TRAFFIC IMPACT REPORT

550 GATEWAY BLVD. HOTEL IN SOUTH SAN FRANCISCO, CA

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Prepared for: **THE CITY OF SOUTH SAN FRANCISCO**

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INTRODUCTION

This report has been prepared at the request of the City of South San Francisco to determine if the proposed 151-room 550 Gateway Hotel would result in any significant circulation impacts on the local circulation system. This analysis reviews Existing + Project and year 2035 Cumulative + Project conditions for weekday AM and PM commute peak hour conditions at all major intersections, freeway ramps and U.S. 101 freeway mainline locations likely to be used by project traffic. The evaluation is somewhat unique in that it has only determined whether project traffic will increase volumes by 1 percent or more at each location, which is the City and Caltrans criteria to determine if a project traffic results in a significant impact at those locations with preexisting unacceptable operation. It should be noted, however, that while many of the locations evaluated do not have unacceptable operation, the 1 percent traffic added evaluation was used on a system-wide basis. Finally, at those few locations where project traffic would increase volumes by more than 1 percent, the evaluation was continued to determine if "With Project" operation would be acceptable.

SUMMARY OF FINDINGS

PROJECT TRIP GENERATION

The proposed 151-room hotel would be expected to generate the following traffic during the AM and PM commute peak traffic hours (see **Traffic Table 1, 550 Gateway Hotel Trip Generation**).

Traffic Table 1
550 Gateway Hotel Trip Generation

AM Peak Hour Trips		PM Peak Hour Trips	
Inbound	**Outbound**	**Inbound**	**Outbound**
51	37	52	54

Source: Crane Transportation Group.

EXISTING + PROJECT IMPACTS

The proposed project would not increase volumes by 1 percent or more at any analyzed location already operating at an unacceptable level. The few locations where volume increases would be greater than 1 percent have acceptable operation. Therefore, there would be no significant circulation impacts.

AM PEAK HOUR

INTERSECTIONS

- Oyster Point Blvd./Gateway Blvd./U.S. 101 Southbound Off-Ramp (acceptable Level of Service C)

FREEWAY RAMPS

- Southbound Off-Ramp to Oyster Point Blvd./Gateway Blvd. (under capacity)
- Northbound Off-Ramp to Grand Ave./Executive Dr. (under capacity)
- Northbound On-Ramp from Oyster Point Blvd./Dubuque Ave. (under capacity)
- Southbound On-Ramp from Dubuque Ave. (under capacity)

PM PEAK HOUR

INTERSECTIONS

- Oyster Point Blvd./Gateway Blvd./U.S. 101 Southbound Off-Ramp (acceptable Level of Service C)
- E. Grand Ave./Gateway Blvd. (acceptable Level of Service D)

FREEWAY RAMPS

- Southbound Off-Ramp to Oyster Point Blvd./Gateway Blvd. (under capacity)
- Northbound Off-Ramp to Grand Ave./Executive Dr. (under capacity)
- Northbound On-Ramp from Oyster Point Blvd./Dubuque Ave. (under capacity)

YEAR 2035 CUMULATIVE + PROJECT IMPACTS

The proposed project would not increase volumes by 1 percent or more at any analyzed location already operating at an unacceptable level. The few locations where volume increases would be greater than 1 percent would maintain acceptable operation. Therefore, there would be no significant circulation impacts.

AM PEAK HOUR

FREEWAY RAMPS

- Northbound On-Ramp from Oyster Point Blvd./Dubuque Ave. (under capacity)

PM PEAK HOUR

FREEWAY RAMPS

- Southbound Off-Ramp to Oyster Point Blvd./Gateway Blvd. (under capacity)
- Northbound Off-Ramp to Grand Ave./Executive Dr. (under capacity)

PROJECT DESCRIPTION & LOCATION

The proposed hotel would be located on the east side of Gateway Boulevard north of the Corporate Drive signalized intersection (see **Traffic Figure 1, Area Map**). It would be accessed from the fourth (easterly) leg of the next signalized intersection along Gateway Boulevard about 500 feet north of the Corporate Drive signal. The west leg of the project access intersection extends one block west of Gateway Boulevard to Executive Drive. This roadway does not have a name.

The hotel would have 151 units and an in-house restaurant for guests. There would be only minimal meeting space. The signalized access would lead to parking aisles surrounding all sides of the building. There would be no emergency access to adjacent properties or a second access (emergency or public use) to Gateway Boulevard (see **Traffic Figure 2**, **Site Plan**).

SCOPE OF SERVICES

The percent increase in project traffic has been determined at the following intersections, freeway ramps and U.S. 101 freeway mainline segments. Locations have been selected along logical routings between the hotel and U.S. 101 freeway access as well as access to central and western South San Francisco.

INTERSECTIONS

- Gateway Blvd./S. Airport Blvd./Mitchell Avenue
- S. Airport Blvd./San Mateo Avenue/Produce Avenue
- Airport Blvd./U.S. 101 Southbound Off-Ramp/Miller Avenue
- Airport Blvd./Grand Avenue
- Grand Avenue Overcrossing/Dubuque Avenue
- Grand Avenue Overcrossing/E. Grand Avenue
- Executive Drive/E. Grand Avenue/U.S. 101 Northbound Off-Ramp
- E. Grand Avenue/Gateway Blvd.
- Sister Cities Blvd./Oyster Point Blvd./Airport Blvd.
- Oyster Point Blvd./Dubuque Avenue/U.S. 101 Northbound On-Ramp
- Dubuque Avenue/U.S. 101 Northbound Off-Ramp & Southbound On-Ramp
- Oyster Point Blvd./Gateway Blvd./U.S. 101 Southbound Flyover Off-Ramp
- Gateway Blvd./Project Access

FREEWAY RAMPS

- U.S. 101 Northbound Off-Ramp to E. Grand Ave./Executive Drive
- U.S. 101 Northbound On-Ramp from Oyster Point Blvd./Dubuque Ave.
- U.S. 101 Southbound Off-Ramp to Oyster Point Blvd./Gateway Blvd.
- U.S. 101 Southbound On-Ramp from Dubuque Ave.
- U.S. 101 Southbound On-Ramp from Produce Ave.

U.S. 101 FREEWAY MAINLINE SEGMENTS (NORTHBOUND & SOUTHBOUND)

- North of the Oyster Point Blvd. interchange
- North of the I-380 interchange

EXISTING VOLUMES (WITHOUT HOTEL)

Existing weekday AM and PM commute peak hour traffic volumes were obtained from the most recent studies conducted for the City:

- Britannia Cove at Oyster Point EIR, 2015
- Downtown Specific Plan & EIR, 2014
- Fairfield Inn & Suites EIR, 2015

Resultant Existing AM and PM peak hour intersection, freeway ramp and freeway mainline counts are presented in **Traffic Figure 3, Existing AM Peak Hour (Without Project) Volumes** and **Traffic Figure 4, Existing PM Peak Hour (Without Project) Volumes**. Also presented in the figures are the sums of traffic volumes entering each intersection or traveling along each freeway ramp or freeway mainline segment.

YEAR 2035 CUMULATIVE VOLUMES (WITHOUT HOTEL)

Year 2035 cumulative weekday (Without Project) AM and PM commute peak hour traffic volumes were obtained from the most recent studies conducted for the City:

- Britannia Cove at Oyster Point EIR, 2015
- Downtown Specific Plan & EIR, 2014
- Fairfield Inn & Suites EIR, 2015

Resultant Cumulative (Without Project) AM and PM peak hour intersection, freeway ramp and freeway mainline counts are presented in **Traffic Figure 5, 2035 AM Peak Hour (Without Project) Volumes** and **Traffic Figure 6, 2035 PM Peak Hour (Without Project) Volumes**. Also presented in the figures are the sums of traffic volumes entering each intersection or traveling along each freeway ramp or freeway mainline segment.

PROJECT VOLUMES

TRIP GENERATION

Project traffic projections were developed using the traffic engineering profession's standard source of trip rate data: *Trip Generation Manual*, 9th Edition, by the Institute of Transportation Engineers, 2012. As shown in **Traffic Table 2, Project Trip Generation**, the proposed project would be expected to generate 51 inbound and 37 outbound vehicles during the AM peak hour with 52 inbound and 54 outbound vehicles during the PM peak hour. These projections conservatively assume 100 percent occupancy at the hotel and limited employee travel by bicycle or transit.

