

# Executive Summary

## Proposed Project

This study examines effects on traffic circulation and operations from the Space 134 project, proposed by the City of Glendale. The project would construct a physical cap over the State Route (SR) 134 freeway, and would contain cultural/entertainment facilities and green space.

Intersection, freeway ramp, and freeway mainline operations were evaluated for two project alternatives and a no-build scenario for the existing year (2019), project opening year (2025), and project buildout year (2050) timeframes. The project alternatives are defined as follows:

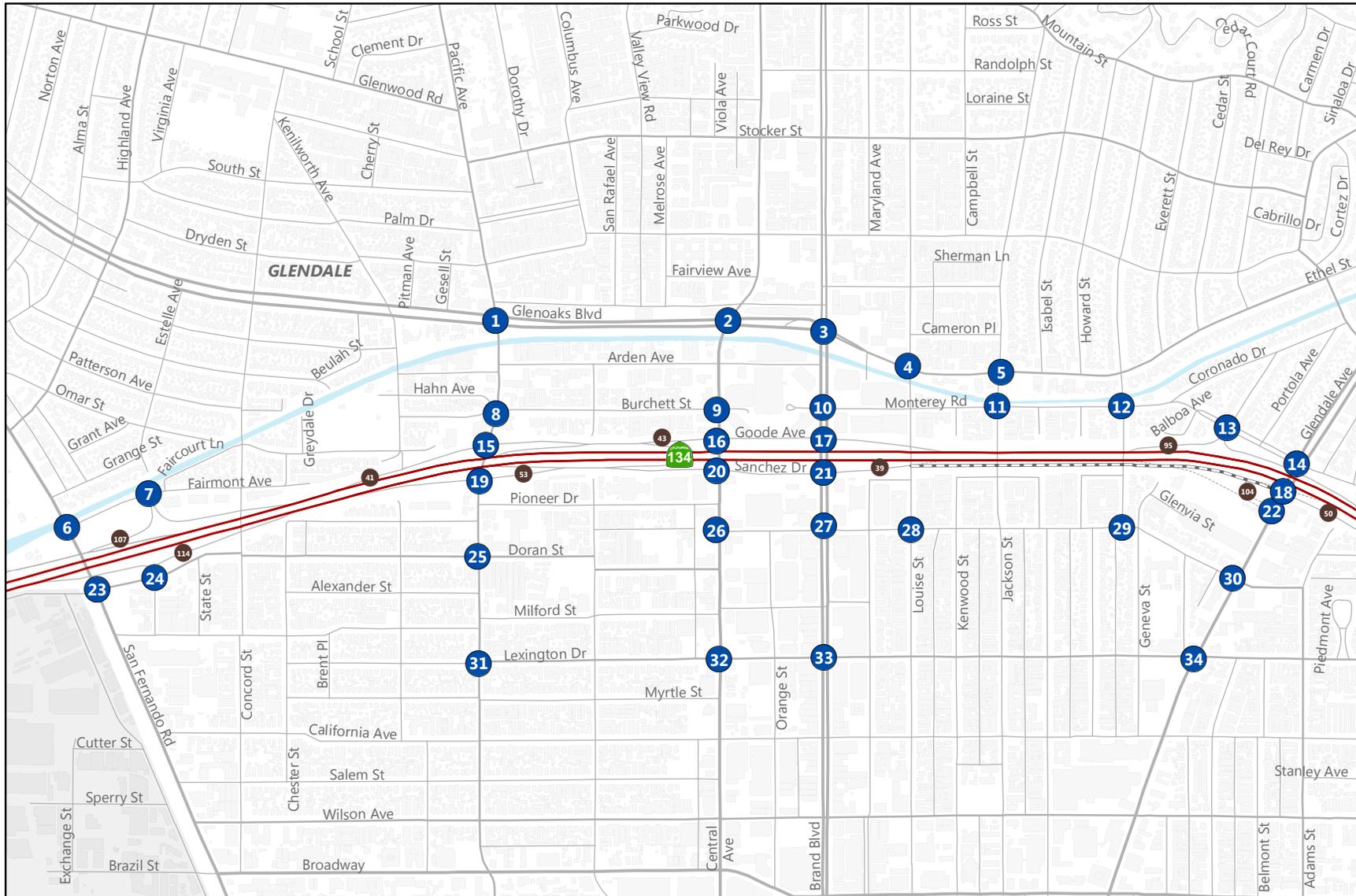
- Alternative 1 would complete Phase 1 of the project, capping the block between Central Avenue and Brand Boulevard. Auxiliary lanes would be replaced on SR 134 between Pacific Avenue and Central Avenue with braided (grade-separated) ramp connections, thereby extending the Central and Pacific on- and off-ramps. The Alternative would also add a lane on the Brand Boulevard (eastbound off-ramp. Further east, the Alternative would include restriping of two on-ramps and arterial intersections at the Glendale Avenue interchange and would widen the Glendale Avenue overpass structure at the freeway.
- Alternatives 2 and 3 would extend the Phase 1 cap to the east. Alternative 2 would construct a second cap between Louise Street and Jackson Street, while Alternative 3 would cap the remaining open freeway portal between Brand Boulevard and Glendale Avenue. Both Alternatives would require removing the eastbound ramps at Brand Boulevard and Glendale Avenue, and constructing an at-grade frontage road to the south of the SR-134 freeway, connecting Brand Boulevard directly to Glendale Avenue, and local roadways in between.

