

APPENDIX K  
*Surface Traffic*

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## K: Surface Traffic

This appendix provides an overview of existing surface traffic conditions in the vicinity of the Bob Hope “Hollywood Burbank” Airport, the methodology for analyzing the impacts associated with the implementation of the proposed replacement passenger terminal, and identification of the changes in surface traffic as a result of the implementation of the proposed replacement passenger terminal.

### K.1 EXISTING SURFACE TRAFFIC NETWORK

The General Study Area was chosen to include all facilities that could experience a change in surface traffic as a result of the Proposed Project. It was established in consultation with the FAA, the Airport Authority, the City of Burbank, Caltrans, and the general public through the public scoping process. The identification of the General Study Area took into account Airport surface traffic patterns, project trip generation estimates, and the existing operations of nearby intersections and corridors. The General Study Area encompasses an area that is approximately 4.25 miles east-west by 3.5 miles north-south. It is generally bounded by State Route 170 (SR 170) to the west, Interstate 5 (I-5) to the east, I-5 and San Fernando Road to the north, and Magnolia Boulevard to the south. The majority of the General Study Area is located within the boundaries of the city of Burbank, and the remainder lies within the city of Los Angeles.

#### Roadway System

The General Study Area has a dense network of regional and local roadways that provide access to the Airport and circulation in the surrounding areas. The *Burbank2035 General Plan* classifies roadways as major arterials, secondary arterials, collectors, and local streets.

- » **Major Arterials:** Major arterials are regional transportation corridors that are bounded by commercial and multifamily development. These corridors provide access to all transit modes, with the focus on regional transit and auto traffic. Pedestrian connections provide access from land uses to transit connections.
- » **Secondary Arterials:** Secondary arterials are streets that serve local cross-town traffic and may also serve regional traffic. These streets provide access to local transit. Pedestrian connections are designed to encourage multipurpose trips.
- » **Collectors:** Collectors are streets that provide access between local streets and arterials or that provide arterial street crossings for bicyclists, pedestrians, and equestrians.

- » **Local Streets:** Local streets are residential or commercial streets that provide direct access to adjacent land uses.

*Mobility Plan 2035: An Element of the General Plan* classifies roadways as boulevards, avenues, collectors, and local streets.

- » **Boulevards:** Boulevards are arterial streets that serve through-traffic as well as provide access to major commercial activity centers. They represent the widest streets that typically provide regional access to major destinations. They include two categories:
  - Boulevard I provides up to four travel lanes in each direction, with a target operating speed of 40 miles per hour (mph)
  - Boulevard II provides up to three travel lanes in each direction, with a target operating speed of 35 mph
- » **Avenues:** Avenues are also arterial streets that serve through-traffic and provide access to major commercial activity centers. They typically traverse both residential and commercial areas and include three categories:
  - Avenue I provides up to two travel lanes in each direction, with a target operating speed of 35 mph
  - Avenue II provides up to two travel lanes in each direction, with a target operating speed of 30 mph
  - Avenue III provides up to two travel lanes in each direction, with a target operating speed of 25 mph
- » **Collectors:** Collector streets are generally located in residential neighborhoods and provide access for local traffic to and from arterial streets. Collector streets are not intended for cut-through traffic. They provide one travel lane in each direction, with a target operating speed of 25 mph.
- » **Local Streets:** Local streets are intended to accommodate lower volumes of vehicle traffic, and parking is typically available on both sides of the street. Local streets provide one travel lane in each direction, with a target operating speed of 15 to 20 mph. Continuous local streets connect to other streets at both ends, while non-continuous local streets lead to a dead-end.

**Table K-1** summarizes the characteristics of each of the streets in the General Study Area evaluated for this EIS.



**TABLE K-1**  
**STREET CHARACTERISTICS IN GENERAL STUDY AREA**

Street	Jurisdiction	Designation	Travel Lanes		Center Turn Lane	Bicycle Lanes	On- Street Parking
			Northbound/ Westbound	Southbound/ Eastbound			
<b>Laurel Canyon Boulevard</b> <i>Throughout General Study Area</i>	Los Angeles	Avenue I	2	2	Yes	Yes	Yes
<b>Sunland Boulevard</b> <i>Throughout General Study Area</i>	Los Angeles	Avenue I	2	2	No	No	Yes
<b>Vineland Avenue</b> <i>North of Vanowen Street</i>	Los Angeles	Boulevard II	2	2	Yes	Yes	Yes
<i>South of Vanowen Street</i>	Los Angeles	Boulevard II	2	2	Yes	No	Yes
<b>Clybourn Avenue</b> <i>North of Sherman Way</i>	Los Angeles	Boulevard II	1	2	Yes	Yes	Yes
<i>South of Vanowen Street</i>	Los Angeles	Avenue II	1	1	Yes	Yes	Yes
<b>Arvilla Avenue</b>	Los Angeles	Local	1	1	No	No	Yes

Street	Jurisdiction	Designation	Travel Lanes		Center Turn Lane	Bicycle Lanes	On-Street Parking
			Northbound/ Westbound	Southbound/ Eastbound			
<i>Entire street</i>							
<b>Lockheed Drive</b> <i>Entire street</i>	Joint	Local	1	1	No	No	Yes
<b>Hollywood Way</b> <i>North of Cohasset Street</i>	Los Angeles	Avenue I	2	2	Yes	No	No
<i>Between Cohasset Street &amp; Tulare Avenue</i>	Burbank	Major Arterial	3	3	Yes	No	No
<i>Between Tulare Avenue &amp; Thornton Avenue</i>	Burbank	Major Arterial	2	3	Yes	Yes	No
<i>Between Thornton Avenue &amp; Valhalla Drive</i>	Burbank	Major Arterial	2	2	Yes	Yes	No
<i>South of Valhalla Drive</i>	Burbank	Major Arterial	2	2	Yes	Yes	Yes
<b>Ontario Street</b> <i>Between San Fernando Boulevard &amp; Empire Avenue</i>	Burbank	Local	1	1	No	No	Yes

Street	Jurisdiction	Designation	Travel Lanes		Center Turn Lane	Bicycle Lanes	On-Street Parking
			Northbound/ Westbound	Southbound/ Eastbound			
<b>Naomi Street</b> <i>Between Winona Avenue &amp; Empire Avenue</i>	Burbank	Local	1	1	No	No	Yes
<b>Buena Vista Street</b> <i>Throughout General Study Area</i>	Burbank	Secondary Arterial	2	2	Yes	No	Yes
<b>San Fernando Road</b> <i>North of Cohasset Street</i>	Los Angeles	Avenue I	2	2	Yes	No	Yes <sup>/a/</sup>
<b>San Fernando Boulevard</b> <i>Between Cohasset Street &amp; Buena Vista Street</i>	Burbank	Secondary Arterial	2	2	Yes	No	Yes
<b>Strathern Street</b> <i>Throughout General Study Area</i>	Los Angeles	Avenue II	1	1	Yes	No	Yes
<b>Cohasset Street</b>	Joint	Local	1	1	No	No	Yes

Street	Jurisdiction	Designation	Travel Lanes		Center Turn Lane	Bicycle Lanes	On-Street Parking
			Northbound/ Westbound	Southbound/ Eastbound			
<i>West of San Fernando Road</i>							
<b>Tulare Avenue</b> <i>At Hollywood Way</i>	Burbank	Local	1	1	No	No	No
<b>Sherman Way</b> <i>West of Vineland Avenue</i>	Los Angeles	Boulevard II	2	2	Yes	Yes	Yes
<i>East of Vineland Avenue</i>	Los Angeles	Boulevard II	2	1	Yes	No	Yes
<b>Winona Avenue</b> <i>Throughout General Study Area</i>	Burbank	Collector	2	2	No	No	Yes
<b>Thornton Avenue</b> <i>Entire street</i>	Burbank	Collector	1	1	Yes	No	Yes
<b>Avon Street</b> <i>Entire street</i>	Burbank	Local	1	1	No	No	No
<b>Vanowen Street</b>							

Street	Jurisdiction	Designation	Travel Lanes		Center Turn Lane	Bicycle Lanes	On-Street Parking
			Northbound/ Westbound	Southbound/ Eastbound			
<i>West of Clybourn Avenue</i>	Los Angeles	Avenue II	2	2	Yes	No	Yes
<i>Between Clybourn Avenue &amp; Empire Avenue</i>	Los Angeles	Avenue II	1	1	Yes	No	Yes <sup>/b/</sup>
<i>Between Empire Avenue &amp; Hollywood Way</i>	Burbank	Collector	1	1	Yes	No	Yes <sup>/b/</sup>
<i>East of Hollywood Way</i>	Burbank	Collector	2	2	Yes	No	Yes <sup>/b/</sup>
<b>Empire Avenue</b>							
<i>West of Airport Driveway</i>	Burbank	Major Arterial	2	1	Yes	No	No
<i>Between Airport Driveway &amp; Avon Street</i>	Burbank	Major Arterial	2	2	Yes	No	No
<i>East of Avon Street</i>	Burbank	Major Arterial	2	2	Yes	No	Yes
<b>Victory Boulevard</b>							
<i>West of Clybourn Avenue</i>	Los Angeles	Boulevard II	3	3	Yes	No	Yes <sup>/c/</sup>

Street	Jurisdiction	Designation	Travel Lanes		Center Turn Lane	Bicycle Lanes	On-Street Parking
			Northbound/ Westbound	Southbound/ Eastbound			
<i>East of Clybourn Avenue</i>	Burbank	Major Arterial	2	2	Yes	Yes	Yes
<b>Burbank Boulevard</b> <i>Throughout General Study Area</i>	Burbank	Secondary Arterial	2	2	Yes	No	Yes
<b>Magnolia Boulevard</b> <i>Throughout General Study Area</i>	Burbank	Secondary Arterial	2	2	Yes	No	Yes

Notes:

/a/ Parking is provided on the north side of the street only. Metrolink rail tracks run adjacent to the south side of the street.

/b/ Parking is provided on the south side of the street only. Metrolink rail tracks run adjacent to the north side of the street.

/c/ Parking is allowed from 10:00 a.m. to 4:00 p.m. and 7:00 p.m. to 7:00 a.m. Peak-period parking restrictions are in effect from 7:00 to 10:00 a.m. and from 4:00 to 7:00 p.m.

Source: Gibson, 2018.

The California Department of Transportation (Caltrans) operates the freeways that serve regional transportation needs. The following two freeways pass through the General Study Area:

- » **Interstate 5:** Interstate 5 (I-5) is an interstate freeway that runs in a northwest-southeast direction approximately 0.7-mile northeast of the Airport. To the north, I-5 travels to Santa Clarita and beyond, and to the south travels to Glendale, downtown Los Angeles, Orange County, and beyond. It provides access to the General Study Area via interchanges at Sunland Boulevard, Hollywood Way, Buena Vista Street, Empire Avenue (which completed major reconstruction during preparation of this EIS), and Burbank Boulevard. Based on published Caltrans data from 2017, I-5 accommodates approximately 170,000 daily trips through the General Study Area.
- » **State Route 170:** SR 170 is a state highway that runs in a north-south direction approximately 3 miles west of the Airport. It travels between the US Highway 101 / SR 134 / SR 170 interchange in North Hollywood and I-5 in Sun Valley. SR 170 provides access to the General Study Area via interchanges at Victory Boulevard and Sherman Way. Based on published Caltrans data from 2017, SR 170 accommodates approximately 150,000 daily trips past these interchanges.

### Public Transit System

Metro, BurbankBus, Metrolink, and Amtrak provide public bus and rail service in the General Study Area. **Exhibit K-1** shows the transit routes; **Table K-2** lists the key characteristics of these routes, including peak-period travel frequency. There are 18 bus lines operating in the General Study Area, including 9 with stops at or within 0.25 mile of the Airport. Bus lines serving the Airport provide service to many areas, including downtown Los Angeles, Glendale, the west and north San Fernando Valley, and throughout Burbank. Metrolink extends service to more distant locales such as Ventura, Lancaster and Palmdale, and Orange County.



This map illustrates the public transit infrastructure within the General Study Area, which is outlined in a thick black line. The map includes the following features:

- Rail Stations:** Indicated by white circles with black outlines. Labeled stations include North Hollywood Metro Station, Burbank Airport South Metro Station, and Burbank Downtown Metro Station.
- Transit Lines:**
  - Metro Rapid:** Shown as a solid red line.
  - Metro Red Line:** Shown as a solid red line.
  - Metro Orange Line:** Shown as a solid orange line.
  - Metro Shuttles & Circulators:** Shown as a solid green line.
  - Metrolink Tracks:** Shown as black lines with cross-ticks.
  - Santa Clarita Transit (SC):** Shown as a dashed yellow line.
  - Burbank Bus (BB):** Shown as a dashed yellow line.
- General Study Area:** The area within the thick black boundary line.
- Legend:** Located in the bottom left corner, providing symbols and line styles for the various transit modes.
- Scale and Orientation:** A scale bar indicates 1 mile, and a north arrow points upwards.
- Geographic Labels:** The map includes labels for the City of Los Angeles and the City of Burbank, as well as major roads like Sunland Blvd, San Fernando Blvd, and Burbank Blvd.

*Bob Hope "Hollywood Burbank" Airport  
Proposed Replacement Terminal Project Final EIS*



**TABLE K-2  
TRANSIT SERVICE IN THE GENERAL STUDY AREA**

Provider, Route, and Service Area			Service Type	Hours of Operation	Stop Location <sup>/a/</sup>	Approximate Headway (minutes) <sup>/b/</sup>			
						Morning Peak Hour		Evening Peak Hour	
<b>Metro Bus Service</b>						<b>NB<sup>/c/</sup> / EB<sup>/d/</sup></b>	<b>SB<sup>/e/</sup> / WB<sup>/f/</sup></b>	<b>NB/ EB</b>	<b>SB/ WB</b>
	92	Downtown Los Angeles to the Sylmar via Glendale Boulevard, Brand Boulevard and Glenoaks Boulevard	Local	4:30 a.m. to 10:00 p.m.	–	30	20	20	30
	94	Downtown Los Angeles to the Sylmar Station via San Fernando Road	Local	5:00 a.m. to 1:30 a.m.	Hollywood Way / Winona Avenue	15	15	30	30
	152	Woodland Hills to North Hollywood via Fallbrook Avenue, Roscoe Boulevard, and Lankershim Boulevard	Local	5:00 a.m. to Midnight	Vineland Avenue / Sherman Way	20	15	15	20
	154	Tarzana to Metrolink Burbank Station via Burbank Boulevard and Oxnard Street	Local	5:00 a.m. to Midnight	–	60	60	60	60
	162	Sun Valley to West Hills via Sherman Way and Lankershim Boulevard	Local	5:00 a.m. to Midnight	–	20	20	20	20
	163	Sun Valley to West Hills via Sherman Way and Lankershim Boulevard	Local	5:00 a.m. to Midnight	Vineland Avenue / Sherman Way	30	30	30	30
	164	West Hills to Burbank via Victory Boulevard	Local	4:45 a.m. to 11:45 p.m.	–	15	12	12	15
	165	West Hills to Burbank via Vanowen Street	Local	24 Hours	Burbank Airport South	15	12	10	15

Provider, Route, and Service Area			Service Type	Hours of Operation	Stop Location <sup>/a/</sup>	Approximate Headway (minutes) <sup>/b/</sup>			
						Morning Peak Hour		Evening Peak Hour	
	169	Burbank to Woodland Hills via Saticoy Street and Valley Circle Boulevard	Local	5:00 a.m. to 1:00 a.m.	Regional Intermodal Transportation Center (RITC)	60	60	60	60
	183	Sherman Oaks to Glendale via Magnolia Boulevard	Local	5:45 a.m. to 9:45 p.m.	–	60	60	60	60
	222	Sunland to Hollywood via Hollywood Way, Barham Boulevard, and Cahuenga Boulevard	Local	24 Hours	RITC	30	60	60	30
	224	Sylmar to Studio City via San Fernando Road and Lankershim Boulevard	Local	4:45 a.m. to 1:30 a.m.	–	12	9	10	12
	230	Sylmar to Studio City via Laurel Canyon Boulevard	Local	5:15 a.m. to 11:00 p.m.	–	20	20	20	20
	353	Woodland Hills to North Hollywood via Fallbrook Avenue, Roscoe Boulevard, and Lankershim Boulevard	Limited	6:00 a.m. to 8:45 a.m. 4:00 p.m. to 5:45 p.m.	–	20	20	20	20
<b>BurbankBus</b>									
	794	Sylmar Station to Downtown Los Angeles via San Fernando Road	Rapid	4:00 a.m. to Midnight Peak Periods Only	Burbank Airport North	20	20	20	20
	GS	Burbank Airport and Empire Center	Local	6:00 a.m. to 6:30 p.m.	Burbank Airport North	N/A	15	N/A	15

Provider, Route, and Service Area			Service Type	Hours of Operation	Stop Location <sup>/a/</sup>	Approximate Headway (minutes) <sup>/b/</sup>			
						Morning Peak Hour		Evening Peak Hour	
	NA	North Hollywood Red Line / Orange Line Station to the Airport	Local	7:00 a.m. to 7:00 p.m.	RITC	N/A	15	N/A	15
	NM	North Hollywood Red Line / Orange Line Station to the Media District	Local	6:00 a.m. to 9:15 a.m. 2:45 p.m. to 6:45 p.m.	–	N/A	15	N/A	15
<b><i>Santa Clarita Transit</i></b>									
	SC794	Burbank Airport and Empire Center	Local	6:00 a.m. to 6:30 p.m.	Burbank Airport North	N/A	15	N/A	15
	NA	North Hollywood Red Line / Orange Line Station to the Airport	Local	7:00 a.m. to 7:00 p.m.	RITC	N/A	15	N/A	15
<b><i>Metrolink</i></b>									
	Antelope	Downtown Los Angeles – Lancaster	Commuter Rail	5:30 a.m. to 10:00 p.m.	Burbank Airport North	30	30	30	30
	Ventura	Downtown Los Angeles – Ventura	Commuter Rail	4:30 a.m. to 2:00 a.m.	Burbank Airport South	20	20	20	30
<b><i>AMTRAK<sup>/g/</sup></i></b>									
	Pacific Surfliner	San Luis Obispo to San Diego	Rail	7:00 a.m. to Midnight	Burbank Airport South	N/A	N/A	N/A	N/A

Notes:

N/A = not applicable.

/a/ If within 0.25 mile of the Airport.

/b/ Headway is a measurement of the distance or time between vehicles in a transit system. Headway information is based on operating and ridership data provided by Metro for October 2017.

/c/ N/B = Northbound

/d/ EB = Eastbound

/e/ SB = Southbound

/f/ WB = Westbound

/g/ The Pacific Surfliner is on a fixed schedule and passes through the General Study Area several times per day.

Sources: Metro, 2017; Gibson, 2018.

In addition to providing bus service, Metrolink and Amtrak operate several rail lines in the General Study Area. The Metrolink Ventura Line runs between Ventura and Union Station in downtown Los Angeles and stops at the Burbank Airport South Metrolink Station along Empire Avenue immediately south of the existing terminal and the RITC. The Metrolink Antelope Valley Line runs between Lancaster and Palmdale to the north and Union Station in downtown Los Angeles and stops at the Burbank Airport North Metrolink Station along San Fernando Boulevard near Hollywood Way. The Amtrak Pacific Surfliner travels between San Diego and San Luis Obispo with stops throughout its route, including a stop at the Burbank Airport South Metrolink Station. The Airport provides a passenger shuttle between the terminal and the Burbank Airport North Metrolink Station and will send the shuttle to the Burbank Airport South Metrolink Station upon request by phone, although the Burbank Airport South Metrolink Station is near enough to the terminal for most passengers to walk. However, based on data provided by the Burbank-Glendale-Pasadena Airport Authority, less than 1 percent of Airport passengers use public transit to and from the Airport.

### Bicycle and Pedestrian Network

Several streets in the General Study Area have dedicated bicycle lanes, including Laurel Canyon Boulevard, Hollywood Way, Clybourn Avenue, Vineland Avenue, Sherman Way, and Victory Boulevard. There are pedestrian sidewalks on both sides of most streets in the General Study Area and crosswalks at controlled intersections where appropriate. Exceptions include segments of San Fernando Boulevard, Empire Avenue, and Vanowen Street adjacent to Metrolink rail lines, where the City installed sidewalks on the opposite side of the street to discourage pedestrians from walking near the tracks. Based on reports from the Airport Authority, a negligible number of Airport passengers and employees ride bicycles or walk to the Airport.

### Major Development and Infrastructure Projects

There are several major development and infrastructure projects that are currently in the planning or construction stages that may affect traffic patterns or intersection operating conditions in the vicinity of the Airport.

- » **Avion Burbank:** The Avion Burbank project is the redevelopment of the 61-acre parcel adjacent to the northeast quadrant of the Airport that was the former site of a Lockheed Martin Corporation research and manufacturing facility. The project proposes to construct over 1,000,000 square feet of light industrial and manufacturing space, approximately 140,000 square feet of creative office, 166 hotel rooms, and a small amount of retail space. Primary access to the site would be from Hollywood Way at Tulare Avenue,

while secondary access would be via Cohasset Street to the north. It would also connect to the proposed Airport terminal loop road should the Adjacent Property Option be selected for the replacement terminal. Avion Burbank would require extensive physical modifications to Hollywood Way to accommodate its traffic, including widening to allow dual left-turn lanes from northbound Hollywood Way into the site at Tulare Avenue. The City of Burbank certified the project's Environmental Impact Report in March 2019 and construction is expected to be complete by year 2024.

- » **I-5 Widening:** Caltrans is in the midst of a major widening of I-5 within the General Study Area. The I-5 Widening Project extends from Magnolia Boulevard to Buena Vista Street and includes the construction of new high-occupancy-vehicle lanes in each direction and a new interchange at Empire Avenue. This project included the recently completed grade separations of the Metrolink rail crossings at Buena Vista Street and includes railroad grade separation at Empire Avenue upon completion of the Empire Avenue Interchange Project described below. Construction began in year 2014 and is expected to be completed in 2020.
- » **Empire Avenue Interchange Project:** The Empire Avenue Interchange Project includes the complete reconstruction of the I-5 interchange at Empire Avenue. Construction on this project began in year 2014 and was completed and open to the public in September 2019, after preparation of this analysis was largely completed. The improvement aligns Empire Avenue under the railroad tracks and I-5 to connect with San Fernando Boulevard to the east. It provides a full diamond interchange between I-5 and Empire Avenue / San Fernando Boulevard. Due to the timing of the completion of this project, traffic counts were not collected at this interchange for use in the analysis of describing existing conditions. Actual traffic patterns at the interchange have not yet fully developed such that they may serve as a reliable indicator of existing or likely future traffic patterns. Rather, the future conditions analysis in Chapter 4, Environmental Consequences section includes the two new signalized ramp intersections on Empire Avenue based on traffic forecasts prepared by the City of Burbank.

## K.2 EXISTING OPERATING CONDITIONS

Numerous transportation facilities in the General Study Area were analyzed using current traffic counts to establish baseline traffic operating conditions. This surface traffic analysis was conducted in accordance with standards from the Federal Highway Administration (FHWA).

## Analysis Time Periods

For this traffic analysis, three time periods were chosen for evaluation, including the typical weekday<sup>1</sup> morning and evening peak hours and the Friday evening peak hour. The peak hour at each analyzed facility is the busiest single hour based on the sum of traffic passing through the facility. The typical weekday morning and evening peak hours experience the heaviest traffic due to commuters, while the Friday evening peak hour experiences the heaviest combined level of Airport traffic and ambient traffic.

The City of Burbank defines the morning peak period as 7:00 a.m. to 10:00 a.m. and the evening peak period as 4:30 p.m. to 7:30 p.m. The City of Los Angeles also defines the morning peak period as 7:00 a.m. to 10:00 a.m., but defines the evening peak period as 3:00 p.m. to 6:00 p.m. Therefore, new intersection traffic counts were collected from 7:00 a.m. to 10:00 a.m. for the morning peak period. Intersections in Burbank were counted from 4:30 p.m. to 7:30 p.m. for both typical weekday and Friday evening peak periods, and, for intersections wholly or partially in Los Angeles were counted from 3:00 p.m. to 7:30 p.m. for both typical weekday and Friday evening peak periods. These traffic counts satisfied both cities' guidelines.

## Analysis Methodologies

Facilities were analyzed in this study using the *Highway Capacity Manual Sixth Edition* (HCM)<sup>2</sup> suite of methodologies according to the FHWA guidelines. For signalized and all-way stop-controlled intersections, the HCM methodology estimates average vehicular delay for vehicles passing through the intersection. For two-way stop-controlled intersections (where the major street traffic does not stop), the HCM methodology estimates the worst-case delay experienced by any minor-street movement waiting to turn onto or cross the major street. The HCM methodology determines intersection level of service (LOS) according to the LOS definitions provided in **Table K-3**.

Facilities controlled by the California Department of Transportation (Caltrans), including mainline freeway segments and ramp queue lengths, were also analyzed using applicable HCM methodologies.

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<sup>1</sup> Tuesdays through Thursdays are considered typical weekdays, as they tend to exhibit more consistent weekday traffic patterns than Mondays or Fridays.

<sup>2</sup> Transportation Research Board. (2016). *Highway Capacity Manual 6<sup>th</sup> Edition: A guide for Multimodal Mobility Analysis*.

**TABLE K-3**  
**LEVEL OF SERVICE DEFINITIONS FOR INTERSECTIONS**

<b>Level of Service</b>	<b>Signalized Delay (seconds)</b>	<b>Unsignalized Delay (seconds)</b>	<b>Definition</b>
A	0.0 – 10.0	0.0 – 10.0	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	10.1 – 20.0	10.1 – 15.0	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	20.1 – 35.0	15.1 – 25.0	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	35.1 – 55.0	25.1 – 35.0	FAIR. Delays may be substantial during portions of the rush hours, but enough lower-volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	55.1 – 80.0	35.1 – 50.0	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 80.0	> 50.0	FAILURE. Backups from nearby locations or on cross-streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Sources: Transportation Research Board, 2016; Gibson, 2018.



### *Transportation Facilities Analyzed*

A total of 42 intersections were selected for detailed analysis within the General Study Area, including 32 signalized intersections and 10 unsignalized intersections. These intersections are listed in **Table K-4** and shown in **Exhibit K-2**.

Intersections #31 and #32 (the I-5 southbound and northbound ramps at Empire Avenue) were currently under construction as part of the Empire Avenue Interchange Project until September 2019 and therefore, were only included in future analyses.

Detailed analysis was also conducted at several Caltrans facilities within the General Study Area, including four freeway mainline segments along I-5 and eight freeway off-ramps from among the 42 analyzed intersections. **Table K-5** lists these Caltrans facilities.

### *Traffic Data Collection*

Intersection turning movement counts were collected at 39 of the 42 study intersections during the weekday morning peak periods and the weekday and Friday evening peak periods in May 2018. Turning-movement counts were taken at Intersection #19 (Hollywood Way Southbound off-ramp / Empire Avenue) and Intersection #29 (Buena Vista Street / San Fernando Boulevard) in August 2018. Intersections #31 and #32 (the I-5 freeway ramps to Empire Avenue) were not open to the public until September 2019 and therefore, were not counted as part of the existing conditions analysis. Existing intersection lane configuration and signal-phasing information was collected in July 2018 for use in the intersection analysis. **Exhibit K-3** and **Exhibit K-4** present lane configuration information for signalized intersections and unsignalized intersections, respectively. **Exhibit K-5** and **Exhibit K-6** show the weekday morning, weekday evening, and Friday evening peak-hour traffic volumes for signalized intersections and unsignalized intersections, respectively.

For the four freeway mainline segments on I-5 selected for evaluation, peak-hour traffic volume data was collected from Caltrans's *2016 Traffic Volumes on California State Highways*<sup>3</sup> for the weekday morning and evening peak hours. Because Caltrans-published count data are not separated by day of the week, this analysis assumes that Friday evening peak-hour data is equivalent to weekday evening peak-hour data. The intersection traffic counts described above were used to evaluate Caltrans ramp intersections and queuing.

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<sup>3</sup> Caltrans. (2017). *2016 Traffic Volumes on California State Highways*. Retrieved June 2018, from Caltrans: [https://dot.ca.gov/trafficops/census/docs/2016\\_aadt\\_volumes.pdf](https://dot.ca.gov/trafficops/census/docs/2016_aadt_volumes.pdf).

**TABLE K-4**  
**LIST OF ANALYZED INTERSECTIONS**

No.	North/South Street	East/West Street	Jurisdiction
<b><i>Signalized Intersections</i></b>			
1.	SR 170 Southbound Ramps	Sherman Way	City of Los Angeles / Caltrans
2.	Laurel Canyon Boulevard	Sherman Way	City of Los Angeles
3.	Laurel Canyon Boulevard	Vanowen Street	City of Los Angeles
4.	Sunland Boulevard	San Fernando Road	City of Los Angeles
5.	Vineland Avenue	Sherman Way	City of Burbank / City of Los Angeles
6.	Vineland Avenue	Vanowen Street	City of Los Angeles
7.	Vineland Avenue	Victory Boulevard	City of Los Angeles
8.	San Fernando Road	Strathern Street / Clybourn Avenue	City of Los Angeles
9.	Clybourn Avenue	Vanowen Street	City of Burbank / City of Los Angeles
10.	Arvilla Avenue	San Fernando Road	City of Los Angeles
11.	Airport Terminal Driveway	Empire Avenue	City of Burbank
12.	Hollywood Way	I-5 Northbound Ramps	City of Los Angeles / Caltrans
13.	Hollywood Way Southbound Ramps	San Fernando Boulevard	City of Burbank
14.	Hollywood Way Northbound Ramps	San Fernando Boulevard	City of Burbank
15.	Hollywood Way	Tulare Avenue	City of Burbank
16.	Hollywood Way	Winona Avenue	City of Burbank
17.	Hollywood Way	Airport / Thornton Avenue	City of Burbank
18.	Hollywood Way	Airport / Avon Avenue	City of Burbank
19.	Hollywood Way Southbound Off-ramp	Empire Avenue	City of Burbank
20.	Avon Street	Empire Avenue	City of Burbank
21.	Hollywood Way	Victory Boulevard	City of Burbank
22.	Hollywood Way	Burbank Boulevard	City of Burbank
23.	Hollywood Way	Magnolia Boulevard	City of Burbank

No.	North/South Street	East/West Street	Jurisdiction
24.	Ontario Street	Winona Avenue	City of Burbank
25.	Ontario Street	Thornton Avenue	City of Burbank
26.	Ontario Street	Empire Avenue	City of Burbank
27.	Buena Vista Street	I-5 Northbound Ramps	City of Burbank / Caltrans
28.	Buena Vista Street	Winona Avenue	City of Burbank
29.	Buena Vista Street	San Fernando Boulevard	City of Burbank
30.	Buena Vista Street	Empire Avenue	City of Burbank
31. /a/	I-5 Southbound Ramps	Empire Avenue	City of Burbank / Caltrans
32. /a/	I-5 Northbound Ramps	Empire Avenue	City of Burbank / Caltrans
<b><i>Unsignalized Intersections</i></b>			
33.	SR 170 Northbound Ramps	Sherman Way	City of Los Angeles / Caltrans
34.	Clybourn Avenue	Sherman Way	City of Burbank / City of Los Angeles
35.	Clybourn Avenue	Empire Avenue	City of Burbank / City of Los Angeles
36.	Lockheed Drive	San Fernando Road	City of Los Angeles
37.	Lockheed Drive	Cohasset Street	City of Burbank / City of Los Angeles
38.	San Fernando Boulevard	Cohasset Street	City of Burbank / City of Los Angeles
39.	Hollywood Way	I-5 Southbound Ramps	City of Los Angeles / Caltrans
40.	Hollywood Way	San Fernando Boulevard Ramps	City of Burbank
41.	I-5 Southbound Ramps	San Fernando Boulevard	City of Burbank / Caltrans
42.	San Fernando Boulevard / Naomi Street	Winona Avenue	City of Burbank

Notes:

/a/ Intersection was under construction until completion and opening in September 2019 as part of the Empire Avenue Interchange Project. It was only analyzed under Future Conditions.

Source: Gibson, 2018.



**EXHIBIT K-2**  
**ANALYZED INTERSECTIONS IN GENERAL STUDY AREA**



Sources: Gibson, 2019; RS&H, 2019.

**TABLE K-5**  
**LIST OF ANALYZED CALTRANS FACILITIES**

No.	Location
<b><i>Freeway Mainline Segments</i></b>	
1.	I-5 north of Hollywood Way
2.	I-5 between Hollywood Way & Buena Vista Street
3.	I-5 between Buena Vista Street & Empire Avenue
4.	I-5 south of Empire Avenue
<b><i>Off-ramp Queues</i></b>	
1.	SR 170 Southbound Off-ramp to Sherman Way (Intersection #1)
2.	I-5 Northbound Off-ramp to Hollywood Way (Intersection #12)
3.	I-5 Northbound Off-ramp to Buena Vista Street (Intersection #27)
4. /a/	I-5 Southbound Off-ramp to Empire Avenue (Intersection #31)
5. /a/	I-5 Northbound Off-ramp to Empire Avenue (Intersection #32)
6.	SR 170 Northbound Off-ramp to Sherman Way (Intersection #33)
7.	I-5 Southbound Off-ramp to Hollywood Way (Intersection #39)
8.	I-5 Southbound Off-ramp to San Fernando Boulevard (Intersection #41)

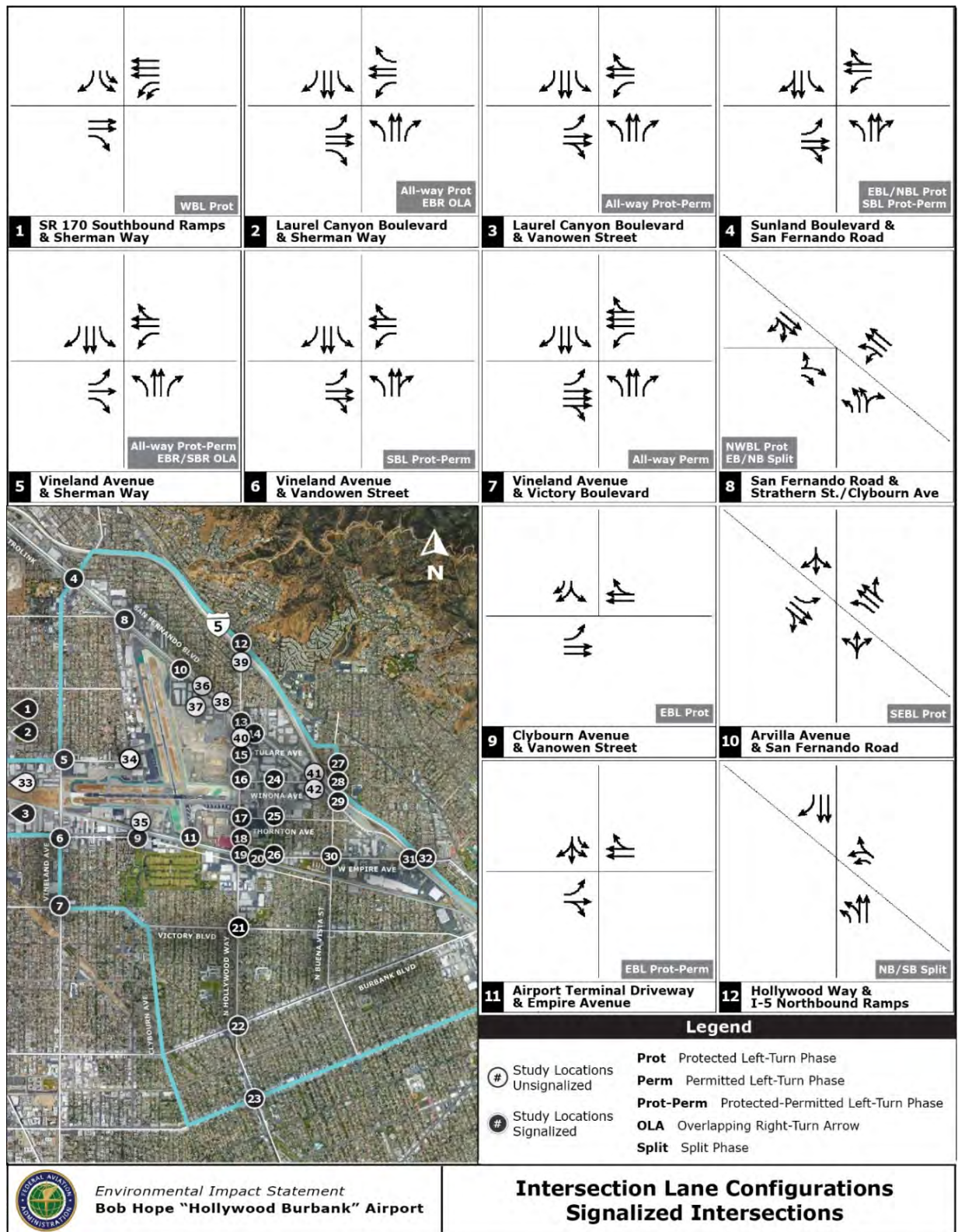
Notes:

/a/ Intersection or ramp was under construction until completion and opening in September 2019 as part of the Empire Avenue Interchange Project. It was only analyzed under Future Conditions.

Source: Gibson, 2018.

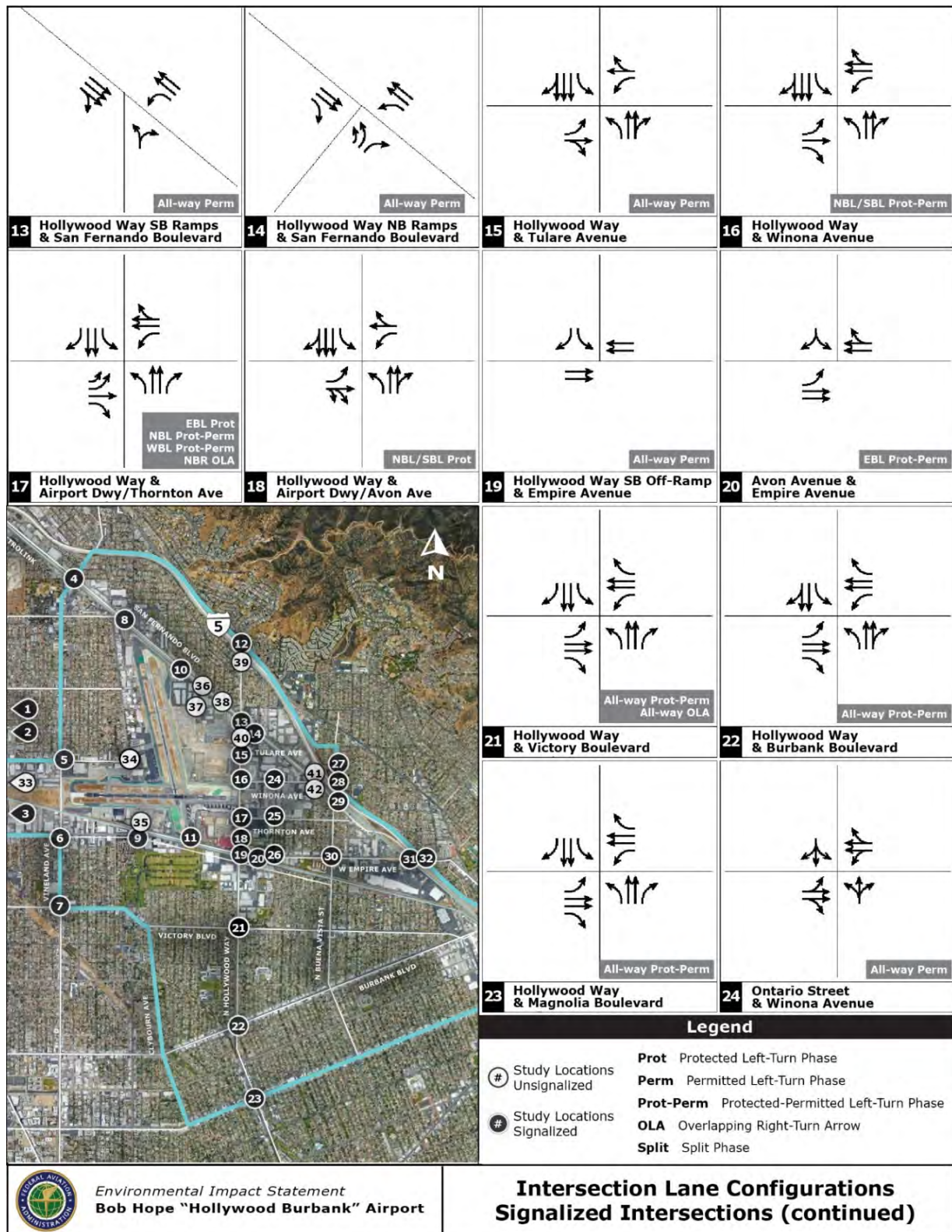


**EXHIBIT K-3**  
**INTERSECTION LANE CONFIGURATIONS AT SIGNALIZED INTERSECTIONS**



Sources: Gibson, 2019; RS&H, 2019.

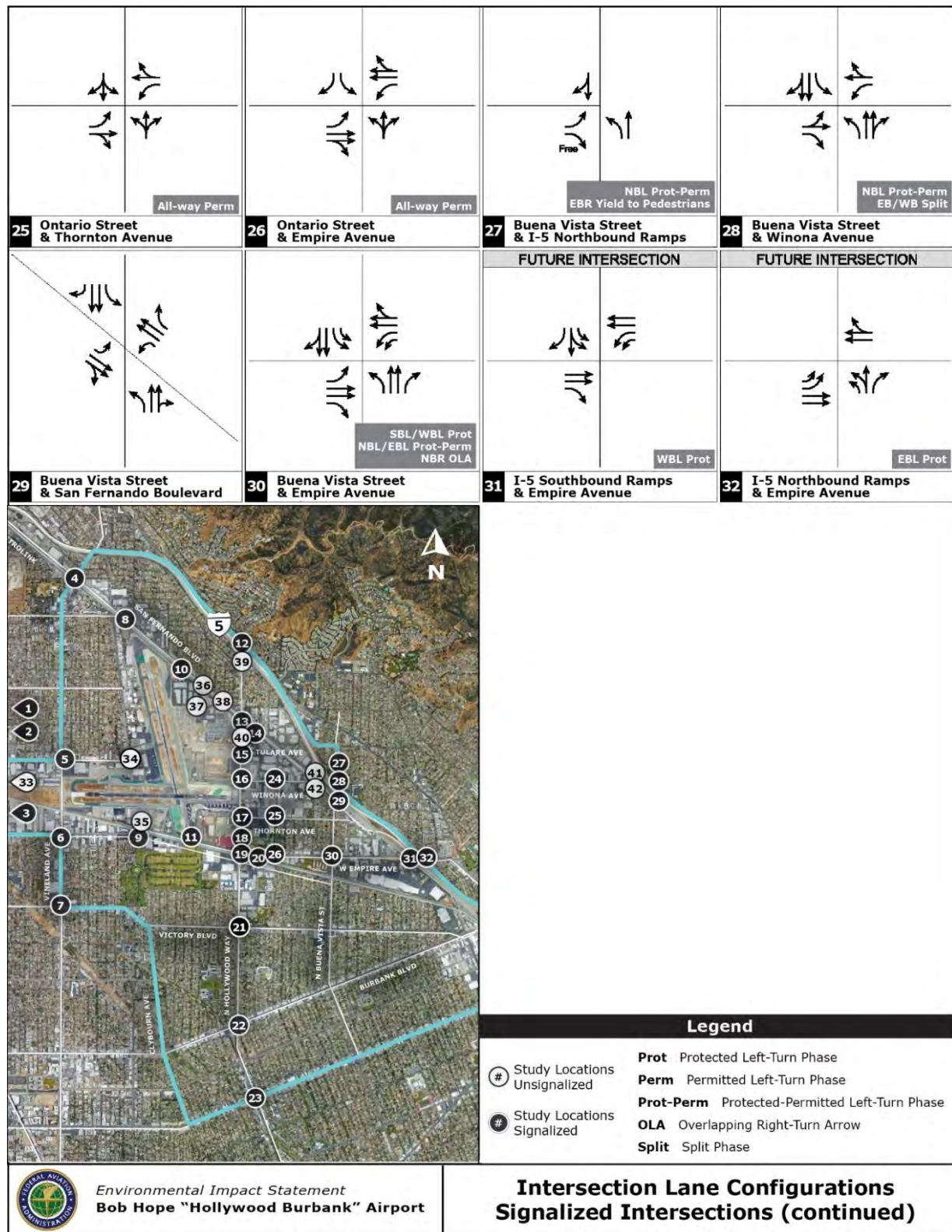
**EXHIBIT K-3 (CONT.)**  
**INTERSECTION LANE CONFIGURATIONS AT SIGNALIZED INTERSECTIONS**



Sources: Gibson, 2019; RS&H, 2019.



