3.0 TRAFFIC IMPACTS

3.1 TRIP GENERATION

To assess the impacts that the project may have on the surrounding streets, the first step was to determine Project trip generation. Project trip generation is shown in Table 3-1. Daily and Peak hour Project truck trip generation for the three phases of aggregate production levels was provided by Vulcan Materials Company and is based on Pre-Project traffic at the site. AM and PM peak hour percentages and splits are based on current count data at the project driveway. Information on Pre-Project production levels and phased Project production is included in Appendix F of this report.

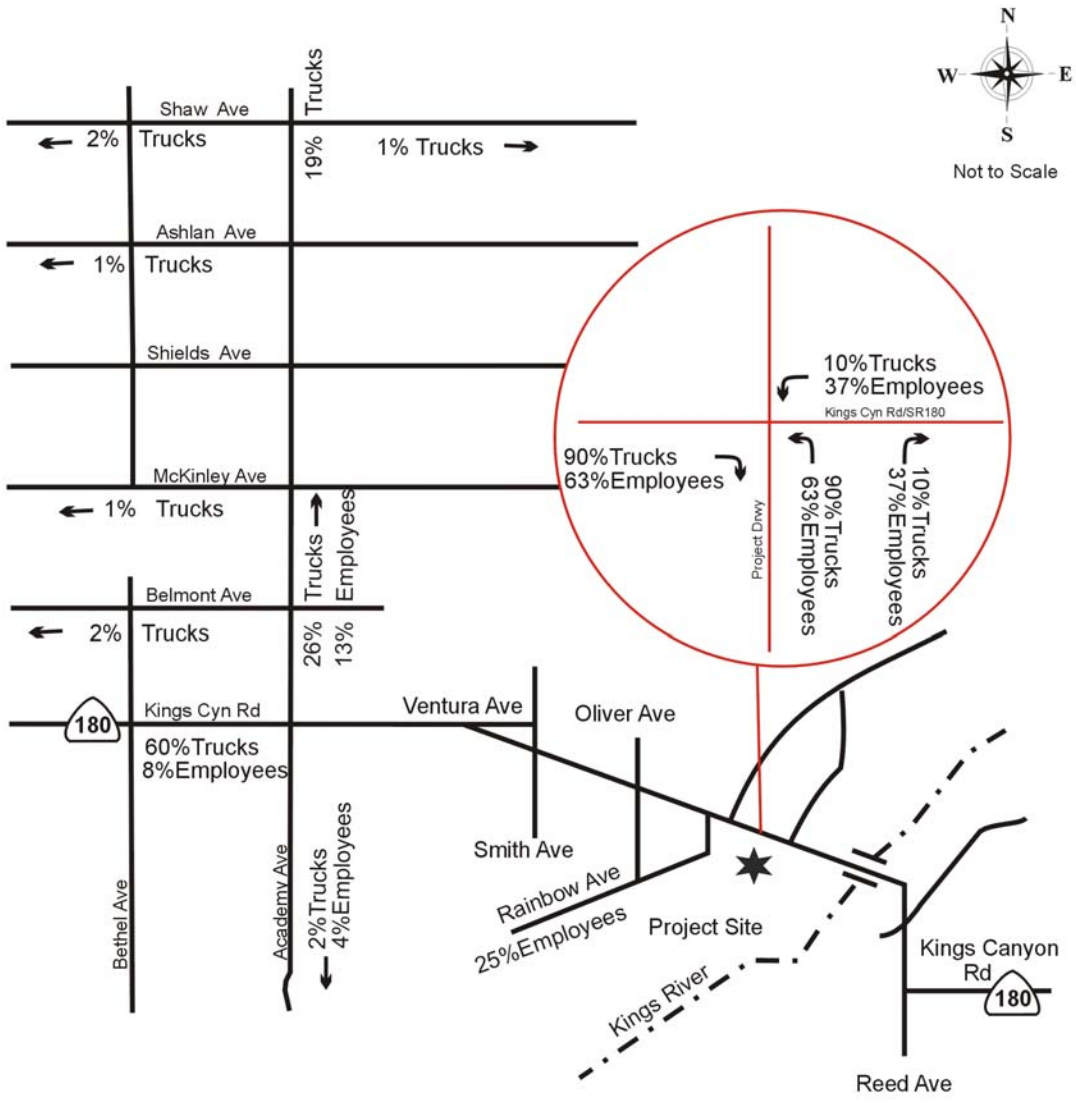
Table 3-1
PROJECT TRAFFIC GENERATION

USE	EXPANSION SIZE	DAILY TRIP ENDS[1]	AM PEAK HOUR[2]			PM PEAK HOUR[2]		
	TOTAL SALES	VOLUME	IN:OUT SPLIT	VOLUME		IN:OUT SPLIT	VOLUME	
				IN	OUT		IN	OUT
Phase 1	0.5 Million Tons/Year	149 Truck Trips	50:50	1	2	NA	0	0
	1.5 Million Tons/Year Total	0 Employee Trips	10:90	0	0	13:87	0	0
Phase 2	1.0 Million Tons/Year	337 Truck Trips	50:50	17	18	NA	0	0
	2.0 Million Tons/Year Total	24 Employee Trips	10:90	0	3	13:87	1	5
Phase 3[3]	1.5 Million Tons/Year	533 Truck Trips	50:50	57	58	NA	0	0
	2.5 Million Tons/Year	64 Employee Trips	10:90	1	6	13:87	2	15
TOTAL PROJECT TRIPS				**122**			**17**	

1 Daily Project Trip Ends = Total Daily Trips - Pre-Project Trips.
2 Based on Vulcan Materials Company Peak Hour Operations
3 Project Build-Out

3.2 TRIP DISTRIBUTION

Trip distribution for Project trips is shown in Figure 3-1. Truck trip distribution is based on socio-economic growth projections provided by the Fresno County Regional Data Center. Employment trips are based on a select zone analysis performed by the Council of Fresno County Governments' traffic forecasting model.



Trip Distribution Percentage | **Figure 3-1**

Legend

★ Project Site

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3.3 PROJECT BUILD-OUT TRAFFIC

Project build-out traffic as calculated in Table 3-1 was distributed to the roadway system using the trip distribution percentages shown in Figure 3-1. This information is shown in Figures 3-2 and 3-3.

The capacity analysis for all scenarios was performed assuming a "Passenger Car Equivalent" (PCE) of 2:1 for trucks, which is consistent with the Highway Capacity Manual.

3.4 CUMULATIVE PROJECT TRAFFIC

Cumulative analysis of applied for projects in the study area, including Cemex's Jesse Morrow Mountain Quarry project, the revision to CMI's Kings River Sand and Gravel project as well as any other applied for projects in the area that will have cumulative traffic impacts on the same roadways, will be completed as part of the Environmental Impact Report for this project.

