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TRAFFIC IMPACT ANALYSIS

SOUTH DOGWOOD GENERAL PLAN AMENDMENT

El Centro, California

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SOUTH DOGWOOD GENERAL PLAN AMENDMENT

El Centro, California
November 6, 2019

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has been retained to assess the potential traffic impacts to local roadway system due to the proposed South Dogwood General Plan Amendment (GPA). This project consists of the annexation of approximately 67.78 gross acres of unincorporated lands to the City of El Centro. The title property lies along the west side of Dogwood Avenue, from Danenberg Drive to 660 feet north of McCabe Road. The properties are largely vacant lands or developed with light to medium industrial properties.

The following items are included in this traffic analysis:

- Project Description
- Existing Conditions Description
- Study Area, Analysis Scenarios, Approach and Methodology
- Significance Criteria
- Analysis of Existing Conditions
- Project Traffic Generation/Distribution/Assignment
- Cumulative Projects Discussion
- Capacity Analysis
- Site Access Assessment
- Significance of Impacts and Mitigation Measures

2.0 PROJECT DESCRIPTION

2.1 Background

The South Dogwood General Plan Amendment (GPA) consists of the annexation of approximately 67.78 gross acres (65.1 net acres after road right-of-way exclusions) of unincorporated lands to the City of El Centro. The title property lies along the west side of Dogwood Avenue, between Danenberg Drive and 660 feet north of McCabe Road. The properties are largely vacant lands or developed with light to medium industrial properties, a mini-storage facility and two (2) rural single-family residences. There are thirteen (13) individual parcels included within the proposed annexation area, owned by four (4) different landowners.

The property is currently zoned for medium industrial development and the El Centro General Plan indicates the land to be planned for general industrial development (northern portion of site) and low density residential (southern portion of site). Concurrent with the application for annexation, the landowners have applied for a General Plan Amendment to allow for General Commercial development and a Zone Change to CG (General Commercial) within the northern and central areas and Multi-family Residential development in the southern four (4) parcels along with a Zone Change to R-3 (High Density Residential). The properties lie between the Imperial Valley Mall (east) and the Union Pacific Railroad tracks (west). There are no current plans for commercial or residential projects to be developed on these parcels. Future development of these parcels is anticipated to conform to the allowed uses with each zone designation.

The Union Pacific Railroad tracks along the west side of the project area are lightly utilized, with I to 2 trains passing the project sites on a daily basis. The speed of the passing trains is slow, at approximate 20 to 25 miles per hour.

The project area is proposed to be zoned CG (General Commercial), except for the southern 1,528 feet (11.97 acres) which is proposed to be zoned R-3 (Multi-family High Density residential). The southern area proposed for multi-family residential development consists of Assessor Parcel Numbers 054-390-089, 054-390-050, 054-390-051 and 054-390-052.

Additional right-of-way, pavements, curbs, sidewalk and street lights will be required along the Danenberg Drive and Dogwood Avenue frontages for full build-out of those 4 and 6-lane arterial streets.

2.2 Analyzed Project

2.2.1 *Project Land Uses*

There is no specific project proposed for this site and nor is there a site plan. For the purpose of this study, it is assumed that this project will consist of retail /commercial and multi-family land uses. The amount of retail / commercial and residential was estimated based on the acreages and assumed coverage. The total Project area is 65.1 acres, with 53.13 acres for retail commercial and 11.97 acres for residential uses. The retail / commercial square footage and number of residential units were estimated as follows:

- **Retail /Commercial** – It is assumed that the retail / commercial square footage is 30% of the total acreage (53.13 acres), or 30% * 53.13 acres * 43,560 SF = 694,303 SF.
- **Residential** – A density of 16 units per acre is assumed for the residential, or 16 units * 11.97 acres = 191 dwelling units.

2.2.2 *Project Access*

The Imperial Valley Mall is located opposite the Project site, on the east side of Dogwood Avenue. Currently, there are two signalized access intersections, the Dogwood Avenue / N. Mall Driveway (Chilli's) and the Dogwood Avenue / S. Mall Driveway (ARCO) along the project frontage providing access to the Imperial Valley Mall. It is assumed that the fourth (west leg) of these signalized intersections will provide access to the retail / commercial portion of the Project. A third, new access driveway is assumed to provide access to the residential portion of the Project. The three (assumed) access driveways are described in further detail in Section 10

Figure 2–1 shows the Project's Vicinity Map and ***Figure 2-2*** shows a more detailed Project Area Map. ***Figure 2–3*** shows the Project's site plan

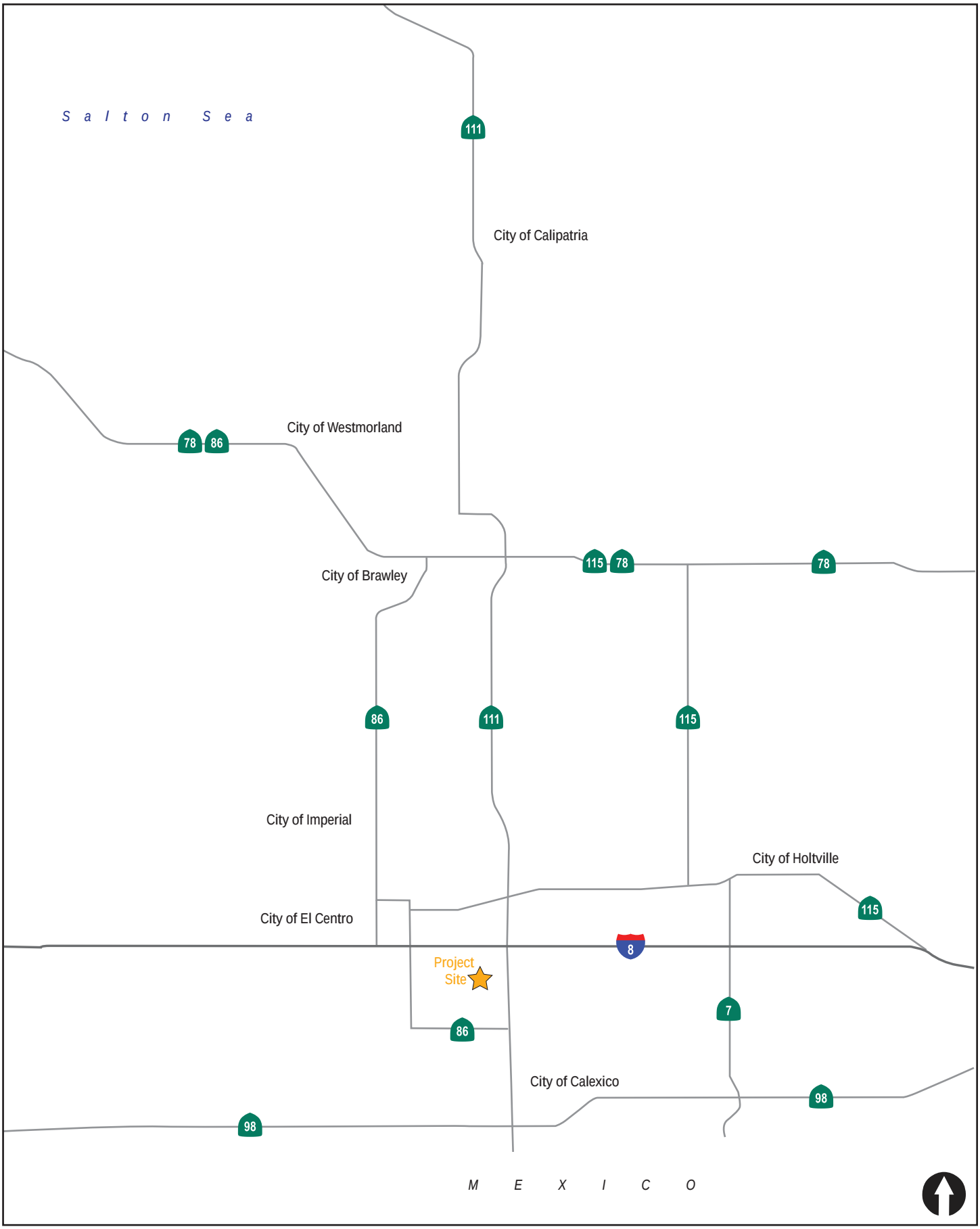

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Figure 2-1

Vicinity Map

South Dogwood GPA

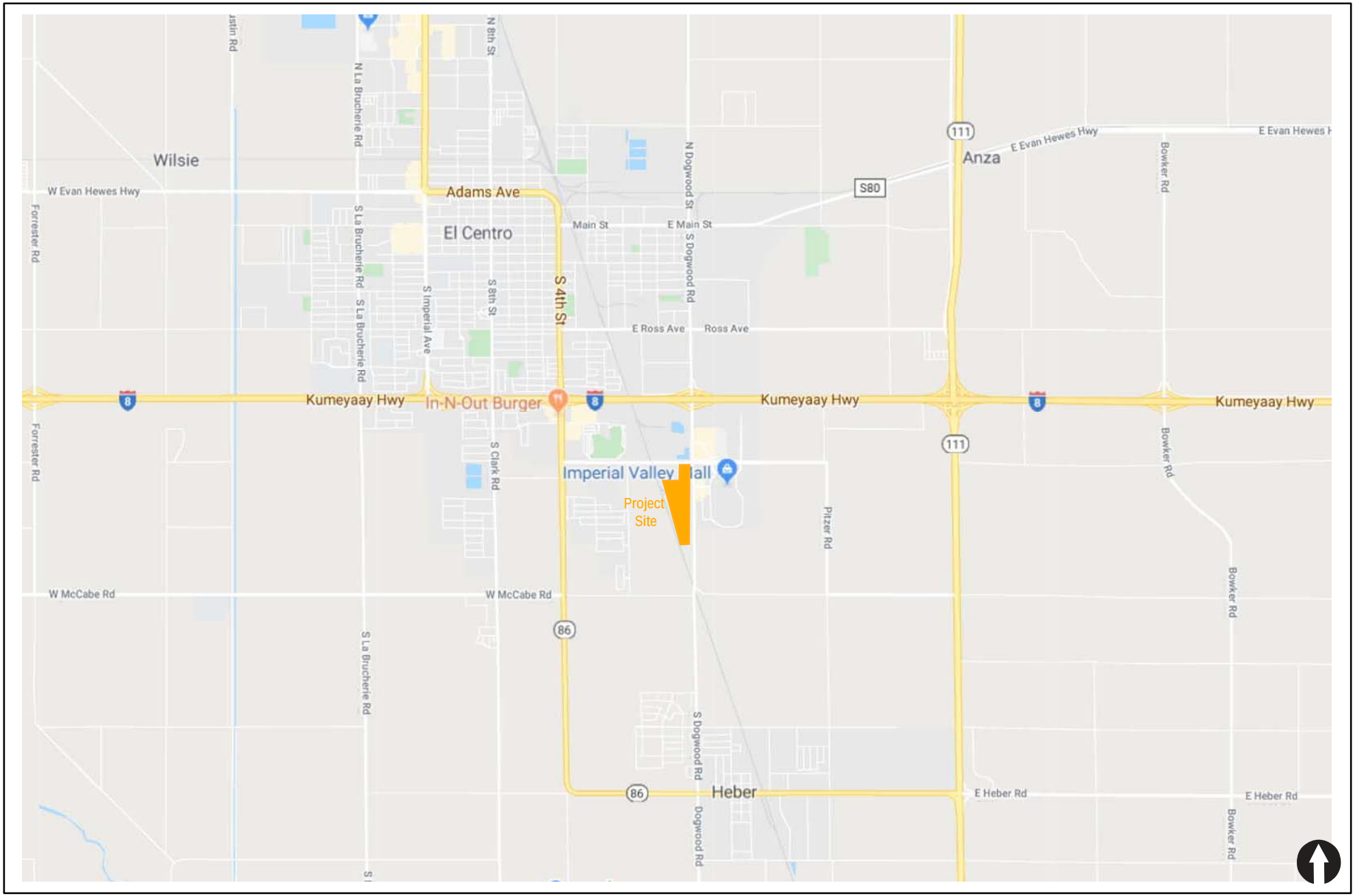

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Figure 2-2

Project Area Map

SOUTH DOGWOOD GPA

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Figure 2-3

Projext Site Plan

SOUTH DOGWOOD GPA

3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed Project requires an understanding of the existing transportation system within the project area. ***Figure 3–1*** shows an existing conditions diagram, including the study intersection and street segment lane configurations.