Traffic Table 2
Project Trip Generation

		AM Peak Hour				PM Peak Hour			
		Inbound		Outbound		Inbound		Outbound	
Use	# Rooms	Rate	Vol	Rate	Vol	Rate	Vol	Rate	Vol
Hotel	151	*	51	*	37	.34	52	.36	54

* T = 0.78(x)-29.80 (58% in/42% out) T=trips, x=number of rooms
Trip Generation Manual, 9th Edition, by the Institute of Transportation Engineers, 2012
Compiled by: Crane Transportation Group

TRIP DISTRIBUTION

Project traffic was distributed to the regional roadway network partially based on East of 101 development traffic patterns contained in the 2001 EIR for the South San Francisco General Plan Amendment and Transportation Demand Ordinance, the 2008 Genentech Corporate Facilities Master EIR, and recent research for the East of 101 Traffic Modeling update traffic study (see **Traffic Table 3, Project Trip Distribution**). Minor adjustments were then made reflecting that most guests associated with the proposed Project would likely be destined to/from the U.S. 101 freeway traveling inbound to the site via the northbound off-ramp to East Grand Ave./Executive Drive or via the southbound off-ramp flyover to the Oyster Point Boulevard/Gateway Boulevard intersection, while traveling outbound from the site to the northbound on-ramp at the Oyster Point Boulevard/Dubuque Avenue intersection or to the southbound on-ramps from Dubuque Avenue or Produce Avenue. Some hotel employee traffic would be destined to/from the freeway, although some would also be expected to use the surface street system west of the freeway and live in the local area. The AM and PM peak hour Project traffic increment would be distributed to the local roadway network as shown in **Traffic Figure 7, AM Peak Hour Project Traffic Distribution** and **Traffic Figure 8, PM Peak Hour Project Traffic Distribution**.

Traffic Table 3
Project Trip Distribution

Direction	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
U.S. 101 North/San Francisco/ Brisbane	32	36	30	32
U.S. 101 South[1]	41	36	41	36
South San Francisco (Central & West Areas)[2]	21	6	9	19
Local East of U.S. 101[3]	6	22	20	13
TOTAL	100%	100%	100%	100%

(1) Also includes use of S. Airport Blvd. to/from I-380 interchange.
(2) Primarily employees.
(3) Primarily guests to/from East of 101 businesses.
Source: City of South San Francisco, Draft Supplemental Environmental Impact report, South San Francisco General Plan Amendment and Transportation Demand Management Ordinance, April 2001, Genentech Central Campus Master Plan EIR, Crane Transportation Group Projections of Hotel Guest & Employee Origins & Destinations

PERCENT PROJECT TRAFFIC ADDED TO ANALYSIS LOCATIONS

EXISTING + PROJECT CONDITIONS

Traffic Figure 9, Existing AM Peak Hour Percent Project Traffic Through Intersection, Ramps and Freeway Mainline and **Traffic Figure 10, Existing PM Peak Hour Percent Project Traffic Through Intersection, Ramps and Freeway Mainline** show the percent project traffic added to each analysis intersection, freeway ramp and U.S. 101 freeway mainline segment for AM and PM peak hour Existing + Project conditions. As shown in **Traffic Figure 9, Existing AM Peak Hour Percent Project Traffic Through Intersection, Ramps and Freeway Mainline**, during the AM peak hour there would be one intersection and three freeway ramps where project traffic would increase volumes by more than 1 percent. However, operation would remain acceptable at each location. Intersections and ramps with more than 1 percent traffic added and resultant acceptable operation are presented below.

AM PEAK HOUR

INTERSECTION

- Oyster Point Blvd./Gateway Blvd./U.S. 101 Southbound Off-Ramp [+1.53%] (Level of Service C)

FREEWAY RAMPS

- Southbound Off-Ramp to Oyster Point Blvd./Gateway Blvd. [+1.26%] (under capacity)
- Northbound Off-Ramp to Grand Ave./Executive Dr. [+1.29%] (under capacity)
- Northbound On-Ramp from Oyster Point Blvd./Dubuque Ave. [+1.71%] (under capacity)
- Southbound On-Ramp from Dubuque Ave. [+1.20%] (under capacity)

As shown in **Traffic Figure 10, Existing PM Peak Hour Percent Project Traffic Through Intersection, Ramps and Freeway Mainline**, during the PM peak hour there would be two intersections and three ramps where project traffic would increase volumes by more than 1 percent. However, operation would also remain acceptable at each location. Intersections and ramps with more than 1 percent traffic added and resultant acceptable operation are presented below.

PM PEAK HOUR

INTERSECTIONS

- Oyster Point Blvd./Gateway Blvd./U.S. 101 Southbound Off-Ramp [+1.72%] (Level of Service C)
- E. Grand Ave./Gateway Blvd. [+1.16%] (Level of Service D)

FREEWAY RAMPS

- Southbound Off-Ramp to Oyster Point Blvd./Gateway Blvd. [+9.41%] (under capacity)
- Northbound Off-Ramp to Grand Ave./Executive Dr. [+3.32%] (under capacity)
- Northbound On-Ramp from Oyster Point Blvd./Dubuque Ave. [+1.41%] (under capacity)

Less than significant.

YEAR 2035 CUMULATIVE + PROJECT CONDITIONS

Traffic Figure 11, 2035 AM Peak Hour Percent Project Traffic Through Intersection, Ramps and Freeway Mainline and **Traffic Figure 12, 2035 PM Peak Hour Percent Project Traffic Through Intersection, Ramps and Freeway Mainline,** show the percent project traffic added to each analysis intersection, freeway ramp and U.S. 101 freeway mainline segment for AM and PM peak hour Cumulative + Project conditions. As shown in **Traffic Figure 11, , 2035 AM Peak Hour Percent Project Traffic Through Intersection, Ramps and Freeway Mainline,** during the AM peak hour there would be one ramp where project traffic would increase volumes by more than 1 percent. However, operation would remain acceptable. The location is:

AM PEAK HOUR

FREEWAY RAMP

- U.S. 101 Northbound On-Ramp from Oyster Point Blvd./Dubuque Ave. intersection [+1.03%] (under capacity)

As shown in **Traffic Figure 12, , 2035 PM Peak Hour Percent Project Traffic Through Intersection, Ramps and Freeway Mainline,** during the PM peak hour there would be two ramps where project traffic would increase volumes by more than 1 percent. However, operation would remain acceptable. The locations are:

PM PEAK HOUR

FREEWAY RAMPS

- U.S. 101 Northbound Off-Ramp to E. Grand Ave./Executive Drive [+2.56%] (under capacity)
- U.S. 101 Southbound Flyover Off-Ramp to Oyster Point Blvd./Gateway Blvd. [+3.40%] (under capacity)

Less than significant.

OPERATING CONDITIONS AT PROJECT ACCESS INTERSECTION ALONG GATEWAY BOULEVARD

The project would gain access to Gateway Boulevard as the fourth (east) leg of an existing signalized intersection. The west leg of the intersection, a one-block-long street connecting to Executive Drive, is unnamed.

VOLUMES

Weekday AM peak period (7:00-9:00) and PM peak period (4:00-6:00) turn movement counts were conducted at the project access intersection on February 9, 2016. Resultant Existing AM and PM peak hour (Without Project) volumes are presented in **Traffic Figure 3, Existing AM Peak Hour (Without Project) Volumes,** and **Traffic Figure 4, Existing PM Peak Hour (Without Project) Volumes**, while projected year 2035 Cumulative AM and PM peak hour (Without Project) volumes are presented in **Traffic Figure 5, 2035 AM Peak Hour (Without Project) Volumes** and **Traffic Figure 6, 2035 PM Peak Hour (Without Project) Volumes**. Project AM and PM peak hour traffic increment distribution through this intersection is presented in **Traffic Figure 7, AM Peak Hour Project Traffic Distribution,** and **Traffic Figure 8, PM Peak Hour Project Traffic Distribution**.

INTERSECTION OPERATION

Analysis Methodology

Intersections, rather than roadway segments between intersections, are almost always the capacity controlling locations for any circulation system. Signalized intersection operation is graded based upon two different scales. The first scale employs a grading system called Level of Service (LOS) which ranges from LOS A, indicating uncongested flow and minimum delay to drivers, to LOS F, indicating significant congestion and delay on most or all intersection approaches. The LOS scale is also associated with a control delay tabulation (TRB 2010) at each intersection. The control delay designation allows a more detailed examination of the impacts of a particular project. Greater detail regarding the LOS/control delay relationship is provided in **Traffic Table 4, Signalized Intersection Level of Service Criteria**.

