

The background of the slide is a light gray topographic map with white contour lines. A solid blue rectangular box is positioned on the right side of the slide, containing the title text in white.

APPENDIX D

TRAVEL DEMAND MODELING TECHNICAL ANALYSIS



TECHNICAL MEMORANDUM

Date: 10/7/26

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Subject: Placer-Sacramento Gateway Plan Update Travel Demand Modeling Technical Analysis

This technical memorandum documents the travel demand modeling methodology and performance evaluation developed for the Placer-Sacramento Gateway Plan Update project. The analysis utilized outputs from the SACSIM23 2020 and 2050 Blueprint model runs to compare transportation system performance under 2020 Existing Conditions, 2050 No-Build, and 2050 Build scenarios.

The memorandum is organized by performance measure. Each performance-measure section summarizes the applicable data sources, analysis methodology, and evaluation results. Performance measures are presented for the 2020 Existing, 2050 No-Build, and 2050 Build scenarios, as applicable.

This memorandum addresses the following topics:

- Analysis Methodology
- Geographic Area Definitions
- Performance Measures
 - o Vehicle Miles Traveled (VMT)
 - o Vehicle-Hours of Delay (VHD)
 - o Person-Hours of Delay (PHD)
 - o Commercial Vehicle Delay and Freight Performance
 - o Person Throughput
 - o Multimodal Travel



- o Neighborhood Traffic
- o Transit Person-Hours of Delay

ANALYSIS METHODOLOGY

The corridor performance measures selected for this technical analysis were based on the CTC Comprehensive Multimodal Corridor Plan Guidelines. The performance evaluation uses outputs from SACSIM23 2020 and 2050 Blueprint model runs to evaluate the transportation effects of the Gateway Plan. Three scenarios were analyzed:

1. **2020 Existing Conditions.** This scenario represents existing transportation and land use conditions and provides a baseline for understanding longer-term changes in travel conditions.
2. **2050 No-Build.** This scenario represents forecast year 2050 conditions without the Gateway Plan improvements evaluated in this analysis.
3. **2050 Build.** This scenario represents forecast year 2050 conditions with the Gateway Plan improvements included in the transportation network.

The 2050 Build and No-Build transportation networks were developed from the SACSIM23 2050 Blueprint network. For the 2050 Build network, Gateway Plan projects already fully represented in the Blueprint network were retained, while projects that were partially represented or not included were updated or added to reflect the full project improvements. To develop the 2050 No-Build network, Gateway Plan projects already included in the Blueprint network were removed. Toll-lane configurations and associated toll settings were also adjusted as needed to be consistent with the network assumptions for each scenario.

The primary evaluation of Gateway Plan performance is based on a comparison of the 2050 Build and 2050 No-Build scenarios. The two scenarios use the same 2050 population of 875,795 in study area, allowing differences in the performance measures to reflect the transportation effects of the network scenarios. The 2020 Existing Conditions scenario is also presented to provide context for longer-term changes between existing and future conditions.



Performance measures were developed at different geographic levels appropriate to each measure, including screenline-based roadway segment groups, the Gateway Corridor study area, the American River crossing, the SACSIM23 model region, counties, and subareas within Placer County. These analysis geographies and their associated performance measures are described in the following section.

GEOGRAPHIC AREA DEFINITIONS

Performance measures were summarized at different geographic levels depending on the purpose of each measure. Table 1 summarizes the geographic levels used in the analysis and the corresponding performance measures.

Table 1. Performance Measures by Analysis Geography

Analysis Geography	Performance Measures
Screenline-Based Roadway Segment Groups	VMT; VHD; PHD; transit PHD; commercial-vehicle VHD; non-SOV mode share; freight transport time
Screenline Locations	Truck volume
Gateway Corridor Study Area	Walk/bike/transit/school bus mode share; walk mode share; bike mode share; transit mode share; population
American River Cutline	Person throughput
County / Placer County Subareas	VMT
SACSIM23 Model Region	VMT; VHD; PHD; local-roadway VMT

Screenline Locations and Roadway Segment Groups

Twelve screenline locations were defined along the Gateway Corridor, with each screenline represented by a point on the corresponding freeway segment. The screenline locations are:

