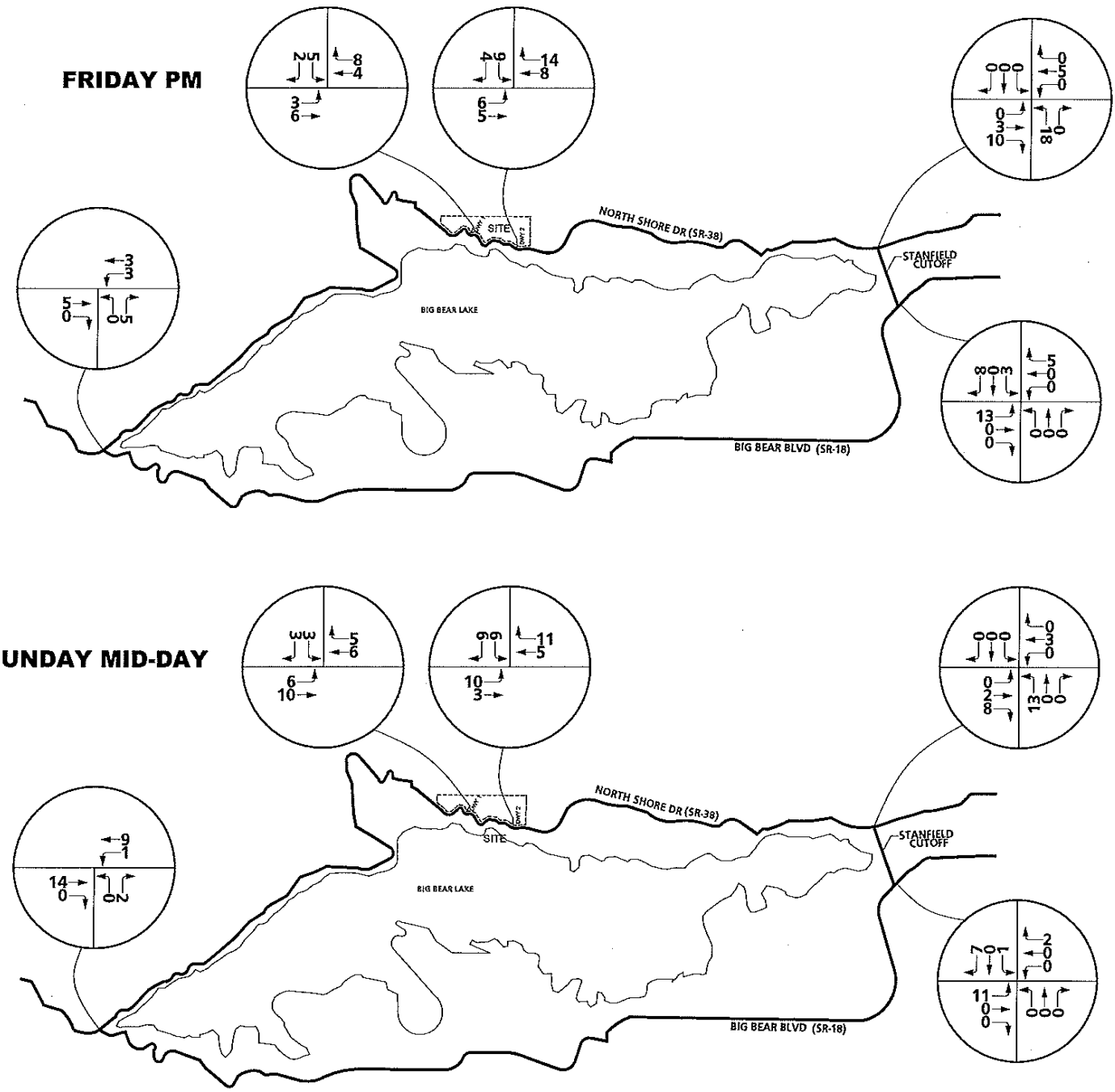
EXHIBIT 2-C

PROJECT FRIDAY PM PEAK HOUR / SUNDAY MIDDAY PEAK HOUR INTERSECTION VOLUMES



URBAN CROSSROADS

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3.0 EXISTING CONDITIONS

This section of the report summarizes existing roadway and traffic conditions in the study area. All analysis locations which exist today have been analyzed. The number of through travel lanes for existing roadways and intersection controls are presented, along with existing traffic count data collected for this study. This data was used to analyze existing traffic operations in the study area. Existing plans for roadway improvements are also described in this section.

3.1 Existing Roadway System and Daily Traffic Volumes

The number of through travel lanes for existing roadways and existing intersection controls within the study area are presented on Exhibit 3-A.

Exhibits 3-B and 3-C depict the current average daily traffic (ADT) volumes in the study area on Friday and Sunday, respectively. Existing ADT volumes are estimated based upon the latest traffic data collected by Urban Crossroads, Inc. (see Appendix "A"). Peak hour data has been used to estimate the average daily traffic volumes on each leg using the following formula:

Peak Hour (Approach Volume + Exit Volume) x 12 = Leg Volume.

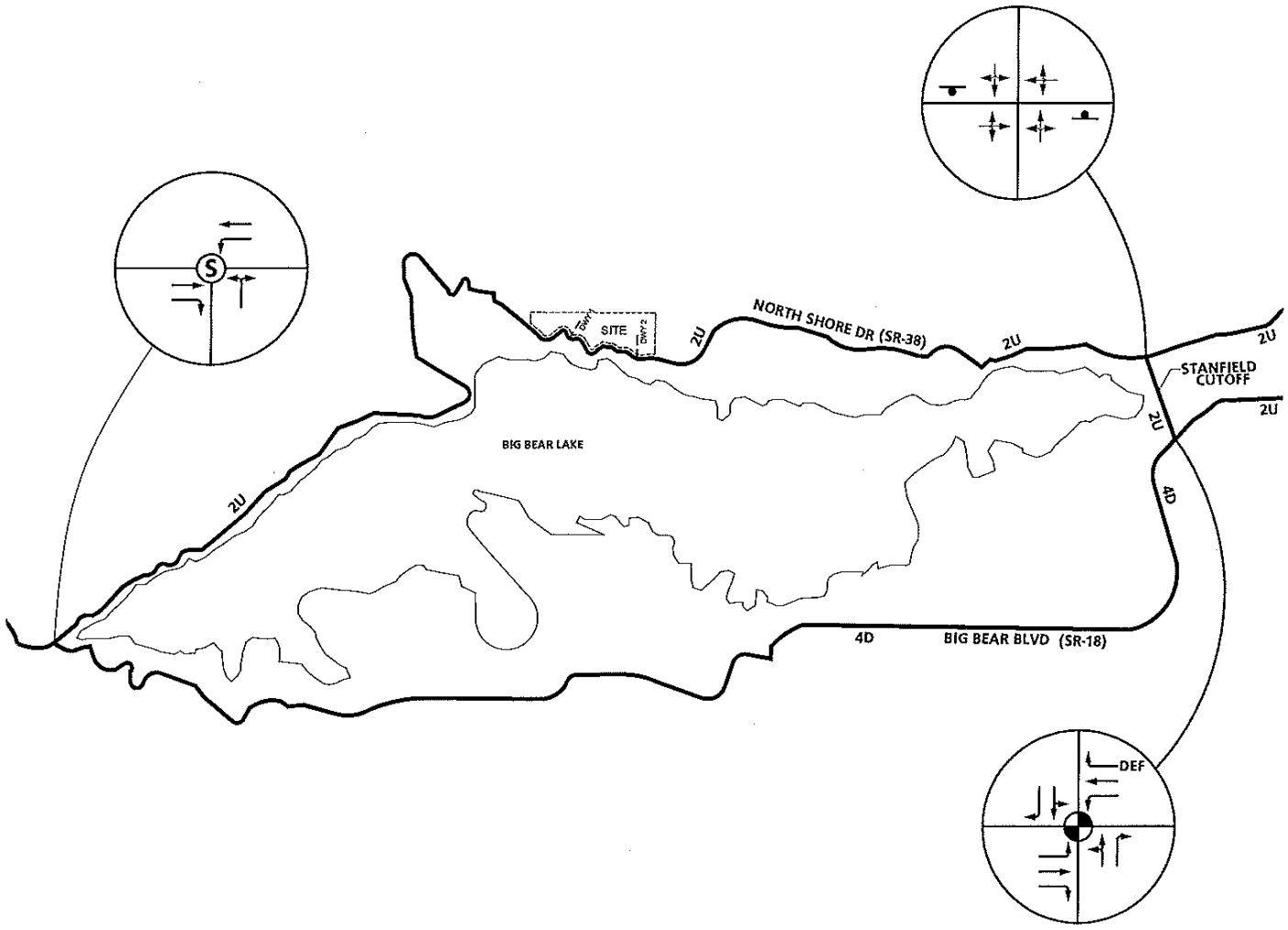
Regional access to the site is provided by North Shore Drive (SR-38)

3.2 Existing Peak Hour Traffic Volumes

Actual traffic count data was obtained from manual intersection counts (March 2007, see Appendix "A") to quantify existing traffic conditions. The Friday PM peak hour traffic volumes were determined by counting the two hour period between 4:00 PM- 6:00 PM in the evening. The Sunday Mid-day peak hour traffic volumes were identified by counting the two hour period from 12:00 PM – 2:00 PM. Per discussions with County staff, since the peak season of the study area occurs during the summer months, a 16% growth is applied to the manual intersection counts to represent existing peak hour intersection volumes.

EXHIBIT 3-A

EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

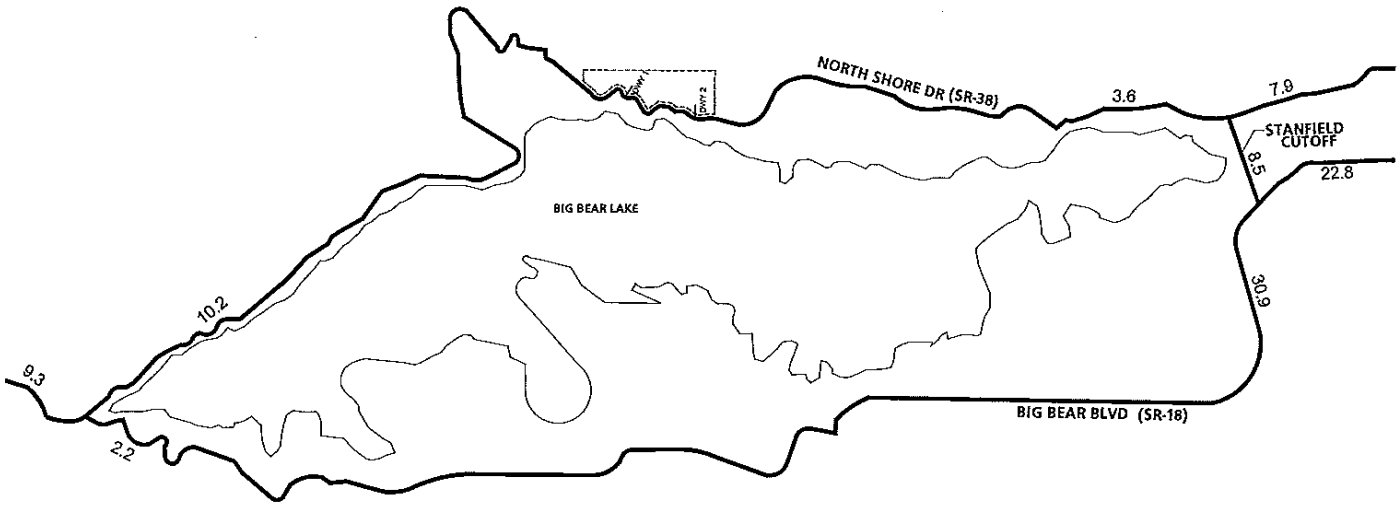
- = TRAFFIC SIGNAL
- (S) = ALL WAY STOP
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- DEF = DEFACTO RIGHT TURN LANE

N

URBAN CROSSROADS

EXHIBIT 3-B

EXISTING FRIDAY AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

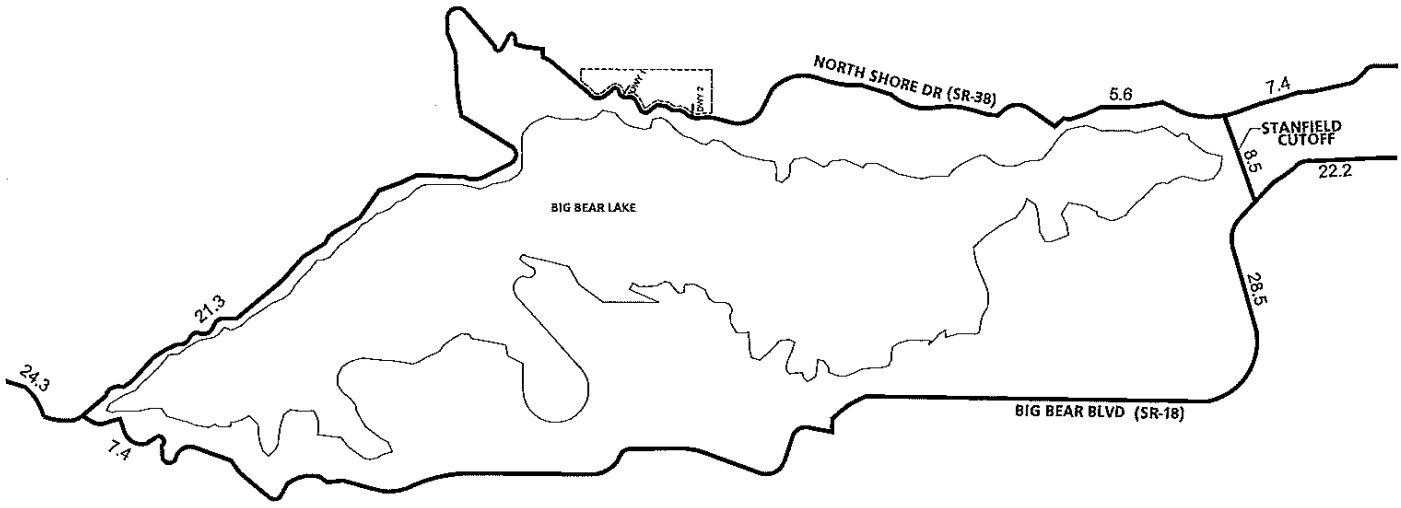
10.0 = VEHICLES PER DAY (1000'S)

N

URBAN CROSSROADS

EXHIBIT 3-C

EXISTING SUNDAY AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

N

URBAN CROSSROADS

Existing intersection level of service calculations are based upon the adjusted manual Friday PM and Sunday Mid-day peak hour turning movement counts, as shown on Exhibits 3-D and 3-E.

3.3 Existing Traffic Operations

Existing peak hour traffic operations have been evaluated for both the Friday PM and Sunday Mid-day peak hours of traffic throughout the study area. The results of this analysis are summarized in Table 3-1, along with the existing intersection geometrics and control devices at each analysis location. As indicated in Table 3-1, the following study area intersections are currently operating at an unacceptable level of service during both Friday PM and Sunday Mid-day peak hours:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

The operations analysis worksheets for existing conditions are included in Appendix "B".

Traffic signal warrant analysis (included in Appendix "C") has been conducted for existing conditions and traffic signals are currently warranted at the following study area intersections:

Big Bear Blvd (SR-18) (NS) at:

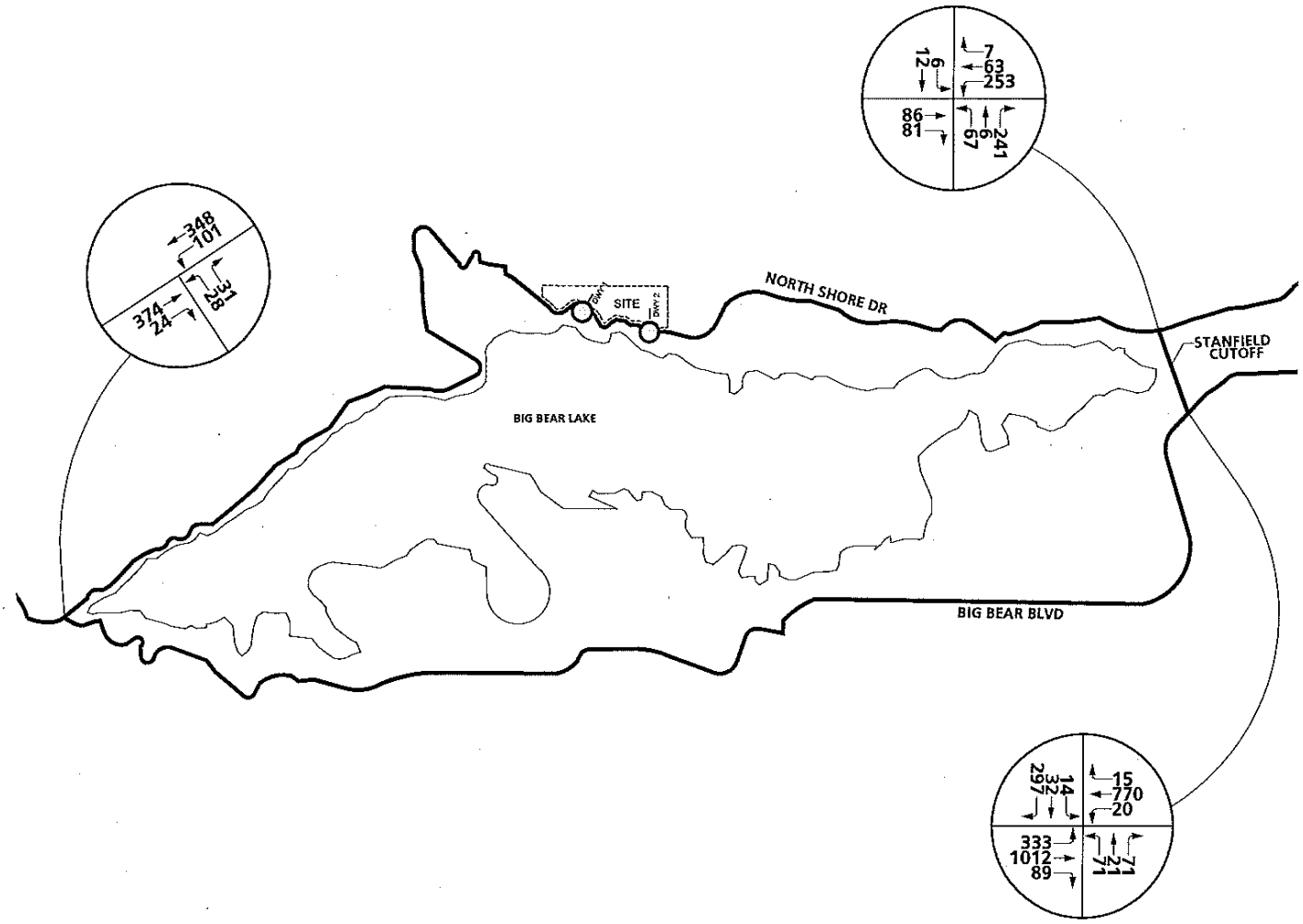
- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

EXHIBIT 3-D

EXISTING FRIDAY PM PEAK HOUR INTERSECTION VOLUMES

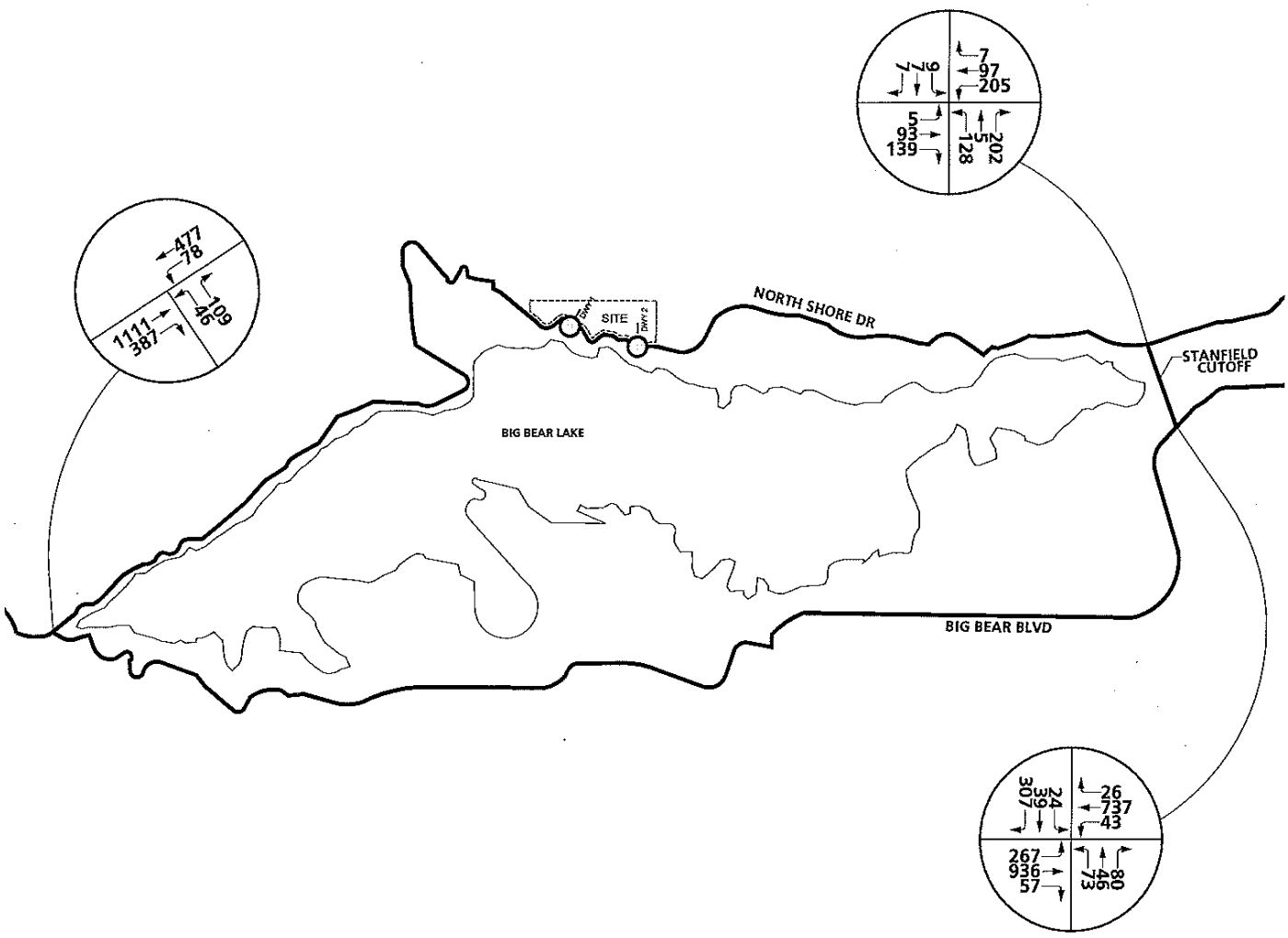


N

URBAN CROSSROADS

EXHIBIT 3-E

EXISTING SUNDAY MID-DAY PEAK HOUR INTERSECTION VOLUMES



N

MOON CAMP TIA, San Bernardino County, California - 04409 : 04B EXHIBIT.DWG

URBAN CROSSROADS

TABLE 3-1

INTERSECTION ANALYSIS FOR EXISTING CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	Fri. PM	Sun. MD	Fri. PM	Sun. MD
North Shore Dr. (SR-38) (NS) at:																	
• Big Bear Blvd. (SR-18) (EW)	CSS	0	1	0	0	0	0	0	1	1	1	1	0	22.5	--[4]	C	F
Stanfield Cutoff (NS) at:																	
• North Shore Dr. (SR-38) (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	25.5	34.5	D	D
• Big Bear Blvd. (SR-18) (EW)	TS	0	1	1	0	1	1	1	1	1	1	1	1	--[4]	81.1	F	F

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right;

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R3 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

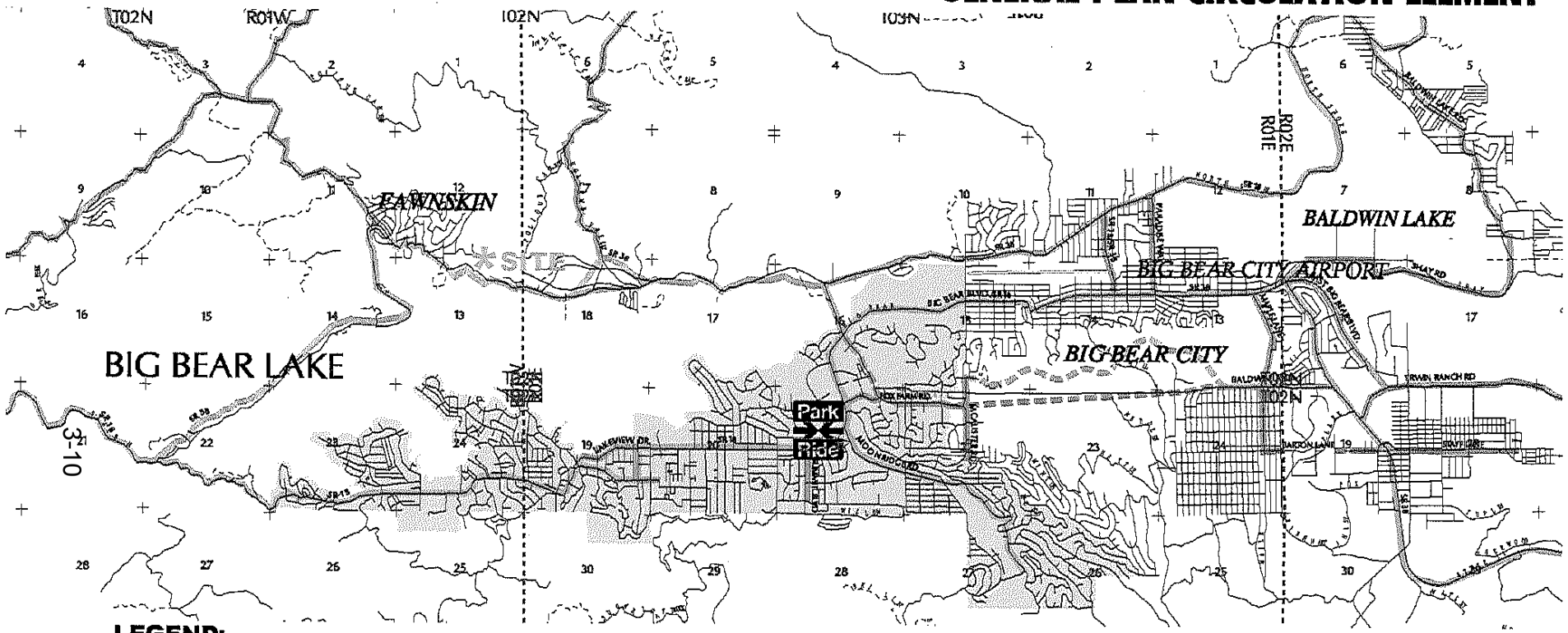
S:\Carlsbad_Jobs_04400\04409\excel\[04409-05.xls]T 3-1

3.4 Planned Transportation Improvements and Relationships to General Plan

The long-range transportation system within the study area is expected to undergo significant improvement as a result of work to be performed by Caltrans, the County of San Bernardino, and City of Big Bear Lake. The County of San Bernardino General Plan Circulation Element and General Plan roadway cross-sections are shown on Exhibits 3-F and 3-G, respectively. The City of Big Bear Lake General Plan Circulation Element and General Plan roadway cross-sections are shown on Exhibits 3-H and 3-I, respectively.