Traffic Table 4
Signalized Intersection Level of Service Criteria

Level of Service	Description	Average Control Delay (Seconds Per Vehicle)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and/or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80.0
Source: 2000 Highway Capacity Manual (Transportation Research Board).		

Minimum Acceptable Operation

LOS D is the minimum acceptable operation for signalized intersections in South San Francisco.

Existing + Project Conditions

Traffic Table 5, Gateway Blvd./550 Gateway Blvd. Hotel Driveway/Unnamed Street, shows that the signalized project access intersection with Gateway Boulevard would be operating at acceptable levels with Existing + Project traffic.

AM Peak Hour LOS B
PM Peak Hour LOS B

Less than significant.

2035 Cumulative + Project Conditions

Traffic Table 5, Gateway Blvd./550 Gateway Blvd. Hotel Driveway/Unnamed Street, also shows that the signalized project access intersection with Gateway Boulevard would also be operating at acceptable levels with year 2035 Cumulative + Project traffic.

AM Peak Hour LOS C
PM Peak Hour LOS B

Less than significant.

Traffic Table 5
Level of Service
Gateway Blvd./550 Gateway Blvd. Hotel Driveway/Unnamed Street

Existing			
AM Peak Hour		**PM Peak Hour**	
Existing	**Existing + Project**	**Existing**	**Existing + Project**
A-6.9(1)	B-12.1	A-7.6	B-14.6
Year 2035 Cumulative			
Cumulative (W/O Project)	**Cumulative + Project**	**Cumulative (W/O Project)**	**Cumulative + Project**
B-10.1(1)	C-22.1	A-9.8	B-17.9

(1) Signalized level of service – control delay in seconds.
Year 2010 Highway Capacity Manual analysis methodology.
Source: Crane Transportation Group.

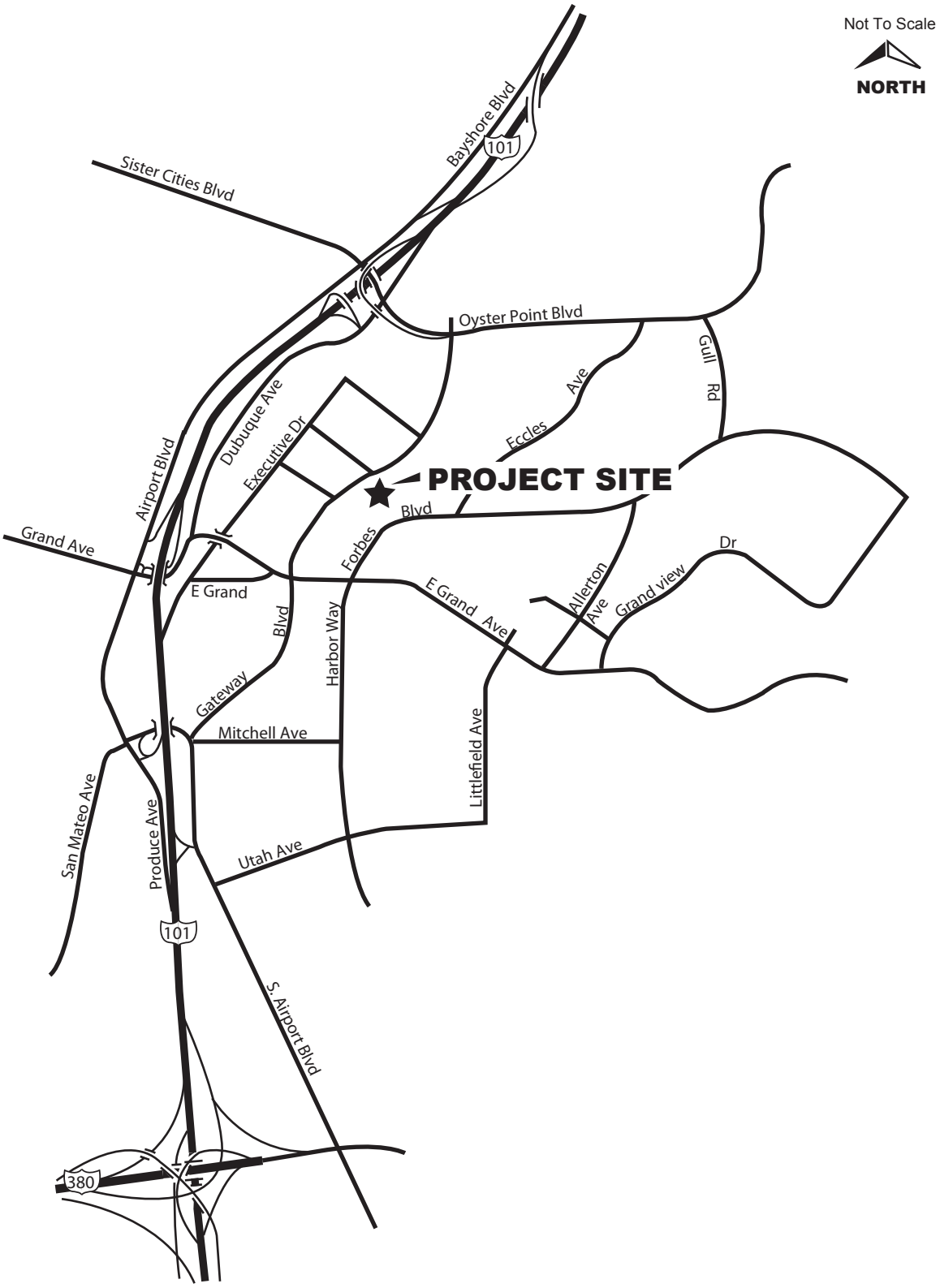
EMERGENCY VEHICLE ACCESS

CONCLUSIONS

- The proposed 151-room Gateway Hotel would not result in any significant intersection, freeway ramp or U.S. 101 freeway mainline significant impacts. Volume increases at each analyzed location would either be less than 1 percent or at locations where operation would remain acceptable even though the increase in traffic due to the project would be greater than 1 percent.

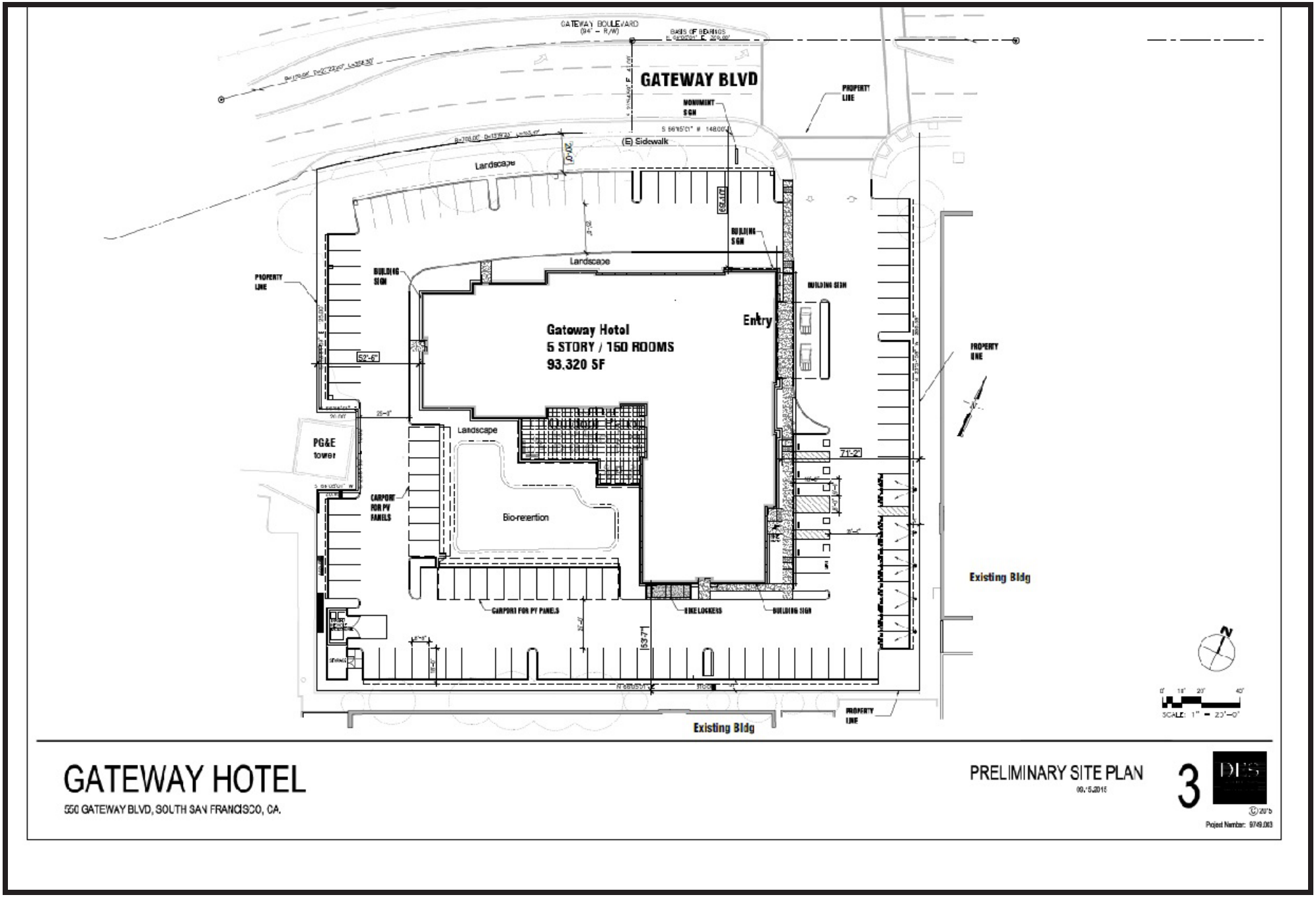
- The project's signalized access intersection along Gateway Boulevard would operate at acceptable levels of service during Existing and year 2035 AM and PM peak traffic hours.

