APPENDIX G-1

Local Transportation Analysis

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4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
www.llgengineers.com

Pasadena
Irvine
San Diego

LOCAL MOBILITY ANALYSIS

MCCABE RANCH II TM 994

County of Imperial, California
October 9, 2025

LLG Ref. 3-24-3884

Prepared by:
Renald Espiritu
Transportation Engineer III

Under the Supervision of:
John Boarman, P.E.
Principal

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LOCAL MOBILITY ANALYSIS

MCCABE RANCH II TM 994

County of Imperial, California
October 9, 2025

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared this Local Mobility Analysis (LMA) to assess the potential impacts to the street system as a result of the proposed McCabe Ranch II TM 994 project (hereafter referred to as the "Project"). The Project proposes to develop 1,079 single-family lots ranging in size from 3,200 sf to 32,000 sf; two multi-family parcels totaling 27.4-acres and containing a total of 531 units; a 12.3-acre school site for the McCabe School District; and a number of community and neighborhood parks in the County of Imperial.

The transportation analysis presented in this report includes the following:

- Project Description
- Existing Conditions
- Analysis Approach and Methodology
- Analysis of Existing Conditions
- Trip Generation, Distribution, and Assignment
- Cumulative Projects Discussion
- Operation Analysis
- Site Access, On-Site Circulation, and Parking Review
- Active Transportation Review
- Conclusions

2.0 PROJECT DESCRIPTION

The Project proposed by McCabe Ranch realty LLC consists of a proposed Amendment to the McCabe Ranch II Specific Plan, a Subdivision Tentative Map to implement the subdivision and development of an approximate 345-ac portion of the approximate 468-ac McCabe Ranch Specific Plan area, annexation of that Subdivision Tentative Map area (or the entire McCabe Ranch II Specific Ranch area) into the Heber Public Utility District, a Development Agreement with the County of Imperial related to the 345-ac portion controlled by McCabe Ranch Realty LLC, and appropriate environmental studies and documentation related to the above proposed discretionary actions.

The McCabe Ranch II Specific Plan area consists of approximately 468 acres located within the Heber Specific Plan Area of Imperial County, north of the Community of Heber and south of the City of El Centro. The Project site is bounded by McCabe Road on the north, Dogwood Road on the east, State Route 85 on the west, and Correll Road on the south.

The property is currently in multiple ownerships. McCabe Ranch Realty LLC is under ownership contract with the current owner, Tierra Partners LLC, of approximately 345 acres of the 468-acre total, consisting of APNs 054-130-078, 054-130-072, 054-130-077, and 054-130-076. The properties identified as APNs 054-130-079 and 054-130-042 are held in separate ownerships.

The proposed McCabe Ranch II Specific Plan Amendment deals solely with those parcels identified as under ownership contract to McCabe Ranch Realty LLC (APNs 054-130-072 -076, -077 & -078. No lane use designation or access change is proposed to those parcels under separate ownership (APNs 054-130-042 & -079). The proposed amendments to the Specific Plan are generally limited to modifications to the internal circulation system, some re-designation of residential areas and unit types within those areas, modification of the phasing plan, and some text revisions to incorporate the current status and proposed modifications. No change is proposed to the overall land use components or maximum number of dwelling units.

The proposed Project includes a Subdivision Tentative Map to implement the development of the 345-acre portion of the Specific Plan area. The Subdivision Tentative Map includes a total of 1,079 single-family lots ranging in size from 3,200 sf to 32,000 sf; two multi-family parcels totaling 27.4-acres and containing a total of 531 units; a 12.3-acre school site for the McCabe School District; and a number of community and neighborhood parks. The total dwelling unit count of 1,610 DUs (1,079 single-family plus 531 multi-family) retains a total of 690 DUs allocated to the separate ownership properties pursuant to the existing McCabe Ranch II Specific Plan within the overall residential cap of 2,300 DUs. The Specific Plan Amendment proposes 4 phases, with Phases 1-3 consisting of the parcels under the control of McCabe Ranch Realty LLC, and Phase 4 consisting of the parcels under separate ownership. The Phase 4 parcels may develop either prior to, concurrent with, or subsequent to the development of the Phase 1-3 parcels. Phase 1 commences in the southern quadrant of the plan area along the west side of Farnsworth Road, with initial access from the extension of Correll Road. Phase 2 continues northerly along the west side of Farnsworth Road and includes connections to SR-86 to the west and McCabe Road to the north. Phase 3 consists of those parcels east of Farnsworth

Road and includes a connection to Dogwood Road. Since the timing of Phase 4 development is unknown at the time of preparation of this LMA report, it is analyzed at a programmatic level. The associated analysis assumed that Phase 4 will occur after the completion of Phases 1 through 3 (TM 994 Buildout), with a 2040 buildout date.

Table 2–1 summarizes the proposed land uses and the available driveways for each phase of McCabe Ranch II.

Figure 2–1 shows the Project vicinity. ***Figure 2–2*** shows a more detailed Project Area Map. ***Figure 2–3*** shows the Project Site Plan. This traffic study analyzes the Project by phase with assumed completion years for each phase. The development in each sub-phase was assumed to be completed by the end of its corresponding main phase, as shown in *Table 2–1*.

TABLE 2–1
MCCABE RANCH II PHASING

Phase	Land Uses
Phase 1 – Owner: Tierra Partners LLC	
- Phase 1A	▪ 157 single-family lots
- Phase 1B	▪ 157 single-family lots
- Driveways to Open	▪ Driveway D *(on SR-86)* ▪ Driveway F *(on Dogwood Road)* ▪ Driveway G *(on Correll Road)* ▪ Driveway H *(on Correll Road)*
Phase 2 – Owner: Tierra Partners LLC	
- Phase 2A	▪ 260 single-family lots
- Phase 2B	▪ 159 single-family lots ▪ 196 multi-family units ▪ 12.3-acre elementary school ▪ 29.19-acre park
- Driveways to Open	▪ Driveway A *(on McCabe Road)* ▪ Driveway B *(on SR-86)*
Phase 3 – Owner: Tierra Partners LLC (TM 994 buildout by end of this phase)	
- Phase 3A	▪ 151 single-family lots
- Phase 3B	▪ 88 single-family lots ▪ 335 multi-family units
- Phase 3C	▪ 107 single-family lots
- Driveways to Open	▪ Driveway C *(on Dogwood Road)*
Phase 4 – Separate Ownership	
- Phase 4	▪ 422 single-family lots ▪ 268 multi-family units ▪ 3.14 acres of commercial ▪ 9.41 acres of business park ▪ Elementary school ▪ 26.85-acre park
- Driveways to Open	▪ Driveway E *(on Dogwood Road)*

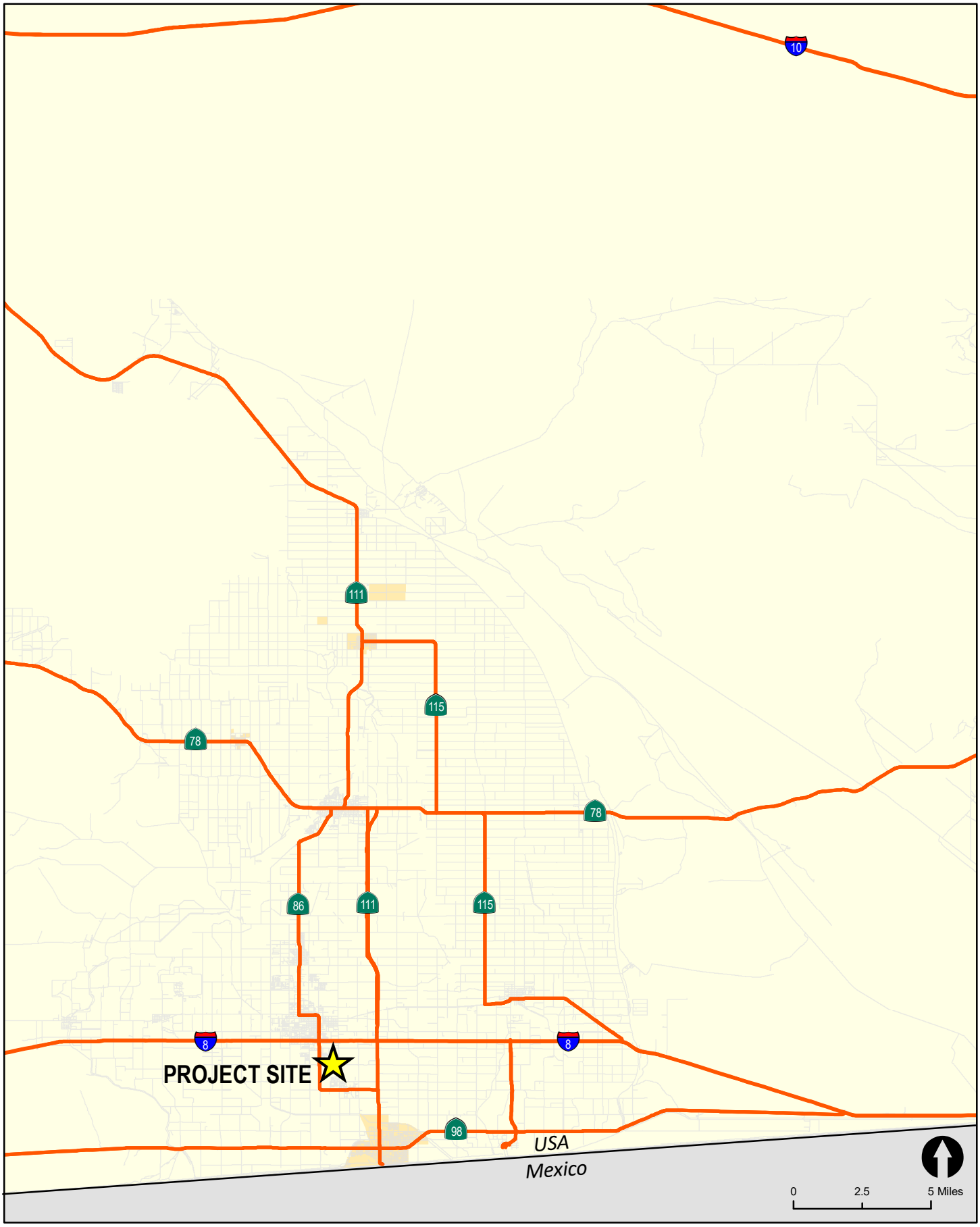

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Figure 2-1

Vicinity Map

McCabe Ranch II

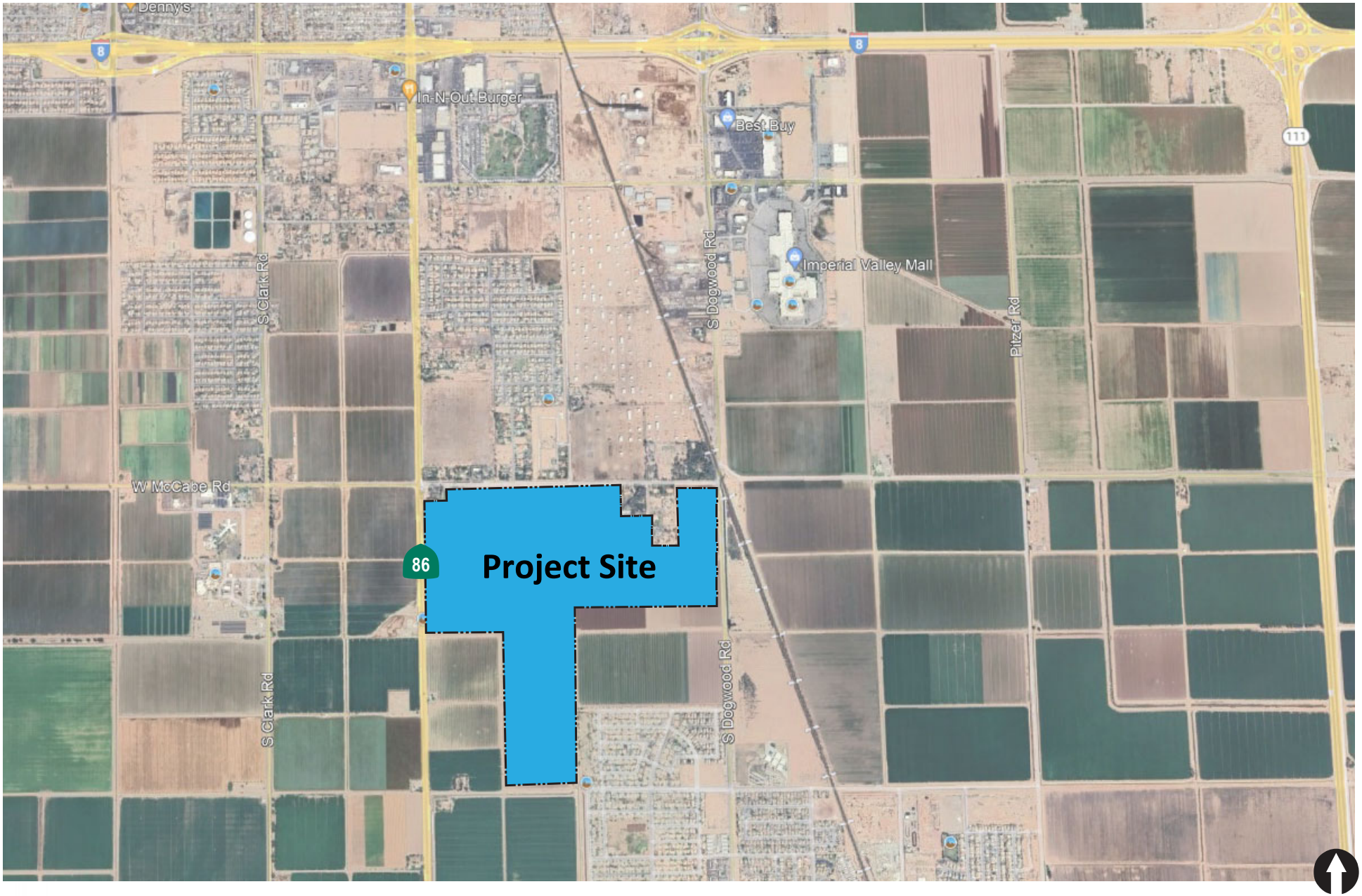

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Figure 2-2

Project Area Map

McCabe Ranch II

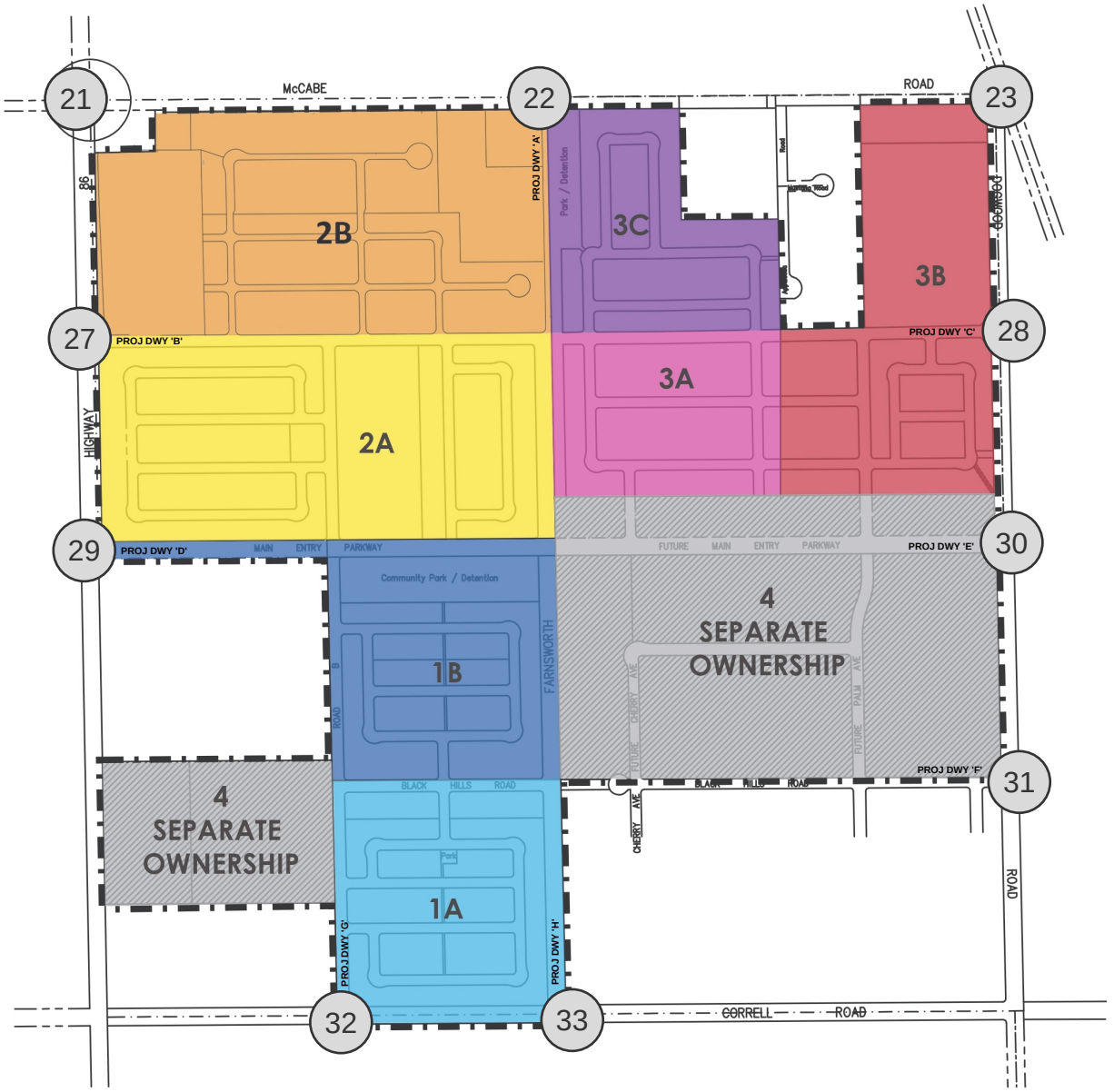

Figure 7-1
Project Phases

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Figure 2-3

Site Plan

McCabe Ranch II

3.0 EXISTING CONDITIONS

3.1 Existing Transportation Network

The following is a description of the existing street network in the study area.

Interstate 8 (I-8) is a four-lane divided interstate freeway with an east-west route through the County of Imperial between San Diego, California and Yuma, Arizona. I-8 has complete grade separations at all interchanges within the study area. The posted speed limit is 70 mph.

Imperial Avenue is classified as a four-lane Arterial in the *City of El Centro Mobility Element*. Imperial Avenue is currently constructed as a four-lane undivided roadway between I-8 and Wake Avenue, and a two-lane undivided roadway between Wake Avenue and Danenberg Drive. Sidewalks are provided on both sides of the roadway between I-8 and Wake Avenue, and on the east side only between Wake Avenue and Danenberg Drive. Class II bike lanes are provided on both sides between I-8 and Wake Avenue. The posted speed limit is 35 mph.

Clark Road is classified as a four-lane Arterial in the *City of El Centro Mobility Element*. Clark Road is currently constructed as a four-lane divided roadway between Danenberg Drive and Palmview Avenue and a two-lane undivided roadway between Palmview Avenue and McCabe Road. Sidewalks are provided on the west side only between I-8 and Palmview Avenue. The posted speed limit is 35 mph.`

State Route 86 (SR-86) is classified as a six-lane Expressway in the *County of Imperial Circulation Element*. SR-86 is currently constructed as a two-lane undivided roadway between Aurora Drive and I-8, a three-lane divided roadway between Wake Avenue and Danenberg Drive, and a two-lane undivided roadway between Danenberg Drive and Heber Road. Sidewalks are provided on both sides between Aurora Drive to I-8, and on the east side only between Wake Avenue and Danenberg Drive and between Willow Bend Drive and Countryside Drive. The posted speed limit is 40 mph.

Dogwood Road is classified as a six-lane Prime Arterial in the *County of Imperial Circulation Element*. Dogwood Road is currently constructed as a four-lane undivided roadway between I-8 and McCabe Road and a two-lane undivided roadway between McCabe Road and Heber Road. Sidewalks are provided on the east side only between I-8 and Danenberg Drive, and on both sides of the roadway between Black Hills Road and Correll Road. The posted speed limit is 40 mph.

McCabe Road is classified as a six-lane Prime Arterial in the *County of Imperial Circulation Element*. Within the City of El Centro's *Mobility Element*, McCabe Road is designated as a four-lane Arterial *(City of El Centro, 2021)*. McCabe Road is currently constructed as a two-lane undivided roadway between La Brucherie Road and Dogwood Road. The posted speed limit is 40 mph.

Correll Road is classified as a two-lane Minor Arterial between Dogwood Road and SR-111 in the *County of Imperial Circulation Element*. Correll Road is currently constructed as a four-lane divided roadway between its western terminus and Heber Avenue, and two-lane undivided roadway between Heber Avenue and Pitzer Road. Sidewalks are provided on both sides between its western terminus

and Heber Avenue, and on the south side only between Rockwood Road and Pitzer Road. The posted speed limit is 25 mph.

Figure 3–1 shows an existing conditions diagram, including traffic control type and lane configurations.

3.2 Existing Traffic Volumes

Peak hour intersection turning movement volume and street segment average daily traffic (ADT) volume counts were conducted on either Thursday, March 21, 2024 or Wednesday, October 23, 2024, while schools in the area were in session.

Figure 3–2 shows the Existing Traffic Volumes. ***Appendix A*** contains the manual count sheets.

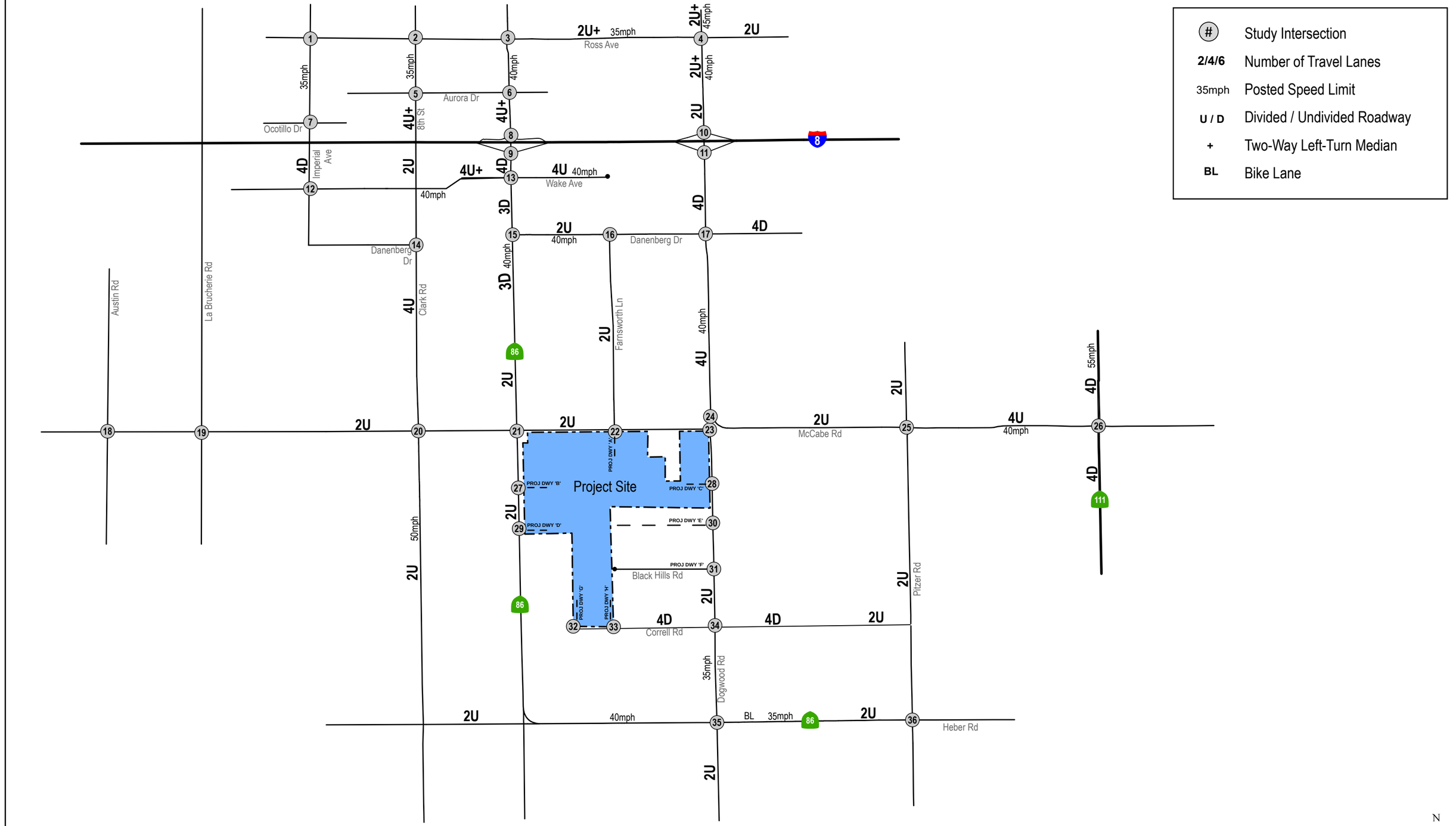

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Figure 3-1
Existing Conditions Diagram
Page 1 of 2

McCabe Ranch II

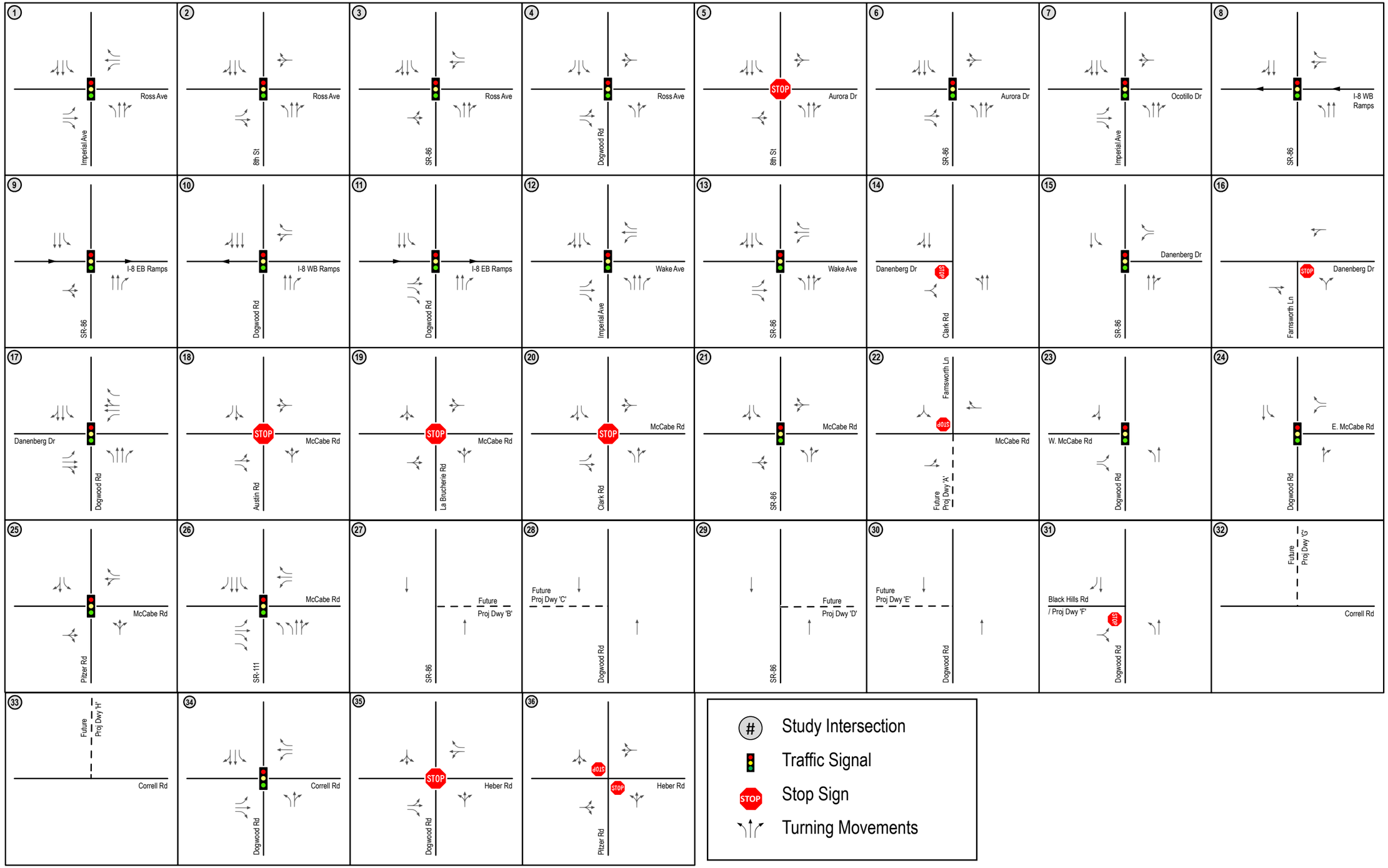

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Figure 3-1
Existing Conditions Diagram
Page 2 of 2

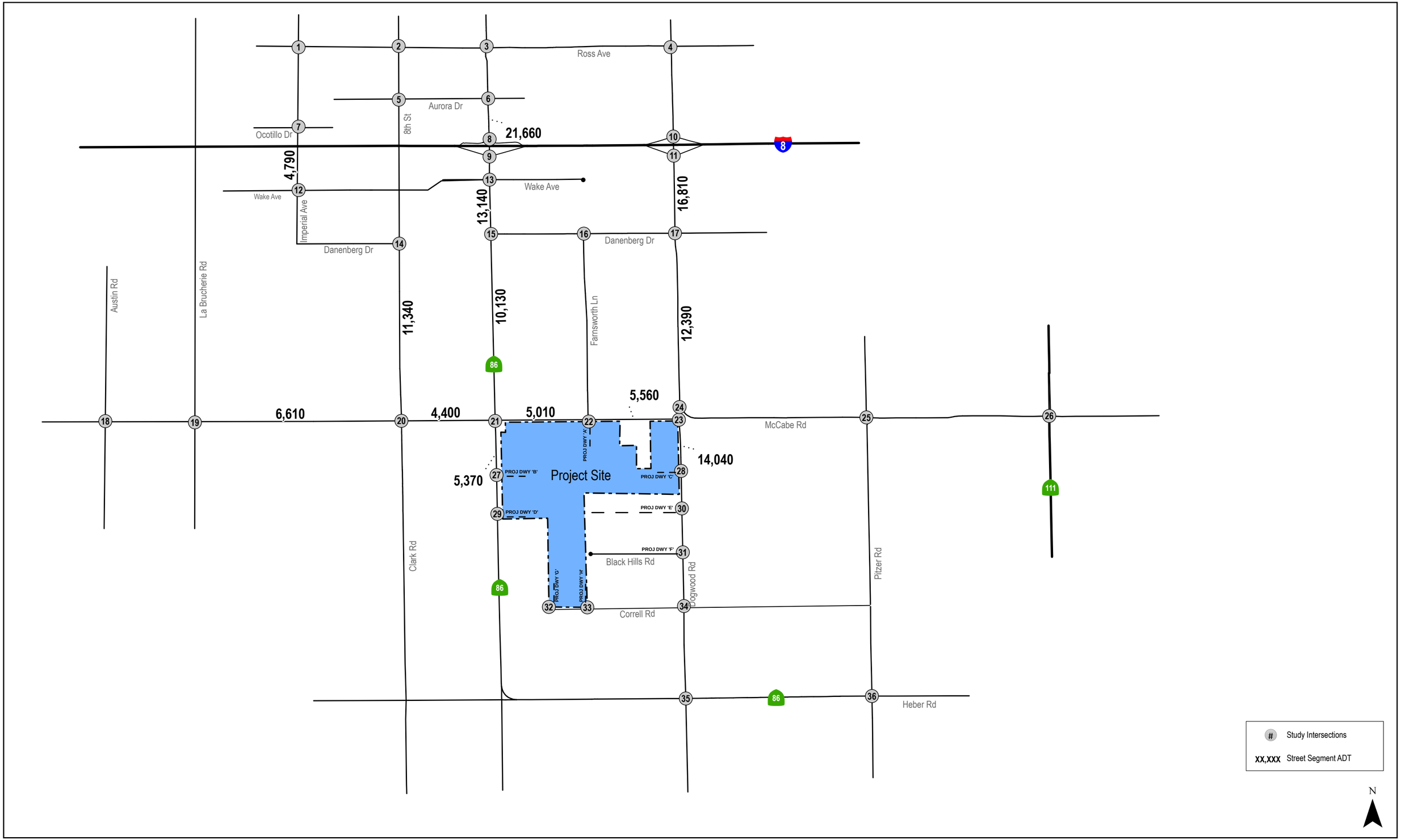

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Figure 3-2
Existing Traffic Volumes
Page 1 of 2