EXHIBIT 3-F

SAN BERNARDINO COUNTY GENERAL PLAN CIRCULATION ELEMENT



LEGEND:

Circulation and Transportation

EXISTING PROPOSED

- Freeway
- Major Divided Highway
- Major Arterial Highway
- Major Highway
- Secondary Highway
- Controlled/Limited Access Collector
- Mountain Major Highway
- Secondary Highway
- Controlled/Limited Access Collector
- Mountain Major Highway
- Mountain Secondary Highway
- State Highway (Special Standards or Conditions)
- Railroads
- Park Ride Ridesharing Facilities

N

Airport Runways

Runway location

Map data compiled on 7 and 1/2 and 1 angle maps by J. J. VanHouton and A

Positional accuracy of map data is ± 750 feet

Jurisdictional Control

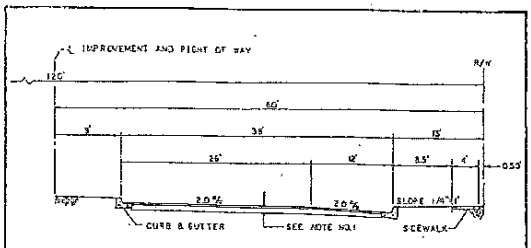
Private Unincorporated Lands

- Bureau of Land Management
- National Parks and Monuments, National Forests and Wildlife Refuges
- Military Reservations (Includes U.S. Army, Navy, Air Force, and Army, Corps of Engineers)
- State, County, and Municipal Lands
- Indian Lands and Reservations
- Unclassed Water Body
- Incorporated Cities

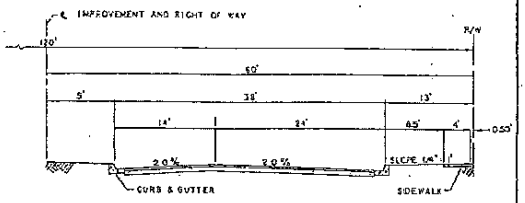
URBAN CROSSROADS

EXHIBIT 3-G

SAN BERNARDINO COUNTY GENERAL PLAN ROADWAY CROSS-SECTIONS (PAGE 1 OF 2)



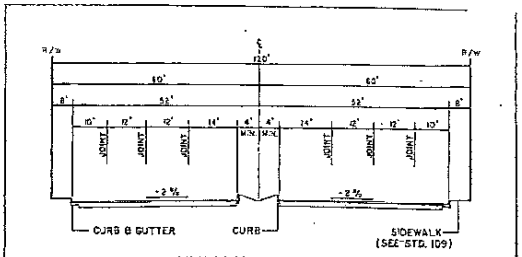
TYPICAL HALF SECTION



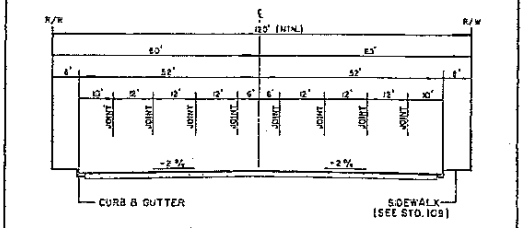
TYPICAL HALF SECTION

NOTES:
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE R/W LINE SHALL REQUIRE SLOPE EASEMENTS.

SAN BERNARDINO COUNTY ROAD DEPARTMENT			
SUPERVISOR'S APPROVAL DATE: 6-8-82	KEN A. MILLER Director of Transportation	MAJOR DIVIDED HIGHWAY	100



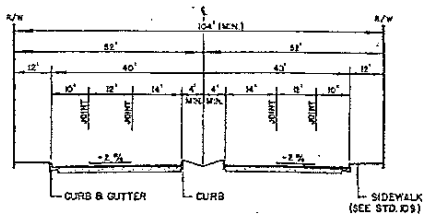
TYPICAL SECTION
WITH RAISED MEDIAN



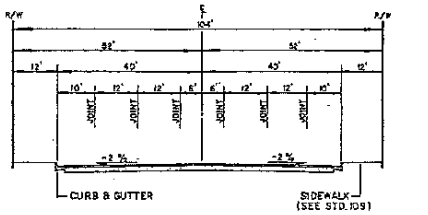
TYPICAL SECTION
WITH CONTINUOUS LEFT TURN LANE

NOTES:
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS.
3. 10' SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY.

SAN BERNARDINO COUNTY TRANSPORTATION DEPARTMENT			
DATE: JAN 1977	JOHN R. SHONE DIRECTOR OF TRANSPORTATION	MAJOR ARTERIAL	100 A



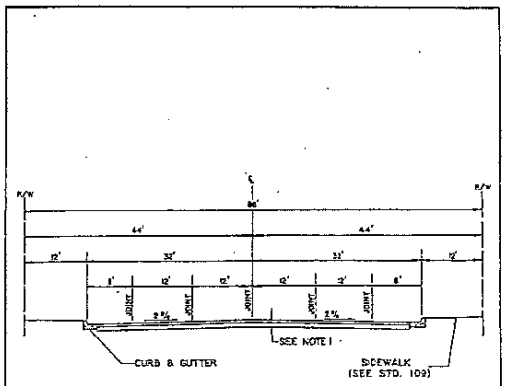
TYPICAL SECTION
WITH RAISED MEDIAN



TYPICAL SECTION
WITH CONTINUOUS LEFT TURN LANE

NOTES:
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS.
3. 10' SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY.

SAN BERNARDINO COUNTY TRANSPORTATION DEPARTMENT			
DATE: JAN 1977	JOHN R. SHONE DIRECTOR OF TRANSPORTATION	MAJOR HIGHWAY	101



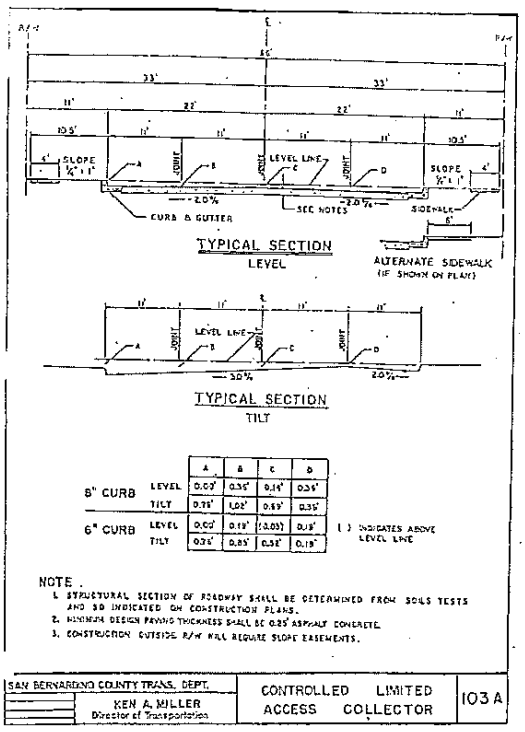
TYPICAL SECTION

NOTES:
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. 8' SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY.

SAN BERNARDINO COUNTY TRANSPORTATION DEPARTMENT			
DATE: DEC 1977	JOHN R. SHONE DIRECTOR OF TRANSPORTATION	SECONDARY HIGHWAY	102

EXHIBIT 3-G

SAN BERNARDINO COUNTY GENERAL PLAN ROADWAY CROSS-SECTIONS (PAGE 2 OF 2)



TYPICAL SECTION
LEVEL

ALTERNATE SIDEWALK
(IF SHOWN ON PLAN)

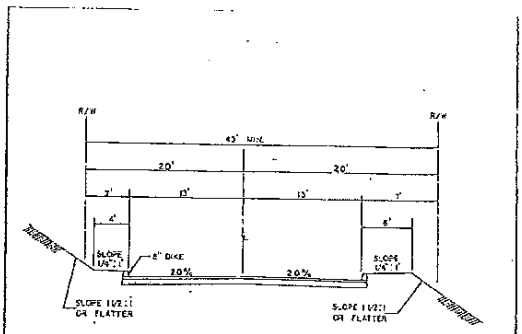
TYPICAL SECTION
TILT

		A	B	C	D
8" CURB	LEVEL	0.00'	0.35'	0.14'	0.35'
	TILT	0.78'	1.02'	0.69'	0.35'
6" CURB	LEVEL	0.00'	0.19'	(0.03)	0.19'
	TILT	0.76'	0.85'	0.52'	0.19'

( ) INDICATES ABOVE LEVEL LINE

NOTE .
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. MINIMUM DESIGN PAVING THICKNESS SHALL BE 0.25' ASPHALT CONCRETE.
3. CONSTRUCTION OUTSIDE R/W WILL REQUIRE SLOPE EASEMENTS.

SAN BERNARDINO COUNTY TRANS. DEPT.	CONTROLLED LIMITED ACCESS COLLECTOR	103 A
KEN A. MILLER Director of Transportation		



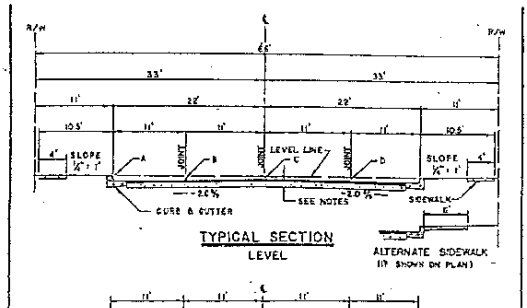
TYPICAL SECTION
MOUNTAIN AREAS

NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE R/W LINE SHALL REQUIRE SLOPE EASEMENTS.
3. SLOPE REQUIREMENT MAY BE VARIED BY SUBMISSION OF SOILS REPORT.

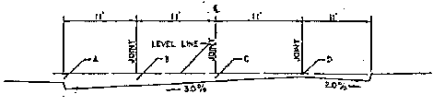
SAN BERNARDINO COUNTY ROAD DEPARTMENT	MOUNTAIN LOCAL PAVED ROAD	114b
KEN A. MILLER Director of Transportation		

3-11



TYPICAL SECTION
LEVEL

ALTERNATE SIDEWALK
(IF SHOWN ON PLAN)



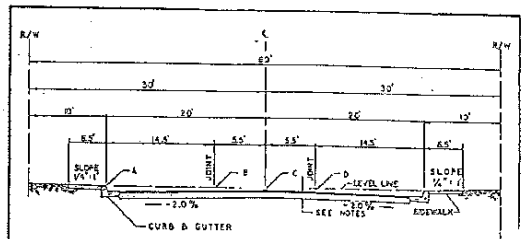
TYPICAL SECTION
TILT

		A	B	C	D
8" CURB	LEVEL	0.00'	0.35'	0.14'	0.35'
	TILT	0.75'	1.02'	0.69'	0.35'
6" CURB	LEVEL	0.00'	0.19'	(0.03)	0.19'
	TILT	0.76'	0.85'	0.52'	0.19'

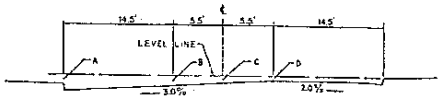
( ) INDICATES ABOVE LEVEL LINE

NOTE
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. MINIMUM DESIGN PAVING THICKNESS SHALL BE 0.25' ASPHALT CONCRETE.
3. CONSTRUCTION OUTSIDE R/W WILL REQUIRE SLOPE EASEMENTS.

SAN BERNARDINO COUNTY ROAD DEPARTMENT	COLLECTOR STREET	103
John R. Shoaf COUNTY HIGHWAY ENGINEER		



TYPICAL SECTION
LEVEL



TYPICAL SECTION
TILT

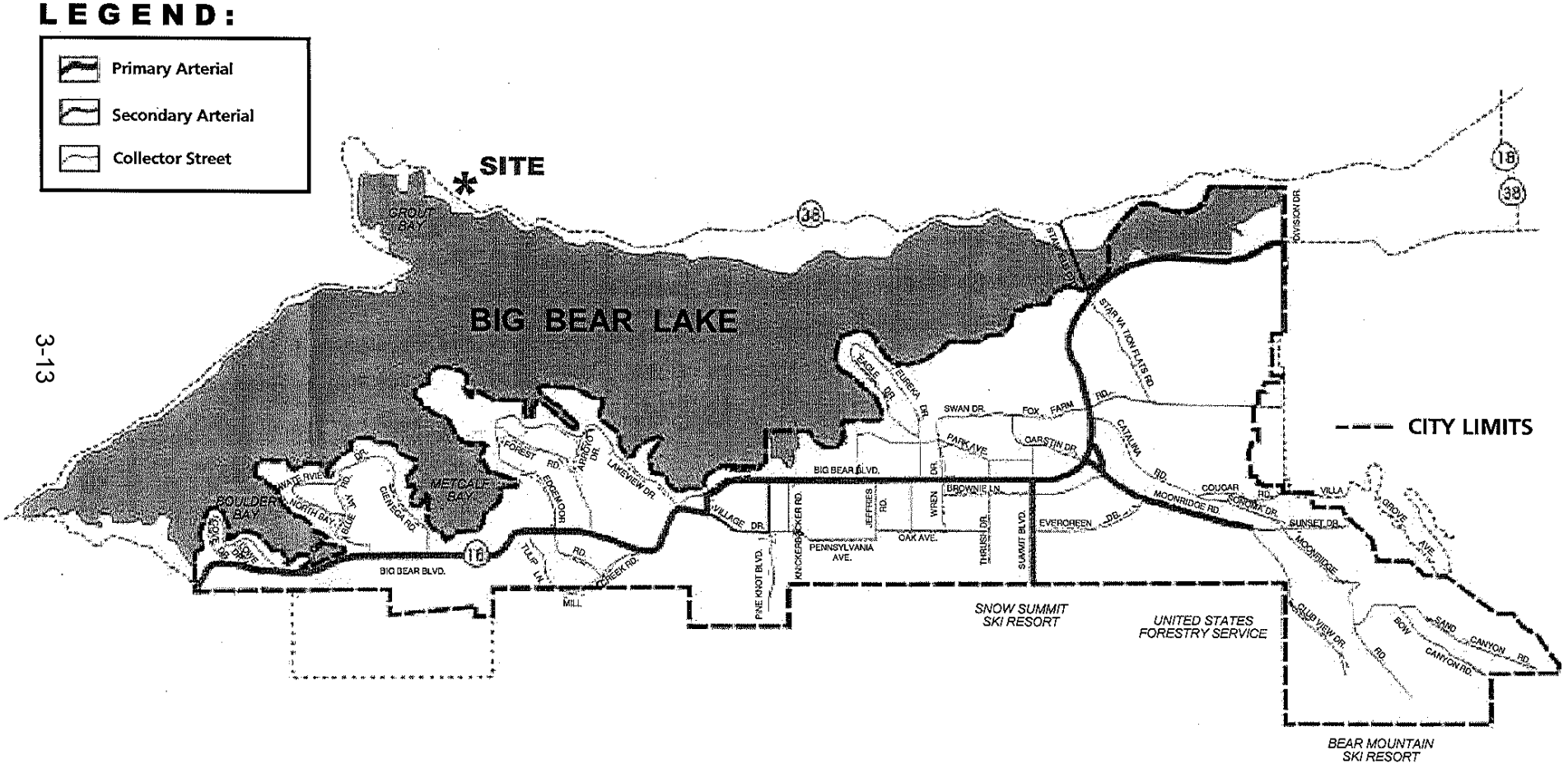
		A	B	C	D
8" CURB	LEVEL	0.00'	0.23'	0.18'	0.29'
	TILT	0.46'	0.42'	0.46'	0.23'
6" CURB	LEVEL	0.00	0.12'	0.01'	0.22'
	TILT	0.46'	0.45'	0.23'	0.12'

NOTE
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. MINIMUM DESIGN PAVING THICKNESS SHALL BE 0.25' ASPHALT CONCRETE.
3. CONSTRUCTION OUTSIDE R/W WILL REQUIRE SLOPE EASEMENTS.
4. WHEN PREPARING SUBGRADE FOR PAVING, CENTERLINE CROWN ON THE "LEVEL SECTION" SHALL BE RELOCATED EITHER LEFT OR RIGHT 0.50' TO MATCH CROWN BREAK A PAVING MACHINE

SAN BERNARDINO COUNTY TRANS. DEPT.	LOCAL STREET	104 A
KEN A. MILLER Director of Transportation		

EXHIBIT 3-H

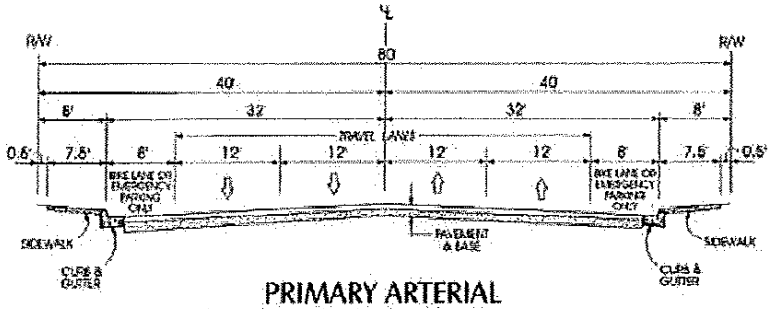
CITY OF BIG BEAR LAKE
GENERAL PLAN CIRCULATION ELEMENT



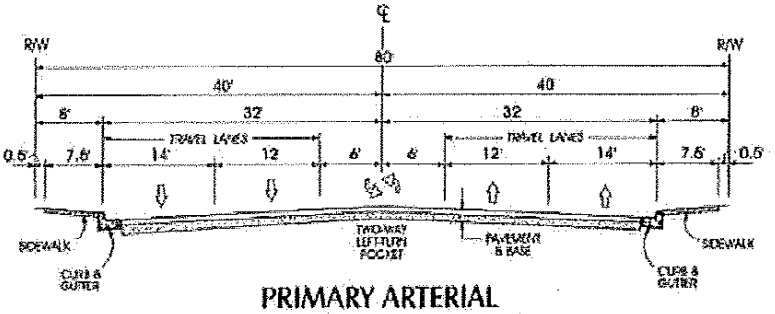
URBAN CROSSROADS

EXHIBIT 3-I

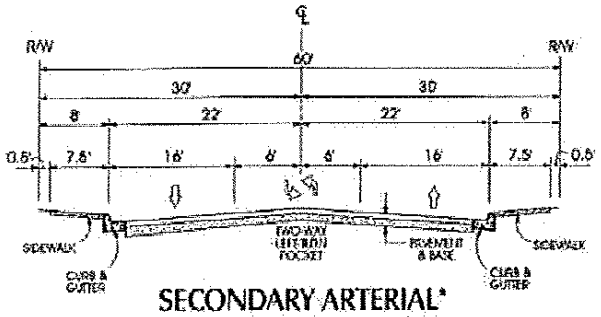
CITY OF BIG BEAR LAKE
GENERAL PLAN ROADWAY CROSS-SECTIONS
(PAGE 1 OF 2)



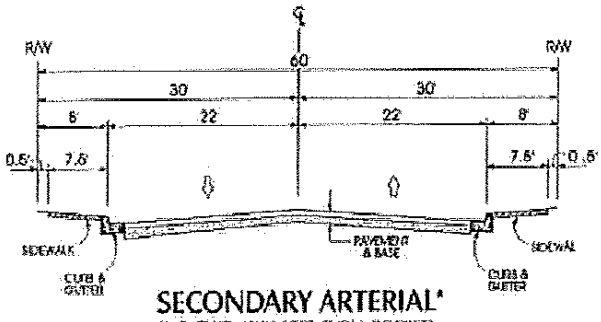
PRIMARY ARTERIAL
(WITH BIKE LANES OR EMERGENCY PARKING)
TYPICAL SECTION



PRIMARY ARTERIAL
(WITH TWO-WAY LEFT-TURN POCKET)
TYPICAL SECTION



SECONDARY ARTERIAL*
(WITH TWO-WAY LEFT-TURN POCKET)
TYPICAL SECTION

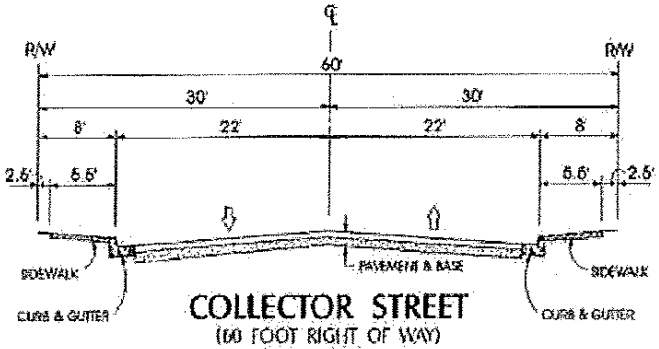


SECONDARY ARTERIAL*
(NO TWO-WAY LEFT-TURN POCKET)
TYPICAL SECTION

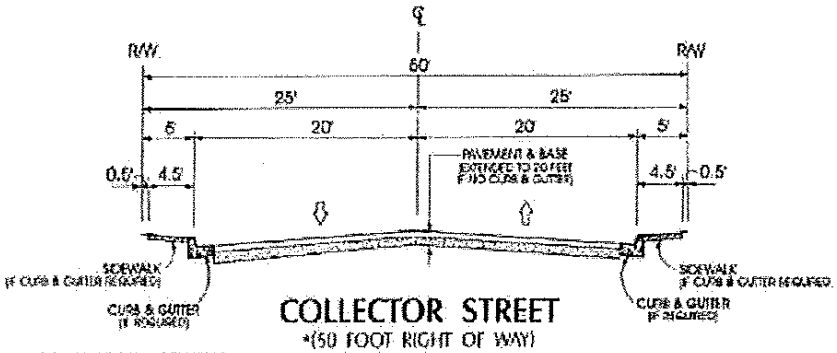
*THESE CROSS SECTIONS MAY BE MODIFIED BASED UPON ADOPTED SPECIFIC PLANS OR EXISTING CONDITIONS

EXHIBIT 3-I

CITY OF BIG BEAR LAKE
GENERAL PLAN ROADWAY CROSS-SECTIONS
(PAGE 2 OF 2)

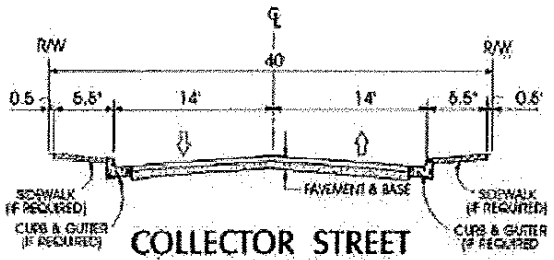


COLLECTOR STREET
(60 FOOT RIGHT OF WAY)
TYPICAL SECTION

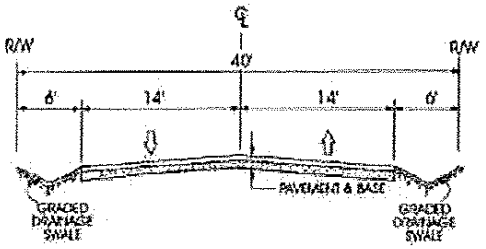


COLLECTOR STREET
*(50 FOOT RIGHT OF WAY)
TYPICAL SECTION

*ACCEPTABLE ONLY IF EXISTING DEVELOPMENT PRECLUDES A 60 FOOT RIGHT OF WAY.