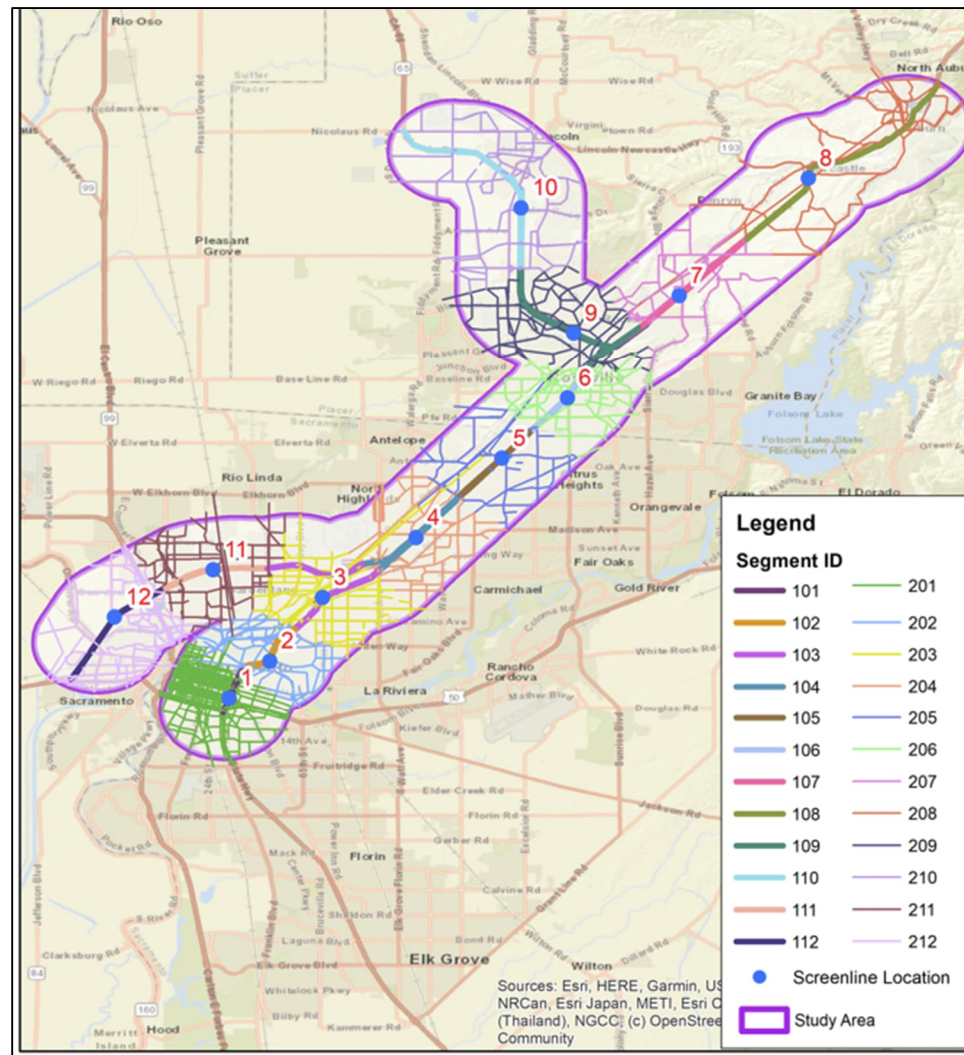


1. Business 80 at Q Street
2. Business 80 at the American River
3. Business 80 at Howe Avenue
4. I-80 at Madison Avenue
5. I-80 at Antelope Road
6. I-80 at Douglas Boulevard
7. I-80 at Sierra College Boulevard
8. I-80 at Newcastle Road
9. Highway 65 at Galleria Boulevard
10. Highway 65 at Twelve Bridges Drive
11. I-80 at Northgate Boulevard
12. I-80 at El Camino Avenue

Roadway links within the study area were assigned to the 12 screenline locations based on their proximity to each location and were further classified as either Gateway Corridor or local-neighborhood roadways. The Gateway Corridor generally represents the major freeway facilities within the study area, including I-80, SR 51, and SR 65, while the local-neighborhood network represents local roadways adjacent to the freeway corridors. The study area is defined by a two-mile buffer along the Gateway Corridor.

Figure 1 shows the 12 screenline locations and the associated roadway segment groups. As shown in the figure, segment IDs in the 100 series (1XX) represent freeway links along the Gateway Corridor, while segment IDs in the 200 series (2XX) represent local roadways in adjacent neighborhoods.

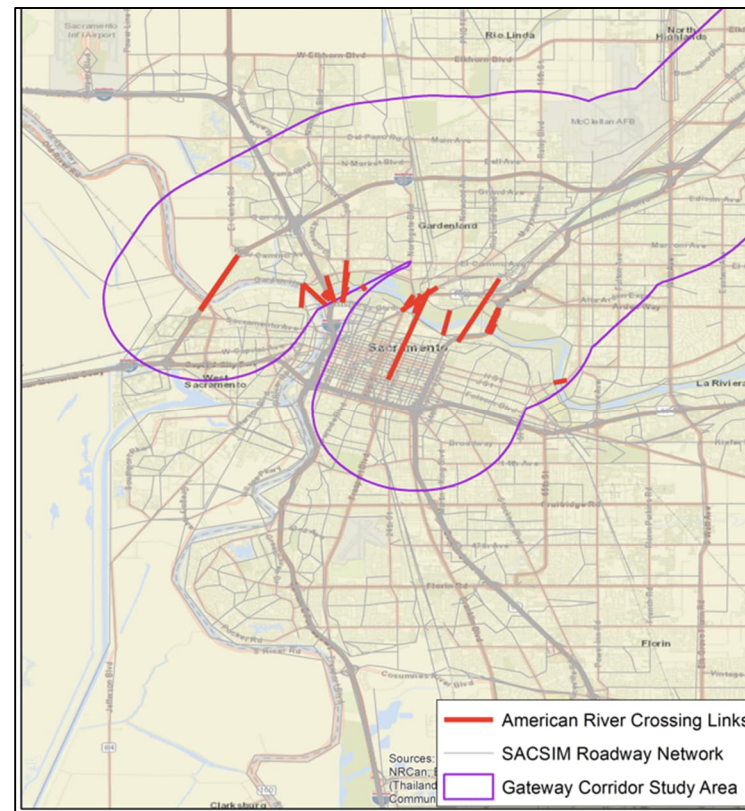
Figure 1. Screenline Locations and Roadway Segment Definitions



