APPENDIX N-1

TRAFFIC TECHNICAL REPORT

TRAFFIC TECHNICAL REPORT
REVISED PAGES

All of the roadways are unclassified on the Navajo Community Plan other than Del Cerro Boulevard. For these unclassified roadways, several potential options were considered for a design capacity using the 2002 City of San Diego Street Design Manual. These include Low Volume Residential Street (700 ADT), Residential Local Street (1,500 ADT) and a two-lane Sub-Collector (2,200 ADT).

Based on an extensive field review and based on the discussion below, a Residential Local Street classification was utilized for Rockhurst Drive, Lambda Drive, Genoa Drive, Capri Drive, Arno Drive and Adobe Falls Road. These roadways do not have a specific classification assigned to them by the City; there is no document that states the functional classification of these roadways. Therefore, a custom analysis of these streets was conducted based on a field review of the roadways and the associated driving conditions on each to determine the appropriate classification.

Both the City of San Diego Street Design Manual and City Traffic Impact Study Manual provide various criteria that may be considered in determining the classification of a roadway. According to the City Street Design Manual, factors to be considered include the curb-to-curb width of the roadway and corresponding right of way, the design speed, the maximum grade, the minimum curve radii and the fronting land uses. According to the City Traffic Impact Study Manual, the classification assigned to a particular roadway considers the number of lanes, the curb-to-curb width and corresponding right-of-way width, and the fronting uses.

As explained below, based on an analysis of Del Cerro community roadways utilizing the criteria provided in the City Street Design Manual and Traffic Impact Manual, it was determined that the Del Cerro community roadways (other than Del Cerro Boulevard) closely fit the characteristics of both a Residential Local Street and a Sub-Collector.

The City of San Diego Street Design Manual does not classify roadways, i.e., it does not list specific roadways and assign to them a classification such as "Collector," "Sub-collector," etc. Instead, the Manual provides multiple design characteristics typically associated with each classification. Pages 19 & 31 of the Manual provide characteristics for Low Volume Residential Streets, Residential Local Streets and "Two-Lane Sub-Collectors" classifications. Guidance is given in terms of curb-to-curb width, right of way width, curve radii, and other factors.

Based on a field review of these roadways and a review of the Street Design Manual Criteria, it was determined that the roads have the characteristics of both a Residential Local Street and a two-lane Sub-Collector. To be conservative, a design ADT of 1,500 ADT was used for the unclassified roadways.

It should be noted that level of service is not applied to residential streets since the primary purpose is to serve abutting lots. ~~However, in order to quantitatively assess the residential roads, a LOS C capacity was estimated.~~Consistent with that principle, the traffic study does not use LOS designations to assess significant impacts on non-classified streets in the Del Cerro residential community; rather, significant impacts were determined by comparing the "design ADT" as reported in the City of San Diego Street Design Manual to the combined sum of project generated traffic and existing traffic volumes. The roadway design ADT's provided the quantitative threshold to utilize in assessing whether the additional project traffic would cause a significant impact on the Del Cerro roadways. The LOS ratings are provided merely for information purposes, to assist the reader in assessing applicable roadway conditions, since LOS is the typical standard of measure in traffic engineering. –Appendix C-1 contains more detail concerning the analysis that was conducted to determine the most accurate capacity to utilize.

3.6 Ramp Meters

There are two methods currently accepted by Caltrans to calculate ramp delays and queues, a *fixed rate* approach and a uniform 15-*minute maximum delay* approach. The fixed rate approach is based solely on the specific time intervals at which the ramp meter is programmed to release traffic. The maximum delay approach is based on the assumption that any demand exceeding 15-minute will seek an alternative route or will choose to use the ramp during a less busy time period. Effectively, this approach considers a ramp demand to spread out spatially and temporally if the calculated meter delay is greater than 15-minutes.