3.5 PHASE 1 PLUS 2007 TRAFFIC CONDITIONS

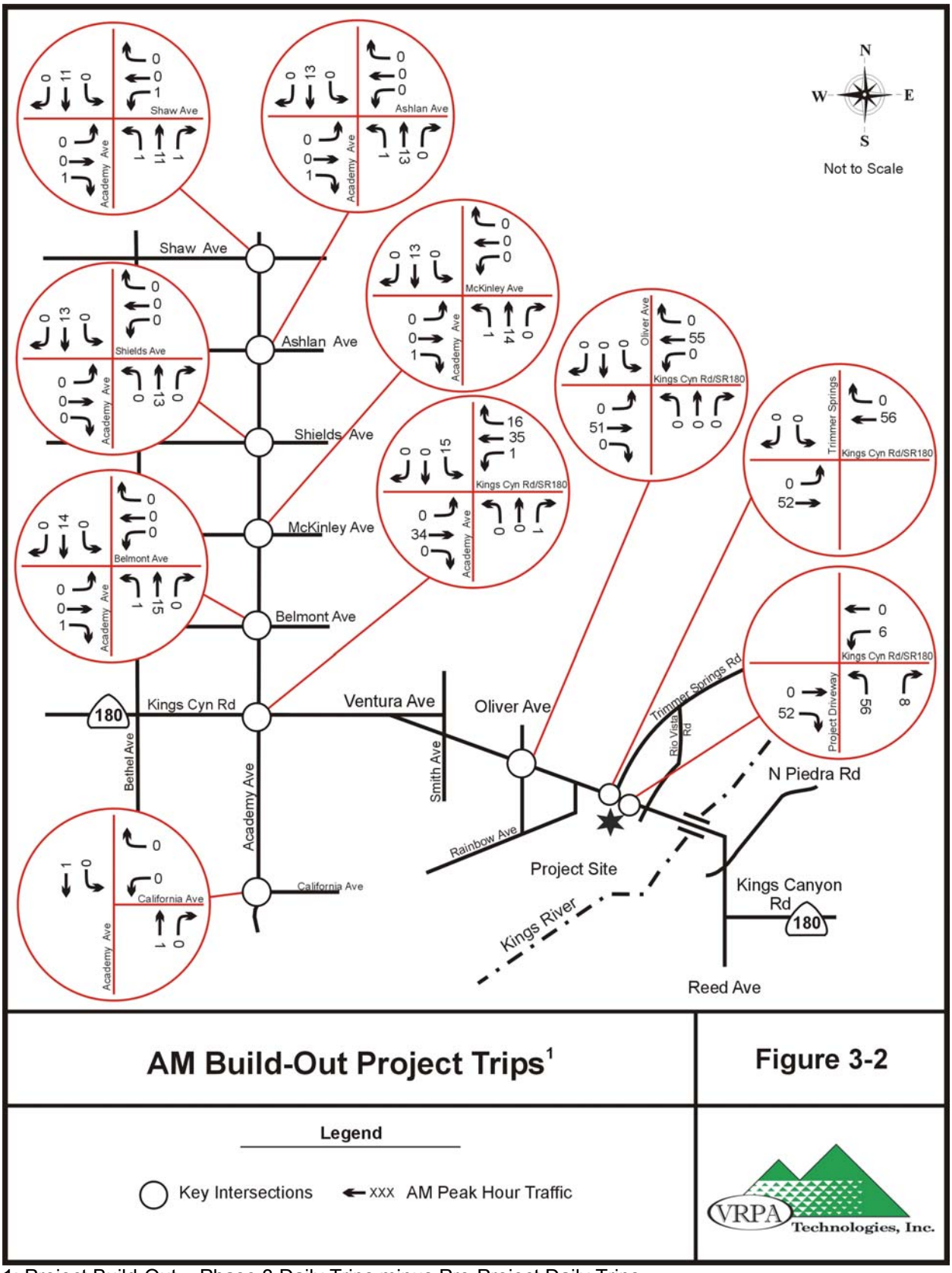
Phase 1 project trips were added to forecasted 2007 traffic conditions and analyzed in the Phase 1 AM traffic conditions scenario. As shown in Table 3-1 PM peak hour conditions are not impacted by the addition of Phase 1 traffic. The resulting AM peak hour traffic is shown in Figure 3-4.

3.6 PHASE 2 PLUS 2010 TRAFFIC CONDITIONS

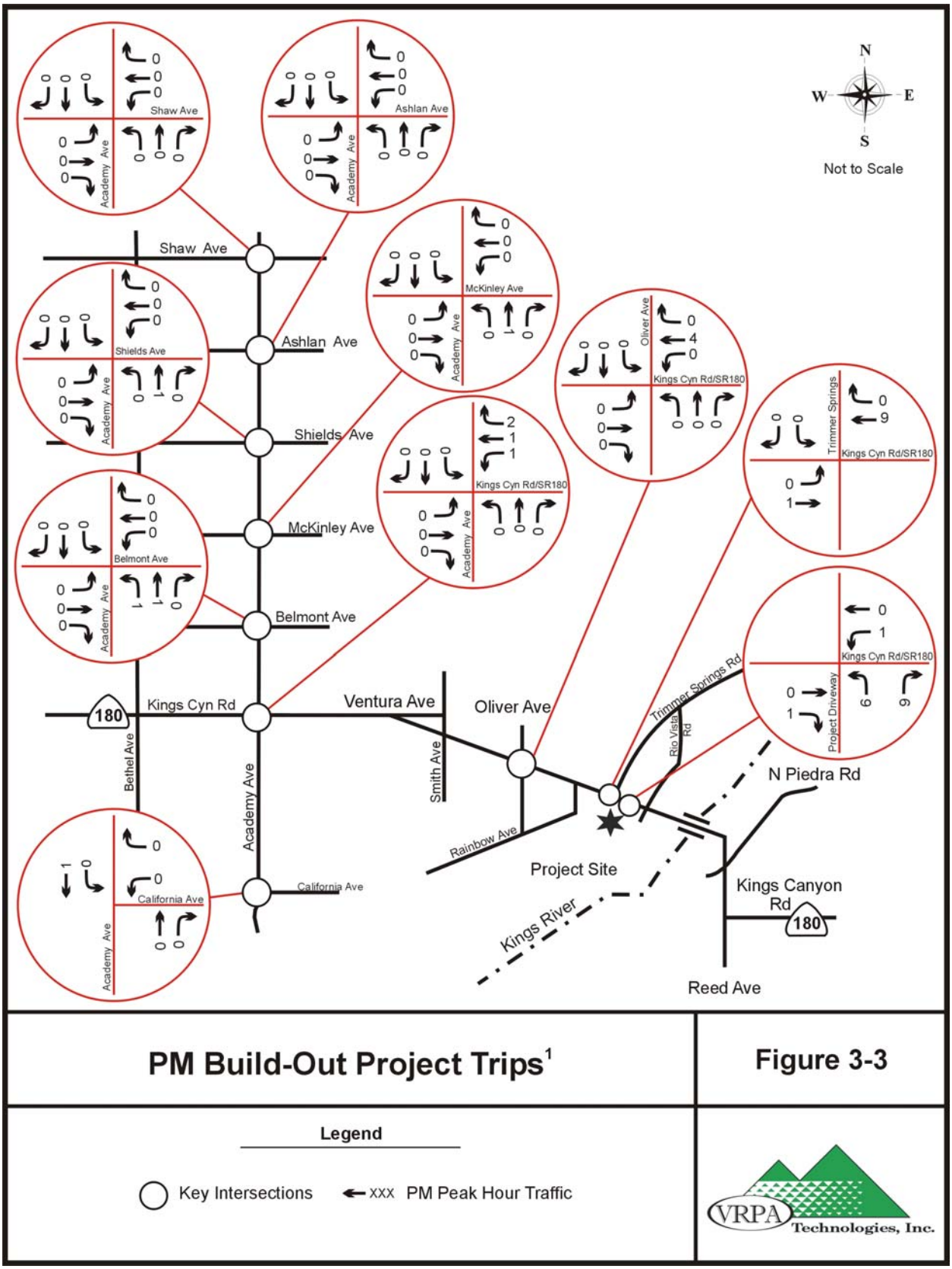
Phase 2 Project trips were added to forecasted 2010 traffic conditions and analyzed in the Phase 2 traffic conditions scenario. The resulting traffic is shown in Figure 3-5 and Figure 3-6.

3.7 PHASE 3 PLUS 2015 TRAFFIC CONDITIONS

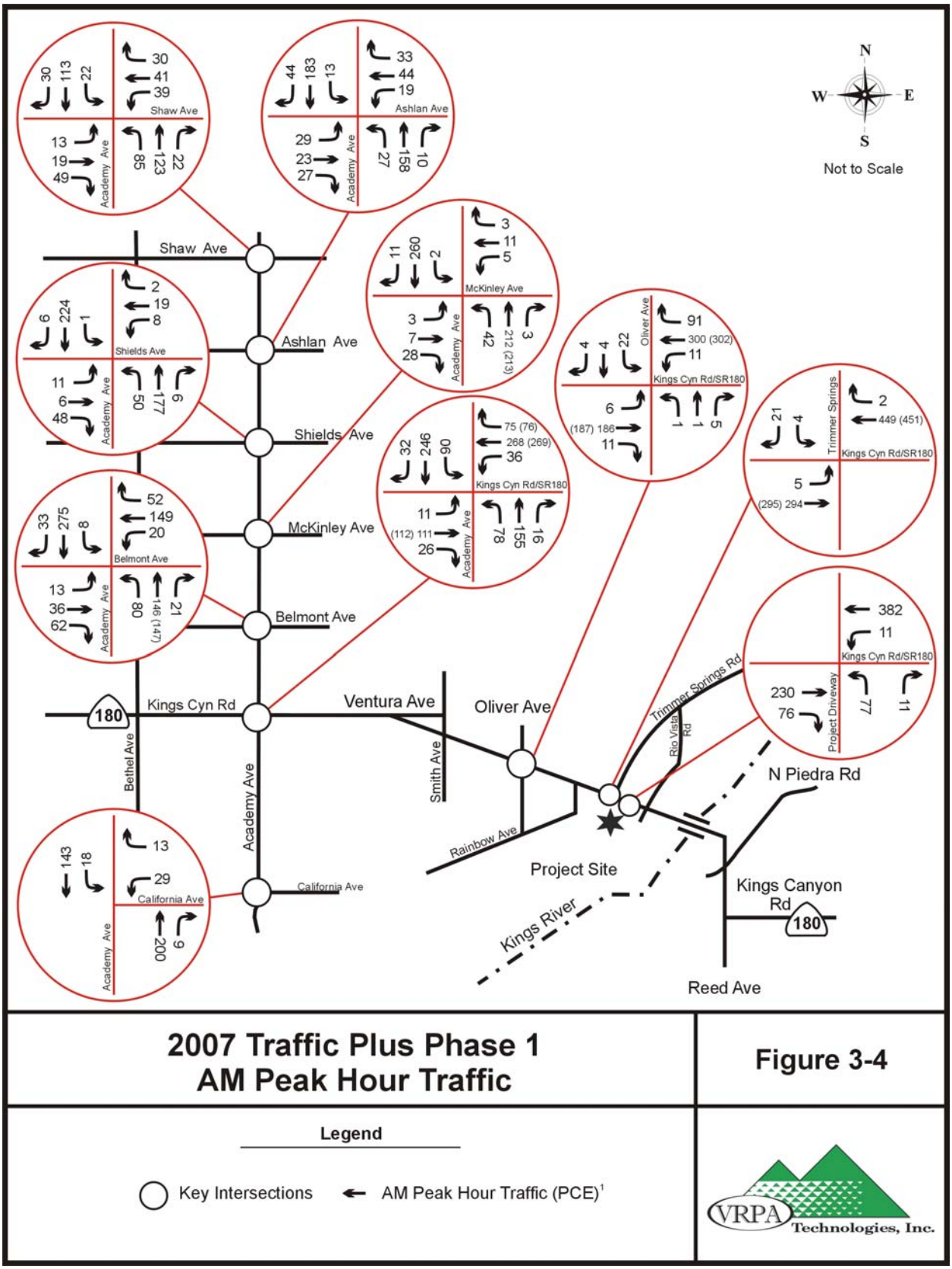
Phase 3 (build-out) Project trips were added to forecasted 2015 traffic conditions and analyzed in the Phase 3 traffic conditions scenario. The resulting traffic is shown in Figures 3-7 and 3-8.



