weekly or monthly progress meetings to review schedules, provide ongoing dialogue, report construction status, identify and propose resolutions to problems, address safety issues, coordinate with utilities and others, and identify issues requiring immediate action or escalation. These meetings also identify significant issues for discussion with the PMT and immediate communication of progress and issues to address adverse impacts promptly. Project stakeholders are invited to attend regularly or as needed. A similar project delivery management team structure, with the required stakeholders, is proposed to be incorporated into the agreement with any public toll facility operator contracted to deliver the System Integrator component of the Project.

Risk Register:
Project risk management (PRM), as outlined in Caltrans Deputy Directive (PD-09), is applied throughout the project's various phases. PRM involves planning for, identifying, analyzing, communicating, managing, and responding to project risks throughout project delivery. A risk register, prepared for the Project and regularly updated by the Project delivery team, lists all identified risks, risk owners, and agreed-upon risk response strategies.

4.C Operation

Has the applicant presented a reasonable statement setting forth plans for operation of the facility?

Access
The Project team has determined that restricting access on the I-80 corridor will not result in operational benefits, and instead may worsen conditions due to reduced lane width. Implementing larger stretches of open access will limit the need to reduce lane widths and shoulder space. Thus, the access configuration of the Yolo Managed Lanes will be continuous access solution.

Continuous access solution provides the flexibility to implement access restrictions for future phases or areas that can be improved with buffer separation. Adding areas of access restriction to a continuous access facility is largely driven by traffic modeling and analysis to determine areas where access restrictions make sense and areas where unrestricted access is appropriate. Access restrictions are typically introduced around areas where there are recurring bottlenecks and heavy weaving. Sometimes access restrictions are implemented in the vicinity of major interchanges where there is heavy demand to enter or exit the freeway. This is done in a way that forces vehicles to exit the managed lane well in advance of a major interchange so weaving movements are spread out over a longer distance.

Start of Managed Lanes

The addition of an express lane will serve as an ingress point at the beginning of the express lanes. In the west end of the project, the start of the express lanes will be just west of Richards Boulevard on I-80 (PM YOL 0.10). In the east end of the Project, the start of the express lanes will be located on US-50 upstream to the I-80/US-50 merge (PM YOL 0.1717). Since access will be unrestricted, people traveling from I-80 and US-50 will both be able to enter the express lanes at the start.

End of Managed Lanes

In the eastbound direction, the managed lane will terminate by transitioning into an existing general-purpose lane. The eastbound termini will be just east of the I-80/US-50 split on US-50 (PM YOL 0.15). The westbound termini will be a lane drop, providing enough taper length to merge into the general-purpose lanes. The eastbound termini will be just east of the I-80/US-50 split on US-50 (PM YOL 0.15). The westbound termini will be located east of Mace Boulevard on I-80 (PM YOL 2.98).

Transit Access

The Project will be continuous access, allowing existing and future transit routes to enter or exit the express lanes at will. The Project is envisioned as providing the same benefits to transit vehicles and users as to users in other modes.

Price Locking

Price locking ensures that toll-paying customers will be charged the rate displayed on the toll rate sign prior to entry into the Express Lane and is not subject to any price changes that may occur while traveling in the zone. Toll rate signs display up to two destinations, meaning customers are price locked in both destinations. The top destination will be end of the most immediate zone and the bottom destination will be the facility termini.

For example, customers who enter at the facility at Richards Boulevard going eastbound will be price locked for both Mace Boulevard, E. Chiles Road, and US-50. This ensures that regardless of price changes during their trip, they will be charged the price they saw on the pricing sign before entering the express lanes.

Toll Zones

Yolo 80 Managed Lanes toll zones will be defined as the segments between major destinations or movements, such as off ramps. Currently, the proposed configuration of Phase 1 provides three zones in the eastbound direction, and two zones in the westbound direction, as shown in Error! Reference source not found. below. See Figure 1 for a map of these zones.

A single toll applied over the entire corridor will not be able to manage demand efficiently since traffic conditions will inevitably vary along the Express Lane corridor. The concept of zone pricing allows the toll system to respond to bottlenecks by increasing the toll rate in the zone while avoiding unnecessary price increases for other zones with available capacity.

Table 4: Phase 1 Toll Zones

Zone	Beginning	End	Length (lane miles)	Number of Toll Points
EB 1	Richards Blvd	Mace Blvd	2.2	2
EB 2	Mace Blvd	E. Chiles Rd	3.0	2
EB 3	E. Chiles Rd	US-50/I-80 Split	4.3	3
WB 1	US-50/I-80 Merge	E. Chiles Rd	4.0	3
WB 2	E. Chiles Rd	Mace Blvd	2.9	3

Figure 1 shows the proposed toll zone map for phase 1 of the Project. The figure identifies the locations of the pricing signs associated with each zone and major destinations. The pricing signs in the first phase of the Project will include overlays for future destinations that will be included in the final phase. As funds become available to construct the entirety of the project limits, additional zones will be created and the zone map with be updated. Depending on the alternative, the expanded limits and the direct connector will include tolling equipment and be treated as a new zone that can be priced separately to increase the ability to manage traffic demands.

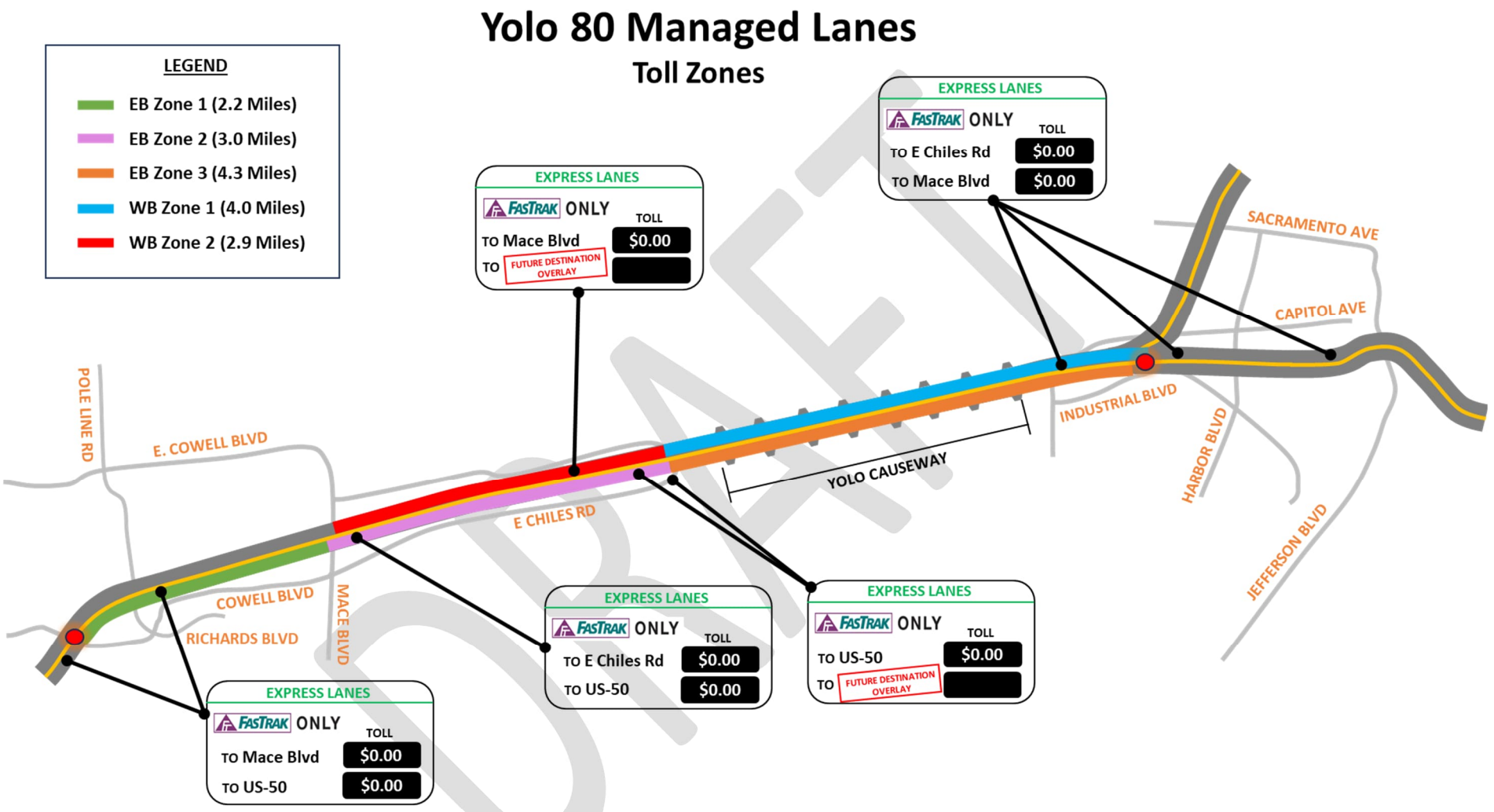


Figure 1: Phase 1 Toll Zone

Lane Separation

Please reference Section 5.5 of the Concept of Operations in Attachment B for information on lane separation.

Signage

Overhead and median mounted signs are used to display guidance and regulatory information to drivers about the use of managed lanes. Signs are used to designate access locations, display eligibility requirements and hours of operation, and for express lanes, to display toll rates and toll tag account requirements. The 2014 edition of the California Manual on Uniform Traffic Control Devices, Revision 6 (2014 CA MUTCD, Revision 7) provides specifications and guidance for the design and placement of managed lanes signs.

Start of Lane Signage

The CA MUTCD Express Lane requirements include the placement of prescriptive signing at the beginning and end of an Express Lane facility, as well as intermediate access locations. As drivers approach the Express Lanes, they will see a sequence of advanced overhead signs which include Changeable Message Signs (CMS), Pricing Signs, and Preferential Lane Entrance signs (CA MUTCD E8-2 and E8-3), beginning two miles before the entrance. The sequence of advanced signage will align with Figure 2G-21 from CA MUTCD, which designates example signing for the entrance to a priced managed lane. Examples of this signage are shown in Figure 2.

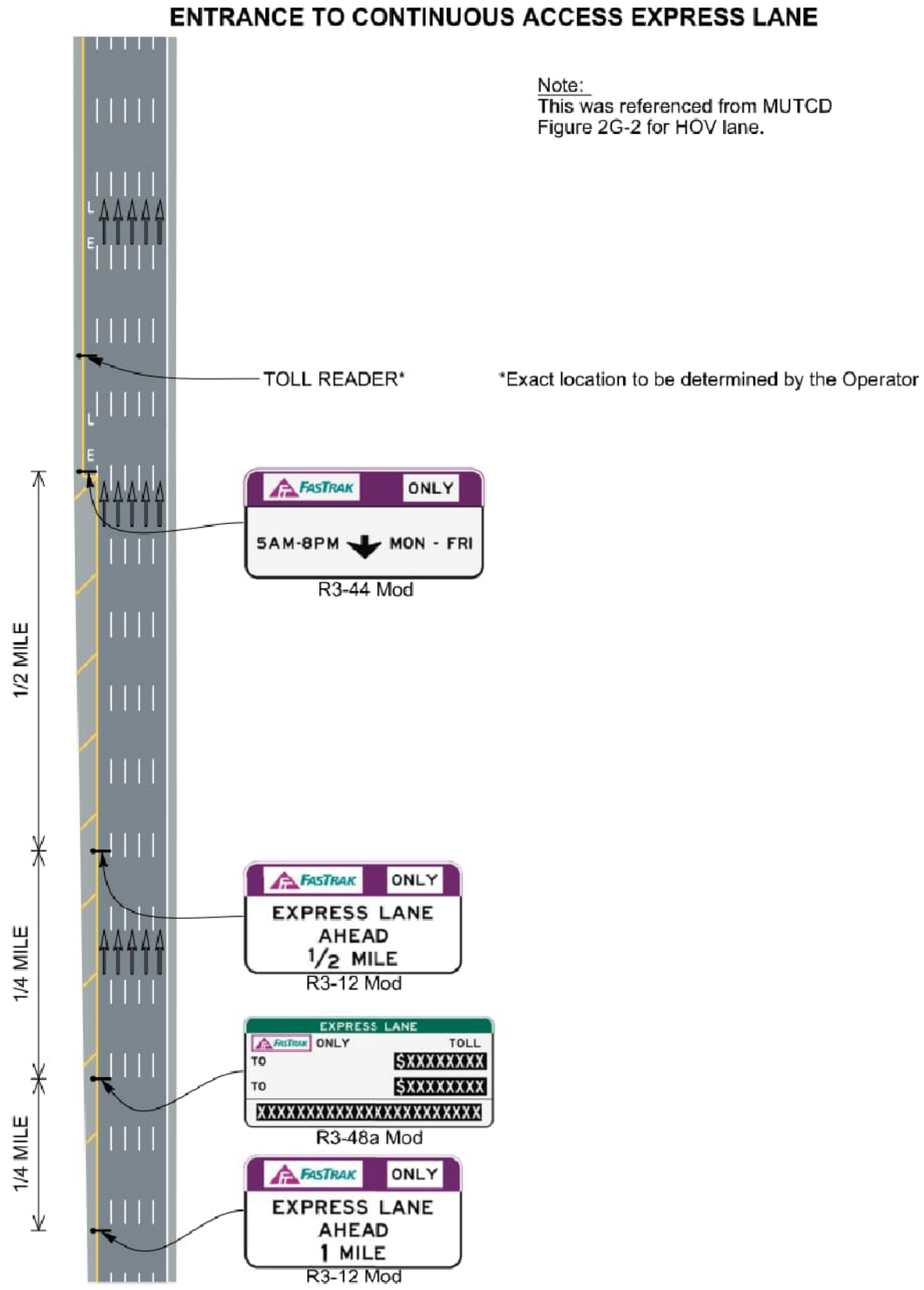


Figure 2: Example Start of Express Lane Signage

MUTCD provides recommended spacing between overhead signs upstream of the Express Lanes entrance. Signs will be placed for the Project in accordance with the recommended spacing with the below exceptions:

- Placing sign panels on existing sign structure at nearby stationing, if possible
- Avoiding the placement of signs on overpasses or the causeway structure
- Ensuring proposed signs are spaced 800 feet from existing signs
- Placing signs upstream of bridges to avoid sight obstruction

Intermediate Signage

Along segments where there are few or no access restrictions, overhead and median mounted regulatory signs will be located at regular intervals to clearly designate the express lane and display the HOV eligibility requirement, hours of operation and the FasTrak® account requirement for all vehicles in the lane. These signs may need to allow for easy modifications in the event that the HOV eligibility requirement or the hours of operation change in the future.

Occupancy requirement to receive toll discount will be displayed on median mounted signs with FasTrak branding, see Figure 3 below.

Figure 3: Example FasTrak Occupancy Requirement Sign

Pricing Signage

As required by MUTCD, pricing signs will be placed before each point of entry to the Express Lanes to inform drivers of the toll before they make their decision to either enter the Express Lanes or remain in GP lanes.

Overhead pricing signs are installed to display the toll rates to travel to downstream destinations. These signs are installed in advance of access points for limited access facilities, or at regular intervals throughout the corridor for continuous access facilities. The CA MUTCD includes guidance for the types and number of destinations to be displayed on pricing signs. Current guidance suggests no more than

two destinations be displayed, including the price to the end of the facility and an intermediate major destination. Exceptions have been made to allow more than two destinations, but it is preferable to keep the amount of information on Express Lane signs to a minimum to avoid driver confusion.

The pricing signs on the I-80 Express Lanes will consist of static panels with changeable message inserts for pricing. An example shown in Figure 4.

Figure 4: Example Pricing Sign - I-880 Express Lanes

End of Lane

A sequence of overhead signs beginning one-half mile upstream of the terminus of an express lane will be used in accordance with the CA MUTCD to indicate that the express lane is ending. See Figure 5 for example of advanced warning signs that will be installed.

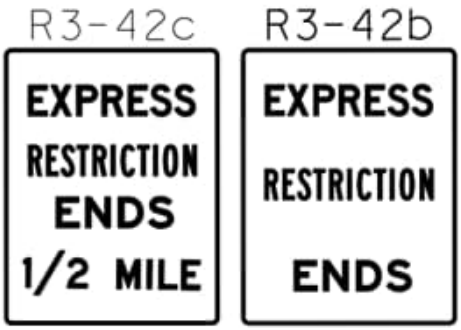


Figure 5: Termini Signage

Operational Policies

The Yolo 80 Managed Lanes will operate between 5am and 8pm, seven days a week. This tolling policy may be adjusted based on operations, traffic demand, and the policies of other regional express lane facilities. Policy consistency is important for minimizing driver confusion and help to maximize the efficiency of traffic operations and the overall performance of both Express Lanes and GP lanes.

Currently, MTC is analyzing weekend hours of operations for I-80 Express Lanes Project in Solano County. The policies of the Solano 80 Express Lanes may influence the final policies and business rules of the Yolo 80 Express Lanes.

Vehicle Eligibility

Vehicles eligible to use Yolo 80 Managed Lanes will be determined by Federal and State law, in addition to the business rules ultimately established for the facility. Vehicles eligible for Yolo 80 Managed Lanes access include two-axle vehicles, buses, and motorcycles. Other vehicles will be prohibited from accessing the Yolo 80 Managed Lanes per California law. Eligible vehicles with characteristics such as meeting established vehicle occupancy rates, transit vehicles, motorcycles, qualifying Clean Air Vehicles (CAV), emergency vehicles, and others may be able to travel in Yolo 80 Managed Lanes at either a reduced or no cost toll rate, as described in the following sections.

Toll Exempt/Discounted Vehicles

The pricing introduced by Express Lane facilities creates an opportunity to establish different payment classes based on overall goals of the facility. On Express Lanes, applied toll rates can vary for different users depending on policy priorities and the goals of the facility. For instance, policies can grant toll discounts or exceptions based on vehicle occupancy, vehicle type, vehicle classification, or other criteria. Express Lane facilities in California are required by law to offer discounts or exemptions to certain types of vehicles. Doing so can incentivize beneficial activities, such as carpooling, transit utilization, and the use of low-emission vehicles. However, they also have an impact on demand management capability, revenue, operations, customer service center systems, and enforcement. It is important to assess toll discounts or exemptions early during project development to evaluate the anticipated effects on the operational performance of the Express Lanes.

Given that CARTA has goals regarding performance measures, equity, regional consistency, VMT, and financial sustainability, protocols for changing or updating these payment classes periodically will be considered. This practice can better enable the facility to meet desired goals, and result in better performance over time. This is further underscored by Federal Law 23 U.S.C. § 166, which requires HOV lanes that allow access by non-HOV's (usually by paying a toll) to meet minimum traffic performance standards. Specifically, if an HOV lane is determined to be degraded, steps must be taken to mitigate the issue within 180 days by increasing HOV lane occupancy, varying tolls on non-HOVs, discontinuing non-HOV use, or increasing HOV lane capacity. An HOV facility becomes degraded if it fails to maintain a minimum average operating speed of 45 mph, 90 percent of the time over a consecutive 180-day period during morning or evening weekday peak hour periods.

California statute dictates the following vehicles to be eligible for toll discounts and exemptions on Express Lanes.

- Qualifying HOVs
- Transit
- Motorcycles

- Clean-Air Vehicles (current regulations set to expire 2025)
- Qualifying Emergency Response Vehicles

High-Occupancy Vehicles

Vehicles meeting established occupancy requirements are eligible for toll-free travel per California Streets and Highways Code Section 149 (SHC § 149) and Title 23 of the U.S. Code, Section 166 (23 U.S.C. § 166).

Caltrans has assessed vehicle occupancy requirements on Yolo 80 Managed Lanes. T&R and TAR results identify that an occupancy requirement of HOV3+ to receive full discount will result in greater operational performance. However, it should be noted that the ultimate occupancy requirements for toll-free or discounted travel on Yolo 80 Managed Lanes will be finalized later in the project development process. The T&R analysis provides insights on impact of various HOV occupancy requirements on potential net-revenue, HOV degradation, and corridor performance.

In addition to facility revenue and traffic performance, consideration will also be given to the HOV occupancy requirements of other regional Express Lane facilities to offer customers a level of consistency between corridors.

Transit Vehicles

One of the primary goals of priced managed lanes is to improve person throughput along the managed corridor. As such, public transit buses and paratransit vehicles as defined in California Vehicle Code Section 21655.5 (CVC § 21655.5) will be allowed free travel in Yolo 80 Managed Lanes at all times. 23 U.S.C. § 166 permits all over-the-road buses servicing the public to utilize toll facilities under the same rates, terms and conditions as public transportation vehicles. Therefore, toll-free travel will be offered to all transit vehicles, whether publicly or privately operated. Future business rules will be established to determine whether buses will be recognized in the system through the use of non-revenue toll tags, or whether the tolling of transit vehicles would be preempted through some other back-office process.

Motorcycles

Motorcycles are eligible for toll-free travel in Express Lanes per CVC 21655.5(b) and 23 U.S.C. § 166. At the time of this writing, the Yolo 80 Managed Lanes plan to offer toll-free access to motorcycles, and motorcycles are anticipated to require transponders to receive a toll exemption.

Clean Air Vehicles

CVC § 21655.9 and CVC § 5205.5 allows California certified clean air vehicles (CAVs) with decals issued by the Department of Motor Vehicles (DMV) to use Express Lanes toll-free or at a reduced rate. However, the statute does not mandate the rate of reduction. The CAV decal program is subject to authorization by FHWA and therefore could end sooner than specified in California law, which is currently set to expire on September 30, 2025, prior to anticipated Yolo 80 Managed Lanes commencement date.

At the time of this writing, the JPA intends to offer a toll discount based on CVC § 5205.5 as well as regional consistency with other express lane facilities in the Bay Area. However, the ultimate CAV toll policy will be determined later in project development, pending vehicle code regulations at the time of tolling commencement.

Exempt Vehicles

CVC 23301.5 provides toll exemptions on Express Lanes for emergency response vehicles traveling to or from emergency calls. On the Yolo 80 Managed Lanes, Caltrans will need to establish agreements with the local emergency response agencies that will outline the protocols associated with toll free access. Pursuant to CVC 23301.5, an emergency vehicle is exempt from any requirement to pay a toll or other charge under the following circumstances:

- The authorized emergency vehicle is properly marked (i.e., California Highway Patrol (CHP), Sheriff, Fire, Police, Ambulance)
- The vehicle is responding to an "urgent" or emergency call that does not include any personal, commuting, training, or administrative use
- The driver of the vehicle determines that use of the Express Lane will likely improve availability, response, and arrival time to the emergency.

Many agencies also allow toll-free Express Lane access to vehicles associated with the exempt account of a public safety agency, mass-transit agency, or maintenance provider that serves the Express Lanes. Maintenance vehicles could include those utilized by Caltrans or their contractors performing maintenance activities on Yolo 80 Managed Lanes. These vehicles may be required to carry a transponder linked to a non-revenue account, or tolls could be screened out through some other back-office function.

Toll Payment and Declaration

Toll payments for the Yolo 80 Managed Lanes will be facilitated in part by electronic toll transponders. Transponder-based toll collection is a proven, accurate solution with relatively low transaction costs. Transponders used for the Yolo 80 Managed Lanes will need to comply with California interoperability standards for toll collection. Title 21 of the California Code of Regulations specifies the protocol for the exchange of transponder information for toll facilities in California. These transponders are branded as FasTrak® and can be used on any of the California toll facilities. The California Toll Operators Committee (CTOC) maintains toll interoperability throughout the state and has developed a plan to transition from the current Title-21 tolling protocol to the International Organization for Standardization (ISO) 18000-63 (known as 6C) protocol. The 6C protocol offers significantly lower transponder costs and is an established standard in the toll industry. 6C transponders come in a variety of forms including a transportable hard case form that allows for occupancy declaration and a non-removable sticker form (Figure 6). It is envisioned that the transition from the legacy Title 21 protocol to the new 6C protocol will be fully deployed by the time the Yolo 80 Managed Lanes are implemented.

Figure 6: FasTrak® Sticker Transponder

Consistent with the BAIFA, Alameda CTC, SMCEL JPA, and VTA Express Lanes, it is anticipated that the Yolo 80 Managed Lanes will require vehicles eligible for an occupancy-based toll exemption or discount to have a switchable transponder (Figure 7). Switchable transponders provide the benefit of allowing drivers to self-declare their vehicle occupancy rate, thereby eliminating the need to provide declaration

lanes for qualified HOV vehicles such as the 91 Express Lanes facility. Vehicles traveling with a switchable transponder set in a high-occupancy setting will be detected by the toll system and the appropriate toll discount will be applied.

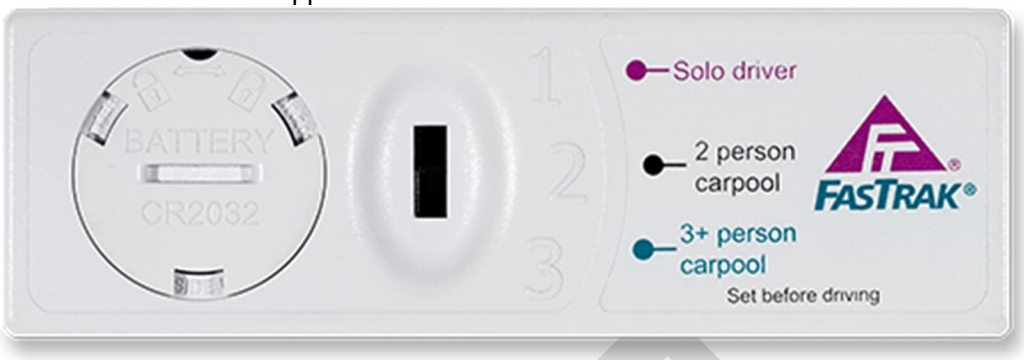


Figure 7: Switchable Transponder

Public outreach and coordination other regional operators will be required to ensure that holders of "legacy" FasTrak® electronic transponders without the occupancy declaration switch are well informed about the requirement for a switchable transponder for free/discounted access to the Yolo 80 Managed Lanes.

Future business rules will define how discounts are applied in unique situations, such as if users switch their occupancy declaration mid-trip, or if multiple transponders are detected. For example, if a customer is read as a single occupant vehicle (SOV) at one toll point, then HOV3 at another toll point within the same trip, the business rules will determine which tag setting holds priority. In the scenario where more than one transponder is read in a single vehicle, business rules will define the hierarchy to be used for payment or the application of discounts.

Vehicles using the Express Lanes without a transponder will be detected by license plate recognition (LPR) cameras. If there is no account associated with the license plate, then the license plate will be matched to the address of the vehicle's registered owner for issuance of a license plate toll bill to collect the toll payment. In practice, an additional fee or surcharge may be applied to license plate tolls to account for the required license plate image review, vehicle registration review, and billing functions. Yolo 80 Managed Lanes policies concerning potential surcharges for license plate tolling, and toll violations for non-payment will be defined by future business rules of the facility.

License plate tolling will make the Express Lanes available to more users, but it increases the risk of potential congestion and higher tolls on the Express Lanes, revenue leakage due to unidentifiable plates or registered owners, and longer periods of time to collect toll revenue.

The option for vehicles to access Express Lanes and pay a toll via LPR image capture, without the use of a transponder, is used on several facilities throughout the country. Due to the additional costs associated with image review and payment processing, this toll payment option typically includes a license plate surcharge in addition to the base toll rate applied to the vehicle. This option is currently being implemented by LA Metro as part of the "Pay-as-You-Go" program on the I-10 and I-110 Express Lanes. The system will bill the registered vehicle owners without transponders for their toll plus an additional $8.00 administrative fee. Vehicles using the pay-by-plate tolling would not be eligible for any toll exemptions or discounts.

Other toll payment and declaration options should be monitored as the Yolo 80 Managed Lanes advances further in project development. Smartphone applications are used by multiple agencies

throughout the country outside of California to declare vehicle occupancy. Using these tools, a vehicle preregisters for a qualifying HOV trip on an application linked to a preexisting account. There are various ways to verify occupancy status using these tools, including user submitted time-stamped photos of the vehicle interior, or the proximity of multiple smart phones with activated smart phone applications within the same vehicle. These emerging technologies may be integrated into future California Express Lane operations.

Pricing and Toll Rates

The Project plans to use a preferred pricing model to maintain traffic performance thresholds. Adhering to federal regulations (23 U.S.C. § 166), the project aims to sustain a 45-mph average operating speed for 90 percent of peak hours.

Regarding the pricing model, two primary approaches are explored: time-of-day pricing and dynamic pricing. Time-of-day pricing follows a predetermined schedule, adjusting toll rates based on expected congestion levels. This model, exemplified by the 91 Express Lanes, provides price certainty and predictability, most effective for facilities with low traffic variability. Toll variations can be contingent on direction, day, and hour. In contrast, dynamic pricing responds to real-time traffic conditions, offering flexibility for toll adjustments. Widely employed, including in northern California express lanes, it actively manages demand during non-recurring congestion but requires extensive staffing and monitoring due to proprietary algorithms.

Within these frameworks, minimum and maximum toll rates are used for various reasons to exert more control over pricing. Minimum tolls cover operational costs during low traffic demand, maintaining a specified service level for Express Lane customers. Maximum tolls act as a price cap, preventing rates from triggering public or political challenges. Periodic evaluations are performed to adjust maximum toll rates based on changes in demand, with considerations for consistency or variation based on length and zone value.

Toll revenues from the Yolo 80 Managed Lanes are earmarked for reinvestment in the corridor. Initially, these funds are directed toward operations, maintenance, administration, toll collection, enforcement, and service patrol. A T&R study informs the development of an expenditure plan, which encompasses debt repayment, corridor improvements, transit services, equity-based toll programs, VMT growth mitigation, and other revenue priorities.

For more details on Pricing and Toll Rates, please reference Section 9.4 of the Concept of Operations (Attachment B).

Equity Considerations

Partnering agencies will develop an equity program that seeks to maximize benefits and minimize the burdens of the project for those who experience high transportation burdens and other disparities. Key steps will include:

- Conduct an Equity Study to analyze the individuals who experience high transportation burdens in the project area and potential measures to reduce those burdens
- Establish an Equity Program Advisory Committee comprised of local stakeholders with lived experience of transportation burdens, state and national experts in transportation equity, and other key stakeholders that meets regularly to shape the Equity Program.
- Leverage work from equity framework development and gather available data to establish a baseline/existing condition for transportation equity in the project area.

- Work with trusted Non-Governmental Organizations (NGOs) and community-serving organizations to survey targeted populations/communities about their transportation options and needs, awareness and impressions of tolled lanes and suggestions for needed transportation improvements.
- Review existing transportation equity programs, particularly tolling equity programs, and conduct literature review to identify best practices. Examples include SM101 Equity Program, MTC EL START Program, and LA Metro Low-Income Assistance Plan.
- Develop potential options for transportation equity program including options for "in-lane" programs (such as tolling discounts and transit improvements that utilize the lane) and "out of lane" programs (such as traffic calming in neighborhoods adjacent to the freeway).
- Solicit input from advisory committee, community-serving organizations, partners and key stakeholders on equity program options and evaluation criteria.
- Conduct final evaluation and prepare draft final Equity Program.

The framework incorporates principles and practices of transportation equity into all aspects of Tolling Advance Planning process. The framework will be one of the first phases of work conducted in this scope, and will identify a set of core values, guiding principles and implementation practices to be carried out by all staff and consultants working on the project. Implementation practices may include:

- Equity trainings for all project staff and consultants;
  Briefings for decisionmakers, staff and consultants on the historical and present-day disparities that exist in the project area and how they relate to the project
- Engaging experts in transportation equity to participate in drafting and/or review draft work products;
- Soliciting input from equity experts as well as those with lived experience in the local area on scopes of work, proposed analyses and sources of data that would best illuminate potential disparities, benefits, and burdens.

Concept of Operations Report
A Draft Concept of Operations document for the Project has been prepared. CARTA has engaged with to FHWA to review the Concept of Operations, which includes substantial detail regarding all the systems necessary to construct, operate, and maintain the I-80 Express Lanes.

4.D Federal Involvement

Is the project outside the purview of federal oversight, or will it require some level of federal involvement due to its location on the National Highway System or Federal Interstate System or because federal permits are required? If so, has the applicant provided a reasonable plan for addressing all federal responsibilities?

FHWA approval is necessary for Major Project deliverables and other FHWA-required documents, including the review and approval of a Modified Access Report (MAR), which is triggered by the Connector Ramp in the previously described “B” alternatives.

The FHWA will oversee the project through various means, including inspections, data reviews, audits, independent testing, and oversight related to the use of INFRA funding. Additionally, the United States Department of Transportation Office of Inspector General may conduct audits of costs and other

financial data as required.

4.E Maintenance

Is there a process in place to clearly define assumptions and responsibilities during the operational phase including law enforcement, toll collection, and maintenance?

CARTA is tasked with implementing and maintaining the toll system, including the toll collection system and administration of the toll schedule. CARTA's responsibilities encompass:

- Operating and maintaining devices exclusively needed for the system.
- Formulating the toll schedule, business rules, and account policies.
- Collecting tolls as per the established business rules and account policies.
- Executing marketing and public outreach for the Toll Facility.

CARTA plans to engage an existing operator for back-office and customer service center services to enhance efficiency by leveraging existing facilities and systems, following the execution of CARTA's JPA Agreement.

The future contracted CSC provider's responsibilities include, but are not limited to:

- Managing FasTrak® customer accounts, safeguarding Personal Identifiable Information (PII), and providing general customer service.
- Collecting tolls from FasTrak® customer accounts based on trip transaction records from express lane operators.
- Issuing toll violation notices and collecting toll violation penalties.
- Offering a payment plan per AB 2594 (Ting) requirements.
- Tracking, inventorying, and distributing FasTrak® toll tags to customer service outlets.
- Managing FasTrak® back-office operations (e.g., trip records, revenue, account information).
- Marketing the toll facility and FasTrak®.
- Administering and distributing toll revenue.
- Facilitating interfaces with credit/debit card processing and banking services.
- Establishing an interface with DMV for processing license plate reads and matching with registered vehicle owners.

Additionally, the toll facility's maintenance is determined in the cooperative agreement establishing CARTA described in Part A Section 3. This agreement covers various aspects, including design, construction, maintenance, operation, liability, financing, repair, rehabilitation, and reconstruction.

5. Financial Feasibility

5.A Funding Plan

Is the funding plan built on a reasonable basis for funding project development and operations? For example, are the assumptions on which the plan is based well defined and reasonable in nature? Are the plan's risk factors identified and dealt with sufficiently? Are the planned sources of funding and financing realistic? Has the applicant demonstrated evidence of its ability to obtain the necessary financing? Does the applicant have the ability to fund shortfalls if revenues do not meet projections?

The funding plan in this application uses data from the analysis of Alternative 4B, selected for its preferred design and operational components, and referred as the "preferred alternative." Details on various alternatives are available in PART A.5. This application focuses solely on securing tolling authority for Phase 1 of the preferred alternative, addressing its capital costs, funding sources, and operational revenue and expenses.

Capital and Funding

The preferred alternative, Alternative 4B, specifies the addition of the single-lane High-Occupancy Toll lanes (HOT 3+) each direction along I-80 and US-50, and an I-80 managed lane direct connector. The first phase (Phase 1) would be to construct managed lanes in the median with revised project limits. Future phases would be to construct the remaining portions of the managed lane in the median and the I-80 Managed Lane connector ramp at the I-80/US-50 interchange.

The scope of Phase 1 of the Project includes:

- 17 lane miles of HOT lanes. Build standard inside shoulder and 10' outside shoulder between Solano/Yolo County line and Causeway
    - Eastbound: between YOL-80-PM-0.00 and YOL-80-PM 9.51
    - Westbound: between YOL-80-PM-2.93 and YOL-80-PM 9.51
- ITS and Electrical elements, such as: Fiber Optic, Vehicle Detection Systems, Changeable Message Signs (CMS), Closed Circuit Television (CCTV), Ramp Metering
- Class I Bike/Ped Path from WB 80 off ramp to Chiles Rd
- Enhance existing Causeway bike path surface pavement at both approaches of Causeway.

The cost to complete Phase 1 of the project is estimated at approximately $200 million. The funding plan for Phase 1, detailed in Table 5, includes both committed and uncommitted funds. Note that the $9 million estimated cost in the PA&ED phase is for the entire project (including Phase 1), as all components are designed and evaluated as a whole. The $3 million estimated PS&E cost is dedicated to Phase 1. The total construction and right of way related cost for Phase 1 is estimated at $188 million, breaking down into $140 million for construction, $20 million for construction support, $28 million for VMT mitigation, and a small portion for Right-of-Way ($160,000). This cost, dedicated to Phase 1, is fully identified and partially committed, with a mix of federal, state, and local funds, including a $82.9 million INFRA grant and a $105 million TCEP grant being pursued by Caltrans. With the advance Cycle 4 TCEP State and Regional request, Phase 1 of the Project will be fully funded for support, right-of-way, and construction.

Table 5: Phase 1 Project Cost and Identified Funding Sources

Fund Status	F/S/L	Source	Project Component ($1000)						Total
			PA&ED	PS&E	ROW Sup	CON Sup	ROW Cap	CON Cap	
Committed	L	SACOG Regional Surface Transportation Grant Program (RSTP)	$1,000						$1,000
	L	Congestion Mitigation and Air Quality (CMAQ)	$4,000				$60		$4,060
	S	COVID Relief Fund - STIP	$4,000						$4,000
	F	INFRA Grant Program		$3,000				$82,900	$85,900
Total Committed			$9,000	$3,000			$60	$82,900	$94,960
Uncommitted	S	Trade Corridor Enhancement Program (TCEP)			$100	$20,000		$84,900	$105,000
Total Uncommitted					$100	$20,000		$84,900	$105,000
Additional Need			$0	$0	$0	$0	$0	$0	$0
Project Total			$9,000*	$3,000	$100	$20,000	$60	$167,800**	$199,960

** The PA&ED cost covers the cost for the entire Project, including Phase 1 and future phases*
***The construction capital cost includes $28 million for VMT mitigation for Phase 1*

The identified funding resources are programmed below:

- The SACOG Congestion Mitigation and Air Quality (CMAQ) grant awarded the Project $4 million to complete preliminary engineering and environmental documentation (PA&ED) in the 2021 program.
- The SACOG Congestion Mitigation and Air Quality (CMAQ) grant awarded the Project an additional $60,000 for Right-of-Way Capital in the 2022 program.
- California State Transportation Improvement Program (STIP) Covid Relief Fund awarded the Project $4 million to complete the PA&ED in the 2022 program.
- SACOG Regional Funding awarded the Project $1 million in the 2023 Regional Surface Transportation Program (RSTP) to be used for PA&ED phases.
- The Federal Department of Transportation Infrastructure for Rebuilding America (INFRA) grant awarded the Project $85.9 million in June 2021. This is to be utilized for Phase 1 PS&E ($3 million) and Construction Capital ($83 million).
- Caltrans is pursuing a $105 million SB-1 Cycle 4 Advance Trade Corridor Enhancement Program (TCEP) fund, of which $20 million is for construction support, $57 million is for construction capital, and $28 million for VMT mitigation.

Toll Revenue, Operation and Maintenance

A Traffic and Revenue Report was completed for the priced managed lane alternatives (Alternative 3, 4, and 5). The objective of the analysis was to estimate the potential gross revenue to be generated and its capability to cover the operation and other related costs.

The operation assumptions for the preferred alternative (Alternative 4, HOT 3+) listed in the Traffic and Revenue Report are summarized below (for more details, refer to the Traffic and Revenue Report in Attachment C). Note that the actual operation policy may differ in the future time and to be decided by CARTA.

- HOV 3+ will use the managed lanes for free;
- HOV 2 will be charged half-price;
- SOV will be charged at full price;
- Two-axle commercial vehicles may use the managed lanes at double the SOV tolls and medium and heavy trucks are prohibited from using the managed lanes;
- The toll lanes will operate from 7 AM to 8 PM, 7 days a week. All vehicles can use the toll lanes for free outside the tolled time window;
- The minimum toll is $0.05 per mile while the maximum toll is $5.00 per mile;
- No discounts for the Clean Air Vehicles (CAV);
- Toll rates will set dynamically; and
- The tolled lanes will provide continuous or near-continuous access for the length of the corridors.

The operation and maintenance (O&M) cost was benchmarked to the Caltrans D4 existing facilities (average unit O&M cost for existing facilities including I-680 and I-580). The base O&M lane-mile operation cost for the Yolo 80 managed lane facility was estimated to be $231,000 in 2021 dollars, however the overall O&M cost also depends on the number of transactions projected. Besides the O&M cost, revenue leakage, referring to a reduction in toll revenue due to transactions where no revenue is collected, or revenue is not fully collected, is estimated to be 10% of the gross revenue. The leakage tends to decline over time as users become more familiar with tolled operations.

The net revenue projection discussed below is for the Phase 1 only, though the Traffic and Revenue Report contains the projection for the full buildout project as well. Phase 1 of the Project involves constructing a single lane managed lane spanning from Richard Boulevard to the I-80/US-50 Split in the eastbound direction and from the I-80/US-50 Split to Mace Boulevard in the westbound direction.

For the preferred alternative (Alternative 4, HOT 3+), Phase 1 generates about 80% of the full buildout gross revenue under both the 2029 and 2049 conditions, as it covers the most congested section of the Project on the Yolo Causeway. The O&M cost for Phase 1, which is partially proportional to the project length, is estimated at about 54% of the full buildout cost. Phase 1 has a higher net revenue margin compared to the full buildout Project.

According to the net revenue projection, the Phase 1 of the Yolo 80 managed lane facility will generate enough revenue to cover the operation cost and revenue leakage. Table 6 Estimated Phase 1 Annual Net Operating Toll Revenue (Year 2021 Dollars, $1,000,000)outlines the operation breakdowns. In 2029, the Phase 1 of the Project would operate at a positive net revenue for Alternative 4 (Add HOT3+), at $5.1 million (2021 dollar). In 2049, Phase 1 of the Project would operate at a positive net revenue for Alternative 4 (Add HOT3+), at $9.8 million (2021 dollar).

Table 6 Estimated Phase 1 Annual Net Operating Toll Revenue (Year 2021 Dollars, $1,000,000)[1]

Operation Summary	Year 2029 Alt 4 (Add HOT 3+)	Year 2049 Alt 4 (Add HOT 3+)
Annual Gross Revenue	$10.9	$16.3
Estimated Revenue Leakage[2]	$1.1	$1.6
Average Annual O&M Cost	$4.7	$4.9[3]
Net Operating Toll Revenue	$5.1	$9.8

[1]Sources: Interstate 80/U.S. Highway 50 Managed Lanes Traffic and Revenue Report
[2]Revenue leakage is estimated to be 10% of the gross revenue.

[3]5% increase in O&M cost from 2029 to 2049 due to variable cost increase result from higher transactions in 2049

Under the currently assumed operation policy, the revenue projection for the Phase 1 indicates that the gross toll revenue generated in the initial years, which typically assumes a 15-20% reduction in revenue compared to the 2029 projection due to a ramp-up phase, will cover the operation cost. However, to secure a non-interruptive operation, the initial operation fund (known as "Initial reserve account"), before sufficient toll revenue collection, will be secured by CARTA partners YoloTD, SACOG, and Caltrans. Additional funding needed prior to sufficient toll revenue collection will be sought by the CARTA. It is anticipated that future toll revenues from the managed lanes will be used to repay funding advances. The reimbursement schedule will be determined through negotiations among the parties.

CARTA will be responsible for setting up and managing the initial reserve account, which contains the initial operation fund as well as funds set aside to cover unforeseen expenses, potential revenue shortfalls, or specific costs associated with the tolling facility. CARTA will determine the reserve size based on the needs and risk of the project, typically one year of the O&M cost. CARTA is responsible to ensure the initial reserve account setup complies with all relevant laws and regulations.

In preparation for the commencement of Phase 1 of the Yolo 80 Project, CARTA will assume the responsibility of formalizing multiple Operation and Maintenance (O&M) agreements. These agreements are crucial to ensure the continuous functionality, safety, and sustained maintenance of the infrastructure. The critical O&M agreements include:

- Financial Back Office (FBO) and Customer Service Center (CSC) Service Agreement
- Traffic Monitoring and Incident Response Service Agreement
- Roadside Toll System Integrator (RTSI) O&M Agreement
- Facility O&M Agreement
- 3rd Party O&M Agreement

It is anticipated that CARTA will enter into the Facility O&M agreement and the Traffic Monitoring and Incident Response Service Agreement with Caltrans in the June 2025 timeframe. The Facility O&M Agreement with Caltrans will inform as to whether any additional Third-Party O&M agreements are necessary based on the scope of work covered with Caltrans. The FBO and CSC agreements are anticipated to be entered into with a partnering California toll facility operator with the capacity to provide services, and the timing of this agreement will be well in advance of any testing required with the Roadside Toll System Integrator (RTSI). The timing of the RTSI procurement and subsequent O&M agreement will be determined by the CARTA Board but will also be executed with enough time to design, test, and deploy the system before the anticipated launch date in 2028.

5.B Expenditure Plan for Excess Revenues

If an expenditure plan for excess revenues has not yet been adopted by the appropriate governing entity, has the applicant included a discussion of its intentions for revenues collected beyond those necessary for any debt service, operations, and reserved as defined in AB 194?

Title 23 USC Section 129 governs Federal participation in funding and constructing toll facilities, encompassing highways, bridges, tunnels, and approaches. It addresses aspects such as initial construction, toll-free facility conversion, reconstruction, and high occupancy vehicle lane conversion to toll facilities. This section sets limits on toll revenue use, conditions for federal reimbursement, and mandates annual audits.

According to 23 USC Section 129.a.3, a public authority overseeing a publicly funded toll facility must ensure toll revenues are solely used for:

i. Debt service for authorized projects, including reserves and refinancing debt service;
ii. Costs for facility improvement, operation, maintenance, reconstruction, resurfacing, restoration, and rehabilitation; and
iii. Other purposes certified annually, provided the facility is adequately maintained.

CARTA plans to utilize toll revenues in a "waterfall" structure which determines a hierarchy of toll revenue allocation. In this system, funds are used for debt service, operations and maintenance, rehabilitation and replacement, VMT mitigation projects, and the establishment of reserve funds. Planned reserves include but are not limited to:

- Operations and Maintenance: While regular operations and maintenance costs are covered by revenue outside of the use of reserves, an Operations and Maintenance Reserve is intended to cover operations and maintenance costs in the event of a possible future significant downturn in revenue, e.g. resulting from a natural disaster, pandemic, or similar severe and sustained disruption. The value of the reserve will be determined as part of the Remaining Revenue Policy and is likely to include approximately one year of O&M costs. Eligible items may include routine maintenance, infrastructure repairs, equipment maintenance and replacement, personnel costs, utilities, and insurance.
- Emergency: Reserve funds designated to address unforeseen and urgent situations that threaten the normal operation or safety of the facility, including immediate repairs, disaster response, security measures, public communication, temporary facilities, emergency response personnel, equipment replacement, vandalism, and contingency planning.
- Highway Resilience: Reserve funds to address potential and continuous improvement and optimization of a free and safe traffic flow including traffic flow optimization, signage and markings, safety barriers, lighting enhancements, public awareness campaigns, technology upgrades, road surface improvements, emergency response preparedness, accessibility enhancements, and monitoring and evaluation.

Followed thereafter, excess net revenues may be used toward various programs and capital projects within the corridor, but outside of the specific toll facility. Under 23 USC, federal funds allocated to a state can be used for various highway and transportation projects. Eligible uses described under this section can be organized under the following categories:

- Civil Infrastructure Development and Asset Management
- Technology, Infrastructure Development, and Intelligent Transportation Systems (ITS)
- Transportation Planning and Performance Management
- Environmental and Resilience
- Transit Capital Investment and Support
- Access, Equity, and Alternative Transportation
- Safety and Emergency Response
- Research, Development, and Education

Expenditure of excess revenue generated on the Yolo 80 Express Lanes will be subject to a Remaining Revenue Policy and Expenditure Plan developed by CARTA. CARTA intends to develop its Remaining Revenue Policy, which will describe its intentions for revenues necessary for operations, debt service,

and reserves, as well as the eventual development of an Expenditure Plan for net toll revenue in excess of those amounts, as part of its initial actions following formation. CARTA anticipates that the Expenditure Plan will contain projects and programs that represent a mix of the categories listed above, depending upon the priorities that emerge as the Project develops by the time excess net toll revenue is available.

6. Regional Transportation Plan & Community Support

6.A Consistency with Existing Plans

Is the project consistent with the regional transportation plan and affected city and county comprehensive plans? If not, does the applicant discuss strategies that may help achieve consistency with such plans when possible or practicable?

The segments of the I-80/US-50 corridor in the project area traverse multiple jurisdictions and are subject to policies from several plans and programs guiding development and transportation within the Land Use Study Area. These include the SACOG Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS), the Solano County General Plan, City of Davis General Plan, Yolo County Revised Draft 2030 Countywide General Plan, City of West Sacramento General Plan, City of Sacramento 2035 General Plan, and Sacramento County 2030 General Plan. The following tables describe how the Project is consistent with each of these plans. Please see PART A.2 for information on consistency with the regional transportation plan.

SACOG's 2020 MTP/SCS is a comprehensive transportation and land use strategy for the SACOG Planning Area, focusing on improving access to jobs, transportation options, and affordable housing, enhancing air quality, preserving open spaces, and reducing greenhouse gas (GHG) emissions. The plan acknowledges Caltrans-managed lane projects as vital for transportation revenue and pricing, with pricing mechanisms deemed essential for funding, mobility benefits, traffic management, and meeting GHG reduction targets. (Caltrans 2023a).

Table 7: Consistency with Sacramento Area Council of Governments (SACOG) 2020 Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS)

Policy	Consistency
Policy 12: Take steps to implement tolling or pricing of specific lanes on major facilities, such as freeways, to improve traffic management, reliability, and operations of those facilities and to help raise funding for the cost of building and maintaining large capital investments.	Consistent. Project would implement tolling or pricing strategies.
Policy 13: All new major expansion projects on the region's freeways and expressways should be planned for eventual deployment of pricing options to both manage demand and provide a financing mechanism for capital costs. Any pricing strategy pursued should be sensitive to changes in roadway demand during different parts of the day (peak/off-peak) with the objective of managing demand and providing travel choice.	Consistent. Project would implement tolling or pricing strategies.
Policy 14: Revenues generated from facility-	Consistent. Project would implement tolling or

based pricing should be used to build and maintain a regional network of paid express lanes and, where surplus revenue is available, on strategic transit services (e.g., express buses) or other mobility solutions that can reduce vehicle miles traveled and provide multiple travel options along priced corridors	pricing strategies.
Policy 16: When implementing pricing strategies, both paid express lanes and mileage-based fees/PayGo, the region should make every effort to avoid negatively impacting lower-income and rural households. For regional implementation of PayGo, explore innovative options for setting fees, such as including offsetting incentives for non-vehicular travel, offsets to fees for disadvantaged households, and keying fee rates to maintenance and fix-it-first goals.	Partially consistent. Project would implement tolling or pricing strategies. It would benefit all travelers using the I-80/US-50 corridor, including environmental justice communities. While they would not negatively affect lower-income or rural households, these alternatives may have proportionally smaller benefits to lower-income and rural households who may be less able to pay fees for the use of managed lanes. CARTA will develop an equity program that seeks to maximize benefits and minimize the burdens of the project for those who experience high transportation burdens and other disparities. CARTA's equity approach is described in 4.C above.
Policy 18: System expansion investments that are not directly paid for by new development should be focused on fixing major bottlenecks that exist today, and/or incentivize development opportunities in infill areas	Consistent. Project would address key existing bottleneck locations on I-80/US-50 in the project area.
Policy 22: Invest in bicycle and pedestrian infrastructure to encourage healthy, active transportation trips and provide recreational opportunities for residents and visitors	Consistent. Project would extend the westernmost limit of the existing Class I bicycle pathway along I-80 at the Yolo Causeway to connect to CR-32A.
Policy 23: Prioritize and incentivize transportation investments that benefit environmental justice communities	Partially consistent. Project would benefit all travelers using the I-80/US-50 corridor, including environmental justice communities. However, this alternative may have proportionally smaller benefits to environmental justice communities who may be less able to pay fees for use of HOT or express lanes.
Policy 24: Invest in transportation improvements that improve access to major economic assets and job centers.	Consistent. Project would improve circulation on I-80/US-50 in the project area, which would improve access to major economic assets and job centers

A small part of the project area is located within unincorporated Solano County. The Solano County General Plan's Transportation and Circulation chapter outlines policies for circulation in the county.

A small part of the project area is located within unincorporated Solano County. The Solano County General Plan's Transportation and Circulation chapter outlines policies for circulation in the county.

The 2017 Solano County Regional Transportation Plan (RTP), managed by the Solano County Metropolitan Transportation Commission, does not include managed lanes between Kidwell Road and the Yolo County line. Although not part of the current RTP update, Caltrans will discuss including this section of the project in the RTP update with Caltrans District 4 and the Solano County Transportation Authority.

Table 8: Consistency with Solano County General Plan

Policy	Consistency
Policy TC.P-1: Maintain and improve current transportation systems to remedy safety and congestion issues and establish specific actions to address these issues when they occur.	Consistent. Project would include managed lanes to improve traffic operations on I-80/US-50 in the project area
Policy TC.P-8: Actively participate with Caltrans, Solano Transportation Authority, cities, and other agencies to plan for any proposed future realignments of current interregional routes.	Consistent. The project would include managed lanes to improve traffic operations on I-80/US-50 in the project area and this is being coordinated with other transportation planning agencies.
Policy TC.P-18: Encourage the development of transit facilities and operations along major corridors to connect the county with surrounding activity centers and regional destinations.	Consistent. Project would include managed lanes to improve traffic operations on I-80/US-50 in the project area and development of a new Mobility Hub

The City of Davis General Plan (Amended 2007) features a transportation element guiding the evolution of the city's transportation system to 2035.

Table 9: Consistency with City of Davis General Plan

Policy	Consistency
Policy 1.2: Transportation access, accommodations, and circulation should contribute to creating a supportive environment for economic development in the downtown for both residents and visitors	Consistent. Project would improve traffic operations on I-80/US-50 in the project area, limiting cut through traffic in Davis.
Policy 6.3: • Address Davis' transportation needs as a major regional destination. • Regularly coordinate with SACOG to ensure Davis transportation needs and priorities are appropriately considered. • Coordinate with Yolo County, Solano County, and UC Davis to improve multi-modal access and connectivity between major intercity destinations. • Coordinate with Yolobus, SACOG, UC Davis, and other relevant entities to provide direct public transportation service from Davis to Sacramento International Airport.	Consistent. Project would improve traffic operations on I-80/US-50 in the project area.

• Coordinate with Caltrans regarding highway corridor planning for segments that are within or may affect those within the Davis city limits related to: o Highway lane widenings o HOV lanes o HOT lanes o Interchange improvements or additions o Bicycle connectivity	

The UC Davis LRDP (2018) presents growth policies for the Davis campus and Russell Ranch research lands in Yolo and Solano counties.

Table 10: Consistency with University of California, Davis 2018 Long-Range Development Plan

Policy	Consistency
Preserve and Enhance the Bicycle and Pedestrian Infrastructure: Preserve, enhance, and expand bicycle and pedestrian infrastructure; expand bicycle pathways and increase bicycle parking areas throughout the campus; improve bicycle safety through educational programs; reduce bicycle and pedestrian conflicts; provide more designated areas for pedestrians; provide safe and gracious walkways for pedestrians throughout campus.	Partially consistent. Project would extend the westernmost limit of the existing Class I bicycle pathway along I-80 at the Yolo Causeway to connect to CR-32A.
Foster A Healthier Transportation Ecosystem: Enhance and expand travel services and programs to meet the daily mobility needs of the campus community and create a healthier transportation ecosystem; promote more sustainable travel choices to improve health of the individual, the environment, and the institution.	Consistent. Project would include managed lanes to promote multi-modal transportation options and improve traffic operations on I-80/US-50 in the project area.
Enhance Transit Service: Preserve and enhance transit service; continue to prioritize and improve transit access to the core campus area; consider improvements to the Hutchison Drive corridor for Unitrans buses and for safely mixing buses, bikes, and pedestrians.	Consistent. Project would include managed lanes to promote multi-modal transportation options and improve traffic operations on I-80/US-50 in the project area
Promote Ride Sharing: Promote carpools and vanpools as viable transportation options that reduce parking demand for the campus community; monitor the utilization of ride-hailing services and proactively manage campus circulation network to promote walking, biking, and busing as preferred travel modes.	Partially consistent. The managed lanes under the Project would incentivize increased vehicle occupancy, ride sharing, and/or transit use

Single Occupancy Vehicle Reduction: Per the University of California Policy on Sustainable Practices, strive to reduce the percentage of employees and students commuting by single occupancy vehicles (SOV) in 2025 by 10 percent relative to 2015-16 SOV commute rate. By 2050, strive to have no more than 40 percent of employees and no more than 30 percent of all employees and students commuting by SOV.	Partially consistent. The managed lanes under the Project would incentivize increased vehicle occupancy and/or transit use, thereby reducing SOV

Yolo County's Revised Draft 2030 Countywide General Plan (Yolo County 2009) outlines land use planning for unincorporated areas, emphasizing multi-modal travel and non-vehicular trips.

Table 11: Consistency with Yolo County Revised Draft 2030 Countywide General Plan

Policy	Consistency
Policy CI-1.4: Continue to work with Caltrans, SACOG, cities, and other regional agencies to achieve timely construction of freeway, interchange, highway, and County Road improvements that are consistent with this General Plan. The County shall assist Caltrans in implementing improvements to State Highway facilities that are required due to new growth and are consistent with this General Plan	Consistent. Project would include managed lanes to improve traffic operations on I-80/US-50 in the project area
Policy CI-1.10: Coordinate with appropriate entities to maintain the following as primary routes for emergency evacuation from Yolo County: I-80 – East into Sacramento and west toward Solano County and the San Francisco Bay Area	Consistent. Project would include managed lanes to improve traffic operations on I-80/US-50 in the project area.
Policy CI-2.1: When constructing or modifying roadways, plan for use of the roadway space by all users, including automobiles, trucks, alternative energy vehicles, agricultural equipment, transit, bicyclists, and pedestrians, as appropriate to the road classification and surrounding land uses.	Partially consistent. Project would incentivize increased vehicle occupancy and/or transit use. They would also extend the westernmost limit of the existing Class I bicycle pathway along I-80 at the Yolo Causeway to connect to CR-32A.
Policy CI-2.3: Ensure that, wherever feasible, public transit and alternative mode choices are a viable and attractive alternative to the use of single occupant motor vehicles.	Partially consistent. The managed lanes under the Project would incentivize increased vehicle occupancy and/or transit use.
Policy CI-3.1: Maintain Level of Service (LOS) C or better for roadways and intersections in the unincorporated county. In no case shall land use be approved that would either result in worse than LOS C conditions or require additional improvements to maintain the required level of	Consistent. Project would improve traffic operations on I-80/US-50 in the project area. The "B" alternatives would further improve operations with managed lane direct connectors at the I-80/US-50 interchange.

service, except as specified below. The intent of this policy is to consider level of service as a limit on the planned capacity of the County's roadways. I-80 (Davis City Limit to West Sacramento City Limit) – LOS F is acceptable to the County. LOS F is anticipated by Caltrans according to the Interstate 80 and Capital City Freeway Corridor System Management Plan (Caltrans 2009, as cited in Yolo County 2009).	
Policy CI-3.3: CEQA review for subsequent projects will analyze project traffic and circulation impacts using both the Yolo County General Plan policies and Caltrans policies as applicable. A. Consider the following objectives, following consultation with Caltrans, when making decisions to expand or modify the State highway system in Yolo County: 1. Minimize impacts to the environment. 2. Minimize increases in GHGs and air pollutants. 3. Minimize increases in VMT. 4. Minimize long-distance commute trips. 5. Fully utilize existing capacity while maintaining stable flows and speeds. 6. Provide facilities for all users including pedestrians, bicyclists, carpool users, and transit riders.	Partially consistent. Project would incentivize increased vehicle occupancy and/or transit use, which could minimize increases in VMT and would provide facilities for carpool users and transit riders. Project would also improve an existing facility for bicyclists by extending the westernmost limit of the existing Class I bicycle pathway along I-80 at the Yolo Causeway to connect to CR-32A
Policy CI-1.14: Encourage inter- and intra-regional traffic to use State and federal interstates and highways. The primary role of County Roads is to serve local and agricultural traffic.	Consistent. Project would include managed lanes to improve traffic operations on I-80/US-50 in the project area, which could encourage inter- and intra-regional traffic to use these routes, rather than county roads.
Policy CI-4.3: Reduce dependence upon fossil fuels through: Reduction of vehicle trips and VMT by requiring compact, infill and mixed-use development. Use of alternatives to the drive-alone automobile, including walking, bicycling, and public transit. Promotion of ride sharing and car sharing programs.	Partially consistent. Project would incentivize increased vehicle occupancy and/or transit use, which could promote the use of alternatives to the drive-alone automobile. They would also improve an existing facility for bicyclists.

The City of West Sacramento's General Plan 2035 details city development, land use, transportation, and public infrastructure (City of West Sacramento 2016).

Table 12: Consistency with City of West Sacramento General Plan

Policy	Consistency

Policy M-1.1: Connectivity. The City shall strive to develop a comprehensive, safe, and fully integrated multimodal transportation system that connects residents, visitors, and employees to the city and region through all available modes including connected vehicles, car/bikeshare, and autonomous modes.	Consistent. Project would improve traffic operations on I-80/US-50 in the project area with managed lane direct connectors at the I-80/US-50 interchange.
Policy M-1.2: Multi-modal Corridors. The City shall establish multi-modal corridors and hubs within and between urban centers and along major corridors.	Consistent. Project would improve traffic operations and multi-modal opportunities on I-80/US-50 in the project area and include a new Mobility Hub in West Sacramento.
Policy M-1.3: Reduce Vehicle Miles Traveled. The City shall endeavor to reduce VMT and dependence on fossil fuels by continuing to develop a comprehensive multi-modal transportation system and compact, mixed-use development that includes more transit, bicycle, and pedestrian routes	Partially consistent. Project would incentivize increased vehicle occupancy and/or transit use. However, reduction in travel time with these alternatives would induce demand and increase VMT compared to the No-Build Alternative. Project would also extend the westernmost limit of the existing Class I bicycle pathway along I-80 at the Yolo Causeway to connect to CR-32A
Policy M-1.4: Public Involvement. The City shall continue to involve the public, especially those traditionally underserved by transportation services, and seek public input on transportation issues, projects, and processes from the early stage of the planning process.	Consistent. Caltrans and other stakeholders have coordinated extensive public feedback on the Project.
Policy M-2.2: Connecting and Balance. The City shall preserve and continue to develop a comprehensive, integrated, and connected network of streets that balance walking and bicycling with public transit, automobiles, and trucks.	Consistent. Project would improve traffic operations and multi-modal opportunities on I-80/US-50 in the project area.
Policy M-2.5: Street Amenities. The City shall require public transit, bicycle, and pedestrian amenities in street design to promote the walking, bicycling, and public transit use and complement the context of nearby centers, corridors, and neighborhoods.	Partially consistent. Project would incentivize increased vehicle occupancy and/or transit use. It would also extend the westernmost limit of the existing Class I bicycle pathway along I-80 at the Yolo Causeway to connect to CR-32A
Policy M-3.4: Multi-modal Roadway Level of Service. The City shall develop, maintain, and implement multi-modal LOS roadway standards to measure trade-offs among modes and/or create a more balanced transportation system. The City shall endeavor to achieve levels of service for bikeways, pedestrian ways, and public transit that are at least as efficient as the automobile LOS.	Partially consistent. The managed lanes under the Project may improve the public transit LOS. They may also improve LOS for bikeways by extending the westernmost limit of the existing Class I bicycle pathway along I-80 at the Yolo Causeway to connect to CR-32A
Policy M-3.13: Emergency Service Coordination.	Consistent. Project would implement a TMP

The City shall coordinate development and maintenance of all transportation facilities with emergency service providers to ensure continued emergency service operation and service levels.	during construction to maintain emergency service operations and response times. Improved peak-hour traffic operations on I-80/US-50 in the project area would improve long-term emergency service operation.
Policy M-4.1: Access to Public Transit. The City shall strive to ensure that all residents have access to adequate and safe public transit options that reduce dependence on fossil fuels and increase physical activity	Partially consistent. The managed lanes under the Project would incentivize increased vehicle occupancy and/or transit use.
Policy M-4.2: Affordable Public Transit. The City shall work with the Yolo County Transit District (Yolobus) to provide adequate and affordable public transit choices, including expanded bus routes and service.	Partially consistent. The managed lanes under the Project would incentivize increased vehicle occupancy and/or transit use.
Policy M-4.3: Transit Priority. The City shall consider the use of transit preferential measures, such as signal priority, bypass lanes, and queue jumps, to improve transit service reliability.	Partially consistent. The managed lanes under the Project could improve transit service reliability.
Policy M-4.14: Park and Ride. The City shall cooperate with Caltrans and Yolobus in the development of Park-and-Ride facilities near major transportation corridors.	Consistent. Project would include construction of a Mobility Hub in West Sacramento.

The City of Sacramento 2035 General Plan articulates the city's vision, themes, and organizational framework, offering guidance for future development and resource preservation. The plan includes a Mobility Element within the Citywide Goals and Policies section, outlining Sacramento's transportation-related goals and policies.

Furthermore, the City of Sacramento is in the process of updating its general plan and is set to adopt the 2040 General Plan in 2023. The 2040 General Plan Draft Land Use Map, along with proposed changes to roadways and other strategic initiatives, was presented to the Sacramento City Council on January 19, 2021. Notably, the draft plan introduces substantial changes in policy, including the allowance of diverse housing types in single-unit neighborhoods, such as duplexes, triplexes, and fourplexes. This change aims to foster denser development in areas traditionally designated for single-family residences. The goals and policies for the draft 2040 General Plan are currently under community review until August 2023 and are expected to be adopted in early 2024. It is important to note that the proposed Build Alternatives are in alignment and will not conflict with the forthcoming housing and climate change policies outlined in the draft 2040 General Plan.