The fixed rate approach generally tends to produce unrealistic queue lengths and delays since the approach does not take into account driver behavior such as "ramp shopping" or trip diversion. The results are theoretical and based on Caltrans' most restrictive meter rate. Because ramp meter rates are not constant, even within the peak hours, the analysis was conducted using the most restrictive meter rates. The meter rates were obtained from Caltrans. Field observations further validate variable ramp meter rates.

The following on-ramps currently exist in the study area:

- I-8 Eastbound On-Ramp / Southbound Fairmount Avenue - Metered during the PM peak hour
- I-8 Westbound On-Ramp / Northbound College Avenue – Metered during the AM peak hour
- I-8 Westbound On-Ramp / Southbound College Avenue – Metered during the AM peak hour
- I-8 Eastbound On-Ramp / Northbound College Avenue – Metered during the PM peak hour
- I-8 Eastbound On-Ramp / Eastbound Alvarado Road – Not metered
- I-8 Westbound On-Ramp / Northbound Lake Murray Boulevard/70th Street – Metered during the AM peak hour

The following on-ramps were analyzed since the project added greater than 20 peak hour trips:

- I-8 Eastbound On-Ramp / Southbound Fairmount Avenue - PM peak hour
- I-8 Westbound On-Ramp / Northbound College Avenue – AM peak hour
- I-8 Westbound On-Ramp / Southbound College Avenue – AM peak hour
- I-8 Eastbound On-Ramp / Northbound College Avenue – PM peak hour

Other on-ramps in the nearby area were not analyzed since the project adds less than 20 peak hour trips to these locations. ***Appendix D*** contains a copy of the existing ramp meter rates obtained from Caltrans.

4.2 Existing Traffic Volumes

The existing AM and PM peak hour traffic volumes were conducted at the study area intersections in September 2006 while all local schools were in session. The existing average daily traffic volumes (ADTs) were conducted at the study area roadway segments in September 2006 and February 2007 with the exception of Fairmount Avenue. ADT volumes along Fairmount Avenue were obtained from available traffic counts at the City of San Diego.

Tables 4–1 and ***4–2*** summarize the most recent available ADTs. ***Appendix F*** contains the manual existing traffic volume count sheets.

TABLE 4–1
EXISTING TRAFFIC VOLUMES (2006)

Street Segment	ADT[a]	Date	Source
Alvarado Road			
E. Campus Dr to Reservoir Dr	8,300	Sep. 2006	LLG[b]
Reservoir Dr to 70th St	9,890	Sep. 2006	LLG
College Avenue			
Del Cerro Blvd to I-8 EB Ramps	29,530	Sep. 2006	LLG
I-8 EB Ramps to Zura Way	39,400	Sep. 2006	LLG
Zura Way to Montezuma Rd	33,950	Sep. 2006	LLG
South of Montezuma Rd	30,220	Sep. 2006	LLG
Montezuma Road			
Fairmount Ave to Collwood Blvd	49,820	Sep. 2006	LLG
Collwood Blvd to 55th St	29,610	Sep. 2006	LLG
55th St to College Ave	24,460	Sep. 2006	LLG
College Ave to E. Campus Dr	21,550	Feb. 2007	LLG
Fairmount Avenue			
Montezuma Rd to I-8	80,800	2006[c]	City of San Diego

Footnotes:

a. Average Daily Traffic Volumes (Rounded to nearest 10th)

b. Linscott, Law & Greenspan Engineers

c. Year 2005 count with 2% growth factor per year.