3.1 Existing Street Network

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

Dogwood Avenue is classified as a 6-Lane Arterial on the City of El Centro Circulation Element, in the Project vicinity, between N. of E. Aurora Drive and McCabe Road. Currently, the following cross-sections are provided along various segments of Dogwood Avenue:

- Two-Lane Road with a center-Two-Way-Left-Turn Lane between E. Aurora Drive and I-8
- Four-Lane Road between I-8 and Wake Avenue
- Five-Lane Road (two lanes southbound and three lanes northbound) between Wake Avenue and E. Danenberg Drive
- Four-Lane Road between E. Danenberg Drive and N. Mall Driveway (Chilli's)
- Five-Lane Road between and N. Mall Driveway (Chilli's) and S. Mall Driveway (ARCO)
- Four-Lane Road between S. Mall Driveway (ARCO)and 1,200 feet south of S. Mall Driveway
- Three-Lane Road (two lanes Northbound and one lane southbound) between 1,200 feet south of S. Mall Driveway and McCabe Road (N)
- Two-Lane Road between McCabe Road (N) and McCabe Road (S)

Curb, gutter and sidewalks are provided along the east curb between Wake Avenue and Danenberg Drive. This facility generally runs north-south. Curbside parking is not permitted. The posted speed limit is 40 mph. Bike lanes are not provided.

Danenberg Drive is classified as a 4-Lane Arterial on the City of El Centro Circulation Element. It is currently constructed as a two-lane undivided roadway, providing one travel lane in each direction. This facility runs east-west. The posted speed limit is 40 mph.

McCabe Road is classified as a 6-Lane Arterial on the City of El Centro Circulation Element, in the Project vicinity. It is currently constructed as a two-lane undivided roadway, providing one travel lane per direction. The facility runs east-west and curbside parking is permitted. A speed limit is not posted.

Interstate 8 (I-8) is classified as a Four-Lane, east-west freeway connecting San Diego in the west to I-10 in the east.

3.2 Existing Traffic Volumes

3.2.1 *Segment Counts*

24-hour segment volume counts were conducted on Thursday September 26, 2019 when schools were in session.

Table 3–1 summarizes the segment volume counts. ***Appendix A c***ontains the manual count sheets.

3.2.2 *Peak Hour Intersection Counts*

Peak hour AM and PM peak hour (4:00-6:00 PM) counts were conducted at the study area intersections on September 24 through September 26, 2019, when schools were in session. Peak hour volume counts were conducted at the Dogwood Road / I-8 Westbound Ramps and Dogwood Road / I-8 Eastbound Ramps intersections for three days. The volumes for the three days were averaged and the average counts were used in the analysis.

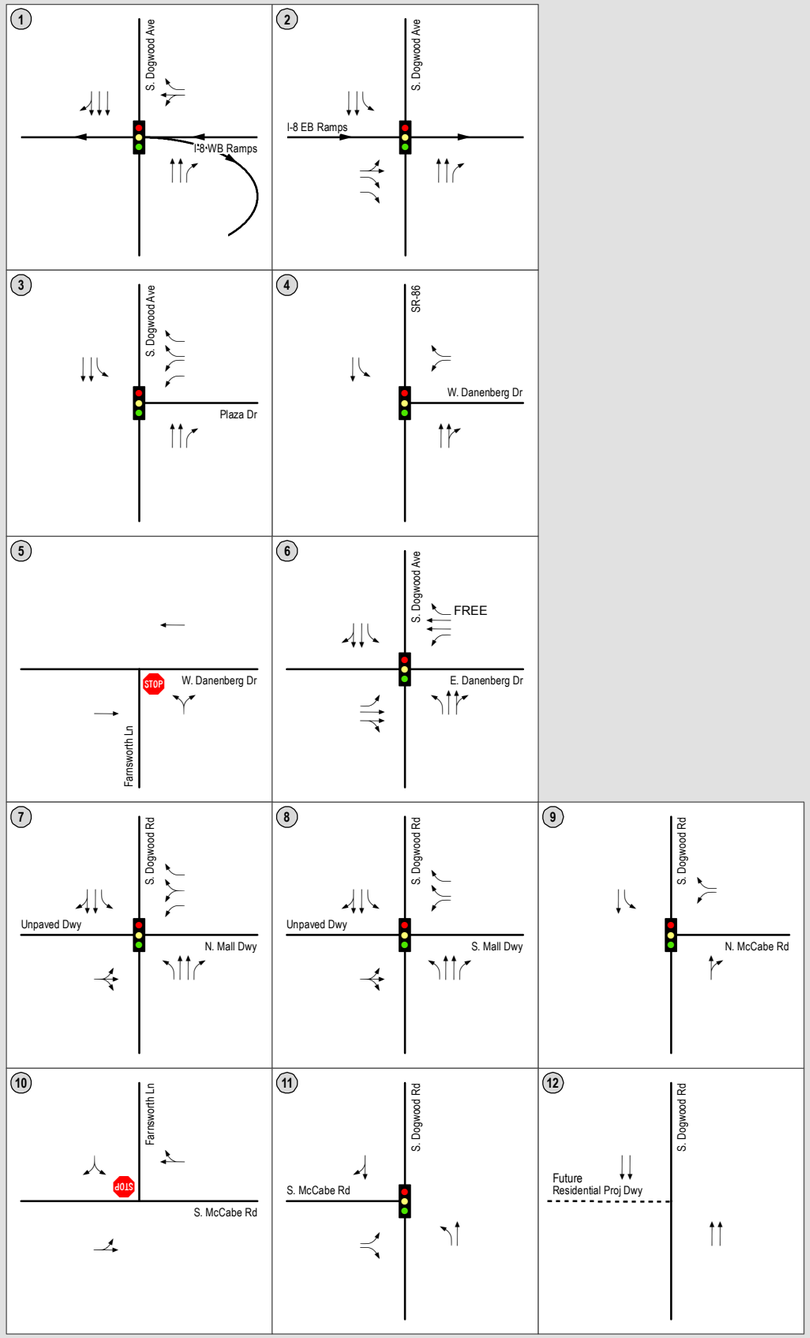
Figure 3–2 depicts the Existing Traffic Volumes. *Appendix A* ***c***ontains the peak hour intersection volume count sheets.

TABLE 3–1
EXISTING SEGMENT VOLUMES

Intersection	Volume
Dogwood Avenue	
E. Aurora Dr to I-8 Ramps	13,970
I-8 Ramps to Plaza Dr	20,710
Plaza Dr to Danenberg Dr	15,290
Danenberg Dr to Mall N.	11,300
Mall N. to Mall S.	11,300
Mall S. to Project (Resi) Dwy	10,310
Project (Resi) Dwy to McCabe Rd	10,310
Danenberg Drive	
SR 86 / 4th St to Farnsworth Ln	5,110
Farnsworth Ln to Dogwood Ave	5,730
McCabe Road	
Farnsworth Ln to Dogwood Ave	5,160

Footnotes:

a. The roadway classification at which the road currently operates.
b. The capacity of the roadway at LOS E.
c. Level of Service.
d. Volume/Capacity ratio.



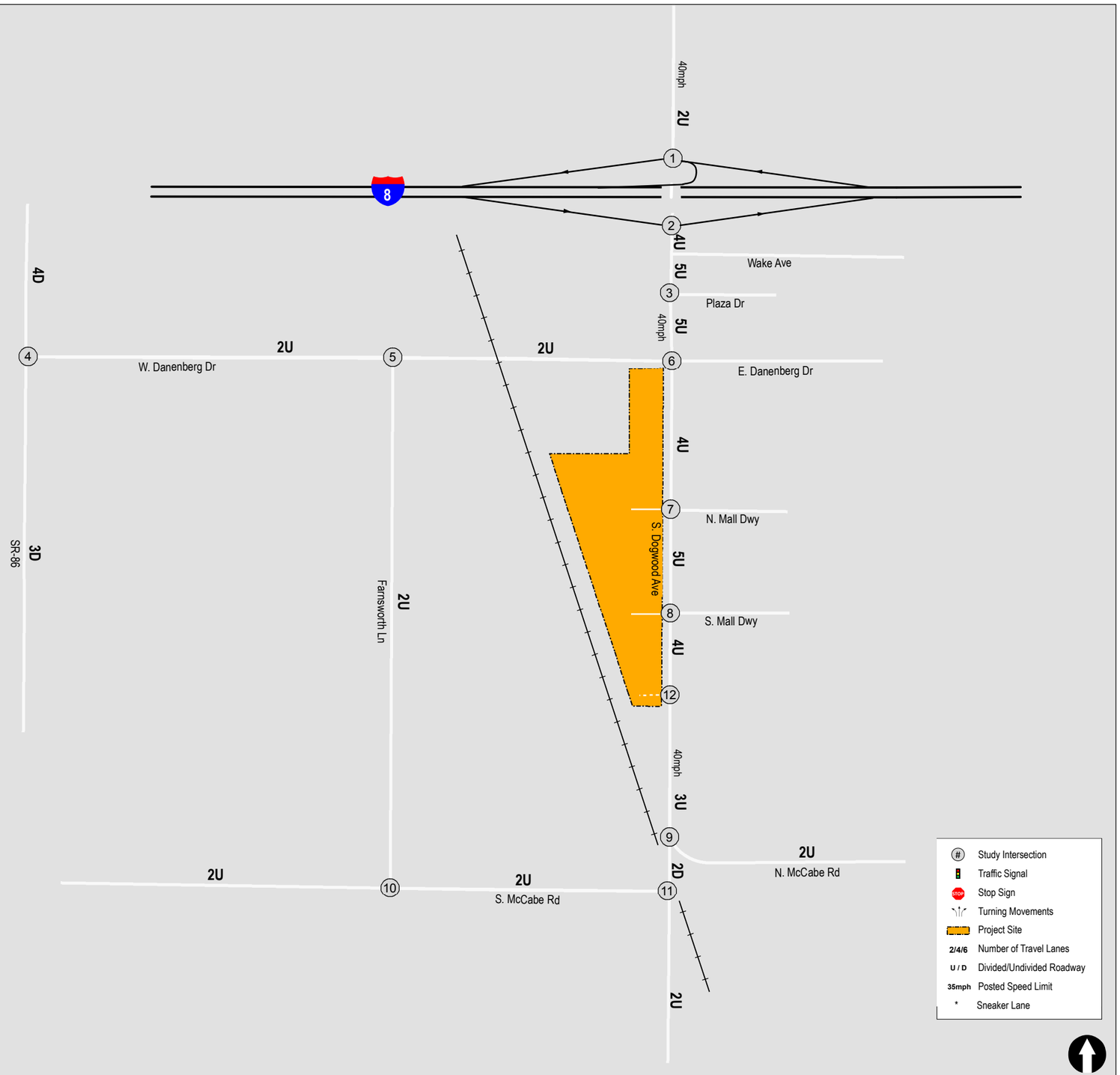


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Figure 3-1
Existing Conditions Diagram