McCabe Ranch II

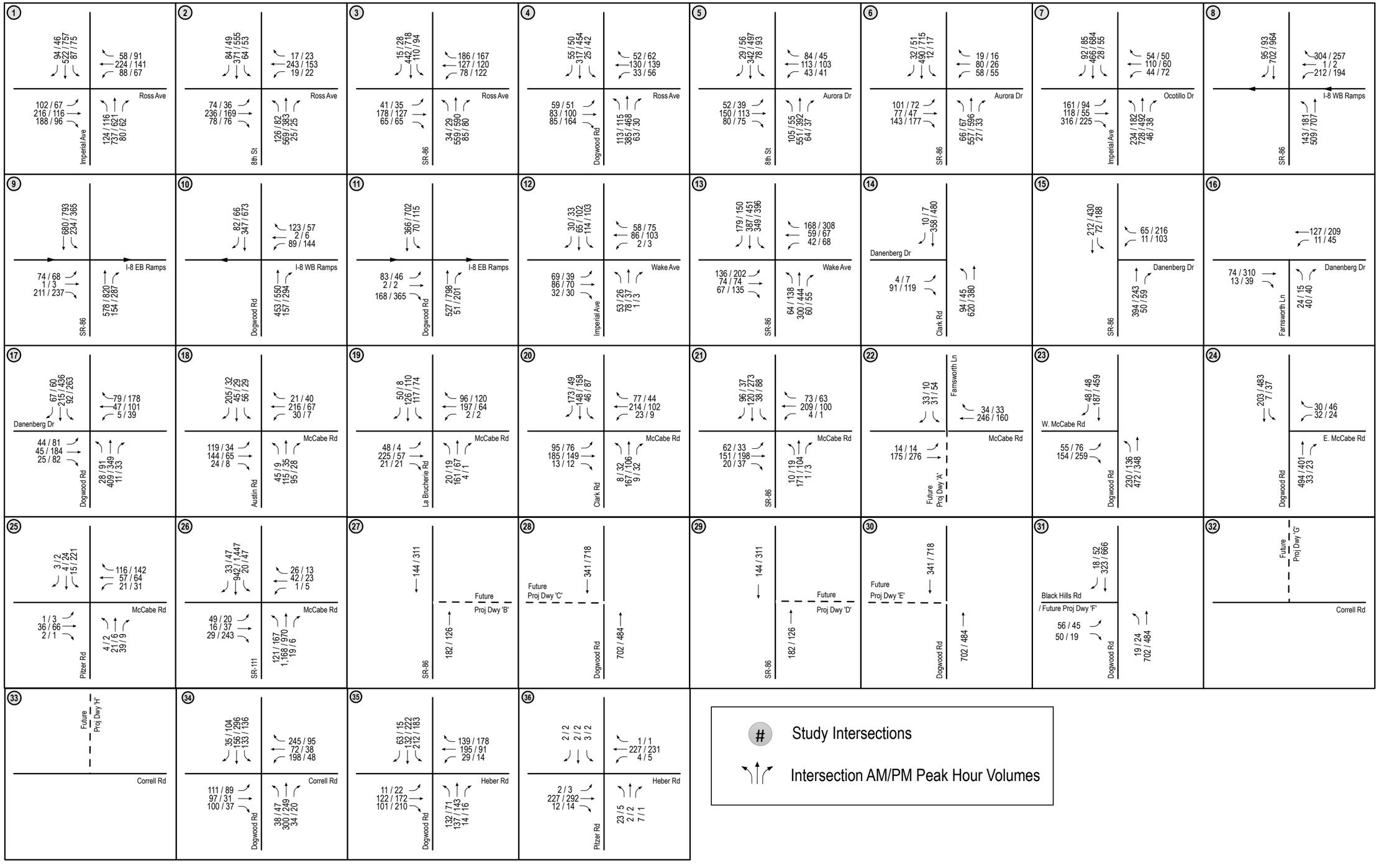

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Figure 3-2
Existing Traffic Volumes
Page 2 of 2
McCabe Ranch II

4.0 ANALYSIS APPROACH AND METHODOLOGY

4.1 Study Area Selection

Effective evaluation of the traffic impacts associated with the proposed Project requires an understanding of the existing transportation system within the Project area. The study area includes the following intersections and street segments. These locations were chosen in conjunction with County staff and represent the location that will be most impacted by Project traffic.

INTERSECTIONS

1. Ross Avenue / Imperial Avenue
2. Ross Avenue / 8th Street
3. Ross Avenue / SR-86 *(Caltrans jurisdiction)*
4. Ross Avenue / Dogwood Road
5. Aurora Drive / 8th Street
6. Aurora Drive / SR-86 *(Caltrans jurisdiction)*
7. Ocotillo Drive / Imperial Avenue
8. I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)*
9. I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*
10. I-8 WB Ramps / Dogwood Road *(Caltrans jurisdiction)*
11. I-8 EB Ramps / Dogwood Road *(Caltrans jurisdiction)*
12. Wake Avenue / Imperial Avenue
13. Wake Avenue / SR-86 *(Caltrans jurisdiction)*
14. Danenberg Drive / Clark Road
15. Danenberg Drive / SR-86 *(Caltrans jurisdiction)*
16. Danenberg Drive / Farnsworth Lane
17. Danenberg Drive / Dogwood Road
18. W McCabe Road / Austin Road
19. W McCabe Road / La Brucherie Road
20. W McCabe Road / Clark Road
21. W McCabe Road / SR-86 *(Caltrans jurisdiction)*
22. W McCabe Road / Farnsworth Lane / Project Driveway A
23. W McCabe Road / Dogwood Road
24. E McCabe Road / Dogwood Road
25. E McCabe Road / Pitzer Road
26. E McCabe Road / SR-111 *(Caltrans jurisdiction)*
27. SR-86 / Project Driveway B *(Caltrans jurisdiction)*
28. Dogwood Road / Project Driveway C
29. SR-86 / Project Driveway D *(Caltrans jurisdiction)*
30. Dogwood Road / Project Driveway E

31. Dogwood Road / Black Hills Road / Project Driveway F
32. Correll Road / Project Driveway G
33. Correll Road / Project Driveway H
34. Correll Road / Dogwood Road
35. Heber Road / Dogwood Road *(Caltrans jurisdiction)*
36. Heber Road / Pitzer Road *(Caltrans jurisdiction)*

STREET SEGMENTS

1. Imperial Avenue between I-8 and Danenberg Drive
2. Clark Road between Danenberg Drive and McCabe Road
3. SR-86 between Aurora Drive and I-8 *(Caltrans jurisdiction)*
4. SR-86 between Wake Avenue and Danenberg Drive *(Caltrans jurisdiction)*
5. SR-86 between Danenberg Drive and McCabe Road *(Caltrans jurisdiction)*
6. SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)*
7. Dogwood Road between I-8 and Danenberg Drive
8. Dogwood Road between Danenberg Drive and McCabe Road
9. Dogwood Road between McCabe Road and Heber Road
10. McCabe Road between La Brucherie Road and Clark Road
11. McCabe Road between Clark Road and SR-86
12. McCabe Road between SR-86 and Farnsworth Lane
13. McCabe Road between Farnsworth Lane and Dogwood Road

4.2 Vehicle Miles Traveled (VMT)

California Environmental Quality Act (CEQA) wise, per coordination with County staff, it was agreed upon that the proposed Tentative Map and Specific Plan amendment will not increase development numbers or density beyond what was evaluated in the previously approved 2010 Final Environmental Impact Report (EIR), which already accounted for VMT. While VMT is now the metric for assessing transportation impacts under CEQA, it was a concept available in 2010 and does not constitute "new information of substantial importance." The Supplemental EIR will use the VMT analysis from the 2010 Final EIR, ensuring that a new VMT assessment is unnecessary. Therefore, only a non-CEQA LMA was prepared to evaluate the transportation effects of the Project on the circulation network.

4.3 Scenarios

This LMA focuses on automobile delay and Level of Service (LOS). The LOS analysis was conducted to identify Project effects on the roadway operations within the study area and to recommend Project improvements to address any deficiencies. Based on the proposed Project phasing, the following scenarios were evaluated:

- Existing Conditions
- Year 2027 without Project

- Year 2027 + Project Phase 1
- Year 2033 without Project
- Year 2033 + Project Phases 1 and 2
- Year 2039 without Project
- Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout)
- Year 2040 without Project
- Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout)

These years were chosen based on the anticipated years of completion of each phase of development.

4.4 Analysis Methodology

4.4.1 *Intersections*

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 19 of the *Highway Capacity Manual (HCM) 6th Edition*, with the assistance of the Synchro (version 11) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection LOS.

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and LOS was determined based upon the procedures found in Chapters 20 and 21 of the *HCM 6th Edition*, with the assistance of the Synchro (version 11) computer software.

4.4.2 *Street Segments*

Street segment analysis is based upon the comparison of ADTs to the County of Imperial or the City of El Centro Roadway Classification Table. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics.

Appendix B contains the County of Imperial and City of El Centro Roadway Classification Table.

4.5 Level of Service Standards

LOS is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

Per the County of Imperial's Circulation Element, the acceptable LOS threshold for an intersection and street segment is C or higher. LOS on State Highways, in some cases, deteriorates to LOS D, however the County of Imperial and City of El Centro has no jurisdiction over State Highways and planning for these facilities is undertaken by the State of California. County and City roads that do intersect with State routes should be given special consideration because delays at intersections tend to deteriorate operating conditions along street segments.

State highways are governed and maintained by Caltrans, which typically utilize the published *Institute of Transportation Engineers (ITE) Guidelines for Transportation Impact Studies (dated May 2019)* to establish thresholds and methodology for this LMA. ***Table 4–1*** below indicates when a project's effect on the roadway system is considered to justify the need for roadway improvements. That is, if a project's traffic effect causes the values in this table to be exceeded, roadway improvements should be considered as follows on a case-by-case basis.

It should be noted that if the pre-project operation is already below standards, the substantial effect with the addition of project traffic would be considered a cumulative effect, and a fair share of responsibility for improvements should be applied. However, if the project causes the operation to degrade to an unacceptable level, then the project would be responsible for constructing the necessary improvements. Since the County of Imperial does not have an established threshold at the time this report was prepared, it was deemed reasonable to utilize the threshold in *Table 4–1*.

TABLE 4–1
THRESHOLDS WHEN TRANSPORTATION FACILITY IMPROVEMENTS ARE NEEDED

Level of Service with Project[a]	Allowable Increase Due to Project[b]	
	Roadway Segments	Intersections
	V/C	Delay (sec.)
D, E & F	0.02	2

Footnotes:

a. All LOS measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis. The acceptable LOS for roadways and intersections is generally "C."

b. If a proposed project's traffic causes the values shown in the table to be exceeded, it is considered to be a substantial effect. The project applicant shall then identify feasible improvements that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable *(see footnote a above)*, the project applicant shall be responsible for mitigating the project's traffic impacts.

General Notes:

1. V/C = Volume to Capacity Ratio
2. Delay = Average control delay per vehicle measured in seconds for intersections
3. LOS = Level of Service

5.0 ANALYSIS OF EXISTING CONDITIONS

5.1 Peak Hour Intersection Operations

Table 5–1 summarizes the Existing peak hour intersection operations. As shown in *Table 5–1*, all the study area intersections are calculated to operate at LOS C or better during both the AM and PM peak hours for intersections within County of Imperial and City of El Centro jurisdiction, and LOS D or better during both the AM and PM peak hours for intersections within Caltrans jurisdiction with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS D during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Ross Avenue / Dogwood Road – LOS D during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and LOS E during the PM peak hour
- Ocotillo Drive / Imperial Avenue – LOS D during the AM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the PM peak hour
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and LOS F during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM peak hour
- E McCabe Road / SR-111 *(Caltrans jurisdiction)* – LOS D during the AM peak hour
- Dogwood Road / Black Hills Road / Project Driveway F – LOS D during the PM peak hour
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS E during the AM and LOS D during the PM peak hour

Appendix C contains the Existing intersection analysis worksheets.

TABLE 5–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. Ross Ave / Imperial Ave	Signal	AM	44.6	D
		PM	30.8	C
2. Ross Ave / 8th St	Signal	AM	25.7	C
		PM	18.6	B
3. Ross Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	46.2	D
		PM	38.7	D
4. Ross Ave / Dogwood Rd	Signal	AM	27.6	C
		PM	48.6	D
5. Aurora Dr / 8th St	AWSC[c]	AM	79.3	F
		PM	38.7	E
6. Aurora Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	26.4	C
		PM	26.0	C
7. Ocotillo Dr / Imperial Ave	Signal	AM	44.9	D
		PM	28.3	C
8. I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	22.9	C
		PM	24.1	C
9. I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	23.6	C
		PM	37.4	D
10. I-8 WB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	7.9	A
		PM	7.9	A
11. I-8 EB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	11.9	B
		PM	15.5	B
12. Wake Ave / Imperial Ave	Signal	AM	29.9	C
		PM	23.8	C
13. Wake Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	46.1	D
		PM	92.3	F

TABLE 5–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
14. Danenberg Dr / Clark Rd	TWSC[d]	AM PM	9.6 10.2	A B
15. Danenberg Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM PM	11.2 19.6	B B
16. Danenberg Dr / Farnsworth Ln	TWSC[d]	AM PM	10.3 14.2	B B
17. Danenberg Dr / Dogwood Rd	Signal	AM PM	17.6 23.5	B C
18. W McCabe Rd / Austin Rd	AWSC[c]	AM PM	63.4 9.5	F A
19. W McCabe Rd / La Brucherie Rd	AWSC[c]	AM PM	81.7 10.1	F B
20. W McCabe Rd / Clark Rd	Signal	AM PM	54.5 12.8	F B
21. W McCabe Rd / SR-86 *(Caltrans jurisdiction)*	Signal	AM PM	19.0 20.3	B C
22. W McCabe Rd / Farnsworth Ln / Project Dwy A	TWSC[d]	AM PM	14.5 15.1	B C
23. W McCabe Rd / Dogwood Rd	Signal	AM PM	10.7 15.1	B B
24. E McCabe Rd / Dogwood Rd	Signal	AM PM	8.2 7.6	A A
25. E McCabe Rd / Pitzer Rd	Signal	AM PM	27.8 29.2	C C
26. E McCabe Rd / SR-111 *(Caltrans jurisdiction)*	Signal	AM PM	36.2 34.6	D C
27. SR-86 / Project Dwy B *(Caltrans jurisdiction)*	DNE	AM PM	– –	– –

TABLE 5–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
28. Dogwood Rd / Project Dwy C	DNE	AM	–	–
		PM	–	–
29. SR-86 / Project Dwy D *(Caltrans jurisdiction)*	DNE	AM	–	–
		PM	–	–
30. Dogwood Rd / Project Dwy E	DNE	AM	–	–
		PM	–	–
31. Dogwood Rd / Black Hills Rd / Project Dwy F	TWSC[d]	AM	24.1	C
		PM	32.5	D
32. Correll Rd / Project Dwy G	DNE	AM	–	–
		PM	–	–
33. Correll Rd / Project Dwy H	DNE	AM	–	–
		PM	–	–
34. Correll Rd / Dogwood Rd	Signal	AM	31.8	C
		PM	24.5	C
35. Heber Rd / Dogwood Rd *(Caltrans jurisdiction)*	AWSC[c]	AM	42.3	E
		PM	29.7	D
36. Heber Rd / Pitzer Rd *(Caltrans jurisdiction)*	TWSC[d]	AM	14.2	B
		PM	14.9	B

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. AWSC – All-Way Stop Controlled intersection.
d. TWSC – Two-Way Stop Controlled intersection.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

5.2 Daily Street Segment Operations

Table 5–2 summarizes the Existing street segment operations. As shown in *Table 5–2*, all of the study area street segments are calculated to operate at LOS C or better with the exception of the following:

- Dogwood Road between McCabe Road and Heber Road – LOS E

TABLE 5–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E)[a]	Existing		
			ADT[b]	LOS[c]	V/C[d]
Imperial Ave					
I-8 to Danenberg Dr	2-Lane Arterial	18,000	4,790	A	0.266
Clark Rd					
Danenberg Dr to McCabe Rd	2-Lane Arterial	18,000	11,340	B	0.630
SR-86 *(Caltrans jurisdiction)*					
Aurora Dr to I-8	4-Lane Arterial	36,000	21,660	A	0.602
Wake Ave to Danenberg Dr	3-Lane Arterial	27,000	13,140	A	0.487
Danenberg Dr to McCabe Rd	2-Lane Arterial	18,000	10,130	A	0.563
McCabe Rd to Heber Rd	2-Lane Minor Collector	16,200	5,370	C	0.331
Dogwood Rd					
I-8 to Danenberg Dr	4-Lane Arterial	36,000	16,810	A	0.467
Danenberg Dr to McCabe Rd	4-Lane Arterial	36,000	12,390	A	0.344
McCabe Rd to Heber Rd	2-Lane Minor Collector	16,200	14,040	E	0.867
McCabe Rd					
La Brucherie Rd to Clark Rd	2-Lane Minor Collector	16,200	6,610	C	0.408
Clark Rd to SR-86	2-Lane Minor Collector	16,200	4,400	C	0.272
SR-86 to Farnsworth Ln	2-Lane Minor Collector	16,200	5,010	C	0.309
Farnsworth Ln to Dogwood Rd	2-Lane Minor Collector	16,200	5,560	C	0.343

Footnotes:
a. Capacities based on County of Imperial or City of El Centro Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.

6.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The following is a discussion of the Project trip generation calculations and the Project traffic distribution and assignment through the local network.

6.1 Trip Generation

As described in *Section 2.0*, the Project proposes to construct up to develop 1,079 single-family lots ranging in size from 3,200 sf to 32,000 sf; two multi-family parcels totaling 27.4-acres and containing a total of 531 units; a 12.3-acre school site for the McCabe School District; and a number of community and neighborhood parks. The Project traffic generation calculations were conducted using either the trip generation rates published in the *ITE Trip Generation Manual, 11th Edition* or *SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002*.

A 5% and 10% trip reduction was applied to the Project's trip generation calculations for Phase 2 and Phase 4, respectively, to account for internal capture due to the mixed-use nature of the development. These reductions are supported by regional guidelines, including the SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002* and the *City of San Diego Traffic Impact Study Manual*, both of which recommend a 10% reduction for mixed-use developments. Given the Project's similar characteristics to those referenced in SANDAG and City of San Diego guidelines, the application of a 10% reduction for Phase 4 is reasonable. A lower 5% reduction was applied to Phase 2 to reflect its more limited level of mixed-use intensity.

Table 6–1 shows the Project trip generation. As shown in *Table 6–1*, the following trips are calculated for each phase:

- **Phase 1** *(314 single-family lots)* – 2,961 ADT, with 220 trips during the AM peak hour (57 inbound and 163 outbound), and 295 trips during the PM peak hour (186 inbound and 109 outbound).
- **Phase 2** *(419 single-family lots, 196 multi-family units, 12.3-acre school and 29.19-acre park)* – 314 single-family lots. 6,324 ADT, with 775 trips during the AM peak hour (319 inbound and 456 outbound), and 563 trips during the PM peak hour (339 inbound and 224 outbound).
- **Phase 3** *(346 single-family lots and 335 multi-family units)* – 5,521 ADT, with 376 trips during the AM peak hour (95 inbound and 281 outbound), and 496 trips during the PM peak hour (313 inbound and 183 outbound).
- **Project 4** *(422 single-family lots, 268 multi-family units, 3.14 acres of commercial, 9.41 acres of business park, an elementary school and 26.85-acre park)* – 11,536 Average Daily Traffic (ADT), with 1,118 trips during the AM peak hour (590 inbound and 528 outbound), and 1,129 trips during the PM peak hour (558 inbound and 571 outbound).

6.2 Trip Distribution and Assignment

The Project distribution was based on the site location, access to SR-86 and I-8, existing traffic patterns in the area and anticipated traffic routes to and from the site. The Project traffic distribution

assumes 32% of trips oriented to/from the north, 25% of trips oriented to/from the south, 15% of trips oriented to/from the east, and 10% of trips oriented to/from the west using local roadways. Additionally, 12% of trips oriented to/from the west and 6% of trips oriented to/from the east were assumed, using the regional I-8 freeway facility.

The Project traffic volumes were assigned differently for Year 2027, 2033, 2039 and 2040 due to the following Project driveways available by each year:

- Phase 1 of the Project is anticipated to be completed by Year 2027. Under Year 2027, Project driveway D on SR-86, Project driveways F on Dogwood Road, and Project driveways G and H on Correll Road would be provided.
- Phase 2 of the Project is anticipated to be completed by Year 2033. Under Year 2033, Project Driveway A on McCabe Road, Project driveways B and D on SR-86, Project driveway F on Dogwood Road, and Project driveways G and H on Correll Road would be provided.
- Phase 3 of the Project is anticipated to be completed by Year 2039. Under Year 2039, Project Driveway A on McCabe Road, Project driveways B and D on SR-86, Project driveways C and F on Dogwood Road, and Project driveways G and H on Correll Road would be provided.
- Phase 4 of the Project is anticipated to be completed by Year 2040. Under Year 2040, Project Driveway A on McCabe Road, Project driveways B and D on SR-86, Project driveways C and F on Dogwood Road, and Project driveways G and H on Correll Road would be provided. In addition, it is assumed that driveway E on Dogwood Road would be provided by completion of Phase 4.

As a result, Project traffic at each driveway are anticipated to be redistributed as some vehicles would use driveways better for their commute to/from home which may be different than the earlier phases.

Figure 6–1 shows the Project Phase 1 traffic distribution. ***Figure 6–2*** shows the Project Phase 1 traffic volumes. ***Figure 6–3*** shows the Project Phases 1 and 2 traffic distribution. ***Figure 6–4*** shows the Project Phases 1 and 2 traffic volumes. ***Figure 6–5*** shows the Project Phases 1, 2 and 3 (TM 994 Buildout) traffic distribution. ***Figure 6–6*** shows the Project Phases 1, 2 and 3 (TM 994 Buildout) traffic volumes. ***Figure 6–7*** shows the TM 994 Buildout and Phases 4 traffic distribution. ***Figure 6–8*** shows the TM 994 Buildout and Phases 4 traffic volumes.

TABLE 6–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	Rate[a] / Peak Hour %	In:Out Split [a]	Volume			Rate[a] / Peak Hour %	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Phase 1													
Single-Family	314 DU	9.43/ DU[b]	2,961	0.70/ DU[b]	26:74	57	163	220	0.94/ DU[b]	63:37	186	109	295
Phase 2													
Single-Family	419 DU	9.43/ DU[b]	3,951	0.70/ DU[b]	26:74	76	217	293	0.94/ DU[b]	63:37	248	146	394
Multi-Family	196 DU	6.74/ DU[c]	1,321	0.40/ DU[c]	24:76	19	59	78	0.51/ DU[c]	63:37	63	37	100
McCabe School	600 students	2.27/ student[d]	1,362	0.74/ student[d]	54:46	240	204	444	0.16/ student[d]	46:54	44	52	96
Park / Detention	29.19 ac	0.78/ ac[e]	23	0.02/ ac[e]	59:41	1	0	1	0.11/ ac[e]	55:45	2	1	3
Mixed-Use Reduction (5%)			*-333*			*-17*	*-24*	*-41*			*-18*	*-12*	*-30*
Phase 2 Subtotal			***6,324***			***319***	***456***	***775***			***339***	***224***	***563***
Phase 3													
Single-Family	346 DU	9.43/ DU[b]	3,263	0.70/ DU[b]	26:74	63	179	242	0.94/ DU[b]	63:37	205	120	325
Multi-Family	335 DU	6.74/ DU[c]	2,258	0.40/ DU[c]	24:76	32	102	134	0.51/ DU[c]	63:37	108	63	171
Phase 3 Subtotal			***5,521***			***95***	***281***	***376***			***313***	***183***	***496***

TABLE 6–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	Rate[a] / Peak Hour %	In:Out Split [a]	Volume			Rate[a] / Peak Hour %	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Phase 4 (not part of Tract Map, but within Specific Plan)													
Single-Family	422 DU	9.43/ DU[b]	3,979	0.70/ DU[b]	26:74	77	218	295	0.94/ DU[b]	63:37	250	147	397
Multi-Family	268 DU	6.74/ DU[c]	1,806	0.40/ DU[c]	24:76	26	81	107	0.51/ DU[c]	63:37	86	51	137
Commercial	3.14 ac	1,200/ ac[f]	3,768	4%	60:40	91	60	151	10%	50:50	189	188	377
Business Park	9.41 ac	200/ ac[g]	1,882	13%	90:10	221	24	245	13%	20:80	49	196	245
Heber School	600 students	2.27/ student[d]	1,362	0.74/ student[d]	54:46	240	204	444	0.16/ student[d]	46:54	44	52	96
Park / Detention	26.85 ac	0.78/ ac[e]	21	0.02/ ac[e]	59:41	1	0	1	0.11/ ac[e]	55:45	2	1	3
Mixed-Use Reduction (10%)			*-1,282*			*-66*	*-59*	*-125*			*-62*	*-64*	*-126*
Phase 4 Subtotal			***11,536***			***590***	***528***	***1,118***			***558***	***571***	***1,129***
Overall Total			***26,342***			***1,061***	***1,428***	***2,489***			***1,396***	***1,087***	***2,483***

Footnotes:

a. Rates are based on *ITE Trip Generation Manual, 11th Edition*.
b. Rates are based on ITE's single-family detached housing trip rate (land use code 210).
c. Rates are based on ITE's multifamily detached housing trip rate (land use code 220).
d. Rates are based on ITE's elementary school trip rate (land use code 520).
e. Rates are based on ITE's public park trip rate (land use code 411).
f. Since ITE does not provide trip rates in acre for a shopping plaza land use (land use code 821), rates from *SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002* for neighborhood shopping center was used.
g. Since ITE does not provide trip rates in acre for a business park land use (land use code 770), *SANDAG* rates for office park was used.