TABLE 4–2
EXISTING RESIDENTIAL STREET TRAFFIC VOLUMES (2006)

Street Segment	ADT[a]	Date	Source
Adobe Falls Rd/Mill Peak Road			
North of Genoa Dr	410	Sep. 2006	LLG [b]
Arno Drive			
Helena Pl to Capri Dr	370	Sep. 2006	LLG
Capri Drive			
East of Arno Dr	720	Sep. 2006	LLG
Del Cerro Boulevard			
Genoa Dr to Capri Dr	3,640	Sep. 2006	LLG
Capri Dr to College Ave	5,170	Sep. 2006	LLG
Genoa Drive			
Capri Dr to Arno Pl	400	Sep. 2006	LLG
Lambda Drive			
Rockhurst Dr to College Ave	600	Sep. 2006	LLG
Rockhurst Drive			
Lambda Dr to College Ave	500	Sep. 2006	LLG

Footnotes:

a. Average Daily Traffic Volumes (Rounded to nearest 10^{th})

b. Linscott, Law & Greenspan Engineers

5.0 Analysis of Existing Conditions

The analysis of existing conditions includes the assessment of the study area intersections, street segments, ramp meters, and freeways using the methodologies described in Section 3.0. ***Appendix G*** contains the existing conditions analysis worksheets.

5.1 Peak Hour Intersection Levels of Service

Table 5–1 summarizes the peak hour intersection operations for existing conditions. As seen in *Table 5–1*, all key signalized intersections are calculated to currently operate at LOS D or better except the following:

- Fairmount Avenue / I-8 WB Off-Ramp / Camino del Rio North (LOS F during the PM peak hour)
- Fairmount Avenue / I-8 EB Off-Ramp (LOS F during the PM peak hour)
- 55th Street / Montezuma Avenue (LOS E during the AM peak hour)
- College Avenue / Del Cerro Boulevard (LOS E during the AM peak hour)
- College Avenue / Canyon Crest Drive (LOS E during the AM and PM peak hours)

The unsignalized intersections in the project vicinity are calculated to operate at LOS D or better except for the following:

- Zura Way / College Avenue (LOS F for left-turn onto Zura Way during the PM peak hour)

Table 5–1
Existing Intersection Operations (2006)

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. Fairmount Ave / I-8 WB Off Ramp / Camino del Rio N	Signal	AM PM	47.8 154.8	D F
2. Fairmount Ave / I-8 EB Off Ramp	Signal	AM PM	37.9 99.8	D F
3. 55th Street / Remington Rd	Signal	AM PM	8.9 8.3	A A
4. 55th Street / Montezuma Rd	Signal	AM PM	73.4 33.7	E C
5. Campanile Dr / Montezuma Rd	Signal	AM PM	31.8 32.2	C C

TABLE 5–1 (CONTINUED)
EXISTING INTERSECTION OPERATIONS (2006)

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
6. College Ave / Del Cerro Blvd	Signal	AM PM	68.1 40.6	E D
7. College Ave / I-8 WB Ramps	Signal	AM PM	8.9 9.0	A A
8. College Ave / I-8 EB Ramps	Signal	AM PM	40.1 15.3	D B
9. College Ave / Canyon Crest Dr	Signal	AM PM	64.1 62.3	E E
10. College Ave / Zura Way	TWSC[c]	AM PM	14.3 124.2	B F
11. College Ave / Montezuma Rd	Signal	AM PM	38.9 36.5	D D
12. Alvarado Ct / Alvarado Rd	TWSC[c]	AM PM	14.4 13.4	B B
13. Resevoir Dr / Alvarado Rd	Signal	AM PM	17.1 20.8	B C
14. Lake Murray Blvd / Parkway Dr	Signal	AM PM	30.8 32.5	C C
15. 70th Street / Alvarado Rd	Signal	AM PM	30.1 39.3	C D
16. I-8 WB Ramps /Parkway Dr	AWSC[d]	AM PM	18.3 31.1	C D
17. I-8 EB Ramps / Alvarado Rd	Signal	AM PM	19.4 16.9	B B

Footnotes:

a. Average delay expressed in seconds per vehicle.

b. Level of Service.

c. TWSC – Two-Way Stop Controlled intersection. Minor street approach delay is reported.

d. AWSC – All-Way Stop Controlled intersection.