SOUTH DOGWOOD GPA

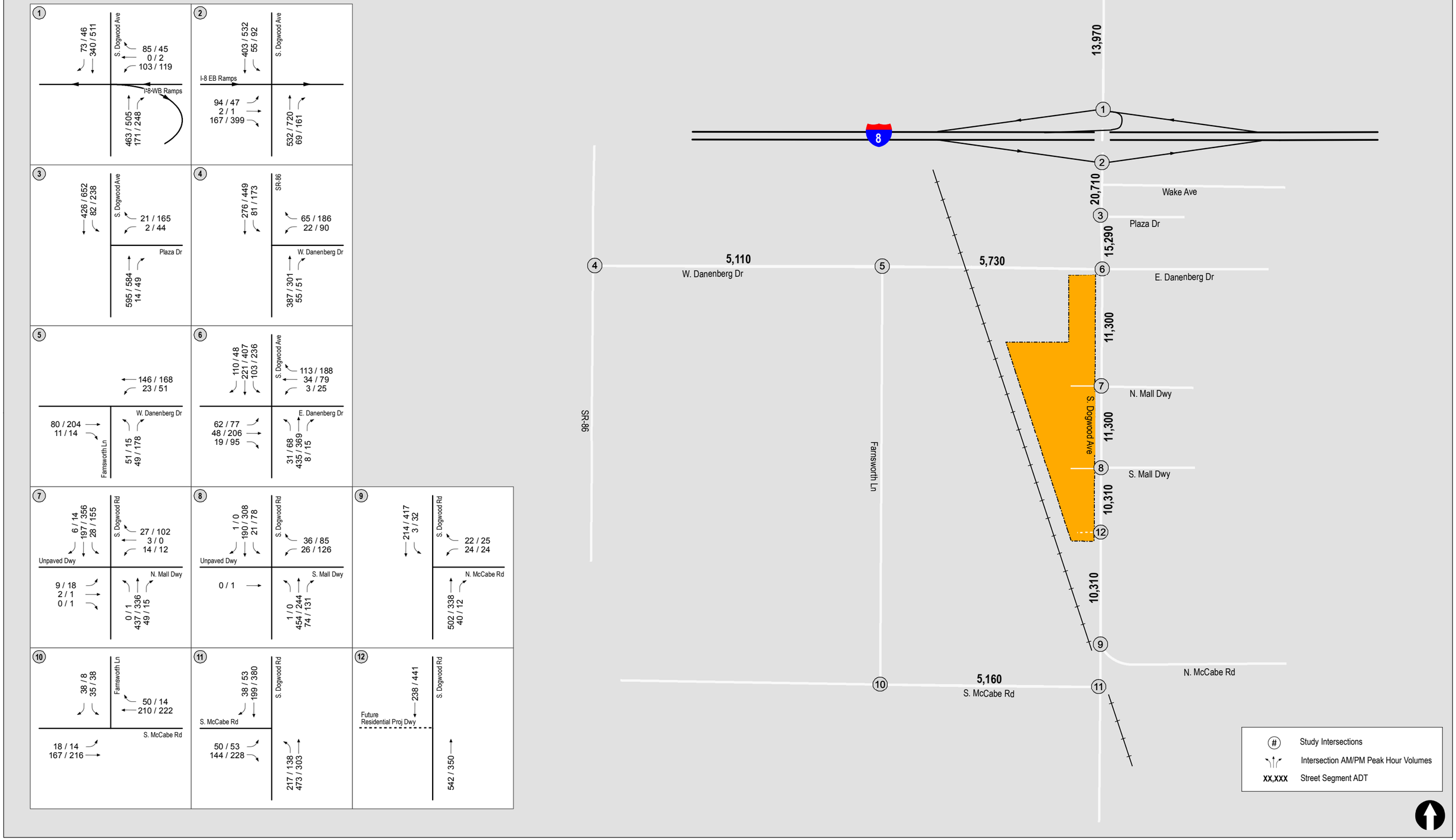

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Figure 3-2

Existing Traffic Volumes

SOUTH DOGWOOD GPA

4.0 STUDY AREA, ANALYSIS SCENARIOS, APPROACH AND METHODOLOGY

4.1 Study Area

The Project study area was determined based on the locations where the Project is likely to have impacts and includes the following intersections and segments:

Intersections

1. I-8 WB Ramps / Dogwood Avenue
2. I-8 EB Ramps / Dogwood Avenue
3. Plaza Drive / Dogwood Avenue
4. Danenberg Drive / SR 86/4th Street
5. Danenberg Drive / Farnsworth Lane
6. Danenberg Drive / Dogwood Avenue
7. North Mall Driveway (at Chillis) / Dogwood Avenue
8. South Mall Driveway (at ARCO Gas Station) / Dogwood Avenue
9. McCabe Road (North) / Dogwood Avenue
10. McCabe Road / Farnsworth Lane
11. McCabe Road (South) / Dogwood Avenue

Segments

1. Dogwood Avenue: East Aurora Drive to I-8
2. Dogwood Avenue: I-8 to Plaza Drive
3. Dogwood Avenue: Plaza Drive to Danenberg Drive
4. Dogwood Avenue: Danenberg Drive to Mall N.
5. Dogwood Avenue: Mall N. to Mall S.
6. Dogwood Avenue: Mall S. to Project (Residential) Driveway
7. Dogwood Avenue: Project (Residential) Driveway to McCabe Road
8. Danenberg Drive: SR 86/ 4th Street to Farnsworth Lane
9. Danenberg Drive: Farnsworth Lane to Dogwood Avenue
10. McCabe Road: Farnsworth Lane to Dogwood Avenue

4.2 Analysis Scenarios

The following scenarios were analyzed:

- Existing
- Existing + Project
- Existing + Cumulative Projects
- Existing + Project + Cumulative Projects

4.3 Methodology

There are various methodologies used to analyze signalized intersections, unsignalized intersections and street segments. The measure of effectiveness for intersection and segment operations is level of service (LOS) which denotes the operating conditions which occur at a given intersection or 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. LOS designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

In the Highway Capacity Manual (HCM) 6th Edition, LOS for signalized intersections is defined in terms of delay. The LOS analysis provides results in seconds of delay expressed in terms of letters A through F. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. ***Table 4–1*** summarizes the signalized intersections levels of service descriptions.

Signal Timing plans were obtained from the City of El Centro and Caltrans for all signalized intersections in the Project study area and used in the intersection analysis. Copies of the signal timing plans are included in *Appendix A*.

4.3.1 *Signalized Intersections*

Table 4–2 depicts the criteria, which are based on the average control delay for any particular minor movement (unsignalized intersections) and overall intersection (signalized intersections).

For signalized intersections, LOS criteria is stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

LOS A describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of Average delay.

LOS C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

TABLE 4–1
INTERSECTION LEVEL OF SERVICE DESCRIPTIONS

LOS	Description
A	Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.
F	Considered to be unacceptable to most drivers. This condition often occurs with over saturation i.e. when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume-to-capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels

TABLE 4–2
INTERSECTION LEVEL OF SERVICE (LOS) & DELAY RANGES

LOS	Delay (seconds/vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10.0	≤ 10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	≥ 80.1	≥ 50.1

Source: Highway Capacity Manual 6th Edition

LOS D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are frequent.

LOS E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

4.3.2 *Unsignalized Intersections*

For unsignalized intersections, LOS is determined by the computed or measured control delay and is defined for each minor movement. For All-Way-Stop-controlled (AWSC) intersections, the overall intersection delay is reported. For two-way-stop-controlled (TWSC) intersections, LOS is not defined for the intersection as a whole, but the worst-case movement (typically the minor street left-turn) delay and LOS are reported.

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This LOS is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits.

LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

4.3.3 *Street Segments*

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of El Centro's *Level of Threshold Volumes for Various Roadway Types (ADT)* table. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The El Centro's *Level of Threshold Volumes for Various Roadway Types (ADT)* table is shown in ***Table 4–3.***

TABLE 4-3
LEVEL OF SERVICE THRESHOLD VOLUMES FOR VARIOUS ROADWAY TYPES (ADT)

ROADWAY TYPE	Code	LOS A	LOS B	LOS C	LOS D	LOS E
10-Lane Freeway	10F	64,000	99,000	139,000	160,000	182,000
8-Lane Freeway	8F	51,000	79,000	112,000	136,000	146,000
6-Lane Freeway	6F	39,000	59,000	85,000	102,000	110,000
8-Lane Expressway	8E	35,000	54,000	75,000	90,000	98,000
6-Lane Expressway	6E	28,000	42,000	56,000	67,000	74,000
4-Lane Freeway	4F	26,000	40,000	57,000	69,000	74,000
8-Lane Divided Arterial (w/ left-turn lane)	9	40,000	47,000	54,000	61,000	68,000
6-Lane Divided Arterial (w/ left-turn lane)	7	32,000	38,000	43,000	49,000	54,000
4-Lane Expressway	4E	18,000	27,000	36,000	45,000	50,000
4-Lane Divided Arterial (w/ left-turn lane)	5	22,000	25,000	29,000	32,500	36,000
4-Lane Undivided Arterial (no left-turn lane)	4	16,000	19,000	22,000	24,000	27,000
2-Lane Rural Highway	2R	4,000	8,000	12,000	17,000	25,000
2-Lane Arterial (w/ left-turn lane)	3	11,000	12,500	14,500	16,000	18,000
2-Lane Collector	2	6,000	7,500	9,000	10,500	12,000
2-Lane Local	1	1,200	1,400	1,600	1,800	2,000
1-Lane Freeway Diamond Ramp	1D	11,000	12,800	14,700	16,500	18,300
2-Lane Freeway Diamond Ramp	2D	22,000	25,600	29,400	33,000	36,600
1-Lane Freeway Loop Ramp	1L	9,000	10,500	12,000	13,500	15,000
2-Lane Freeway Loop Ramp		16,000	18,700	21,300	24,000	26,700

Notes:

1. The above threshold volumes for preliminary planning purposes only. If available, the results of detailed level of service analyses will typically have priority over the levels of service derived from this table. In that case this table can be used by the analyst for providing additional considerations for recommending the appropriate general roadway type for the specific condition being analyzed.
2. All above facilities assume 60%/40% peak hour directional split. All above facilities assume peak hour representing approximately 10% of the Average Daily Traffic (ADT), except for mainline freeway facilities, which assume peak hour representing 9% of the Average Daily Traffic (ADT).
3. Based on *Highway Capacity Manual*, Transportation Research Board, 2000.
4. Freeway thresholds are consistent with conditions utilizing a .95 peak hour factor, with 2% trucks and slightly over a one-mile average interchange spacing.
5. Expressways are consistent with the average of a multi-lane highway (with no signals) and Class I Arterial (with an average spacing of 0.8 signals per mile and a .45 G/C ratio.
6. Arterial thresholds are consistent with the average Class 1 and Class 2 arterials with an assumed signal density of two signals per mile. This assumes a divided arterial with left-turn lanes. Thresholds for four-lane undivided arterials assume approximately two-thirds the capacity of a four-lane divided arterial due to the impedance in traffic flow resulting from left-turning vehicles waiting in the inside through lane, thus significantly reducing the capacity of the roadway.
7. Rural highways are generally consistent with the *2000 Highway Capacity Manual* rural highway, assuming 8% trucks, 4% RV's, 20% no-passing, and level terrain. The greatest difference is that it assumes a maximum capacity (upper end of LOS E) of 25,000 rather than 28,000 calculated using the new *Highway Capacity Manual*.
8. Two lane collectors assume approximately three-fourths of the capacity of a two-lane arterial with left-turn lanes. This is based on the assumption that left-turn channelization is not provided on a two-lane collector.
9. Local Street level of service thresholds are based upon "Neighborhood Traffic Related Quality-of-Life Considerations" which assumes a standard suburban neighborhood, 40-foot roadway width, a 25 mile per hour speed limit with normal speed violation rates.
10. Capacities for Diamond Ramps and Loop Ramps may be slightly higher or lower than the planning level capacities indicated above. The 2000 Highway Capacity Manual (2000 HCM) states that the capacity of a one-lane diamond to be 2,200 vehicles per hour (vph), and 1,800 vph for a small radius loop ramp. Two-lane freeway ramp capacities are estimated in the 2000 HCM to be 4,400 vph for a two-lane diamond and 3,200 vph for a two-lane small radius loop. Varying intermediate ramp capacities are provided for incremental conditions between these two extremes. Capacities given for each service level assume the same level of service for the adjoining merging roadway as well as level of service being determined by volume-to-capacity and not attainable speed. Level of service will be controlled by freeway level of service if worse than ramp. Mitigations of level of service deficiencies may include the addition of a lane on the freeway ramp, the addition of an auxiliary lane on the freeway mainline, the addition of approach lanes at the ramp junction with the local intersecting street, and/or geometric modifications to improve the efficiency of the ramp itself or its termini. The appropriate mitigation should be determined on a case-by-case basis, considering freeway main line volumes and weaving, the extent that the freeway ramp volume exceeds the above planning thresholds, and the levels of service of the ramp intersection with the local street.
11. All volumes are approximate and assume ideal roadway characteristics.

5.0 SIGNIFICANCE CRITERIA

5.1 City of El Centro Facilities

The significance criteria summarized in ***Table 5–1*** developed by Linscott, Law and Greenspan, Engineers is based upon the City of El Centro's goal for intersections and roadway segments to operate at LOS C or better.

In general, a LOS C or better that degrades to a LOS D or worse is considered a significant direct impact. A cumulative impact can occur if the intersection or segment level of service is already operating below City standards and the project increases the delay by more than 2 seconds or the v/c ratio by more than 0.02. Facilities on Dogwood Avenue are considered to operate acceptably at LOS D per Figure C-8 of the City Circulation Element after all respective circulation element improvements are implemented to the satisfaction of the City Engineer.