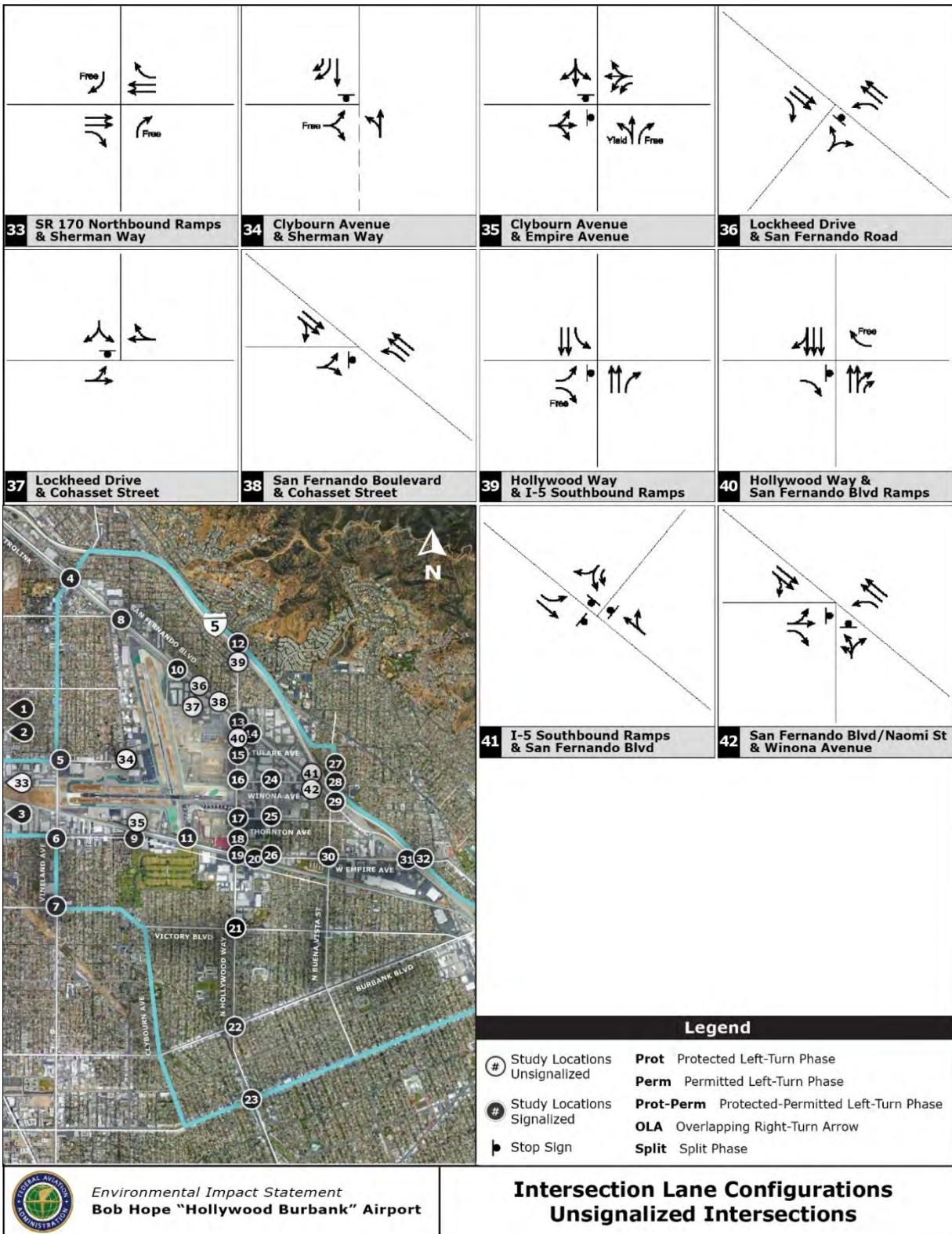
**EXHIBIT K-3 (CONT.)**  
**INTERSECTION LANE CONFIGURATIONS AT SIGNALIZED INTERSECTIONS**



Source: Gibson, 2018; RS&H, 2019.

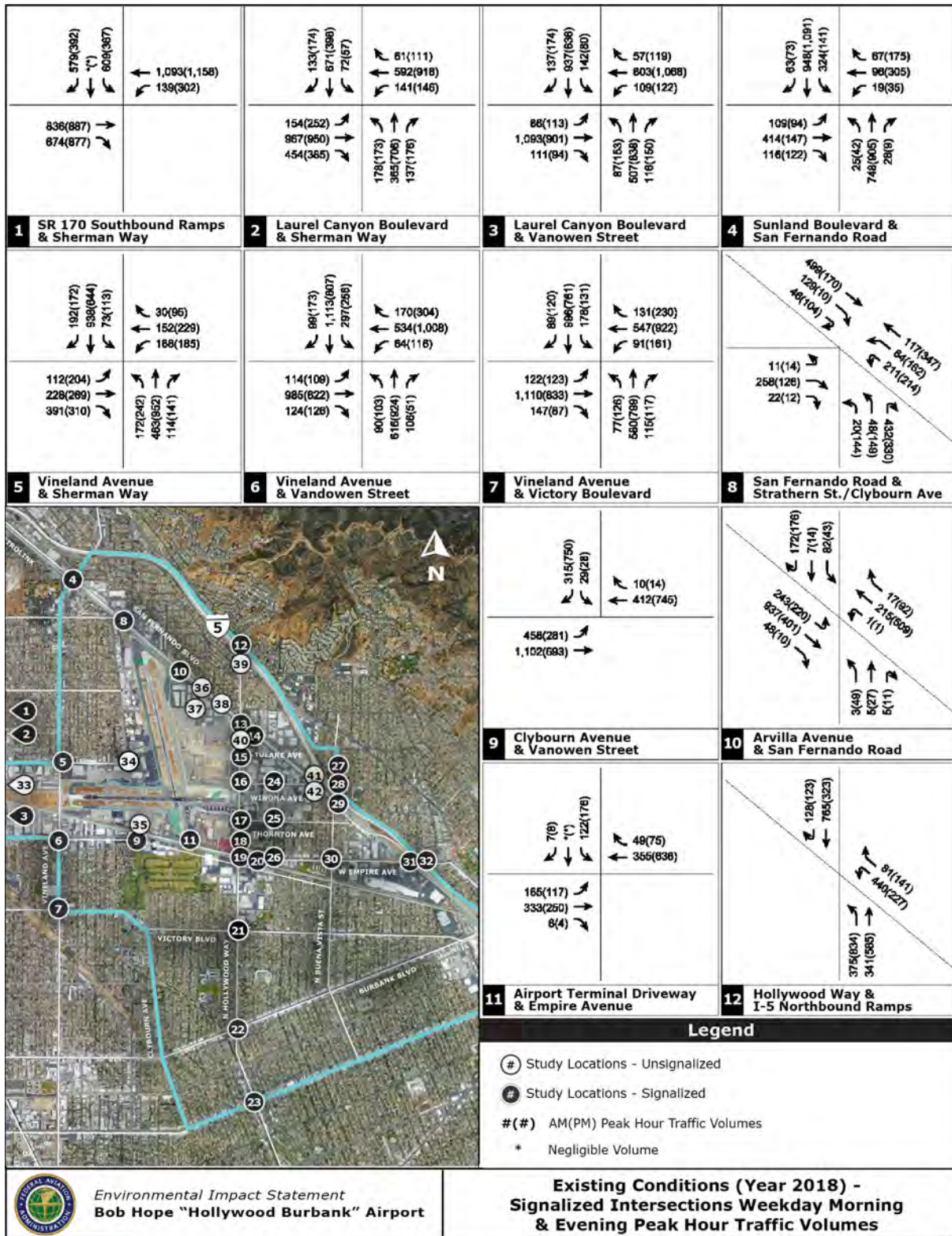


**EXHIBIT K-4**  
**LANE CONFIGURATIONS AT UNSIGNALIZED INTERSECTIONS**



Sources: Gibson, 2018; RS&H, 2019.

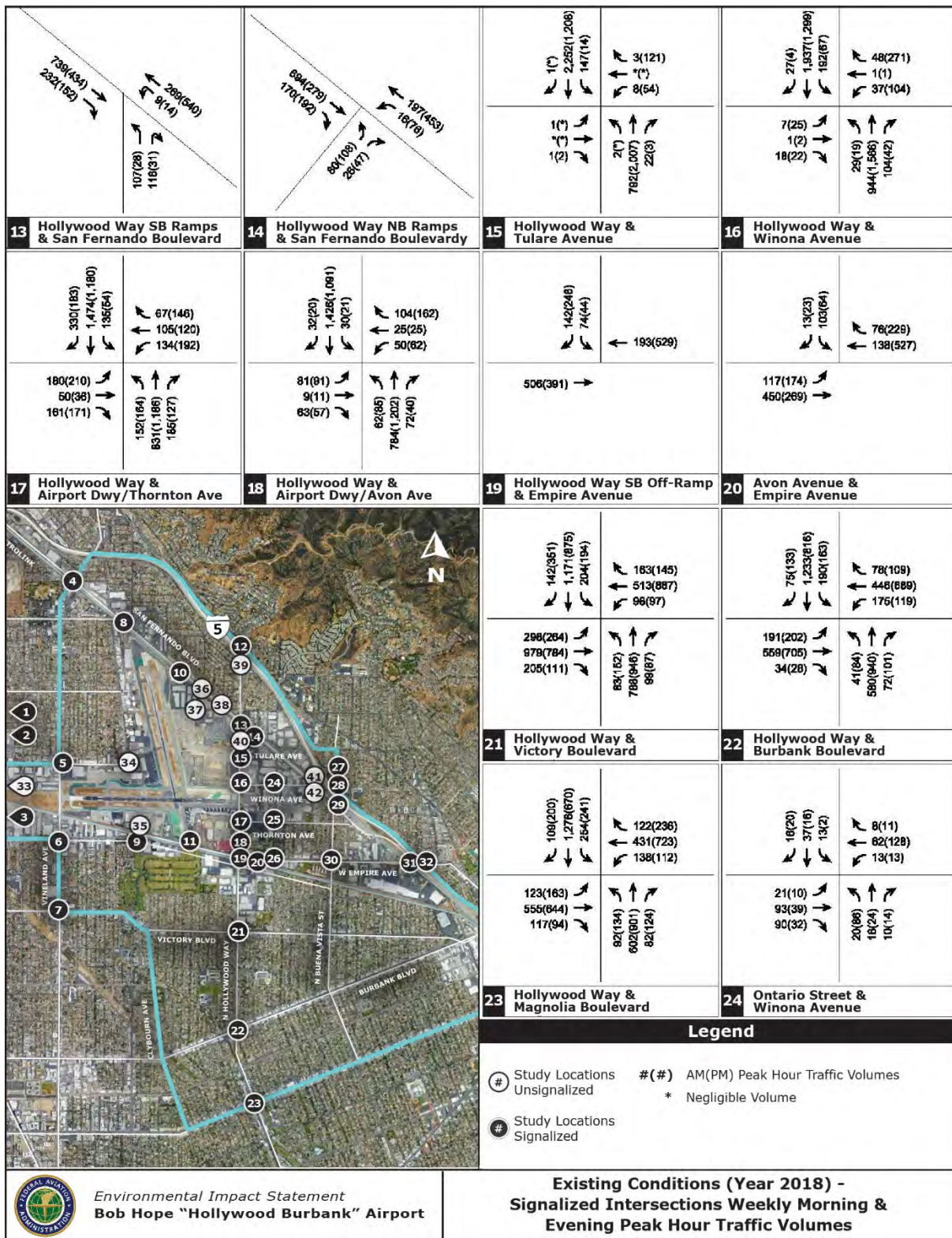
**EXHIBIT K-5**  
**WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES AT SIGNALIZED INTERSECTIONS**



Sources: Gibson, 2018; RS&H, 2019.



**EXHIBIT K-5 (CONT.)**  
**WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES AT SIGNALIZED INTERSECTIONS**



Sources: Gibson, 2018; RS&H, 2019.

**EXHIBIT K-5 (CONT.)**

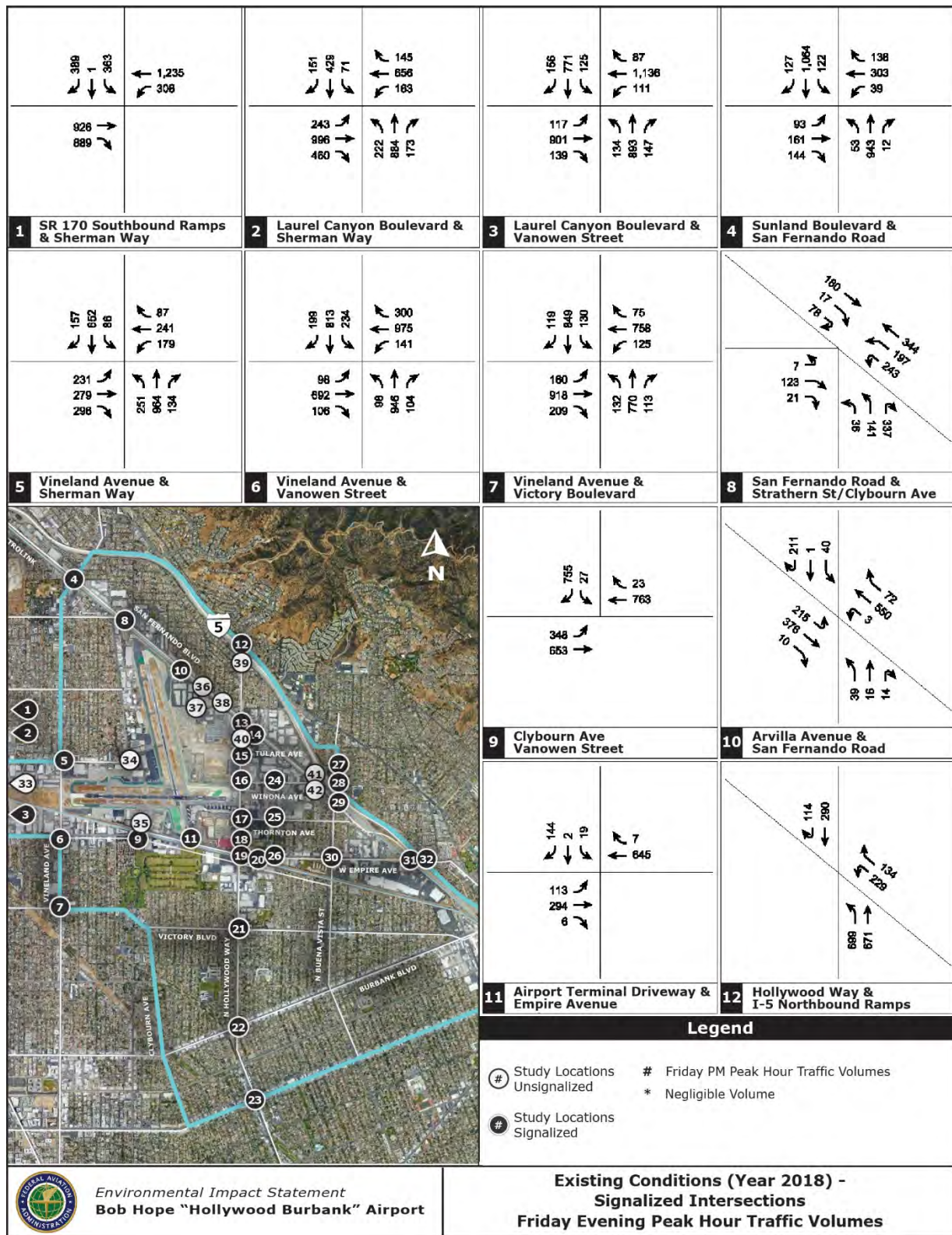
**WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES AT SIGNALIZED INTERSECTIONS**

<b>25 Ontario Street &amp; Thornton Avenue</b>	<b>26 Ontario Street &amp; Empire Avenue</b>	<b>27 Buena Vista Street &amp; I-5 Northbound Ramps</b>	<b>28 Buena Vista Street &amp; Winona Avenue</b>
		<p><i>Under Construction in Year 2018</i></p>	<p><i>Under Construction in Year 2018</i></p>
<b>29 Buena Vista Street &amp; San Fernando Boulevard</b>	<b>30 Buena Vista Street &amp; Empire Avenue</b>	<b>31 I-5 Southbound Ramps &amp; Empire Avenue</b>	<b>32 I-5 Northbound Ramps &amp; Empire Avenue</b>
<p align="center"><b>Legend</b></p> <div style="display: flex; justify-content: space-between;"> <div> <p>⊙ Study Locations Unsignalized</p> <p>⦿ Study Locations Signalized</p> </div> <div> <p># (#) AM(PM) Peak Hour Traffic Volumes</p> <p>* Negligible Volume</p> </div> </div> <p align="center"><b>Existing Conditions (Year 2018) - Signalized Intersections Weekly Morning &amp; Evening Peak Hour Traffic Volumes</b></p>			

Sources: Gibson, 2018; RS&H, 2019.

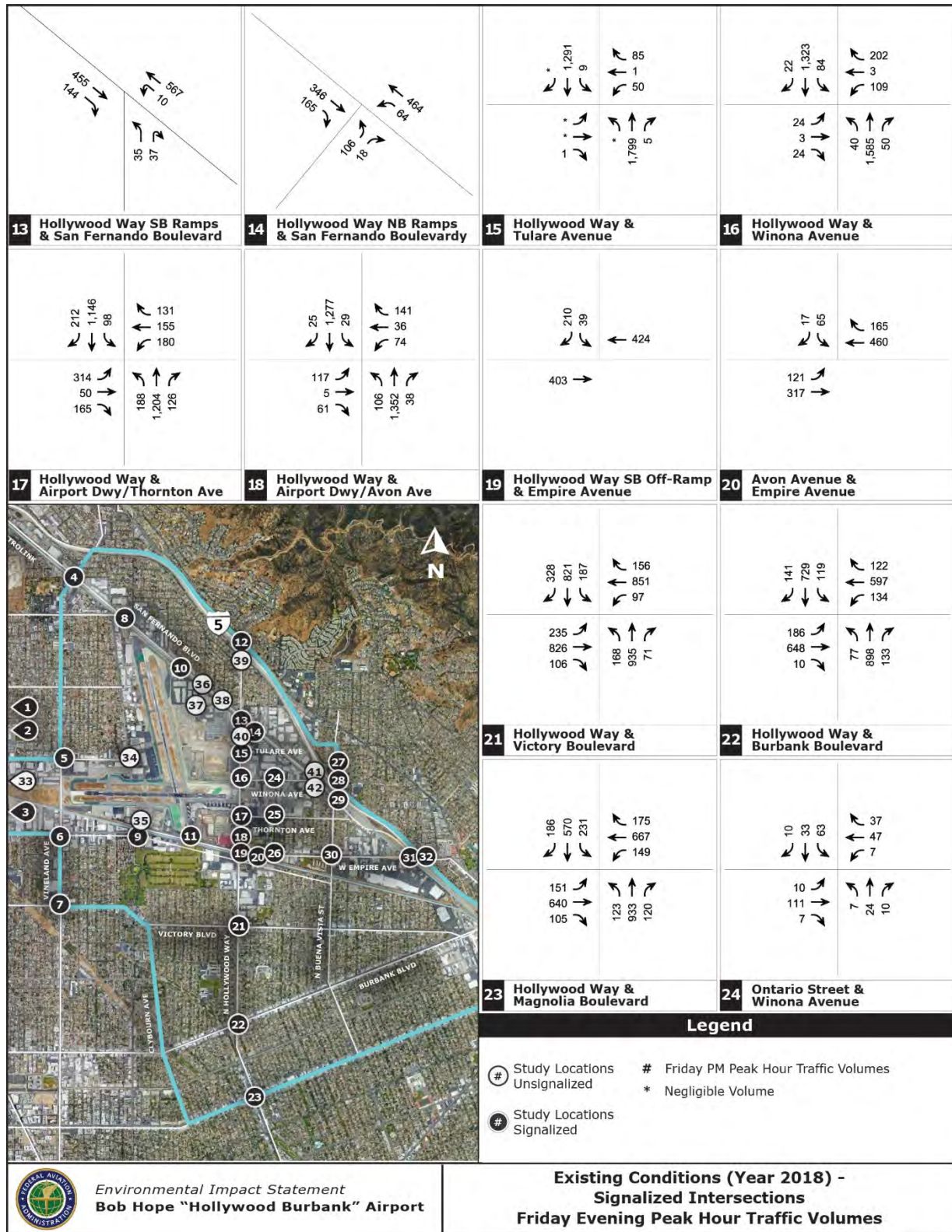


**EXHIBIT K-5 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES AT SIGNALIZED INTERSECTIONS**



Sources: Gibson, 2018; RS&H, 2019.

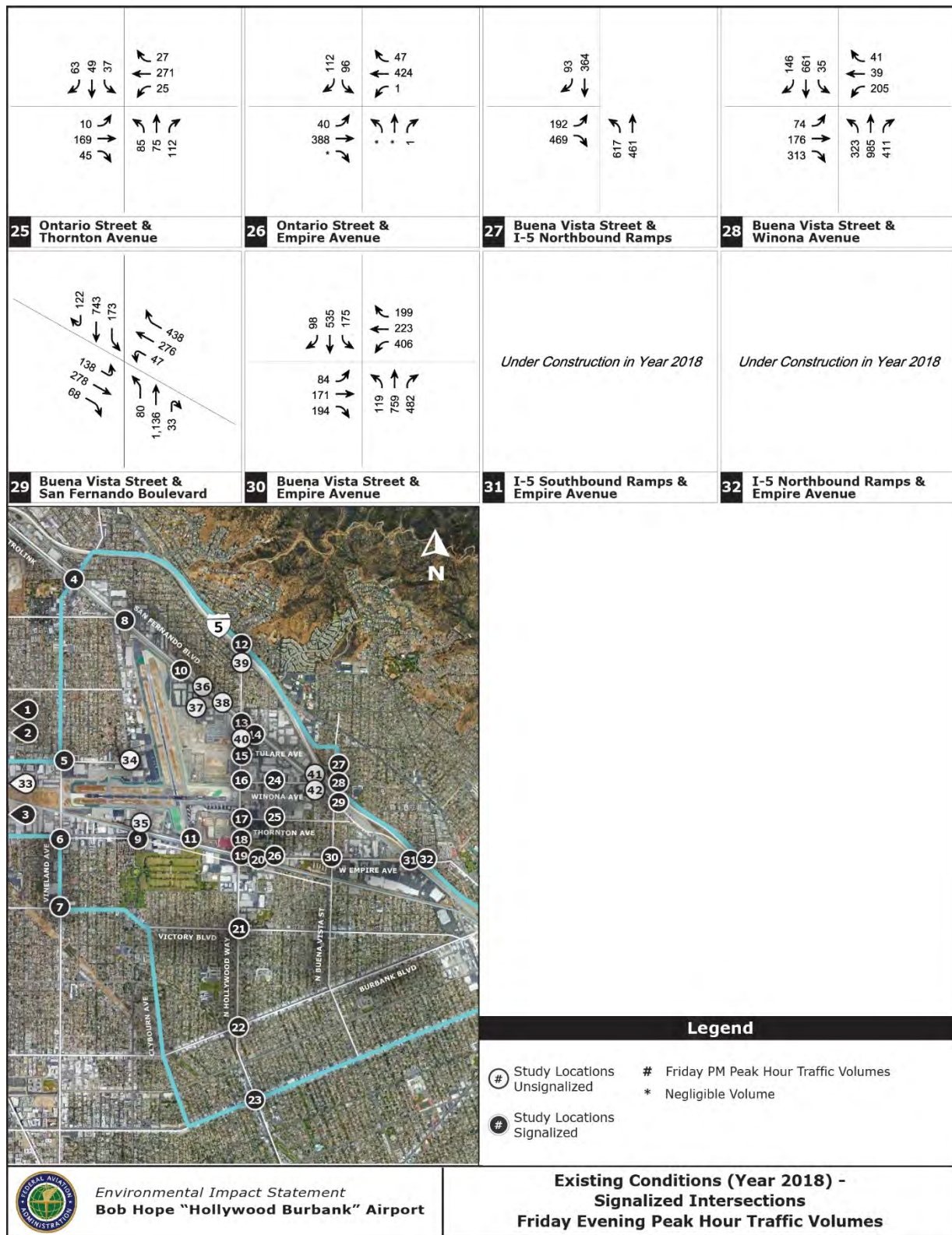
**EXHIBIT K-5 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES AT SIGNALIZED INTERSECTIONS**



Sources: Gibson, 2018; RS&H, 2019.

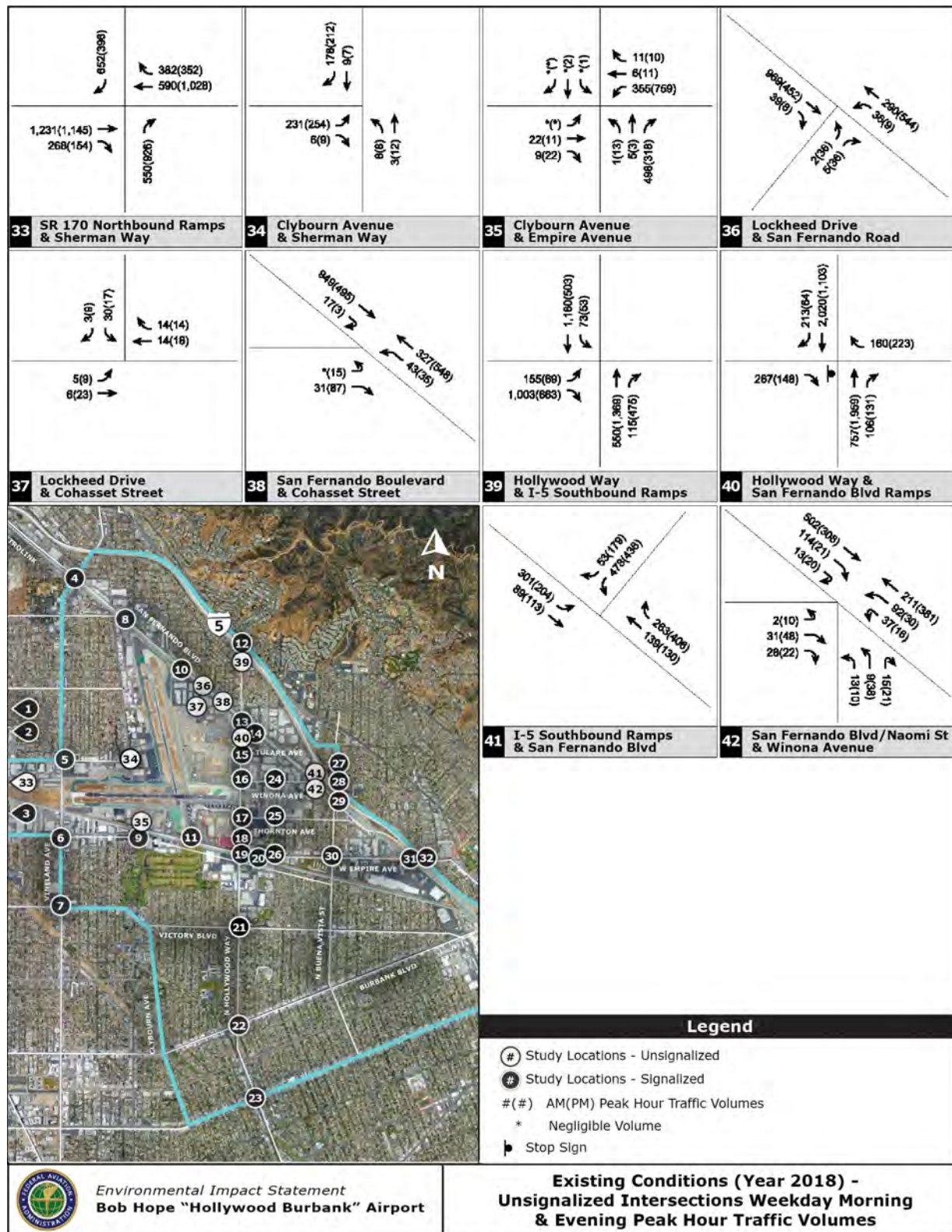


**EXHIBIT K-5 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES AT SIGNALIZED INTERSECTIONS**



Sources: Gibson, 2018; RS&H, 2019.

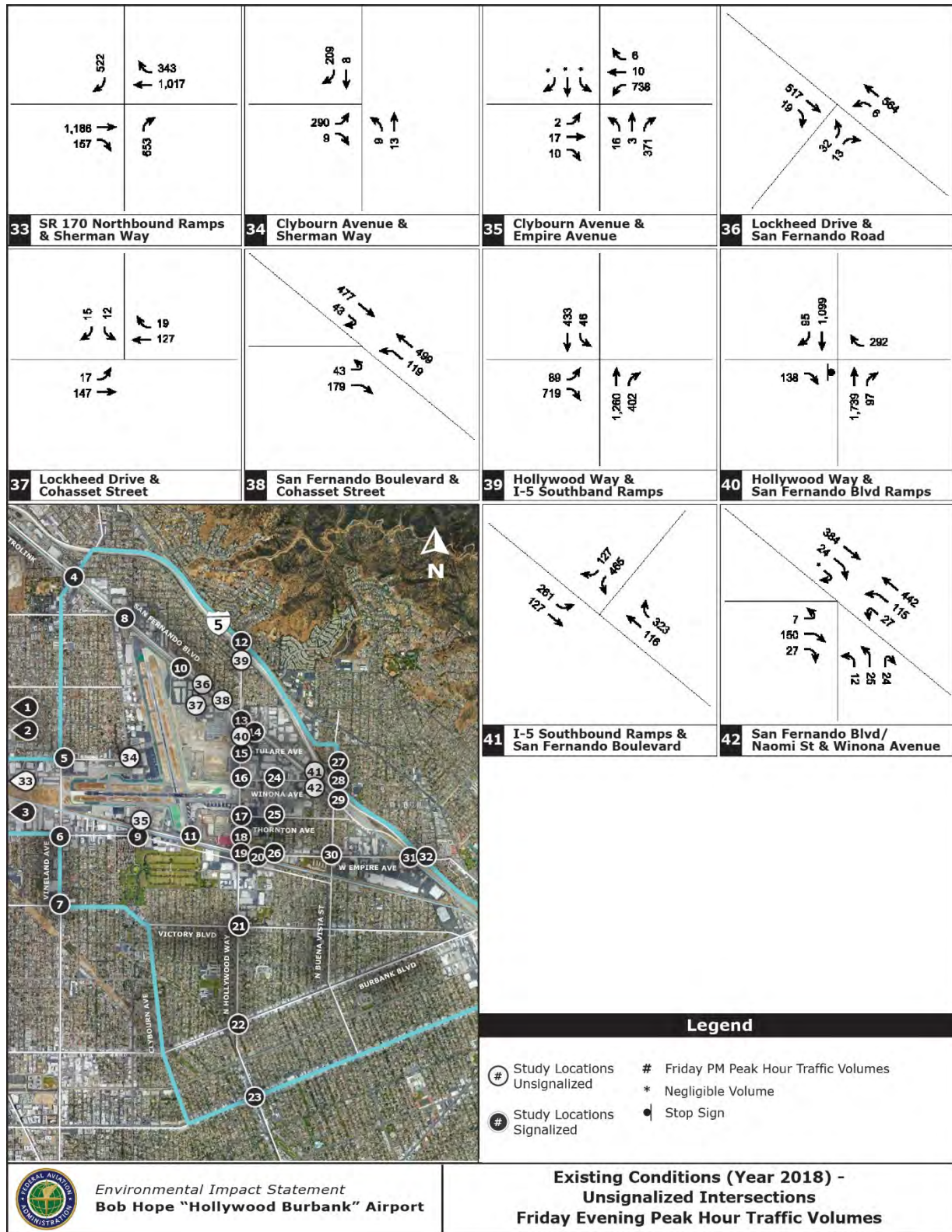
**EXHIBIT K-6**  
**WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES AT UNSIGNALIZED INTERSECTIONS**



Sources: Gibson, 2018; RS&H, 2019.



**EXHIBIT K-6 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES AT UNSIGNALIZED INTERSECTIONS**



Sources: Gibson, 2018; RS&H, 2019.

### *Intersection Levels of Service*

**Table K-6** summarizes the weekday morning, weekday evening, and Friday evening peak-hour operating conditions for the 30 existing signalized study intersections (excluding the two intersections on Empire Avenue). As shown, all 30 intersections currently operate at LOS D or better during all three analyzed peak hours. **Table K-7** summarizes the peak-hour operating conditions for the 10 unsignalized study intersections. As shown, all 10 currently operate at LOS D or better during all three analyzed peak hours.

### *Freeway Mainline Segment Levels of Service*

**Table K-8** summarizes the existing operating conditions (2018) at the four freeway mainline segments during the weekday morning and evening peak hours. As shown, traffic flow is substantially heavier in the southbound direction during the morning peak hour and in the northbound direction during the evening peak hour. The segments currently affected by construction of the I-5 Widening Project (Segments #3, I-5 between Buena Vista Street and Empire Avenue, and #4, I-5 south of Empire Avenue) would each operate at LOS E or F in the peak direction during the peak hours. Once complete, the I-5 Widening Project will improve conditions on those two freeway segments.

### *Freeway Off-ramp Queues*

**Table K-9** shows the results of the off-ramp queuing analysis at the eight off-ramps within the General Study Area. The HCM analysis reports the 95th percentile queue length, in feet, for each approach lane on the off-ramp based on the HCM intersection analysis. Caltrans' primary concern with respect to off-ramp operating conditions is that queued vehicles may extend past the back of the ramp and onto the mainline of the freeway. Therefore, the queuing analysis evaluates two separate components of ramp capacity: (1) the length of each approach lane to the intersection; and (2) the remaining length of the ramp, behind any approach-lane delineation lines, to the "gore point"—the unpaved area created between the freeway mainline and a ramp that merges into or diverges from the mainline. The queue may exceed the striped length of a given approach lane (indicated by "Lane" in the "Exceeds Capacity" column of **Table K-9**); however, as long as there is sufficient additional queuing capacity on the ramp, traffic does not spill over onto the mainline (which would be indicated by "Yes" in the "Exceeds Capacity" column). As shown in **Table K-9**, while two ramps currently experience queues that exceed the length of one or more approach lanes during one or more peak hours (Ramp #1, SR 170 Southbound Off-ramp to Sherman Way, and Ramp #2, I-5 Northbound Off-ramp to Hollywood Way), neither queue would extend into the mainline freeway.

**TABLE K-6**  
**PEAK-HOUR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS**

No.	Intersection	Peak Hour	Existing Conditions (2018)	
			Delay	Level of Service
1. /a/	SR 170 Southbound Ramps / Sherman Way	AM	31.1	C
		PM	35.4	D
		Fri PM	36.0	D
2. /a/	Laurel Canyon Boulevard / Sherman Way	AM	37.7	D
		PM	38.3	D
		Fri PM	38.6	D
3. /a/	Laurel Canyon Boulevard / Vanowen Street	AM	25.4	C
		PM	25.5	C
		Fri PM	27.0	C
4. /a/	Sunland Boulevard / San Fernando Road	AM	23.4	C
		PM	25.5	C
		Fri PM	25.2	C
5. /a/	Vineland Avenue / Sherman Way	AM	21.6	C
		PM	22.9	C
		Fri PM	23.6	C
6. /a/	Vineland Avenue / Vanowen Street	AM	22.9	C
		PM	29.3	C
		Fri PM	28.4	C
7. /a/	Vineland Avenue / Victory Boulevard	AM	19.0	B
		PM	19.2	B
		Fri PM	19.3	B
8. /a/	San Fernando Road / Strathern Street / Clybourn Avenue	AM	29.1	C
		PM	32.0	C
		Fri PM	36.0	D
9. /a/	Clybourn Avenue / Vanowen Street	AM	18.7	B
		PM	24.9	C
		Fri PM	28.7	C
10. /a/	Arvilla Avenue / Airport Driveway / San Fernando Road	AM	21.7	C
		PM	13.5	B
		Fri PM	13.7	B
11.	Airport Terminal Driveway / Empire Avenue	AM	7.8	A
		PM	9.6	A
		Fri PM	14.9	B
12. /a/	Hollywood Way / I-5 Northbound Ramps	AM	29.3	C
		PM	31.7	C

No.	Intersection	Peak Hour	Existing Conditions (2018)	
			Delay	Level of Service
		Fri PM	30.8	C
13.	Hollywood Way Southbound Ramps / San Fernando Boulevard	AM	8.5	A
		PM	3.2	A
		Fri PM	3.7	A
14.	Hollywood Way Northbound Ramps / San Fernando Boulevard	AM	5.0	A
		PM	7.0	A
		Fri PM	5.7	A
15.	Hollywood Way / Tulare Avenue	AM	1.4	A
		PM	7.1	A
		Fri PM	5.3	A
16.	Hollywood Way / Winona Avenue	AM	5.6	A
		PM	16.1	B
		Fri PM	13.6	B
17.	Hollywood Way / Airport / Thornton Avenue	AM	18.1	B
		PM	20.4	C
		Fri PM	22.7	C
18.	Hollywood Way / Airport / Avon Avenue	AM	14.3	B
		PM	17.2	B
		Fri PM	18.3	B
19.	Hollywood Way Southbound Off-ramp / Empire Avenue	AM	11.9	B
		PM	12.9	B
		Fri PM	12.3	B
20.	Avon Street / Empire Avenue	AM	8.2	A
		PM	6.5	A
		Fri PM	6.3	A
21.	Hollywood Way / Victory Boulevard	AM	29.7	C
		PM	30.2	C
		Fri PM	29.3	C
22.	Hollywood Way / Burbank Boulevard	AM	28.3	C
		PM	29.8	C
		Fri PM	30.0	C
23.	Hollywood Way / Magnolia Boulevard	AM	26.6	C
		PM	27.9	C
		Fri PM	27.6	C
24.	Ontario Street / Winona Avenue	AM	13.1	B
		PM	17.8	B
		Fri PM	17.6	B

No.	Intersection	Peak Hour	Existing Conditions (2018)	
			Delay	Level of Service
25.	Ontario Street / Thornton Avenue	AM	13.2	B
		PM	18.6	B
		Fri PM	18.4	B
26.	Ontario Street / Empire Avenue	AM	7.0	A
		PM	11.2	B
		Fri PM	10.8	B
27.	Buena Vista Street / I-5 Northbound Ramps	AM	10.7	B
		PM	12.4	B
		Fri PM	13.1	B
28.	Buena Vista Street / Winona Avenue	AM	30.0	C
		PM	28.9	C
		Fri PM	25.6	C
29.	Buena Vista Street / San Fernando Boulevard	AM	27.4	C
		PM	31.9	C
		Fri PM	30.4	C
30.	Buena Vista Street / Empire Avenue	AM	24.1	C
		PM	30.0	C
		Fri PM	29.4	C
31.	I-5 Southbound Ramps / Empire Avenue	AM PM Fri PM	<i>Under Construction in Year 2018</i>	
32.	I-5 Northbound Ramps / Empire Avenue	AM PM Fri PM	<i>Under Construction in Year 2018</i>	

Notes:

/a/ Fully or partially within the jurisdiction of the City of Los Angeles.

Source: Gibson, 2018.

**TABLE K-7**  
**PEAK-HOUR LEVELS OF SERVICE AT UNSIGNALIZED INTERSECTIONS**

No.	Intersection	Peak Hour	Existing Conditions (2018)	
			Delay <sup>/a/</sup>	Level of Service
33. /b/	SR 170 Northbound Ramps / Sherman Way	AM	11.1	B
		PM	12.5	B
		Fri PM	9.8	A
34. /b/	Clybourn Avenue / Sherman Way	AM	11.5	B
		PM	11.8	B
		Fri PM	12.4	B
35. /b/	Clybourn Avenue / Empire Avenue	AM	18.5	C
		PM	25.3	D
		Fri PM	25.6	D
36. /b/	Lockheed Drive / San Fernando Road	AM	26.2	D
		PM	16.6	C
		Fri PM	17.3	C
37. /b/	Lockheed Drive / Cohasset Street	AM	8.8	A
		PM	9.0	A
		Fri PM	8.8	A
38. /b/	San Fernando Boulevard / Cohasset Street	AM	12.2	B
		PM	18.4	C
		Fri PM	10.5	B
39. /b/	Hollywood Way / I-5 Southbound Ramps	AM	26.5	D
		PM	18.2	C
		Fri PM	15.9	C
40.	Hollywood Way / San Fernando Boulevard Ramps	AM	23.2	C
		PM	12.2	B
		Fri PM	12.4	B
41. /c/	I-5 Southbound Ramps / San Fernando Boulevard	AM	19.7	C
		PM	28.7	D
		Fri PM	21.6	C
42.	San Fernando Boulevard / Naomi Street / Winona Avenue	AM	14.3	B
		PM	12.8	B
		Fri PM	13.2	B

Notes:

/a/ Delay reported is worst-case, in seconds, experienced by motorists performing any vehicle movement through the intersection, except as noted in /c/.

/b/ Intersection is located fully or partially within the jurisdiction of the City of Los Angeles.

/c/ Intersection is all-way stop-controlled. Average delay of all vehicles is reported.

Source: Gibson, 2018.

**TABLE K-8**  
**FREEWAY MAINLINE SEGMENT OPERATING CONDITIONS**

No.	Freeway Segment	Direction	Existing Conditions (2018)				
			Volume	Lanes <i>/a/</i>	Speed <i>/b/</i>	Density <i>/c/</i>	Level of Service
Weekday Morning Peak Hour							
1.	I-5 North of Hollywood Way	Northbound	4,636	4.5	58.0	20.2	C
		Southbound	8,177	5	57.3	32.5	D
2.	I-5 between Hollywood Way / Buena Vista Street	Northbound	4,387	4	58.0	21.5	C
		Southbound	7,738	4	52.5	41.9	E
3.	I-5 between Buena Vista Street / Empire Avenue	Northbound	4,342	4	54.9	22.5	C
		Southbound	7,658	4	51.4	42.4	E
4.	I-5 South of Empire Avenue	Northbound	4,613	4	54.9	23.9	C
		Southbound	8,137	4	N/A	N/A	F
Weekday Evening / Friday Evening Peak Hour <sup>d/</sup>							
1.	I-5 North of Hollywood Way	Northbound	7,484	4.5	57.1	33.1	D
		Southbound	5,882	5	58.0	23.1	C
2.	I-5 between Hollywood Way / Buena Vista Street	Northbound	7,082	4	55.7	36.2	E
		Southbound	5,567	4	58.0	27.3	D
3.	I-5 between Buena Vista Street / Empire Avenue	Northbound	7,009	4	54.0	36.9	E
		Southbound	5,509	4	54.9	28.5	D
4.	I-5 south of Empire Avenue	Northbound	7,447	4	52.4	40.4	E
		Southbound	5,854	4	54.9	30.3	D

Notes:

/a/ Lane totals include auxiliary lanes and high-occupancy vehicle lanes as one-half lane.

/b/ Speed reported in miles per hour based on a free flow speed of 65 miles per hour.

/c/ Density reported in "passenger cars per mile per lane."

/d/ Weekday evening and Friday evening peak-hour results are equivalent for analysis purposes.

Source: Gibson, 2018.