Table 13: Consistency with City of Sacramento 2035 General Plan

Policy	Consistency
M.1.2.1. The City shall develop an integrated, multimodal transportation system that improves the attractiveness of walking, bicycling, and riding transit over time to increase travel choices and aid in achieving a more balanced transportation	Partially consistent. Project would incentivize increased vehicle occupancy and/or transit use. They would also extend the westernmost limit of the existing Class I bicycle pathway along I-80 at the Yolo Causeway to connect to CR-32A. Project

system and reducing air pollution and GHG emissions	would further improve operations with managed lane direct connectors at the I-80/US-50 interchange.
M.1.3.6. The City shall work with adjacent jurisdictions and SACOG to identify existing and future transportation corridors that should be linked across jurisdictional boundaries to provide desired upstream and downstream traffic operations and to preserve sufficient right-of-way.	Consistent. Project would improve traffic operations on I-80/US-50 in the project area. Project would further improve operations with managed lane direct connectors at the I-80/US-50 interchange.
M.1.4.1. The City shall work with a broad range of agencies (e.g., SACOG, SMAQMD, SacRT, Caltrans) to encourage and support programs that increase regional average vehicle occupancy, including the provision of traveler information, shuttles, preferential parking for carpools/vanpools, transit pass subsidies, road and parking pricing, and other methods.	Consistent. The types of managed lanes under the Project would incentivize increased vehicle occupancy and/or transit use.
M.1.5.6. The City shall support State highway improvement projects and management plans consistent with the MTP/SCS.	Consistent. Project would improve traffic operations on I-80/US-50 in the project area consistent with the MTP/SCS. Project would further improve operations with managed lane direct connectors at the I-80/US-50 interchange.

The Sacramento County 2030 General Plan serves as a comprehensive framework guiding growth and development within unincorporated Sacramento County. The plan emphasizes economic expansion and environmental sustainability, addressing the needs and issues of existing communities while establishing a foundation for the development of new communities. Key components of the Sacramento County General Plan include an updated growth management strategy, a reinforced focus on existing communities and the revitalization of aging commercial corridors, the introduction of a new economic development element, and strategies to decrease greenhouse gas (GHG) emissions in compliance with state regulations.

On October 6, 2020, the Circulation Element of the Sacramento County General Plan was amended. Sacramento County endorses the development of a regional network of Bus/Carpool lanes, extending to both I-80 and US-50 within the project area.

Table 14: Consistency with Sacramento County 2030 General Plan

Policy	Consistency
Policy CI-2. Promote continued mobility for individuals whose access to automobile transportation is limited by age, illness, income, desire, or disability.	Partially consistent. Although the Project does not explicitly include improvements that benefit individuals whose access to automobile transportation is limited by age, illness, income, desire, or disability, the Project includes ITS, a Mobility Hub, and auxiliary lane improvements that would help facilitate circulation between I-80 and the surrounding surface streets,

	benefiting environmental justice community members using bus and transit service.
Policy CI-3. Travel modes shall be interconnected to form an integrated, coordinated, and balanced multi-modal transportation system, planned, and developed consistent with the land uses to be served	Partially consistent. Project would improve operations and safety on I-80/US-50 in the project area, incentivize increased vehicle occupancy and/or transit use, and are consistent with the land uses to be served. Project includes bicycle and pedestrian infrastructure improvements that would promote non-motorized travel modes throughout the project area.
Policy CI-4. Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services	Partially consistent. Project would not provide multiple transportation choices and would incentivize increased vehicle occupancy.
Policy CI-11. To preserve public mobility, freeways and thoroughfares should have limited access and maintain functional characteristics that predominantly accommodate through-traffic.	Consistent. Project would improve traffic operations on I-80/US-50 in the project area. Project would further improve operations with managed lane direct connectors at the I-80/US-50 interchange.
Policy CI-13: Collaborate with regional transportation planning agencies and neighboring jurisdictions to provide cross-jurisdictional mobility	Consistent. Project would improve traffic operations on I-80/US-50 in the project area, improving cross-jurisdictional mobility. Project would further improve operations with managed lane direct connectors at the I-80/US-50 interchange.
Policy CI-19. Collaborate with transit service providers to provide transit services within the County that are responsive to existing and future transit demand.	Partially consistent. Although there would not be an exclusive transit lane under the Project, transit use of managed lanes may result in reduced travel times for transit users.
Policy CI-20. Promote transit services in appropriate commercial corridors and where population and employment densities are sufficient or could be increased to support those transit services.	Partially consistent. Although there would not be an exclusive transit lane under the Project, transit use of managed lanes may result in reduced travel times for transit users.
Policy CI-23. Consider the transit needs of senior, disabled, low-income, and transit-dependent persons in making recommendations regarding transit services.	Partially consistent. Although there would not be an exclusive transit lane under the Project, transit use of managed lanes may result in reduced travel times for transit users.
Policy CI-41. Consider Transportation System Management programs that increase the average occupancy of vehicles and divert automobile commute trips to transit, walking, and bicycling.	Consistent. The types of managed lanes under the Project would incentivize increased vehicle occupancy and/or transit use.
Policy CI-42. Collaborate with other agencies to develop measures to provide for more efficient traffic flow, reduce vehicular travel demand and meet air quality goals.	Consistent. To varying degrees, Project would improve traffic operations on I-80/US-50 in the project area, improving traffic flow. Project would further improve operations with managed

	lane direct connectors at the I-80/US-50 interchange.

Comprehensive Multimodal Corridor Plan

The project is consistent with the I-80 Comprehensive Multimodal Corridor Plan (CMCP) completed in 2022 that covered the I-80 corridor in Solano, Yolo, and portions of Sacramento County. The CMCP included alternatives that analyzed tolling alternatives for the I-80 corridor consistent with the project. The CMCP was developed and approved in partnership with both Caltrans Districts, regional MPOs and RTPAs, and other city, county, and regional partners.

6.B Consideration of Impacts

Does the applicant explicitly consider the potential diversions of vehicles onto adjacent routes that could lead to congestion, safety problems, and infrastructure damage due to the imposition of tolls on particular facilities?

Based on modified SACSIM19 model output comparing the no build alternative with existing conditions, regional VMT is expected to grow by 8 percent in 2029 and 35 percent in 2049 under the no build alternative. The no build alternative would have the highest regional VMT by 2049 as travelers shift to longer routes to reduce overall travel time.

Under the preferred alternative, the Project is projected to produce 82.2M regional daily VMT by 2049, compared to 85.2M under the no build alternative. It is important to mention that as part of analysis, the NCST calculator estimated that the additional lane added by the Project would produce an additional 495,300 long-term induced daily VMT as a result of induced demand, as compared to the no-build alternative. In this same timeframe, the corridor daily VMT is projected to be 4.6M corridor daily VMT with the Project, compared to 4.5M in the no build alternative.

In summary, while the Project adds a lane, it only marginally increases VMT on the corridor, while significantly reducing the VMT generated in the region. It accomplishes this by reducing congestion on the corridor compared to the no-build alternative to the extent that it prevents long-distance diversions during peak periods. This makes evident the benefit the Project provides in allowing traffic to remain on the most direct routes, discouraging lengthier trips to avoid congestion on the I-80 corridor.

VMT Growth Mitigation Strategies

As mentioned above and documented in Section 7 of the Concept of Operations report, a VMT analysis for the proposed project alternatives indicates that adding capacity, for both tolled alternatives and non-tolled alternatives would result in some level of net VMT growth over time from the induced demand. However, the traffic operation analysis concludes that the managed capacity addition contributes to the bottleneck throughput relief, corridor travel time reduction, and deficiency operation reduction. To mitigate the VMT growth, the following strategies will be considered:

- Carpool and vanpool incentives, plus enhanced Mobility Hubs to encourage travelers to increase vehicle occupancy (Alternatives 2, 3, 4 and 5)
- Dynamic pricing strategy to control the Express Lane usage to reduce the overall travel demand on the corridor (Alternatives 3, 4 and 5)

Specific efforts that are being incorporated in the project or under consideration as VMT mitigation efforts with the local agencies that align with CAPTI include:

- Voluntary Trip Reduction Program in Yolo County (Expand current program provided by Yolo Commute, to include features such as community-based travel planning, ridesharing, transit pass subsidies, and pay-per-mile auto insurance.)
- Expand Capitol Corridor Frequency between Oakland and Sacramento
- Microtransit in Yolo County (Expand transit service to add flexible route buses with more frequent service and/or longer service hours.)
- Subsidize Monthly Transit Passes in Yolo County
- Reduce Transit Fares (Reduce the monthly bus fare for Yolobus and Capitol Corridor)
- Expand Causeway Connection Route 138
- Expand Unitrans
- Build Overcrossing at Future Nishi Student Housing Development Site

The identified VMT reduction strategies and mitigation measures summarized above are intended to be implemented within the Yolo I-80 Project corridor, where applicable, or to be included in future improvements within the corridor. It should be emphasized that potential mitigation measures associated with the Build Alternatives are preliminary at this time as the true extent of required mitigation has not yet been confirmed. Future agreements and/or further design engineering refinements may also change the mitigation measures recommended for implementation along with the Yolo I-80 Express Lanes.

6.C Fulfilling Policies and Goals

In what ways does the proposed project help achieve performance, safety, mobility, economic, or transportation demand management goals?

The Project will achieve significant performance, mobility, economic, and transportation management improvements. Quantitative improvements are described in detail in PART A.1 and PART B.3. To summarize:

- The project would add managed lanes on I-80 and US-50 by a combination of restriping and shoulder and median reconstruction with a concrete barrier. Drainage modifications would be required due to median reconstruction in the locations to which sheet flow currently drains. The existing Intelligent Transportation System, (ITS) elements and infrastructure would be expanded and modified and would include ramp meters, fiber-optic conduit and cables, and overhead signs.
- The Project reduces congestion at key locations such as Mace Boulevard and County Road 32B during both AM and PM peak periods.
- The Project reduces congestion at other bottlenecks like the Yolo Causeway, resulting in improved traffic flow and reduced travel times.
- Safety Impacts: Project would reduce congestion and likely lower collision rates, particularly rear-end collisions.
- Transit Impacts: Project would increase transit ridership over the no build alternative and save significant travel time for Route 138. It also includes the construction of a mobility hub with parking spaces and a transit transfer station.

- Bicycle and Pedestrian Impacts: Project includes improvements to the Class IV bicycle/pedestrian path on the Yolo Causeway, including pavement rehabilitation, raised barriers, and a new connection at County Road 32A.
- Freight Impacts: Project would benefit freight distribution by reducing traffic congestion, leading to a reduction of 84% in daily truck hours of delay for trucks and an improvement in the Reliability Index for Truck Travel Time from 1.73 to 1.19 compared to the no-build alternative. For more on the Project's significance to local, regional, and national freight, see PART B.3 and PART B.4.A.

6.D Environmental Considerations

Is the proposed project consistent with applicable state and federal environmental statutes and regulations? Does the proposal adequately address or improve air quality and other environmental concerns?

The Project is consistent with applicable state and federal environmental statutes and regulations. With Caltrans as the lead agency, both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) processes were completed with a Finding of No Significant Impact (FONSI). The joint CEQA/NEPA document (Final EIR/EA) was approved [DATE]. The Notice of Determination (NOD) can be found at [LINK], and the Finding of No significant Impact (FONSI) Notice of Availability (NOA) can be found at [LINK].

An Environmental Commitment Record for the Project is included in the Final EIR/EA and lists mitigations to be implemented as identified during the NEPA/CEQA process [REFERENCE].

Section [REFERENCE] of the Final EIR/EA covers environmental justice topics and finds that the Build Alternative will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of EO 12898, and that no further environmental justice analysis is required. The 3 volumes of the Final EIR/EA are located at [LINK].

Air Quality

The Project is included in in the adopted MTP SCS and meets regional Air Quality Conformity. The Air Quality Conformity Report will be submitted to FHWA after selection of the preferred alternative. FHWA will make a conformity determination prior to final approval of the Final EIR/EA.

Yolo County is in attainment of all National Ambient Air Quality Standards (NAAQS). Sacramento County is designated as Maintenance (Moderate) for PM10 and Nonattainment (Moderate) for PM2.5. For the more stringent California Ambient Air Quality Standards (CAAQS), both Sacramento County and Yolo County are designated Nonattainment for O3 and PM10 and are in attainment of all other State standards.

Table 15: Total Daily Emissions with and Without Preferred Alternative

Measure	Metric	Build (2049)	Future No Build (2049)	Change (%)	Increase/ Decrease
Air Quality and Greenhouse	Particulate Matter (PM 10) (lb./day)	764.4	746.3	3.0	Increase

Gases					
	Particulate Matter (PM 2.5) (lb./day)	146.8	145.4	1.0	Increase
	Carbon Dioxide (CO2) (lb./day)	993.4	1,031.4	-3.7	Decrease
	Volatile Organic Compounds (VOC) (lb./day)	186.8	249.3	-25.1	Decrease
	Carbon Monoxide (CO) (lb./day)	3403.2	3719.5	-8.5	Decrease
	Nitrogen Oxides (NOx) (lb./day)	414.0	533.4	-22.4	Decrease

6.E Community/Stakeholder Support

What is the extent of support or opposition for the project? Does the project proposal demonstrate an understanding of the national and regional transportation issues and needs, as well as the impacts this project may have on those needs? Is there a demonstrated ability to work with the affected communities?

The environmental process for the Project is characterized by early and continuing coordination with the general public and relevant public agencies. This coordination is essential for determining the scope of environmental documentation, the level of analysis, potential impacts, mitigation measures, and associated environmental requirements. The California Department of Transportation (Caltrans) has employed various formal and informal methods, including project development team meetings, interagency coordination meetings, and correspondence with other stakeholders, to achieve agency consultation and public participation.

Public Scoping and Participation

The public scoping and participation phase commenced with the filing of a Notice of Preparation (NOP) memorandum with the State Clearinghouse on June 6, 2021. The NOP was revised on August 17, 2021, to reschedule the scoping meeting, and again on October 17, 2022, to clarify proposed managed lane strategies and build alternatives. Caltrans accepted comments until September 24, 2021. Public awareness about the scoping phase was raised through newspaper advertisements, social media platforms, and Caltrans' project website. The community and media were also notified via email.

Two virtual public scoping meetings were held on August 25, 2021, through WebEx, with the aim of discussing the scope of the Environmental Impact Report/Environmental Assessment (EIR/EA) and the potential effects of the project. The meetings featured presentations on the project and the environmental review process, and attendees were encouraged to submit comments during the meeting or to Caltrans staff via mail or email.

Comments received from the public during the meetings covered various topics, including proposed bicycle facilities, project funding, nearby projects, project timing, lane configurations, sound wall locations, and work within the Yolo causeway. Additionally, written comment letters raised concerns about potential air quality effects on sensitive receptors, increased flood risks, potential fish passage impacts, Native American Tribal consultation, and utility relocation.

Public Review and Comment

The Draft Environmental Document (DED) was circulated for public review starting November 13, 2023. Caltrans held public hearings on the DED on November 28, 2023 in West Sacramento and December 13, 2023 in Davis. The public comment period ended on January 12, 2024.

Stakeholder Meetings

In addition to public scoping, Caltrans established a steering committee for the project, comprising local stakeholders such as the Cities of Davis and West Sacramento, Yolo County, the Sacramento Area Council of Governments (SACOG), the Yolo County Transportation District, UC Davis, and the Bicycle Coalition. The steering committee conducted several public meetings in Davis, Sacramento, and West Sacramento between 2018 and 2021 to discuss the project and gather community input. The meetings occurred as follows:

- June 6, 2018, Davis Senior Center, 646 A Street, Davis, CA 95616, 6:00 p.m.–7:30 p.m.
- June 14, 2018, West Sacramento City Hall, 1110 West Capitol Avenue, West Sacramento, CA 95691, 6:00 p.m.–7:30 p.m.
- June 21, 2018, Sacramento City Hall, 915 I Street, Sacramento, CA 95814, 6 p.m.–7:30 p.m.
- November 21, 2019, Mary L. Stephens Davis Library Blanchard Room, 315 East 14th Street, Davis, CA 95616, 6:30 p.m.–7:30 p.m.
- February 27, 2020, West Sacramento City Hall, 1110 West Capitol Avenue, West Sacramento, CA 95691, 6:30 p.m.–7:30 p.m.
- August 25, 2021, Virtual (via WebEx), 6:00 p.m. and 7:00 p.m.

The meetings facilitated discussions about potential project activities and provided a platform for answering questions from the public. Comments received from attendees covered topics such as bicycle improvements, potential toll lane pricing, sound wall locations, design alternatives, construction impacts on bat species, and other project design elements.

Stakeholders were additionally engaged in advance of DED circulation according to Table 16.

Table 16: Pre-Environmental Stakeholder Outreach and Formal Presentations (Spring 2023)

Task Name	Start
UC Davis Briefing	Wed 2/15/23
Davis Chamber of Commerce Briefing	Mon 2/27/23
Yolo County Priority Projects Tour	Fri 3/17/23
Cool Davis	Wed 3/15/23
Davis Sunrise Rotary	Fri 3/24/23
Project Message & Video to Phase 1 Recipients (150)	Fri 4/21/23
Yolo Commute	Tue 5/2/23
Sacramento Regional Transit	Tue 5/16/23
Sacramento ITE Presentation	Wed 5/17/23
Bike Davis	Wed 5/17/23
Solano Transportation Authority	Mon 5/22/23
Shores of Hope	Tue 5/23/23

Sacramento Central Labor Council	Wed 5/24/23
Breathe California, Sacramento Region	Wed 5/24/23
Capitol Corridor	Fri 5/26/23
SMAQMD	Wed 5/31/23
City of Davis City Council	Thu 6/8/23
City of Davis BTSSC	Thu 6/8/23
Yolo Farm Bureau	Tue 6/13/23

Participants will continue to be engaged by CARTA as the project progresses, and tolling policy decisions will be made in partnership with these agencies and the community.

MTC, SACOG, SJCOG Megaregion Working Group
The Project is among the MTC, SACOG, SJCOG Megaregion Working Group northern California "Megaregion Dozen" projects.

Project Development Team (PDT) Meetings
The PDT meetings have been instrumental in facilitating coordination, issue resolution, and information exchange between Caltrans and other stakeholders, including SACOG, the Cities of West Sacramento and Davis, Yolo County, UC Davis, and the Yolo County Transportation District. These monthly meetings began in October 2017 and will continue throughout the environmental and project approval process.

The PDT, comprised of experts in various fields such as design, environmental review, traffic operations, right-of-way, and project management, convenes to review project status, address emerging issues, and provide overall direction throughout the project development process.

Consultation and Coordination with Public Agencies
CARTA will include several letters of support as supporting materials to this application.

Federal Agencies
Caltrans engaged with federal agencies by obtaining lists of federally listed anadromous fish species and federally listed species with the potential to occur in the Biological Study Area (BSA) from the National Marine Fisheries Service (NMFS) and the Sacramento US Fish and Wildlife Service (USFWS) Office, respectively. A Biological Assessment (BA) is being prepared for submission to USFWS for Section 7 consultation under the Endangered Species Act (ESA).

Furthermore, a site visit was conducted by a biologist from the USFWS Sacramento Office to review key habitat areas within the project footprint and discuss potential effects and avoidance measures for each species.

State Agencies
Caltrans, as the state transportation agency, is a critical member of CARTA. Caltrans has therefore established approval of the project and is involved in continued coordination.

Caltrans is coordinating with the California Department of Fish and Wildlife (CDFW) to explore options for obtaining a consistency determination (CD) for the project. If a CD is deemed inappropriate, Caltrans will proceed with obtaining an Incidental Take Permit (ITP) for the giant garter snake. Additionally, Caltrans evaluated built environment resources and determined that they were not eligible for inclusion

in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). Concurrence on the ineligibility of the seven built environment resources was received from the State Historic Preservation Office (SHPO) on September 30, 2021.

Native American Tribal Consultation

The Native American Heritage Commission (NAHC) was contacted on May 14, 2020, to request a search of the Sacred Land Files and a list of Native American tribes or individuals with potential interests, concerns, and/or knowledge regarding cultural resources or traditional cultural properties that may be affected by the project. Of the 11 tribes originally identified by the NAHC, all responded and requested to continue consultation, except for four tribes.

Formal consultation began on June 4, 2020, and was followed up by phone calls and/or emails to the Native American contacts identified by the NAHC. Most tribes expressed interest in ongoing consultation, while some reviewed the project and requested notifications of cultural resource findings. Consultations involved discussions about areas of concern, testing activities, and potential effects on tribal cultural resources. Joint meetings and ongoing communication facilitated collaboration and understanding between Caltrans and the tribes.

The Yocha Dehe Wintun Nation provided a monitor for the XPI trenching, and the United Auburn Indian Community (UAIC) monitored the geotechnical work at Bryte Bend bridge. Following negative results from surveys and subsurface testing, no additional concerns were raised about the potential to affect tribal cultural resources within the project limits.

Consultation with Stakeholders for Vehicle Miles Traveled (VMT) Mitigation

Caltrans aims to minimize induced VMT, thereby reducing the need for mitigation. However, when State Highway System (SHS) projects do generate VMT, mitigation strategies are employed per the California Environmental Quality Act (CEQA) requirements. According to the Caltrans VMT Program Bulletin 21-01, projects or programs must demonstrate a negative effect on VMT and be relatively likely to come to fruition to qualify as feasible mitigation.

Caltrans and YoloTD put out a survey in Summer 2022 to all local partner agencies in the Yolo and Sacramento County regions. The purpose of the survey was to solicit potential VMT-reducing projects with which the Yolo 80 Managed Lanes project could partner and/or provide financial contribution. Once the survey period concluded in Fall 2022, Caltrans and YoloTD, in consultation with their traffic analysis consultant Fehr and Peers, selected a group of projects that would provide the most VMT reduction at a reasonable and feasible cost to implement.

This list of mitigation projects was formalized as a VMT Mitigation Plan. Caltrans and YoloTD held multiple meetings between January 2023 and Summer 2023 with each implementing agency for the mitigation projects to discuss the Yolo 80 Managed Lanes project, the available funding to provide for mitigation, and the necessary steps to memorialize for Draft EIR and Final EIR. The VMT Mitigation Plan was also shared at the two public meetings noted in the Public Review and Comment subsection, above, during the circulation of the DED. Each implementing agency from the selected mitigation measures for the VMT Mitigation Plan provided a Letter of Intent to express their support and partnership with the Yolo 80 Managed Lanes project and to document that support in the Draft EIR.

Stakeholder-Specific Actions – Equitable Outreach

Please see Section 4.C above for more on the overall Project approach to equity.

Caltrans is additionally committed to meaningful engagement with communities most impacted by structural racism. The agency seeks to create transparent, inclusive, and ongoing consultation processes that treat all individuals with dignity and justice. Public service announcements, social media posts, participation in local government meetings, and additional public meetings in underserved communities aim to increase public interest and participation in the outreach process. Caltrans also plans to conduct a Health Risk Assessment focusing on air quality effects on communities of color and underserved communities and will send an invitation to participate in a Willingness to Pay or Ride Share Survey for related projects.

7. Supplementary Topics

This section provides supplementary information not specifically requested in the Commission's "Guidelines for Toll Facility Applications." The first supplementary item covers the section of the guidelines under the heading "Report to the Legislature." The second item expands upon the first by indicating that BAIFA will collect performance data on the toll facility, as reporting on performance is required in the Commission's report to the Legislature. Additional items in this section provide the Commission with a more robust understanding of the Project.

7.A Commission Annual Report to the Legislature

In recognition of Streets and Highways Code Section 149.7(h), as amended by AB 194, CARTA will provide information or data requested by the Commission or Legislative Analyst. Additionally, CARTA recognizes that the Commission is obligated by that section to report to the State Legislature annually the progress in the development and operation of each toll facility approved under Streets and Highways Code Section 149.7, as amended by AB 194. CARTA will provide information as requested in support of CTC reporting requirements for the toll facility such as:

- A progress report for the Project.
- A comparison of the Project baseline budget and the current or Projected budget.
- A comparison of the current or Projected schedule and the baseline schedule.
- If construction is complete and operations have begun, a discussion of the operations of the facility and how actual performance compares to the Project's original expected performance.
- A discussion of any other issues identified, and actions taken to address those issues.

7.B Performance Assessment

CARTA will define and monitor the performance measures in a comprehensive manner consistent with regional and state requirements. The performance measures will provide criteria for evaluating the Project and the effects of pricing, eligibility, and congestion management in achieving the adopted goals.

Performance reporting requirements will be defined further as the Project develops. CARTA plans to contract with an existing operator for the operations of the Yolo 80 Express Lane. As existing operators are expected to be currently reporting on performance of the other Express Lanes operated in California, that reporting will serve as a model for Yolo 80 Express Lane reporting. Reporting will be consistent with the requirements for annual and other periodic reports required by the Commission pursuant to Section 149.7(h), as amended.

Performance measures currently collected for other similar express lanes include:

- Number of express lane trips
- Express lane trip types

- Traffic speeds
- Tolls generated
- Trip length and distribution
- CHP enforcement activity

7.C Procurement Approach

The project team is evaluating the implementation methods for delivery and potential to mitigate design and construction risks, including schedule and cost. Roadway design and construction activities have already begun, with Caltrans' Ready to List (RTL) date for these elements slated for April 2024, and an award in September 2024.

CARTA will explore options to procure the roadside toll system. The roadside toll system includes all tolling equipment installed on the right of way to record toll transactions, capture images related to tolling, and aggregate and send data to the Financial Back Office for billing and account posting. CARTA has multiple options for this system procurement, including issuing a Request for Proposal to solicit bids from qualified vendors, or working with a partner agency who has the ability to add the Yolo 80 corridor as an "add-on" to an existing contract, with that agency potentially responsible for O&M. CARTA may also enter into a joint procurement with other regional toll operators who may procure roadside toll systems at the same time.

Since CARTA is potentially contracting with another toll operator for FBO and CSC services of the Yolo 80 Express Lane, CARTA may utilize that toll operator's roadside toll system integrator (RTSI) to perform toll system integration for the Project. During negotiations with the partner agency, operational and performance expectations as well as cost sharing and future upgrades will be discussed. Note that CARTA could also enter into partnership for either FBO or CSC services instead of having both provided by a single partner. Multiple partnerships (one for FBO and one for CSC) are also possible and would require separate agreements.

Should CARTA opt not to contract with another toll operator for FBO and CSC services, CARTA would need to issue a procurement for a single vendor offering both FBO and CSC, or multiple procurements (one for FBO services, and another for CSC). If this option is selected, staff will reevaluate operations and maintenance responsibilities and related costs.

7.D Cost Estimates

Is the estimated cost of the facility reasonable in relation to the cost of similar projects?

We are unaware of any express lane projects with a similar mix of improvements and existing conditions for a direct "apples-to-apples" cost comparison. To assess cost reasonableness, we have provided life cycle and benefit-cost information. The summary results of a benefit-cost analysis with a 4% discount rate are provided in Figure 8, demonstrating that the project's throughput and efficiency benefits represent a cost-effective investment. With a benefit-cost ratio of 2.9, the project's benefits significantly exceed its costs. Please note that this analysis was performed for the entire planned project, including subsequent phases for which tolling authority is not being requested in this application.

INVESTMENT ANALYSIS
SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$203.0
Life-Cycle Benefits (mil. $)	$595.4
Net Present Value (mil. $)	$392.4
Benefit / Cost Ratio:	2.9
Rate of Return on Investment:	16.8%
Payback Period:	9 years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$426.6	$72.8	$499.4	$25.0
Travel Time Reliability Benefits	$253.3	$53.5	$306.8	$15.3
Veh. Op. Cost Savings	-$281.9	-$25.4	-$307.4	-$15.4
Accident Cost Savings	$106.9	$9.7	$116.6	$5.8
Emission Cost Savings	-$17.8	-$2.2	-$20.0	-$1.0
TOTAL BENEFITS	$487.1	$108.3	$595.4	$29.8
Person-Hours of Time Saved			44,058,907	2,202,945

Should benefit-cost results include:

1) Induced Travel? (y/n)	Y	Default = Y
2) Travel Time Reliablity? (y/n)	Y	Default = Y
3) Vehicle Operating Costs? (y/n)	Y	Default = Y
4) Accident Costs? (y/n)	Y	Default = Y
5) Vehicle Emissions? (y/n) includes value for CO_2e	Y	Default = Y

EMISSIONS REDUCTION	Tons: Total Over 20 Years	Tons: Average Annual	Value (mil. $): Total Over 20 Years	Value (mil. $): Average Annual
CO Emissions Saved	-129	-6	-$0.0	-$0.0
CO_2 Emissions Saved	-451,463	-22,573	-$18.0	-$0.9
NO_X Emissions Saved	-72	-4	-$1.3	-$0.1
PM_{10} Emissions Saved	-3	0	-$0.4	-$0.0
$PM_{2.5}$ Emissions Saved	-3	0		
SO_X Emissions Saved	-5	0	-$0.3	-$0.0
VOC Emissions Saved	-29	-1	-$0.0	-$0.0

Figure 8: Benefit-Cost Ratio and Monetary Benefits of the Project

PART C. Attachments

Attachment A - CARTA JPA Agreement
Attachment B - Concept of Operations
Attachment C - Traffic and Revenue Report

JOINT EXERCISE OF POWERS AGREEMENT
FOR
CAPITAL AREA REGIONAL TOLLING AUTHORITY

THIS JOINT EXERCISE OF POWERS AGREEMENT ("Agreement"), is made and entered as of the 24th day of January, 2024, by and between the Yolo County Transportation District ("YoloTD"), the Sacramento Area Council of Governments ("SACOG"), and the California Department of Transportation ("CALTRANS"), hereinafter individually referred to as Member or collectively as Members, for the purpose of creating a multi-county entity that will develop and operate toll facilities throughout the region.

In adopting this Agreement and forming the Authority, the initial Members intend to create a mechanism to enable additional regional stakeholders to become Members, including but not limited to the Placer County Transportation Planning Agency (PCTPA), the El Dorado County Transportation Commission (EDCTC), and the Sacramento Transportation Authority (STA).

RECITALS

A. The Joint Exercise of Powers Act (California Government Code Section 6500 et seq., the "Act") authorizes the Members to enter into an agreement for the joint exercise of any power common to them and, by that agreement, create an entity that is separate from each of the Members.

B. Pursuant to Streets and Highways Code section 149.7, a joint exercise of powers authority, with the consent of the Regional Transportation Planning Agency, may apply to the California Transportation Commission ("CTC") to develop and operate high-occupancy toll lanes or other toll facilities, including but not limited to the administration and operation of value pricing programs and exclusive or preferential lane facilities for public transit or freight.

C. YoloTD and CALTRANS are pursuing the Yolo 80 Corridor Improvements Project, which includes, among other improvements, the construction of toll lanes in both the eastbound and westbound direction of Interstate 80 in Yolo County. Additionally, future toll facilities may be constructed in Yolo County and other counties within the Sacramento region.

D. SACOG serves as the metropolitan planning organization for the six counties within the region and, in this capacity, SACOG adopts a metropolitan transportation plan and sustainable communities strategy that establish transportation and land use planning goals to meet state and federal mandates, including state-mandated greenhouse gas

reduction targets and federal Clean Air Act requirements, which policies include the support for implementation of toll facilities.

E. SACOG serves as the Regional Transportation Planning Agency for the Counties of Yolo and Sacramento (as well as the Counties of Sutter and Yuba) and is, therefore, the regional governmental entity that must submit, or consent to submitting, an application to the CTC for tolling authority within these counties pursuant to section 149.7 of the Street and Highways Code.

F. Placer County Transportation Planning Agency and El Dorado County Transportation Commission serve as the Regional Transportation Planning Agencies for Placer County and El Dorado County, respectively, and are therefore the regional governmental entities that must submit, or consent to a joint powers agency submitting, an application to the CTC for tolling authority in their respective Counties pursuant to section 149.7 of the Street and Highways Code.

G. By entering into this Agreement, CALTRANS does not waive its rights under Streets and Highways code sections 114 and 149.7 or any other rights and authorities of CALTRANS under the law on the state highway system.

H. Transportation corridors serve constituents and customers from all areas of the region and beyond, and thus having a regional tolling authority governed by stakeholders from throughout the region will enable implementation of toll lanes in a manner that is consistent, equitable, innovative, collaborative, and economical.

I. YoloTD's and CALTRANS's Yolo 80 Corridor Improvements Project presents an opportunity for development of the first toll lanes in the region, and the creation of a regional tolling authority will enable collaboration in the development of both this initial toll project and future toll projects within the region.

J. By this Agreement, the Members intend to create a joint powers agency to apply to the CTC to develop and operate tolling facilities within the Project; to potentially share in the development and operation of potential future toll lanes in the greater region; and to exercise the powers described herein and as provided by law (including but not limited to California Streets and Highways Code Section 149.7, as it now exists and may hereafter be amended).

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, the Members agree as follows:

ARTICLE 1
ESTABLISHMENT

There is hereby created an organization known and denominated as the Capital Area Regional Tolling Authority (Authority) which shall be a public entity, separate and apart from any Member. The Authority shall be governed by the terms of this Joint Powers Agreement and the Rules, duly passed and adopted by the Board.

ARTICLE 2
AUTHORITY AND DEFINITIONS

Section 2.0 – Authority

This Agreement is entered into pursuant to the authority in Title 1, Division 7, Chapter 5 of the Government Code (commencing with Section 6500 et seq.) of the State of California.

Section 2.1 – Definitions

The following words or terms shall have the meaning ascribed to them within this Section unless the content of their use dictates otherwise:

a. "Act" means the Joint Exercise of Powers Act of the State of California, California Government Code Section 6500 et seq., as it now exists or may hereafter be amended.

b. "Agreement" means this Joint Exercise of Powers Agreement.

c. "Authority" means the Capital Area Regional Tolling Authority established by this Agreement as authorized by California Government Code Section 6503.5.

d. "Board" means the Board of Directors of the Capital Area Regional Tolling Authority.

e. "Controller" means the Controller of the Authority designated pursuant to this Agreement.

f. "CTC" means the California Transportation Commission.

g. "Director" means a member of the Board of Directors of the Authority.

h. "Excess Net Toll Revenue" means funding available for various uses, as allowed by law, after other obligations are satisfied regarding debt service, funding of reasonable reserves, and proper operation and maintenance of the toll facility.

i. "Fiscal Year" means July 1st through June 30th, or such other period as the Board may specify by resolution.

j. "Gross Revenues" means all revenues received by the Authority for the operations of the toll lanes, including but not limited to tolls and interest on funds of the Authority.

k. "Joint Facilities" means all facilities, equipment, resources, and property to be managed and operated by the Authority and, if and when acquired or constructed, any improvements and additions thereto and any additional facilities or property acquired or constructed by the Authority or any of the Members related to toll lanes in the region. Joint facilities excludes the state highway system, which is owned and controlled by Caltrans.

l. "Member" means the parties to this Agreement, including any entities that become a party to this Agreement after its initial effective date.

m. "Metropolitan Transportation Plan" or "MTP" means the long-range transportation plan that is required under federal law pursuant to 23 U.S.C § 134.

n. "Regional Transportation Plan" or "RTP" means the regional transportation plan that is required under state law pursuant to Government Code section 65080.

o. "Regional Transportation Planning Agency" or "RTPA" means the agency designated under Government Code section 29532 or 29532.1 for regional transportation planning.

p. "Secretary" means the secretary of the Authority appointed pursuant to this Agreement.

q. "Section 149.7" means section 149.7 of the Street and Highways Code, as may be amended, revised, or renumbered from time to time.

r. "State" means the State of California.

s. "Sustainable Communities Strategy" or "SCS" means the strategy each MPO in California is required to develop as part of an RTP pursuant to California Government Code Section 65080.

t. "Treasurer" means the Treasurer of the Authority designated pursuant to this Agreement.

ARTICLE 3
GENERAL PROVISIONS

Section 3.1 – Capital Area Regional Tolling Authority

a. Pursuant to Section 6503.5 of the Act, the parties to this Agreement hereby recognize and confirm the continued existence of a public entity separate and independent from the Members.

b. Within thirty (30) days after the effective date of this Agreement, and after any amendment, the Authority must cause a notice of such Agreement or amendment to be prepared and filed with the office of the California Secretary of State containing the information required by the Act.

c. Within thirty (30) days after the effective date of this Agreement, and after any amendment, the Authority must cause a copy of such Agreement or amendment to be filed with the State Controller pursuant to the Act.

d. Within ten (10) days after the effective date of this Agreement, the Authority must cause a statement of the information concerning the Authority, required by the Act, to be filed with the office of the California Secretary of State and with the County Clerk, amending and clarifying the facts required to be stated pursuant to the Act.

Section 3.2 – Purpose

The purpose of the Authority is to exercise the common powers of the Members to:

a. Plan, design, finance, construct, own, manage, operate, and maintain the Joint Facilities under authorities such as Section 149.7;

b. Collect toll and any other revenues generated by the Joint Facilities;

c. Implement the financing, acquisition, and construction of additions and improvements to the Joint Facilities;

d. Enter into and manage contracts, which may include but are not limited to the following, for the operations, maintenance, enforcement of the Joint Facilities, and for professional services;

e. Oversee operation of the Joint Facilities;

f. Make policy decisions related to the toll lane operations, including but not limited to setting tolls to cover costs (operating and maintaining facility; administering system; contract costs) and setting revenue generation targets;

g. Prepare and adopt the plan for expenditure of toll lane revenues within the corridor in which they are collected;

h. Implement or contract for implementation of such expenditure plan;

i. Create and implement an equity program associated with toll lanes, if desired; and

j. Issue and repay indebtedness of the Authority.

Each of the Members is authorized to exercise all such powers (except the power to issue and repay indebtedness of the Authority) pursuant to its organic law, and the Authority is authorized to issue and provide for the repayment of indebtedness pursuant to the provisions of the Bond

Law or other applicable law. Nothing in this Agreement shall constitute a relinquishment, grant, or delegation of CALTRANS's rights in connection with the state highway system.

Section 3.3 – Term

This Agreement is effective upon the approval and execution by CALTRANS, YoloTD, and SACOG. The Effective Date of this Agreement is January 24, 2024. This Agreement will continue in effect until such time as all of the following have occurred: (i) all indebtedness, if any, and the interest thereon issued by the Authority under the Bond Law, the Act, or other applicable law have been paid in full or provision for such payment have been made, (ii) the Authority and the Members have paid all sums due and owing pursuant to this Agreement or pursuant to any contract executed pursuant to this Agreement, and (iii) dissolution has occurred pursuant to Section 4.3.

ARTICLE 4
POWERS AND OBLIGATIONS OF AUTHORITY

Section 4.1 – General Powers

The Authority will have the power in its own name to exercise any and all common powers of its Members reasonably related to the purposes of the Authority, including, but not limited to, the powers to:

a. Seek, receive, and administer funding from any available public or private source, including toll and any other revenues and grants or loans under any available federal, state, and local programs for assistance in achieving the purposes of the Authority;

b. Contract for the services of engineers, attorneys, planners, financial, and other necessary consultants, and/or other public agencies;

c. Make and enter into any other contracts;

d. Employ agents, officers, or employees;

e. Adopt and utilize a fictitious business name or other trademarks;

f. Acquire, lease, construct, own, manage, maintain, dispose of, or operate (subject to the limitations herein) any buildings, works, or improvements, including but not limited to the Joint Facilities;

g. Acquire, hold, manage, maintain, or dispose of any other property by any lawful means, including without limitation gift, purchase, lease, lease-purchase, license, or sale;

h. Incur all authorized Indebtedness;

i. Receive gifts, contributions, and donations of property, funds, services, and other forms of financial or other assistance from any source;

j. Sue and be sued in its own name;

k. Seek the adoption or defeat of any federal, state, or local legislation or regulation necessary or desirable to accomplish the stated purposes and objectives of the Authority;

l. Adopt rules, regulations, policies, plans, programs, bylaws, and procedures governing the operation of the Authority and the Joint Facilities;

m. Invest any money in the treasury pursuant to California Government Code Section 6505.5 that is not required for the immediate necessities of the Authority, as the Authority determines is advisable, in the same manner and upon the same conditions as local agencies, pursuant to California Government Code Section 53601, as it now exists or may hereafter be amended;

n. With the consent of the appropriate Regional Transportation Planning Agency, apply to the CTC to develop and operate toll facilities consistent with the applicable MTP, SCS, and RTP, and consistent with the requirements of Streets and Highways Code section 149.7;

o. Enter into memoranda of understanding, intergovernmental agreements, joint powers agreements, and other similar agreements with Members and other governmental agencies to delineate respective responsibilities for planning, environmental, funding, design, construction, implementation, and similar activities for the development and completion of projects that will involve tolling;

p. Carry out and enforce all the provisions of this Agreement; and

q. Exercise all other powers not specifically mentioned herein, but common to the Members, and authorized by California Government Code Section 6508 as it now exists or may hereafter be amended.

Section 4.2 – Specific Powers and Obligations

a. Audit. The records and accounts of the Authority must be audited annually by an independent certified public accountant, and copies of such audit report must be filed with the State Controller and the County Auditor and will be provided to each Member no later than fifteen (15) days after receipt of such audit reports by the Authority. If not otherwise required by law, regulation, or any contract, the Board of Directors may, by unanimous vote, replace the annual audit with an audit covering up to a two-year period.

b. Securities. The Authority may use any statutory power available to it under the Act and any other applicable laws of the State of California, whether heretofore or hereinafter enacted or amended, for issuance and sale of any Bonds or other evidences of indebtedness necessary or desirable to finance the exercise of any power of the Authority, and may borrow from any source including, without limitation, the federal government, for these purposes.

c. Liabilities. The debts, liabilities, and obligations, whether contractual or non-contractual, of the Authority will be the debts, liabilities, and obligations of the Authority alone, and not the debts, liabilities, or obligations of the Members or their member entities. The Authority is not liable for the debts, liabilities, or obligations of its Members, including debts, liabilities, or obligations incurred prior to the Effective Date of this Agreement or prior to the Member joining the Authority.

d. Manner of Exercise. For purposes of California Government Code Section 6509, the powers of the Authority will be exercised subject to the restrictions upon the manner of exercising such powers as are imposed upon SACOG. The Authority shall follow SACOG's policies and procedures for procurement, unless and until the Authority Board adopts its own policies and procedures; provided, however, that as long as SACOG staff provides procurement or administrative services to the Authority, the Authority shall continue to follow SACOG's policies and procedures unless SACOG consents to alternative procedures.

e. Restrictions. The Authority shall only engage in activities, including construction, operations, and ownership of real property or facilities, related to tolling, the operation of toll lanes, or the Joint Facilities. This limitation shall not preclude the Authority from expending toll revenues on corridor enhancement or similar projects, or for any other purpose allowed by law for the use of toll revenues. However, the Authority shall not expend toll revenues, or any other Authority funds, for any purpose that is inconsistent with the applicable MTP, SCS or RTP, that would not conform to Clean Air Act requirements, or that would violate regional, state, or federal laws. The Authority shall not submit an application to develop and operate toll facilities without the consent of the applicable RTPA to submit the application.

f. Review of Agreement. This Agreement will be reviewed every four (4) years by the Members, but its terms and conditions may be reviewed more frequently whenever the Members agree to do so. Upon the completion of every such review, the Authority will prepare a report regarding any recommended changes to the Agreement and transmit such report to each of the Members.

Section 4.3 – Dissolution of Authority

a. Notice of Dissolution. An individual Member can express its intent to dissolve the Authority with at least 12 months' written notice, which dissolution must occur on

June 30 of the year that is at least 12 months from the date of notice. An intent to dissolve shall be expressed in a resolution of the Member. This section does not limit dissolution by mutual agreement of all Members.

b. Agreement with Successor Entity. The Authority cannot be dissolved unless and until a successor entity, qualified by State law then in-effect, has agreed to (i) assume ownership of the Authority's Joint Facilities and other assets, (ii) provide for the assumption or discharge of the Authority's Indebtedness and other liabilities, and (iii) carry out all duties associated with operation and maintenance of the toll lanes and management of the expenditure of the Gross Revenues. Such agreement must be expressed in a contract between the successor entity, the Authority, and all Members. This subsection shall not apply if a successor entity would serve no purpose.

ARTICLE 5
ORGANIZATION, GOVERNANCE, AND FUNCTIONS OF AUTHORITY

Section 5.1 – Members

a. Initial Members. The initial Members will be YoloTD, SACOG and CALTRANS.

b. Additional Members. With the intent of creating an entity that is representative of the entire region, the Members stipulate that other public agencies may join as Members of the Authority as follows:

i. PCTPA, EDCTC, and STA may each become a Member by executing this Agreement and delivering to the Authority a duly adopted resolution of the agency's governing board, authorizing execution of this Agreement and agreeing to be fully subject to and bound by its terms, as well as to all other binding agreements, if any, among all of the Members related to the governance or operation of the Authority, *provided that*:

1. The RTP governing, and/or adopted by, its jurisdiction allows for and considers implementation of one or more tolling projects;
2. The authorizing resolution, or other formal governing board action, requests that the Authority apply to the CTC for tolling authority or otherwise initiate a tolling project; and
3. The agency is not separately operating, or applying for authority to operate, any other toll facilities.

An agency will become eligible to become a Member no later than 30 days after the CTC approval for the Authority's development and operation of toll

lanes. Notwithstanding the foregoing, the Board may adopt a resolution making PCTPA, EDCTC, or STA a Member at an earlier time, and such resolution may be based on a memorandum of understanding or other agreement detailing the parties' roles and responsibilities. The Board shall in good faith consider requests to become a Member from the agencies identified in this subsection in order to facilitate an application to the CTC to develop and operate toll lanes. The intent of this Section is to add new Members in an efficient and responsible manner, and in advance of preparation and submittal of an application to the CTC. The Authority, therefore, shall not unreasonably deny, or unreasonably delay approval of, a potential new Member's request to join the Authority.

Prior to, and as a condition of, becoming a Member, the interested agency shall submit an operations plan satisfactory to the Authority that details how the agency will fund and implement its tolling project and enter into a memorandum of understanding or other agreement with the Authority delineating the roles, responsibilities, and financial obligations of the Authority and the agency for implementation of one or more specific toll projects. The Authority shall not be obligated to expend Authority funds for a potential new Member's application costs, and a new Member shall not have authority to compel the use of any of Authority's (or any other Member's) funds or other resources.

ii. Other public agencies, including agencies from additional counties, that propose toll projects may become Members upon the approval of all Members and subject to terms substantially similar to the terms for the agencies identified in subsection (i) above.

Section 5.2 – Governing Board

a. Governance. The Board will govern the Authority in accordance with this Agreement. All voting power of the Authority will reside in the Board.

b. Appointments. Appointments to the Board will be as follows:

i. YoloTD will appoint two (2) Directors.

ii. SACOG initially will appoint two (2) Directors. At least one SACOG appointment shall be from Yolo County or a city within Yolo County. If any additional Members join, SACOG shall make one (1) additional appointment per county. SACOG's additional appointments shall be from the county, or a city within the county, of the additional Member so that SACOG will always

appoint one Director per county represented in the Authority and one at-large Director.

iii. CALTRANS will appoint one (1) Director, who shall be an employee of CALTRANS.

iv. As applicable, each additional Member that joins the Authority pursuant to Section 5.1.b.i shall appoint up to two (2) Directors upon joining the Authority as a Member.

v. With the exception of CALTRANS's appointment, all Directors shall concurrently serve on the governing board of the appointing Member.

c. Alternates. Each Member may appoint one alternate Director. In the absence of an appointed Board Member, the alternate may act as a full voting Director. The Board may adopt a policy allowing additional alternate Directors.

d. Vacancies. Each Director will cease to be a member of the Authority Board if and when such Director ceases to hold office on the legislative body of the appointing Member or, in the case of CALTRANS, ceases to be employed by CALTRANS. Vacancies will be filled by the respective appointing Member in the same manner as initial appointments.

e. Nonvoting Directors. Prior to becoming a Member, as set forth in Section 5.1 above, EDCTC, PCTPA, and STA may each appoint a nonvoting Director, which Director shall either serve on their governing board or the staff of the agency.

Nonvoting Directors shall not be counted toward a quorum, but shall receive notice of all meetings and may participate in all public discussions. Nonvoting Directors shall not be entitled to receive confidential information of the Authority or participate in closed sessions. The Board may approve the inclusion of additional Nonvoting Directors at its discretion.

Section 5.3 – Compensation and Expense Reimbursement

a. Stipend. Directors may be entitled to a stipend for attending each Board meeting upon the enactment of a resolution of the Board to authorize such stipends.

b. Waiver. A Director may waive the compensation to which the Director would otherwise be entitled under the preceding paragraph by notifying the Secretary in writing that he or she expressly and irrevocably waives any such compensation that he or she would otherwise be entitled to be paid in the future for services as a Director. This written waiver must: (i) be voluntary; (ii) be irrevocable; (iii) expressly waive any and all future compensation to which the Director may be entitled under

this Section 5.2; (iv) acknowledge that, by waiving compensation, the Board member understands he or she is not entitled to any compensation he or she would otherwise be eligible to receive pursuant to this Section 5.2; (v) acknowledge that the amount of the waived compensation will be retained in the Authority's general assets; and (vi) be dated and signed by the Director and filed with the Secretary before the compensation is paid.

c. Expenses. Each Director will be entitled to be reimbursed for reasonable and necessary expenses actually incurred in the conduct of the Authority's business, pursuant to an expense reimbursement policy established by the Board in full accordance with all applicable statutory requirements.

d. Nonvoting Directors. Nonvoting Directors and CALTRANS's appointed Director may not receive compensation but may receive expense reimbursement only if authorized by a policy adopted by the Board and if the Board determines that allowing expense reimbursement will serve the public purpose of the Authority.

Section 5.4 – Conflicts of Interest

a. Political Reform Act. Board members will be considered "public officials" within the meaning of the Political Reform Act of 1974, as amended, and its regulations, for purposes of financial disclosure, conflict of interest, and other requirements of such Act and regulations, subject to a contrary opinion or written advice of the California Fair Political Practices Commission. The Authority must adopt a conflict of interest code in compliance with the Political Reform Act.

b. Levine Act. Board members are "officials" within the meaning of California Government Code Section 84308 et seq., commonly known as the "Levine Act," and therefore subject to the restrictions of such act on the acceptance, solicitation, or direction of contributions.

Section 5.5. – Board Meetings

a. Time and Place. The Board will meet quarterly, or more often as needed, at a place designated by the Board with the location included in the notice of each meeting under the Ralph M. Brown Act, California Government Code Section 54950 et seq. The date, time, and place of regular meetings of the Board will be designated on a meeting calendar adopted by the Board each year.

b. Call and Conduct. All meetings of the Board will be called and conducted in accordance with the provisions of the Ralph M. Brown Act and any other applicable law.

c. Quorum. A quorum for the transaction of business shall be a majority of the Directors.

d. Rules. The Board may adopt from time to time such bylaws, rules, and regulations for the conduct of meetings of the Board and of the affairs of the Authority consistent with this Agreement and other applicable law.

e. Minutes. The Secretary will cause minutes of all meetings of the Board to be drafted and provided to each Member promptly after each meeting. Upon approval by the Board, such minutes will become a part of the official records of the Authority.

f. Confidential Proceedings. All information received by the Board in a closed session shall be confidential. However, a Director may disclose information obtained in a closed session that has direct financial or liability implications for the Director's Member agency to the following individuals: legal counsel of the Member agency for purposes of obtaining advice on whether the matter has direct financial or liability implications for that Member; other members of the Member's governing board present in a closed session of that local agency member; and any designated alternate Director of who is attending a closed session of the Authority in place of the Director. To the extent that any information referenced in this paragraph is requested pursuant to a California Public Records Act request, the Member in receipt of the request will inform the legal counsel of the Authority within five (5) working days of receipt and make the Authority's legal counsel aware of any documents subject to disclosure. The Member and the Authority will consult with each other prior to the release of any documents pursuant to the CPRA request.

Section 5.6 – Voting

a. All actions of the Board will require a quorum of the Board to be present for voting.

b. Except as expressly set forth in this Agreement or otherwise limited by law, actions of the Board require the affirmative vote of a majority of a quorum that is present and voting. Board members may not cast proxy or absentee votes.

c. Except as provided in subsection d. below, adoption or amendment of a budget or an expenditure plan, adoption of an ordinance, or approval of an agreement with a successor agency as a prerequisite for dissolution of the Authority under Section 4.3, requires the affirmative vote of a majority of all Directors.

d. To approve the expenditure of Excess Net Toll Revenue, there must be both: (i) a majority vote of the full Board, and (ii) an affirmative vote of at least two (2) Directors from each county within the respective corridor that has an operating toll facility. The affirmative vote may be from any Director from a jurisdiction within the respective county.

Section 5.7 – Officers

a. The Board will elect a Chair and Vice-Chair from among its members, and will appoint a Secretary who may, but need not, be a member of the Board. The Chair and Vice Chair will serve one-year terms and must be appointees of different Members. The officers will perform the duties normal to said offices as described below. If the Chair or Vice Chair ceases to be a member of the Board, the resulting vacancy will be filled, for the remainder of the vacant term, at the next meeting of the Board held after each vacancy occurs.

b. Chair. The Chair will preside over all meetings of the board and will sign all contracts on behalf of the Authority, except contracts that the Board may authorize an officer or agent, or employee of the Authority to sign. The Chair will perform such other duties as may be imposed by the Board in accordance with law and this Agreement.

c. Vice Chair. The Vice Chair will act, sign contracts, and perform all of the Chair's duties in the absence of the Chair.

d. Secretary. The Secretary must countersign contracts signed on behalf of the Authority and will be the official custodian of all records of the Authority. The Secretary will attend to such filings as required by applicable law. The Secretary will perform such other duties as may be imposed by the Board.

Section 5.8 – Common Interest and Confidentiality

The Members have a common interest in all operations and proceedings of the Authority. Each agrees to maintain the confidentiality of all confidential, proprietary, or privileged information of the Authority. The Authority acting through the Board shall be the holder of all privileges.

Section 5.9 – Auditor/Controller and Treasurer

The Treasurer of Sacramento County will serve as the Auditor/Controller and Treasurer of the Authority. The Treasurer will be the depositary and will have custody of all of the accounts, funds, and money of the Authority from whatever source. The Auditor/Controller and the Treasurer will perform the duties and functions, assume the obligations and authority set forth in Sections 6505, 6505.5 and 6505.6 of the Act, and assure strict accountability of all funds and reporting of all receipts and disbursements of the Authority. The Auditor/Controller and Treasurer are designated as having charge of, handling, or having access to funds or property of the Authority for purposes of the Official's Bond required under Section 6505.5 of the Act and Section 5.10 of this Agreement. The Authority may change the Auditor/Controller, and/or Treasurer, and/or appoint other persons possessing the qualifications set forth in Section 6505.5 of the Act to these offices, by resolution of the Board of Directors.

Section 5.10 – Staffing

The member agencies may commit staff resources to the Authority as may be required or requested in order to fulfil the purposes and obligations of the Authority until such time as the Board adopts a permanent/interim staffing and organizational plan for the Authority. The Authority shall not participate in, or contract with, a public retirement system unless each Member first mutually enters a binding agreement to apportion the Authority's retirement obligations among the Members.

Section 5.11 – Additional Officers and Consultants

The Board may appoint any additional officers deemed necessary or desirable. Such additional officers also may be officers or employees or contractors/consultants of a Member or of the Authority. The Board may also retain such other consultants or independent contractors as may be deemed necessary or appropriate to carry out the purposes of this Agreement.

Section 5.12 – Official's Bond

The officers or persons designated to have charge of, handle, or have access to any funds or property of the Authority will be so designated and empowered by the Board. Each such officer or person will be required to file an official bond with the Authority in an amount established by the Board. Should the existing bond or bonds of any such officer or persons be extended to cover the obligations provided herein, said bond will be the official bond required herein. The premiums on any such bonds attributable to the coverage required herein will be appropriate expenses of the Authority. If it is prudent to do so, the Authority may procure a blanket bond on behalf of all such officers and persons.

Section 5.13 -- Status of Officers

All of the privileges and immunities from liability, exemption from laws, ordinances, and rules, all pension, relief, disability, worker's compensation, and all other benefits that apply to the activity of officers or agents of the Authority when performing their respective functions within the territorial limits of a Member will apply to them to the same degree and extent while engaged in the performance of any of their functions and duties under the provisions of this Agreement and Chapter 5 of Division 7 of Title 1 of the California Government Code, commencing with Section 6500. However, none of the officers or agents appointed by the Board will be deemed to be employed by any of the Members or to be subject to any of the requirements of such Members by reason of their appointment or employment by the Authority.

Section 5.14 – Committees

The Board may create permanent or ad hoc committees to give advice to the Board of Directors on such matters as may be referred to such committees by the Board. Qualified persons will be appointed to such committees by the Board and each such appointee will serve at the pleasure

of the Board. The Board may delegate authority to committees, except that the Board may not delegate authority to adopt or amend a budget or expenditure plan, to enact an ordinance, or to hire a chief executive officer.

ARTICLE 6
OPERATIONS AND FACILITIES

Section 6.1 – Formation of Board

As soon as practicable after the date of this Agreement, the Members must appoint their representatives to the Board. At its first meeting, the Board will elect a Chair and Vice Chair, and appoint a Secretary as prescribed in Article 5.

Section 6.2 – Delegation of Powers; Revenues

The Members delegate to the Authority the power and duty to maintain, operate, manage, and control the Joint Facilities, as they may be planned, constructed, and expanded from time to time. The revenues generated by the Authority's tolls shall belong to the Authority. Nothing in this Article is intended to: (i) delegate the RTPA's right to consent to the Authority's submittal of an application to the CTC pursuant to Section 149.7, (ii) restrict the Authority from entering into agreements for the implementation of toll lanes that designate the rights and responsibilities of the Authority and other parties, including Members, or (iii) cause the Authority to assume any debt or liability of a Member.

Section 6.3 – Joint Facilities Costs, Reserves, and Capital

The Authority will have financial responsibility for the improvement, alteration, maintenance, and operation of the Joint Facilities and will pay all contractual and administrative expenses of the Authority. Once revenues are generated by the Authority's toll lanes, the Authority will establish reasonable reserves and undertake appropriate capital projects to maintain the Joint Facilities. The Authority may incur indebtedness for contractual and administrative expenses.

Section 6.4 – CALTRANS Services

CALTRANS has agreed to provide the Authority, including both the current Project and future Joint Facilities, with the following services in connection with the implementation and operation of Joint Facilities: Transportation Management Center services; access to the CALTRANS Freeway Service Patrol Contract; maintenance services; engineering services; access to the CALTRANS communications network; and expedited review of closures and permits. Within 180 days of the effective date of this agreement, CALTRANS shall provide the Authority with a memorandum detailing the scope, terms, and condition of services to be provided to the Authority. Upon acceptance by all other initial Members, the memorandum shall become an incorporated addendum to this Agreement.

ARTICLE 7
BUDGET AND OTHER FINANCIAL PROVISIONS

Section 7.1 – Fiscal Year

The Authority Fiscal Year will begin each July 1 and end on the following June 30.

Section 7.2 – Annual Budget

The Authority will adopt an annual budget for each fiscal year. Once the Authority first annual budget is adopted, no expenditures may be made by or on behalf of the Authority unless authorized by a budget or budget amendment. A draft budget shall be provided to the Members at least thirty (30) days prior to adoption.

Section 7.3 – Expenditures Within Approved Annual Budget

All expenditures within the limitations of the approved annual budget will be made in accordance with the rules, policies and procedures adopted by the Board.

Section 7.4 – Disbursements

Warrants will be drawn upon the approval and written order of the Board, and the Board will requisition the payment of funds only upon approval of claims, disbursements, and other requisitions for payment in accordance with this Agreement and other rules, regulations, policies, and procedures adopted by the Board.

Section 7.5 – Accounts

All funds will be received, transferred, or disbursed by the Controller. The Treasurer will account for such funds separately, in accordance with the generally accepted accounting principles applicable to governmental entities, with strict accountability of all funds. All revenues, expenditures, and status of bank accounts and investments will be reported to the Board quarterly or as the Board may direct and, in any event, not less than annually, pursuant to procedures established by the Board.

Section 7.6 – Expenditure Plan

The Authority shall develop the expenditure plan in consultation with CALTRANS and the applicable RTPA. The expenditure plan shall: be consistent with the applicable MTP/SCS and RTP; conform to the Clean Air Act requirements; consider the goals, policies, and funding priorities in the applicable MTP/SCS and RTP; give priority consideration to mitigation measures in any environmental impact reports, environmental assessments, mitigation monitoring and reporting plans, or other documents related to the approval of a project containing toll facilities; and consider programmatic mitigation measures in the applicable MTP/SCS and RTP.

This Section shall apply equally to all updates or amendments to an expenditure plan.

ARTICLE 8
INDEMNITY

Section 8.1 – Indemnity to Members from Authority

To the fullest extent permitted by law, the Authority agrees to save, indemnify, defend, and hold harmless each Member and its officers, employees, volunteers, or agents, from any liability, claims, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses, or costs of any kind, whether actual, alleged, or threatened, including attorneys' fees and costs, court costs, interest, defense costs, and expert witness fees, where the same arise out of, or are in any way attributable in whole or in part, to negligent acts or omissions of the Authority or its officers, or agents or the employees, officers, or agents of any Member while acting within the course and scope of an agency relationship with the Authority

The provision of indemnity set forth in this Section shall not be construed to obligate the Authority to pay any liability, including but not limited to punitive damages, which by law would be contrary to public policy or otherwise unlawful.

Section 8.2 – Indemnity to Authority and Other Members

To the fullest extent permitted by law, Members agree and covenant to defend, hold harmless and indemnify the Authority, its elected officers, employees, volunteers and its other Members from any claim, damage or liability in connection with acts, errors, omissions or breach or default of any Member or any person or entity acting on behalf of any Member, except to the extent the Member is acting in the course and scope of performing services for or on behalf of the Authority.

Section 8.3 – Certain Tort Liabilities

By this Agreement, the Members intend that the debts, liabilities, and obligations of the Authority, including tort liabilities, shall not be the debts, liabilities, and obligations of the Members. The indemnities in Sections 8.1 and 8.2 are intended to protect the Members from such debts, liabilities, and obligations, if necessary, including any liabilities that may be imposed pursuant to Government Code section 895.2. In the event of liabilities imposed pursuant to Government Code section 895.2, the Members, as among themselves, pursuant to the authorization contained in Government Code Sections 895.4 and 895.6 each assume the full liability imposed upon it or any of its officers, agents, employees or representatives by law for injury caused by a negligent or wrongful action or inaction, or omission, occurring in the performance of this Agreement, to the same extent that such liability would be imposed in the absence of Government Code Section 895.2. To achieve this purpose, each Member indemnifies and holds harmless each other Member and the Authority, for any loss, cost or expense, including reasonable attorney's and consultant fees, that may be imposed upon or incurred by such other Member or the Authority solely by virtue of Government Code Section 895.2.

Pursuant to this Section 8.3, CALTRANS shall indemnify and hold harmless the other Members from any liability imposed solely pursuant to Government Code Section 895.2 that results from construction on, or conditions of, the state highway system or that would otherwise be attributable to CALTRANS; this Section 8.3 shall be subordinate to a specific indemnity provision in any agreement between CALTRANS and the Authority.

Section 8.4 – Retirement Liabilities

To the extent applicable, each Member shall pay its apportioned share of the retirement liabilities of the Authority described in Government Code section 6508.2. Each Member shall defend and indemnify the other members for any failure to pay apportioned retirement liabilities. The Authority shall not incur any retirement liabilities unless and until each Member agrees to an apportionment of liabilities among the Members.

Section 8.5 – Officers and Employees

The Authority shall provide for the defense of its officers and employees to the extent required by law as set forth in Government Code sections 995 et seq. or other applicable laws.

Section 8.6 – Insurance

The Authority shall insure itself, to the extent required by law and deemed appropriate by the Board of Directors, against loss, liability, and claims arising out of or connected with this revised Agreement. The Authority shall, at a minimum, procure adequate insurance prior to acquiring any real property interests or hiring for any construction work.

Section 8.7 – Implementation Agreements

This Article shall not limit the Authority from entering separate agreements with Members, such as project implementation agreements, that include indemnity and other contractual risk provisions between the Authority and a Member.

ARTICLE 9
MISCELLANEOUS

Section 9.1 – Amendments

This Agreement may be amended by a writing or writings executed by the Members approved by resolution of each Member's governing body.

Section 9.2 – Notice

Any notice required to be given or delivered by any provision of this Agreement will be personally delivered or deposited in the U.S. Mail, registered or certified, postage prepaid, addressed to the Members at their addresses as reflected in the records of the Authority, and

will be deemed to have been received by the Member to which the same is addressed upon the earlier of receipt or seventy-two (72) hours after mailing.

Section 9.3 – Good Faith Negotiations

The Members acknowledge that differences between them and among the Board members may arise from time to time and agree to make good faith efforts to resolve any such differences via good faith negotiations among the Members or Board members, as the case may be. If such negotiations do not resolve the dispute, and no Member gives a notice to dissolve the Authority as provided in this Agreement, then the Members may resolve disputes in any manner permitted by law or in equity.

Section 9.4 – Attorney's Fees

In the event litigation or other proceeding is required to enforce or interpret any provision of this Agreement, the prevailing party in such litigation or other proceeding will be entitled to an award of its actual and reasonable attorney's fees, costs, and expenses incurred in the proceeding.

Section 9.5 – Successors

This Agreement will be binding upon and inure to the benefit of any successor of a Member.

Section 9.6 – No Third Party Beneficiaries

The rights and obligations set forth in this Agreement are solely for the benefit of the Members, and this Agreement is not intended to, and does not, confer upon any other person any rights or remedies, including any right to enforce its provisions. The rights granted to third parties are strictly limited to those rights expressly provided.

Section 9.7 – Assignment and Delegation

No Member may assign any rights or delegate any duties under this Agreement without the written consent of the other Members, and any attempt to make such an assignment will be null and void for all purposes.

Section 9.8 – Counterparts

This Agreement may be executed in one (1) or more counterparts, all of which together will constitute a single agreement, and each of which will be an original for all purposes.

Section 9.9 – Severability

Should any part, term, or provision of this Agreement be decided by any court of competent jurisdiction to be illegal or in conflict with any applicable law, or otherwise be rendered unenforceable or ineffectual, the validity of the remaining parts, terms, or provisions of this

Agreement will not be affected thereby and to that end the parts, terms, and provisions of this Agreement are severable.

Section 9.10 – Integration

This Agreement represents the full and entire Agreement among the Members with respect to the matters covered herein.

Section 9.11 – Execution

Each individual executing this Agreement represents and warrants that they are duly authorized to execute this Agreement on behalf of their respective Member. Members other than Caltrans represent and certify that they have, through their regular process, authorized the execution of this Agreement by appropriate resolution, delegation, or plenary authority, as required.

IN WITNESS WHEREOF, the Parties have hereunder subscribed their names the day and year indicated below.