Both Alternative 2 and Alternative 3 would incorporate Alternative 1 improvements. Since Alternatives 2 and 3 propose the same changes to the roadway network but change the open/park space concept, they were analyzed collectively in this study as Alternative 2.

The locations of study intersections analyzed as part of the project are shown on Figure A. The freeway mainline and merging/diverging segments, analyzed for freeway Level-of-service are shown on Figure B.

# FIGURE A

## Space 134 Freeway Ramp Analysis Study Intersection Locations



Study Intersection



Roadway Facilities

— Added as part of Project Alternative 2

- - - - - Removed as part of Project Alternative 2

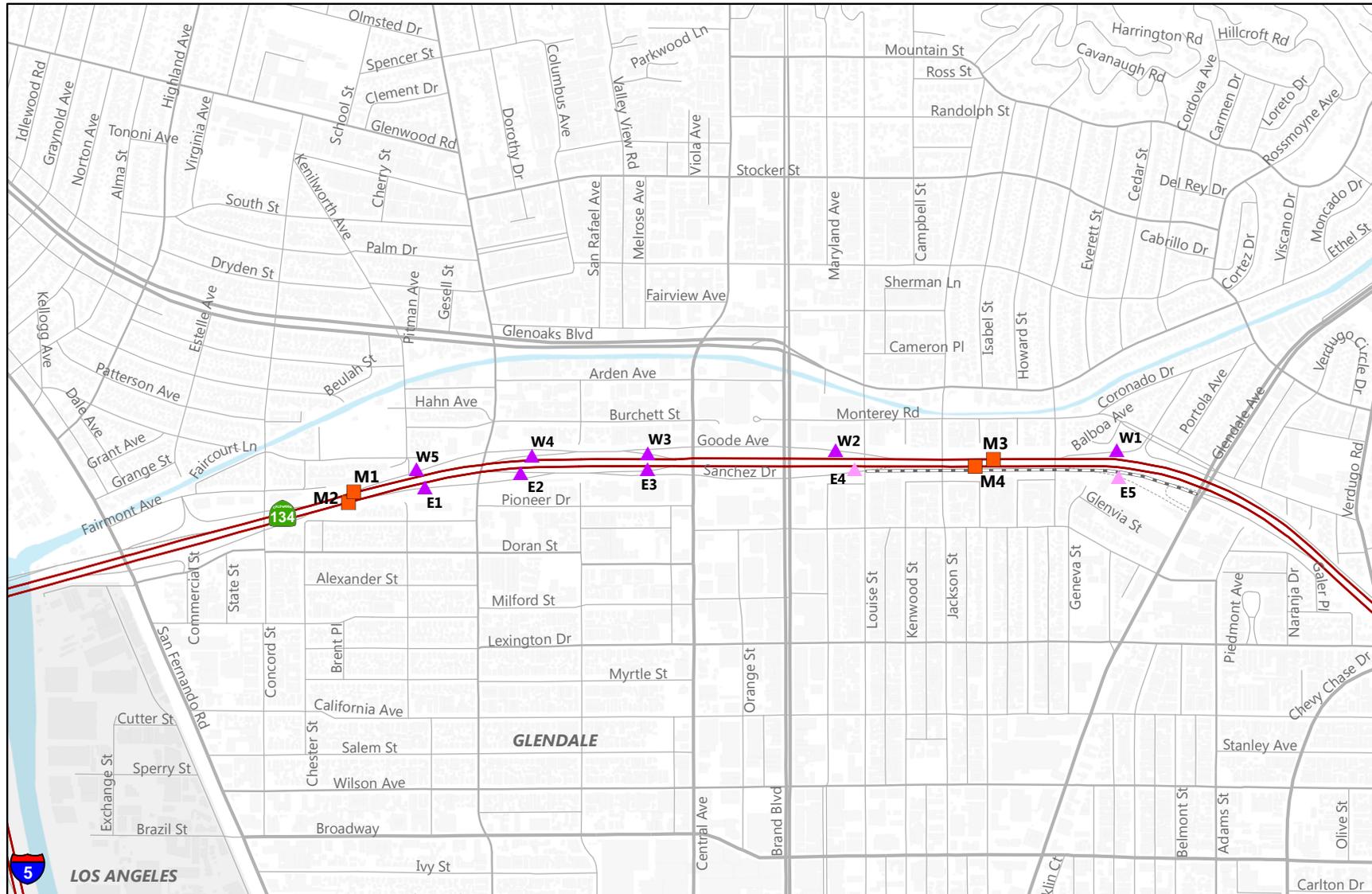
On-ramps



**FIGURE B**

# Space 134 Freeway Ramp Analysis

## Freeway Mainline and Ramp Study Locations



Mainline Segment



Ramp Merging/Diverging Segments

- ▲ Analyzed in all Scenarios
- ▲ Analyzed only for No Build and Alternative 2 Scenarios

Roadway Facilities

- Added as part of Project Alternative 2
- - - - - Removed as part of Project Alternative 2



## Level of Service

Operations were evaluated at 34 study intersections (Figure A). Table E1 indicates the following:

- Under project Alternative 1, a fewer number of intersections would operate at Level of Service (LOS) E or F than no-build conditions, in four out of six timeframe scenarios.
- Under project Alternative 1, the same number of intersections would operate at E or F as under no-build conditions in the other two scenarios (opening-year and future-year PM periods).