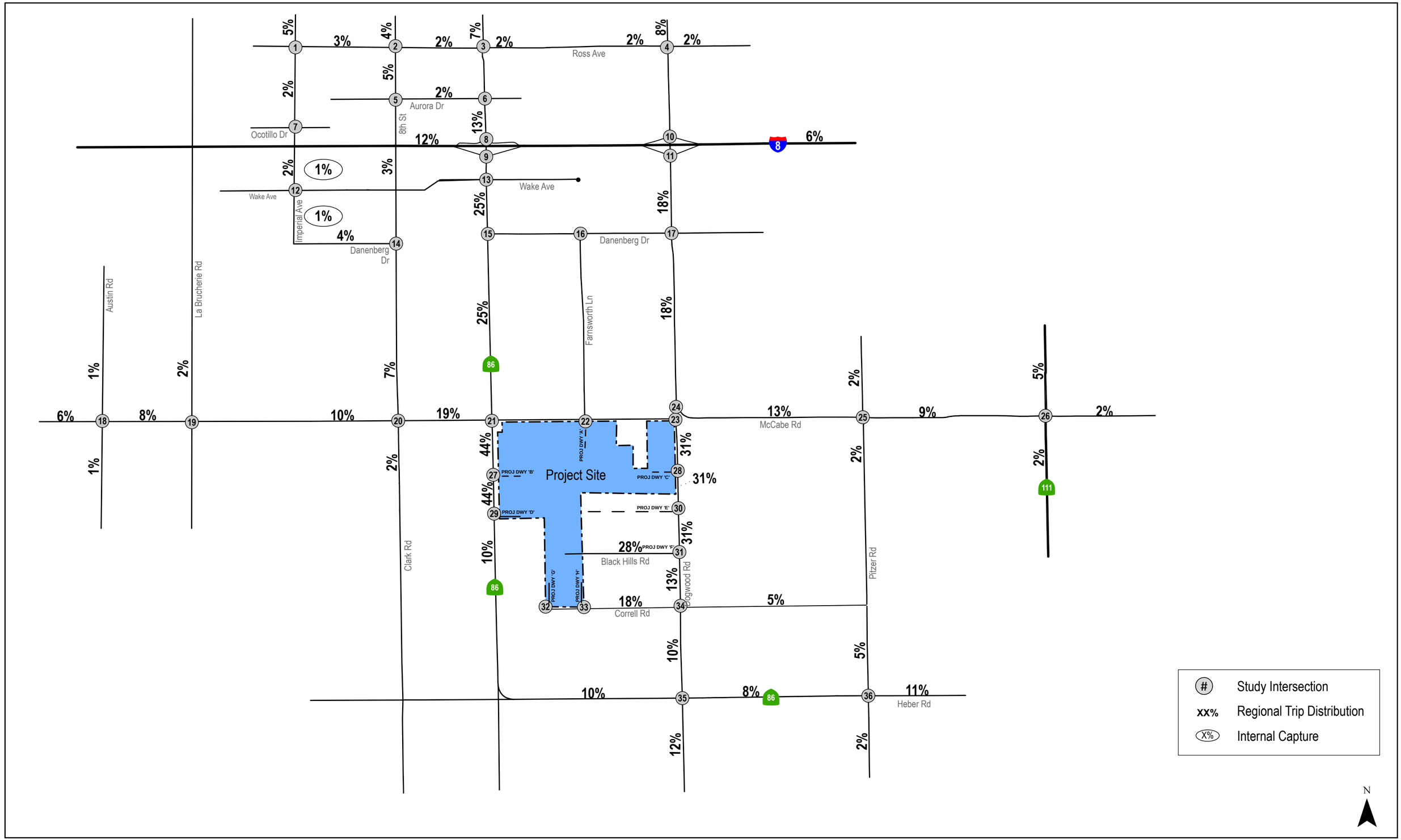

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Figure 6-1
Project Phase I Traffic Distribution
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McCabe Ranch II

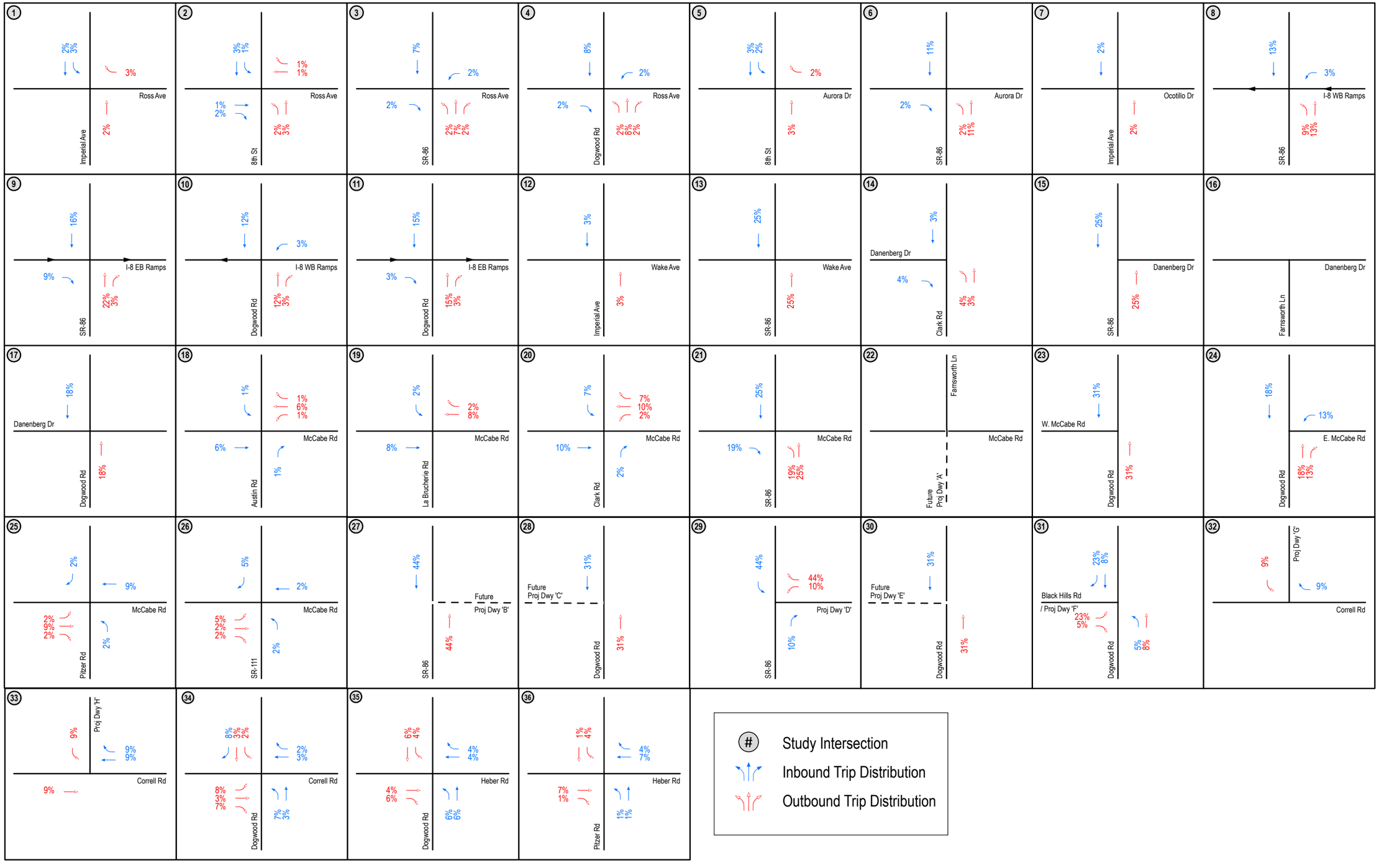

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Figure 6-1
Project Phase I Traffic Distribution
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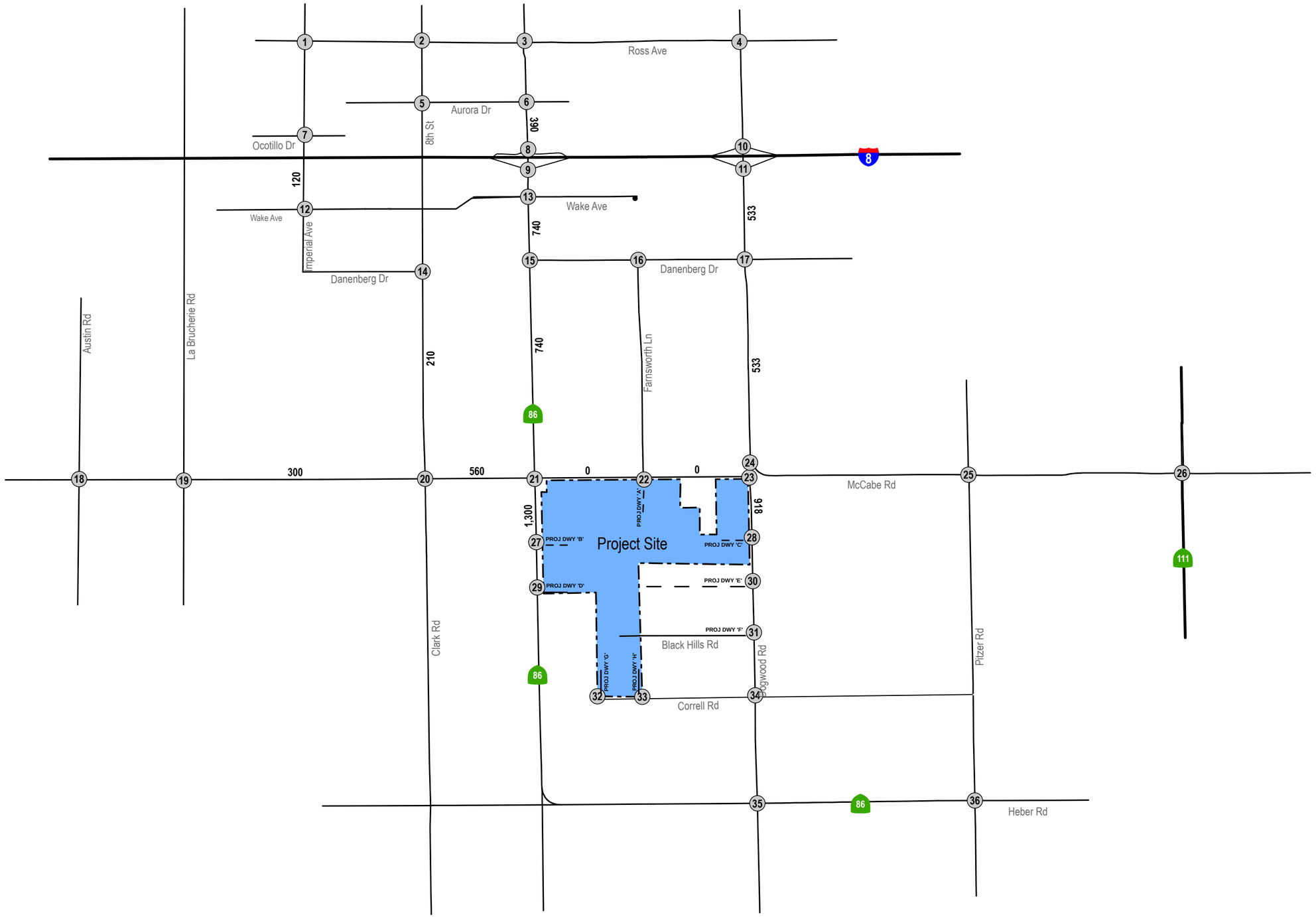

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Figure 6-2
Project Phase I Traffic Volumes
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McCabe Ranch II

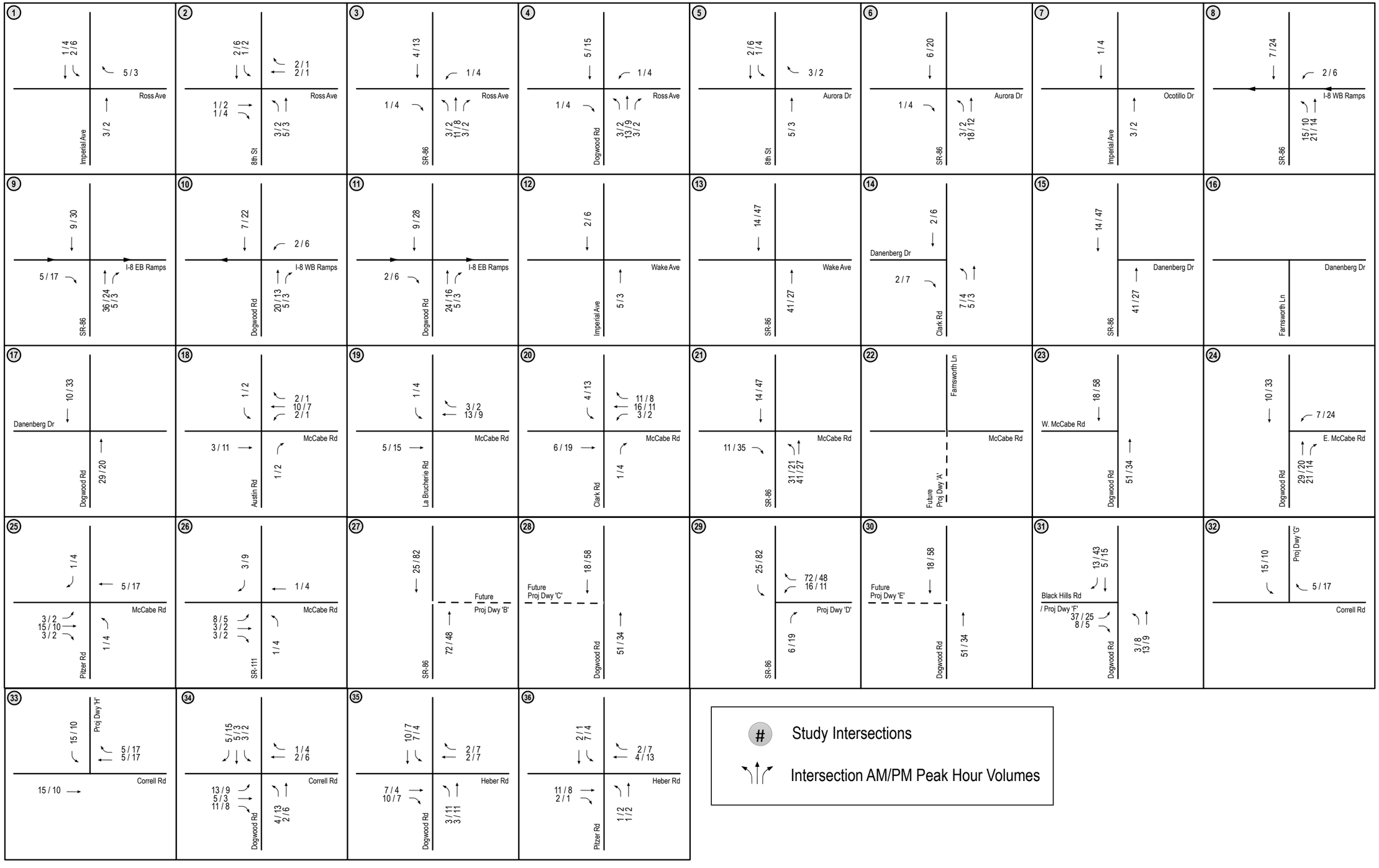

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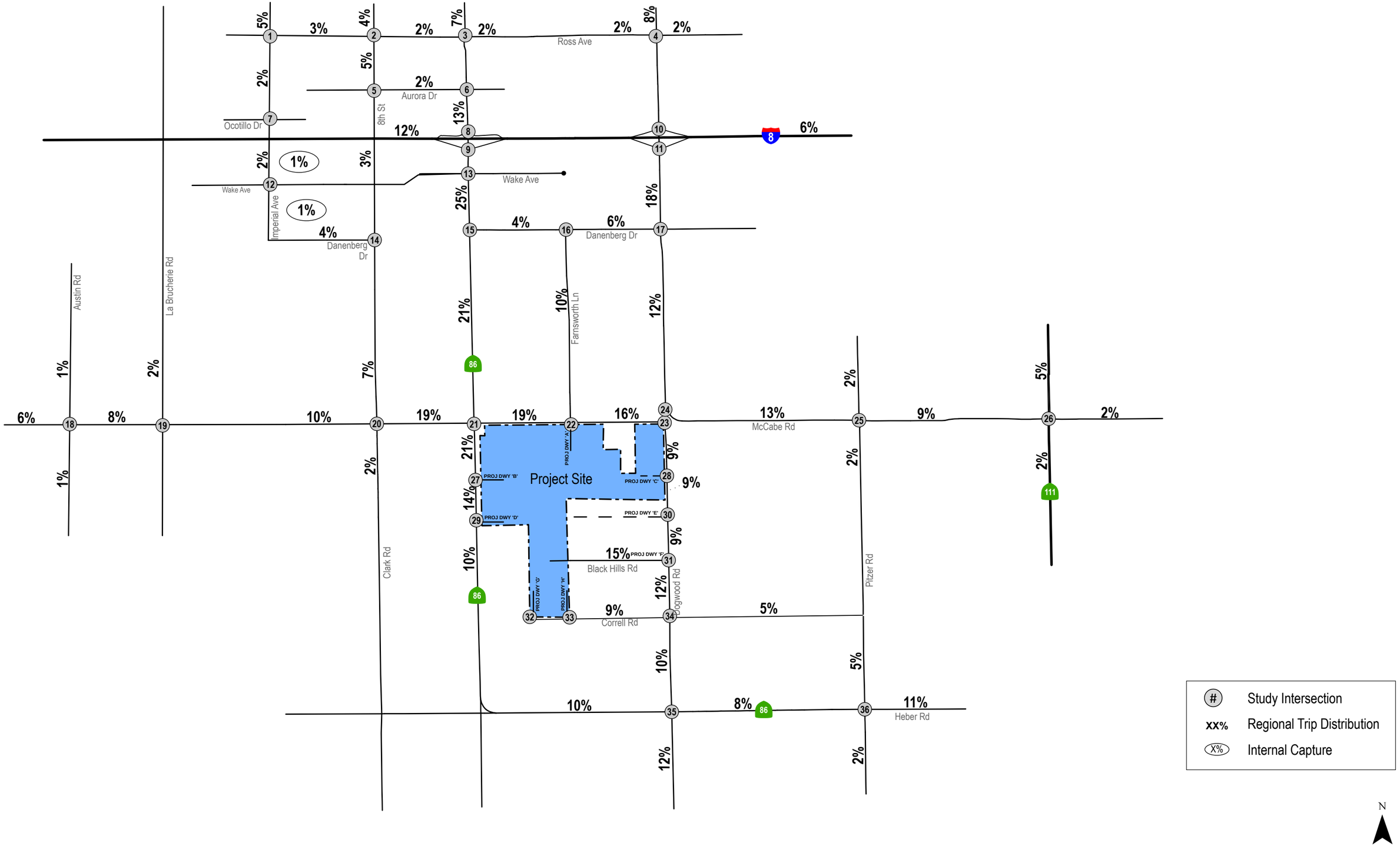
Figure 6-2
Project Phase I Traffic Volumes
Page 2 of 2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Aurora Dr
Ocotillo Dr
8th St
Wake Ave
Wake Ave
Imperial Ave
Danenberg Dr
Danenberg Dr
Austin Rd
La Brucherie Rd
Farnsworth Ln
McCabe Rd
Project Site
PROJ DWY 'A'
PROJ DWY 'B'
PROJ DWY 'C'
PROJ DWY 'D'
PROJ DWY 'E'
PROJ DWY 'F'
PROJ DWY 'G'
PROJ DWY 'H'
Black Hills Rd
Correll Rd
Clark Rd
Hogwood Rd
Pitzer Rd
Heber Rd
1%
2%
3%
4%
5%
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Figure 6-3
Project Phases I & 2 Traffic Distribution
Page 2 of 2

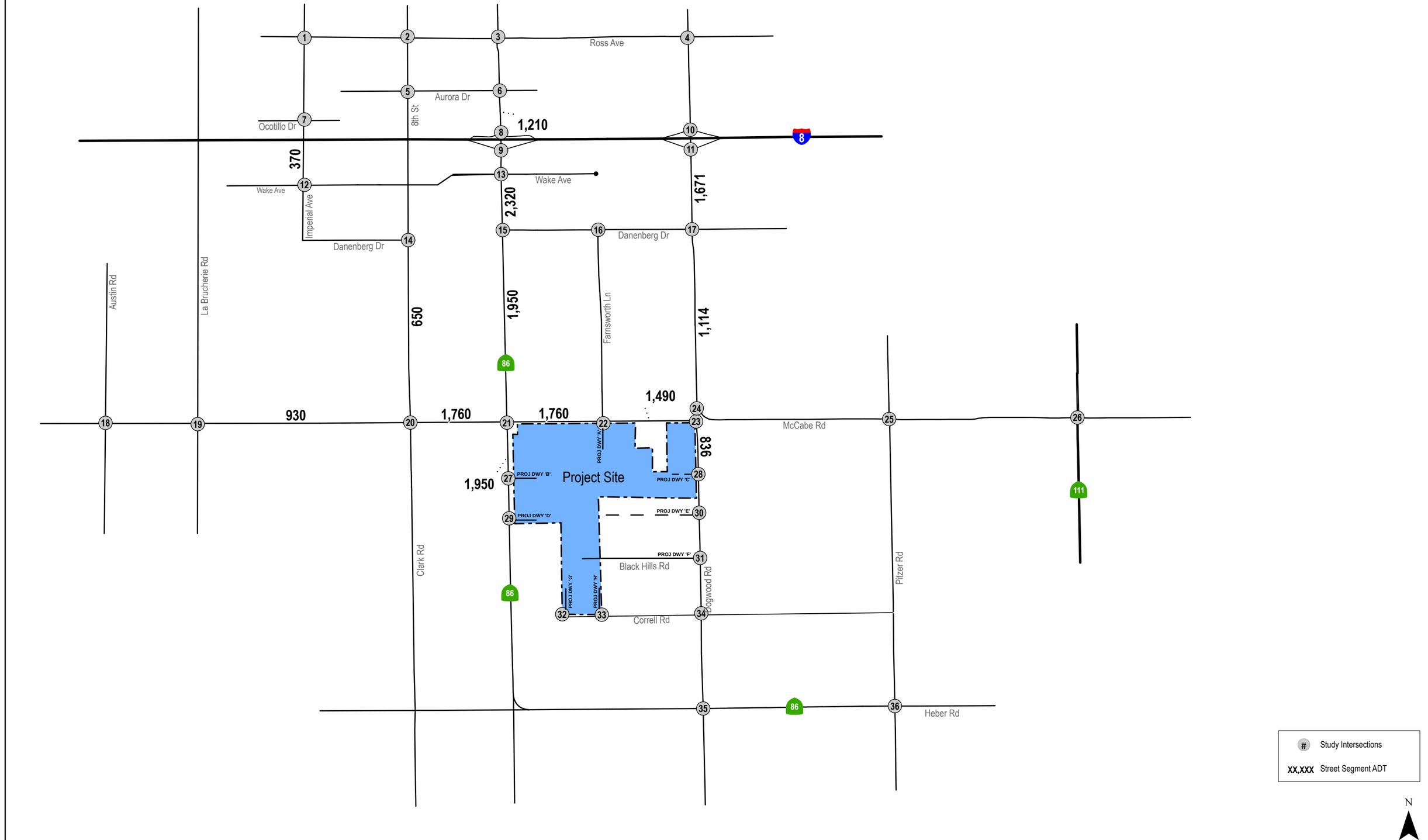

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Figure 6-4
Project Phases I & 2 Traffic Volumes
Page 1 of 2

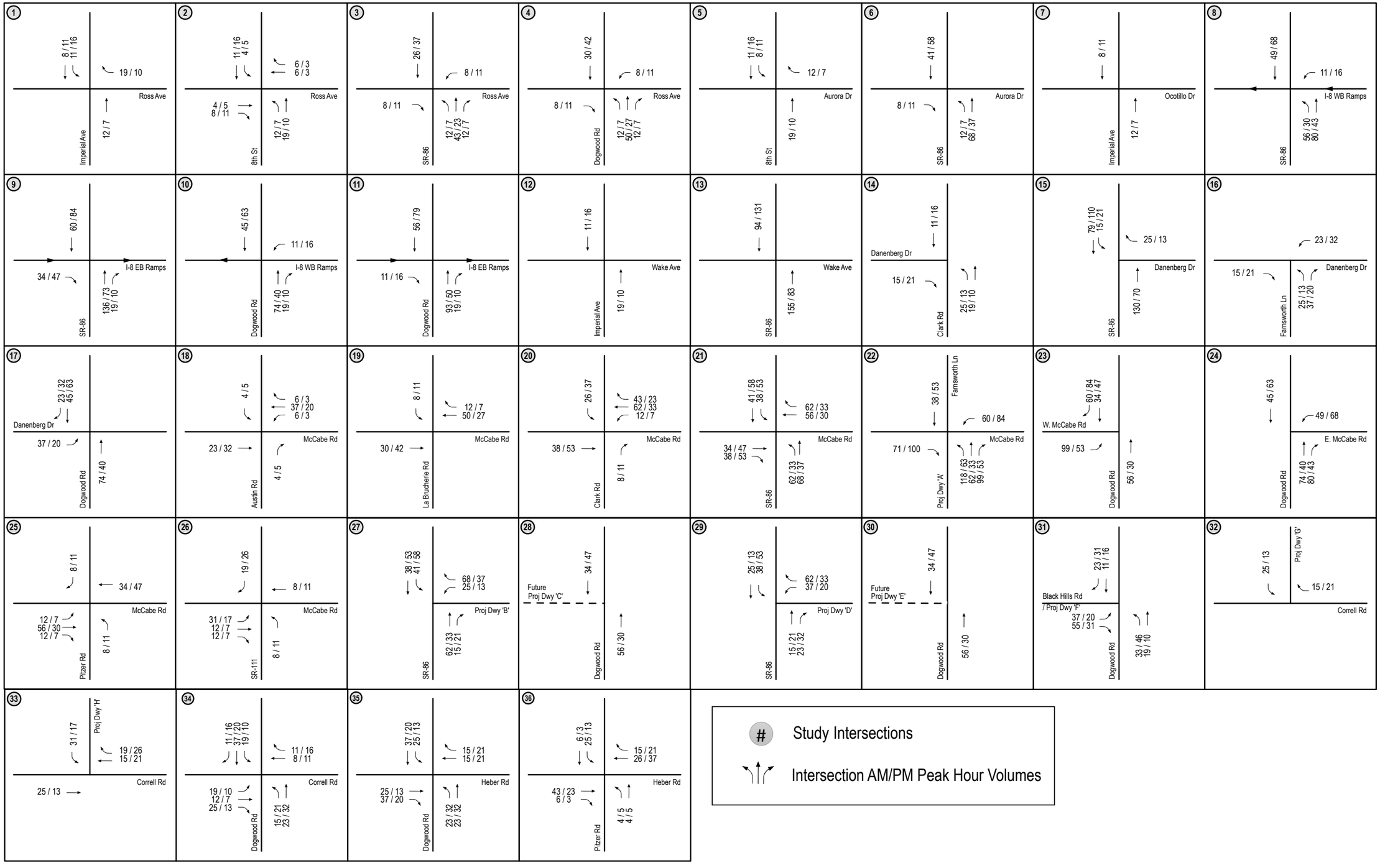

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Figure 6-4
Project Phases I & 2 Traffic Volumes
Page 2 of 2

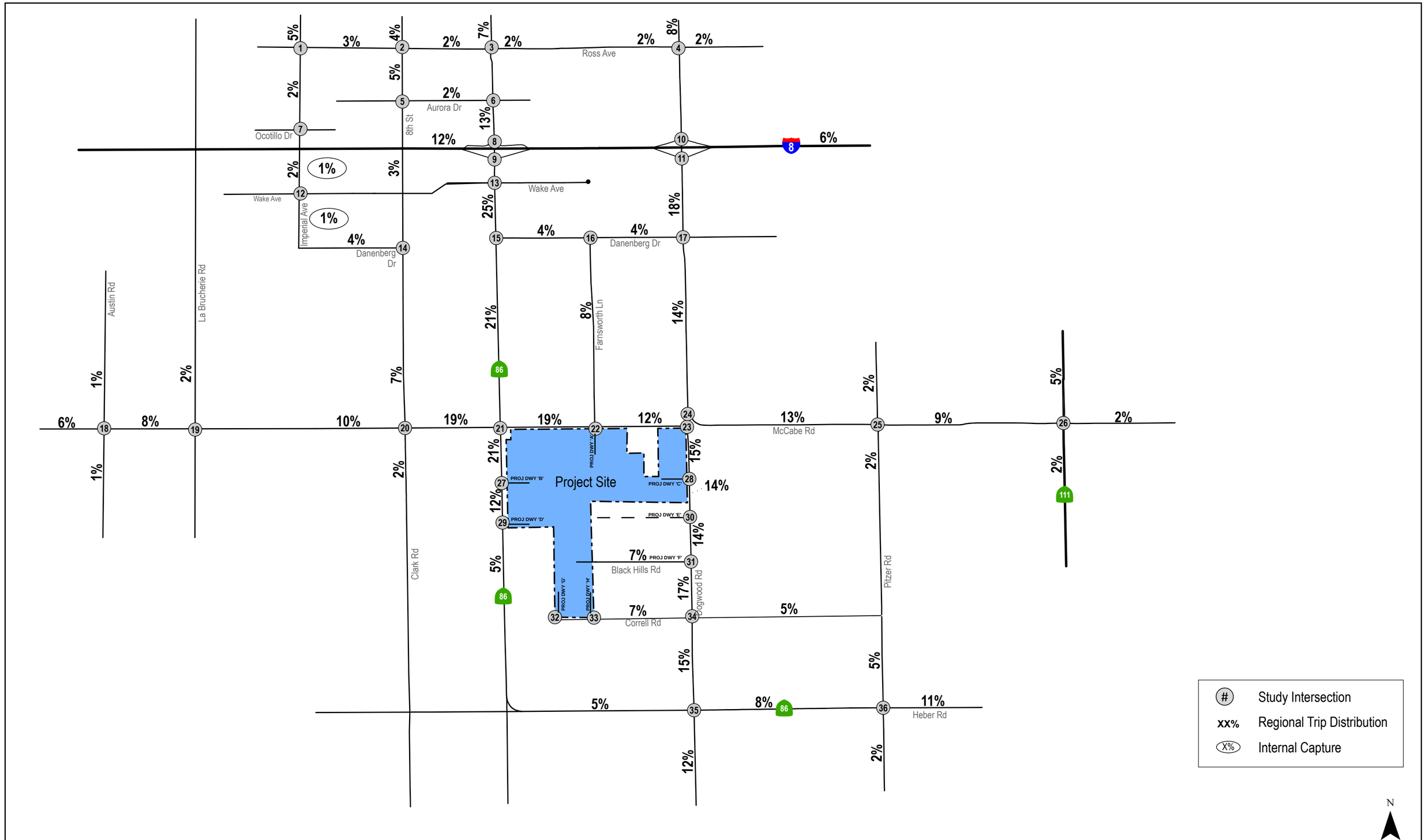

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Figure 6-5
Project Phases I, 2 & 3 (TM 994 Buildout) Traffic Distribution
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Figure 6-5
Project Phases I, 2 & 3 (TM 994 Buildout) Traffic Distribution

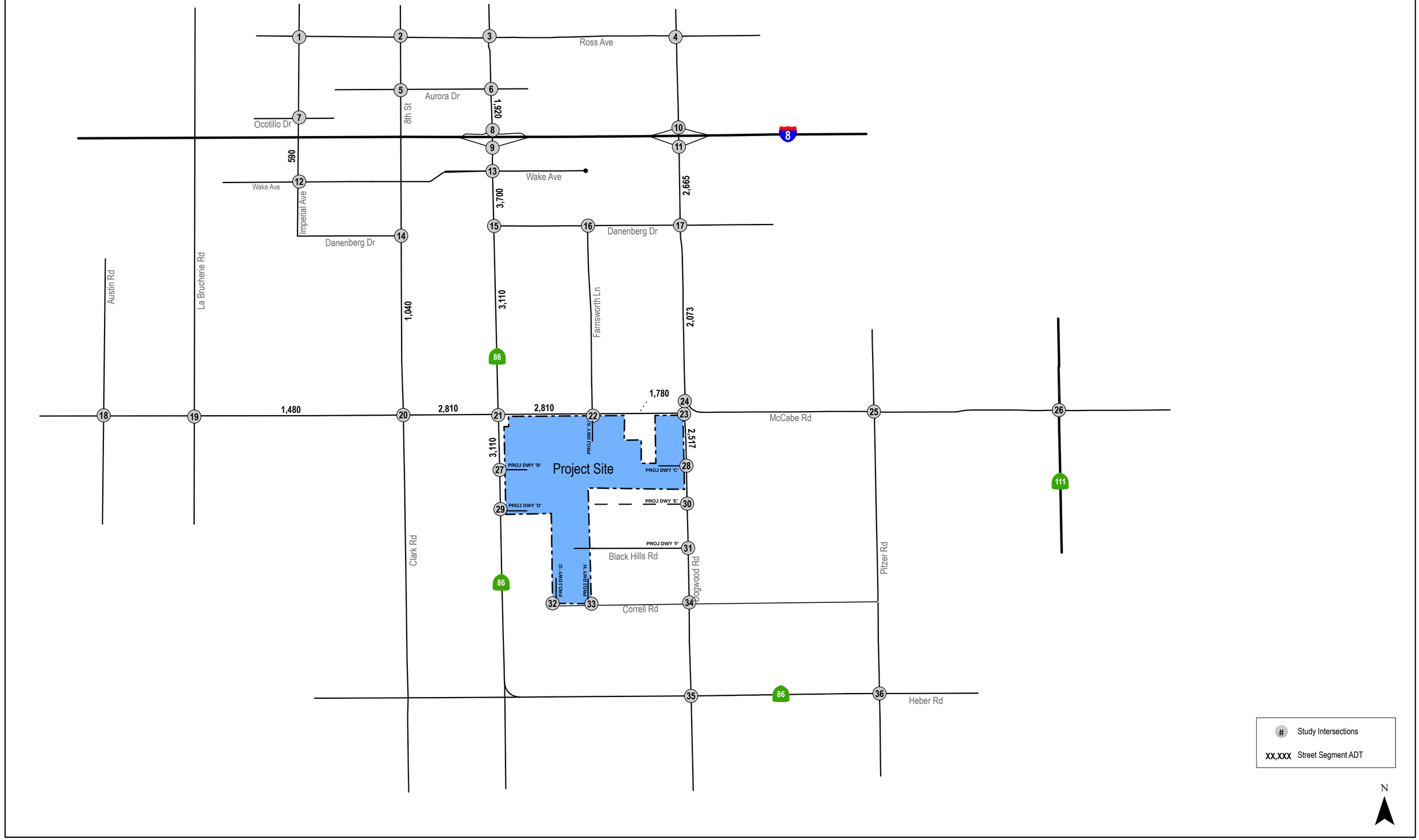

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Figure 6-6
Project Phases I, 2 & 3 (TM 994 Buildout) Traffic Volumes