TABLE 5-1
SIGNIFICANCE CRITERIA

Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
INTERSECTIONS			
LOS [a] C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	—	Direct
LOS D	LOS D and adds 2.0 seconds or more of delay	—	Cumulative
LOS D	LOS E or F	—	Direct
LOS E	LOS F	—	Direct
LOS F	LOS F and delay increases by ≥ 10.0 seconds	—	Direct
Any LOS	Project does not degrade LOS and adds 2.0 to 9.9 seconds of delay	LOS E or worse	Cumulative
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
SEGMENTS			
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and v/c > 0.02	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	—	Direct [b]
LOS D	LOS D and v/c > 0.02	—	Cumulative
LOS D	LOS E or F	—	Direct
LOS E	LOS F	—	Direct
LOS F	LOS F and v/c [c] increases by > 0.09	—	Direct
Any LOS	LOS E or worse and v/c 0.02 to 0.09	LOS E or worse	Cumulative
Any LOS	LOS E or worse and v/c < 0.02	Any LOS	None

Source: Linscott, Law & Greenspan, Engineers

Footnotes:
a. Level of Service
b. Exception: post-project segment operation is LOS D and intersections along segment are LOS D or better results in no significant impact.
c. Volume to Capacity Ratio

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Operations

Table 6-1 summarizes the Existing peak hour operations at the study area intersections. As seen in *Table 6-1*, all study intersections are calculated to operate at LOS B or better.

Appendix B contains the Existing intersection analysis worksheets.

6.2 Segment Operations

Table 6-1 summarizes the Existing segment operations at the study area segments. As seen in *Table 6-1*, all study segments are calculated to operate at LOS C or better for City of El Centro facilities and LOS C or better.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay [a]	LOS [b]
1. Dogwood Ave / I-8 WB Ramps	Signal	AM	7.9	A
		PM	7.1	A
2. Dogwood Ave / I-8 EB Ramps	Signal	AM	12.3	B
		PM	16.7	B
3. Dogwood Ave / Plaza Dr	MSSC[c]	AM	6.5	A
		PM	13.6	B
4. SR 86 (4th Ave) / Danenberg Dr	Signal	AM	9.4	A
		PM	15.8	B
5. Farnsworth Ln / Danenberg Dr	MSSC	AM	11.1	B
		PM	11.5	B
6. Dogwood Ave / Danenberg Dr	Signal	AM	12.5	B
		PM	19.2	B
7. Dogwood Ave / N. Mall Dwy (Chilli's)	Signal	AM	9.8	A
		PM	19.1	B
8. Dogwood Ave / S. Mall Dwy (ARCO)	Signal	AM	7.7	A
		PM	14.5	B
9. Dogwood Ave / McCabe Road (North)	Signal	AM	12.5	B
		PM	9.4	A
10. Farnsworth Ln / McCabe Road	MSSC	AM	12.1	B
		PM	13.4	B
11. Dogwood Ave / McCabe Road (South)	Signal	AM	14.3	B
		PM	14.8	B
12. Dogwood Ave / Residential Project Dwy	MSSC	AM	DNE	DNE
		PM	DNE	DNE

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Minor Street Stop Controlled intersection. Minor street left turn delay is reported.

SIGNALIZED		UNSIGNALIZED	
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 6–2
EXISTING SEGMENT OPERATIONS

Intersection	Functional Classification [a]	LOS E Capacity [b]	Volume	LOS [c]	V/C [d]
Dogwood Avenue					
E. Aurora Dr to I-8 Ramps	2-Ln Art (W/TWLTL)	18,000	13,970	C	0.776
I-8 Ramps to Plaza Dr	4-Ln Arterial	36,000	20,710	A	0.575
Plaza Dr to Danenberg Dr	5-Ln Arterial [e]	45,000	15,290	A	0.340
Danenberg Dr to Mall Dr. N.	4-Ln Arterial	36,000	11,300	A	0.314
Mall Dr. N. to Mall Dr. S.	5-Ln Arterial [e]	45,000	11,300	A	0.251
Mall Dr. S. to Residential Dwy	4-Ln Arterial	36,000	10,310	A	0.286
Residential Dwy to McCabe Rd	4-Ln Undivided Arterial	27,000	10,310	A	0.382
Danenberg Drive					
SR 86 / 4th St to Farnsworth Ln	2-Ln Collector	12,000	5,110	A	0.426
Farnsworth Ln to Dogwood Ave	2-Ln Collector	12,000	5,730	A	0.478
McCabe Road					
Farnsworth Ln to Dogwood Ave	2-Ln Collector	12,000	5,160	A	0.430

Footnotes:

a. The roadway classification at which the road currently operates.
b. The capacity of the roadway at LOS E.
c. Level of Service.
d. Volume/Capacity ratio.
e. This section of Dogwood Avenue is a 5-Lane road with 3 lanes northbound and two lanes southbound. The capacity of this 5-lane Arterial was estimated by increasing the capacity of a 4-lane road by 1/4th.

General Notes:

ART: Arterial
TWLTL: Center Two-Way-Left-Turn Lane

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The trip rates from the Trip Generation Manual published by the Institute of Transportation Engineers (ITE) were used to estimate the trips generated by the proposed Project land uses. The trips rates for Land Use 221 - Multi Family Housing (Mid Rise) was used for the multi-family dwelling units and the trip rates for Land Use 820 - Shopping Center was used for the commercial / retail space.

7.1 Pass-By Trips

The trips generated by a retail use at the Project driveway(s) consist of Primary trips and Pass-By trips. *Pass-by* trips are a subset of trip generation that apply to commercial/retail developments. A *Primary* trip for commercial / retail use is a trip that goes from home to the retail to shop and returns home. A *Pass-By* trip occurs when a patron to driving home from work and stops at the retail as they pass it. They were already on the road and are going to continue their trip to their original destination. Since both the *Primary* and *Pass-By* trips will show up at the driveway, the driveway trips consist of the total of both, the *Primary* and *Pass-By* trips.

The Project pass-by rates were obtained from the ITE Handbook, 3rd Edition. The weighted mean of several observations was 32% during the PM peak hour. One-half of that amount (16%) pass-by was assumed for the daily and AM peak hour since no pass-by rates are available for that time period.

7.1.1 *Project Total Trips*

Table 7–1 summarizes the Project's trip generation calculations. The Project is estimated to generate a total of 23,492 driveway ADT with 564 AM peak hour trips (326 inbound and 238 outbound) and 2,362 PM peak hour trips (1,144 inbound and 1,218 outbound).

7.1.2 *Project Pass-by Trips*

The Project is estimated to generate a total of 3,592 pass-by ADT with 80 AM peak hour trips (50 inbound and 30 outbound) and 730 PM peak hour trips (350 inbound and 380 outbound).

7.1.3 *Project Primary Trips*

The Project is estimated to generate a total of 19,900 pass-by ADT with 484 AM peak hour trips (276 inbound and 208 outbound) and 1,632 PM peak hour trips (794 inbound and 838 outbound).

7.2 Project Trip Distribution

The Project traffic distribution was developed based on exiting traffic patterns, locations of residential, shopping and employment opportunities and the Project's proximity to state highways and arterials.

Figure 7-1 depicts the Project Primary trip distribution and ***Figure 7-2*** depicts the Project Pass-By trip distribution.

TABLE 7-1
TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	Rate	In:Out Split [a]	Volume			Rate	In:Out Split [a]	Volume		
						In	Out	Total			In	Out	Total
Multi-Family Units [a]	191 DU	T = 5.45(X) - 1.75	1,039	Ln(T) = 0.98Ln(X) - 0.98	26:74	17	48	65	Ln(T) = 0.96Ln(X) - 0.63	61:39	50	32	82
Commercial / Retail [b]	694.303 KSF	Ln(T) = 0.68 Ln(X) + 5.57	22,453	T = 0.50(X) + 151.78	62:38	309	190	499	Ln(T) = 0.74Ln(X) + 2.89	48:52	1,094	1,186	2,280
Pass-By Trips [c]		16%	3,592	16%	62:38	50	30	80	32%	48:52	350	380	730
Net New Retail Trips			18,861			259	160	419			744	806	1,550
Total Trips			**23,492**			**326**	**238**	**564**			**1,144**	**1,218**	**2,362**
Pass-By Trips			**3,592**			**50**	**30**	**80**			**350**	**380**	**730**
Primary Trips			**19,900**			**276**	**208**	**484**			**794**	**838**	**1,632**

Footnotes:

a. Land Use 221 - Multi Family Housing (Mid Rise), Trip Generation, Institute of Transportation Engineers (ITE), 10th Edition.

b. Land Use 820 - Shopping Center, Trip Generation, Institute of Transportation Engineers (ITE), 10th Edition.

c. Pass-By trip rates based on data provided in the ITE Handbook, 3rd Edition.

7.3 Project Trip Assignment

The Project Primary and Pass-By trips were distributed and assigned separately and added to obtain the Total Project trips. The fourth (west) leg of the existing three-leg Imperial Valley Mall (N) and Imperial Valley Mall (S) driveways were assumed to be the access driveways to the retail commercial portions of the Project. The retail / commercial primary trips and the pass-by trips were assigned to these driveways.

A new access driveway south of the Imperial Valley Mall (S) driveway was assumed to be the residential access driveway. The residential trips were assigned to this (future) Residential driveway.

The Project Primary trips were distributed and assigned to the roadway network (***Figure 7-3***) based on the distribution percentages on *Figure 7-1*. Project Pass-By trips were distributed to the roadway network (***Figure 7-4***) based on the percentages on *Figure 7-2*. The volumes on *Figures 7-3* and *7-4* were added to obtain the total Project traffic (***Figure 7-5***). The volumes on *Figure 7-5* were added to the existing traffic volumes (*Figure 3-2*) to obtain the Existing + Project traffic volumes (***Figure 7-6***).

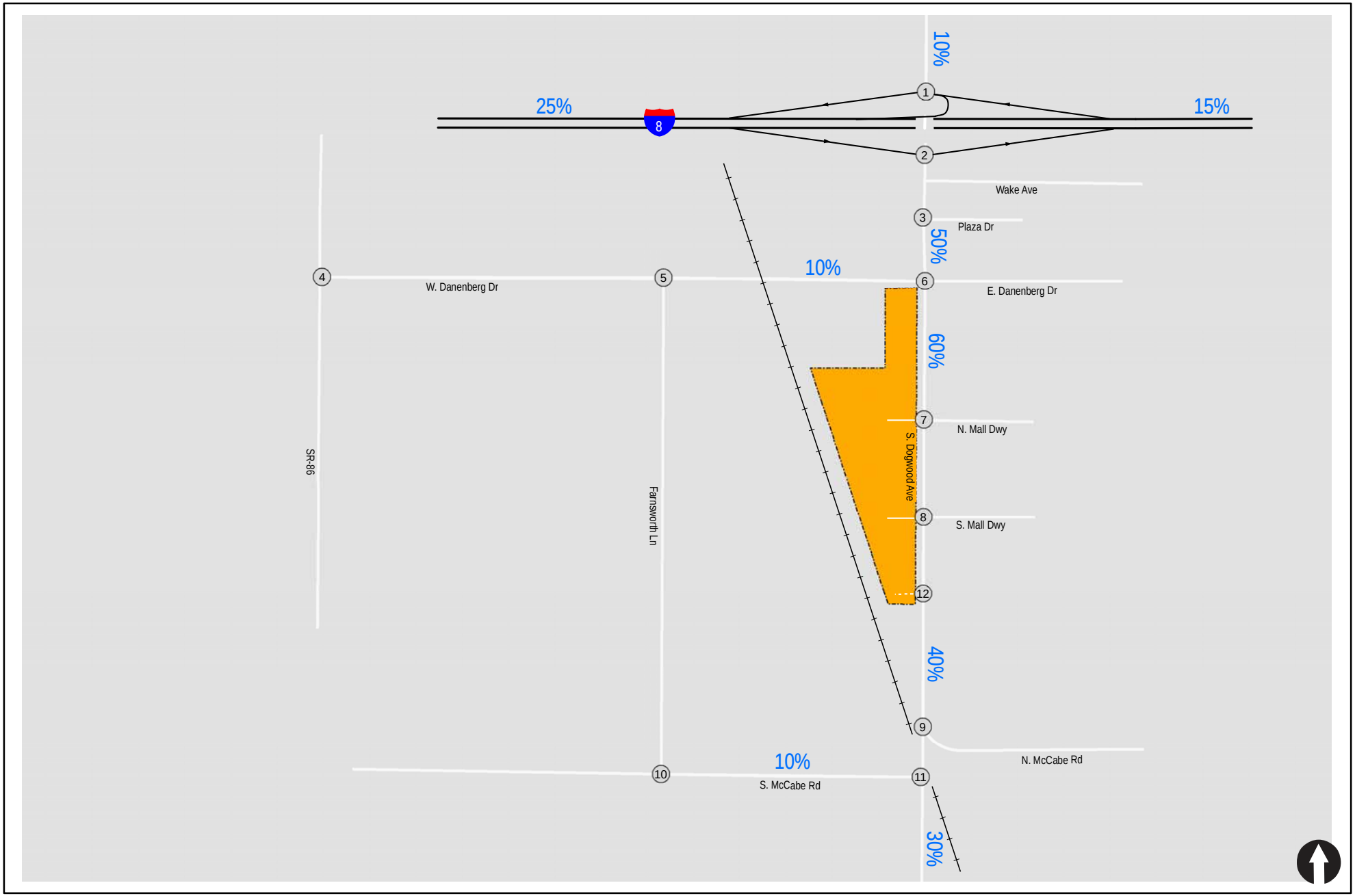

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Figure 7-1

Project Trip Distribution

(Primary Trips)