American River Cutline

A separate cutline was established to evaluate person throughput across the American River. All model network links crossing the American River were identified as crossing links. Person throughput across these links, including both roadway and transit travel, was summarized for each scenario.

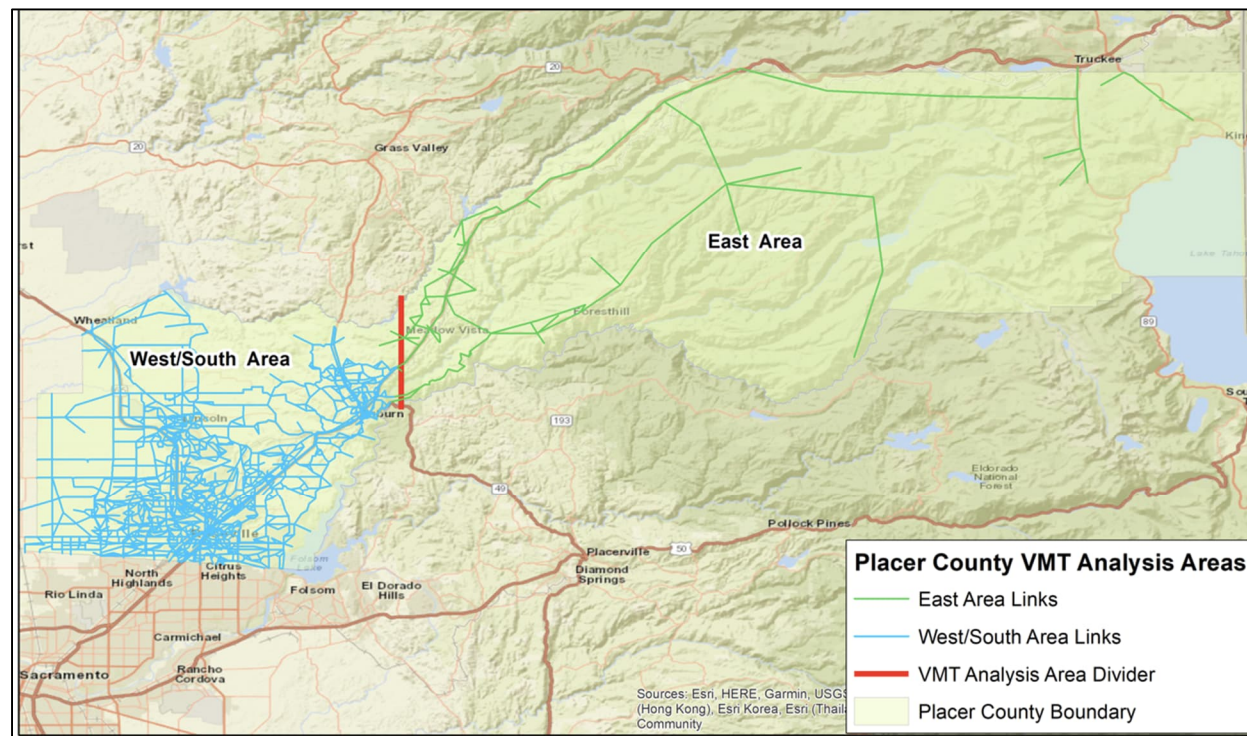
Figure 2. American River Crossing Links



SACSIM23 Model Region, Counties and Placer County Subareas

Regional VMT, VHD, and PHD were summarized for the full SACSIM23 model region to evaluate broader systemwide transportation effects. VMT was also summarized by county to evaluate the geographic distribution of travel within the region. Within Placer County, network links were further classified into East and West/South analysis areas using the VMT analysis area divider shown in Figure 3, and VMT was summarized separately for each area.

Figure 3. Placer County VMT Analysis Areas





PERFORMANCE MEASURES

Performance measures were summarized at the geographic levels applicable to each measure. Where screenline-based analysis was conducted, results are presented for the individual screenline roadway segment groups in the corresponding performance-measure tables.

Vehicle Miles Traveled (VMT)

Vehicle Miles Traveled (VMT) represents the total distance traveled by vehicles within a defined roadway network or geographic area. VMT provides an overall measure of vehicular travel and is used in this analysis to evaluate changes in travel activity associated with the Gateway Plan.