COLLECTOR STREET
*(40 FOOT RIGHT OF WAY)
TYPICAL SECTION



COLLECTOR STREET
with no curb and gutter
*(40 FOOT RIGHT OF WAY)
TYPICAL SECTION

*ACCEPTABLE ONLY IF EXISTING DEVELOPMENT PRECLUDES A 60 FOOT RIGHT OF WAY.

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4.0 FUTURE DAILY TRAFFIC CONDITIONS

This chapter of the report describes the development of the future year traffic volume forecasts and presents the resulting daily traffic volumes which will be used for traffic operations analysis. Future traffic conditions without the project are presented first, followed by the future with project traffic volumes. Traffic signal warrant analysis for future conditions has also been presented in this chapter.

4.1 Future With and Without Project Traffic Conditions

Per discussion with County staff, the areawide growth has been interpolated from adjusted existing volumes (with 16% growth) to General Plan Buildout (2030) volumes. The areawide growth varies for each movement at each intersection (see Appendix "D"). The interpolated area-wide growth rate has been added to peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the project and other development.

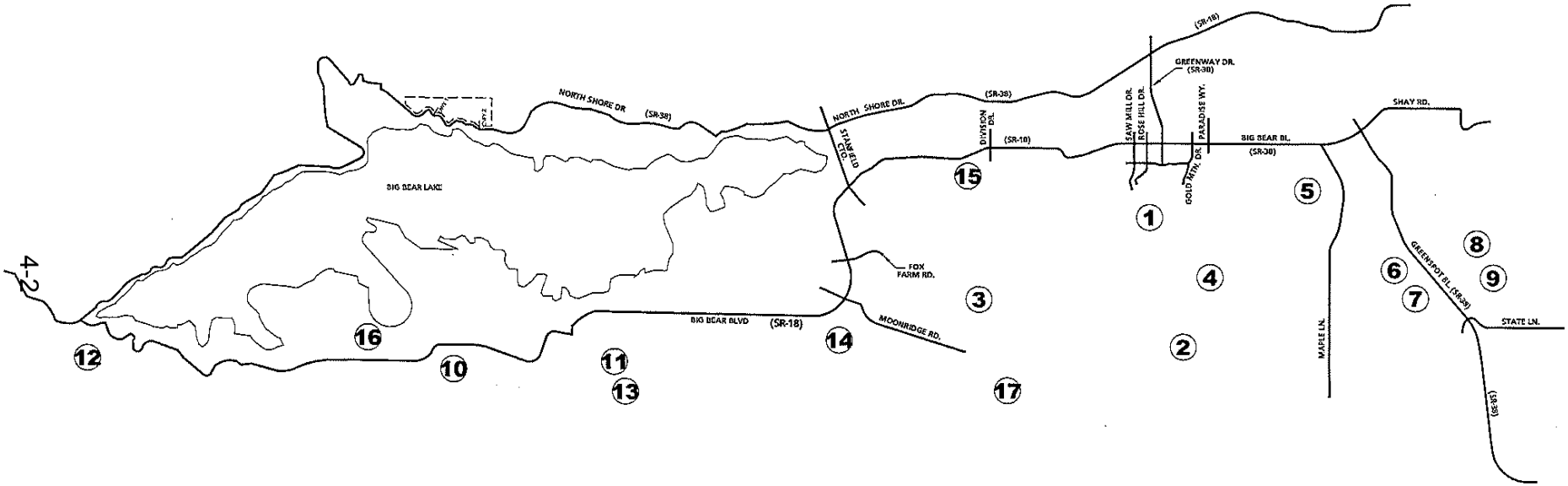
Long Range General Plan Buildout (2030) conditions have been estimated based on a select zone run of the San Bernardino Mountain Model, in addition to traffic generated by the project and the known cumulative development.

The County of San Bernardino was contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on information given by the County of San Bernardino and City of Big Bear staff, a total of 17 cumulative projects were identified to affect the study intersections. The location of each of these other developments is shown on Exhibit 4-A.

As indicated in Table 4-1, other developments are projected to generate 15,111 trip-ends per day with 1,455 vehicles per hour during the AM peak hour and 1,455 vehicles per hour during the PM peak hour. Appendix "D" contains the

EXHIBIT 4-A

OTHER DEVELOPMENT LOCATION MAP



LEGEND:

1. = TT 16771
2. = TT 16934
3. = TT 17217 & TPM 17022
4. = TT 16036
5. = TT 14916
6. = TT 16980
7. = TT 17764
8. = TT 16749
9. = TT 17201
10. = HILTON GARDEN INN
11. = MIXED USE DEVELOPMENT
12. = RESIDENTIAL LOTS
13. = CONDOMINIUMS
14. = 41820 BIG BEAR BLVD
15. = WORLD HARVEST FAITH CENTER
16. = BOAT PARTS RETAIL & SERVICE
17. = STORAGE YARD

N

TABLE 4-1
FRIDAY PM PEAK HOUR/SUNDAY MIDDAY PEAK HOUR

OTHER DEVELOPMENT TRIP GENERATION

ID #	PROJECT NAME	LAND USE[1]	QUANTITY	UNITS[2]	PEAK HOUR						DAILY
					FRIDAY PM			SUNDAY MIDDAY			
					IN	OUT	TOTAL	IN	OUT	TOTAL	
SAN BERNARDINO COUNTY											
1	TT 16771 [3]	SFR	242	DU	155	90	245	155	90	245	2,316
2	TT 16934 [4]	SFR	228	DU	146	84	230	146	84	230	2,182
3	TT 17217 & TT 17022 [4]	SFR	53	DU	34	20	54	34	20	54	507
4	TT 16036	SFR	116	DU	74	43	117	74	43	117	1,110
5	TT 14916	SFR	51	DU	33	19	52	33	19	52	488
6	TT 16980	SFR	15	DU	10	6	16	10	6	16	144
7	TT 1776H	SFR	10	DU	6	4	10	6	4	10	96
8	TT 16749	SFR	86	DU	55	32	87	55	32	87	823
9	TT 17201	SFR	66	DU	42	24	66	42	24	66	632
	TOTAL (COUNTY OF SAN BERNARDINO)				555	322	877	555	322	877	8,298
CITY OF BIG BEAR											
10	Hilton Garden Inn	Hotel	91	ROOMS	28	25	53	28	25	53	743
11	Mixed Use Development	Retail	22.5	TSF	112	122	234	112	122	234	2,575
		Less Pass-By (15%)			-17	-18	-35	-17	-18	-35	-386
		Subtotal Commercial			95	104	199	95	104	199	2,189
		Office	6.3	TSF	1	5	6	1	5	6	69
		SFR	10	DU	6	4	10	6	4	10	96
	Sub-Total				102	113	215	102	113	215	2,354
12	Residential Lots	SFR	8	DU	5	3	8	5	3	8	77
13	Condominiums	MFDU	78	DU	27	13	40	27	13	40	457
14	41820 Big Bear Blvd.	Hotel	55	ROOMS	17	15	32	17	15	32	449
		Retail	10	TSF	66	71	137	66	71	137	1,520
		Fast-Food	2.5	TSF	45	42	87	45	42	87	1,240
		Less Pass-By (15%)			-17	-17	-34	-17	-17	-34	-414
		Subtotal Commercial			94	96	190	94	96	190	2,346
	Sub-Total				111	111	222	111	111	222	2,795
15	World Harvest Faith Center	Church	20	TSF	7	6	13	7	6	13	182
16	Boat Parts Retail & Service	Auto Care Center	4.375	TSF	7	7	14	7	7	14	88
17	Storage Yard	Mini Warehouse	3	AC	6	6	12	6	6	12	117
	TOTAL (CITY OF BIG BEAR)				294	284	578	294	284	578	6,813
	TOTAL				**849**	**606**	**1,455**	**849**	**606**	**1,455**	**15,111**

[1] SFR = Single Family Residential
[2] DU = Dwelling Unit
TSF= Thousand Square Feet
AC = Acres

[3] Source: TT 16771 Traffic Impact Analysis, County of San Bernardino, Urban Crossroads, Inc. July 2006

[4] Source: TT 17217 and TT 17022 Traffic Impact Analysis, County of San Bernardino, Urban Crossroads, Inc. July 2006

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directional distribution and assignment of the other development traffic. Based on the identified trip distribution for the other development on arterial highways throughout the study area, other development average daily traffic (ADT) and Friday PM/Sunday Mid-day peak hour intersection turning movement volumes (based on PM peak hour trip generation) are shown on Exhibits 4-B and 4-C, respectively.

Project traffic volumes on study area roadway segments are determined by generating project trips and manually routing the traffic through the roadway network. The routing patterns follow the trip distributions which were previously presented in Section 2. Trips are assigned to each individual roadway link and intersection occurring along a specific route.

The accumulation of traffic assigned to each roadway link represents the project traffic volume for that link. Project only ADT volumes were previously presented in Section 2.

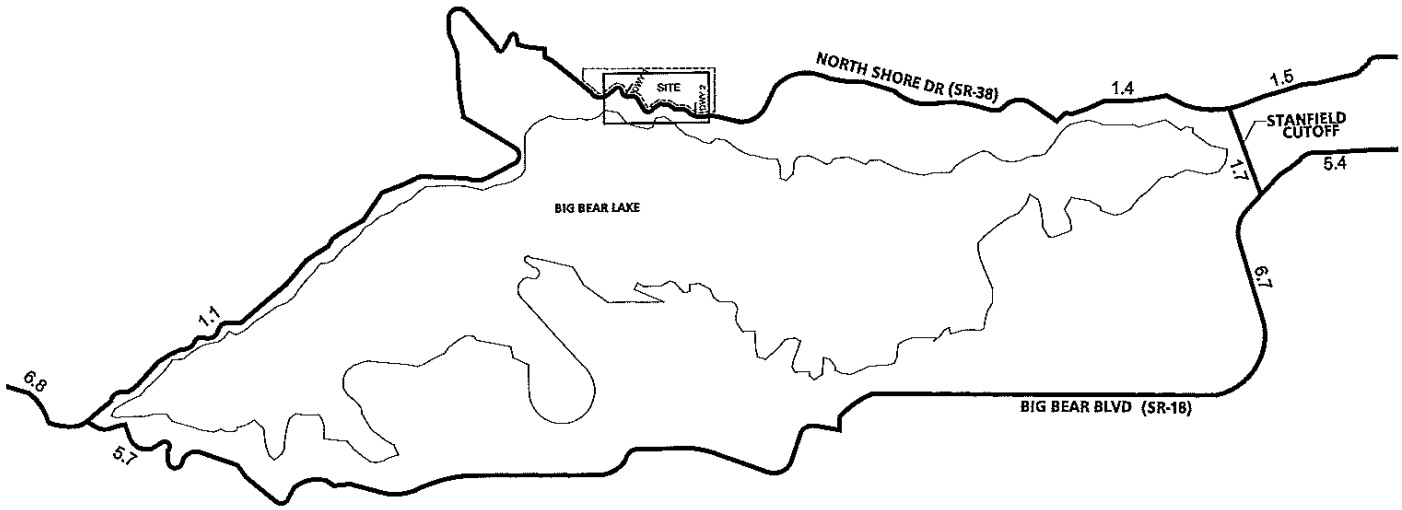
4.1.1 2010 Without Project Daily Traffic Volumes

The ADT's for 2010 Without Project traffic conditions have been determined by adding the 2007 existing traffic volumes (with 16% adjustment) plus the 2% background growth volumes per year (6% for three years) plus the known cumulative development volumes. 2010 Friday ADT and Sunday ADT volumes for without project traffic conditions are shown on Exhibit 4-D and 4-E, respectively.

For 2010 Without Project traffic conditions, no new traffic signals are projected to be warranted (see Appendix "C"), compared to Existing Conditions.

EXHIBIT 4-B

OTHER DEVELOPMENT AVERAGE DAILY TRAFFIC



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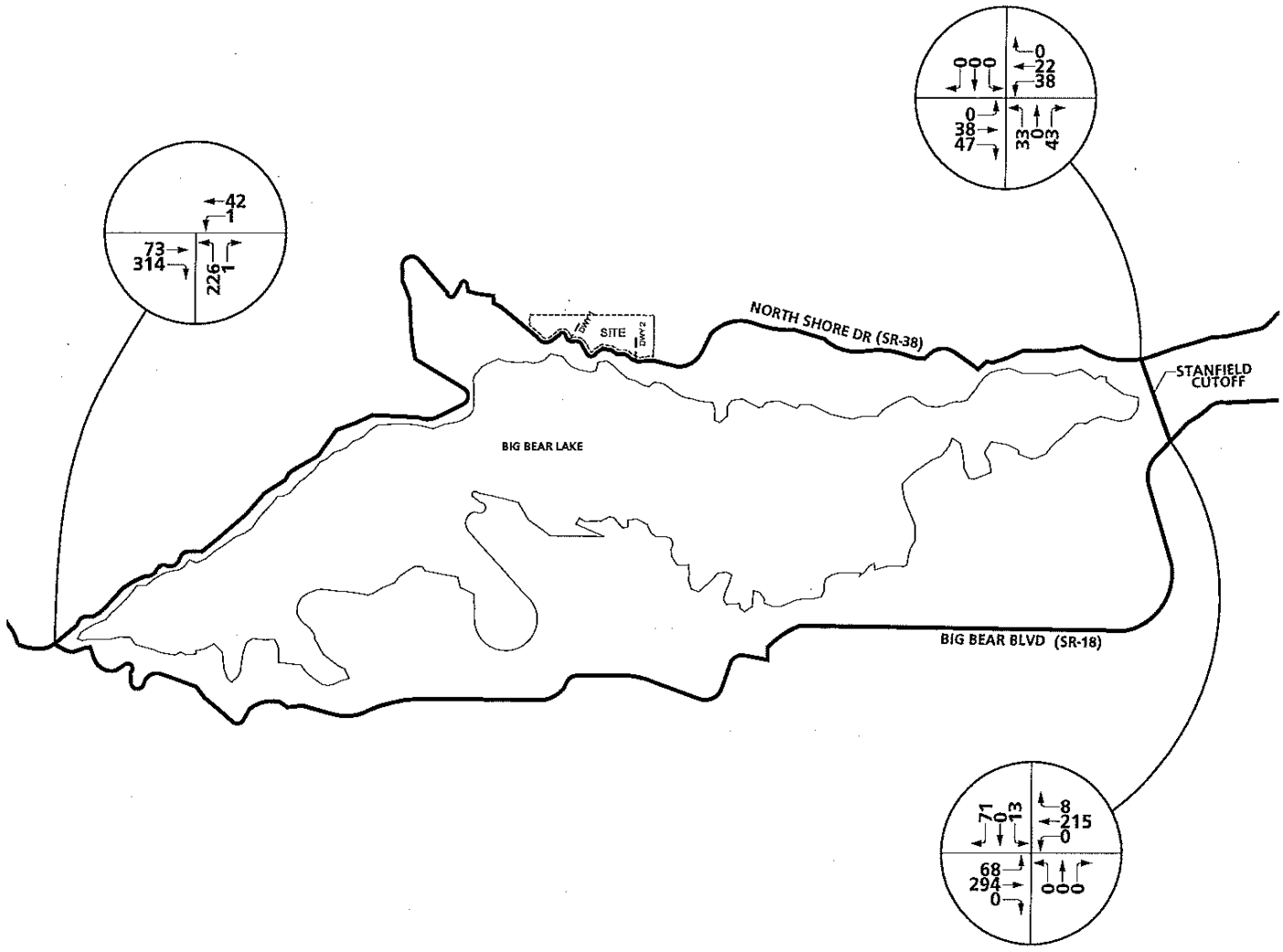
URBAN CROSSROADS

EXHIBIT 4-C

OTHER DEVELOPMENT FRIDAY PM PEAK HOUR/ SUNDAY MIDDAY PEAK HOUR INSTERSECTION VOLUMES



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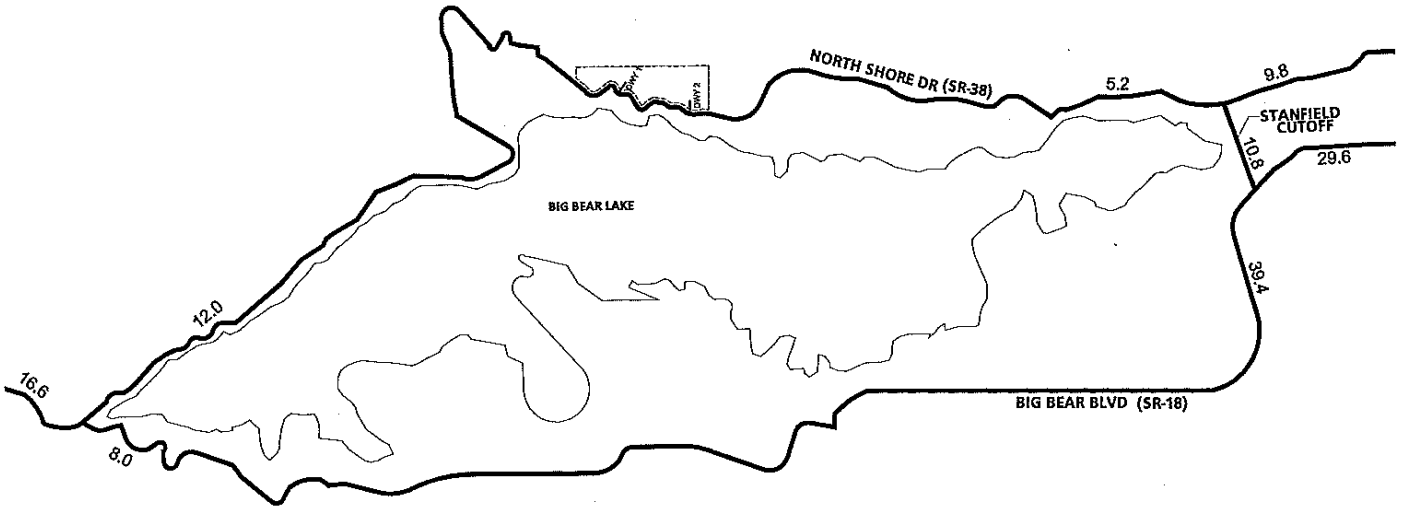
URBAN CROSSROADS

EXHIBIT 4-D

2010 WITHOUT PROJECT FRIDAY AVERAGE DAILY TRAFFIC



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

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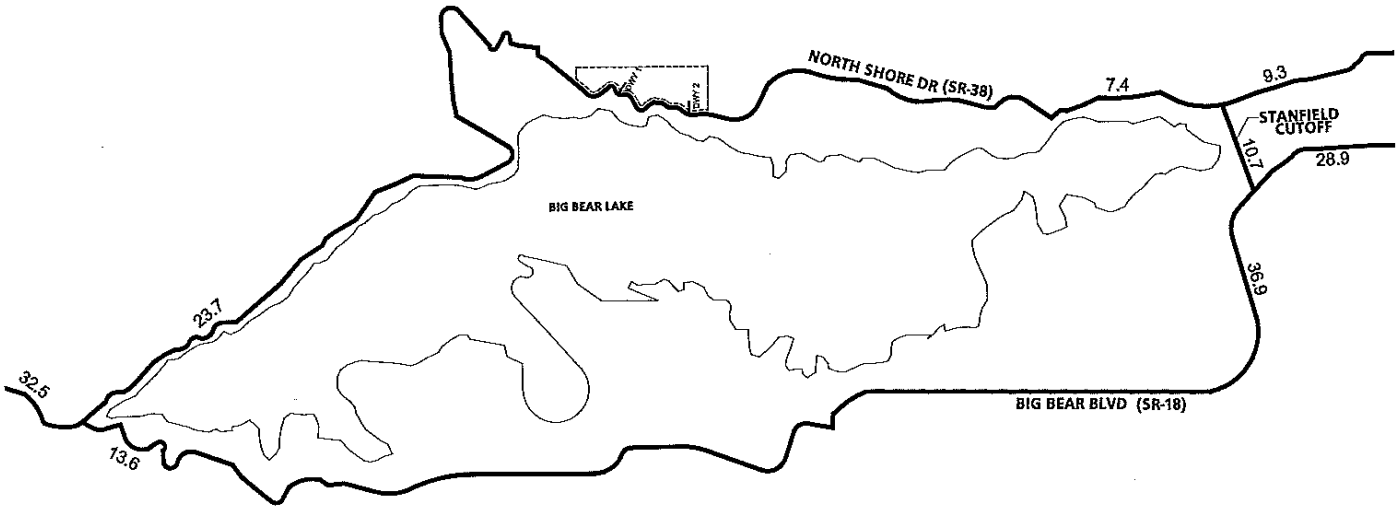
URBAN CROSSROADS

EXHIBIT 4-E

2010 WITHOUT PROJECT SUNDAY AVERAGE DAILY TRAFFIC



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

N

URBAN CROSSROADS

4.1.2 2010 With Project Daily Traffic Volumes

The ADT's for the 2010 With Project have been determined by adding the project only traffic volumes to the 2010 Without Project traffic volumes. 2010 Friday and Sunday ADT volumes with the project traffic are shown on Exhibit 4-F and 4-G, respectively.

For 2010 With Project traffic conditions, no new traffic signals are projected to be warranted (see Appendix "C"), as compared to 2010 Without Project conditions.