SOUTH DOGWOOD GPA

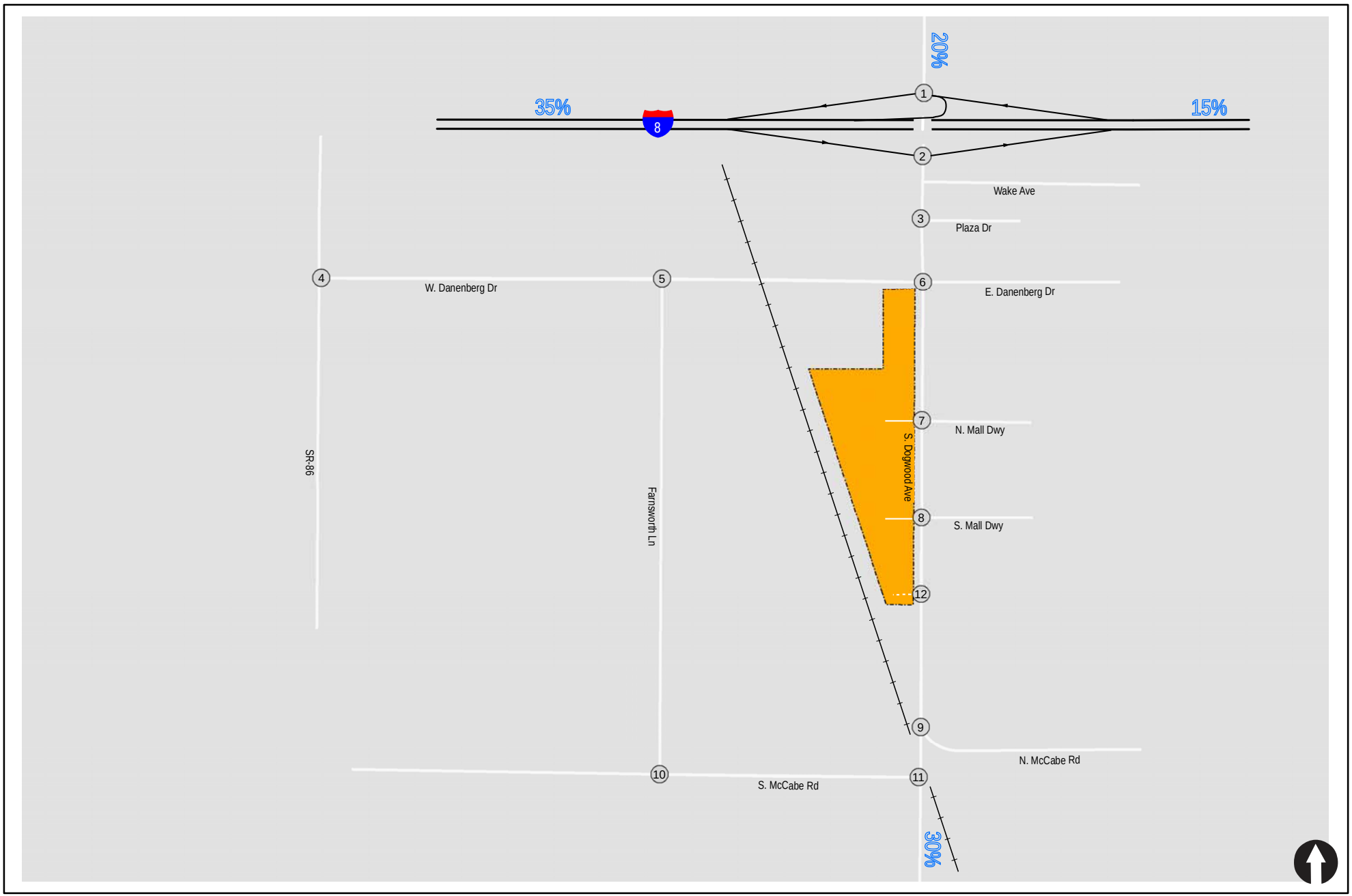

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Figure 7-2

Project Trip Distribution

(Pass-By Trips)

SOUTH DOGWOOD GPA

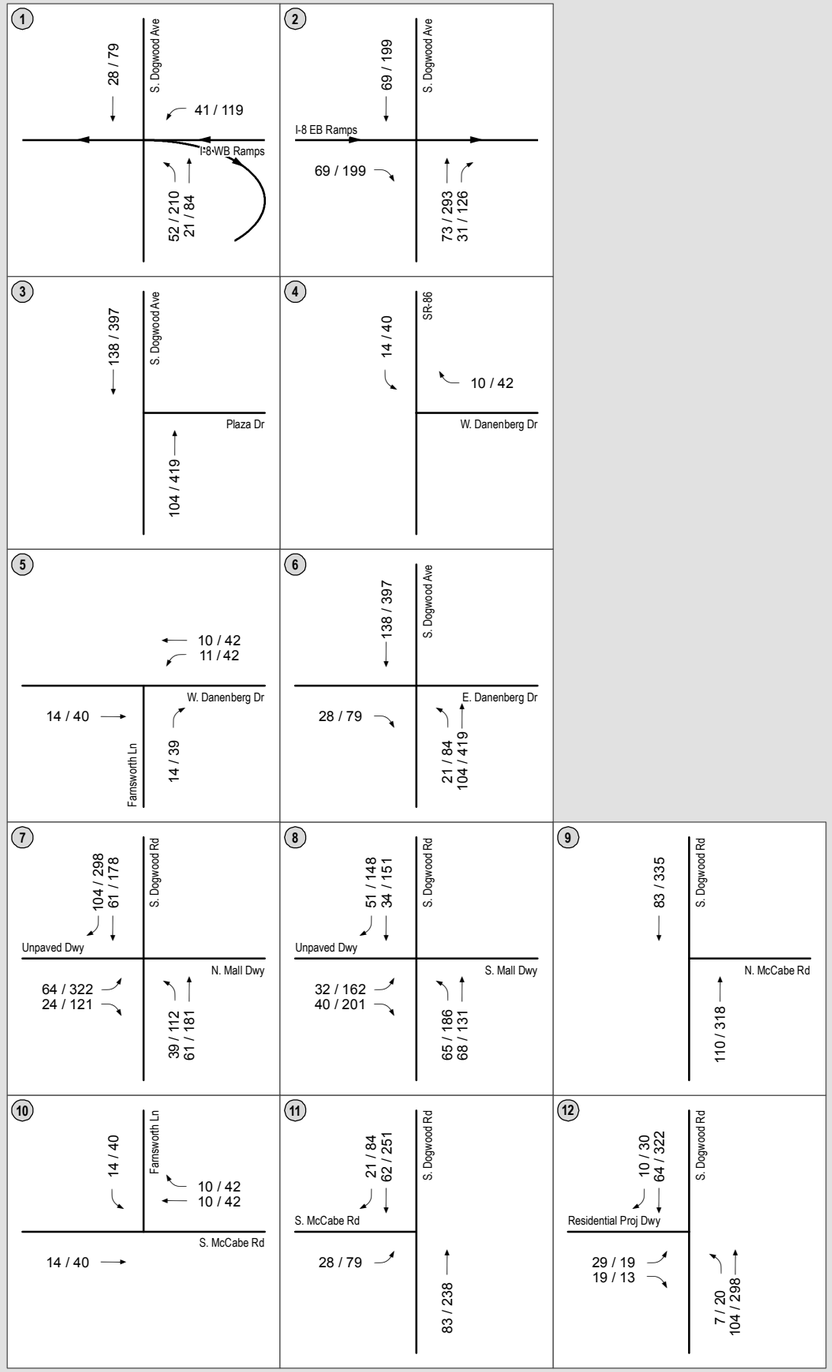

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Figure 7-3

Project Trip Volumes

(Primary Trips)

SOUTH DOGWOOD GPA

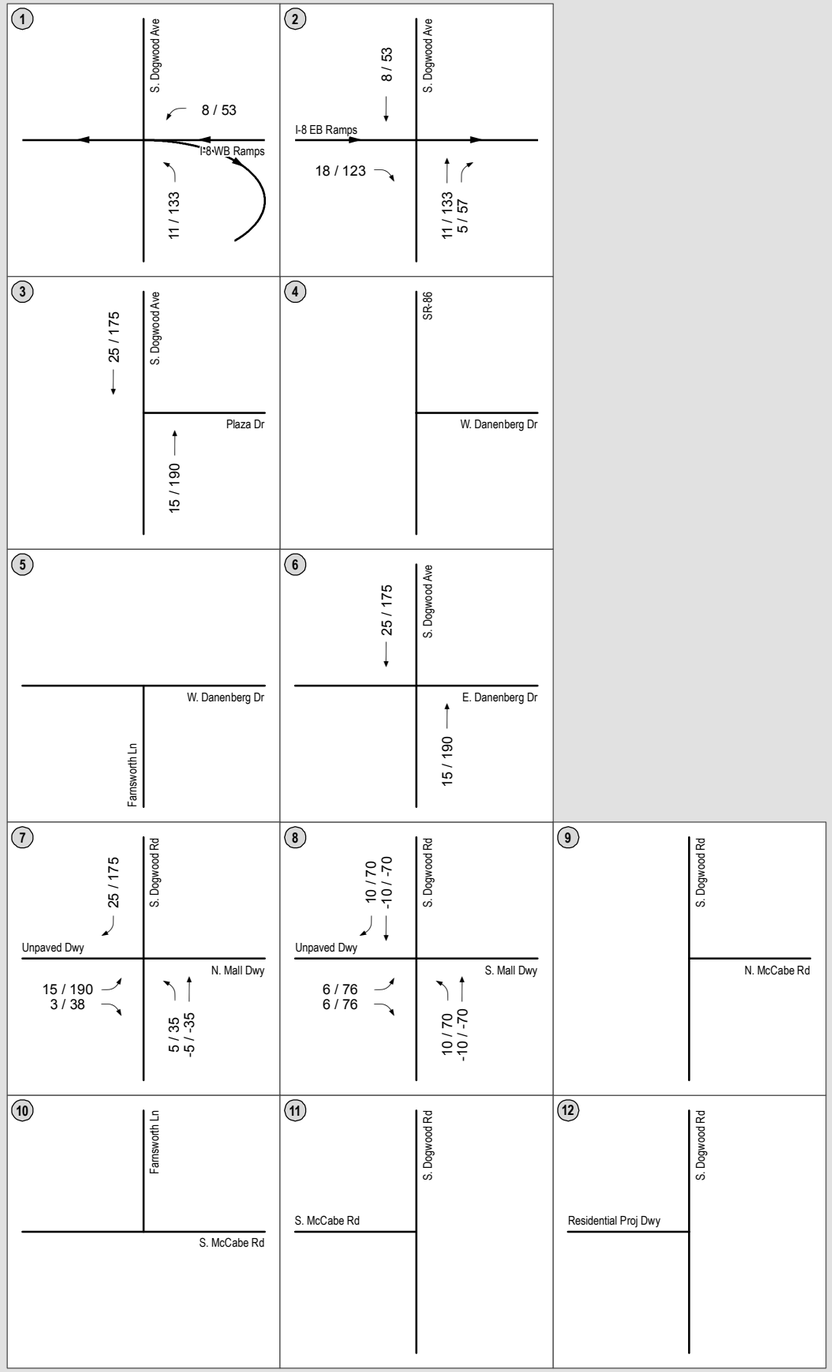

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Figure 7-4

Project Trip Volumes

(Pass-By Trips)