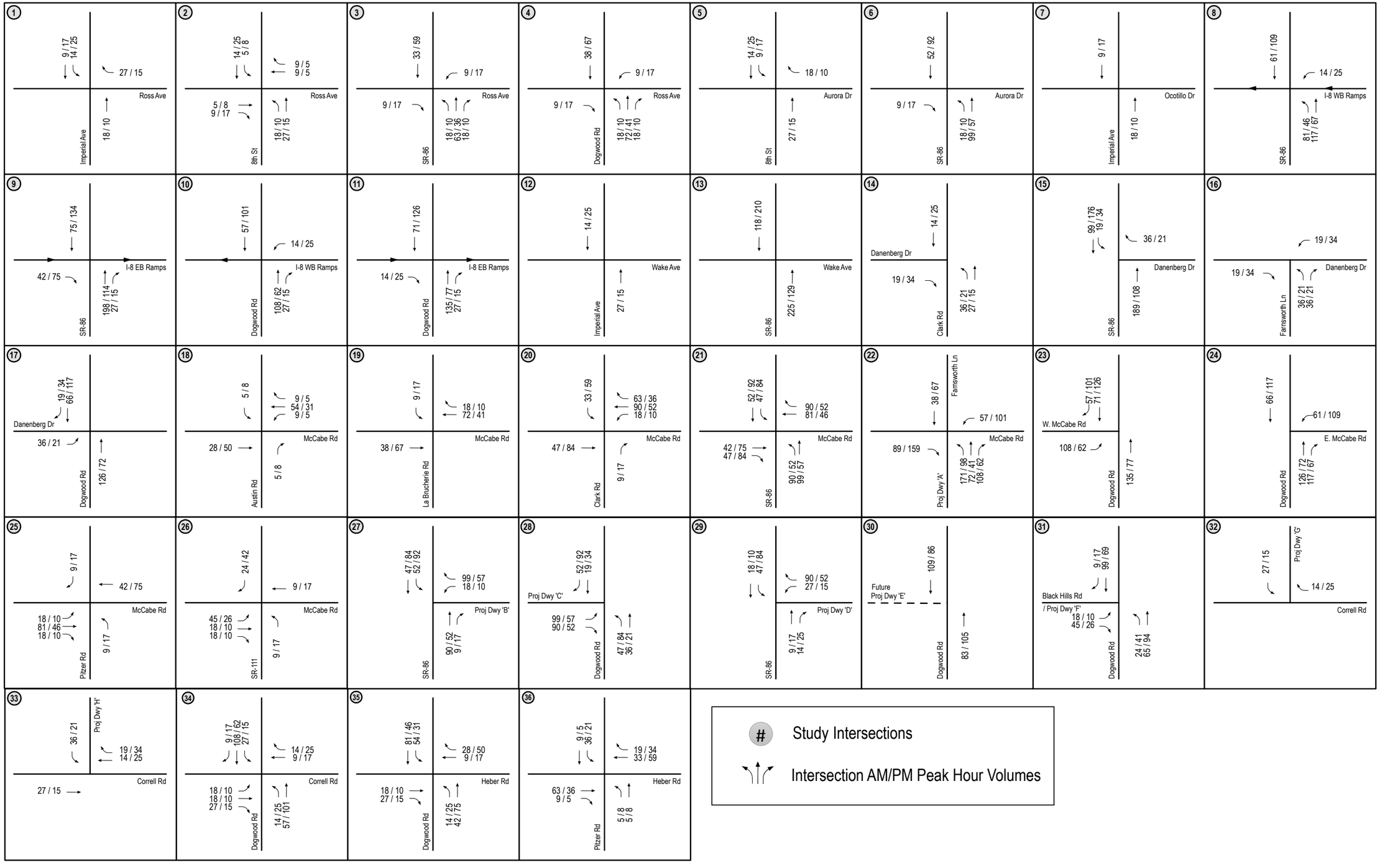

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Figure 6-6
Project Phases I, 2 & 3 (TM 994 Buildout) Traffic Volumes
Page 2 of 2

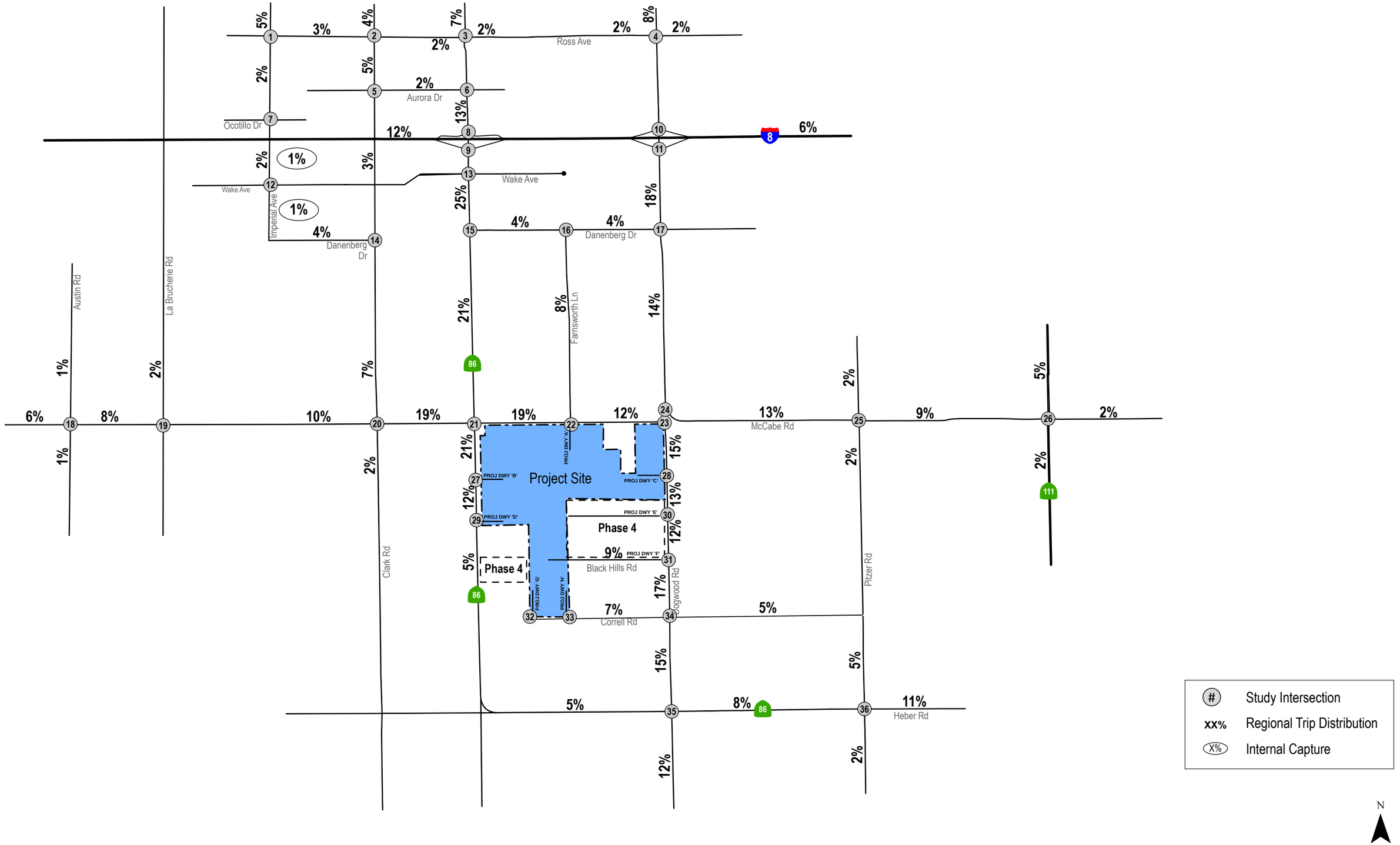

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Figure 6-7
Phases I, 2, 3 + Phase 4 (Specific Plan Buildout) Traffic Distribution
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Figure 6-7
Phases I, 2, 3 + Phase 4 (Specific Plan Buildout) Traffic Distribution
Page 2 of 2

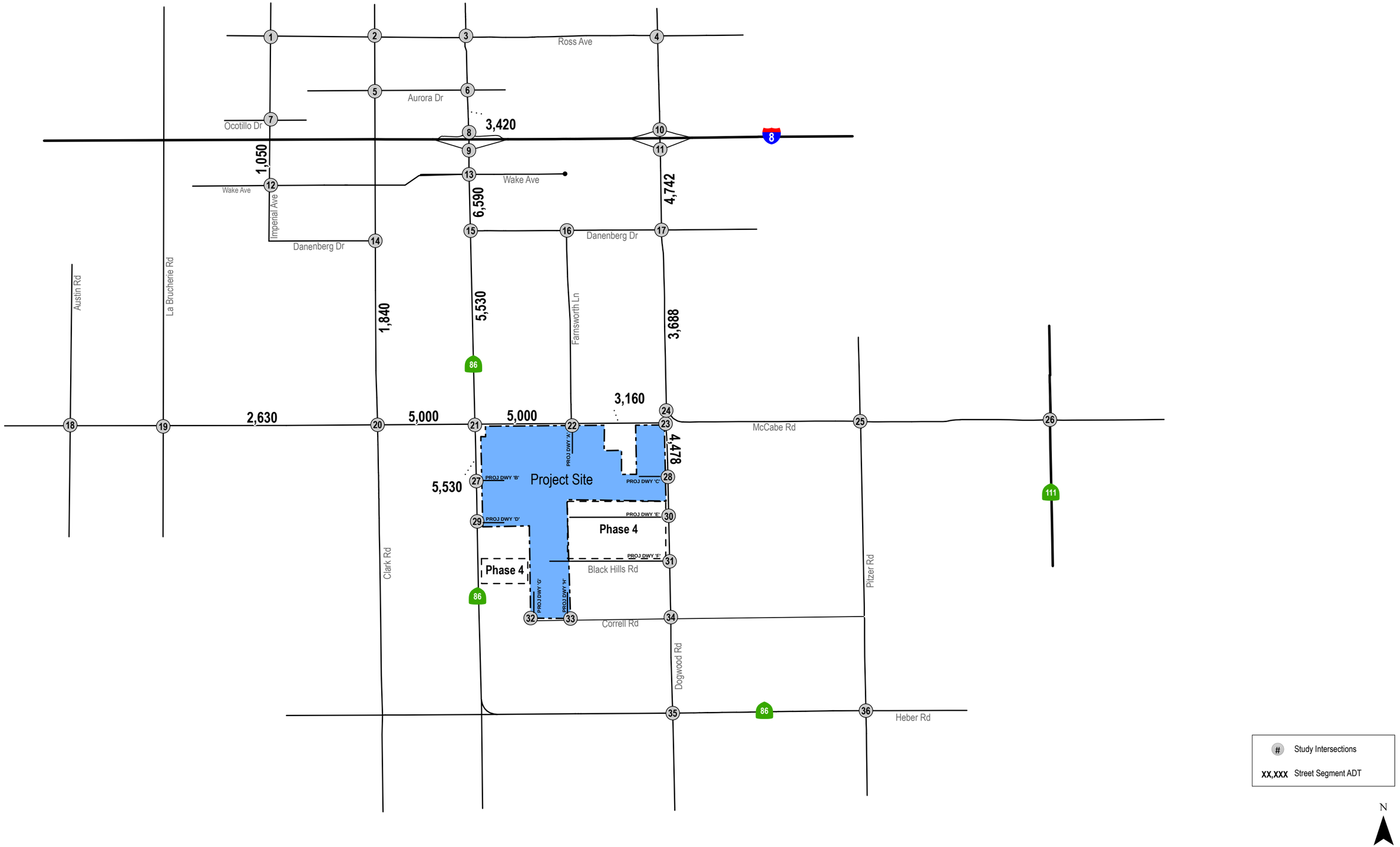

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Figure 6-8
Phases I, 2, 3 + Phase 4 (Specific Plan Buildout) Traffic Volumes
Page 1 of 2

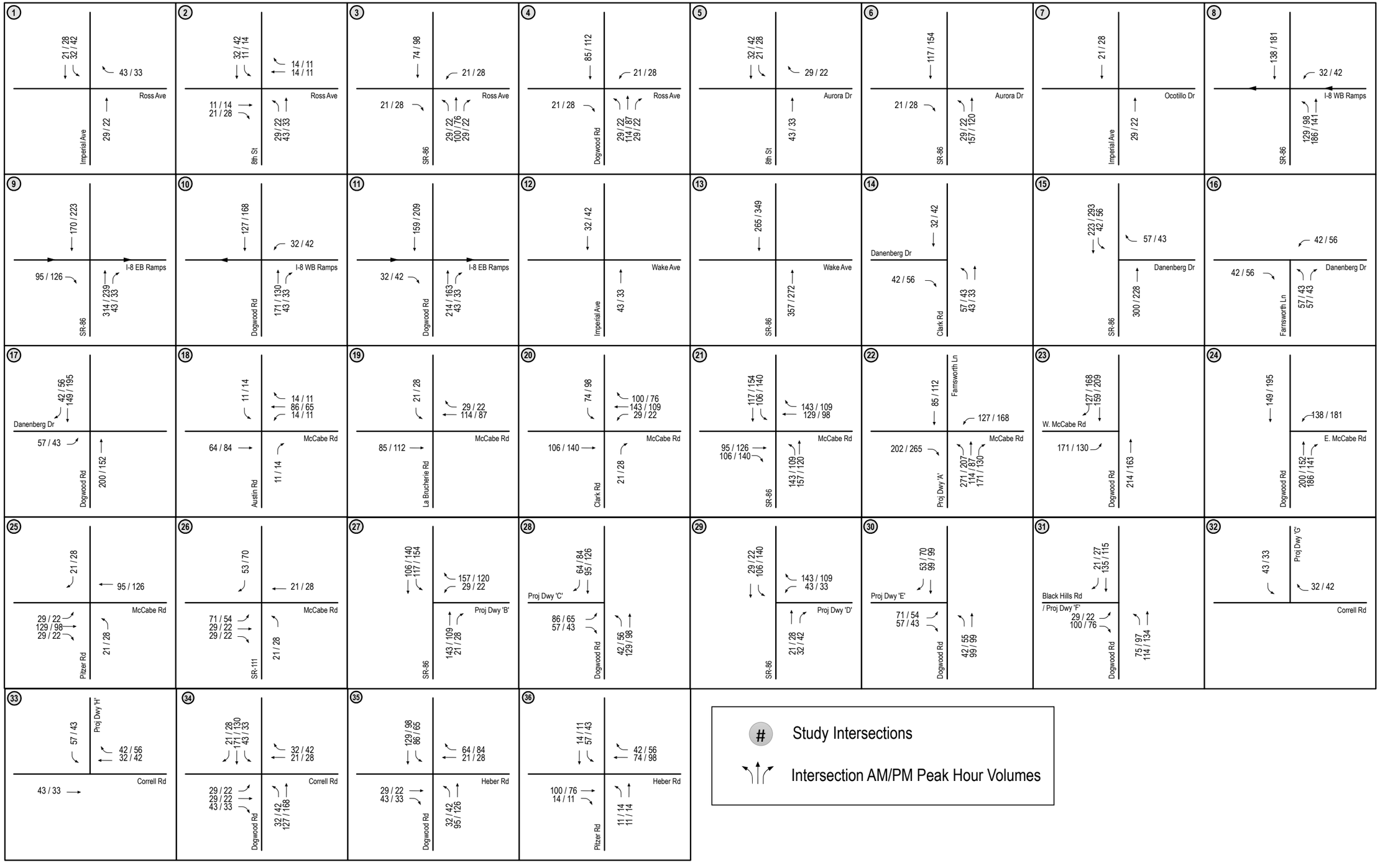

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Figure 6-8
Phases I, 2, 3 + Phase 4 (Specific Plan Buildout) Traffic Volumes
Page 2 of 2

7.0 CUMULATIVE TRAFFIC

According to *Section II.C, Future Traffic Volume Forecasts*, of the *County of Imperial Circulation Element*, SR-86 is expected to increase by approximately one-half a percent annually within the immediate vicinity of the Project site between the Year 2025 and 2050. This calculation accounts for ambient growth resulting from population growth and cumulative projects that will add traffic to the study area between the date traffic counts were conducted and the various McCabe Ranch II phases. Therefore, to account for this ambient growth, a minimum growth rate of 0.5% per year was applied. The following growth rates were applied to the Existing traffic volumes for each study phase: Year 2027 (2% for 3 years), Year 2033 (slightly more than 0.5% per year for 9 years), Year 2039 (0.67% per year for 15 years) and Year 2040 (1% for 16 years) traffic volumes.

Appendix B contains excerpts from the County of Imperial Circulation Element.

8.0 INTERSECTION AND STREET SEGMENT OPERATIONS ANALYSIS BY PHASE

The scenarios analyzed below assess the traffic impact of Phase 1, Phases 1 and 2, Phases 1, 2, and 3 (TM 994 Buildout), and Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout). This analysis includes intersection and street segment operations. As mentioned in *Section 2.0*, Phase 4 is under separate ownership so is not technically part of the Project.

8.1 Year 2027 without Project

The following section presents the analysis of study area intersections and street segments under Year 2027 without Project.

Figure 8–1 shows the Year 2027 without Project traffic volumes.

8.1.1 *Peak Hour Intersection Operations*

Table 8–1 summarizes the Year 2027 without Project peak hour intersection operations. As shown in *Table 8–1*, all the study area intersections are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS D during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Ross Avenue / Dogwood Road – LOS D during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and LOS E during the PM peak hour
- Ocotillo Drive / Imperial Avenue – LOS D during the AM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the PM peak hour
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and LOS F during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM peak hour
- E McCabe Road / SR-111 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Dogwood Road / Black Hills Road / Project Driveway F – LOS D during the AM and PM peak hours
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS E during the AM and LOS D during the PM peak hour

Appendix D contains the Year 2027 without Project intersection analysis worksheets.

8.1.2 *Daily Street Segment Operations*

Table 8–2 summarizes the Year 2027 without Project street segment operations. As shown in *Table 8–2*, all of the study area street segments are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Dogwood Road between McCabe Road and Heber Road – LOS E

8.2 Year 2027 + Project Phase 1

The following section presents the analysis of study area intersections and street segments under Year 2027 + Project Phase 1.

Figure 8–2 shows the Year 2027 + Project Phase 1 traffic volumes.

8.2.1 *Peak Hour Intersection Operations*

Table 8–1 summarizes the Year 2027 + Project Phase 1 peak hour intersection operations. As shown in *Table 8–1*, all the study area intersections are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS D during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Ross Avenue / Dogwood Road – LOS D during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and LOS E during the PM peak hour
- Ocotillo Drive / Imperial Avenue – LOS D during the AM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the PM peak hour
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and LOS F during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM peak hour
- E McCabe Road / SR-111 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Dogwood Road / Black Hills Road / Project Driveway F – LOS E during the AM and LOS F during the PM peak hour
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS F during the AM and LOS E during the PM peak hour

Based on the established LOS standards and thresholds outlined in *Section 4.5*, substantial effects are identified at the following intersections, where the project adds traffic that causes operations to fall below an acceptable LOS and increases average vehicle delay by more than 2 seconds. Recommendations to improve intersection operations to an acceptable LOS are discussed in *Section 11.0.*

- Aurora Drive / 8th Street
- W McCabe Road / Austin Road
- W McCabe Road / La Brucherie Road
- W McCabe Road / Clark Road
- Dogwood Road / Black Hills Road / Project Driveway F

- Heber Road / Dogwood Road *(Caltrans jurisdiction)*

Appendix E contains the Year 2027 + Project Phase 1 intersection analysis worksheets.

8.2.2 *Daily Street Segment Operations*

Table 8–2 summarizes the Year 2027 + Project Phase 1 street segment operations. As shown in *Table 8–2*, all of the study area street segments are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Dogwood Road between McCabe Road and Heber Road – LOS E

Based on the established LOS standards and thresholds outlined in *Section 4.5*, substantial effects are identified at the following street segment, where the project adds traffic that causes operations to fall below an acceptable LOS and increases the vehicle/capacity ratio by more than 0.02. Recommendations to improve intersection operations to an acceptable LOS are discussed in *Section 11.0*.

- Dogwood Road between McCabe Road and Heber Road

TABLE 8–1
YEAR 2027 + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2027		Year 2027 + Project Phase 1		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
1. Ross Ave / Imperial Ave	Signal	AM	45.4	D	45.5	D	0.1	No
		PM	31.1	C	31.3	C	0.2	No
2. Ross Ave / 8th St	Signal	AM	26.2	C	26.6	C	0.4	No
		PM	18.9	B	19.1	B	0.2	No
3. Ross Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	47.9	D	48.5	D	0.6	No
		PM	39.8	D	40.7	D	0.9	No
4. Ross Ave / Dogwood Rd	Signal	AM	28.3	C	28.8	C	0.5	No
		PM	51.5	D	52.2	D	0.7	No
5. Aurora Dr / 8th St	AWSC[d]	AM	**87.4**	**F**	**90.3**	**F**	**2.9**	**Yes**
		PM	40.7	E	42.4	E	1.7	No
6. Aurora Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	26.9	C	27.1	C	0.2	No
		PM	26.6	C	27.1	C	0.5	No
7. Ocotillo Dr / Imperial Ave	Signal	AM	47.0	D	47.1	D	0.1	No
		PM	29.2	C	29.2	C	0.0	No
8. I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	23.7	C	24.5	C	0.8	No
		PM	25.1	C	26.5	C	1.4	No
9. I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	24.6	C	25.8	C	1.2	No
		PM	39.0	D	40.5	D	1.5	No
10. I-8 WB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	7.9	A	8.0	A	0.1	No
		PM	7.9	A	8.1	A	0.2	No
11. I-8 EB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	12.0	B	12.0	B	0.0	No
		PM	15.8	B	16.0	B	0.2	No
12. Wake Ave / Imperial Ave	Signal	AM	30.1	C	30.6	C	0.5	No
		PM	23.8	C	24.0	C	0.2	No
13. Wake Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	48.3	D	49.8	D	1.5	No
		PM	97.3	F	98.9	F	1.6	No

TABLE 8–1
YEAR 2027 + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2027		Year 2027 + Project Phase 1		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
14. Danenberg Dr / Clark Rd	TWSC[e]	AM	9.6	A	9.6	A	0.0	No
		PM	10.2	B	10.3	B	0.1	No
15. Danenberg Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	11.3	B	11.3	B	0.0	No
		PM	19.9	B	20.4	C	0.5	No
16. Danenberg Dr / Farnsworth Ln	TWSC[e]	AM	10.3	B	10.3	B	0.0	No
		PM	14.4	B	14.4	B	0.0	No
17. Danenberg Dr / Dogwood Rd	Signal	AM	17.8	B	17.8	B	0.0	No
		PM	23.7	C	23.8	C	0.1	No
18. W McCabe Rd / Austin Rd	AWSC[d]	AM	**67.1**	**F**	**73.4**	**F**	**6.3**	**Yes**
		PM	9.6	A	9.8	A	0.2	No
19. W McCabe Rd / La Brucherie Rd	AWSC[d]	AM	**91.5**	**F**	**99.8**	**F**	**8.3**	**Yes**
		PM	10.3	B	10.7	B	0.4	No
20. W McCabe Rd / Clark Rd	Signal	AM	**60.5**	**F**	**73.6**	**F**	**13.1**	**Yes**
		PM	13.1	B	14.1	B	1.0	No
21. W McCabe Rd / SR-86 *(Caltrans jurisdiction)*	Signal	AM	19.2	B	21.7	C	2.5	No
		PM	20.6	C	24.2	C	3.6	No
22. W McCabe Rd / Farnsworth Ln / Project Dwy A	TWSC[e]	AM	14.8	B	14.8	B	0.0	No
		PM	15.4	C	15.4	C	0.0	No
23. W McCabe Rd / Dogwood Rd	Signal	AM	10.8	B	11.0	B	0.2	No
		PM	15.5	B	16.4	B	0.9	No
24. E McCabe Rd / Dogwood Rd	Signal	AM	8.3	A	8.6	A	0.3	No
		PM	7.6	A	8.1	A	0.5	No
25. E McCabe Rd / Pitzer Rd	Signal	AM	27.9	C	29.5	C	1.6	No
		PM	29.3	C	30.4	C	1.1	No
26. E McCabe Rd / SR-111 *(Caltrans jurisdiction)*	Signal	AM	37.1	D	37.4	D	0.3	No
		PM	35.7	D	36.7	D	1.0	No
27. SR-86 / Project Dwy B *(Caltrans jurisdiction)*	DNE	AM	–	–	–	–	–	–
		PM	–	–	–	–	–	–

TABLE 8–1
YEAR 2027 + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2027		Year 2027 + Project Phase 1		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
28. Dogwood Rd / Project Dwy C	DNE	AM	–	–	–	–	–	–
		PM	–	–	–	–	–	–
29. SR-86 / Project Dwy D *(Caltrans jurisdiction)*	DNE / TWSC[e]	AM	–	–	10.6	B	–	No
		PM	–	–	10.8	B	–	No
30. Dogwood Rd / Project Dwy E	DNE	AM	–	–	–	–	–	–
		PM	–	–	–	–	–	–
31. Dogwood Rd / Black Hills Rd / Project Dwy F	TWSC[e]	AM	**25.2**	**D**	**40.2**	**E**	**15.0**	**Yes**
		PM	**34.3**	**D**	**52.1**	**F**	**17.8**	**Yes**
32. Correll Rd / Project Dwy G	DNE / TWSC[e]	AM	–	–	8.8	A	–	No
		PM	–	–	8.8	A	–	No
33. Correll Rd / Project Dwy H	DNE / TWSC[e]	AM	–	–	8.9	A	–	No
		PM	–	–	8.9	A	–	No
34. Correll Rd / Dogwood Rd	Signal	AM	32.5	C	32.8	C	0.3	No
		PM	24.7	C	25.3	C	0.6	No
35. Heber Rd / Dogwood Rd *(Caltrans jurisdiction)*	AWSC[d]	AM	**44.3**	**E**	**53.8**	**F**	**9.5**	**Yes**
		PM	32.5	D	**39.4**	**E**	**6.9**	**Yes**
36. Heber Rd / Pitzer Rd *(Caltrans jurisdiction)*	TWSC[e]	AM	14.4	B	15.6	C	1.2	No
		PM	15.1	C	16.1	C	1.0	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to project.
d. AWSC – All-Way Stop Controlled intersection.
e. TWSC – Two-Way Stop Controlled intersection.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–2
YEAR 2027 + PROJECT PHASE 1 STREET SEGMENT OPERATIONS

Street Segment	Functional Capacity (LOS E)[a]	Year 2027			Year 2027 + Project Phase 1			Δ[e]	Substantial Effect?
		ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]		
Imperial Ave									
I-8 to Danenberg Dr	18,000	4,890	A	0.272	5,010	A	0.278	0.012	No
Clark Rd									
Danenberg Dr to McCabe Rd	18,000	11,570	B	0.643	11,780	B	0.654	0.024	No
SR-86 *(Caltrans jurisdiction)*									
Aurora Dr to I-8	36,000	22,100	B	0.614	22,490	B	0.625	0.023	No
Wake Ave to Danenberg Dr	27,000	13,400	A	0.496	14,140	A	0.524	0.037	No
Danenberg Dr to McCabe Rd	18,000	10,330	A	0.574	11,070	B	0.615	0.052	No
McCabe Rd to Heber Rd	16,200	5,480	C	0.338	6,780	C	0.419	0.087	No
Dogwood Rd									
I-8 to Danenberg Dr	36,000	17,150	A	0.476	17,683	A	0.491	0.024	No
Danenberg Dr to McCabe Rd	36,000	12,640	A	0.351	13,173	A	0.366	0.022	No
McCabe Rd to Heber Rd	16,200	**14,320**	**E**	**0.884**	**15,238**	**E**	**0.941**	**0.074**	**Yes**
McCabe Rd									
La Brucherie Rd to Clark Rd	16,200	6,740	C	0.416	7,040	C	0.435	0.027	No
Clark Rd to SR-86	16,200	4,490	C	0.277	5,050	C	0.312	0.040	No
SR-86 to Farnsworth Ln	16,200	5,110	C	0.315	5,110	C	0.315	0.006	No
Farnsworth Ln to Dogwood Rd	16,200	5,670	C	0.350	5,670	C	0.350	0.007	No

Footnotes:

a. Capacities based on County of Imperial or City of El Centro Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.
e. Δ denotes an increase in V/C ratio due to project.

8.3 Year 2033 without Project

The following section presents the analysis of study area intersections and street segments under Year 2033 without Project.

Figure 8–3 shows the Year 2033 without Project traffic volumes.

8.3.1 *Peak Hour Intersection Operations*

Table 8–3 summarizes the Year 2033 without Project peak hour intersection operations. As shown in *Table 8–3*, all the study area intersections are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS D during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Ross Avenue / Dogwood Road – LOS E during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and LOS E during the PM peak hour
- Ocotillo Drive / Imperial Avenue – LOS D during the AM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the PM peak hour
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and LOS F during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM peak hour
- E McCabe Road / SR-111 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Dogwood Road / Black Hills Road / Project Driveway F – LOS D during the AM and LOS E during the PM peak hour
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS F during the AM and LOS E during the PM peak hour

Appendix F contains the Year 2033 without Project intersection analysis worksheets.

8.3.2 *Daily Street Segment Operations*

Table 8–4 summarizes the Year 2033 without Project street segment operations. As shown in *Table 8–4*, all of the study area street segments are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Dogwood Road between McCabe Road and Heber Road – LOS E

8.4 Year 2033 + Project Phases 1 and 2

The following section presents the analysis of study area intersections and street segments under Year 2033 + Project Phases 1 and 2.

Figure 8–4 shows the Year 2033 + Project Phases 1 and 2 traffic volumes.

8.4.1 *Peak Hour Intersection Operations*

Table 8–3 summarizes the Year 2033 + Project Phases 1 and 2 peak hour intersection operations. As shown in *Table 8–3*, all the study area intersections are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS D during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Ross Avenue / Dogwood Road – LOS E during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and PM peak hours
- Ocotillo Drive / Imperial Avenue – LOS D during the AM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the PM peak hour
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS E during the AM and LOS F during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM peak hour
- W McCabe Road / Farnsworth Lane / Project Driveway A – LOS F during the AM and PM peak hours
- E McCabe Road / SR-111 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Dogwood Road / Black Hills Road / Project Driveway F – LOS F during the AM and PM peak hours
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS F during the AM and PM peak hours

Based on the established LOS standards and thresholds outlined in *Section 4.5*, substantial effects are identified at the following intersections, where the project adds traffic that causes operations to fall below an acceptable LOS and increases average vehicle delay by more than 2 seconds. Recommendations to improve intersection operations to an acceptable LOS are discussed in *Section 11.0*.