- Under Alternative 2, a higher number of intersections would operate at (LOS) E or F than under Alternative 2, across all scenarios.
- Compared to No-Build conditions, the number of intersections at LOS E or F increases under Project Alternative 2 in every scenario except Future Year (2050) AM. This would occur at two intersections out of the 34 study intersections analyzed.
- Despite these LOS degradations at two locations under Alternative 2, benefits of that alternative include decreased ramp facility queuing, discussed later in this section.

**Table E1. Number of Study Intersections at LOS E or F by Scenario**

Scenario	Time Period	No Build	Alternative 1		Alternative 2	
Existing	AM	2	1	-	3	+
	PM	3	2	-	4	+
2025	AM	2	1	-	3	+
	PM	2	2	=	4	+
2050	AM	5	3	-	5	=
	PM	5	5	=	7	+

"+" signifies an increase in E/F intersections compared to the no-build scenario, "-" signifies a decrease compared to the no-build scenario, "=" signifies a number equivalent to the no-build scenario.

Most of the intersections operating at LOS E or F are at freeway on-ramps or off-ramps. Table E2, focusing on non-ramp study intersections (those removed from the freeway corridor) indicates the following:

- The number of LOS E or F intersections without the inclusion of freeway ramps ranges from zero to two across all scenarios and alternatives.
- The number of LOS E or F intersections that include freeway ramp locations ranges from one to five.