**TABLE K-9  
OFF-RAMP QUEUING EVALUATION**

Ramp and Lane Description	Vehicle Storage Capacity (feet)	Weekday AM Peak Hour		Weekday PM Peak Hour		Friday PM Peak Hour	
		95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?	95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?	95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?
<b>1. SR 170 Southbound Off-ramp to Sherman Way (Intersection #1)</b>							
Number of Vehicles Using Off-ramp		1,188		759		752	
Average Approach Delay on Ramp		42.0		57.8		56.4	
Approach Level of Service		D		E		E	
Dual Left-Turn Lanes	400	211 feet	NO	152 feet	NO	151 feet	NO
Right-Turn Lane	400	605 feet	Lane	487 feet	Lane	475 feet	Lane
Ramp (between turn lanes and freeway)	580	205 feet	NO	87 feet	NO	75 feet	NO
<b>2. I-5 Northbound Off-ramp to Hollywood Way (Intersection #12)</b>							
Number of Vehicles Using Off-ramp		522		368		352	
Average Approach Delay on Ramp		40.8		42.9		43.4	
Approach Level of Service		D		D		D	
Left-Turn Lane	180	249 feet	Lane	195 feet	Lane	189 feet	Lane
Shared Left / Right-Turn Lane	180	243 feet	Lane	182 feet	Lane	175 feet	NO
Ramp (between turn lanes and freeway)	600	132 feet	NO	17 feet	NO	9 feet	NO
<b>3. I-5 Northbound Off-ramp to Buena Vista Street</b>							



Ramp and Lane Description	Vehicle Storage Capacity (feet)	Weekday AM Peak Hour		Weekday PM Peak Hour		Friday PM Peak Hour	
		95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?	95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?	95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?
Number of Vehicles Using Off-ramp		753		637		661	
Average Delay on Ramp		45.9		45.8		45.0	
Approach Level of Service		D		D		D	
Left-Turn Lane	250	177 feet	NO	180 feet	NO	200 feet	NO
Right-Turn Lane	250	177 feet	NO	180 feet	NO	200 feet	NO
Ramp (between turn lanes and freeway)	340	0 feet	NO	0 feet	NO	0 feet	NO
4. I-5 Southbound Off-ramp to Empire Avenue (Intersection #31) <sup>/a/</sup>							
5. I-5 Northbound Off-ramp to Empire Avenue (Intersection #32) <sup>/a/</sup>							
6. SR 170 Northbound Off-ramp to Sherman Way (Intersection #33)							
Number of Vehicles Using Off-ramp		1,202		1,322		1,175	
Average Approach Delay on Ramp		11.1		12.5		9.8	
Approach Level of Service		B		B		A	
Sherman Way West	2,190	80 feet	NO	31 feet	NO	46 feet	NO
Sherman Way East	1,250	47 feet	NO	136 feet	NO	63 feet	NO
Ramp (between turn lanes and freeway)	590	0 feet	NO	0 feet	NO	0 feet	NO
7. I-5 Southbound Off-ramp to Hollywood Way (Intersection #39)							
Number of Vehicles Using Off-ramp							
Average Approach Delay on Ramp		13.9		11.0		11.6	

Ramp and Lane Description	Vehicle Storage Capacity (feet)	Weekday AM Peak Hour		Weekday PM Peak Hour		Friday PM Peak Hour	
		95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?	95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?	95th Percentile Vehicle Queue Length (feet)	Exceeds Capacity?
Approach Level of Service		B		B		B	
Left-Turn Lane	800	63 feet	NO	18 feet	NO	20 feet	NO
Right-Turn Lane	800	136 feet	NO	72 feet	NO	88 feet	NO
Ramp (between turn lanes and freeway)	500	0 feet	NO	0 feet	NO	0 feet	NO
<b>8. I-5 Southbound Off-ramp to San Fernando Blvd (Intersection #41)</b>							
Number of Vehicles Using Off-ramp		531		615		592	
Average Approach Delay on Ramp		18.1		20.9		20.1	
Approach Level of Service		C		C		C	
Left-Turn Lane	210	81 feet	NO	113 feet	NO	102 feet	NO
Shared Left / Right-Turn Lane	210	76 feet	NO	93 feet	NO	89 feet	NO
Ramp (between turn lanes and freeway)	1,140	0 feet	NO	0 feet	NO	0 feet	NO

Notes: /a/ Ramp and intersection were under construction in 2018 and opened to the public in September 2019.

Source: Gibson, 2018.

## K.3 AIRPORT OPERATIONS

### Airport Access

Access to the existing terminal is provided by a terminal loop road that connects to Hollywood Way at Thornton Avenue and to Empire Avenue to the south. The terminal loop road also provides access to several adjacent parking facilities and to the RITC, which contains the Airport's rental car operations and a transit center on the ground floor for public buses. Numerous smaller driveways provide access to general aviation facilities along Empire Avenue, Sherman Way, and Clybourn Avenue. Offsite parking lots, described below, are accessed from Hollywood Way and Thornton Avenue.

### Airport Parking

Two parking structures within the terminal area (the Short-Term Parking Structure and the Replacement Parking Structure) and several surface parking lots (the Valet Parking Lot, Parking Lot D, Parking Lot E, and Parking Lot G) provide short- and long-term Airport parking (see **Exhibit K-7**). In total, these lots and structures provide approximately 3,890 publicly available parking spaces within the terminal area, although Parking Lot D is currently leased out to local car dealerships for vehicle storage. Additional public parking is provided at several locations away from the existing terminal. Parking Lot A is located in the northeast quadrant and is accessed from Hollywood Way at Winona Avenue. Parking Lot B, which is currently unused, provides 638 spaces east of Hollywood Way south of Winona Avenue. Parking Lot C is located on the north side of Thornton Avenue east of Hollywood Way. These three lots provide 2,747 parking spaces, bringing the total number of public-use spaces provided by the Airport to 6,637—of which 5,387 are currently used for Airport parking. Additionally, there are two staff parking lots: the East Authority Staff Parking Lot in the terminal area and the Employee Parking Lot adjacent to Parking Lot A, which provide a total of 612 spaces for employees. **Table K-10** presents a summary of the existing Airport parking.

A parking survey was conducted to assess Airport parking demand. The survey was conducted hourly on two typical weekdays and on a Friday between 8:00 a.m. and 7:00 p.m. It included all public-serving parking lots, except for Parking Lot B (currently unused) and Parking Lot D (currently leased to a third party for non-Airport purposes), as well as the Employee Parking Lot. The survey results are shown in **Tables K-11** and **K-12** for the typical weekday (average of two days) and for Friday respectively. As shown in **Table K-11**, peak passenger parking demand on a typical weekday occurred between 2:00 p.m. and 3:00 p.m. with 2,846 spaces in use, which was less than half of the available visitor spaces. As shown in **Table K-12** peak passenger parking demand on a Friday occurred between 5:00 p.m. and

6:00 p.m. with 3,275 spaces in use, which was also less than half of the available spaces. On both days, peak employee parking demand in the Employee Parking Lot was fewer than 260 spaces, less than half of the 547 available spaces. Passenger parking demand, especially valet parking demand, has decreased over the past several years as a result of the growing popularity of transportation network companies (TNCs) such as Uber and Lyft.

**EXHIBITK- 7  
EXISTING AIRPORT FEATURES**



Sources: Authority, 2016; Gibson, 2018; RS&H, 2018.

**TABLE K-10**  
**AIRPORT PARKING SUPPLY**

<b>Parking Location</b>	<b>Number of Spaces</b>
<b>Public Parking Lots in Terminal Area</b>	
Short-Term Parking Structure	438
Replacement Parking Structure	1,043
Valet Parking Lot	1,343
Parking Lot D <sup>/a/</sup>	612
Parking Lot E	201
Parking Lot G	253
<b><i>Total Parking in Terminal Area</i></b>	<b><i>3,890</i></b>
<b>Offsite Public Parking Lots</b>	
Parking Lot A	1,592
Parking Lot B <sup>/b/</sup>	638
Parking Lot C	517
<b><i>Total Offsite Parking</i></b>	<b><i>2,747</i></b>
<b>TOTAL PUBLIC PARKING SUPPLY</b>	<b>6,637</b>
<b>Employee Parking Lots</b>	
Employee Parking Lot	547
East Authority Staff Parking Lot	65
<b><i>Total Employee Parking</i></b>	<b><i>612</i></b>

Notes:

/a/ Parking Lot D is currently leased to a non-Airport third party for vehicle storage.

/b/ Parking Lot B is not currently used.

Sources: Authority, 2018; Gibson, 2018.

TABLE K-11  
AIRPORT PARKING OCCUPANCY –TYPICAL WEEKDAY

	Number of Spaces	Occupancy											Peak Occupancy
		8:00 to 9:00	9:00 to 10:00	10:00 to 11:00	11:00 to 12:00	12:00 to 1:00	1:00 to 2:00	2:00 to 3:00	3:00 to 4:00	4:00 to 5:00	5:00 to 6:00	6:00 to 7:00	
Public Parking Lots in Terminal Area													
Short-Term Parking Structure	438	351	368	381	392	390	400	404	393	385	371	366	404
Replacement Parking Structure	1,043	245	254	261	274	279	283	293	296	306	312	325	325
Valet Parking Lot <sup>/a/</sup>	1,343	519	540	555	561	568	581	569	557	569	532	503	581
Parking Lot D <sup>/b/</sup>	612	–	–	–	–	–	–	–	–	–	–	–	–
Parking Lot E	201	165	185	183	187	188	186	191	183	184	174	173	191
Parking Lot G	253	90	92	95	95	99	97	101	101	97	99	96	101
Total Occupancy	3,890	1,370	1,439	1,475	1,509	1,524	1,547	1,558	1,530	1,541	1,488	1,463	1,558
Offsite Public Parking Lots													
Parking Lot A	1,592	907	910	926	936	941	953	954	935	934	929	929	954
Parking Lot B <sup>/c/</sup>	638	–	–	–	–	–	–	–	–	–	–	–	–
Parking Lot C	517	298	326	327	325	332	331	334	338	332	327	322	338
Total Occupancy	2,747	1,205	1,236	1,253	1,261	1,273	1,284	1,288	1,273	1,266	1,256	1,251	1,288
PUBLIC PARKING OCCUPANCY	6,637	2,575	2,675	2,728	2,770	2,797	2,831	2,846	2,803	2,807	2,744	2,714	2,846
Employee Parking Lots													
Employee Parking Lot	547	200	226	221	223	233	246	241	209	206	203	207	246
East Authority Staff Parking Lot <sup>/d/</sup>	65	65	65	65	65	65	65	65	65	65	65	65	65
EMPLOYEE PARKING OCCUPANCY	612	265	291	286	288	298	311	306	274	271	268	272	311

Notes:  
Occupancy results are the average of data collected on Tuesday, August 7, 2018 and Thursday, August 9, 2018.  
/a/ Includes cars parked in the valet staging area near the terminal.  
/b/ Parking Lot D is currently leased to a non-Airport third party for vehicle storage.  
/c/ Parking Lot B is not currently used.  
/d/ East Authority Staff Parking Lot was not counted hourly because the spaces are reserved and assumed full during business hours.  
Source: Gibson, 2018.



TABLE K-12  
AIRPORT PARKING OCCUPANY--FRIDAY

Parking Location	Number of Spaces	Occupancy											Peak Occupancy
		8:00 to 9:00	9:00 to 10:00	10:00 to 11:00	11:00 to 12:00	12:00 to 1:00	1:00 to 2:00	2:00 to 3:00	3:00 to 4:00	4:00 to 5:00	5:00 to 6:00	6:00 to 7:00	
Public Parking Lots in Terminal Area													
Short-Term Parking Structure	438	293	308	298	310	311	313	312	314	319	307	303	319
Replacement Parking Structure	1,043	271	273	282	283	282	285	292	295	290	299	288	299
Valet Parking Lot <sup>/a/</sup>	1,343	745	780	800	812	837	846	871	865	864	846	817	871
Parking Lot D <sup>/b/</sup>	612	–	–	–	–	–	–	–	–	–	–	–	–
Parking Lot E	201	149	148	161	155	163	165	169	164	167	171	158	171
Parking Lot G	253	101	109	111	115	120	125	125	124	127	126	125	127
Total Occupancy	3,890	1,559	1,618	1,652	1,675	1,713	1,734	1,769	1,762	1,767	1,749	1,691	1,769
Offsite Public Parking Lots													
Parking Lot A	1,592	1,013	1,039	1,057	1,073	1,099	1,118	1,142	1,140	1,146	1,182	1,157	1,182
Parking Lot B <sup>/c/</sup>	638	–	–	–	–	–	–	–	–	–	–	–	–
Parking Lot C	517	331	339	340	342	350	367	364	370	374	364	370	374
Total Occupancy	2,747	1,344	1,378	1,397	1,415	1,449	1,485	1,506	1,510	1,520	1,546	1,527	1,546
PUBLIC PARKING OCCUPANCY	6,637	2,903	2,996	3,049	3,090	3,162	3,219	3,275	3,272	3,287	3,295	3,218	3,295
Employee Parking Lots													
Employee Parking Lot	547	226	230	224	227	233	258	234	221	213	207	192	258
East Authority Staff Parking Lot <sup>/d/</sup>	65	65	65	65	65	65	65	65	65	65	65	65	65
EMPLOYEE PARKING OCCUPANCY	612	291	295	289	292	298	323	299	286	278	272	257	323

Notes:  
Occupancy results collected Friday, August 10, 2018.  
/a/ Includes cars parked in the valet staging area near the terminal.  
/b/ Parking Lot D is currently leased to a non-Airport third party for vehicle storage.  
/c/ Parking Lot B is not currently used.  
/d/ East Authority Staff Parking Lot was not counted hourly because the spaces are reserved and assumed full during business hours.  
Source: Gibson, 2018.



## Airport Shuttles

The Airport provides free passenger shuttles between the terminal and the following locations: Parking Lot A, Parking Lot C, and the Burbank Airport North Metrolink Station. The shuttle circulates to the two parking lots approximately every 10 minutes between 4:00 a.m. and midnight. It travels to the Burbank Airport North Metrolink Station five minutes prior to the arrival of a train and returns to the terminal five minutes after the departure of a train. Additionally, a shuttle may be dispatched to the Burbank Airport South Metrolink Station upon request by phone.

## Travel Mode Split

Passengers travel to and from the Airport using a variety of modes, including:

- » Driving and parking private automobiles (self-park or valet)
- » Being dropped off or picked up by family or friends
- » Driving rental cars
- » Traveling by taxi
- » Traveling by such services as Uber or Lyft, known as TNCs
- » Traveling by airport shuttle or shared ride van
- » Traveling by hotel shuttle
- » Traveling by public transit

Recent and precise data on passenger travel modes to and from the Airport are not available. Mode split and average vehicle occupancy assumptions were developed based on data provided by Airport staff and as well as on the results of a 2012 Airport survey of passengers and employees.<sup>4</sup> **Table K-13** presents these assumptions. As shown, an estimated 45 percent of passengers drive alone whereas 54 percent get a ride (including 40 percent driven by a friend or family member in a private automobile). Only one percent or less of passengers take public transit to the Airport. It is estimated that all passenger automobiles carry an average of 1.2 passengers, while hotel shuttles are assumed to carry three passengers and shared vans to carry five passengers.

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<sup>4</sup> Unison Consulting, Inc., Maroon Society, Montbury Consulting, Inc., and David Brownstone, Ph.D. (2012). *Bob Hope Airport Ground Access Study Data Collection and Analysis: Surveys of Airport Passengers and Employees*. August 2012.

**TABLE K-13**  
**GROUND-BASED PASSENGER TRANSPORTATION MODE SPLIT SUMMARY**

<b>Travel Mode</b>	<b>Travel Mode Share</b>	<b>Average Vehicle Occupancy</b>
<b>Drive Self</b>		
Self-Park at Terminal	4%	1.2
Self-Park at Remote Lot (On- or Off-Airport)	15%	1.2
Valet Park	2%	1.2
Rental Car	15%	1.2
<b>Total Drive Self</b>	<b>36%</b>	
<b>Get a Ride</b>		
Friend or Family	30%	1.2
Taxi	3%	1.2
Transportation Network Company (i.e., Uber or Lyft)	25%	1.2
Hotel Shuttle	1%	3.0
Airport Shuttle / Shared Van	4%	5.0
<b>Total Get a Ride</b>	<b>63%</b>	
<b>Other</b>		
Public Transit	1%	N/A
<b>Total Other</b>	<b>1%</b>	
<b>OVERALL TOTAL</b>	<b>100%</b>	

Source: Gibson, 2018.

### Airside Traffic Volumes

Vehicle surface traffic to and from the Airport generally varies proportionally to airside passenger traffic. In 2017, the Airport carried approximately 4.74 million revenue passengers, a 14.4 percent increase over 2016. In 2018, the number of passengers was up by 10.6 percent to 5.24 million revenue passengers. While passenger traffic has increased each year since 2013, it remains substantially below the 5.92 million passengers carried in 2007—the Airport’s highest year on record in terms of passenger travel.

In addition to passenger travel, the Airport transported 108.8 million pounds of cargo in 2017, an increase of 2.07 percent over 2016. During the first 5 months of

2018 (the latest period for which data are available), cargo transport was up by approximately 1.35 percent over the same period in 2017.

### Surface Traffic Volumes

Existing peak hour traffic volumes to the Airport were totaled based on traffic counts at parking lot entrances and adjacent intersections. The traffic volumes were separately totaled for the passenger terminal area, the offsite parking lots, and general aviation facilities. **Table K-14** summarizes the results of the traffic counts. As shown, the Airport passenger terminal area generates approximately 1,722 vehicle trips during the morning peak hour (912 inbound, 810 outbound), 1,578 vehicle trips during the typical evening peak hour (745 inbound, 833 outbound), and 2,024 vehicle trips during the Friday evening peak hour (941 inbound, 1,083 outbound). Combining vehicle traffic to the Airport passenger terminal with offsite parking traffic and general aviation traffic, the Airport generates approximately 1,975 vehicle trips during the morning peak hour, 1,818 vehicle trips during the typical evening peak hour, and 2,332 vehicle trips during the Friday evening peak hour.

**TABLE K-14  
AIRPORT SURFACE TRAFFIC GENERATION**

Location	Weekday AM Peak Hour			Weekday PM Peak Hour			Friday PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
<b>Airport Terminal Loop Road</b>									
Hollywood Way at Thornton Avenue	593	526	1,119	452	545	997	555	529	1,084
Empire Avenue	214	129	343	180	137	317	227	383	610
Hollywood Way at Avon Street (RITC)	105	155	260	113	151	264	159	171	330
<b>Total Airport Terminal Trip Generation</b>	<b>912</b>	<b>810</b>	<b>1,722</b>	<b>745</b>	<b>833</b>	<b>1,578</b>	<b>941</b>	<b>1,083</b>	<b>2,024</b>
<b>Offsite Parking Lots</b>									
Parking Lot A / Employee Parking Lot (Hollywood Way at Winona Avenue)	51	28	79	36	54	90	65	51	116
Parking Lot C (Thornton Avenue)	12	11	23	7	21	28	26	24	50
<b>Total Offsite Parking Trip Generation</b>	<b>63</b>	<b>39</b>	<b>102</b>	<b>43</b>	<b>75</b>	<b>118</b>	<b>91</b>	<b>75</b>	<b>166</b>
<b>General Aviation</b>									
Northwest Quadrant	48	29	77	16	22	38	30	42	72
Southwest Quadrant	33	41	74	49	35	84	29	41	70
<b>Total General Aviation Trip Generation</b>	<b>81</b>	<b>70</b>	<b>151</b>	<b>65</b>	<b>57</b>	<b>122</b>	<b>59</b>	<b>83</b>	<b>142</b>
<b>TOTAL AIRPORT TRIP GENERATION</b>	<b>1,056</b>	<b>919</b>	<b>1,975</b>	<b>853</b>	<b>965</b>	<b>1,818</b>	<b>1,091</b>	<b>1,241</b>	<b>2,332</b>

Notes:

Surface traffic generation is based on traffic counts at various access points.

Source: Gibson, 2018.

## K.4 METHODOLOGY

### Future Traffic Forecasts

The analysis of future conditions includes estimation of background traffic growth based on several sources:

- » Growth estimated by the City of Burbank's City Travel Demand Model ("Model")
- » Traffic anticipated from nearby planned developments ("Related Projects")
- » Airport traffic growth from forecast increases in commercial passenger travel

### Model Growth

The Model was developed by the City of Burbank to forecast travel demand patterns in accordance with the *Burbank2035 General Plan Mobility Element*. The Model was validated and calibrated in accordance with Caltrans and FHWA standards with year 2010 conditions as a baseline. The Model fully accounts for anticipated regional traffic growth and changes from land use development and infrastructure development, including the I-5 widening project and the Empire Avenue Interchange Project.

### Related Projects

Related projects are developments proposed, approved, or under construction in the General Study Area. The Cities of Burbank and Los Angeles maintain lists of such projects, which were reviewed during development of this analysis. However, as the Model already accounts for traffic growth from land use development, only two specific related projects very close to the Airport were explicitly accounted for in the forecast of future traffic conditions. These two projects would add substantial amounts of traffic to Hollywood Way and would affect turning movement traffic volumes at key study intersections in more specific ways than the Model predicts. These two related projects, their locations, and their peak hour trip generation estimates are shown in **Table K-15**.

**TABLE K-15  
RELATED PROJECTS**

Project Name and Address	Description	Daily Trips	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Avion Burbank 3001 N Hollywood Avenue	1 million sf warehouse, 142,250 square feet creative office, 150-room hotel, 15,000 square feet commercial	8,984	723	174	897	286	842	1,128
ALOFT and Residence Inn 2500 N Hollywood Avenue	420-room hotel	3,511	116	81	197	129	123	252

Sources: City of Burbank, 2019; Gibson, 2019.

### Airport Passenger Growth

The amount of passenger traffic relocated by the Proposed Project was estimated through a multi-step process using airline passenger travel statistics and forecasts using FlightAware data and ground travel mode choice.

As summarized in **Table K-16**, Airport passenger traffic is anticipated to grow by approximately 3,542 daily trips, 237 morning peak hour trips, 240 evening peak hour trips, and 312 Friday evening peak hour trips in the year 2024. In 2029, Airport passenger traffic is anticipated to grow by approximately 5,110 daily trips, 347, morning peak hour trips, 356 evening peak hour trips, and 463 Friday evening peak hour trips. These trips were added to the street system using the regional distribution pattern shown in **Exhibit K-8** and using existing Airport access and parking locations.

**TABLE K-16**  
**PASSENGER TRIP GENERATION SUMMARY**

Description	Daily	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Friday Evening Peak Hour <sup>/a/</sup>		
		In	Out	Total	In	Out	Total	In	Out	Total
Existing Year 2018	20,245	707	655	1,362	645	736	1,381	839	957	1,795
Interim Year 2024	23,787	827	772	1,599	762	859	1,621	991	1,117	2,107
Future Year 2029	25,355	884	825	1,709	817	920	1,737	1,062	1,196	2,258
Net Growth - Year 2018 to 2024	3,542	120	117	237	117	123	240	152	160	312
Net Growth - Year 2018 to 2029	5,110	177	170	347	172	184	356	223	239	463

Notes:

/a/ Friday evening peak hour trip generation is estimated as a 30 percent increase from the weekday evening peak hour trip generation.

Source: Gibson, 2019.

### Total Traffic Growth Forecast

The Model-based growth rates were calculated for each direction and peak hour on key corridors based on the difference between baseline conditions and future forecasts. Since the Model forecasts to year 2035, annual growth rates were calculated based on the growth between years 2010 and 2035. An average growth rate for the whole General Study Area was also developed for each peak hour based on the Model output and was applied on corridors where detailed Model data was not available. The resulting annual rates were applied over the 6 years between years 2018 and 2024 to determine total Model-based traffic growth estimated at each study intersection. This estimate was then compared with cumulative growth from Related Project traffic and Airport passenger traffic, and the higher of that or Model-based growth was used in this analysis.



**EXHIBIT K-8  
REGIONAL PASSENGER TRIP DISTRIBUTION**



Sources: Gibson, 2020; RS&H, 2020.

### Roadway Configuration Changes

Several study intersections would have changed physical or operational configurations by year 2024, primarily as mitigation measures for the proposed Avion Burbank project to be constructed immediately east of the Proposed Project. Those changes include additional turn lanes or through lanes or signalization of stop-controlled intersections. The following intersections would be affected:

- » Intersection #15, Hollywood Way and Tulare Avenue
- » Intersection #16, Hollywood Way and Winona Avenue
- » Intersection #17, Hollywood Way and Thornton Avenue
- » Intersection #38, San Fernando Road and Cohasset Street
- » Intersection #40, Hollywood Way and San Fernando Road Eastbound Ramps
- » Intersection #41, San Fernando Boulevard and I-5 Southbound Ramps

Additionally, freeway mainline Segments #3 (I-5 between Buena Vista Street & Empire Avenue) and #4 (I-5 south of Empire Avenue) would be widened to 5 lanes in each direction with the completion of the I-5 widening project. The intersection and freeway mainline configuration changes were accounted for in this analysis of the Proposed Project.

## K.5 NO ACTION ALTERNATIVE (2024)

### Peak Hour Traffic Volumes

Future peak hour traffic volumes under the No Action Alternative in 2024 are shown in **Exhibits K-9** and **K-10** for weekday morning and evening peak hours and the Friday evening peak hour, respectively.

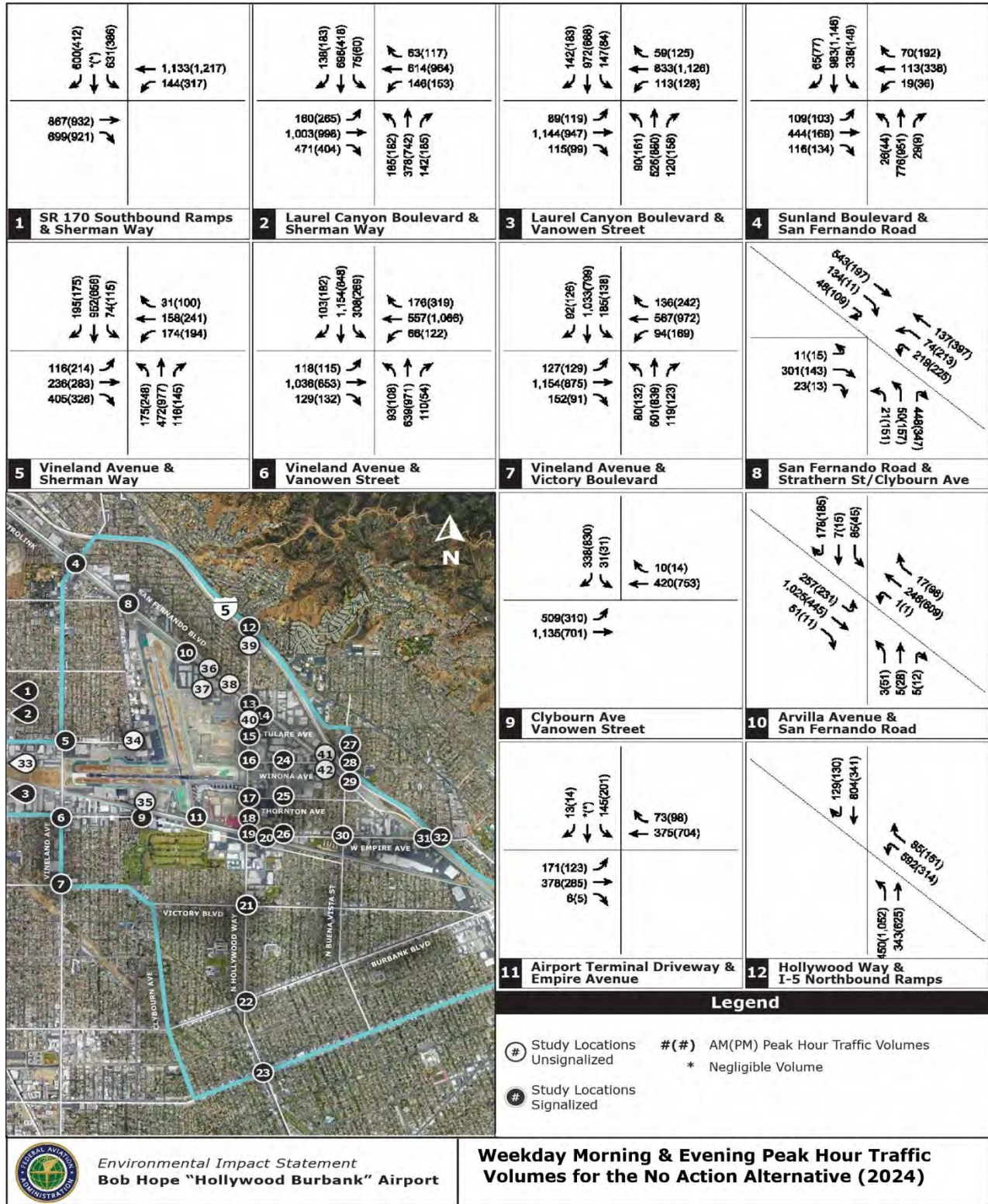
### Intersection Impact Analysis

**Tables K-17** and **K-18** show the results of the HCM analysis for signalized and unsignalized study intersections, respectively, for the No Action Alternative in 2024. As shown in **Table K-17**, 30 of the 32 signalized study intersections are forecast to operate at LOS D or better. As shown in **Table K-18**, 8 of the 10 unsignalized intersections are forecast to operate at LOS D or better during each of the three analyzed peak hours. The following four intersections are projected to operate at LOS E or F during one or more peak hours:

- » Intersection #31, I-5 Southbound Ramps and Empire Avenue (morning peak hour)
- » Intersection #32, I-5 Northbound Ramps and Empire Avenue (morning peak hour)



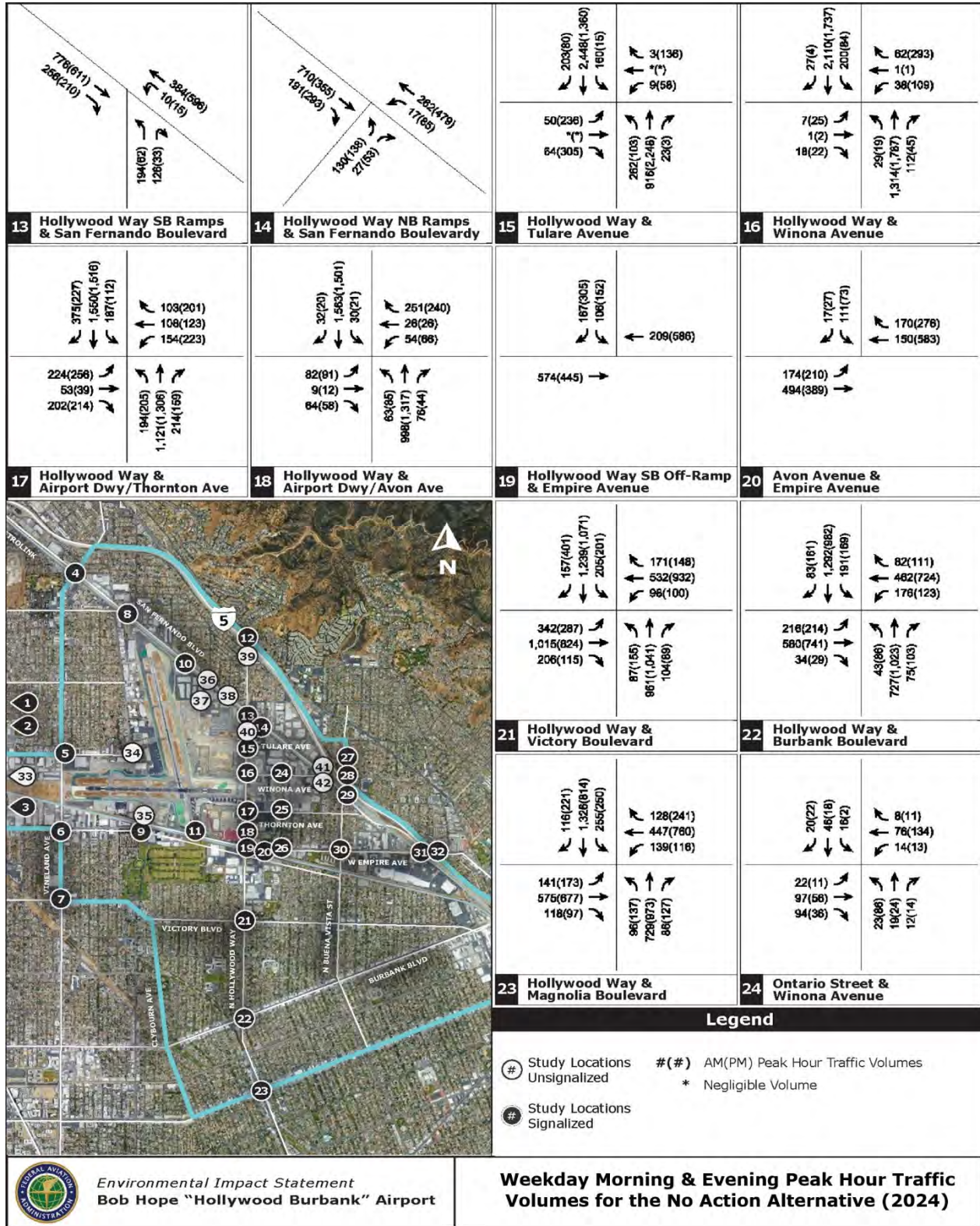
**EXHIBIT K-9**  
**WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2024)**



Source: Gibson, 2020; RS&H, 2020.

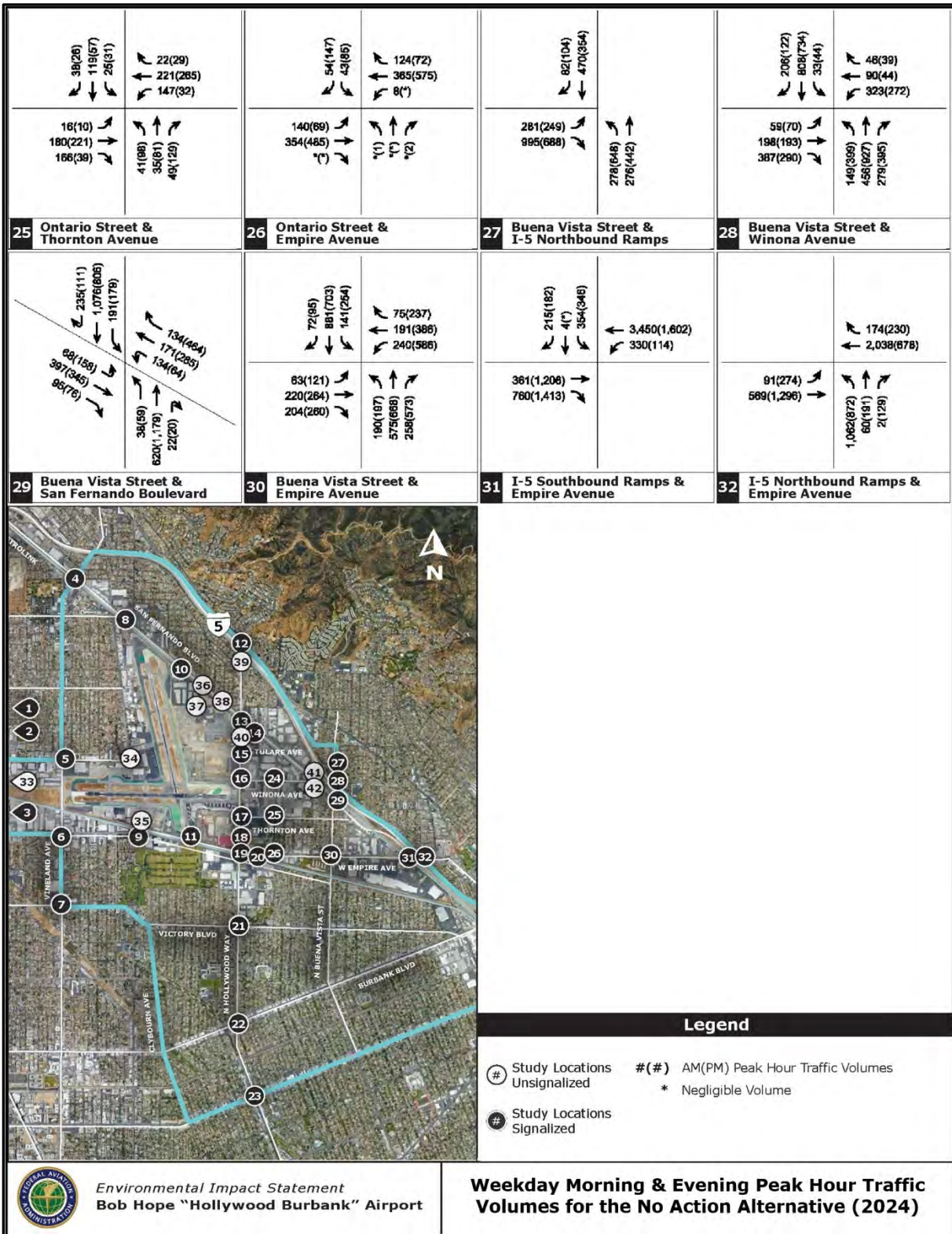


**EXHIBIT K-9 (CONT.)**  
**WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

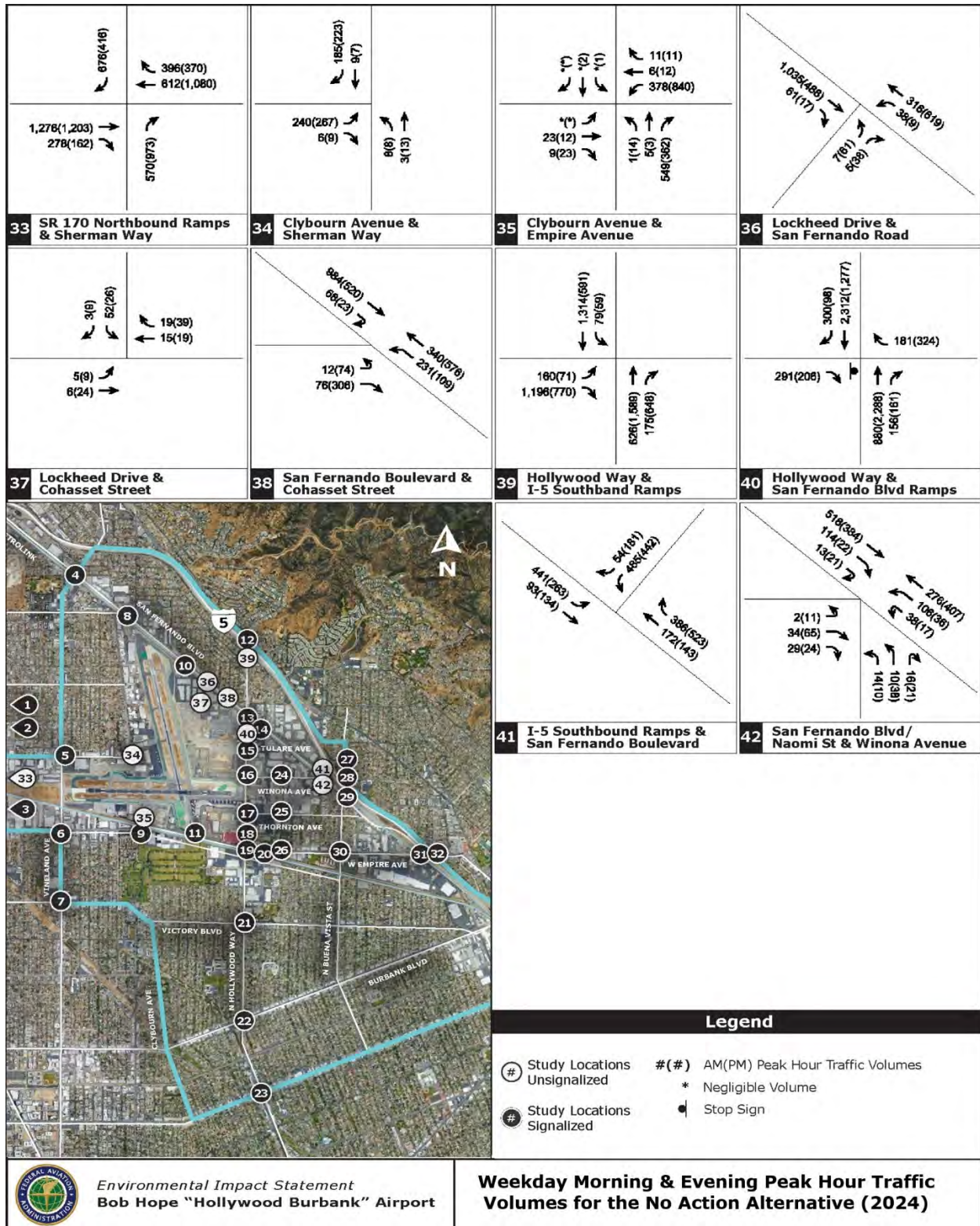
**EXHIBIT K-9 (CONT.)**  
**WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