- Ross Avenue / Dogwood Road
- Aurora Drive / 8th Street
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*
- Wake Avenue / SR-86 *(Caltrans jurisdiction)*
- W McCabe Road / Austin Road
- W McCabe Road / La Brucherie Road
- W McCabe Road / Clark Road
- W McCabe Road / Farnsworth Lane / Project Driveway A

- Dogwood Road / Black Hills Road / Project Driveway F
- Heber Road / Dogwood Road *(Caltrans jurisdiction)*

Appendix G contains the Year 2033 + Project Phases 1 and 2 intersection analysis worksheets.

8.4.2 *Daily Street Segment Operations*

Table 8–4 summarizes the Year 2033 + Project Phases 1 and 2 street segment operations. As shown in *Table 8–4*, all of the study area street segments are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)* – LOS D
- Dogwood Road between McCabe Road and Heber Road – LOS E
- McCabe Road between La Brucherie Road and Clark Road – LOS D
- McCabe Road between Farnsworth Lane and Dogwood Road – LOS D

Based on the established LOS standards and thresholds outlined in *Section 4.5*, substantial effects are identified at the following street segments, where the project adds traffic that causes operations to fall below an acceptable LOS and increases the vehicle/capacity ratio by more than 0.02. Recommendations to improve intersection operations to an acceptable LOS are discussed in *Section 11.0*.

- SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)*
- Dogwood Road between McCabe Road and Heber Road
- McCabe Road between La Brucherie Road and Clark Road
- McCabe Road between Farnsworth Lane and Dogwood Road

TABLE 8–3
YEAR 2033 + PROJECT PHASES 1 AND 2 INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2033		Year 2033 + Project Phases 1 and 2		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
1. Ross Ave / Imperial Ave	Signal	AM	46.7	D	47.5	D	0.8	No
		PM	31.6	C	32.3	C	0.7	No
2. Ross Ave / 8th St	Signal	AM	27.3	C	28.9	C	1.6	No
		PM	19.5	B	20.2	C	0.7	No
3. Ross Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	50.5	D	52.3	D	1.8	No
		PM	41.6	D	43.2	D	1.6	No
4. Ross Ave / Dogwood Rd	Signal	AM	29.2	C	34.0	C	4.8	No
		PM	**56.9**	**E**	**69.2**	**E**	**12.3**	**Yes**
5. Aurora Dr / 8th St	AWSC[d]	AM	**97.2**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	**46.6**	**E**	**50.8**	**F**	**4.2**	**Yes**
6. Aurora Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	27.6	C	28.7	C	1.1	No
		PM	27.3	C	28.9	C	1.6	No
7. Ocotillo Dr / Imperial Ave	Signal	AM	50.4	D	51.0	D	0.6	No
		PM	30.7	C	30.9	C	0.2	No
8. I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	25.0	C	29.6	C	4.6	No
		PM	26.7	C	31.5	C	4.8	No
9. I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	26.2	C	33.7	C	7.5	No
		PM	**41.8**	**D**	**51.9**	**D**	**10.1**	**Yes**
10. I-8 WB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	8.0	A	8.2	A	0.2	No
		PM	8.0	A	8.4	A	0.4	No
11. I-8 EB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	12.1	B	12.3	B	0.2	No
		PM	16.2	B	16.7	B	0.5	No
12. Wake Ave / Imperial Ave	Signal	AM	31.1	C	31.5	C	0.4	No
		PM	23.9	C	24.1	C	0.2	No
13. Wake Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	**52.1**	**D**	**57.8**	**E**	**5.7**	**Yes**
		PM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**

TABLE 8–3
YEAR 2033 + PROJECT PHASES 1 AND 2 INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2033		Year 2033 + Project Phases 1 and 2		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
14. Danenberg Dr / Clark Rd	TWSC[e]	AM	9.7	A	9.7	A	0.0	No
		PM	10.3	B	10.4	B	0.1	No
15. Danenberg Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	11.4	B	12.4	B	1.0	No
		PM	20.6	C	23.3	C	2.7	No
16. Danenberg Dr / Farnsworth Ln	TWSC[e]	AM	10.4	B	12.0	B	1.6	No
		PM	14.7	B	17.7	C	3.0	No
17. Danenberg Dr / Dogwood Rd	Signal	AM	17.9	B	19.1	B	1.2	No
		PM	24.1	C	25.2	C	1.1	No
18. W McCabe Rd / Austin Rd	AWSC[d]	AM	**75.8**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	9.7	A	10.4	B	0.7	No
19. W McCabe Rd / La Brucherie Rd	AWSC[d]	AM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	10.5	B	11.9	B	1.4	No
20. W McCabe Rd / Clark Rd	Signal	AM	**68.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	13.6	B	17.2	C	3.6	No
21. W McCabe Rd / SR-86 *(Caltrans jurisdiction)*	Signal	AM	19.6	B	30.6	C	11.0	No
		PM	21.2	C	28.6	C	7.4	No
22. W McCabe Rd / Farnsworth Ln / Project Dwy A	TWSC[e]	AM	15.2	C	**>100.0**	**F**	**>2.0**	**Yes**
		PM	15.8	C	**60.5**	**F**	**44.7**	**Yes**
23. W McCabe Rd / Dogwood Rd	Signal	AM	11.0	B	13.6	B	2.6	No
		PM	16.0	B	19.9	B	3.9	No
24. E McCabe Rd / Dogwood Rd	Signal	AM	8.3	A	10.5	B	2.2	No
		PM	7.7	A	9.0	A	1.3	No
25. E McCabe Rd / Pitzer Rd	Signal	AM	28.1	C	33.2	C	5.1	No
		PM	29.5	C	32.5	C	3.0	No
26. E McCabe Rd / SR-111 *(Caltrans jurisdiction)*	Signal	AM	39.0	D	40.4	D	1.4	No
		PM	38.8	D	40.7	D	1.9	No
27. SR-86 / Project Dwy B *(Caltrans jurisdiction)*	DNE / TWSC[e]	AM	–	–	12.0	B	–	No
		PM	–	–	11.6	B	–	No

TABLE 8–3
YEAR 2033 + PROJECT PHASES 1 AND 2 INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2033		Year 2033 + Project Phases 1 and 2		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
28. Dogwood Rd / Project Dwy C	DNE	AM	–	–	–	–	–	–
		PM	–	–	–	–	–	–
29. SR-86 / Project Dwy D *(Caltrans jurisdiction)*	DNE / TWSC[e]	AM	–	–	11.9	B	–	–
		PM	–	–	12.0	B	–	–
30. Dogwood Rd / Project Dwy E	DNE	AM	–	–	–	–	–	–
		PM	–	–	–	–	–	–
31. Dogwood Rd / Black Hills Rd / Project Dwy F	TWSC[e]	AM	**27.1**	**D**	**65.8**	**F**	**38.7**	**Yes**
		PM	**37.1**	**E**	**77.4**	**F**	**40.3**	**Yes**
32. Correll Rd / Project Dwy G	DNE / TWSC[e]	AM	–	–	8.8	A	–	No
		PM	–	–	8.8	A	–	No
33. Correll Rd / Project Dwy H	DNE / TWSC[e]	AM	–	–	9.1	A	–	No
		PM	–	–	9.0	A	–	No
34. Correll Rd / Dogwood Rd	Signal	AM	33.5	C	34.6	C	1.1	No
		PM	25.0	C	26.6	C	1.6	No
35. Heber Rd / Dogwood Rd *(Caltrans jurisdiction)*	AWSC[d]	AM	**52.3**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	**37.6**	**E**	**59.9**	**F**	**22.3**	**Yes**
36. Heber Rd / Pitzer Rd *(Caltrans jurisdiction)*	TWSC[e]	AM	14.8	B	24.2	C	9.4	No
		PM	15.3	C	20.9	C	5.6	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to project.
d. AWSC – All-Way Stop Controlled intersection.
e. TWSC – Two-Way Stop Controlled intersection.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–4
YEAR 2033 + PROJECT PHASES 1 AND 2 STREET SEGMENT OPERATIONS

Street Segment	Functional Capacity (LOS E)[a]	Year 2033			Year 2033 + Project Phases 1 and 2			Δ[e]	Substantial Effect?
		ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]		
Imperial Ave									
I-8 to Danenberg Dr	18,000	5,030	A	0.279	5,400	A	0.300	0.021	No
Clark Rd									
Danenberg Dr to McCabe Rd	18,000	11,920	B	0.662	12,570	C	0.698	0.036	No
SR-86 *(Caltrans jurisdiction)*									
Aurora Dr to I-8	36,000	22,760	B	0.632	23,970	B	0.666	0.034	No
Wake Ave to Danenberg Dr	27,000	13,810	A	0.511	16,130	A	0.597	0.086	No
Danenberg Dr to McCabe Rd	18,000	10,650	A	0.592	12,600	C	0.700	0.108	No
McCabe Rd to Heber Rd	16,200	5,640	C	0.348	**7,590**	**D**	**0.469**	**0.120**	**Yes**
Dogwood Rd									
I-8 to Danenberg Dr	36,000	17,670	A	0.491	19,341	A	0.537	0.046	No
Danenberg Dr to McCabe Rd	36,000	13,020	A	0.362	14,134	A	0.393	0.031	No
McCabe Rd to Heber Rd	16,200	**14,760**	**E**	**0.911**	**15,596**	**E**	**0.963**	**0.052**	**Yes**
McCabe Rd									
La Brucherie Rd to Clark Rd	16,200	6,950	C	0.429	**7,880**	**D**	**0.486**	**0.057**	**Yes**
Clark Rd to SR-86	16,200	4,620	C	0.285	6,380	C	0.394	0.109	No
SR-86 to Farnsworth Ln	16,200	5,270	C	0.325	7,030	C	0.434	0.109	No
Farnsworth Ln to Dogwood Rd	16,200	5,840	C	0.360	**7,330**	**D**	**0.452**	**0.092**	**Yes**

Footnotes:

a. Capacities based on County of Imperial or City of El Centro Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.
e. Δ denotes an increase in V/C ratio due to project.

8.5 Year 2039 without Project

The following section presents the analysis of study area intersections and street segments under Year 2039 without Project. In addition, LLG prepared a traffic study for a plan to install a roundabout at the Heber Road / Pitzer Road intersection. This installation is anticipated to be complete after the study area Year 2039, but before Year 2039. Therefore, the roundabout was assumed in this scenario and subsequent scenarios.

Figure 8–5 shows the Year 2039 without Project traffic volumes.

8.5.1 *Peak Hour Intersection Operations*

Table 8–5 summarizes the Year 2039 without Project peak hour intersection operations. As shown in *Table 8–5*, all the study area intersections are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS D during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS E during the AM and LOS D during the PM peak hour
- Ross Avenue / Dogwood Road – LOS E during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and PM peak hours
- Ocotillo Drive / Imperial Avenue – LOS E during the AM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the PM peak hou
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS E during the AM and LOS F during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM peak hour
- E McCabe Road / SR-111 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Dogwood Road / Black Hills Road / Project Driveway F – LOS D during the AM and LOS E during the PM peak hour
- Correll Road / Dogwood Road –LOS D during the AM peak hour
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS F during the AM and LOS E during the PM peak hour

Appendix H contains the Year 2039 without Project intersection analysis worksheets.

8.5.2 *Daily Street Segment Operations*

Table 8–6 summarizes the Year 2039 without Project street segment operations. As shown in *Table 8–6*, all of the study area street segments are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Dogwood Road between McCabe Road and Heber Road – LOS E

- McCabe Road between La Brucherie Road and Clark Road – LOS D

8.6 Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout)

The following section presents the analysis of study area intersections and street segments under Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout).

Figure 8–6 shows the Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout) traffic volumes.

8.6.1 *Peak Hour Intersection Operations*

Table 8–5 summarizes the Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout) peak hour intersection operations. As shown in *Table 8–5*, all the study area intersections are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS D during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS E during the AM and LOS D during the PM peak hour
- Ross Avenue / Dogwood Road – LOS D during the AM and LOS F during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and PM peak hours
- Ocotillo Drive / Imperial Avenue – LOS E during the AM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the PM peak hour
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS E during the AM and LOS F during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM peak hour
- W McCabe Road / Farnsworth Lane / Project Driveway A – LOS F during the AM and PM peak hours
- E McCabe Road / SR-111 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Dogwood Road / Project Driveway C – LOS F during the AM and PM peak hours
- Dogwood Road / Black Hills Road / Project Driveway F – LOS F during the AM and PM peak hours
- Correll Road / Dogwood Road – LOS D during the AM peak hour
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS F during the AM and PM peak hours

Based on the established LOS standards and thresholds outlined in *Section 4.5*, substantial effects are identified at the following intersections, where the project adds traffic that causes operations to fall below an acceptable LOS and increases average vehicle delay by more than 2 seconds. Recommendations to improve intersection operations to an acceptable LOS are discussed in *Section 11.0*.

- Ross Avenue / SR-86 *(Caltrans jurisdiction)*
- Ross Avenue / Dogwood Road
- Aurora Drive / 8th Street
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*
- Wake Avenue / SR-86 *(Caltrans jurisdiction)*
- W McCabe Road / Austin Road
- W McCabe Road / La Brucherie Road
- W McCabe Road / Clark Road
- W McCabe Road / Farnsworth Lane / Project Driveway A
- Dogwood Road / Project Driveway C
- Dogwood Road / Black Hills Road / Project Driveway F
- Correll Road / Dogwood Road
- Heber Road / Dogwood Road *(Caltrans jurisdiction)*

Appendix I contains the Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout) intersection analysis worksheets.

8.6.2 *Daily Street Segment Operations*

Table 8–6 summarizes the Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout) street segment operations. As shown in *Table 8–6*, all of the study area street segments are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)* – LOS D
- Dogwood Road between McCabe Road and Heber Road – LOS F
- McCabe Road between La Brucherie Road and Clark Road – LOS D
- McCabe Road between Clark Road and SR-86 – LOS D
- McCabe Road between SR-86 and Farnsworth Lane – LOS D
- McCabe Road between Farnsworth Lane and Dogwood Road – LOS D

Based on the established LOS standards and thresholds outlined in *Section 4.5*, substantial effects are identified at the following street segments, where the project adds traffic that causes operations to fall below an acceptable LOS and increases the vehicle/capacity ratio by more than 0.02. Recommendations to improve intersection operations to an acceptable LOS are discussed in *Section 11.0*.

- SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)*
- Dogwood Road between McCabe Road and Heber Road
- McCabe Road between La Brucherie Road and Clark Road
- McCabe Road between Clark Road and SR-86
- McCabe Road between SR-86 and Farnsworth Lane
- McCabe Road between Farnsworth Lane and Dogwood Road

TABLE 8–5
YEAR 2039 + PROJECT PHASES 1, 2 AND 3 (TM 994 BUILDOUT) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2039		Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout)		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
1. Ross Ave / Imperial Ave	Signal	AM	49.7	D	51.0	D	1.3	No
		PM	32.6	C	33.8	C	1.2	No
2. Ross Ave / 8th St	Signal	AM	29.4	C	33.2	C	3.8	No
		PM	20.6	C	21.8	C	1.2	No
3. Ross Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	**56.0**	**E**	**63.1**	**E**	**7.1**	**Yes**
		PM	**45.3**	**D**	**51.4**	**D**	**6.1**	**Yes**
4. Ross Ave / Dogwood Rd	Signal	AM	32.0	C	**41.8**	**D**	**9.8**	**Yes**
		PM	**67.3**	**E**	**85.9**	**F**	**18.6**	**Yes**
5. Aurora Dr / 8th St	AWSC[d]	AM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	**57.6**	**F**	**69.2**	**F**	**11.6**	**Yes**
6. Aurora Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	29.2	C	30.9	C	1.7	No
		PM	28.6	C	31.3	C	2.7	No
7. Ocotillo Dr / Imperial Ave	Signal	AM	57.3	E	58.2	E	0.9	No
		PM	33.8	C	34.3	C	0.5	No
8. I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	27.4	C	33.5	C	6.1	No
		PM	30.1	C	34.3	C	4.2	No
9. I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	29.5	C	34.5	C	5.2	No
		PM	**48.2**	**D**	**54.4**	**D**	**6.2**	**Yes**
10. I-8 WB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	8.2	A	8.4	A	0.2	No
		PM	8.2	A	8.8	A	0.6	No
11. I-8 EB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	12.3	B	12.8	B	0.5	No
		PM	17.0	B	18.0	B	1.0	No
12. Wake Ave / Imperial Ave	Signal	AM	33.1	C	33.4	C	0.3	No
		PM	24.0	C	24.4	C	0.4	No
13. Wake Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	**59.3**	**E**	**67.9**	**E**	**8.6**	**Yes**
		PM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**

TABLE 8–5
YEAR 2039 + PROJECT PHASES 1, 2 AND 3 (TM 994 BUILDOUT) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2039		Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout)		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
14. Danenberg Dr / Clark Rd	TWSC[e]	AM	9.8	A	9.8	A	0.0	No
		PM	10.4	B	10.6	B	0.2	No
15. Danenberg Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	11.6	B	13.3	B	1.7	No
		PM	21.8	C	28.1	C	6.3	No
16. Danenberg Dr / Farnsworth Ln	TWSC[e]	AM	10.5	B	12.6	B	2.1	No
		PM	15.4	C	20.7	C	5.3	No
17. Danenberg Dr / Dogwood Rd	Signal	AM	18.2	B	19.6	B	1.4	No
		PM	24.9	C	26.3	C	1.4	No
18. W McCabe Rd / Austin Rd	AWSC[d]	AM	**91.8**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	9.9	A	11.3	B	1.4	No
19. W McCabe Rd / La Brucherie Rd	AWSC[d]	AM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	10.9	B	13.5	B	2.6	No
20. W McCabe Rd / Clark Rd	Signal	AM	**82.8**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	14.5	B	23.5	C	9.0	No
21. W McCabe Rd / SR-86 *(Caltrans jurisdiction)*	Signal	AM	20.5	C	33.9	C	13.4	No
		PM	22.1	C	34.7	C	12.6	No
22. W McCabe Rd / Farnsworth Ln / Project Dwy A	TWSC[e]	AM	16.0	C	**>100.0**	**F**	**>2.0**	**Yes**
		PM	16.7	C	**>100.0**	**F**	**>2.0**	**Yes**
23. W McCabe Rd / Dogwood Rd	Signal	AM	11.4	B	14.8	B	3.4	No
		PM	17.1	B	25.3	C	8.2	No
24. E McCabe Rd / Dogwood Rd	Signal	AM	8.5	A	12.3	B	3.8	No
		PM	7.8	A	10.3	B	2.5	No
25. E McCabe Rd / Pitzer Rd	Signal	AM	28.3	C	33.5	C	5.2	No
		PM	30.0	C	32.8	C	2.8	No
26. E McCabe Rd / SR-111 *(Caltrans jurisdiction)*	Signal	AM	42.6	D	43.9	D	1.3	No
		PM	44.0	D	45.8	D	1.8	No
27. SR-86 / Project Dwy B *(Caltrans jurisdiction)*	DNE / TWSC[e]	AM	–	–	12.4	B	–	No
		PM	–	–	11.7	B	–	No

TABLE 8–5
YEAR 2039 + PROJECT PHASES 1, 2 AND 3 (TM 994 BUILDOUT) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2039		Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout)		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
28. Dogwood Rd / Project Dwy C	DNE / TWSC[e]	AM	–	–	**>100.0**	**F**	–	**Yes**
		PM	–	–	**>100.0**	**F**	–	**Yes**
29. SR-86 / Project Dwy D *(Caltrans jurisdiction)*	DNE / TWSC[e]	AM	–	–	11.7	B	–	No
		PM	–	–	11.6	B	–	No
30. Dogwood Rd / Project Dwy E	DNE	AM	–	–	–	–	–	–
		PM	–	–	–	–	–	–
31. Dogwood Rd / Black Hills Rd / Project Dwy F	TWSC[e]	AM	**31.1**	**D**	**90.3**	**F**	**59.2**	**Yes**
		PM	**43.4**	**E**	**>100.0**	**F**	**>2.0**	**Yes**
32. Correll Rd / Project Dwy G	DNE / TWSC[e]	AM	–	–	8.8	A	–	No
		PM	–	–	8.8	A	–	No
33. Correll Rd / Project Dwy H	DNE / TWSC[e]	AM	–	–	9.1	A	–	No
		PM	–	–	9.1	A	–	No
34. Correll Rd / Dogwood Rd	Signal	AM	**36.4**	**D**	**48.3**	**D**	**11.9**	**Yes**
		PM	25.4	C	29.1	C	3.7	No
35. Heber Rd / Dogwood Rd *(Caltrans jurisdiction)*	AWSC[d]	AM	**67.7**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	**46.3**	**E**	**>100.0**	**F**	**>2.0**	**Yes**
36. Heber Rd / Pitzer Rd *(Caltrans jurisdiction)*	Roundabout	AM	4.7	A	6.2	A	1.5	No
		PM	5.0	A	6.1	A	1.1	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to project.
d. AWSC – All-Way Stop Controlled intersection.
e. TWSC – Two-Way Stop Controlled intersection.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–6
YEAR 2039 + PROJECT PHASES 1, 2 AND 3 (TM 994 BUILDOUT) STREET SEGMENT OPERATIONS

Street Segment	Functional Capacity (LOS E)[a]	Year 2039			Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout)			Δ[e]	Substantial Effect?
		ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]		
Imperial Ave									
I-8 to Danenberg Dr	18,000	5,290	A	0.294	5,880	A	0.327	0.033	No
Clark Rd									
Danenberg Dr to McCabe Rd	18,000	12,530	C	0.696	13,570	C	0.754	0.058	No
SR-86 *(Caltrans jurisdiction)*									
Aurora Dr to I-8	36,000	23,930	B	0.665	25,850	C	0.718	0.053	No
Wake Ave to Danenberg Dr	27,000	14,510	A	0.537	18,210	B	0.674	0.137	No
Danenberg Dr to McCabe Rd	18,000	11,190	B	0.622	14,300	C	0.794	0.173	No
McCabe Rd to Heber Rd	16,200	5,930	C	0.366	**9,040**	**D**	**0.558**	**0.192**	**Yes**
Dogwood Rd									
I-8 to Danenberg Dr	36,000	18,570	A	0.516	21,235	A	0.590	0.074	No
Danenberg Dr to McCabe Rd	36,000	13,690	A	0.380	15,763	A	0.438	0.058	No
McCabe Rd to Heber Rd	16,200	**15,510**	**E**	**0.957**	**18,027**	**F**	**1.113**	**0.155**	**Yes**
McCabe Rd									
La Brucherie Rd to Clark Rd	16,200	**7,300**	**D**	**0.451**	**8,780**	**D**	**0.542**	**0.091**	**Yes**
Clark Rd to SR-86	16,200	4,860	C	0.300	**7,670**	**D**	**0.473**	**0.173**	**Yes**
SR-86 to Farnsworth Ln	16,200	5,530	C	0.341	**8,340**	**D**	**0.515**	**0.173**	**Yes**
Farnsworth Ln to Dogwood Rd	16,200	6,140	C	0.379	**7,920**	**D**	**0.489**	**0.110**	**Yes**

Footnotes:

a. Capacities based on County of Imperial or City of El Centro Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.
e. Δ denotes an increase in V/C ratio due to project.

8.7 Year 2040 without Project

The following section presents the analysis of study area intersections and street segments under Year 2040 without Project.

Figure 8–7 shows the Year 2040 without Project traffic volumes.

8.7.1 *Peak Hour Intersection Operations*

Table 8–7 summarizes the Year 2040 without Project peak hour intersection operations. As shown in *Table 8–7*, all the study area intersections are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS E during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS E during the AM and LOS D during the PM peak hour
- Ross Avenue / Dogwood Road – LOS D during the AM and LOS F during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and PM peak hours
- Ocotillo Drive / Imperial Avenue – LOS E during the AM and LOS D during the PM peak hour
- I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the PM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS E during the PM peak hour
- Wake Avenue / Imperial Avenue – LOS D during the AM peak hour
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS E during the AM and LOS F during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM peak hour
- E McCabe Road / SR-111 *(Caltrans jurisdiction)* – LOS D during the AM and PM peak hours
- Dogwood Road / Black Hills Road / Project Driveway F – LOS E during the AM and LOS F during the PM peak hour
- Correll Road / Dogwood Road –LOS D during the AM peak hour
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS F during the AM and PM peak hours

Appendix J contains the Year 2040 without Project intersection analysis worksheets.

8.7.2 *Daily Street Segment Operations*

Table 8–8 summarizes the Year 2040 without Project street segment operations. As shown in *Table 8–8*, all of the study area street segments are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Dogwood Road between McCabe Road and Heber Road – LOS F
- McCabe Road between La Brucherie Road and Clark Road – LOS D

8.8 Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout)

The following section presents the analysis of study area intersections and street segments under Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout).

Figure 8–8 shows the Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout) traffic volumes.

8.8.1 *Peak Hour Intersection Operations*

Table 8–7 summarizes the Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout) peak hour intersection operations. As shown in *Table 8–7*, all the study area intersections are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Ross Avenue / Imperial Avenue – LOS E during the AM peak hour
- Ross Avenue / SR-86 *(Caltrans jurisdiction)* – LOS F during the AM and LOS E during the PM peak hour
- Ross Avenue / Dogwood Road – LOS E during the AM and LOS F during the PM peak hour
- Aurora Drive / 8th Street – LOS F during the AM and PM peak hours
- Ocotillo Drive / Imperial Avenue – LOS E during the AM and LOS D during the PM peak hour
- I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS D during the AM and LOS E during the PM peak hour
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* – LOS E during the AM peak hour and LOS F during the PM peak hour
- Wake Avenue / Imperial Avenue – LOS D during the AM peak hour
- Wake Avenue / SR-86 *(Caltrans jurisdiction)* – LOS F during the AM and PM peak hours
- Danenberg Drive / Farnsworth Lane – LOS E during the PM peak hour
- W McCabe Road / Austin Road – LOS F during the AM peak hour
- W McCabe Road / La Brucherie Road – LOS F during the AM peak hour
- W McCabe Road / Clark Road – LOS F during the AM and PM peak hours
- W McCabe Road / SR-86 *(Caltrans jurisdiction)* – LOS F during the AM and PM peak hours
- W McCabe Road / Farnsworth Lane / Project Driveway A – LOS F during the AM and PM peak hours
- E McCabe Road / SR-111 – LOS D during the AM and PM peak hours
- Dogwood Road / Project Driveway C – LOS F during the AM and PM peak hours
- Dogwood Road / Project Driveway E – LOS F during the AM and PM peak hours
- Dogwood Road / Black Hills Road / Project Driveway F – LOS F during the AM and PM peak hours

- Correll Road / Dogwood Road – LOS E during the AM and LOS D during the PM peak hour
- Heber Road / Dogwood Road *(Caltrans jurisdiction)* – LOS F during the AM and PM peak hours

Based on the established LOS standards and thresholds outlined in *Section 4.5*, substantial effects are identified at the following intersections, where the project adds traffic that causes operations to fall below an acceptable LOS and increases average vehicle delay by more than 2 seconds. Recommendations to improve intersection operations to an acceptable LOS are discussed in *Section 11.0*.

- Ross Avenue / SR-86 *(Caltrans jurisdiction)*
- Ross Avenue / Dogwood Road
- Aurora Drive / 8th Street
- I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)*
- I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*
- Wake Avenue / SR-86 *(Caltrans jurisdiction)*
- Danenberg Drive / Farnsworth Lane
- W McCabe Road / Austin Road
- W McCabe Road / La Brucherie Road
- W McCabe Road / Clark Road
- W McCabe Road / SR-86 *(Caltrans jurisdiction)*
- W McCabe Road / Farnsworth Lane / Project Driveway A
- Dogwood Road / Project Driveway C
- Dogwood Road / Project Driveway E
- Dogwood Road / Black Hills Road / Project Driveway F
- Correll Road / Dogwood Road
- Heber Road / Dogwood Road *(Caltrans jurisdiction)*

Appendix K contains the Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout) intersection analysis worksheets.

8.8.2 *Daily Street Segment Operations*

Table 8–8 summarizes the Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout) street segment operations. As shown in *Table 8–8*, all of the study area street segments are calculated to operate within the LOS threshold discussed in *Section 4.5* with the exception of the following:

- Clark Road between Danenberg Drive and McCabe Road – LOS D
- SR-86 between Wake Avenue and Danenberg Drive *(Caltrans jurisdiction)* – LOS D
- SR-86 between Danenberg Drive and McCabe Road *(Caltrans jurisdiction)* – LOS E
- SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)* – LOS E

- Dogwood Road between McCabe Road and Heber Road – LOS F
- McCabe Road between La Brucherie Road and Clark Road – LOS D
- McCabe Road between Clark Road and SR-86 – LOS D
- McCabe Road between SR-86 and Farnsworth Lane – LOS D
- McCabe Road between Farnsworth Lane and Dogwood Road – LOS D

Based on the established LOS standards and thresholds outlined in *Section 4.5*, substantial effects are identified at the following street segments, where the project adds traffic that causes operations to fall below an acceptable LOS and increases the vehicle/capacity ratio by more than 0.02. Recommendations to improve intersection operations to an acceptable LOS are discussed in *Section 11.0*.