Data Source and Methodology

VMT was calculated from SACSIM23 model loaded network outputs based on the modeled traffic volume and length of each roadway link. Link-level VMT was calculated as:

$$VMT = Link\ Volume \times Link\ Length$$

Link-level VMT was aggregated for each of the 12 screenline-based roadway segment groups, the Gateway Corridor Total, the SACSIM23 model region, counties, and the East and West/South areas of Placer County.

Evaluation Results

Table 2 presents VMT for the 12 screenline-based roadway segment groups, the Gateway Corridor Total, and the SACSIM23 model region. Each screenline-based segment group includes both Gateway Corridor freeway links and associated local-neighborhood roadways. The Gateway Corridor Total represents the combined VMT for all 12 segment groups.



Table 2. Vehicle Miles Traveled by Screenline-Based Roadway Segment Group and SACSIM23 Model Region

Screenline / Analysis Area	2020 Existing (x1,000)	2050 No-Build (x1,000)	2050 Build (x1,000)	Build vs. No-Build
1 – Business 80 at Q Street	2,782	3,192	3,231	1.2%
2 – Business 80 at the American River	1,243	1,331	1,364	2.5%
3 – Business 80 at Howe Avenue	2,025	2,136	2,157	1.0%
4 – I-80 at Madison Avenue	2,069	2,183	2,194	0.5%
5 – I-80 at Antelope Road	1,671	1,783	1,787	0.2%
6 – I-80 at Douglas Boulevard	1,526	1,675	1,677	0.1%
7 – I-80 at Sierra College Boulevard	925	1,042	1,034	-0.8%
8 – I-80 at Newcastle Road	1,199	1,286	1,285	-0.1%
9 – Highway 65 at Galleria Boulevard	1,589	1,884	1,932	2.5%
10 – Highway 65 at Twelve Bridges Drive	760	1,110	1,126	1.4%
11 – I-80 at Northgate Boulevard	1,058	1,196	1,190	-0.5%
12 – I-80 at El Camino Avenue	1,947	2,306	2,325	0.8%
Gateway Corridor Total	18,794	21,123	21,301	0.8%
SACSIM23 Model Region	59,217	68,375	68,625	0.4%

Note: Each screenline-based roadway segment group includes both Gateway Corridor freeway links and associated local-neighborhood roadways. The Gateway Corridor Total represents the combined VMT for all 12 segment groups.



Table 3. VMT by County and Placer County Analysis Area

County / Analysis Area	2020 Existing (x1,000)	2050 No-Build (x1,000)	2050 Build (x1,000)	Build vs. No- Build
El Dorado	3,571	3,764	3,767	0.1%
Placer	9,549	11,542	11,585	0.4%
East	1,545	1,817	1,816	-0.1%
West/South	8,004	9,726	9,769	0.4%
Sacramento	32,748	37,376	37,618	0.6%
Sutter	2,326	2,682	2,695	0.5%
Yolo	5,943	7,145	7,089	-0.8%
Yuba	1,756	1,993	2,001	0.4%
Other	3,324	3,872	3,870	0.0%
SACSIM23 Model Region Total	59,217	68,375	68,625	0.4%

Note: East and West/South are subareas of Placer County and are shown as a breakdown of the Placer County total.

Vehicle-Hours of Delay (VHD) and Person-Hours of Delay (PHD)

Data Source and Methodology

Vehicle-Hours of Delay (VHD) measures the additional vehicle travel time associated with congested conditions relative to uncongested travel conditions. Person-Hours of Delay (PHD) extends this measure to account for the number of persons traveling in each vehicle and provides a person-based measure of congestion delay.

VHD was calculated using SACSIM23 model loaded network outputs based on modeled traffic volume, congested travel time, and free-flow travel time, as follows:



$$VHD = \text{Link Volume} \times (\text{Congested Travel Time} - \text{Free-Flow Travel Time})$$

PHD was calculated by applying the corresponding vehicle occupancy to VHD for each vehicle class and summing across vehicle classes:

$$PHD = \sum (VHD_i \times \text{Vehicle Occupancy}_i)$$

where i represents each vehicle class (e.g., drive alone, shared ride 2, and shared ride 3⁺).

VHD and PHD were aggregated for each of the 12 screenline-based roadway segment groups, the Gateway Corridor Total, and the SACSIM23 model region.

Evaluation Results

Tables 4 and 5 present VHD and PHD, respectively, for the 12 screenline-based roadway segment groups, the Gateway Corridor Total, and the SACSIM23 model region. Each screenline-based segment group includes both Gateway Corridor freeway links and associated local-neighborhood roadways. The Gateway Corridor Total represents the combined results for all 12 segment groups.