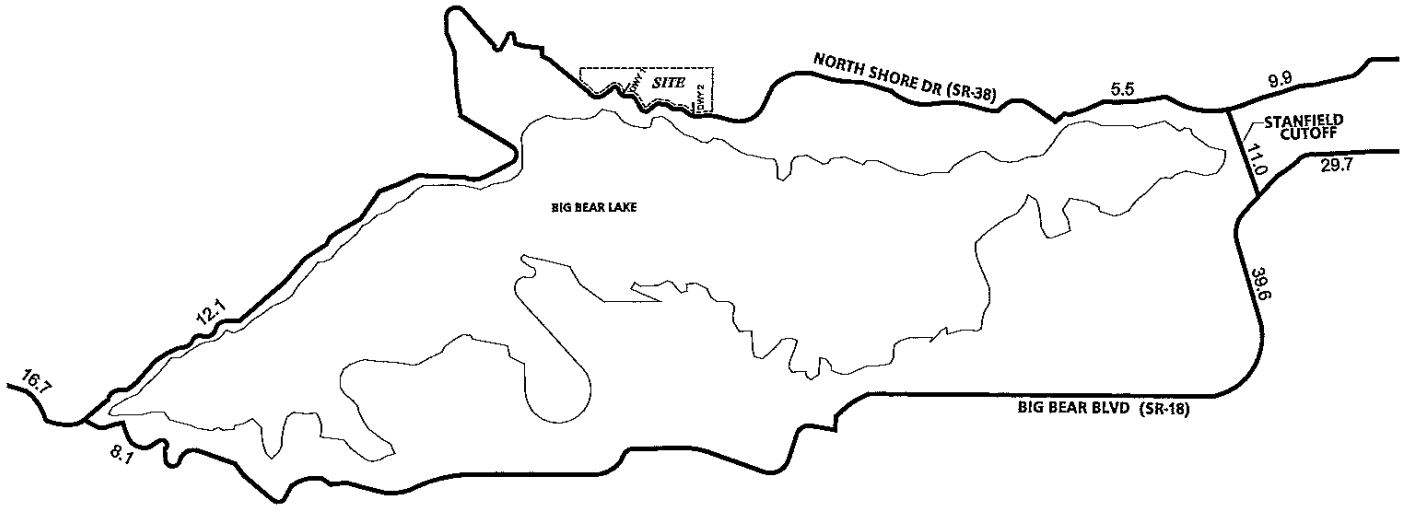
4.1.3 General Plan Buildout (2030) Daily Traffic Volumes

The ADT's for General Plan Buildout (2030) conditions have been determined by adding the project only and other cumulative development traffic volumes to the 2030 ADT volumes derived from the San Bernardino Mountain Model. General Plan Buildout Without Project (2030) Winter Friday and Sunday ADT volumes are shown on Exhibits 4-H and 4-I, respectively. Based on the San Bernardino Mountain Model for General Plan Buildout (2030), the peak season is shown to be winter. Therefore, the winter ADT results were used for post-processing peak hour turning volumes and level of service analysis to achieve a conservative analysis. General Plan Buildout With Project (2030) Winter Friday and Sunday ADT volumes are shown on Exhibits 4-J and 4-K, respectively.

For General Plan Buildout With Project (2030) traffic conditions, no new traffic signals are projected to be warranted (see Appendix "C") at study area analysis intersections.

EXHIBIT 4-F

2010 WITH PROJECT FRIDAY AVERAGE DAILY AVERAGE TRAFFIC



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

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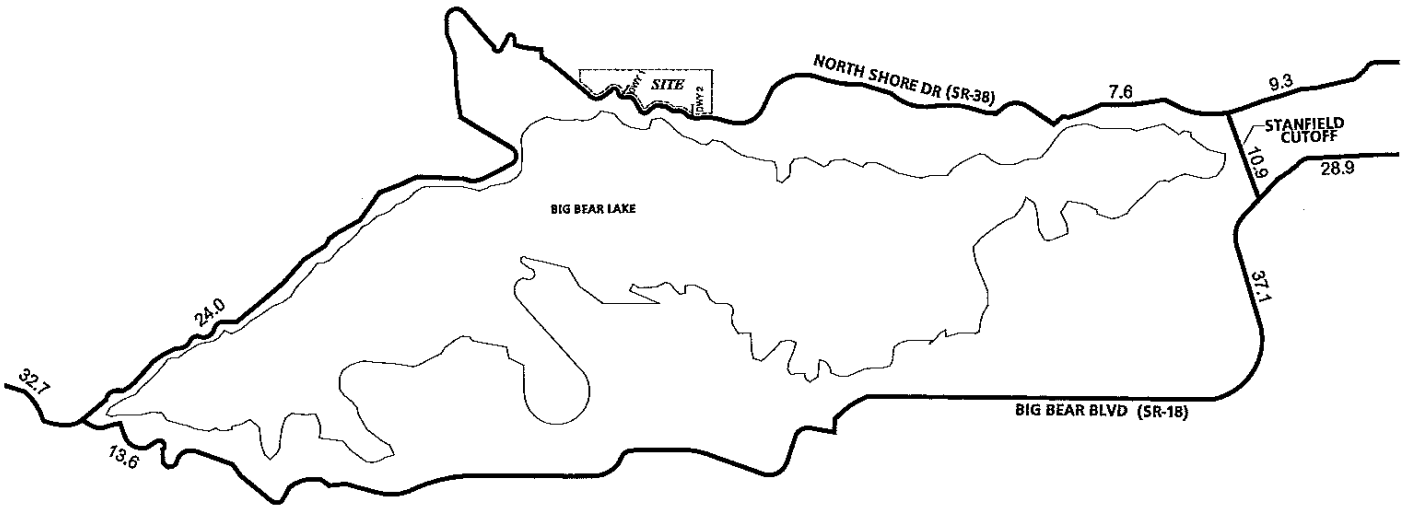
URBAN CROSSROADS

EXHIBIT 4-G

2010 WITH PROJECT SUNDAY AVERAGE DAILY TRAFFIC



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

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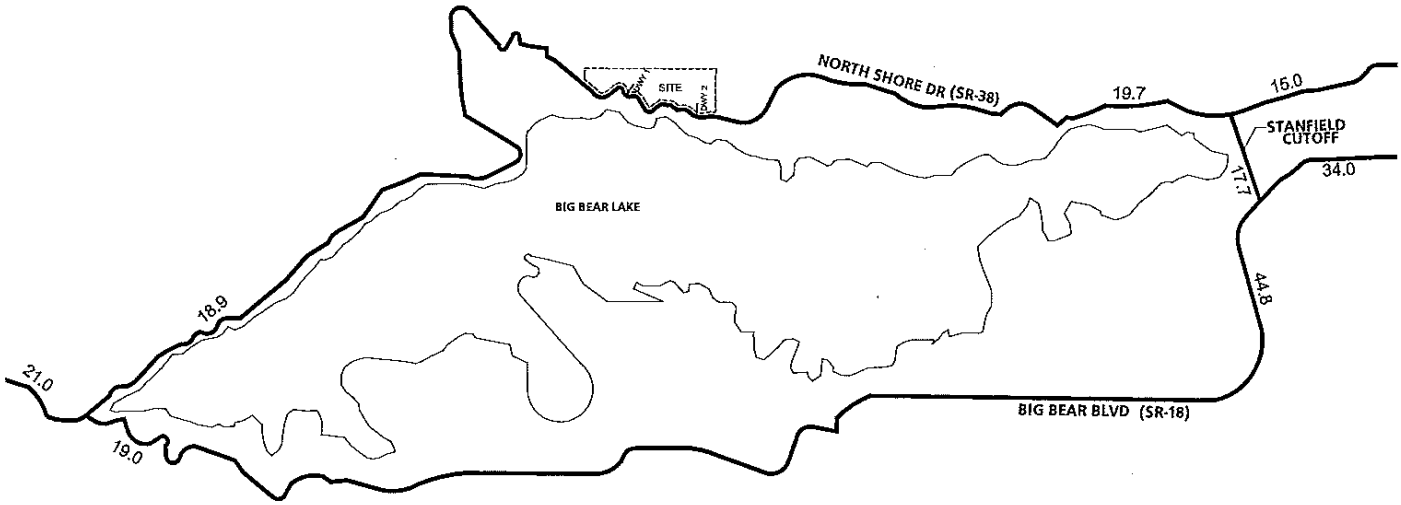
URBAN CROSSROADS

EXHIBIT 4-H

GENERAL PLAN BUILDOUT (2030) WINTER FRIDAY AVERAGE DAILY TRAFFIC



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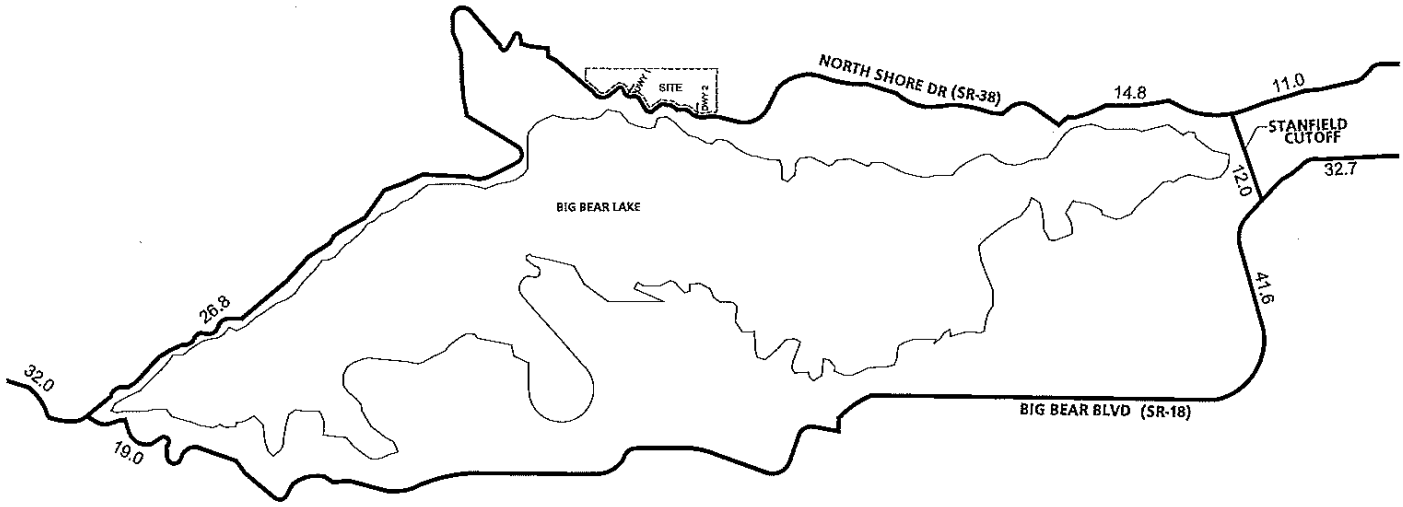
URBAN CROSSROADS

EXHIBIT 4-I

GENERAL PLAN BUILDOUT (2030) WINTER SUNDAY AVERAGE DAILY TRAFFIC (ADT)



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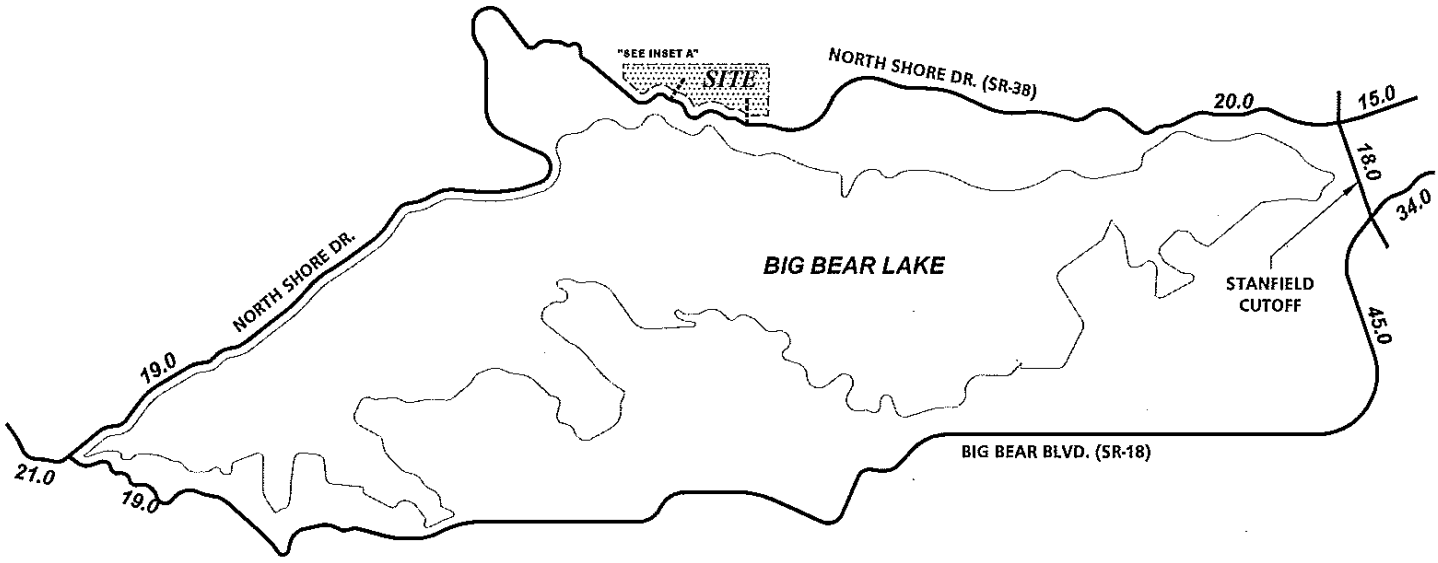
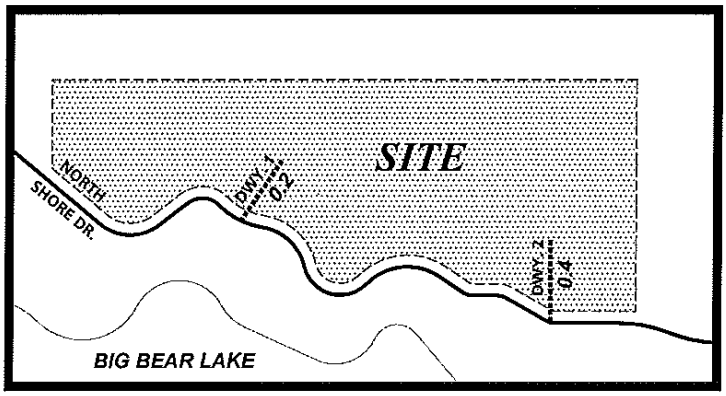
URBAN CROSSROADS

EXHIBIT 4-J

GENERAL PLAN BUILDOUT WITH PROJECT (2030) WINTER FRIDAY AVERAGE DAILY TRAFFIC



INSET A



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

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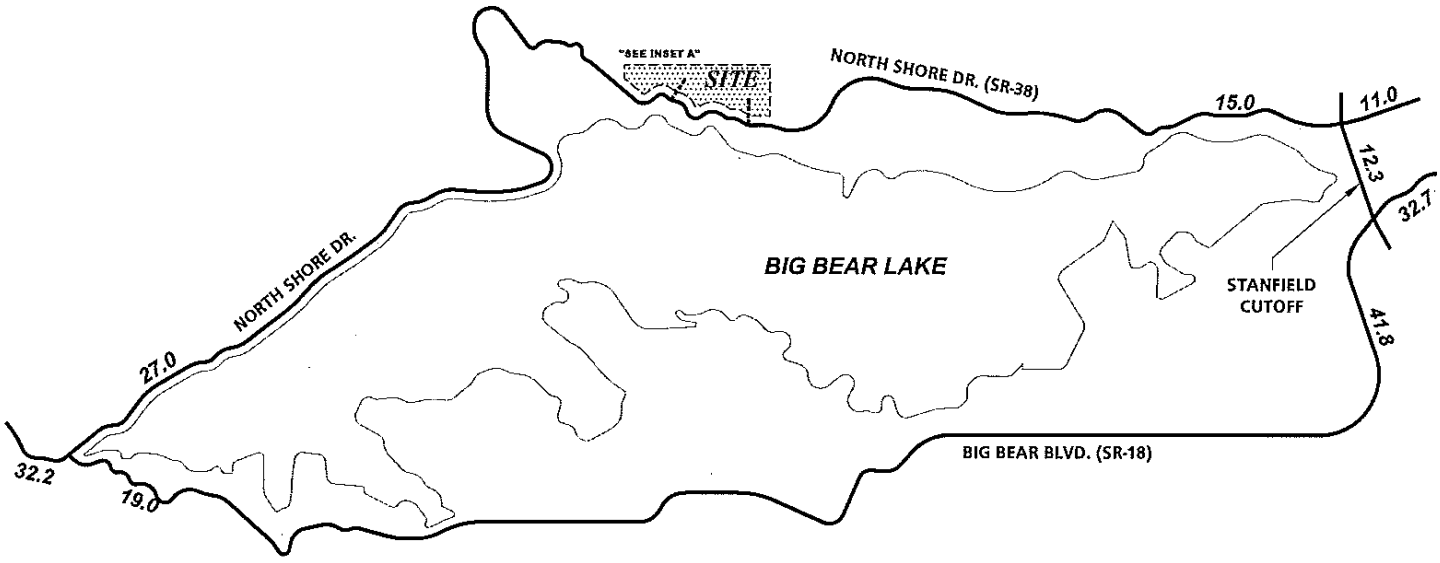
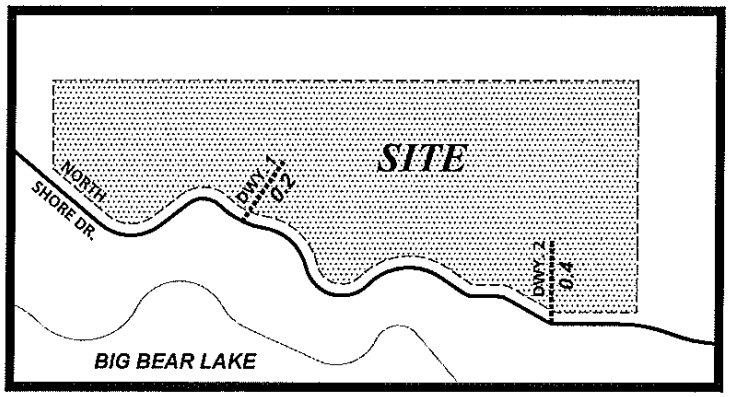
EXHIBIT 4-K

GENERAL PLAN BUILDOUT WITH PROJECT (2030) WINTER SUNDAY AVERAGE DAILY TRAFFIC



INSET A



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

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5.0 FUTURE TRAFFIC OPERATIONS ANALYSIS

This section of the report presents the operations analysis for the traffic volume forecasts for future traffic conditions without the project and for future traffic conditions with the project. The analysis procedures conform to the requirements of the County of San Bernardino CMP. The operations analysis for each analysis year is presented in a separate subsection.

5.1 Future Interim Year Traffic Operations

5.1.1 2010 Without Project Conditions

The intersection operations analysis for 2010 Without Project traffic conditions are summarized in Table 5-1, based on the geometrics analysis at the study area intersections, without and with improvements. 2010 Without Project Friday PM and Sunday Mid-day peak hour intersection turning movement volumes are shown on Exhibits 5-A and 5-B, respectively. As shown in Table 5-1, the following study area intersections are currently operating at an unacceptable level of service during both Friday PM and Sunday Mid-day peak hours:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

The operations analysis worksheets for 2010 Without Project conditions are included in Appendix "E".

TABLE 5-1

INTERSECTION ANALYSIS FOR 2010 WITHOUT PROJECT CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	Fri. PM	Sun. MD	Fri. PM	Sun. MD
North Shore Dr. (SR-38) (NS) at:																	
• Big Bear Blvd. (SR-18) (EW)																	
- Without Improvements	CSS	0	1	0	0	0	0	0	1	1	1	1	0	--[4]	--[4]	F	F
- With Improvements	**TS**	**1**	0	1	0	0	0	0	**2**	1	1	1	0	14.0	21.2	B	C
Stanfield Cutoff (NS) at:																	
• North Shore Dr. (SR-38) (EW)																	
- Without Improvements	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
- With Improvements	**TS**	**1**	1	0	**1**	1	0	**1**	1	0	**1**	1	0	31.9	30.7	C	C
• Big Bear Blvd. (SR-18) (EW)																	
- Without Improvements	TS	0	1	1	0	1	1	1	1	1	1	1	1	--[4]	--[4]	F	F
- With Improvements	TS	**1**	1	0	**1**	1	0	1	**2**	0	1	**2**	0	31.4	26.8	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R3 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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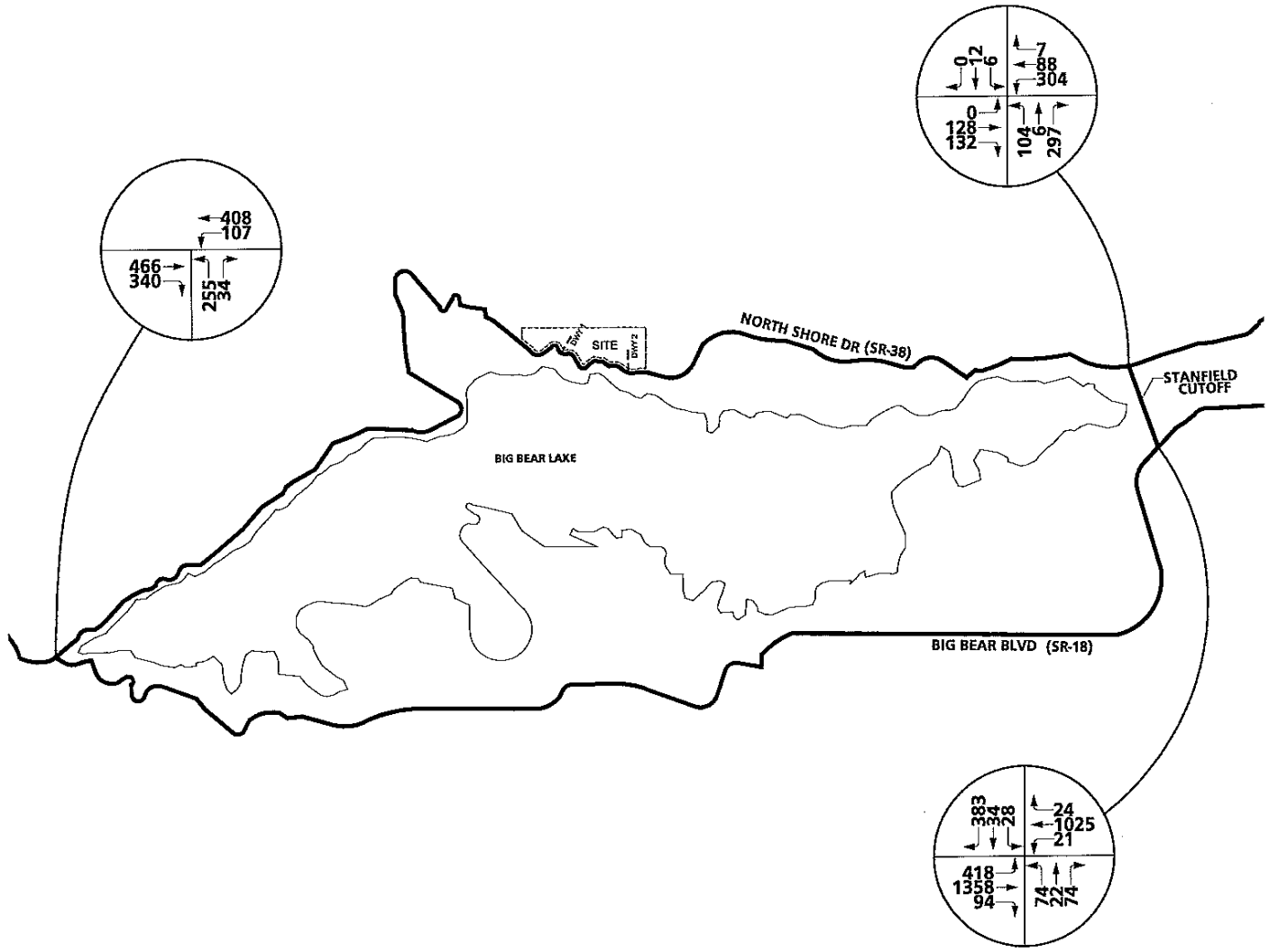
EXHIBIT 5-A