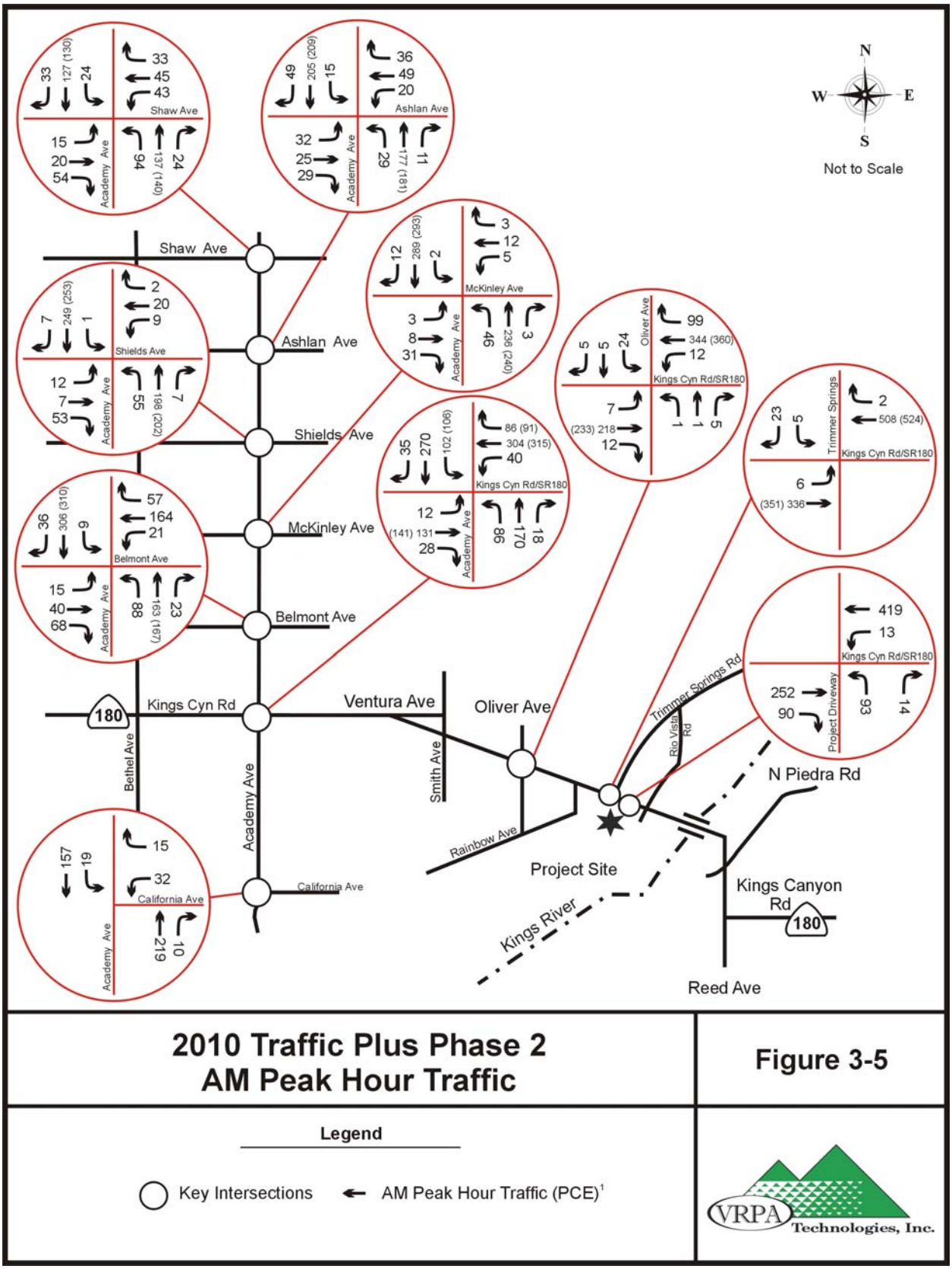
1: Project Build-Out = Phase 3 Daily Trips minus Pre-Project Daily Trips



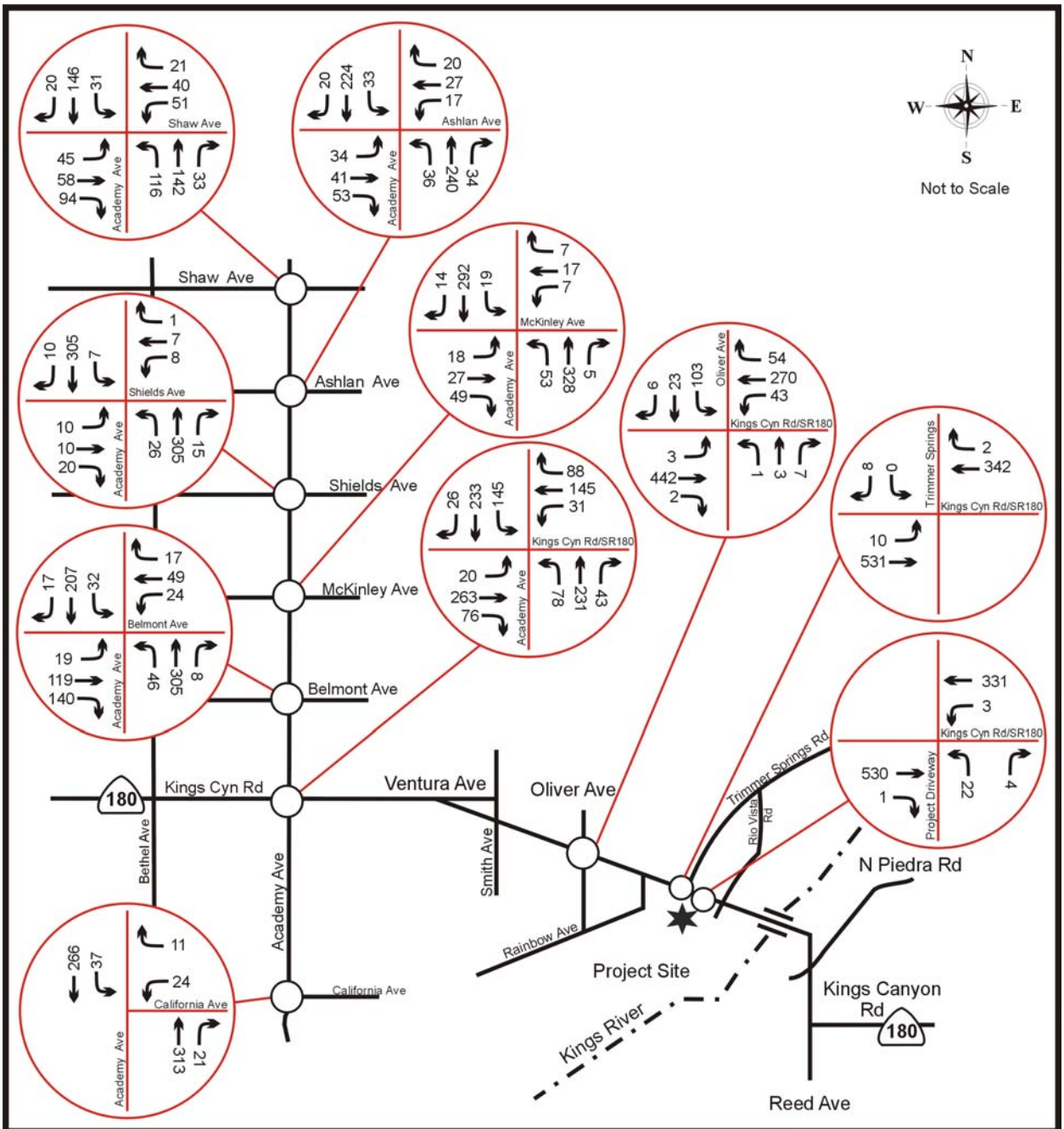
1: Project Build-Out = Phase 3 Daily Trips minus Pre-Project Daily Trips