Table 4. Vehicle-Hours of Delay (VHD)

Screenline / Analysis Area	2020 Existing (x1,000)	2050 No-Build (x1,000)	2050 Build (x1,000)	Build vs. No-Build
1 – Business 80 at Q Street	12.6	18.9	19.2	1.9%
2 – Business 80 at the American River	8.7	11.4	7.6	-33.6%
3 – Business 80 at Howe Avenue	9.6	11.3	11.8	4.5%
4 – I-80 at Madison Avenue	10.6	12.7	13.0	2.7%
5 – I-80 at Antelope Road	9.3	11.4	11.6	1.7%
6 – I-80 at Douglas Boulevard	7.6	9.6	9.7	1.0%
7 – I-80 at Sierra College Boulevard	2.0	3.0	2.9	-3.0%
8 – I-80 at Newcastle Road	2.5	2.8	2.8	0.3%
9 – Highway 65 at Galleria Boulevard	5.8	8.7	7.4	-15.0%
10 – Highway 65 at Twelve Bridges Drive	1.6	3.6	2.9	-19.2%
11 – I-80 at Northgate Boulevard	2.8	3.8	4.2	10.3%
12 – I-80 at El Camino Avenue	5.6	9.4	7.3	-22.4%
Gateway Corridor Total	78.7	106.5	100.4	-5.7%
SACSIM23 Model Region	200.0	276.5	267.7	-3.2%



Table 5. Person-Hours of Delay (PHD)

Screenline / Analysis Area	2020 Existing (x1,000)	2050 No-Build (x1,000)	2050 Build (x1,000)	Build vs. No-Build
1 – Business 80 at Q Street	16.4	24.5	25.0	1.8%
2 – Business 80 at the American River	11.3	14.9	9.8	-34.5%
3 – Business 80 at Howe Avenue	12.6	14.8	15.5	4.9%
4 – I-80 at Madison Avenue	14.0	16.7	17.2	2.9%
5 – I-80 at Antelope Road	12.6	15.2	15.6	2.1%
6 – I-80 at Douglas Boulevard	9.9	12.5	12.7	0.8%
7 – I-80 at Sierra College Boulevard	2.7	4.0	3.8	-3.1%
8 – I-80 at Newcastle Road	3.2	3.7	3.7	0.2%
9 – Highway 65 at Galleria Boulevard	7.7	11.4	9.6	-15.4%
10 – Highway 65 at Twelve Bridges Drive	2.2	4.8	3.8	-20.3%
11 – I-80 at Northgate Boulevard	3.7	5.1	5.6	11.1%
12 – I-80 at El Camino Avenue	7.4	12.1	9.3	-23.3%
Gateway Corridor Total	103.7	139.7	131.6	-5.8%
SACSIM23 Model Region	264.6	366.2	354.2	-3.3%

Commercial Vehicle Delay and Freight Performance

Data Source and Methodology

Freight performance was evaluated using commercial-vehicle vehicle-hours of delay (VHD), truck freight transport time, and truck volume. These measures were evaluated for the Gateway Corridor freeway segments associated with each of the 12 screenline locations.



Commercial-vehicle VHD represents the additional travel time experienced by freight vehicles under congested conditions relative to uncongested conditions. It was calculated using the same methodology as total VHD, but based on freight vehicle volumes.

Truck freight transport time represents the total vehicle-hours of travel (VHT) accumulated by freight vehicles on the freeway segments and was calculated as:

$$\text{Truck Freight Transport Time (VHT)} = \sum (\text{Truck Volume}_i \times \text{Travel Time}_i)$$

where i represents each freeway link within the applicable screenline-based segment group.

Truck volume was measured at each of the 12 screenline locations and represents the modeled freight vehicle volume crossing the corresponding screenline.

Evaluation Results

The results provide an indication of changes in freight operating conditions along the Gateway Corridor, including changes in commercial-vehicle delay, overall truck travel time, and truck demand at key corridor locations.



Table 6. Commercial-Vehicle VHD for Gateway Corridor Freeway Segments

Screenline / Analysis Area	2020 Existing (vehicle-hours)	2050 No-Build (vehicle-hours)	2050 Build (vehicle-hours)	Build vs. No-Build
1 – Business 80 at Q Street	138	202	230	14.2%
2 – Business 80 at the American River	804	1,188	403	-66.1%
3 – Business 80 at Howe Avenue	990	1,335	1,401	4.9%
4 – I-80 at Madison Avenue	898	1,168	1,229	5.3%
5 – I-80 at Antelope Road	673	979	1,013	3.5%
6 – I-80 at Douglas Boulevard	450	476	538	13.0%
7 – I-80 at Sierra College Boulevard	255	382	369	-3.4%
8 – I-80 at Newcastle Road	290	420	422	0.5%
9 – Highway 65 at Galleria Boulevard	385	754	518	-31.3%
10 – Highway 65 at Twelve Bridges Drive	120	268	155	-42.3%
11 – I-80 at Northgate Boulevard	242	325	335	3.1%
12 – I-80 at El Camino Avenue	118	189	156	-17.5%
Gateway Corridor Total	5,364	7,683	6,768	-11.9%



Table 7. Truck Freight Transport Time (VHT) for Gateway Corridor Freeway Segments