- Clark Road between Danenberg Drive and McCabe Road
- SR-86 between Wake Avenue and Danenberg Drive *(Caltrans jurisdiction)*
- SR-86 between Danenberg Drive and McCabe Road *(Caltrans jurisdiction)*
- SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)*
- Dogwood Road between McCabe Road and Heber Road
- McCabe Road between La Brucherie Road and Clark Road
- McCabe Road between Clark Road and SR-86
- McCabe Road between SR-86 and Farnsworth Lane
- McCabe Road between Farnsworth Lane and Dogwood Road

TABLE 8–7
YEAR 2040 + PHASES 1, 2, 3 + PHASE 4 (SPECIFIC PLAN BUILDOUT) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2040		Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout)		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
1. Ross Ave / Imperial Ave	Signal	AM	55.2	E	56.2	E	1.0	No
		PM	34.1	C	34.5	C	0.4	No
2. Ross Ave / 8th St	Signal	AM	33.4	C	34.4	C	1.0	No
		PM	22.0	C	24.7	C	2.7	No
3. Ross Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	**64.3**	**E**	**83.7**	**F**	**19.4**	**Yes**
		PM	**50.8**	**D**	**69.8**	**E**	**19.0**	**Yes**
4. Ross Ave / Dogwood Rd	Signal	AM	**37.7**	**D**	**62.5**	**E**	**24.8**	**Yes**
		PM	**80.3**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
5. Aurora Dr / 8th St	AWSC[d]	AM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	**79.0**	**F**	**99.6**	**F**	**20.6**	**Yes**
6. Aurora Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	31.2	C	34.3	C	3.1	No
		PM	30.6	C	33.9	C	3.3	No
7. Ocotillo Dr / Imperial Ave	Signal	AM	68.8	E	70.3	E	1.5	No
		PM	38.2	D	39.2	D	1.0	No
8. I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	31.2	C	48.0	D	16.8	No
		PM	**35.8**	**D**	**65.1**	**E**	**29.3**	**Yes**
9. I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*	Signal	AM	34.4	C	**73.7**	**E**	**39.3**	**Yes**
		PM	**58.7**	**E**	**>100.0**	**F**	**>2.0**	**Yes**
10. I-8 WB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	8.4	A	8.8	A	0.4	No
		PM	8.5	A	9.6	A	1.1	No
11. I-8 EB Ramps / Dogwood Rd *(Caltrans jurisdiction)*	Signal	AM	12.7	B	13.7	B	1.0	No
		PM	18.2	B	20.7	C	2.5	No
12. Wake Ave / Imperial Ave	Signal	AM	36.5	D	36.7	D	0.2	No
		PM	24.1	C	24.5	C	0.4	No
13. Wake Ave / SR-86 *(Caltrans jurisdiction)*	Signal	AM	**69.7**	**E**	**87.6**	**F**	**17.9**	**Yes**
		PM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**

TABLE 8–7
YEAR 2040 + PHASES 1, 2, 3 + PHASE 4 (SPECIFIC PLAN BUILDOUT) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2040		Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout)		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
14. Danenberg Dr / Clark Rd	TWSC[e]	AM	9.9	A	10.0	A	0.1	No
		PM	10.6	B	10.9	B	0.3	No
15. Danenberg Dr / SR-86 *(Caltrans jurisdiction)*	Signal	AM	11.8	B	15.2	B	3.4	No
		PM	23.5	C	33.4	C	9.9	No
16. Danenberg Dr / Farnsworth Ln	TWSC[e]	AM	10.7	B	16.2	C	5.5	No
		PM	16.3	C	**35.2**	**E**	**18.9**	**Yes**
17. Danenberg Dr / Dogwood Rd	Signal	AM	18.6	B	21.0	C	2.4	No
		PM	26.1	C	29.4	C	3.3	No
18. W McCabe Rd / Austin Rd	AWSC[d]	AM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	10.1	B	13.4	B	3.3	No
19. W McCabe Rd / La Brucherie Rd	AWSC[d]	AM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	11.4	B	21.6	C	10.2	No
20. W McCabe Rd / Clark Rd	Signal	AM	**>100.0**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	15.7	C	**63.4**	**F**	**47.7**	**Yes**
21. W McCabe Rd / SR-86 *(Caltrans jurisdiction)*	Signal	AM	21.8	C	**>100.0**	**F**	**>2.0**	**Yes**
		PM	23.4	C	**86.4**	**F**	**63.0**	**Yes**
22. W McCabe Rd / Farnsworth Ln / Project Dwy A	TWSC[e]	AM	17.2	C	**>100.0**	**F**	**>2.0**	**Yes**
		PM	17.9	C	**>100.0**	**F**	**>2.0**	**Yes**
23. W McCabe Rd / Dogwood Rd	Signal	AM	12.0	B	26.2	C	14.2	No
		PM	18.8	B	33.4	C	14.6	No
24. E McCabe Rd / Dogwood Rd	Signal	AM	8.6	A	33.4	C	24.8	No
		PM	8.0	A	15.4	B	7.4	No
25. E McCabe Rd / Pitzer Rd	Signal	AM	28.5	C	34.0	C	5.5	No
		PM	30.5	C	34.7	C	4.2	No
26. E McCabe Rd / SR-111 *(Caltrans jurisdiction)*	Signal	AM	49.4	D	50.9	D	1.5	No
		PM	54.4	D	54.8	D	0.4	No
27. SR-86 / Project Dwy B *(Caltrans jurisdiction)*	DNE / TWSC[e]	AM	–	–	17.2	C	–	No
		PM	–	–	16.5	C	–	No

TABLE 8–7
YEAR 2040 + PHASES 1, 2, 3 + PHASE 4 (SPECIFIC PLAN BUILDOUT) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2040		Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout)		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay[a]	LOS[b]		
28. Dogwood Rd / Project Dwy C	DNE / TWSC[e]	AM	–	–	**>100.0**	**F**	–	**Yes**
		PM	–	–	**>100.0**	**F**	–	**Yes**
29. SR-86 / Project Dwy D *(Caltrans jurisdiction)*	DNE / TWSC[e]	AM	–	–	14.6	B	–	No
		PM	–	–	15.0	B	–	No
30. Dogwood Rd / Project Dwy E	DNE / TWSC[e]	AM	–	–	**>100.0**	**F**	–	**Yes**
		PM	–	–	**>100.0**	**F**	–	**Yes**
31. Dogwood Rd / Black Hills Rd / Project Dwy F	TWSC[e]	AM	**38.8**	**E**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	**55.7**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
32. Correll Rd / Project Dwy G	DNE / TWSC[e]	AM	–	–	9.0	A	–	No
		PM	–	–	8.9	A	–	No
33. Correll Rd / Project Dwy H	DNE / TWSC[e]	AM	–	–	9.6	A	–	No
		PM	–	–	9.5	A	–	No
34. Correll Rd / Dogwood Rd	Signal	AM	**42.0**	**D**	**71.3**	**E**	**29.3**	**Yes**
		PM	26.2	C	**36.5**	**D**	**10.3**	**Yes**
35. Heber Rd / Dogwood Rd *(Caltrans jurisdiction)*	AWSC[d]	AM	**90.3**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
		PM	**60.4**	**F**	**>100.0**	**F**	**>2.0**	**Yes**
36. Heber Rd / Pitzer Rd *(Caltrans jurisdiction)*	Roundabout	AM	4.9	A	8.1	A	3.2	No
		PM	5.2	A	7.9	A	2.7	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to project.
d. AWSC – All-Way Stop Controlled intersection.
e. TWSC – Two-Way Stop Controlled intersection.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–8
YEAR 2040 + PHASES 1, 2, 3 + PHASE 4 (SPECIFIC PLAN BUILDOUT) STREET SEGMENT OPERATIONS

Street Segment	Functional Capacity (LOS E)[a]	Year 2040			Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout)			Δ[e]	Substantial Effect?
		ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]		
Imperial Ave									
I-8 to Danenberg Dr	18,000	5,620	A	0.312	6,670	A	0.371	0.058	No
Clark Rd									
Danenberg Dr to McCabe Rd	18,000	13,300	C	0.739	**15,140**	**D**	**0.841**	**0.102**	**Yes**
SR-86 *(Caltrans jurisdiction)*									
Aurora Dr to I-8	36,000	25,400	C	0.706	28,820	C	0.801	0.095	No
Wake Ave to Danenberg Dr	27,000	15,410	A	0.571	**22,000**	**D**	**0.815**	**0.244**	**Yes**
Danenberg Dr to McCabe Rd	18,000	11,880	B	0.660	**17,410**	**E**	**0.967**	**0.307**	**Yes**
McCabe Rd to Heber Rd	16,200	6,300	C	0.389	**11,830**	**E**	**0.730**	**0.341**	**Yes**
Dogwood Rd									
I-8 to Danenberg Dr	36,000	19,710	A	0.548	24,452	B	0.679	0.132	No
Danenberg Dr to McCabe Rd	36,000	14,530	A	0.404	18,218	A	0.506	0.102	No
McCabe Rd to Heber Rd	16,200	**16,460**	**F**	**1.016**	**20,938**	**F**	**1.292**	**0.276**	**Yes**
McCabe Rd									
La Brucherie Rd to Clark Rd	16,200	**7,750**	**D**	**0.478**	**10,380**	**D**	**0.641**	**0.162**	**Yes**
Clark Rd to SR-86	16,200	5,160	C	0.319	**10,160**	**D**	**0.627**	**0.309**	**Yes**
SR-86 to Farnsworth Ln	16,200	5,870	C	0.362	**10,870**	**D**	**0.671**	**0.309**	**Yes**
Farnsworth Ln to Dogwood Rd	16,200	6,520	C	0.402	**9,680**	**D**	**0.598**	**0.195**	**Yes**

Footnotes:

a. Capacities based on County of Imperial or City of El Centro Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.
e. Δ denotes an increase in V/C ratio due to project.

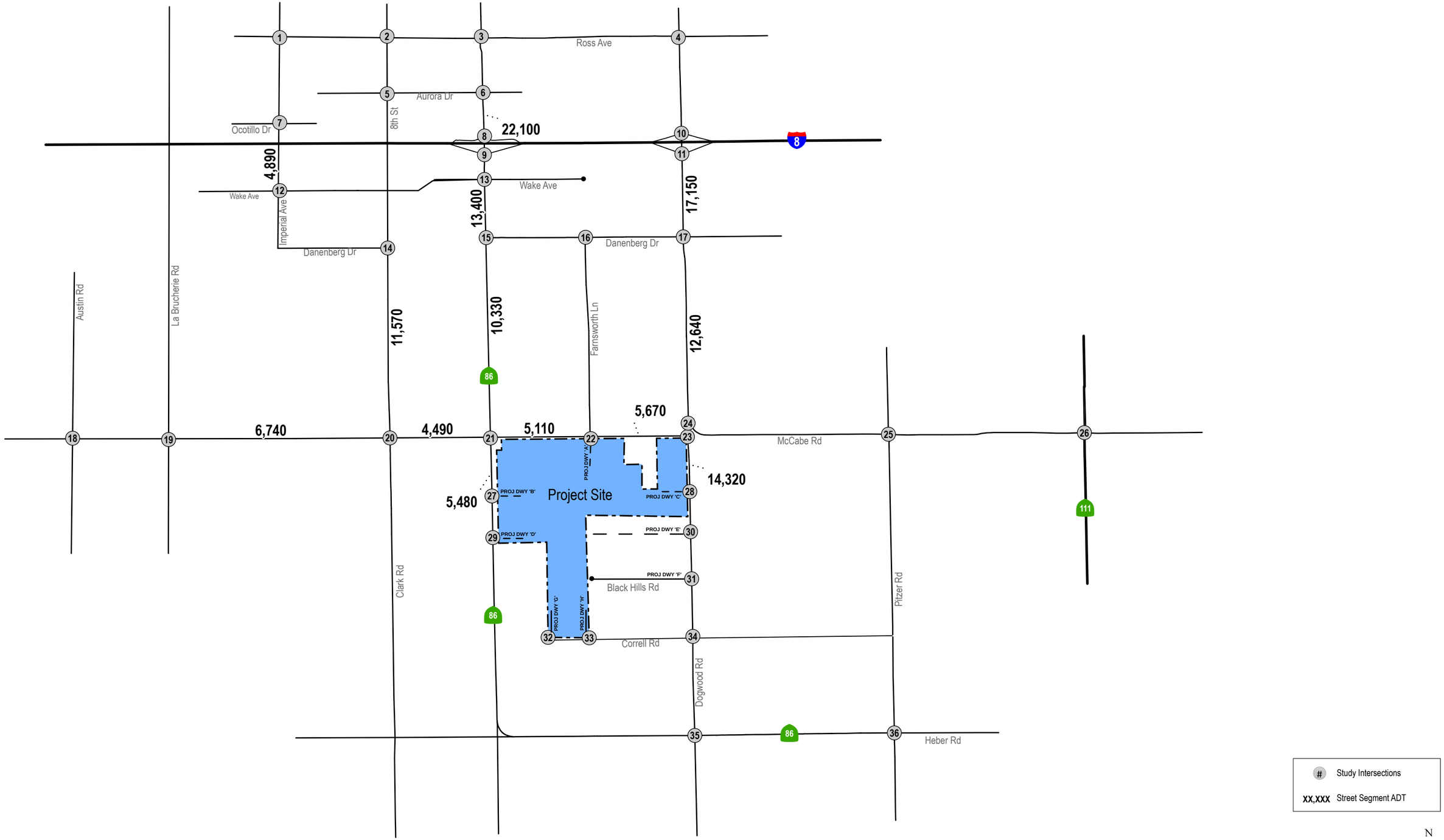

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Figure 8-1
Year 2027 without Project Traffic Volumes
Page 1 of 2

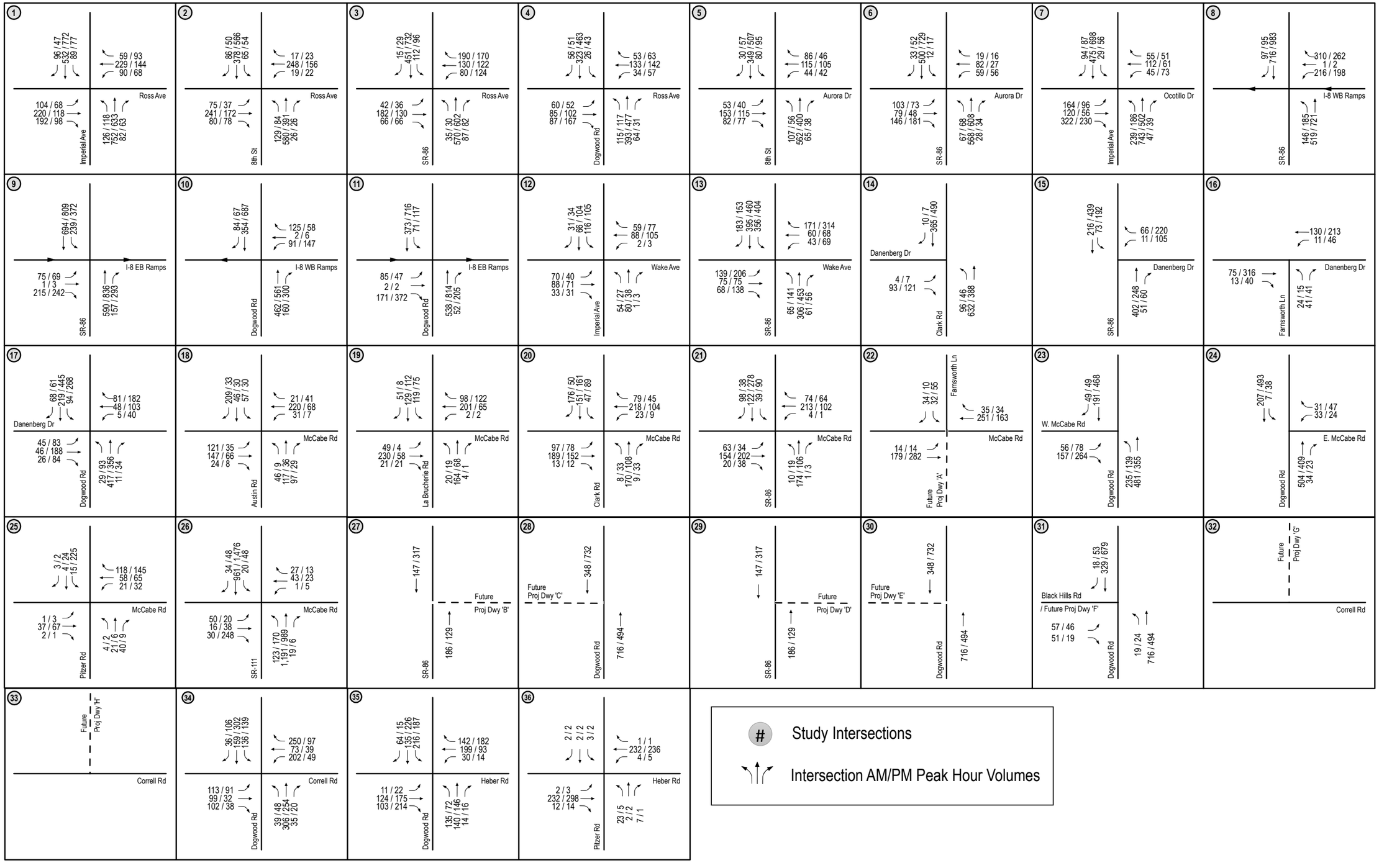

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Figure 8-1
Year 2027 without Project Traffic Volumes
Page 2 of 2
McCabe Ranch II

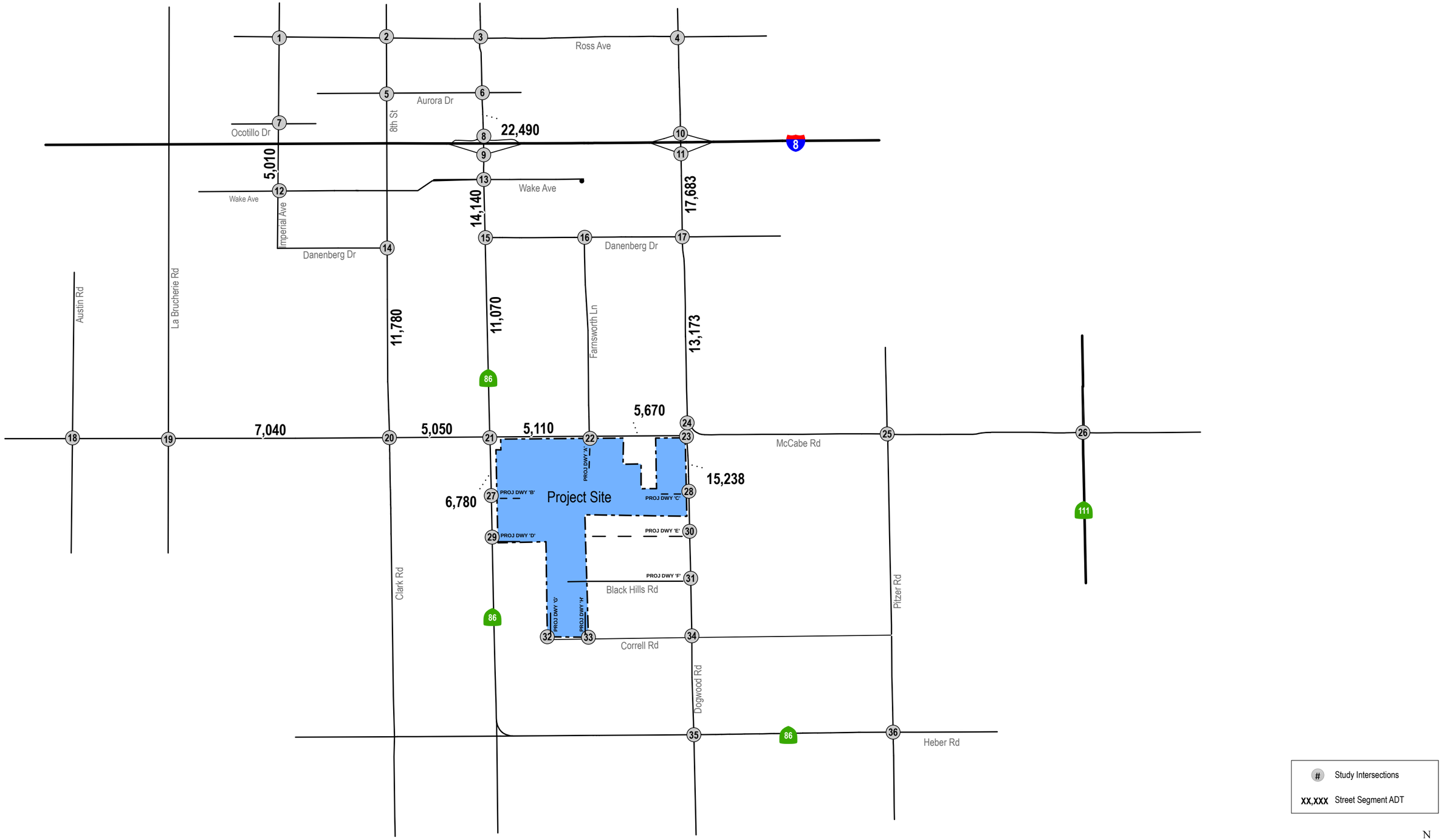

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Figure 8-2
Year 2027 + Project Phase I Traffic Volumes
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McCabe Ranch II

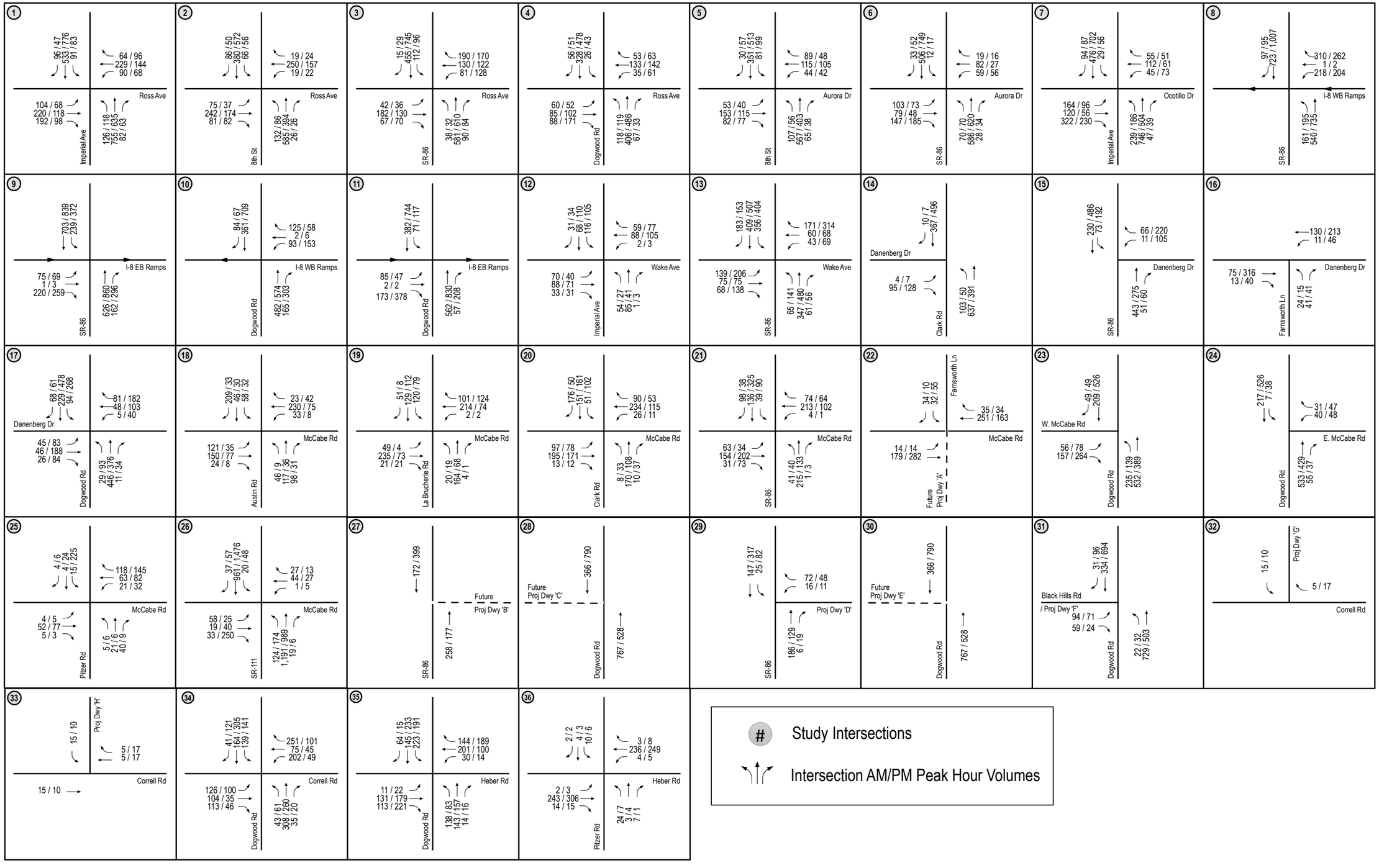

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Figure 8-2
Year 2027 + Project Phase I Traffic Volumes

McCabe Ranch II

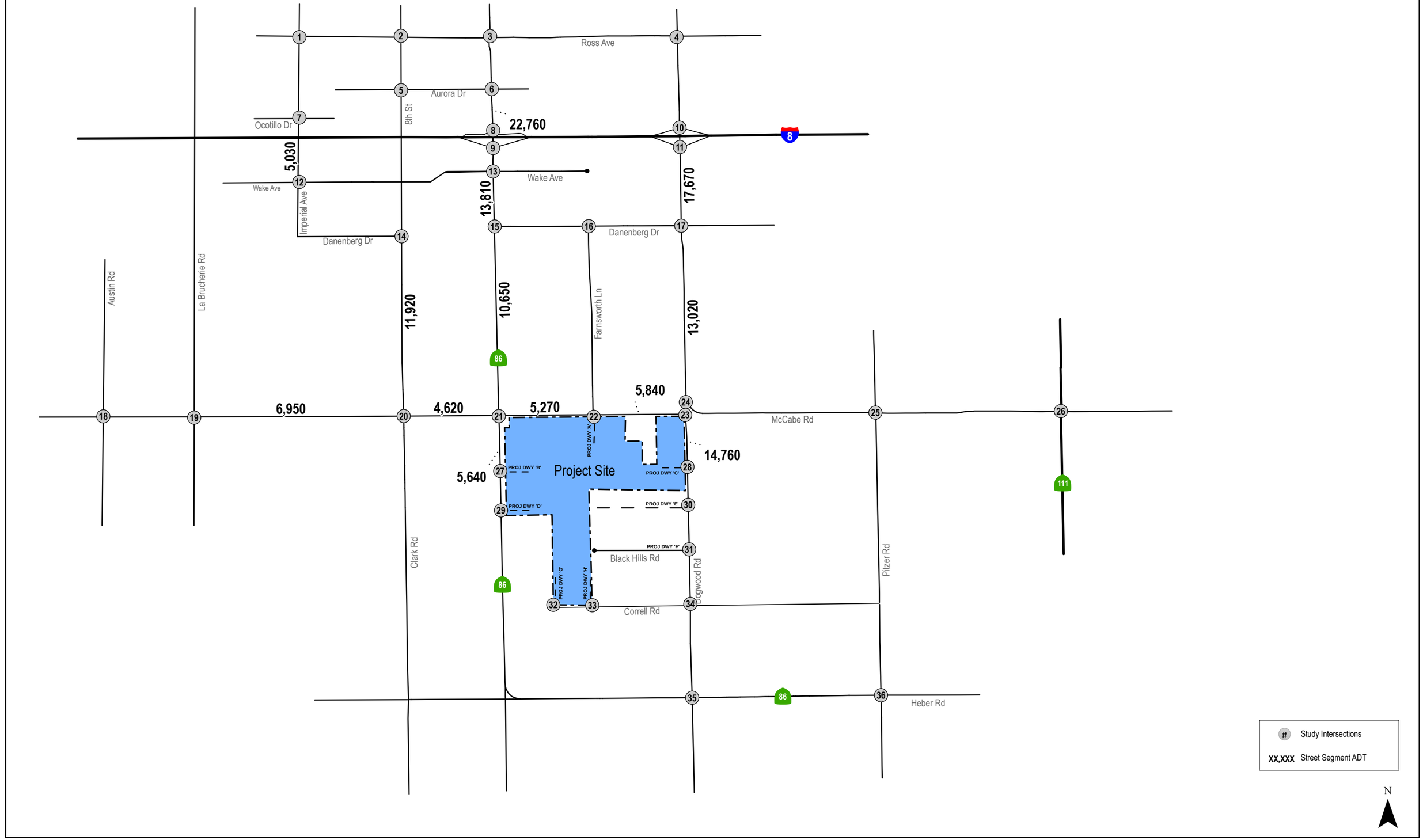

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Figure 8-3
Year 2033 without Project Traffic Volumes
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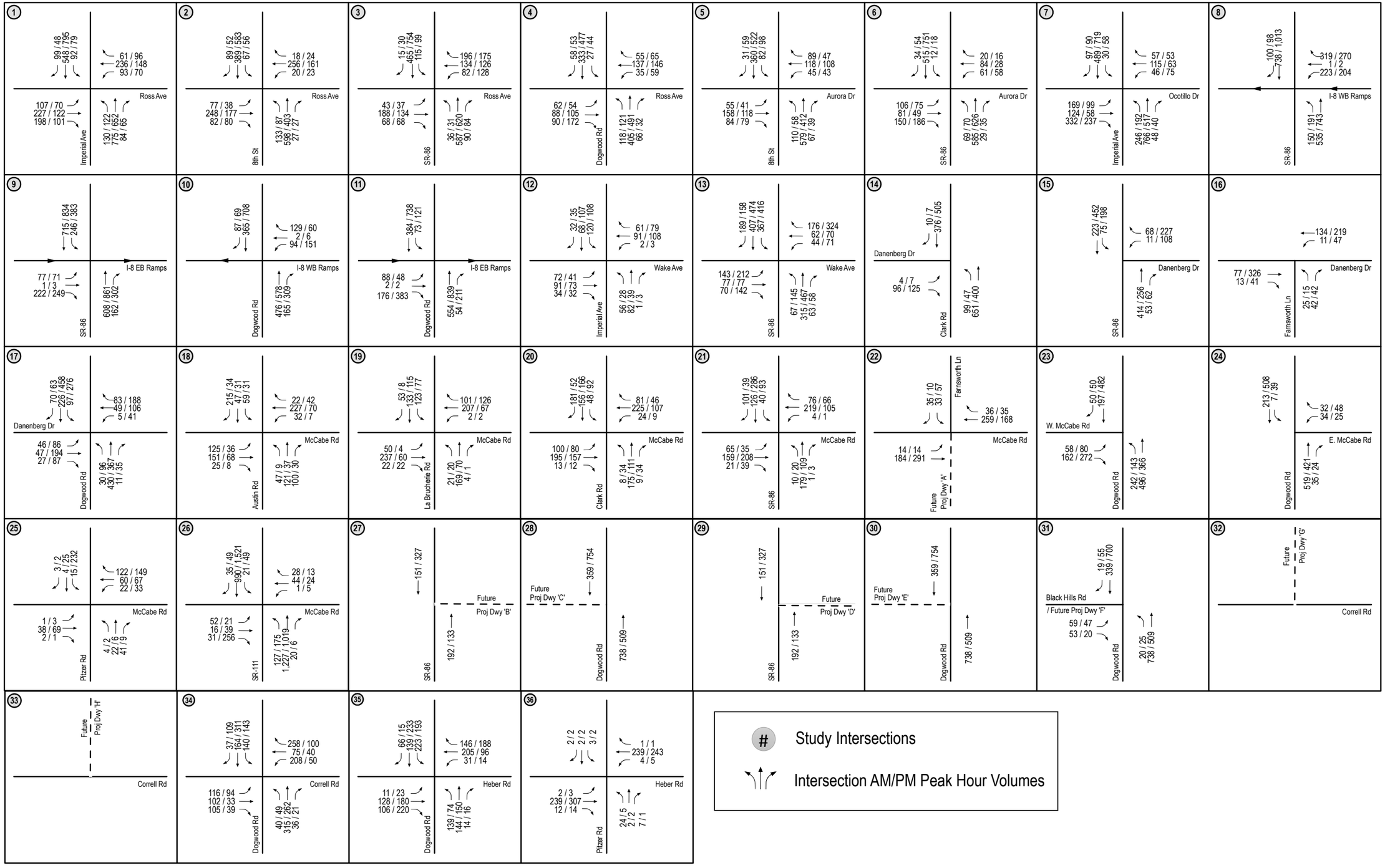

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Figure 8-3
Year 2033 without Project Traffic Volumes
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McCabe Ranch II