SACRAMENTO AREA COUNCIL OF GOVERNMENTS

By: _____ Date: 1/24/24

James Corless
Executive Director

Approved as to Form: _____

Michael J. Maurer
General Counsel

CALIFORNIA DEPARTMENT OF TRANSPORTATION

By: _____ Date: 1/19/2024

David Moore
Acting Director, District 3

Approved as to Form: _____

Erin Holbrook
Chief Counsel

YOLO COUNTY TRANSPORTATION DISTRICT

By: _____ Date: 1/24/2024

Autumn Bernstein
Executive Director

Approved as to Form: _____

Kirk Trost
Special Counsel

Interstate 80 / U.S. Highway 50 Managed Lanes

04-SOL-80 PM 40.7 - R44.7, 03-YOL-80 PM 0.00 – 11.72, 03-YOL-50 PM 0.00 - 3.12, 03-SAC-80 PM M0.00 – M1.36, and 03-SAC-50 PM 0.00 – L0.617

Concept of Operations

[DRAFT]

Prepared for:

Caltrans

Yolo Transportation District

SACOG

Prepared by:

WSP

February 9, 2024

Revision History

Revision	Date	Description	Submitted By
0	11/17/2023	First Draft for YoloTD Review	Jef Nazareno
1	12/07/2023	Response to YoloTD, SACOG and Caltrans D3 Comments	Jef Nazareno
1.1	12/12/2023	Draft for Stakeholder Review	Autumn Bernstein/Brian Abbanat

Quality Control

Revision	Prepared By	Quality Reviewed By	Approved and Released By
0	Lauren Stafford, Ning Zhang	Jef Nazareno, Andrew Nelson	Jef Nazareno
1	Lauren Stafford, Ning Zhang	Jef Nazareno	Jef Nazareno

Table of Contents

List of Figures

List of Tables

Acronyms

AB	Assembly Bill
ADT	Average Daily Traffic
AVI	Automated Vehicle Identification
BOS	Back Office System
BRT	Bus Rapid Transit
Caltrans	California Department of Transportation
CA MUTCD	California Manual on Uniform Traffic Control Devices
CARTA	Capital Area Regional Tolling Authority
CAV	Clean Air Vehicle
CCR	California Code of Regulations
CCTV	Closed Circuit Television
CEQA	California Environmental Quality Act
CHP	California Highway Patrol
CMAQ	Congestion Mitigation and Air Quality
CMS	Changeable Message Sign
ConOps	Concept of Operations
CR	County Road
CSC	Customer Service Center
CTC	California Transportation Commission
CTOC	California Toll Operators Committee
CVC	California Vehicle Code
DC	Direct Connector
DMV	Department of Motor Vehicles
DPR	Draft Project Report
EB	Eastbound
EDCTC	El Dorado County Transportation Commission
ETC	Electronic Toll Collection
FHWA	Federal Highway Administration
FSP	Freeway Service Patrol
GGBHTD	Golden Gate Bridge Highway & Transportation District
GP	General Purpose
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
HOT	High Occupancy Toll
HOT2	High Occupancy Toll policy that requires 2 occupants to receive toll discount
HOT3	High Occupancy Toll policy that requires at least 3 occupants to receive toll discount
HOV	High Occupancy Vehicle

HOV2	High Occupancy Vehicle with 2 or more people in vehicle
HOV3+	High Occupancy Vehicle with 3 or more people in vehicle
HVAC	Heating, Ventilation, and Air Conditioning
I-80	Interstate 80
IBTTA	International Bridge, Tunnel & Turnpike Association
IMP	Incident Management Plan
INFRA	Infrastructure for Rebuilding America
ISO	International Standards Organization
ITS	Intelligent Transportation Systems
IVR	Interactive Voice Response
JPA	Joint Powers Authority
LA	Los Angeles
LED	Light Emitting Diode
LOS	Level of Service
LPR	License Plate Recognition
MPH	Miles per Hour
MTC	Metropolitan Transportation Commission
MUTCD	Manual of Uniform Traffic Control Devices
NCST	National Center for Sustainable Transportation
NGOs	Non-Governmental Organizations
NIOP	National Interoperability
ODS	Occupancy Detection Station
ORT	Open Road Tolling
P&R	Park and Ride
PA&ED	Project Approval and Environmental Documents
PCTPA	Placer County Transportation Planning Agency
PM	Post Mile
PMT	Personal Miles Traveled
PoDI	Projects of Division Interest
PS&E	Plan, Specification and Estimate
RFID	Radio Frequency Identification
RHMA-G	Rubberized Hot Mix Asphalt - Gap Graded
RHMA-O	Rubberized Hot Mix Asphalt - Open Graded
RIP	Regional Improvement Program
ROW	Right-of-Way
SACSIM	Sacramento Region Activity Based Travel Simulation Model
SACOG	Sacramento Area Council of Governments
SEMP	Systems Engineering Management Plan
SHC	Streets and Highway Code

SHS	State Highway System
SOV	Single Occupant Vehicle
SR	State Route
STA	Sacramento Transportation Authority
STAA	Surface Transportation Assistance Act
STIP	State Transportation Improvement Program
T&R	Traffic and Revenue
TAP	Transit Access Pass
TAR	Transportation Analysis Report
TCA	Transportation Corridor Agencies
TCEP	Trade Corridor Enhancement Program
TMC	Traffic Management Center
TMS	Traffic Monitoring System
TOD	Time of Day
TSI	Toll System Integrator
U.S.C.	United States Codes
UC	University of California
VES	Violation Enforcement Systems
VLAN	Virtual Local Access Network
VRF	Virtual Routing and Forwarding
VHD	Vehicle Hours Delayed
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VPH	Vehicles per Hour
VTMS	Variable Toll Message Sign
WB	Westbound
YoloTD	Yolo Transportation District

1 EXECUTIVE SUMMARY

Yolo 80 Managed Lanes Project (the "Project") in Yolo County, California is a jointly sponsored project by Yolo Transportation District (YoloTD), California Department of Transportation (Caltrans) District 3 and Sacramento Area Council of Governments (SACOG). The Project was introduced to address current and future levels of travel demand and improve projected congested traffic operations on Interstate 80 (I-80) corridor. It will support reliable transport of goods and service through the region. The improvements would include the construction of a new priced-managed lane, referred to as express lanes.

The project is programmed in the State Transportation Improvement Program (STIP), Regional Surface Transportation Program, Congestion Management and Air Quality (CMAQ) Improvement Program, and Federal INFRA Grant Program). It is being proposed to be adopted by California Transportation Commission (CTC) Trade Corridor Enhancement Program (TCEP).

This report incorporates ongoing work being completed for the Project Approval and Environmental Document (PA&ED) phase of the Project. The PA&ED studies have identified design and operations alternatives and are evaluating the options relative to perceived user safety, convenience, and cost to identify a preferred alternative.

2 INTRODUCTION

2.1 Purpose and Intended Audience

The Concept of Operations (ConOps) is a living document that serves as the framework for the design, implementation, and operations of the Project. The purpose of this report is to provide additional information on facility design, operational policies, technical requirements, enforcement and incident management, institutional roles and responsibilities, and performance monitoring. Key design and operations support elements, such as ingress and egress locations, electronic toll collection implementation requirements, traffic data collection, pricing model, customer service and account management, enforcement options and supporting equipment, required system equipment, maintenance provisions and marketing concepts are all discussed in this document. The recommended design and operational features documented in this ConOps were developed through a collaborative process with key stakeholders including Federal Highway Administration (FHWA), California Highway Patrol (CHP), Sacramento Transportation Authority (STA), El Dorado County Transportation Commission (EDCTC) and Placer County Transportation Planning Agency (PCTPA).

The ConOps is one of the initial steps in the Systems Engineering Framework process established by FHWA, shown in Figure 1. This framework ensures that the Project will be built and operated consistent with the established policies and system requirements.

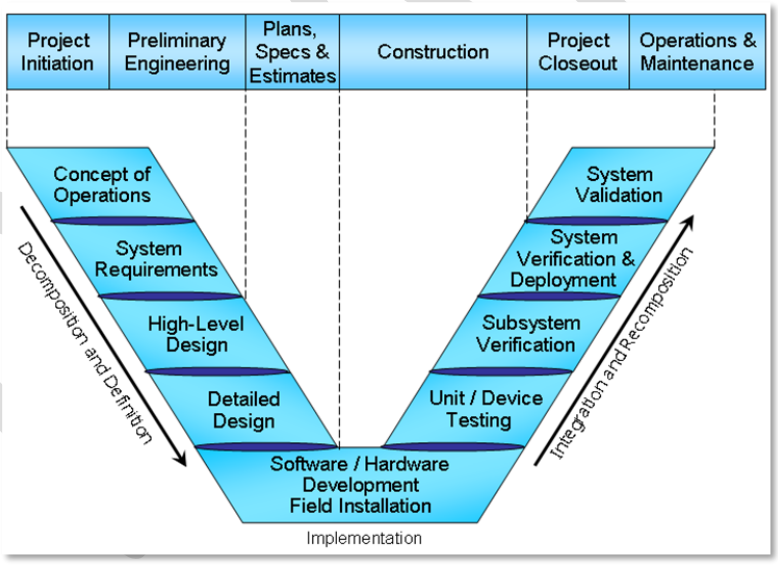


Figure 1: FHWA System Engineering Framework

2.1 Project Background

I-80 is a critical link to regional and interregional traffic as the only freeway connection between the San Francisco Bay Area and the Sacramento Metropolitan region. The route also links the Bay Area with recreational destinations in the Sierra Nevada and Northern California via US 50 to Interstate (I-5) north.

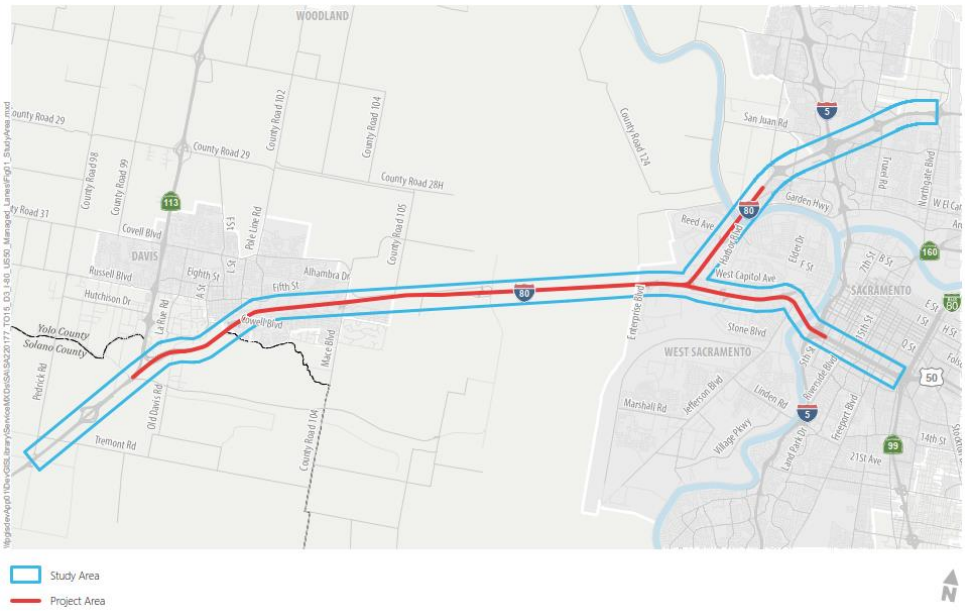


Figure 2: Yolo 80 Managed Lanes Project Area

In Solano County within the project limits, I-80 varies from three to four eastbound and westbound lanes with a standard outside shoulder, separated by a 20- to 35-foot-wide paved and/or unpaved center median with a guardrail or concrete barrier. In Yolo County within the project limits, I-80 is a six-lane freeway with three lanes in the eastbound and westbound directions. I-80 has variable 10- to 15-foot-wide outside shoulders in each direction. The corridor travels through the cities of Davis and West Sacramento. County Road (CR) 32A/Chiles Road is located north of I-80 and east of the Mace Boulevard interchange and acts as a frontage road to the Yolo Bypass where I-80 becomes a causeway.

In Sacramento County within the project limits, I-80 is a six-lane freeway with three eastbound and three westbound lanes separated by a variable 35- to 60-foot paved center median with concrete and/or guardrail center median barriers. Travel lanes are roughly 12 feet wide, and each direction of travel has variable 10- to 15-foot-wide paved outside shoulders.

Within the project limits, US 50 is a six-lane to eight-lane freeway. Auxiliary lanes exist in both directions between I-80 and Harbor Boulevard, Jefferson Boulevard and I-5, I-5 and 15th Street/16th Street, and 15th Street/16th Street and SR 51/SR 99.

Primary providers of bus and rail transit include Amtrak, Fairfield/Suisun Transit, Solano Express Bus, Yolobus, Unitrans, Sacramento Regional Transit, and Greyhound Bus. Bicycle (bike lane on the north side of the Causeway) and pedestrian accessibility are provided via the surrounding arterial network.

Within the Sacramento region, I-80 serves local and commute traffic, traffic to and from the Bay Area, recreational traffic to and from the Lake Tahoe Basin, and is a primary corridor for goods movement. Within the corridor, the Yolo Bypass Wildlife Area and floodplain limits east–west linkages, funneling many modes and forms of transportation into the narrow I-80 corridor between the cities of Davis and West Sacramento.

I-80 provides direct linkages between agricultural and manufacturing industries in the Central Valley, the Bay Area, and major ports (e.g., Oakland, Richmond, Stockton, West Sacramento). Freight trucks travel through and throughout the region 24 hours a day, seven days a week, transporting large quantities of goods, with demand increasing over time.

The segment of I-80 within the project limits is a primary access route to the Sacramento International Airport and other large distribution centers like Amazon, Target, Walmart, and Walgreens.

2.2 Project History

The project has obtained funding under the STIP Regional Improvement Program (RIP), CMAQ, FHWA, and other competitive funding sources. The project has obtained SACOG funding for PA&ED support costs and Federal Highway Administration (FHWA) Infrastructure for Rebuilding America (INFRA) grant funding for a portion of the project Plan, Specification and Estimate (PS&E), Right of Way and Construction phases. Other competitive funding sources, such as TCEP, are being sought to supplement the PS&E and construction phases.

2.3 Goals and Objectives

The purpose of the proposed project is to:

- Ease congestion and improve overall freight and person throughput[1].
- Improve freeway operation on the mainline, ramps, and at system interchanges.
- Support reliable transport of goods and service through the region.
- Improve modality[2] and travel time reliability.
- Provide expedited traveler information and monitoring systems.

This will be accomplished through the addition of managed lanes on I-80 and US 50 by a combination of median and shoulder reconstruction, lane conversion, and restriping.

The proposed project is needed for the following reasons:

- Recurring congestion during morning and afternoon peak periods exceeds current design capacity limiting freight and person throughput.
- Operational inefficiencies lead to the formation of bottlenecks due to short weaving and merging areas and lane drops.
- Inefficient movement of goods and services impedes regional and interstate economic sustainability.
- The corridor users rely heavily on single-occupancy vehicles with limited multimodal options such as transit, carpool, bicycle, and pedestrian facilities, resulting in unreliable travel times.
- Lack of real-time traveler information and coordinated traffic communication systems impede timely response to roadway incidents resulting in secondary collisions and increased non-recurring congestion.

[1] Throughput is the number of people moving efficiently through a region.

[2] Modality is the variety in modes of transportation. This includes access and multiple options for the movement of people and goods. Examples include access to transit, carpool, bicycle, and pedestrian facilities.

3 EXISTING CONDITIONS

3.1 Interstate 80 and US Highway 50 Corridor

I-80 is a transcontinental highway that extends from San Francisco, CA to New York, NY. In the study area, I-80 serves commuter, freight, and recreational traffic between the San Francisco Bay Area and the Sacramento metropolitan area and provides one of two all-weather connections across the Yolo Bypass. I-80 is a six-lane freeway in most of the study area with an eight-lane portion from Kidwell Road to Old Davis Road in Solano County. System interchanges exist at SR 113, US 50, and I-5. Auxiliary lanes exist in both directions between Kidwell Road and SR 113, Enterprise Boulevard/West Capitol Avenue and US 50, West El Camino Avenue and I-5, I-5 and Truxel Road, and Truxel Road and Northgate Boulevard.

US 50 is a transcontinental highway that extends from I-80 in West Sacramento to Ocean City, MD. In the study area, US 50 serves commuter, freight, and recreational traffic between Yolo and Sacramento counties. US 50 is a six-lane to eight-lane freeway in the study area. Auxiliary lanes exist in both directions between I-80 and Harbor Boulevard, Jefferson Boulevard and I-5, I-5 and 15th Street/16th Street, and 15th Street/16th Street and SR 51/SR 99. An eastbound auxiliary lane is provided from Harbor Boulevard to Jefferson Boulevard/Tower Bridge Gateway.

As documented throughout this section, the existing configuration and operation of the I-80/US 50 Project corridor results in inefficiency and recurring congestion. Several segments along the I-80 Project corridor currently operate with a Level-of-Service (LOS) of F during peak hours, which is characterized as oversaturated heavily congested conditions. The TAR (May 2023) includes more specific details.

3.1.1 Existing Bottlenecks Assessment

The bottleneck analysis is provided in the Interstate 80/US Highway 50 Managed Lanes Transportation Analysis Report (TAR, May 2023). The Highway Capacity Manual (HCM) procedure for freeway analysis was conducted for the AM (7-8 AM) and PM (4-5 PM) peak hours using the existing year (2019) traffic volumes. The observed eastbound AM peak hour bottlenecks are on I-80 at Mace Boulevard and on US 50 between I-5 and 15th Street. The observed westbound AM peak hour bottlenecks are on US 50 between SR 51 and 16th Street, on I-80 at the West Capitol Avenue westbound on-ramp, and on I-80 at the I-5 off-ramp.

The Highway Capacity Software (HCS) analysis identified the following locations with LOS F conditions under existing (2019 pre-COVID) conditions during the AM peak hour.

- I-80 eastbound from Mace Boulevard off-ramp to Mace Boulevard northbound on-ramp
- US 50 westbound from SR 99 on-ramp to 16th Street
- US 50 westbound from 15th Street to I-5
- I-80 westbound from West Capitol Avenue eastbound on-ramp to westbound on-ramp

The HCS analysis identified the following locations with LOS F conditions during the PM peak hour.

- I-80 eastbound from Mace Boulevard off to on-ramp to Mace Boulevard northbound on-ramp
- I-80 eastbound from County Road 32B off to on-ramp to County Road 32B on-ramp
- I-80 eastbound from I-5 southbound on-ramp to Truxel Road
- US 50 eastbound from Jefferson Boulevard on-ramp to South River Road on-ramp
- US 50 eastbound from 11th Street on-ramp to SR 51/SR 99
- US 50 westbound from SR 99 on-ramp to 16th Street
- US 50 westbound from 15th Street to I-5
- US 50 westbound at Jefferson Boulevard off-ramp
- US 50 westbound at West Capitol Avenue westbound on-ramp

The speed contour plots were created for the peak period using microsimulation software (VISSIM) calibrated to 2019 conditions. The model speed contour plots for the freeway segments by direction and peak period are presented in Figures Figure 3 through Figure 10. These charts show the average link speed in 15-minute intervals during the peak periods. The bottlenecks shown in the figures are described below.

Figure 3 and Figure 4 show the speed contour plots for the AM and PM peak periods for the eastbound corridor from I-80 at Pedrick Road to US 50 at SR 51/SR 99. During the AM peak period, two bottlenecks occur in the eastbound direction: one on I-80 at Mace Boulevard and the other on US 50 in downtown Sacramento. The congestion at Mace Boulevard lasts from about 7:30 to 8:00 AM and is limited to the interchange itself. The downtown bottleneck is in the weaving section between I-5 and 15th Street. Congested conditions last from about 7:30 to 9:00 AM and extend back through the Harbor Boulevard interchange.

During the PM peak period, the eastbound I-80/US 50 corridor direction has several bottlenecks. The upstream bottleneck at Mace Boulevard lasts the entire peak period and results in congested speeds that extend back to Old Davis Road. The horizontal curve and the Mace Boulevard on-ramps traffic together create the bottleneck, which has a maximum throughput of about 4,800 vph and lasts from 2:30 to 6:30 PM. Like Mace Boulevard, the secondary bottleneck at County Road 32B forms due to the on-ramp volume although a ramp meter on the on-ramp works to reduce this impact. The bottleneck is also affected by the vertical curve at the beginning of the Yolo Causeway. The maximum throughput is about 5,320 vph, and congestion lasts from about 3:30 to 6:30 PM. On US 50, the I-5 off-ramp and the weaving section between 16th Street and SR 51/SR 99 are bottlenecks. The first lasts from 3:15 to 6:00 PM, and the second from 3:00 to 7:00 PM. Both the SR 51 and SR 99 freeways also have downstream bottlenecks that can affect operations on US 50.

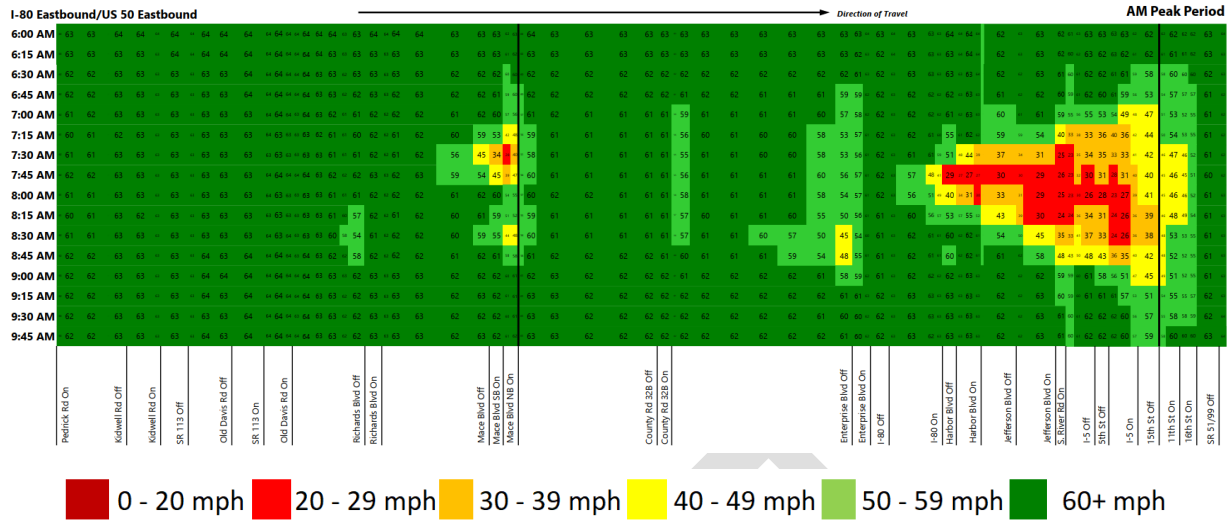


Figure 3: AM Peak Period EB Speed from I-80 at Pedrick Road to US 50 at SR 51/SR 99 – Existing Conditions

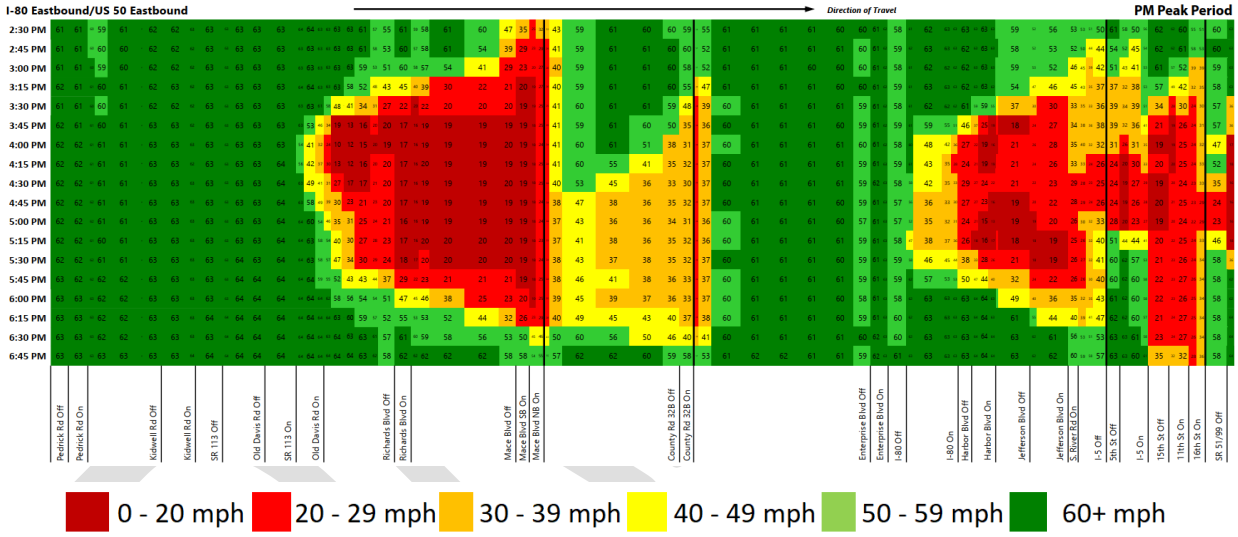


Figure 4: PM Peak Period EB Speed from I-80 at Pedrick Road to US 50 at SR 51/SR 99 – Existing Conditions

Figure 5 and Figure 6 show the speed contour plots for the AM and PM peak periods for eastbound I-80 from US 50 to Northgate Boulevard. During the AM peak period, eastbound I-80 from US 50 to Northgate Boulevard is not congested. However, two bottlenecks exist during the PM peak period. The Reed Avenue on-ramp serves as a bottleneck due to the on-ramp volume combined with the grade and reduced clear zone at the Bryte Bend Bridge. Congested conditions last from about 4:15 to 6:15 PM and extend back to US 50. Freeway capacity downstream of the Reed Avenue on-ramp is about 5,100 vph. The I-5 to Truxel Road weaving section is also a bottleneck due to the heavy I-5 on-ramp volume entering the freeway. Congestion lasts from about 3:45 to 5:45 PM. Downstream of the study area, a bottleneck exists at the Steelhead Creek Bridge just east of the Northgate Boulevard interchange that causes congestion to extend upstream of the Northgate Boulevard off-ramp.

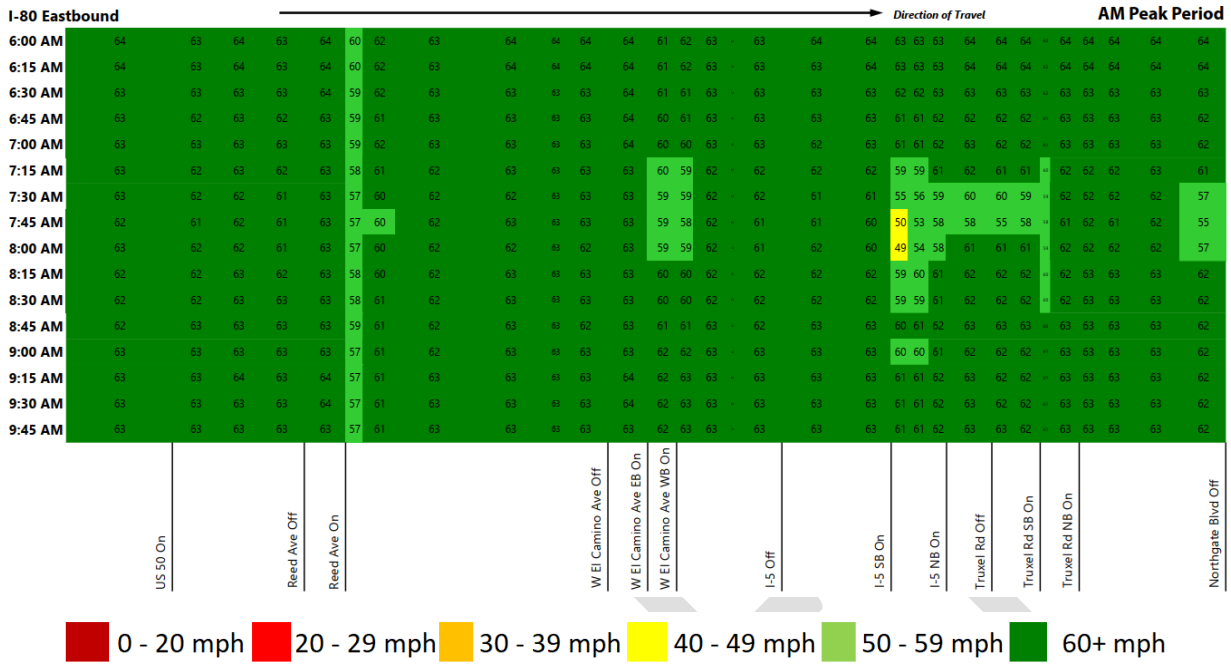


Figure 5: AM Peak Period EB from I-80 at US 50 to Northgate Blvd – Existing Conditions

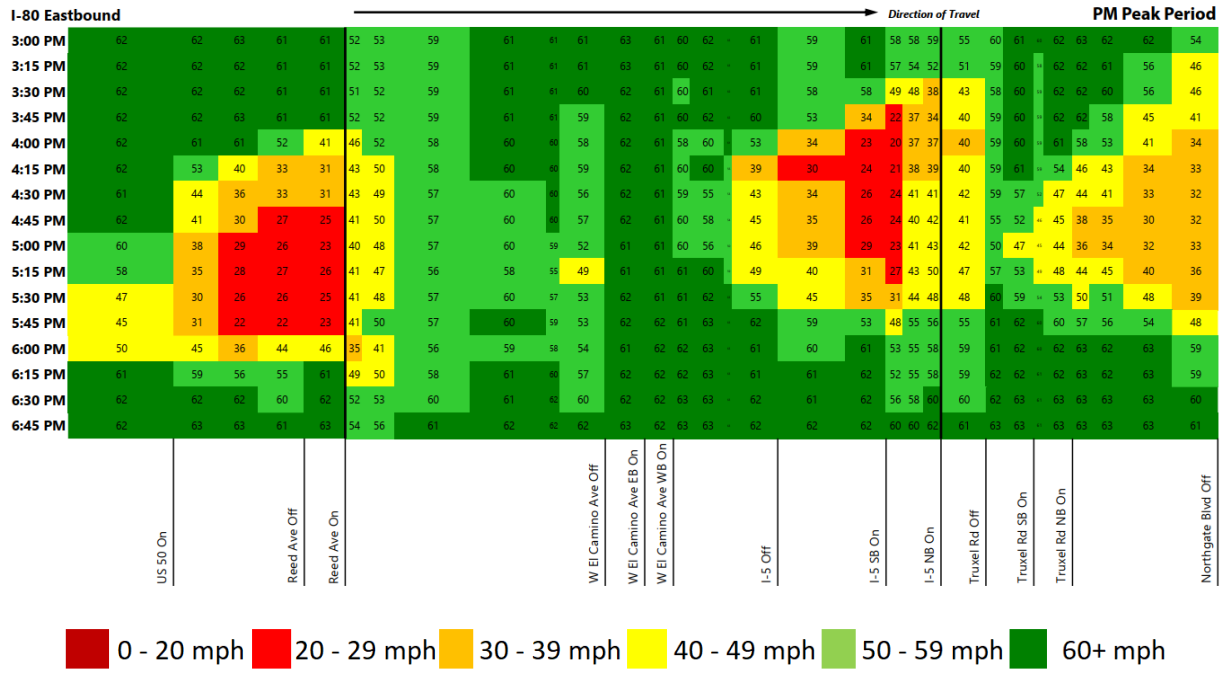


Figure 6: PM Peak Period EB from I-80 at US 50 to Northgate Blvd – Existing Conditions

Figure 7 and Figure 8 show the speed contour plots for the AM and PM peak periods for the westbound corridor from US 50 at SR 51/SR 99 to I-80 at Pedrick Road. During the AM peak period, the weaving section between the SR 51 on-ramp and the 16th Street off-ramp is a bottleneck from 7:00 to past 9:00 AM. Congestion also occurs at the downstream weaving

segment between 15th Street and I-5. At the downstream bottleneck at the Yolo Causeway, congestion begins at 6:30 AM and lasts beyond the end of the analysis period at 10:00 AM. Congestion extends from West Capitol Avenue upstream through the I-80 interchange. The maximum throughput on the Yolo Causeway is about 5,600 vph. During the PM peak period, the downtown section of US 50 has overlapping bottlenecks at SR 51 to 16th Street and the I-5 off-ramp. The downstream Jefferson Boulevard off-ramp is also a bottleneck, with a shorter duration of about an hour compared to the three hours of congestion downtown. The lane drop at Jefferson Boulevard requires the I-5 on-ramp traffic to merge over. Additionally, the off-ramp demand volume is greater than 1,500 vph, which suggests that two off-ramp lanes are needed. Like the AM peak period, the Yolo Causeway is also a bottleneck, but the congestion is less severe, only about two-and-a-half hours in duration. The bottleneck throughput is about 4,700 vph.

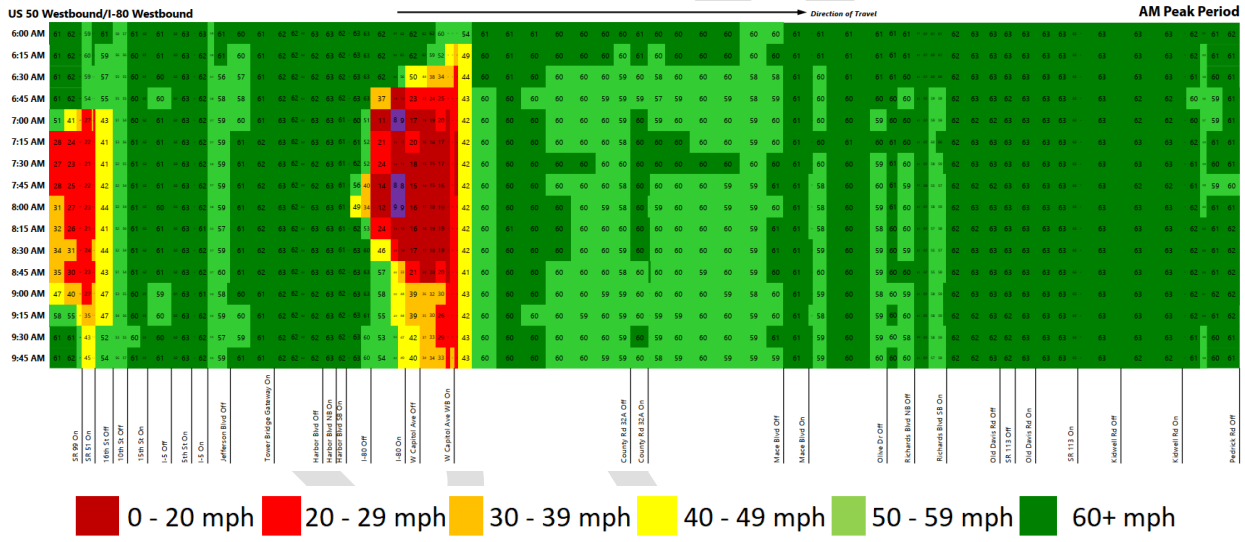


Figure 7: AM Peak Hour WB Speed from US 50 at SR 51/SR 99 to I-80 at Pedrick Rd – Existing Conditions

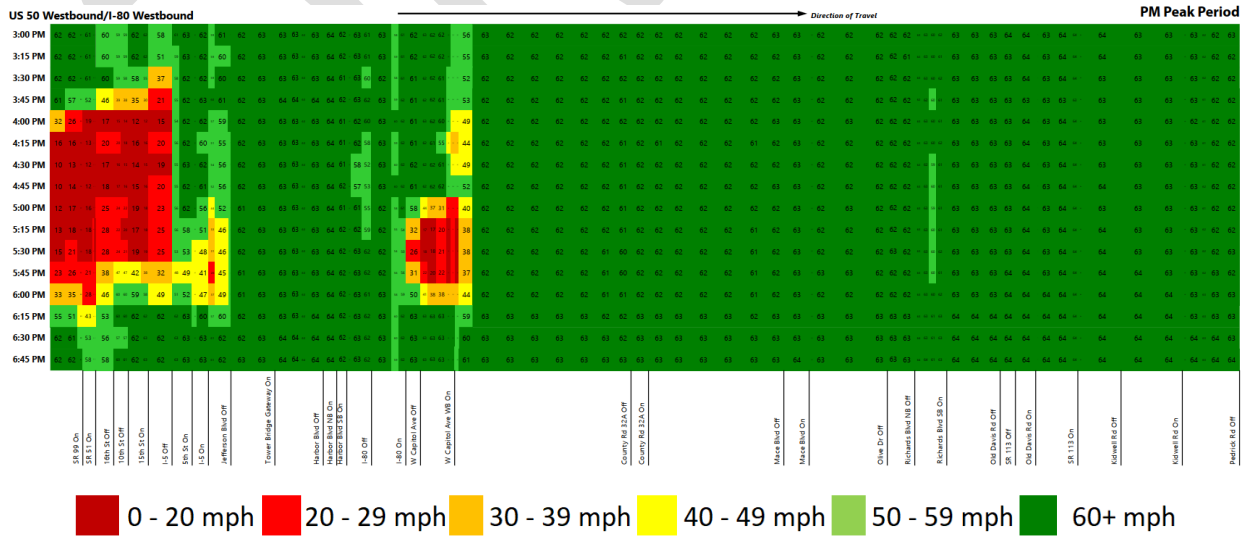


Figure 8: PM WB Speed from US 50 at SR 51/SR 99 to I-80 at Pedrick Rd – Existing Conditions

Figure 9 and Figure 10 show the speed contour plots for the AM and PM peak periods for westbound I-80 from Northgate Boulevard to US 50. During the AM peak period, a bottleneck exists on southbound I-5 that extends onto the connector ramp from westbound I-80, which then causes congested conditions on westbound I-80 for about an hour. Congestion also extends from the Yolo Causeway bottleneck onto eastbound I-80 back to Reed Avenue. During the PM peak period, this freeway section is mostly uncongested. The only slow speeds occur near US 50 when congestion from the Yolo Causeway bottleneck extends back.

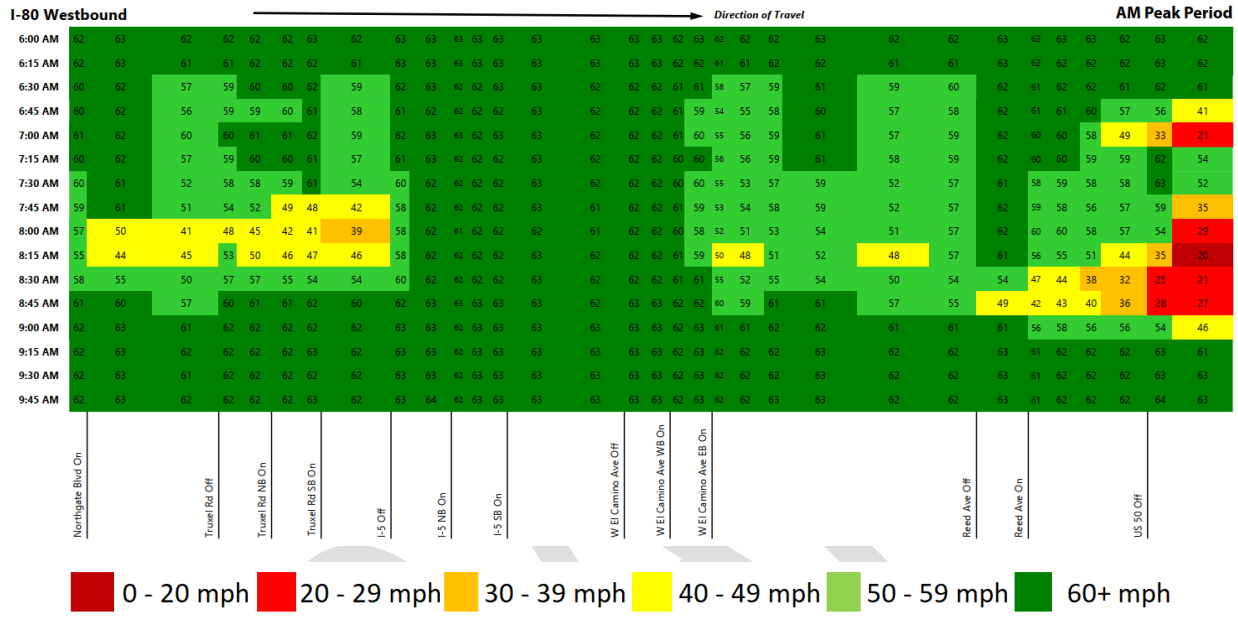


Figure 9: AM Peak Hour WB Speed from I-80 at Northgate Boulevard to US 50 – Existing Conditions

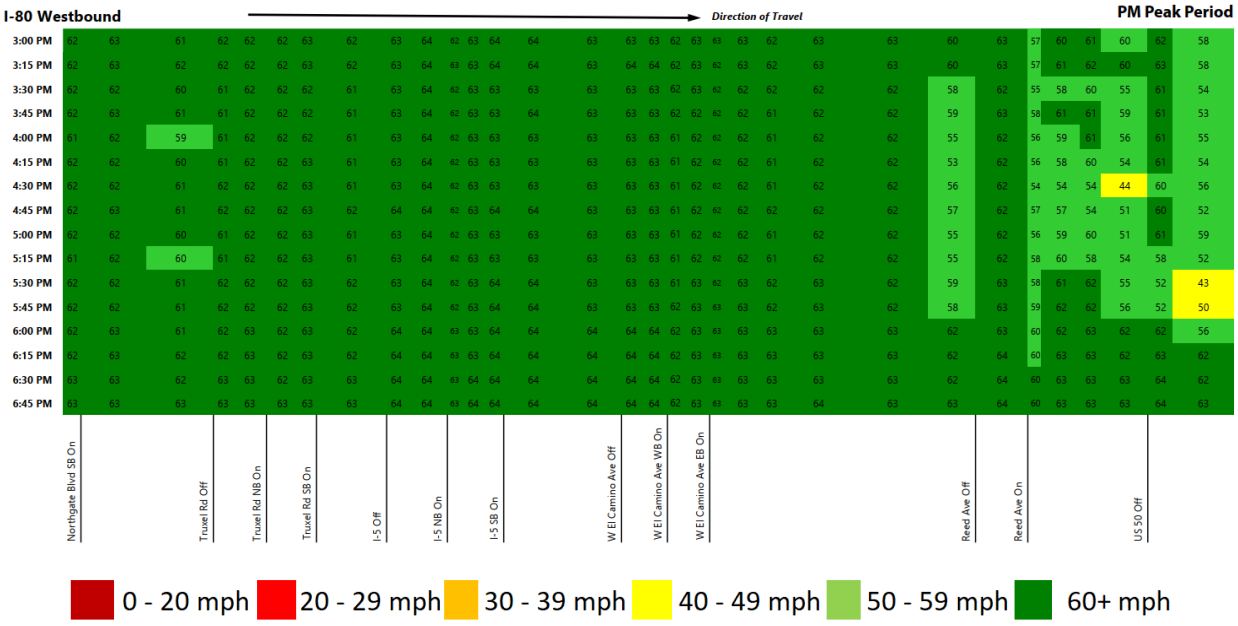


Figure 10: PM Peak Hour WB Speed from I-80 at Northgate Boulevard to US 50 – Existing Conditions

Bottlenecks are also active on weekends. On Saturdays, eastbound I-80 is congested at the Pedrick Road on-ramp with speeds below 50 mph from 1:15 to 3:45 PM. The main bottlenecks occur at Mace Boulevard and County Road 32B like on weekdays during the PM peak period. Congested speeds start at about 1:00 PM and last until 8:15 PM. On Sundays in October 2019, eastbound I-80 did not have bottlenecks. Westbound I-80 had similar congested areas on both Saturdays and Sundays. The two bottlenecks are the Yolo Causeway and the lane drop downstream of Kidwell Road. On Saturdays, the Yolo Causeway bottleneck starts before 10:00 AM and lasts until 6:00 PM. On Sundays, congestion occurs during two periods – from about 11:00 AM to 5:30 PM and from 6:00 to 7:30 PM. The duration of the Kidwell Road bottleneck is about the same for both weekend days – 12:00 to 6:00 PM.

3.2 I-80/US 50 Corridor General Purpose Lanes

Peak hour travel times (in minutes) from the operations model are reported in Table 1. The table includes the free flow travel time at the posted speed of 65 mph.

During the AM peak hour, congested conditions affect eastbound travel times the most for eastbound US 50 from I-80 to SR 51/SR 99, which has an average travel time 46 percent greater, an additional 2.3 minutes, than the uncongested travel time. For westbound travel times, I-80 from US 50 to Kidwell Road has an average travel time about 40 percent greater, an additional 4.8 minutes, than the uncongested travel time.

During the PM peak hour, average eastbound travel time is 88 percent greater than free flow for I-80 from Kidwell Road to US 50, about 10.7 additional minutes, and 142 percent greater for US 50 from I-80 to SR 51/SR 99, about 7.1 additional minutes. Westbound travel time is worst for US 50 from SR 51 to I-80 where the congested travel time is 85 percent greater than free flow, about 3.5 additional minutes.

Path	Free Flow	AM Peak Hour	PM Peak Hour
I-80 Eastbound: Kidwell Rd Off-ramp to US 50 Off-ramp	12.2	13.1	22.9
US 50 Eastbound: I-80 to SR 51/SR 99 Off-ramp	5.0	7.3	12.1
I-80 Eastbound: US 50 Off-ramp to Truxel Rd Off-ramp	5.2	5.5	7.5
US 50/I-80 Westbound: I-80 EB Off-ramp to Kidwell Rd Off-ramp	12.2	17.0	12.9
US 50 Westbound: SR 51 On-ramp to I-80 Off-ramp	4.1	4.5	7.6
I-80 Westbound: Truxel Rd SB On-ramp to US 50	5.3	5.8	5.3

Notes: Travel time is reported in minutes. Free Flow is the travel time at the posted speed of 65 mph. The peak hours are 7:00 to 8:00 AM and 4:00 to 5:00 PM.

Table 1: Travel Times - Existing Conditions

Table 2 and Table 3 show the peak hour (7:00 to 8:00 AM and 4:00 to 5:00 PM) LOS and average density at selected eastbound and westbound ramp junctions and mainline sections under existing conditions.

For the eastbound direction, AM peak hour LOS F congested conditions occur on US 50 from the I-80 on-ramp in West Sacramento to the I-5 on-ramp in Sacramento. LOS F also occurs on I-80 at Mace Boulevard, but the segments on either side of the interchange operate at LOS D or

better. During the PM peak hour, LOS F conditions exist on I-80 from Old Davis Road to County Road 32B in Davis, on US 50 from Harbor Boulevard to the I-5 off-ramp, and on US 50 from the I-5 on-ramp past the SR 51/SR 99 off-ramp. LOS F also occurs on I-80 between US 50 and Reed Avenue, at I-5, and from Truxel Road to east of Northgate Boulevard.

Freeway Segment	Facility Type	LOS/Density[1]	
		AM Peak Hour	PM Peak Hour
I-80 EB: Old Davis Rd to Richards Blvd	Basic	C / 26	**F / 66**
I-80 EB: Richards Blvd to Mace Blvd	Basic	C / 26	**F / 66**
I-80 EB: Mace Blvd SB On-ramp	Merge	**F / 49**	**F / 73**
I-80 EB: Mace Blvd to County Rd 32B	Basic	D / 28	E / 40
I-80 EB: County Rd 32B On-ramp	Merge	D / 30	**F / 52**
I-80 EB: County Rd 32B to Enterprise Blvd	Basic	D / 31	D / 29
I-80 EB: Enterprise Blvd to US 50	Weave	B / 16	B / 17
US 50 EB: I-80 to Harbor Blvd	Weave	**F / 49**	**F / 66**
US 50 EB: Harbor Blvd to Jefferson Blvd	Weave	**F / 44**	**F / 58**
US 50 EB: Jefferson Blvd On-ramp	Basic	**F / 60**	**F / 51**
US 50 EB: I-5 to 15th St	Weave	E / 38	**F / 56**
I-80 EB: US 50 to Reed Ave	Basic	C / 18	**F / 62**
I-80 EB: W El Camino Ave to I-5	Basic	B / 16	D / 28
I-80 EB: I-5 SB On-ramp	Merge	D / 32	**F / 73**
I-80 EB: I-5 to Truxel Rd	Weave	D / 31	E / 41
I-80 EB: Truxel Rd to Northgate Blvd	Basic	D / 28	**F / 57**

Notes: Bold and underline font indicate LOS F conditions. The peak hours are 7:00 to 8:00 AM and 4:00 to 5:00 PM.
1. Density is reported in vehicles per lane per mile.

Table 2: Selected Eastbound Freeway Operations

For the westbound direction, AM peak hour LOS F congested conditions occur on from the I-80/US 50 interchange through the West Capitol Avenue interchange. During the PM peak hour, LOS F conditions exist on US 50 from east of SR 51/SR 99 to the 15th Street on-ramp. The Yolo Causeway bottleneck forms after the peak hour, so LOS F conditions occur after 5:00 PM at this location.

Freeway Segment	Facility Type	LOS/Density[1]	
		AM Peak Hour	PM Peak Hour
US 50 WB: SR 51 to 16th St	Weave	E / 39	**F / 87**
US 50 WB: 15th St to I-5	Weave	B / 20	**F / 45**
US 50 WB: I-5 On-ramp	Merge	C / 24	C / 27
US 50 WB: Jefferson Blvd to Harbor Blvd	Basic	C / 20	B / 18
US 50 WB: I-80 Off-ramp	Diverge	C / 23	B / 15
I-80 WB: US 50 to W Capitol Ave	Weave	**F / 73**	B / 15
I-80 WB: W Capitol Ave WB On-ramp	Merge	**F / 51**	D / 33
I-80 WB: County Rd 32A to Mace Blvd	Basic	D / 31	C / 24
I-80 WB: Mace Blvd to Olive Dr	Basic	D / 29	C / 20
I-80 WB: Richards Blvd to Old Davis Rd	Basic	C / 21	B / 16
I-80 WB: Old Davis Rd On-ramp to SR 113 On-ramp	Basic	B / 18	B / 13
I-80 WB: Truxel Rd to I-5	Weave	D / 35	B / 20
I-80 WB: I-5 to W El Camino Ave	Weave	C / 21	B / 17
I-80 WB: W El Camino Ave to Reed Ave	Basic	E / 35	C / 25
I-80 WB: Reed Ave to US 50	Basic	C / 27	D / 28

Notes: Bold and underline font indicate LOS F conditions. The peak hours are 7:00 to 8:00 AM and 4:00 to 5:00 PM.
1. Density is reported in vehicles per lane per mile.

Table 3: Selected Westbound Freeway Operations

4 PROJECT ALTERNATIVES

The Project will consider multiple improvement alternatives for the I-80 corridor, including implementation of new high occupancy vehicle (HOV) lanes, high occupancy toll (HOT) lanes, transit only lanes, and conversion of an existing general purpose lane to an HOV lane.

"No-Build" Alternative 1 would maintain existing conditions and no work would be conducted to relieve current traffic congestion to improve traffic flow. Build Alternatives 2a, 3a, 4a, 5a, and 6a propose the same geometric footprint, but would incorporate different managed lane types. Build Alternatives 2b, 3b, 4b, 5b, and 6b propose the same geometric footprint and managed lane types as Build Alternatives 2a, 3a, 4a, 5a, and 6a, but include an I-80 managed lane direct connector (to provide a direct connection of the managed lane by flying over US-50 at the I-80/US-50 Interchange). Build Alternatives 7a and 7b would not construct new lanes but would repurpose the existing number 1 lane instead; however, Build Alternative 7b would include the I-80 managed lane direct connector. Note that for priced managed lane alternatives, all transit vehicles will be toll-exempt.

Section 7 provides detailed comparisons among the alternatives regarding the traffic performance forecasts, and mostly focuses on Alternative 1 and 2a through 7a.

- **No-Build Alternative 1:** Maintain existing conditions.
- **Build Alternative 2a:** Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more occupants (HOV 2+).
- **Build Alternative 2b:** Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more occupants (HOV 2+) and build an I-80 managed lane direct connector.
- **Build Alternative 3a**: Add a high-occupancy toll lane in each direction for free use by vehicles with two or more occupants (HOT 2+). Single-occupied vehicles would pay a fee for lane usage.
- **Build Alternative 3b**: Add a high-occupancy toll lane in each direction for free use by vehicles with two or more occupants (HOT 2+) and build an I-80 managed lane direct connector. Single-occupied vehicles would pay a fee for lane usage.
- **Build Alternative 4a:** Add a high-occupancy toll lane in each direction for free use by vehicles with three or more occupants (HOT 3+). Vehicles with less than three riders would pay a fee for lane usage.
- **Build Alternative 4b:** Add a high-occupancy toll lane in each direction for free use by vehicles with three or more riders (HOT 3+) and build an I-80 managed lane direct connector. Vehicles with less than three occupants would pay a fee for lane usage.
- **Build Alternative 5a:** Add an express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of the number of riders).
- **Build Alternative 5b:** Add an express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of number of occupants) and build an I-80 managed lane direct connector.

- **Build Alternative 6a:** Add a transit-only lane in each direction.
- **Build Alternative 6b:** Add a transit-only lane in each direction and build an I-80 managed lane direct connector.
- **Build Alternative 7a:** Repurpose the current number one general-purpose lane for use by vehicles with two or more riders (HOV 2+); no new lanes would be constructed.
- **Build Alternative 7b:** Repurpose the current number one general-purpose lane for use by vehicles with two or more riders (HOV 2+); no new lanes would be constructed. Build an I-80 managed lane direct connector.

It should be noted that since an alternative has not yet been selected, we use results from analysis of Alternative 4a which provides significant operational benefits. Alternative 4b would provide more mobility benefits.

Note that since an alternative has not yet been selected, we use results from analysis of Alternative 4A which provides significant operational benefits. Alternative 4B would provide more mobility benefits, particularly in the westbound AM Peak period.

The Alternatives naming convention defined above from the Draft Project Report (in November 2023) is slightly different to the Transportation Analysis Report (May 2023). **Error! Reference source not found.** provides the connection between the Alternatives from DPR and TAR. The TAR alternatives are discussed in the TRAFFIC PERFORMANCE FORECASTS section.

5 FACILITY DESIGN

This section provides an overview of the proposed Yolo 80 Managed Lane facility design assumptions and highlights geometric and signing standards that will be applied to the Project design for each build alternatives. The design concept discussed in this section is based on the preliminary engineering performed for the project as part of the PA&ED phase and confirmed through stakeholder reviews as part of the ConOps process. Further changes and refinements are anticipated to be made later in project development during the final design phase. The concepts provided in this chapter do not represent final design decisions. Instead, they are intended to guide final design decisions to promote clarity and consistency for users and stakeholders.

The facility design section focuses on the tolled managed lane alternatives, which will be implemented in multiple phases, culminating in the construction of the Yolo 80 Managed Lanes direct connector. This section's purpose is to delineate the Project facility design for its initial phase of construction, which includes reduced project limits and excludes the construction of a direct connector. As the design plans for future phases of the Project become more finalized, this document will be updated to reflect proposed final facility design features. See Table 4 below for project limits of initial design as compared to final design.

Table 4: Initial vs Final Design Project Limits

Phase	Project Limits	Centerline miles	Lane Miles
Initial Design	Sol-80 PM 42.7 – 44.7 Yol-80 PM 0.0 - 9.5 Yol-50 PM 0.0 – 0.17	8.5 miles	17 miles
Final Design	Sol-80 PM 40.7 – 44.7 Yol-80 PM 0.0 – 11.72 Sac-80 PM 0.0 – 1.36 Yol-50 PM 0.0 – 3.12 Sac-50 PM 0.0 – 0.617	17 miles	34 miles

Note: Project scope in Solano County is limited to advanced warning signs for managed lane.

5.1 The Causeway

The Yolo Causeway is a 3.2-mile elevated structure that currently consists of 3 lanes in each direction. The Project proposes to restripe the existing roadway footprint to maintain three general purpose lanes and add one managed lane in each direction on the Causeway. Since the Project does not propose widening of the Yolo Causeway structure, this limits the ability to

introduce separation treatments, access configuration options, and toll system equipment. Implementing toll points on the causeway would introduce structural, environmental, and safety challenges and may not be feasible.

Figure 11 shows existing and proposed typical cross section of the I-80 Yolo Causeway. With the addition of a new managed lane in each direction on the Yolo Causeway, the existing general purpose lanes will likely be reduced to a non-standard width of 11 feet and the inside shoulder will be reduced from 10 feet to the minimum two foot width at some locations, however the outside shoulder will have a standard ten foot width.

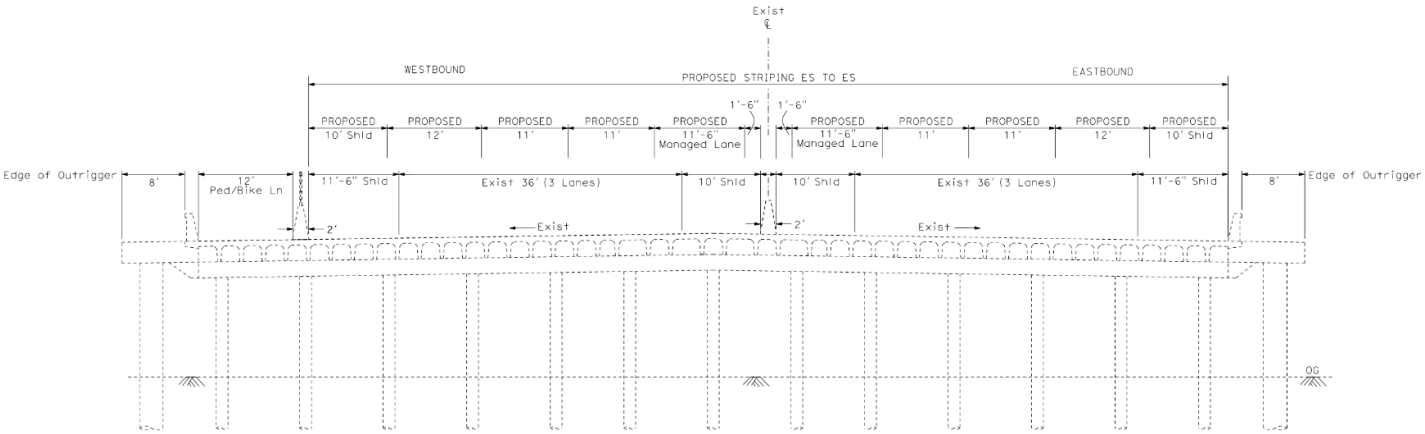


Figure 11: Cross Section of Yolo Causeway

Separation treatment on the Causeway was a particular focus of attention for the Project design team. Restricted access on the causeway is preferred, as it would discourage drivers from entering the managed lanes in a corridor segment without toll equipment. However, even with a reduction in lane width to non-standard 11 feet, the only lane separation treatment that the Causeway can accommodate is a single 8-inch white stripe for separation between managed lane and general purpose lanes. The causeway will have a continuous access designated by a broken 8 inch white line with retroreflective markers, as shown in Figure 12 – Detail 42 from CA MUTCD.

5.2 Access Configuration

There are two types of access treatments for managed lanes:

1. **Continuous access design** – Access to/from the express lane is not restricted to designated locations. Instead, vehicles can enter and exit the express lane at any point. A broken single 8-inch white lane line separating the express lane from the general purpose lanes will designate unrestricted access. Continuous access design is assumed in the TAR (May 2023) throughout the project limits.

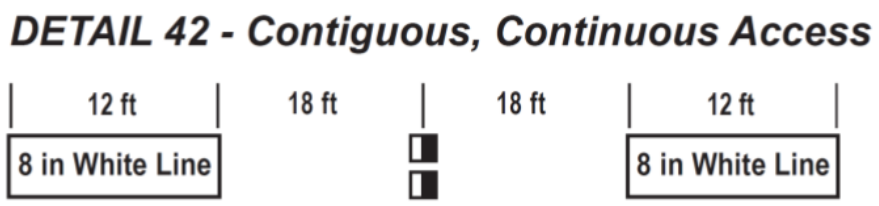


Figure 12: CA MUTCD 3A-113(CA) Detail 42 – Continuous Access

Figure 13: Detail 42 Example – I-880 Express Lanes

2. **Limited access design** – Access to/from the express lane is provided at designated locations, typically through at-grade access openings that can serve ingress, egress, or combined ingress and egress. Physical barriers or striping separates the express lane from the adjacent general purpose lanes between access locations. Typical striping for areas of restricted access is shown in Detail 44 and Detail 45 of the CA MUTCD – 8 inch solid white lines with retroreflective markers, as seen in Figure 14 and Figure 16 below.

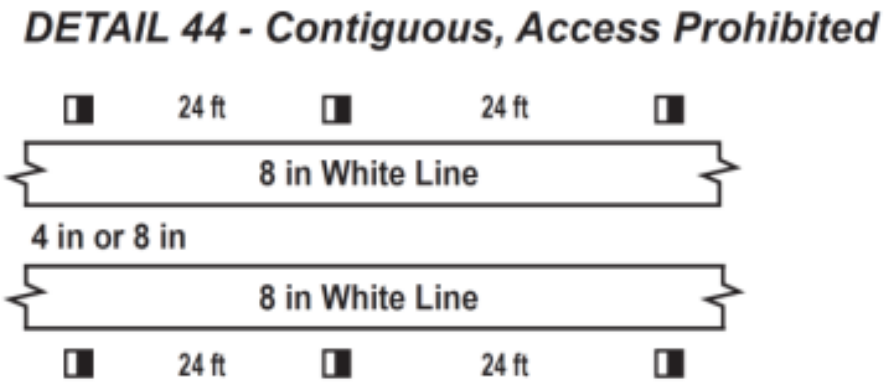


Figure 14: CA MUTCD 3A-113(CA) Detail 44 – Prohibited Access

Figure 15: Detail 44 Example - I-580 Express Lanes

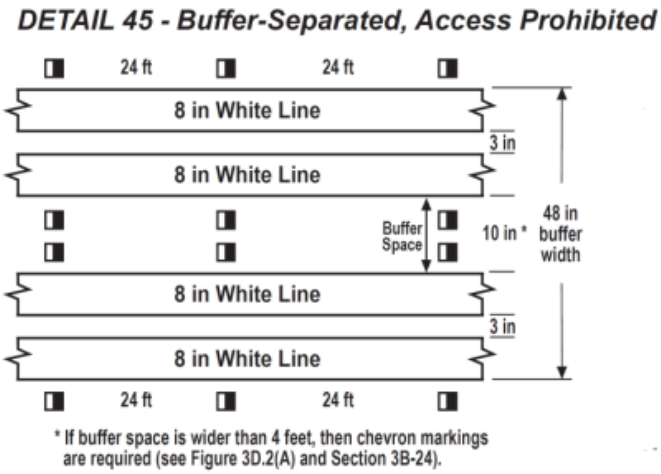


Figure 16: CA MUTCD 3A-113(CA) Detail 45 – Buffer Separated

Figure 17: Detail 45 Example - I-580 Express Lanes

The Project team has identified that restricting access on the I-80 corridor will not result in operational benefits, and instead may worsen conditions due to reduced lane width. Implementing larger stretches of open access will limit the need to reduce lane widths and shoulder space. Thus, the access configuration of the Yolo Managed Lanes will be continuous access solution.

Continuous access solution provides the flexibility to implement access restrictions for future phases or areas that can be improved with buffer separation. Adding areas of access restriction to a continuous access facility is largely driven by traffic modeling and analysis to determine areas where access restrictions make sense and areas where unrestricted access is appropriate. Access restrictions are typically introduced around areas where there are recurring bottlenecks and heavy weaving. Sometimes access restrictions are implemented in the vicinity of major interchanges where there is heavy demand to enter or exit the freeway. This is done in a way that forces vehicles to exit the managed lane well in advance of a major interchange so weaving movements are spread out over a longer distance.

An example of a hybrid access facility is the I-880 Express Lanes in the Bay Area, which is a corridor that was converted from a continuous access HOV lane. For this corridor, traffic modeling showed that certain segments would perform better if access restrictions were introduced to prevent weaving into and out of the lane. Many of these restricted segments coincide with locations that experience recurring congestion and bottlenecks. Analysis also informed the design of the ingress and egress locations, resulting in some locations with a weave zone and others with a dedicated weave lane. The placement of access restrictions must consider an 800’ per lane weaving distance required to reach the express lane from a freeway on-ramp and to reach an off-ramp from the express lane. Transit lines, park and ride lots, and major destinations should also be considered when placing access restrictions.

5.2.1 Start of Managed Lanes

The addition of an express lane will serve as an ingress point at the beginning of the managed lanes. The start of the express lanes in the eastbound direction will be just west of Richards Boulevard on I-80 (PM YOL 0.10). In the east end of the Project, the start of the managed lanes will be located on US-50 upstream to the I-80/US-50 interchange (PM YOL 0.17). Since access will be unrestricted, people traveling from I-80 and US-50 will both be able to enter the express lanes at the start.

In the ultimate phase of the Project, the start of the eastbound I-80 managed lane will still begin just west of Richards Boulevard, the start of the westbound I-80 managed lane will begin just west of W El Camino Avenue and will require a transition zone to connect to the existing HOV2+ lane. On westbound US 50, the start of the managed lane will begin at the I-5 Interchange and there will also need to be a transition zone here to connect to the under construction HOV2+ lane.

5.2.2 End of Managed Lanes

At the eastbound direction, the managed lane will terminate by transitioning into an existing general purpose lane. The eastbound termini will be just east of the I-80/US-50 split on US-50 (PM YOL 0.12). The westbound termini will be a lane drop, providing enough taper length to merge into the general purpose lanes. The westbound termini will be located west of the Mace Boulevard off-ramp on I-80 (PM YOL 2.98).

In the ultimate build of the Project, in the eastbound I-80 direction, the lane will terminate just west of W El Camino Avenue and will feed into the existing HOV2+ lane; this will require a transition zone to allow vehicles to merge in and without to avoid violating occupancy requirements. In the eastbound US 50 direction, the lane will terminate at the I-5 interchange and will feed into the existing HOV2+ lane; this will also require a transition zone. In the westbound I-80 direction, the lane will end just west of Richards Boulevard; this will be completed by terminating the restriction and feeding into an existing general purpose lane.

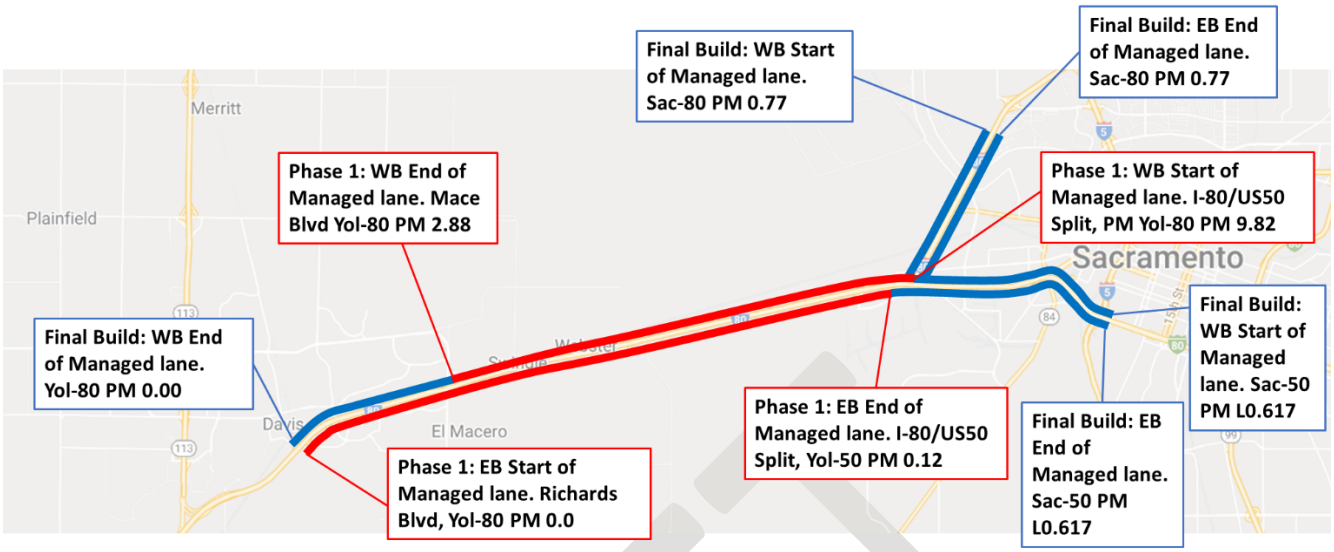


Figure 18: Start and End of Managed Lanes

5.2.3 Transit Access

Since the Project will be continuous access, existing and future transit routes will not be impacted and does not limit the option to enter or exit the express lanes.