2010 WITHOUT PROJECT FRIDAY PM PEAK HOUR INTERSECTION VOLUMES



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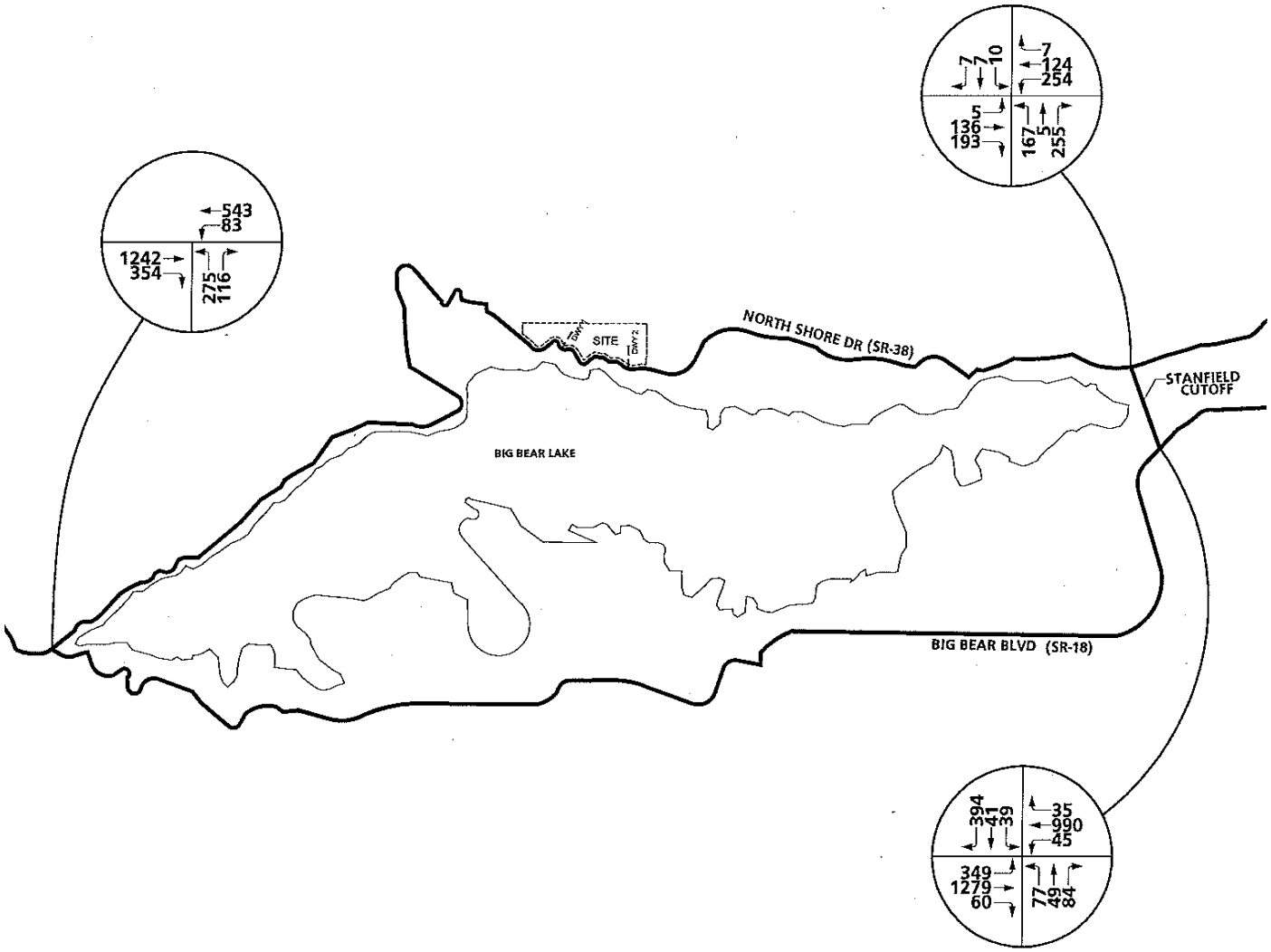
URBAN CROSSROADS

EXHIBIT 5-B

2010 WITHOUT PROJECT SUNDAY MID-DAY PEAK HOUR INTERSECTION VOLUMES



URBAN CROSSROADS

5.1.2 2010 With Project Conditions

The intersection operations analysis for 2010 With Project traffic conditions are summarized in Table 5-2, based on the geometrics analysis at the study area intersections, without and with improvements. 2010 With Project Friday PM and Sunday Mid-day peak hour intersection turning movement volumes are shown on Exhibits 5-C and 5-D, respectively. As shown in Table 5-2, the following study area intersections are currently operating at an unacceptable level of service during both Friday PM and Sunday Mid-day peak hours:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

The operations analysis worksheets for 2010 With Project conditions are included in Appendix "F".

5.2 General Plan Buildout With Project (2030) Traffic Operations

The intersection operations analysis for General Plan Buildout With Project (2030) traffic conditions are summarized in Table 5-3, based on the geometrics analysis at the study area intersections, without and with improvements. General Plan Buildout With Project (2030) Friday PM and Sunday Mid-day peak hour intersection turning movement volumes are shown on Exhibits 5-E and 5-F, respectively. The General Plan Buildout post-processed volumes worksheets are provided in Appendix "G". As shown in Table 5-3, the following study area intersections are currently operating at an unacceptable level of service during both Friday PM and Sunday Mid-day peak hours:

TABLE 5-2

INTERSECTION ANALYSIS FOR 2010 WITH PROJECT CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	Fri. PM	Sun. MD	Fri. PM	Sun. MD
North Shore Dr. (SR-38) (NS) at:																	
• Big Bear Blvd. (SR-18) (EW)																	
- Without Improvements	CSS	0	1	0	0	0	0	0	1	1	1	1	0	--[4]	--[4]	F	F
- With Improvements	TS	1	0	1	0	0	0	0	2	1	1	1	0	14.0	22.1	B	C
Stanfield Cutoff (NS) at:																	
• North Shore Dr. (SR-38) (EW)																	
- Without Improvements	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
- With Improvements	TS	1	1	0	1	1	0	1	1	0	1	1	0	32.4	31.5	C	C
• Big Bear Blvd. (SR-18) (EW)																	
- Without Improvements	TS	0	1	1	0	1	1	1	1	1	1	1	1	--[4]	--[4]	F	F
- With Improvements	TS	1	1	0	1	1	0	1	2	0	1	2	0	32.5	27.6	C	C
Driveway # 1 (NS) at:																	
• North Shore Dr. (SR-38) (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	11.1	12.0	B	B
Driveway # 2 (NS) at:																	
• North Shore Dr. (SR-38) (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	11.2	12.1	B	B

---

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1 = Improvement

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R3 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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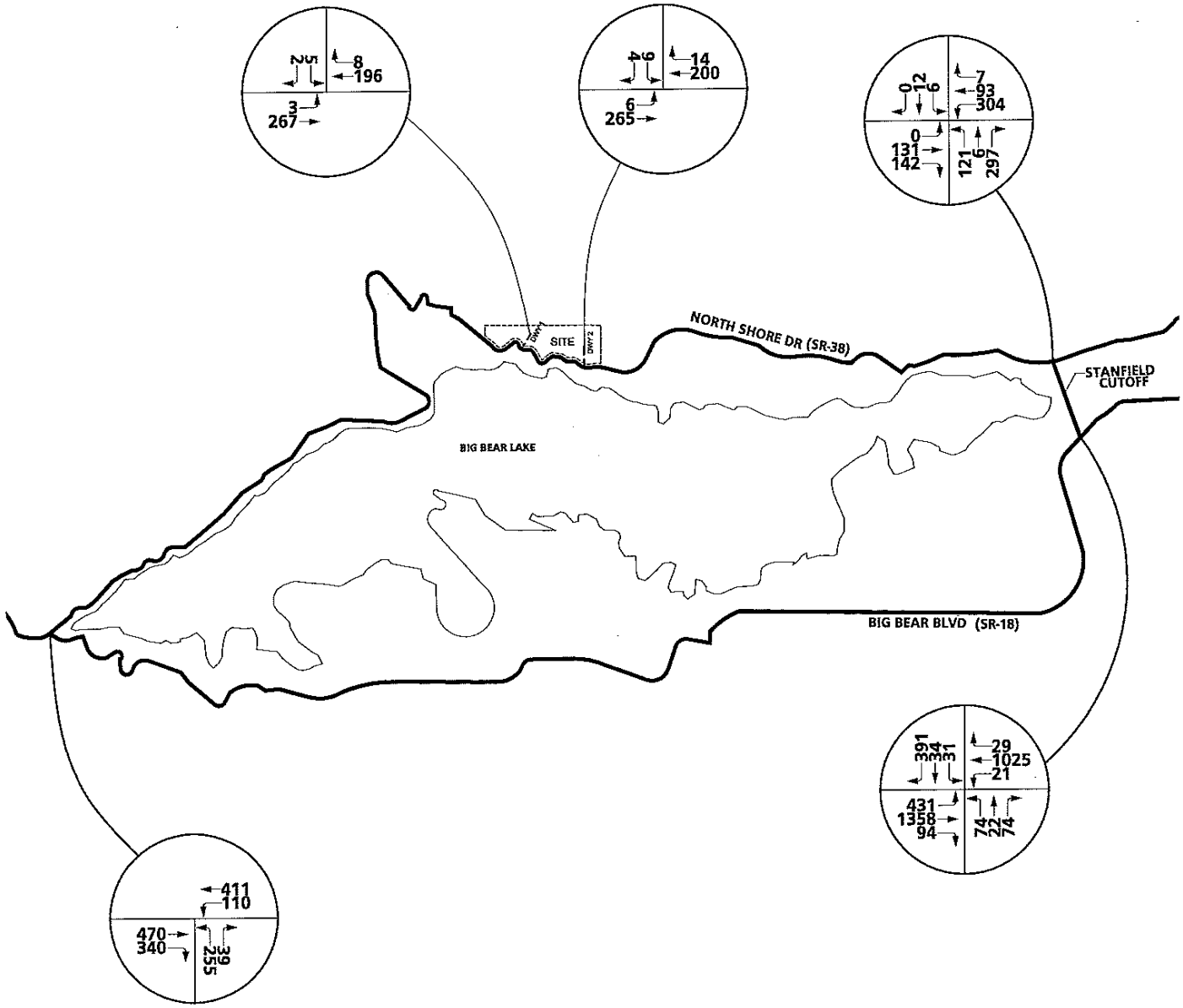
EXHIBIT 5-C

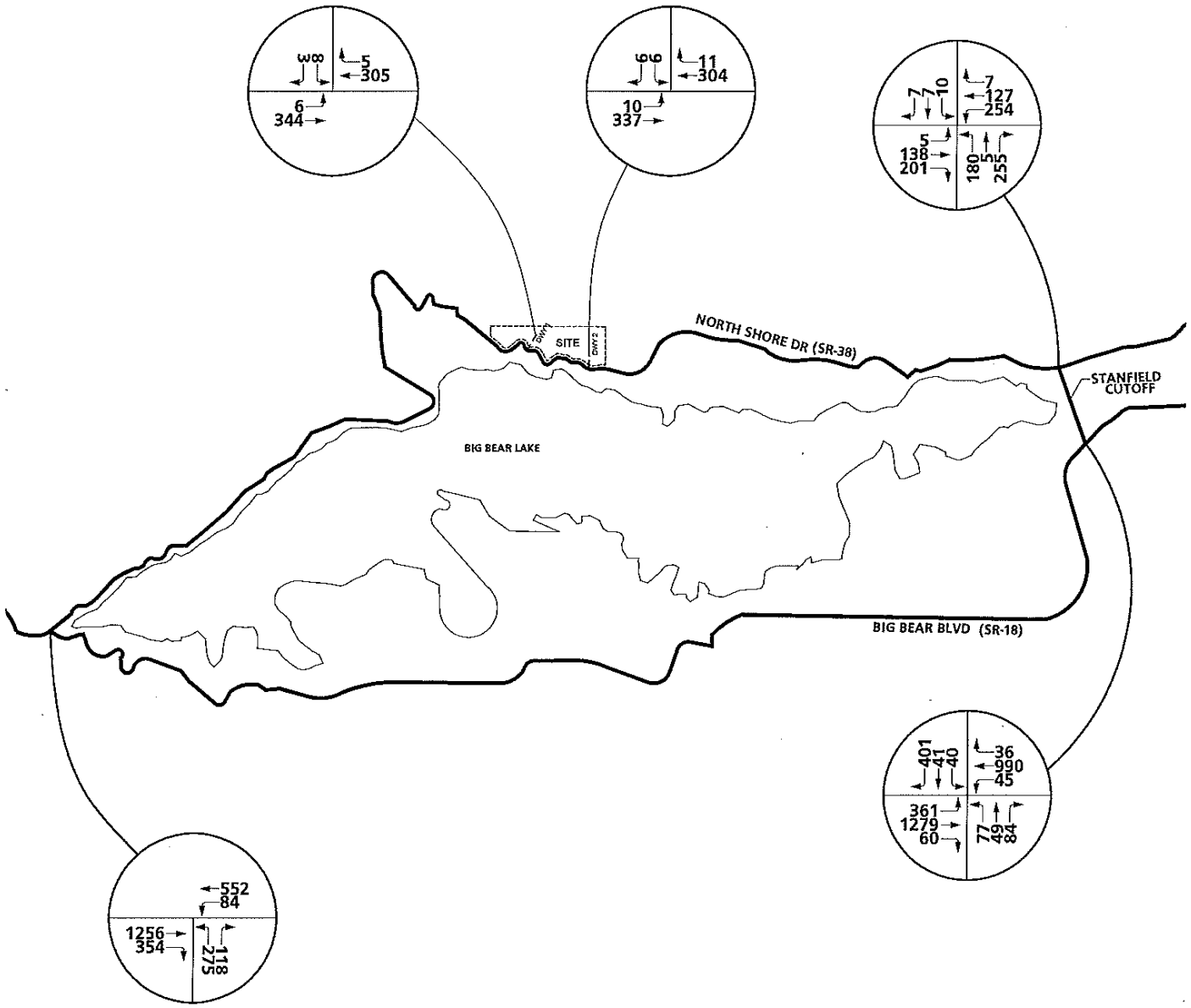
2010 WITH PROJECT FRIDAY PM PEAK INTERSECTION VOLUMES



URBAN CROSSROADS

EXHIBIT 5-D

2010 WITH PROJECT SUNDAY MIDDAY PEAK INTERSECTION VOLUMES



URBAN CROSSROADS

TABLE 5-3

INTERSECTION ANALYSIS FOR GENERAL PLAN BUILDOUT (2030) CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	Fri. PM	Sun. MD	Fri. PM	Sun. MD
North Shore Dr. (SR-38) (NS) at:																	
• Big Bear Blvd. (SR-18) (EW)																	
- Without Improvements	CSS	0	1	0	0	0	0	0	1	1	1	1	0	--[4]	--[4]	F	F
- With Improvements	TS	1	0	1	0	0	0	0	2	1>	1	1	0	20.4	18.6	C	B
Stanfield Cutoff (NS) at:																	
• North Shore Dr. (SR-38) (EW)																	
- Without Improvements	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
- With Improvements	TS	2	1	0	1	1	0	1	1	1>	1	1	0	34.2	26.0	C	C
• Big Bear Blvd. (SR-18) (EW)																	
- Without Improvements	TS	0	1	1	0	1	1	1	1	1	1	1	1	--[4]	--[4]	F	F
- With Improvements	TS	1	1	0	1	1	1>	1	2	0	1	2	1	31.7	21.5	C	C
Driveway # 1 (NS) at:																	
• North Shore Dr. (SR-38) (EW)																	
- Without Improvements	CSS	0	0	0	0	1	0	0	1	0	0	1	0	49.5	24.2	E	C
- With Improvements	CSS	0	0	0	0	1	0	1	2	0	0	1	0	23.1	15.7	C	C
Driveway # 2 (NS) at:																	
• North Shore Dr. (SR-38) (EW)																	
- Without Improvements	CSS	0	0	0	0	1	0	0	1	0	0	1	0	41.9	18.8	E	C
- With Improvements	CSS	0	0	0	0	1	0	1	2	0	0	1	0	23.6	15.7	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1 = Improvement; > = Right Turn Overlap Phase

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.7 R5 (2005). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

[5] Volume to Capacity ratio is greater than 1.00 = Level of Service "F".

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EXHIBIT 5-E

GENERAL PLAN BUILDOUT WITH PROJECT FRIDAY PM PEAK HOUR INTERSECTION VOLUMES

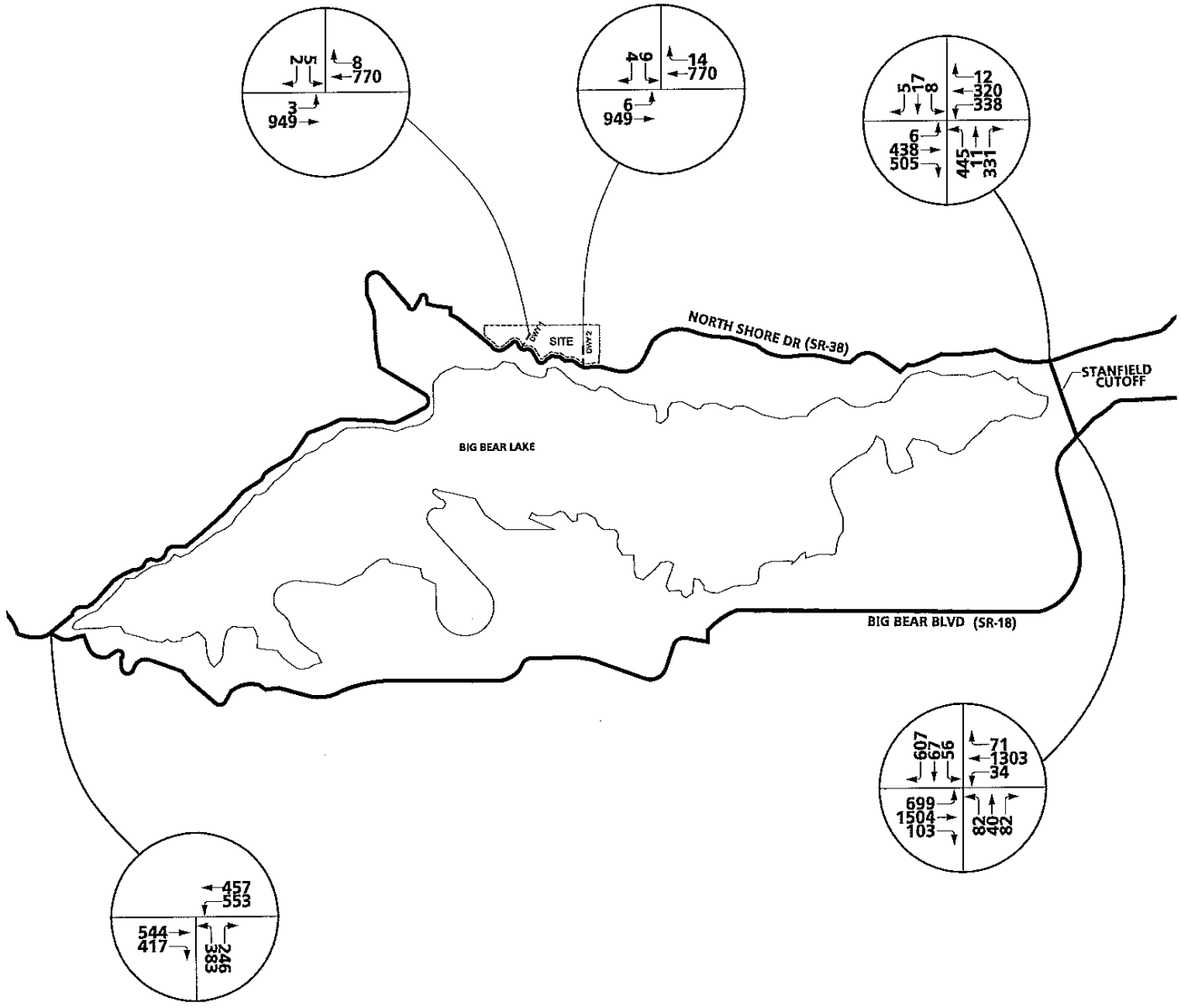
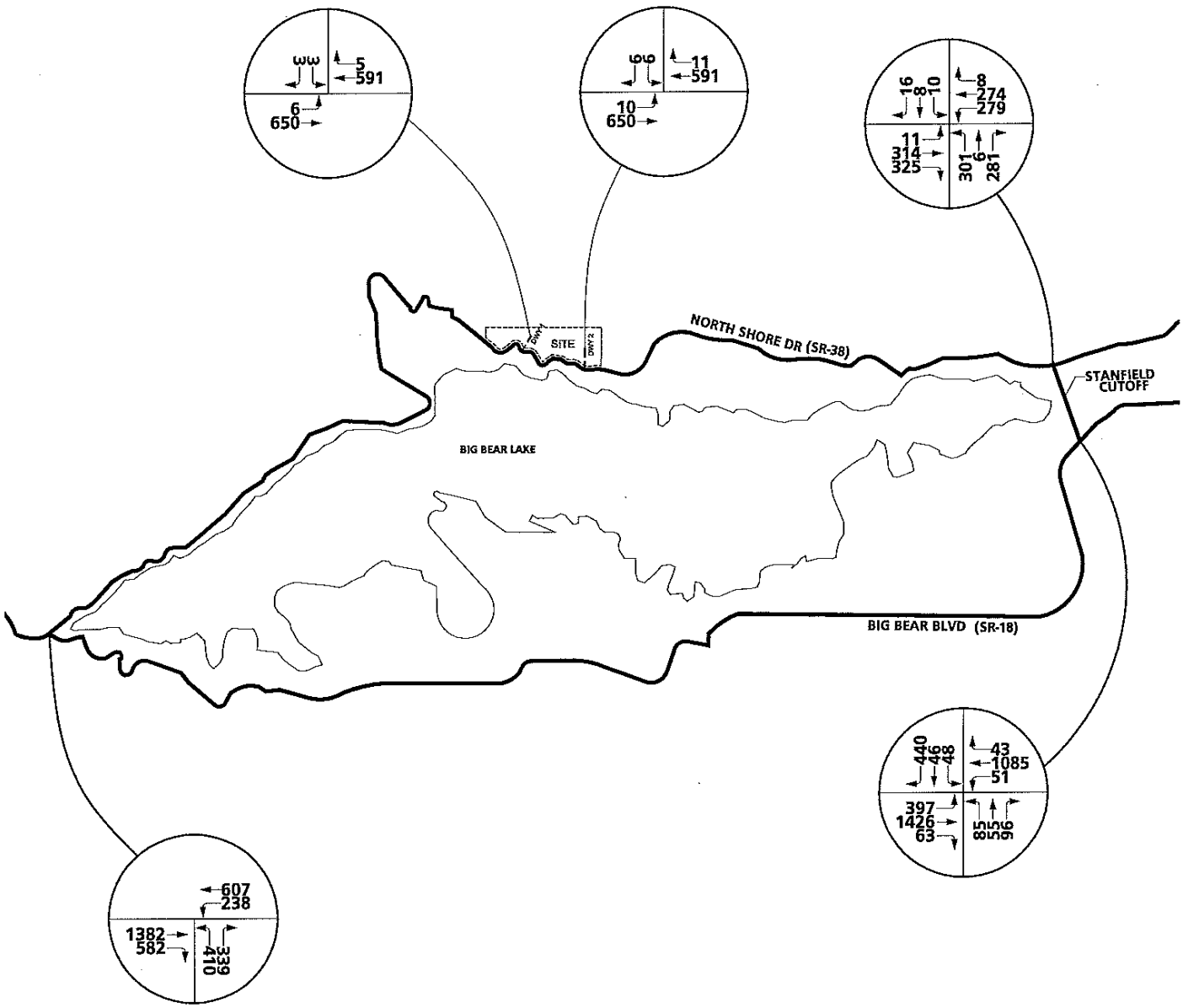


EXHIBIT 5-F

GENERAL PLAN BUILDOUT WITH PROJECT SUNDAY MIDDAY PEAK HOUR INTERSECTION VOLUMES



Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

Driveway #1 (NS) at:

- North Shore Drive (SR-38) (EW)

Driveway #2 (NS) at:

- North Shore Drive (SR-38) (EW)

The operations analysis worksheets for General Plan Buildout With Project (2030) traffic conditions are included in Appendix "H".

6.0 SUMMARY AND RECOMMENDATIONS

This chapter summarizes the findings of this traffic impact analysis, and provides a series of recommendations related to project implementation.

6.1 Summary

The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act (CEQA) and the San Bernardino County Congestion Management Program (CMP). In conformance with the requirements of the San Bernardino County Congestion Management Program (CMP), the proposed project does not require a CMP traffic study. The CMP requires no analysis for projects that generate less than 250 peak hour trips. The project generates approximately 51 and 51 trips during the AM and PM peak hours, respectively; which is less than the required threshold for a CMP traffic study. However, a long-range traffic analysis has been required by County staff.