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

5.2 Daily Street Segment Levels of Service

Tables 5–2 and *5–3* summarizes the existing segment operations. As seen in *Tables 5–2* and *5–3*, all segments in the study area are calculated to operate at LOS D or better except the following:

- Alvarado Road between Reservoir Drive to 70th Street (LOS E)
- College Avenue between I-8 Eastbound Ramps and Zura Way (LOS E)
- College Avenue south of Montezuma Road (LOS F)
- Montezuma Road between Fairmount Avenue to Collwood Boulevard (LOS F)
- Fairmount Avenue between Montezuma Road and I-8 (LOS F)

TABLE 5–2
EXISTING STREET SEGMENT OPERATIONS (2006)

Street Segment	Capacity (LOS E) [a]	ADT [b]	LOS	V/C
Alvarado Road				
E. Campus Dr to Reservoir Dr	10,000	8,300	D	0.83
Reservoir Dr to 70th St	10,000	9,890	E	0.99
College Avenue				
Del Cerro Blvd to I-8 EB Ramps	40,000	29,530	C	0.74
I-8 EB Ramps to Zura Way	40,000	39,400	E	0.99
Zura Way to Montezuma Rd	40,000	33,950	D	0.85
South of Montezuma Rd	30,000	30,220	F	1.01
Montezuma Road				
Fairmount Ave to Collwood Blvd	40,000	49,820	F	1.25
Collwood Blvd to 55th St	40,000	29,610	C	0.74
55th St to College Ave	30,000	24,460	D	0.82
College Ave to E. Campus Dr	30,000	21,550	D	0.72
Fairmount Avenue				
Montezuma Rd to I-8	60,000	80,800	F	1.347

Footnotes:

a. Capacities based on City of San Diego Roadway Classification Table.

b. Average Daily Traffic Volumes.

TABLE 5-3
EXISTING RESIDENTIAL STREET SEGMENT OPERATIONS (2006)

Street Segment	Capacity (LOS C) [a]	ADT [b]	LOS
Adobe Falls Rd/Mill Peak Road			
North of Genoa Dr	1,500	410	C+
Arno Drive			
Helena Pl to Capri Dr	1,500	370	C+
Capri Drive			
East of Arno Dr	1,500	720	C+
Del Cerro Boulevard			
Genoa Dr to Capri Dr	5,000	3,640	C
Capri Dr to College Ave	5,000	5,170	D
Genoa Drive			
Capri Dr to Arno Pl	1,500	400	C+
Lambda Drive			
Rockhurst Dr to College Ave	1,500	600	C+
Rockhurst Drive			
Lambda Dr to College Ave	1,500	500	C+

Footnotes:

a. Capacities based on City of San Diego Roadway Classification Table. Section 3.5 contains a discussion of the capacity of the residential roadways.

b. Average Daily Traffic Volumes.

General Notes:

1. C+ equals better than LOS C.

5.3 Ramp Meter Operations

Table 5–4 summarizes the existing ramp meter operations for the I-8/College Avenue and the I-8/Fairmount Avenue interchanges. Using the *fixed rate method*, southbound College Avenue on-ramp to westbound I-8 is calculated to operate with a 26-minute delay. The northbound College Avenue on-ramp to the eastbound I-8 is calculated to operate with a 38-minute delay. A ramp meter delay longer than 15 minutes is considered to be unacceptable as shown in Section 6.0: Significance Criteria.

The *maximum delay method* indicates that with the 15-minute maximum delay, queues of 3,425 feet per lane would be predicted at the southbound College Avenue on-ramp to the westbound I-8. A queue of 5,100 feet per lane would be predicted at the northbound College Avenue on-ramp to the eastbound I-8.