5.3 Price Locking

Price locking ensures that toll-paying customers will be charged the rate displayed on the toll rate sign prior to entry into the Express Lane and is not subject to any price changes that may occur while traveling in the zone. Toll rate signs display up to two destinations, meaning customers are price locked in both destinations. The top destination will be end of the most immediate zone and the bottom destination will be the facility termini.

For example, customers who enter at the facility at Richards Boulevard going eastbound will be price locked for Mace Boulevard, E. Chiles Road, and US-50. This ensures that regardless of price changes during their trip, they will be charged the price they saw on the pricing sign before entering the toll lane.

5.4 Toll Zones

Yolo 80 Managed Lanes toll zones will be defined as the segments between major destinations or movements, such as off ramps. The proposed configuration for the first phase of the project includes three zones in the eastbound direction, and two zones in the westbound direction, as shown in Table 5 below. A single toll applied over the entire corridor will not be able to manage demand efficiently since traffic conditions will inevitably vary along the Express Lane corridor. The concept of zone pricing allows the toll system to respond to bottlenecks by increasing the toll rate in the zone while avoiding unnecessary price increases for other zones with available capacity.

Zone	Beginning	End	Length (mi)	Number of Toll Points
EB 1	Richards Blvd	Mace Blvd	2.2	2
EB 2	Mace Blvd	E. Chiles Rd	3.0	2
EB 3	E. Chiles Rd	US-50/I-80 Split	4.3	3
WB 1	US-50/I-80 Merge	E. Chiles Rd	4.0	3
WB 2	E. Chiles Rd	Mace Blvd	2.9	3

Table 5: Phase 1 Toll Zones

Figure 19 below shows the proposed toll zone map for phase 1 of the Project. The figure identifies the locations of the pricing signs associated with each zone and major destinations. The pricing signs in the first phase of the Project will include overlays for future destinations that will be included in the final phase. As funds become available to construct the entirety of the project limits, additional zones will be created and the zone map will be updated. Depending on the alternative, the expanded limits, and the direct connector will include tolling equipment and be treated as a new zone that can be priced separately to increase the ability to manage traffic demands.

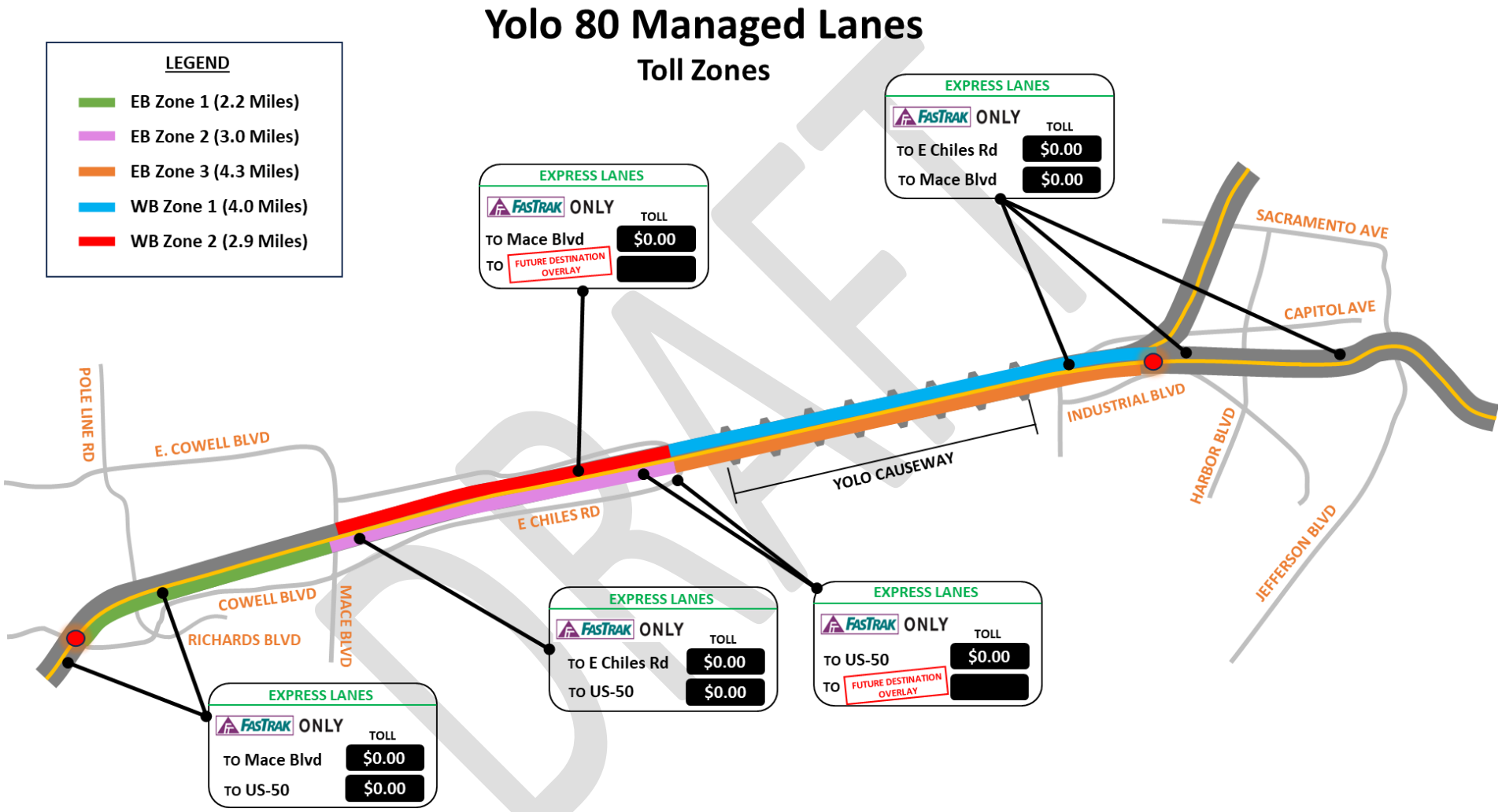


Figure 19: Phase 1 Toll Zone Map

5.5 Lane Separation

Different types of separations can have different impacts on operations and constructability, as well as maintenance, enforcement, and incident management. These factors, and the local context of the I-80 Project corridor, will ultimately determine which separation treatment is most appropriate. However, the project team has considered the pros and cons of each method of separation treatment to understand the impacts of potential design tradeoffs.

Although the Project team has identified that the facility will operate best with unrestricted, continuous access there may be locations where lane separation is introduced to improve traffic operations. In such cases, the following options are summarized below:

- **Painted Line or Buffer:** Multiple managed lane corridors, including the Metro I-10 and I-110 Express Lanes in Los Angeles use a painted buffer separation indicated by solid double white lines at a 2, 4 or 8 ft spacing. This option is the least expensive in terms of capital and maintenance costs and provides the greatest flexibility for operations and access to emergency vehicles. However, this option also has the lowest traffic reliability and performance due to friction with adjacent lanes, and potential turbulence from vehicles illegally crossing the painted lines. Enforcement resources are necessary to minimize buffer crossing violations.

Figure 20: Example - Facility with Painted Buffer

- **Channelizer or Delineator**: Express Lane facilities such as the SR-91 Express Lanes, I-95 in Miami, and I-10 in Houston employ traffic channelizers or delineators as a separation method, see Figure 21**Error! Reference source not found.**. Channelizers are placed at frequent intervals within a painted buffer area to create a perceived physical barrier to

prevent drivers from exiting or entering the Express Lanes at undesignated areas. This configuration reduces the risk of buffer crossings and associated revenue leakage, while also allowing emergency vehicle access. However, this option also has the highest ongoing maintenance cost. On the SR-91 facility, buffer crossings and vehicle strikes require 30 to 50 percent of channelizers to be replaced annually.

Figure 21: Example - Facility with Channelizers

- **Concrete Barrier or Grade Separated:** It should be noted that some managed lane projects use concrete barriers or grade separations to designate Express Lanes from general purpose lanes. This option is usually deployed only on reversible or contra-flow facilities. The I-25 Express Lanes in Denver are an example of this strategy. Operationally, this option allows for the highest speed differential from general purpose lanes, prevents buffer crossings and revenue leakage, and has relatively low maintenance costs. However, this option is also the most expensive due to capital and right-of-way costs. This option can also complicate incident management and allows little flexibility for future operational changes. See Figure 22 for an example of a barrier separated facility.

Figure 22: Example - Facility with Concrete Barrier

5.6 Signage

Overhead and median mounted signs are used to display guidance and regulatory information to drivers about the use of managed lanes. Signs are used to designate access locations, display eligibility requirements and hours of operation, and for express lanes, to display toll rates and toll tag account requirements. The 2014 edition of the California Manual on Uniform Traffic Control Devices (2014 CA MUTCD, Revision 7) provides specifications and guidance for the design and placement of managed lanes signs.

5.6.1 Start of Lane Signage

The CA MUTCD Express Lane requirements include the placement of prescriptive signing at the beginning and end of an Express Lane facility, as well as intermediate access locations. As drivers approach the Express Lanes, they will see a sequence of advanced overhead signs which include Changeable Message Signs (CMS), Pricing Signs, and Preferential Lane Entrance signs (CA MUTCD E8-2 and E8-3), beginning two miles before the entrance. The sequence of advanced signage will align with Figure 2G-21 from CA MUTCD, which designates example signing for the entrance to a priced managed lane. Examples of this signage are shown in Figure 23.

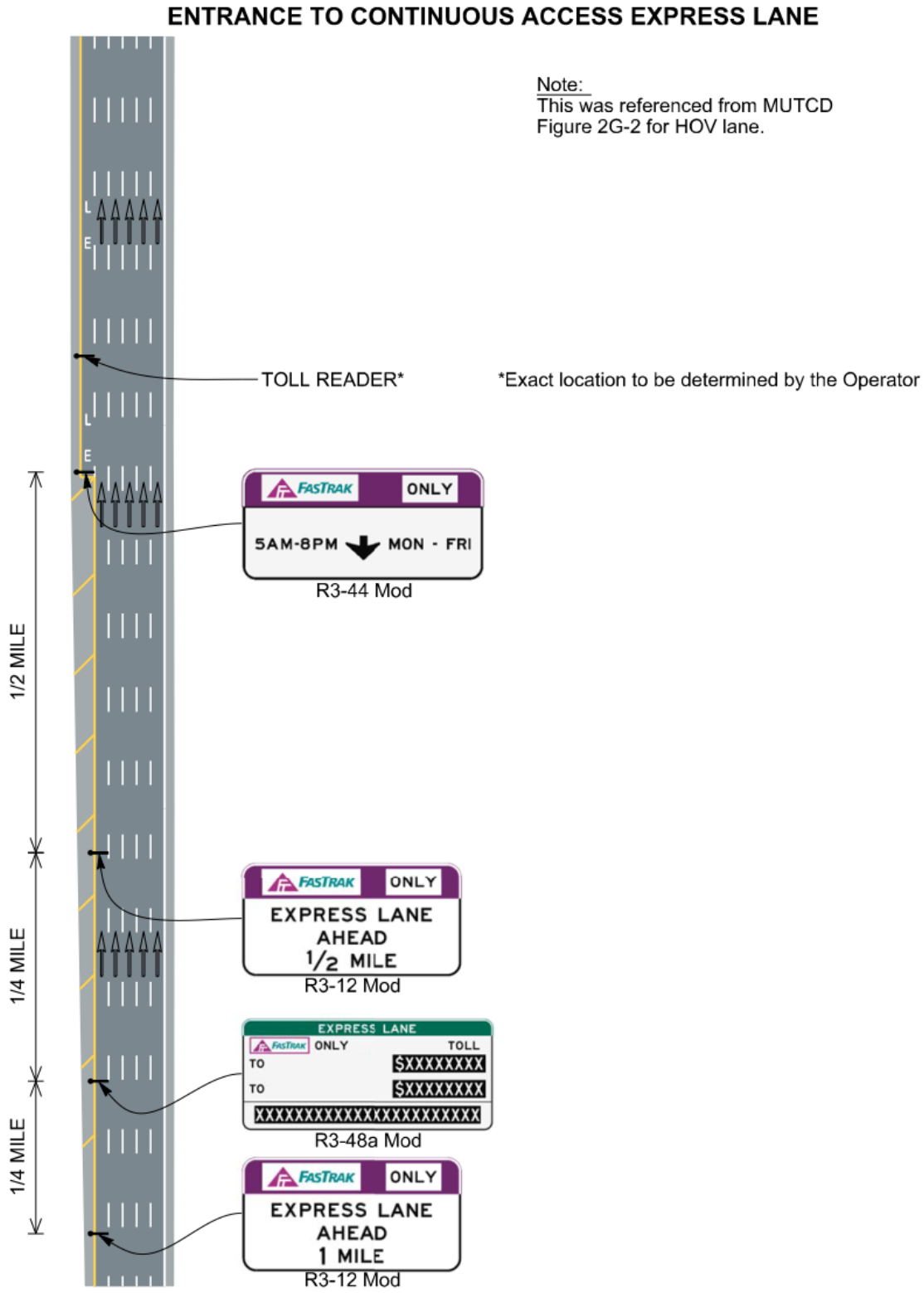


Figure 23: Example Start of Express Lane Signage

MUTCD provides recommended spacing between overhead signs upstream of the Express Lanes entrance. Signs will be placed in accordance with the recommended spacing with few exceptions:

- Placing sign panels on existing sign structure at nearby stationing, if possible
- Avoiding the placement of signs on overpasses or the causeway structure
- Ensuring proposed signs are spaced 800 feet from existing signs
- Placing signs upstream of bridges to avoid sight obstruction

5.6.2 Intermediate Signage

Along segments where there are few or no access restrictions, overhead and median mounted regulatory signs will be located at regular intervals to clearly designate the express lane and display the HOV eligibility requirement, hours of operation and the FasTrak® account requirement for all vehicles in the lane. These signs may need to allow for easy modifications if the HOV eligibility requirement or the hours of operation change in the future.

Occupancy requirement to receive toll discount will be displayed on median mounted signs with FasTrak branding, see Figure 24 below.

Figure 24: Example FasTrak Occupancy Requirement Sign

5.6.3 Pricing Signage

As required by CA MUTCD, pricing signs will be placed before each point of entry to the Express Lanes to inform drivers of the toll before they make their decision to either enter the Express Lanes or remain in GP lanes.

Overhead pricing signs are installed to display the toll rates to travel to downstream destinations. These signs are installed in advance of access points for limited access facilities, or

at regular intervals throughout the corridor for continuous access facilities. The CA MUTCD includes guidance for the types and number of destinations to be displayed on pricing signs. Current guidance suggests no more than two destinations be displayed, including the price to the end of the facility and an intermediate major destination. Exceptions have been made to allow more than two destinations, but it is preferable to keep the amount of information on Express Lane signs to a minimum to avoid driver confusion.

The pricing signs on the Yolo 80 Managed Lanes will consist of static panels with changeable message inserts for pricing. Example shown in Figure 25 below.

Figure 25: Example Pricing Sign - I-880 Express Lanes

5.6.4 End of Lane

A sequence of overhead signs beginning one-half mile upstream of the terminus of an express lane will be used in accordance with the CA MUTCD to indicate that the express lane is ending.

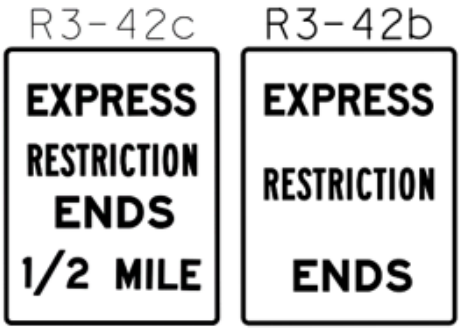


Figure 26 for example of advanced warning signs that will be installed.

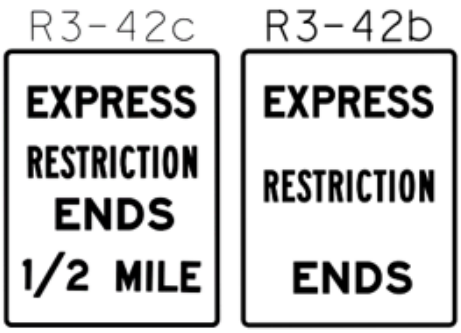


Figure 26: Termini Signage

5.7 Roadway Improvements

The proposed addition of the Project will improve the pavement condition, support various mode options, increase the corridor reliability, and reduce travel times through the corridor. The Project Development Team recommends milling and crack sealing of the existing mainline pavement, and for specified ramp locations, all cracks sealed, and potholes repaired, and then a rubberized hot mix asphalt-open graded (RHMA-O) and rubberized hot mix asphalt-gap graded (RHMA-G) overlay on the existing travel lanes on Yolo 80 post mile (PM) 0.0/4.1.

Existing storm drain culverts needing repair will be slip-lined or replaced. The proposed inside widening and minor outside widening will require the existing storm drain facilities to be upgraded and supplemented.

Each of the Build alternatives includes the following corridor improvements:

- Placement of ramp meters and other ITS elements, such as changeable message signs (CMS) and closed-circuit television (CCTV)
- Structural modifications
- Bicycle/Pedestrian facility rehabilitation and extension
- New Mobility Hub on east side of Enterprise Blvd
- Roadside and overhead sign replacement

- Lighting upgrades
- Safety device improvements
- Striping and pavement marker replacement

6 TRANSIT CONSIDERATIONS

Managed lane design must also take into consideration the needs of existing and future transit service providers, as well as carpools and vanpools. If access restrictions are to be introduced, the ability of transit buses, carpools and vanpools to use the lanes should not be impeded. For freeway ramps utilized by buses, the distance between the ramp and the start or end of a managed lane access restriction should ideally accommodate the extra distance required by buses to merge across multiple lanes of traffic. Locations where there are high volumes of transit and carpool vehicle volumes accessing a managed lane, such as Mace Boulevard, may warrant consideration of direct access ramps that provide access between the managed lane and a local street.

6.1 Existing Park and Ride Lots

There are currently three Park and Ride (P&R) lots along the I-80 Project. At the east end, there are two Caltrans owned parking lots (170 spaces) on Enterprise Boulevard just off the I-80 exit, just east of the causeway. These P&R facilities are located near the bus stop that services bus line 42A and 42B. On the west end of the facility there is the Mace P&R lot (145 spaces), which is located near bus lines 42A, 42B and 43. See Figure 28 for map of these existing P&R facilities within project scope.

6.2 Existing Transit Routes

I-80 is the main connection between the City of Davis and the City of Sacramento and serves the following Yolobus lines (Figure 21):

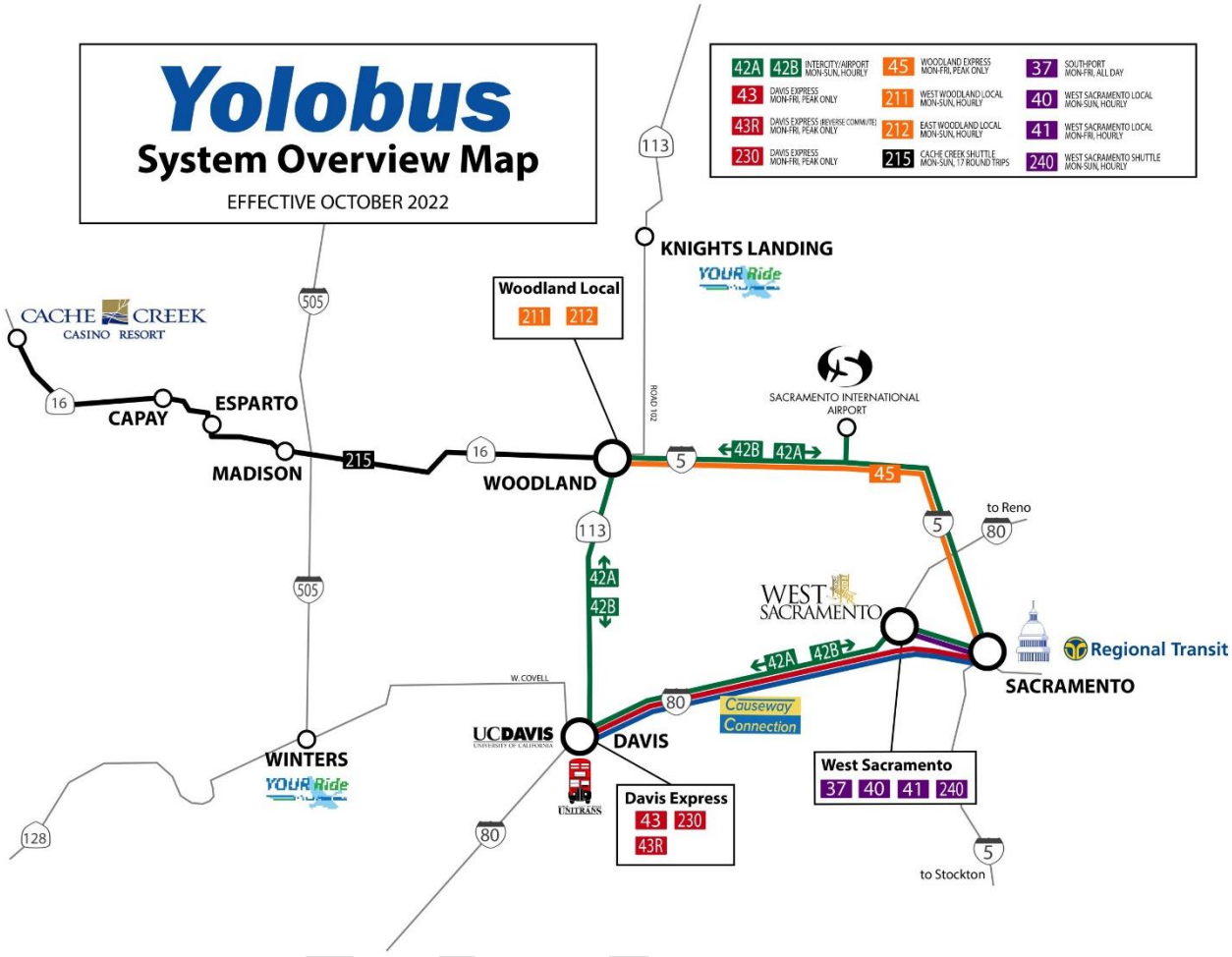


Figure 27 Yolobus System Overview Map

- **Route 42A/42B –** The intercity loop, which runs through Davis, West Sacramento, Downtown Sacramento, Sacramento International Airport, and Woodland. This is an hourly service that runs seven days a week with increased service during peak hour.
- **Route 43AM/43PM/43R –** Monday through Friday route that runs between central and east Davis to downtown Sacramento.
- **Route 138 (Causeway Connection)** - Zero emission bus service between Silo Terminal in Davis and the UC Davis Medical Center in Sacramento. Operations are managed by Yolobus and SacRT. Operations are hourly Monday through Friday.
- **Route 230AM/230PM –** Express bus that runs from West Davis to Downtown Sacramento, Monday through Friday.

6.3 Proposed Mobility Hub

The Project proposes the construction of a new Mobility Hub for all build alternatives to provide approximately 300 additional park and ride spaces to the I-80/Enterprise Blvd/West

Capital Ave Interchange, where existing park and ride spaces frequently fill. CARTA will continue to coordinate with local transit agencies, the City of West Sacramento, UC Davis, Sacramento Regional Transit, and Yolo County to increase the possibility of providing a bus stop and bus transfer station. The Mobility Hub preliminary scope includes a pedestrian drop-off area, electrical vehicle charging stations for buses and vehicles, bus stop shelter, bike lockers, trees, lighting, landscaping, and vegetated infiltration basins/planters. This Mobility Hub will provide an ideal location and opportunity for pedestrians, bicyclists and carpoolers to transfer onto various bus routes. The Mobility Hub construction will be part of a future construction phase of this project.

6.4 Proposed Transit Improvements

The Project Development Team (PDT) is discussing and coordinating these efforts with local partners invested in transit such as the City of West Sacramento, YoloTD, City of Davis, Yolo County, Yolo Bus, Sacramento Regional Transit District (SacRT), Amtrak Capitol Corridor (rail), Unitrans (UC Davis Bus service), and others. With the objective of reducing overall VMT, the project is looking to use revenue to integrate transit improvements in the region. Strategies may include dedicated lanes, transit signal priority, enhanced connectivity, bike and pedestrian integration, fare integration, accessibility improvements, community engagement and public awareness.

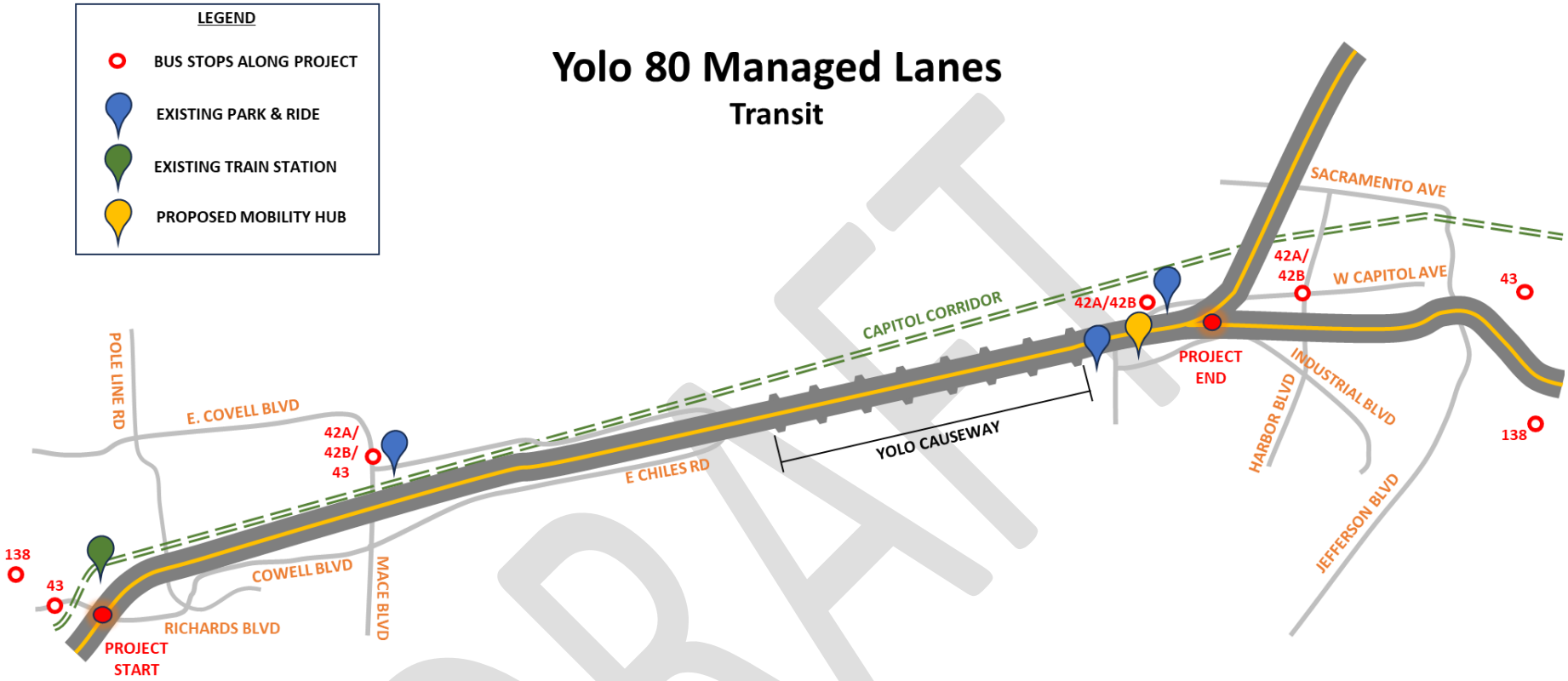


Figure 28: Phase 1 Yolo 80 Transit Map

7 TRAFFIC PERFORMANCE FORECASTS

The Interstate 80/US Highway 50 Managed Lanes Transportation Analysis Report (TAR, May 2023) documents and presents existing and anticipated future transportation conditions in the study area with and without the proposed project. As mentioned in Section 4, 9 alternatives (TAR Alternative 1-9) including a no-build alternative were analyzed in-depth in the TAR (May 2023).

- Alternative 1 – No Build.
- Alternative 2 (Add HOV) – Add a high-occupancy vehicle lane in each direction for use by vehicles two or more occupants (HOV2+).
- Alternative 3 (Add HOT2+) – Add a high-occupancy toll lane in each direction for use by vehicles with two or more occupants (HOT2+). Single-occupant vehicles would pay a fee for lane usage.
- Alternative 4 (Add HOT3+) – Add a high-occupancy toll lane in each direction for use by vehicles with three or more occupants (HOT3+). Vehicles with two occupants would pay a reduced toll, and SOVs would pay the full toll (HOT3+).
- Alternative 5 (Add Toll) – Add one express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of the number of occupants).
- Alternative 6 (Add Transit) – Add a transit-only lane in each direction.
- Alternative 7 (Convert HOV) – Repurpose the current number one general purpose lane in each direction for use by vehicles with two or more occupants (HOV2+); no new lanes would be constructed.
- Alternative 8 (Add HOV with Median Ramps) – Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more occupants and build an I-80 managed lane direct connector.
- Alternative 9 (Add HOV without Enterprise Crossing) – Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more occupants (HOV2+) without Enterprise Crossing, a planned bridge on Enterprise Boulevard at the deep-water ship channel.

Section 7.1 and 7.2 discuss the forecasted traffic performance measures for both the corridor and the region network. The performance measures from the opening year 2029 and horizon year 2049 models are reported with more specific details in the TAR (May 2023). A modified version of the SACSIM19 regional travel demand model was applied to forecast traffic volumes and performance measures for opening year 2029 and horizon year 2049 under typical weekday conditions. Induced VMT forecasts attributable to the project were prepared using the modified SACSIM19 model and the NCST calculator.

Section 7.3, 7.4 and 7.5 discuss the performance measures from the simulation analysis. Freeway operations were analyzed for the 6:00 to 10:00 AM and 3:00 to 7:00 PM peak periods using Vissim traffic simulation software so that congestion can be modeled across time and space.

Results from the traffic performance forecasts are summarized below to provide a high-level comparison of Project Alternatives. The forecast examines the operational performance for both the corridor and the region. The TAR (May 2023) includes more specific details and additional performance measures in addition to the critical metrics included in the ConOps.

7.1 Corridor Performance Measures

The Interstate 80/US Highway 50 Managed Lanes Transportation Analysis Report (May 2023) provides the network performance measure including Vehicle Hours Traveled (VHT), Vehicle Hours of Delay (VHD), Vehicle Miles Traveled (VMT), and Personal Miles Traveled (PMT). The performance measures are reported on both regional and corridor basis. The sub-sections below document the high-level corridor performance measures forecasted in opening year 2029 and horizon year 2049.

7.1.1 VHT

Table 6 presents the corridor daily VHT by alternative under opening year 2029 and horizon year 2049 based on the model output. These results are compared to the base year 2016 model output. Corridor VHT is expected to grow by 7 percent in 2029 and 56 percent in 2049 under the No Build Alternative (Alt 1). In 2029, the HOT 3+, express lane, transit lane, and HOV conversion alternatives (Alt 4-7) would have higher corridor VHT than the No Build Alternative, but the other build alternatives would have lower corridor VHT. Corridor VHT in 2049 would be highest for the No Build, transit lane, and HOV conversion alternatives (Alt 1, 6, and 7), which would have more corridor delay than the other alternatives. The transit lane and HOV conversion alternatives (Alt 6 and 7) include minor widening, which would reduce travel time compared to the no build alternative (Alt 1).

Alternative	2016	2029	2049
1 (No Build)	75,700 (Base Year)	81,100	117,000
2 (Add HOV)		80,600	94,800
3 (Add HOT2+)		80,300	94,900
4 (Add HOT3+)		81,200	96,200
5 (Add Toll)		82,500	96,800
6 (Add Transit)		84,600	107,400
7 (Convert HOV)		83,900	102,600
8 (Add HOV with Median Ramps)		80,700	94,700
9 (Add HOV without Enterprise Crossing)		80,200	94,000

Table 6: Corridor Daily VHT

7.1.2 VHD

Table 7 presents the corridor daily VHD by alternative under opening year 2029 and horizon year 2049 based on the model output. These results are compared to the base year 2016 model output. Corridor VHD is expected to grow by 22 percent in 2029 and 200 percent in 2049 under Alternative 1. In 2029, Alternatives 6 and 7 would have higher corridor VHD than Alternative 1, and the other build alternatives would have lower corridor VHD. Corridor VHD in 2049 would be

highest for Alternatives 1, 6, and 7. Alternatives 6 and 7 include minor widening, which would reduce travel time compared to Alternative 1. The corridor VHD for the other build alternatives would be less than half the Alternative 1 corridor VHD.

Alternative	2016	2029	2049
1 (No Build)	15,100 (Base Year)	18,300	44,300
2 (Add HOV)		12,500	19,600
3 (Add HOT2+)		12,100	19,600
4 (Add HOT3+)		13,500	21,900
5 (Add Toll)		15,200	23,00
6 (Add Transit)		20,600	36,500
7 (Convert HOV)		21,700	33,900
8 (Add HOV with Median Ramps)		12,500	19,400
9 (Add HOV without Enterprise Crossing)		12,400	19,100

Table 7: Corridor Daily VHD

7.1.3 VMT

Table 8 presents the corridor daily VMT by alternative under opening year 2029 and horizon year 2049 based on the model output. These results are compared to the base year 2016 model output. Corridor VMT is expected to grow by 4 percent in 2029 and 20 percent in 2049 under Alternative 1. In 2029, all build alternatives except Alternative 7 would have higher corridor VMT than Alternative 1. Corridor VMT in 2049 would be highest for Alternative 3 and lowest for Alternatives 6 and 7. These two alternatives would also be the only alternatives with a lower corridor VMT than Alternative 1.

Alternative	2016	2029	2049
1 (No Build)	3,741,100 (Base Year)	3,881,000	4,495,700
2 (Add HOV)		4,237,700	4,683,100
3 (Add HOT2+)		4,240,200	4,686,500
4 (Add HOT3+)		4,200,700	4,616,200
5 (Add Toll)		4,170,900	4,582,700
6 (Add Transit)		3,953,600	4,381,600
7 (Convert HOV)		3,867,200	4,276,800
8 (Add HOV with Median Ramps)		4,241,900	4,683,700
9 (Add HOV without Enterprise Crossing)		4,216,200	4,662,500

Table 8: Corridor Daily VMT

7.2 Regional Network Performance

The Interstate 80/US Highway 50 Managed Lanes Transportation Analysis Report (May 2023) provides the network performance measure including VHT, VHD, VMT, and PMT. The performance measures are reported on both regional and corridor basis. The sub-sections

below document the high-level regional performance measures forecasted in opening year 2029 and horizon year 2049.

7.2.1 Regional VHT

Table 9 presents the regional daily VHT by alternative under opening year 2029 and horizon year 2049 based on the model output. These results are compared to the base year 2016 model output. Regional VHT is expected to grow by 10 percent in 2029 and 50 percent in 2049 under Alternative 1. In 2029, Alternative 1 would have the lowest regional VHT, but as network delay increases, Alternative 1 would have the highest regional VHT by 2049. Regional VHT in 2049 would be similar across the build alternatives, with Alternatives 6 and 7 having the highest VHT.

Alternative	2016	2029	2049
1 (No Build)	1,686,900 (Base Year)	1,851,200	2,522,700
2 (Add HOV)		1,923,800	2,351,500
3 (Add HOT2+)		1,923,000	2,357,900
4 (Add HOT3+)		1,921,900	2,360,300
5 (Add Toll)		1,926,000	2,363,900
6 (Add Transit)		1,917,500	2,396,700
7 (Convert HOV)		1,928,200	2,373,400
8 (Add HOV with Median Ramps)		1,925,000	2,354,900
9 (Add HOV without Enterprise Crossing)		1,929,200	2,357,300

Table 9: Regional Daily VHT

7.2.2 Regional VHD

Table 10 presents the regional daily VHD by alternative under opening year 2029 and horizon year 2049 based on the model output. These results are compared to the base year 2016 model output. Regional VHD is expected to grow by 16 percent in 2029 and 132 percent in 2049 under Alternative 1. Similar to the VHT results, Alternative 1 would have the lowest regional VHD in 2029, but as network delay increases, Alternative 1 would have the highest regional VHD by 2049. Regional VHD in 2049 would be similar across the build alternatives, with Alternatives 6 and 7 having the highest VHD, which matches the VHT results.

Alternative	2016	2029	2049
1 (No Build)	230,600 (Base Year)	266,800	533,200
2 (Add HOV)		292,900	431,500
3 (Add HOT2+)		292,500	434,700
4 (Add HOT3+)		292,800	439,100
5 (Add Toll)		295,400	443,100
6 (Add Transit)		296,500	465,200
7 (Convert HOV)		302,100	452,100
8 (Add HOV with Median Ramps)		293,500	432,700
9 (Add HOV without Enterprise Crossing)		296,000	434,900

Table 10: Regional Daily VHD

7.2.3 Regional VMT

Table 11 presents the regional daily VMT by alternative under opening year 2029 and horizon year 2049 based on the modified SACSIM19 model output. These results are compared to the base year 2016 model output and do not fully account for induced VMT effects. Separate induced VMT forecasts using the NCST calculator are provided in Section 7.2.4. Regional VMT is expected to grow by 8 percent in 2029 and 35 percent in 2049 under Alternative 1. Similar to the VHT results, Alternative 1 would have the lowest regional VMT in 2029, but as network delay increases, Alternative 1 would have the highest regional VMT by 2049 as travelers shift to longer routes to reduce overall travel time. Regional VMT in 2049 would be similar across the build alternatives, with Alternative 6 having the highest VMT. While transit use may be higher in this alternative, passenger travel to train stations and park-and-ride lots would likely be higher than other build alternatives.

Alternative	2016	2029	2049
1 (No Build)	63,097,900 (Base Year)	67,803,500	85,249,400
2 (Add HOV)		69,891,500	82,246,400
3 (Add HOT2+)		69,869,900	82,366,100
4 (Add HOT3+)		69,788,500	82,220,400
5 (Add Toll)		69,839,100	82,154,200
6 (Add Transit)		69,378,300	82,651,100
7 (Convert HOV)		69,590,700	82,199,000
8 (Add HOV with Median Ramps)		69,923,800	82,339,500
9 (Add HOV without Enterprise Crossing)		69,981,600	82,330,400

Table 11: Regional Daily VMT

7.2.4 Induced VMT

Induced travel is the increase in the potential demand for travel due to the economic effect of reducing travel time and therefore travel costs. The build alternatives will widen I-80 and US 50 to provide additional travel lanes in the study area which will reduce travel times for passenger

and commercial vehicles. Typically, lower vehicle travel costs generate increases in vehicle travel demand due to the following causes.

Short-term responses

- New vehicle trips that would otherwise not be made
- Longer vehicle trips to more distant destinations
- Shifts from other travel modes to driving
- Shifts from one driving route to another

Longer-term responses

- Changes in land use development patterns (these are often more dispersed, low-density patterns that are automobile-dependent)
- Changes in overall growth

Table 12 presents the estimated short-term induced travel using the modified SACSIM19 travel demand model under 2029 and 2049 conditions plus the long-term induced travel based on the National Center for Sustainable Transportation (NCST) calculator. For the SACSIM19 model, induced VMT is the difference between the build and no build alternatives. For the NCST calculator, the estimate is based on the lane-miles that would be constructed. Alternative 1 would not construct new lanes, so no induced VMT would occur. For Alternatives 2 and 9, the project would construct about 28.4 lane-miles of new freeway lanes (HOV and auxiliary lanes). A portion of the project would convert existing GP to managed lanes on US 50 between I-80 and Jefferson Boulevard, so the total lane addition is less than the project length. Alternative 7 would have minor lane additions totaling about 0.7 miles. With the median ramps at I-80/US 50, Alternative 8 would construct about 29.6 lane-miles in total. The calculator does not estimate the induced VMT for transit-only lane alternatives (Alternative 6).

Alternative	SACSIM19 Daily VMT Change		NCST Long-Term Induced Daily VMT
	2029	2049	
1 (No Build)	-	-	-
2 (Add HOV)	+2,088,000	-3,003,000	+495,300
3 (Add HOT2+)	+2,066,400	-2,883,300	+495,300
4 (Add HOT3+)	+1,985,000	-3,029,000	+495,300
5 (Add Toll)	+2,035,600	-3,095,200	+495,300
6 (Add Transit)	+1,574,800	-2,598,300	-
7 (Convert HOV)	+1,787,200	-3,050,400	+12,300
8 (Add HOV with Median Ramps)	+2,120,300	-2,909,900	+516,000
9 (Add HOV without Enterprise Crossing)	+2,178,100	-2,919,000	+495,300

Notes: The SACSIM19 model includes two additional counties (Sutter and Yuba). Annual VMT converted to daily VMT using a factor of 300 to account for less travel on weekends and holidays. Long-term induced daily VMT estimated with an elasticity of 1.0 using NCST calculator based on 2019 VMT in the four-county MSA (El Dorado, Placer, Sacramento, and Yolo).

Table 12: Daily VMT Change and Induced VMT

7.3 Bottleneck Throughput

Opening year 2029 AM and PM peak period throughput at the primary bottleneck in each direction are reported in Table 13 and Table 14, respectively. In the eastbound direction, the main bottleneck is on I-80 at Mace Boulevard. In the westbound direction, the main bottleneck is on I-80 at the Yolo Causeway.

Performance Measure	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
AM Peak Period									
Vehicles served	17,400	**19,200**	**19,200**	18,900	18,500	17,600	15,900	**19,200**	19,100
Persons served	27,400	**29,900**	29,500	28,700	28,600	27,900	25,500	**29,900**	**29,900**
PM Peak Period									
Vehicles served	19,000	**23,400**	23,100	22,600	22,300	19,000	11,800	23,100	22,100
Persons served	29,500	**36,500**	35,100	34,200	34,600	29,900	18,500	35,900	34,200

Notes: The peak periods are 6:00 to 10:00 AM and 3:00 to 7:00 PM. The lowest value is underlined, and the highest value is bolded.

Table 13: EB Peak Period Throughput: I-80 at Mace Blvd - Opening Year 2029

For eastbound I-80 at Mace Boulevard, the AM peak period would have low congestion under the build alternatives, so the vehicle served at the bottleneck would be similar across most alternatives. Alternatives 2, 3, and 8 would serve the most vehicles. Due to differences in average vehicle occupancy, Alternatives 2, 8, and 9 would serve the most people. For the PM peak period, Alternative 2 would serve the most vehicles and people although Alternatives 3 and 8 would serve almost as many. Alternative 7 would serve the fewest vehicles and people during both peak periods.

Performance Measure	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
AM Peak Period									
Vehicles served	23,400	27,300	28,000	27,100	27,400	24,100	18,800	**28,200**	27,200
Persons served	36,900	42,600	42,800	41,300	42,700	38,500	30,100	**44,100**	42,800
PM Peak Period									
Vehicles served	17,900	**21,200**	21,000	21,100	20,700	17,900	16,800	21,000	21,000
Persons served	28,700	**33,800**	33,100	**33,800**	33,400	29,000	27,500	33,700	**33,800**

Notes: The peak periods are 6:00 to 10:00 AM and 3:00 to 7:00 PM. The lowest value is underlined, and the highest value is bolded.

Table 14: WB Peak Period Throughput: I-80 at Yolo Causeway - Opening Year 2029

For westbound I-80 at the Yolo Causeway, the AM peak period would be congested causing queues upstream on both I-80 and US 50. Alternative 8 would serve the most vehicles and people. Alternatives 2 through 5 and 9 would also serve about as many vehicles and people as Alternative 8. During the PM peak period, Alternative 2 would serve the most vehicles, but Alternatives 2, 4, and 9 would serve the most people. Like in the eastbound direction, Alternative 7 would serve the fewest vehicles and people at the main westbound bottleneck.

Horizon year 2049 AM and PM peak period throughput at the primary bottleneck in each direction are reported in Table 15 and Table 16, respectively. In the eastbound direction, the main bottleneck is on I-80 at Mace Boulevard. In the westbound direction, the main bottleneck is on I-80 at the Yolo Causeway.

Performance Measure	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
AM Peak Period									
Vehicles served	19,300	21,000	**21,200**	21,000	21,100	18,800	15,900	21,000	21,100
Persons served	31,000	33,800	33,700	33,400	33,700	30,800	26,200	33,600	**34,000**
PM Peak Period									
Vehicles served	16,400	**22,500**	21,000	21,400	20,800	17,100	9,400	21,600	22,200
Persons served	25,900	**35,800**	33,000	32,900	32,200	27,200	15,800	34,100	35,300

Notes: The peak periods are 6:00 to 10:00 AM and 3:00 to 7:00 PM. The lowest value is underlined, and the highest value is bolded.

Table 15: EB Peak Period Throughput: I-80 at Mace Blvd - Horizon Year 2049

For eastbound I-80 at Mace Boulevard, the AM peak period would have low congestion under the build alternatives, so the vehicle served at the bottleneck would be similar across most alternatives. Alternative 3 would serve the most vehicles. Due to differences in average vehicle occupancy and travel patterns, Alternative 9 would serve the most people. For the PM peak period, Alternative 2 would serve the most vehicles and people although Alternative 9 would serve almost as many. Alternative 7 would serve the fewest vehicles and people during both peak periods.

Performance Measure	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
AM Peak Period									
Vehicles served	23,700	28,400	28,500	27,400	27,800	24,400	19,700	**29,700**	28,200
Persons served	38,000	45,600	43,600	41,900	43,100	39,500	32,100	**47,000**	45,300
PM Peak Period									
Vehicles served	20,400	23,100	**23,500**	21,400	22,300	20,100	17,300	23,100	22,900
Persons served	33,100	**37,800**	36,600	33,800	35,600	32,800	28,700	37,400	36,900

Notes: The peak periods are 6:00 to 10:00 AM and 3:00 to 7:00 PM. The lowest value is underlined, and the highest value is bolded.

Table 16: WB Peak Period Throughput: I-80 at Yolo Causeway - Horizon Year 2049

For westbound I-80 at the Yolo Causeway, the AM peak period would be congested causing queues upstream on both I-80 and US 50. Alternative 8 would serve the most vehicles and people. Alternatives 2 through 5 and 9 would also serve about as many vehicles and people as Alternative 8. During the PM peak period, Alternative 3 would serve the most vehicles, but Alternative 2 would serve the most people. Like in the eastbound direction, Alternative 7 would serve the fewest vehicles and people at the main westbound bottleneck.

7.4 Corridor Travel Time

Opening year 2029 AM and PM peak hour travel times for the general purpose (GP) and managed lanes are reported in Table 17 and Table 18, respectively. The travel time for three corridors is reported: I-80 between Kidwell Road in Solano County and US 50, US 50 between I-80 and SR 51/SR 99, and I-80 between US 50 and Truxel Road. The free-flow travel time is about 12 minutes for the first corridor and about 5 minutes for the other two corridors.

During the AM peak hour, eastbound average travel time in the general purpose lanes would be highest for Alternative 7 for I-80 from Kidwell Road to US 50 and from US 50 to Truxel Road. Compared to Alternative 1, the Alternatives 2 through 5, 8, and 9 would have a 30-second savings for I-80 from Kidwell Road to US 50 and three minutes or more for US 50 from I-80 to SR 51/SR 99 in the general purpose lanes.

In the westbound direction during the AM peak hour, the addition of the managed lane connector with the managed lane provides a lot of benefits allowing travel time savings to be maximized in most cases. Alternative 8 would have the lowest westbound travel times for all corridors and lanes except for the general purpose lanes for US 50, where Alternative 3 would be faster by about 40 seconds during the AM peak hour. GP lane travel time savings for Alternative 8 would be 14.5 minutes for I-80 from Truxel Road to US 50 compared to Alternative 1. Westbound travel time would be highest for Alternative 7 for US 50 from SR 51/SR 99 to I-80 at almost an hour for the general purpose lanes. Alternative 1 would be better than alternative 7, however it is still higher than alternatives 2-6, with a travel time of about 16 minutes for the same corridor. Alternatives 2 through 5, 8, and 9 would have the best average travel time of about 5 to 6 minutes. West of US 50, general purpose lane travel times would be similar across alternatives although Alternatives 1 and 7 would be about 30 seconds higher on average.

Path	Type	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
I-80 Eastbound: Kidwell Rd Off-ramp to US 50 Off-ramp	GP	13.2	12.8	12.8	12.8	12.8	12.8	**14.9**	12.7	12.8
	ML	n/a	12.4	12.5	12.4	12.4	**12.7**	12.6	12.5	12.4
US 50 Eastbound: I-80 to SR 51/SR 99 Off-ramp	GP	**9.9**	6.9	6.2	6.5	6.1	7.1	6.3	6.7	6.8
	ML	**5.7**	5.1	5.1	5.1	5.1	5.2	5.1	5.1	5.1
I-80 Eastbound: US 50 Off-ramp to Truxel Rd Off-ramp	GP	5.5	5.3	5.3	5.2	5.2	5.3	**5.6**	5.5	5.3
	ML	**5.3**	5.2	5.2	5.2	5.2	**5.3**	5.2	**5.3**	5.2
I-80 Westbound: Truxel Rd SB On-ramp to US 50 On-ramp	GP	22.4	**25.4**	19.1	25.3	23.4	16.6	17.4	7.9	25.2
	ML	14.0	16.9	12.9	12.8	13.2	8.6	7.1	5.3	**17.3**
US 50 Westbound: SR 51 On-ramp to I-80 On-ramp	GP	16.4	5.7	5.2	5.9	5.4	11.6	**59.3**	5.9	6.1
	ML	16.2	5.0	4.8	5.1	4.9	8.1	**32.6**	4.8	5.1
I-80 Westbound: US 50 On-ramp to Kidwell Rd Off-ramp	GP	14.2	13.8	13.7	13.7	13.7	13.8	**14.3**	13.7	13.9
	ML	n/a	12.8	12.8	12.8	12.8	12.9	**13.8**	12.4	12.8

Notes: Average travel time is reported in minutes. The AM peak hour is 7:00 to 8:00 AM. "GP" indicates GP lanes, and "ML" indicates the managed lane. Where no managed lane exists in Alternative 1, "n/a" is shown. The lowest value is underlined, and the highest value is bolded.

Table 17: AM Peak Hour Travel Time - Opening Year 2029

Similar to AM peak hour conditions, eastbound PM peak hour average travel time in the GP lanes would be highest for Alternative 7 for I-80 from Kidwell Road to US 50. Due to severe congestion, average GP lane travel time would be more than three hours for Alternative 7. Alternatives 3 through 5 and 8 would have the best travel times of about 30 minutes for the GP lanes and 18 to 20 minutes for the managed lanes. Peak hour travel time would be higher for Alternative 5 due to higher demand from 3:00 to 4:00 PM, which results in more peak hour congestion. Average travel time would increase later in the peak period due to increased congestion. Downstream on US 50, Alternatives 1 and 6 would have low travel times due to upstream capacity constraints, but Alternatives 4 and 5 would also have low travel times without the same constraints due to the capacity provided by the managed lane. Downstream on I-80, average travel time would be lowest for Alternatives 1, 6, and 7 due to upstream bottlenecks that constrain traffic volume from reaching this corridor. Longer travel times for the other alternatives would be caused by the I-5 bottleneck, which is outside the project area.

During the westbound PM peak period congestion is minimal because demand is lower, therefore most alternatives perform similarly. Westbound PM peak hour travel time for GP lanes would be highest for Alternative 7 for all three corridors. The other alternatives would have similar travel times for all three corridors. For the congested US 50 corridor, the GP lane travel time would be about twice the managed lane travel time.

Path	Type	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
I-80 Eastbound: Kidwell Rd Off-ramp to US 50 Off-ramp	GP	34.6	34.6	30.3	28.2	29.1	35.9	**194.8**	31.7	42.0
	ML	n/a	21.3	19.8	17.8	18.7	26.8	**115.6**	19.5	21.7
US 50 Eastbound: I-80 to SR 51/SR 99 Off-ramp	GP	11.6	17.5	15.1	13.2	12.7	12.7	**19.3**	17.3	20.4
	ML	**9.7**	6.5	6.1	6.0	5.9	5.9	7.0	6.4	7.1
I-80 Eastbound: US 50 Off-ramp to Truxel Rd Off-ramp	GP	7.1	23.2	25.1	**25.9**	24.7	11.2	6.1	24.4	24.8
	ML	5.8	8.3	8.9	**9.3**	9.1	6.0	5.3	7.6	8.5
I-80 Westbound: Truxel Rd SB On-ramp to US 50 On-ramp	GP	5.3	5.3	5.3	5.3	5.2	5.3	**10.2**	5.2	5.3
	ML	5.2	5.1	5.1	5.1	5.1	5.1	**7.3**	5.0	5.1
US 50 Westbound: SR 51 On-ramp to I-80 On-ramp	GP	10.0	10.4	10.4	9.6	10.0	10.5	**19.0**	10.2	9.5
	ML	6.3	5.3	5.3	5.2	5.3	5.4	**7.3**	5.3	5.1
I-80 Westbound: US 50 On-ramp to Kidwell Rd Off-ramp	GP	12.4	12.3	12.2	12.4	12.2	12.2	**14.0**	12.2	12.4
	ML	n/a	12.0	12.0	12.0	12.0	11.9	**12.2**	12.1	12.0

Notes: Average travel time is reported in minutes. The PM peak hour is 4:00 to 5:00 PM. "GP" indicates GP lanes, and "ML" indicates the managed lane. Where no managed lane exists in Alternative 1, "n/a" is shown. The lowest value is underlined, and the highest value is bolded.

Table 18: PM Peak Hour Travel Time - Opening Year 2029

The Horizon year 2049 AM and PM peak hour travel times for the GP and managed lanes are reported in Table 19 and Table 20, respectively.

During the eastbound AM peak period, congestion is minimal because demand is lower, therefore most alternatives besides alternatives 1 and 7 perform similarly. In the AM peak hour, eastbound average travel time in the GP lanes would be highest for Alternative 7 for I-80 from Kidwell Road to US 50 and on US 50 from I-80 to SR 51/SR 99. Travel times for the managed lane would be highest for Alternative 1 which has the shortest managed lanes. Compared to Alternative 1, the Alternatives 2 through 5, 8, and 9 would have a two-minute savings for each of these corridors for the GP lanes. Eastbound travel time on I-80 from US 50 to Truxel Road would be similar under all alternatives.

In the westbound direction, Alternative 8 would have the lowest AM peak hour travel time for I-80 from Truxel Road to US 50 with GP and managed lane travel time less than half that for Alternative 1. Westbound travel time would be highest for Alternative 7 for US 50 from SR 51/SR 99 to I-80 at 56 minutes for the GP lanes. Alternative 1 would be better with about 24 minutes. Alternatives 2, 3, 5, 8, and 9 would have the best average GP lane travel time of about 6 minutes. West of US 50, travel times would be similar across alternatives although Alternatives 1 and 7 would be about 30 seconds higher on average.

Path	Type	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
I-80 Eastbound: Kidwell Rd Off-ramp to US 50 Off-ramp	GP	14.9	12.8	12.9	12.9	12.9	13.1	**19.3**	12.8	12.8
	ML	n/a	12.5	12.5	12.5	12.5	12.7	**13.8**	12.5	12.5
US 50 Eastbound: I-80 to SR 51/SR 99 Off-ramp	GP	8.4	6.2	6.0	6.2	6.0	6.2	**9.9**	6.4	6.0
	ML	**7.8**	5.1	5.1	5.1	5.1	5.2	5.6	5.1	5.1
I-80 Eastbound: US 50 Off-ramp to Truxel Rd Off-ramp	GP	**5.5**	5.2	5.2	5.2	5.2	5.2	5.4	5.2	5.2
	ML	5.3	5.2	5.2	5.2	5.2	**5.4**	5.1	5.3	5.2
I-80 Westbound: Truxel Rd SB On-ramp to US 50 On-ramp	GP	20.9	25.2	24.0	24.9	24.5	20.9	20.7	8.6	**25.5**
	ML	11.2	14.2	13.0	10.7	11.8	8.4	7.3	5.3	**14.4**
US 50 Westbound: SR 51 On-ramp to I-80 On-ramp	GP	23.6	5.6	5.5	8.7	5.9	15.8	**56.1**	5.8	5.7
	ML	20.8	5.0	5.0	6.5	5.1	10.1	**28.2**	4.8	5.1
I-80 Westbound: US 50 On-ramp to Kidwell Rd Off-ramp	GP	14.1	13.8	13.7	13.7	13.7	13.8	**14.2**	13.8	13.8
	ML	n/a	12.8	12.8	12.8	12.8	12.9	**13.6**	12.5	12.8

Notes: Average travel time is reported in minutes. The AM peak hour is 7:00 to 8:00 AM. "GP" indicates GP lanes, and "ML" indicates the managed lane. Where no managed lane exists in Alternative 1, "n/a" is shown. The lowest value is underlined, and the highest value is bolded.

Table 19: AM Peak Hour Travel Time - Horizon Year 2049

The biggest traffic operational benefits from this project can be seen during the PM peak period in the eastbound direction. Similar to AM peak hour conditions, eastbound PM peak hour average travel time in the GP lanes would be highest for Alternative 7 for I-80 from Kidwell Road to US 50. Due to severe congestion, average GP lane travel time would be more than three hours for Alternative 7 and more than an hour for Alternative 1. Alternatives 2 through 4 and 9 would have the best travel times of 35 to 40 minutes for the GP lanes and 15 to 18 minutes for the managed lanes. Peak hour travel time would be higher for Alternative 5 due to higher demand from 3:00 to 4:00 PM, which results in more peak hour congestion. For Alternative 8, travel time would be higher due to one less GP lane for vehicles to queue in between Enterprise Boulevard and US 50 with the addition of the median ramp. Downstream on US 50, travel time would be similar across alternatives since speeds would be controlled by congestion in downtown Sacramento beyond the project limits. Downstream on I-80, average travel time would be lowest for Alternatives 1, 6, and 7 due to upstream bottlenecks that constrain traffic volume from reaching this corridor. Travel time would be higher for Alternative 8 because more traffic can reach the bottleneck at I-5/I-80 with the median ramp for HOVs at I-80/US 50.

Westbound PM peak hour travel time for GP lanes would be highest for Alternative 7 for all three corridors. Alternatives 2, 4, 5, 8, and 9 would provide a 4.5-minute GP lane travel time savings for I-80 from Truxel Road to US 50 compared to Alternative 1. Alternative 3 would have a longer travel time due to congestion at the Reed Avenue off-ramp. There would be about a three-minute managed lane travel time savings for Alternatives 2 through 6, 8, and 9. For US 50 from SR 51/SR 99 to I-80, Alternative 1 would have the lowest GP lane travel time due to capacity constraints in downtown Sacramento. The build alternatives, except for Alternative 7,

would provide about a 1.5-minute travel time savings for the managed lane compared to Alternative 1. Downstream on I-80 west of US 50, congestion is less, but the build alternatives, except for Alternative 7, would still provide about a 1-minute travel time savings over Alternative 1.

Path	Type	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
I-80 Eastbound: Kidwell Rd Off-ramp to US 50 Off-ramp	GP	73.8	35.8	38.6	37.5	62.7	75.3	**193.3**	55.4	38.4
	ML	n/a	16.8	17.2	14.9	24.6	44.3	**116.8**	28.2	17.6
US 50 Eastbound: I-80 to SR 51/SR 99 Off-ramp	GP	20.1	19.6	19.5	19.8	18.7	18.6	**22.8**	21.6	19.2
	ML	**17.5**	7.2	7.2	7.2	6.6	6.1	7.3	7.5	7.3
I-80 Eastbound: US 50 Off-ramp to Truxel Rd Off-ramp	GP	14.5	20.6	23.4	22.8	9.1	11.3	6.2	**25.5**	21.2
	ML	**14.5**	7.6	8.1	8.1	5.6	6.1	5.2	7.8	7.5
I-80 Westbound: Truxel Rd SB On-ramp to US 50 On-ramp	GP	10.1	5.6	6.5	5.7	5.5	7.0	**19.5**	5.6	5.6
	ML	**8.2**	5.2	5.3	5.1	5.1	5.3	6.6	5.1	5.1
US 50 Westbound: SR 51 On-ramp to I-80 On-ramp	GP	8.1	9.9	9.8	9.6	9.8	8.3	**19.9**	10.6	15.0
	ML	6.7	5.3	5.1	5.1	5.2	5.1	**7.2**	5.3	5.9
I-80 Westbound: US 50 On-ramp to Kidwell Rd Off-ramp	GP	13.2	12.5	12.3	12.3	12.2	12.4	**13.6**	12.3	12.3
	ML	n/a	12.1	12.1	12.0	12.0	12.0	**12.2**	**12.2**	12.1

Notes: Average travel time is reported in minutes. The PM peak hour is 4:00 to 5:00 PM. "GP" indicates GP lanes, and "ML" indicates the managed lane. Where no managed lane exists in Alternative 1, "n/a" is shown. The lowest value is underlined, and the highest value is bolded.

Table 20: PM Peak Hour Travel Time - Horizon Year 2049

7.5 Deficient Traffic Operations

Table 21 summarizes the freeway analysis segments with deficient operations for the opening year 2029. A project deficiency occurs for a freeway segment when the LOS is E or F west of the Mace Boulevard overcrossing or the LOS is F east of the Mace Boulevard overcrossing. Consistent with the California Environmental Quality Act (CEQA) guidelines, traffic operational performance as measured by automobile LOS cannot be considered as a project impact for the environmental analysis. The deficient operations were determined for each of the four hours during the AM and PM peak periods. The total number of analysis segments varies by alternative, so the percentage of deficient analysis segments is also listed.

Peak Period	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
AM	**163 (29%)**	111 (21%)	97 (19%)	108 (21%)	97 (19%)	144 (28%)	160 (29%)	95 (18%)	114 (22%)
PM	160 (29%)	217 (42%)	215 (41%)	202 (39%)	207 (40%)	176 (34%)	**266 (49%)**	217 (42%)	239 (46%)

Notes: Operations are deficient if LOS E or F west of Mace Boulevard and LOS F east of Mace Boulevard. The lowest value is underlined, and the highest value is bolded.

Table 21: Hourly Segments with Deficient Operations - Opening Year 2029

During the AM peak period, Alternative 1 would have the most deficient segments with 29 percent. Alternative 8 would have the fewest segments, although Alternatives 3 and 5 would

have almost the same percentage. During the PM peak period, almost half of the segments would be deficient under Alternative 7. Alternative 1 would have the fewest segments at 29 percent. Both Alternatives 1 and 6 would have significant congestion extending upstream of the analysis area in the westbound direction. The alternatives with higher capacity (Alternatives 2 through 5 and 8) would have 39 to 42 percent deficient segments.

Table 22 summarizes the freeway analysis segments with deficient operations for the horizon year 2049. The deficient operations were determined for each of the four hours during the AM and PM peak periods. The total number of analysis segments varies by alternative, so the percentage of deficient analysis segments is also listed.

During the AM peak period, Alternative 1 would have the most deficient segments with 43 percent. Alternative 8 would have the fewest segments at 13 percent. Alternatives 3, 5, and 9 would be next at about 21 percent for all three alternatives. During the PM peak period, Alternative 1 would again have the most deficient segments at 62 percent. Both Alternatives 4 and 5 would have the fewest deficient segments at about 44 percent.

Peak Period	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Alt 9
AM	**241 (43%)**	109 (21%)	109 (21%)	132 (25%)	108 (21%)	160 (31%)	222 (41%)	69 (13%)	108 (21%)
PM	**346 (62%)**	276 (53%)	274 (52%)	236 (45%)	230 (44%)	275 (53%)	314 (57%)	256 (50%)	280 (54%)

Notes: Operations are deficient if LOS E or F west of Mace Boulevard and LOS F east of Mace Boulevard. The lowest value is underlined, and the highest value is bolded.

Table 22: Hourly Segments with Deficient Operations - Horizon Year 2049

7.6 Alternative Comparison

According to the Interstate 80/US 50 Managed Lanes Transportation Analysis Report (May 2023), Alternative 1 (No-build) and 7 (Existing GP Lane converting) have the worst operational performance among the alternatives in the modeled years from the simulation results. Alternative 6 (Add transit only lane) would not perform well compared to the other alternatives, though throughput could be improved if additional bus service were provided, the forecasted passenger vehicle volume would be constrained by the network capacity.

Alternatives 2 (Add HOV) and 8 (Add HOV with Managed Lane Connector Ramp) have the best performance results based on metrics such as general purpose peak hour travel time, average network speed, and vehicles/persons served. However, there is no significant overperformance compared to Alternative 3 (Add HOV 2+), 4 (Add HOT 3+), and 5 (Add Express Lane) in the measurements of vehicle hours of delay, vehicle hours of travel, average speed, vehicles served, and persons served. There is a potential weaving concern for Alternative 3 through 5 in the transition zones between the HOT to HOV lanes at the beginning and end of the managed lanes facility. However, this can be mitigated through proper access design, advanced signages, as well as dynamic or valued based variable pricing which can control the volume on the managed lane.

Adding the price component to the managed lane system has many benefits contributing to

traffic operation and congestion management. Dynamic pricing can leverage real-time traffic data to control the volume, v/c ratio, and speed on the managed lanes to maintain an acceptable level of service most of the time, which HOV alone may not achieve. Value-based variable pricing can also leverage recent traffic flow patten to inform efficient demand management. Priced managed lanes encourage alternative transportation (public transit, carpooling, biking, or reduced trip demand), while enabling a reduced environmental impact. Besides operational benefits, revenue generated from tolls can be reinvested into operation and maintenance of toll equipment, transportation infrastructure, including maintenance and improvements to the managed lanes themselves or other transportation projects in the region.