Project traffic volumes for all future conditions were estimated using a manual approach. The trip generation calculation is based on the most recent Institute of Transportation Engineers Trip Generation Rates, 7th Edition. The project trip distributions are derived from a select zone run of the San Bernardino Mountain Model.

Long Range General Plan Buildout (2030) conditions have been estimated based on the San Bernardino Mountain Model and the addition of both the project related peak hour volumes and the known cumulative development peak hour volumes per discussions with County staff.

6.1.1 The Project

The Moon Camp residential project is proposed to include 50 new single-family detached dwelling units and three lots for open space and common area on approximately 62.43 acres. Exhibit 1-B illustrates the project site plan.

The traffic related to the project has been calculated in accordance with the following accepted procedural steps:

- Trip Generation
- Trip Distribution
- Traffic Assignment

Table 2-2 (previously presented) summarizes the projected trip generation for the proposed development. As indicated in Table 2-2, the proposed Moon Camp residential development is projected to generate 479 trip-ends per day with 51 vehicles per hour during the weekday PM peak hour.

6.1.2 Existing Study Area Conditions

Regional access to the site is provided via North Shore Boulevard.

6.1.3 Future Conditions

An Interim Year (2010) analysis and long-range General Plan Buildout (2030) analysis are included in this report. Interim Year (2010) traffic operations analysis has been completed for the Friday PM and Sunday Mid-day peak hours and are shown in Tables 5-1 and 5-2 (previously presented). Friday PM peak hour and Sunday Mid-day peak hour traffic operations analysis are summarized in Tables 5-3 (previously presented)

for General Plan Buildout With Project (2030) conditions. All study intersections are projected to experience Level of Service "C" or better operations during the peak hours for all scenario analyzed.

6.2 Recommendations

The recommendations in this section address all necessary on-site improvements and off-site transportation improvements.

6.2.1 On-Site Improvements

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself. Exhibit 6-A illustrates the recommended improvement measures to address on-site circulation requirements of the proposed site, which include the following:

- Sight distance at the project access roadway should be reviewed with respect to Caltrans / County of San Bernardino sight distance standards at the time of final grading landscape and street improvement plans.

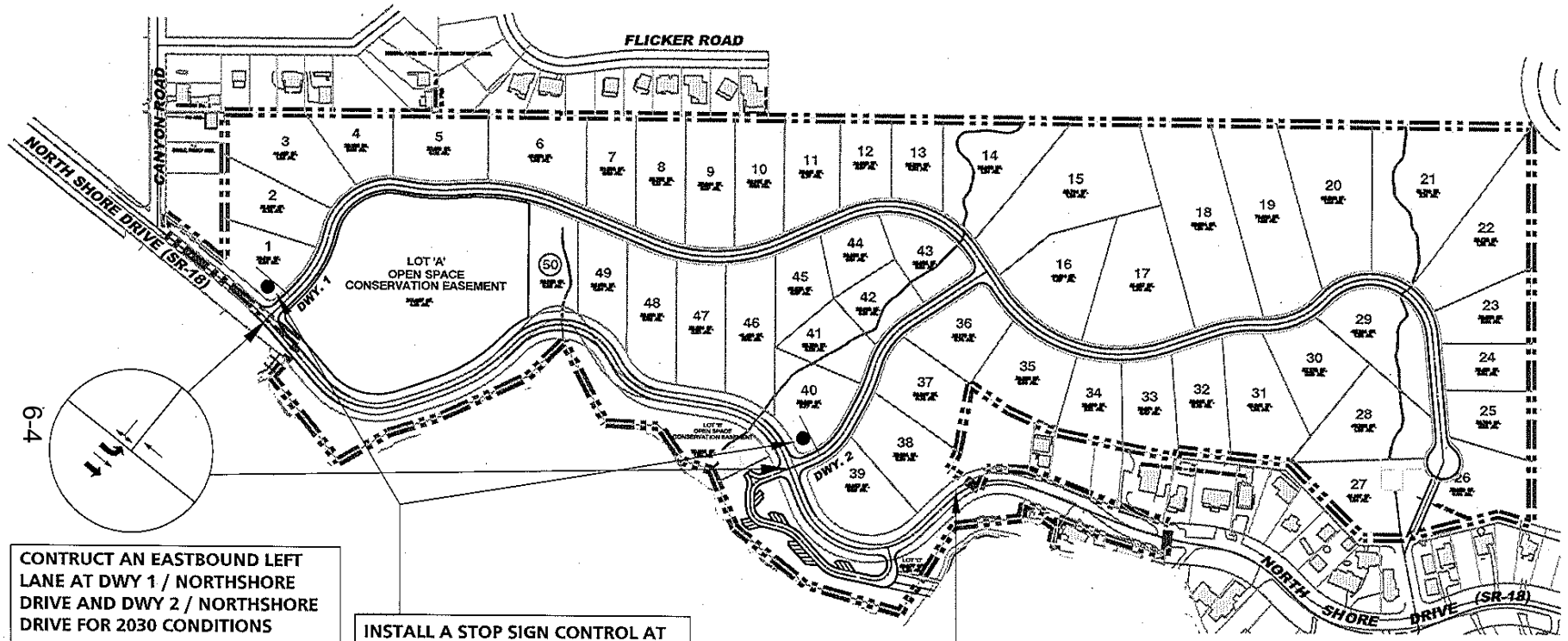
- Traffic signing / striping should be implemented in conjunction with detailed construction plans for the project site.

- Construct North Shore Drive at its ultimate half-section width as a Mountain Major highway from Canyon Drive to the Easterly project boundary.

- Install a stop sign control at Driveway #1 and Driveway #2

EXHIBIT 6-A

CIRCULATION RECOMMENDATIONS



CONTRUCT AN EASTBOUND LEFT LANE AT DWY 1 / NORTHSHORE DRIVE AND DWY 2 / NORTHSHORE DRIVE FOR 2030 CONDITIONS

CONTRUCT A SECOND EASTBOUND THROUGH LANE AT DWY 1 / NORTHSHORE DRIVE AND DWY 2 / NORTHSHORE DRIVE FOR 2030 CONDITIONS

INSTALL A STOP SIGN CONTROL AT THE DRIVEWAY 1 AND DRIVEWAY 2.

TRAFFIC SIGNING AND STRIPING SHOULD BE IMPLEMENTED IN CONJUNCTION WITH DETAILED CONSTRUCTION PLANS FOR THE PROJECT SITE.

SIGHT DISTANCE AT EACH PROJECT ACCESS ROADWAY SHOULD BE REVIEWED WITH RESPECT TO STANDARD CALTRANS AND COUNTY OF SAN BERNARDINO SIGHT DISTANCE STANDARDS AT THE TIME OF FINAL GRADING, LANDSCAPE AND STREET IMPROVEMENT PLANS.

CONSTRUCT NORTH SHORE DRIVE AT ITS ULTIMATE HALF-SECTION AS A MOUNTAIN MAJOR HIGHWAY FROM CANYON ROAD TO THE EASTERLY PROJECT BOUNDARY.

LEGEND:

= STOP SIGN

= RECOMMENDED IMPROVEMENT

N

URBAN CROSSROADS

- Construct an Eastbound Left Turn Lane at Driveway 1 / North Shore Drive and Driveway 2/ North Shore Drive for 2030 Buildout Conditions

- Construct a 2nd Eastbound Through Lane at Driveway 1 / North Shore Drive and Driveway 2/ North Shore Drive for 2030 Buildout Conditions

6.2.2 Off-Site Improvements

The necessary off-site improvement recommendations were described in previous sections of this report. Exhibit 6-B illustrates the recommended improvements for 2010 Without Project and With Project traffic conditions. There are no additional recommended improvements for 2010 With Project traffic conditions compared to 2010 Without Project traffic conditions. Exhibit 6-C illustrates the recommended improvements for General Plan Buildout (2030) traffic conditions compared to the improvements shown on Exhibit 6-B.

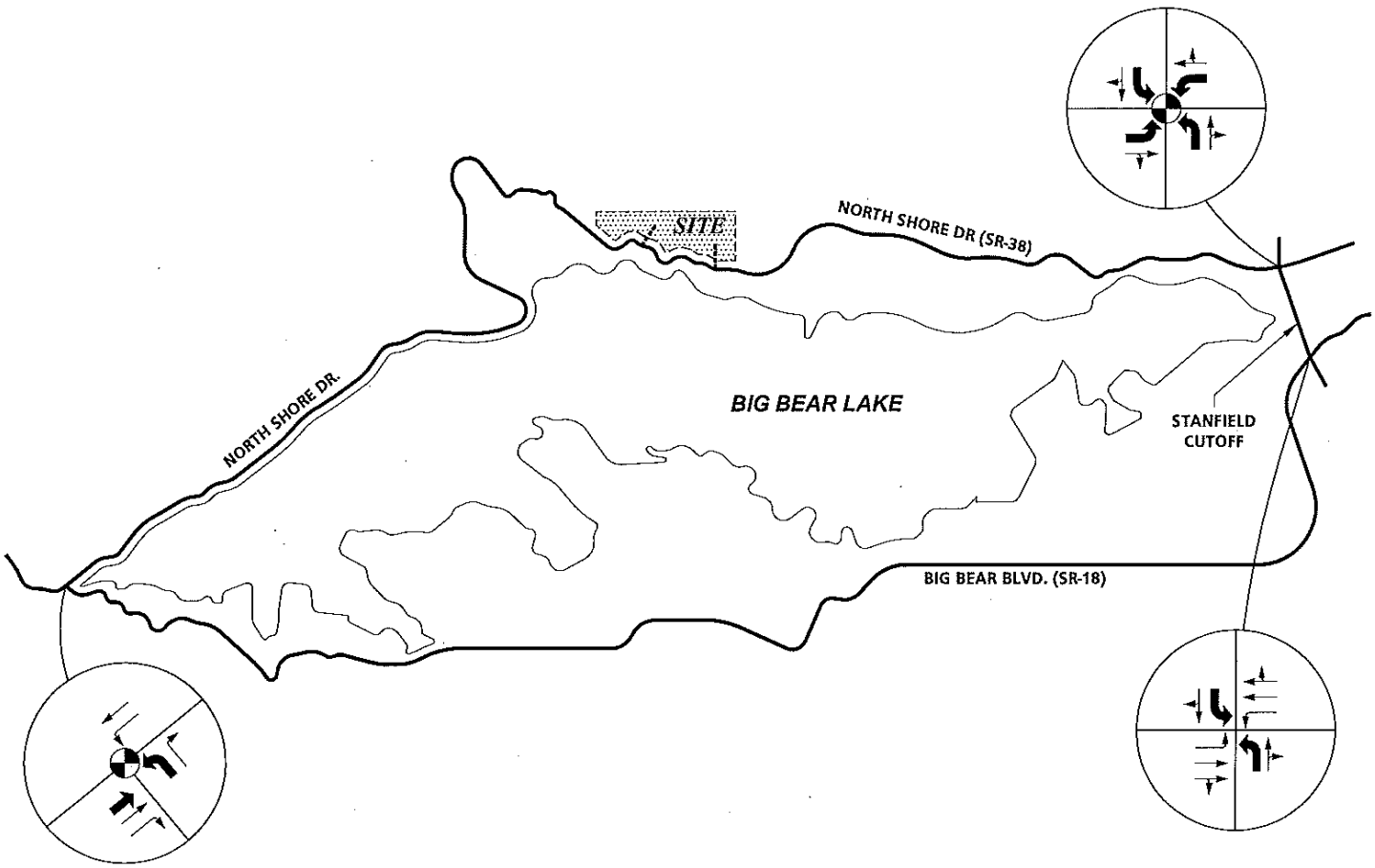
6.2.3 Project Fair Share Analysis

This section of the report summarizes the improvements and associated costs required to meet San Bernardino Congestion Management Program (CMP) level of service requirements for long range traffic condition, per discussion with County staff.

Table 6-1 indicates the needed long range 2030 improvements and resulting costs for the study area intersections. The cost data is provided in Appendix "G" of the San Bernardino Congestion Management Program, 2003 update (see Appendix "I"). Estimated cost (per SANBAG CMP table)

EXHIBIT 6-B

RECOMMENDED IMPROVEMENTS FOR 2010 WITHOUT AND WITH PROJECT CONDITIONS



LEGEND:

= TRAFFIC SIGNAL

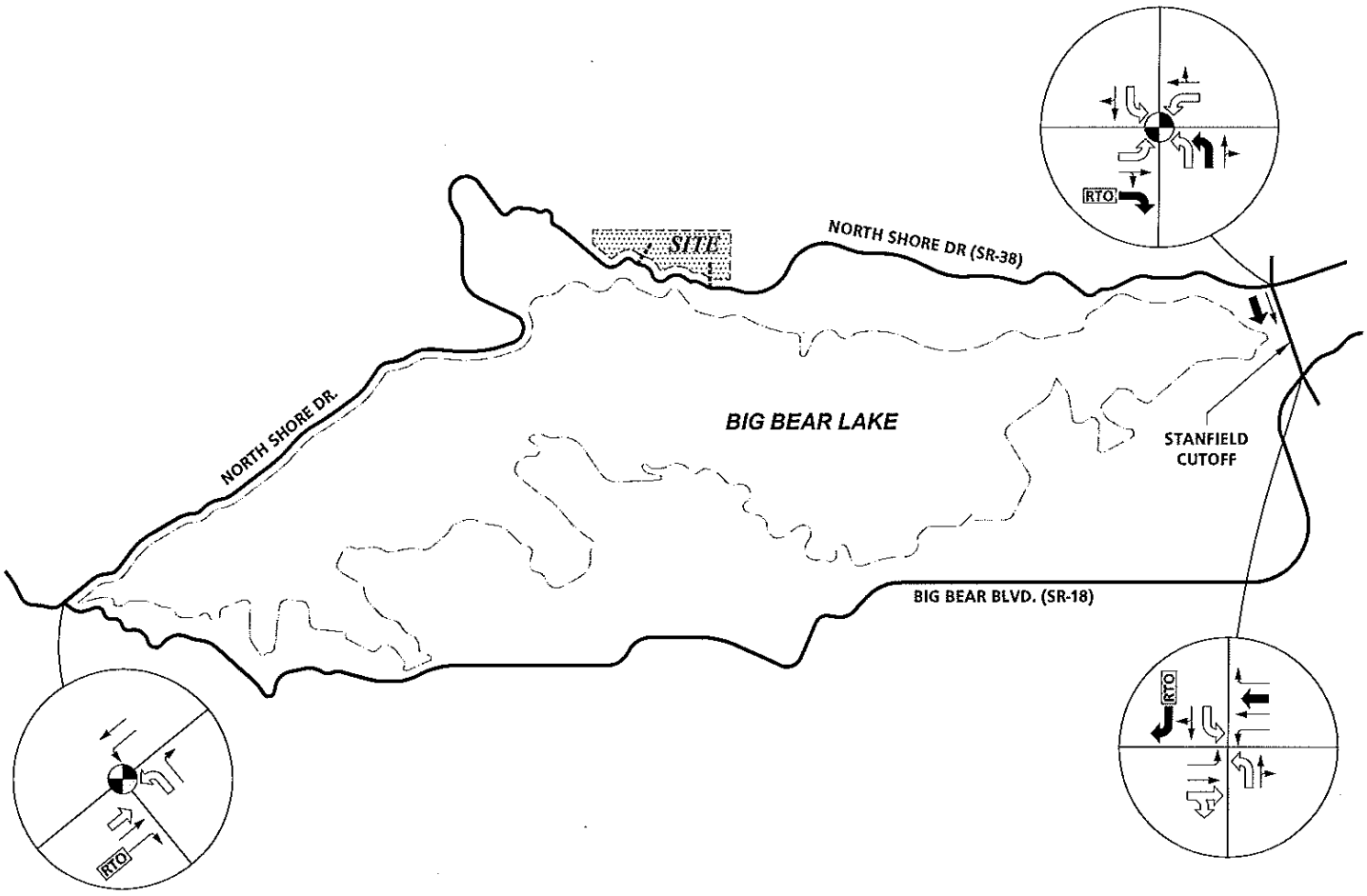
= EXISTING LANE

= CURRENT PHASE IMPROVEMENTS

N

EXHIBIT 6-C

ADDITIONAL RECOMMENDED IMPROVEMENTS FOR GENERAL PLAN BUILDOUT (2030) CONDITIONS



LEGEND:

- = TRAFFIC SIGNAL
- = EXISTING LANE
- = CURRENT PHASE IMPROVEMENTS
- = PREVIOUS PHASE IMPROVEMENTS
- RTO = RIGHT TURN OVERLAP PHASING IMPROVEMENTS

N

TABLE 6-1

ROADWAY IMPROVEMENTS COST

INTERSECTION	2030 IMPROVEMENTS	COST
North Shore Dr. (SR-38) (NS) at:	Install Traffic Signal	$250,000
• Big Bear Blvd. (SR-18) (EW)	Construct NB Left Turn Lane	$50,000
	Construct EB Through Lane	$289,720
	Add Right Turn Overlap Phasing	$25,000
		$614,720
Standfield Cutoff (NS) at:		
• North Shore Dr. (EW)		
	Install Traffic Signal	$250,000
	Construct 2 NB left turn lanes	$100,000
	Construct SB left turn lane	$50,000
	Construct EB left turn lane	$50,000
	Construct EB right turn lane	$50,000
	Add Right Turn Overlap Phasing	$25,000
	Construct WB left turn lane	$50,000
		$575,000
Stanfield Cutoff (NS) at:		
• Big Bear Blvd. (EW)		
	Construct NB left turn lane	$50,000
	Construct SB left turn lane	$50,000
	Add Right Turn Overlap Phasing	$25,000
	Construct EB through lane	$289,720
	Construct WB through lane	$289,720
		$704,440
TOTAL - COST OF CONSTRUCTION		**$1,894,160**

Source: Appendix "G" of the San Bernardino Congestion Management Program, 2003 update.

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for a through lane is $289,720 (600 feet long for upstream and 600 feet long including taper for downstream). As indicated in Table 6-1, the total cost of needed intersection improvements is $1,894,160.

The project fair share contribution towards the required improvements has also been calculated. Table 6-2 includes the project's cost contribution based on the project's percent of new traffic. As indicated in Table 6-2, the highest Friday PM or Sunday Mid-day fair share cost is approximately $129,193.

6.2.4 Transportation System Management Actions

a. Off-Site

As development in the area occurs, transit agencies should consider expanding service within the area.

b. On-Site

The on-site design should accommodate private and/or public bus access design and parking as necessary.

TABLE 6-2

PROJECT FAIR SHARE

SEGMENT	COST	PEAK HOUR	EXISTING TRAFFIC	2030 WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	(A) FRIDAY PM PROJECT COST SHARE	(B) SUNDAY MID. PROJECT COST SHARE	HIGHEST FRIDAY PM OR SUNDAY MID. COST SHARE
North Shore Dr. (SR-38) (NS) at:										
• Big Bear Blvd. (EW)	$614,720									
		Friday PM	906	1625	15	719	2.09%	$12,824	$37,083	$37,083
		Sunday Midday	2208	2639	26	431	6.03%			
Standfield Cutoff (NS) at:										
• North Shore Dr. (EW)	$575,000									
		Friday PM	822	1,119	35	297	11.78%	$67,761	$51,199	$67,761
		Sunday Midday	904	1,196	26	292	8.90%			
Stanfield Cutoff (NS) at:										
• Big Bear Blvd. (EW)	$704,440									
		Friday PM	2,745	3,584	29	839	3.46%	$24,349	$17,653	$24,349
		Sunday Midday	2,625	3,463	21	838	2.51%			
GRAND TOTAL - COST SHARE FOR IMPROVEMENTS								**$104,934**	**$105,935**	**$129,193**

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E.2 - Revised Traffic Study (Urban Crossroads, June 2007)

URBAN
CROSSROADS

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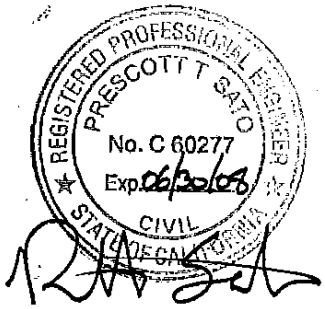

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MOON CAMP
TRAFFIC IMPACT ANALYSIS
COUNTY OF SAN BERNARDINO, CALIFORNIA

June 29, 2007 (REVISED)
April 24, 2007

JN:04409-02
SS:RA:JCS :dl

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LIST OF TABLES

MOON CAMP
TRAFFIC IMPACT ANALYSIS
COUNTY OF SAN BERNARDINO, CALIFORNIA

1.0 INTRODUCTION

This report summarizes the traffic impact analysis conducted to assess the potential impacts of the proposed Moon Camp residential development on the roadway system in the study area. The proposed development is generally located along North Shore Drive in the County of San Bernardino. The Moon Camp residential project is proposed to include 50 new single-family detached dwelling units and three lots for open space and common area on approximately 62.43 acres. The general location of the project site is presented on Exhibit 1-A.

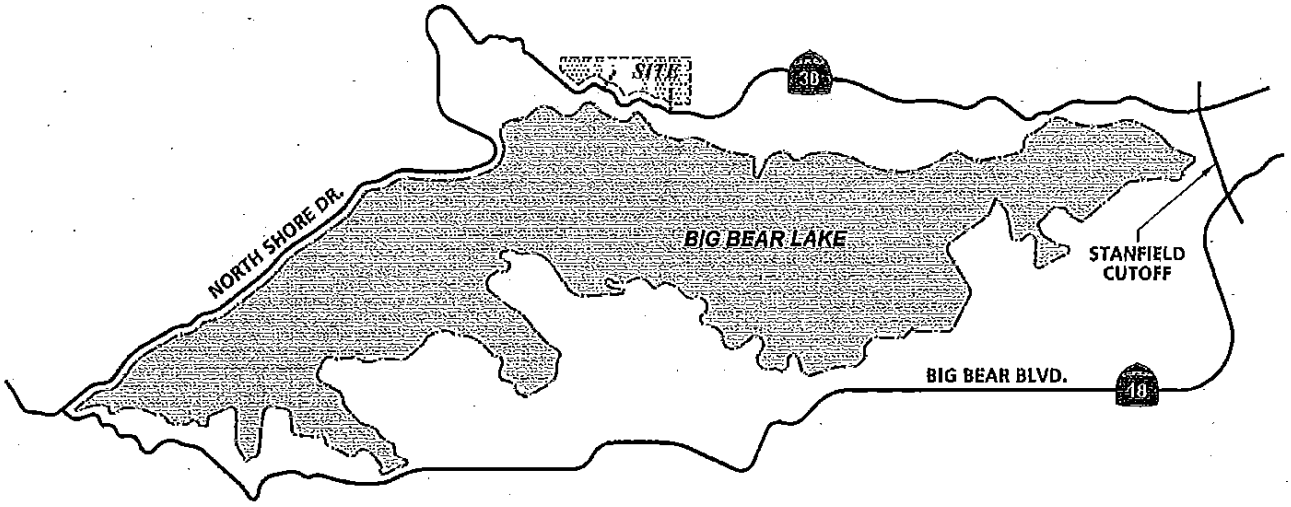
In conformance with the requirements of the San Bernardino County Congestion Management Program (CMP), the proposed project does not require a CMP traffic study. The CMP requires no analysis for projects generating less than 250 peak hour trips. The project generates approximately 51 and 51 trips during the AM and PM peak hours, respectively; which is less than the required threshold for a CMP traffic study. However, per discussion with County staff, the traffic study should follow CMP guidelines and a long-range traffic analysis is required.

The introduction to this report presents an overview of the project and provides a brief description of the study area. The analysis methodologies used to evaluate the impacts of the project are described and the definitions of roadway system deficiencies and significant project impacts are presented in the context of the County of San Bernardino and CEQA requirements.

Subsequent sections of the report will describe the project in detail and provide a complete description of existing and projected traffic conditions within the study area.

EXHIBIT 1-A

LOCATION MAP



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1.1 Project Overview

The proposed Moon Camp residential development is generally located north of North Shore Drive south of Flicker Road and east of Canyon Road in San Bernardino County. The Moon Camp residential project is proposed to include 50 new single-family detached dwelling units and three open space lots and common area. Exhibit 1-B illustrates the site plan.

There are two (2) primary full access points to the project site located off North Shore Drive.

Additional detailed discussion of the roadway network features of the project and its traffic generation characteristics will be provided in subsequent sections of this report.