Screenline / Analysis Area	2020 Existing (vehicle-hours)	2050 No-Build (vehicle-hours)	2050 Build (vehicle-hours)	Build vs. No-Build
1 – Business 80 at Q Street	1,083	1,293	1,452	12.3%
2 – Business 80 at the American River	2,563	3,194	2,682	-16.0%
3 – Business 80 at Howe Avenue	5,265	6,326	6,548	3.5%
4 – I-80 at Madison Avenue	4,781	5,710	5,844	2.3%
5 – I-80 at Antelope Road	4,004	4,926	5,025	2.0%
6 – I-80 at Douglas Boulevard	2,852	3,411	3,537	3.7%
7 – I-80 at Sierra College Boulevard	2,498	3,164	3,161	-0.1%
8 – I-80 at Newcastle Road	3,651	4,591	4,604	0.3%
9 – Highway 65 at Galleria Boulevard	2,988	4,337	4,338	0.0%
10 – Highway 65 at Twelve Bridges Drive	1,449	2,055	2,059	0.2%
11 – I-80 at Northgate Boulevard	2,177	2,662	2,736	2.8%
12 – I-80 at El Camino Avenue	1,574	2,244	2,120	-5.5%
Gateway Corridor Total	34,883	43,912	44,106	0.4%

**Table 8. Truck Volume at Screenline Locations**

Screenline / Analysis Area	2020 Existing (vehicles)	2050 No-Build (vehicles)	2050 Build (vehicles)	Build vs. No-Build
1 – Business 80 at Q Street	41,052	48,121	51,950	8.0%
2 – Business 80 at the American River	41,630	47,249	54,551	15.5%
3 – Business 80 at Howe Avenue	39,278	44,987	47,608	5.8%
4 – I-80 at Madison Avenue	66,791	77,553	78,890	1.7%
5 – I-80 at Antelope Road	58,140	68,513	69,576	1.6%
6 – I-80 at Douglas Boulevard	52,217	63,245	64,268	1.6%
7 – I-80 at Sierra College Boulevard	24,287	30,089	30,270	0.6%
8 – I-80 at Newcastle Road	24,350	29,889	30,031	0.5%
9 – Highway 65 at Galleria Boulevard	24,879	35,720	38,594	8.0%
10 – Highway 65 at Twelve Bridges Drive	13,390	17,624	18,711	6.2%
11 – I-80 at Northgate Boulevard	33,288	41,036	42,307	3.1%
12 – I-80 at El Camino Avenue	21,761	31,089	29,480	-5.2%
Gateway Corridor Total	441,063	535,116	556,236	3.9%

Person Throughput

Data Source and Methodology

Person throughput was evaluated across the American River cutline. The measure represents the total number of persons crossing the river using roadway and transit modes and provides a multimodal measure of travel accommodated across this regional constraint.



Roadway person throughput was calculated by applying the corresponding vehicle occupancy to the modeled vehicle volume for each vehicle class on each highway link crossing the American River. Transit person volume across the cutline was then added to obtain total person throughput:

$$\text{Person Throughput} = \sum_i \sum_j (\text{Vehicle Volume}_{ij} \times \text{Vehicle Occupancy}_j) + \sum_k \text{Transit Person Volume}_k$$

where i represents highway links crossing the American River, j represents vehicle class, and k represents transit links crossing the American River.

Evaluation Results

Table 9. Person Throughput across the American River Cutline

Measure	2020 Existing	2050 No-Build	2050 Build	Build vs. No-Build
Person Throughput	371,821	402,777	431,575	7.1%

Multimodal Travel

Data Source and Methodology

Multimodal travel was evaluated using both screenline-based roadway measures and modeled mode shares within the Gateway Corridor study area.

Non-single-occupant-vehicle (non-SOV) mode share was calculated for the Gateway Corridor freeway segments associated with each of the 12 screenline locations. The measure was calculated based on VMT by vehicle occupancy class, with shared-ride 2 (SR2) and shared-ride 3⁺ (SR3⁺) VMT representing non-SOV travel:

$$\text{Non-SOV Mode Share} = (\text{SR2 VMT} + \text{SR3}^+ \text{ VMT}) / \text{Total VMT}$$



Study-area mode shares were calculated using modeled trips associated with TAZs within the Gateway Corridor study area. Trips within the selected study-area TAZs were summarized by travel mode to calculate the share of total trips made by walk, bicycle, transit/school bus, and transit modes:

$$\text{Mode Share}_m = \text{Trips by Mode}_m / \text{Total Trips}$$

where m represents the applicable travel mode.