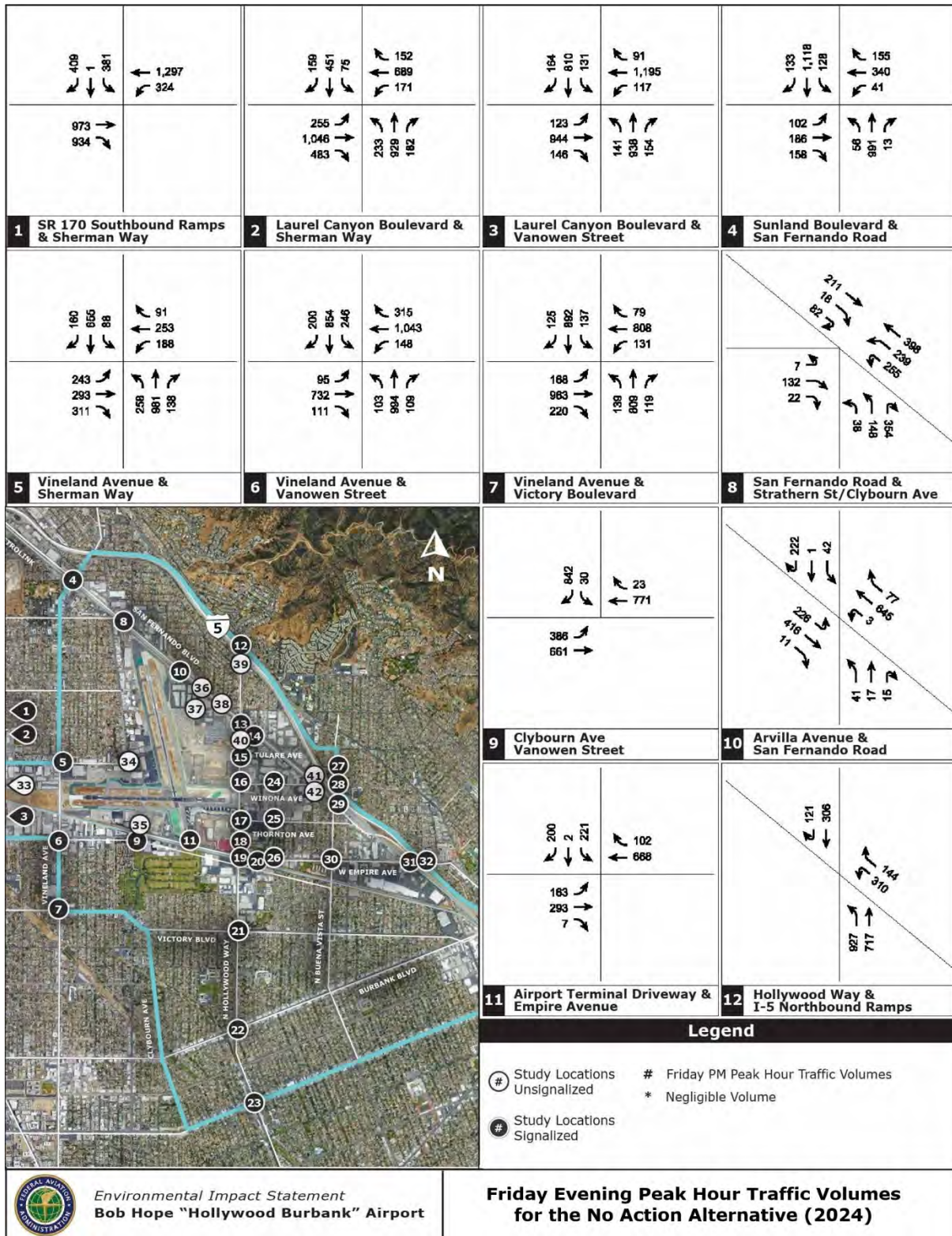


**EXHIBIT K-9 (CONT.)**  
**WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

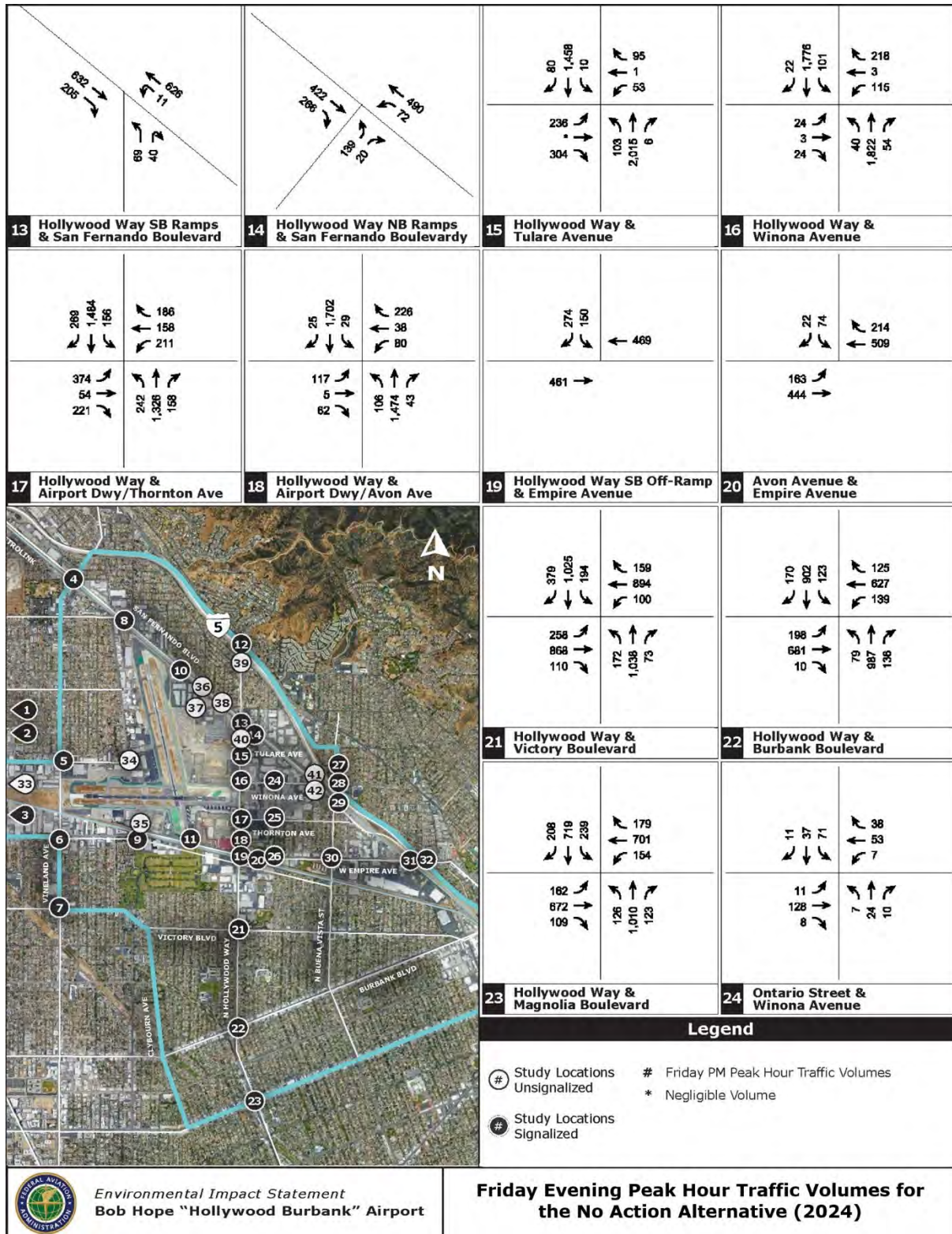
**EXHIBIT K-10**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

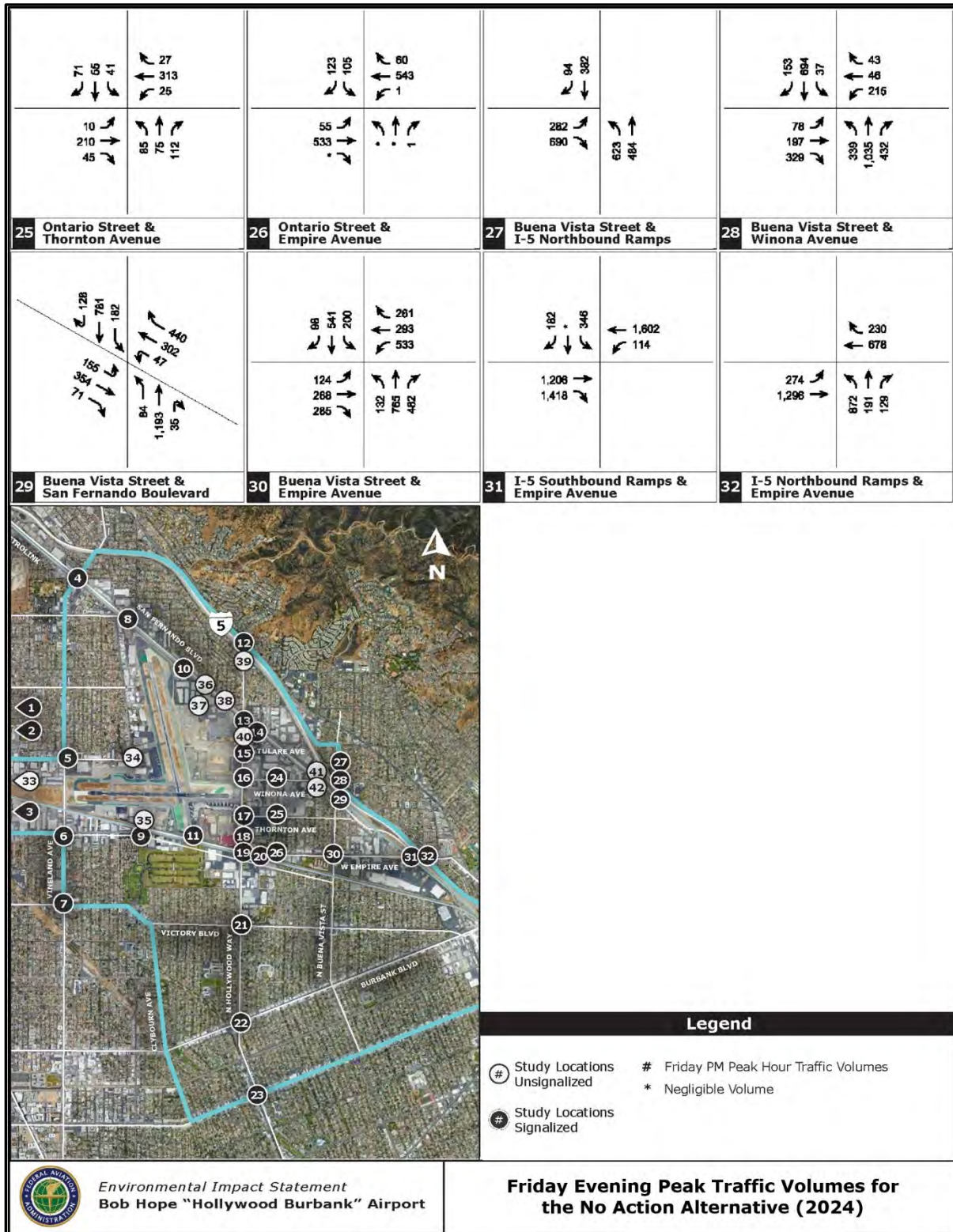


**EXHIBIT K-10 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

**EXHIBIT K-10 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.





**TABLE K-17**  
**SIGNALIZED INTERSECTION PEAK HOUR LEVELS OF SERVICE AND CHANGE IN DELAY (2024)**

No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
1. /a/	SR 170 Southbound Ramps / Sherman Way	AM	34.5	C	34.5	C	0.0
		PM	42.7	D	42.7	D	0.0
		Fri PM	43.5	D	43.5	D	0.0
2. /a/	Laurel Canyon Boulevard / Sherman Way	AM	38.1	D	38.1	D	0.0
		PM	38.8	D	38.8	D	0.0
		Fri PM	39.7	D	39.7	D	0.0
3. /a/	Laurel Canyon Boulevard / Vanowen Street	AM	26.1	C	26.1	C	0.0
		PM	26.5	C	26.5	C	1.1
		Fri PM	28.3	C	28.4	C	0.1
4. /a/	Sunland Boulevard / San Fernando Road	AM	24.0	C	24.0	C	0.0
		PM	27.0	C	27.0	C	0.0
		Fri PM	27.0	C	27.0	C	0.0
5. /a/	Vineland Avenue / Sherman Way	AM	23.2	C	23.1	C	-0.1
		PM	25.3	C	25.3	C	0.0
		Fri PM	23.1	C	27.5	C	4.4
6. /a/	Vineland Avenue / Vanowen Street	AM	25.2	C	25.2	C	0.0
		PM	35.2	D	30.4	C	-4.8
		Fri PM	28.6	C	33.3	C	-4.7
7. /a/	Vineland Avenue / Victory Boulevard	AM	19.4	B	19.4	B	0.0
		PM	19.9	B	19.9	B	0.0
		Fri PM	20.0	B	20.0	B	0.0
8. /a/	San Fernando Road / Strathern Street / Clybourn Avenue	AM	31.5	C	32.1	C	0.6
		PM	36.1	D	37.5	D	1.4
		Fri PM	48.2	D	50.8	D	2.6
		AM	19.5	B	19.3	B	-0.2

No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
9. /a/	Clybourn Avenue / Vanowen Street	PM	26.4	C	26.3	C	-0.1
		Fri PM	31.1	C	30.7	C	-0.4
10. /a/	Arvilla Avenue / Airport Driveway / San Fernando Road	AM	27.6	C	28.1	C	0.5
		PM	16.0	B	16.2	B	0.2
		Fri PM	16.5	B	16.7	B	0.2
11.	Airport Terminal Driveway / Empire Avenue	AM	8.5	A	2.3	A	-6.2
		PM	10.2	B	3.4	A	-6.8
		Fri PM	15.3	B	9.5	A	-5.8
12. /a/	Hollywood Way / I-5 Northbound Ramps	AM	31.4	C	31.5	C	0.1
		PM	41.0	D	41.1	D	0.1
		Fri PM	39.2	D	39.6	D	0.4
13.	Hollywood Way Southbound Ramps / San Fernando Boulevard	AM	10.1	B	10.5	B	0.4
		PM	4.1	A	4.8	A	0.7
		Fri PM	4.5	A	5.3	A	0.8
14.	Hollywood Way Northbound Ramps / San Fernando Boulevard	AM	6.3	A	5.4	A	-0.9
		PM	7.2	A	6.2	A	-1.0
		Fri PM	6.1	A	4.8	A	-1.3
15.	Hollywood Way / Tulare Avenue	AM	11.5	B	11.5	B	0.0
		PM	20.4	C	20.4	C	0.0
		Fri PM	18.9	B	18.9	B	0.0
16.	Hollywood Way / Winona Avenue	AM	5.7	A	31.7	C	26.0
		PM	15.2	B	35.4	D	20.2
		Fri PM	12.7	B	49.0	D	36.3
17.	Hollywood Way / Airport / Thornton Avenue	AM	24.8	C	13.7	B	-11.1
		PM	27.5	C	16.4	B	-11.1
		Fri PM	29.9	C	17.5	B	-12.4
		AM	20.3	C	18.6	B	-1.7



No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
18.	Hollywood Way / Airport / Avon Avenue	PM	19.5	B	17.8	B	-1.7
		Fri	22.1	C	20.5	C	-1.6
		PM					
19.	Hollywood Way Southbound Off-ramp / Empire Avenue	AM	12.8	B	13.8	B	1.0
		PM	15.1	B	16.1	B	1.0
		Fri PM	15.1	B	17.0	B	1.9
20.	Avon Street / Empire Avenue	AM	7.8	A	8.5	A	0.7
		PM	6.6	A	6.0	A	-0.6
		Fri PM	6.3	A	6.2	A	-0.1
21.	Hollywood Way / Victory Boulevard	AM	31.5	C	31.5	C	0.0
		PM	31.9	C	32.7	C	0.8
		Fri PM	31.5	C	31.5	C	0.0
22.	Hollywood Way / Burbank Boulevard	AM	28.3	C	28.7	C	0.4
		PM	31.5	C	31.4	C	-0.1
		Fri PM	29.7	C	29.5	C	-0.2
23.	Hollywood Way / Magnolia Boulevard	AM	26.1	C	26.1	C	0.0
		PM	28.7	C	28.9	C	0.2
		Fri PM	28.2	C	28.1	C	-0.1
24.	Ontario Street / Winona Avenue	AM	14.0	B	10.6	B	-3.4
		PM	17.0	B	12.7	B	-4.3
		Fri PM	17.2	B	11.9	B	-5.3
25.	Ontario Street / Thornton Avenue	AM	14.1	B	14.4	B	0.3
		PM	17.8	B	18.2	B	0.4
		Fri PM	17.8	B	18.3	B	0.5
26.	Ontario Street / Empire Avenue	AM	6.3	A	7.3	A	1.0
		PM	10.4	B	11.5	B	1.1
		Fri PM	10.0	A	11.5	B	1.5
27.	Buena Vista Street /	AM	15.2	B	15.2	B	0.0
		PM	17.5	B	17.5	B	0.0

No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
28.	I-5 Northbound Ramps	Fri PM	19.1	B	19.1	B	0.0
	Buena Vista Street / Winona Avenue	AM	31.3	C	31.3	C	0.0
		PM	32.5	C	32.4	C	-0.1
		Fri PM	29.2	C	28.2	C	-1.0
29.	Buena Vista Street / San Fernando Boulevard	AM	28.2	C	29.9	C	1.7
		PM	33.1	C	34.7	C	1.6
		Fri PM	33.3	C	35.1	D	1.8
30.	Buena Vista Street / Empire Avenue	AM	27.1	C	25.6	C	-1.5
		PM	34.1	C	33.5	C	-0.6
		Fri PM	33.1	C	32.5	C	-0.6
31.	I-5 Southbound Ramps / Empire Avenue	AM	82.5	F	81.8	F	-0.7
		PM	50.6	D	49.6	D	-1.0
		Fri PM	51.2	D	49.9	D	-1.3
32.	I-5 Northbound Ramps / Empire Avenue	AM	80.7	F	79.9	E	-0.8
		PM	24.2	C	24.1	C	-0.1
		Fri PM	24.2	C	24.1	C	-0.1

Notes:

/a/ Fully or partially within City of Los Angeles jurisdiction.

Source: Gibson, 2019.

**TABLE K-18**  
**UNSIGNALIZED INTERSECTION PEAK HOUR LEVELS OF SERVICE AND CHANGE DELAY (2024)**

No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
33. /a/	SR 170 Northbound Ramps & Sherman Way	AM	11.3	B	11.3	B	0.0
		PM	13.0	B	13.0	B	0.0
		Fri PM	9.9	A	9.9	A	0.0
34. /a/	Clybourn Avenue & Sherman Way	AM	11.6	B	11.6	B	0.0
		PM	12.0	B	12.0	B	0.0
		Fri PM	12.6	B	12.6	B	0.0
35. /a/	Clybourn Avenue & Empire Avenue	AM	20.0	C	19.8	C	-0.2
		PM	29.9	D	29.5	D	-0.4
		Fri PM	30.5	D	30.0	D	-0.5
36. /a/	Lockheed Drive & San Fernando Road	AM	29.9	D	31.1	D	1.2
		PM	19.4	C	19.8	C	0.4
		Fri PM	20.4	C	21.1	C	0.7
37. /a/	Lockheed Drive & Cohasset Street	AM	8.9	A	10.6	B	1.7
		PM	9.1	A	10.7	B	1.6
		Fri PM	8.9	A	11.1	B	2.2
38. /a/	San Fernando Boulevard & Cohasset Street	AM	7.8	A	11.9	B	4.1
		PM	19.6	C	17.8	C	-1.8
		Fri PM	19.3	C	17.9	C	-1.4
39. /a/	Hollywood Way & I-5 Southbound Ramps	AM	36.3	E	36.9	E	0.6
		PM	26.2	D	26.4	D	0.2
		Fri PM	21.5	C	21.7	C	0.2
40.	Hollywood Way & San Fernando Boulevard Ramps	AM	13.5	B	13.6	B	0.1
		PM	8.3	A	8.2	A	-0.1
		Fri PM	8.5	A	8.3	A	-0.2
41. /b/	I-5 Southbound Ramps & San Fernando Boulevard	AM	44.2	E	44.0	E	-0.2
		PM	41.5	E	41.3	E	-0.2
		Fri PM	39.0	E	38.8	E	-0.2
42.	San Fernando Boulevard / Naomi Street & Winona Avenue	AM	15.3	C	24.4	C	9.1
		PM	13.9	B	20.9	C	7.0
		Fri PM	14.4	B	27.5	D	13.1

## Notes:

Delay reported is worst-case, in seconds, experienced by any movement through the intersection, except as noted in /b/.

/a/ Intersection is located fully or partially within City of Los Angeles jurisdiction.

/b/ Intersection is all-way stop-controlled. Average delay of all vehicles is reported.

Source: Gibson, 2019.

- » Intersection #39, Hollywood Way and I-5 Southbound Ramps (morning peak hour)
- » Intersection #41, I-5 Southbound Ramps and San Fernando Boulevard (all 3 peak hours)

### Freeway Mainline Segment Impact Analysis

**Table K-19** summarizes the results of the HCM analysis for freeway mainline segments in year 2024. The four freeway segments on I-5 were analyzed in the northbound and southbound directions during each of the three analyzed peak hours and the significant impact thresholds were applied. As shown in **Table K-19**, all four segments are projected to operate at LOS D or worse in one or both directions during one or more peak hours.

### Freeway Off-ramp Impact Analysis

**Tables K-20, K-21, and K-22** summarize the results of the off-ramp queueing analysis at the eight off-ramps in year 2024 during the weekday morning, weekday evening, and Friday evening peak hours, respectively. The significant impact threshold was also applied to each off-ramp. As shown, six of the eight off-ramps would have queues exceeding the lengths of one or more of the lanes approaching the intersection during one or more peak hours. However, only one (Off-ramp #5, I-5 Northbound Off-ramp to Empire Avenue, during the weekday morning peak hour) would extend onto the freeway mainline under any peak hour. The Proposed Project would actually reduce peak hour traffic on that off-ramp by 8 vehicles, reducing average approach delay and vehicle queue lengths. At other locations, the Proposed Project would add a maximum of 11 peak hour trips (to Off-ramp #2 during the Friday evening peak hour) and would have a minimal effect on queue lengths. The Proposed Project would not result in a significant impact at any of the eight off-ramps.

**TABLE K-19**  
**FREEWAY MAINLINE SEGMENT OPERATING CONDITIONS (2024)**

No.	Freeway Segment	Direction	No Action Alternative					Proposed Project				
			Volume	Lanes <i>/a/</i>	Speed <i>/b/</i>	Density <i>/c/</i>	LOS	Volume	Lanes <i>/a/</i>	Speed <i>/b/</i>	Density <i>/c/</i>	LOS
Weekday Morning Peak Hour												
1.	I-5 North of Hollywood Way	Northbound	4,715	4.5	58.0	20.6	C	4,713	4.5	58.0	20.5	C
		Southbound	8,461	5	56.8	33.9	D	8,459	5	56.8	33.9	D
2.	I-5 between Hollywood Way & Buena Vista Street	Northbound	4,543	4	58.0	22.3	C	4,554	4	58.0	22.3	C
		Southbound	8,168	4	n/a	n/a	F	8,178	4	n/a	n/a	F
3.	I-5 between Buena Vista Street & Empire Avenue	Northbound	4,512	5	55.5	18.5	C	4,519	5	55.5	18.5	C
		Southbound	8,192	5	55.3	33.7	D	8,199	5	55.3	33.7	D
4.	I-5 south of Empire Avenue	Northbound	4,915	5	55.5	20.2	C	4,914	5	55.5	20.1	C
		Southbound	8,723	5	54.5	36.4	E	8,722	5	54.5	36.4	E
Weekday Evening Peak Hour												
1.	I-5 North of Hollywood Way	Northbound	7,709	4.5	56.5	34.5	D	7,707	4.5	56.5	34.5	D
		Southbound	6,047	5	58.0	23.7	C	6,045	5	58.0	23.7	C
2.	I-5 between Hollywood Way & Buena Vista Street	Northbound	7,175	4	55.3	36.9	E	7,185	4	55.3	37.0	E
		Southbound	5,810	4	58.0	28.5	D	5,822	4	58.0	28.6	D
3.	I-5 between Buena Vista Street & Empire Avenue	Northbound	7,104	5	55.5	29.1	D	7,110	5	55.5	29.2	D
		Southbound	5,860	5	55.5	24.0	C	5,867	5	55.5	24.1	C
4.	I-5 south of Empire Avenue	Northbound	7,625	5	55.5	31.3	D	7,624	5	55.5	31.3	D
		Southbound	6,219	5	55.5	25.5	C	6,218	5	55.5	25.5	C
Friday Evening Peak Hour												



No.	Freeway Segment	Direction	No Action Alternative					Proposed Project				
			Volume	Lanes /a/	Speed /b/	Density /c/	LOS	Volume	Lanes /a/	Speed /b/	Density /c/	LOS
1.	I-5 North of Hollywood Way	Northbound	7,716	4.5	56.5	34.5	D	7,714	4.5	56.5	34.5	D
		Southbound	6,047	5	58.0	23.7	C	6,045	5	58.0	23.7	C
2.	I-5 between Hollywood Way & Buena Vista Street	Northbound	7,180	4	55.3	36.9	E	7,193	4	55.3	37.0	E
		Southbound	5,810	4	58.0	28.5	D	5,825	4	58.0	28.6	D
3.	I-5 between Buena Vista Street & Empire Avenue	Northbound	7,110	5	55.5	29.2	D	7,118	5	55.5	29.2	D
		Southbound	5,860	5	55.5	24.0	C	5,869	5	55.5	24.1	C
4.	I-5 south of Empire Avenue	Northbound	7,635	5	55.5	31.3	D	7,634	5	55.5	31.3	D
		Southbound	6,219	5	55.5	25.5	C	6,218	5	55.5	25.5	C

Notes:

/a/ Lane totals include auxiliary lanes and high occupancy vehicle lanes as one half lane.

/b/ Speed reported in miles per hour based on a free flow speed of 65 miles per hour.

/c/ Density reported in passenger cars per mile per lane (pc/mi/ln).

Source: Gibson, 2019.

**TABLE K-20**  
**WEEKDAY MORNING PEAK HOUR OFF-RAMP QUEUE EVALUATION (2024)**

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
<b>1. SR 170 Southbound Off-ramp to Sherman Way (Intersection #1)</b>					
Number of Vehicles Using Off-ramp		1,231		1,231	
Average Approach Delay on Ramp		47.2		47.2	
Approach Level of Service		D		D	
Dual Left-Turn Lanes	400	219	No	219	No
Right-Turn Lane	400	672	Lane	672	Lane
Ramp (between turn lanes and freeway)	580	272	No	272	No
<b>2. I-5 Northbound Off-ramp to Hollywood Way (Intersection #12)</b>					
Number of Vehicles Using Off-ramp		678		689	
Average Approach Delay on Ramp		38.3		38.1	
Approach Level of Service		D		D	
Left-Turn Lane	180	301	Lane	305	Lane
Shared left / Right-Turn Lane	180	298	Lane	300	Lane
Ramp (between turn lanes and freeway)	600	239	No	245	No
<b>3. I-5 Northbound Off-ramp to Buena Vista Street (Intersection #27)</b>					
Number of Vehicles Using Off-ramp		1,276		1,272	
Average Approach Delay on Ramp		42.4		42.4	
Approach Level of Service		D		D	
Left-Turn Lane	250	266	Lane	266	Lane
Shared left / Right-Turn Lane	250	266	Lane	266	Lane
Ramp (between turn lanes and freeway)	340	32	No	32	No
<b>4. I-5 Southbound Off-ramp to Empire Avenue (Intersection #31) /a/</b>					
Number of Vehicles Using Off-ramp		573		573	
Average Approach Delay on Ramp		88.4		88.4	
Approach Level of Service		F		F	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Left-Turn Lane	300	203	No	203	No
Shared Left / Through Lane	300	203	No	203	No
Right-Turn Lane	300	378	Lane	378	Lane
Ramp (between turn lanes and freeway)	1,300	78	No	78	No
<b>5. I-5 Northbound Off-ramp to Empire Avenue (Intersection #32) /a/</b>					
Number of Vehicles Using Off-ramp		1,231		1,231	
Average Approach Delay on Ramp		47.2		47.2	
Approach Level of Service		D		D	
Left-Turn Lane	300	778	Lane	760	Lane
Shared Left / Through Lane	300	768	Lane	751	Lane
Right-Turn Lane	300	1	No	1	No
Ramp (between turn lanes and freeway)	400	946	Yes	911	Yes
<b>6. SR 170 Northbound Off-ramp to Sherman Way (Intersection #33)</b>					
Number of Vehicles Using Off-ramp		1,246		1,246	
Average Approach Delay on Ramp		11.3		11.3	
Approach Level of Service		B		B	
Sherman Way Westbound	2,190	85	No	85	No
Sherman Way Eastbound	1,250	49	No	49	No
Ramp (between turn lanes and freeway)	590	0	No	0	No
<b>7. I-5 Southbound Off-ramp to Hollywood Way (Intersection #39)</b>					
Number of Vehicles Using Off-ramp		1,356		1,354	
Average Approach Delay on Ramp		17.1		17.1	
Approach Level of Service		C		C	
Left-Turn Lane	800	88	No	89	No
Right-Turn Lane	800	210	No	208	No
Ramp (between turn lanes and freeway)	500	0	No	0	No
<b>8. I-5 Southbound Off-ramp to San Fernando Boulevard (Intersection #41)</b>					
Number of Vehicles Using Off-ramp		539		539	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Average Approach Delay on Ramp Approach Level of Service		53.9 D		53.9 D	
Left-Turn Lane	210	295	Lane	295	Lane
Shared Left / Right-Turn Lane	210	291	Lane	291	Lane
Ramp (between turn lanes and freeway)	1,140	166	No	166	No

Notes:

/a/ Ramp and intersection were under construction in 2018 and opened to the public in September 2019.

Source: Gibson, 2019.

**TABLE K-21**  
**WEEKDAY EVENING PEAK HOUR OFF-RAMP QUEUE EVALUATION (2024)**

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
<b>1. SR 170 Southbound Off-ramp to Sherman Way (Intersection #1)</b>					
Number of Vehicles Using Off-ramp		798		798	
Average Approach Delay on Ramp		68.3		68.3	
Approach Level of Service		E		E	
Dual Left-Turn Lanes	400	161	No	161	No
Right-Turn Lane	400	566	Lane	566	Lane
Ramp (between turn lanes and freeway)	580	166	No	166	No
<b>2. I-5 Northbound Off-ramp to Hollywood Way (Intersection #12)</b>					
Number of Vehicles Using Off-ramp		465		475	
Average Approach Delay on Ramp		45.6		46.5	
Approach Level of Service		D		D	
Left-Turn Lane	180	241	Lane	248	Lane
Shared left / Right-Turn Lane	180	228	Lane	234	Lane
Ramp (between turn lanes and freeway)	600	109	No	122	No
<b>3. I-5 Northbound Off-ramp to Buena Vista Street (Intersection #27)</b>					
Number of Vehicles Using Off-ramp		937		933	
Average Approach Delay on Ramp		43.3		43.3	
Approach Level of Service		D		D	
Left-Turn Lane	250	243	No	243	No
Shared left / Right-Turn Lane	250	243	No	243	No
Ramp (between turn lanes and freeway)	340	0	No	0	No
<b>4. I-5 Southbound Off-ramp to Empire Avenue (Intersection #31) /a/</b>					
Number of Vehicles Using Off-ramp		528		528	
Average Approach Delay on Ramp		83.5		83.5	
Approach Level of Service		F		F	



Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Left-Turn Lane	300	215	No	215	No
Shared Left / Through Lane	300	215	No	215	No
Right-Turn Lane	300	296	No	296	No
Ramp (between turn lanes and freeway)	1,300	0	No	0	No
<b>5. I-5 Northbound Off-ramp to Empire Avenue (Intersection #32) /a/</b>					
Number of Vehicles Using Off-ramp		1,192		1,185	
Average Approach Delay on Ramp		30.7		30.8	
Approach Level of Service		C		C	
Left-Turn Lane	300	412	Lane	410	Lane
Shared Left / Through Lane	300	407	Lane	405	Lane
Right-Turn Lane	300	88	No	88	No
Ramp (between turn lanes and freeway)	400	219	No	215	No
<b>6. SR 170 Northbound Off-ramp to Sherman Way (Intersection #33)</b>					
Number of Vehicles Using Off-ramp		1,389		1,389	
Average Approach Delay on Ramp		13.0		13.0	
Approach Level of Service		B		B	
Sherman Way Westbound	2,190	32	No	32	No
Sherman Way Eastbound	1,250	150	No	150	No
Ramp (between turn lanes and freeway)	590	0	No	0	No
<b>7. I-5 Southbound Off-ramp to Hollywood Way (Intersection #39)</b>					
Number of Vehicles Using Off-ramp		841		839	
Average Approach Delay on Ramp		12.1		12.1	
Approach Level of Service		B		B	
Left-Turn Lane	800	25	No	26	No
Right-Turn Lane	800	94	No	93	No
Ramp (between turn lanes and freeway)	500	0	No	0	No
<b>8. I-5 Southbound Off-ramp to San Fernando Boulevard (Intersection #41)</b>					
Number of Vehicles Using Off-ramp		623		623	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Average Approach Delay on Ramp Approach Level of Service		50.4 D		50.4 D	
Left-Turn Lane	210	326	Lane	326	Lane
Shared Left / Right-Turn Lane	210	314	Lane	314	Lane
Ramp (between turn lanes and freeway)	1,140	220	No	220	No

Notes:

/a/ Ramp and intersection were under construction in 2018 and opened to the public in September 2019.

Source: Gibson, 2019.

**TABLE K-22**  
**FRIDAY EVENING PEAK HOUR OFF-RAMP QUEUE EVALUATION (2024)**

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
<b>1. SR 170 Southbound Off-ramp to Sherman Way (Intersection #1)</b>					
Number of Vehicles Using Off-ramp		790		790	
Average Approach Delay on Ramp		66.7		66.7	
Approach Level of Service		E		E	
Dual Left-Turn Lanes	400	159	No	159	No
Right-Turn Lane	400	554	Lane	554	Lane
Ramp (between turn lanes and freeway)	580	154	No	154	No
<b>2. I-5 Northbound Off-ramp to Hollywood Way (Intersection #12)</b>					
Number of Vehicles Using Off-ramp		454		467	
Average Approach Delay on Ramp		45.5		45.6	
Approach Level of Service		D		D	
Left-Turn Lane	180	236	Lane	242	Lane
Shared left / Right-Turn Lane	180	224	Lane	229	Lane
Ramp (between turn lanes and freeway)	600	100	No	111	No
<b>3. I-5 Northbound Off-ramp to Buena Vista Street (Intersection #27)</b>					
Number of Vehicles Using Off-ramp		972		967	
Average Approach Delay on Ramp		42.4		42.4	
Approach Level of Service		D		D	
Left-Turn Lane	250	267	Lane	267	Lane
Shared left / Right-Turn Lane	250	267	Lane	267	Lane
Ramp (between turn lanes and freeway)	340	34	No	34	No
<b>4. I-5 Southbound Off-ramp to Empire Avenue (Intersection #31) /a/</b>					
Number of Vehicles Using Off-ramp		528		528	
Average Approach Delay on Ramp		83.5		83.5	
Approach Level of Service		F		F	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Left-Turn Lane	300	215	No	215	No
Shared Left / Through Lane	300	215	No	215	No
Right-Turn Lane	300	296	No	296	No
Ramp (between turn lanes and freeway)	1,300	0	No	0	No
<b>5. I-5 Northbound Off-ramp to Empire Avenue (Intersection #32) /a/</b>					
Number of Vehicles Using Off-ramp		1,192		1,183	
Average Approach Delay on Ramp		30.7		30.8	
Approach Level of Service		C		C	
Left-Turn Lane	300	412	Lane	410	Lane
Shared Left / Through Lane	300	407	Lane	405	Lane
Right-Turn Lane	300	88	No	88	No
Ramp (between turn lanes and freeway)	400	219	No	215	No
<b>6. SR 170 Northbound Off-ramp to Sherman Way (Intersection #33)</b>					
Number of Vehicles Using Off-ramp		1,234		1,234	
Average Approach Delay on Ramp		9.9		9.9	
Approach Level of Service		A		A	
Sherman Way Westbound	2,190	49	No	49	No
Sherman Way Eastbound	1,250	68	No	68	No
Ramp (between turn lanes and freeway)	590	0	No	0	No
<b>7. I-5 Southbound Off-ramp to Hollywood Way (Intersection #39)</b>					
Number of Vehicles Using Off-ramp		927		925	
Average Approach Delay on Ramp		12.9		12.9	
Approach Level of Service		B		B	
Left-Turn Lane	800	28	No	28	No
Right-Turn Lane	800	117	No	116	No
Ramp (between turn lanes and freeway)	500	0	No	0	No
<b>8. I-5 Southbound Off-ramp to San Fernando Boulevard (Intersection #41)</b>					
Number of Vehicles Using Off-ramp		600		600	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Average Approach Delay on Ramp Approach Level of Service		47.2 D		47.2 D	
Left-Turn Lane	210	306	Lane	306	Lane
Shared Left / Right-Turn Lane	210	296	Lane	296	Lane
Ramp (between turn lanes and freeway)	1,140	182	No	182	No

Notes:

/a/ Ramp and intersection were under construction in 2018 and opened to the public in September 2019.

Source: Gibson, 2019.

## K.6 NO ACTION ALTERNATIVE (2029)

### Peak Hour Traffic Volumes

Future peak hour traffic volumes under the No Action Alternative in 2029 are shown in **Exhibits K-11** and **K-12** for weekday morning and evening peak hours and the Friday evening peak hour, respectively.

### Intersection Impact Analysis

**Tables K-23** and **K-24** show the results of the HCM analysis for signalized and unsignalized study intersections, respectively in 2029. As shown in **Table K-23**, 30 of the 32 signalized study intersections are forecast to operate at LOS D or better. As shown in **Table K-24**, 8 of the 10 unsignalized intersections are forecast to operate at LOS D or better during each of the three analyzed peak hours. The following four intersections are projected to operate at LOS E or F during one or more peak hours (the same four intersections as identified to operate at LOS E or F in year 2024 as shown in **Tables K-17** and **K-18**):

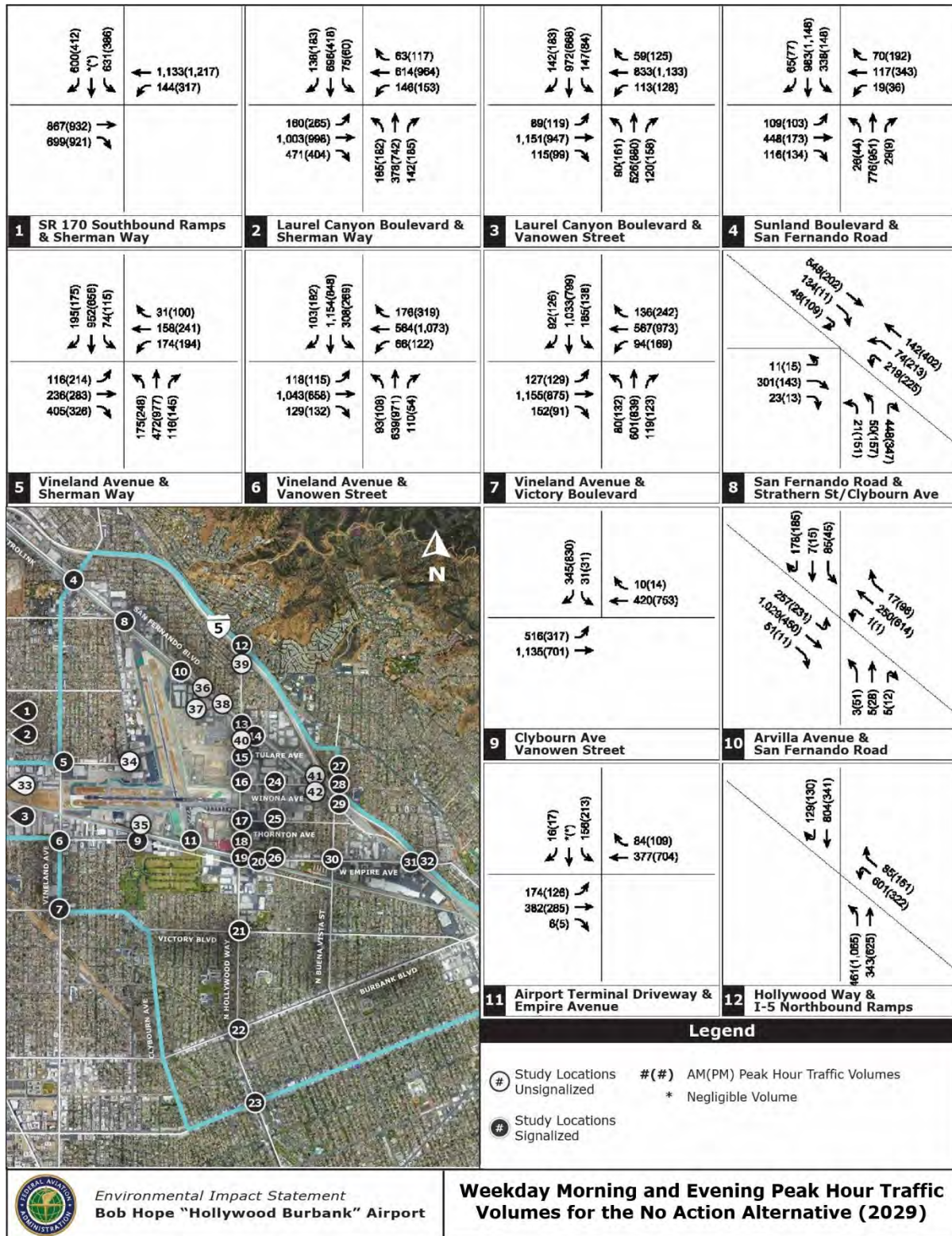
- » Intersection #31, I-5 Southbound Ramps & Empire Avenue (morning peak hour)
- » Intersection #32, I-5 Northbound Ramps & Empire Avenue (morning peak hour)
- » Intersection #39, Hollywood Way & I-5 Southbound Ramps (morning peak hour)
- » Intersection #41, I-5 Southbound Ramps & San Fernando Boulevard (all 3 peak hours)

### Freeway Mainline Segment Impact Analysis

**Table K-25** summarizes the results of the HCM analysis for freeway mainline segments in year 2029. The four freeway segments on I-5 were analyzed in the northbound and southbound directions during each of the three analyzed peak hours and the significant impact thresholds were applied. As shown in **Table K-25**, all four segments are projected to operate at LOS D or worse in one or both directions during one or more peak hours.



**EXHIBIT K-11**  
**WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2029)**

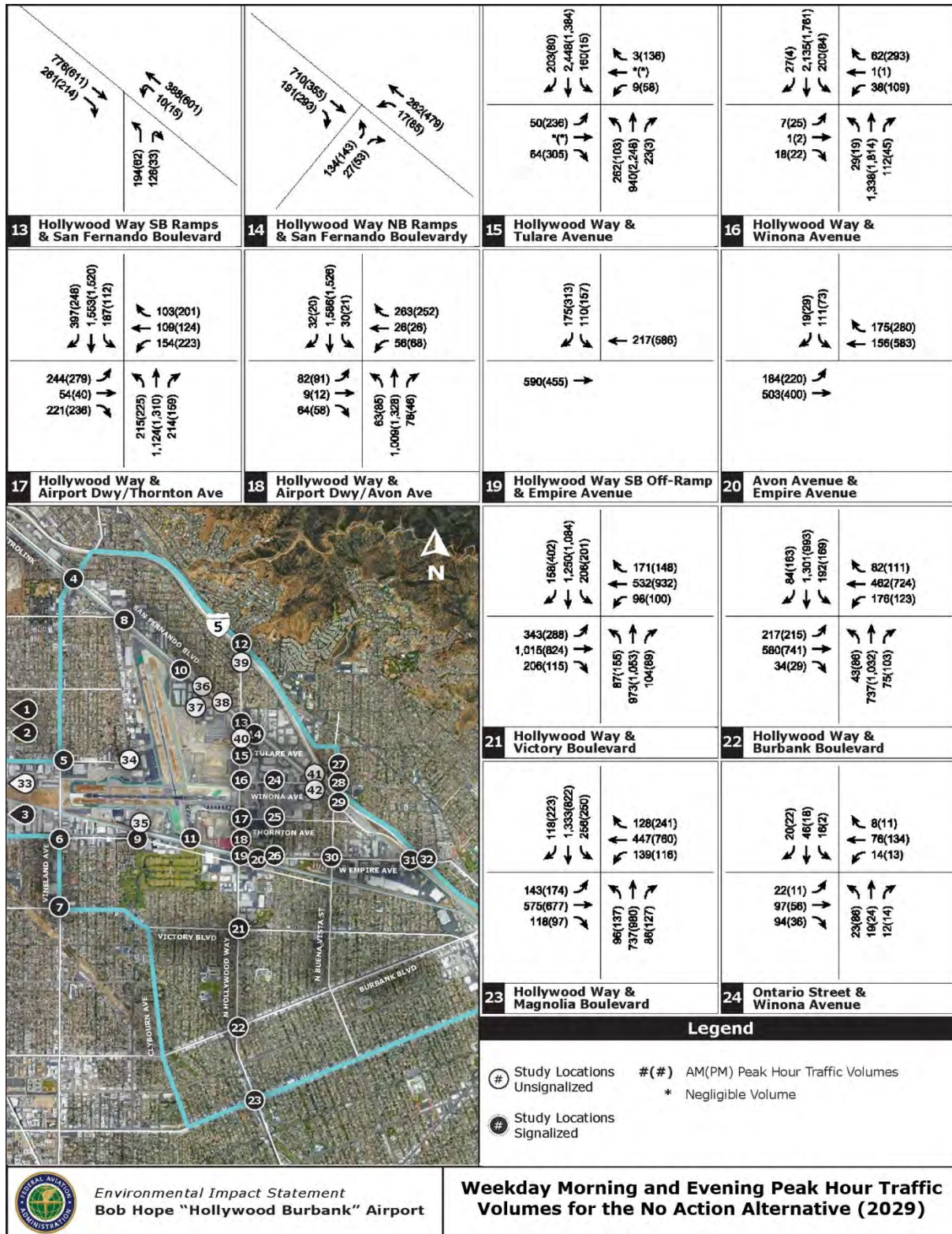


Sources: Gibson, 2020; RS&H, 2020.



EXHIBIT K-11 (CONT.)