- Emergency access?



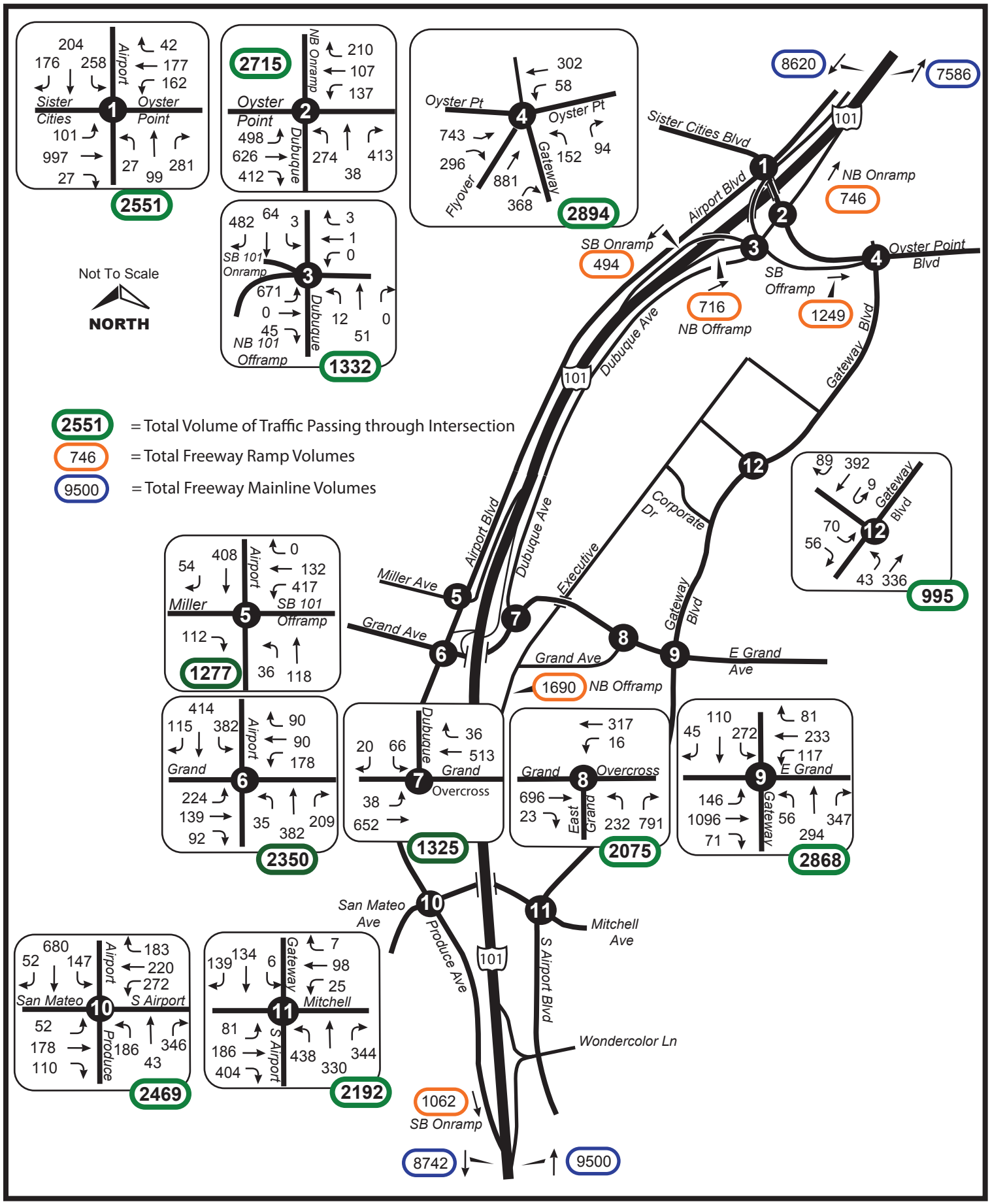
TRAFFIC FIGURE 1

AREA MAP



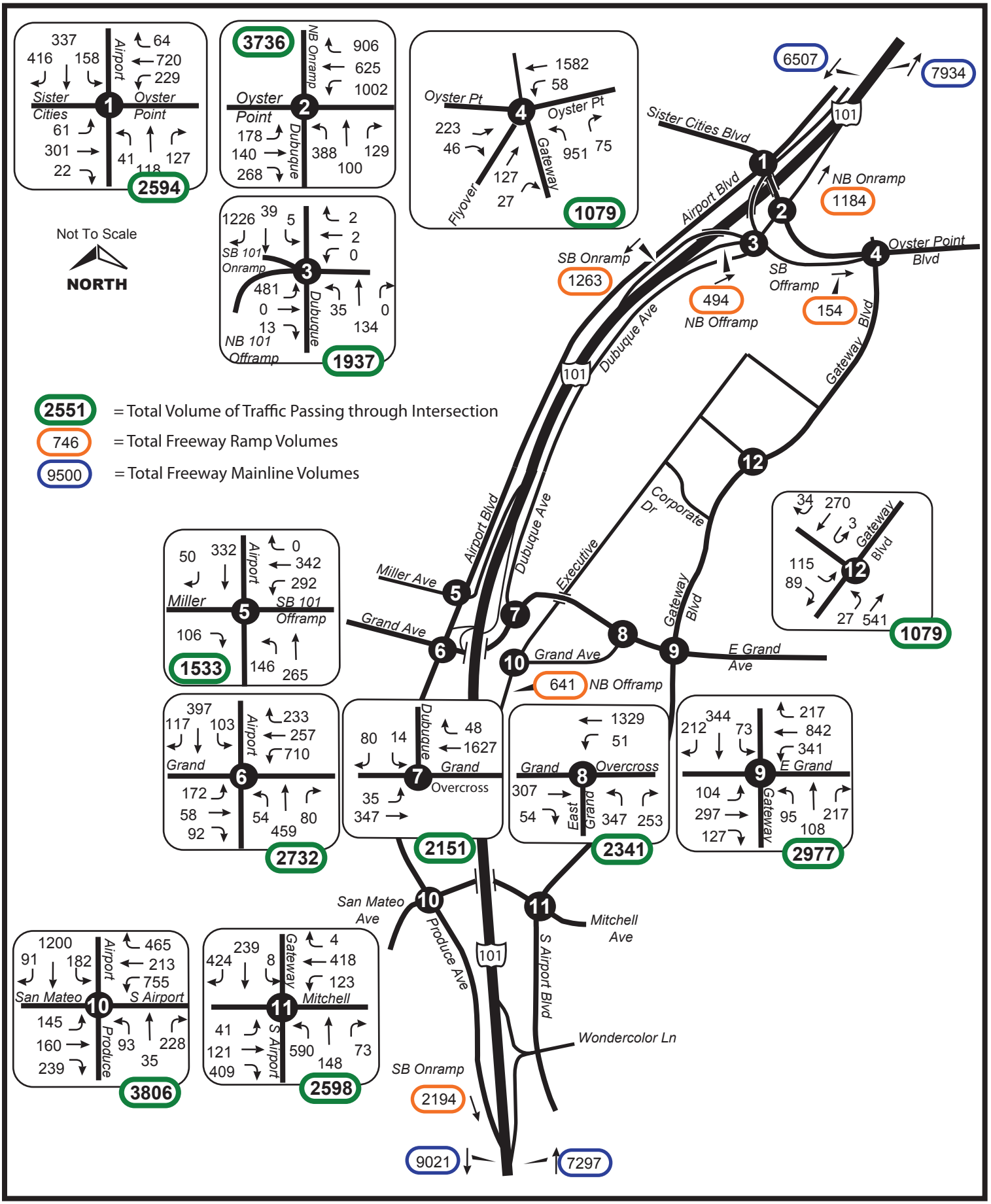
TRAFFIC FIGURE 2

SITE PLAN



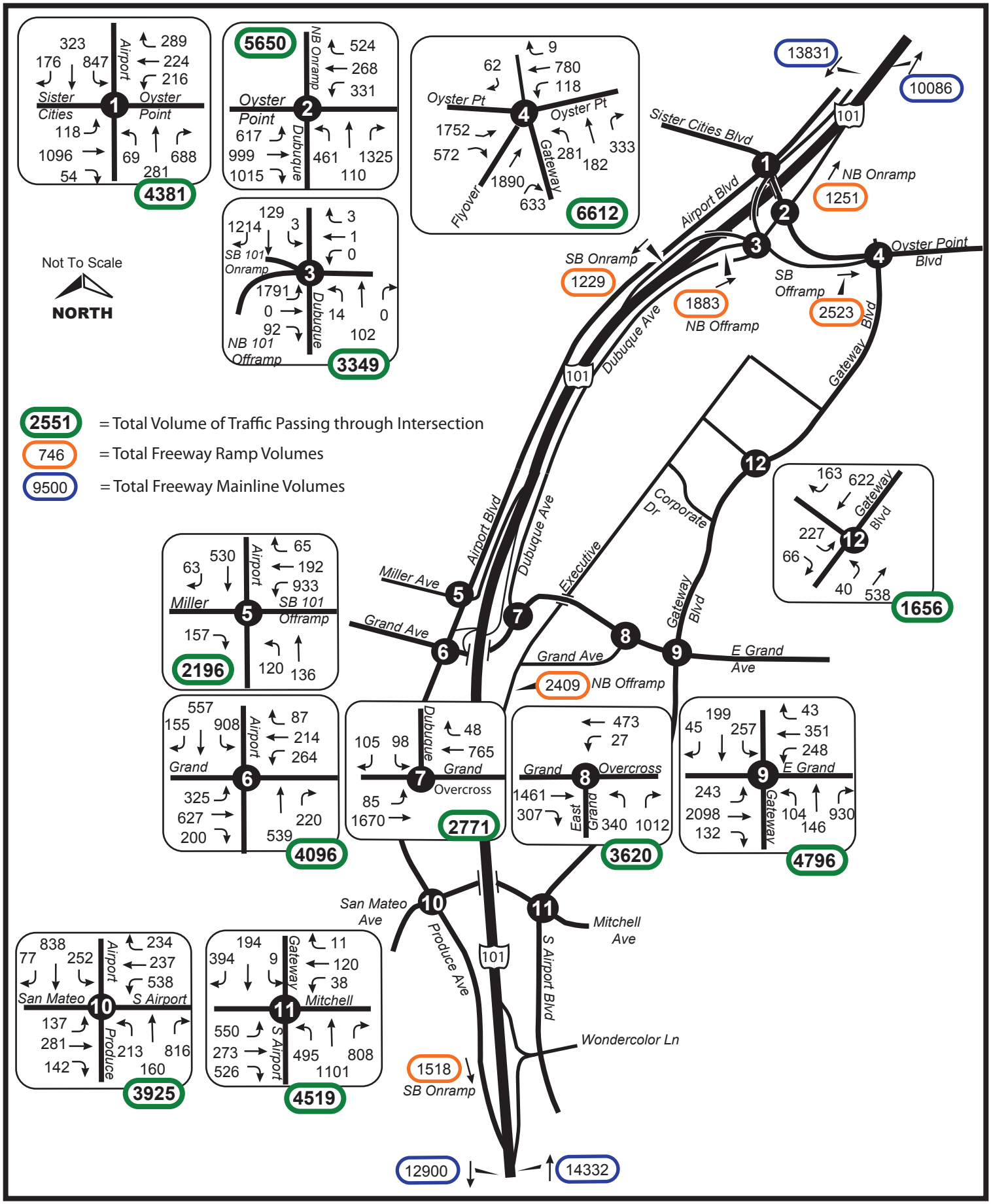
TRAFFIC FIGURE 3

EXISTING AM PEAK HOUR (WITHOUT PROJECT) VOLUMES