**Table E2. Number of Non-ramp Study Intersections at LOS E or F by Scenario**

Scenario	Time Period	No Build	Alternative 1		Alternative 2	
Existing	AM	1	0	-	0	-
	PM	1	1	=	1	=
2025	AM	1	0	-	0	-
	PM	0	0	=	0	=
2050	AM	1	0	-	1	=
	PM	1	1	=	2	+

"+" signifies an increase in E/F intersections compared to the no-build scenario, "-" signifies a decrease compared to the no-build scenario, "=" signifies a number equivalent to the no-build scenario.

Table E3 isolates the ramp intersections only, indicating the following:

- Under Project Alternative 2, the number of ramp intersections at LOS E or F increases, relative to no-build conditions, in five out of six scenario time periods.
- Under Project Alternative 2, the number of ramp intersections at LOS E or F is equal to that of no-build conditions in four of the six time periods.
- Under Project Alternative 2, the number of ramp intersections at LOS E or F is less than that of no-build conditions in the remaining two time periods (Existing PM and Future AM).

**Table E3. Number of Ramp-adjacent Study Intersections at LOS E or F by Scenario**

Scenario	Time Period	No Build	Alternative 1		Alternative 2	
Existing	AM	1	1	=	3	+
	PM	2	1	-	3	+
2025	AM	1	1	=	3	+
	PM	2	2	=	4	+
2050	AM	4	3	-	4	=
	PM	4	4	=	5	+

"+" signifies an increase in E/F intersections compared to the no-build scenario, "-" signifies a decrease compared to the no-build scenario, "=" signifies a number equivalent to the no-build scenario.

## Queuing

The queuing analysis focused on freeway on-ramps and off-ramps. Extensive ramp queues can affect freeway mainline or local arterial operations. Queuing was evaluated at 11 off-ramps and nine on-ramps in the no-build and Alternative 1 scenarios, and at 11 off-ramps and seven on-ramps in the Alternative 2 scenarios.

Tables E4 and E5 define the number of on-ramps with queue lengths exceeding 85 percent and 100 percent or more of available storage under existing and with-project conditions. The 85 percent threshold is used by Caltrans to assess queuing conditions, and the 100 percent threshold represents the point at which a queue extends into the upstream intersection or mainline freeway segment.

Table E4 provides the following information regarding the lower capacity threshold:

- Under Alternative 1, one to two ramp facilities would have queues reduced to under 85 of capacity versus no-build conditions.
- Under Alternative 2, two to three ramp facilities would have queues reduced to under 85 of capacity versus no-build conditions.

Table E5 provides the following information regarding the higher capacity threshold:

- Under Alternative 1, two to three ramp facilities would have queues reduced to less than 100 percent of capacity versus no-build conditions.
- Under Alternative 2, three to five ramp facilities would have queues reduced to less than 100 percent of capacity versus no-build conditions.

**Table E4. Number of Ramps with Queuing exceeding 85 percent of Storage by Alternative, Existing Conditions**

Facility Type	Peak Hour	No-Build	Alternative 1	Change from		
				No-Build*	Alternative 2	No-Build*
Off-ramps	AM	7	6	-	4	-
	PM	9	8	-	5	-
On-ramps	AM	8	6	-	4	-
	PM	8	8	=	6	-

\* '+' signifies increase, '-' signifies decrease, '=' signifies no change

**Table E5. Number of Ramps with Queuing exceeding 100 percent of storage or more by Alternative, Existing Conditions**

Facility Type	Peak Hour	No-Build	Alternative 1	Change from		
				No-Build*	Alternative 2	No-Build*
Off-ramps	AM	6	5	-	3	-
	PM	8	5	-	5	-
On-ramps	AM	7	5	-	2	-
	PM	7	7	=	4	-

\* '+' signifies increase, '-' signifies decrease, '=' signifies no change

Tables E6 and E7 define the number of on-ramps with queue lengths exceeding 85 percent and 100 percent or more of available storage under project-year conditions, using the same methodology as under the previous tables discussion.