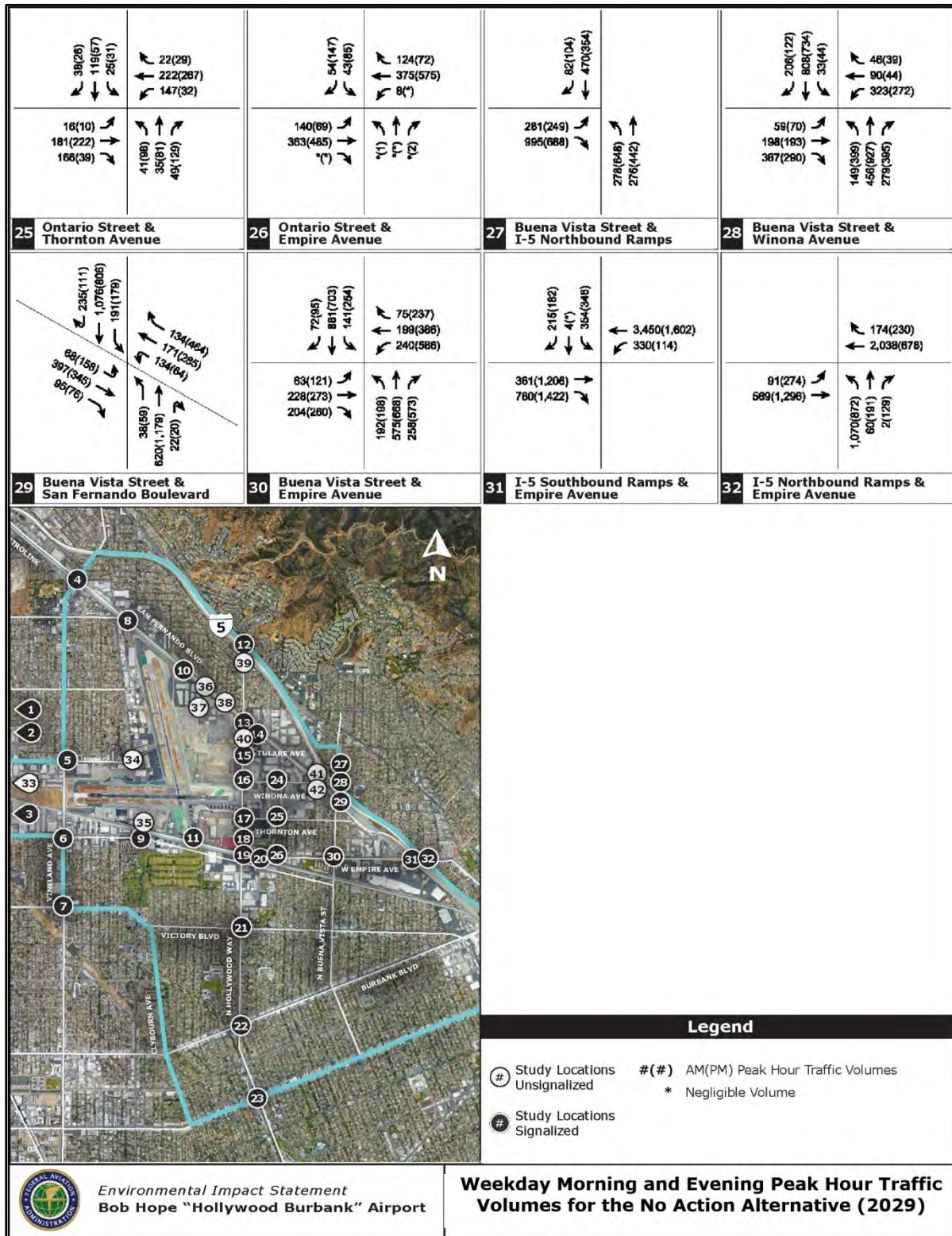
WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2029)



Sources: Gibson, 2020; RS&H, 2020.

EXHIBIT K-11 (CONT.)

WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2029)

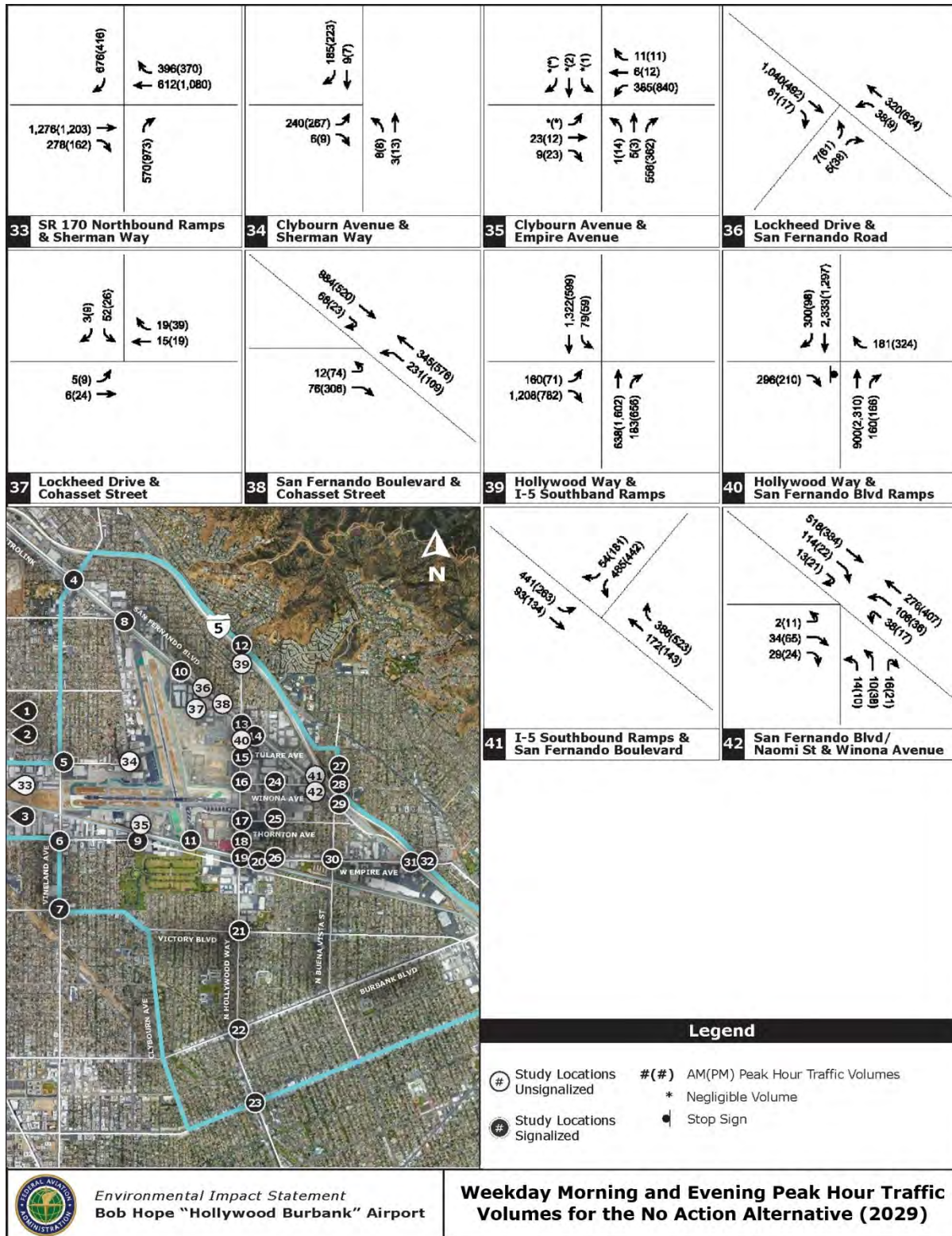


Sources: Gibson, 2020; RS&H, 2020.



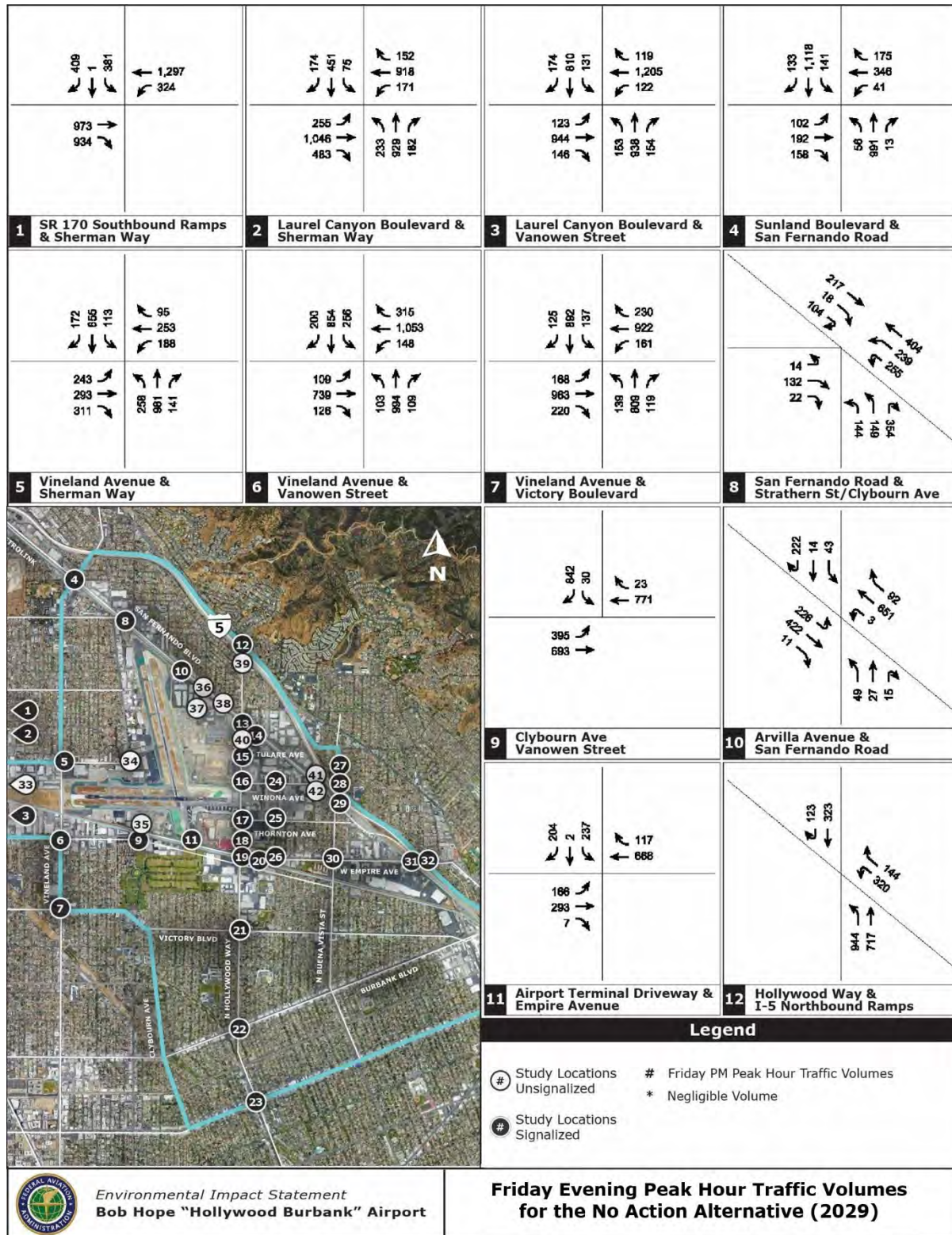
EXHIBIT K-11 (CONT.)

WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2029)



Sources: Gibson, 2020; RS&H, 2020.

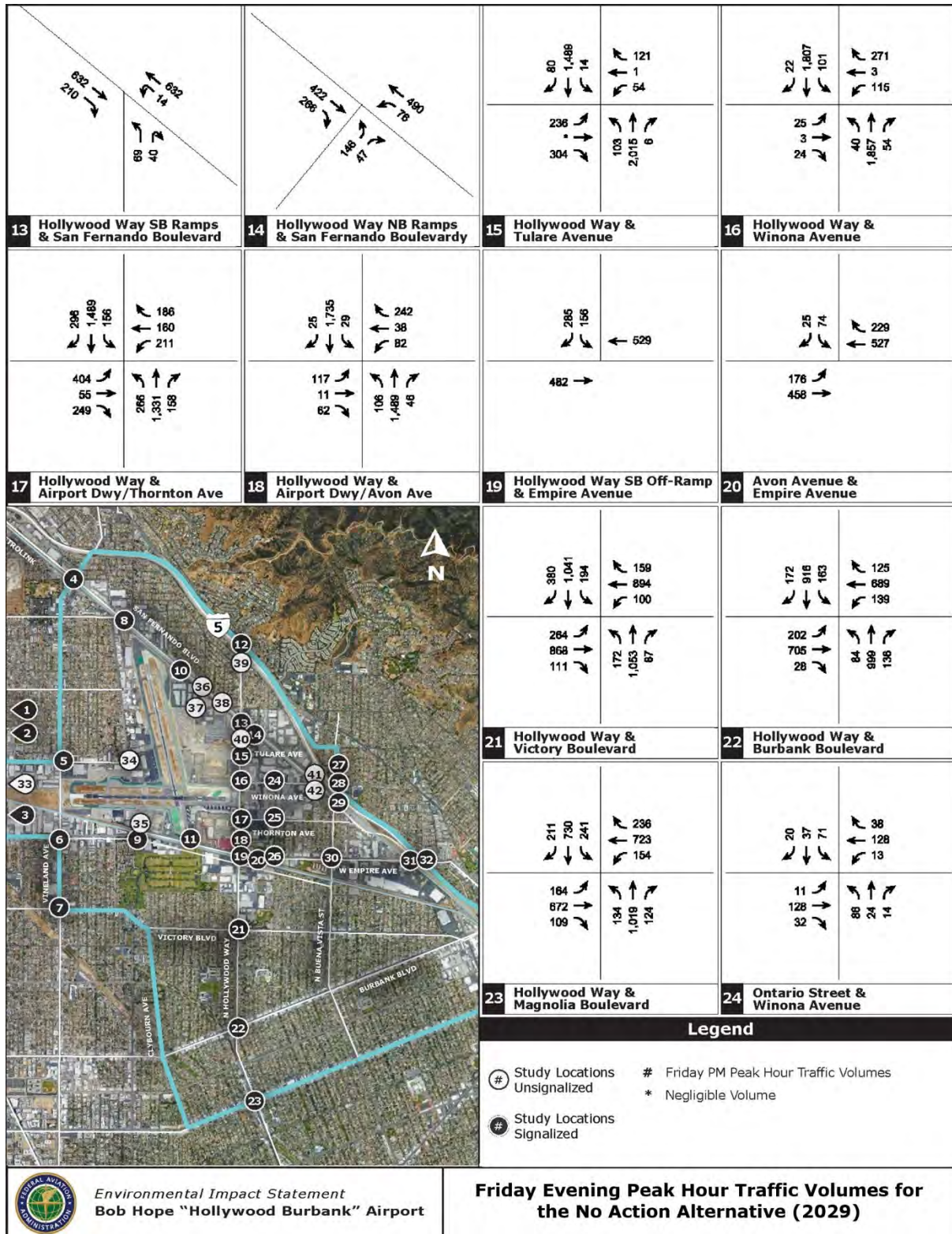
**EXHIBIT K-12**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.



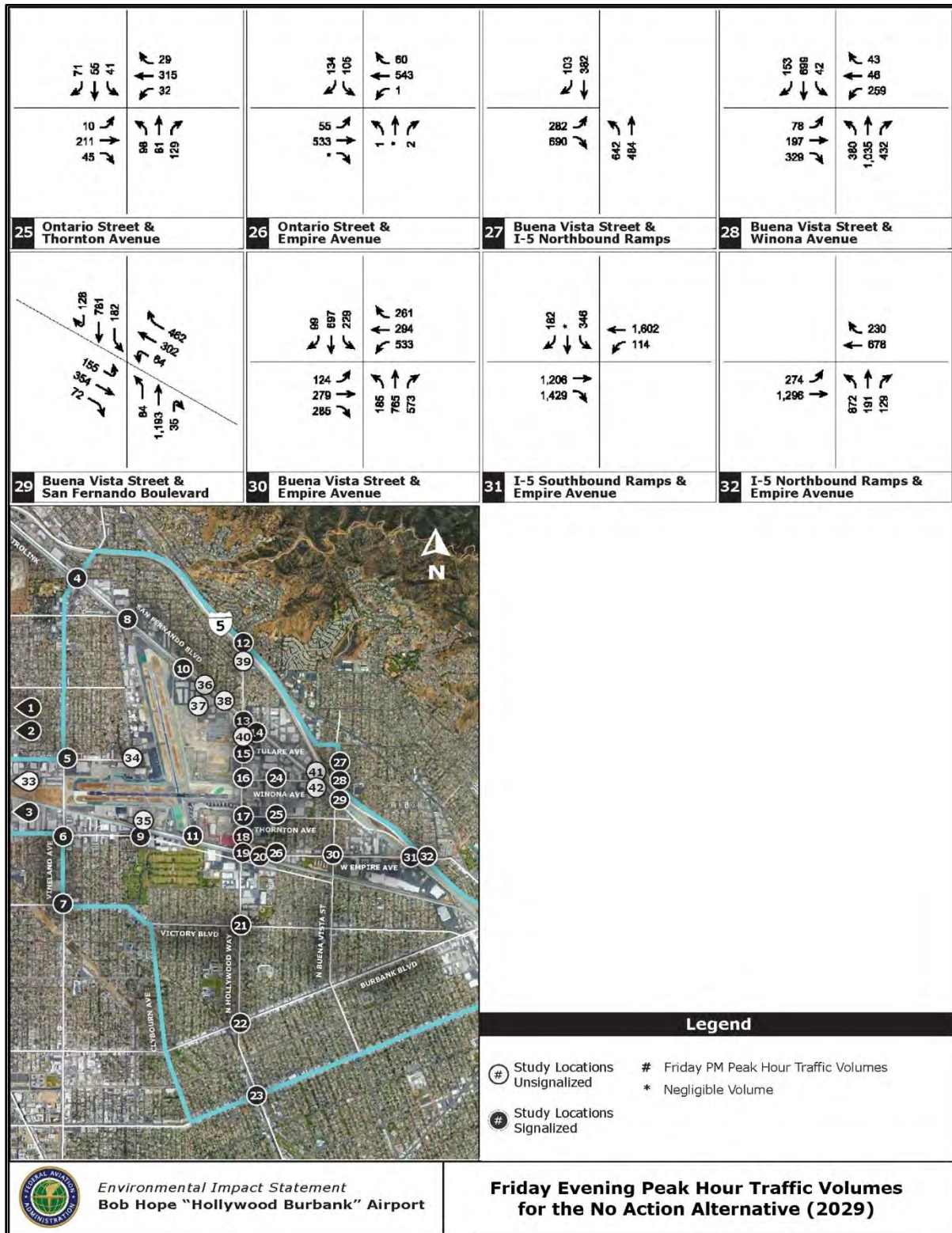
**EXHIBIT K-12 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

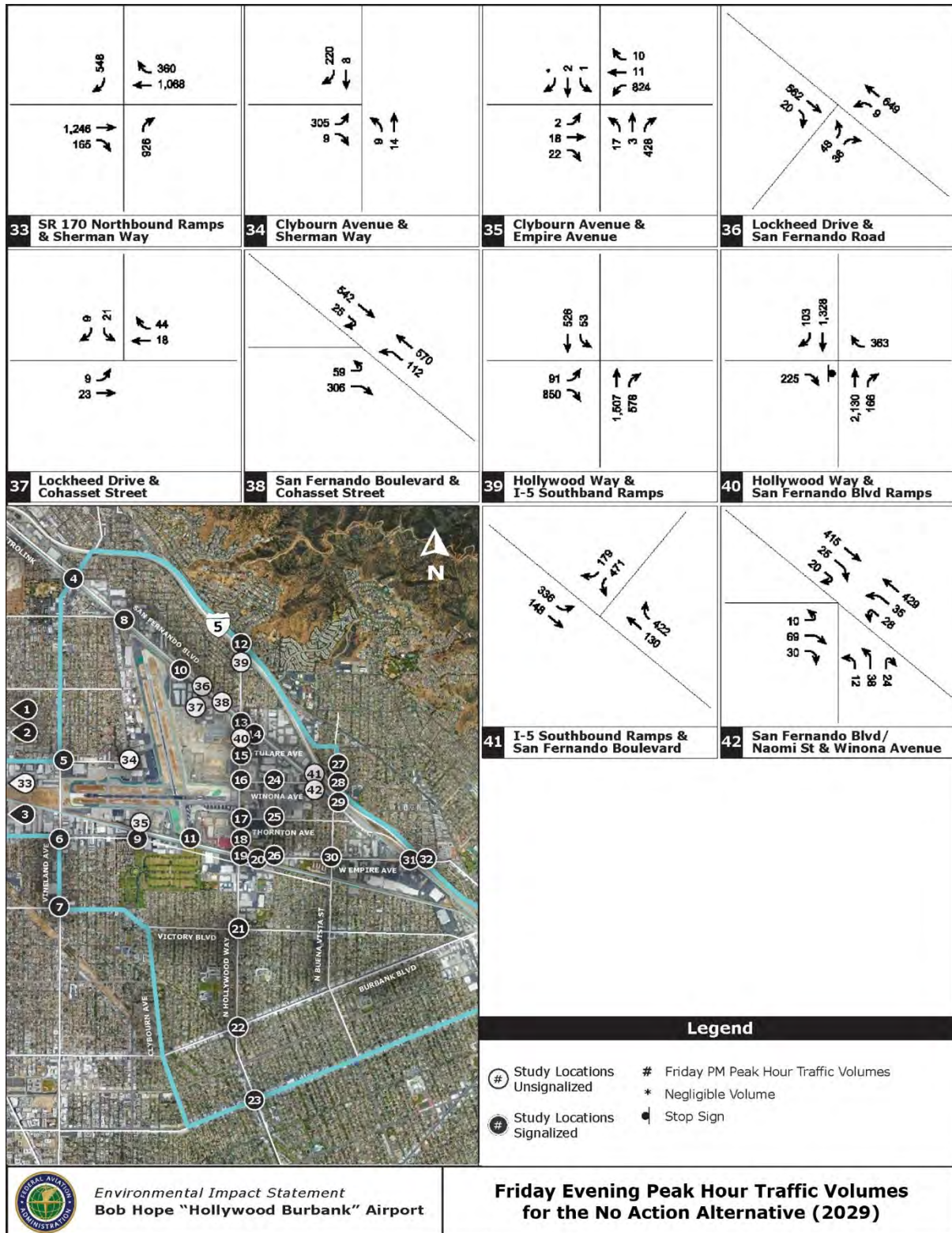


**EXHIBIT K-12 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

**EXHIBIT K-12 (CONT.)**  
**FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

**TABLE K-23**  
**SIGNALIZED INTERSECTION PEAK HOUR LEVELS OF SERVICE AND CHANGE IN DELAY (2029)**

No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
1. /a/	SR 170 Southbound Ramps / Sherman Way	AM	34.5	C	34.5	C	0.0
		PM	42.7	D	42.7	D	0.0
		Fri PM	43.5	D	43.5	D	0.0
2. /a/	Laurel Canyon Boulevard / Sherman Way	AM	38.1	D	38.1	D	0.0
		PM	38.8	D	38.8	D	0.0
		Fri PM	39.7	D	40.4	D	0.0
3. /a/	Laurel Canyon Boulevard / Vanowen Street	AM	26.2	C	26.2	C	0.0
		PM	26.5	C	26.6	C	0.1
		Fri PM	28.9	C	29.0	C	0.1
4. /a/	Sunland Boulevard / San Fernando Road	AM	24.1	C	24.1	C	0.0
		PM	27.1	C	27.1	C	0.0
		Fri PM	27.3	C	27.3	C	0.0
5. /a/	Vineland Avenue / Sherman Way	AM	23.2	C	23.1	C	-0.1
		PM	25.3	C	25.3	C	0.0
		Fri PM	23.3	C	23.7	C	4.4
6. /a/	Vineland Avenue / Vanowen Street	AM	24.9	C	25.2	C	0.3
		PM	35.5	D	30.5	C	-5.0
		Fri PM	30.3	C	31.6	C	1.3
7. /a/	Vineland Avenue / Victory Boulevard	AM	19.4	B	19.4	B	0.0
		PM	19.9	B	19.9	B	0.0
		Fri PM	21.0	B	21.0	B	0.0
8. /a/	San Fernando Road / Strathern Street / Clybourn Avenue	AM	31.4	C	32.1	C	0.7
		PM	36.0	D	37.4	D	1.4
		Fri PM	46.6	D	49.3	D	2.7
9. /a/	Clybourn Avenue / Vanowen Street	AM	19.6	B	19.5	B	-0.1
		PM	26.6	C	26.4	C	-0.2
		Fri PM	31.4	C	31.0	C	-0.4
10. /a/	Arvilla Avenue / Airport Driveway / San Fernando Road	AM	27.9	C	28.4	C	0.5
		PM	16.2	B	16.4	B	0.2
		Fri PM	17.4	B	17.7	B	0.3
11.	Airport Terminal Driveway / Empire Avenue	AM	9.0	A	2.4	A	-6.6
		PM	10.6	B	3.4	A	-7.2
		Fri PM	15.7	B	9.5	A	-6.2
		AM	31.5	C	31.6	C	0.1

APPENDIX K – SURFACE TRAFFIC ANALYSIS

No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
12. /a/	Hollywood Way / I-5 Northbound Ramps	PM	41.8	D	42.0	D	0.2
		Fri PM	40.1	D	40.5	D	0.4
13.	Hollywood Way Southbound Ramps / San Fernando Boulevard	AM	10.1	B	10.5	B	0.4
		PM	4.1	A	4.9	A	0.8
		Fri PM	4.5	A	5.4	A	0.9
14.	Hollywood Way Northbound Ramps / San Fernando Boulevard	AM	6.4	A	5.5	A	-0.9
		PM	7.3	A	6.2	A	-1.1
		Fri PM	7.0	A	5.7	A	-1.3
15.	Hollywood Way / Tulare Avenue	AM	11.5	B	11.5	B	0.0
		PM	20.4	C	20.4	C	0.0
		Fri PM	19.8	B	19.7	B	-0.1
16.	Hollywood Way / Winona Avenue	AM	5.7	A	23.3	C	17.6
		PM	15.2	B	37.9	D	22.7
		Fri PM	14.8	B	50.4	D	35.6
17.	Hollywood Way / Airport / Thornton Avenue	AM	27.2	C	13.9	B	-13.3
		PM	30.0	C	16.5	B	-13.5
		Fri PM	33.6	C	17.7	B	-15.9
18.	Hollywood Way / Airport / Avon Avenue	AM	20.9	C	17.9	B	-3.0
		PM	20.0	B	17.8	B	-2.2
		Fri PM	22.9	C	19.7	B	-3.2
19.	Hollywood Way Southbound Off-ramp / Empire Avenue	AM	12.9	B	14.0	B	1.1
		PM	15.2	B	16.4	B	1.2
		Fri PM	14.8	B	16.6	B	1.8
20.	Avon Street / Empire Avenue	AM	7.8	A	8.4	A	0.6
		PM	6.6	A	6.0	A	-0.6
		Fri PM	6.3	A	6.2	A	-0.1
21.	Hollywood Way / Victory Boulevard	AM	31.6	C	31.7	C	0.1
		PM	32.9	C	33.2	C	0.3
		Fri PM	31.5	C	31.9	C	0.4
22.	Hollywood Way / Burbank Boulevard	AM	28.7	C	28.7	C	0.0
		PM	31.4	C	31.5	C	0.1
		Fri PM	30.2	C	30.5	C	0.3
23.	Hollywood Way / Magnolia Boulevard	AM	26.5	C	26.1	C	-0.4
		PM	28.9	C	29.0	C	0.1
		Fri PM	29.2	C	29.2	C	0.0
24.	Ontario Street / Winona Avenue	AM	14.0	B	10.5	B	-3.5
		PM	17.0	B	12.5	B	-4.5
		Fri PM	18.4	B	14.0	B	-4.4
		AM	14.1	B	14.5	B	0.4

APPENDIX K – SURFACE TRAFFIC ANALYSIS

No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
25.	Ontario Street / Thornton Avenue	PM	17.8	B	18.2	B	0.4
		Fri PM	18.2	B	18.7	B	0.5
26.	Ontario Street / Empire Avenue	AM	6.2	A	7.3	A	1.1
		PM	10.4	B	11.6	B	1.2
		Fri PM	10.4	B	12.2	B	1.8
27.	Buena Vista Street / I-5 Northbound Ramps	AM	15.2	B	15.2	B	0.0
		PM	17.5	B	17.5	B	0.0
		Fri PM	18.8	B	18.8	B	0.0
28.	Buena Vista Street / Winona Avenue	AM	31.3	C	31.3	C	0.0
		PM	32.5	C	32.4	C	-0.1
		Fri PM	33.0	C	32.9	C	-0.1
29.	Buena Vista Street / San Fernando Boulevard	AM	28.2	C	30.0	C	1.8
		PM	33.1	C	34.8	C	1.7
		Fri PM	32.9	C	36.0	D	3.1
30.	Buena Vista Street / Empire Avenue	AM	27.2	C	25.5	C	-1.7
		PM	34.1	C	33.5	C	-0.6
		Fri PM	33.9	C	33.2	C	-0.7
31.	I-5 Southbound Ramps / Empire Avenue	AM	82.5	F	81.8	F	-0.7
		PM	51.7	D	50.6	D	-1.1
		Fri PM	52.6	D	51.3	D	-1.3
32.	I-5 Northbound Ramps / Empire Avenue	AM	81.7	F	80.8	F	-0.9
		PM	24.2	C	24.1	C	-0.1
		Fri PM	24.2	C	24.1	C	-0.1

Notes:

/a/ Fully or partially within City of Los Angeles jurisdiction.

Source: Gibson, 2019.



**TABLE K-24**  
**UNSIGNALIZED INTERSECTION PEAK HOUR LEVELS OF SERVICE AND CHANGE IN DELAY (2029)**

No.	Intersection	Peak Hour	No Action Alternative		Proposed Project		Proposed Project Compared to No Action Alternative
			Delay	LOS	Delay	LOS	Change in Delay
33. /a/	SR 170 Northbound Ramps & Sherman Way	AM	11.3	B	11.3	B	0.0
		PM	13.0	B	13.0	B	0.0
		Fri PM	12.1	B	12.1	B	0.0
34. /a/	Clybourn Avenue & Sherman Way	AM	11.6	B	11.6	B	0.0
		PM	12.0	B	12.0	B	0.0
		Fri PM	12.6	B	12.6	B	0.0
35. /a/	Clybourn Avenue & Empire Avenue	AM	20.3	C	20.1	C	-0.2
		PM	29.9	D	29.5	D	-0.4
		Fri PM	32.4	D	31.8	D	-0.6
36. /a/	Lockheed Drive & San Fernando Road	AM	30.2	D	31.4	D	1.2
		PM	19.6	C	20.0	C	0.4
		Fri PM	20.9	C	21.7	C	0.8
37. /a/	Lockheed Drive & Cohasset Street	AM	8.9	A	10.7	B	1.8
		PM	9.1	A	10.9	B	1.8
		Fri PM	9.1	A	11.5	B	2.4
38. /a/	San Fernando Boulevard & Cohasset Street	AM	7.8	A	12.3	B	4.5
		PM	19.6	C	17.6	C	-2.0
		Fri PM	19.3	C	18.1	C	-1.2
39. /a/	Hollywood Way & I-5 Southbound Ramps	AM	37.2	E	37.8	E	0.6
		PM	26.7	D	27.0	D	0.3
		Fri PM	22.2	C	22.5	C	0.3
40.	Hollywood Way & San Fernando Boulevard Ramps	AM	13.8	B	13.8	B	0.0
		PM	8.4	A	8.2	A	-0.2
		Fri PM	8.6	A	8.4	A	-0.2
41. /b/	I-5 Southbound Ramps & San Fernando Boulevard	AM	44.2	E	44.0	E	-0.2
		PM	41.5	E	41.3	E	-0.2
		Fri PM	40.7	E	40.4	E	-0.3
42.	San Fernando Boulevard / Naomi Street & Winona Avenue	AM	15.3	C	25.5	D	10.2
		PM	13.9	B	21.7	C	7.8
		Fri PM	14.6	B	30.8	D	16.2

## Notes:

Delay reported is worst-case, in seconds, experienced by any movement through the intersection, except as noted in /b/.

/a/ Intersection is located fully or partially within City of Los Angeles jurisdiction.

/b/ Intersection is all-way stop-controlled. Average delay of all vehicles is reported.



**TABLE K-25**  
**FREEWAY MAINLINE SEGMENT OPERATING CONDITIONS (2029)**

No.	Freeway Segment	Direction	No Action Alternative					Proposed Project				
			Volume	Lanes /a/	Speed /b/	Density /c/	LOS	Volume	Lanes /a/	Speed /b/	Density /c/	LOS
Weekday Morning Peak Hour												
1.	I-5 North of Hollywood Way	Northbound	4,726	4.5	58.0	20.6	C	4,724	4.5	58.0	20.6	C
		Southbound	8,461	5	56.8	33.9	D	8,459	5	56.8	33.9	D
2.	I-5 between Hollywood Way & Buena Vista Street	Northbound	4,552	4	58.0	22.3	C	4,564	4	58.0	22.4	C
		Southbound	8,168	4	n/a	n/a	F	8,179	4	n/a	n/a	F
3.	I-5 between Buena Vista Street & Empire Avenue	Northbound	4,521	5	55.5	18.5	C	4,528	5	55.5	18.6	C
		Southbound	8,192	5	55.3	33.7	D	8,199	5	55.3	33.7	D
4.	I-5 south of Empire Avenue	Northbound	4,932	5	55.5	20.2	C	4,931	5	55.5	20.2	C
		Southbound	8,723	5	54.5	36.4	E	8,722	5	54.5	36.4	E
Weekday Evening Peak Hour												
1.	I-5 North of Hollywood Way	Northbound	7,721	4.5	56.5	34.6	D	7,719	4.5	56.5	34.5	D
		Southbound	6,047	5	58.0	23.7	C	6,045	5	58.0	23.7	C
2.	I-5 between Hollywood Way & Buena Vista Street	Northbound	7,183	4	55.3	36.9	E	7,194	4	55.3	37.0	E
		Southbound	5,810	4	58.0	28.5	D	5,822	4	58.0	28.6	D
3.	I-5 between Buena Vista Street & Empire Avenue	Northbound	7,114	5	55.5	29.2	D	7,121	5	55.5	29.2	D
		Southbound	5,860	5	55.5	24.0	C	5,868	5	55.5	24.1	C
4.	I-5 south of Empire Avenue	Northbound	7,641	5	55.5	31.3	D	7,640	5	55.5	31.3	D
		Southbound	6,219	5	55.5	25.5	C	6,218	5	55.5	25.5	C
Friday Evening Peak Hour												
1.		Northbound	7,733	4.5	56.5	34.6	D	7,731	4.5	56.5	34.6	D

No.	Freeway Segment	Direction	No Action Alternative					Proposed Project				
			Volume	Lanes /a/	Speed /b/	Density /c/	LOS	Volume	Lanes /a/	Speed /b/	Density /c/	LOS
	I-5 North of Hollywood Way	Southbound	6,047	5	58.0	23.7	C	6,045	5	58.0	23.7	C
2.	I-5 between Hollywood Way & Buena Vista Street	Northbound	7,190	4	55.3	37.0	E	7,204	4	55.2	37.1	E
		Southbound	5,810	4	58.0	28.5	D	5,826	4	58.0	28.6	D
3.	I-5 between Buena Vista Street & Empire Avenue	Northbound	7,122	5	55.5	29.2	D	7,131	5	55.5	29.2	D
		Southbound	5,860	5	55.5	24.0	C	5,870	5	55.5	24.1	C
4.	I-5 south of Empire Avenue	Northbound	7,657	5	55.5	31.4	D	7,656	5	55.5	31.4	D
		Southbound	6,230	5	55.5	25.5	C	6,229	5	55.5	25.5	C

Notes:

/a/ Lane totals include auxiliary lanes and high occupancy vehicle lanes as one half lane.

/b/ Speed reported in miles per hour based on a free flow speed of 65 miles per hour.

/c/ Density reported in passenger cars per mile per lane (pc/mi/ln).

Source: Gibson, 2019.

### Freeway Off-ramp Impact Analysis

**Tables K-26, K-27, and K-28** summarize the results of the off-ramp queueing analysis at the eight off-ramps in year 2029 during the weekday morning, weekday evening, and Friday evening peak hours, respectively. As shown, six of the eight off-ramps would have queues exceeding the lengths of one or more of the lanes approaching the intersection during one or more peak hours. However, only one (Off-ramp #5, I-5 Northbound Off-ramp to Empire Avenue, during the weekday morning peak hour) would extend onto the freeway mainline under any peak hour.

**TABLE K-26**  
**WEEKDAY MORNING PEAK HOUR OFF-RAMP QUEUE EVALUATION (2029)**

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
<b>1. SR 170 Southbound Off-ramp to Sherman Way (Intersection #1)</b>					
Number of Vehicles Using Off-ramp		1,231		1,231	
Average Approach Delay on Ramp		47.2		47.2	
Approach Level of Service		D		D	
Dual Left-Turn Lanes	400	219	No	219	No
Right-Turn Lane	400	672	Lane	672	Lane
Ramp (between turn lanes and freeway)	580	272	No	272	No
<b>2. I-5 Northbound Off-ramp to Hollywood Way (Intersection #12)</b>					
Number of Vehicles Using Off-ramp		687		699	
Average Approach Delay on Ramp		38.2		38.0	
Approach Level of Service		D		D	
Left-Turn Lane	180	304	Lane	308	Lane
Shared left / Right-Turn Lane	180	299	Lane	303	Lane
Ramp (between turn lanes and freeway)	600	243	No	251	No
<b>3. I-5 Northbound Off-ramp to Buena Vista Street (Intersection #27)</b>					
Number of Vehicles Using Off-ramp		1,276		1,272	
Average Approach Delay on Ramp		42.4		42.4	
Approach Level of Service		D		D	
Left-Turn Lane	250	266	Lane	266	Lane
Shared left / Right-Turn Lane	250	266	Lane	266	Lane
Ramp (between turn lanes and freeway)	340	32	No	32	No
<b>4. I-5 Southbound Off-ramp to Empire Avenue (Intersection #31) /a/</b>					
Number of Vehicles Using Off-ramp		573		573	
Average Approach Delay on Ramp		88.4		88.4	
Approach Level of Service		F		F	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Left-Turn Lane	300	203	No	203	No
Shared Left / Through Lane	300	203	No	203	No
Right-Turn Lane	300	378	Lane	378	Lane
Ramp (between turn lanes and freeway)	1,300	78	No	78	No
<b>5. I-5 Northbound Off-ramp to Empire Avenue (Intersection #32) /a/</b>					
Number of Vehicles Using Off-ramp		1,132		1,124	
Average Approach Delay on Ramp		113.8		110.6	
Approach Level of Service		F		F	
Left-Turn Lane	300	795	Lane	777	Lane
Shared Left / Through Lane	300	785	Lane	768	Lane
Right-Turn Lane	300	1	No	1	No
Ramp (between turn lanes and freeway)	400	980	Yes	945	Yes
<b>6. SR 170 Northbound Off-ramp to Sherman Way (Intersection #33)</b>					
Number of Vehicles Using Off-ramp		1,246		1,246	
Average Approach Delay on Ramp		11.3		11.3	
Approach Level of Service		B		B	
Sherman Way Westbound	2,190	85	No	85	No
Sherman Way Eastbound	1,250	49	No	49	No
Ramp (between turn lanes and freeway)	590	0	No	0	No
<b>7. I-5 Southbound Off-ramp to Hollywood Way (Intersection #39)</b>					
Number of Vehicles Using Off-ramp		1,368		1,366	
Average Approach Delay on Ramp		17.4		17.3	
Approach Level of Service		C		C	
Left-Turn Lane	800	89	No	91	No
Right-Turn Lane	800	216	No	214	No
Ramp (between turn lanes and freeway)	500	0	No	0	No
<b>8. I-5 Southbound Off-ramp to San Fernando Boulevard (Intersection #41)</b>					
Number of Vehicles Using Off-ramp		539		539	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Average Approach Delay on Ramp Approach Level of Service		53.9 D		53.9 D	
Left-Turn Lane	210	295	Lane	295	Lane
Shared Left / Right-Turn Lane	210	291	Lane	291	Lane
Ramp (between turn lanes and freeway)	1,140	166	No	166	No

Notes:

/a/ Ramp and intersection were under construction in 2018 and opened to the public in September 2019.

Source: Gibson, 2019.



**TABLE K-27**  
**WEEKDAY EVENING PEAK HOUR OFF-RAMP QUEUE EVALUATION (2029)**

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
<b>1. SR 170 Southbound Off-ramp to Sherman Way (Intersection #1)</b>					
Number of Vehicles Using Off-ramp		798		798	
Average Approach Delay on Ramp		68.3		68.3	
Approach Level of Service		E		E	
Dual Left-Turn Lanes	400	161	No	161	No
Right-Turn Lane	400	566	Lane	566	Lane
Ramp (between turn lanes and freeway)	580	166	No	166	No
<b>2. I-5 Northbound Off-ramp to Hollywood Way (Intersection #12)</b>					
Number of Vehicles Using Off-ramp		473		484	
Average Approach Delay on Ramp		46.2		47.8	
Approach Level of Service		D		D	
Left-Turn Lane	180	246	Lane	254	Lane
Shared left / Right-Turn Lane	180	233	Lane	241	Lane
Ramp (between turn lanes and freeway)	600	119	No	135	No
<b>3. I-5 Northbound Off-ramp to Buena Vista Street (Intersection #27)</b>					
Number of Vehicles Using Off-ramp		937		933	
Average Approach Delay on Ramp		43.3		43.3	
Approach Level of Service		D		D	
Left-Turn Lane	250	243	No	243	No
Shared left / Right-Turn Lane	250	243	No	243	No
Ramp (between turn lanes and freeway)	340	0	No	0	No
<b>4. I-5 Southbound Off-ramp to Empire Avenue (Intersection #31) /a/</b>					
Number of Vehicles Using Off-ramp		528		528	
Average Approach Delay on Ramp		83.5		83.5	
Approach Level of Service		F		F	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Left-Turn Lane	300	215	No	215	No
Shared Left / Through Lane	300	215	No	215	No
Right-Turn Lane	300	296	No	296	No
Ramp (between turn lanes and freeway)	1,300	0	No	0	No
<b>5. I-5 Northbound Off-ramp to Empire Avenue (Intersection #32) /a/</b>					
Number of Vehicles Using Off-ramp		1,192		1,184	
Average Approach Delay on Ramp		30.7		30.8	
Approach Level of Service		C		C	
Left-Turn Lane	300	412	Lane	410	Lane
Shared Left / Through Lane	300	407	Lane	405	Lane
Right-Turn Lane	300	88	No	88	No
Ramp (between turn lanes and freeway)	400	219	No	215	No
<b>6. SR 170 Northbound Off-ramp to Sherman Way (Intersection #33)</b>					
Number of Vehicles Using Off-ramp		1,389		1,389	
Average Approach Delay on Ramp		13.0		13.0	
Approach Level of Service		B		B	
Sherman Way Westbound	2,190	32	No	32	No
Sherman Way Eastbound	1,250	150	No	150	No
Ramp (between turn lanes and freeway)	590	0	No	0	No
<b>7. I-5 Southbound Off-ramp to Hollywood Way (Intersection #39)</b>					
Number of Vehicles Using Off-ramp		853		851	
Average Approach Delay on Ramp		12.2		12.2	
Approach Level of Service		B		B	
Left-Turn Lane	800	26	No	26	No
Right-Turn Lane	800	97	No	96	No
Ramp (between turn lanes and freeway)	500	0	No	0	No
<b>8. I-5 Southbound Off-ramp to San Fernando Boulevard (Intersection #41)</b>					
Number of Vehicles Using Off-ramp		623		623	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Average Approach Delay on Ramp Approach Level of Service		50.4 D		50.4 D	
Left-Turn Lane	210	326	Lane	326	Lane
Shared Left / Right-Turn Lane	210	314	Lane	314	Lane
Ramp (between turn lanes and freeway)	1,140	220	No	220	No

Notes:

/a/ Ramp and intersection were under construction in 2018 and opened to the public in September 2019.

Source: Gibson, 2019.