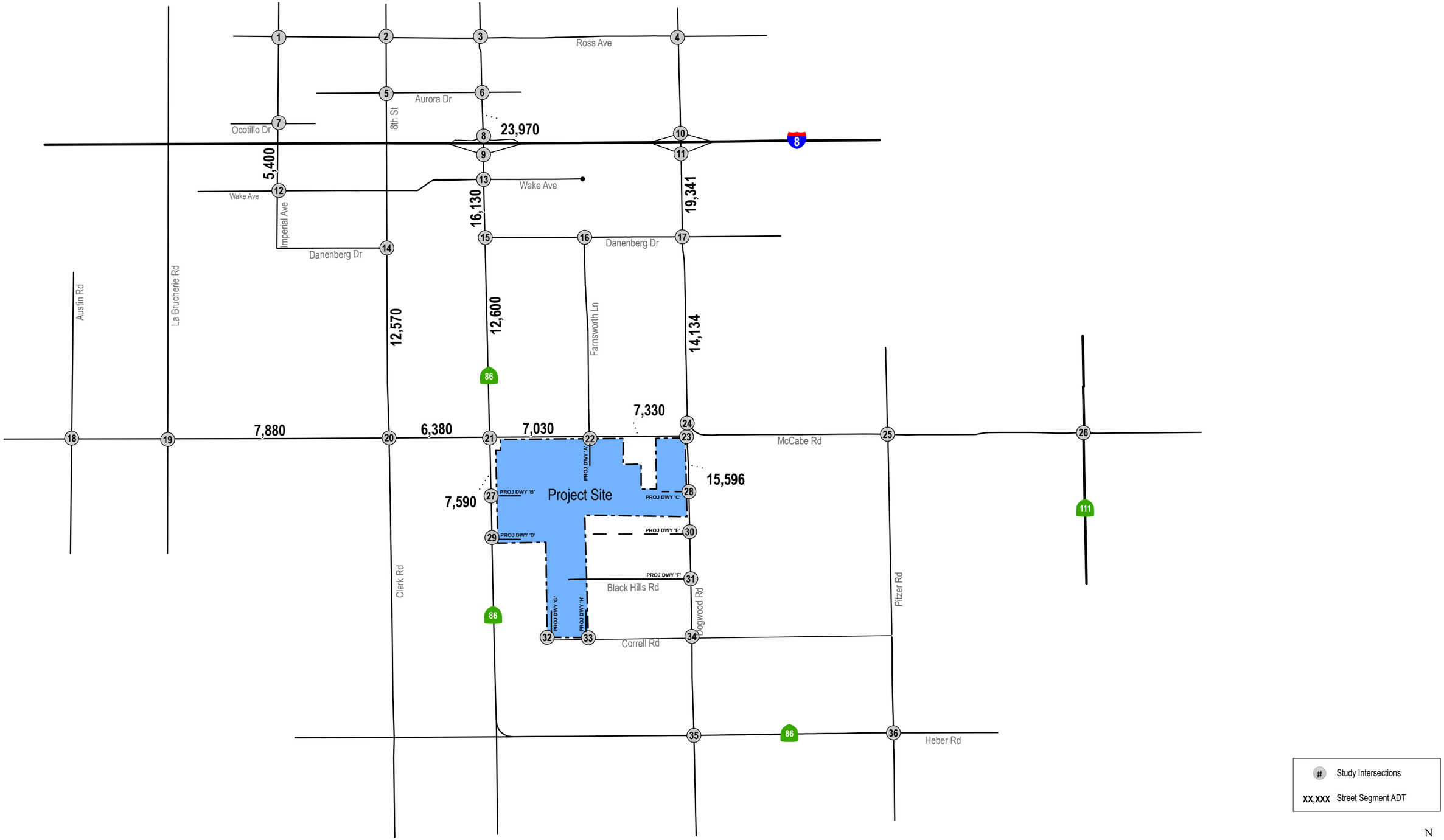

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Figure 8-4
Year 2033 + Project Phases I and 2 Traffic Volumes

McCabe Ranch II

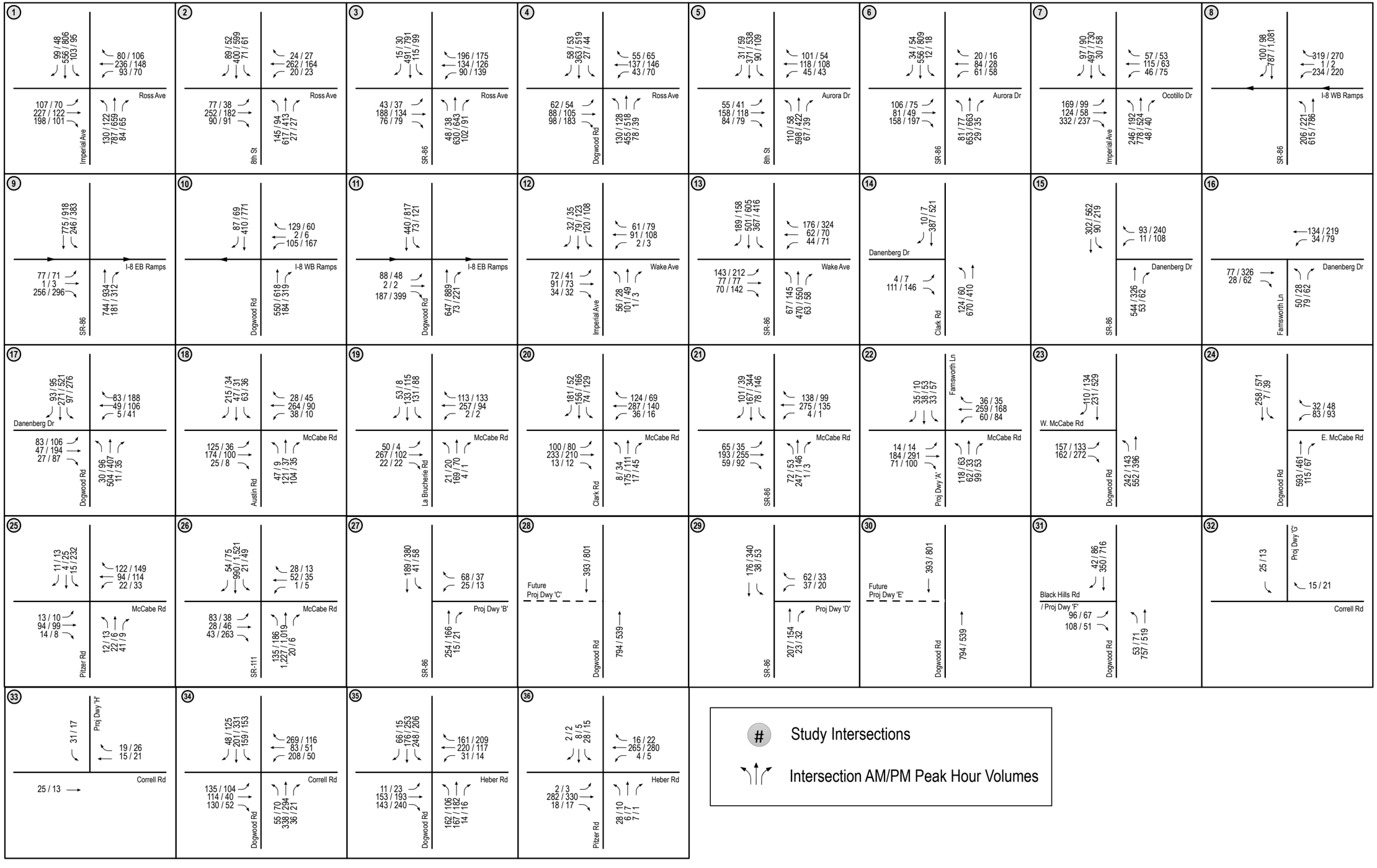

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Figure 8-4
Year 2033 + Project Phases 1 and 2 Traffic Volumes
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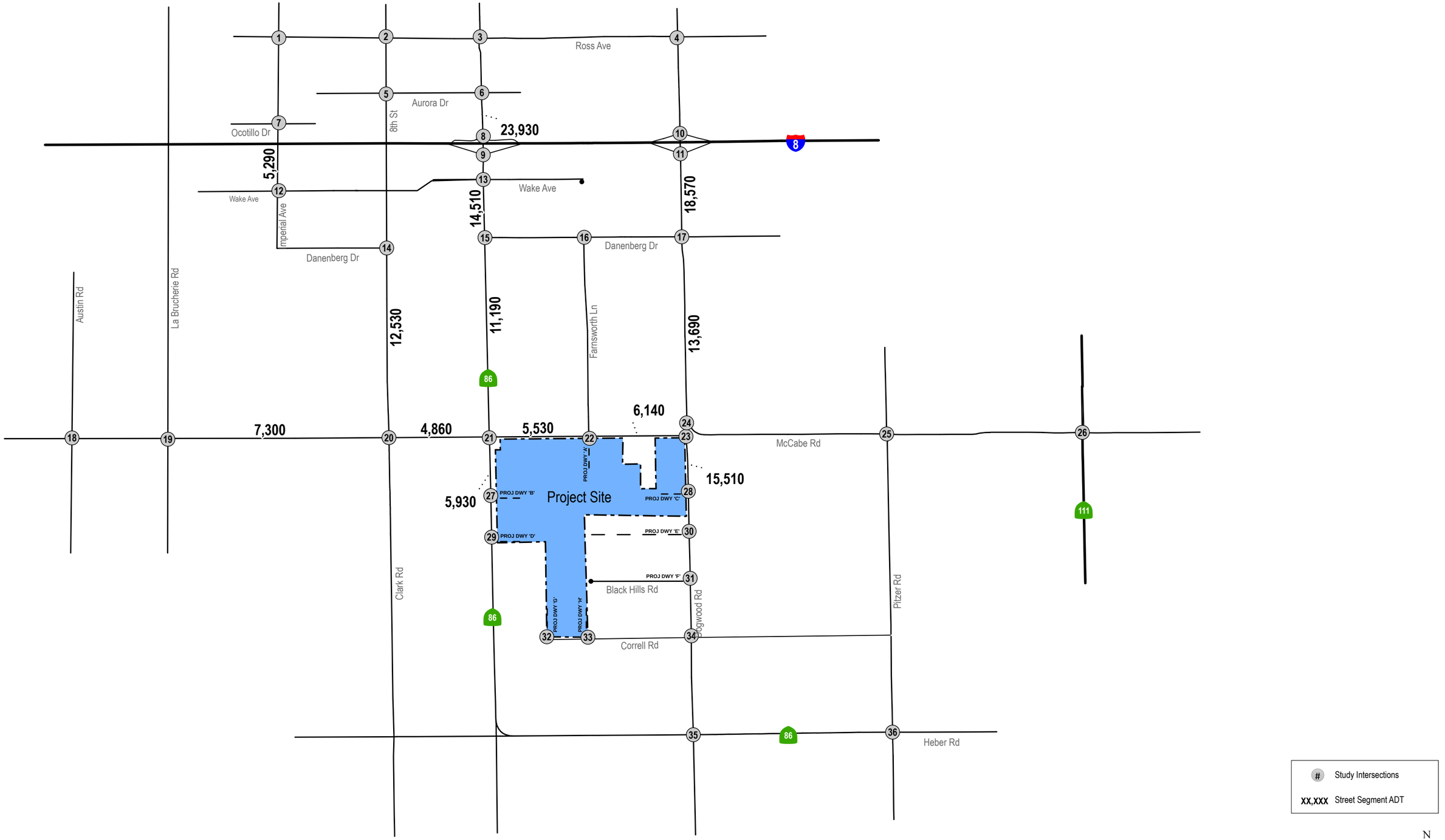

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Figure 8-5
Year 2039 without Project Traffic Volumes
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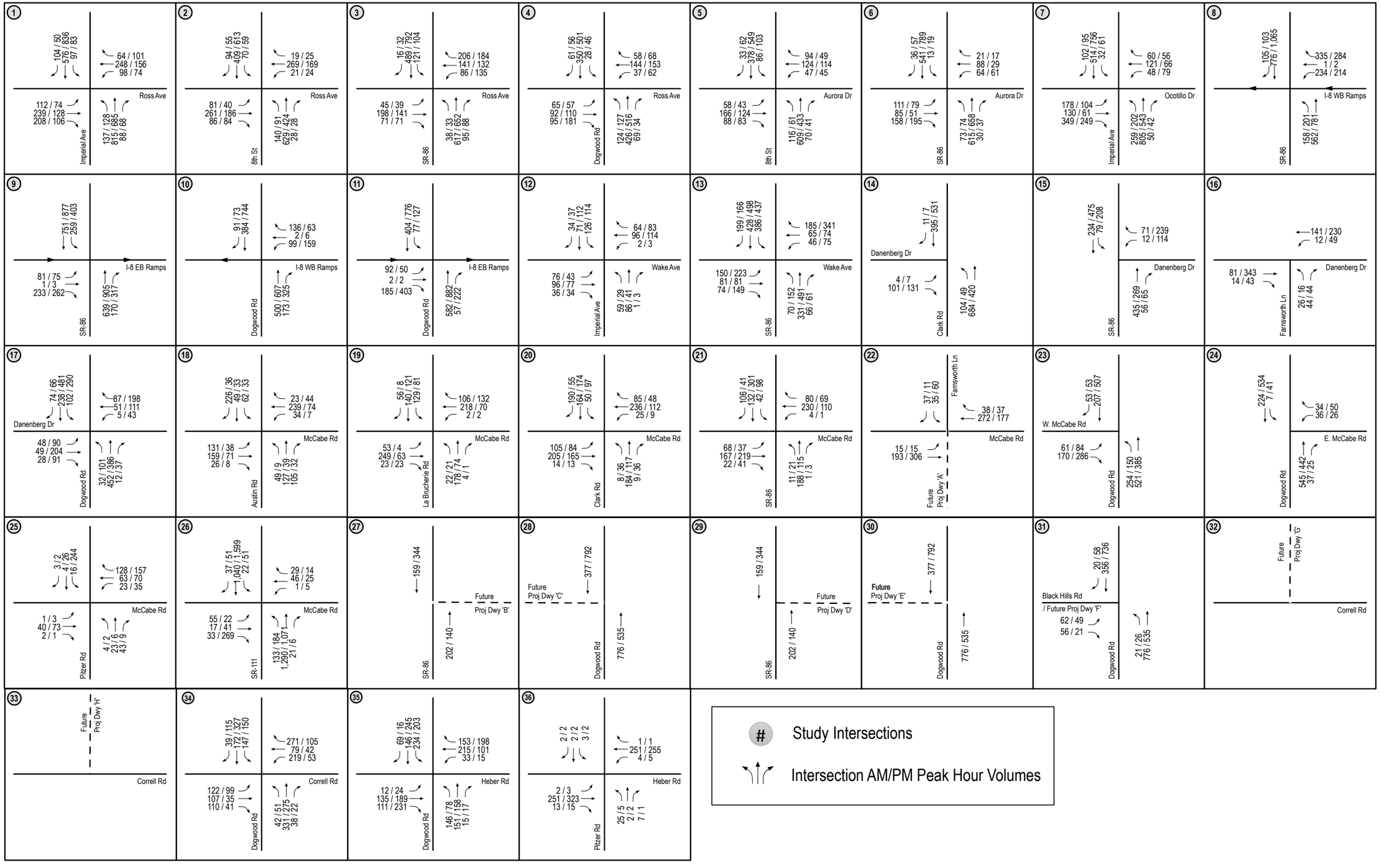

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Figure 8-5
Year 2039 without Project Traffic Volumes
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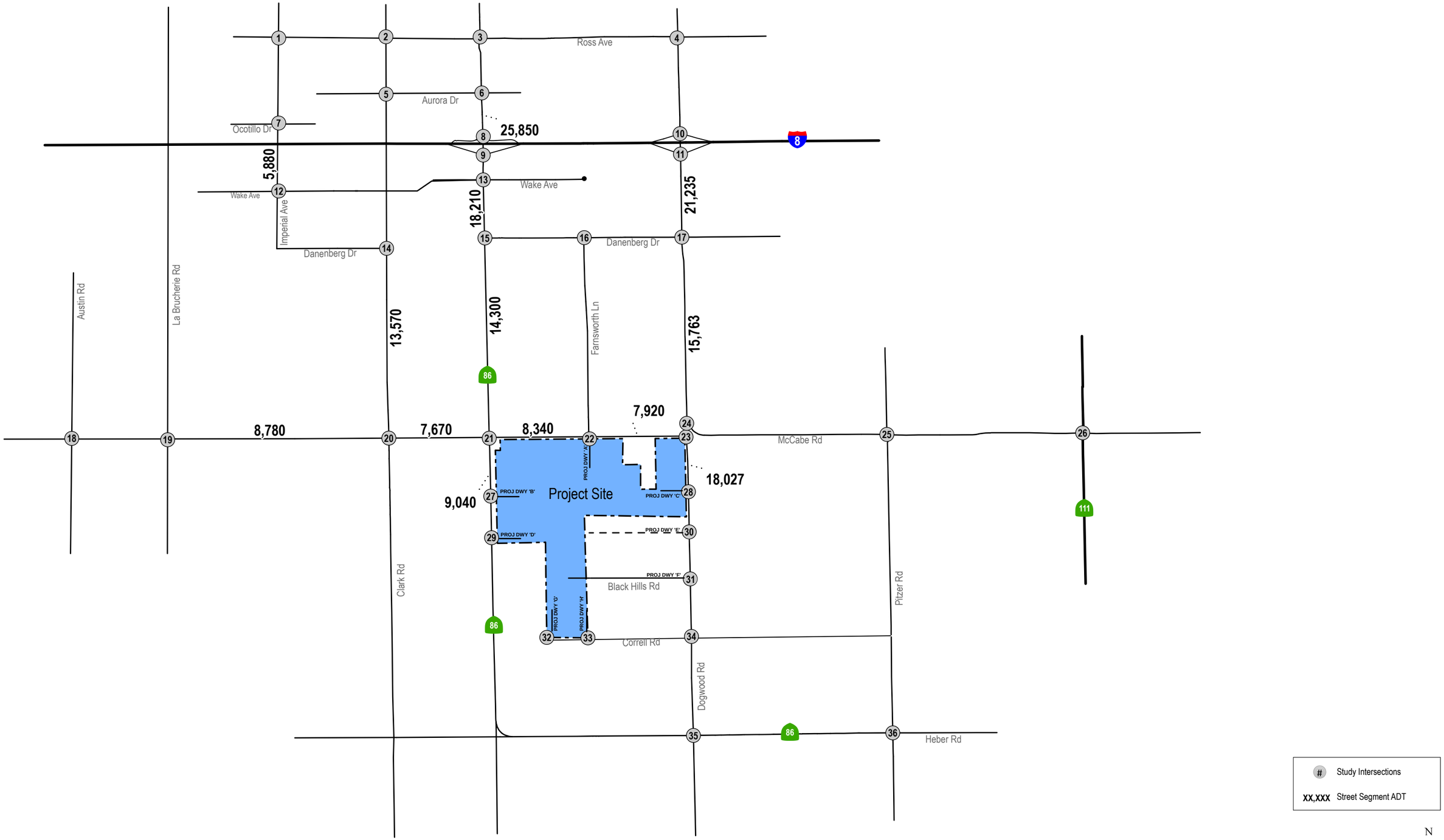

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Figure 8-6
Year 2039 + Project Phases I, 2 & 3 (TM 994 Buildout) Traffic Volumes

McCabe Ranch II

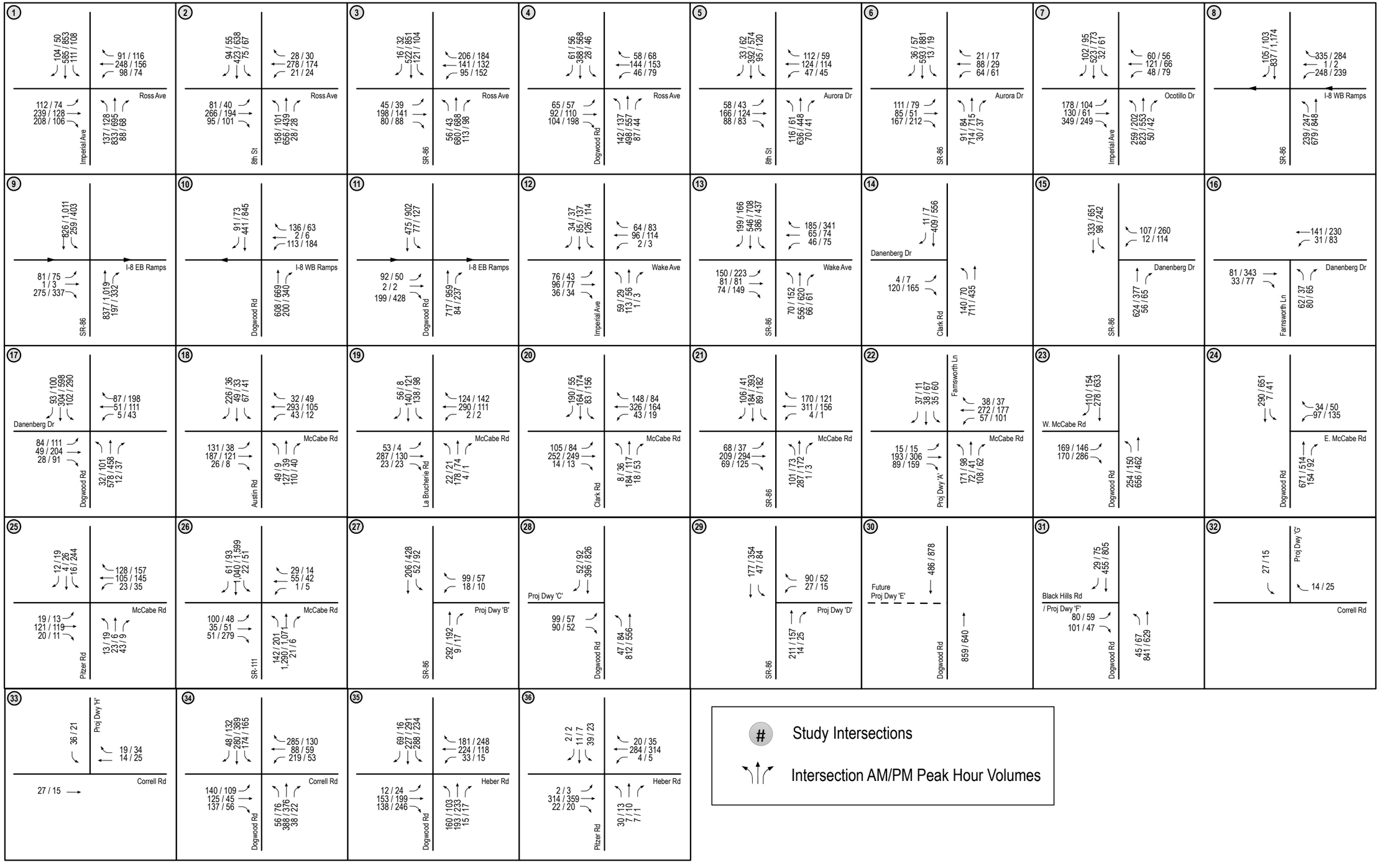

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Figure 8-6
Year 2039 + Project Phases I, 2 & 3 (TM 994 Buildout) Traffic Volumes
Page 2 of 2

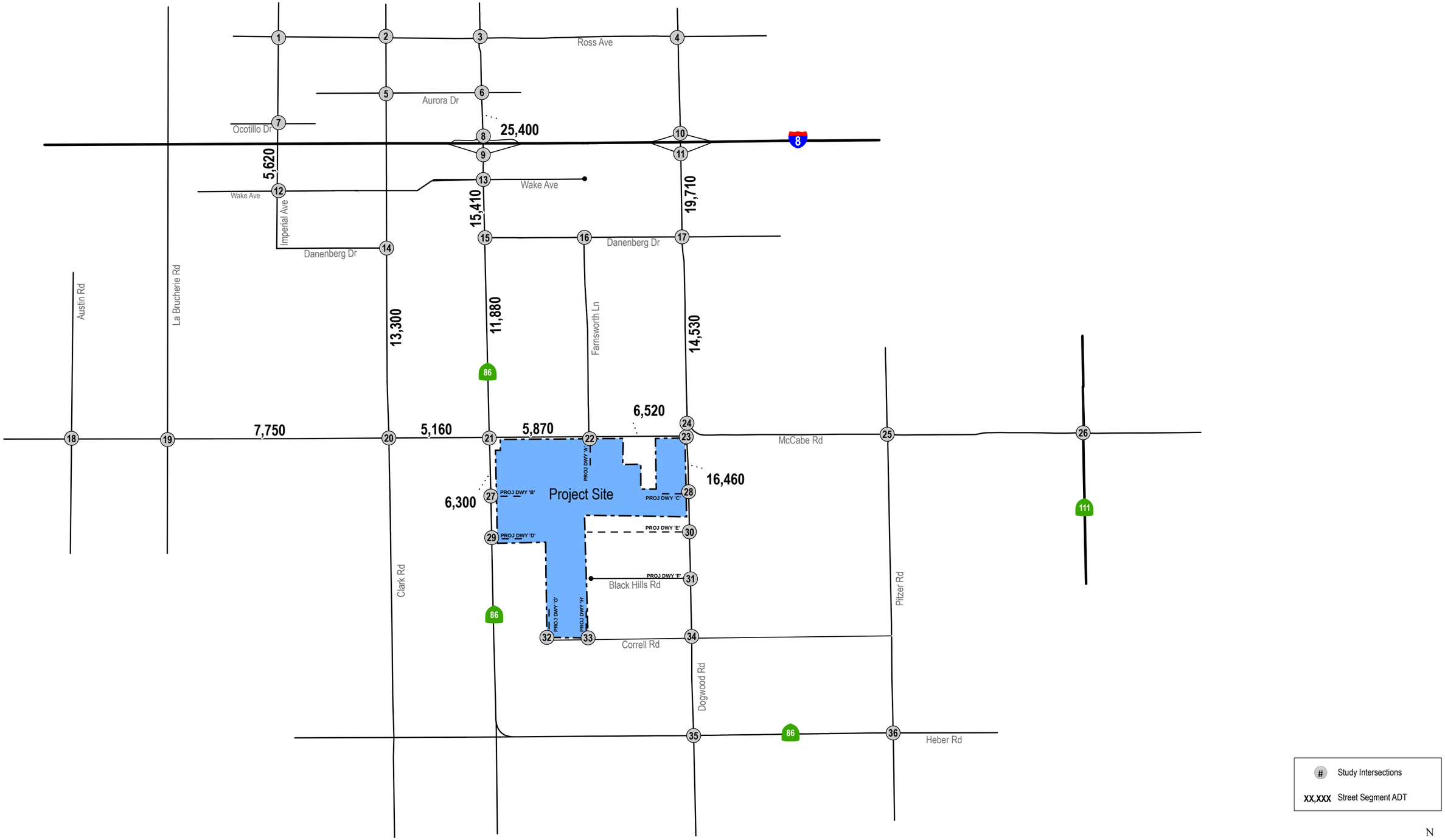

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Figure 8-7
Year 2040 without Project Traffic Volumes
Page 1 of 2

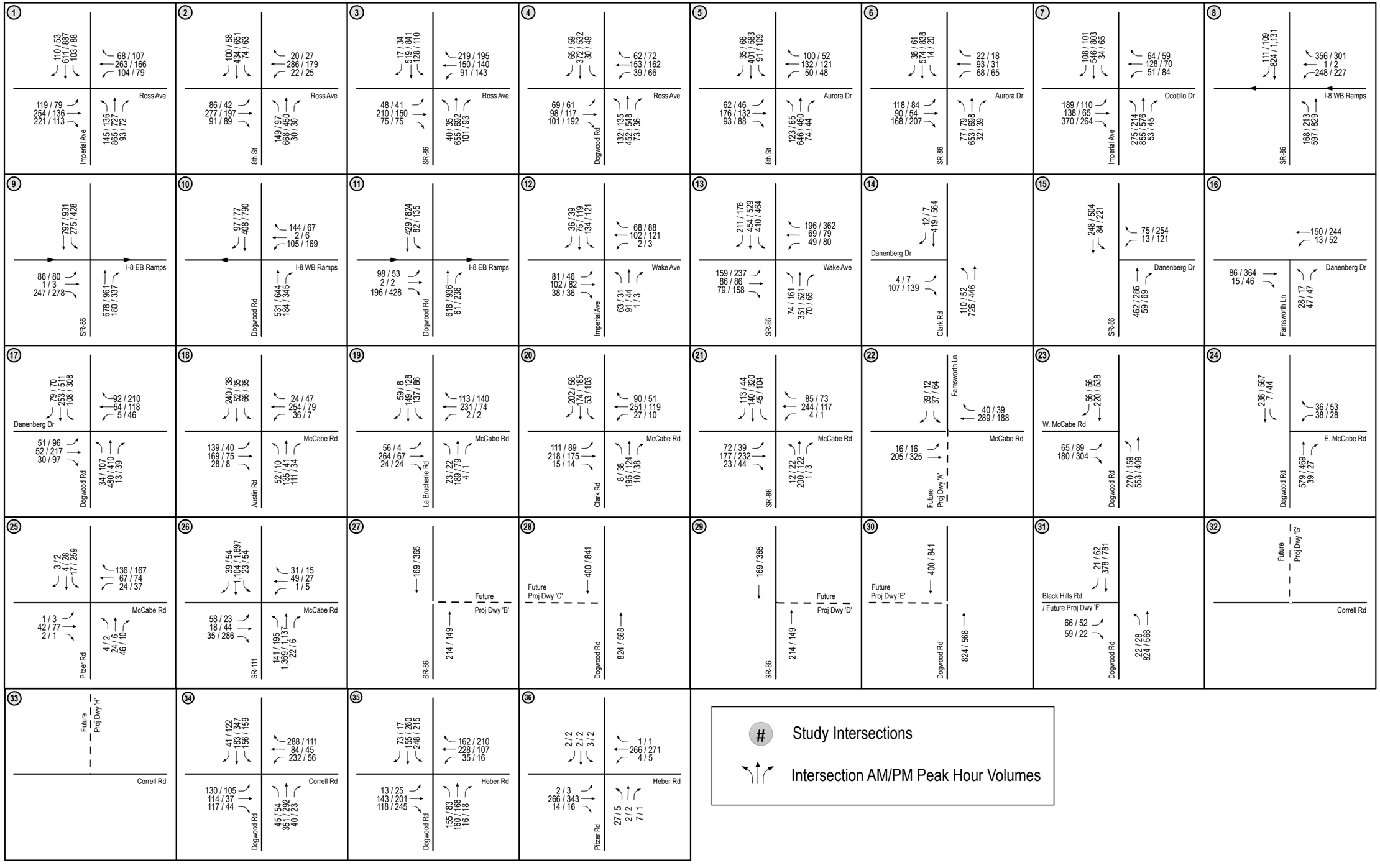

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Figure 8-7
Year 2040 without Project Traffic Volumes
Page 2 of 2