Note that the preferred alternative has not yet been selected, and this document contains results from analysis of Alternative 4 which provides significant operational benefits and O&M support through the discussion across other sections in the ConOps.

8 ROLES, RESPONSIBILITIES, AND INSTITUTIONAL REQUIREMENTS

The implementation and operation of the I-80 Managed Lanes Project will require close collaboration among multiple stakeholder organizations. This section of the ConOps describes the roles and responsibilities of the different stakeholders, as well as related institutional and legislative requirements to advance the deployment of the Project.

8.1 Capital Area Regional Tolling Authority

In 2024, Caltrans, YoloTD, and SACOG signed a joint powers authority agreement to form the Capital Area Regional Tolling Authority (CARTA) or "The JPA". The partnering agencies have participated in focused engagement meetings to review Project features, such as tolling operational characteristics, business requirements, schedule, roles and responsibilities, pricing strategies and long-term goals. The planning, construction, operations, and maintenance of the Project will be accomplished in a collaborative and efficient manner through resource pooling, coordinating regional efforts, unifying management structure, sharing costs, and ensuring public accountability, outlined and agreed upon by the JPA.

The roles and responsibilities of each party of the JPA will be outlined by cooperative agreements including, but not limited to:

- Invoicing
- Reporting
- Performance monitoring
- Staffing Requirements
- Policy Agreements and Approval
- Vendor and Consultant Contracts
- Negotiations and Change Management
- Ensuring that facility is meeting federal performance requirements
- Developing action plans to address managed lanes degradation.

8.2 Caltrans

Caltrans operates and maintains the State Highway System (SHS) and will operate the system in the event of a major incident. Caltrans is the owner and operator of the SHS and has a significant role in the development and implementation of managed lanes. The rules and regulations that guide highway design and traffic operations are the purview of Caltrans. In addition, the environmental review process of FHWA was assigned to Caltrans, and the acquisition of Right-of-Way (ROW) is guided by State ROW acquisition statutes. Caltrans is also responsible for monitoring lane operations and identifying degraded facilities. Caltrans District 3 is leading the environmental approval process, producing design plans, and conducting assessment of managed lanes alternatives on the Yolo 80 Managed Lanes.

In Yolo 80 Managed Lanes operations, Caltrans will be responsible for:

- To be determined once JPA agreement is more finalized

8.3 Yolo Transportation District

Yolo Transportation District (YoloTD), founded in 1989, is Yolo County's congestion management agency in charge of funding and implementing transit and capital projects to ensure a balanced and sustainable transportation system. YoloTD operates the Yolobus network that provides reliable local and intercity bus routes in Sacramento, West Sacramento, Southport, Davis, Woodland, Cache Creek, Madison, Esparto, Capay, Knights Landing, and Vacaville.

YoloTD, in coordination with Caltrans and SACOG, is responsible for preparing the AB 194 application for tolling authority, development of the governance structure, and funding allocation for this Project.

Once Yolo 80 Managed Lanes is in operations, YoloTD will be responsible for the following:

- To be determined once JPA agreement is more finalized

8.4 Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is a regional planning agency located in the Sacramento, California area. SACOG plays a vital role in coordinating and facilitating various aspects of regional planning and development in the Sacramento region. SACOG is responsible for regional funding distribution (TCEP) for the Yolo 80 Managed Lanes Project.

8.5 Federal Highway Administration

The Federal Highway Administration (FHWA) is the agency within the U.S. Department of Transportation that supports State and local governments in the planning, design, and construction of the National Highway System. FHWA provides financial resources and technical assistance for a coordinated program of public roads that service the transportation needs of Federal and Indian lands via the Federal Lands Highway Program. FHWA maintains project level approval for projects that are deemed as Projects of Division Interest (PoDI), which typically include major ITS projects such as Express Lanes and projects costing over $500 million.

FHWA's role in the Yolo 80 Managed Lanes Project includes:

- Reviewing and approving improvements and lane operations on Federal Aid Highway Routes
- Preparing and managing the PoDI Stewardship and Oversight Plan.
- Providing lessons learned and recommending best practices.
- Providing oversight and project review.
- Reviewing the Concept of Operations and approving the Systems Engineering Management Plan (SEMP).

8.6 California Highway Patrol

The California Highway Patrol (CHP) is the law enforcement agency with patrol jurisdiction over all California highways and serves as the state police. Its primary purpose is to assure the safe

convenient and efficient transportation of people and goods on California's highway system. CHP's roles on the I-80 Managed Lanes will include:

- Performing on-site enforcement of vehicle eligibility (i.e., HOV and Clean Air Vehicle) requirements.
- Enforcing buffer-crossing violations in express lanes.
- Leading coordination and implementation of response functions related to incidents or other disruptions on the express lanes and GP lanes.
- Providing lane closure enforcement for installation and maintenance activities when required by policy, contract, or agreement.
- Enforcing all violations of the California Vehicle Code.

CARTA intends to establish a comprehensive agreement with CHP for the enforcement of the Yolo 80 Managed Lanes.

8.7 System Integrators

CARTA will need to partner with a system integrator as part of I-80 Managed Lanes toll system development. A system integrator will be responsible for designing, installing, and operating the toll collection system on the I-80 Managed Lanes. System integrators provide two main functions: designing and installing the required toll collection system and communication equipment in the lanes and functioning as back-office system (BOS) provider, maintenance, ticketing and asset management.

8.8 California Toll Operators Committee

The California Toll Operators Committee (CTOC) is a collaborative organization of California's toll facility operators/owners, primarily concerned with developing protocols and resolving issues related to electronic toll collection (ETC) interoperability. CTOC is currently coordinating statewide efforts to change electronic toll collection protocols within California from those defined in Title 21, Chapter 16 of the California Code of Regulations (CCR), commonly referred to as Title 21, to those prescribed in International Standards Organization (ISO) 18000-63, commonly referred to as 6C, in accordance with national toll interoperability requirements introduced in the Moving Ahead for Progress in the 21st Century (MAP-21) Act that was enacted in 2012. The 6C protocols will apply to the toll collection system to be installed as part of the I-80 Managed Lanes.

8.9 California Transportation Commission

The California Transportation Commission (CTC) was established in 1978 by Assembly Bill 402 (Chapter 1106, Statutes of 1977) with the intent of establishing a single, unified California transportation policy framework. The Commission replaced and assumed the responsibilities of four independent bodies: The California Highway Commission, the State Transportation Board, the State Aeronautics Board, and the California Toll Bridge Authority.

The CTC's involvement with the I-80 Managed Lanes includes:

- Designating CARTA eligible to implement and operate the Yolo 80 Managed Lane Projects per the authority granted in AB 194. The CTC will need to approve the Caltrans toll facility application to operate the I-80 Managed Lanes, which is anticipated for 2029.
- Approving the programming of any state funds, if used to fund the I-80 Managed Lanes Project.

9 OPERATIONAL POLICIES

This section is intended to describe the operational policy considerations discussed with stakeholders as part of the Yolo 80 Managed Lanes Project (the "Project") ConOps process. CARTA will need to establish a wide range of operational policies prior to beginning Project operations. These operational policies will determine which vehicles will be allowed access to the managed lanes, which vehicles qualify for a reduced toll or toll exempt access, as well as the framework for determining and communicating the appropriate toll rate to travelers along the Yolo 80 Managed Lanes Project corridor. Operational policies will also dictate the type of in-vehicle equipment managed lane users will need to have, and the type of customer accounts that will need to be established to use the managed lane. The operational policies established by CARTA will influence the user experience of the Yolo 80 Managed Lanes Project and impact the traffic performance and revenue potential of the proposed facility.

It should be noted that this section seeks to capture options and considerations for operational policies discussed with ConOps stakeholders at the time of this writing. Operational policies will be further informed through concurrent T&R and Equity analyses, and further detailed later in project development. However, it should be noted that the intent is to maintain operational policy consistency with other regional managed lane corridors to the greatest extent possible, while also ensuring that the facility meets performance expectations, and the business rules align with all partnering agencies goals.

9.1 Hours of Operation

The Yolo 80 Managed Lanes will likely operate between 5am – 8pm, seven days a week. This tolling policy may be adjusted based on operations, traffic demand, and the policies of other regional express lane facilities. Policy consistency is important for minimizing driver confusion and help to maximize the efficiency of traffic operations and the overall performance of both Express Lanes and GP lanes.

Currently, MTC is analyzing weekend hours of operations for Yolo 80 Managed Lanes Project in Solano County. The policies of the Solano 80 Express Lanes may influence the final policies and business rules of the Yolo 80 Express Lanes.

9.2 Vehicle Eligibility

Vehicles eligible to use Yolo 80 Managed Lanes will be determined by Federal and state law, in addition to the business rules ultimately established for the facility. Vehicles eligible for Yolo 80 Managed Lanes access include two-axle vehicles, buses, and motorcycles. Whereas other vehicles such as trucks with more than two axles, school buses, and vehicles with trailers will be prohibited from accessing the Yolo 80 Managed Lanes per California law prohibiting these vehicles from traveling in the leftmost freeway lanes. Eligible vehicles with characteristics such as meeting established vehicle occupancy rates, transit vehicles, motorcycles, qualifying Clean Air Vehicles (CAV), emergency vehicles, and others may be able to travel in Yolo 80 Managed Lanes at either a reduced or no cost toll rate, as described in the following sections.

9.2.1 Toll Exempt/Discounted Vehicles

The pricing introduced by Express Lane facilities creates an opportunity to establish different payment classes based on overall goals of the facility. On Express Lanes, applied toll rates can vary for different users depending on policy priorities and the goals of the facility. For instance, policies can grant toll discounts or exceptions based on vehicle occupancy, vehicle type, vehicle classification, or other criteria. Express Lane facilities in California are required by law to offer discounts or exemptions to certain types of vehicles. Doing so can incentivize beneficial activities, such as carpooling, transit utilization, and the use of low-emission vehicles. However, they also have an impact on demand management capability, revenue, operations, customer service center systems, and enforcement. It is important to assess toll discounts or exemptions early during project development to evaluate the anticipated effects on the operational performance of the Express Lanes.

Given CARTA has goals regarding performance measures, equity, regional consistency, VMT, and financial sustainability, protocols for changing or updating these payment classes periodically will be considered. This practice can better enable the facility to meet desired goals, and result in better performance over time. This is further underscored by Federal Law 23 U.S.C. § 166, which requires HOV lanes that allow access by non-HOV's (usually by paying a toll) to meet minimum traffic performance standards. Specifically, if an HOV lane is determined to be degraded, steps must be taken to mitigate the issue within 180 days by increasing HOV lane occupancy, varying tolls on non-HOVs, discontinuing non-HOV use, or increasing HOV lane capacity. An HOV facility becomes degraded if it fails to maintain a minimum average operating speed of 45 mph, 90 percent of the time over a consecutive 180-day period during morning or evening weekday peak hour periods.

California statute dictates the following vehicles to be eligible for toll discounts and exemptions on Express Lanes.

- Qualifying HOVs
- Transit
- Motorcycles
- Clean-Air Vehicles (current regulations set to expire 2025)
- Qualifying Emergency Response Vehicles

9.2.1.1 High-Occupancy Vehicles

Vehicles meeting established occupancy requirements are eligible for toll-free travel per California Streets and Highways Code Section 149 (SHC § 149) and Title 23 of the U.S. Code, Section 166 (23 U.S.C. § 166). Caltrans is currently assessing a vehicle occupancy requirements on Yolo 80 Managed Lanes. T&R and TAR results identify that an occupancy requirement of HOV3+ to receive full discount will result in greater operational performance. However, it should be noted that the ultimate occupancy requirements for toll-free or discounted travel on Yolo 80 Managed Lanes will be finalized later in the project development process. The T&R analysis provides insights on impact of various HOV occupancy requirements on potential net-revenue, HOV degradation, and corridor performance. In addition to facility revenue and traffic

performance, consideration will also be given to the HOV occupancy requirements of other regional Express Lane facilities to offer customers a level of consistency between corridors.

9.2.1.2 Transit Vehicles

One of the primary goals of Express Lane facilities is to improve person throughput along the managed corridor. As such, public transit buses and paratransit vehicles as defined in California Vehicle Code Section 21655.5 (CVC § 21655.5) will be allowed free travel in Yolo 80 Managed Lanes at all times. 23 U.S.C. § 166 permits all over-the-road buses servicing the public to utilize toll facilities under the same rates, terms, and conditions as public transportation vehicles. Therefore, toll-free travel will be offered to all transit vehicles, whether publicly or privately operated. Future business rules will be established to determine whether buses will be recognized in the system through the use of non-revenue toll tags, or whether the tolling of transit vehicles would be preempted through some other back-office process.

9.2.1.3 Motorcycles

Motorcycles are eligible for toll-free travel in Express Lanes per CVC 21655.5(b) and 23 U.S.C. § 166. The Yolo 80 Managed Lanes will offer toll-free access to motorcycles. At the time of this writing, motorcycles are anticipated to require transponders to receive a toll exemption.

9.2.1.4 Clean Air Vehicles

CVC § 21655.9 and CVC § 5205.5 allows California certified clean air vehicles (CAVs) with decals issued by the Department of Motor Vehicles (DMV) to use Express Lanes toll-free or at a reduced rate. However, the statute does not mandate the rate of reduction. The CAV decal program is subject to authorization by FHWA and therefore could end sooner than specified in California law, which is currently set to expire on September 30, 2025, prior to anticipated Yolo 80 Managed Lanes commencement date.

It should be noted however that with the growing number of qualifying CAV vehicles on California roadways, many agencies are beginning to offer only minimal discounts for CAVs on Express Lane facilities. For instance, the Los Angeles Metro Board established its CAV discount policy in 2018 to provide a 15 percent toll discount for single occupant CAVs on all Metro Express Lanes facilities. Prior to that time, LA Metro provided toll-free access to all qualified CAVs utilizing the I-10 or I-110 Express Lanes. The OCTA I-405 Express Lanes project also intends to offer a discount or exemption to CAV vehicles with the appropriate decal. However, the amount of that discount has not yet been determined. Any CAV toll discount must consider the impact of the policy on potential Express Lane degradation.

At the time of this writing, CARTA intends to offer a toll discount based on CVC § 5205.5 as well as regional consistency with other express lane facilities in the Bay Area. However, the ultimate CAV toll policy will be determined later in project development, pending vehicle code regulations at the time of tolling commencement.

9.2.1.5 Exempt Vehicles

CVC 23301.5 provides toll exemptions on Express Lanes for emergency response vehicles traveling to or from emergency calls. On the Yolo 80 Managed Lanes, CARTA will need to establish agreements with the local emergency response agencies that will outline the

protocols associated with toll free access. Pursuant to CVC 23301.5, an emergency vehicle is exempt from any requirement to pay a toll or other charge under the following circumstances:

- The authorized emergency vehicle is properly marked (i.e., California Highway Patrol (CHP), Sheriff, Fire, Police, Ambulance)
- The vehicle is responding to an "urgent" or emergency call that does not include any personal, commuting, training, or administrative use.
- The driver of the vehicle determines that use of the Express Lane will likely improve availability, response, and arrival time to the emergency.

Many agencies also allow toll-free Express Lane access to vehicles associated with the exempt account of a public safety agency, mass-transit agency, or maintenance provider that serves the Express Lanes. Maintenance vehicles could include those utilized by Caltrans or their contractors performing maintenance activities on Yolo 80 Managed Lanes. These vehicles may be required to carry a transponder linked to a non-revenue account, or tolls could be screened out through some other back-office function.

9.3 Toll Payment and Declaration

Toll payments for the Yolo 80 Managed Lanes will be facilitated in part by electronic toll transponders. Transponder-based toll collection is a proven, accurate solution with relatively low transaction costs. Transponders used for the Yolo 80 Managed Lanes will need to comply with California interoperability standards for toll collection. Title 21 of the California Code of Regulations specifies the protocol for the exchange of transponder information for toll facilities in California. These transponders are branded as FasTrak® and can be used on any of the California toll facilities. The CTOC maintains toll interoperability throughout the state and has developed a plan to transition from the current Title-21 tolling protocol to ISO 18000-63 (known as 6C) protocol. The 6C protocol offers significantly lower transponder costs and is an established standard in the toll industry. 6C transponders come in a variety of forms including a transportable hard case form that allows for occupancy declaration and a non-removable sticker form (Figure 29). It is envisioned that the transition from the legacy Title 21 protocol to the new 6C protocol will be fully deployed by the time the Yolo 80 Managed Lanes are implemented.

Figure 29: FasTrak® Sticker Transponder

Consistent with the BAIFA, Alameda CTC, SMCEL JPA, and VTA Express Lanes, it is anticipated that the Yolo 80 Managed Lanes will require vehicles eligible for an occupancy-based toll exemption or discount to have a switchable transponder (Figure 30). Switchable transponders provide the benefit of allowing drivers to self-declare their vehicle occupancy rate, thereby

eliminating the need to provide declaration lanes for qualified HOV vehicles such as the 91 Express Lanes facility. Vehicles traveling with a switchable transponder set in a high-occupancy setting will be detected by the toll system and the appropriate toll discount will be applied.

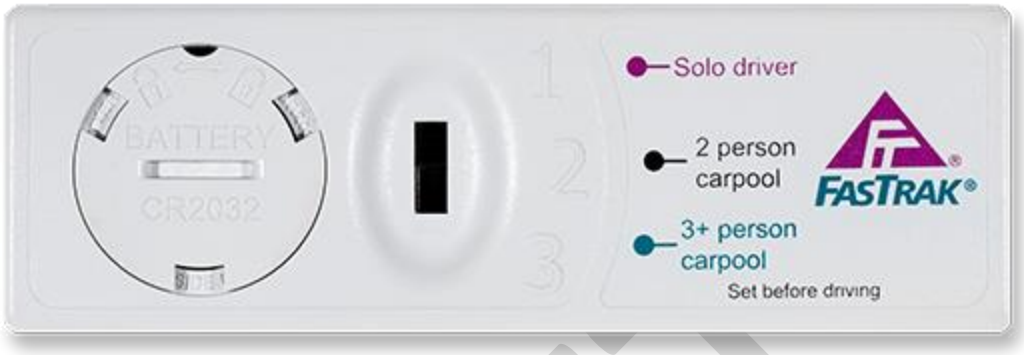


Figure 30: Switchable Transponder

Public outreach and coordination other regional operators will be required to ensure that holders of "legacy" FasTrak® electronic transponders without the occupancy declaration switch are well informed about the requirement for a switchable transponder for free/discounted access to the Yolo 80 Managed Lanes.

Future business rules will define how discounts are applied in unique situations, such as if users switch their occupancy declaration mid-trip, or if multiple transponders are detected. For example, if a customer is read as a single occupant vehicle (SOV) at one toll point, then HOV3 at another toll point within the same trip, the business rules will determine which tag setting holds priority. In the scenario where more than one transponder is read in a single vehicle, business rules will define the hierarchy to be used for payment or the application of discounts.

Vehicles using the Express Lanes without a transponder will be detected by license plate recognition (LPR) cameras. If there is no account associated with the license plate, then the license plate will be matched to the address of the vehicle's registered owner for issuance of a license plate toll bill to collect the toll payment. In practice, an additional fee or surcharge may be applied to license plate tolls to account for the required license plate image review, vehicle registration review, and billing functions. Yolo 80 Managed Lanes policies concerning potential surcharges for license plate tolling, and toll violations for non-payment will be defined by future business rules of the facility.

License plate tolling will make the Express Lanes available to more users, but it increases the risk of potential congestion and higher tolls on the Express Lanes, revenue leakage due to unidentifiable plates or registered owners, and longer periods of time to collect toll revenue.

The option for vehicles to access Express Lanes and pay a toll via LPR image capture, without the use of a transponder, is used on several facilities throughout the country. Due to the additional costs associated with image review and payment processing, this toll payment option typically includes a license plate surcharge in addition to the base toll rate applied to the vehicle. This option is currently being implemented by LA Metro as part of the "Pay-as-You-Go" program on the I-10 and I-110 Express Lanes. The system will bill the registered vehicle owners

without transponders for their toll plus an additional $8.00 administrative fee. Vehicles using the pay-by-plate tolling would not be eligible for any toll exemptions or discounts.

Other toll payment and declaration options should be monitored as the Yolo 80 Managed Lanes advances further in project development. Smartphone applications are used by multiple agencies throughout the country outside of California to declare vehicle occupancy. Using these tools, a vehicle preregisters for a qualifying HOV trip on an application linked to a preexisting account. There are various ways to verify occupancy status using these tools, including user submitted time-stamped photos of the vehicle interior, or the proximity of multiple smart phones with activated smart phone applications within the same vehicle. These emerging technologies may be integrated into future California Express Lane operations.

9.4 Pricing and Toll Rates

Another important aspect for consideration as part of the Yolo 80 Managed Lanes Project is the preferred pricing model. Express Lane projects throughout the country have showcased multiple pricing mechanisms, including time-of-day and dynamic pricing, as well as other considerations such as zone pricing, and differentiated payment classes. These different models are summarized below.

9.4.1 Traffic Performance Thresholds

Performance requirements set forth in Federal Law 23 U.S.C. § 166 consider a managed lanes facility to be degraded if it fails to maintain an average operating speed of 45mph for 90 percent of the time over a consecutive 180-day period during morning or evening weekday peak hour periods.

The primary goal of pricing will be to ensure adherence to the performance requirements. Pricing will consider a combination of traffic performance thresholds to determine the toll price, such as Express Lane speeds, GP lane speeds, Express Lane volume, GP lane volume, Express Lane density, GP lane density and Express Lane capacity. Specific performance standards will be developed further during future project development. However, at the time of this writing, it is anticipated that CARTA will establish an average speed performance threshold, such as 55-60 mph, to guide the development of business rules and operating policies.

9.4.2 Pricing Model

To effectively manage congestion and utilize facility excess capacity, the Yolo 80 Managed Lanes will use a time-of-day (TOD) zone-based pricing model. Toll rates will be assessed and adjusted periodically to manage varying time of day and seasonal traffic demand in the Express Lanes. Toll rates are calculated for each toll zone, which is the smallest unit of pricing in a corridor and constitutes the distance between a consecutive entry and exit point. See Section 5.3 for proposed toll zones.

If necessary, toll operator staff can manually override the pricing by changing the toll or reverting to HOV-Only mode when conditions warrant (e.g., for incident management and

routine maintenance). Manual overrides may also be required when there are discrepancies between what a driver may see on a pricing sign versus what is charged in the Host. This can occur when there is a communications failure between the Host and Roadside equipment where real-time pricing information is not transmitted or received in time. CCTV monitoring and system alerts are used to inform toll operator staff of these instances.

Toll rate setting requires careful consideration and analysis to implement prices that will effectively manage traffic demand. Time of day patterns will be informed by roadside vehicle detection equipment which provides speeds, volumes, and capacity metrics. Any changes to toll rates and toll setting procedures will be approved by CARTA.

Time-of-day or variable pricing operates based on a predetermined schedule that adjusts toll rates to reflect levels of congestion typically experienced in the Express Lane corridor. Tolls for time periods with higher levels of congestion are set to be higher than tolls for less congested periods. Time-of-day tolls can vary based on direction, day of the week, and hour of the day. Toll schedules for facilities with time-of-day pricing are typically posted on the operating agency's website so that customers can make informed decisions before traveling. Time-of-day pricing is currently used on the 91 Express Lanes and is planned for use on the I-405 Express Lanes in Orange County. Time-of-day pricing is also in use on Express Lanes in the Denver and Houston areas. Although this method provides price certainty and predictability for drivers, it tends to function best on facilities with a low degree of variability in traffic conditions. The most effective applications of this method involve a system for monitoring and adjusting toll rates over time. On the 91 Express Lanes, performance is monitored daily, with evaluation and adjustments to pricing made every three months.

The use of a dynamic pricing system continues to be explored as an alternate pricing model. Dynamic pricing responds to real-time traffic conditions, offering flexibility for toll adjustments. Widely employed, including in northern California express lanes, it actively manages demand during non-recurring congestion but requires extensive staffing and monitoring due to proprietary algorithms.

9.4.3 Minimum/Maximum Tolls

With the assumption of the use of dynamic pricing for the Yolo 80 Managed Lanes, CARTA will need to have the capability to establish a minimum and/or maximum toll rate. The purpose of minimum toll rates is to ensure that the costs of operations and maintenance are covered when traffic demand is low. Additionally, a minimum toll rate may be applied to ensure a particular level of service for Express Lane customers during all times of day.

Maximum toll rates are a price cap for a toll zone that is put in place to ensure that toll rates do not grow to the level of triggering public or political challenges. Policy makers should evaluate and make periodic adjustments to any maximum toll rate to account for changes in the ability to maintain operating conditions as demand grows. Minimum and maximum toll rates can be consistent for all zones within the facility or can vary depending on length and zone value.

It should be emphasized that the intent of Express Lane pricing is to manage demand for the facility. If a zone within an Express Lane reaches a maximum toll and is experiencing degraded conditions for an extended period, the maximum toll price is no longer effective in congestion

management. In this scenario, CARTA may consider a policy that would revert the HOT lanes to "HOV only" until overall demand returns to a manageable status.

9.4.4 Use of Project Revenue

California law requires that toll revenues generated from Express Lanes be reinvested in the corridor from which they were generated. Toll revenues generated on Yolo 80 Managed Lanes will first be used to pay for the cost of operations, including roadway and equipment maintenance, administration, toll collection, customer service, CHP enforcement, and Freeway Service Patrol (FSP).

As described previously, the T&R study results will be used to help inform future operational policies and business rules. The revenue forecasts and cost estimates generated through the T&R and PA&ED processes will be used to prepare an expenditure plan that will assess the use of Yolo 80 Managed Lanes revenues for considerations such as debt repayment for capital construction costs, operation and maintenance costs, corridor improvements, transit services, equity-based toll programs, VMT growth mitigation programs, and other net-excess revenue priorities.

CARTA, as the owner of the facility, will assume liability for the express lanes, and ensure sufficient funding for the routine maintenance, operation, rehabilitation, and replacement of express lanes infrastructure (to be funded by toll revenue when possible). CARTA will define and identify the needs to be addressed in the expenditure plan to address ongoing operations and maintenance costs. CARTA will also develop and implement an expenditure plan for any net excess revenues generated. Net excess revenues could be used for other projects or programs that maintain or improve the safety, operation, or travel reliability for any transportation mode in the corridor or provide or improve travel options in the corridor. Net excess revenue could be used to fund an equity program, should CARTA wish to pursue one.

9.5 Equity

Partnering agencies will develop an equity program that seeks to maximize benefits and minimize burdens of the project for those who experience high transportation burdens and other disparities. Key steps will include:

- Conduct an Equity Study to analyze the individuals who experience high transportation burdens in the project area and potential measures to reduce those burdens.
- Establish an Equity Program Advisory Committee comprised of local stakeholders with lived experience of transportation burdens, state and national experts in transportation equity, and other key stakeholders that meets regularly to shape the Equity Program.
- Leverage work from equity framework development and gather available data to establish a baseline/existing condition for transportation equity in the project area.
- Work with trusted Non-Governmental Organizations (NGOs) and community-serving organizations to survey targeted populations/communities about their transportation options and needs, awareness and impressions of tolled lanes and suggestions for needed transportation improvements.

- Review existing transportation equity programs, particularly tolling equity programs, and conduct literature review to identify best practices. Examples include SM101 Equity Program, MTC EL START Program, and LA Metro Low-Income Assistance Plan.
- Develop potential options for transportation equity program including options for "in-lane" programs (such as tolling discounts and transit improvements that utilize the lane) and "out of lane" programs (such as traffic calming in neighborhoods adjacent to the freeway).
- Solicit input from advisory committee, community-serving organizations, partners and key stakeholders on equity program options and evaluation criteria.
- Conduct final evaluation and prepare draft final Equity Program.

The framework for incorporating principles and practices of transportation equity into all aspects of Tolling Advance Planning process. The framework will be one of the first phases of work conducted in this scope, and will identify a set of core values, guiding principles and implementation practices to be carried out by all staff and consultants working on the project. Implementation practices may include:

- Equity trainings for all project staff and consultants.
- Briefings for decisionmakers, staff and consultants on the historical and present-day disparities that exist in the project area and how they relate to the project.
- Engaging experts in transportation equity to participate in drafting and/or review draft work products.
- Soliciting input from equity experts as well as those with lived experience in the local area on scopes of work, proposed analyses and sources of data that would best illuminate potential disparities, benefits, and burdens.

9.6 VMT Growth Mitigation Strategies

As documented in Section 7, the proposed project alternatives indicates that adding capacity, for both tolled alternatives and non-tolled alternatives would result in some level of net VMT growth over time from the induced demand. Meanwhile the NCST calculator indicates a reduction in VMT long term. The traffic operation analysis proves that the managed capacity addition with tolling contributes to the bottleneck throughput relief, corridor travel time reduction and deficiency operation reduction. To mitigate the VMT growth, the following strategies will be considered and analyzed through the study:

- Carpool and vanpool incentives, plus enhanced mobility hub to encourage travelers to increase vehicle occupancy (Alternatives 3, 4 and 5)
- Dynamic pricing strategy to control the Express Lane usage to reduce the overall travel demand on the corridor (Alternatives 3, 4 and 5)

Specific efforts are being incorporated in the project or under consideration as VMT mitigations efforts with the local agencies that align with CAPTI include:

- Voluntary Trip Reduction Program in Yolo County (Expand current program provided by Yolo Commute, to include features such as community-based travel planning, ridesharing, transit pass subsidies, and pay-per-mile auto insurance.)
- Expand Capitol Corridor Frequency between Oakland and Sacramento
- Microtransit in Yolo County (Expand transit service to add flexible route buses with more frequent service and/or longer service hours.)
- Subsidize Monthly Transit Passes in Yolo County
- Reduce Transit Fares (Reduce the monthly bus fare for Yolobus and Capitol Corridor)
- Expand Causeway Connection Route 138
- Expand Unitrans

The identified VMT reduction strategies and mitigation measures summarized above are proposed to be implemented within the project corridor, where applicable, or to be included in future improvements within the corridor. It should be emphasized that potential mitigation measures associated with the Build Alternatives are preliminary at this time as the true extent of required mitigation has not yet been confirmed. Future agreements and/or further design engineering refinements may also change the mitigation measures recommended for implementation along with the Yolo 80 Managed Lanes.

10 TECHNICAL REQUIREMENTS

The Yolo 80 Managed Lanes Project will require tolling hardware, software, and communications equipment to establish an electronic toll collection (ETC) system. The ETC system allows for tolling facilities to operate as Open Road Tolling (ORT) within the defined ROW. The system includes Roadside Equipment that collects transactional data, a Toll System Host that processes this data into trips and applies pricing, a Traffic Monitoring System and Traffic Management Center to monitor the Express Lanes and related traffic performance, Customer Service functionality to manage accounts and assist patrons, a Back-office System to manage the trip transactions, invoices, violations, and manage revenue, and managed lane lighting and power system to enhance safety and reliability. System details and requirements are described in the following sections.

10.1 Electronic Toll Collection

The Yolo 80 Managed Lanes will utilize an ETC system to identify vehicles travelling in an Express Lane, read a transponder, photo detect a vehicle QR tag or take pictures of the license plates associated with a vehicle for identification purposes, and bill the vehicle a calculated toll rate based on where they enter and exit the system. The ETC system will be developed and procured from a Toll System Provider, and it will utilize roadside equipment and automatic vehicle identification (AVI) and violation enforcement systems (VES) to detect users and a toll system host to process data and assemble toll transactions; a Toll System Host that will process data and calculate rates; a Traffic Management Center to monitor performance; a Customer Service Center (CSC) to assist customers with account management, and a back-office system for financial reconciliation.

The Yolo 80 Managed Lanes system will operate as an ORT facility which lets vehicles travel at freeway speeds without needing to stop to collect tolls. The system uses Radio Frequency Identification (RFID) and/or photo detect read a toll tag linked to an account to collect tolls, or high-speed cameras to capture images of license plates. If the customer's account has their license plate noted, the image of their plate gets posted to their account. Otherwise, the license plate image is processed, and the plate is looked up via DMV records and an invoice or violation notice is sent to the vehicle's registered owner.

Toll evasion and occupancy enforcement is handled by CHP, who visually inspect the number of passengers in the vehicle and reconcile against a beacon light indicating declared occupancy. Drivers can declare vehicle occupancy via a switchable toll tag, or potentially via back-office declaration or app usage or automatic vehicle occupancy detection in the future. This system is described in detail below.

10.2 State and National Interoperability

The CTOC was established to create interoperable tolling guidelines within the state of California and has led the development of technical specifications. As the primary resource for interoperability and coordination among existing tolling facilities, CTOC provides guidance on

technology, operating policies, legislation, and regulations regarding the operations and implementation of toll facilities in California.

Effective January 1, 2019, California Code of Regulations adopted the ISO 18000-63 (referred to as 6C) protocol for AVI, which requires state toll facility operators to follow functional specifications and standards for ETC. CTOC developed a transition plan for the replacement of legacy Title 21 protocol with the 6C protocol. All California toll agencies that utilize AVI technologies are required to discontinue supporting Title 21 protocol on January 1, 2024, unless this date is extended. It is expected that by the time the Yolo 80 Managed Lanes project begins operations, Title 21 will have fully transitioned out and 6C protocol will be the standard protocol for transponder transactions in California.

In addition to state interoperability guidelines, there are set of business rules and requirements that agencies must maintain to be recognized as nationally interoperable. These business rules include, but are not limited to, marketing requirements, account requirements, reconciliation requirements, data interchange requirements, reporting requirements, performance requirements, fees, and testing requirements. The International Bridge, Tunnel & Turnpike Association (IBTTA) has developed business rules for National Interoperability (NIOP) standards and describes how toll transactions and toll information is exchanged between four participating regions and local hubs. These business rules were adopted by IBTTA in May 2023 and should be reviewed periodically as updates are made to ensure compliance.

10.2.1 Transponder Characteristics

The Yolo 80 Managed Lanes will require customers to have a switchable toll tag to receive carpool discounts. Toll payments can be made via transponder or license plate toll. All transponders will come branded with the FasTrak® logo and will be provided by the toll services provider/CSC. Since Title 21 protocol will likely be obsolete at the time of opening, the transponders distributed will follow 6C protocol or other future standards. Unlike Title 21 protocol, 6C RFID transponders draws its power from the roadside reader and does not require an internal battery inside the transponder housing, making it lightweight and more cost effective. The Yolo 80 Managed Lanes facility may distribute both sticker tags and switchable tags for use within the system. Customers must have a switchable transponder to declare that they meet occupancy requirement and receive toll discounts; otherwise, trip will be charged at single occupant toll rates.

10.3 Toll Operations Overview

Toll operations are achieved through a combination of solutions and technologies to ensure optimized travel times through the toll facility. The Yolo 80 Managed Lanes will use Time-of-Day (TOD) pricing to achieve this goal. Dynamic pricing allows toll rates to fluctuate based on real-time traffic conditions. The following equipment and functions are used to support the toll operations and price travel correctly:

- **Roadside Equipment:** All the devices, structures, infrastructure, and networking installed at each read point to collect vehicle, lane occupancy (density), and speed data

to identify a vehicle, read a toll transponder, and capture an image of the vehicle license plate.

- **Toll System Host:** The central database that receives data from roadside equipment at the different toll zones and assembles transactions recorded at each zone into a single trip, known as “trip building.”
- **Traffic Management Center (TMC):** The command center for traffic operations and coordination of activities associated with incident management. Real-time information is sent to the TMC for proper price monitoring, overrides, and emergency response.
- **Customer Service Center (CSC):** The location and service that provides all customer interfaces required to operate an Express Lanes facility. With the CSC, customers can create and manage their individual accounts, and can receive assistance from CSC staff with issues they may encounter.
- **Back-office System (BOS):** The software and hardware solution that receives roadside data and process it into financial transactions to bill customers. The BOS serves as both the system of record for these financial transactions, and the interface for customer service functions.
- **System Maintenance:** The functions required to keep the ETC Roadside equipment, Toll System Host, and all related hardware and software working properly to ensure system availability and accuracy.
- **Other Interfaces:** All the connection points to the toll system to share relevant data in a compliant manner.

Figure 31 below shows the basic toll System Architecture.

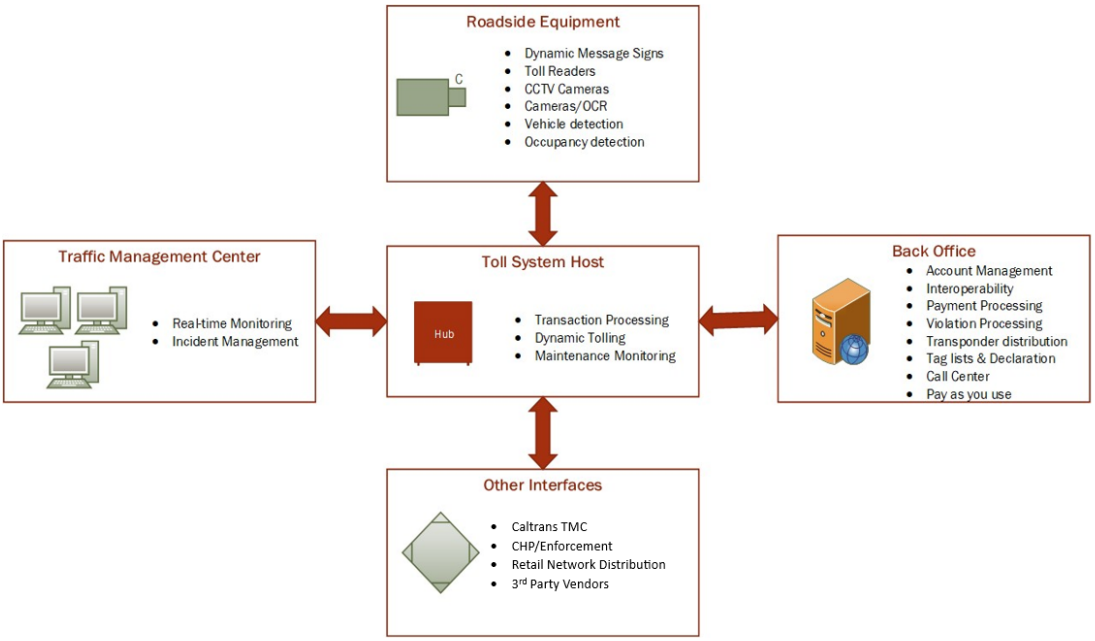


Figure 31: Toll System Architecture

10.4 Roadside Equipment

The Yolo 80 Managed Lanes will utilize various sets of roadside equipment at each of the including tolling points to detect vehicles, identify them, build trips, and record information for violations as they pass through a toll zone. The equipment includes transponder readers and high-speed digital cameras to verify transactions, read license plates, and automatically collect tolls from customers as part of an ETC program. Other elements will include Express Lanes pricing signage, complete CCTV coverage of the entire Express Lane facility to support safety and operations, power service, and communications linking the electronic infrastructure to a centralized toll operations office. Information must be captured and processed in real time so that traffic conditions can be closely monitored, and pricing accurately calculated.

ETC equipment will be installed in the lane median and on overhead gantries or sign structures. Placement of toll points were determined based on physical geometry, the provision of power and communications, existing signs and infrastructure, dedicated ingress and egress locations, and direct connectors and access ramps. While the placement and function of each of these subsystems can vary based on the technology used and the provider, the vehicle identification equipment and license plate readers are typically installed overhead per lane.

10.4.1 Toll Zone Equipment

Toll zone equipment is required for relaying real-time traffic operations data to the Toll System Host for ETC. However, beyond the direct connection and data flows between roadside equipment the Toll System Host, the ownership and maintenance of roadside equipment is also typically linked contractually to the Toll System Host. These contractual obligations are often combined since it is common for a single Toll System Integrator (TSI) to install and maintain both the roadside equipment and the Toll System Host. Figure 32 describes a typical configuration of roadside equipment.

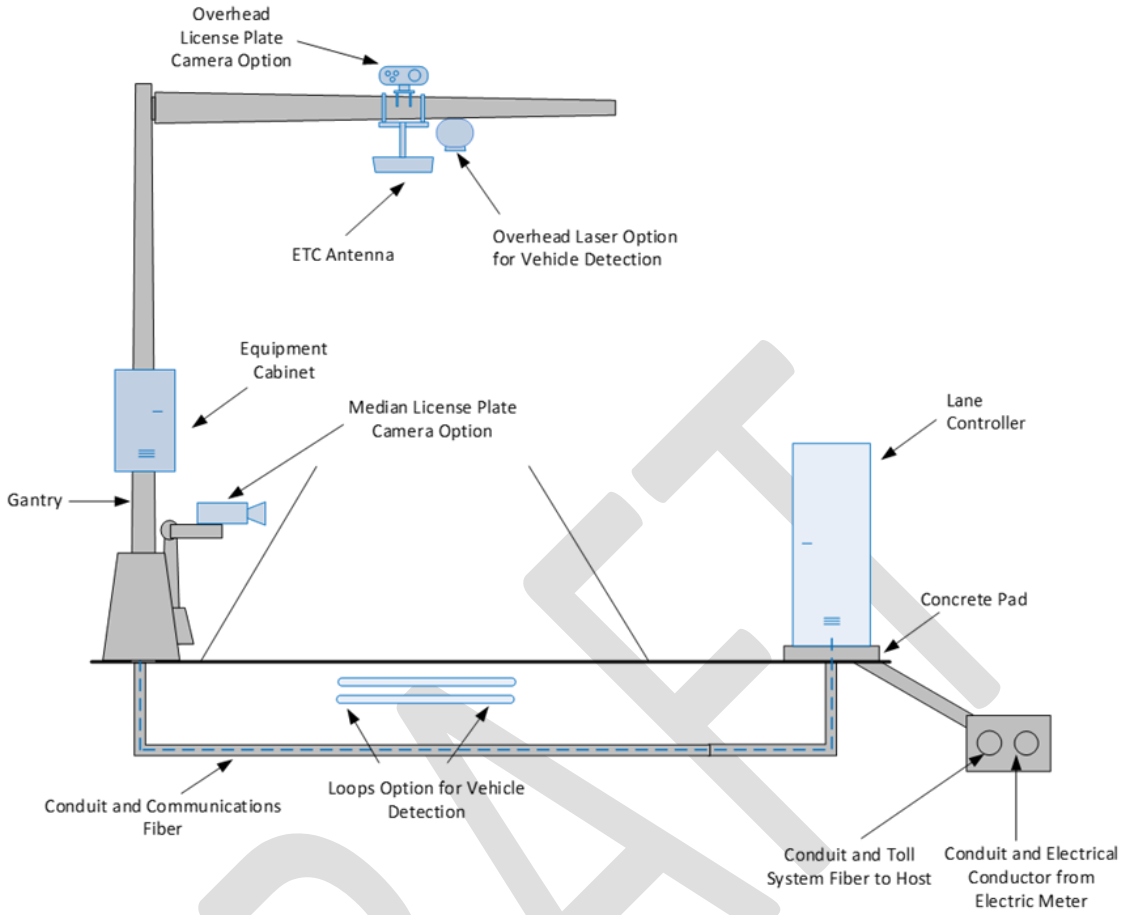


Figure 32: Roadside Equipment Detail

The following descriptions provide a brief overview of the function of each equipment type:

- **ETC Antenna** – RFID technology used to read toll tags. Unique toll tag IDs are used by the back-office to build trips and charge tolls automatically.
- **Overhead or Median License Plate Cameras and Illuminators** – License plate reader triggered as vehicle passes under gantry. License plate images collected in this manner are visually confirmed in back-office processes and used to issue tolls and/or violations for users without toll tags.
- **Gantry** – Overhead structure onto which electronic toll collection system components (e.g., toll reader, radars, cameras, antenna, beacon) are mounted.
- **Overhead Laser Option for Vehicle Detection** – Technology options to trigger camera or classify vehicle types.
- **Conduit, Communications Fiber, and Electrical Conductor** – Conduit conducts fiber connections that provides real-time communications from roadside equipment to Toll System Host and electrical conductor for power. This requires coordination/permitting/easements to tap into existing utilities.

- **Lane Controllers** – Critical link and interface point between the lane peripheral equipment and the back-office Toll System Host computer system for each toll point. These are typically servers configured for outside environments.
- **Cabinets** – Enclosures for accessible read point equipment, including lane controllers.

Additional critical system components not depicted include:

- **Variable Toll Message Sign (VTMS) –** Overhead pricing sign with LED panels to communicate Express Lane toll rate to motorists. Placed before all points of entry into the Express Lanes.
- **Traffic Monitoring Station (TMS) –** Detector that measures traffic conditions in all lanes. Used to inform dynamic pricing system of speeds, volumes, and densities both on the Express Lanes and GP lanes.
- **Network Peripherals –** switches and media converters necessary for the communications network.
- **Closed Circuit Television (CCTV)** – Allows remote viewing real time footage to monitor lane operations and incident response.
- **Uninterruptable Power Supply or Generators –** Battery backup in case of power failure.
- **Heating, Ventilation, and Air Conditioning (HVAC)** – Fan/cooling for equipment in roadside cabinets (depending on solution).

10.4.2 Pricing Signs

As described in Section 5.6, pricing signs will be placed upstream of the start of the Express Lanes and downstream of on ramps, or on the on ramp, to ensure that customers are informed of the toll rate prior to entering the express lane facility. The pricing signs will be overhead electronic signs that will consist of dynamic message panels installed within a static sign.

The pricing signs will also display messages related to the status of the lanes, occupancy requirements, or incident management. Express Lane operators at the TMC will be able to implement manual overrides in the event of an incident, maintenance, or price adjustment. CCTV cameras will be placed upstream of pricing signs to always ensure TMC visibility.

Pricing signs will be connected to roadside controllers that receive real-time data communications from the Toll System Host through the backhaul fiber connection. Pricing will be updated based on this real-time data as defined in Section 10.5.1 , and new prices will be distributed to the pricing signs per a system configurable time interval.

10.4.3 Occupancy Declaration Systems

The Yolo 80 Managed Lanes will utilize a self-declaration occupancy system utilizing switchable tags. Before beginning their journey, drivers select the number of occupants in their vehicle using the appropriate designation on their switchable tag to declare occupancy and to receive the corresponding toll rate. Occupancy enforcement occurs with the combination of visual inspection by CHP to verify that the occupancy matches a beacon light triggered at each read point that corresponds with the switchable tag setting selected.

The toll system procured should be flexible and can accommodate future occupancy declaration and detections systems. Some systems that are being developed or are in pilot phases including app-based declaration systems, camera-based automated detection systems, and other methodologies such as infrared or heat-based systems. Additionally, the system should also be flexible to accommodate back-office declaration schemas, where a customer may temporarily designate occupancy in conjunction with a 6C sticker tag.

10.4.4 Monitoring and Data Collection Equipment

Various Intelligent Transportation System (ITS) sensors and equipment will be utilized in both the Express Lanes and GP lanes throughout the corridor to monitor corridor performance and operations. The equipment detects vehicles and provides information on traffic volume, density (lane occupancy), and speed. This data will also be used to calculate the dynamic price that is displayed on the pricing signs. Traffic monitoring stations and roadside vehicle detection equipment will be installed and connected to the TMC to monitor real-time conditions, and to coordinate response actions with CHP, Caltrans, the Toll System Provider, and other third parties as needed.

Various hardware and technologies are available for vehicle detection and can be mounted overhead along with the AVI and license plate readers, in pavement, or side mounted. CCTV cameras capable of pan/tilt/zoom functions will also be utilized to provide a full range of visual coverage on the Express Lanes, as shown Figure 33 below. The location of CCTV cameras will be dependent on the placement of toll points and known bottleneck locations on the facility. They may also be used to allow for visual confirmation of signs displaying toll rates. The CCTV cameras can be mounted on the same structures as other roadside equipment or on separate poles depending on the need.

Figure 33: Example Pan/Tilt/Zoom CCTV Camera

10.4.5 Communication Network Equipment

The Yolo 80 Managed Lanes system will utilize a fiber optic communications network to connect all roadside equipment to the Toll System Host, the TMC, and CSC. This is also referred

to as the backhaul network. Caltrans will be responsible for installing and maintaining this backhaul network up to the points of demarcation with the toll equipment, but the TSI will be responsible for monitoring the network status and health, as well as reporting any system issues to Caltrans or its designee for corrective action.

Roadside system devices are connected to the trunk line of this network by fiber optic laterals. Ethernet is typically used for short runs communicating devices with roadside cabinets, though media converters may be required if the equipment is outside of ethernet distances. Any copper or coaxial connections (typically between readers and antennas) are usually within a 100 ft cable run. Switches and routers for Layer 2 and Layer 3 communications complete the basic network set up. Wireless or leased communications are sometimes used for some, or all read point locations or communications hubs to serve as a redundant method of communications.

The network for the Yolo 80 Managed Lanes system must have high uptime and reliability. As such, redundant networks should also be installed. This could include secondary fiber networks in different conduits or alternate routing paths through secondary switches, wireless connections, or stand-alone functionality if communications lines are unavailable. This reduces or eliminates single points of failure.

In addition to efficiency and redundancy, security is a priority for the communications network. For overall security, switches typically support remote access and terminal access systems using a secure shell protocol. Logical topologies such as VLAN (Virtual Local Access Network) and VRF (virtual routing and forwarding) commonly implemented in these networks to reduce congestion also provide an additional security benefit.

10.5 Toll System Host

The TSI develops and provides the Toll System Host (also called the Operational Back-Office, or OBO). The Host is a central database that receives data from roadside equipment at the different toll zones and assembles transactions recorded at each zone into a single trip, known as “trip building.” The Host also reconciles license plate data and sets toll prices through time-of-day schedules or dynamic pricing algorithms. It also serves as the interface for reporting, controls the lane or zone controllers that are deployed along the toll facility, and provides roadside equipment monitoring, maintenance ticket tracking, and traffic performance monitoring.

Because the Host is a critical system, it is usually deployed in a redundant manner for business continuity. The Hosts can be set up as a primary and secondary configuration where the secondary is activated when the primary loses functionality, or in an active-active configuration where data is sent to two separate hosts simultaneously so that either can become the “primary” at any given time without any loss of data.

Redundant Hosts should also be deployed with physically separated geographies so that a disaster in one location does not impact functionality of the other host deployed in a different location. Additionally, many toll agencies are requesting Host functionality that is cloud-based. This reduces the reliance on physical infrastructure deployed at the toll agency’s property and

allows the system to use distributed networking and computational power to increase scalability and reliability. However, this may increase monthly hosting and communications costs to have a cloud-based solution that offers greater flexibility and faster disaster recovery.

10.5.1 Trip Building

Trips are formed and charged based on the collection of traveled zones within an entry and exit to the corridor in the same direction of travel within a reasonable travel window. To ensure the customer does not incur duplicate trips or is overcharged, business rules will be in place that the toll system applies to minimize the frequency of such cases. Charged toll rates are locked with the start of the trip when a vehicle is detected at the first toll zone.

10.6 Traffic Management Center

The Caltrans District 3 TMC is in Rancho Cordova, CA and staffed by Caltrans operators as well as representatives from the CHP. It serves as the command center for traffic operations and coordination of activities associated with incident management in District 3. The TMC will provide real-time traffic data to operators and have a configurable video wall to display live feeds from CCTV cameras and other traffic management tools.

The TMC will coordinate with CHP officers on the scene of the incident and other involved parties to assist in the dispatch of Caltrans maintenance resources, emergency vehicle response and towing services as required. Incident management procedures will be defined and documented, so that a guidebook is available when incidents occur in the toll facility.

Typical TMC activities include:

- Incident logging and reporting
- Performing manual overrides to support congestion and incident response lane modes
- Assisting Caltrans and maintenance personnel during lanes closures and incidents,
- Coordinating with CHP personnel
- Conducting bulk trip transaction adjustments and corrections, such as during lane closure

10.7 Customer Service Center

The CSC provides all customer service activities required to operate an Express Lanes facility. The CSC receives trip transactions from the Toll System Host and becomes the customer interface for those transactions and charges. The CSC should offer at least one physical office to assist patrons in person, a toll-free telephone line to assist patrons via phone or interactive voice response (IVR) system, and web interfaces for self-help. The CSC is responsible for the following:

- Phone calls
- Walk-in center support for face-to-face interactions
- Toll tag distribution
- Account management

- Violation disputes
- Online touchpoints (chat, email, mobile app)
- Operational reporting
- Mail house functions

The CSC typically operates during normal business hours and is staffed with personnel who are trained about the program and customer service. Customers can use the customer service centers to open accounts, close accounts, acquire transponders, make payments, and resolve violation disputes, amongst other services related to their accounts. A toll-free number is provided for customer service and account management functions. The call center utilizes an IVR system to route customer calls and aid in account management, payments, and customer support.

A website will also be developed where individuals can access information about the program. The website also offers customers the opportunity to manage accounts, make payments, and contact customer service. Mail service is provided for enrollment, payment, transponder distribution, and violation resolution. The CSC functions can be performed in-house by JPA staff or contracted out to a third-party provider or other public toll agency.

10.7.1 Cash Payment Locations

In addition to online account management that requires an Express Lane customer to have a valid credit card or active bank account, the Yolo 80 Managed Lanes are also anticipated to allow cash-based payments. This accommodation would allow Express Lane customers to replenish FasTrak® accounts, make payment for license plate tolls, or resolve violation notices in person with cash. These payments could be made at the physical CSC facility anticipated for implementation near the Yolo 80 Managed Lanes. In addition, CARTA may establish partnerships with nearby retailers to provide additional opportunities for cash-based toll payments. As an example, MTC and Golden Gate Bridge Highway & Transportation District (GGBHTD) maintains partnerships with many participating retail and grocery store locations throughout California. Cash Payment locations for Bay Area tolls can be found here: https://www.bayareafastrak.org/en/tolls/cashLocationsMap.html

Accommodating cash payments in this manner would further Yolo 80 Managed Lanes equity goals described in section 9.5.

10.8 Back-Office System Functionality

The Back-Office System (BOS) receives roadside data and process it into financial transactions to bill customers. The BOS serves as both the system of record for these financial transactions, and the interface for customer service functions, whereby customers can manage their individual accounts, and as the system where the CSC can access account and transactional data to assist customers. BOS functions can be performed in-house by the tolling agency using the Toll System Integrator's software, contracted out to the Toll System Integrator or other third party, or performed by a partnering toll agency and their BOS through an operational

agreement that details responsibilities, integration touch points, costs, and revenue reconciliation functions. Core BOS functionality is described below:

- **Account Management:** The account management functions cover the methods by which customers open, replenish, and close accounts, as well as link license plates and transponders for their vehicles. The system also assesses fees and credits, processes customer statements, records reciprocity with other agencies, and allows for troubleshooting and customer support.
- **Customer Service Interfaces:** This includes all the ways in which a customer interacts with the toll system operator, including telephonic access for live support, Interactive Voice Response systems, website access to the customer-facing account management system, and access through mobile apps.
- **Financial Accounting:** Financial accounting includes the processing and reconciliation of all customer payments, fees and credits, and reconciliation of fees and revenues against system transaction records.
- **Payment Options:** Most electronic toll collection accounts are automatically linked to credit or debit cards, or to a customer's bank account for the automatic payment of tolls. Payment by check or cash will be supported.
- **Violation Processing Management:** Violations are assessed when a customer does not properly pay for tolls within a predetermined amount of time. Violations are assessed in addition to the original toll amount. Violation processing includes the full life cycle of violations, reviewing system-read license plates, obtaining names and addresses from the DMV, printing and mailing notices, processing payments, reconciling financials, and administering appeals. Violation revenues are typically recognized after the expected revenue from the original toll amount, in some cases can take months or years to collect, if they are collected at all. Aging and write-off policies must be determined for adequate tracking of these revenues. Performance measures would include accuracy of reviewed images and notices, timeliness of invoicing and payment processing, and timeliness of vehicle owner identification.
- **Transponder Inventory Management**: This function includes transponder orders processing, distribution, activation, and replacement. Inventory management and adequate warehousing and distribution space must be provided to support these functions. Operational support for the distributing inventory to third party retail outlets is also required.

10.9 System Maintenance

The ETC Roadside equipment, Toll System Host, and all related hardware and software must be properly maintained to ensure ETC system functionality and accuracy. All hardware and physical components will be asset tagged and logged into a maintenance system for tracking, repair status, and replacement. The Toll System Integrator will also track and record software and firmware versions, the dates of any updates, and software license information. Maintenance coverage will be required 24/7. If lane closures are required to address any issues with equipment deployed in the field, they will be conducted in a way that minimizes any

impacts to traffic and should be scheduled after hours or outside of peak commute times when practical. The Toll System integrator will notify Caltrans and CHP of any needed closures as soon as possible, and any lane closures will comply with Caltrans Standard Plans and Standard Special Provisions for Temporary Traffic Control Systems.

CARTA will be responsible for maintaining all physical structures related to the toll systems, as well as providing power to each toll point, on its own, through an agreement with Caltrans, or through a third-party contract. While Caltrans will have the responsibility to install the communications network infrastructure, the Toll System Integrator (TSI) will be responsible for monitoring communications network performance and maintenance of all switches and other communications equipment delivered as part of the toll system once installed. The TSI will work to ensure the ETC system is fully functional and monitored and restored when network issues arise. Prior to opening the Express Lanes, maintenance requirements will be developed and will specify appropriate thresholds and penalties if requirements are not met.

10.10 Other System Interfaces

External coordination between the ETC and other systems is needed to support the tolling operations, either directly or indirectly. The full extent of these services is not known, but the following interfaces have been identified and should be anticipated.

- **Traffic Management Center**: Providing data feed from the CCTV cameras installed as part of the toll facility will allow Caltrans TMC operators to observe and monitor traffic performance within the corridor. Caltrans operators have capabilities to identify issues/incidents, dispatch resources, and alert motorists of issues. Any additional data sharing/integration needs agreed upon by both parties will be also established.
- **California Highway Patrol:** CHP enforcement officers will require user information during enforcement activity. Account information (identification and status) will assist in the determination of violations and potentially reduce the length of time of on-road investigations.
- **Retail Network Distribution**: Depending on the distribution model, a third-party ordering and inventory management system may need to be developed. This system should track the number of toll tags ordered and sent, the amount of funds collected for any deposits, and any commissions paid.
- **Third Party Vendors**: Providing open-source data regarding toll rates, travel speed, and occupancy requirements will allow third-party vendors, such as mobile app developers, to distribute real-time information and conditions to the public.
- **CSC/Back-office Providers:** If Caltrans uses a partner agency for CSC functions and financial back of office reconciliation, interfaces must be developed to send roadside data through the Toll System Host and to the partner agency's financial back office for processing. The same is true for CSC functions taken on by the partner agency.

11 ENFORCEMENT AND INCIDENT MANAGEMENT

The Express Lanes require effective enforcement policies and programs to operate successfully. Enforcement will be critical to ensure travel time savings for Express Lane customers, and safety for all travelers along the Yolo 80 Managed Lanes Project corridor. Visible and effective enforcement as part of the Yolo 80 Managed Lanes Project will promote fairness, maintain effective operations of the facility, and ultimately contribute to the success of the Project to meet established goals.

For the purposes of Yolo 80 Managed Lanes enforcement, violations are classified into three types per the CVC: (1) eligibility violations, (2) toll violations, and (3) buffer crossing violations. CHP will lead Yolo 80 Managed Lanes enforcement efforts as the designated enforcement agency for Express Lanes throughput California. CARTA and CHP will need to enter into an agreement defining enforcement roles and responsibilities, and compensation for CHP enforcement activity for the Yolo 80 Managed Lanes Project. At the time of this writing, it is not anticipated that enforcement related agreements will be needed between CARTA and local agencies.

The proposed procedures, equipment and responsible entities needed to enforce these violation types are described below. It should be noted that enforcement related Express Lane design assumptions are discussed below.

11.1 Eligibility Violation Enforcement

Yolo 80 Managed Lanes business rules are anticipated to require vehicles using the Express Lanes to have a FasTrak® transponder to receive toll-free or discounted access. Eligible carpool vehicles will be required to have a switchable transponder that allows drivers to declare vehicle occupancy as HOV2 or HOV3+. Drivers that falsely declare an occupancy setting resulting in a discounted toll or toll exemption will risk a citation from CHP. To enforce vehicle occupancy rates, CHP officers will correlate visual inspections of vehicle occupancy with enforcement beacon displays in one of two ways:

1. By observing enforcement beacons from observation areas. The beacons will display either a flashing color or numeric image corresponding to the vehicle's transponder switch setting. CHP officers will conduct visual inspections of passing vehicles to determine if the observed occupancy rates are consistent with the display on the enforcement beacon.
2. By observing enforcement beacons while following vehicles through a toll zone. Enforcement beacons will also be visible as vehicles approach toll gantries, enabling CHP to enforce vehicle occupancy requirements from moving patrol vehicles.

At least one CHP observation zone will be placed in each direction of the corridor, which will serve as a location where officers can safely park their vehicle in the median and monitor Express Lane users for occupancy violations or illegal double white line/delineator crossings.

Observation zones will be placed in proximity with toll zone equipment, including transponder readers and flashing beacons. Beacons will display a distinct light or an LED number representing the number of occupants, as declared by the user.

While identifying locations where observation zones can be placed within project scope, primary considerations include inside shoulder width and a tangent long enough to accommodate the length of a bi-directional observation zone. The engineering team identified two feasible options for the placement of bi-directional observation zones:

1. East of Mace
2. Between Pole Line Rd overcrossing just west of Mace Blvd

Observation zones will be designed to meet High-Occupancy Vehicle Guidelines, with a width of 22 ft, length of 2600 ft, and a minimum taper of 50:1, as shown in Figure 34**Error! Reference source not found.**.

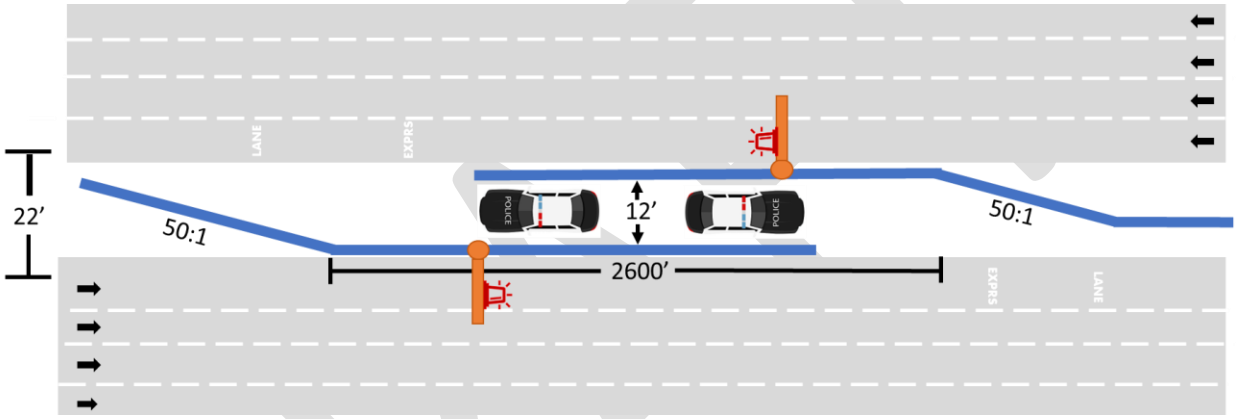


Figure 34: CHP Observation Zone

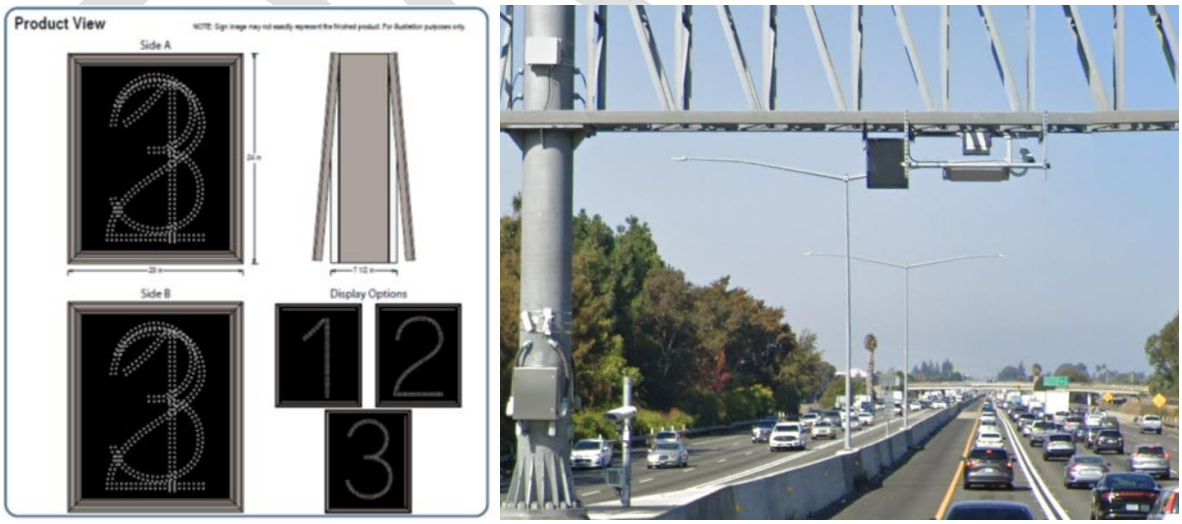


Figure 35: Enforcement Beacon - Two Way LED Panels

In addition to CHP enforcement, the facility may implement occupancy detection technology in both directions of the corridor. The occupancy detection system (ODS) will consist of a front camera, side camera, illuminators, and an overhead laser trigger. ODS will take several images of the vehicle and use image processing algorithms to detect the number of people in a vehicle which is then be compared against the self-declared tag setting. Besides the detection system, a growing number of Express Lane agencies outside of California are relying on smartphone applications (such as CARMA or Rideflag) to allow drivers to opt-in occupancy declarations. The systems then use various methods to verify legitimate carpooling including advanced algorithms or user submitted images. In addition, Connected Vehicle Systems under development by various manufacturers may soon be able to use seat detectors and on-board units to communicate the number of occupants roadside units integrated into tolling infrastructure.

Although not proposed for initial operations of the Yolo 80 Express Lanes, these emerging technologies may be realistic options in the future to supplement CHP officer enforcement and improve equity of occupancy enforcement.

11.2 Toll Violation Enforcement

As discussed previously, a toll-payments on the Yolo 80 Express Lanes will be made by vehicles with a valid transponder with an associated account. It is also anticipated that toll payments will be allowed through license plate image capture. The tolling system will identify vehicles that do not have valid transponders and captures images of their license plates. The images are then used to associate the transaction with a toll account when a transponder is not read, or to look up the registered owners address in the case of a license plate toll. License plate numbers are identified using LPR technology and are then typically confirmed manually. License plate confirmation and the issuing and tracking of invoices will occur as part of back-office functions. Violations would then only be issued if customers do not make required toll payments after receiving an invoice under established business rules.