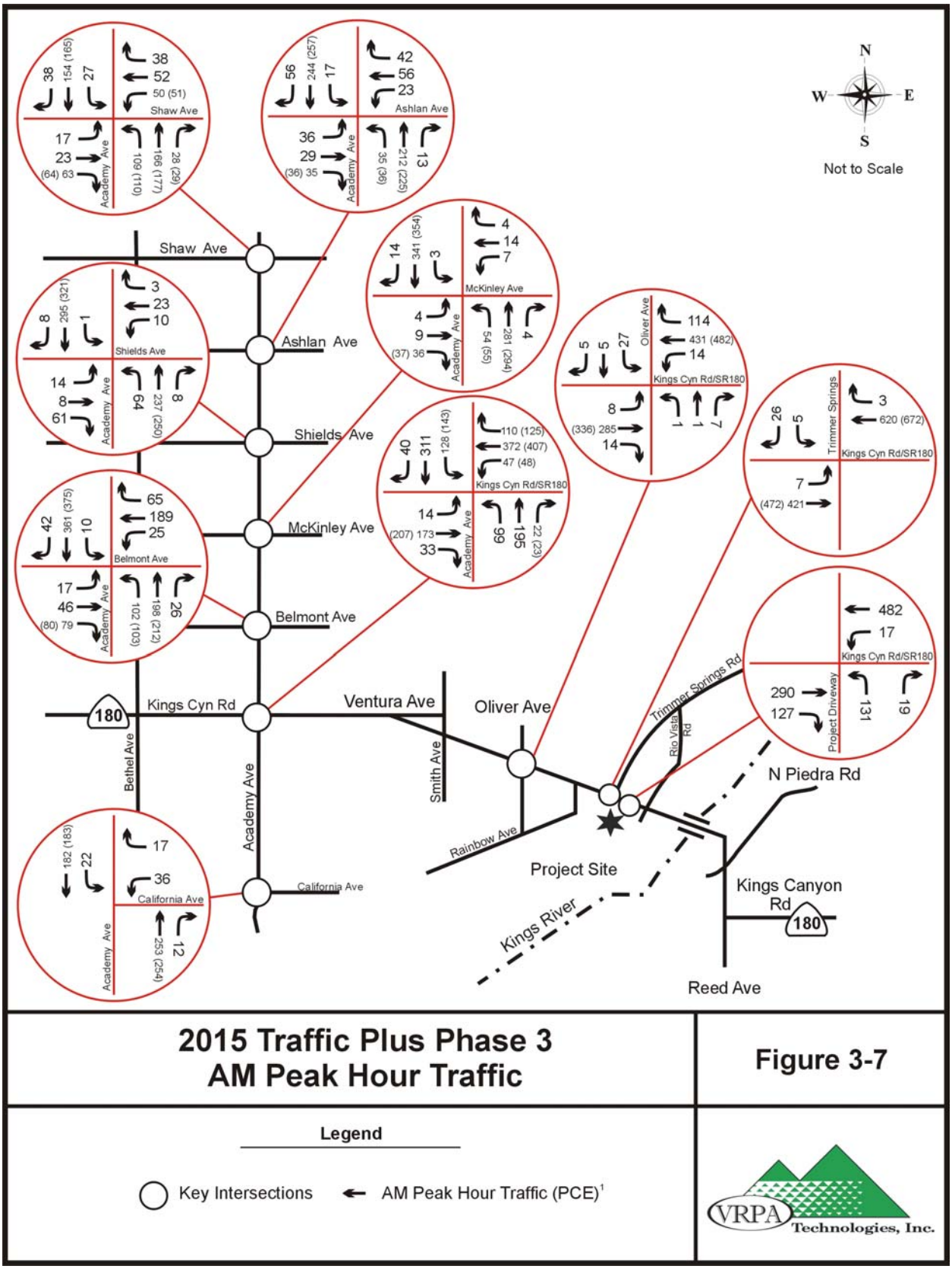


1: "Passenger Car Equivalent" (PCE) of 2:1 for trucks

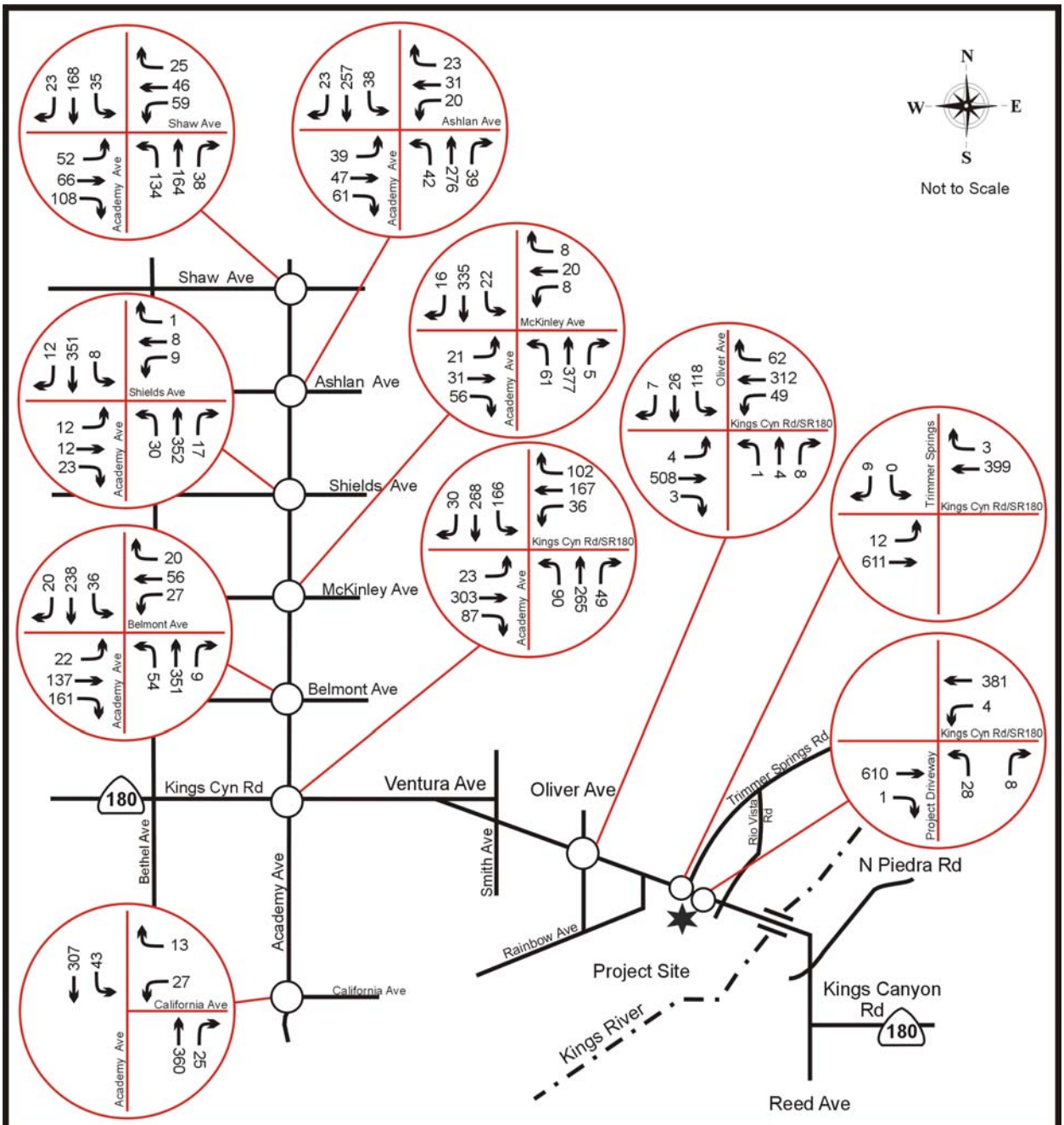


1: "Passenger Car Equivalent" (PCE) of 2:1 for trucks


N
W
E
S
Not to Scale
Shaw Ave
Ashlan Ave
Shields Ave
McKinley Ave
Belmont Ave
Kings Cyn Rd
180
Bethel Ave
Academy Ave
California Ave
Ventura Ave
Oliver Ave
Smith Ave
Rainbow Ave
Trimmer Springs Rd
Rio Vista Rd
Kings Cyn Rd/SR180
Project Driveway
N Piedra Rd
Project Site
Kings River
Kings Canyon Rd
Reed Ave
2010 Traffic Plus Phase 2
PM Peak Hour Traffic
Figure 3-6
Legend
Key Intersections
xxx PM Peak Hour Traffic
VRPA Technologies, Inc.