**Evaluation Results**

Table 10. Non-SOV Mode Share for Gateway Corridor Freeway Segments

Screenline / Analysis Area	2020 Existing	2050 No-Build	2050 Build	Build vs. No-Build
1 – Business 80 at Q Street	21.2%	20.6%	21.0%	0.3 pp
2 – Business 80 at the American River	19.6%	19.3%	19.5%	0.2 pp
3 – Business 80 at Howe Avenue	19.8%	19.6%	19.5%	-0.1 pp
4 – I-80 at Madison Avenue	19.4%	19.1%	19.1%	-0.1 pp
5 – I-80 at Antelope Road	19.9%	19.5%	19.2%	-0.3 pp
6 – I-80 at Douglas Boulevard	21.4%	21.1%	20.4%	-0.6 pp
7 – I-80 at Sierra College Boulevard	21.7%	21.6%	21.5%	-0.1 pp
8 – I-80 at Newcastle Road	22.1%	21.9%	21.9%	0.0 pp
9 – Highway 65 at Galleria Boulevard	20.5%	19.3%	19.5%	0.3 pp
10 – Highway 65 at Twelve Bridges Drive	21.4%	20.2%	20.5%	0.3 pp
11 – I-80 at Northgate Boulevard	22.1%	21.7%	21.3%	-0.4 pp
12 – I-80 at El Camino Avenue	20.6%	20.9%	20.2%	-0.7 pp
Gateway Corridor Total	20.7%	20.3%	20.2%	-0.1 pp



Table 11. Study Area Mode Share Summary

Measure	2020 Existing	2050 No-Build	2050 Build	Build vs. No-Build
Walk/Bike/Transit/School Bus Mode Share	12.59%	14.26%	14.26%	0.00 pp
Walk Mode Share	8.89%	9.36%	9.32%	-0.03 pp
Bike Mode Share	2.18%	2.59%	2.64%	0.05 pp
Transit Mode Share	1.27%	2.09%	2.07%	-0.02 pp
Study Area Population	710,821	875,795	875,795	—

Neighborhood Traffic

Data Source and Methodology

Neighborhood traffic effects were evaluated using vehicle miles traveled (VMT), vehicle-hours of delay (VHD), and person-hours of delay (PHD) on local roadways within the screenline-based roadway groups. The local-neighborhood network includes roadways adjacent to the Gateway Corridor within the study area. Reporting these measures separately for local roadways provides an indication of whether changes in freeway conditions are associated with changes in travel and congestion on nearby local streets.

Evaluation Results

Neighborhood VMT, VHD, and PHD results are summarized for the local-neighborhood roadway group associated with each of the 12 screenline locations and for the Gateway Corridor local-neighborhood network as a whole. The comparison of 2050 Build and 2050 No-Build conditions is used to evaluate changes in local-roadway travel and delay associated with the Gateway Plan improvements.



Table 12. Local-Neighborhood VMT by Screenline-Based Roadway Segment Group

Screenline / Analysis Area	2020 Existing (x1,000)	2050 No-Build (x1,000)	2050 Build (x1,000)	Build vs. No-Build
1 – Business 80 at Q Street	2,526	2,928	2,940	0.4%
2 – Business 80 at the American River	781	861	836	-2.9%
3 – Business 80 at Howe Avenue	905	974	971	-0.3%
4 – I-80 at Madison Avenue	1,087	1,173	1,178	0.4%
5 – I-80 at Antelope Road	853	925	925	0.0%
6 – I-80 at Douglas Boulevard	914	1,013	1,012	-0.1%
7 – I-80 at Sierra College Boulevard	320	387	380	-1.6%
8 – I-80 at Newcastle Road	346	376	375	-0.2%
9 – Highway 65 at Galleria Boulevard	916	1,093	1,092	-0.1%
10 – Highway 65 at Twelve Bridges Drive	370	641	629	-1.9%
11 – I-80 at Northgate Boulevard	529	636	620	-2.4%
12 – I-80 at El Camino Avenue	1,519	1,796	1,843	2.6%
Gateway Corridor Local Neighborhoods	11,066	12,802	12,801	0.0%
SACSIM23 Model Region	29,033	34,122	34,029	-0.3%



Table 13. Local-Neighborhood VHD by Screenline-Based Roadway Segment Group

Screenline / Analysis Area	2020 Existing (Vehicle Hours)	2050 No-Build (Vehicle Hours)	2050 Build (Vehicle Hours)	Build vs. No-Build
1 – Business 80 at Q Street	11,976	18,051	18,296	1.4%
2 – Business 80 at the American River	4,954	6,578	6,027	-8.4%
3 – Business 80 at Howe Avenue	5,185	6,208	6,457	4.0%
4 – I-80 at Madison Avenue	6,971	8,617	8,698	0.9%
5 – I-80 at Antelope Road	6,698	8,137	8,114	-0.3%
6 – I-80 at Douglas Boulevard	5,864	7,973	7,852	-1.5%
7 – I-80 at Sierra College Boulevard	854	1,475	1,453	-1.5%
8 – I-80 at Newcastle Road	1,186	1,244	1,248	0.3%
9 – Highway 65 at Galleria Boulevard	3,943	5,768	5,414	-6.1%
10 – Highway 65 at Twelve Bridges Drive	995	2,345	2,210	-5.8%
11 – I-80 at Northgate Boulevard	1,711	2,588	2,887	11.6%
12 – I-80 at El Camino Avenue	5,030	8,585	6,620	-22.9%
Gateway Corridor Local Neighborhoods	55,368	77,571	75,276	-3.0%