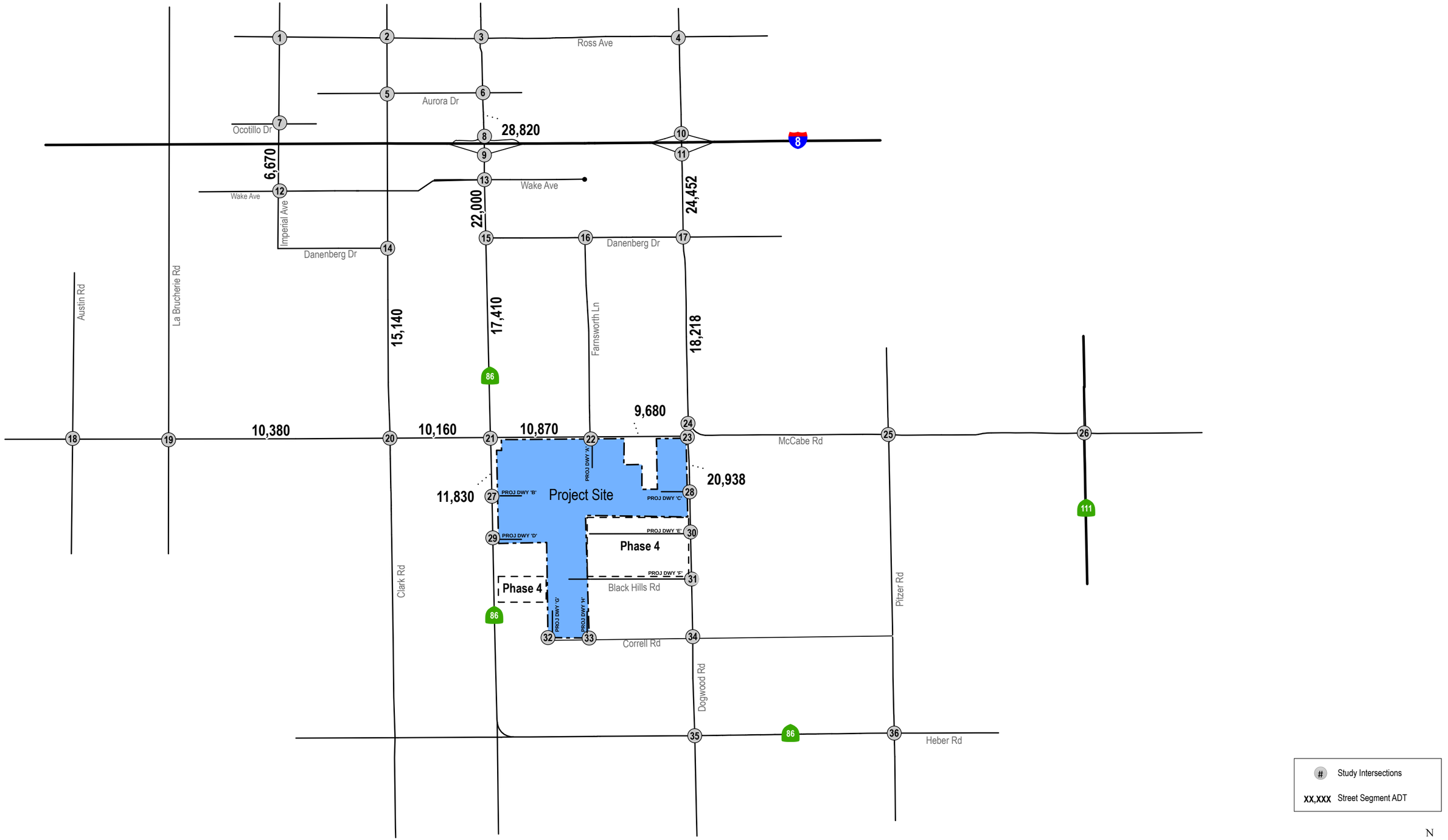

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Figure 8-8
Year 2040 + Phases I, 2, 3 + Phase 4 (Specific Plan Buildout) Traffic Volumes

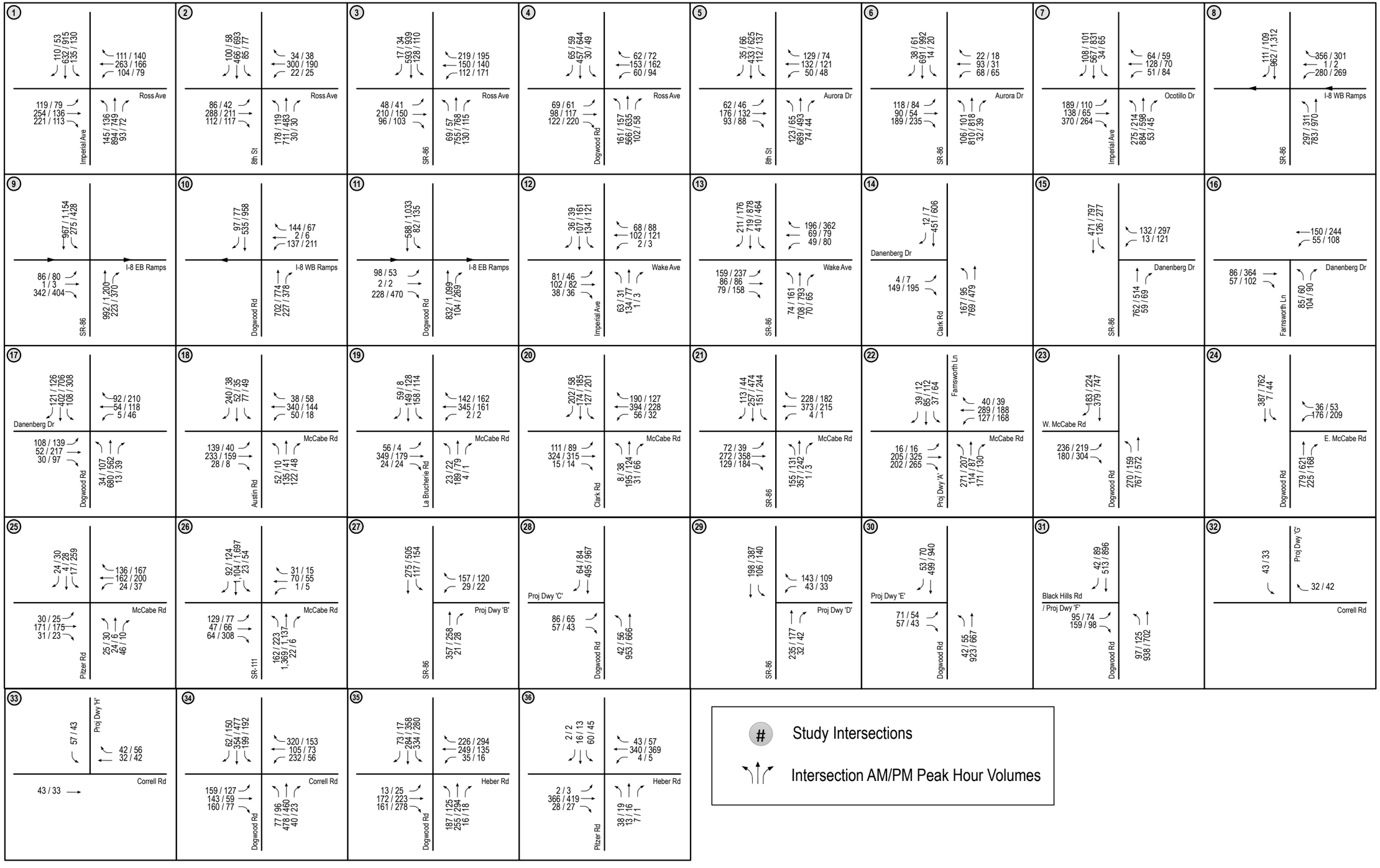

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Figure 8-8
Year 2040 + Phases I, 2, 3 + Phase 4 (Specific Plan Buildout) Traffic Volumes
Page 2 of 2

9.0 SITE ACCESS, ON-SITE CIRCULATION, AND PARKING

Access to the Project site will be via eight (8) driveways including Project driveway E which is to be provided by the owner of Phase 4. Project driveways B, C, D, E and F are the east-west entrance, and Project driveways A, G and H are the north-south entrance to the Project site. Project driveway A also serves as the southern extension of Farnsworth Road. As mentioned in *Section 6.2*, the following Project driveways will become available at the following Phase:

- Phase 1 of the Project is anticipated to be completed by Year 2027. Under Year 2027, Project driveway D on SR-86, Project driveways F on Dogwood Road, and Project driveways G and H on Correll Road would be provided.
- Phase 2 of the Project is anticipated to be completed by Year 2033. Under Year 2033, Project Driveway A on McCabe Road, Project driveways B and D on SR-86, Project driveway F on Dogwood Road, and Project driveways G and H on Correll Road would be provided.
- Phase 3 of the Project is anticipated to be completed by Year 2039. Under Year 2039, Project Driveway A on McCabe Road, Project driveways B and D on SR-86, Project driveways C and F on Dogwood Road, and Project driveways G and H on Correll Road would be provided.
- Phase 4 of the Project is anticipated to be completed in Year 2040. Under Year 2040, Project Driveway A on McCabe Road, Project driveways B and D on SR-86, Project driveways C and F on Dogwood Road, and Project driveways G and H on Correll Road would be provided. In addition, it is assumed that driveway E on Dogwood Road would be provided by completion of Phase 4.

The analysis tasks include the analysis results for each Project driveway. The Project proposes to provide on-site circulation with walkable community plan that integrates a variety of residential uses, commercial areas, parks, schools and other facilities essential to the daily lives of the residents. There will also be a series of parkland areas connected by a trails system to link compatible land uses that are within easy walking distance of each other. In addition, buildout of the proposed Project will result in the construction of new roadways and bicycle and pedestrian facilities consistent with adopted policies, plans, and programs.

The Project will provide parking spaces for each dwelling unit. These spaces will be designed to accommodate the parking needs of residents. The private home driveways or designated parking spaces will offer individual parking for homeowners and their guests.

10.0 ACTIVE TRANSPORTATION REVIEW

10.1 Bicycle Network

Class II bike lanes are provided on both sides of Imperial Avenue between I-8 and Wake Avenue, and on portions of Dogwood Road within the Project vicinity. Per the *City of El Centro Mobility Element*, Class I bike paths are proposed for Imperial Avenue south of Wake Avenue and for Dogwood Avenue within the Project vicinity. Class II buffered bike lanes are proposed on SR-86 within the project vicinity. Additionally, Class IV cycle tracks are proposed on Clark Road and McCabe Road within the project vicinity.

10.2 Pedestrian Network

Sidewalks are provided on Imperial Avenue between I-8 and Wake Avenue, and on the east side only between Wake Avenue and Danenberg Drive; on the west side only of Clark Road between I-8 and Palmview Avenue; on SR-86 between Aurora Drive and I-8, and on the east side only between Wake Avenue and Danenberg Drive and between Willow Bend Drive and Countryside Drive; on the east side only of Dogwood Road between I-8 and Danenberg Drive, and on both sides of the roadway between Black Hills Road and Correll Road; on Correll Road between its western terminus and Heber Avenue, and on the south side only between Rockwood Road and Pitzer Road. The Project proposes to provide sufficient right-of-way for pedestrian and bicycle improvements along McCabe Road and Correll Road.

10.3 Transit Network

Imperial Valley Transit (IVT) provides an inter-city fixed route bus system, with an existing service route operating along Dogwood Road near the Project site. IVT Routes 100 and 150 provide service that run in the vicinity of the Project area between El Centro and Calexico from approximately 6:00 AM until 11:00 PM weekdays, and 6:00 AM to 6:00 PM on Saturdays.

11.0 CONCLUSIONS

The Project proposes to develop 1,079 single-family units; 531 multi-family units; a 12.3-acre school site for the McCabe School District; and a number of community and neighborhood parks. The Project will be built in phases as outlined below, with Phase 4 under separate ownership and not technically part of the Project.

As shown in *Table 6–1*, the following trips are calculated for each phase:

- **Phase 1** *(314 single-family lots)* – 2,961 ADT, with 220 trips during the AM peak hour (57 inbound and 163 outbound), and 295 trips during the PM peak hour (186 inbound and 109 outbound).
- **Phase 2** *(419 single-family lots, 196 multi-family units, 12.3-acre school and 29.19-acre park)* – 314 single-family lots. 6,324 ADT, with 775 trips during the AM peak hour (319 inbound and 456 outbound), and 563 trips during the PM peak hour (339 inbound and 224 outbound).
- **Phase 3** *(346 single-family lots and 335 multi-family units)* – 5,521 ADT, with 376 trips during the AM peak hour (95 inbound and 281 outbound), and 496 trips during the PM peak hour (313 inbound and 183 outbound).
- **Project 4** *(422 single-family lots, 268 multi-family units, 3.14 acres of commercial, 9.41 acres of business park, an elementary school and 26.85-acre park)* – 11,536 Average Daily Traffic (ADT), with 1,118 trips during the AM peak hour (590 inbound and 528 outbound), and 1,129 trips during the PM peak hour (558 inbound and 571 outbound).

SUBSTANTIAL EFFECTS

Per the City's thresholds and the analysis methodology presented in *Section 4.0*, Project-related traffic is calculated to cause a substantial effect within the study area in the Year 2027 + Project Phase 1, Year 2033 + Project Phases 1 and 2, Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout), and Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout) scenarios, as summarized below in ***Table 11–1***. As shown in *Table 11–1*, a direct impact occurs when project traffic alone causes a location to go from acceptable to unacceptable operations, and a cumulative impact occurs when a location is already operating deficiently and a project contributes additional traffic to that condition and exceeds the thresholds shown in *Table 4–1*. In cases of cumulative impact, a fair share contribution is considered appropriate. The fair share formula is shown below:

Project Traffic / (Build-out Traffic – Existing Traffic)

The County of Imperial Circulation Element (*Appendix B*) includes Year 2050 ADT volumes for some of the street segments within the study area. Based on the fair share formula, the Year 2050 volumes from this document were utilized where available. If Year 2050 volumes are not available, the ADT volumes from the Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout) scenario were used instead.

It should be noted that only ADT volumes are provided for Year 2050, no peak hour volumes are available for intersections. Therefore, the peak hour volumes in the Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout) scenario were used for fair share calculation purposes. For intersections, if both AM and PM peaks trigger a substantial effect, the intersection's fair share contributions will be calculated based on the higher of the AM or PM entering peak hour volumes. Otherwise, only the peak hour with the substantial effect will be used to calculate the fair share contribution.

TABLE 11–1
SUBSTANTIAL EFFECT SUMMARY

Location	Development Scenario and Impact Type (Direct or Cumulative)			
	Year 2027 + Project Phase 1	**Year 2033 + Project Phases 1 and 2**	**Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout)**	**Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout)**
Intersections				
Ross Avenue / SR-86 *(Caltrans jurisdiction)*			Cumulative	
Ross Avenue / Dogwood Road		Cumulative		
Aurora Drive / 8th Street	Cumulative			
I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)*				Cumulative
I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)*		Cumulative		
Wake Avenue / SR-86 *(Caltrans jurisdiction)*		Cumulative		
Danenberg Drive / Farnsworth Lane				Cumulative
W McCabe Road / Austin Road	Cumulative			
W McCabe Road / La Brucherie Road	Cumulative			
W McCabe Road / Clark Road	Cumulative			
W McCabe Road / SR-86 *(Caltrans jurisdiction)*				Cumulative
W McCabe Road / Farnsworth Lane / Project Driveway A		Direct		
Dogwood Road / Project Driveway C			Direct	
Dogwood Road / Project Driveway E				Phase 4 Frontage
Dogwood Road / Black Hills Road / Project Driveway F	Cumulative			
Correll Road / Dogwood Road			Cumulative	
Heber Road / Dogwood Road *(Caltrans jurisdiction)*	Cumulative			

TABLE 11–1
SUBSTANTIAL EFFECT SUMMARY

Location	Development Scenario and Impact Type (Direct or Cumulative)			
	Year 2027 + Project Phase 1	**Year 2033 + Project Phases 1 and 2**	**Year 2039 + Project Phases 1, 2 and 3 (TM 994 Buildout)**	**Year 2040 + Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout)**
Street Segments				
Clark Road between Danenberg Drive and McCabe Road				Cumulative
SR-86 between Wake Avenue and Danenberg Drive *(Caltrans jurisdiction)*				Cumulative
SR-86 between Danenberg Drive and McCabe Road *(Caltrans jurisdiction)*				Cumulative
SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)*		Direct		Phase 4 Frontage
Dogwood Road between McCabe Road and Heber Road	Direct: Frontage Cumulative: Non-Frontage			Phase 4 Frontage
McCabe Road between La Brucherie Road and Clark Road		Cumulative		
McCabe Road between Clark Road and SR-86			Cumulative	
McCabe Road between SR-86 and Farnsworth Lane			Direct	
McCabe Road between Farnsworth Lane and Dogwood Road		Direct		

11.1 Project Phase 1 Improvements

Based on the analysis, the following improvements are recommended to accommodate Project Phase 1 traffic volumes. These improvements, once implemented, would improve efficiency of traffic flow and return intersection operations to an acceptable level.

INTERSECTIONS

- **Aurora Drive / 8th Street –** Contribute a fair share of 2.6% towards signalization of this intersection.
- **W McCabe Road / Austin Road –** It should be noted that the unacceptable LOS occurs during the AM drop-off time frame for students at the nearby McCabe Union Elementary School. It is anticipated that the majority of students living on the Project site will attend the proposed on-site McCabe Elementary School and once this school is built, the impact will not occur. Therefore, there are two options to mitigate this impact. Option 1 is to contribute a fair share of 4.9% towards signalization and restriping the eastbound and widening the westbound approaches of the intersection to include a dedicated left-turn lane and a shared through/right-turn lane. Option 2 is to accept the interim impact since construction of the on-site school will mitigate the impact once built.
- **W McCabe Road / La Brucherie Road –** It should be noted that the unacceptable LOS occurs during the AM drop-off time frame for students at the nearby McCabe Union Elementary School. It is anticipated that the majority of students living on the Project site will attend the proposed on-site McCabe Elementary School and once this school is built, the impact will not occur. Therefore, there are two options to mitigate this impact. Option 1 is to contribute a fair share of 5.1% towards signalization, widening the westbound approach to include one westbound right-turn lane, and widening the southbound approach of the intersection to include one left-turn lane. Option 2 is to accept the interim impact since construction of the on-site school will mitigate the impact once built.
- **W McCabe Road / Clark Road –** It should be noted that the unacceptable LOS occurs during the AM drop-off time frame for students at the nearby McCabe Union Elementary School. It is anticipated that the majority of students living on the Project site will attend the proposed on-site McCabe Elementary School and once this school is built, the impact will not occur. Therefore, there are two options to mitigate this impact. Option 1 is to contribute a fair share of 6.1% towards signalization and widening the westbound approach of the intersection to include a dedicated left-turn lane and shared through/right-turn lane. Option 2 is to accept the interim impact since construction of the on-site school will mitigate once built.
- **Dogwood Road / Black Hills Road / Project Driveway F –** Signalize the intersection.
- **Heber Road / Dogwood Road *(Caltrans jurisdiction)* –** Contribute a fair share of 8.0% towards signalization of this intersection and provision of the following improvements:
    - Northbound: one left-turn lane, two through lanes, and one right-turn lane
    - Southbound: one left-turn lane, two through lanes, and one right-turn lane
    - Eastbound: one left-turn lane, one through lane, and one right-turn lane

- Westbound: one left-turn lane, one through lane, and one right-turn lane

STREET SEGMENTS

- **Dogwood Road between McCabe Road and Heber Road –** Provide right-of-way to six-lane Prime Arterial standards and construct improvements to four-lane Minor Arterial standards for the portion fronting the Project site. This four-lane configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. For the off-site portion, contribute a fair share of 13.3% towards four-lane Minor Arterial standards. In addition, the recommended intersection improvements at the Correll Road / Dogwood Road and Heber Road / Dogwood Road intersections would improve the operations along this street segment.

11.2 Project Phase 2 Improvements

Based on the analysis, the following improvements are recommended to accommodate Project Phases 1 and 2 traffic volumes. These improvements, once implemented, would improve efficiency of traffic flow and return intersection operations to an acceptable level.

INTERSECTIONS

- **Ross Avenue / Dogwood Road –** Contribute a fair share of 17.6% towards restriping the eastbound and westbound approaches to include a dedicated left-turn lane. Also install an overlap phase on the eastbound right-turn movement.
- **Aurora Drive / 8th Street –** The Phase 1 improvement would improve the operations to an acceptable level.
- **I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* –** Contribute a fair share of 20.1% towards widening the southbound approach to include one additional southbound left-turn lane.
- **Wake Ave / SR-86 *(Caltrans jurisdiction)* –** Contribute a fair share of 26.3% towards widening the southbound approach to include an additional southbound left-turn lane.
- **W McCabe Road / Austin Road –** The Phase 1 improvement would improve the operations to an acceptable level.
- **W McCabe Road / La Brucherie Road –** The Phase 1 improvement would improve the operations to an acceptable level.
- **W McCabe Road / Clark Road –** The Phase 1 improvement would improve the operations to an acceptable level.
- **W McCabe Road / Farnsworth Lane / Project Driveway A –** Signalize the intersection and provision of the following improvements:
    - Northbound: one left-turn lane, one shared through/right-turn lane
    - Southbound: one left-turn lane, one shared through/right-turn lane
    - Eastbound: one left-turn lane, one through lane, and one right-turn lane
    - Westbound: one left-turn lane, one shared through/right-turn lane
- **Dogwood Road / Black Hills Road / Project Driveway F –** The Phase 1 improvement would improve the operations to an acceptable level.
- **Heber Road / Dogwood Road *(Caltrans jurisdiction)* –** The Phase 1 improvement would improve the operations to an acceptable level.

STREET SEGMENTS

- **SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)* –** Provide right-of-way to six-lane Prime Arterial standards and construct improvements to four-lane Minor Arterial standards for the portion fronting the Project site. This four-lane configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. For the off-site portion, construct improvements for four-lane Minor Arterial standards. In addition, the recommended intersection

improvements at the W McCabe Road / SR-86 intersection would improve the operations along this street segment.

- **Dogwood Road between McCabe Road and Heber Road –** The Phase 1 improvement would improve the operations to an acceptable level.
- **McCabe Road between La Brucherie Road and Clark Road –** Contribute a fair share of 4.2% toward the construction improvements for four-lane Minor Arterial standards. This four-lane configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. The recommendation for a four-lane Minor Arterial was included in the previously approved EIR. In addition, the recommended intersection improvements at the W McCabe Road / La Brucherie Road and W McCabe Road / Clark Road intersections would also improve the operations along this street segment.
- **McCabe Road between Farnsworth Lane and Dogwood Road –** Provide right-of-way to six-lane Prime Arterial standards and construct improvements for four-lane Minor Arterial standards for the portion fronting the Project site. This configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. For the off-site portion, construct improvements for four-lane Minor Arterial standards. In addition, the recommended intersection improvements at W McCabe Road / SR-86 and W McCabe Road / Farnsworth Lane / Project Driveway A intersections would improve the operations along this street segment.

11.3 Project Phase 3 Improvements

Based on the analysis, the following improvements are recommended to accommodate Project Phases 1, 2 and 3 (TM 994 Buildout) traffic volumes. These improvements, once implemented, would improve efficiency of traffic flow and return intersection operations to an acceptable level.

INTERSECTIONS

- **Ross Avenue / SR-86 *(Caltrans jurisdiction)* –** Contribute a fair share of 24.7% towards widening the eastbound and westbound approaches to provide dedicated left-turn lanes.
- **Ross Avenue / Dogwood Road –** The Phase 2 improvement would improve the operations to an acceptable level.
- **Aurora Drive / 8th Street –** The Phase 1 improvement would improve the operations to an acceptable level.
- **I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* –** The Phase 2 improvement would improve the operations to an acceptable level.
- **Wake Ave / SR-86 *(Caltrans jurisdiction)* –** The Phase 2 improvement would improve the operations to an acceptable level.
- **W McCabe Road / Austin Road –** The Phase 1 improvement would improve the operations to an acceptable level.
- **W McCabe Road / La Brucherie Road –** The Phase 1 improvement would improve the operations to an acceptable level.
- **W McCabe Road / Clark Road –** The Phase 1 improvement would improve the operations to an acceptable level.
- **W McCabe Road / Farnsworth Lane / Project Driveway A –** The Phase 2 improvement would improve the operations to an acceptable level.
- **Dogwood Road / Project Driveway C –** Limit driveway to right turns only.
- **Dogwood Road / Black Hills Road / Project Driveway F –** The Phase 1 improvement would improve the operations to an acceptable level.
- **Correll Road / Dogwood Road –** Contribute a fair share of 37.2% towards widening the westbound approach to include a dedicated right-turn lane and install an overlap phase on the eastbound and westbound right-turn movements.
- **Heber Road / Dogwood Road *(Caltrans jurisdiction)* –** The Phase 1 improvement would improve the operations to an acceptable level.

STREET SEGMENTS

- **SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)* –** The Phase 2 improvement would improve the operations to an acceptable level.
- **Dogwood Road between McCabe Road and Heber Road –** The Phase 1 improvement would improve the operations to an acceptable level.
- **McCabe Road between La Brucherie Road and Clark Road –** The Phase 2 improvement would improve the operations to an acceptable level.
- **McCabe Road between Clark Road and SR-86 –** Contribute a fair share of 11.7% toward the construction improvements for four-lane Minor Arterial standards. This four-lane configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. The recommendation for a four-lane Minor Arterial was included in the previously approved EIR. In addition, the recommended intersection improvements at W McCabe Road / Clark Road and W McCabe Road / SR-86 intersections would also improve the operations along this street segment.
- **McCabe Road between SR-86 and Farnsworth Lane –** Provide right-of-way to six-lane Prime Arterial standards and construct improvements for four-lane Minor Arterial standards for the portion fronting the Project site. This configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. For the off-site portion, construct improvements for four-lane Minor Arterial standards. In addition, the recommended intersection improvements at W McCabe Road / SR-86 and W McCabe Road / Farnsworth Lane / Project Driveway A intersections would improve the operations along this street segment.
- **McCabe Road between Farnsworth Lane and Dogwood Road –** The Phase 2 improvement would improve the operations to an acceptable level.

11.4 Phase 4 Improvements

Based on the analysis, the following improvements are recommended to accommodate Phases 1, 2, 3 + Phase 4 (Specific Plan Buildout) traffic volumes. These improvements, once implemented, would improve efficiency of traffic flow and return intersection operations to an acceptable level. As mentioned in *Section 2.0*, the Phase 4 parcels may develop either prior to, concurrent with, or subsequent to the development of the Phase 1-3 parcels. Since the timing of Phase 4 development is currently unknown at the time of preparation of this LMA report, it is analyzed at a programmatic level. The following recommended improvements assume that Phase 4 will occur after the completion of Phases 1 through 3 (TM 994 Buildout); however, the extent of Phase 4's responsibility for contributing to improvements at impacted locations may change, particularly if it is developed earlier than anticipated, as further discussed below.

INTERSECTIONS

- **Ross Avenue / SR-86 *(Caltrans jurisdiction)* –** The Phase 3 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 3, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **Ross Avenue / Dogwood Road –** The Phase 2 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 2, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **Aurora Drive / 8th Street –** The Phase 1 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 1, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **I-8 WB Ramps / SR-86 *(Caltrans jurisdiction)* –** Contribute a fair share of 52.7% towards widening the northbound approach to include one additional northbound left-turn lane.
- **I-8 EB Ramps / SR-86 *(Caltrans jurisdiction)* –** The Phase 2 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 2, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **Wake Ave / SR-86 *(Caltrans jurisdiction)* –** The Phase 2 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 2, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **Danenberg Drive / Farnsworth Lane –** Install all-way stop-control.
- **W McCabe Road / Austin Road –** The Phase 1 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 1, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.

- **W McCabe Road / La Brucherie Road –** The Phase 1 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 1, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **W McCabe Road / Clark Road –** The Phase 1 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 1, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **W McCabe Road / SR-86** ***(Caltrans jurisdiction)*** **–** Contribute a fair share of 86.1% towards provision of the following improvements:
    - Northbound: one left-turn lane, one through lane, and one right-turn lane
    - Southbound: one left-turn lane, one through lane, and one right-turn lane
    - Eastbound: one left-turn lane, one through lane, and one right-turn lane
    - Westbound: one left-turn lane, one through lane, and one right-turn lane
- **W McCabe Road / Farnsworth Lane / Project Driveway A –** The Phase 2 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 2, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **Dogwood Road / Project Driveway C –** The Phase 3 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 3, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **Dogwood Road / Project Driveway E –** Signalize the intersection.
- **Dogwood Road / Black Hills Road / Project Driveway F –** The Phase 1 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 1, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **Correll Road / Dogwood Road –** The Phase 3 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 3, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.
- **Heber Road / Dogwood Road** ***(Caltrans jurisdiction)*** **–** The Phase 1 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 1, the appropriate fair share contribution would need to be calculated, and Phase 4 would be required to assume its share of responsibility.

STREET SEGMENTS

- **Clark Road between Danenberg and McCabe Road –** Contribute a fair share of 48.4% towards the future widening of this street segment to its ultimate classification of a four-

lane Major Collector. This recommendation was included in the previously approved EIR.

- **SR-86 between Wake Avenue and Danenberg Drive *(Caltrans jurisdiction)* –** Contribute a fair share of 34.9% towards the construction improvements for four-lane Minor Arterial standards. This four-lane configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. The recommendation for a four-lane Minor Arterial was included in the previously approved EIR. The recommended intersection improvements at the Wake Avenue / SR-86 intersection would also partially improve the operation on this street segment.
- **SR-86 between Danenberg Drive and McCabe Road *(Caltrans jurisdiction)* –** Contribute a fair share of 25.3% towards the construction improvements for four-lane Minor Arterial standards. This four-lane configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. The recommendation for a four-lane Minor Arterial was included in the previously approved EIR. The recommended intersection improvements at the W McCabe Road / SR-86 intersection would also partially improve the operation on this street segment.
- **SR-86 between McCabe Road and Heber Road *(Caltrans jurisdiction)* –** Provide right-of-way to six-lane Prime Arterial standards and construct improvements to four-lane Minor Arterial standards for the portion fronting the Phase 4 site. This four-lane configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. For the off-site portion, if Phase 4 is developed prior to the completion of Phase 2, construct improvements for four-lane Minor Arterial standards.
- **Dogwood Road between McCabe Road and Heber Road –** Provide right-of-way to six-lane Prime Arterial standards and construct improvements to four-lane Minor Arterial standards for the portion fronting the Phase 4 site. This four-lane configuration would allow the roadway to operate at acceptable levels given its LOS E capacity of 37,000 vehicles per day. For the off-site portion, if Phase 4 is developed prior to the completion of Phase 1, contribute a fair share towards four-lane Minor Arterial standards.
- **McCabe Road between La Brucherie Road and Clark Road –** The Phase 2 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 2, construct improvements for four-lane Minor Arterial standards.
- **McCabe Road between Clark Road and SR-86 –** The Phase 3 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 3, construct improvements for four-lane Minor Arterial standards.
- **McCabe Road between SR-86 and Farnsworth Lane –** The Phase 3 improvement would improve the operations to an acceptable level. If Phase 4 is developed prior to the completion of Phase 3, construct improvements for four-lane Minor Arterial standards.
- **McCabe Road between Farnsworth Lane and Dogwood Road –** The Phase 2 improvement would improve the operations to an acceptable level. If Phase 4 is

developed prior to the completion of Phase 2, construct improvements for four-lane Minor Arterial standards.

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