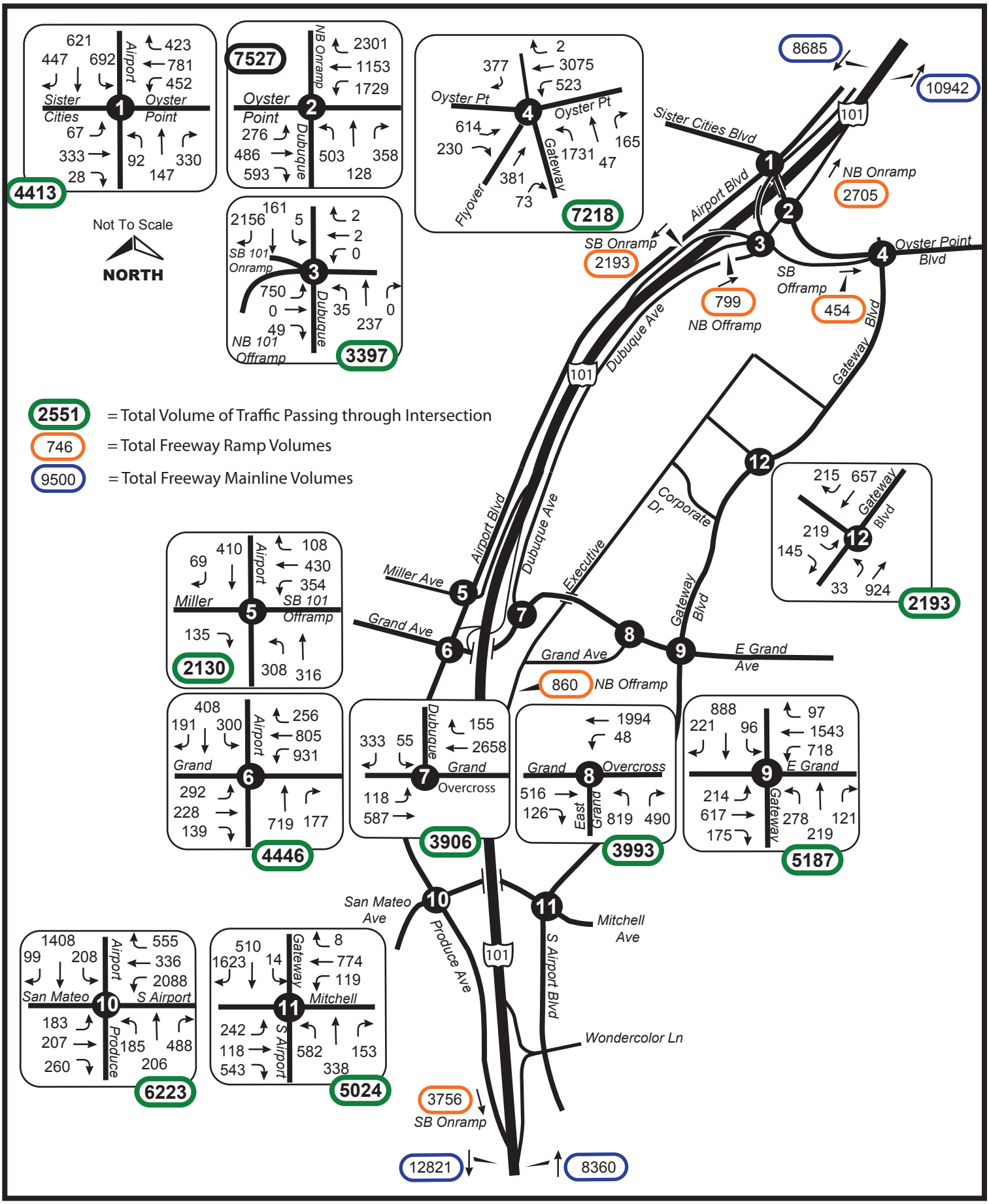
TRAFFIC FIGURE 4

EXISTING PM PEAK HOUR
(WITHOUT PROJECT) VOLUMES



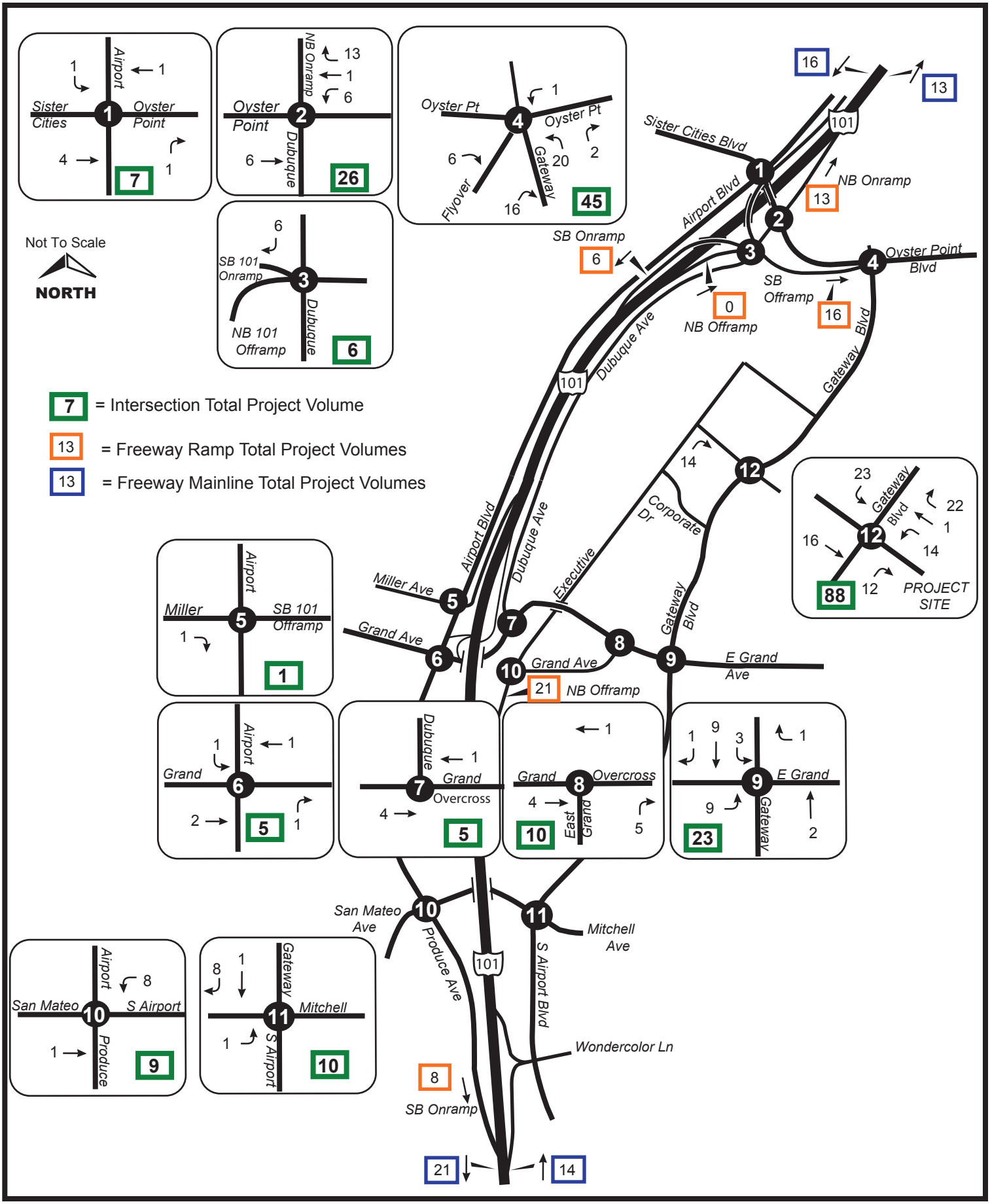
TRAFFIC FIGURE 5

2035 AM PEAK HOUR
(WITHOUT PROJECT) VOLUMES



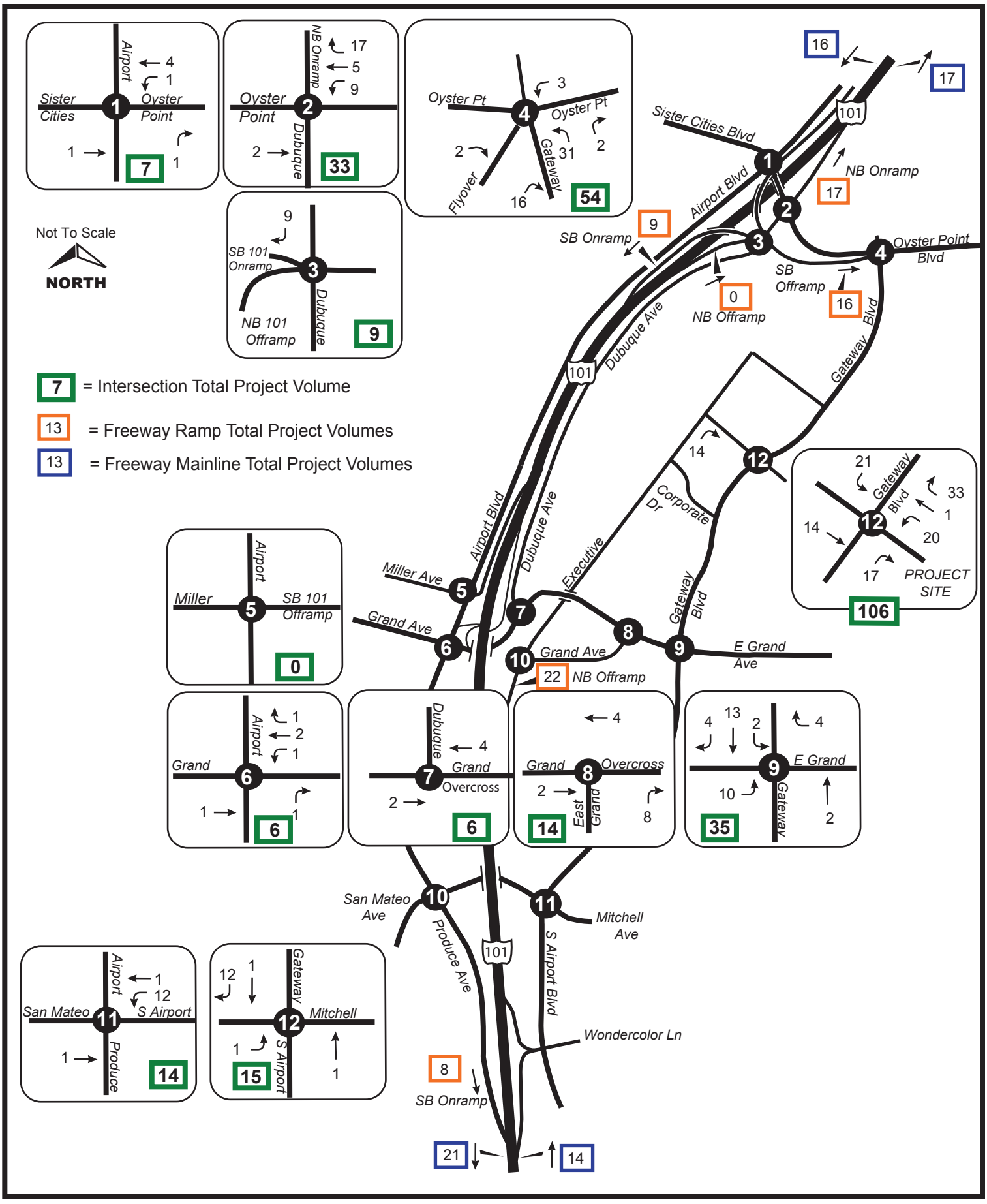