11.3 Buffer Crossing Violations

The Yolo 80 Express Lanes are proposed to be continuous access; however, in locations where restricted access may be introduced buffer crossing must be enforced. It is a violation of the California Vehicle Code to cross the double solid white lines. The CHP will be responsible for enforcing buffer crossing violations on the Yolo 80 Managed Lanes along with other moving violations. This will be done primarily from patrol cars operating on the lanes. Signs will be posted along the Express Lane corridor informing motorists of the fine for buffer crossing violations. This is consistent with existing Express Lane buffer crossing protocols throughout California.

11.4 Incident Management

The CHP will ultimately be responsible for incident management on the Yolo 80 Express Lanes. Procedures for clearing incidents and maintaining Express Lane operations during incidents will be developed as part of an incident management plan (IMP) between CARTA, CHP, and other stakeholders. The agreement will identity response protocols for incidents of different types, together with the incident management functions of the TMC, CHP, FSP, and system integrator.

12 PERFORMANCE REQUIREMENTS

Performance assessment and evaluation of the Yolo 80 Managed Lanes Project will serve a variety of purposes. Real-time performance data will be used to set dynamic toll rates on the Express Lanes to ensure that free-flow conditions are maintained. Performance data will also be used to optimize the operation of the Express Lanes and calibrate dynamic pricing algorithms. From the operation monitoring perspective, proactively analyzed performance data can inform freeway operators and decision makers to identify potential challenges on the corridor and set long-term plans ahead of the performance failure. In addition, CARTA can disseminate Express Lane performance information to interested parties including but not limited to executive management, elected officials, stakeholders, and the public to validate their performance and demonstrate the benefits they provide to the traveling public.

12.1 Federal and State Performance Requirements

Federal law requires Managed Lanes to have performance monitoring programs to ensure that projects constructed with federal funding are not degraded per guidance outlined in Federal Law 23 U.S.C. § 166 (reference Section 9.4.1 for more detail). To comply with federal requirements, Caltrans prepares an annual California High-Occupancy Vehicle Facilities Degradation Report and Action Plan. This report identifies HOV and Express Lane facilities in California that do not meet federal performance standards. In addition, Caltrans District Offices have developed Action Plans to remediate cases of performance degradation with input from Caltrans' Headquarter Traffic Operations and FHWA.

At the state level, Assembly Bill 194 modified Section 149.7 of the California Streets and Highways Code allowing regional transportation authorities to apply directly to the CTC for permission to implement new high occupancy toll lane projects. Section 149.7 was modified to include the following reporting requirement (h):

> A sponsoring agency that develops or operates a toll facility pursuant to this section shall provide any information or data requested by the commission or the Legislative Analyst. The commission, in cooperation with the Legislative Analyst, shall annually prepare a summary report on the progress of the development and operation of any toll facilities authorized pursuant to this section. The commission may submit this report as a section in its annual report to the Legislature required pursuant to Section 14535 of the Government Code.

CARTA will need to coordinate with the CTC to identify performance data that the CTC may require on the Yolo 80 Managed Lanes to include in its annual report to the California State Legislature.

12.2 Identification of Performance Metrics

As the Yolo 80 Managed Lanes Project advances further in project development, CARTA will track any emerging issues and develop a set of proposed performance metrics for the Express Lanes. As potential measures are considered, the following issues should be considered:

- What types of performance measurement to be defined?
- What types of performance data to be collated?
- How is the performance data to be collected – with real-time detection equipment, regular counts or surveys, or one-time customer surveys?
- How often should the data to be collected?
- Which agency is best placed to collect the data?
- What agency is responsible to ensure the quality of data collected? What's the QAQC procedures of the data?
- What is the cost of collecting the data? Which agency is responsible for the cost?
- Should the data be collected internally or by an outside vendor or contractor?

In order to demonstrate that the Yolo 80 Managed Lanes meet Federal and State operational standards, the JPA may consider the following performance metrics:

- Travel time savings
- Average vehicle speed
- Mode shift to carpool, transit, or vanpool
- Person throughput
- Transportation access for the priority populations

12.3 Performance Monitoring and Reporting

12.3.1 Data Collection

Performance data for the managed lanes will come from the automated toll collection and traffic monitoring systems that are used to operate the lanes. These systems can be programmed to generate automated reports that can be formatted to meet varying requirements. These systems include roadway detection devices that collect data on traffic speeds, volumes, density, and throughput. This information is conveyed in real time and can be archived in standardized templates used to generate weekly and monthly performance reports. Field counts are also commonly used to validate and, if need-be, calibrate the information derived from toll collection systems.

12.3.2 Performance Reporting

CARTA will develop performance reports to provide regular updates on how the managed lanes are preforming. Reports may include all or some of the following:

- The financial performance of the priced managed lanes
- How net toll proceeds are used

- Violations statistics
- Reward program activity
- Monthly average travel speeds
- Average AM and PM peak-period travel speeds
- Total number of vehicle trips
- Number of transponders issued
- Equity Program account openings
- Total number of HOV-only operations

DKS 428 J STREET, SUITE 340 • SACRAMENTO, CA 95814 • 916.368.2000 • DKSASSOCIATES.COM

REVISED REVENUE FORECAST MEMO

DATE: January 24th, 2023

TO: Jas Randhawa| Caltrans
Nick Liccardo | Caltrans
Rebecca Shafer | Caltrans

FROM: Udit Molakatalla | DKS Associates

SUBJECT: Interstate 80/US Highway 50 Managed Lanes Project Project # 21095-015

INTRODUCTION

The I-80 and US 50 corridors experience high travel demand, especially during peak commute periods and weekends. This demand has created severe traffic congestion and impaired mobility along these routes. The Yolo 80 managed lane project proposes to improve freeway operations along I-80 and US 50 in Yolo County by constructing a managed lane. The project area covers I-80 from just west of the Solano/Yolo County line near Davis to just west of West El Camino Avenue in Sacramento County and US 50 from I-80 in West Sacramento to just east of I-5 in Sacramento. **Figure 1** presents the project study area. The managed lane alternatives range from the provision of High Occupancy Vehicle (HOV) lanes, 2+ or 3+ High Occupancy Toll (HOT) lanes, Express lanes (EL), transit-only lanes, and conversion of GP to HOV lanes.

The traffic and revenue forecasts for a typical weekday were presented previously in the *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report*[1] (Appendix A). This memo describes the approach and analysis to determine the potential weekend revenue forecasts for the project opening year (2029) and the design year (2049). The memo also includes the revenue forecasts for Phase I of the Project and revised Operation and Maintenance (O&M) costs.

[1] Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report, November 2021, Fehr & Peers

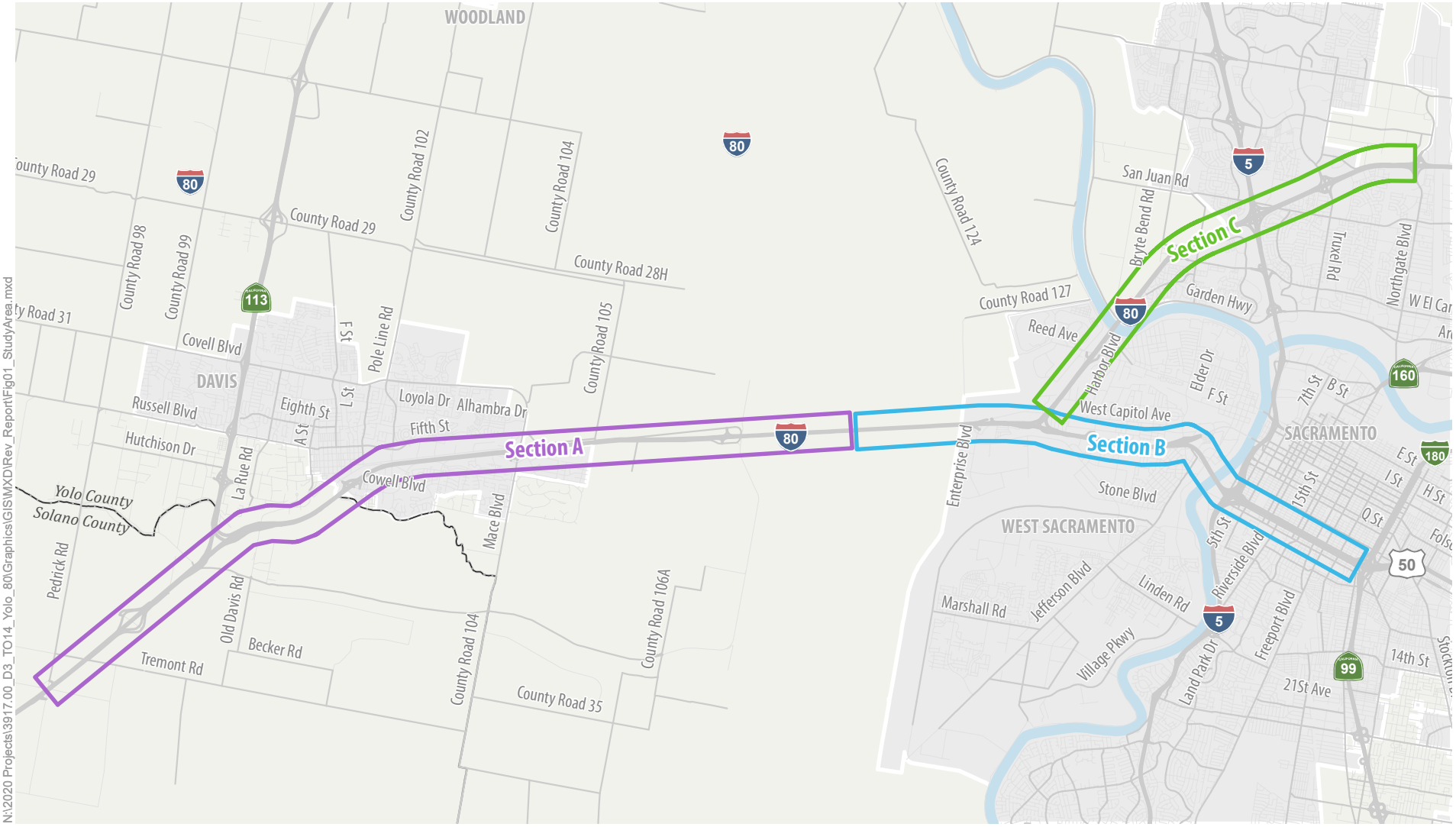


Figure 1

Study Area

PROJECT ALTERNATIVES

The alternatives for the I-80/US 50 Managed Lanes Project are described below. Alternatives highlighted in bold italics are the tolled options.

- Alternative 1 – No build
- Alternative 2 – Add one high occupancy vehicle (HOV) lane in each direction
- ***Alternative 3 – Add one high occupancy toll (HOT) lane in each direction where vehicles with two or more occupants (2+) are free, but single-occupant vehicles pay the full toll (HOT2+)***
- ***Alternative 4 – Add one HOT lane in each direction where vehicles with three or more occupants (3+) are free, but vehicles with two occupants pay a reduced toll, and single-occupant vehicles pay the full toll (HOT3+)***
- ***Alternative 5 – Add one express toll lane in each direction (everyone pays)***
- Alternative 6 – Add one transit lane in each direction
- Alternative 7 – Convert the current left lane to HOV
- Alternative 8 – Add one HOV lane in each direction with HOV to HOV median connector ramps

All toll alternatives include one managed lane per direction, constructed in the median of I-80 from the Solano/Yolo County line eastward and continuing along US 50 in West Sacramento to connect with the HOV lanes currently under construction in downtown Sacramento (Sections A and B in Figure 1). Also, managed lanes would be added in the median of I-80 from US 50 eastward, across the Sacramento River, to connect with the existing HOV lanes in Sacramento County (Section C).

Table 1 explains the toll treatment for each vehicle type that can use the tolled lanes.

TABLE 1: TOLLED LANE ACCESS AND PRICE TREATMENT IN PROJECT AREA DURING TOLL PERIOD

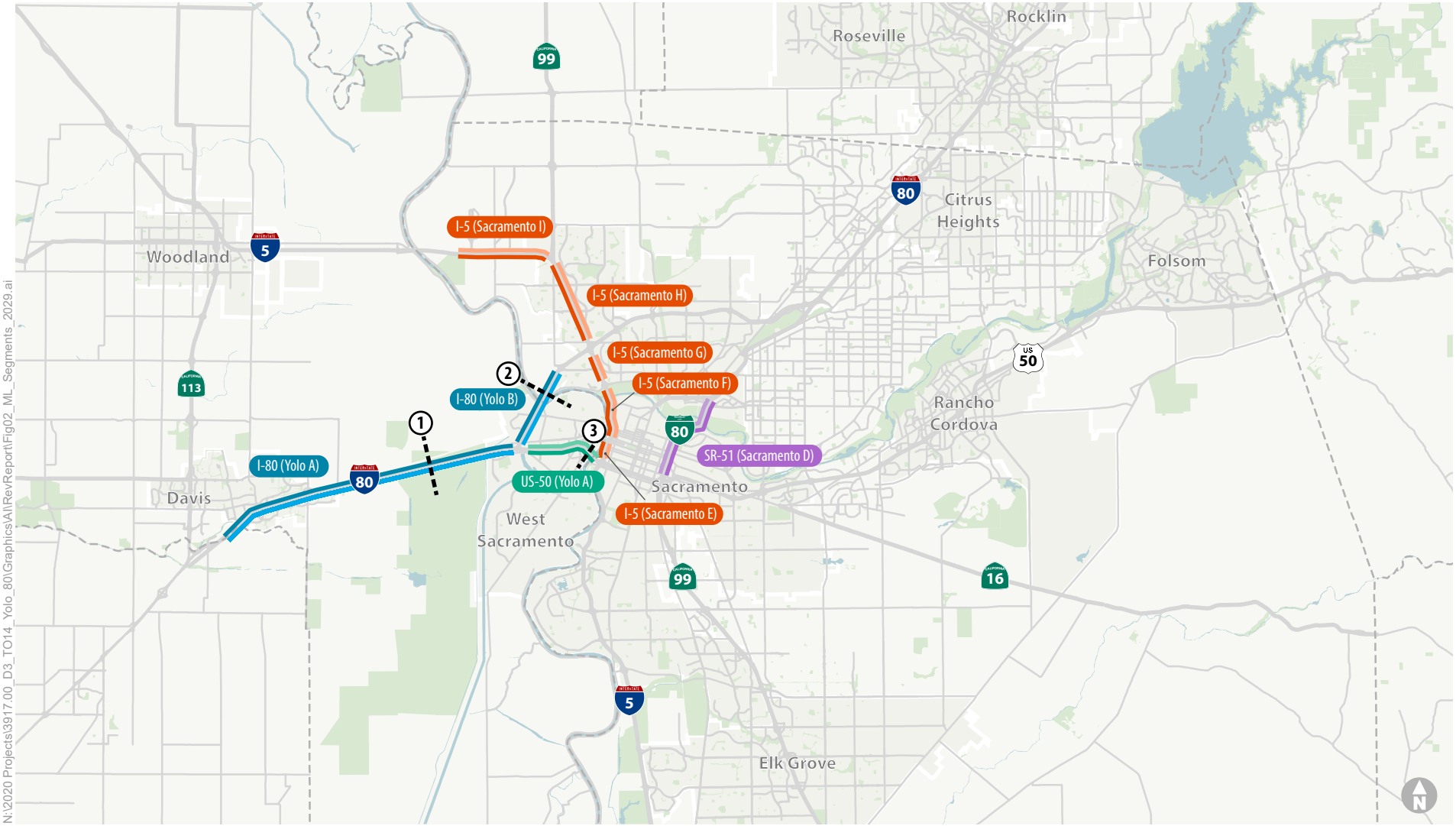
ALTERNATIVE	SOV	TRUCKS	HOV2	HOV3+	TRANSIT
ALTERNATIVE 3 (ADD HOT2+)	Toll	Double Toll	Free	Free	Free
ALTERNATIVE 4 (ADD HOT3+)	Toll	Double Toll	Half Toll	Free	Free
ALTERNATIVE 5 (ADD TOLL)	Toll	Double Toll	Toll	Toll	Free

Note: Outside the tolled period (7 AM to 8 PM), all passenger vehicles may use the managed lane for free.
Trucks are limited to two-axle commercial vehicles.
Source: Fehr & Peers (2021)

In Alternative 3 (Add HOT2+), access to the managed lane would be restricted to vehicles with two or more occupants, single-occupant vehicles (SOVs) that pay a full toll, and trucks that pay a double toll. Under all alternatives, drivers would be allowed to enter and exit continuously along the corridor. In Alternative 4 (Add HOT3+), access to the managed lane would be restricted to vehicles with three

or more occupants, vehicles with two occupants that pay a half toll, SOVs that pay a full toll, and trucks that pay a double toll. In Alternative 5 (Add Toll), access to the managed lane would be restricted to all vehicles that pay a full toll.

The tolled alternatives would be part of a larger regional managed lane network developed by Caltrans and the Sacramento Area Council of Governments (SACOG) as part of the 2020 MTP/SCS. For this study, Caltrans has identified the tolled lane configurations for the regional managed lanes network, as shown in **Figure 2** and **Figure 3**. In the Year 2029, the transition areas between HOV and HOT were not assumed but may be needed, which could impact actual revenue collected. The regionally managed lane network assumption is consistent with other managed lane T&R studies in the Sacramento region.



Corridor Segment Locations

- I-5
- I-80
- SR-51/SR-99
- US-50

X-0 (XX X) Corridor Segment ID

County Line

Screenlines

1. I-80 at Yolo Causeway
2. I-80 at Sacramento River
3. US 50 at Sacramento River

Figure 2

Managed Lanes Segments - 2029 Conditions

Corridor Segment Locations

- I-5
- I-80
- SR-51/SR-99
- US-50

X-0 (XX X) Corridor Segment ID

County Line

Screenlines

1. I-80 at Yolo Causeway
2. I-80 at Sacramento River
3. US 50 at Sacramento River

Figure 3

Managed Lanes Segments - 2049 Conditions

ANALYSIS METHODOLOGY

WEEKEND REVENUE FORECASTS

The weekday traffic and revenue forecast approach, pricing objectives, toll operations assumptions, and the analysis are discussed in the *Interstate 80/US Highway 50 Managed Lanes Traffic and Revenue Report*. The traffic and revenue forecasts were developed using a modified version of the SACSIM19 activity-based travel demand model and toll module application. However, the SACSIM19 is a weekday model and does not model weekend travel. The weekend revenue is estimated based on the methodology described below.

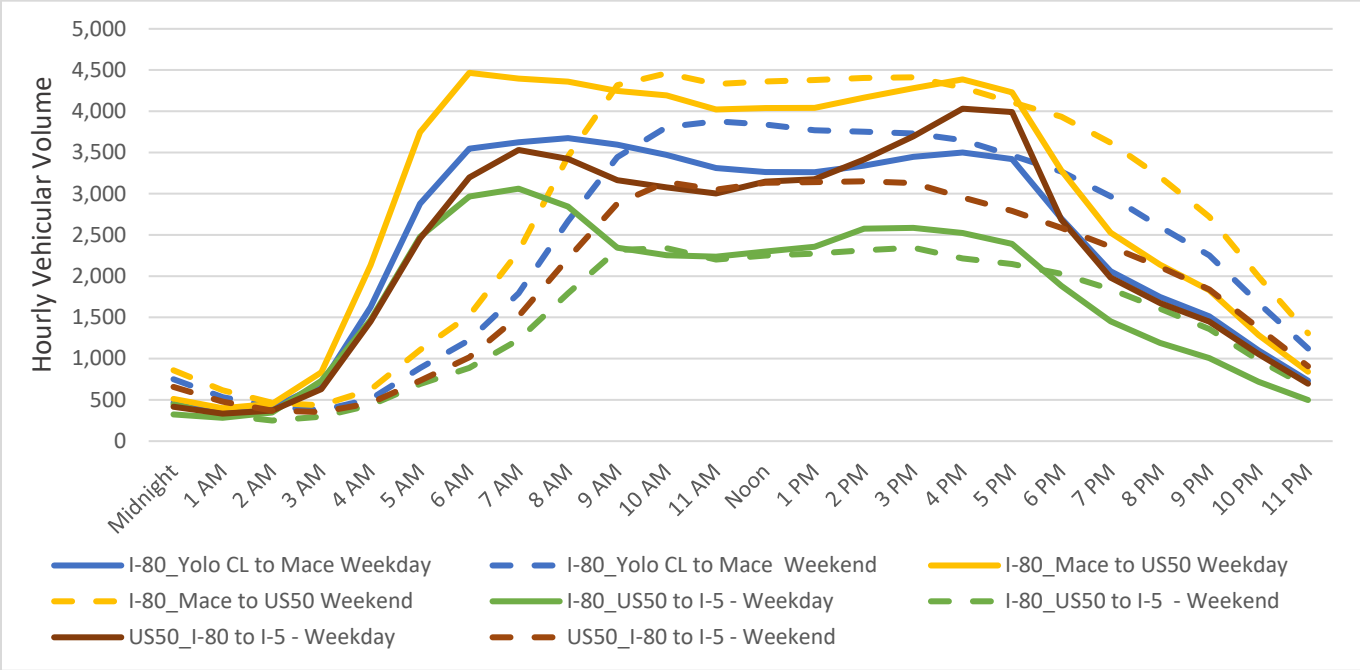
In simple terms, toll revenues are a function of toll road traffic volumes, congestion/travel time savings, and toll rates. The weekend revenue factors were estimates based on factoring average weekday and weekend volumes and speeds. For the purpose of this study, the Value of Time (VOT) and the toll rates on weekends are assumed to be the same as for weekdays.

The average hourly volumes for weekdays and weekends were obtained from the Caltrans Performance Measurement System (PeMS) data by direction for multiple locations along the study corridor. The data was collected during fall 2022 and spring 2023. Only the Vehicle Detection Stations (VDS) stations with detector health of more than 85% were used for the analysis. **Figure 4** presents the average weekday and weekend daily volumes at various locations along the study corridor. The weekend traffic is observed to be similar to the weekday traffic along the study corridor between Yolo County Line and US 50 and about 15% to 18% lower along I-80, between US 50 and I-5, and on US 50, between I-80 and I-5. The count information indicates significant traffic on the weekend along the study corridor, most likely due to the intercity recreational traffic on I-80. It should be noted that the average weekend volumes do not capture the peak weekend and holiday conditions, which can be much higher than weekday conditions.

Source: DKS (2023)

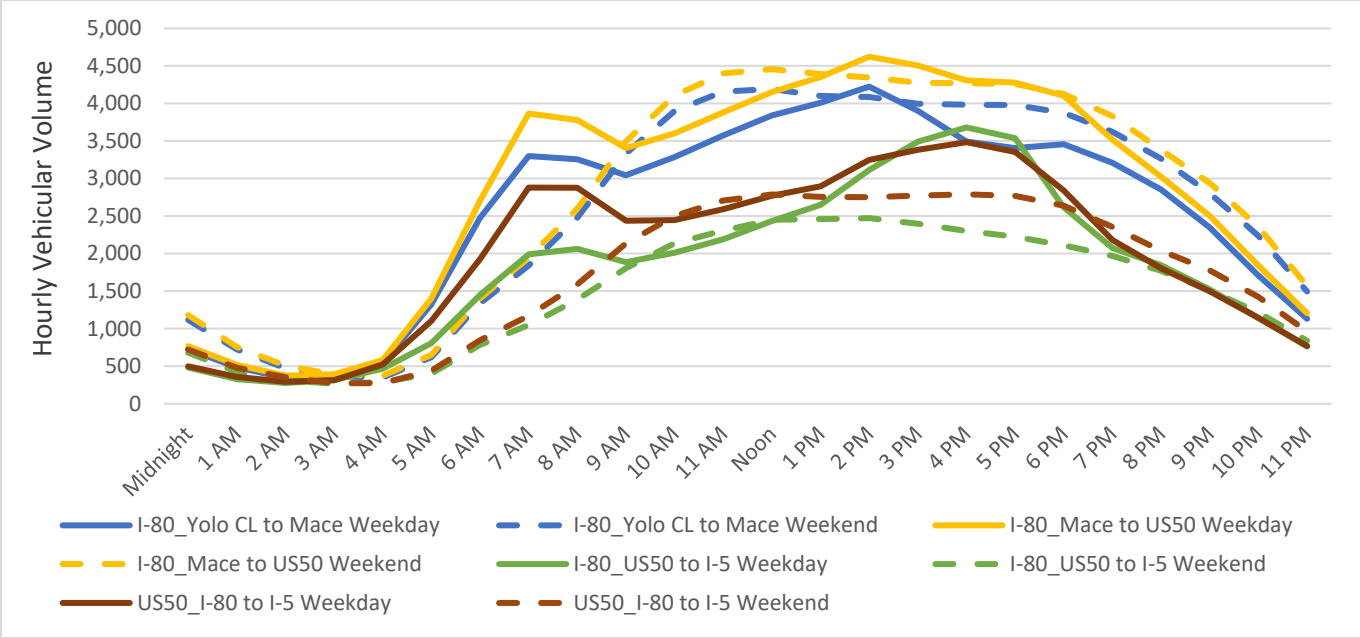
FIGURE 4: DAILY AVERAGE WEEKDAY AND WEEKEND VOLUMES

Figure 5 and **Figure 6** present the time of day variation for the average weekday and weekend volumes at various locations along the corridor. Compared to weekdays, the weekend traffic volumes tend to be lower in the morning and generally higher in the midday and the evening. It should be noted that the weekday evening volumes are constrained by various bottlenecks along the corridor, thereby limiting vehicle throughput.



Source: Caltrans PeMS

FIGURE 5: AVERAGE WEEKDAY AND WEEKEND TRAFFIC TREND BY TIME OF DAY - WESTBOUND



Source: Caltrans PeMS

FIGURE 6: AVERAGE WEEKDAY AND WEEKEND TRAFFIC TREND BY TIME OF DAY - EASTBOUND

The hourly speed for average weekdays and weekends was obtained from INRIX data. **Figure 7** shows the average weekday and weekend hourly speed profile based on data from spring 2023. The weekend speed profile shows uncongested speeds in the morning, consistent with the volume trend, and lower speeds in the afternoon and evening.

	WEEKDAY																									WEEKEND																							
Segment	Midnight	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	Noon	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM		Midnight	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	Noon	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Westbound																																																		
I-80_Yolo CL to Mace	67	64	64	67	71	70	68	68	68	67	68	68	69	69	69	69	69	70	70	71	70	70	70	69		67	61	68	67	69	70	71	71	71	69	65	63	69	69	66	69	69	66	69	70	69	70	71	70
I-80_Mace to US50	66	64	64	67	71	69	56	42	38	37	42	54	64	66	66	64	60	55	69	70	70	70	69	68		69	68	68	67	69	70	71	68	54	50	36	32	38	44	44	42	38	44	50	54	61	69	70	70
I-80_US50 to I-5	66	63	66	69	70	70	61	38	29	30	35	53	67	67	67	67	67	64	69	69	69	69	68	67		68	66	66	65	68	69	70	70	70	49	30	26	33	39	41	35	33	42	47	55	61	69	69	69
US50_I-80 to I-5	62	61	61	66	69	69	67	64	58	56	60	65	66	66	65	64	61	62	66	68	67	67	67	65		67	65	66	65	67	68	69	70	69	65	47	48	57	65	67	64	64	67	67	68	67	68	68	68
Eastbound																																																	
I-80_Yolo CL to Mace	67	67	66	65	67	70	70	69	69	69	69	69	68	67	48	28	21	25	44	68	70	71	71	70		70	70	68	67	65	69	71	71	72	71	70	69	67	64	55	45	44	47	51	61	67	70	71	71
I-80_Mace to US50	67	67	65	65	67	69	68	65	66	67	67	67	66	65	57	46	36	35	46	66	68	69	71	70		70	70	68	67	65	68	71	71	71	69	65	63	63	61	54	54	51	53	56	59	59	66	70	70
I-80_US50 to I-5	67	65	63	64	67	67	67	66	66	67	67	67	67	66	61	51	50	67	69	69	69	69	69	69		69	67	66	65	65	66	69	69	70	70	70	69	69	69	69	69	69	70	70	70	69	69	70	70
US50_I-80 to I-5	63	63	62	60	62	65	66	62	62	64	65	65	57	64	52	54	53	55	57	66	55	41	61	66		66	67	64	63	60	64	69	69	69	68	65	67	65	55	48	62	67	68	68	69	67	65	67	68

Source: INRIX

FIGURE 7: AVERAGE WEEKDAY AND WEEKEND HOURLY SPEED PROFILE

SACSIM19 generates model forecasts for 9 time periods - 7 AM, 8 AM, 9 AM, Midday (10 AM – 3 PM), 3 PM, 4 PM, 5 PM, Evening (6 PM – 8 PM), Night (8 PM – 7 AM). The tolled lane hour of operations is assumed to be 7 AM to 8 PM, aligning with the travel model time-period breakdown. Actual hours of operations may differ for both weekdays and weekends. The average weekday versus weekend volume and speed factors were calculated for each SACSIM19 time period and applied to the weekday gross revenue estimates to calculate a daily weekend revenue factor for each toll alternative. Based

on the toll strategy and weekday revenue estimate, the daily weekday versus weekend revenue factor is different for each alternative.

The factors were further adjusted to account for the change in Average Vehicle Occupancy (AVO) over the weekends. Based on research[2], higher vehicle occupancy is expected during the weekends due to more recreational trips. The study from the San Francisco Bay Area with detailed information on weekday and weekend mode share information was used to inform the AVO factors for this study. As previously discussed, the VOT and the toll rates on weekend days are assumed to remain the same as on a typical weekday.

PHASE I REVENUE FORECASTS

Phase I of the Project involves constructing a Managed Lane spanning from Richard Boulevard (PM 0.10) to the I-80/US 50 Split (PM 9.66) in the eastbound direction and from the I-80/US50 Split (PM 9.82) to Mace Boulevard (PM 2.88) in the westbound direction. **Figure 8** presents the Phase 1 Project extents.

FIGURE 8: PHASE I PROJECT LIMITS

[2] An Exploratory Analysis of Weekend Activity Patterns in the San Francisco Bay Area, Lockwood & Bhat, 2004

The I-80 Managed Lane network in the SACSIM model is segmented into eight toll segments, comprising two segments in Yolo County, five segments in Sacramento County, and one segment in Placer County. Phase I aligns closely with toll segment 9 (EB) and toll segment 10 (WB) in the SACSIM model. The revenue forecasts for Phase I on weekdays are derived from the results of the representative SACSIM toll segments. For weekends and annual projections, the methodology outlined in the preceding section is employed to estimate Phase I forecasts.

WEEKEND REVENUE FACTORS

Table 2 and **Table 3** present the weekend revenue factors for each tolled alternative under 2029 and 2049 conditions, respectively. The average weekday and weekend AVO was calculated to be 1.59 and 1.90, respectively. Alternative 3 (HOT2+) daily weekend factor was adjusted by a factor of 0.834 to account for higher vehicle occupancy. Alternative 4 (HOT3+) allows HOV2 travel for free and accounts for a lower adjustment. No adjustments were made for Alternative 5 since all the vehicles are tolled. The study assumptions do not account for potential revenue loss from occupancy violations, including incorrect setting on flex transponders misrepresenting vehicle occupancy levels.

TABLE 2: YEAR 2029 WEEKEND REVENUE FACTORS

SUMMARY	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
DAILY WEEKEND FACTOR	0.543	0.865	0.858
ADJUSTMENT FOR AUTO OCCUPANCY	0.834	0.914	1.000
ADJUSTED WEEKEND FACTOR	0.453	0.791	0.858

Source: DKS (2023)

TABLE 3: YEAR 2049 WEEKEND REVENUE FACTORS

SUMMARY	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
DAILY WEEKEND FACTOR	0.512	0.858	0.848
ADJUSTMENT FOR AUTO OCCUPANCY	0.834	0.914	1.000
ADJUSTED WEEKEND FACTOR	0.427	0.785	0.848

Source: DKS (2023)

FULL BUILDOUT REVENUE FORECASTS

This section presents the gross toll revenue, toll operating and maintenance costs, revenue leakage, and estimated net revenue for the full buildout of the Project.

GROSS TOLL REVENUE

Table 4 and **Table 5** summarize the full buildout gross toll revenue results for each tolled alternative under 2029 and 2049 conditions, respectively. The weekday revenue was derived from the *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report*. All dollar values are reported in 2021 dollars.

The SACSIM model assesses costs and VOT in the year 2000 dollars. All tolls and revenues in this section have been updated to 2021 dollars (an increase of 61 percent over 2000 dollars) using the Consumer Price Index (CPI). Annual revenue assumes 250 tolled weekdays and 115 weekend days and holidays per year.

TABLE 4: 2029 TOLL COST AND GROSS REVENUE (YEAR 2021 DOLLARS) – FULL BUILD

REVENUE	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
WEEKDAY GROSS REVENUE[1]	$3,310	$39,435	$67,821
WEEKEND GROSS REVENUE[2]	$2,998	$62,372	$116,415
ANNUAL GROSS REVENUE	$999,907	$13,445,117	$23,649,105

Note: 1- Weekday revenue was obtained from *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report* and is reported as a daily estimate
2- Weekend revenue is reported for Saturday and Sunday combined
3- Values may not add up due to rounding errors
Source: Fehr & Peers (2021) & DKS (2023)

TABLE 5: 2049 TOLL COST AND GROSS REVENUE (YEAR 2021 DOLLARS) – FULL BUILD

REVENUE	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
WEEKDAY GROSS REVENUE[1]	$4,016	$60,151	$104,307
WEEKEND GROSS REVENUE[2]	$3,428	$94,385	$176,998
ANNUAL GROSS REVENUE	$1,201,138	$20,464,865	$36,254,161

Note: 1- Weekday revenue was obtained from *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report* and is reported as a daily estimate
2- Weekend revenue is reported for Saturday and Sunday combined
3 - Values may not add up due to rounding errors
Source: Fehr & Peers (2021) & DKS (2023)

ANNUAL NET OPERATING TOLL REVENUE

Tables 6 and **Table 7** present the forecasted annual net operating toll revenue for the full buildout of the Project under 2029 and 2049 conditions, respectively. It should be noted that these forecasts do not include other major costs, such as the start-up costs of establishing a toll agency or the capital civil construction and toll collection equipment costs of implementing the priced lanes. For the opening year in 2029, an additional 10% reduction in transactions and revenue should be considered to account for ramp-up.

The Toll Operating and Maintenance (O&M) costs and the revenue leakage percentage are detailed in the *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report*. For this study, the average O&M lane mile cost of $231,000 (2021 dollars) was assumed. The total I-80/US 50 Managed Lanes corridor length subject to tolling is 34.5 lane-miles. Based on the average per lane-mile O&M cost, the total annual O&M cost for a full buildout is estimated to be $7,969,500. In general, the O&M costs can be broadly categorized into roadside equipment, back-office processing costs, agency administrative costs, and facility maintenance costs. While some O&M costs are expected to rise due to increased toll operating hours on weekends, most systemwide costs are anticipated to be fixed. In this study, a 10% increase in O&M costs for extending toll operations to weekends is assumed, and the O&M costs in Tables 6 and 7 are updated to reflect this increase.

The O&M costs are partially associated with the number of transactions, which are expected to go up in the future. Transaction-related costs can vary based on factors like the complexity of toll collection technology, the efficiency of transaction processing systems, and the level of automation in toll collection processes. SACSIM daily demand forecasts indicate a projected growth of Managed Lane volumes by approximately 8% to 14% between 2029 and 2049, depending on the toll alternative. To manage the expected rise in toll transactions, a 5% adjustment to the O&M costs was made in 2049. This adjustment assumed that back-office costs related to toll transactions constitute 50% of total O&M costs.

TABLE 6: 2029 ANNUAL NET OPERATING TOLL REVENUE (YEAR 2021 DOLLARS) – FULL BUILD

SUMMARY	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
ANNUAL GROSS REVENUE	$999,907	$13,445,117	$23,649,105
ESTIMATED REVENUE LEAKAGE[1]	$99,991	$1,344,512	$2,364,910
AVERAGE ANNUAL O&M COST[2]	$8,766,450	$8,766,450	$8,766,450
NET OPERATING TOLL REVENUE[3]	($7,866,534)	$3,334,156	$12,517,744

Note: 1- Estimated revenue leakage assumed to be 10% of the annual revenue

2 - O&M costs obtained from *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report* and increased by 10% to account for increased hours of operation

3 – Net operating toll revenue based on average O&M costs

4 – Values may not add up due to rounding errors

TABLE 7: 2049 ANNUAL NET OPERATING TOLL REVENUE (YEAR 2021 DOLLARS) – FULL BUILD

SUMMARY	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
ANNUAL GROSS REVENUE	$1,201,138	$20,464,865	$36,254,161
ESTIMATED REVENUE LEAKAGE[1]	$120,114	$2,046,486	$3,625,416
AVERAGE ANNUAL O&M COST[2,3]	$9,164,925	$9,164,925	$9,164,925
NET OPERATING TOLL REVENUE[4]	($8,083,901)	$9,253,453	$23,463,820

Note: 1- Estimated revenue leakage assumed to be 10% of the annual revenue
2 - O&M costs obtained from *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report* increased by 10% to account for increased hours of operation
3 – O&M costs increased by 5% to account for increased toll transactions
4 – Net operating toll revenue based on average O&M costs
5 – Values may not add up due to rounding errors

In 2029, the I-80/US 50 Managed Lanes would operate at a net loss in Alternative 3 (Add HOT2+). A positive net revenue is forecasted for Alternative 4 (Add HOT3+) and Alternative 5 (Add Toll). Alternative 5 would provide the highest net operating toll revenue of over $12.5 million annually in 2029, considering that all vehicles would be tolled. Given the modeling limitations, these revenue forecasts are appropriate for alternative comparison, but the actual values are likely to differ.

In 2049, the I-80/US 50 Managed Lanes would continue to operate at a net loss in Alternative 3 (Add HOT2+) and with positive net revenue in Alternative 4 (Add HOT3+) and Alternative 5 (Add Toll). Alternative 5 would continue to provide the highest net operating toll revenue of approximately $23.5 million annually in 2049. Given the modeling limitations, these revenue forecasts are appropriate for alternative comparison, but the actual values are likely to differ.

PHASE I REVENUE FORECASTS

This section presents the weekday, weekend, and annual revenue forecasts for Phase I of the Project. The toll operating and maintenance cost, revenue leakage, and resulting net revenue are also reported for the Project toll alternatives.

PHASE I - GROSS TOLL REVENUE

Table 8 and **Table 9** summarize gross toll revenue results for each tolled alternative under 2029 and 2049 conditions, respectively. All dollar values are reported in 2021 dollars. The SACSIM model assesses costs and VOT in the year 2000 dollars. All tolls and revenues in this section have been updated to 2021 dollars (an increase of 61 percent over 2000 dollars) using the Consumer Price Index (CPI). Annual revenue assumes 250 tolled weekdays and 115 weekend days and holidays per year.

Phase I of the Project generates about 69 % - 83 % of the full buildout gross revenue. While Phase I covers a little over 50 % of the full Project lane miles, it addresses the most congested section of the Project on Yolo Causeway. The GP lane congestion in the Phase I section results in higher Managed Lane usage and high average toll cost compared to the rest of the Project sections under 2029 and 2049 conditions.

TABLE 8: 2029 TOLL COST AND GROSS REVENUE (YEAR 2021 DOLLARS) – PHASE I

REVENUE	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
WEEKDAY GROSS REVENUE[1]	$2,288	$32,022	$56,452
WEEKEND GROSS REVENUE[2]	$2,073	$50,647	$96,900
ANNUAL GROSS REVENUE	$691,198	$10,917,701	$19,684,748

Note: 1- Weekday revenue was obtained from *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report* and is reported as a daily estimate
2- Weekend revenue is reported for Saturday and Sunday combined
3- Values may not add up due to rounding errors
Source: Fehr & Peers (2021) & DKS (2023)

TABLE 9: 2049 TOLL COST AND GROSS REVENUE (YEAR 2021 DOLLARS) – PHASE I

REVENUE	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
WEEKDAY GROSS REVENUE[1]	$2,776	$48,084	$82,815
WEEKEND GROSS REVENUE[2]	$2,370	$75,450	$140,529
ANNUAL GROSS REVENUE	$830,302	$16,359,372	$28,784,150

Note: 1- Weekday revenue was obtained from *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report* and is reported as a daily estimate
2- Weekend revenue is reported for Saturday and Sunday combined
3 - Values may not add up due to rounding errors
Source: Fehr & Peers (2021) & DKS (2023)

PHASE I - ANNUAL NET OPERATING TOLL REVENUE

Tables 10 and **Table 11** present the forecasted annual net operating toll revenue for each alternative under 2029 and 2049 conditions, respectively. The forecasts do not include other major costs, such as the start-up costs of establishing a toll agency or the capital civil construction and toll collection equipment costs of implementing the priced lanes. For the opening year in 2029, an additional 10% reduction in transactions and revenue should be considered to account for ramp-up.

The Toll Operating and Maintenance (O&M) costs and the revenue leakage percentage are detailed in the *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report*. For this study, the average O&M lane mile cost of $231,000 (2021 dollars) was assumed. The total I-80/US 50 Managed Lanes corridor length subject to tolling is 18.7 lane-miles. Based on the average per lane-mile O&M cost, the total annual O&M cost for Phase I is estimated to be $4,260,500. In general, the O&M costs can be broadly categorized into roadside equipment, back-office processing costs, agency administrative costs, and facility maintenance costs. While some O&M costs are expected to rise due to increased toll operating hours on weekends, most systemwide costs are anticipated to be fixed. In this study, a 10% increase in O&M costs for extending toll operations to weekends is assumed, and the O&M costs in Tables 10 and 11 are updated to reflect this increase.

The O&M costs are partially associated with the number of transactions, which are expected to go up in the future. Transaction-related costs can vary based on factors like the complexity of toll collection technology, the efficiency of transaction processing systems, and the level of automation in toll collection processes. SACSIM daily demand forecasts indicate a projected growth of Managed Lane volumes by approximately 8% to 14% between 2029 and 2049, depending on the toll alternative. To manage the expected rise in toll transactions, a 5% adjustment to the O&M costs was made in 2049. This adjustment assumed that back-office costs related to toll transactions constitute 50% of total O&M costs.

TABLE 10: 2029 ANNUAL NET OPERATING TOLL REVENUE (YEAR 2021 DOLLARS) – PHASE I

SUMMARY	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
ANNUAL GROSS REVENUE	$691,198	$10,917,701	$19,684,748
ESTIMATED REVENUE LEAKAGE[1]	$69,120	$1,091,770	$1,968,475
AVERAGE ANNUAL O&M COST[2]	$4,733,883	$4,733,883	$4,733,883
NET OPERATING TOLL REVENUE[3]	($4,111,804)	$5,092,048	$12,982,390

Note: 1- Estimated revenue leakage assumed to be 10% of the annual revenue

2 - O&M costs obtained from *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report* and increased by 10% to account for increased hours of operation. Adjusted for lane miles in Phase I

3 – Net operating toll revenue based on average O&M costs

4 – Values may not add up due to rounding errors

TABLE 11: 2049 ANNUAL NET OPERATING TOLL REVENUE (YEAR 2021 DOLLARS) – PHASE I

SUMMARY	ALT 3 (ADD HOT2+)	ALT 4 (ADD HOT3+)	ALT 5 (ADD TOLL)
ANNUAL GROSS REVENUE	$830,302	$16,359,372	$28,784,150
ESTIMATED REVENUE LEAKAGE[1]	$83,030	$1,635,937	$2,878,415
AVERAGE ANNUAL O&M COST[2]	$4,949,060	$4,949,060	$4,949,060
NET OPERATING TOLL REVENUE[3]	($4,201,788)	$9,774,375	$20,956,676

Note: 1- Estimated revenue leakage assumed to be 10% of the annual revenue
2 - O&M costs obtained from *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report* increased by 10% to account for increased hours of operation. Adjusted for lane miles in Phase I
3 – O&M costs increased by 5 % to account for increased toll transactions
4 – Net operating toll revenue based on average O&M costs

In 2029, the I-80/US 50 Managed Lanes Phase I would operate at a net loss in Alternative 3 (Add HOT2+). A positive net revenue is forecasted for Alternative 4 (Add HOT3+) and Alternative 5 (Add Toll). Alternative 5 would provide the highest net operating toll revenue of almost $12.9 million annually in 2029, considering that all vehicles would be tolled. Given the modeling limitations, these revenue forecasts are appropriate for alternative comparison, but the actual values are likely to differ.

In 2049, the I-80/US 50 Managed Lanes would continue to operate at a net loss in Alternative 3 (Add HOT2+) and with positive net revenue in Alternative 4 (Add HOT3+) and Alternative 5 (Add Toll). Alternative 5 would continue to provide the highest net operating toll revenue of approximately $20.9 million annually in 2049. Given the modeling limitations, these revenue forecasts are appropriate for alternative comparison, but the actual values are likely to differ.

SUMMARY OF TOLL FORECASTS

This study provides a planning-level forecast of the weekend and annual revenue estimates associated with each of the tolled alternatives proposed as part of the I-80/US Managed Lanes Project. More detailed investment-grade revenue studies would be necessary to accurately assess system revenue, including a more detailed design of the managed lane access points and toll collection schemes. The following items summarize key findings associated with the toll forecasts. The findings are consistent with the summary presented in the *Interstate 80/US Highway 50 Managed Lanes Project Traffic and Revenue Report*.

- The SACSIM19 model used for weekday revenue estimates has limitations that affect the travel demand forecasts used in the revenue forecasts. SACSIM19 is a weekday model and does not estimate weekend demand and toll revenues.

- Alternative 3 (Add HOT2+) results in negative net revenues in 2029 and 2049 due to the high demand by HOVs filling the managed lane and limiting the capacity available for toll-paying SOVs.
- Alternative 4 (Add HOT3+) results in positive net revenues in 2029 and 2049 as more vehicles are tolled.
- Alternative 5 (Add Toll) results in positive and highest net toll revenues in 2029 and 2049. However, under Alternative 5, restricting the managed lane to tolled vehicles would restrict vehicles served, and persons served along the corridor, compared to other alternatives.
- Phase I of the Project generates about 69 % - 83 % of the full buildout gross revenue. While Phase I covers a little over 50 % of the full Project lane miles, it addresses the most congested section of the Project on Yolo Causeway. The O&M costs are estimated per lane mile and are about 54 % of the full Project, resulting in a higher net revenue compared to the full buildout. In 2029, Phase I is projected to yield higher net revenue compared to the entire Project under Alternative 4 and Alternative 5. By 2049, Phase I is anticipated to generate approximately equivalent net revenue as the complete Project under Alternative 4 and around 90% of the revenue under Alternative 5.

APPENDIX A

INTERSTATE 80/US HIGHWAY 50 MANAGED LANES PROJECT TRAFFIC AND REVENUE REPORT

Interstate 80/U.S. Highway 50 Managed Lanes

Traffic and Revenue Report

Prepared for:

Caltrans

November 2021

FEHR & PEERS

Traffic and Revenue Report

Interstate 80 / U.S. Highway 50
Managed Lanes

04-SOL-80 PM 40.91, 03-YOL PM VAR,
and 03-SAC-80/50 PM VAR

EA 03-3H9000
Project ID 03 1800 0085

November 2021

RS21-4082

Table of Contents

List of Figures

List of Tables

1. Introduction

This traffic and revenue report was prepared for the Interstate 80 (I-80)/U. S. Highway 50 (US 50) Managed Lanes Project in Yolo and Sacramento counties. The introduction describes the study area and provides a brief overview of the project alternatives. Chapters 2 through 7 describe the project toll alternatives and the approach to their analysis to produce traffic and revenue forecasts.

Chapter 2 – Project Toll Alternatives

Chapter 3 – Regional Managed Lane Network

Chapter 4 – Travel Forecasting Methodology

Chapter 5 – Toll Strategies

Chapter 6 – Traffic and Revenue Forecasts

Chapter 7 – Summary of Toll Forecasts

1.1 Study Area and Project Description

The project area covers I-80 from just west of the Solano/Yolo County line near Davis to just west of West El Camino Avenue in Sacramento County and US 50 from I-80 in West Sacramento to just east of I-5 in Sacramento. However, the traffic study area extends further west and east to account for changes in travel patterns on adjacent facilities. The study area boundaries are I-80 at Pedrick Road in Solano County in the west and I-80 at Northgate Boulevard in Sacramento and US 50 at State Route (SR) 51/SR 99 in the east (See **Figure 1**).

The I-80 and US 50 corridors experience high travel demand, especially during peak commute periods and weekends. The demand has created severe traffic congestion and impaired mobility along the route. Congestion at various locations, specifically I-80 through Davis and along the Yolo Bypass Causeway between Davis and West Sacramento, can be especially severe and is caused by a combination of high demand, limited alternate routes, and reduced throughput due to lane drops. As part of the few all-weather routes between the San Francisco Bay Area and the Lake Tahoe/Reno region, recreational travel on weekends and holidays can produce some of the longest delays. The congestion impacts travel time reliability for passenger and commercial vehicle travel as well as public transit. In addition, congestion contributes to collisions during peak travel times. The project proposes to improve freeway operations along I-80 and US 50 in Yolo County by widening the freeway and/or providing managed lanes. The project has an opening year of 2029.

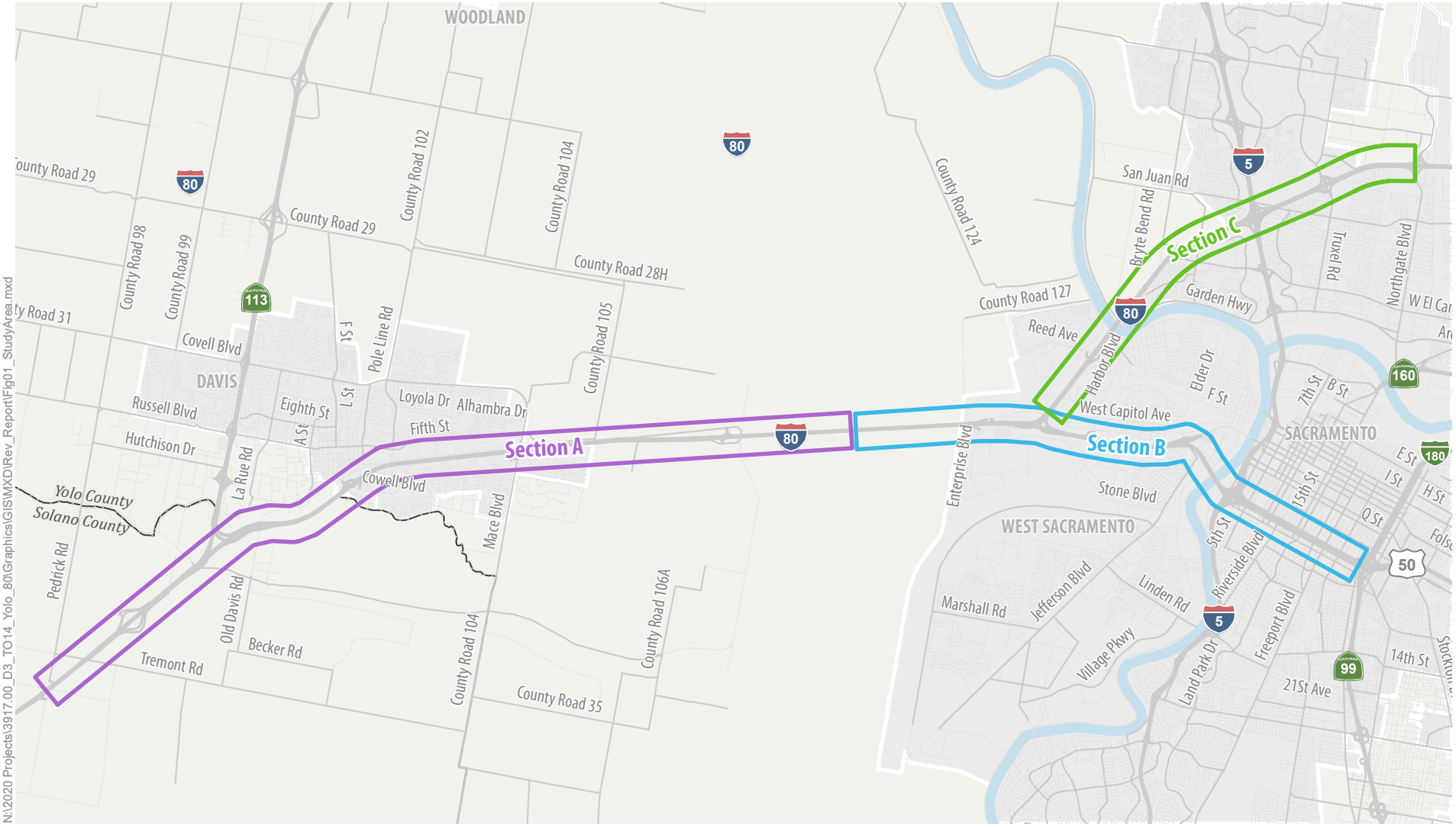


Figure 1

Study Area

1.1.1 Project Alternatives

The alternatives for the I-80/US 50 Managed Lanes Project are described below. Travel demand forecasting models were prepared for the following 10 alternatives. Alternatives highlighted in bold italics are the tolled options.

- Alternative 1 – No build
- Alternative 2 – Add one high occupancy vehicle (HOV) lane in each direction
- ***Alternative 3 – Add one high occupancy toll (HOT) lane in each direction where vehicles with two or more occupants (2+) are free but single occupant vehicles pay the full toll (HOT2+)***
- ***Alternative 4 – Add one HOT lane in each direction where vehicles with three or more occupants (3+) are free but vehicles with two occupants pay a reduced toll and single occupant vehicles pay the full toll (HOT3+)***
- ***Alternative 5 – Add one express toll lane in each direction (everyone pays)***
- Alternative 6 – Add one transit lane in each direction
- Alternative 7 – Convert current left lane to HOV
- Alternative 8 – Add one HOV lane in each direction with HOV to HOV median connector ramps
- Alternative 9 – Add one HOV lane in each direction without Enterprise Crossing
- Alternative 10 – Add one general-purpose (GP) lane in each direction

The project toll alternatives are described in detail below.

2. Project Toll Alternatives

This chapter describes the project's toll alternatives in more detail. All toll alternatives include one managed lane per direction, constructed in the median of I-80 from the Solano/Yolo County line eastward and continuing along US 50 in West Sacramento to connect with the HOV lanes currently under construction in downtown Sacramento. Also, managed lanes would be added in the median of I-80 from US 50 eastward, across the Sacramento River, to connect with the existing HOV lanes in Sacramento County.

Table 1 explains the toll treatment for each vehicle type that can use the tolled lanes.

Table 1: Tolled Lane Access and Price Treatment in Project Area During Toll Period

Alternative	SOV	Trucks	HOV2	HOV3+	Transit
Alternative 3 (Add HOT2+)	Toll	Double Toll	Free	Free	Free
Alternative 4 (Add HOT3+)	Toll	Double Toll	Half Toll	Free	Free
Alternative 5 (Add Toll)	Toll	Double Toll	Toll	Toll	Free

Note: Outside the tolled period (7 AM to 8 PM), all passenger vehicles may use the managed lane for free. Trucks are limited to two-axle commercial vehicles.
Source: Fehr & Peers (2021)

2.1.1 Alternative 3 – Add HOT2+

In Alternative 3 (Add HOT2+), access to the managed lane would be restricted to vehicles with two or more occupants, single occupant vehicles (SOVs) that pay a full toll, and trucks that pay a double toll. Drivers would be allowed to enter and exit continuously along the corridor.

2.1.2 Alternative 4 – Add HOT3+

In Alternative 4 (Add HOT3+), access to the managed lane would be restricted to vehicles with three or more occupants, vehicles with two occupants that pay a half toll, SOVs that pay a full toll, and trucks that pay a double toll. Drivers would be allowed to enter and exit continuously along the corridor.

2.1.3 Alternative 5 – Add Toll

In Alternative 5 (Add Toll), access to the managed lane would be restricted to all vehicles that pay a full toll. Drivers would be allowed to enter and exit continuously along the corridor.

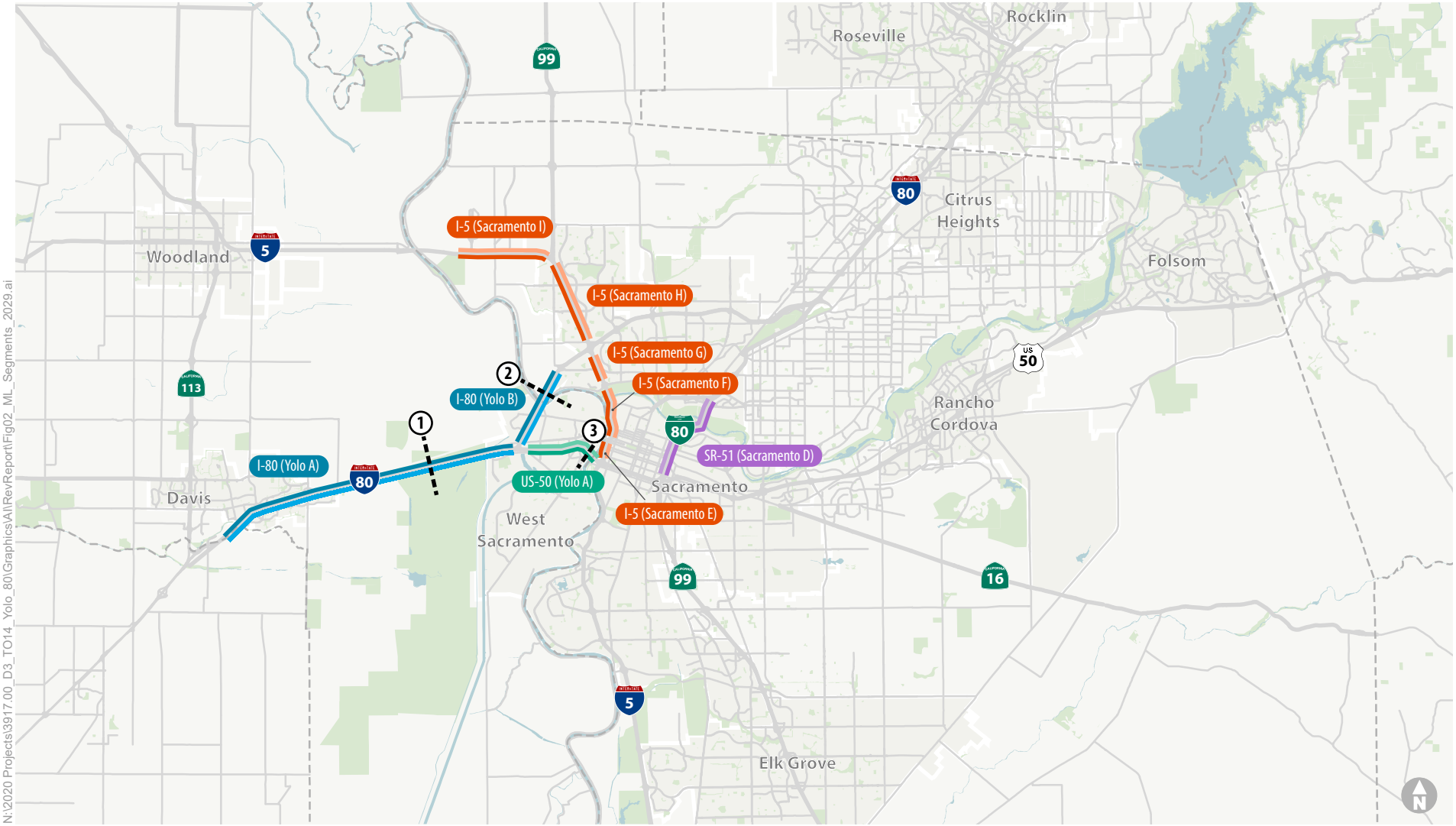
3. Regional Managed Lane Network

The tolled alternatives are part of a larger regional managed lane network developed by Caltrans and the Sacramento Area Council of Governments (SACOG) as part of the 2020 MTP/SCS. The ultimate network includes priced lanes throughout the region, but the development of those lanes has not yet been finalized. For example, some lanes may start as HOV lanes and then transition to HOT or fully tolled as demand and congestion warrant. For this study, Caltrans has identified the tolled lane configurations for the regional managed lanes network as shown in **Figures 2** (2029 Conditions) and **3** (2049 Conditions).

As part of the configurations, each tolled corridor has been divided into analysis segments for modeling purposes as depicted on the figures. Segments are used in the SACSIM toll optimization algorithm as explained in Section 4.1. The original toll segments were developed by SACOG for the 2020 MTP/SCS and then used for the I-5 Managed Lanes Project. The segments are described below.

- I-5 was divided into nine modeled toll segments (five segments north of US 50 and four segments south of US 50, all in Sacramento County). The overall I-5 corridor totals approximately 21.6 miles in each direction.
- I-80 was divided into eight modeled toll segments (two segments in Yolo County, five segments in Sacramento County, and one segment in Placer County). The overall I-80 corridor totals approximately 36 miles in each direction.
- US 50 was divided into 10 modeled toll segments (one in Yolo County and nine in Sacramento County, with one portion extending into El Dorado County). The overall US 50 corridor totals approximately 29 miles in each direction.
- SR 51/SR 99 was divided into four modeled toll segments (one segment representing SR 51 north of US 50 and three segments representing SR 99 south of US 50, all in Sacramento County). The overall SR 51/SR 99 corridor totals approximately 15 miles in each direction.

Per Caltrans, the tolled lanes are modeled with continuous access such that drivers can enter and exit at any point like how existing HOV lanes operate in District 3. The priced lanes configurations are for weekday conditions, which is the focus of this study. Other configurations (i.e., controlled entry/exit points) and toll parameters for weekends and holidays are not addressed in this study. For the toll model runs, minimum and maximum toll values were defined. A minimum toll of $0.05 per mile and a maximum toll of $5.00 per mile were assumed (year 2000 dollars)



Corridor Segment Locations

- I-5
- I-80
- SR-51/SR-99
- US-50

X-0 (XX X) Corridor Segment ID

County Line

Screenlines

1. I-80 at Yolo Causeway
2. I-80 at Sacramento River
3. US 50 at Sacramento River

Figure 2

Managed Lanes Segments - 2029 Conditions

Corridor Segment Locations

- I-5
- I-80
- SR-51/SR-99
- US-50

X-0 (XX X) Corridor Segment ID

County Line

Screenlines

1. I-80 at Yolo Causeway
2. I-80 at Sacramento River
3. US 50 at Sacramento River

Figure 3

Managed Lanes Segments - 2049 Conditions

4. Travel Forecasting Methodology

The traffic and revenue forecasts were developed using a modified version of the SACSIM19 activity-based travel demand model. SACOG developed the SACSIM19 model for the *2020 Metropolitan Transportation Plan, Sustainable Communities Strategy (MTP/SCS)*. The model covers the six-county SACOG region, which includes El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties. As a regional forecasting model, modifications to SACSIM19 were necessary to refine the model for local corridor application. Initial modifications were made as part of the Caltrans District 3 I-5 Managed Lanes Project and are documented in the following reports.

- *I-5 Focus Area Travel Demand Model Calibration & Validation Memo* (May 17, 2020)
- *I-5 Managed Lanes Forecast Methodology Memo* (September 25, 2020)

The changes to the model made for the I-5 Managed Lanes Project were incorporated into the version applied for the I-80/US 50 Managed Lanes Project. To inform the modifications necessary for the I-80/US 50 Managed Lanes Project, the model was tested to verify its sensitivity and ability to replicate observed conditions under base year (2016) conditions within the study area. This testing is referred to as validation. Based on the validation findings, calibration was used to refine the model to improve its performance and sensitivity in the study area. Additional details about the base year model validation are provided in *I-80/US 50 Managed Lanes – Base Year Model Validation and Calibration Memorandum* (August 12, 2020).

One enhancement made for the I-5 Managed Lanes Project that is important to note for traffic and revenue study purposes was the modification of the congestion delay equations. As described in the I-5 Traffic and Revenue Report:

> *Additionally, corridor travel time calibration was performed to assure that the model reasonably represented the existing traffic delays along the corridor. To evaluate the managed-lane alternatives using the SACSIM toll module, the model needs to reasonably represent the existing delay along the corridor. For toll facilities, this is particularly important because congestion impacts a user's willingness to pay a toll. To reflect the observed congestion more accurately, the model's congestion delay equations were modified to be more sensitive (i.e., increase vehicular delays) when flow rates reached saturation (i.e., when the link volume-to-capacity (v/c) ratios exceed 1.0). Specifically, the added delay increment was applied as a link travel time multiplier in addition to the model's current multiplicative function.*

While this modification improved the model's sensitivity to travel time delays, the model still has a limitation from its use of static traffic assignment instead of dynamic traffic assignment (DTA). For example, the model completes all origin-destination (OD) trips during peak hours even if the congested travel time would require longer than one hour to complete the trip (see Appendix A). This is not realistic and would not occur with a DTA. Instead, trips would only travel as far as congested speeds would allow within one hour. This type of limitation may overestimate peak hour demand.

4.1 SACSIM19 Toll Module Application

SACSIM19 introduced new capabilities to evaluate facility-based pricing (e.g., tolling individual lanes) and pay-as-you-go (PAYGO) pricing, which includes mileage-based user fees. For this study, the facility-based pricing was applied to forecast travel demand for each of the tolled alternatives under 2029 and 2049 conditions. Specific details about the development of the SACSIM19 pricing capabilities are available as part of the model documentation available at:

https://www.sacog.org/sites/main/files/file-attachments/000_all_test_draft_sacsim19_model_documentation_full.pdf?1601588553

The facility-based pricing module includes an optimization feature that operates iteratively. The goal of a priced facility is to save travel time. To achieve this goal, the price of the facility must dynamically fluctuate based on demand to maintain uncongested travel speeds. The iterative process is summarized below.

- Assign SOV, HOV2, HOV3+, and two-axle commercial vehicle trips to the network using the initial tolls for each segment.
- Calculate the time savings of using the managed lane compared to the adjacent GP lanes for each segment.
- Calculate the value of time (VOT) toll for each segment: the managed lanes time savings multiplied by the average VOT of $17.80 per hour (year 2000 dollars).
- Compute the interim next iteration toll for each segment for SOV:
    - If the v/c ratio in any link of the toll segment is greater than 0.825, and the previous toll is greater than the VOT toll, multiply the segment's current toll by 2. If the interim next iteration toll is greater than the segment toll maximum, use the segment toll maximum.
    - If the v/c ratio is less than 0.825, or the segment's previous toll is less than the VOT toll, adjust the segment's toll down to the VOT toll. If the interim next iteration toll is less than the segment toll minimum, use the segment toll minimum.
- Calculate the actual next iteration toll for each segment for SOV: the weighted average of the previous toll and the interim next iteration toll, using a weight that dampens change more strongly with each toll loop. This successive weighted averaging allows for the segment toll to converge to a more finite point, reducing the amount of toll oscillation as the model progresses through each toll loop.
    - Next iteration toll weight = 1/(toll loop number + 1)
    - Previous toll weight = 1 – next iteration toll weight
- Calculate the actual next iteration toll for HOV2, HOV3+, and two-axle commercial vehicles based on the toll price settings relative to SOV, as previously identified in Table 1.
- Allocate the tolls to each link in the segment proportionally based on length.