SOUTH DOGWOOD GPA

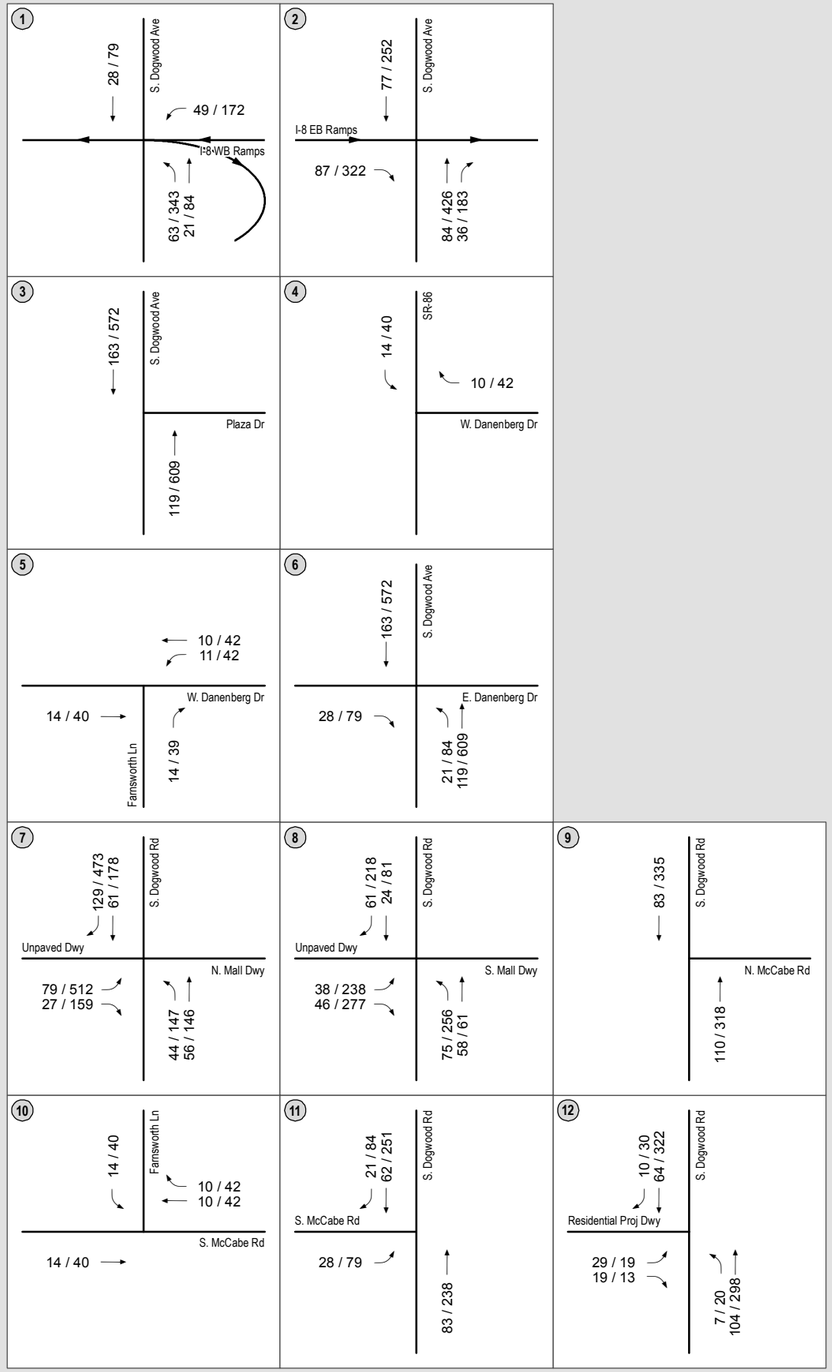

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Figure 7-5

Total Project Trip Volumes

SOUTH DOGWOOD GPA

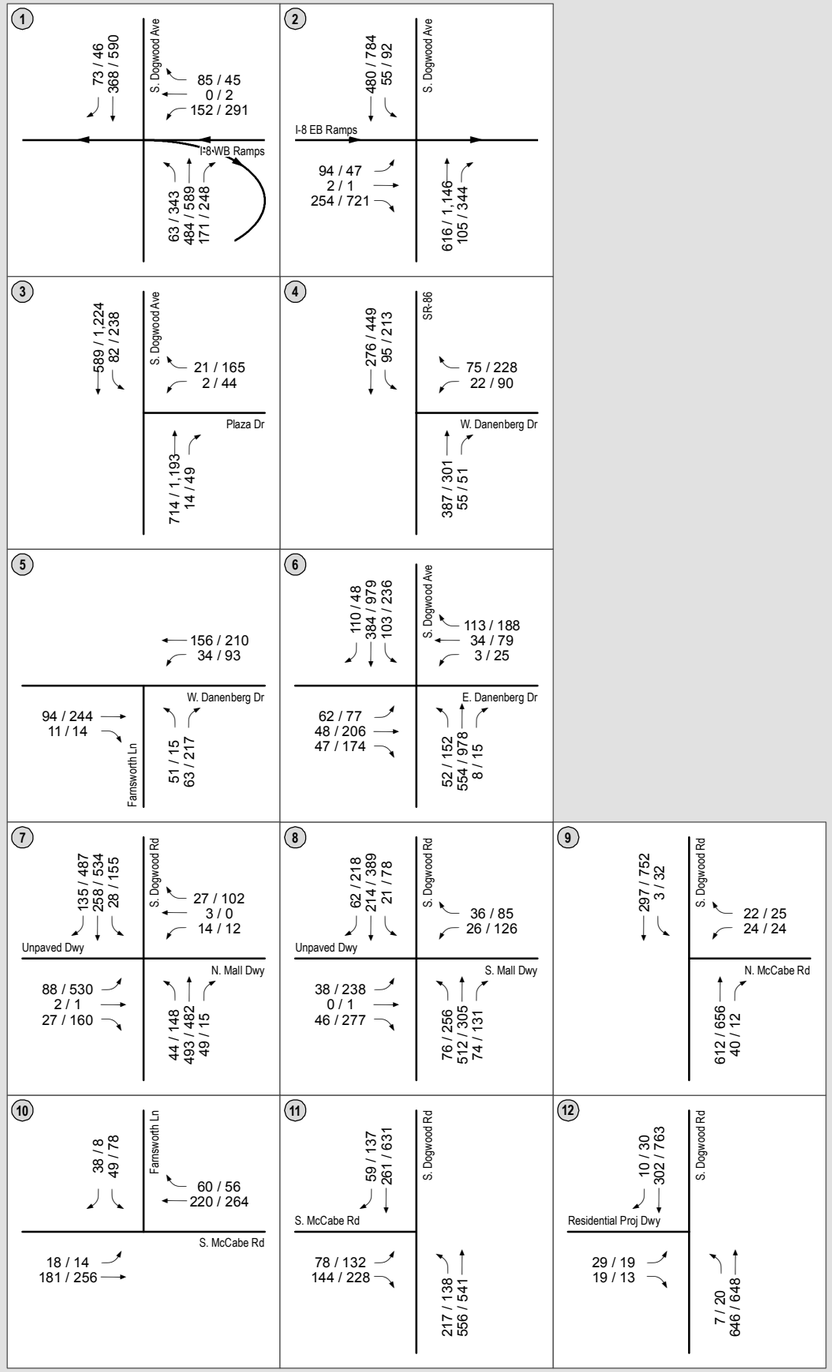

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Figure 7-6

Existing + Project Traffic Volumes

SOUTH DOGWOOD GPA

8.0 CUMULATIVE PROJECTS

8.1 Description of Cumulative Projects

Based on discussions with the City of El Centro Staff, a list of cumulative Projects in the Project vicinity was developed. Following are brief descriptions of each cumulative project.

1. CHP Station

The proposed CHP Station will be located at the northwest corner of the SR 86 / Wake Avenue intersection. This project will have 33 employees and is estimated to generate a total of 357 daily trips with 36 AM peak hour trips (24 inbound and 12 outbound) and 24 PM peak hour trips (9 inbound and 15 outbound).

2. State Courthouse Office

The proposed State Courthouse Office will be located on the north side of Wake Street, between 8th Street and 4th Street. This project consists of 47,000 SF of office space and is estimated to generate a total of 1,057 daily trips with 157 AM peak hour trips (118 inbound and 39 outbound) and 78 PM peak hour trips (20 inbound and 58 outbound).

3. Home 2 Hilton Hotel

The proposed Home to Hilton Hotel will be located at the Imperial Valley Mall. This project will have 79 rooms and is estimated to generate a total of 401 daily trips with 44 AM peak hour trips (23 inbound and 21 outbound) and 36 PM peak hour trips (20 inbound and 16 outbound).

4. IV Mall Condominiums

The proposed IV Mall Condominiums will be located south and east of the Imperial Valley Mall, with access to Danenburg Road and Dogwood Road. This project includes 240 multi-family residential units and is estimated to generate a total of 1,774 daily trips with 110 AM peak hour trips (25 inbound and 85 outbound) and 129 PM peak hour trips (81 inbound and 48 outbound).

5. Imperial County Office of Education

The proposed County Office of Education will be located at 1398 Sperber Road, El Centro. This project consists of a 21,685 SF building and is estimated to generate a total of 867 daily trips with 122 AM peak hour trips (110 inbound and 12 outbound) and 113 PM peak hour trips (23 inbound and 90 outbound).

6. Imperial Avenue Extension

The Imperial Avenue Extension Project proposes to extend the existing Imperial Avenue from Wake Avenue to McCabe Avenue. This project will not generate additional traffic but will reroute existing and future traffic to the new connection. Therefore, no additional traffic is shown due to this project.

8.2 Summary of Cumulative Projects Trip Generation

Table 8-1 summarizes the trip generation for the cumulative projects. As seen in *Table 8-1*, the cumulative projects are calculated to generate a total of 4,456 daily trips with 433 AM peak hour trips (276 inbound and 157 outbound) and 356 PM peak hour trips (144 inbound and 212 outbound).

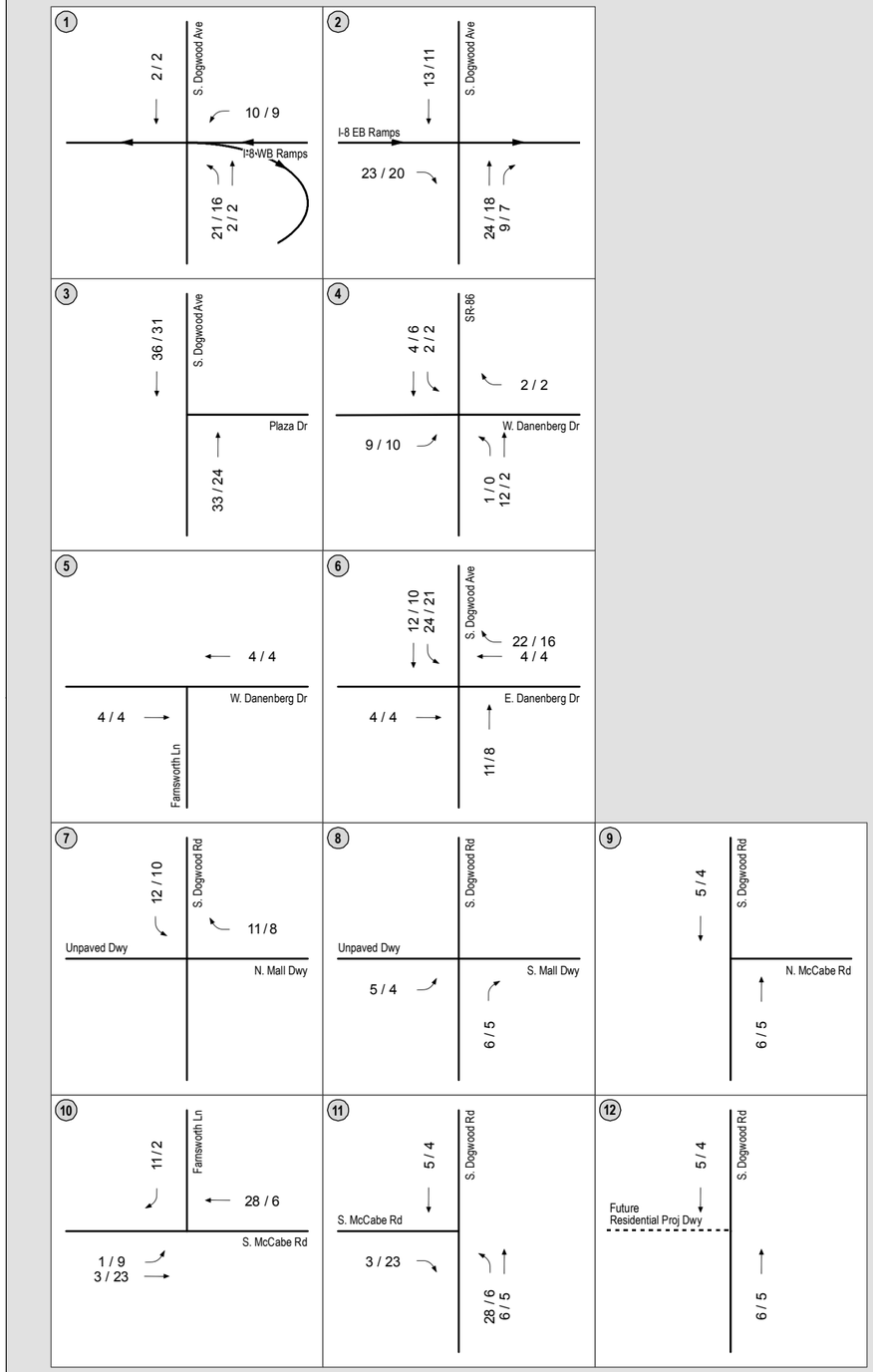
Figure 8–1 depicts the Cumulative Projects traffic volumes, while ***Figure 8-2*** depicts the Existing + Project + Cumulative Projects traffic volumes.