Table E6 provides the following information regarding the lower-capacity threshold:

- Under Alternative 1, one to three off-ramp facilities would have queues reduced to under 85 of capacity versus no-build conditions. For on-ramp facilities, no major changes would occur.
- Under Alternative 2, three to five ramp facilities would have queues reduced to under 85 of capacity versus no-build conditions.

Table E7 provides the following information regarding the higher-capacity threshold:

- Under Alternative 1, one to two ramp facilities would have queues reduced to less than 100 percent of capacity versus no-build conditions. In one time period for off-ramps, no major change would occur
- Under Alternative 2, three to four ramp facilities would have queues reduced to less than 100 percent of capacity versus no-build conditions.

**Table E6. Number of Ramps with Queuing exceeding 85 percent of Storage by Alternative, Opening Year (2025) Conditions**

Facility Type	Peak Hour	No-Build	Alternative 1	Change from No-Build*	Alternative 2	Change from No-Build*
Off-ramps	AM	11	8	-	6	-
	PM	9	8	-	4	-
On-ramps	AM	8	8	=	5	-
	PM	8	8	=	6	-

\* '+' signifies increase, '-' signifies decrease, '=' signifies no change

**Table E7. Number of Ramps with Queuing exceeding 100 percent of storage or more by Alternative, Opening Year (2025) Conditions**

Facility Type	Peak Hour	No-Build	Alternative 1	Change from No-Build*	Alternative 2	Change from No-Build*
Off-ramps	AM	7	6	-	4	-
	PM	7	7	=	4	-
On-ramps	AM	7	5	-	3	-
	PM	7	6	-	4	-

\* '+' signifies increase, '-' signifies decrease, '=' signifies no change

Opening-year and future-year queuing conditions follow similar patterns.

In the future year of 2050, summarized in Tables E8 and E9, the No-Build and Alternative 1 scenarios generally have the same number of on- and off-ramps with queues exceeding 85 percent or 100 percent of storage:

- Alternative 1 has one more off-ramp queue than the no-build period that exceeds 85 percent of storage in the PM peak hour.
- Alternative 2 has fewer on- and off-ramp queues than the no-build period that exceed 85 percent or 100 percent of storage.

**Table E8. Number of Ramps with Queuing exceeding 85 percent of Storage by Alternative, Future Year (2050) Conditions**

Facility Type	Peak Hour	No-Build	Alternative 1	Change from No-Build*	Alternative 2	Change from No-Build*
Off-ramps	AM	10	9	-	7	-
	PM	9	9	=	7	-
On-ramps	AM	8	9	+	6	-
	PM	8	8	=	6	-

\* '+' signifies increase, '-' signifies decrease, '=' signifies no change

**Table E9. Number of Ramps with Queuing exceeding 100 percent of Storage by Alternative, Future Year (2050) Conditions**

Facility Type	Peak Hour	No-Build	Alternative 1	Change from No-Build*	Alternative 2	Change from No-Build*
Off-ramps	AM	7	7	=	5	-
	PM	8	8	=	6	-
On-ramps	AM	7	7	=	3	-
	PM	8	8	=	4	-

\* '+' signifies increase, '-' signifies decrease, '=' signifies no change

## Future Project Analysis

This project Traffic Circulation Study focuses on roadway operations and mobility with and without the project scenarios, for City review of the project at this phase. This study document does not provide a full analysis of impacts under the California Environmental Quality Act (CEQA). Full analysis to comply with CEQA will be conducted at a later phase of the project and would include the following

- Analysis of vehicle miles traveled (VMT) effects of the project alternatives
- Application of CEQA and City standards for transportation infrastructure projects
- An induced travel analysis, as required under CEQA for roadway capacity increases, focusing on the extension of the Sanchez Drive freeway frontage road to Glendale Avenue.

CEQA guidance from the State of California indicates that the induced travel analysis does not apply to turn lanes, but rather the addition of thru capacity within a roadway corridor. This would apply to the Sanchez Drive extension, but not to other project-related roadway widening improvements that provide for additional turn lane capacity.