**TABLE K-28**  
**FRIDAY EVENING PEAK HOUR OFF-RAMP QUEUE EVALUATION (2029)**

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
<b>1. SR 170 Southbound Off-ramp to Sherman Way (Intersection #1)</b>					
Number of Vehicles Using Off-ramp		790		790	
Average Approach Delay on Ramp		66.7		66.7	
Approach Level of Service		E		E	
Dual Left-Turn Lanes	400	159	No	159	No
Right-Turn Lane	400	554	Lane	554	Lane
Ramp (between turn lanes and freeway)	580	154	No	154	No
<b>2. I-5 Northbound Off-ramp to Hollywood Way (Intersection #12)</b>					
Number of Vehicles Using Off-ramp		464		478	
Average Approach Delay on Ramp		45.6		46.8	
Approach Level of Service		D		D	
Left-Turn Lane	180	241	Lane	249	Lane
Shared left / Right-Turn Lane	180	228	Lane	237	Lane
Ramp (between turn lanes and freeway)	600	109	No	126	No
<b>3. I-5 Northbound Off-ramp to Buena Vista Street (Intersection #27)</b>					
Number of Vehicles Using Off-ramp		972		967	
Average Approach Delay on Ramp		42.4		42.4	
Approach Level of Service		D		D	
Left-Turn Lane	250	267	Lane	267	Lane
Shared left / Right-Turn Lane	250	267	Lane	267	Lane
Ramp (between turn lanes and freeway)	340	34	No	34	No
<b>4. I-5 Southbound Off-ramp to Empire Avenue (Intersection #31) /a/</b>					
Number of Vehicles Using Off-ramp		528		528	
Average Approach Delay on Ramp		83.5		83.5	
Approach Level of Service		F		F	

Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Left-Turn Lane	300	215	No	215	No
Shared Left / Through Lane	300	215	No	215	No
Right-Turn Lane	300	296	No	296	No
Ramp (between turn lanes and freeway)	1,300	0	No	0	No
<b>5. I-5 Northbound Off-ramp to Empire Avenue (Intersection #32) /a/</b>					
Number of Vehicles Using Off-ramp		1,192		1,182	
Average Approach Delay on Ramp		30.7		30.9	
Approach Level of Service		C		C	
Left-Turn Lane	300	412	Lane	409	Lane
Shared Left / Through Lane	300	407	Lane	404	Lane
Right-Turn Lane	300	88	No	88	No
Ramp (between turn lanes and freeway)	400	219	No	213	No
<b>6. SR 170 Northbound Off-ramp to Sherman Way (Intersection #33)</b>					
Number of Vehicles Using Off-ramp		1,474		1,474	
Average Approach Delay on Ramp		12.1		12.1	
Approach Level of Service		B		B	
Sherman Way Westbound	2,190	49	No	49	No
Sherman Way Eastbound	1,250	129	No	129	No
Ramp (between turn lanes and freeway)	590	0	No	0	No
<b>7. I-5 Southbound Off-ramp to Hollywood Way (Intersection #39)</b>					
Number of Vehicles Using Off-ramp		941		939	
Average Approach Delay on Ramp		13.1		13.1	
Approach Level of Service		B		B	
Left-Turn Lane	800	29	No	29	No
Right-Turn Lane	800	122	No	120	No
Ramp (between turn lanes and freeway)	500	0	No	0	No
<b>8. I-5 Southbound Off-ramp to San Fernando Boulevard (Intersection #41)</b>					
Number of Vehicles Using Off-ramp		650		650	



Ramp and Lane Description		No Action Alternative		Proposed Project	
	Vehicle Storage Capacity (feet)	95th Percentile Queue Length (feet)	Exceeds Capacity?	95th Percentile Queue Length (feet)	Exceeds Capacity?
Average Approach Delay on Ramp Approach Level of Service		48.5 D		48.5 D	
Left-Turn Lane	210	331	Lane	331	Lane
Shared Left / Right-Turn Lane	210	320	Lane	320	Lane
Ramp (between turn lanes and freeway)	1,140	231	No	231	No

Notes:

/a/ Ramp and intersection were under construction in 2018 and opened to the public in September 2019.

Source: Gibson, 2019.

## K.7 PROPOSED PROJECT (2024)

This section details the development of future traffic forecasts and the analysis under the Proposed Project. Compared to the No Action Alternative, the Proposed Project would change the primary access point to the terminal from Intersection #17, Hollywood Way & Airport Driveway / Thornton Avenue, to Intersection #16, Hollywood Way and Winona Avenue. In addition, the Proposed Project would include a fourth eastbound lane at Intersection #16. The eastbound approach would provide 2 left-turn lanes, one shared through/right-turn lane, and one right-turn lane. In addition, the Proposed Project would modify Intersection #38, San Fernando Road and Cohasset Street, to provide a separate left-turn pocket on the eastbound approach. A summary of these changes is provided in **Table K-29**.

### Peak Hour Traffic Volumes

Future peak hour traffic volumes for the Proposed Project in 2024 are shown in **Exhibits K-13** and **K-14** for weekday morning and evening peak hours and the Friday evening peak hour, respectively. The change in traffic volumes under the Proposed Project in 2024 compared to the traffic volumes for the No Action Alternative are shown in **Exhibits K-15** and **K-16** for weekday morning and evening peak hours and the Friday evening peak hour, respectively.

### Intersection Impact Analysis

**Tables K-17** and **K-18** show the results of the HCM analysis for signalized and unsignalized study intersections, respectively, for the Proposed Project in 2024 and also show a comparison between the Proposed Project and the No Action Alternative for each of the intersections. As shown in **Tables K-17** and **K-18**, the Proposed Project would result in the same four intersections operating at LOS E or F during one or more peak hours as those disclosed for the No Action Alternative.

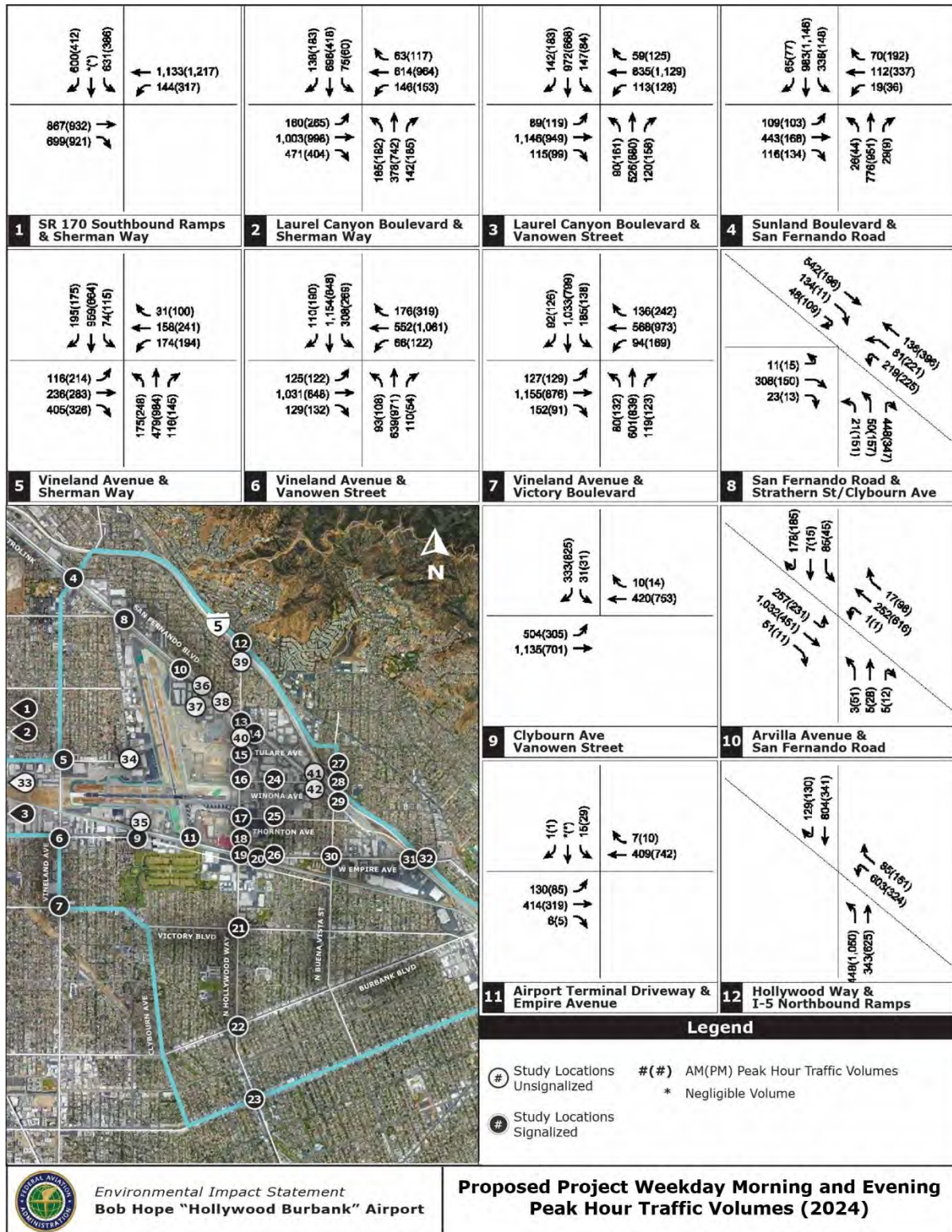
In comparing the Proposed Project to the No Action Alternative, none of the changes at any of the intersections would result in an increase in delay of 3.0 seconds or more.

**TABLE K-29**  
**COMPARISON OF PROJECT TO EXISTING CONDITIONS**

<b>Airport Feature</b>	<b>No Action Alternative</b>	<b>Proposed Project</b>
<b>Terminal Size</b>	232,000 square feet	355,000 square feet
<b>Terminal Loop Road Access Points</b>		
Primary Access	Hollywood at Thornton	Hollywood at Winona
Secondary Access	Empire	Cohasset
<b>Public Parking</b>		
Existing Structure	438	removed
New Structure	does not exist	3,180
Lot A	1,592	closed
Lot B	638	closed
Lot C	517	517
Lot D	612	612
Lot E	201	closed
Lot G	253	253
Replacement Structure	1,043	1,043
Valet Surface Lot	1,343	1,032
<b>Total Public Parking</b>	<b>6,637</b>	<b>6,637</b>
<b>Employee Parking</b>		
East Authority Staff Lot	65	closed
Northeast Quadrant Lot	547	closed
New Employee Structure	0	600
<b>Total Employee Parking</b>	<b>612</b>	<b>600</b>
<b>Air Freightier Location</b>	Empire at Clybourne	remains in place
<b>General Aviation Location</b>	west side of airport	remains in place
<b>Airport Administrative Office</b>	at existing terminal	at replacement terminal

Sources: Burbank-Glendale-Pasadena Airport Authority, 2019; Gibson, 2019.

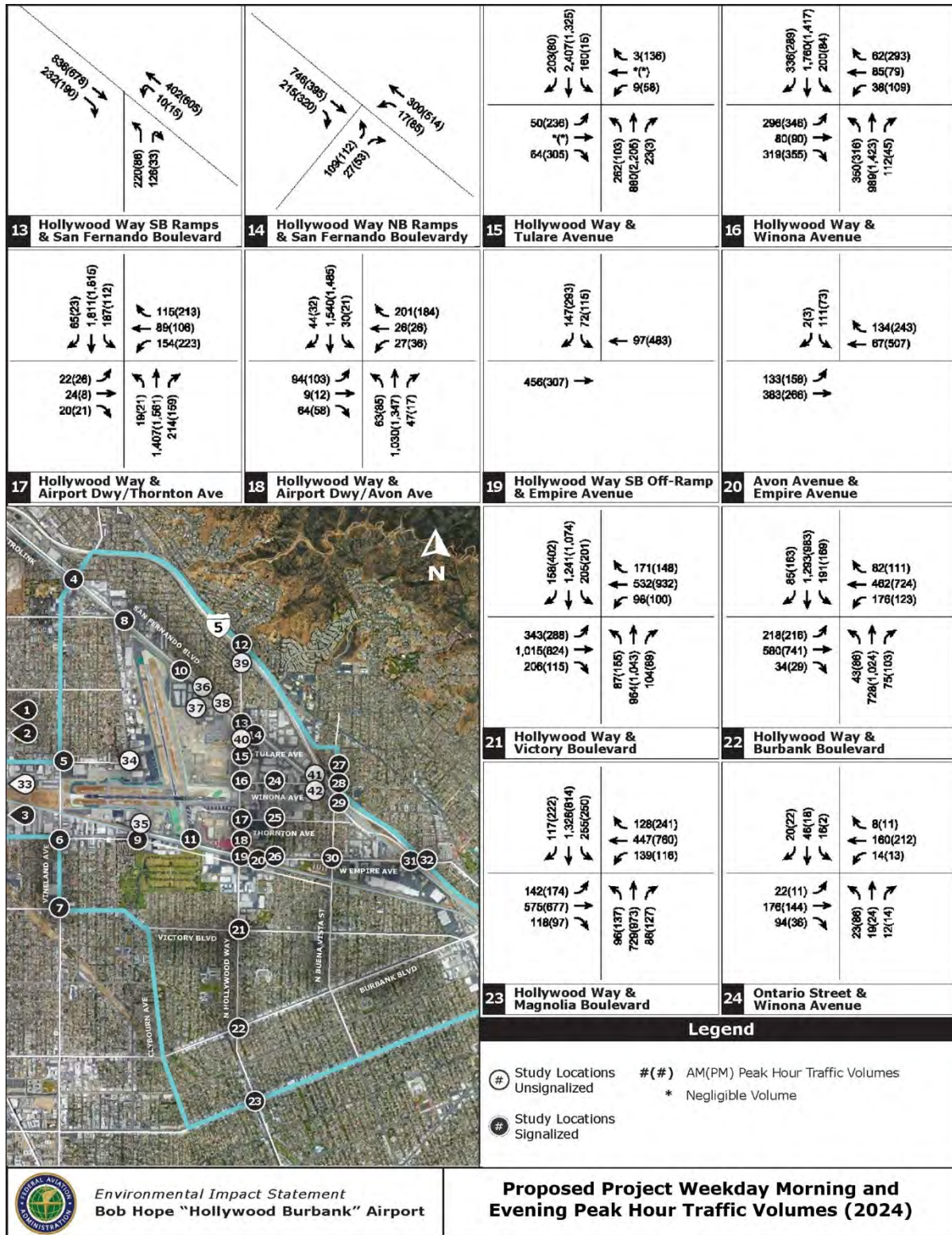
**EXHIBIT K-13**  
**PROPOSED PROJECT WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES (2024)**



Source.: Gibson, 2020; RS&H, 2020.



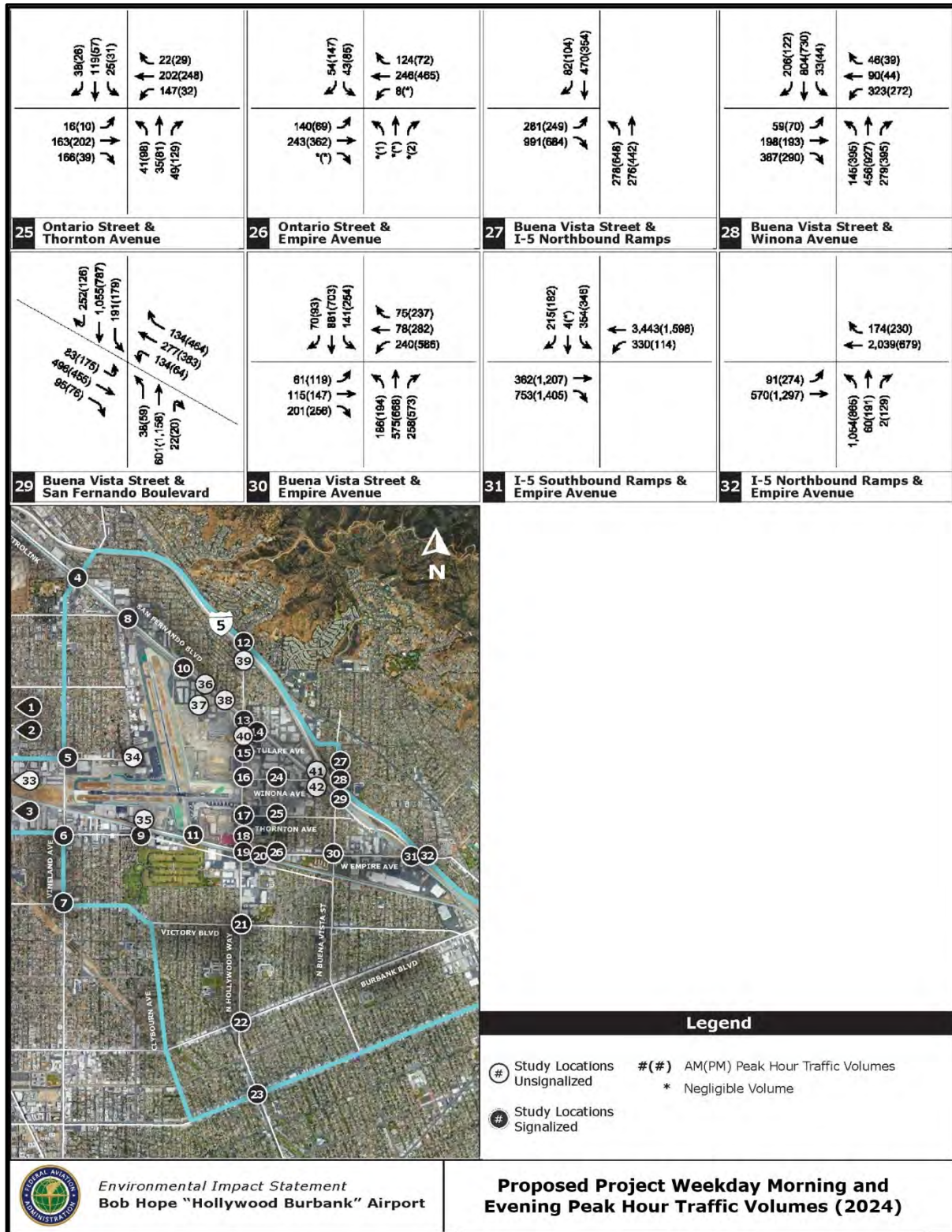
**EXHIBIT K-13 (CONT.)**  
**PROPOSED PROJECT WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES (2024)**



Sources: Gibson, 2020; RS&H, 2020.

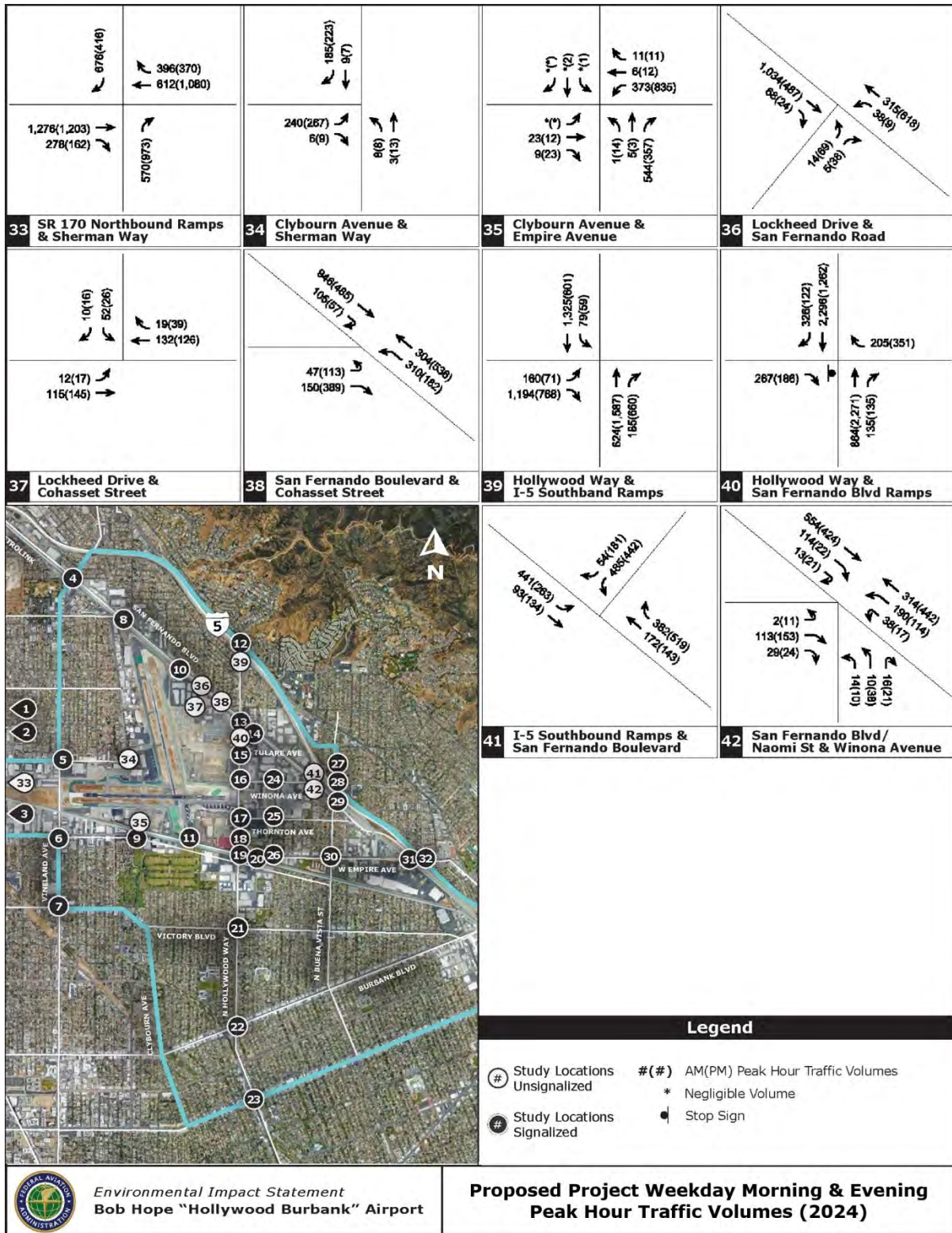


**EXHIBIT K-13 (CONT.)**  
**PROPOSED PROJECT WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES (2024)**



Sources: Gibson, 2020; RS&H, 2020.

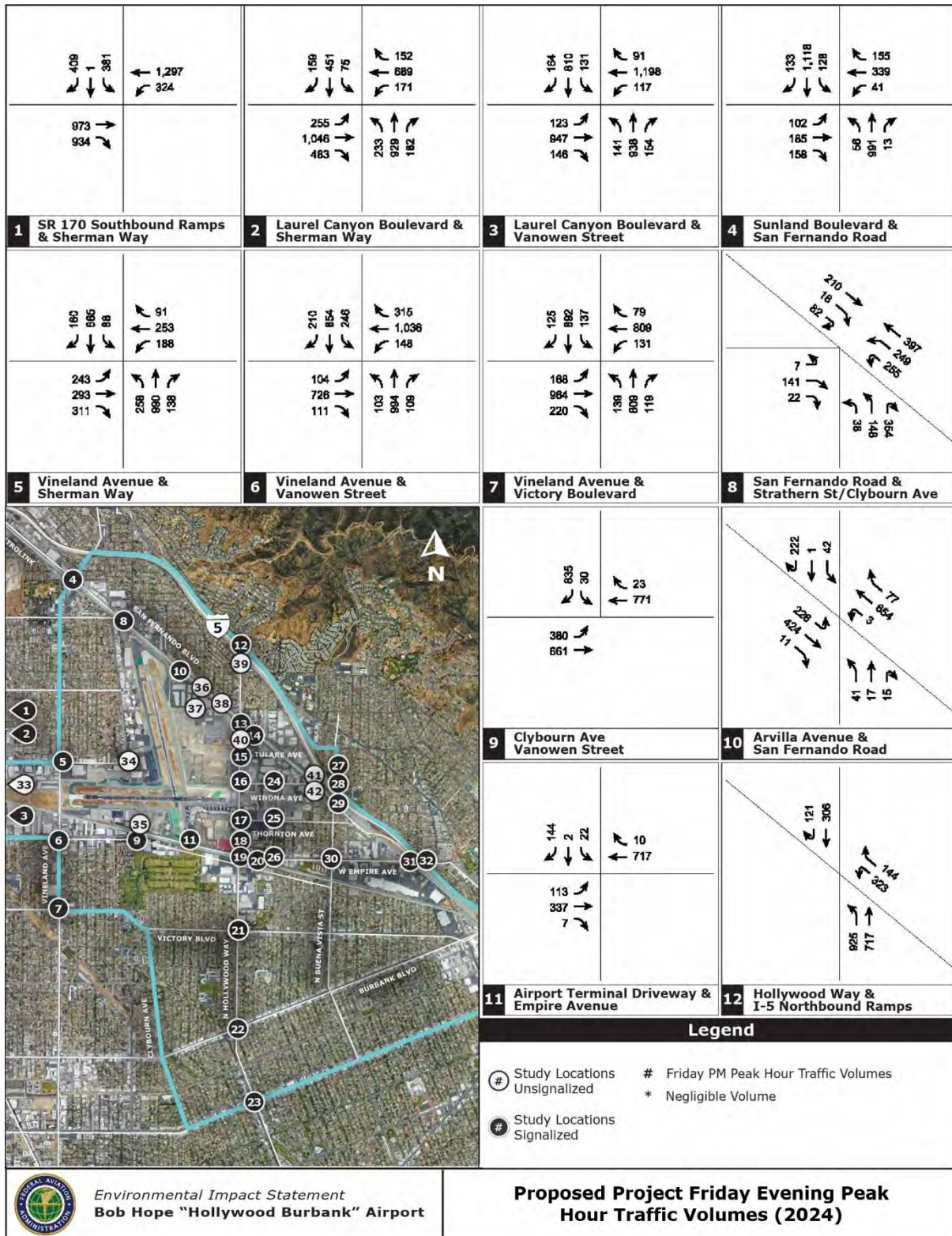
**EXHIBIT K-13 (CONT.)**  
**PROPOSED PROJECT WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES (2024)**



Sources: Gibson, 2020; RS&H, 2020.

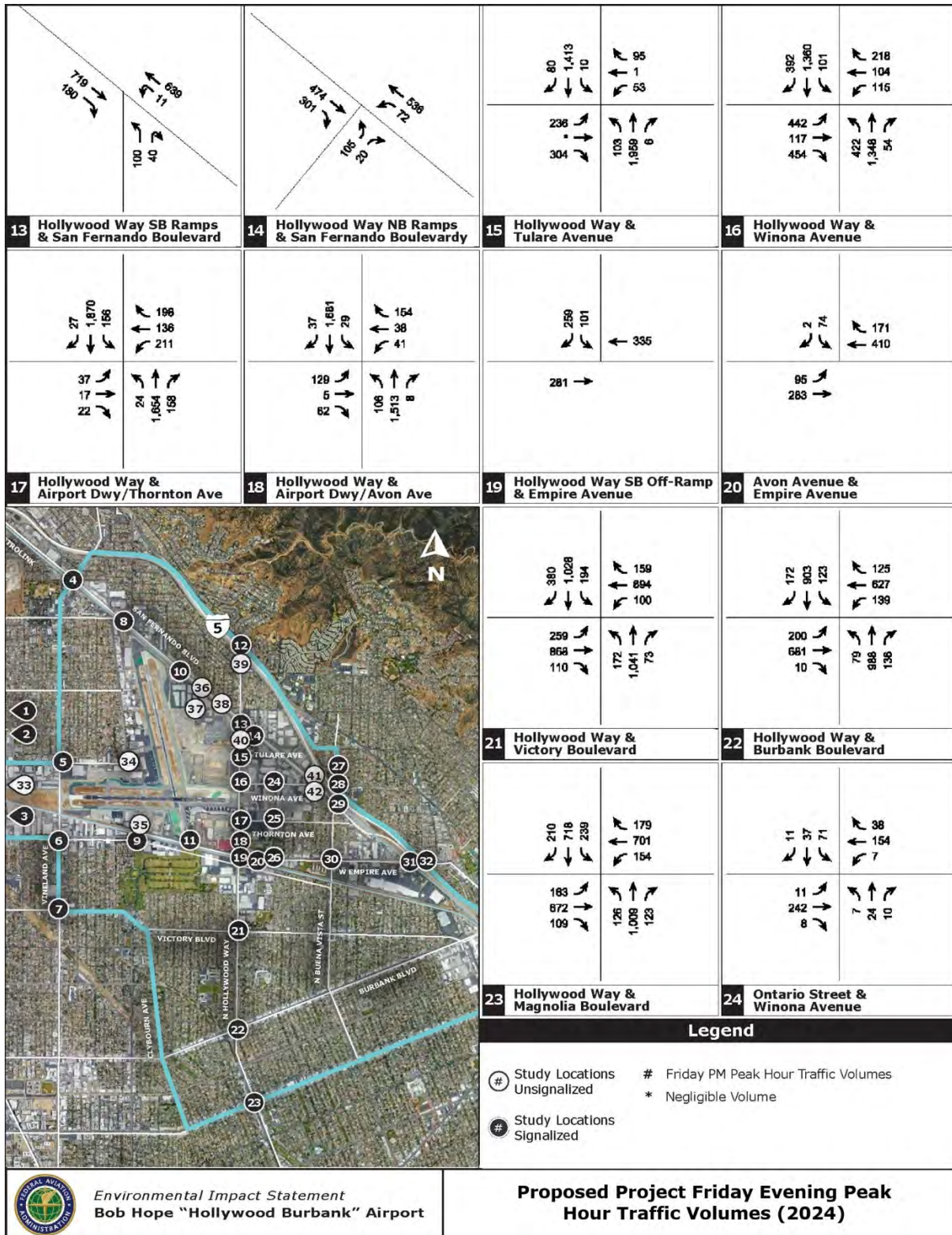


**EXHIBIT K-14**  
**PROPOSED PROJECT FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES (2024)**



Sources: Gibson, 2020; RS&H, 2020.

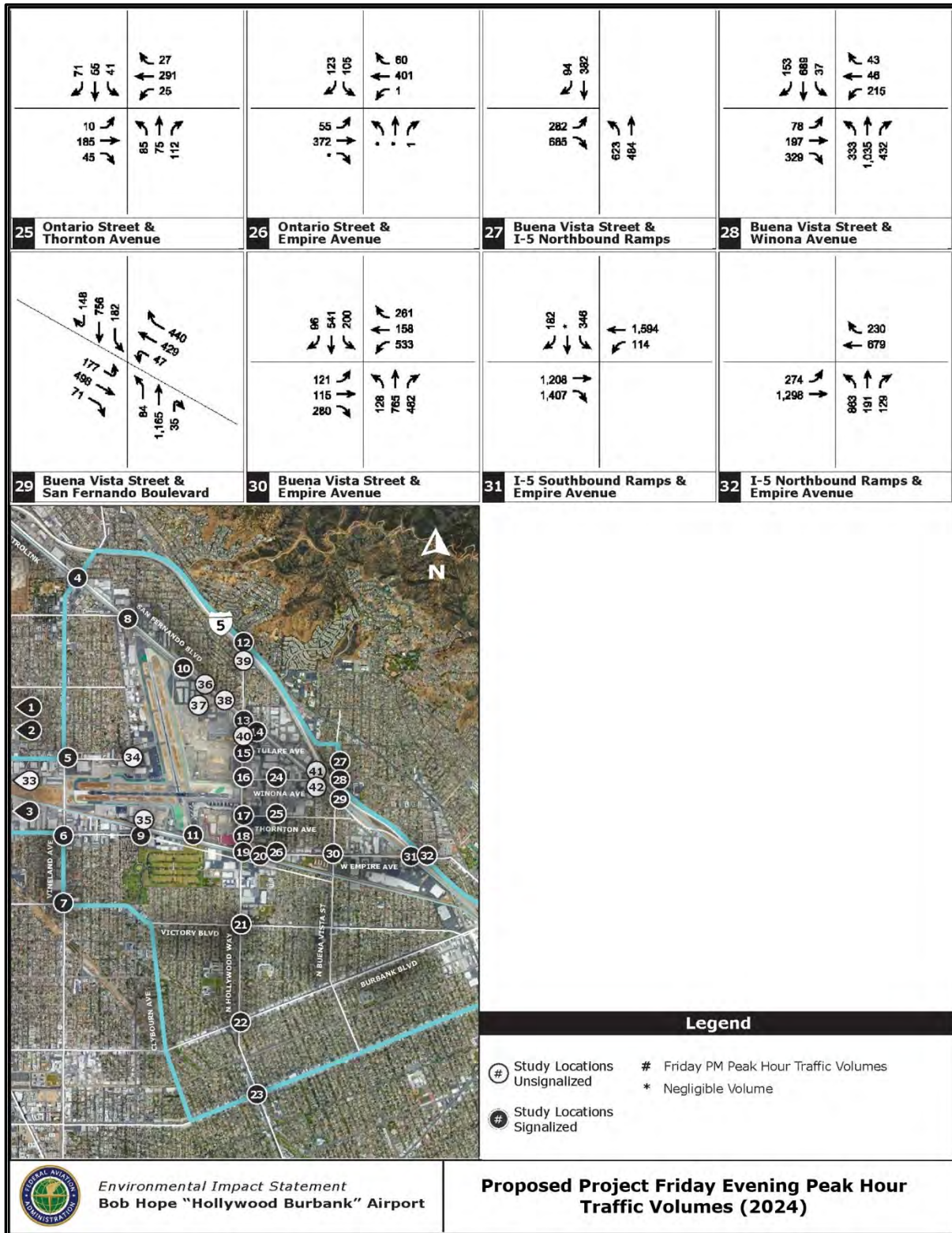
**EXHIBIT K-14 (CONT.)**  
**PROPOSED PROJECT FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES (2024)**



Sources: Gibson, 2020; RS&H, 2020.



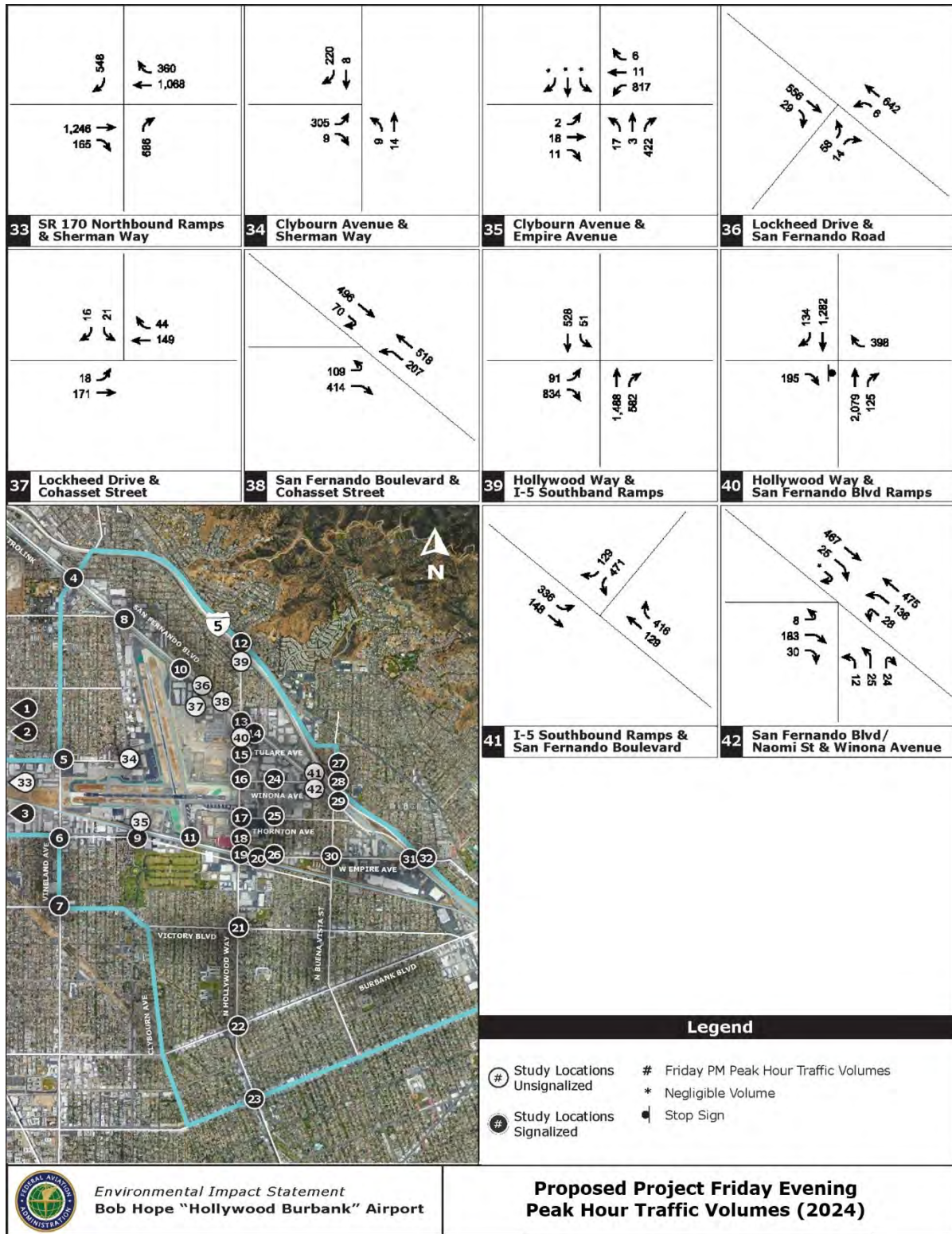
**EXHIBIT K-14 (CONT.)**  
**PROPOSED PROJECT FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES (2024)**



Sources: Gibson, 2020; RS&H, 2020.

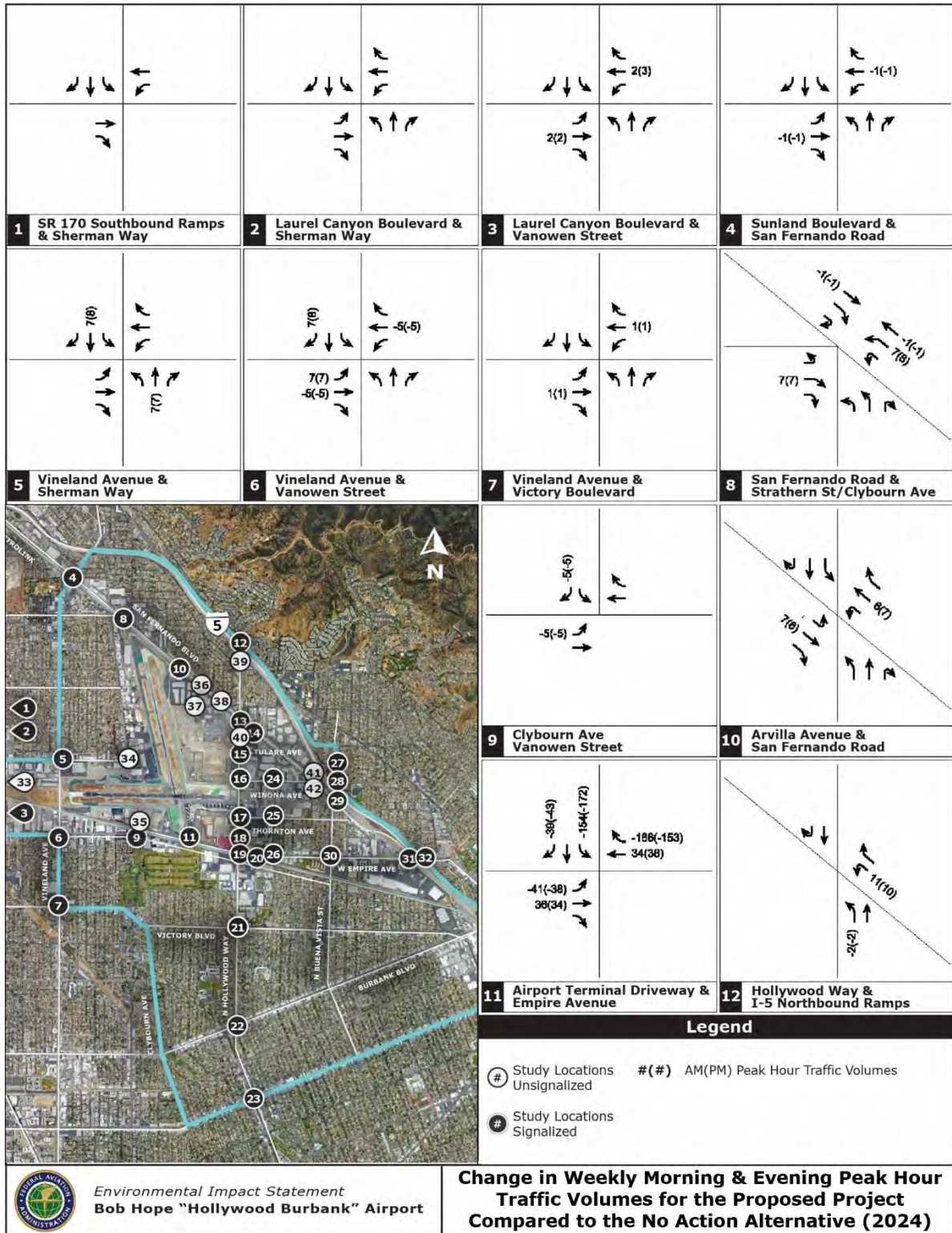


**EXHIBIT K-14 (CONT.)**  
**PROPOSED PROJECT FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES (2024)**



Sources: Gibson, 2020; RS&H, 2020.