TABLE 8-1
CUMULATIVE PROJECTS TRIP GENERATION SUMMARY

Land Use	Size		Daily Volume	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
1. CHP Station [a]	33	Employees	357	24	12	36	9	15	24
2. State Courthouse Office [b, c]	47,000	SF	1,057	118	39	157	20	58	78
3. Home 2 Hilton Hotel [d]	79	Rooms	401	23	21	44	20	16	36
4. IV Mall Condominiums [e]	240	DU	1,774	25	85	110	81	48	129
5. Imperial County Office of Education [f]	21,685	SF	867	110	12	122	23	90	113
6. Imperial Avenue Extension [g]									
Total Proposed			**4,456**	**276**	**157**	**433**	**144**	**212**	**356**

Footnotes:

a. Rates from CHP El Centro Area Office Replacement Project Initial Study/Mitigated Negative Declaration dated June 2018, prepared by Horizon Water and Environment, LLC
b. Rates for Land Use 730 Government Office Building from ITE Trip Generation 10th Edition.
c. PM peak hour rate for Land Use 730 Government Office Building is Ln(T) = 0.97 Ln(X) + 0.62
d. Rates for Land Use 312 Business Hotel from ITE Trip Generation 10th Edition.
e. Rates for Land Use 220 Multifamily Housing (Low-Rise) from ITE Trip Generation 10th Edition.
f. Rates from Imperial County Office of Education Traffic Impact Analysis dated March 2018, prepared by Linscott, Law & Greenspan
g. This project does not generate new traffic and hence none is shown.



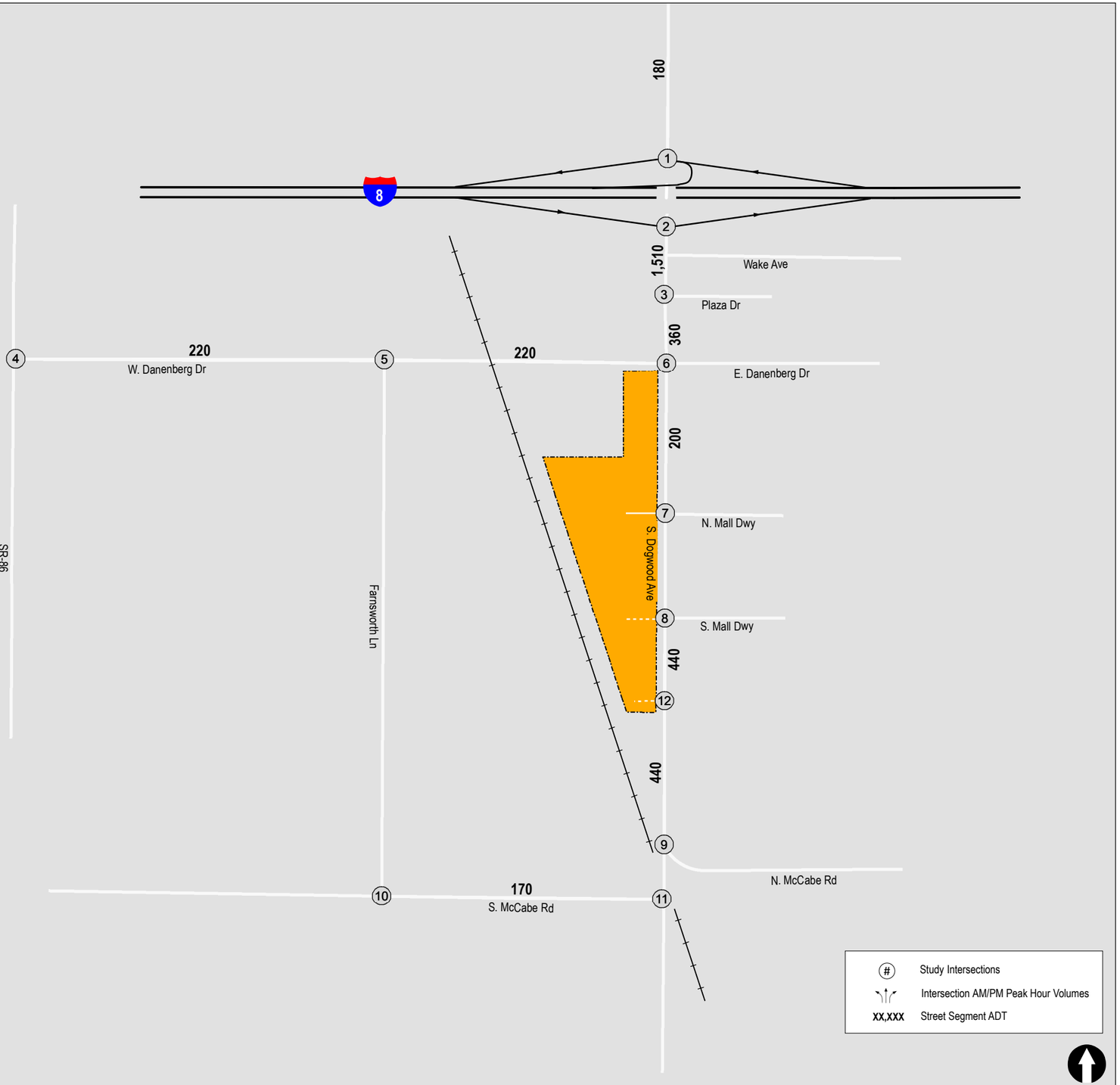


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Figure 8-1

Cumulative Projects Traffic Volumes

SOUTH DOGWOOD GPA

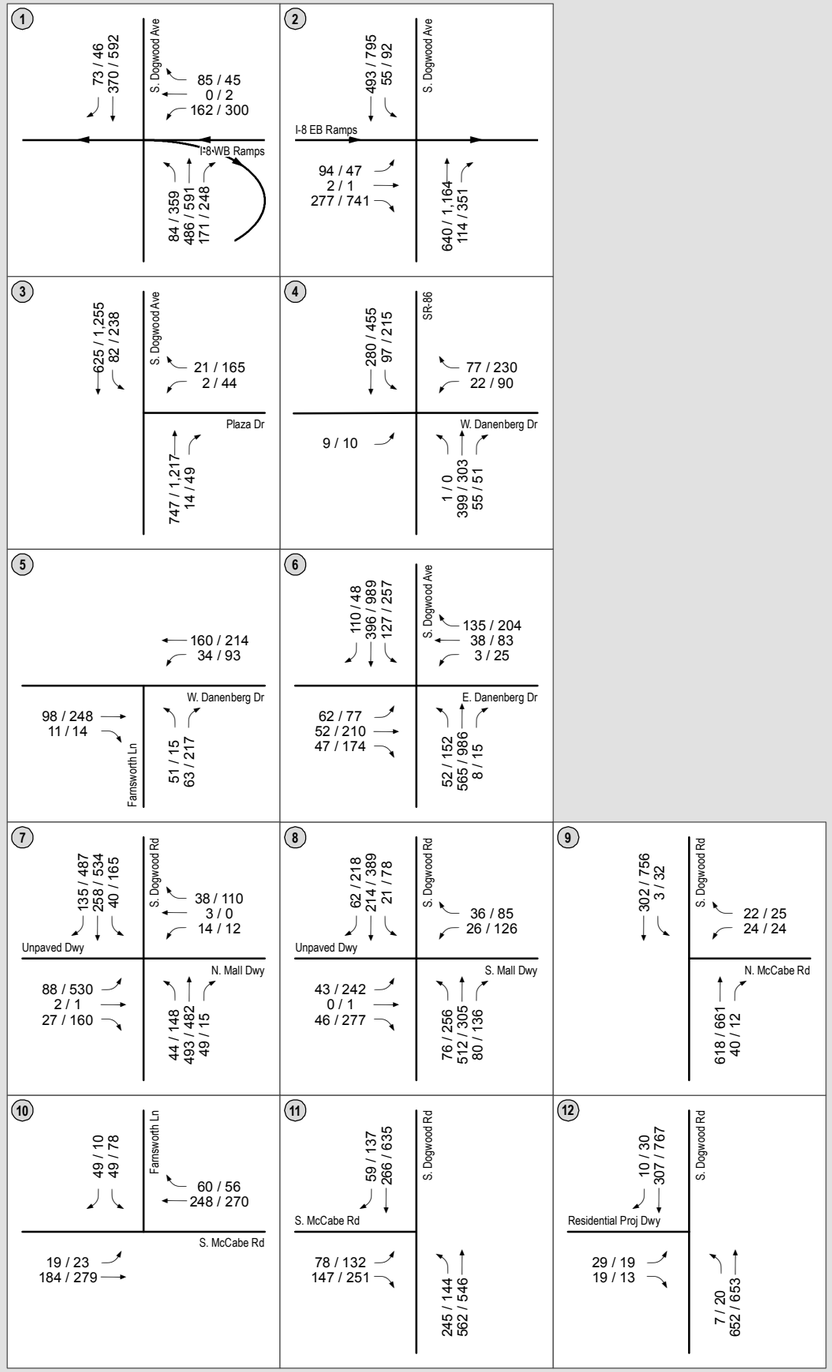

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Figure 8-2

Existing + Project + Cumulative Projects Traffic Volumes

SOUTH DOGWOOD GPA

9.0 CAPACITY ANALYSIS

9.1 Existing + Project Intersection Analysis

9.1.1 *Intersection Analysis*

Table 9-1 summarizes the Existing + Project peak hour intersection operations. As seen in *Table 9-1*, with the addition of Project traffic, all study intersections are calculated to operate at LOS D or better.

The Existing + Project peak hour analysis worksheets are included in ***Appendix C.***

9.1.2 *Segment Analysis*

Table 9-2 summarizes the Existing + Project segment operations. As seen in *Table 9-2*, with the addition of Project traffic, all study segments are calculated to operate at LOS D or better.

9.2 Existing + Project + Cumulative Projects Intersection Analysis

9.2.1 *Intersection Analysis*

Table 9-1 summarizes the Existing + Project + Cumulative Projects peak hour intersection operations. As seen in *Table 9-1*, with the addition of Cumulative projects traffic, all study intersections are calculated to operate at LOS C or better.

The Existing + Project + Cumulative Projects peak hour analysis worksheets are included in ***Appendix D***.