- If the maximum change in segment tolls from the previous step is less than $0.05 (year 2000 dollars), stop the optimization; otherwise, repeat up to five times.

Figures 2 and **3** show how the tolled facilities have been divided into analysis segments. The segments were initially developed by SACOG for the 2020 MTP/SCS. Segments were previously modified in the I-5 corridor as part of the I-5 Managed Lanes Project. Segments in this study area were not modified; however, the segment of I-80 between SR 113 and the Solano/Yolo County line was excluded given the project description for the I-80/US 50 Managed Lanes Project.

Since drivers will vary in how much they value their trip/time, their willingness to pay must also be considered. SACSIM19 includes a distributed VOT for all persons in the model with higher VOT more likely for members of higher income households. The distributed nature of the VOT means that some low-income households will have high VOT for select trips and likewise, high income households will have some trips with low VOT. What the model does not include is recognition that some drivers may choose to not use a tolled or priced lane regardless of the travel time savings.

In a presentation at the 2018 TRB Annual Meeting (Unrevealed Preferences: Unexpected Traveler Response to Pricing on Managed Lanes), Mark W. Burris and John F. Brady highlighted a unique limitation of travel demand model representations of driver choices when it comes to priced lanes. They found that demand for priced lanes is modeled assuming that all travelers choose between GP and priced lanes based on the cost and time savings of the priced lanes. Their data from Texas showed that many travelers were, in fact, not making a choice. "Most travelers on those freeways were not choosing—they always used the same lane regardless of travel time and toll. Travelers that used both sets of lanes often made choices that appeared counter intuitive based on travel time savings and toll rate." The analysis revealed that, even among regular commuters, 28.3 to 33.3 percent of drivers choose to never use the priced lanes in one study corridor. These percentages increased to 51.9 to 55.8 percent for the second study corridor.

Combined with the use of static assignment, the traffic and revenue forecasts generated by the SACSIM19 model may overestimate demand levels for tolled lanes. This caution should be noted by reviewers of this report when making subsequent decisions about the design and operation of the tolled alternatives.

4.2 Future Year Model Development

The development of the SACSIM19 model to represent 2029 and 2049 conditions is documented in the *I-80/US 50 Managed Lanes – Forecasts Methodology Memorandum* (November 23, 2020) and the *I-80/US 50 Managed Lanes – Travel Demand Modeling Report* (September 2021). Reviewers should note that the model inputs for land use growth have the largest effect on future travel demand. Land use inputs were not developed for each individual alternative. Instead, the SACOG 2020 MTP/SCS land use forecasts associated with specific model years 2016, 2027, and 2040 were used without modification. Then the resulting vehicle trip tables from the SACSIM19 model were factored to produce 2029 and 2049 vehicle trip tables that were used in the final assignment. This approach limits the sensitivity of the traffic and revenue forecasts to any unique land use effects associated with each alternative.

5. Toll Strategies

The three tolled alternatives included in this study represent increasing levels of pricing influence on travel demand and specific modes. As shown in **Table 1**, SOVs are allowed to access the HOT lanes under Alternatives 3 and 4 by paying a toll if sufficient capacity exists to avoid causing congestion in the lane. Under Alternative 4, the HOV occupancy requirement of the lane increases from 2+ to 3+, which increases the capacity for tolled vehicles (SOV and HOV2). All passenger and commercial vehicle modes are tolled in Alternative 5 except for public transit vehicles. **Table 2** explains the toll treatment for each vehicle type by time of day using the SACSIM19 model. The actual policy for tolling will be developed at a later time once a toll operator is selected and could vary from the model parameters below. For example, existing HOV lanes in District 3 operate from 6 to 10 AM and 3 to 7 PM. If actual tolling periods differ from the SACSIM parameters below, the revenue forecasts would change.

Table 2: Toll Strategy by Mode and Time of Day

	Daytime (7 AM to 8 PM)				Nighttime (8 PM to 7 AM)
Alternative	Double Toll	Full Toll	Half Toll	Free	Free
Alternative 3 (Add HOT2+)	Truck[1]	SOV	--	HOV2+	All
Alternative 4 (Add HOT3+)	Truck	SOV	HOV2	HOV3+	All
Alternative 5 (Add Toll)	Truck	SOV, HOV	--	Transit	All

Note: 1. Truck is limited to two-axle commercial vehicles.
Source: Fehr & Peers (2021)

In the SACSIM19 model, persons are assigned a VOT. If the VOT is high enough, a driver's vehicle trip may be assigned to a managed lane depending on the toll and congestion in the GP lanes. Commercial vehicles (i.e., two-axle trucks) can access the tolled lane, but their toll is twice the toll for passenger vehicles. For Alternative 4, HOVs with two occupants pay half the toll as SOVs. In Alternative 5, all passenger vehicles (SOVs and HOVs) pay the same toll.

5.1 Pricing Objectives

The optimum rate for tolled lanes depends on the specific objectives associated with the use of pricing to influence travel demand. Three common objectives are listed below.

- Maximize toll revenue potential
- Maximize demand in the managed lanes
- Optimize the distribution of traffic between the non-tolled GP lanes and the tolled managed lanes

Other potential objectives could include minimizing vehicle miles of travel (VMT) increases from population and employment growth and improving travel time reliability among others. For purposes of this study, traffic and revenue estimates have been based on weekday toll rates which meet the second objective in the bullet list above, which is, maximizing demand in the managed lane while maintaining the operating speed of 45 mph in the managed lane.

5.2 Toll Operations

The travel forecasting analysis includes the following model input parameters regarding toll operations:

- The tolled lanes would operate during an extended daytime period (from 7 AM to 8 PM) on weekdays only.
- The minimum toll is $0.05 per mile while the maximum toll is $5.00 per mile.
- No discounts for clean air vehicles are allowed.
- Tolls will be varied dynamically – as the usage of the managed lanes increases, toll rates will be increased to restrict SOV access to the managed lane to maintain average travel speeds of 45 mph or higher.
- The tolled lanes will provide continuous or near-continuous access for the length of the corridors, consistent with existing HOV lane operation in the Sacramento region. Access to the lanes will be restricted using striping only for segments that experience significant operational issues, such as system interchanges.
- Before entering the tolled lanes, a driver would be informed of the toll through electronic signage consistent with MUTCD and Caltrans standards. The toll at the time of entry to the system would remain constant for the user regardless of toll changes that may occur while the driver is in the system.
- All tolls would be collected electronically without 'toll booths' like the existing FasTrak system.
- HOV users of the HOT lanes would rely on a switchable toll transponder like FasTrak Flex allowing the user to indicate the number of occupants in the vehicle to be eligible for free access or a discounted toll.
- Enforcement areas would be provided along the HOT lanes, where possible.
- Two-axle commercial vehicles may use the managed lanes at double the SOV tolls.
- Medium and heavy trucks are prohibited from using the tolled lanes.
- For planning purposes, toll leakage (uncollected tolls) has been estimated at 10 percent in this analysis, as discussed in Section 6.3.4. To the extent that toll violators contribute to leakage, operational issues may also occur in the tolled lane. For example, a Caltrans research investigation of HOT lanes on I-10 in Los Angeles revealed HOV3+ volumes of over 1,400 in the HOT lane based on FasTrak transponder estimates compared to manual counts revealing less than 400 of these vehicles (Kurzhanskiy, 2019). The same study identified that 84 percent of HOT lane users

should be paying compared to only 50 percent that do. This ratio of 84 to 50 indicates the toll leakage may exceed 10 percent. This type of violation can lead to substantial degradation of the tolled lane performance and affect expected revenue.

6. Traffic and Revenue Forecasts

The traffic and revenue forecasts were developed for 2029 and 2049 conditions for each tolled alternative. For the purposes of this study, the specific traffic output metrics include vehicle and person trips by mode (SOV, HOV2, HOV3+, two-axle truck) and lane type (GP, HOT2+, HOT3+, Toll). Other metrics such as transit ridership is not included but is available in the *I-80/US 50 Managed Lanes – Travel Demand Modeling Report* (September 2021).

These metrics are reported below for the Yolo Causeway screenline in the middle of the I-80/US 50 Managed Lanes Project corridor. The final revenue forecasts are based on more detailed traffic volume forecasts recorded for toll segments I-80 Yolo A, I-80 Yolo B, and US 50 Yolo A shown in **Figures 2** and **3**. The screenline location is also shown on the graphics.

6.1 Vehicle Trips

Vehicle trip forecasts are summarized below for I-80 at the Yolo Causeway screenline under 2029 and 2049 conditions, respectively. Directional vehicle trips on I-80 at the Yolo Causeway, and vehicle trips on I-80 at the Sacramento River and US 50 at the Sacramento River, are provided in **Appendix C**.

Table 3 shows that the 2029 two-way total managed lane volume for Alternatives 3 through 5 ranges between 2,939 and 3,176 vehicle trips in the AM peak hour, 3,139 and 3,444 vehicle trips in the PM peak hour, and 41,263 and 50,895 daily on I-80 at the Yolo Causeway.

Table 4 reflects similar results in 2049 with the managed lane vehicle trips ranging from 3,104 and 3,329 during the AM peak hour, 3,046 and 4,086 during the PM peak hour, and 46,930 and 55,075 daily.

Key observations about these volumes are listed below.

- AM and PM peak hour volumes (2029 and 2049) show no HOVs using the GP lanes in alternatives where HOVs using the managed lanes are not tolled. In general, some HOVs will remain in the GP lanes as evidenced by the research noted above and general observation of other freeway corridors in California.
- PM peak hour volumes (2029 and 2049) are high enough in the managed lanes to exceed the flow levels necessary to maintain desired speeds. The use of static assignment and maximum tolls may contribute to this outcome.
- As tolling levels increase from Alternative 3 (Add HOT2+) to Alternative 5 (Add Toll), HOV demand decreases under 2029 and 2049 conditions. Basically, the ability of SOVs to pay for faster travel times diminishes the value of forming carpools. In addition, the overall volume and VMT along the corridor slightly decreases from Alternative 3 (Add HOT2+) to Alternative 5 (Add Toll).

Table 3: 2029 Two-Way Total Vehicle Trips on I-80 at the Yolo Causeway

Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll	Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll	Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll
General Purpose Lanes	SOV	8,043	7,511	7,226	9,933	8,934	8,335	105,816	99,274	95,308
	HOV2	0	719	696	0	1,088	1,097	2,628	15,965	15,354
	HOV3+	0	0	424	0	0	551	1,539	1,781	8,456
	CV[1]	2,124	1,958	1,864	2,094	1,888	1,758	33,838	32,135	30,517
	Total	10,166	10,187	10,209	12,026	11,908	11,740	143,822	149,153	149,633
Managed Lanes	SOV	789	1,237	1,540	0	756	1,318	7,134	12,232	16,072
	HOV2	1,317	531	559	2,250	993	996	26,026	11,648	12,323
	HOV3+	839	880	378	1,194	1,232	529	14,786	14,984	7,209
	CV[1]	230	375	462	0	169	295	2,949	4,138	5,660
	Total	3,176	3,024	2,939	3,444	3,149	3,139	50,895	43,001	41,263
All Lanes	SOV	8,831	8,748	8,767	9,933	9,688	9,653	112,950	111,506	111,380
	HOV2	1,317	1,250	1,254	2,250	2,080	2,093	28,654	27,613	27,676
	HOV3+	839	880	802	1,194	1,232	1,081	16,325	16,765	15,665
	CV[1]	2,354	2,333	2,326	2,094	2,057	2,054	36,787	36,271	36,175
	Total	13,343	13,210	13,148	15,470	15,058	14,880	194,716	192,155	190,897
Tolled Vehicles		1,019	2,143	2,939	0	1,918	3,138	10,083	28,018	41,264

Notes: Totals may not add up due to rounding.
1. CV – commercial vehicles comprised of two-axle, medium, and heavy trucks.
Source: Fehr & Peers (2021)

Table 4: 2049 I-80 Two-Way Total Vehicle Trips at the Yolo Causeway

Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll	Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll	Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll
General Purpose Lanes	SOV	8,823	8,289	7,760	10,591	9,659	9,085	115,841	106,977	101,014
	HOV2	0	739	776	0	1,196	1,182	3,536	19,038	17,778
	HOV3+	0	0	514	0	0	635	2,168	2,866	10,305
	CV[1]	2,076	1,910	1,774	1,987	1,833	1,710	35,020	32,091	30,361
	Total	10,900	10,937	10,826	12,578	12,689	12,613	156,566	160,974	159,457
Managed Lanes	SOV	612	1,124	1,570	0	505	1,062	6,525	12,872	18,840
	HOV2	1,502	613	632	2,636	1,075	1,125	28,988	11,629	13,470
	HOV3+	1,042	1,109	455	1,451	1,663	633	17,149	17,678	8,229
	CV[1]	173	316	448	0	108	226	2,412	4,800	6,391
	Total	3,329	3,162	3,104	4,086	3,352	3,046	55,075	46,979	46,930
All Lanes	SOV	9,435	9,413	9,330	10,591	10,164	10,148	122,366	119,849	119,854
	HOV2	1,502	1,352	1,409	2,636	2,271	2,307	32,523	30,667	31,248
	HOV3+	1,042	1,109	969	1,451	1,664	1,269	19,317	20,544	18,534
	CV[1]	2,249	2,226	2,222	1,987	1,941	1,936	37,433	36,891	36,752
	Total	14,229	14,100	13,930	16,664	16,040	15,659	211,641	207,953	206,387
Tolled Vehicles		785	2,053	3,105	0	1,688	3,046	8,937	29,301	46,930

Notes: Totals may not add up due to rounding.
1. CV – commercial vehicles comprised of two-axle, medium, and heavy trucks.
Source: Fehr & Peers (2021)

6.2 Person Trips

Tables 5 and **6** summarize the person trip forecasts on I-80 at the Yolo Causeway screenline under 2029 and 2049 conditions, respectively. Directional person trips on I-80 at the Yolo Causeway, and person trips on the I-80 at Sacramento River and the US 50 at Sacramento River screenlines are provided in **Appendix D**.

Person trips were estimated assuming one person per single occupant vehicle, two persons per HOV2 vehicle, 3.4 persons per HOV3+ vehicle, and one person per commercial vehicle. The persons per vehicle factors, primarily for HOV3+, are consistent with the factors used in the SACSIM19 model. The person

volume comparison between alternatives aligns with the vehicle volume comparison presented in the previous tables.

In addition, average vehicle occupancy in the managed lane decreases between Alternative 3 (Add HOT2+) and Alternative 5 (Add Toll) from 2.05 to 1.50 persons per vehicle in the AM peak hour, from 2.49 to 1.72 in the PM peak hour, and from 2.21 and 1.72 daily under 2029 conditions. The overall average vehicle occupancy for the screenline of I-80 at the Yolo Causeway remains about the same between alternatives, with an average of about 1.35 persons per vehicle daily.

Table 5: 2029 Two-Way Total Person Trips on I-80 at the Yolo Causeway

Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll	Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll	Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll
General Purpose Lanes	SOV	8,043	7,511	7,226	9,933	8,934	8,335	105,816	99,274	95,308
	HOV2	0	1,438	1,392	0	2,176	2,194	5,256	31,930	30,708
	HOV3+	0	0	1,442	0	0	1,873	5,233	6,055	28,750
	CV[1]	2,124	1,958	1,864	2,094	1,888	1,758	33,838	32,135	30,517
	Total	10,167	10,907	11,924	12,027	12,998	14,160	150,143	169,394	185,283
	Average Occupancy	**1.00**	**1.07**	**1.17**	**1.00**	**1.09**	**1.21**	**1.04**	**1.14**	**1.24**
Managed Lanes	SOV	789	1,237	1,540	0	756	1,318	7,134	12,232	16,072
	HOV2	2,634	1,062	1,118	4,500	1,986	1,992	52,052	23,296	24,646
	HOV3+	2,853	2,992	1,285	4,060	4,189	1,799	50,272	50,946	24,511
	CV[1]	230	375	462	0	169	295	2,949	4,138	5,660
	Total	6,506	5,666	4,405	8,560	7,100	5,404	112,407	90,612	70,889
	Average Occupancy	**2.05**	**1.87**	**1.50**	**2.49**	**2.25**	**1.72**	**2.21**	**2.11**	**1.72**
All Lanes	SOV	8,831	8,748	8,767	9,933	9,688	9,653	112,950	111,506	111,380
	HOV2	2,634	2,500	2,508	4,500	4,160	4,186	57,308	55,226	55,352
	HOV3+	2,853	2,992	2,727	4,060	4,189	3,675	55,505	57,001	53,261
	CV[1]	2,354	2,333	2,326	2,094	2,057	2,054	36,787	36,271	36,175
	Total	16,672	16,573	16,328	20,587	20,094	19,568	262,550	260,004	256,168
	Average Occupancy	**1.25**	**1.25**	**1.24**	**1.33**	**1.33**	**1.32**	**1.35**	**1.35**	**1.34**

Notes: Totals may not add up due to rounding.
1. CV – commercial vehicles comprised of two-axle, medium, and heavy trucks.
Source: Fehr & Peers (2021)

Table 6: 2049 I-80 Two-Way Total Person Trips at the Yolo Causeway

Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll	Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll	Alt 3 HOT2+	Alt 4 HOT3+	Alt 5 Toll
General Purpose Lanes	SOV	8,823	8,289	7,760	10,591	9,659	9,085	115,841	106,977	101,014
	HOV2	0	1,478	1,552	0	2,392	2,364	7,072	38,076	35,556
	HOV3+	0	0	1,748	0	0	2,159	7,371	9,744	35,037
	CV[1]	2,076	1,910	1,774	1,987	1,833	1,710	35,020	32,091	30,361
	Total	10,899	11,677	12,834	12,578	13,884	15,318	165,304	186,888	201,968
	Average Occupancy	**1.00**	**1.07**	**1.19**	**1.00**	**1.09**	**1.21**	**1.06**	**1.16**	**1.27**
Managed Lanes	SOV	612	1,124	1,570	0	505	1,062	6,525	12,872	18,840
	HOV2	3,004	1,226	1,264	5,272	2,150	2,250	57,976	23,258	26,940
	HOV3+	3,543	3,771	1,547	4,933	5,654	2,152	58,307	60,105	27,979
	CV[1]	173	316	448	0	108	226	2,412	4,800	6,391
	Total	7,332	6,437	4,829	10,205	8,417	5,690	125,220	101,035	80,150
	Average Occupancy	**2.20**	**2.04**	**1.56**	**2.50**	**2.51**	**1.87**	**2.27**	**2.15**	**1.71**
All Lanes	SOV	9,435	9,413	9,330	10,591	10,164	10,148	122,366	119,849	119,854
	HOV2	3,004	2,704	2,818	5,272	4,542	4,614	65,046	61,334	62,496
	HOV3+	3,543	3,771	3,295	4,933	5,658	4,315	65,678	69,850	63,016
	CV[1]	2,249	2,226	2,222	1,987	1,941	1,936	37,433	36,891	36,752
	Total	18,231	18,114	17,665	22,783	22,305	21,013	290,523	287,924	282,118
	Average Occupancy	**1.28**	**1.28**	**1.27**	**1.37**	**1.39**	**1.34**	**1.37**	**1.38**	**1.37**

Notes: Totals may not add up due to rounding.
1. CV – commercial vehicles comprised of two-axle, medium, and heavy trucks.
Source: Fehr & Peers (2021)

In 2049, average vehicle occupancy in the managed lane decreases between Alternative 3 (Add HOT2+) and Alternative 5 (Add Toll) from 2.20 to 1.56 persons per vehicle in the AM peak hour, from 2.50 to 1.87 in the peak hour, and from 2.27 to 1.71 daily. Similarly, the overall average vehicle occupancy for I-80 at the Yolo Causeway remains about the same between alternatives, with an average of 1.37 persons per vehicle daily.

6.3 Revenue Forecasts

6.3.1 Toll Revenue Forecasting Methodology

The gross toll revenue forecasted in this study is derived from the SACSIM19 link-based vehicle trips by mode and lane type presented above. The model accounts for toll-qualifying trips in each toll segment and their length. These values are multiplied by the corresponding toll prices per mile to produce forecasts for each toll segment that are then aggregated to full corridor length. The model does not restrict any portion of the driver population from using the tolled lanes. This may lead to an overestimate of demand since some drivers may never use the toll lane as reported in the Burris and Brady research study. The revenue methodology also does not account for potential revenue from toll lane violations. According to the I-10 research study cited above, 20 to 40 percent of HOT lane revenue for I-10 was from violation fines.

6.3.2 Gross Toll Revenue

Tables 7 and **8** summarize gross toll revenue results for each tolled alternative under 2029 and 2049 conditions, respectively. Results are presented for each direction on the I-80 segment between the Solano/Yolo County line and US 50 (I-80 Yolo A), the I-80 segment between US 50 and West El Camino Avenue (I-80 Yolo B), and the US 50 segment between I-80 and I-5 (US 50 Yolo A). All dollar values are reported in 2021 dollars.

The SACSIM model assesses costs and VOT in year 2000 dollars. All tolls and revenues in this section have been updated to 2021 dollars (an increase of 61 percent over 2000 dollars) using the Consumer Price Index (CPI). Annual revenue assumes 250 tolled weekdays per year. Net revenue is presented in Section 6.3.5.

The highest optimized toll occurs during the PM peak hour for I-80 Yolo A under Alternative 3. For that scenario, the maximum toll of $5.00 per mile (or $8.05 per mile in 2021 dollars) is reached given the high demand volume. Alternatives 4 and 5 for this segment also have the highest toll although the value is less than the maximum.

Under 2029 conditions, Alternative 4 (Add HOT3+) would generate almost 12 times the revenue of Alternative 3 (Add HOT2+), while Alternative 5 (Add Toll) would generate about 1.7 times that of Alternative 4.

In 2049, Alternative 4 would generate almost 15 times the revenue of Alternative 3, and Alternative 5 would generate about 1.7 times that of Alternative 4. These outcomes would depend on whether the demand volumes are fully realized, which is unlikely for the reasons presented above.

Table 7: 2029 Toll Cost and Gross Revenue (Year 2021 Dollars)

Summary	Direction	Alt 3 (Add HOT2+)			Alt 4 (Add HOT3+)			Alt 5 (Add Toll)		
		I-80 Yolo A	I-80 Yolo B	US 50 Yolo A	I-80 Yolo A	I-80 Yolo B	US 50 Yolo A	I-80 Yolo A	I-80 Yolo B	US 50 Yolo A
Minimum Toll (Off-Peak)	EB	$0.82	$0.35	$0.29	$0.82	$0.39	$0.29	$0.82	$0.40	$0.29
	WB	$0.85	$0.27	$0.31	$0.85	$0.27	$0.31	$0.85	$0.27	$0.31
AM Peak Hour Toll	EB	$0.85	$0.39	$0.37	$0.85	$0.42	$0.35	$0.82	$0.42	$0.29
	WB	$4.13	$0.48	$0.40	$2.84	$0.53	$0.40	$2.22	$0.55	$0.37
PM Peak Hour Toll	EB	**$80.30**	$0.53	$26.48	$14.34	$0.61	$1.59	$16.59	$0.63	$1.09
	WB	**$83.83**	$0.27	$1.35	$12.08	$0.29	$1.27	$9.33	$0.31	$0.77
Daily Gross Revenue	EB	$840	$0	$281	$17,170	$208	$3,182	$33,961	$408	$4,568
	WB	$1,469	$0	$721	$15,451	$353	$3,070	$23,956	$678	$4,250
Total Daily Gross Revenue		$3,310			$39,435			$67,821		
Total Annual Gross Revenue		$827,600			$9,858,600			$16,955,200		

Note: Bold values denote that segment reached the maximum per mile toll.
Source: Fehr & Peers (2021)

Table 8: 2049 Toll Cost and Gross Revenue (Year 2021 Dollars)

Summary	Direction	Alt 3 (Add HOT2+)			Alt 4 (Add HOT3+)			Alt 5 (Add Toll)		
		I-80 Yolo A	I-80 Yolo B	US 50 Yolo A	I-80 Yolo A	I-80 Yolo B	US 50 Yolo A	I-80 Yolo A	I-80 Yolo B	US 50 Yolo A
Minimum Toll (Off-Peak)	EB	$0.82	$0.27	$0.29	$0.82	$0.27	$0.29	$0.84	$0.27	$0.29
	WB	$0.85	$0.31	$0.32	$0.85	$0.31	$0.31	$0.87	$0.31	$0.31
AM Peak Hour Toll	EB	$1.83	$0.27	$26.48	$1.59	$0.27	$3.50	$1.16	$0.27	$3.23
	WB	$11.48	$0.92	$1.88	$9.54	$0.64	$1.69	$7.97	$0.63	$1.08
PM Peak Hour Toll	EB	**$80.30**	$0.79	$26.48	$28.91	$0.50	$14.29	$22.50	$0.34	$7.51
	WB	**$83.83**	$0.31	$28.55	$23.62	$0.31	$3.39	$16.69	$0.31	$2.52
Daily Gross Revenue	EB	$952	$105	$94	$23,879	$1,174	$3,789	$44,183	$1,628	$8,914
	WB	$1,260	$408	$1,197	$24,804	$1,227	$5,277	$39,903	$2,011	$7,669
Total Daily Gross Revenue		$4,016			$60,151			$104,307		
Total Annual Gross Revenue		$1,003,900			$15,037,500			$26,076,800		

Notes: Bold values denote that segment reached the maximum per mile toll.
Source: Fehr & Peers (2021)

Under 2029 and 2049 conditions, there would be limited capacity to sell to toll-paying vehicles (SOVs) under Alternative 3 (Add HOT2+). The high level of HOVs in the corridor and the model's forecast that almost all of them would use the managed lane contribute to this outcome, which is unlikely as presented above. The US 50 Yolo A and I-80 Yolo B segments do not have as much congestion during the peak hours; therefore, travel times in the GP and managed lanes are similar and reduce the benefit of paying to use the managed lane. The I-80 Yolo B segment in particular lacks sufficient congestion to generate any toll revenue under 2029 conditions.

The revenue results presented are only for the I-80/US 50 Managed Lanes portion of the larger regional managed lane network as previously identified in **Figure 2** for 2029 conditions and **Figure 3** for 2049 conditions.

6.3.3 Toll Operating and Maintenance Costs

Caltrans District 3 provided information on toll operating and maintenance (O&M) costs collected by DKS from corridors in District 4 as summarized in **Table 9**.

Table 9: Toll Lane O&M Cost Data and Estimates

Agency/Toll Lane Facility	Length (lane - miles)	Operating Expense	Operating Expense per lane-mile	Source	Dollar Year
Sunol Smart Carpool Lane Joint Powers Authority - I-680 Southbound	13.3	$1,880,000	$141,350	Financial Report – Fiscal Year (FY) 2019-20	2020
Bay Area Infrastructure Financing Authority - I-680 (Contra Costa County)	23.0	$7,341,837	$319,210	Financial Report – 2019	2020
Alameda County Transportation Commission - I-580	30.0	$5,912,000	$197,070	Managed Lane 20 Year Plan Projected FY 2019-20	2020

Source: Caltrans District 3 (2021)

The average operating expense per lane-mile for the three facilities is $219,210, which was rounded to $220,000 per lane-mile for the I-5 Managed Lanes Project (in 2020 dollars). For this study, the O&M lane-mile cost was inflated to $231,000 for 2021 dollars. The total I-80/US 50 Managed Lanes corridor length subject to tolling is 34.5 lane-miles.[1] Based on the average per lane-mile O&M cost, the total annual O&M cost is estimated to be $7,969,500. Note that the range of per lane-mile O&M costs included a high-end estimate of $335,171 (in 2021 dollars) that would increase the annual O&M cost to $11,563,400. Both the average and the high-end estimate will be used when discounting the gross revenue forecasts. The rationale

[1] The total managed lanes coded in the SACSIM19 model for the I-80/US 50 Managed Lanes corridor consist of 20.5 lane-miles on I-80 between the Solano County line and US 50, 6.9 lane-miles on US 50 between I-80 and I-5, and 7.1 lane-miles on I-80 between US 50 and west of West El Camino Avenue.

for this approach is that District 3 does not have existing tolled facilities and any new facility may experience higher costs initially until the system matures.

6.3.4 Revenue Leakage

Revenue leakage refers to a reduction in toll revenue due to transactions where no revenue is collected, or revenue is not fully collected. With electronic tolling systems where drivers are charged a toll without having to stop or slow down, revenue leakage is caused by the system or users. System failures typically relate to the inability to complete the toll transaction usually due to incomplete data about the vehicle or its license. Users cause leakage primarily when they avoid toll payment, which is common in some HOT lane corridors. A detailed list of revenue leakage sources identified in the *I-5 Traffic and Revenue Report* (August 2021) is provided below.

System Causes

- Collection system failures (system down, camera failure, etc.)
- Damaged/obstructed plate images
- Transponder failures
- License plate database issues (no record, bad addresses, etc.)
- Foreign plates

User Causes

- Nonpayment of invoices
- Intentional obstruction of license plates/no plate
- Unregistered vehicles
- Incorrect setting on flex transponders including violations related to misrepresenting vehicle occupancy levels

The actual percentage of gross revenue lost to leakage tends to decline over time as users become more familiar with tolled operations. Caltrans has agreed to use a 10 percent revenue leakage for this project. However, high rates of violators may contribute to greater losses, which could compound financial performance issues if violators also cause the managed lanes to become congested, thereby reducing their use.

6.3.5 Forecasted Annual Net Operating Toll Revenue

Tables 10 and **11** present the forecasted annual net operating toll revenue for each alternative under 2029 and 2049 conditions, respectively. It should be noted that these forecasts do not include other major costs, such as the start-up costs of establishing a toll agency or the capital civil construction and toll collection

equipment costs of implementing the priced lanes. Travel demand model limitations also influence the revenue forecasts.

Table 10: Estimated 2029 Annual Net Operating Toll Revenue (Year 2021 Dollars)

Summary	Alt 3 (Add HOT2+)	Alt 4 (Add HOT3+)	Alt 5 (Add Toll)
Daily Gross Revenue	$3,310	$39,435	$67,821
Annual Gross Revenue	$827,500	$9,858,700	$16,955,200
Estimated Revenue Leakage	$82,750	$985,870	$1,695,520
Average Annual O&M Cost	$7,969,500	$7,969,500	$7,969,500
High Annual O&M Cost	$11,563,400	$11,563,400	$11,563,400
Net Operating Toll Revenue (based on average O&M cost)	-$7,224,750	$903,330	$7,290,180
Net Operating Toll Revenue (based on high O&M cost)	-$10,818,650	-$2,690,570	$3,696,280

Source: Fehr & Peers (2021)

Table 11: Estimated 2049 Annual Net Operating Toll Revenue (Year 2021 Dollars)

Summary	Alt 3 (Add HOT2+)	Alt 4 (Add HOT3+)	Alt 5 (Add Toll)
Daily Gross Revenue	$4,016	$60,151	$104,307
Annual Gross Revenue	$1,004,000	$15,037,600	$26,076,900
Estimated Revenue Leakage	$100,400	$1,503,760	$2,607,690
Average Annual O&M Cost	$7,969,500	$7,969,500	$7,969,500
High Annual O&M Cost	$11,563,400	$11,563,400	$11,563,400
Net Operating Toll Revenue (based on average O&M cost)	-$7,065,900	$5,564,340	$15,499,710
Net Operating Toll Revenue (based on high O&M cost)	-$10,659,800	$1,970,440	$11,905,810

Source: Fehr & Peers (2021)

In 2029, the I-80/US 50 Managed Lanes would operate at a net loss in Alternative 3 (Add HOT2+) based on the SACSIM19 forecasts. Both Alternative 4 (Add HOT3+) and Alternative 5 (Add Toll) would have a positive net revenue. Under the higher level of potential O&M costs, Alternative 4 would operate at a net loss. Alternative 5 would provide the highest net operating toll revenue of almost $7.3 million annually in 2029 using average O&M costs and considering that all vehicles would be tolled. Given the modeling limitations, these revenue forecasts are appropriate for alternative comparison, but the actual values are likely to differ.

In 2049, the I-80/US 50 Managed Lanes would continue to operate at a net loss in Alternative 3 (Add HOT2+) and with positive net revenue in Alternative 4 (Add HOT3+) and Alternative 5 (Add Toll) based on the

SACSIM19 forecasts. Alternative 5 would continue provide the highest net operating toll revenue of approximately $15.5 million annually in 2049 using average O&M costs and considering all vehicles would be tolled. Given the modeling limitations, these revenue forecasts are appropriate for alternative comparison, but the actual values are likely to differ.

7. Summary of Toll Forecasts

This study provides a planning-level forecast of the ***weekday demand and revenue*** associated for each of the tolled alternatives proposed as part of the I-80/US Managed Lanes Project based on the SACSIM19 travel demand model. More detailed investment-grade revenue studies would be necessary to accurately assess system revenue. The following items summarize key findings associated with the toll forecasts.

- The SACSIM19 model has limitations that affect the travel demand forecasts used in the revenue forecasts. These limitations may contribute to an overestimate of demand but would not alter the comparative differences between alternatives.
- The forecasts can be improved through enhancing the model's sensitivity to travel time, toll lane access points, toll collection schemes, and refining the user preferences for toll lane use. These types of improvements would be particularly important for an investment-grade analysis.
- Given the high demand volumes that occur on weekends and holidays in the corridor, opportunities exist to increase revenue generation by extending the tolling period and operating scheme beyond the weekday daytime hours of 7 AM to 8 PM.
- Alternative 3 (Add HOT2+) results in negative net revenues in 2029 and 2049 due to the high demand by HOVs filling the managed lane and limiting the capacity available for toll paying SOVs.
- Alternative 4 (Add HOT3+) results in negative net revenues in 2029 and positive net revenues in 2049 as more HOVs are tolled.
- Alternative 5 (Add Toll) results in positive net toll revenues in 2029 and 2049. However, as all HOVs are tolled, this alternative reduces HOV demand compared to Alternative 3 and 4. Alternative 5 also reduces total vehicle trips and vehicle miles traveled (VMT), person trips, and vehicle occupancy in the corridor as compared to Alternatives 3 and 4.

8. References

The references cited in this report are listed below.

- *2020 Metropolitan Transportation Plan, Sustainable Communities Strategy (MTP/SCS),* SACOG, November 18, 2019. https://www.sacog.org/2020-metropolitan-transportation-plansustainable-communities-strategy-update
- Burris, M. and J. Brady. Unrevealed Preferences: Unexpected Traveler Response to Pricing on Managed Lanes, 2018 TRB Annual Meeting. https://trid.trb.org/view/1496176
- Kurzhanskiy, Alex A. Modeling and Control of HOT lane – Phase II – Toolbox development for efficient quantitative assessment of operational scenarios on freeways with managed lanes. UC Berkeley Path Program. Caltrans, June 3, 2019. https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/final-reports/ca18-3109-finalreport-a11y.pdf

Appendix

A. Congested Travel Time Comparisons

B. Toll Segment IDs from SACSIM19 Model

C. Detailed Vehicle Volume Tables

D. Detailed Person Volume Tables

Appendix A:

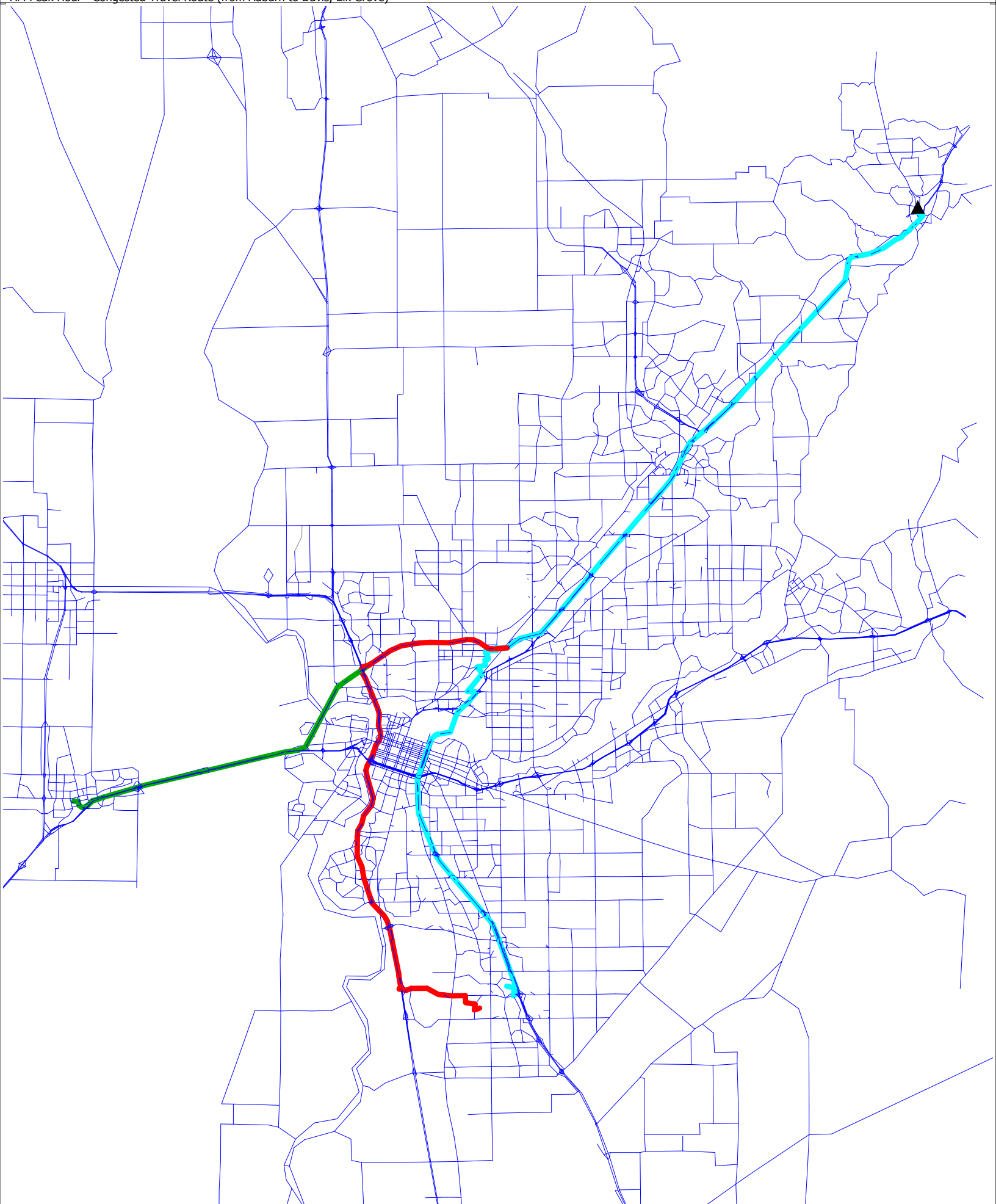
Congested Travel Time Comparisons

Congested Travel Time (Minutes) from SACSIM19 Model

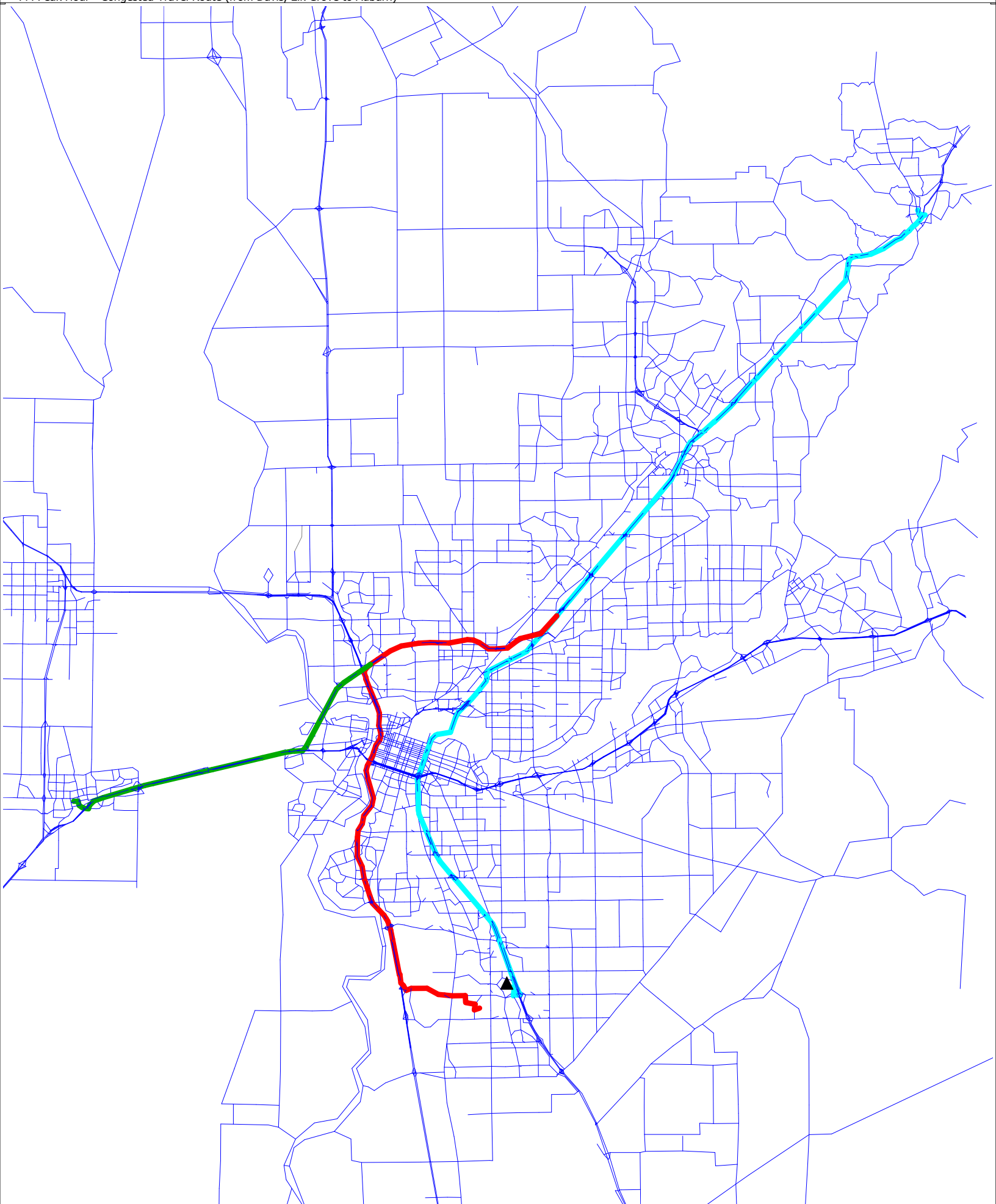
	2029 Add HOT 2				2029 Add HOT 3+				2029 Add Express Lane			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Origin/Destination	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes
Auburn to Davis	75	60	62	56	74	59	62	55	75	58	62	54
Auburn to Elk Grove* (*near Laguna Blvd / Bruceville Rd midway between I-5 & SR 99)	75	64	70	64	74	63	70	62	74	62	69	61
Auburn to Elk Grove* (*near W Stockton Blvd / Lewis Stein Rd adjacent to SR 99)	73	64	69	62	72	63	68	60	72	62	67	59
Davis to Auburn	58	53	76	64	59	52	75	61	59	52	73	60
Elk Grove* to Auburn (*near Laguna Blvd / Bruceville Rd midway between I-5 & SR 99)	69	59	74	67	68	59	73	65	68	58	72	63
Elk Grove* to Auburn (*near W Stockton Blvd / Lewis Stein Rd adjacent to SR 99)	66	56	71	65	65	56	70	63	64	55	69	61

	2049 Add HOT 2				2049 Add HOT 3+				2049 Add Express Lane			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Origin/Destination	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes	GP Lanes	HOV / Managed Lanes
Auburn to Davis	85	68	69	63	86	61	71	56	87	58	72	54
Auburn to Elk Grove* (*near Laguna Blvd / Bruceville Rd midway between I-5 & SR 99)	84	73	78	72	85	66	80	62	86	63	82	58
Auburn to Elk Grove* (*near W Stockton Blvd / Lewis Stein Rd adjacent to SR 99)	82	73	76	69	82	65	78	59	83	62	79	55
Davis to Auburn	62	54	86	77	64	52	87	66	65	52	88	61
Elk Grove* to Auburn (*near Laguna Blvd / Bruceville Rd midway between I-5 & SR 99)	73	63	79	76	75	57	81	66	76	54	82	62
Elk Grove* to Auburn (*near W Stockton Blvd / Lewis Stein Rd adjacent to SR 99)	70	60	77	74	71	54	79	65	72	52	80	61

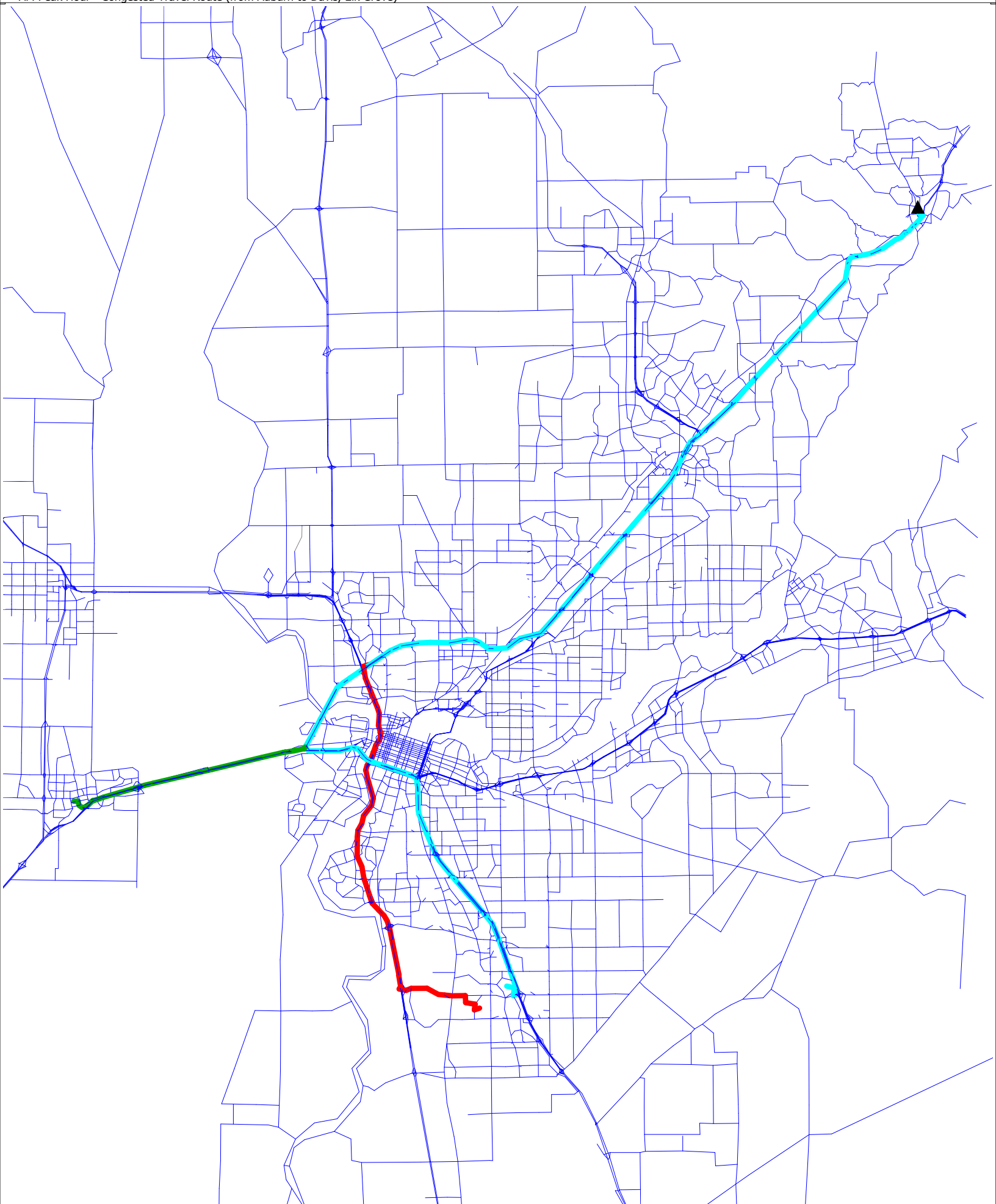
SACSIM
2029 Traffic & Revenue Alternatives
AM Peak Hour - Congested Travel Route (from Auburn to Davis, Elk Grove)



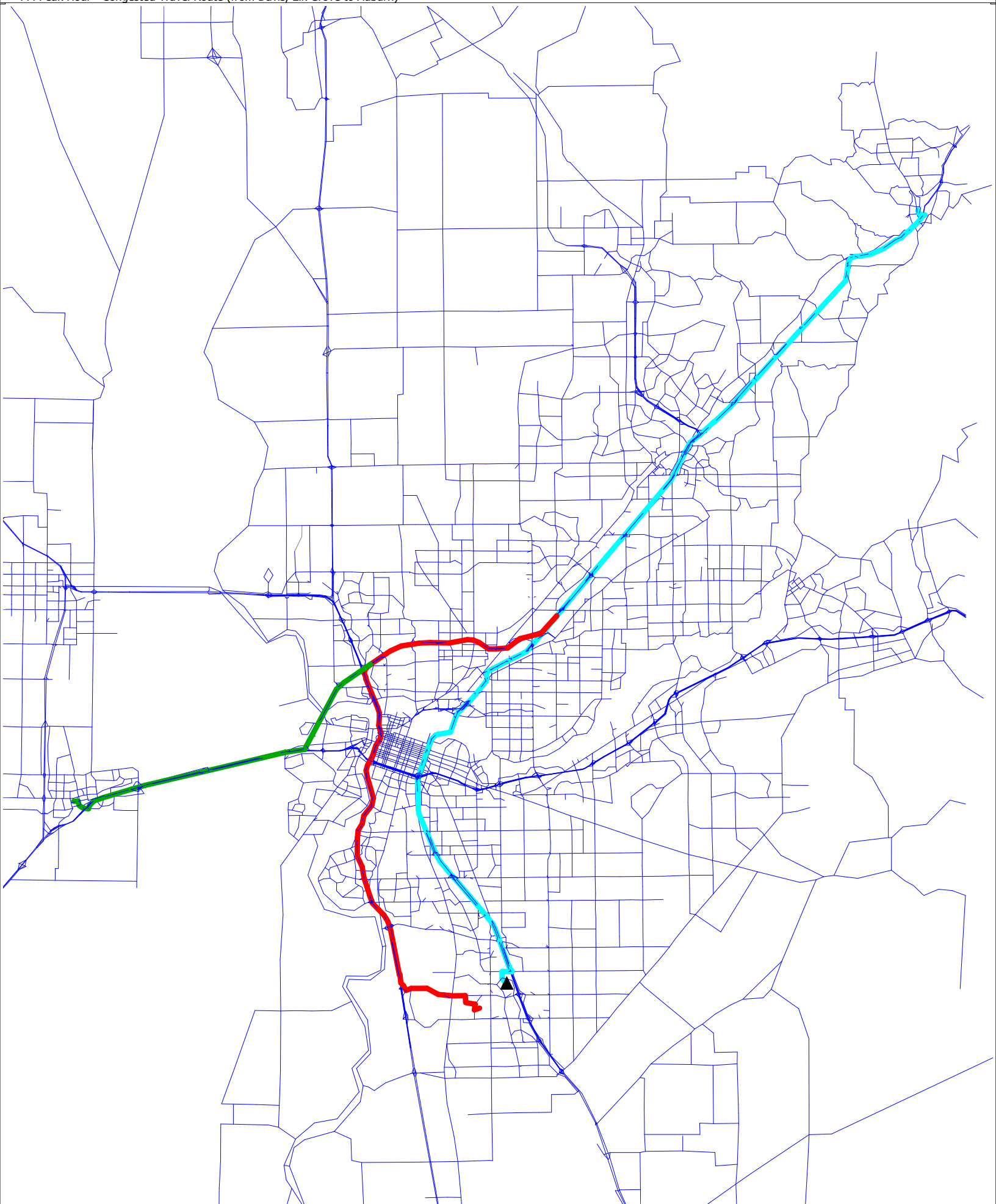
SACSIM
2029 Traffic & Revenue Alternatives
PM Peak Hour - Congested Travel Route (from Davis, Elk Grove to Auburn)



SACSIM
2049 Traffic & Revenue Alternatives
AM Peak Hour - Congested Travel Route (from Auburn to Davis, Elk Grove)

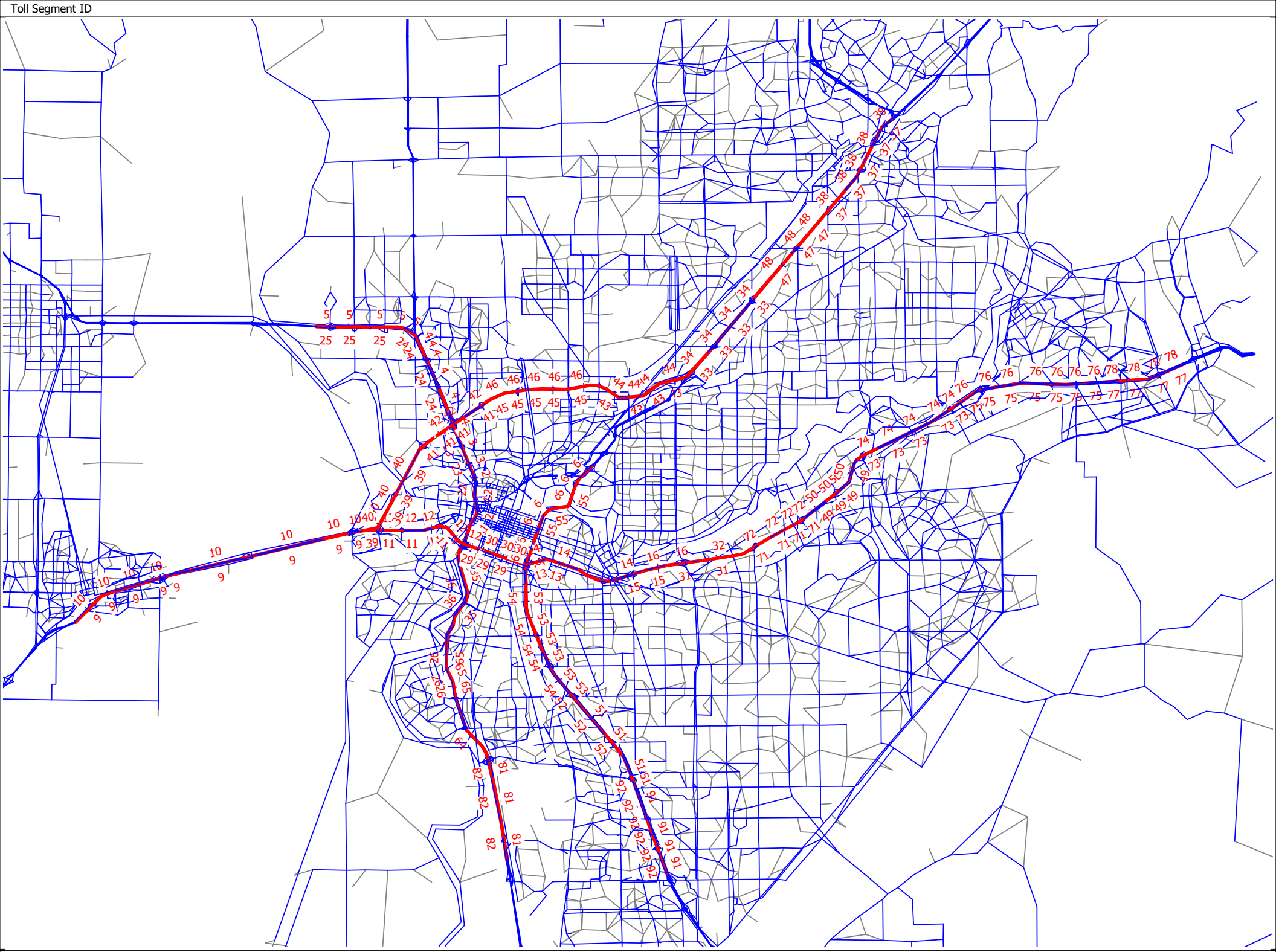


SACSIM
2049 Traffic & Revenue Alternatives
PM Peak Hour - Congested Travel Route (from Davis, Elk Grove to Auburn)



Appendix B:

Toll Segment IDs from SACSIM19 Model



Appendix C:

Detailed Vehicle Volume Tables

Table 3: 2029 I-80/US 50 Vehicle Trips

I-80 EB at Yolo Causeway										
Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	3,698	3,437	3,335	5,131	4,576	4,239	52,855	48,664	47,228
	HOV2	0	324	320	0	540	538	1,173	7,603	7,456
	HOV3+	0	0	165	0	0	274	704	641	4,109
	CV	1,077	980	959	1,033	933	864	16,841	15,604	15,083
	Total	4,775	4,741	4,778	6,164	6,048	5,914	71,574	72,511	73,875
Managed Lanes	SOV	431	681	751	0	385	683	3,438	6,812	8,097
	HOV2	623	285	285	1,135	485	499	13,115	6,110	6,318
	HOV3+	342	351	169	604	629	262	7,449	7,754	3,696
	CV	124	211	230	0	83	148	1,500	2,472	2,942
	Total	1,520	1,529	1,435	1,739	1,582	1,592	25,502	23,148	21,052
All Lanes	SOV	4,128	4,118	4,086	5,131	4,960	4,922	56,294	55,476	55,325
	HOV2	623	609	605	1,135	1,025	1,037	14,288	13,713	13,773
	HOV3+	342	351	334	604	629	536	8,153	8,395	7,805
	CV	1,201	1,191	1,189	1,033	1,016	1,013	18,341	18,075	18,024
	Total	6,295	6,269	6,213	7,903	7,630	7,507	97,076	95,659	94,928
Tolled Vehicles		555	1,177	1,435	0	953	1,592	4,938	15,394	21,053

I-80 WB at Yolo Causeway										
Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	4,345	4,074	3,891	4,802	4,358	4,096	52,961	50,610	48,080
	HOV2	0	395	376	0	548	559	1,455	8,362	7,898
	HOV3+	0	0	259	0	0	277	835	1,140	4,347
	CV	1,047	978	905	1,061	955	894	16,997	16,531	15,434
	Total	5,391	5,446	5,431	5,862	5,860	5,826	72,248	76,642	75,758
Managed Lanes	SOV	358	556	789	0	371	635	3,696	5,420	7,975
	HOV2	694	246	274	1,115	508	497	12,911	5,538	6,005
	HOV3+	497	529	209	590	603	267	7,337	7,230	3,513
	CV	106	164	232	0	86	147	1,449	1,666	2,718
	Total	1,656	1,495	1,504	1,705	1,567	1,547	25,393	19,853	20,211
All Lanes	SOV	4,703	4,630	4,681	4,802	4,728	4,731	56,656	56,030	56,055
	HOV2	694	641	649	1,115	1,055	1,056	14,366	13,900	13,903
	HOV3+	497	529	468	590	603	545	8,172	8,370	7,860
	CV	1,153	1,142	1,137	1,061	1,041	1,041	18,446	18,196	18,151
	Total	7,048	6,941	6,935	7,567	7,428	7,373	97,640	96,496	95,969
Tolled Vehicles		464	966	1,504	0	965	1,546	5,145	12,624	20,211

I-80 Two-Way Total at Yolo Causeway										
Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	8,043	7,511	7,226	9,933	8,934	8,335	105,816	99,274	95,308
	HOV2	0	719	696	0	1,088	1,097	2,628	15,965	15,354
	HOV3+	0	0	424	0	0	551	1,539	1,781	8,456
	CV	2,124	1,958	1,864	2,094	1,888	1,758	33,838	32,135	30,517
	Total	10,166	10,187	10,209	12,026	11,908	11,740	143,822	149,153	149,633
Managed Lanes	SOV	789	1,237	1,540	0	756	1,318	7,134	12,232	16,072
	HOV2	1,317	531	559	2,250	993	996	26,026	11,648	12,323
	HOV3+	839	880	378	1,194	1,232	529	14,786	14,984	7,209
	CV	230	375	462	0	169	295	2,949	4,138	5,660
	Total	3,176	3,024	2,939	3,444	3,149	3,139	50,895	43,001	41,263
All Lanes	SOV	8,831	8,748	8,767	9,933	9,688	9,653	112,950	111,506	111,380
	HOV2	1,317	1,250	1,254	2,250	2,080	2,093	28,654	27,613	27,676
	HOV3+	839	880	802	1,194	1,232	1,081	16,325	16,765	15,665
	CV	2,354	2,333	2,326	2,094	2,057	2,054	36,787	36,271	36,175
	Total	13,343	13,210	13,148	15,470	15,058	14,880	194,716	192,155	190,897
Tolled Vehicles		1,019	2,143	2,939	0	1,918	3,138	10,083	28,018	41,264

Table 3: 2029 I-80/US 50 Vehicle Trips

I-80 EB at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	1,857	1,826	1,829	3,996	3,954	3,871	30,752	30,273	30,149
	HOV2	0	312	298	0	365	359	715	6,109	5,961
	HOV3+	0	0	192	0	0	176	417	370	3,540
	CV	820	810	804	753	784	753	11,318	11,169	11,157
	Total	2,677	2,948	3,123	4,749	5,103	5,158	43,203	47,920	50,807
Managed Lanes	SOV	0	0	0	0	0	0	1,275	1,311	1,279
	HOV2	306	0	0	757	321	304	6,829	1,152	1,221
	HOV3+	195	199	0	424	384	181	4,135	4,154	768
	CV	0	0	0	0	0	0	764	837	725
	Total	501	199	0	1,182	705	485	13,004	7,454	3,993
All Lanes	SOV	1,857	1,826	1,829	3,996	3,954	3,871	32,027	31,583	31,429
	HOV2	306	312	298	757	686	663	7,545	7,261	7,182
	HOV3+	195	199	192	424	384	357	4,552	4,524	4,308
	CV	820	810	804	753	784	753	12,083	12,006	11,882
	Total	3,179	3,147	3,123	5,931	5,807	5,644	56,206	55,374	54,800
Tolled Vehicles		0	0	0	0	321	485	2,039	3,300	3,993
I-80 WB at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	4,291	4,219	4,224	2,298	2,253	2,244	30,399	30,462	30,136
	HOV2	0	122	120	0	301	299	663	4,342	3,972
	HOV3+	0	0	64	0	0	156	398	437	2,222
	CV	856	856	849	753	742	738	11,517	11,606	11,357
	Total	5,147	5,197	5,257	3,051	3,297	3,438	42,976	46,846	47,687
Managed Lanes	SOV	0	0	0	0	0	0	2,095	1,712	2,080
	HOV2	515	384	380	545	228	226	6,740	2,826	3,198
	HOV3+	367	374	289	317	313	142	4,138	4,129	2,159
	CV	0	0	0	0	0	0	819	610	809
	Total	882	758	669	862	542	369	13,792	9,276	8,247
All Lanes	SOV	4,291	4,219	4,224	2,298	2,253	2,244	32,494	32,174	32,217
	HOV2	515	506	500	545	529	525	7,403	7,167	7,170
	HOV3+	367	374	354	317	313	299	4,536	4,566	4,381
	CV	856	856	849	753	742	738	12,336	12,216	12,166
	Total	6,030	5,955	5,926	3,913	3,839	3,807	56,769	56,122	55,934
Tolled Vehicles		0	384	669	0	228	368	2,914	5,148	8,246
I-80 Two-Way Total at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	6,148	6,045	6,053	6,294	6,207	6,115	61,151	60,735	60,285
	HOV2	0	434	418	0	666	658	1,378	10,451	9,933
	HOV3+	0	0	256	0	0	332	815	807	5,762
	CV	1,676	1,666	1,653	1,506	1,526	1,491	22,835	22,775	22,514
	Total	7,824	8,145	8,380	7,800	8,400	8,596	86,179	94,766	98,494
Managed Lanes	SOV	0	0	0	0	0	0	3,370	3,023	3,359
	HOV2	821	384	380	1,302	549	530	13,569	3,978	4,419
	HOV3+	562	573	289	741	697	323	8,273	8,283	2,927
	CV	0	0	0	0	0	0	1,583	1,447	1,534
	Total	1,383	957	669	2,044	1,247	854	26,796	16,730	12,240
All Lanes	SOV	6,148	6,045	6,053	6,294	6,207	6,115	64,521	63,757	63,646
	HOV2	821	818	798	1,302	1,215	1,188	14,948	14,428	14,352
	HOV3+	562	573	546	741	697	656	9,088	9,090	8,689
	CV	1,676	1,666	1,653	1,506	1,526	1,491	24,419	24,222	24,048
	Total	9,209	9,102	9,049	9,844	9,646	9,451	112,975	111,496	110,734
Tolled Vehicles		0	384	669	0	549	853	4,953	8,448	12,239

Table 3: 2029 I-80/US 50 Vehicle Trips

US 50 EB at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	4,502	4,247	4,050	5,695	5,267	5,018	60,223	56,016	53,891
	HOV2	91	503	501	65	668	650	3,752	9,966	10,080
	HOV3+	58	60	295	34	61	333	2,072	2,068	5,587
	CV	1,426	1,320	1,255	1,235	1,116	1,048	21,007	19,445	18,530
	Total	6,077	6,130	6,103	7,029	7,112	7,049	87,055	87,495	88,088
Managed Lanes	SOV	232	503	686	0	411	648	3,403	7,114	9,184
	HOV2	785	316	328	1,121	408	460	12,443	5,416	5,452
	HOV3+	493	511	235	638	667	274	7,355	7,806	3,431
	CV	74	179	240	0	114	182	2,140	3,454	4,367
	Total	1,584	1,508	1,489	1,758	1,600	1,566	25,341	23,790	22,435
All Lanes	SOV	4,734	4,750	4,736	5,695	5,678	5,666	63,626	63,130	63,075
	HOV2	876	819	830	1,186	1,075	1,111	16,195	15,381	15,533
	HOV3+	551	571	531	671	728	607	9,428	9,875	9,018
	CV	1,500	1,498	1,495	1,235	1,230	1,230	23,148	22,899	22,897
	Total	7,661	7,638	7,591	8,787	8,712	8,615	112,397	111,285	110,523
Tolled Vehicles		306	998	1,489	0	933	1,564	5,543	15,984	22,434