TRAFFIC FIGURE 6

2035 PM PEAK HOUR
(WITHOUT PROJECT) VOLUMES



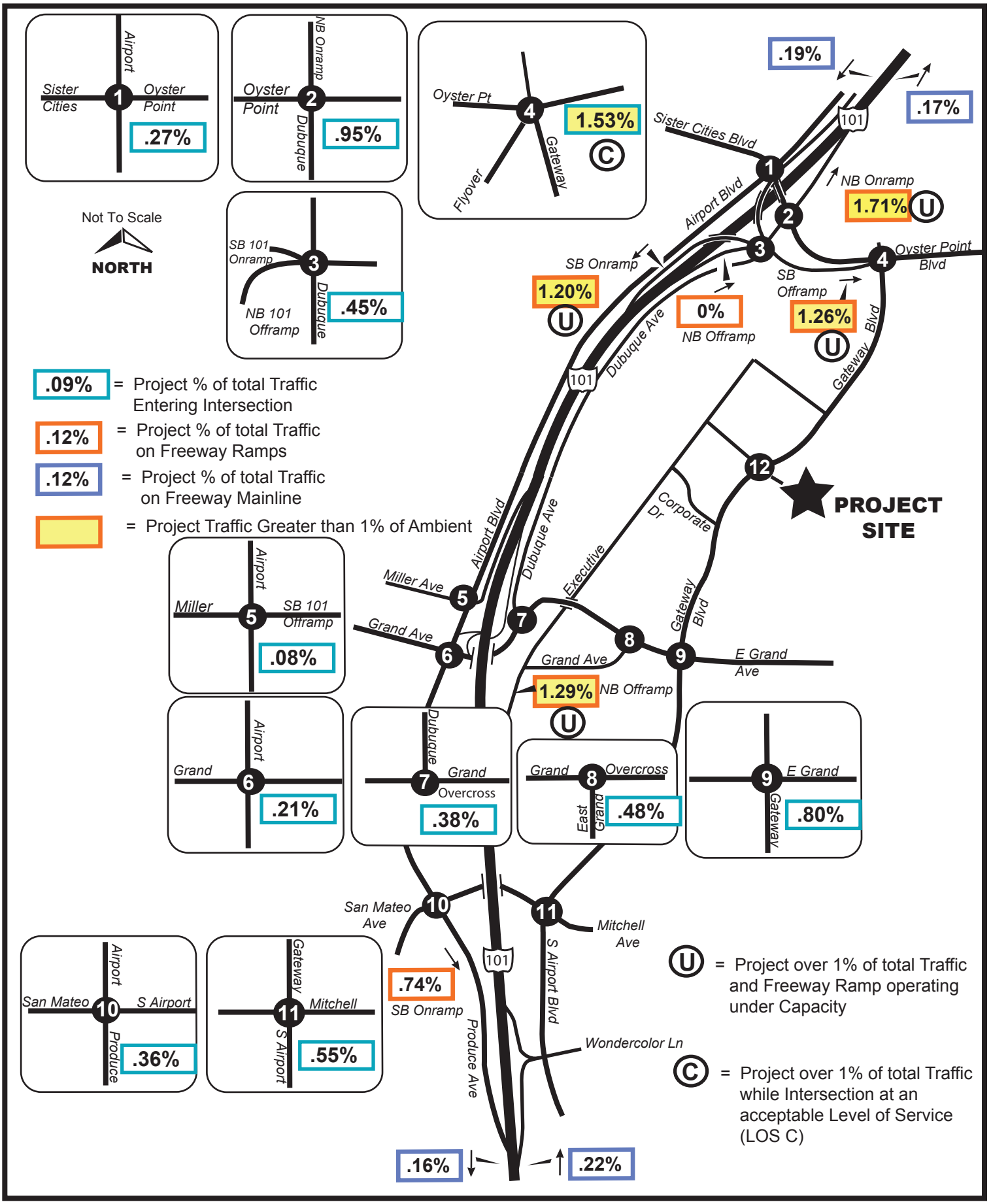
TRAFFIC FIGURE 7

AM PEAK HOUR PROJECT TRAFFIC DISTRIBUTION



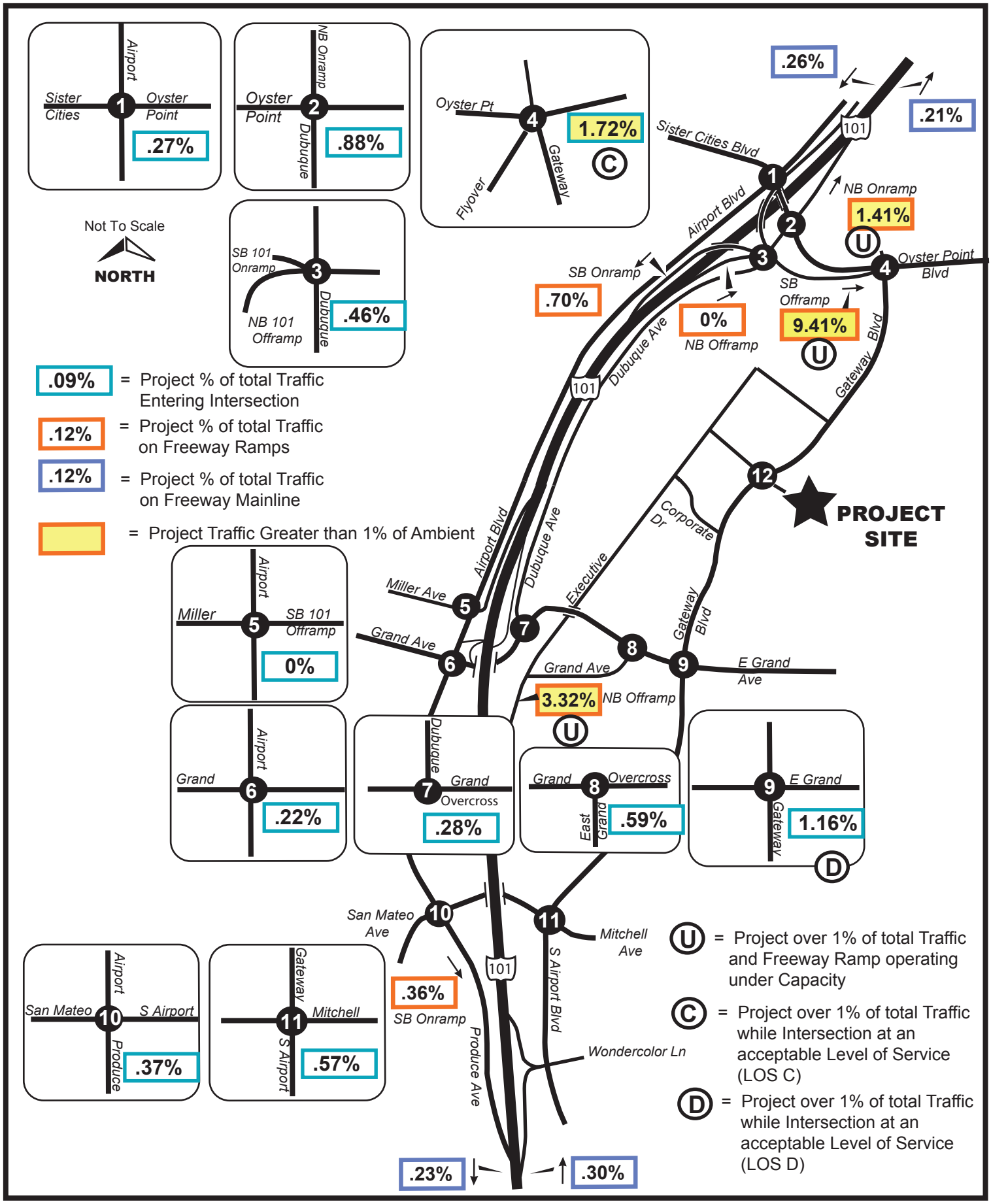
TRAFFIC FIGURE 8

PM PEAK HOUR PROJECT TRAFFIC DISTRIBUTION