9.2.2 *Segment Analysis*

Table 9-2 summarizes the Existing + Project + Cumulative Projects segment operations. As seen in *Table 9-2*, with the addition of Cumulative projects traffic, all study intersections are calculated to operate at LOS C or better, except:

- Dogwood Avenue: E. Aurora Drive to I-8 Ramps (LOS E)
- Dogwood Avenue: I-8 Ramps to Plaza Drive (LOS E)

The Project has a significant cumulative impact on the above segments based on the assumed Significance Criteria.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Existing + Project + Cumulative Projects		Δ Delay [c]	Impact Type
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS		
1. Dogwood Ave / I-8 WB Ramps	Signal	AM	7.9	A	9.3	A	9.6	A	1.7	No
		PM	7.1	A	26.2	C	30.2	C	23.1	No
2. Dogwood Ave / I-8 EB Ramps	Signal	AM	12.3	B	13.6	B	14.0	B	1.7	No
		PM	16.7	B	44.5	D	49.2	D	32.5	No
3. Dogwood Ave / Plaza Dr	Signal	AM	6.5	A	6.5	A	6.5	A	0.0	No
		PM	13.6	B	16.2	B	16.4	B	2.8	No
4. SR 86 (4th Ave) / Danenberg Dr	Signal	AM	9.4	A	10.2	B	10.3	B	0.9	No
		PM	15.8	B	22.6	C	23.1	C	7.3	No
5. Farnsworth Ln / Danenberg Dr	MSSC[d]	AM	11.1	B	11.6	B	11.7	B	0.6	No
		PM	11.5	B	15.7	C	15.8	C	4.3	No
6. Dogwood Ave / Danenberg Dr	Signal	AM	12.5	B	14.8	B	15.0	B	2.5	No
		PM	19.2	B	43.6	D	46.9	D	27.7	No
7. Dogwood Ave / N. Mall Dwy (Chilli's)	Signal	AM	9.8	A	15.3	B	15.9	B	6.1	No
		PM	19.1	B	32.5	C	33.1	C	14.0	No
8. Dogwood Ave / S. Mall Dwy (ARCO)	Signal	AM	7.7	A	14.8	B	15.0	B	7.3	No
		PM	14.5	B	38.2	D	37.4	D	22.9	No

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TABLE 9–1 (CONTINUED)
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Existing + Project + Cumulative Projects		Δ Delay [c]	Impact Type
			Delay	LOS	Delay	LOS	Delay	LOS		
9. Dogwood Ave / McCabe Rd (N)	Signal	AM	12.5	B	14.3	B	14.4	B	1.9	No
		PM	9.4	A	12.0	B	12.1	B	2.7	No
10. Farnsworth Ln / McCabe Rd	MSSC	AM	12.1	B	13.0	B	13.5	B	1.4	No
		PM	13.4	B	16.5	B	17.7	B	4.3	No
11. Dogwood Ave / McCabe Road (South)	Signal	AM	14.3	B	16.4	B	21.1	C	6.8	No
		PM	14.8	B	38.3	D	43.0	D	28.2	No
12. Dogwood Ave / Residential Project Dwy	MSSC	AM	DNE	DNE	15.6	C	15.8	C	NA	No
		PM	DNE	DNE	30.4	D	30.8	D	NA	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to Project traffic.
d. MSSC – Minor Street Stop Controlled intersection. Minor street left turn delay is reported.

SIGNALIZED		UNSIGNALIZED	
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 9–2
NEAR-TERM SEGMENT OPERATIONS

Segment	Functional Classification [a]	LOS E Cap [b]	Existing			Existing + Project			Existing + Project + Cumulative Projects			Δ [e] V/C	Sig?
			Volume	LOS [c]	V/C [d]	Volume	LOS	V/C	Volume	LOS	V/C		
Dogwood Avenue													
E. Aurora Dr to I-8 Ramps	2-Ln Art (w/TWLTL)	18,000	13,970	C	0.776	15,960	D	0.887	**16,140**	**E**	**0.897**	**0.121**	**Cumulative**
I-8 Ramps to Plaza Dr	4-Ln Arterial	36,000	20,710	A	0.575	32,460	D	0.902	**33,970**	**E**	**0.944**	**0.369**	**Cumulative**
Plaza Dr to Danenberg Dr	5-Ln Arterial [f]	45,000	15,290	A	0.340	27,040	A	0.601	27,400	A	0.609	0.269	None
Danenberg Dr to Mall N.	4-Ln Arterial	36,000	11,300	A	0.314	25,040	C	0.696	25,480	C	0.708	0.387	None
Mall N. to Mall S.	5-Ln Arterial [f]	45,000	11,300	A	0.251	18,520	A	0.412	18,960	A	0.421	0.161	None
Mall S. to Project (Resi) Dwy	4-Ln Arterial	36,000	10,310	A	0.286	24,050	B	0.668	24,490	B	0.680	0.394	None
Project (Resi) Dwy to McCabe Rd	4-Ln Undivided Art	27,000	10,310	A	0.382	18,270	B	0.677	18,710	B	0.693	0.311	None
Danenberg Drive													
SR 86 / 4th St to Farnsworth Ln	2-Ln Collector	12,000	5,110	A	0.426	7,100	B	0.592	7,320	B	0.610	0.184	None
Farnsworth Ln to Dogwood Ave	2-Ln Collector	12,000	5,730	A	0.478	7,720	C	0.643	7,940	C	0.662	0.184	None
McCabe Road													
Farnsworth Ln to Dogwood Ave	2-Ln Collector	12,000	5,160	A	0.430	7,150	B	0.596	7,320	B	0.610	0.180	None

Footnotes:

a. The roadway classification at which the road currently operates.
b. The capacity of the roadway at LOS E.
c. Level of Service.
d. Volume/Capacity ratio.
e. Δ denotes an increase in V/C ratio due to Project traffic.
f. This section of Dogwood Avenue is a 5-Lane road with 3 lanes northbound and two lanes southbound. The capacity of this 5-lane Arterial was estimated by increasing the capacity of a 4-lane road by 1/4th.

General Notes:

ART: Arterial
TWLTL: Center Two-Way-Left-Turn Lane

10.0 SITE ACCESS ASSESSMENT

Three access points are assumed to be provided to the Project site as described below.

10.1 Dogwood Avenue / Imperial Valley Mall Driveway N.

A driveway aligned with the existing signalized Dogwood Avenue / Imperial Avenue Mall Driveway N. is assumed to serve as the northernmost access point to the retail / commercial area of the Project. This driveway will form the fourth (west) leg of this intersection. Since this intersection is signalized, the modified intersection geometry will require modification of the signal phasing to accommodate the new west leg of this intersection. The following modifications are recommended:

Southbound – An exclusive right-turn lane

Northbound – An exclusive left-turn lane

Eastbound – Dual left-turn lanes and one shared through-right lane

10.2 Dogwood Avenue / Imperial Valley Mall Driveway S.

A driveway aligned with the existing signalized Dogwood Avenue / Imperial Avenue Mall Driveway S. is assumed to serve as the central access point to the retail / commercial area of the Project. This driveway will form the fourth (west) leg of this intersection. Since this intersection is signalized, the modified intersection geometry will require modification of the signal phasing to accommodate the new west leg of this intersection. The following modifications are recommended:

Southbound – An exclusive right-turn lane

Northbound – An exclusive left-turn lane

Eastbound – One left-turn lane and one shared through-right lane

10.3 Dogwood Avenue / Residential Driveway

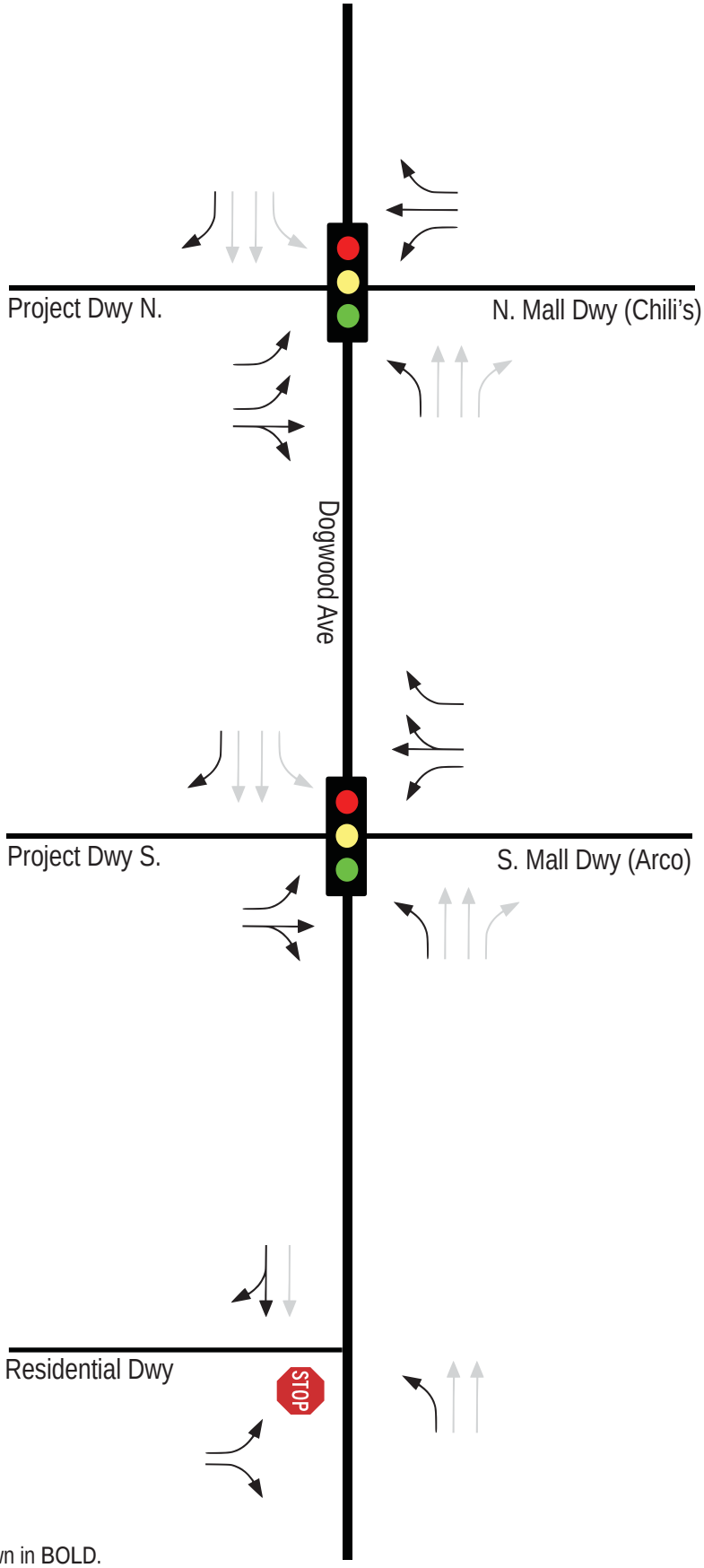
A new driveway south of the existing signalized Dogwood Avenue / Imperial Avenue Mall Driveway S. is assumed to serve as the southernmost access point to the residential portion of the Project site. The Project driveway will form the west leg of this new intersection. Since this intersection does not exist, there is no existing traffic control. This intersection is calculated to operate adequately with a Two-Way-STOP-Control (TWSC). The following modifications are recommended:

Southbound – One through lane and a shared-through right-lane.

Northbound – An exclusive left-turn lane

Eastbound – One left-turn lane, one right lane

Figure 10-1 depicts the ultimate intersection geometry at the above three Project access driveways.



Note: Project Improvements shown in BOLD.

LINSCOTT LAW & GREENSPAN engineers

N:\3147\Figures
Date: 11/04/19

Figure 10-1

Recommended Project Driveway Geometry

SOUTH DOGWOOD GPA

11.0 SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES

Following is a description of the calculated significant impacts based on the established significance criteria along with recommendations for mitigation measures.

11.1 Significant Impacts Prior to Mitigation

Based on the significance criteria, a significant cumulative impacts are calculated at the following segments:

- Dogwood Avenue: E. Aurora Drive to I-8 Ramps
- Dogwood Avenue: I-8 Ramps to Plaza Drive

11.2 Mitigation Measures

The following mitigation measures are recommended:

- **Dogwood Avenue: E. Aurora Drive to I-8 Ramps**

  Contribute a fair share towards widening this portion of Dogwood Road to a 4-Lane major Road.

- **Dogwood Avenue: I-8 Ramps to Plaza Drive**

  Contribute a fair share towards providing a third northbound through lane on Dogwood Road between Wake Avenue and the I-8 Eastbound on-Ramp, trapping the lane as a right-turn onto the I-8 Eastbound on-Ramp

11.3 Other Recommended Improvements

The following access improvements should be constructed as part of the Project:

- **Dogwood Avenue/ Imperial Valley Mall Driveway N.**

  Provide the fourth (West) leg at this intersection with related signal modifications and provide the following intersection geometry improvements:

  Southbound – An exclusive right-turn lane

  Northbound – An exclusive left-turn lane

  Eastbound – Dual left-turn lanes, one shared through-right lane

- **Dogwood Avenue/ Imperial Valley Mall Driveway S.**

  Provide the fourth (West) leg at this intersection with related signal modifications and provide the following intersection geometry improvements:

  Southbound – An exclusive right-turn lane

  Northbound – An exclusive left-turn lane

  Eastbound – One left-turn lane and one shared through-right lane

- **Dogwood Avenue/ Residential Driveway**

  Provide the fourth (West) leg at this intersection with Two-Way-Stop-Control at the Driveway and the following intersection geometry improvements:

  Southbound – One through lane and a shared-through right-lane.

  Northbound – An exclusive left-turn lane

  Eastbound – One left-turn lane and one right lane