1: "Passenger Car Equivalent" (PCE) of 2:1 for trucks



2015 Traffic Plus Phase 3
PM Peak Hour Traffic

Figure 3-8

Legend

○ Key Intersections ← xxx PM Peak Hour Traffic

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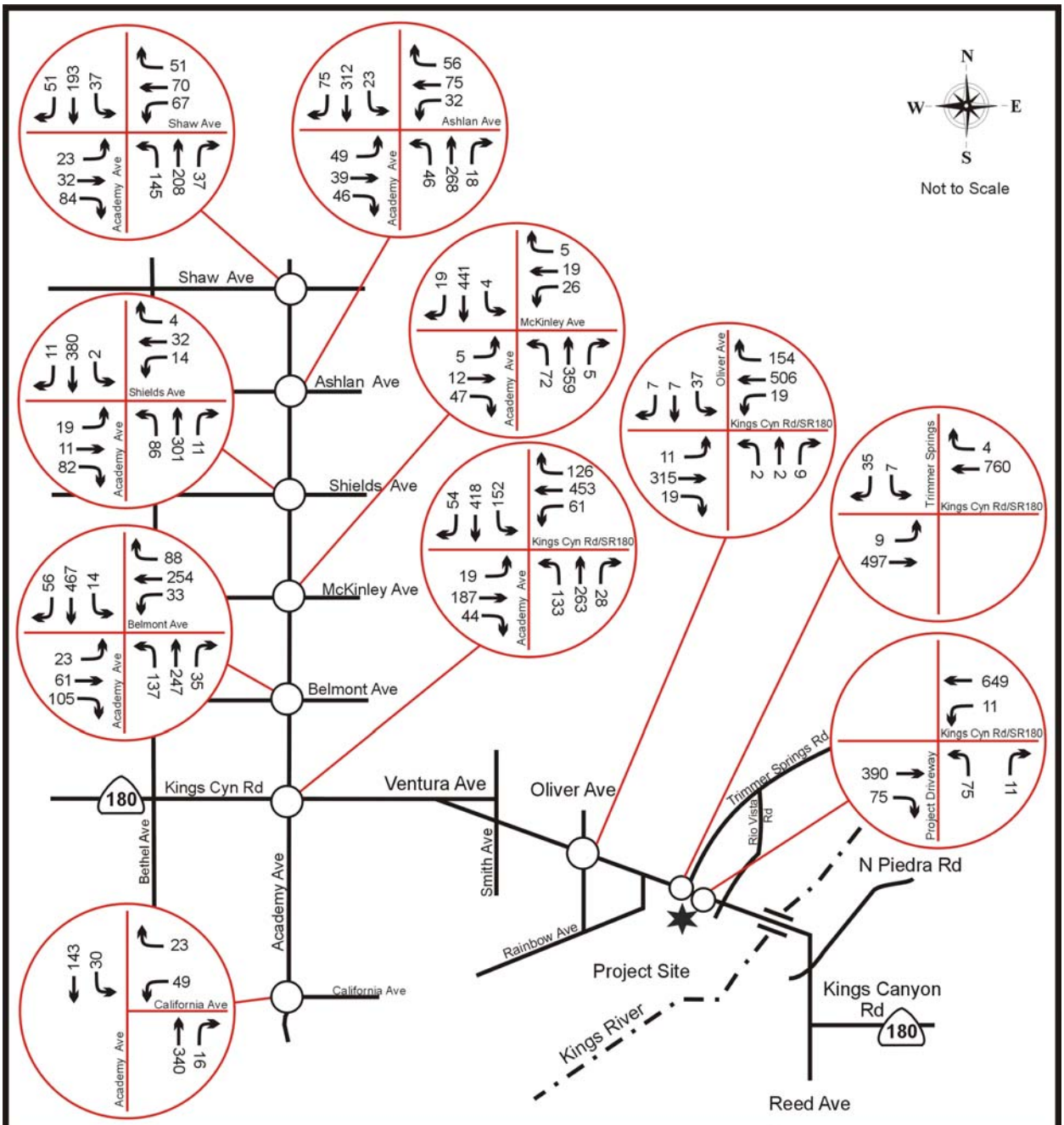
3.8 FUTURE YEAR 2025 NO PROJECT CONDITIONS

Traffic conditions in the future year of 2025 were analyzed for this scenario. Intersection traffic conditions without the project were estimated by increasing existing counts by three percent a year up to 2025. The percent growth is based on historical data in the area. The traffic conditions resulting from this scenario are shown in Figure 3-9 and Figure 3-10.

3.9 FUTURE YEAR 2025 WITH PROJECT CONDITIONS

Phase 3 (build-out) Project trips were added to future year traffic Future Plus Project Conditions for analysis of this scenario. The resulting traffic is shown in Figure 3-11 and Figure 3-12.



Future Year 2025 No Project AM Peak Hour

Figure 3-9

Legend

○ Key Intersections ← xxx AM Peak Hour Traffic

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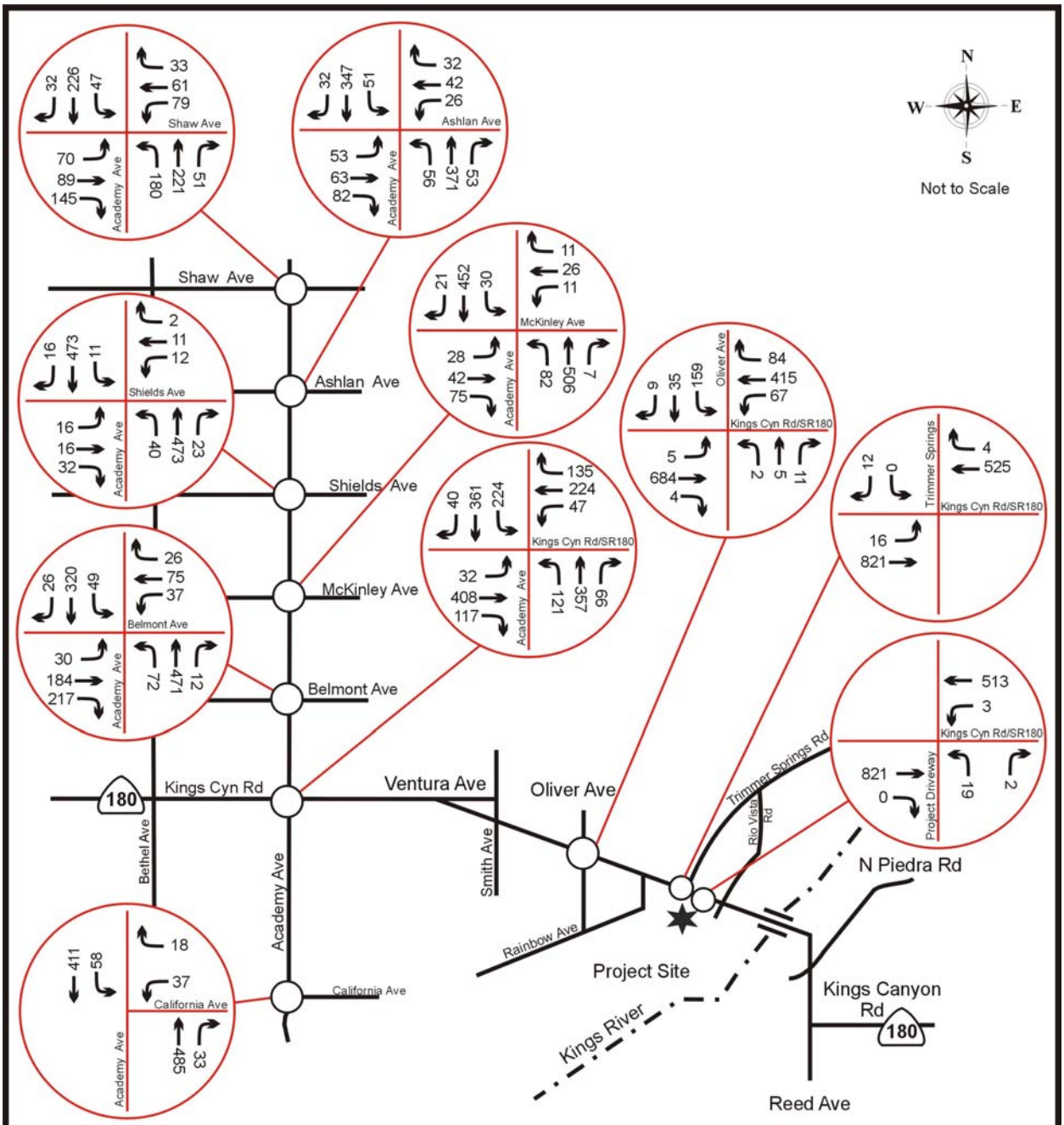