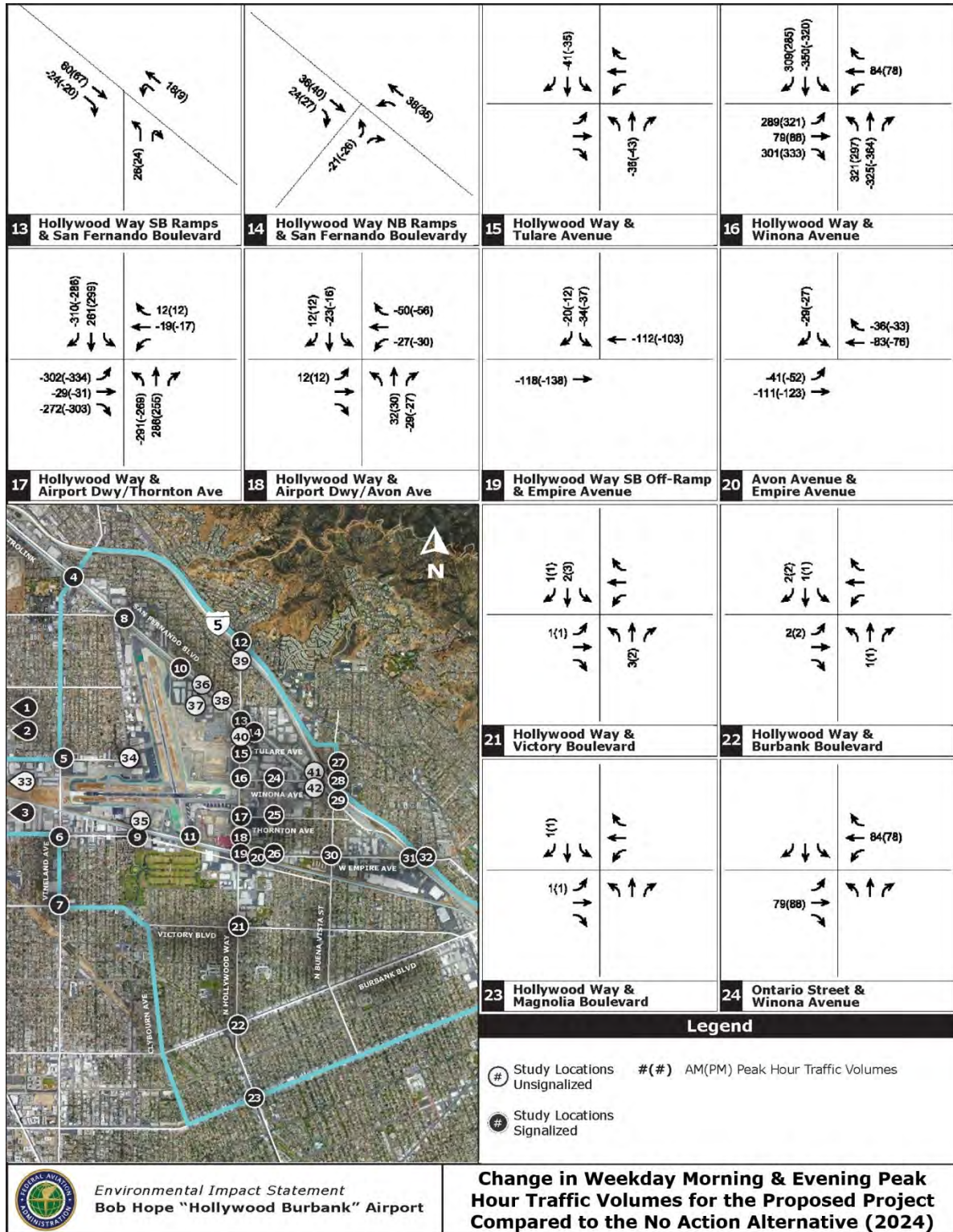
**EXHIBIT K-15**  
**CHANGE IN WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT**  
**COMPARED TO THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

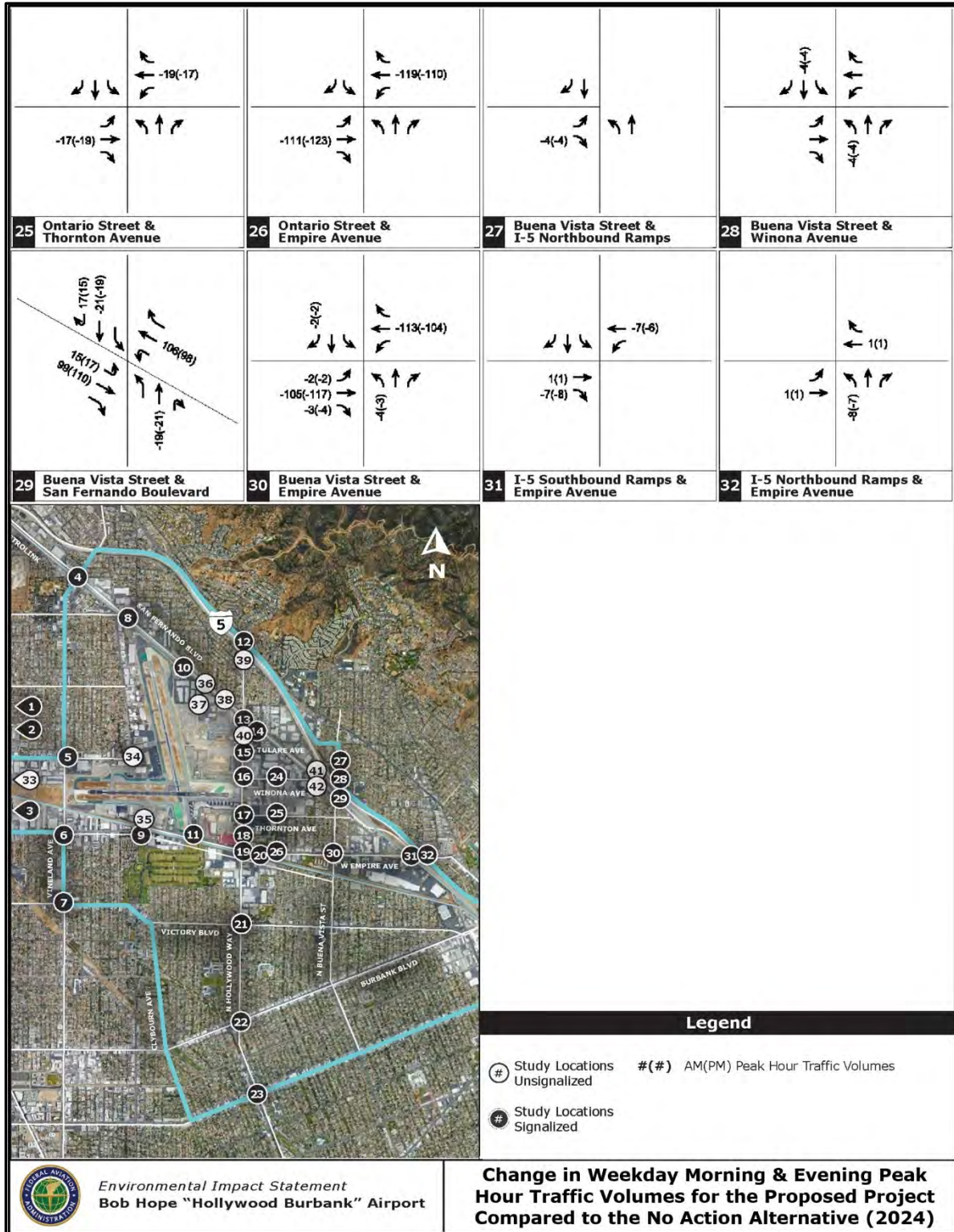


**EXHIBIT K-15 (CONT.)**  
**CHANGE IN WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT**  
**COMPARED TO THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

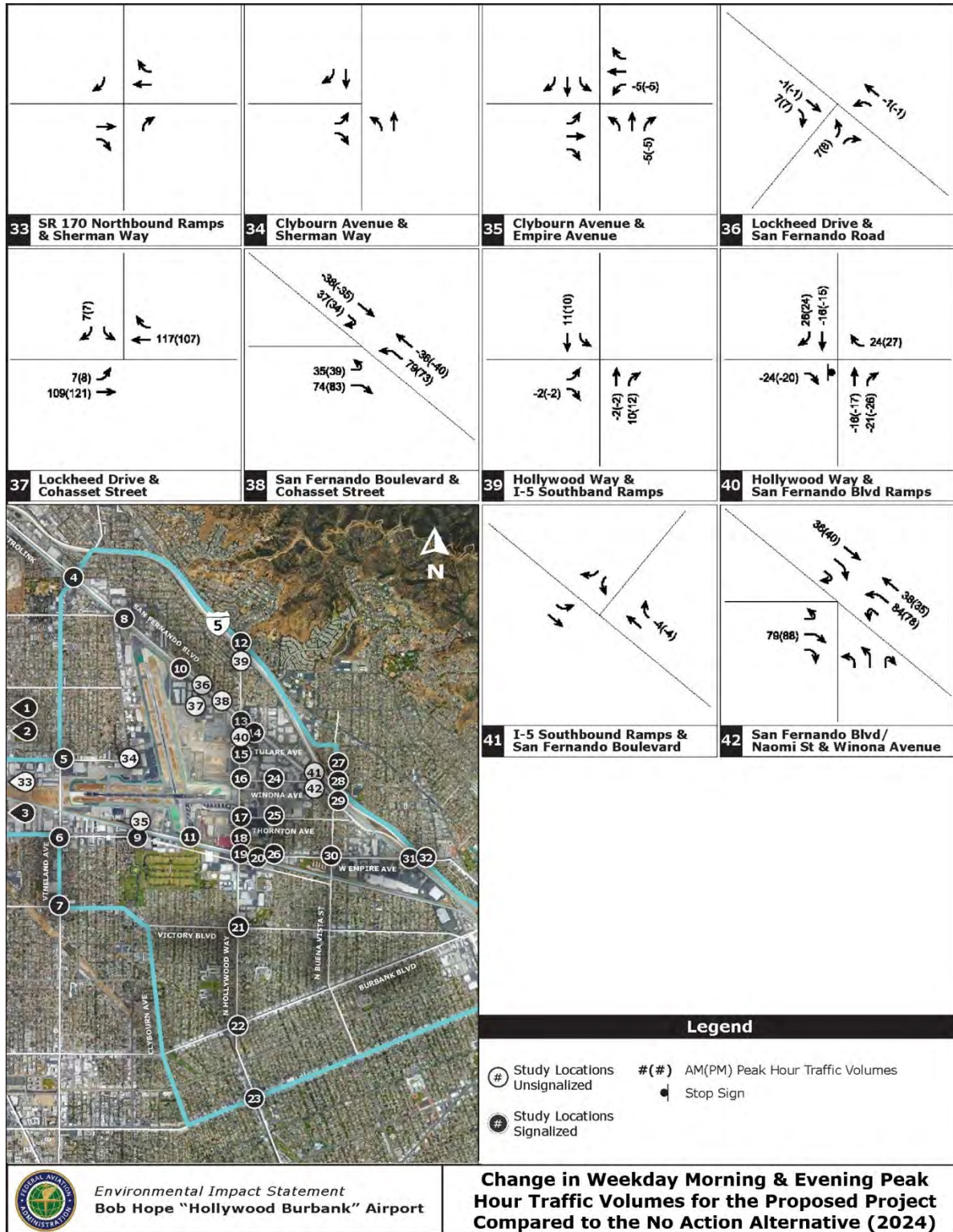
**EXHIBIT K-15 (CONT.)**  
**CHANGE IN WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT**  
**COMPARED TO THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.



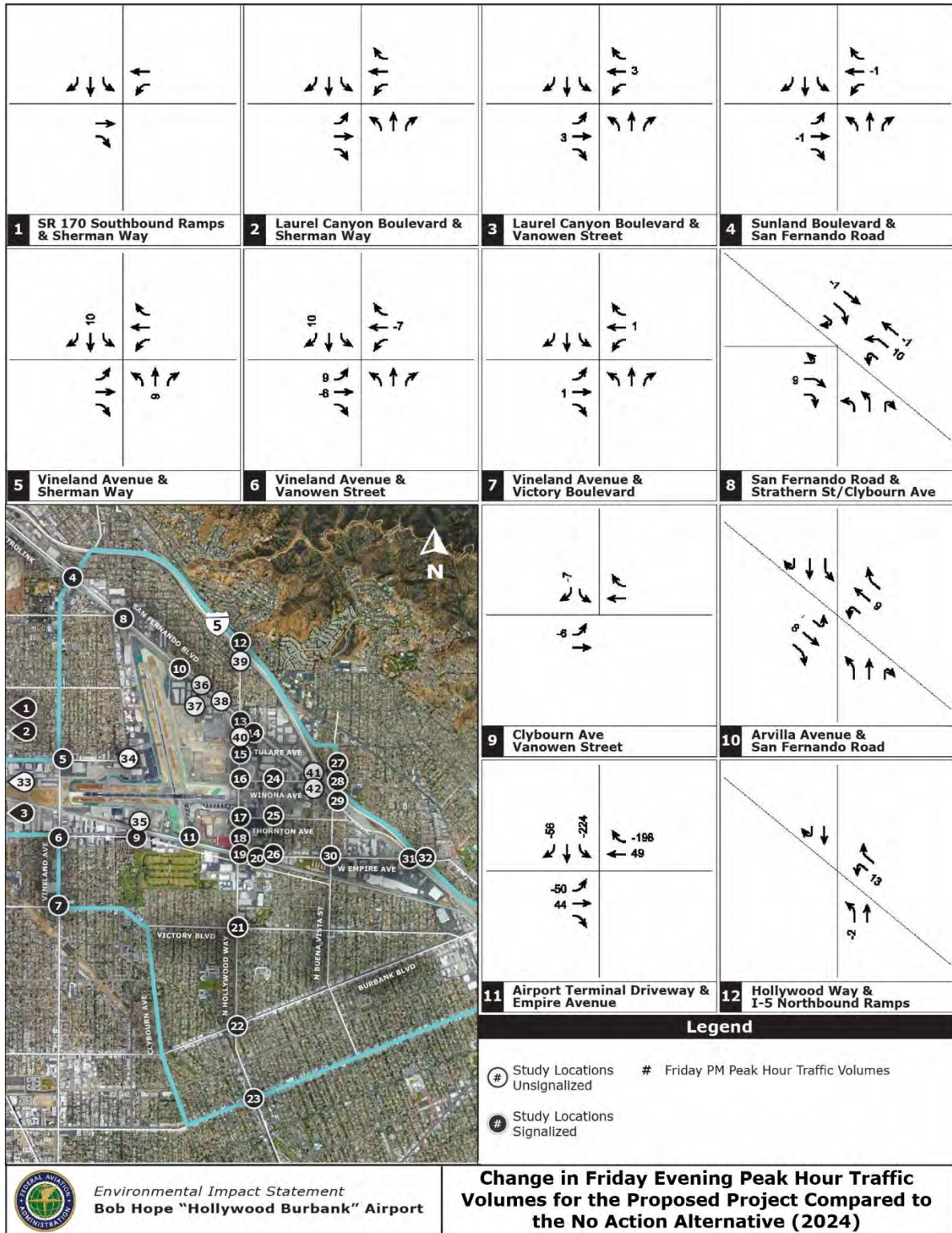
**EXHIBIT K-15 (CONT.)**  
**CHANGE IN WEEKDAY MORNING & EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT**  
**COMPARED TO THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

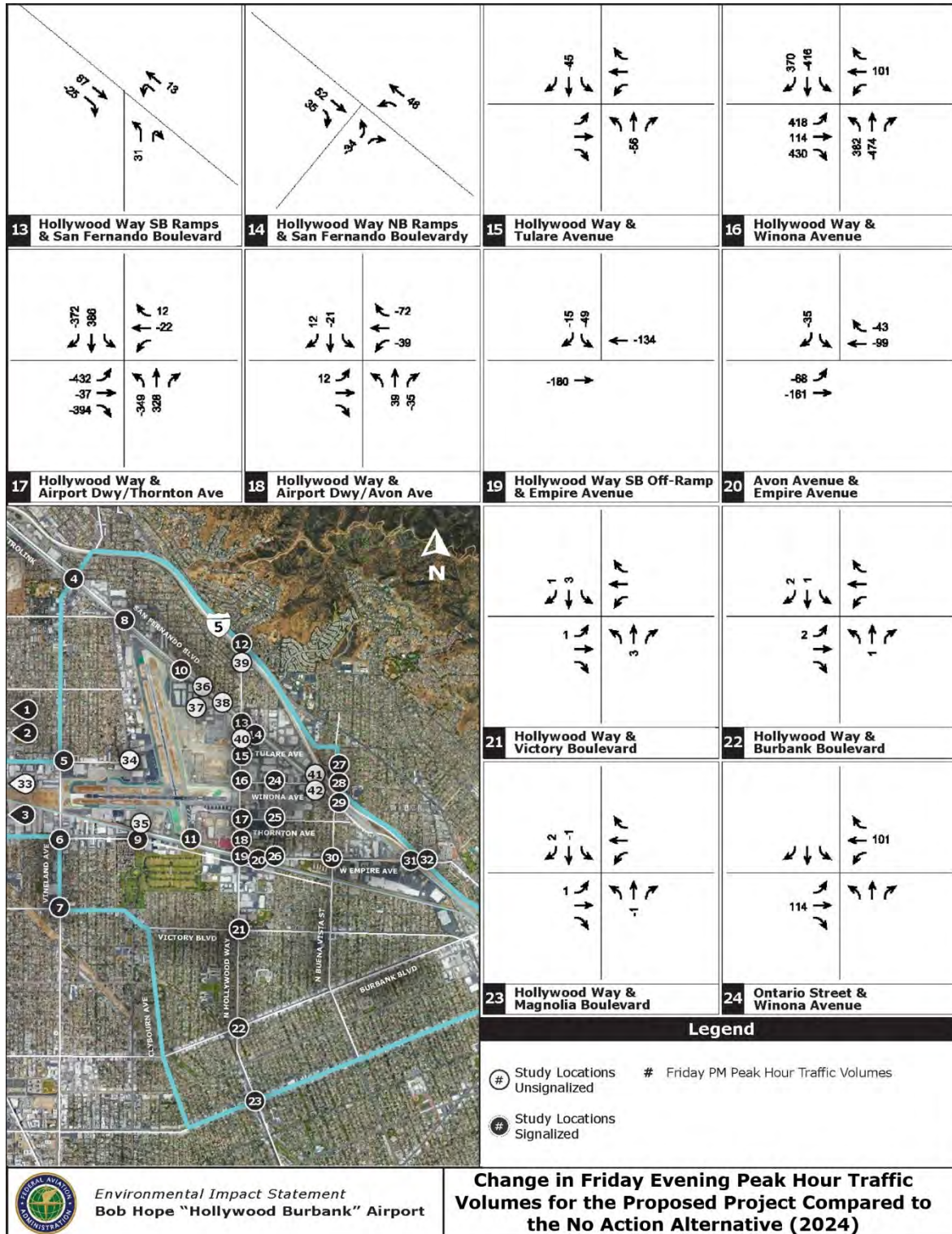


**EXHIBIT K-16**  
**CHANGE IN FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT COMPARED TO THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

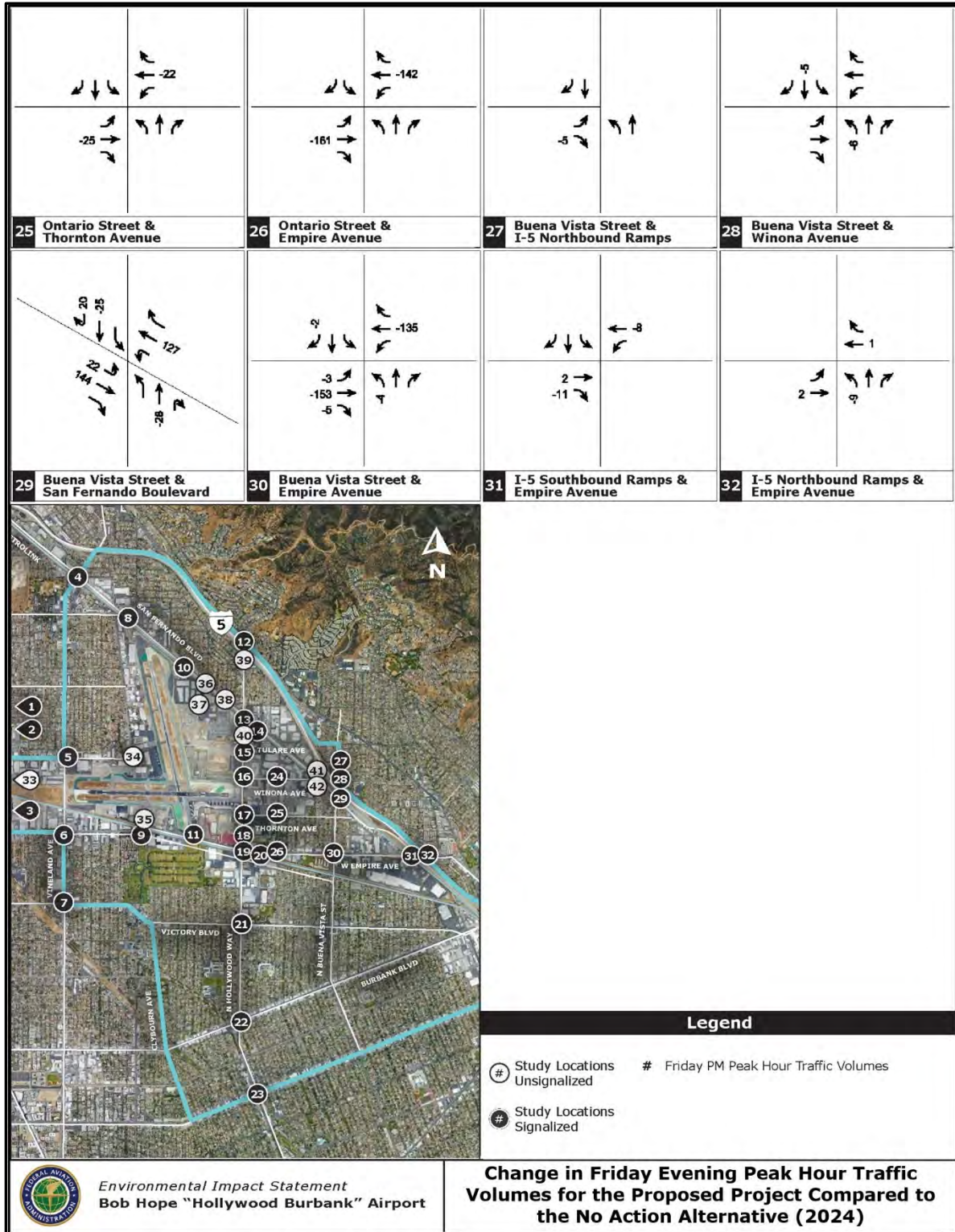
**EXHIBIT K-16 (CONT.)**  
**CHANGE IN FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT COMPARED TO THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.



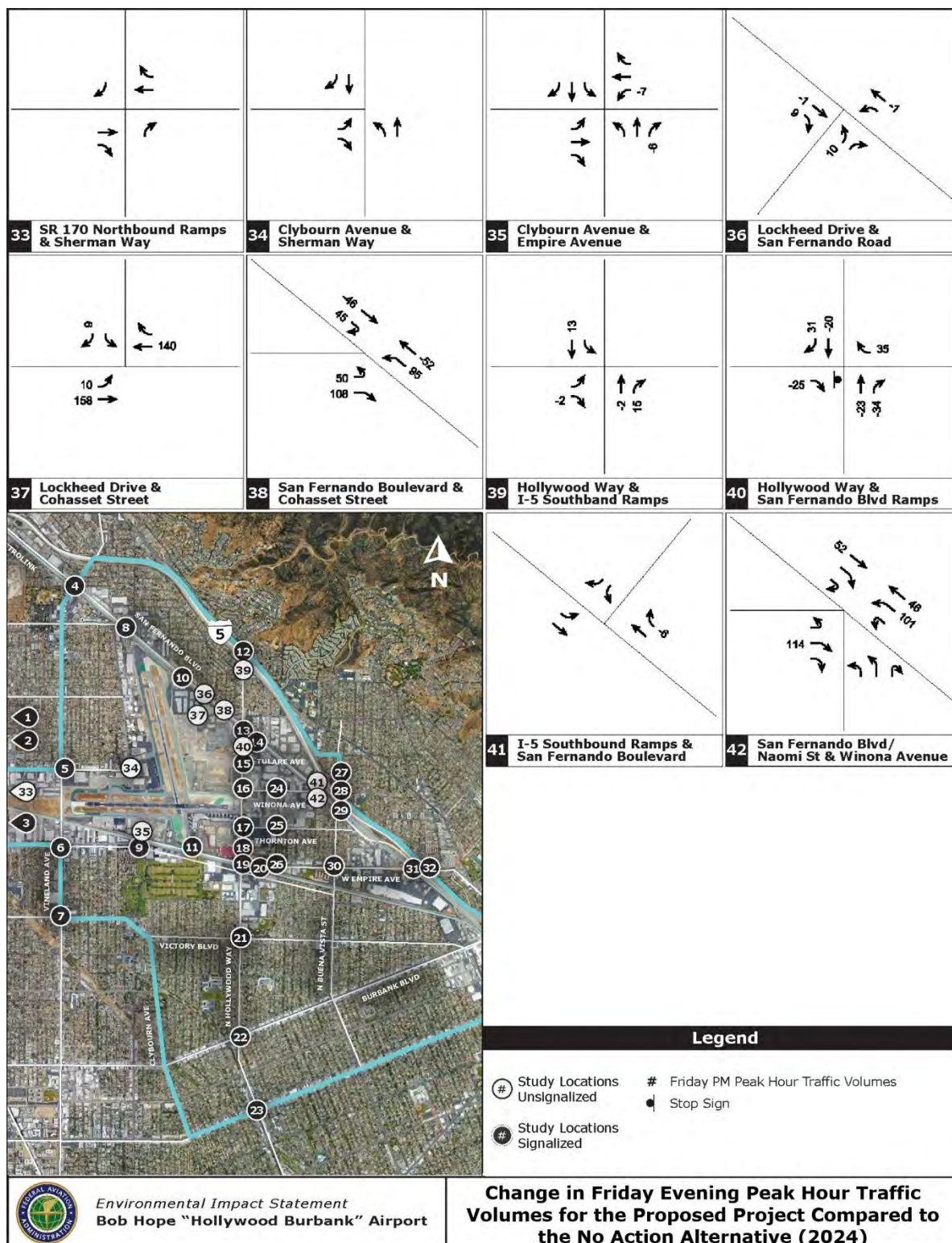
**EXHIBIT K-16 (CONT.)**  
**CHANGE IN FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT COMPARED TO THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.

**EXHIBIT K-16 (CONT.)**

**CHANGE IN FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT COMPARED TO THE NO ACTION ALTERNATIVE (2024)**



Sources: Gibson, 2020; RS&H, 2020.



### Freeway Mainline Segment Impact Analysis

As shown in **Table K-19**, all four freeway segments are projected to operate at LOS D or worse in one or both directions during one or more peak hours in 2024. Compared to the No Action Alternative, the Proposed Project would add a maximum of 15 peak hour trips (at Segment #2, I-5 between Hollywood Way & Buena Vista Street) in the southbound direction during the Friday evening peak hour. This would have a negligible effect on freeway segment operations.

### Freeway Off-ramp Impact Analysis

As shown in **Tables K-20, K-21, and K-22**, six of the eight off-ramps would have queues exceeding the lengths of one or more of the lanes approaching the intersection during one or more peak hours in 2024. Compared to the No Action Alternative, the Proposed Project would reduce peak hour traffic on Off-ramp #5, I-5 Northbound to Empire Avenue by 8 vehicles, which would reduce average approach delay and vehicle queue lengths. At Off-ramp #2, I-5 Northbound to Hollywood Way, the Proposed Project would add a maximum of 11 peak hour trips compared to the No Action Alternative. This would have a minimal effect on queue lengths.

## K.8 PROPOSED PROJECT (2029)

### Peak Hour Traffic Volumes

Future peak hour traffic volumes for the Proposed Project in 2029 are shown in **Exhibits K-17** and **K-18** for weekday morning and evening peak hours and the Friday evening peak hour, respectively. The change in traffic volumes under the Proposed Project in 2024 compared to the traffic volumes for the No Action Alternative are shown in **Exhibits K-19** and **K-20** for weekday morning and evening peak hours and the Friday evening peak hour, respectively.

### Intersection Impact Analysis

**Tables K-23** and **K-24** show the results of the HCM analysis for signalized and unsignalized study intersections, respectively, for the Proposed Project in 2024 and also show a comparison between the Proposed Project and the No Action Alternative for each of the intersections. As shown in **Tables K-23** and **K-24**, the Proposed Project would result in the same four intersections operating at LOS E or F during one or more peak hours as those disclosed for the No Action Alternative.

In comparing the Proposed Project to the No Action Alternative, none of the changes at any of the intersections would result in an increase in delay of 3.0 seconds or more.

### Freeway Mainline Segment Impact Analysis

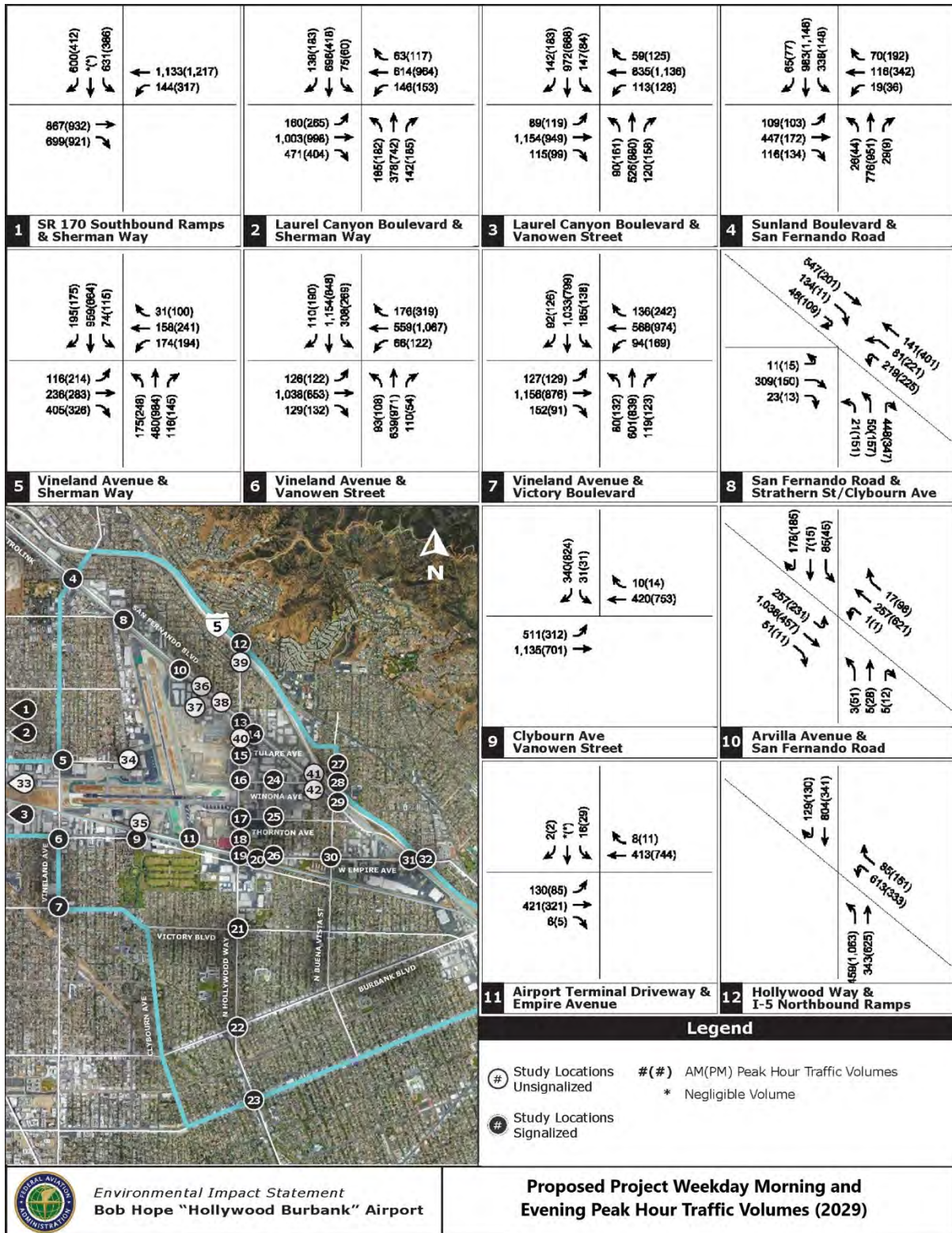
As shown in **Table K-25**, all four freeway segments are projected to operate at LOS D or worse in one or both directions during one or more peak hours in 2029. Compared to the No Action Alternative, the Proposed Project would add a maximum of 16 peak hour trips (at Segment #2, I-5 between Hollywood Way & Buena Vista Street) in the southbound direction during the Friday evening peak hour. This would have a negligible effect on freeway segment operations.

### Freeway Off-ramp Impact Analysis

As shown in **Tables K-26**, **K-27**, and **K-28**, six of the eight off-ramps would have queues exceeding the lengths of one or more of the lanes approaching the intersection during one or more peak hours in 2029. Compared to the No Action Alternative, the Proposed Project would reduce peak hour traffic on Off-ramp #5, I-5 Northbound to Empire Avenue by 8 vehicles, which would reduce average approach delay and vehicle queue lengths. At Off-ramp #2, I-5 Northbound to Hollywood Way, the Proposed Project would add a maximum of 14 peak hour trips compared to the No Action Alternative. This would have a minimal effect on queue lengths.



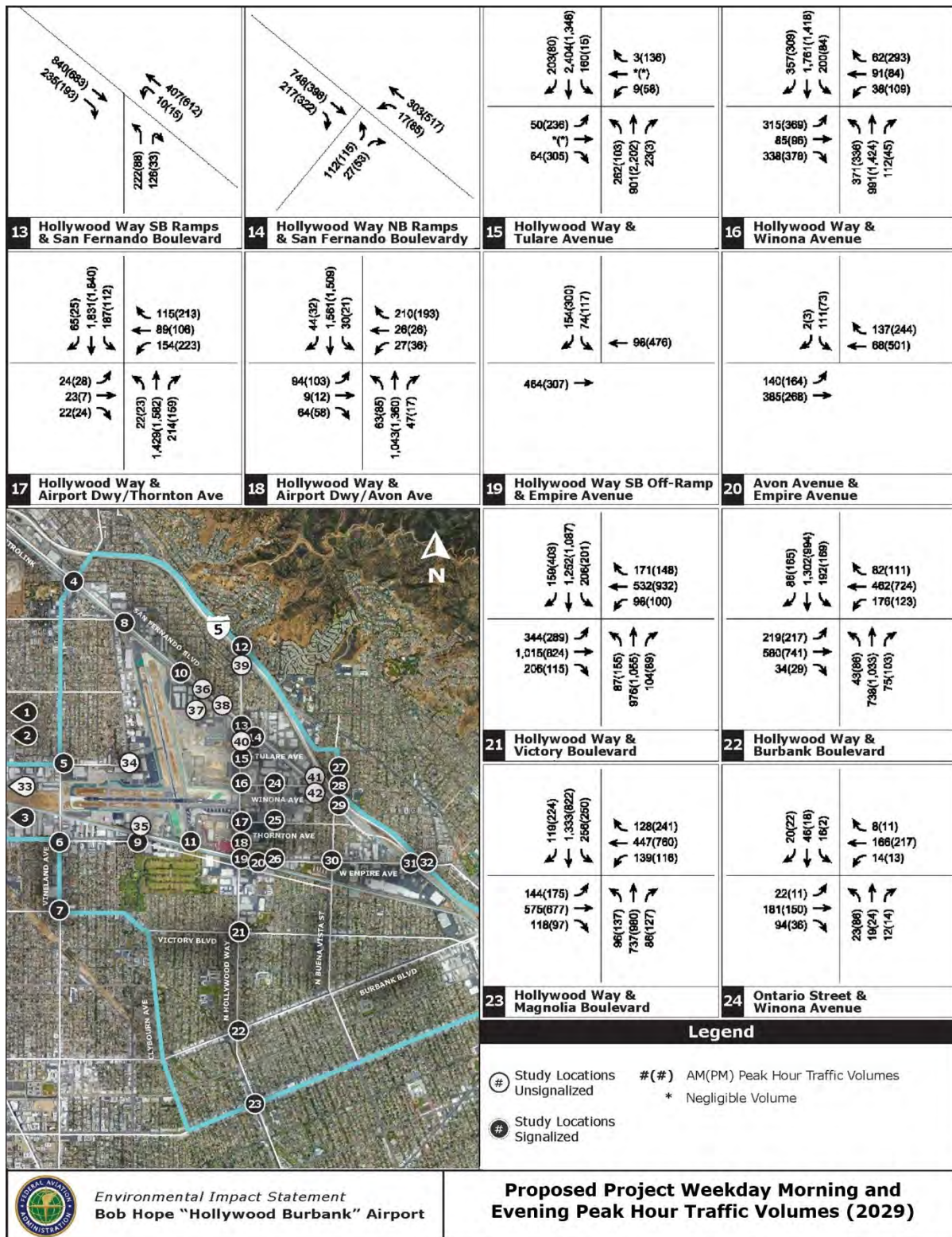
**EXHIBIT K-17**  
**PROPOSED PROJECT WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES (2029)**



Sources: Gibson, 2020; RS&H, 2020.

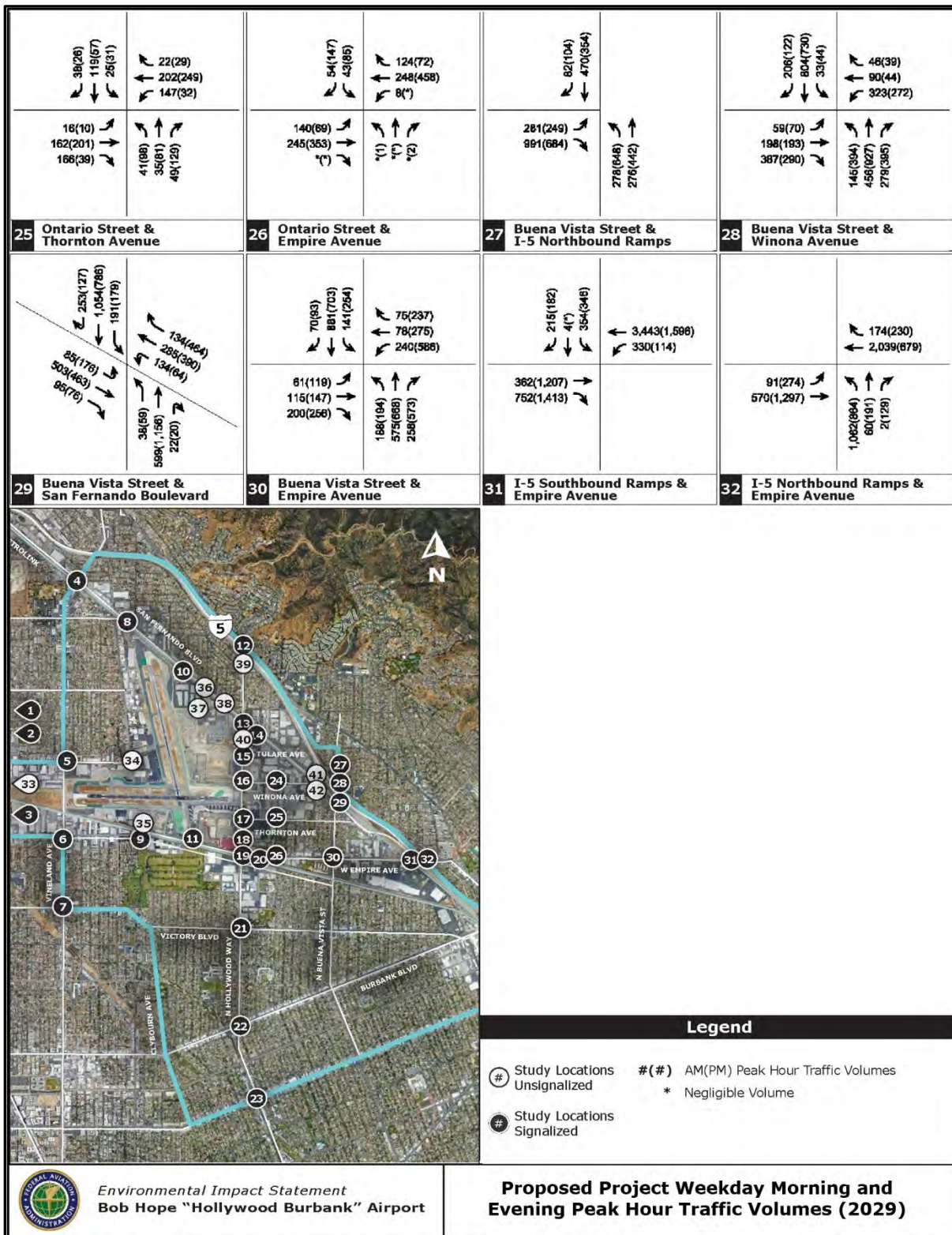


**EXHIBIT K-17 (CONT.)**  
**PROPOSED PROJECT WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES (2029)**



Sources: Gibson, 2020; RS&H, 2020.

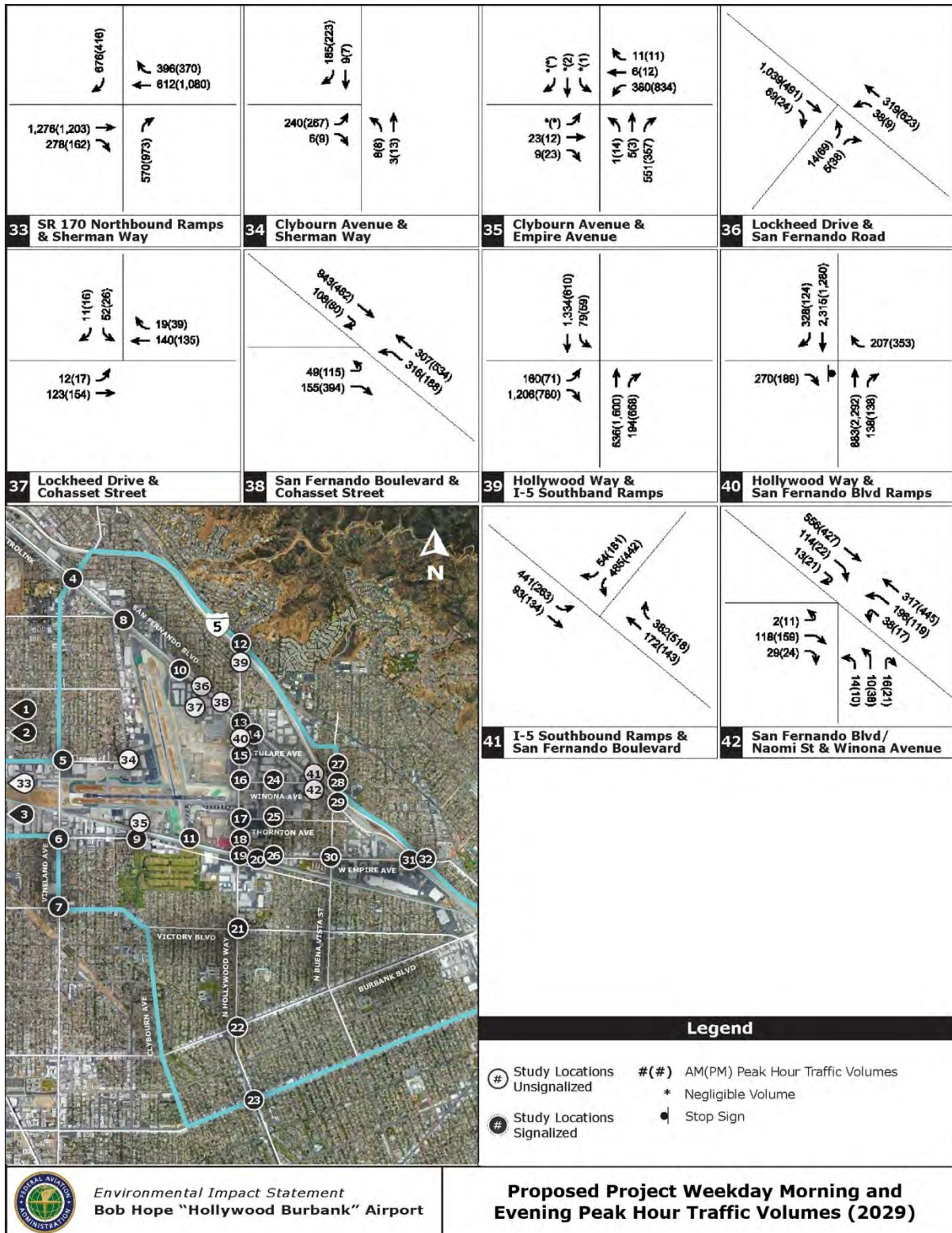
**EXHIBIT K-17 (CONT.)**  
**PROPOSED PROJECT WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES (2029)**



Sources: Gibson, 2020; RS&H, 2020.

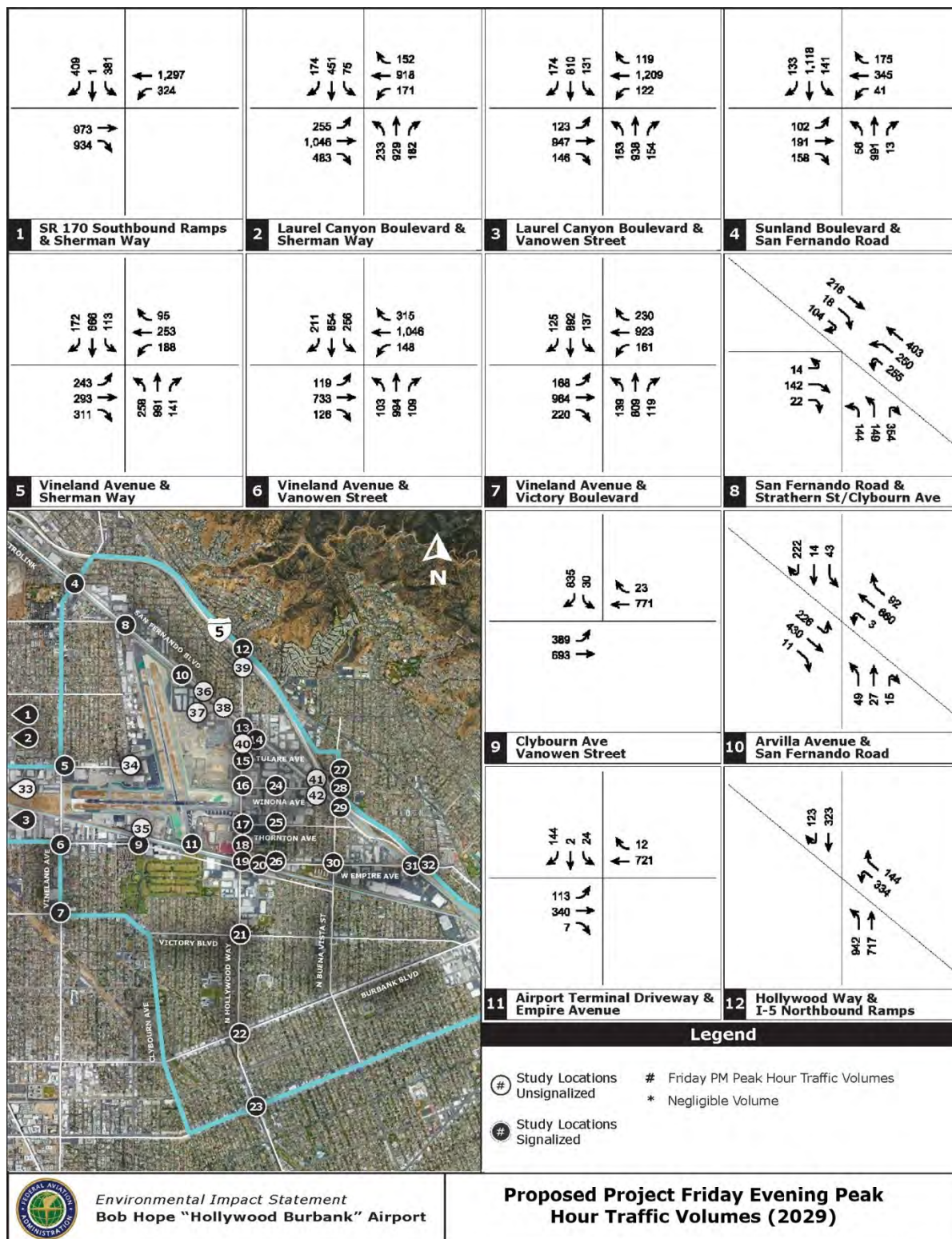


**EXHIBIT K-17 (CONT.)**  
**PROPOSED PROJECT WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES (2029)**



Sources: Gibson, 2020; RS&H, 2020.