1.2 Study Area

The overall study area evaluated in this study is presented on Exhibit 1-A. Based on discussion with County transportation staff, the study area includes the following existing study intersections:

Stanfield Cutoff (NS) at:

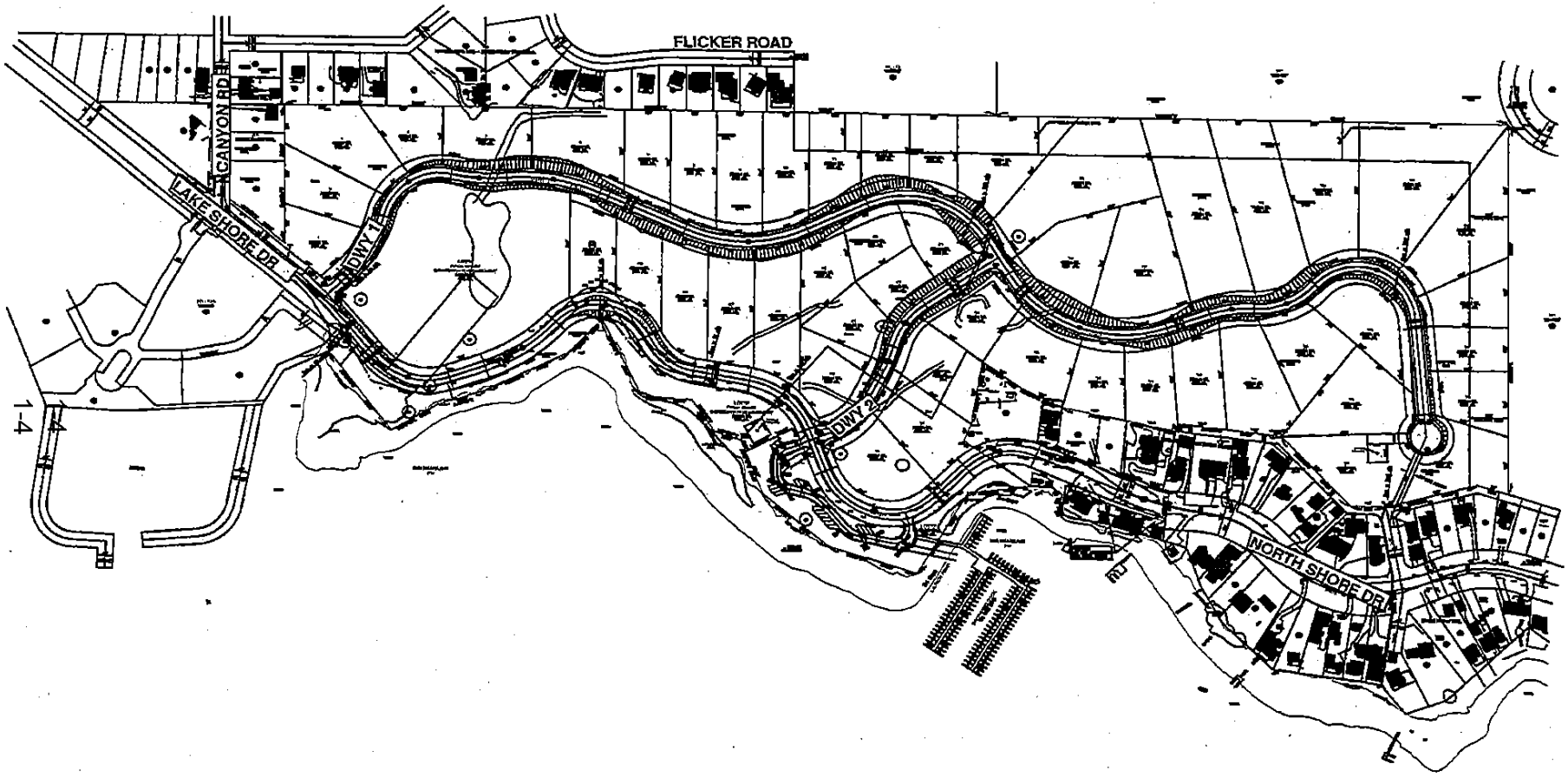
- North Shore Drive (SR-38) (EW)
- Big Bear Boulevard (SR-18) (EW)

North Shore Drive (SR-38) (NS) at:

- Big Bear Boulevard (SR-18) (EW)

EXHIBIT 1-B

SITE PLAN



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URBAN

1.3 Analysis Methodologies

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with the San Bernardino County Congestion Management Program. The following analysis years are considered in this report:

- Existing Condition – 2007
- Interim Year – 2010
- Long Range – 2030

The overall methodologies used to develop future traffic volume forecasts, and the explicit traffic operations analysis methodologies are summarized herein. The primary section of interest to the non-technically oriented reviewer is Section 1.4.2 (Definition of Significant Impact).

1.3.1 Overall Analysis Methodology

As described previously, traffic conditions are evaluated in this report for existing conditions, 2010 Interim Year Without Project conditions, 2010 Interim Year With Project conditions, and Long Range General Plan Buildout (2030) conditions.

Actual traffic count data was obtained from manual intersection counts (conducted in March 2007, see Appendix "A") to quantify existing traffic conditions. Per discussion with County staff, the peak season of the study area occurs during the summer months, thus a 16% growth is applied to manual intersection counts to represent existing peak hour intersection volumes.

Project traffic volumes for all future conditions were estimated using the manual approach. Trip generation has been estimated based on data collected by the Institute of Transportation Engineers (ITE). The project trip distribution was derived from a select zone run of the San Bernardino Mountain Model.

Interim Year conditions have been estimated based on areawide growth (other projects that are approved, pending, or under construction) and the addition of the project related peak hour volumes. An area-wide growth of 2% per year is applied to adjusted existing volumes (with 16% growth).

The Interim Year 2010 without project traffic volumes are estimated based on the 2007 existing traffic volumes (with 16% adjustment) plus the 2007 to 2010 background growth volumes (2%) plus the known cumulative development volumes.

Project traffic volumes for all future conditions were estimated using the manual approach described in the CMP guidelines. The trip generation calculation is based on the most recent Institute of Transportation Engineers Trip Generation Rates, 7th Edition. The project trip distribution was developed from a select zone run of the San Bernardino Mountain Model and was reviewed by the County of San Bernardino staff. The project only traffic forecasts have been generated by applying the trip generation, distribution and traffic assignment calculations.

Long Range General Plan Buildout (2030) conditions have been estimated based on the San Bernardino Mountain Model and the addition of both the project related peak hour volumes and the known cumulative development peak hour volumes per discussions with County staff.

1.3.2 Traffic Operations Analysis

The current technical guide to the evaluation of traffic operations is the 2000 Highway Capacity Manual (HCM) (Transportation Research Board Special Report 209). The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted. The definitions of level of service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A" represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.

- LOS "B" is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.

- LOS "C" is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.

- LOS "D" represents high-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.

- LOS "E" represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.

- LOS "F" is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.

Uninterrupted flow is generally found only on limited access (freeway) facilities in urban areas. The definitions of level of service for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The levels of service determined in this study are calculated using the HCM methodology.

For signalized intersections, average total delay per vehicle for the overall intersection is used to determine level of service. Levels of service at signalized study intersections have been evaluated using an HCM intersection analysis program.

The study area intersections which are stop sign controlled with stop-control on the minor street only have been analyzed using the two-way stop

controlled unsignalized intersection analysis methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at these locations to calculate average intersection delay; the level of service has been calculated. The level of service criteria for this type of intersection analysis is based on total delay per vehicle for the worst minor street movement(s).

The levels of service are defined in terms of average delay for the intersection analysis methodology as follows:

LEVEL OF SERVICE	AVERAGE TOTAL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	0 to 10.00	0 to 10.00
B	10.1 to 20.00	10.01 to 15.00
C	20.1 to 35.00	15.01 to 25.00
D	35.1 to 55.00	25.01 to 35.00
E	55.1 to 80.00	35.01 to 50.00
F	Over 80.0 or V/C ≥ 1.00	50.01 and up

Per the CMP guidelines, signalized intersections are considered deficient (LOS "F") if the overall intersection critical volume to capacity (V/C) ratio equals or exceeds 1.0, even if the level of service defined by the delay value is below the defined LOS standard. The V/C ratio is defined as the critical volumes divided by the intersection capacity. A V/C ratio greater than 1.0 implies an infinite queue.

The LOS analysis for signalized intersections has been performed using optimized signal timing. This analysis has included an assumed lost time of two seconds per phase in accordance with San Bernardino CMP recommended default values. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossing have also been considered in the signalized intersection analysis. The following formula has been used to calculate the pedestrian minimum times for all HCM runs:

[(Curb to Curb distance) / (4 feet/second)] + 5 seconds

The resulting minimum green times are shown in the appendices for each analyzed scenario. Saturation flow rates of 1,800 vehicles per hour of green (vphg) for through and right-turn lanes and 1,700 vphg for single left-turn lanes, 1,600 vphg per lane for dual left-turn lanes, and 1,500 vphg per lane for triple left-turn lanes have been assumed for all capacity analysis under 2007 Existing and 2010 Interim Year conditions. Under 2030 Horizon Year conditions, saturation flow rates of 1,900 vphg for through and right-turn lanes and 1,800 vphg for single left-turn lanes, 1,700 vphg per lane for dual left-turn lanes, and 1,600 vphg per lane for triple left-turn lanes have been assumed. These are the default values recommended by the CMP guidelines.

The 2030 peak hour factor has been adjusted upwards to 0.95. This is specifically allowed by the San Bernardino CMP guidelines to account for the effects of congestion on peak spreading. Peak spreading refers to the tendency of traffic to spread more evenly across time as congestion increases.

1.4 Definition of Deficiency and Significant Impact

The following definitions of deficiencies and significant impacts have been developed in accordance with the County of San Bernardino requirements.

1.4.1 Definition of Deficiency

County of San Bernardino guidelines indicate that peak hour intersection operations of LOS "C" or better are considered acceptable. Therefore, any intersection operating at LOS "D" or worse is considered deficient. Per CMP direction, state controlled facilities (state highways, freeway ramp intersection, etc.) are subject to local jurisdiction (California Department of Transportation) traffic operations requirements, with no greater than 45 seconds average stopped delay per vehicle allowed during peak hour operations (middle of LOS "D")

The identification of a CMP deficiency requires further analysis in satisfaction of CMP and County requirements, including:

- Evaluation of the mitigation measures required to restore traffic operations to an acceptable level of service with respect to CMP and local jurisdiction LOS standards.
- Calculation of the project share of new traffic on the impacted CMP facility during peak hours of traffic.
- Estimation of the cost required to implement the improvements required to restore traffic operations to an acceptable level of service as described above.

This study incorporates each of these aspects for all locations where a CMP deficiency is identified.

1.4.2 Definition of Significant Impact

The identification of significant impacts is a requirement of CEQA, and is not directly addressed in the CMP document. The County of San Bernardino General Plan and Circulation Element have been adopted in accordance with CEQA requirements, and any roadway improvements within the County of San Bernardino which are consistent with these documents are not considered a significant impact, so long as the project contributes its "fair share" funding for improvements.

A traffic impact is considered significant and immitigable if the project both: i) contributes measurable traffic to and ii) substantially and adversely changes the level of service at any off-site location projected to experience deficient operations under foreseeable cumulative conditions, where feasible improvements consistent with the County of San Bernardino General Plan cannot be constructed.

2.0 PROJECT DESCRIPTION

This section describes the project land uses and traffic characteristics for each of the future conditions analyzed.

2.1 Project Description

The proposed Moon Camp residential development is located along North Shore Drive in the County of San Bernardino. The Moon Camp residential project is proposed to include 50 new single-family detached dwelling units and one existing single-family detached dwelling unit. Exhibit 1-B (previously presented) illustrates the site plan.

There are two (2) primary full access points to the project site located off North Shore Drive.

2.2 Project Traffic

The traffic related to the project has been calculated in accordance with the following accepted procedural steps:

- Trip Generation
- Trip Distribution
- Traffic Assignment

These steps are described in detail below.

2.2.1 Project Trip Generation

The trip generation calculation is based on the most recent Institute of Transportation Engineers Trip Generation Rates, 7th Edition. Table 2-1 indicates the proposed trip generation rates. As indicated in Table 2-2, the

TABLE 2-1

TRIP GENERATION RATES[1]

LAND USE	ITE CODE	QUANTITY	UNITS[2]	FRIDAY PM PEAK HOUR			SUNDAY MID-DAY PEAK HOUR			DAILY
				IN	OUT	TOTAL	IN	OUT	TOTAL	
PROJECT										
Single Family Residential	210	50	DU	0.64	0.37	1.01	0.64	0.37	1.01	9.57
CUMULATIVE PROJECTS										
Hotel	310	Varies	ROOMS	0.31	0.28	0.59	0.31	0.28	0.59	8.17
Townhomes/Condominium	230	78	DU	0.35	0.17	0.52	0.35	0.17	0.52	5.86
Fast Food Restaurant With Drive-Thru	934	2.5	TSF	18.01	16.63	34.64	18.01	16.63	34.64	496.12
Shopping Center	820	10	TSF	6.57	7.12	13.70	6.57	7.12	13.70	152.03
Shopping Center	820	22.517	TSF	4.99	5.40	10.39	4.99	5.40	10.39	114.43
Automobile Care Center	942	4.375	TSF	1.69	1.69	3.38	1.69	1.69	3.38	20.00
Mini-Warehouse	151	3	AC	1.99	1.84	3.83	1.99	1.84	3.83	38.87
Office	710	6.3	TSF	0.17	0.83	1.00	0.17	0.83	1.00	11.01
Church	560	20	TSF	0.34	0.32	0.66	0.34	0.32	0.66	9.11

[1] Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 7th Edition, 2003.

[2] DU = Dwelling Units

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TABLE 2-2

PROJECT TRIP GENERATION SUMMARY

LAND USE	QUANTITY	UNITS[1]	FRIDAY PM PEAK HOUR			SUNDAY MID-DAY PEAK HOUR			DAILY
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Single Family Residential	50	DU	32	19	51	32	19	51	479

[1] DU = Dwelling Units

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proposed Moon Camp residential development is projected to generate 479 trip-ends per day with 51 vehicles per hour during the weekday AM peak hour and 51 vehicles per hour during the weekday PM peak hour. It is our understanding that the weekday PM peak hour generates more trips than the Sunday Midday peak hour. Based on discussions with County of San Bernardino staff, weekday PM peak hour trip generation has been used in both Friday PM peak hour analysis and Sunday Mid-day peak hour analysis to represent a conservative worst case condition.

2.2.2 Project Trip Distribution and Assignment

The project trip distribution and assignment process represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system.

Project trip distribution has been derived from a select zone run of the San Bernardino Mountain Model. The trip distribution pattern for both Friday PM peak and Sunday Mid-day peak is based on the Friday PM distribution per discussions with County staff. Exhibit 2-A illustrates the project trip distribution.

2.2.3 Project Only Traffic Volume Forecasts

The project only traffic forecasts have been generated by applying the trip generation, distribution and traffic assignment calculations. The project ADT volumes are presented on Exhibit 2-B. The project only Friday PM peak hour and Sunday Mid-day peak hour intersection volumes are depicted on Exhibit 2-C.

EXHIBIT 2-A

PROJECT TRIP DISTRIBUTION

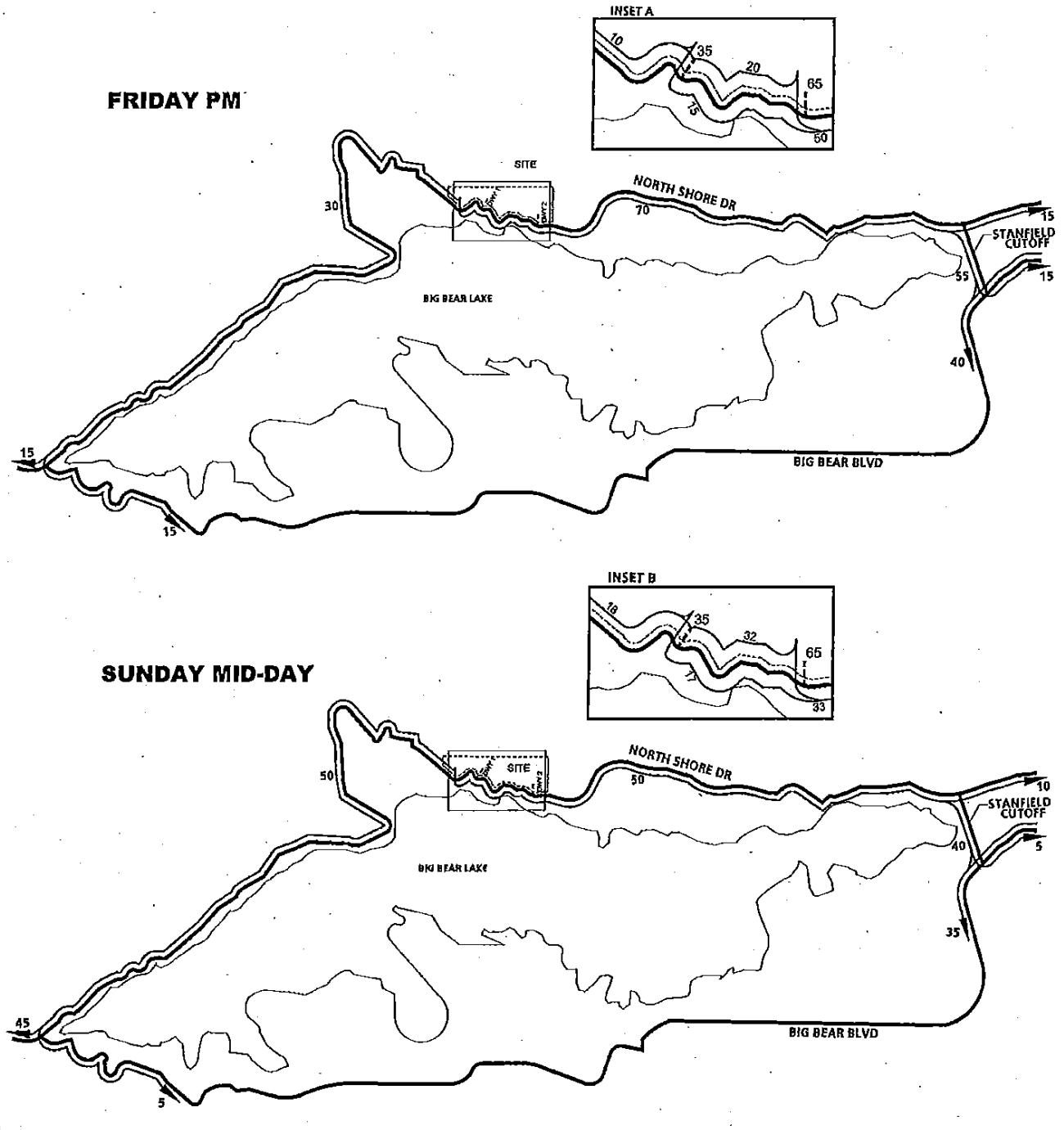
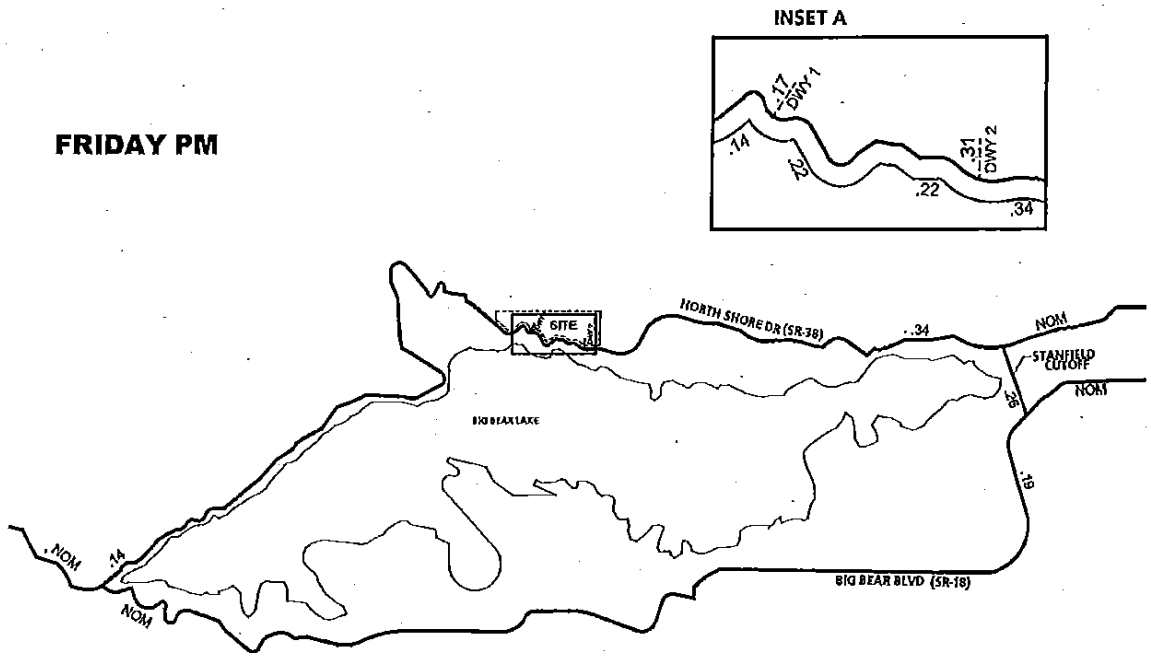