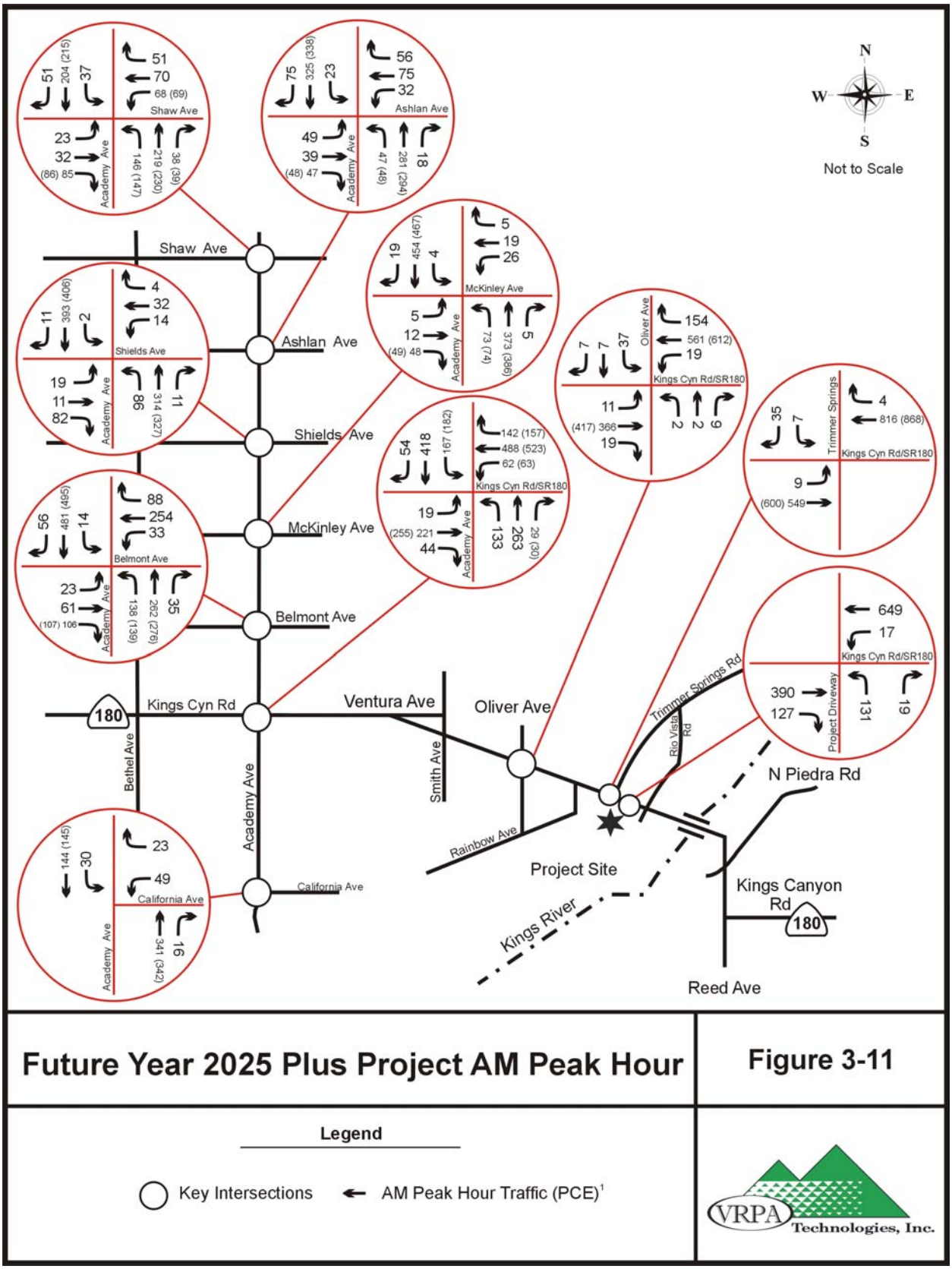
Future Year 2025 No Project PM Peak Hour

Figure 3-10

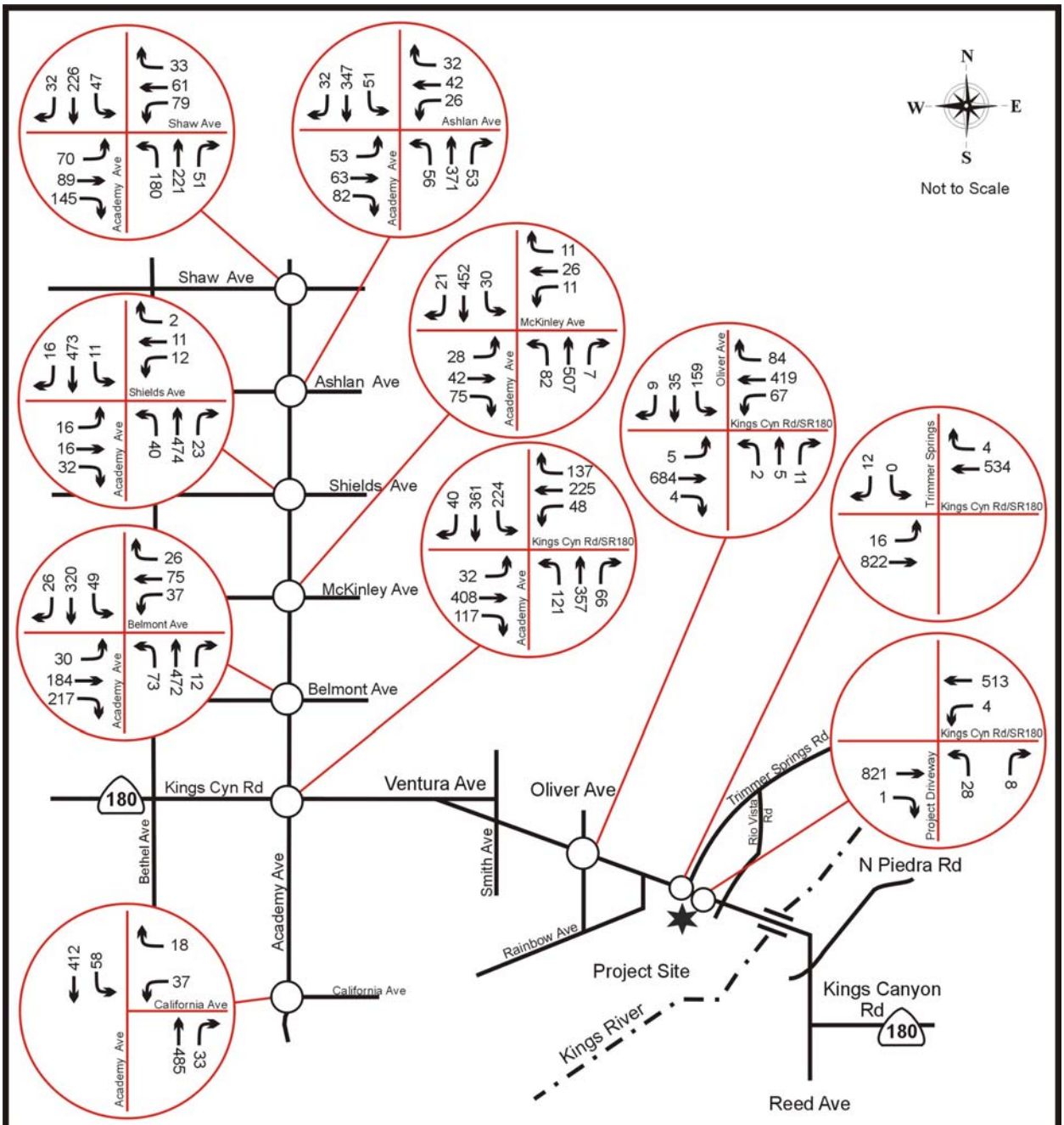
Legend

Key Intersections ← xxx PM Peak Hour Traffic

VRPA Technologies, Inc.