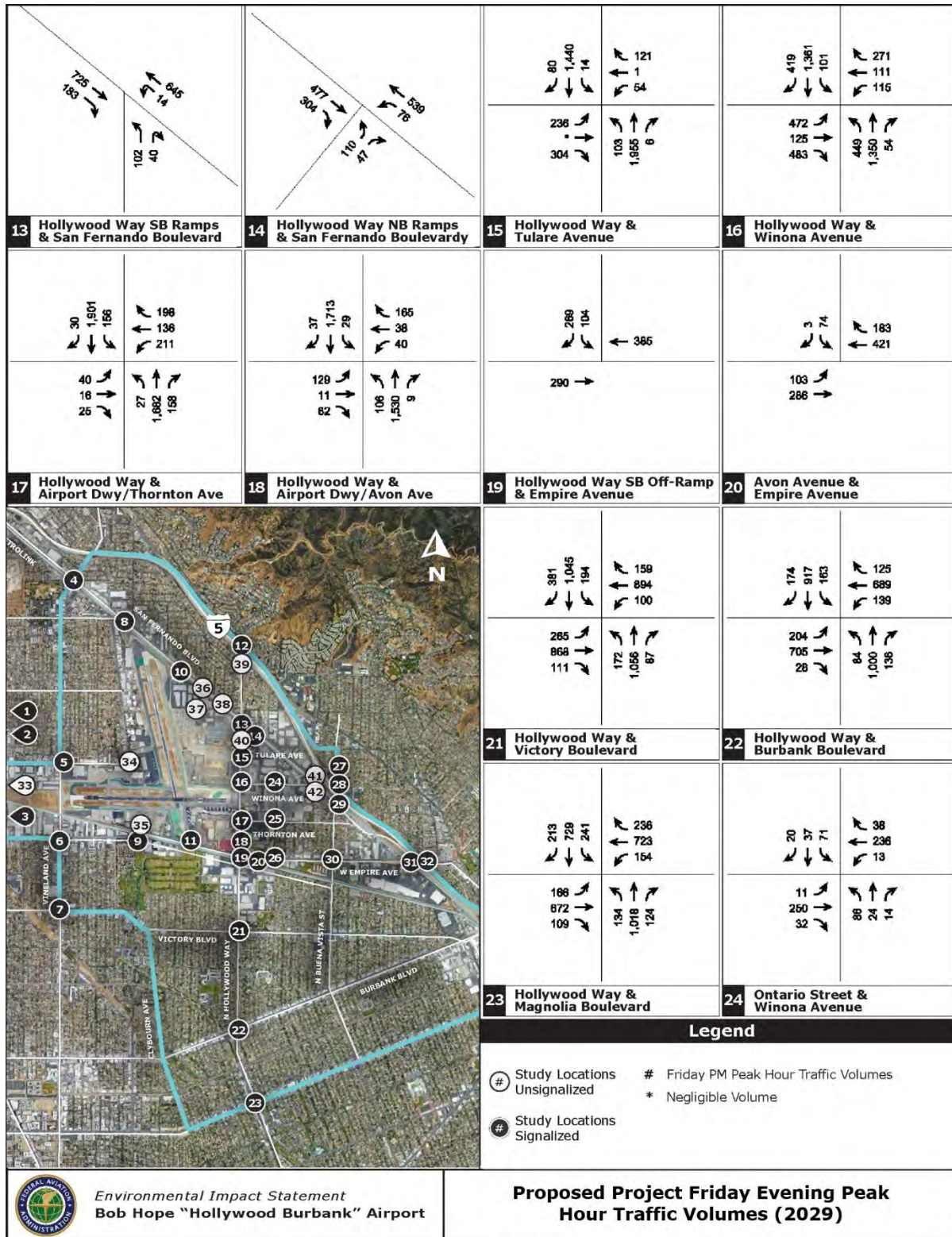
**EXHIBIT K-18**  
**PROPOSED PROJECT FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES (2029)**



Sources: Gibson, 2020; RS&H, 2020.

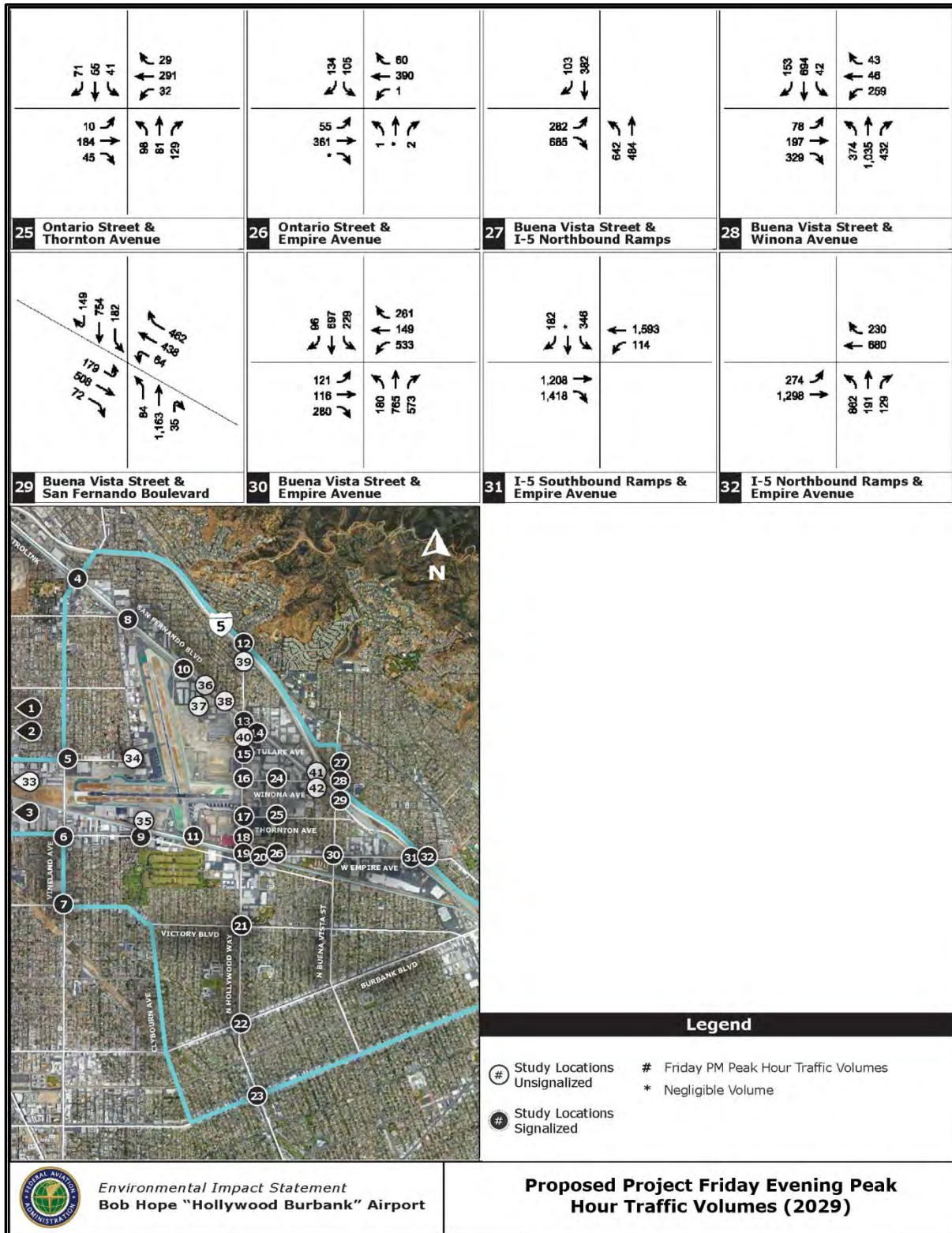


**EXHIBIT K-18 (CONT.)**  
**PROPOSED PROJECT FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES (2029)**



Sources: Gibson, 2020; RS&H, 2020.

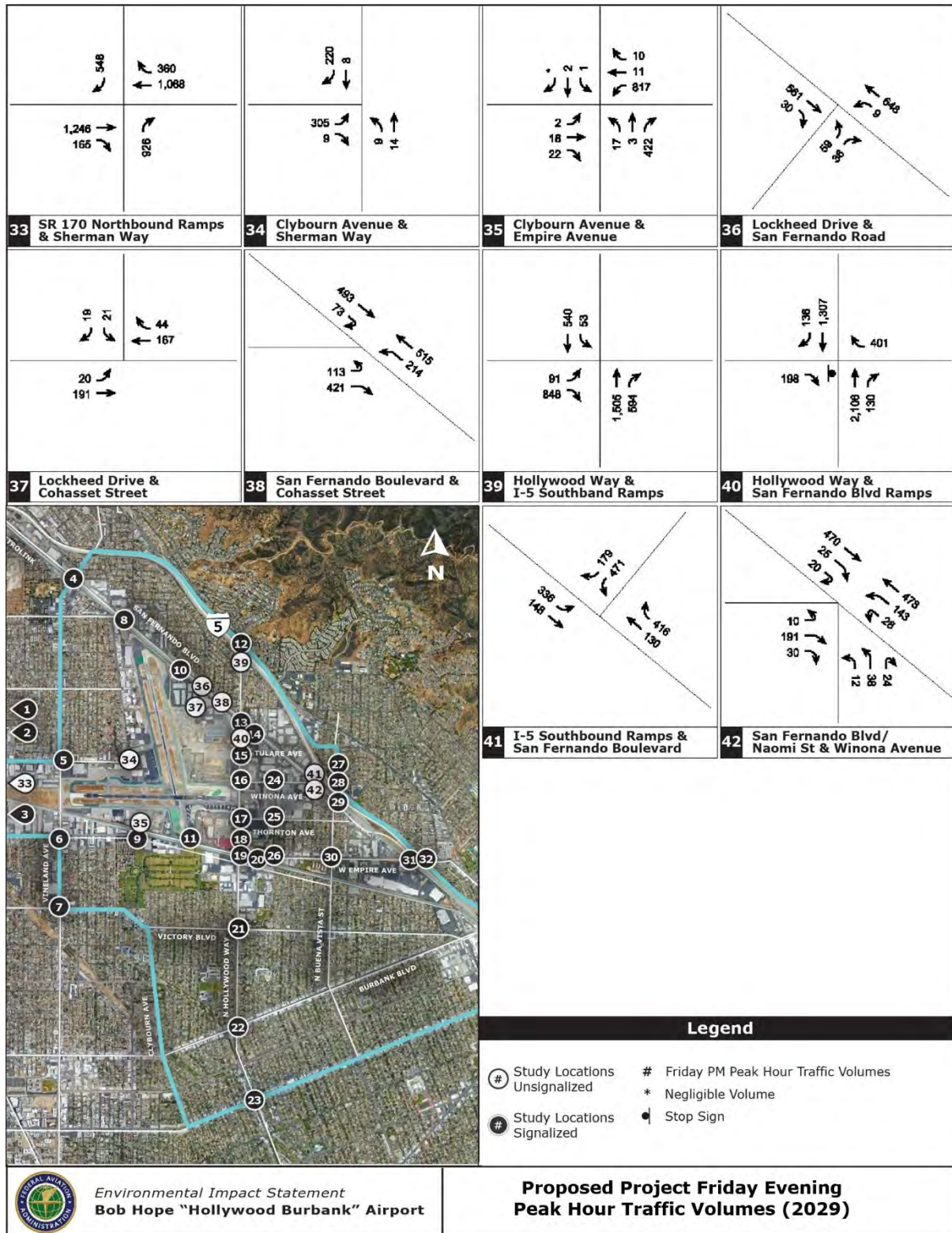
**EXHIBIT K-18 (CONT.)**  
**PROPOSED PROJECT FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES (2029)**



Sources: Gibson, 2020; RS&H, 2020.

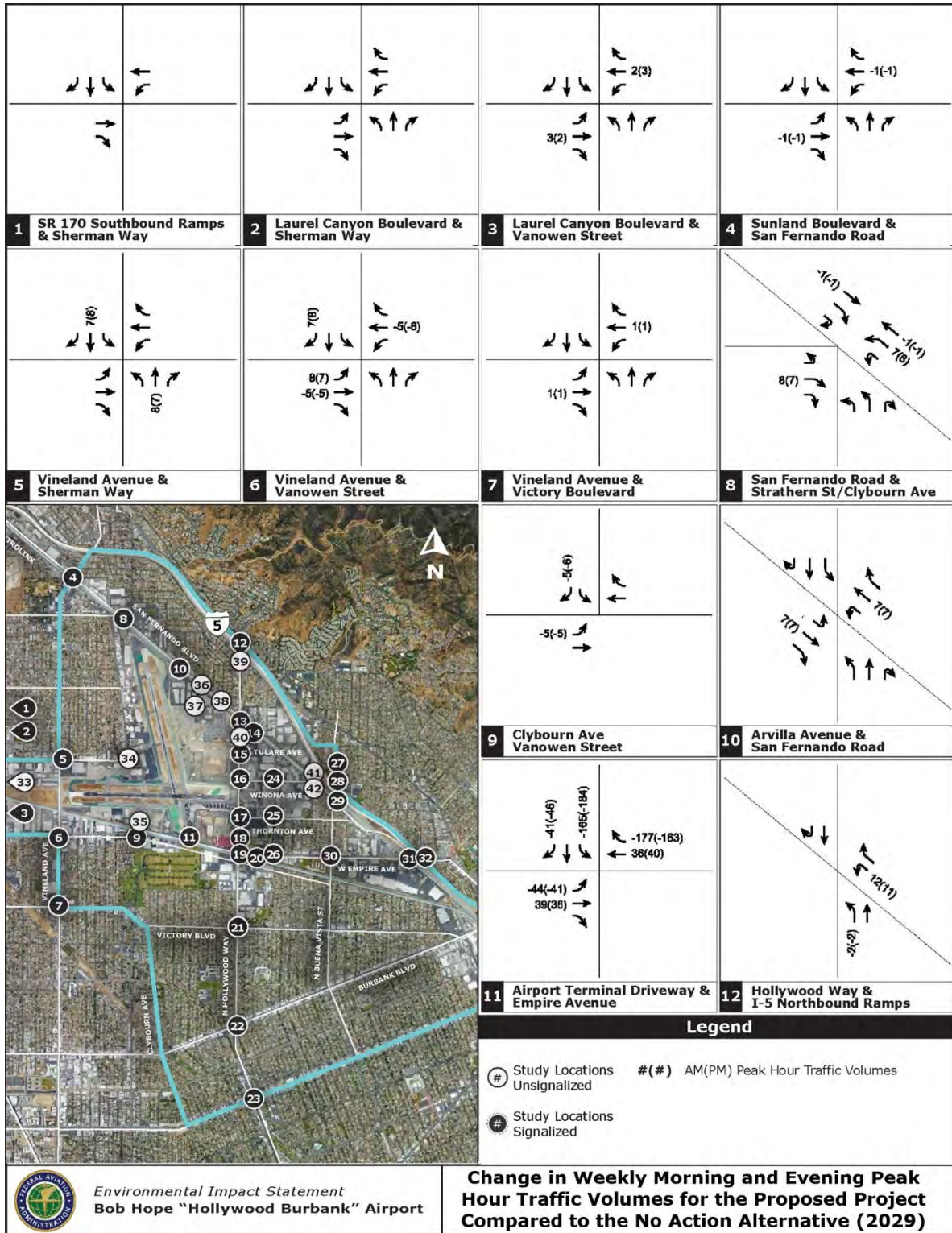


**EXHIBIT K-18 (CONT.)**  
**PROPOSED PROJECT FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES (2029)**



Sources: Gibson, 2020; RS&H, 2020.

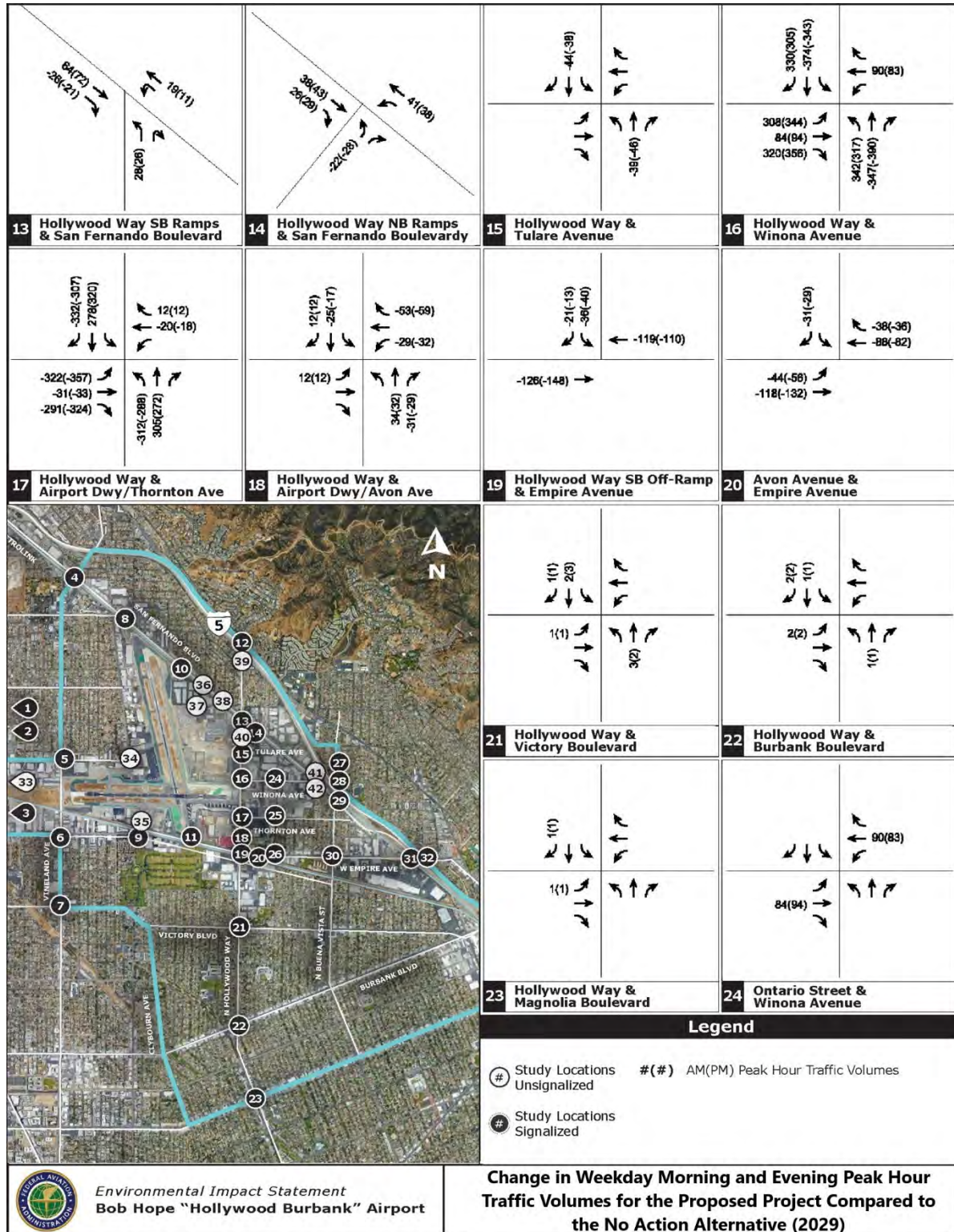
**EXHIBIT K-19**  
**CHANGE IN WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT**  
**COMPARED TO THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

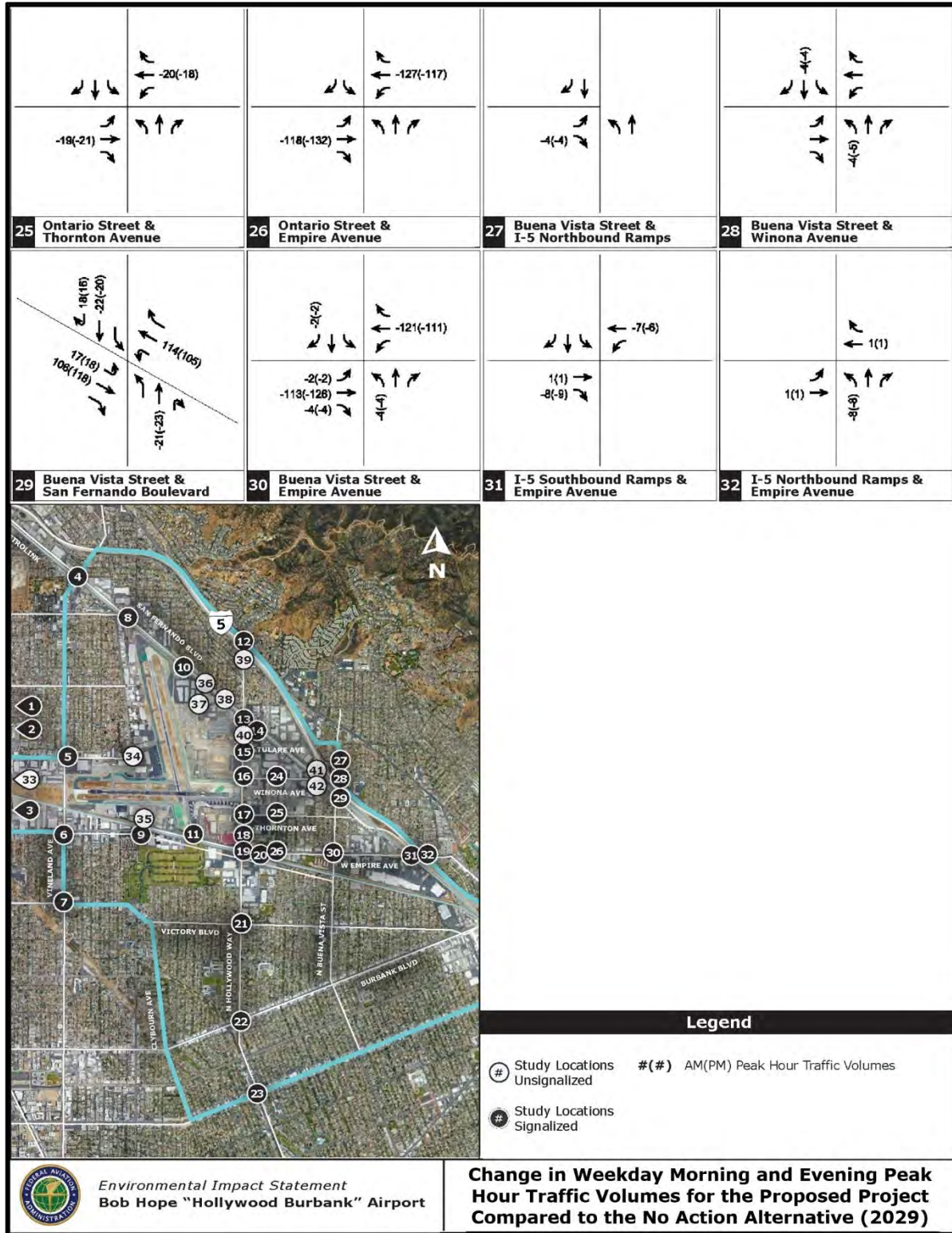


**EXHIBIT K-19 (CONT.)**  
**CHANGE IN WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT**  
**COMPARED TO THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

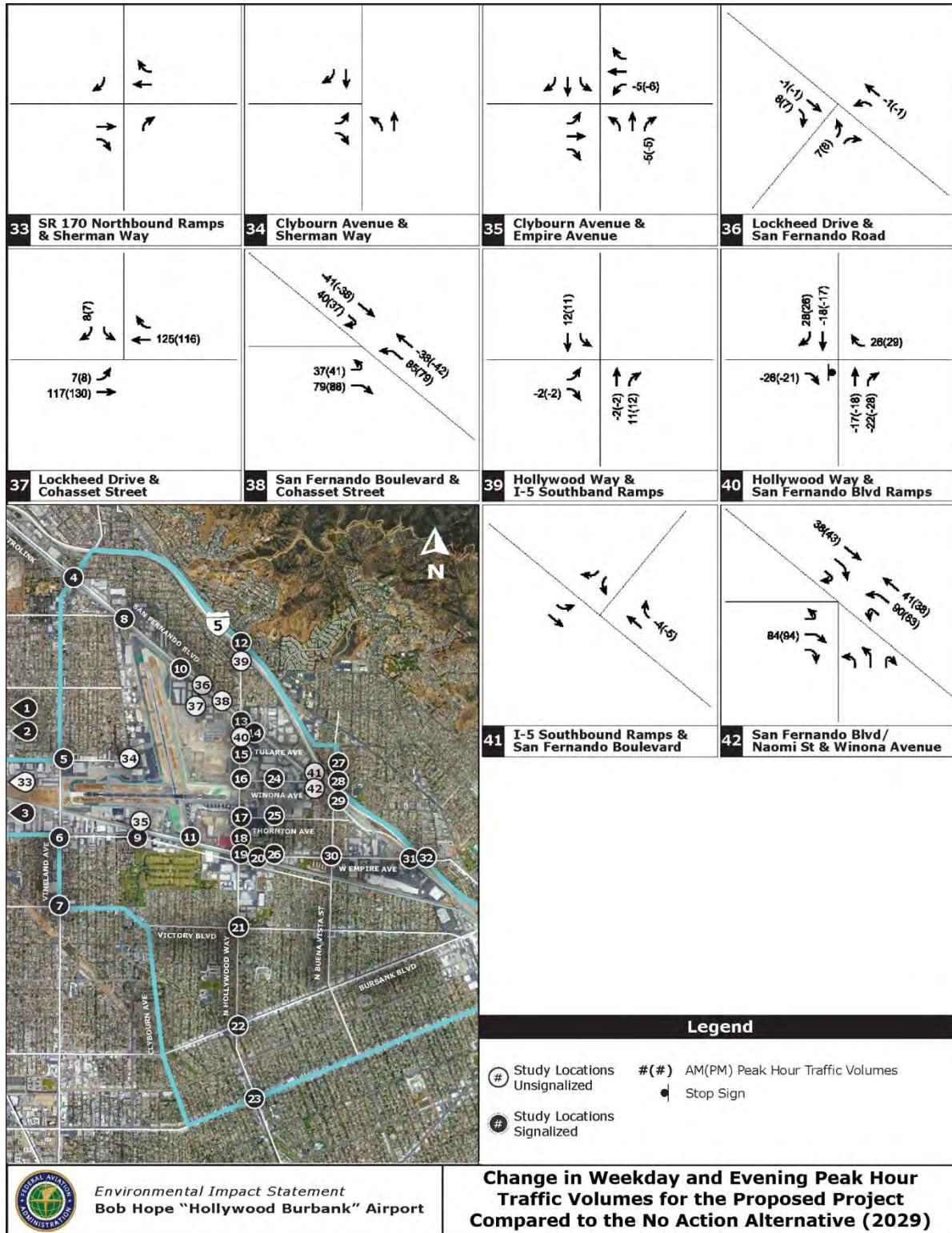
**EXHIBIT K-19 (CONT.)**  
**CHANGE IN WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT**  
**COMPARED TO THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

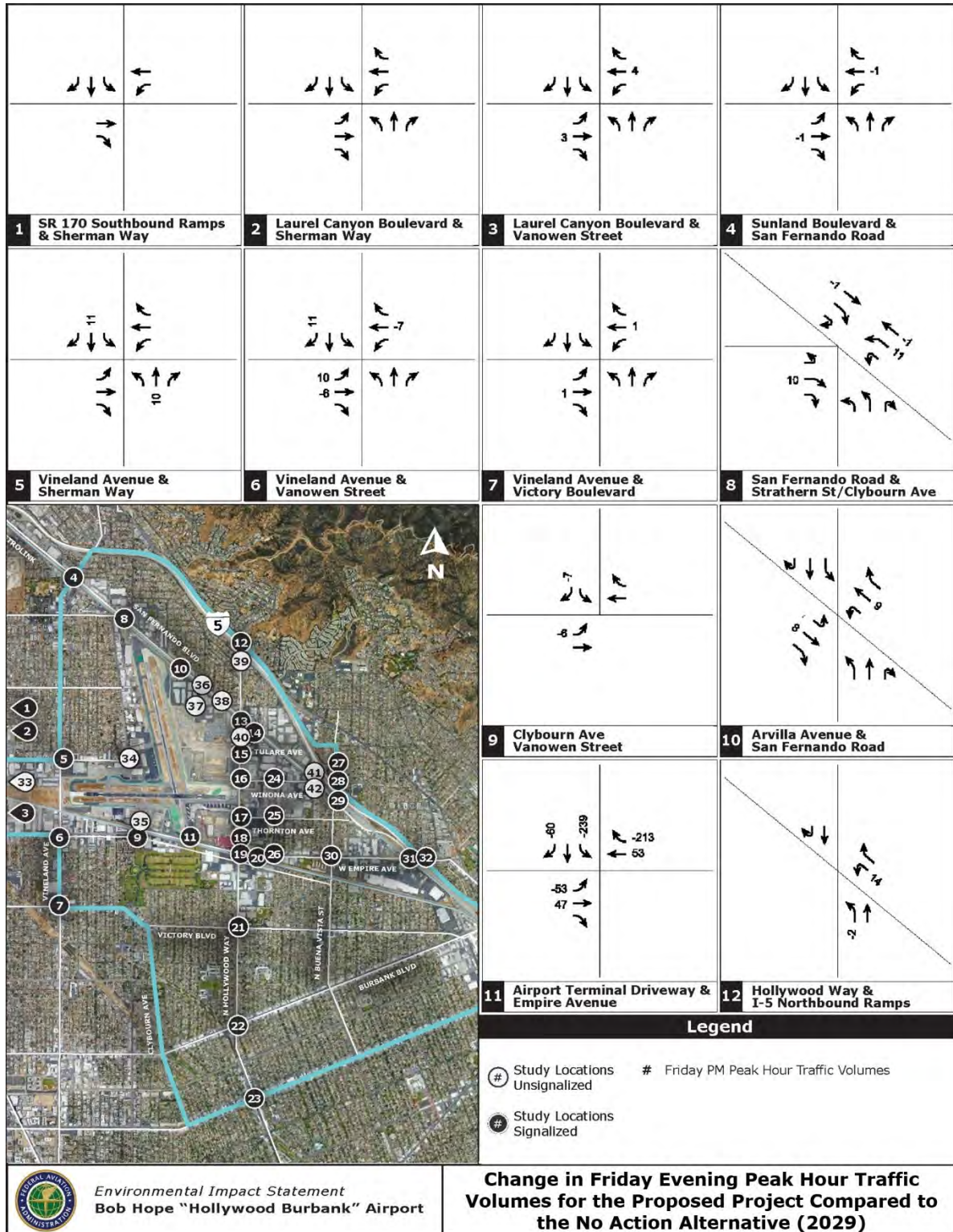


**EXHIBIT K-19 (CONT.)**  
**CHANGE IN WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT**  
**COMPARED TO THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

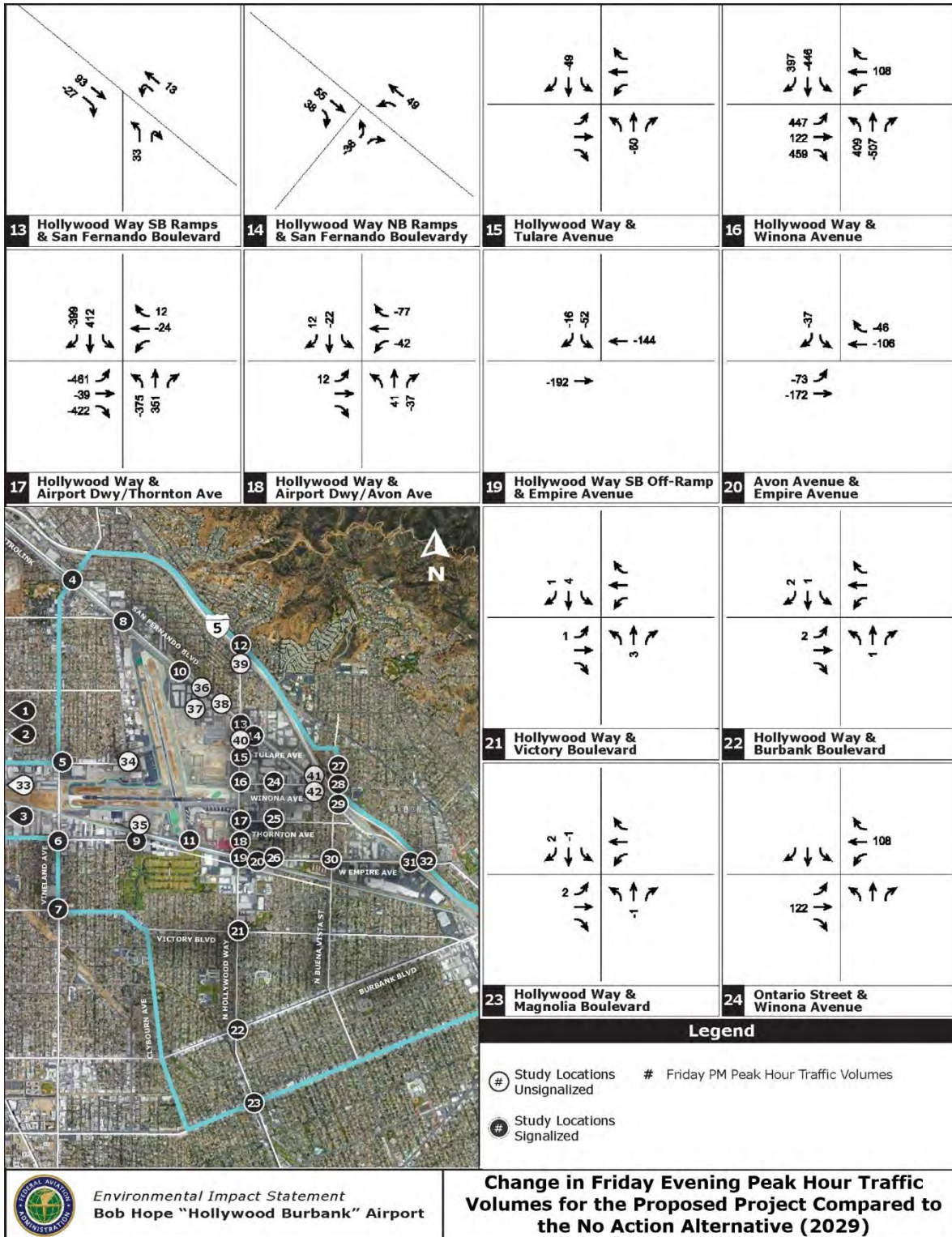
**EXHIBIT K-20**  
**CHANGE IN FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT COMPARED TO THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

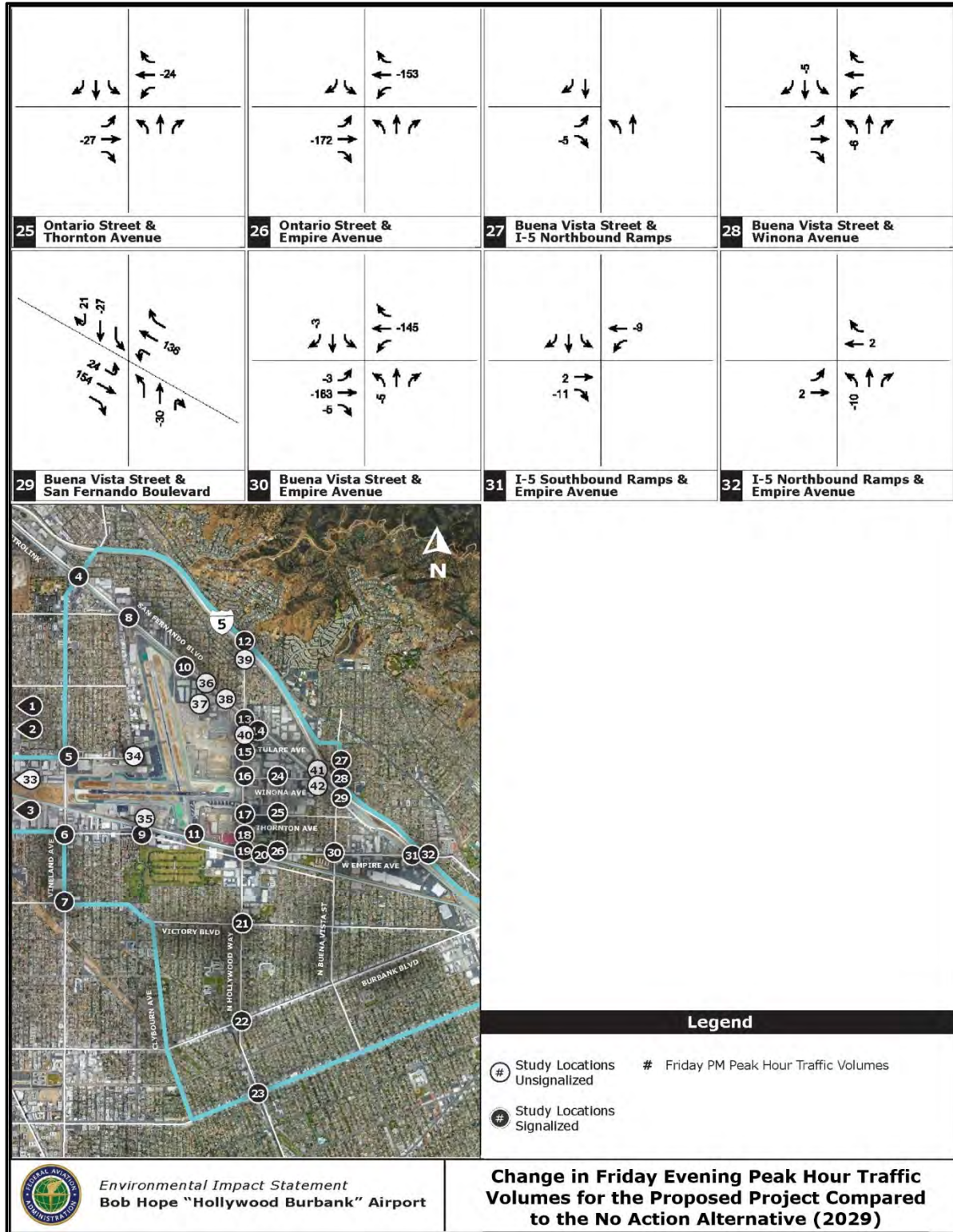


**EXHIBIT K-20 (CONT.)**  
**CHANGE IN FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT COMPARED TO THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.

**EXHIBIT K-20 (CONT.)**  
**CHANGE IN FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT COMPARED TO THE NO ACTION ALTERNATIVE (2029)**

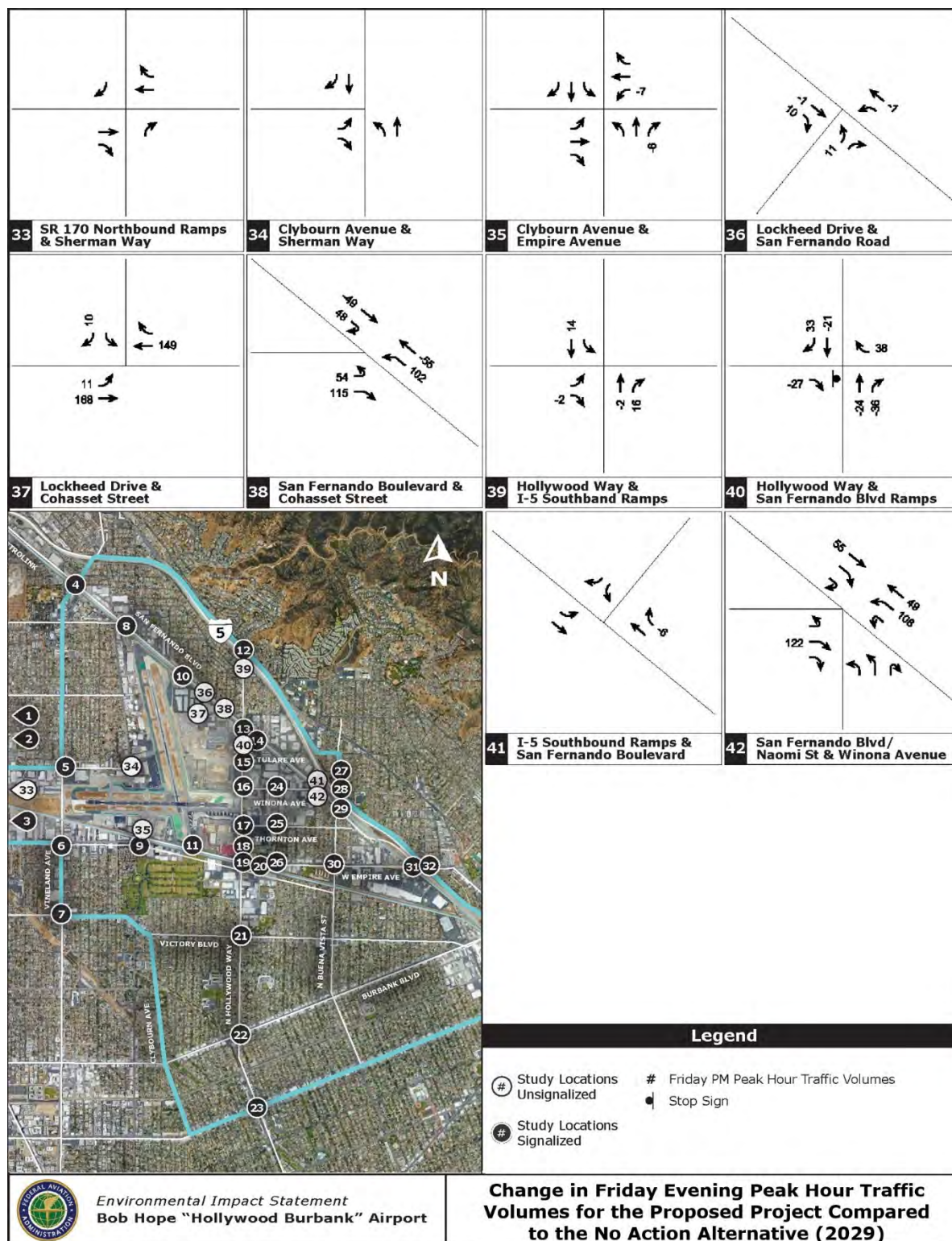


Sources: Gibson, 2020; RS&H, 2020.



## EXHIBIT K-20 (CONT.)

**CHANGE IN FRIDAY EVENING PEAK HOUR TRAFFIC VOLUMES FOR THE PROPOSED PROJECT COMPARED TO THE NO ACTION ALTERNATIVE (2029)**



Sources: Gibson, 2020; RS&H, 2020.