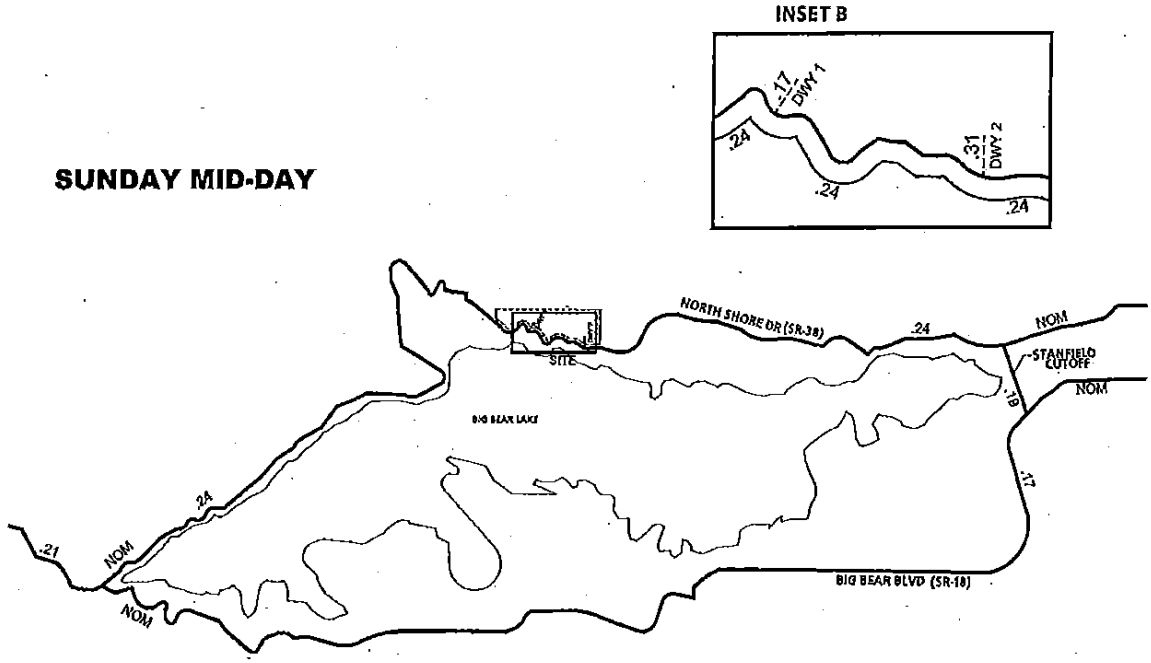
EXHIBIT 2-B

PROJECT AVERAGE DAILY TRAFFIC

FRIDAY PM



SUNDAY MID-DAY

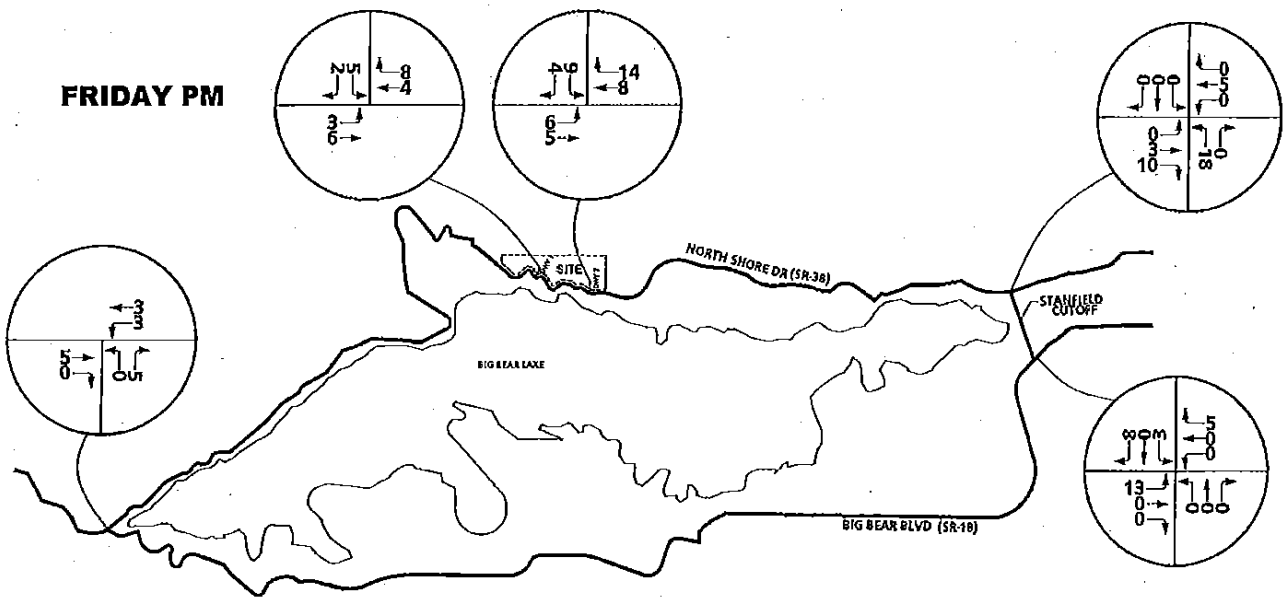


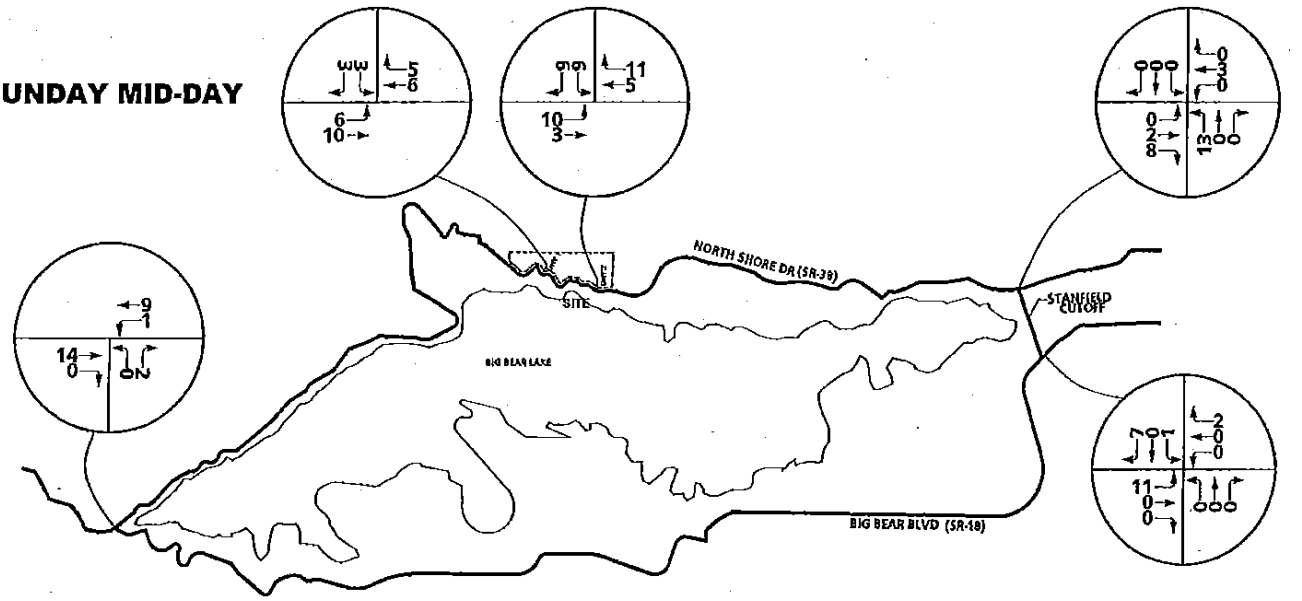
LEGEND:

10.0 = VEHICLES PER DAY (1000'S)
NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

EXHIBIT 2-C

PROJECT FRIDAY PM PEAK HOUR / SUNDAY MIDDAY PEAK HOUR INTERSECTION VOLUMES





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3.0 EXISTING CONDITIONS

This section of the report summarizes existing roadway and traffic conditions in the study area. All analysis locations which exist today have been analyzed. The number of through travel lanes for existing roadways and intersection controls are presented, along with existing traffic count data collected for this study. This data was used to analyze existing traffic operations in the study area. Existing plans for roadway improvements are also described in this section.

3.1 Existing Roadway System and Daily Traffic Volumes

The number of through travel lanes for existing roadways and existing intersection controls within the study area are presented on Exhibit 3-A.

Exhibits 3-B and 3-C depict the current average daily traffic (ADT) volumes in the study area on Friday and Sunday, respectively. Existing ADT volumes are estimated based upon the latest traffic data collected by Urban Crossroads, Inc. (see Appendix "A"). Peak hour data has been used to estimate the average daily traffic volumes on each leg using the following formula:

Peak Hour (Approach Volume + Exit Volume) x 12 = Leg Volume.

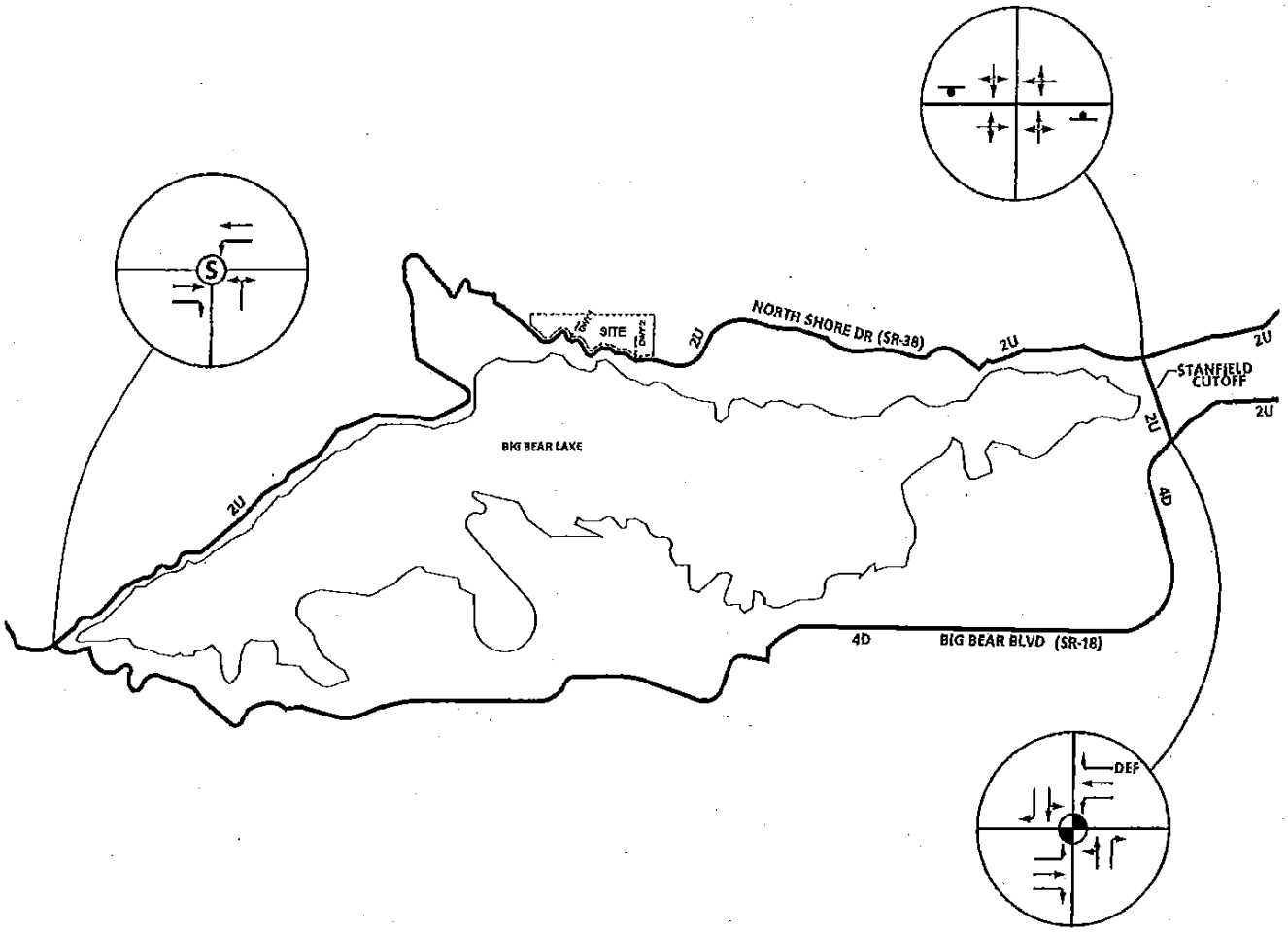
Regional access to the site is provided by North Shore Drive (SR-38)

3.2 Existing Peak Hour Traffic Volumes

Actual traffic count data was obtained from manual intersection counts (March 2007, see Appendix "A") to quantify existing traffic conditions. The Friday PM peak hour traffic volumes were determined by counting the two hour period between 4:00 PM- 6:00 PM in the evening. The Sunday Mid-day peak hour traffic volumes were identified by counting the two hour period from 12:00 PM – 2:00 PM. Per discussions with County staff, since the peak season of the study area occurs during the summer months, a 16% growth is applied to the manual intersection counts to represent existing peak hour intersection volumes.

EXHIBIT 3-A

EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



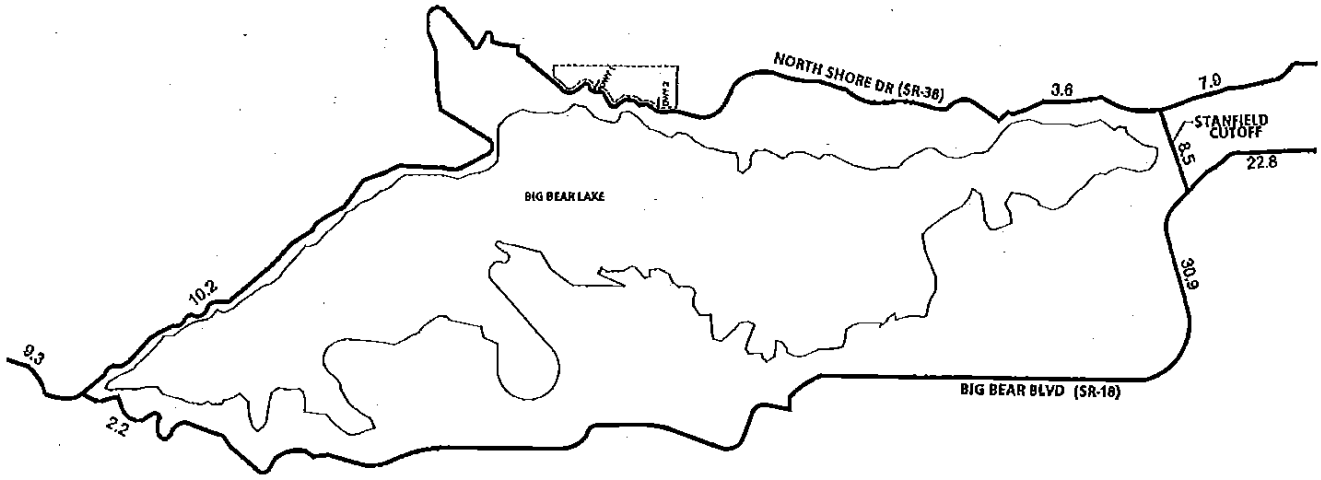
LEGEND:

- = TRAFFIC SIGNAL
- = ALL WAY STOP
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- DEF = DEFACTO RIGHT TURN LANE

N

EXHIBIT 3-B

EXISTING FRIDAY AVERAGE DAILY TRAFFIC (ADT)



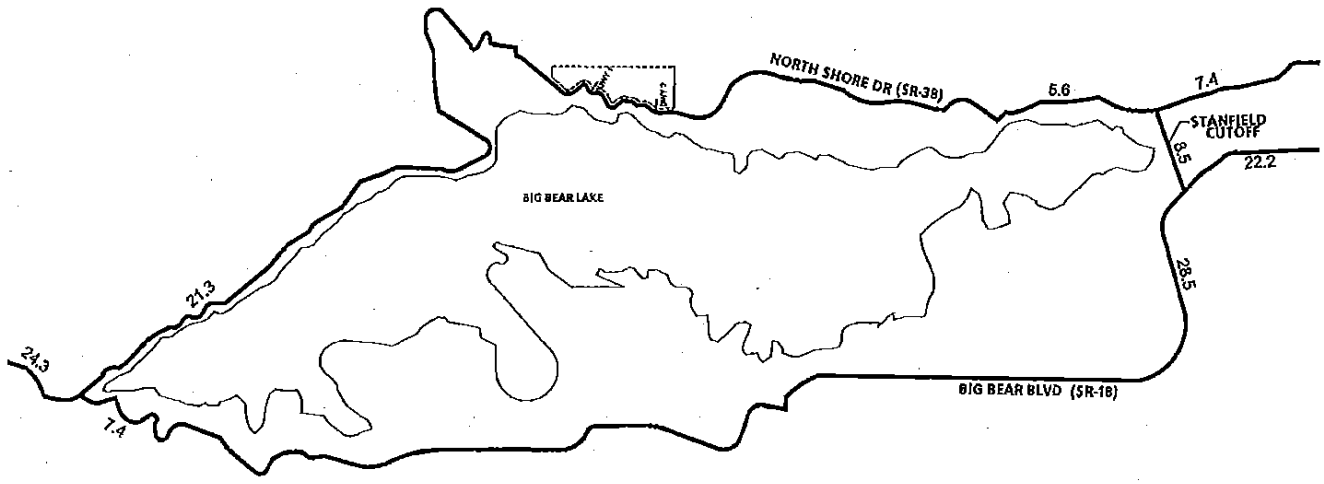
LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 3-C

EXISTING SUNDAY AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

N

Existing intersection level of service calculations are based upon the adjusted manual Friday PM and Sunday Mid-day peak hour turning movement counts, as shown on Exhibits 3-D and 3-E.

3.3 Existing Traffic Operations

Existing peak hour traffic operations have been evaluated for both the Friday PM and Sunday Mid-day peak hours of traffic throughout the study area. The results of this analysis are summarized in Table 3-1, along with the existing intersection geometrics and control devices at each analysis location. As indicated in Table 3-1, the following study area intersections are currently operating at an unacceptable level of service during both Friday PM and Sunday Mid-day peak hours:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- Big Bear Blvd (SR-18) (EW)

The operations analysis worksheets for existing conditions are included in Appendix "B".

Traffic signal warrant analysis (included in Appendix "C") has been conducted for existing conditions and traffic signals are currently warranted at the following study area intersections:

Big Bear Blvd (SR-18) (NS) at:

- North Shore Drive (SR-38) (EW)

Stanfield Cut Off (NS) at:

- North Shore Drive (SR-38) (EW)

EXHIBIT 3-D

EXISTING FRIDAY PM PEAK HOUR INTERSECTION VOLUMES

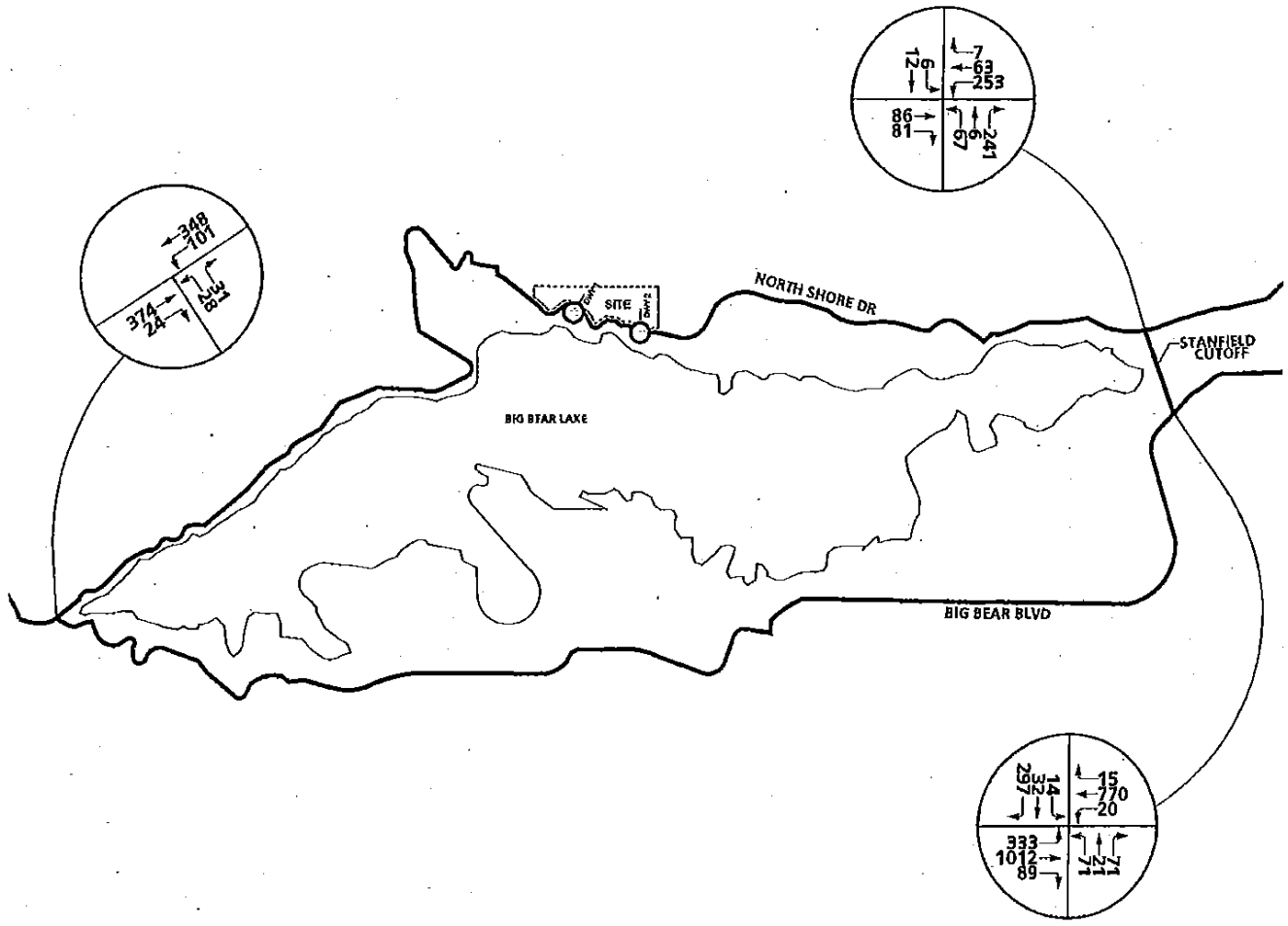


EXHIBIT 3-E

EXISTING SUNDAY MID-DAY PEAK HOUR INTERSECTION VOLUMES

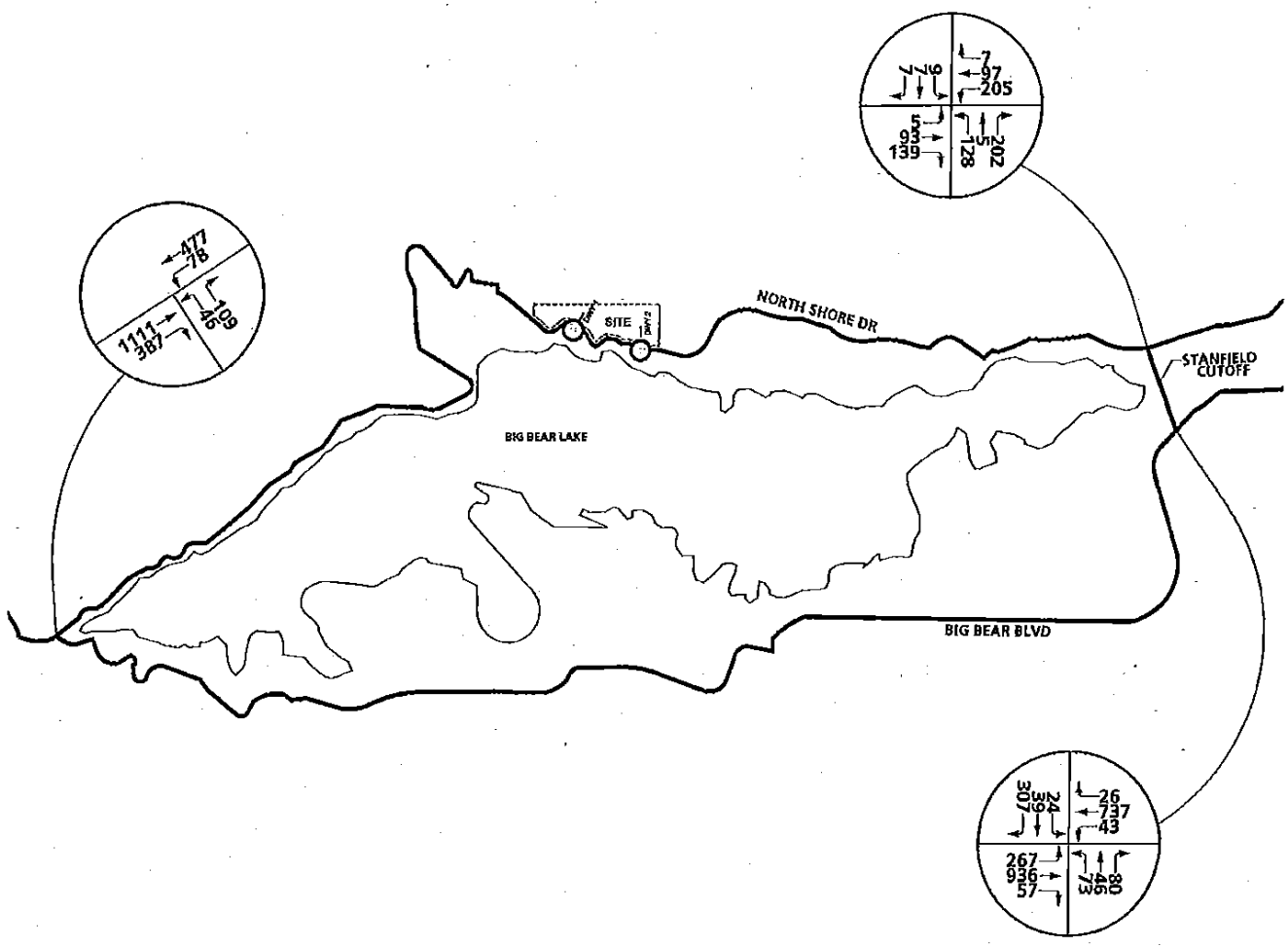


TABLE 3-1

INTERSECTION ANALYSIS FOR EXISTING CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	Fri. PM	Sun. MD	Fri. PM	Sun. MD
North Shore Dr. (SR-38) (NS) at:																	
• Big Bear Blvd. (SR-18) (EW)	CSS	0	1	0	0	0	0	0	1	1	1	1	0	22.5	--[4]	C	F
Stanfield Cutoff (NS) at:																	
• North Shore Dr. (SR-38) (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	25.5	34.5	D	D
• Big Bear Blvd. (SR-18) (EW)	TS	0	1	1	0	1	1	1	1	1	1	1	1	--[4]	81.1	F	F

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right;

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R3 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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