1: "Passenger Car Equivalent" (PCE) of 2:1 for trucks



Future Year 2025 Plus Project PM Peak Hour

Figure 3-12

Legend

Key Intersections ← xxx PM Peak Hour Traffic

VRPA Technologies, Inc.

3.10 TRAFFIC INDEX AND STRUCTURAL SECTION

The traffic impact analysis included an evaluation of the project's impact on the structural section of the pavement along Academy Avenue between SR 180 and California Avenue and along SR 180 between Clovis Avenue and Vulcan Project Driveway. A project is considered significant if it increases the Traffic Index (TI) by one (1) or more. TI calculations are included in Appendix G of this report.

The analysis of pavement structural section was conducted by determining the TI with and without project traffic. The analysis for SH 180 was conducted using current truck traffic counts from Caltrans. Results of the analysis are shown in Table 3-2. The analysis for Academy Avenue was conducted using current traffic counts obtained from TPG Consultants. The results of the analysis are also shown in Table 3-2.

Table 3-2
TRAFFIC INDEX

STREET SEGMENT	FUTURE NO PROJECT	FUTURE WITH PROJECT	INCREASE
	TRAFFIC INDEX (TI)		
Academy Avenue			
California Ave to SH 180	9.7	9.8	0.1
SR 180			
Clovis Ave to Academy Ave	10.8	11.2	0.4
Academy Ave to Trimmer Springs	10.9	11.5	0.6
Trimmer Springs to Project Driveway	10.8	11.4	0.6

Results of the analysis indicate that the project will not be considered significant because it does not increase the TI of the segments above by one (1) or more.

3.11 INTERSECTION LOS

Table 3-3 shows levels of service for all scenarios identified above. Intersection capacity calculations are included in the Appendix E. Results indicate that the intersections of Academy Avenue/SR 180, Oliver Avenue/SR 180, and Academy Avenue/Belmont Avenue will require mitigation measures to meet the County's minimum level of service standard of "C."

Potential mitigation measures are described in the following chapter.

Table 3-3
FUTURE INTERSECTION OPERATIONS WITHOUT MITIGATION

INTERSECTION	PEAK HOUR	2007 Plus Phase 1		2010 Plus Phase 2		2015 Plus Phase 3		2025 NO PROJECT		2025 WITH PROJECT	
		DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
Academy Ave / Shaw Ave	AM	NA (1)	A	NA (1)	B	NA (1)	B	NA (1)	B	NA (1)	C
	PM	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA (1)	C	NA(2)	NA(2)
Academy Ave / Ashlan Ave	AM	NA (1)	B	NA (1)	B	NA (1)	B	NA (1)	C	NA (1)	C (3)
	PM	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA (1)	C (3)	NA(2)	NA(2)
Academy Ave / Shields Ave	AM	NA (1)	B	NA (1)	C	NA (1)	C	NA (1)	C	NA (1)	C (3)
	PM	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA (1)	C (3)	NA(2)	NA(2)
Academy Ave / McKinley Ave	AM	NA (1)	B	NA (1)	B	NA (1)	B	NA (1)	C	NA (1)	C (3)
	PM	NA(2)	NA(2)	NA(1)	B	NA(2)	C	NA (1)	C (3)	NA (1)	C (3)
Academy Ave / Belmont Ave	AM	32.2	C	32.8	C	33.3	C	43.4	D	43.4	D
	PM	NA(2)	NA(2)	29.3	C	30.3	C	36.8	D	36.9	D
Academy Ave / California Ave	AM	NA (1)	B	NA (1)	B	NA (1)	B	NA (1)	B	NA (1)	B
	PM	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA(2)	NA (1)	C	NA(2)	NA(2)
Kings Canyon (SR 180) / Academy Ave	AM	31.2	C	33.0	C	40.0	D	67.5	E	>80.0	F
	PM	NA(2)	NA(2)	32.4	C	34.0	C	58.5	E	58.5	E
Kings Canyon (SR 180) / Oliver Ave	AM	NA(1)	B	NA(1)	C	NA(1)	C	NA(1)	D	NA(1)	E
	PM	NA(2)	NA(2)	NA(1)	C(3)	NA(1)	C(3)	NA(1)	F	NA(1)	F
Kings Canyon (SR 180) / Trimmer Springs	AM	NA(1)	B	NA(1)	B	NA(1)	C	NA(1)	C	NA(1)	C
	PM	NA(2)	NA(2)	NA(1)	B	NA(1)	B	NA(1)	B	NA(1)	B
Kings Canyon (SR 180) / Project Driveway	AM	NA(1)	C	NA(1)	C (3)	NA(1)	C (3)	NA(1)	C (3)	NA(1)	C (3)
	PM	NA(1)	C	NA(1)	C (3)	NA(1)	C (3)	NA(1)	C (3)	NA(1)	C (3)

DELAY is measured in seconds.
LOS = Level of Service

(1) Unsignalized intersection. Level of service shown is for worst movement.
(2) Project trips insignificant
(3) Does not meet signal warrants

3.12 SEGMENT CAPACITY

Table 3-3 shows levels of service for all scenarios identified above. Additional detail on street segment capacity analysis is shown in Appendix C. Segment LOS was determined using modified Arterial LOS Tables approved for use in Fresno County. Results indicate that segments of Academy Avenue between SR 180 and California Avenue and SR 180 between Academy Avenue and Trimmer Springs will require mitigation measures to meet the County's minimum level of service standard of "C."

Potential mitigation measures are described in the following chapter.

Table 3-4
FUTURE STREET SEGMENT OPERATIONS WITHOUT MITIGATION

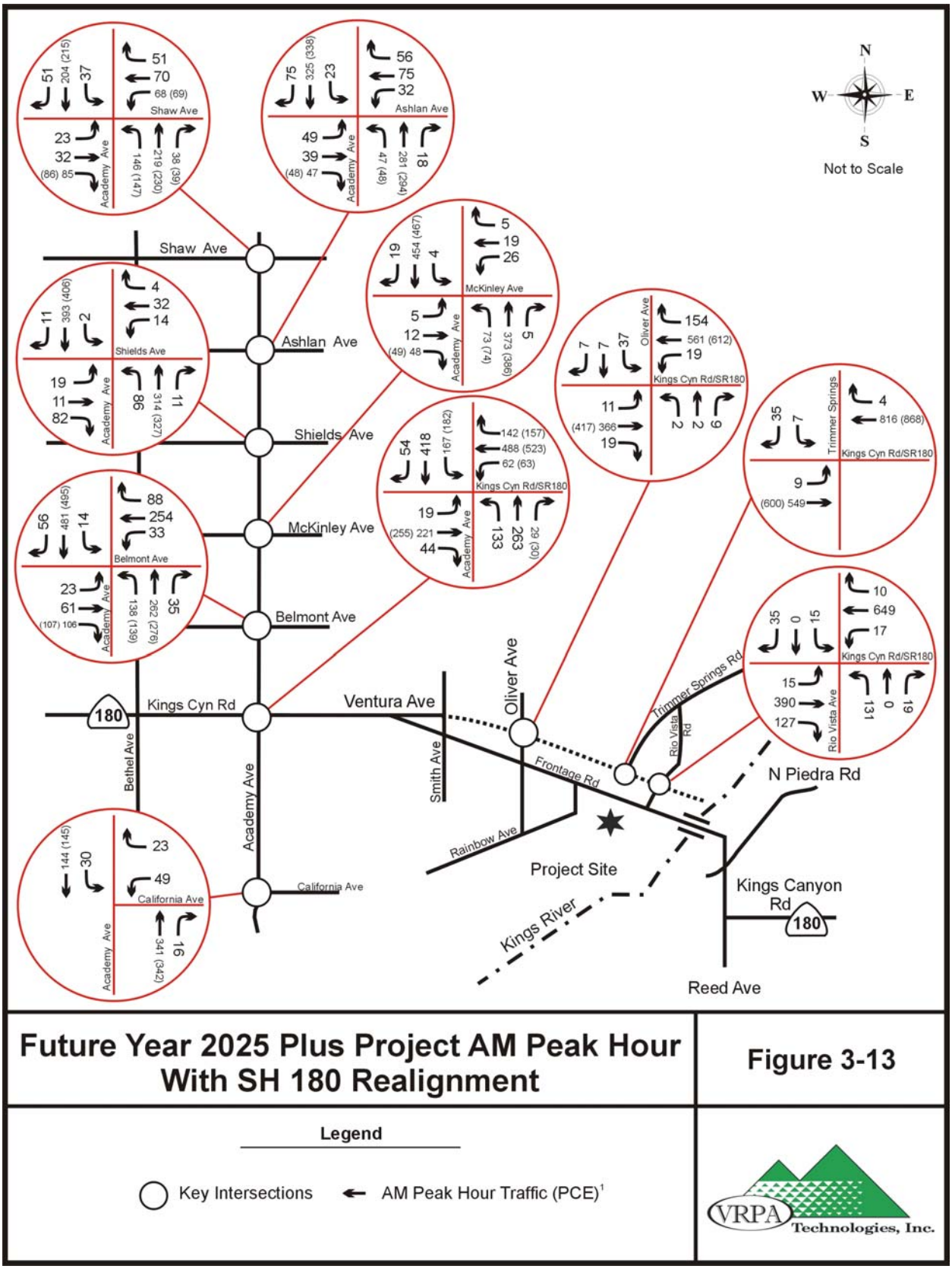
STREET SEGMENT	2007 Phase 1		2010 Phase 2		2015 Phase 3		FUTURE NO PROJECT		FUTURE WITH PROJECT	
	VOLUME	LOS	VOLUME	LOS	VOLUME	LOS	VOLUME	LOS	VOLUME	LOS
Academy Avenue										
California Ave to SH 180	557	C	612	C	707	C	947	D	949	D
SR 180										
Clovis Ave to Academy Ave	526	C	596	C	731	C	890	C	959	C
Academy Ave to Trimmer Springs	769	C	873	C	1074	C	1,301	C	1,409	D
Trimmer Springs to Project Driveway	765	C	854	C	1030	C	1,189	C	1,297	C