Table 14. Local-Neighborhood PHD by Screenline-Based Roadway Segment Group

Screenline / Analysis Area	2020 Existing (Person Hours)	2050 No-Build (Person Hours)	2050 Build (Person Hours)	Build vs. No-Build
1 – Business 80 at Q Street	15,612	23,495	23,814	1.4%
2 – Business 80 at the American River	6,433	8,598	7,867	-8.5%
3 – Business 80 at Howe Avenue	7,030	8,401	8,737	4.0%
4 – I-80 at Madison Avenue	9,492	11,673	11,788	1.0%
5 – I-80 at Antelope Road	9,316	11,202	11,171	-0.3%
6 – I-80 at Douglas Boulevard	7,708	10,443	10,286	-1.5%
7 – I-80 at Sierra College Boulevard	1,158	2,000	1,967	-1.7%
8 – I-80 at Newcastle Road	1,542	1,615	1,620	0.3%
9 – Highway 65 at Galleria Boulevard	5,322	7,656	7,183	-6.2%
10 – Highway 65 at Twelve Bridges Drive	1,354	3,131	2,945	-5.9%
11 – I-80 at Northgate Boulevard	2,363	3,555	3,963	11.5%
12 – I-80 at El Camino Avenue	6,627	11,128	8,487	-23.7%
Gateway Corridor Local Neighborhoods	73,956	102,896	99,827	-3.0%

Transit Person-Hours of Delay

Data Source and Methodology

Transit person-hours of delay (PHD) measures the additional travel time experienced by transit passengers due to roadway congestion. Transit PHD was calculated separately from roadway PHD using modeled transit passenger volumes and travel delay.

Transit PHD was summarized separately for the Gateway Corridor freeway segments and local-neighborhood roadway groups associated with each of the 12 screenline locations.



Evaluation Results

Transit PHD results are presented separately for the Gateway Corridor freeway segments and local-neighborhood roadways at each of the 12 screenline locations. Tables 15 and 16 present results for the 2020 Existing, 2050 No-Build, and 2050 Build scenarios. The comparison between the 2050 Build and 2050 No-Build scenarios is used to evaluate changes in transit passenger delay associated with the Gateway Plan improvements.

Table 15. Transit PHD on Gateway Corridor Freeway Segments by Screenline Location

Screenline / Analysis Area	2020 Existing (Person Hours)	2050 No-Build (Person Hours)	2050 Build (Person Hours)	Build vs. No-Build
1 – Business 80 at Q Street	0.15	0.27	0.30	12.7%
2 – Business 80 at the American River	7.72	12.28	3.33	-72.9%
3 – Business 80 at Howe Avenue	2.54	18.52	21.41	15.6%
4 – I-80 at Madison Avenue	6.48	19.33	20.74	7.3%
5 – I-80 at Antelope Road	5.65	13.68	13.55	-1.0%
6 – I-80 at Douglas Boulevard	4.91	5.12	5.45	6.3%
7 – I-80 at Sierra College Boulevard	1.66	4.18	3.74	-10.5%
8 – I-80 at Newcastle Road	1.78	4.75	4.60	-3.1%
9 – Highway 65 at Galleria Boulevard	0.95	9.26	4.88	-47.3%
10 – Highway 65 at Twelve Bridges Drive	0.03	6.91	3.39	-51.0%
11 – I-80 at Northgate Boulevard	0.25	1.03	2.00	94.5%
12 – I-80 at El Camino Avenue	0	0.05	0.04	-19.9%
Gateway Corridor Total	32.11	95.39	83.43	-12.5%



Table 16. Transit PHD on Local-Neighborhood Roadways by Screenline-Based Roadway Segment Group

Screenline / Analysis Area	2020 Existing (Person Hours)	2050 No-Build (Person Hours)	2050 Build (Person Hours)	Build vs. No-Build
1 – Business 80 at Q Street	115.46	634.36	700.45	10.4%
2 – Business 80 at the American River	60.59	187.09	175.88	-6.0%
3 – Business 80 at Howe Avenue	45.8	121.17	122.26	0.9%
4 – I-80 at Madison Avenue	88.78	217.12	217.71	0.3%
5 – I-80 at Antelope Road	28.89	103.12	105.48	2.3%
6 – I-80 at Douglas Boulevard	29.32	103.81	102.97	-0.8%
7 – I-80 at Sierra College Boulevard	2.89	11.04	11.67	5.8%
8 – I-80 at Newcastle Road	1.91	4	3.83	-4.3%
9 – Highway 65 at Galleria Boulevard	25.22	92.1	83.77	-9.1%
10 – Highway 65 at Twelve Bridges Drive	0.7	11.68	10.04	-14.1%
11 – I-80 at Northgate Boulevard	18.41	42.44	47.59	12.1%
12 – I-80 at El Camino Avenue	47.42	65.76	72.56	10.3%
Gateway Corridor Local Neighborhoods	465.40	1,593.69	1,654.20	3.8%