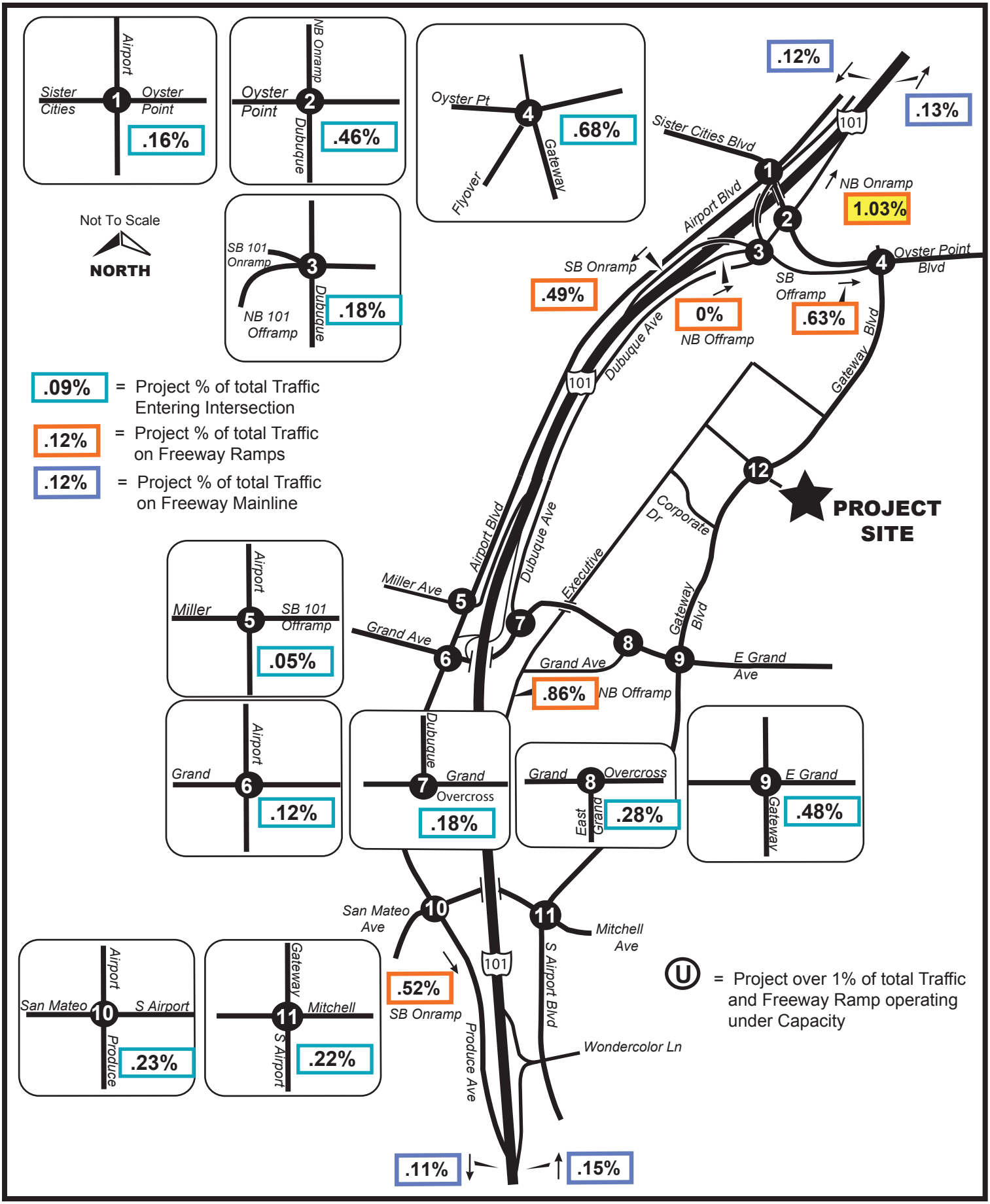
TRAFFIC FIGURE 9

EXISTING AM PEAK HOUR
PERCENT PROJECT TRAFFIC THROUGH
INTERSECTION, RAMPS AND FREEWAY MAINLINE



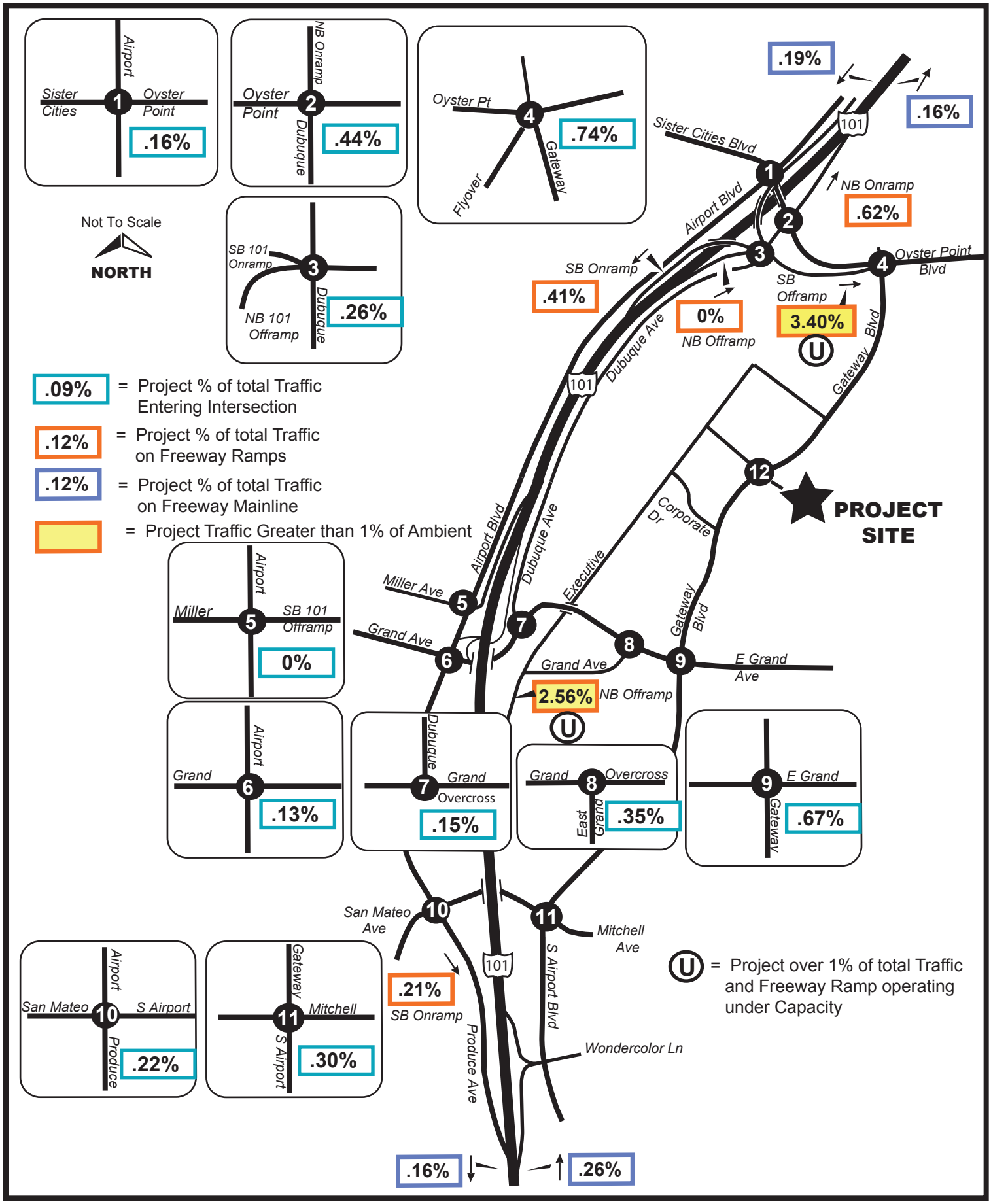
TRAFFIC FIGURE 10

EXISTING PM PEAK HOUR
PERCENT PROJECT TRAFFIC THROUGH
INTERSECTION, RAMPS AND FREEWAY MAINLINE



TRAFFIC FIGURE 11

2035 AM PEAK HOUR
PERCENT PROJECT TRAFFIC THROUGH INTERSECTION, RAMPS AND FREEWAY MAINLINE



TRAFFIC FIGURE 12

2040 PM PEAK HOUR
PERCENT PROJECT TRAFFIC THROUGH INTERSECTION, RAMPS AND FREEWAY MAINLINE