US 50 WB at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	4,674	4,469	4,328	5,086	4,758	4,570	56,109	52,508	50,850
	HOV2	229	456	469	324	774	761	5,647	10,072	10,036
	HOV3+	148	162	301	182	203	404	3,375	3,488	5,706
	CV	1,151	1,088	1,040	1,361	1,249	1,187	19,784	18,478	17,693
	Total	6,201	6,175	6,139	6,953	6,984	6,922	84,916	84,545	84,286
Managed Lanes	SOV	532	695	818	60	478	589	6,461	9,760	11,275
	HOV2	515	218	223	1,013	418	437	10,254	5,121	5,177
	HOV3+	339	367	162	560	536	250	5,864	6,043	3,144
	CV	173	225	265	21	163	194	3,122	4,309	4,991
	Total	1,559	1,506	1,469	1,654	1,595	1,470	25,701	25,233	24,588
All Lanes	SOV	5,205	5,164	5,147	5,146	5,236	5,159	62,571	62,268	62,125
	HOV2	744	675	692	1,338	1,192	1,198	15,901	15,193	15,214
	HOV3+	487	529	464	742	738	654	9,238	9,531	8,850
	CV	1,324	1,313	1,306	1,381	1,412	1,381	22,906	22,786	22,685
	Total	7,760	7,681	7,609	8,607	8,579	8,392	110,617	109,778	108,873
Tolled Vehicles		705	1,138	1,468	81	1,059	1,470	9,583	19,190	24,587

US 50 Two-Way Total at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	9,176	8,716	8,378	10,781	10,025	9,588	116,332	108,524	104,741
	HOV2	320	959	970	389	1,442	1,411	9,399	20,038	20,116
	HOV3+	206	222	596	216	264	737	5,447	5,556	11,293
	CV	2,577	2,408	2,295	2,596	2,365	2,235	40,791	37,923	36,223
	Total	12,278	12,305	12,242	13,982	14,096	13,971	171,971	172,040	172,374
Managed Lanes	SOV	764	1,198	1,504	60	889	1,237	9,864	16,874	20,459
	HOV2	1,300	534	551	2,134	826	897	22,697	10,537	10,629
	HOV3+	832	878	397	1,198	1,203	524	13,219	13,849	6,575
	CV	247	404	505	21	277	376	5,262	7,763	9,358
	Total	3,143	3,014	2,958	3,412	3,195	3,036	51,042	49,023	47,023
All Lanes	SOV	9,939	9,914	9,883	10,841	10,914	10,825	126,197	125,398	125,200
	HOV2	1,620	1,494	1,522	2,524	2,267	2,309	32,096	30,574	30,747
	HOV3+	1,038	1,100	995	1,413	1,466	1,261	18,666	19,406	17,868
	CV	2,824	2,811	2,801	2,616	2,642	2,611	46,054	45,685	45,582
	Total	15,421	15,319	15,200	17,394	17,291	17,007	223,014	221,063	219,396
Tolled Vehicles		1,011	2,136	2,957	81	1,992	3,034	15,126	35,174	47,021

Table 4: 2049 I-80/US 50 Vehicle Trips

I-80 EB at Yolo Causeway										
Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	4,003	3,819	3,624	5,479	5,055	4,674	57,223	51,698	50,267
	HOV2	0	346	354	0	582	583	1,475	9,524	8,675
	HOV3+	0	0	219	0	0	325	924	1,324	5,065
	CV	1,030	962	916	980	924	851	17,237	15,440	15,124
	Total	5,034	5,126	5,114	6,459	6,562	6,433	76,860	77,987	79,131
Managed Lanes	SOV	440	631	749	0	158	513	3,800	7,706	9,160
	HOV2	717	335	332	1,327	525	555	14,675	5,689	6,839
	HOV3+	444	459	217	742	918	318	8,724	9,151	4,197
	CV	125	181	223	0	32	104	1,384	2,898	3,147
	Total	1,726	1,606	1,521	2,069	1,634	1,491	28,583	25,444	23,343
All Lanes	SOV	4,443	4,450	4,373	5,479	5,213	5,188	61,022	59,404	59,427
	HOV2	717	681	687	1,327	1,107	1,138	16,150	15,213	15,514
	HOV3+	444	459	436	742	919	643	9,648	10,475	9,262
	CV	1,155	1,143	1,139	980	956	955	18,621	18,338	18,271
	Total	6,760	6,733	6,635	8,528	8,195	7,924	105,443	103,431	102,474
Tolled Vehicles		565	1,147	1,521	0	715	1,490	5,184	16,293	23,343
I-80 WB at Yolo Causeway										
Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	4,820	4,470	4,136	5,112	4,604	4,411	58,618	55,279	50,747
	HOV2	0	393	422	0	614	599	2,061	9,514	9,103
	HOV3+	0	0	295	0	0	310	1,244	1,542	5,240
	CV	1,046	948	858	1,007	909	859	17,783	16,651	15,237
	Total	5,866	5,811	5,712	6,119	6,127	6,180	79,706	82,987	80,326
Managed Lanes	SOV	172	493	821	0	347	549	2,725	5,166	9,680
	HOV2	785	278	300	1,309	550	570	14,313	5,940	6,631
	HOV3+	598	650	238	709	745	315	8,425	8,527	4,032
	CV	48	135	225	0	76	122	1,028	1,902	3,244
	Total	1,603	1,556	1,583	2,017	1,718	1,555	26,492	21,535	23,587
All Lanes	SOV	4,992	4,963	4,957	5,112	4,951	4,960	61,344	60,445	60,427
	HOV2	785	671	722	1,309	1,164	1,169	16,373	15,454	15,734
	HOV3+	598	650	533	709	745	626	9,669	10,069	9,272
	CV	1,094	1,083	1,083	1,007	985	981	18,812	18,553	18,481
	Total	7,469	7,367	7,295	8,136	7,845	7,735	106,198	104,522	103,913
Tolled Vehicles		220	906	1,584	0	973	1,556	3,753	13,008	23,587
I-80 Two-Way Total at Yolo Causeway										
Lane Type	Vehicle Type	AM Peak Hour			PM Peak Hour			Daily		
		HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	8,823	8,289	7,760	10,591	9,659	9,085	115,841	106,977	101,014
	HOV2	0	739	776	0	1,196	1,182	3,536	19,038	17,778
	HOV3+	0	0	514	0	0	635	2,168	2,866	10,305
	CV	2,076	1,910	1,774	1,987	1,833	1,710	35,020	32,091	30,361
	Total	10,900	10,937	10,826	12,578	12,689	12,613	156,566	160,974	159,457
Managed Lanes	SOV	612	1,124	1,570	0	505	1,062	6,525	12,872	18,840
	HOV2	1,502	613	632	2,636	1,075	1,125	28,988	11,629	13,470
	HOV3+	1,042	1,109	455	1,451	1,663	633	17,149	17,678	8,229
	CV	173	316	448	0	108	226	2,412	4,800	6,391
	Total	3,329	3,162	3,104	4,086	3,352	3,046	55,075	46,979	46,930
All Lanes	SOV	9,435	9,413	9,330	10,591	10,164	10,148	122,366	119,849	119,854
	HOV2	1,502	1,352	1,409	2,636	2,271	2,307	32,523	30,667	31,248
	HOV3+	1,042	1,109	969	1,451	1,664	1,269	19,317	20,544	18,534
	CV	2,249	2,226	2,222	1,987	1,941	1,936	37,433	36,891	36,752
	Total	14,229	14,100	13,930	16,664	16,040	15,659	211,641	207,953	206,387
Tolled Vehicles		785	2,053	3,105	0	1,688	3,046	8,937	29,301	46,930

Table 4: 2049 I-80/US 50 Vehicle Trips

I-80 EB at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	2,508	2,466	2,335	4,632	4,092	3,807	37,074	35,357	34,207
	HOV2	0	231	236	0	482	448	922	5,474	5,387
	HOV3+	0	0	162	0	0	237	553	507	3,153
	CV	894	887	859	805	720	659	12,891	12,575	12,211
	Total	3,402	3,585	3,591	5,437	5,294	5,150	51,439	53,914	54,959
Managed Lanes	SOV	0	0	64	100	547	730	1,621	2,549	3,249
	HOV2	405	164	171	973	396	379	8,621	3,591	3,660
	HOV3+	281	306	137	560	518	239	5,372	5,408	2,470
	CV	0	0	22	23	131	182	850	1,085	1,307
	Total	686	470	394	1,656	1,592	1,530	16,463	12,633	10,687
All Lanes	SOV	2,508	2,466	2,399	4,732	4,639	4,538	38,694	37,906	37,456
	HOV2	405	395	407	973	878	826	9,542	9,065	9,047
	HOV3+	281	306	299	560	518	476	5,925	5,916	5,623
	CV	894	887	881	828	851	840	13,741	13,660	13,519
	Total	4,088	4,055	3,986	7,093	6,885	6,680	67,902	66,547	65,645
Tolled Vehicles		0	164	394	123	1,074	1,530	2,471	7,225	10,686
I-80 WB at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	4,516	4,287	4,099	2,989	2,792	2,631	36,438	35,229	34,204
	HOV2	0	353	364	0	411	404	900	5,532	5,389
	HOV3+	0	0	227	0	0	223	554	542	3,260
	CV	808	774	715	842	787	733	13,000	12,700	12,303
	Total	5,324	5,414	5,405	3,830	3,990	3,990	50,893	54,003	55,157
Managed Lanes	SOV	426	670	833	0	114	255	2,956	3,632	4,375
	HOV2	697	238	250	740	299	290	8,478	3,361	3,574
	HOV3+	500	463	219	435	450	188	5,432	5,505	2,507
	CV	104	169	217	0	42	92	1,078	1,286	1,520
	Total	1,727	1,540	1,518	1,175	905	825	17,945	13,784	11,977
All Lanes	SOV	4,941	4,957	4,931	2,989	2,906	2,886	39,394	38,861	38,579
	HOV2	697	591	614	740	710	694	9,379	8,893	8,963
	HOV3+	500	463	447	435	450	411	5,986	6,047	5,768
	CV	912	943	932	842	829	824	14,078	13,985	13,823
	Total	7,050	6,954	6,923	5,005	4,895	4,815	68,837	67,787	67,133
Tolled Vehicles		530	1,077	1,519	0	455	825	4,034	8,279	11,976
I-80 Two-Way Total at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	7,024	6,753	6,434	7,621	6,884	6,438	73,512	70,586	68,411
	HOV2	0	584	600	0	893	852	1,822	11,006	10,776
	HOV3+	0	0	389	0	0	460	1,107	1,049	6,413
	CV	1,702	1,661	1,574	1,647	1,507	1,392	25,891	25,275	24,514
	Total	8,726	8,999	8,996	9,267	9,284	9,140	102,332	107,917	110,116
Managed Lanes	SOV	426	670	897	100	661	985	4,577	6,181	7,624
	HOV2	1,102	402	421	1,713	695	669	17,099	6,952	7,234
	HOV3+	781	769	356	995	968	427	10,804	10,913	4,977
	CV	104	169	239	23	173	274	1,928	2,371	2,827
	Total	2,413	2,010	1,912	2,831	2,497	2,355	34,408	26,417	22,664
All Lanes	SOV	7,449	7,423	7,330	7,721	7,545	7,424	78,088	76,767	76,035
	HOV2	1,102	986	1,021	1,713	1,588	1,520	18,921	17,958	18,010
	HOV3+	781	769	746	995	968	887	11,911	11,963	11,391
	CV	1,806	1,830	1,813	1,670	1,680	1,664	27,819	27,645	27,342
	Total	11,138	11,009	10,909	12,098	11,780	11,495	136,739	134,334	132,778
Tolled Vehicles		530	1,241	1,913	123	1,529	2,355	6,505	15,504	22,662

Table 4: 2049 I-80/US 50 Vehicle Trips

US 50 EB at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	5,348	5,219	4,927	6,501	6,248	5,752	68,601	64,625	62,341
	HOV2	42	532	555	74	757	730	4,223	11,955	11,252
	HOV3+	27	13	338	36	1	379	2,258	2,213	6,327
	CV	1,627	1,579	1,444	1,303	1,232	1,135	24,195	22,452	21,406
	Total	7,044	7,343	7,265	7,914	8,238	7,995	99,276	101,246	101,327
Managed Lanes	SOV	0	203	558	0	0	535	3,227	5,900	8,834
	HOV2	1,180	471	465	1,407	402	581	15,212	5,676	7,024
	HOV3+	797	836	360	820	1,175	372	9,373	11,127	4,758
	CV	0	75	216	0	0	149	1,927	3,335	4,429
	Total	1,977	1,585	1,600	2,227	1,577	1,637	29,740	26,038	25,044
All Lanes	SOV	5,348	5,422	5,485	6,501	6,248	6,287	71,828	70,524	71,175
	HOV2	1,222	1,003	1,020	1,481	1,160	1,311	19,435	17,632	18,276
	HOV3+	824	849	698	856	1,176	751	11,631	13,340	11,085
	CV	1,627	1,654	1,660	1,303	1,232	1,284	26,122	25,788	25,834
	Total	9,021	8,928	8,864	10,141	9,816	9,632	129,016	127,284	126,371
Tolled Vehicles		0	749	1,599	0	402	1,637	5,154	14,911	25,045
US 50 WB at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	5,572	5,345	5,096	5,709	5,321	5,169	65,167	62,027	60,305
	HOV2	308	536	587	453	879	899	7,862	12,218	12,171
	HOV3+	212	248	386	271	323	511	4,775	5,275	7,183
	CV	1,279	1,215	1,165	1,473	1,354	1,298	23,711	22,473	21,775
	Total	7,372	7,345	7,233	7,905	7,877	7,878	101,514	101,993	101,433
Managed Lanes	SOV	504	699	850	0	356	560	6,712	9,534	11,466
	HOV2	565	219	220	1,191	484	475	11,470	5,645	5,995
	HOV3+	406	449	177	684	649	273	6,783	6,889	3,729
	CV	148	197	248	0	122	190	3,074	4,208	4,925
	Total	1,622	1,564	1,495	1,875	1,610	1,498	28,039	26,276	26,114
All Lanes	SOV	6,075	6,045	5,945	5,709	5,677	5,729	71,878	71,561	71,771
	HOV2	873	755	807	1,644	1,363	1,375	19,332	17,863	18,165
	HOV3+	618	697	563	955	971	784	11,558	12,164	10,912
	CV	1,427	1,412	1,413	1,473	1,475	1,488	26,784	26,681	26,700
	Total	8,994	8,909	8,728	9,780	9,486	9,376	129,554	128,269	127,547
Tolled Vehicles		652	1,115	1,495	0	962	1,498	9,786	19,387	26,115
US 50 Two-Way Total at Sacramento River										
	Vehicle	AM Peak Hour			PM Peak Hour			Daily		
Lane Type	Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
General Purpose Lanes	SOV	10,920	10,564	10,023	12,210	11,569	10,921	133,768	126,652	122,646
	HOV2	350	1,068	1,142	527	1,636	1,629	12,085	24,173	23,423
	HOV3+	239	261	724	307	324	890	7,033	7,488	13,510
	CV	2,906	2,794	2,609	2,776	2,586	2,433	47,906	44,925	43,181
	Total	14,416	14,688	14,498	15,819	16,115	15,873	200,790	203,239	202,760
Managed Lanes	SOV	504	902	1,408	0	356	1,095	9,939	15,434	20,300
	HOV2	1,745	690	685	2,598	886	1,056	26,682	11,321	13,019
	HOV3+	1,203	1,285	537	1,504	1,824	645	16,156	18,016	8,487
	CV	148	272	464	0	122	339	5,001	7,543	9,354
	Total	3,599	3,149	3,095	4,102	3,187	3,135	57,779	52,314	51,158
All Lanes	SOV	11,423	11,467	11,430	12,210	11,925	12,016	143,706	142,085	142,946
	HOV2	2,095	1,758	1,827	3,125	2,523	2,686	38,767	35,495	36,441
	HOV3+	1,442	1,546	1,261	1,811	2,147	1,535	23,189	25,504	21,997
	CV	3,054	3,066	3,073	2,776	2,707	2,772	52,906	52,469	52,534
	Total	18,015	17,837	17,592	19,921	19,302	19,008	258,570	255,553	253,918
Tolled Vehicles		652	1,864	3,094	0	1,364	3,135	14,940	34,298	51,160

Appendix D:

Detailed Person Volume Tables

Table 5: 2029 I-80/US 50 Person Trips

I-80 EB at Yolo Causeway										
Lane		**AM Peak Hour**			**PM Peak Hour**			**Daily**		
Type	**Vehicle Type**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**
	SOV	3,698	3,437	3,335	5,131	4,576	4,239	52,855	48,664	47,228
	HOV2	0	648	640	0	1,080	1,076	2,346	15,206	14,912
	HOV3+	0	0	561	0	0	932	2,394	2,179	13,971
General	CV	1,077	980	959	1,033	933	864	16,841	15,604	15,083
Purpose	Total	4,775	5,065	5,495	6,164	6,589	7,111	74,436	81,653	91,194
Lanes	Avg. Auto Occupancy	1.00	1.07	1.15	1.00	1.09	1.20	1.04	1.13	1.23
	SOV	431	681	751	0	385	683	3,438	6,812	8,097
	HOV2	1,246	570	570	2,270	970	998	26,230	12,220	12,636
	HOV3+	1,163	1,193	575	2,054	2,139	891	25,327	26,364	12,566
	CV	124	211	230	0	83	148	1,500	2,472	2,942
Managed	Total	2,964	2,655	2,126	4,324	3,577	2,720	56,495	47,868	36,241
Lanes	Avg. Auto Occupancy	1.95	1.74	1.48	2.49	2.26	1.71	2.22	2.07	1.72
	SOV	4,128	4,118	4,086	5,131	4,960	4,922	56,294	55,476	55,325
	HOV2	1,246	1,218	1,210	2,270	2,050	2,074	28,576	27,426	27,546
	HOV3+	1,163	1,193	1,136	2,054	2,139	1,822	27,720	28,543	26,537
	CV	1,201	1,191	1,189	1,033	1,016	1,013	18,341	18,075	18,024
	Total	7,738	7,720	7,621	10,488	10,165	9,831	130,931	129,520	127,432
All Lanes	Avg. Auto Occupancy	1.23	1.23	1.23	1.33	1.33	1.31	1.35	1.35	1.34
I-80 WB at Yolo Causeway										
Lane		**AM Peak Hour**			**PM Peak Hour**			**Daily**		
Type	**Vehicle Type**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**
	SOV	4,345	4,074	3,891	4,802	4,358	4,096	52,961	50,610	48,080
	HOV2	0	790	752	0	1,096	1,118	2,910	16,724	15,796
	HOV3+	0	0	881	0	0	942	2,839	3,876	14,780
General	CV	1,047	978	905	1,061	955	894	16,997	16,531	15,434
Purpose	Total	5,392	5,842	6,429	5,863	6,409	7,050	75,707	87,741	94,090
Lanes	Avg. Auto Occupancy	1.00	1.07	1.18	1.00	1.09	1.21	1.05	1.14	1.24
	SOV	358	556	789	0	371	635	3,696	5,420	7,975
	HOV2	1,388	492	548	2,230	1,016	994	25,822	11,076	12,010
	HOV3+	1,690	1,799	711	2,006	2,050	908	24,946	24,582	11,944
	CV	106	164	232	0	86	147	1,449	1,666	2,718
Managed	Total	3,542	3,011	2,280	4,236	3,523	2,684	55,913	42,744	34,647
Lanes	Avg. Auto Occupancy	2.14	2.01	1.52	2.48	2.25	1.73	2.20	2.15	1.71
	SOV	4,703	4,630	4,681	4,802	4,728	4,731	56,656	56,030	56,055
	HOV2	1,388	1,282	1,298	2,230	2,110	2,112	28,732	27,800	27,806
	HOV3+	1,690	1,799	1,591	2,006	2,050	1,853	27,785	28,458	26,724
	CV	1,153	1,142	1,137	1,061	1,041	1,041	18,446	18,196	18,151
	Total	8,934	8,853	8,707	10,099	9,929	9,737	131,619	130,484	128,736
All Lanes	Avg. Auto Occupancy	1.27	1.28	1.26	1.33	1.34	1.32	1.35	1.35	1.34
I-80 Two-Way Total at Yolo Causeway										
Lane		**AM Peak Hour**			**PM Peak Hour**			**Daily**		
Type	**Vehicle Type**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**
	SOV	8,043	7,511	7,226	9,933	8,934	8,335	105,816	99,274	95,308
	HOV2	0	1,438	1,392	0	2,176	2,194	5,256	31,930	30,708
	HOV3+	0	0	1,442	0	0	1,873	5,233	6,055	28,750
General	CV	2,124	1,958	1,864	2,094	1,888	1,758	33,838	32,135	30,517
Purpose	Total	10,167	10,907	11,924	12,027	12,998	14,160	150,143	169,394	185,283
Lanes	Avg. Auto Occupancy	1.00	1.07	1.17	1.00	1.09	1.21	1.04	1.14	1.24
	SOV	789	1,237	1,540	0	756	1,318	7,134	12,232	16,072
	HOV2	2,634	1,062	1,118	4,500	1,986	1,992	52,052	23,296	24,646
	HOV3+	2,853	2,992	1,285	4,060	4,189	1,799	50,272	50,946	24,511
	CV	230	375	462	0	169	295	2,949	4,138	5,660
Managed	Total	6,506	5,666	4,405	8,560	7,100	5,404	112,407	90,612	70,889
Lanes	Avg. Auto Occupancy	2.05	1.87	1.50	2.49	2.25	1.72	2.21	2.11	1.72
	SOV	8,831	8,748	8,767	9,933	9,688	9,653	112,950	111,506	111,380
	HOV2	2,634	2,500	2,508	4,500	4,160	4,186	57,308	55,226	55,352
	HOV3+	2,853	2,992	2,727	4,060	4,189	3,675	55,505	57,001	53,261
	CV	2,354	2,333	2,326	2,094	2,057	2,054	36,787	36,271	36,175
	Total	16,672	16,573	16,328	20,587	20,094	19,568	262,550	260,004	256,168
All Lanes	Avg. Auto Occupancy	1.25	1.25	1.24	1.33	1.33	1.32	1.35	1.35	1.34

Table 5: 2029 I-80/US 50 Person Trips

I-80 EB at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	1,857	1,826	1,829	3,996	3,954	3,871	30,752	30,273	30,149
	HOV2	0	624	596	0	730	718	1,430	12,218	11,922
	HOV3+	0	0	653	0	0	598	1,418	1,258	12,036
General	CV	820	810	804	753	784	753	11,318	11,169	11,157
Purpose	Total	2,677	3,260	3,882	4,749	5,468	5,940	44,918	54,918	65,264
Lanes	Avg. Auto Occupancy	1.00	1.11	1.24	1.00	1.07	1.15	1.04	1.15	1.28
	SOV	0	0	0	0	0	0	1,275	1,311	1,279
	HOV2	612	0	0	1,514	642	608	13,658	2,304	2,442
	HOV3+	663	677	0	1,442	1,306	615	14,059	14,124	2,611
	CV	0	0	0	0	0	0	764	837	725
Managed	Total	1,275	677	0	2,956	1,948	1,223	29,756	18,576	7,057
Lanes	Avg. Auto Occupancy	2.54	3.40	0.00	2.50	2.76	2.52	2.29	2.49	1.77
	SOV	1,857	1,826	1,829	3,996	3,954	3,871	32,027	31,583	31,429
	HOV2	612	624	596	1,514	1,372	1,326	15,090	14,522	14,364
	HOV3+	663	677	653	1,442	1,306	1,214	15,477	15,382	14,647
	CV	820	810	804	753	784	753	12,083	12,006	11,882
	Total	3,952	3,937	3,882	7,705	7,416	7,164	74,677	73,493	72,322
All Lanes	Avg. Auto Occupancy	1.24	1.25	1.24	1.30	1.28	1.27	1.33	1.33	1.32
I-80 WB at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	4,291	4,219	4,224	2,298	2,253	2,244	30,399	30,462	30,136
	HOV2	0	244	240	0	602	598	1,326	8,684	7,944
	HOV3+	0	0	218	0	0	530	1,353	1,486	7,555
General	CV	856	856	849	753	742	738	11,517	11,606	11,357
Purpose	Total	5,147	5,319	5,531	3,051	3,597	4,110	44,595	52,238	56,992
Lanes	Avg. Auto Occupancy	1.00	1.02	1.05	1.00	1.09	1.20	1.04	1.12	1.20
	SOV	0	0	0	0	0	0	2,095	1,712	2,080
	HOV2	1,030	768	760	1,090	456	452	13,480	5,652	6,396
	HOV3+	1,248	1,272	983	1,078	1,064	483	14,069	14,039	7,341
	CV	0	0	0	0	0	0	819	610	809
Managed	Total	2,278	2,040	1,743	2,168	1,520	935	30,463	22,013	16,626
Lanes	Avg. Auto Occupancy	2.58	2.69	2.60	2.51	2.80	2.53	2.21	2.37	2.02
	SOV	4,291	4,219	4,224	2,298	2,253	2,244	32,494	32,174	32,217
	HOV2	1,030	1,012	1,000	1,090	1,058	1,050	14,806	14,334	14,340
	HOV3+	1,248	1,272	1,204	1,078	1,064	1,017	15,422	15,524	14,895
	CV	856	856	849	753	742	738	12,336	12,216	12,166
	Total	7,425	7,359	7,277	5,219	5,117	5,049	75,058	74,248	73,618
All Lanes	Avg. Auto Occupancy	1.23	1.24	1.23	1.33	1.33	1.33	1.32	1.32	1.32
I-80 Two-Way Total at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	6,148	6,045	6,053	6,294	6,207	6,115	61,151	60,735	60,285
	HOV2	0	868	836	0	1,332	1,316	2,756	20,902	19,866
	HOV3+	0	0	870	0	0	1,129	2,771	2,744	19,591
General	CV	1,676	1,666	1,653	1,506	1,526	1,491	22,835	22,775	22,514
Purpose	Total	7,824	8,579	9,412	7,800	9,065	10,051	89,513	107,156	122,256
Lanes	Avg. Auto Occupancy	1.00	1.05	1.12	1.00	1.08	1.17	1.04	1.13	1.24
	SOV	0	0	0	0	0	0	3,370	3,023	3,359
	HOV2	1,642	768	760	2,604	1,098	1,060	27,138	7,956	8,838
	HOV3+	1,911	1,948	983	2,519	2,370	1,098	28,128	28,162	9,952
	CV	0	0	0	0	0	0	1,583	1,447	1,534
Managed	Total	3,553	2,716	1,743	5,123	3,468	2,158	60,219	40,588	23,683
Lanes	Avg. Auto Occupancy	2.57	2.84	2.60	2.51	2.78	2.53	2.25	2.43	1.93
	SOV	6,148	6,045	6,053	6,294	6,207	6,115	64,521	63,757	63,646
	HOV2	1,642	1,636	1,596	2,604	2,430	2,376	29,896	28,856	28,704
	HOV3+	1,911	1,948	1,856	2,519	2,370	2,230	30,899	30,906	29,543
	CV	1,676	1,666	1,653	1,506	1,526	1,491	24,419	24,222	24,048
	Total	11,377	11,295	11,158	12,923	12,533	12,212	149,735	147,741	145,941
All Lanes	Avg. Auto Occupancy	1.24	1.24	1.23	1.31	1.30	1.29	1.33	1.33	1.32

Table 5: 2029 I-80/US 50 Person Trips

US 50 EB at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	4,502	4,247	4,050	5,695	5,267	5,018	60,223	56,016	53,891
	HOV2	182	1,006	1,002	130	1,336	1,300	7,504	19,932	20,160
	HOV3+	197	204	1,003	116	207	1,132	7,045	7,031	18,996
General	CV	1,426	1,320	1,255	1,235	1,116	1,048	21,007	19,445	18,530
Purpose	Total	6,307	6,777	7,310	7,176	7,926	8,498	95,779	102,424	111,577
Lanes	Avg. Auto Occupancy	1.04	1.11	1.20	1.02	1.11	1.21	1.10	1.17	1.27
	SOV	232	503	686	0	411	648	3,403	7,114	9,184
	HOV2	1,570	632	656	2,242	816	920	24,886	10,832	10,904
	HOV3+	1,676	1,737	799	2,169	2,268	932	25,007	26,540	11,665
	CV	74	179	240	0	114	182	2,140	3,454	4,367
Managed	Total	3,552	3,051	2,381	4,411	3,609	2,682	55,436	47,940	36,120
Lanes	Avg. Auto Occupancy	2.24	2.02	1.60	2.51	2.26	1.71	2.19	2.02	1.61
	SOV	4,734	4,750	4,736	5,695	5,678	5,666	63,626	63,130	63,075
	HOV2	1,752	1,638	1,660	2,372	2,150	2,222	32,390	30,762	31,066
	HOV3+	1,873	1,941	1,805	2,281	2,475	2,064	32,055	33,575	30,661
	CV	1,500	1,498	1,495	1,235	1,230	1,230	23,148	22,899	22,897
	Total	9,859	9,827	9,696	11,583	11,533	11,182	151,219	150,366	147,699
All Lanes	Avg. Auto Occupancy	1.29	1.29	1.28	1.32	1.32	1.30	1.35	1.35	1.34
US 50 WB at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	4,674	4,469	4,328	5,086	4,758	4,570	56,109	52,508	50,850
	HOV2	458	912	938	648	1,548	1,522	11,294	20,144	20,072
	HOV3+	503	551	1,023	619	690	1,374	11,475	11,859	19,400
General	CV	1,151	1,088	1,040	1,361	1,249	1,187	19,784	18,478	17,693
Purpose	Total	6,786	7,020	7,329	7,714	8,245	8,653	98,662	102,989	108,015
Lanes	Avg. Auto Occupancy	1.09	1.14	1.19	1.11	1.18	1.25	1.16	1.22	1.28
	SOV	532	695	818	60	478	589	6,461	9,760	11,275
	HOV2	1,030	436	446	2,026	836	874	20,508	10,242	10,354
	HOV3+	1,153	1,248	551	1,904	1,822	850	19,938	20,546	10,690
	CV	173	225	265	21	163	194	3,122	4,309	4,991
Managed	Total	2,888	2,604	2,080	4,011	3,299	2,507	50,029	44,857	37,310
Lanes	Avg. Auto Occupancy	1.85	1.73	1.42	2.43	2.07	1.71	1.95	1.78	1.52
	SOV	5,205	5,164	5,147	5,146	5,236	5,159	62,571	62,268	62,125
	HOV2	1,488	1,350	1,384	2,676	2,384	2,396	31,802	30,386	30,428
	HOV3+	1,656	1,799	1,578	2,523	2,509	2,224	31,409	32,405	30,090
	CV	1,324	1,313	1,306	1,381	1,412	1,381	22,906	22,786	22,685
	Total	9,673	9,626	9,415	11,726	11,541	11,160	148,688	147,845	145,328
All Lanes	Avg. Auto Occupancy	1.25	1.25	1.24	1.36	1.35	1.33	1.34	1.35	1.33
US 50 Two-Way Total at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	9,176	8,716	8,378	10,781	10,025	9,588	116,332	108,524	104,741
	HOV2	640	1,918	1,940	778	2,884	2,822	18,798	40,076	40,232
	HOV3+	700	755	2,026	734	898	2,506	18,520	18,890	38,396
General	CV	2,577	2,408	2,295	2,596	2,365	2,235	40,791	37,923	36,223
Purpose	Total	13,093	13,797	14,639	14,889	16,172	17,151	194,441	205,413	219,592
Lanes	Avg. Auto Occupancy	1.07	1.12	1.20	1.06	1.15	1.23	1.13	1.19	1.27
	SOV	764	1,198	1,504	60	889	1,237	9,864	16,874	20,459
	HOV2	2,600	1,068	1,102	4,268	1,652	1,794	45,394	21,074	21,258
	HOV3+	2,829	2,985	1,350	4,073	4,090	1,782	44,945	47,087	22,355
	CV	247	404	505	21	277	376	5,262	7,763	9,358
Managed	Total	6,440	5,655	4,461	8,422	6,908	5,189	105,465	92,798	73,430
Lanes	Avg. Auto Occupancy	2.05	1.88	1.51	2.47	2.16	1.71	2.07	1.89	1.56
	SOV	9,939	9,914	9,883	10,841	10,914	10,825	126,197	125,398	125,200
	HOV2	3,240	2,988	3,044	5,048	4,534	4,618	64,192	61,148	61,494
	HOV3+	3,529	3,740	3,383	4,804	4,984	4,287	63,464	65,980	60,751
	CV	2,824	2,811	2,801	2,616	2,642	2,611	46,054	45,685	45,582
	Total	19,532	19,453	19,111	23,309	23,074	22,341	299,907	298,211	293,027
All Lanes	Avg. Auto Occupancy	1.27	1.27	1.26	1.34	1.33	1.31	1.34	1.35	1.34

Table 6: 2049 I-80/US 50 Person Trips

I-80 EB at Yolo Causeway										
Lane		**AM Peak Hour**			**PM Peak Hour**			**Daily**		
Type	**Vehicle Type**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**
	SOV	4,003	3,819	3,624	5,479	5,055	4,674	57,223	51,698	50,267
	HOV2	0	692	708	0	1,164	1,166	2,950	19,048	17,350
	HOV3+	0	0	745	0	0	1,105	3,142	4,502	17,221
General	CV	1,030	962	916	980	924	851	17,237	15,440	15,124
Purpose	Total	5,033	5,473	5,993	6,459	7,143	7,796	80,552	90,688	99,962
Lanes	Avg. Auto Occupancy	1.00	1.07	1.17	1.00	1.09	1.21	1.05	1.16	1.26
	SOV	440	631	749	0	158	513	3,800	7,706	9,160
	HOV2	1,434	670	664	2,654	1,050	1,110	29,350	11,378	13,678
	HOV3+	1,510	1,561	738	2,523	3,121	1,081	29,662	31,113	14,270
	CV	125	181	223	0	32	104	1,384	2,898	3,147
Managed	Total	3,509	3,043	2,374	5,177	4,361	2,808	64,196	53,095	40,255
Lanes	Avg. Auto Occupancy	2.03	1.89	1.56	2.50	2.67	1.88	2.25	2.09	1.72
	SOV	4,443	4,450	4,373	5,479	5,213	5,188	61,022	59,404	59,427
	HOV2	1,434	1,362	1,374	2,654	2,214	2,276	32,300	30,426	31,028
	HOV3+	1,510	1,561	1,482	2,523	3,125	2,186	32,803	35,615	31,491
	CV	1,155	1,143	1,139	980	956	955	18,621	18,338	18,271
	Total	8,542	8,516	8,368	11,636	11,508	10,605	144,746	143,783	140,217
All Lanes	Avg. Auto Occupancy	1.26	1.26	1.26	1.36	1.40	1.34	1.37	1.39	1.37
I-80 WB at Yolo Causeway										
Lane		**AM Peak Hour**			**PM Peak Hour**			**Daily**		
Type	**Vehicle Type**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**
	SOV	4,820	4,470	4,136	5,112	4,604	4,411	58,618	55,279	50,747
	HOV2	0	786	844	0	1,228	1,198	4,122	19,028	18,206
	HOV3+	0	0	1,003	0	0	1,054	4,230	5,243	17,816
General	CV	1,046	948	858	1,007	909	859	17,783	16,651	15,237
Purpose	Total	5,866	6,204	6,841	6,119	6,741	7,522	84,753	96,201	102,006
Lanes	Avg. Auto Occupancy	1.00	1.07	1.20	1.00	1.10	1.22	1.06	1.16	1.27
	SOV	172	493	821	0	347	549	2,725	5,166	9,680
	HOV2	1,570	556	600	2,618	1,100	1,140	28,626	11,880	13,262
	HOV3+	2,033	2,210	809	2,411	2,533	1,071	28,645	28,992	13,709
	CV	48	135	225	0	76	122	1,028	1,902	3,244
Managed	Total	3,823	3,394	2,455	5,029	4,056	2,882	61,024	47,940	39,895
Lanes	Avg. Auto Occupancy	2.39	2.18	1.55	2.49	2.36	1.85	2.30	2.23	1.69
	SOV	4,992	4,963	4,957	5,112	4,951	4,960	61,344	60,445	60,427
	HOV2	1,570	1,342	1,444	2,618	2,328	2,338	32,746	30,908	31,468
	HOV3+	2,033	2,210	1,812	2,411	2,533	2,128	32,875	34,235	31,525
	CV	1,094	1,083	1,083	1,007	985	981	18,812	18,553	18,481
	Total	9,689	9,598	9,296	11,148	10,797	10,407	145,777	144,141	141,901
All Lanes	Avg. Auto Occupancy	1.30	1.30	1.27	1.37	1.38	1.35	1.37	1.38	1.37
I-80 Two-Way Total at Yolo Causeway										
Lane		**AM Peak Hour**			**PM Peak Hour**			**Daily**		
Type	**Vehicle Type**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**	**HOT 2**	**HOT 3+**	**Toll**
	SOV	8,823	8,289	7,760	10,591	9,659	9,085	115,841	106,977	101,014
	HOV2	0	1,478	1,552	0	2,392	2,364	7,072	38,076	35,556
	HOV3+	0	0	1,748	0	0	2,159	7,371	9,744	35,037
General	CV	2,076	1,910	1,774	1,987	1,833	1,710	35,020	32,091	30,361
Purpose	Total	10,899	11,677	12,834	12,578	13,884	15,318	165,304	186,888	201,968
Lanes	Avg. Auto Occupancy	1.00	1.07	1.19	1.00	1.09	1.21	1.06	1.16	1.27
	SOV	612	1,124	1,570	0	505	1,062	6,525	12,872	18,840
	HOV2	3,004	1,226	1,264	5,272	2,150	2,250	57,976	23,258	26,940
	HOV3+	3,543	3,771	1,547	4,933	5,654	2,152	58,307	60,105	27,979
	CV	173	316	448	0	108	226	2,412	4,800	6,391
Managed	Total	7,332	6,437	4,829	10,205	8,417	5,690	125,220	101,035	80,150
Lanes	Avg. Auto Occupancy	2.20	2.04	1.56	2.50	2.51	1.87	2.27	2.15	1.71
	SOV	9,435	9,413	9,330	10,591	10,164	10,148	122,366	119,849	119,854
	HOV2	3,004	2,704	2,818	5,272	4,542	4,614	65,046	61,334	62,496
	HOV3+	3,543	3,771	3,295	4,933	5,658	4,315	65,678	69,850	63,016
	CV	2,249	2,226	2,222	1,987	1,941	1,936	37,433	36,891	36,752
	Total	18,231	18,114	17,665	22,783	22,305	21,013	290,523	287,924	282,118
All Lanes	Avg. Auto Occupancy	1.28	1.28	1.27	1.37	1.39	1.34	1.37	1.38	1.37

Table 6: 2049 I-80/US 50 Person Trips

I-80 EB at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	2,508	2,466	2,335	4,632	4,092	3,807	37,074	35,357	34,207
	HOV2	0	462	472	0	964	896	1,844	10,948	10,774
	HOV3+	0	0	551	0	0	806	1,880	1,724	10,720
General	CV	894	887	859	805	720	659	12,891	12,575	12,211
Purpose	Total	3,402	3,815	4,217	5,437	5,776	6,168	53,689	60,604	67,912
Lanes	Avg. Auto Occupancy	1.00	1.06	1.17	1.00	1.09	1.20	1.04	1.12	1.24
	SOV	0	0	64	100	547	730	1,621	2,549	3,249
	HOV2	810	328	342	1,946	792	758	17,242	7,182	7,320
	HOV3+	955	1,040	466	1,904	1,761	813	18,265	18,387	8,398
	CV	0	0	22	23	131	182	850	1,085	1,307
Managed	Total	1,765	1,368	894	3,973	3,231	2,483	37,978	29,203	20,274
Lanes	Avg. Auto Occupancy	2.57	2.91	2.27	2.40	2.03	1.62	2.31	2.31	1.90
	SOV	2,508	2,466	2,399	4,732	4,639	4,538	38,694	37,906	37,456
	HOV2	810	790	814	1,946	1,756	1,652	19,084	18,130	18,094
	HOV3+	955	1,040	1,017	1,904	1,761	1,618	20,145	20,114	19,118
	CV	894	887	881	828	851	840	13,741	13,660	13,519
	Total	5,167	5,183	5,111	9,410	9,007	8,648	91,664	89,810	88,187
All Lanes	Avg. Auto Occupancy	1.26	1.28	1.28	1.33	1.31	1.29	1.35	1.35	1.34
I-80 WB at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	4,516	4,287	4,099	2,989	2,792	2,631	36,438	35,229	34,204
	HOV2	0	706	728	0	822	808	1,800	11,064	10,778
	HOV3+	0	0	772	0	0	758	1,884	1,843	11,084
General	CV	808	774	715	842	787	733	13,000	12,700	12,303
Purpose	Total	5,324	5,767	6,314	3,831	4,401	4,930	53,122	60,836	68,369
Lanes	Avg. Auto Occupancy	1.00	1.07	1.17	1.00	1.10	1.24	1.04	1.13	1.24
	SOV	426	670	833	0	114	255	2,956	3,632	4,375
	HOV2	1,394	476	500	1,480	598	580	16,956	6,722	7,148
	HOV3+	1,700	1,574	745	1,479	1,530	639	18,469	18,717	8,524
	CV	104	169	217	0	42	92	1,078	1,286	1,520
Managed	Total	3,624	2,889	2,295	2,959	2,284	1,566	39,459	30,357	21,567
Lanes	Avg. Auto Occupancy	2.10	1.88	1.51	2.52	2.52	1.90	2.20	2.20	1.80
	SOV	4,941	4,957	4,931	2,989	2,906	2,886	39,394	38,861	38,579
	HOV2	1,394	1,182	1,228	1,480	1,420	1,388	18,758	17,786	17,926
	HOV3+	1,700	1,574	1,520	1,479	1,530	1,397	20,352	20,560	19,611
	CV	912	943	932	842	829	824	14,078	13,985	13,823
	Total	8,947	8,656	8,611	6,790	6,685	6,495	92,582	91,192	89,939
All Lanes	Avg. Auto Occupancy	1.27	1.24	1.24	1.36	1.37	1.35	1.34	1.35	1.34
I-80 Two-Way Total at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	7,024	6,753	6,434	7,621	6,884	6,438	73,512	70,586	68,411
	HOV2	0	1,168	1,200	0	1,786	1,704	3,644	22,012	21,552
	HOV3+	0	0	1,323	0	0	1,564	3,764	3,567	21,804
General	CV	1,702	1,661	1,574	1,647	1,507	1,392	25,891	25,275	24,514
Purpose	Total	8,726	9,582	10,531	9,268	10,177	11,098	106,811	121,440	136,281
Lanes	Avg. Auto Occupancy	1.00	1.06	1.17	1.00	1.10	1.21	1.04	1.13	1.24
	SOV	426	670	897	100	661	985	4,577	6,181	7,624
	HOV2	2,204	804	842	3,426	1,390	1,338	34,198	13,904	14,468
	HOV3+	2,655	2,615	1,210	3,383	3,291	1,452	36,734	37,104	16,922
	CV	104	169	239	23	173	274	1,928	2,371	2,827
Managed	Total	5,389	4,258	3,188	6,932	5,515	4,049	77,437	59,560	41,841
Lanes	Avg. Auto Occupancy	2.23	2.12	1.67	2.45	2.21	1.72	2.25	2.25	1.85
	SOV	7,449	7,423	7,330	7,721	7,545	7,424	78,088	76,767	76,035
	HOV2	2,204	1,972	2,042	3,426	3,176	3,040	37,842	35,916	36,020
	HOV3+	2,655	2,615	2,536	3,383	3,291	3,016	40,497	40,674	38,729
	CV	1,806	1,830	1,813	1,670	1,680	1,664	27,819	27,645	27,342
	Total	14,114	13,840	13,721	16,200	15,692	15,144	184,246	181,002	178,126
All Lanes	Avg. Auto Occupancy	1.27	1.26	1.26	1.34	1.33	1.32	1.35	1.35	1.34

Table 6: 2049 I-80/US 50 Person Trips

US 50 EB at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	5,348	5,219	4,927	6,501	6,248	5,752	68,601	64,625	62,341
	HOV2	84	1,064	1,110	148	1,514	1,460	8,446	23,910	22,504
	HOV3+	92	44	1,149	122	3	1,289	7,677	7,524	21,512
General	CV	1,627	1,579	1,444	1,303	1,232	1,135	24,195	22,452	21,406
Purpose	Total	7,151	7,906	8,630	8,074	8,997	9,636	108,919	118,511	127,763
Lanes	Avg. Auto Occupancy	1.02	1.08	1.19	1.02	1.09	1.21	1.10	1.17	1.26
	SOV	0	203	558	0	0	535	3,227	5,900	8,834
	HOV2	2,360	942	930	2,814	804	1,162	30,424	11,352	14,048
	HOV3+	2,710	2,842	1,224	2,788	3,995	1,265	31,868	37,832	16,177
	CV	0	75	216	0	0	149	1,927	3,335	4,429
Managed	Total	5,070	4,062	2,928	5,602	4,799	3,111	67,446	58,419	43,488
Lanes	Avg. Auto Occupancy	2.56	2.56	1.83	2.52	3.04	1.90	2.27	2.24	1.74
	SOV	5,348	5,422	5,485	6,501	6,248	6,287	71,828	70,524	71,175
	HOV2	2,444	2,006	2,040	2,962	2,320	2,622	38,870	35,264	36,552
	HOV3+	2,802	2,887	2,373	2,910	3,998	2,553	39,545	45,356	37,689
	CV	1,627	1,654	1,660	1,303	1,232	1,284	26,122	25,788	25,834
	Total	12,221	11,969	11,558	13,676	13,798	12,746	176,365	176,932	171,250
All Lanes	Avg. Auto Occupancy	1.35	1.34	1.30	1.35	1.41	1.32	1.37	1.39	1.36
US 50 WB at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	5,572	5,345	5,096	5,709	5,321	5,169	65,167	62,027	60,305
	HOV2	616	1,072	1,174	906	1,758	1,798	15,724	24,436	24,342
	HOV3+	721	843	1,312	921	1,098	1,737	16,235	17,935	24,422
General	CV	1,279	1,215	1,165	1,473	1,354	1,298	23,711	22,473	21,775
Purpose	Total	8,188	8,475	8,747	9,009	9,531	10,002	120,837	126,871	130,844
Lanes	Avg. Auto Occupancy	1.11	1.15	1.21	1.14	1.21	1.27	1.19	1.24	1.29
	SOV	504	699	850	0	356	560	6,712	9,534	11,466
	HOV2	1,130	438	440	2,382	968	950	22,940	11,290	11,990
	HOV3+	1,380	1,527	602	2,326	2,207	928	23,062	23,423	12,679
	CV	148	197	248	0	122	190	3,074	4,208	4,925
Managed	Total	3,162	2,861	2,140	4,708	3,653	2,628	55,788	48,455	41,060
Lanes	Avg. Auto Occupancy	1.95	1.83	1.43	2.51	2.27	1.75	1.99	1.84	1.57
	SOV	6,075	6,045	5,945	5,709	5,677	5,729	71,878	71,561	71,771
	HOV2	1,746	1,510	1,614	3,288	2,726	2,750	38,664	35,726	36,330
	HOV3+	2,101	2,370	1,914	3,247	3,301	2,666	39,297	41,358	37,101
	CV	1,427	1,412	1,413	1,473	1,475	1,488	26,784	26,681	26,700
	Total	11,349	11,337	10,886	13,717	13,179	12,633	176,623	175,326	171,902
All Lanes	Avg. Auto Occupancy	1.26	1.27	1.25	1.40	1.39	1.35	1.36	1.37	1.35
US 50 Two-Way Total at Sacramento River										
Lane		AM Peak Hour			PM Peak Hour			Daily		
Type	Vehicle Type	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll	HOT 2	HOT 3+	Toll
	SOV	10,920	10,564	10,023	12,210	11,569	10,921	133,768	126,652	122,646
	HOV2	700	2,136	2,284	1,054	3,272	3,258	24,170	48,346	46,846
	HOV3+	813	887	2,462	1,044	1,102	3,026	23,912	25,459	45,934
General	CV	2,906	2,794	2,609	2,776	2,586	2,433	47,906	44,925	43,181
Purpose	Total	15,339	16,381	17,378	17,084	18,529	19,638	229,756	245,382	258,607
Lanes	Avg. Auto Occupancy	1.06	1.12	1.20	1.08	1.15	1.24	1.14	1.21	1.28
	SOV	504	902	1,408	0	356	1,095	9,939	15,434	20,300
	HOV2	3,490	1,380	1,370	5,196	1,772	2,112	53,364	22,642	26,038
	HOV3+	4,090	4,369	1,826	5,114	6,202	2,193	54,930	61,254	28,856
	CV	148	272	464	0	122	339	5,001	7,543	9,354
Managed	Total	8,232	6,923	5,068	10,310	8,452	5,739	123,234	106,873	84,548
Lanes	Avg. Auto Occupancy	2.29	2.20	1.64	2.51	2.65	1.83	2.13	2.04	1.65
	SOV	11,423	11,467	11,430	12,210	11,925	12,016	143,706	142,085	142,946
	HOV2	4,190	3,516	3,654	6,250	5,046	5,372	77,534	70,990	72,882
	HOV3+	4,903	5,256	4,287	6,157	7,300	5,219	78,843	86,714	74,790
	CV	3,054	3,066	3,073	2,776	2,707	2,772	52,906	52,469	52,534
	Total	23,570	23,305	22,444	27,393	26,978	25,379	352,989	352,258	343,152
All Lanes	Avg. Auto Occupancy	1.31	1.31	1.28	1.38	1.40	1.34	1.37	1.38	1.35

Capital Area Regional Tolling Authority

Meeting Date: February 15, 2024
Agenda Item: 5

Draft Conflict of Interest Code

Prepared By: Michael Maurer, Legal Counsel, Sacramento Area Council of Governments
Attachments: Yes

Recommendation:
None; this item is for information only.

Background:
The Political Reform Act (the "Act") requires all state and local government agencies to adopt and promulgate a conflict of interest code establishing the rules for reporting personal assets and the prohibition from making or participating in the making of any decisions that may affect any personal assets. A conflict of interest code must specifically designate all agency positions, except for those listed in Government Code section 87200, that make or participate in the making of agency decisions which may foreseeably have an effect on any financial interest of that person, and assign specific types of personal assets to be disclosed that may be affected by the exercise of powers and duties of that position. Because CARTA is an independent authority, it will be subject to the Political Reform Act and requires a Conflict of Interest Code.

For a multi-county agency, the Political Reform Act requires a 45-day public notice and comment period before adopting a Conflict of Interest Code. This item will serve to initiate the public notice and comment period so that the Board may adopt the Code at its next meeting on May 16, 2024.

Discussion:
The proposed Conflict of Interest Code is included as Attachment A to this staff report and incorporates FPPC Regulation 18730 by reference, and includes an Appendix designating positions that make or participate in making decisions of the agency and assigning appropriate disclosure categories in Part "A," listing disclosure categories in Part B, and declaring primary positions that specifically manage public investments. This is commonly referred to as the FPPC Standard Code. Because CARTA currently has no employees or consultants, the Code only reflects that it may have consultants in the future. In the event that CARTA acquires employees or other officers, the Code will need to be amended. CARTA Board Members are not listed on the Conflict of Interest Code because they are considered filers under Government Code section 87200. Board Members will have to file a Form 700 within 30 days of taking office (i.e., within 30 days of February 15, 2024).

CONFLICT OF INTEREST CODE
OF THE
CAPITAL AREA REGIONAL TOLLING AUTHORITY

The Political Reform Act (Government Code Section 81000, et seq.) requires state and local agencies to adopt and promulgate conflict of interest codes. The Fair Political Practices Commission has adopted a regulation (2 Cal. Code of Regulations section 18730) that contains the terms of a standard conflict of interest code, which can be incorporated by reference in an agency's code. After public notice and hearing the standard code may be amended by the Fair Political Practices Commission to conform to amendments in the Political Reform Act. Therefore, the terms of 2 California Code of Regulations section 18730 and any amendments to it duly adopted by the Fair Political Practices Commission are hereby incorporated by reference. This regulation and the attached Appendix designating positions and establishing disclosure categories, shall constitute the conflict of interest code of the **Capital Area Regional Tolling Authority ("Authority").**

All officials and designated positions shall file their statements of economic interests with the **Clerk of the Board** as the Authority's Filing Officer/Official. The **Clerk of the Board** shall make all statements available for public inspection and reproduction. (Gov. Code Section 81008.) All statements will be retained by the **Authority**.

APPENDIX

CONFLICT OF INTEREST CODE

OF THE

CAPITAL AREA REGIONAL TOLLING AUTHORITY

PART "A"

OFFICIALS WHO MANAGE PUBLIC INVESTMENTS

Authority Officials who manage public investments, as defined by 2 Cal. Code of Regs. § 18700.3(b), are NOT subject to the Capital Area Regional Tolling Authority's Code, but must file disclosure statements under Government Code Section 87200 et seq. [Regs. § 18730(b)(3)] These positions are listed here for informational purposes only.

It has been determined that the positions listed below are officials who manage public investments[1]:

Members of the Board of Directors and their Alternates

Investment Consultant

---

[1] Individuals holding one of the above-listed positions may contact the Fair Political Practices Commission for assistance or written advice regarding their filing obligations if they believe that their position has been categorized incorrectly. The Fair Political Practices Commission makes the final determination whether a position is covered by Government Code Section 87200.

DESIGNATED POSITIONS

GOVERNED BY THE CONFLICT OF INTEREST CODE

DESIGNATED POSITIONS' TITLE OR FUNCTION	DISCLOSURE CATEGORIES ASSIGNED
Consultants and New Positions[2]	

[2] Individuals providing services as a Consultant defined in Regulation 18700.3, or in a new position created since this Code was last approved that makes or participates in making decisions, as identified in Reg. 18734, shall disclose pursuant to the broadest disclosure category in this Code subject to the following limitation:

The Members of the Board of Directors may determine that due to the range of duties or contractual obligations, it is more appropriate to assign a limited disclosure requirement. A clear explanation of the duties and a statement of the extent of the disclosure requirements must be in a written document. (Gov. Code Sec. 82019; FPPC Regulations 18219 and 18734.) The Members of the Board of Directors determination is a public record and shall be retained for public inspection in the same manner and location as this Conflict of Interest Code. (Gov. Code Sec. 81008.)

PART "B"

DISCLOSURE CATEGORIES

The disclosure categories listed below identify the types of economic interests that the Designated Position must disclose for each disclosure category to which the designated is assigned. "Investment" means financial interests in any business entity (including a consulting business or other independent contracting business) and are reportable if they are either located in or doing business in the jurisdiction, are planning to do business in the jurisdiction, or have done business during the previous two years in the jurisdiction of the Capital Area Regional Tolling Authority.

Category 1: All investments and business positions in business entities, and sources of income, including gifts, loans and travel payments, that are located in, do business in, or own real property within the jurisdiction of the Authority.

Category 2: All interests in real property which is located in whole or in part within, or not more than two (2) miles outside, the jurisdiction of the Authority, including any leasehold, beneficial or ownership interest or option to acquire property.

Category 3: All investments and business positions in business entities, and sources of income, including gifts, loans and travel payments, that are engaged in land development, construction or the acquisition or sale of real property within the jurisdiction of the Authority.

Category 4: All investments and business positions in business entities, and sources of income, including gifts, loans and travel payments, that provide services, products, materials, machinery, vehicles or equipment of a type purchased or leased by the Authority.

Category 5: All investments and business positions in business entities, and sources of income, including gifts, loans and travel payments, that provide services, products, materials, machinery, vehicles or equipment of a type purchased or leased by the designated position's department, unit or division.

CAPITAL AREA REGIONAL TOLLING AUTHORITY
CONFLICT OF INTEREST CODE

ADOPTED _____, BY

RESOLUTION NO. _____

May 16, 2024

CAPITAL AREA REGIONAL TOLLING AUTHORITY

EXPLANATION OF DESIGNATION OF POSITIONS AND THE ASSIGNMENT OF DISCLOSURE REQUIREMENTS

Pursuant to Government Code sections 87300 and 87303, as well as 2 California Code of Regulations section 18750.1, the Capital Area Regional Tolling Authority (the "Authority") has proposed its initial Conflict of Interest Code (the "Code"). The Code must designate those employees, members, officers, and consultants who make or participate in the making of decisions which may foreseeably have a material effect on a financial interest and are therefore, subject to the disclosure and disqualification requirements of the Code.

The Code must also set forth Disclosure Categories to be assigned to the designated positions requiring individuals holding each position to disclose personal interests that may be affected by the exercise of the individual's duties.

Below is an explanation of the specific designations, their disclosure requirements and the requirements of the Disclosure Categories created.

"OFFICIALS WHO MANAGE PUBLIC INVESTMENTS"

The Authority has delineated those primary officials determined to fall under the definition of "Officials Who Manage Public Investments" as required by the Fair Political Practices Commission (the "FPPC"). The Code does not establish disclosure requirements for these officials as specified in Gov. Code Section 87200.

The positions meeting the definition of "Officials Who Manage Public Investments" have full disclosure requirements under Section 8720 and are as follows:

Members, Board of Directors and their Alternates: The Board is the primary body responsible for "formulating or approving investment policies," a pivotal component of the management of public funds. [§ 18700.3]. Therefore, it has been determined that the Members of the Board of Directors and their Alternates meet the definition of "officials who manage public investments." Pursuant to Section 18700.3, these officials are subject to the conflict-of-interest provisions of the Political Reform Act (the "Act") and have full disclosure responsibilities.

Investment Consultant: This generic position has been added to cover contracting with consultants that specifically advise in portfolio development and investments, or fall under other elements of the definition of the "management of investments."

"DESIGNATED POSITIONS"

The Authority's list of Designated Positions specifically enumerates all positions within the Authority which make or participate in the making of Authority decisions which may foreseeably have a material effect on that position's financial interests.

Disclosure Categories have been assigned to the Designated Positions on a narrow basis in relation to their official duties with the Authority to prevent requiring more disclosure than necessary.

Positions that, by virtue of their positions, are involved in all facets of Authority operations have been assigned Categories 1, 2 indicating "full disclosure" requirements. Likewise, positions having narrower involvement and/or responsibilities with the Authority have been assigned more limiting disclosure requirements based on the duties of the position. (See Explanation of Types of Disclosure Categories, below.)

Consultants and New Positions

Consultants is a generic designated position to cover any contracted positions not specifically designated meeting the definition of Consultant under the Act and required to file disclosure statements because they may make, participate in making or influence decisions, as defined.

New Positions covers any newly created positions for interim filing requirements pending amendment of the Code.

Consultants and New Positions have specific language appended to them indicating that these positions have full disclosure responsibilities unless specifically narrowed or waived, in writing, by the Members of the Board of Directors, based on their duties and placed on file with the Authority's Filing Officer. Identification of New Positions and Consultants will be done on FPPC Forms 804 and 805, respectively, and filed with the Authority's Filing Officer.

EXPLANATION OF DISCLOSURE CATEGORIES

Disclosure Categories identify the types of investments, business entities, sources of income, including gifts, loans and travel payments, or real property which the Designated Employee must disclose for each disclosure category to which the designated is assigned.

The Authority cannot require a Designated Position to over-disclose. Disclosure Categories must be designed and assigned **depending on the duties and responsibilities of the position held**. Therefore, Disclosure Categories one and two have been designed to be assigned to the position listed in Part "A" of the Appendix to the proposed Code. The Authority added Disclosure Categories three through five for additional designated positions in the future. This list of Disclosure Categories provides flexibility in the application of the various Categories to the different designated positions but are narrow enough so as not to require over-disclosure by a Designated Position or Consultant.

ASSIGNMENT OF DISCLOSURE CATEGORIES:

Category 1: All investments and business positions in business entities, and sources of income, including gifts, loans and travel payments, that are located in, do business in, or own real property within the jurisdiction of the Authority.

Category 2: All interests in real property which is located in whole or in part within, or not more than two (2) miles outside, the jurisdiction of the Authority, including any leasehold, beneficial or ownership interest or option to acquire property.

Category 3: All investments and business positions in business entities, and sources of income, including gifts, loans and travel payments, that are engaged in land development, construction or the acquisition or sale of real property within the jurisdiction of the Authority.

Category 4: All investments and business positions in business entities, and sources of income, including gifts, loans and travel payments, that provide services, products, materials, machinery, vehicles or equipment of a type purchased or leased by the Authority.

Category 5: All investments and business positions in business entities, and sources of income, including gifts, loans and travel payments, that provide services, products, materials, machinery, vehicles or equipment of a type purchased or leased by the designated position’s department, unit or division.

NOTICE OF INTENTION TO ADOPT THE CONFLICT OF INTEREST CODE OF THE CAPITAL AREA REGIONAL TOLLING AUTHORITY

NOTICE IS HEREBY GIVEN that the Board of Directors of the **Capital Area Regional Tolling Authority** (the "**Authority**") intends to adopt a Conflict of Interest Code (the "Code") pursuant to Government Code Section 87300.

A conflict of interest code designates those employees, members, officers and consultants who make or participate in the making of governmental decisions which may affect their financial interests, who must disclose those interests in financial disclosure statements, and who must disqualify themselves from making or participating in the making of governmental decisions affecting those interests.

The proposed Code will be considered for adoption by the Board of Directors on May 16, 2024, at 12:00 p.m. at SACOG Offices, 1415 I Street, Suite 300, Sacramento, California. Any interested person may be present and comment at the public meeting or may submit written comments concerning the proposed Code. No public hearing on this matter will be held unless an interested person or his or her representative requests a public hearing no later than May 1, 2024, 15 days prior to the close of the written comment period. Any comments or inquiries should be directed to the attention of Lanette Espinoza, Clerk of the Board, at lespinoza@sacog.org. Written comments must be submitted no later than May 16, 2024, at 12:00 p.m.

The Authority has prepared a written explanation of the reasons for the proposed adoption and has available the information on which the proposed Code is based. Copies of the proposed Code, the written explanation, and the information on which the proposed Code is based may be reviewed at, and copies obtained from, the office of the Filing Officer noted below.

Capital Area Regional Tolling Authority

Meeting Date: February 15, 2024
Agenda Item: 6

Joint Powers Authority Formation Activities

Prepared By: Kathleen Hanley, Sacramento Area Council of Governments
Attachments: No

Recommendation:
None; this item is for information only.

Background:
The CARTA Joint Powers Authority (JPA) agreement was executed by all parties on January 24, 2024, referred to as the JPA's effective date. California Government Code Section 6500 et seq. establishes required tasks for a newly-formed JPA and deadlines for those activities. This report outlines those required tasks and provides information on progress that has been made to meet these requirements for CARTA.

Discussion:
Required JPA formation tasks are organized according to their deadline in relation to the effective date. Staff will provide similar updates at future CARTA meetings to keep the board informed on the progress of these activities.

Tasks required within 30 days of the effective date:

1. File two notices of the JPA Agreement with the California Secretary of State. The notices must contain: (a) the name of each public agency that is a party; (b) the date that the agreement became effective; and (c) a statement of the purpose of the agreement or the power to be exercised. A notice form is available on the Secretary of State's website. This same requirement applies to any amendment to the JPA Agreement. (Gov. Code § 6503.5)
    a. Status: In-progress
2. File a copy of the full text of the original JPA Agreement and any amendment with the State Controller. (Gov. Code § 6503.6)
    a. Status: In-progress
3. File a copy of the full text of the original JPA Agreement and any amendment with the Yolo County Local Agency Formation Commission (LAFCO). (Gov. Code § 6503.6)
    a. Status: In-progress

Tasks required at first board meeting:

1. Administer the Oath of Office.1 (Cal. Const. art. XX, § 3)
    a. Status: Included for action at this meeting

2. Appoint a Chair, Vice-Chair, Secretary, and Treasurer (JPA Agreement)
    a. Status: Included for action at this meeting
3. Adopt a resolution establishing the time and location of regular meetings. Under the JPA Agreement, a copy of the resolution must be provided to the governing body of each of the member agencies. (Gov. Code § 54954)
    a. Status: Included for action at this meeting

Tasks required within 30 days of Oath of Office:

1. Board Members (and alternates who have taken the oath of office) file Assuming Office Statements (Form 700s). (Gov. Code § 87202.)
    a. Status: Not started

Tasks required within 70 days of effective date:

1. File a Statement of Facts – Roster of Public Agencies form with the California Secretary of State and Sacramento County Clerk-Recorder. The statement must contain the following facts, the form for which is available on the Secretary of State's website: (1) the full, legal name of the Authority; (2) the official mailing address of the Board of Directors of the Authority; (3) the name and residence or business address of each member of the Authority's Board of Directors; (4) the name, title, and residence or business address of the Chair and Secretary of the Authority's Board of Directors. (Gov. Code § 53051.)
    a. Status: Not started

Tasks required within 180 days of effective date:

1. Adopt a Conflict of Interest Code and submit proposed code to the Fair Political Practices Commission, which serves as the code-reviewing body. (Gov. Code § 82011). Officers and employees designated in the Conflict of Interest Code must file Assuming Office Statements (Form 700s) within 30 days of the effective date of the Conflict of Interest Code. (Gov. Code § 87300, et seq.)
    a. Status: Not started

Additional tasks required by law:

1. Adopt procurement policies and procedures, including bidding procedures, for the purchase of supplies, services, and equipment, and establish signature authority. (Gov. Code § 54202.)
    a. Status: Complete. CARTA adopted SACOG's procurement policies and procedures as part of the JPA agreement.
2. Adopt objectives, criteria, and procedures for the evaluation of projects and the preparation of environmental impact reports and negative declarations before undertaking any actions requiring CEQA compliance. (Pub. Res. Code § 21082.)
    a. Status: Not started
3. Designation and bonding of persons having charge of Authority property (Gov. Code § 6505.1)
    a. Status: Not started

4. Establish an account as an awarding body with Department of Industrial Relations prior to the award of any "public work" under the Labor Code. (Labor Code § 1720 et seq.)
    a. Status: Not started
5. Apply for a Tax Identification Number
    a. Status: Not started
6. Adopt a claims procedure. (Gov. Code § 910 et seq.)
    a. Status: Not started
7. Adopt personnel rules and procure workers' compensation insurance (if applicable when the Authority has its first employee). (Labor Code § 3700 et seq.)
    a. Status: Not required until CARTA elects to acquire employees.

Additional tasks regarding administration and operation:

1. Procure general liability, business property, and other appropriate insurance.
    a. Status: Not started
2. Adopt resolutions, bylaws, or policies concerning: preparation of agendas; board members and alternates; additional standing committees; board expense reimbursement policy; rules of conduct for board meetings, including public comment rules; locations for posting of ordinances and resolutions; signatories on Authority checks and financial documents; designation of Authority holidays, establishment of regular business hours and designation of Authority's mailing address; insurance and risk management policy; budget, accounting and audit policy; annual investment policy; travel and reimbursement policy; personnel rules and policy; record retention policy and schedule; delegation of authority to accept easements and other real property interests; and Public Records Act procedures.
    a. Status: Included for action at this meeting