TABLE 5–4
EXISTING RAMP METER OPERATIONS

Location/Scenario	Peak Hour	Peak Hour Demand	Ramp Meter Rate (Flow)[a]	Excess Demand	Delay per Lane[b]	Queue per Lane[c]
Fixed Rate Method						
SB Fairmount Ave to EB I-8	PM	430	492	0	0	0
NB College Avenue to WB I-8	AM	250	318	0	0	0
SB College Avenue to WB I-8	AM	455	318	137	26	3,425
NB College Avenue to EB I-8	PM	522	318	204	38	5,100
Maximum Delay Method						
SB Fairmount Ave to EB I-8	PM	430	492	0	0	0
NB College Avenue to WB I-8	PM	250	318	0	0	0
SB College Avenue to WB I-8	PM	455	318	137	15	3,425
NB College Avenue to EB I-8	PM	522	318	204	15	5,100

Footnotes:

a. Meter Rates obtained from Caltrans (see Appendix ~~B~~D).
b. Delay expressed in minutes per lane.
c. Queue expressed in feet per lane.

5.4 Freeway Mainline Operations

Table 5–5 summarizes the existing freeway mainline operations on I-8. As seen in *Table 5–5*, the segment of I-8 between Fairmount Avenue and Waring Road is calculated to currently operate at LOS ~~E~~ F(0) during the AM peak hour in the westbound direction. The segments of I-8 between Waring Road and Lake Murray Boulevard are calculated to currently operate at LOS F(0) during the AM peak hour in the westbound direction. The segment of I-8 between Lake Murray Boulevard and Fletcher Parkway is calculated to currently operate at LOS F(1) during the AM peak hour in the

TABLE 5-5
FREEWAY MAINLINE OPERATIONS
EXISTING CONDITIONS

Freeway Segment	Dir.	# of Lanes	Hourly Capacity[a]	ADT[b]	% K[c]		% D[c]		Truck Factor[d]	Peak Hour Volume[e]		V/C[f]		LOS	
					AM	PM	AM	PM		AM	PM	AM	PM	AM	PM
Interstate 8															
Fairmount Ave to Waring Rd	EB	5	10,000	251,000	0.075~~0.061~~	0.074~~0.077~~	0.374~~0.250~~	0.604~~0.604~~	0.965	7243~~3,946~~	11,568~~12,103~~	0.724~~0.395~~	1.157~~1.210~~	C~~A~~	F(0)~~F(0)~~
	WB	6	12,000		0.075~~0.061~~	0.074~~0.077~~	0.626~~0.751~~	0.396~~0.396~~		12,134~~11,869~~	7575~~7,925~~	1.011~~0.989~~	0.631~~0.660~~	F(0)~~E~~	C~~C~~
Waring Rd to College Ave	EB	5	10,000	238,000	0.075	0.074	0.374	0.604	0.965	6,868	10,969	0.687	1.097	C	F(0)
	WB	5	10,000		0.075	0.074	0.626	0.396		11,506	7,183	1.151	0.718	F(0)	C
College Ave to Lake Murray Blvd	EB	4 + 1	9,200	214,000	0.073	0.078	0.330	0.600	0.963	5,313	10,392	0.578	1.130	B	F(0)
	WB	5	10,000		0.073	0.078	0.670	0.400		10,842	6,919	1.084	0.692	F(0)	C
Lake Murray Blvd to Fletcher Pkwy	EB	4 + 1	9,200	201,000	0.073	0.078	0.330	0.600	0.963	4,991	9,761	0.542	1.061	B	F(0)
	WB	4	8,000		0.073	0.078	0.670	0.400		10,184	6,499	1.273	0.812	F(1)	D

Footnotes:

a. Capacity calculated at 2000 vph per lane and 1200 vph per auxiliary lane.
b. Existing ADT Volumes from CALTRANS Year 2005 Count Records.
c. Peak Hour Percentage (K) and Direction Split (D) from CALTRANS "2005 Traffic Volumes", June 2006
d. Truck Factor from "2005 Annual Average Daily Truck Traffic on the California State Highway System", November 2006.
e. Peak Hour Volume = ((ADT)(K)(D)/Truck Factor)
f. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)

LOS	v/c
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

6.0 SIGNIFICANCE CRITERIA

According to the City of San Diego's *Significance Determination Thresholds* report dated January 2007, a project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a City defined threshold. For projects deemed complete on or after January 1, 2007, the City defined threshold by roadway type or intersection is shown in ***Table 6–1***.