LOS = Level of Service

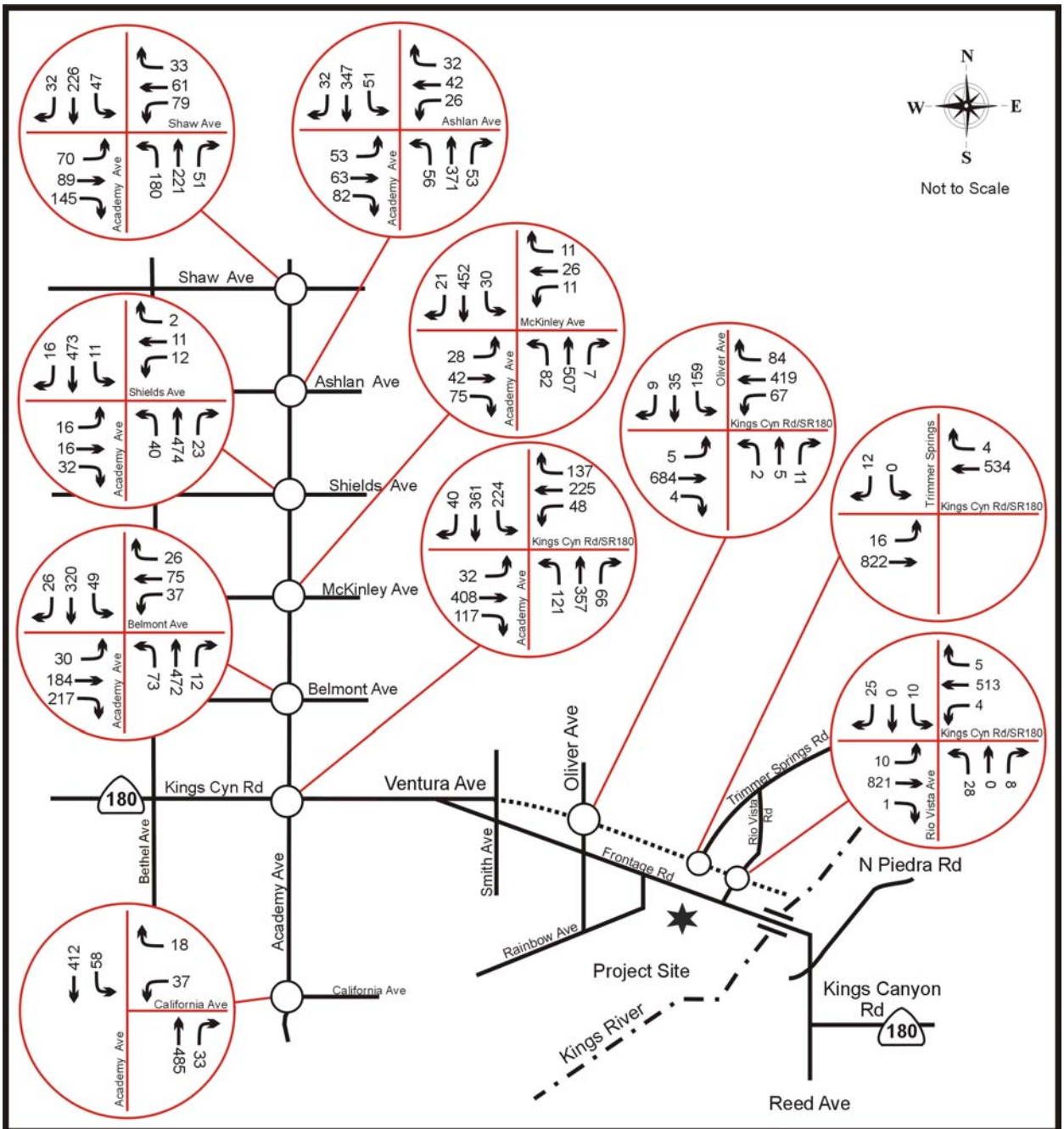
3.13 SR 180 REALIGNMENT ANALYSIS

The SR 180 improvements from Clovis to Temperance (Freeway/Expressway), Temperance to Academy (Expressway), Academy to Trimmer Springs (Expressway) and Trimmer Springs to Frankwood (Expressway) are Tier 1 projects in the Measure "C" Draft Extension Expenditure Plan considering a combination of State Transportation Improvement Program (STIP), Measure C and local funding. If Measure C passes in November 2006, these projects would be funded and the first projects to be delivered; however, there is no timeframe for delivery yet. If the Measure does not pass, the projects would be candidates for STIP funds through Fresno COG, but it is unknown when the projects would be funded.

This realignment would effect the future project trip distribution at the Vulcan Driveway. As a result of this SR 180 realignment the existing SH 180 road would become a frontage road and trips coming in and out of the Vulcan Driveway would be diverted east to the Rio Vista Avenue/Highway 180 Intersection. An analysis of future year 2025 with the project and with the SR 180 realignment was completed to evaluate the impacts at SR 180 and Rio Vista Avenue. The 2025 AM and PM peak hour volumes at Rio Vista and SR 180 are shown in Figures 3-13 and 3-14. Results of the analysis are shown in Table 3-5 and indicate that the intersection of SR 180 and Rio Vista Avenue will operate at acceptable levels of service in future year 2025.



1: "Passenger Car Equivalent" (PCE) of 2:1 for trucks



Future Year 2025 Plus Project PM Peak Hour With SH 180 Realignment

Figure 3-14

Legend

○ Key Intersections ← xxx PM Peak Hour Traffic

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Table 3-5
2025 INTERSECTION OPERATIONS WITH SH 180 REALIGNMENT

INTERSECTION	PEAK HOUR	2025 WITH PROJECT	
		DELAY	LOS
Academy Ave / Shaw Ave	AM	NA (1)	C
	PM	NA(2)	NA(2)
Academy Ave / Ashlan Ave	AM	NA (1)	C (3)
	PM	NA(2)	NA(2)
Academy Ave / Shields Ave	AM	NA (1)	C (3)
	PM	NA(2)	NA(2)
Academy Ave / McKinley Ave	AM	NA (1)	C (3)
	PM	NA (1)	C (3)
Academy Ave / Belmont Ave	AM	43.4	D
	PM	36.9	D
Academy Ave / California Ave	AM	NA (1)	B
	PM	NA(2)	NA(2)
Kings Canyon (SR 180) / Academy Ave	AM	58.5	E
	PM	53.6	D
Kings Canyon (SR 180) / Oliver Ave	AM	NA(1)	E
	PM	NA(1)	F
Kings Canyon (SR 180) / Trimmer Springs	AM	NA(1)	C
	PM	NA(1)	B
Kings Canyon (SR 180) / Rio Vista Ave	AM	NA(1)	C (3)
	PM	NA(1)	C (3)

DELAY is measured in seconds.
LOS = Level of Service

(1) Unsignalized intersection. Level of service shown is for worst movement.
(2) Project trips insignificant
(3) Does not meet signal warrants