The impact is designated either a "direct" or "cumulative" impact. According to the City's *Significance Determination Thresholds* report,

> "*Direct* traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (near term)."
>
> "*Cumulative* traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when affected community plan area reaches full planned buildout (long-term cumulative)."
>
> It is possible that a project's near term (direct) impacts may be reduced in the long term, as future projects develop and provide additional roadway improvements (for instance, through implementation of traffic phasing plans). In such a case, the project may have direct impacts but not contribute considerably to a cumulative impact."
>
> For intersections and roadway segments affected by a project, level of service (LOS) D or better is considered acceptable under both direct and cumulative conditions."

If the project exceeds the thresholds in *Table 6–1*, then the project may be considered to have a significant "direct" or "cumulative" project impact. A significant impact can also occur if a project causes the Level of Service to degrade from D to E, even if the allowable increases in *Table 6–1* are not exceeded. A feasible mitigation measure will need to be identified to return the impact within the City thresholds, or the impact will be considered significant and unmitigated.

It should be noted that for ramp meter significance if either of the two (2) methodologies results in a significant impact, a significant impact is determined.

Ramp meter observations reveal a large discrepancy between the calculated operations and actual observed conditions. Therefore, calculated ramp meter operations may not be an effective tool in determining project impacts or form a solid basis for identifying mitigation. However, it should be noted that all ramp meter analysis was done using Caltrans accepted methodologies.

Neither SANDAG nor the City of San Diego has criteria that could be utilized to assess the project's impact on transit service. In addition, the Congestion Management Program (CMP) provides no methodology to analyze potential impacts to transit and there is no criteria to determine whether the increase in ridership would be significant.

9.1.4 *Freeway Operations*

Table 9–5 summarizes the freeway mainline operations on I-8 during the existing + project scenario. As seen in *Table 9–5*, with the addition of project traffic, the segment of I-8 between Fairmount Avenue and Waring Road is calculated to continue to operate at LOS ~~E~~ F(0) during the AM peak hour in the westbound direction and LOS F(0) during the PM peak hour in the eastbound direction. The segments of I-8 between Waring Road and Lake Murray Boulevard are calculated to continue to operate at LOS F(0) during the AM peak hour in the westbound direction and LOS F(0) during the PM peak hour in the eastbound direction. The segment of I-8 between Lake Murray Boulevard and Fletcher Parkway is calculated to continue to operate at LOS F(1) during the AM peak hour in the westbound direction and LOS F(0) during the PM peak hour in the eastbound direction.

TABLE 9–5
FREEWAY MAINLINE OPERATIONS
EXISTING + PROJECT

Freeway Segment	Dir.	# of Lanes	Hourly Capacity[a]	ADT	Existing Peak Hour Volume[b]		Project Volume		Existing + Project Peak Hour Volume		V/C[c]		LOS[d]	
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Interstate 8														
Fairmount Ave to Waring Rd	EB	5	10,000	253,910	~~3946~~7243	~~12103~~11568	121	82	~~4067~~7364	~~12185~~11650	~~0.407~~0.736	~~1.218~~1.165	~~A~~C	F(0)
	WB	6	12,000		~~11869~~12134	~~7925~~7575	34	131	~~11903~~12168	~~8056~~7706	~~0.992~~1.014	~~0.671~~0.642	~~E~~F(0)	C
Waring Rd to College Ave	EB	5	10,000	240,910	6868	10969	121	82	6989	11051	0.699	1.105	C	F(0)
	WB	5	10,000		11506	7183	34	131	11540	7314	1.154	0.731	F(0)	C
College Ave to Lake Murray Blvd	EB	4 + 1	9,200	216,030	5313	10392	15	71	5328	10463	0.579	1.137	B	F(0)
	WB	5	10,000		10842	6919	65	41	10907	6960	1.091	0.696	F(0)	C
Lake Murray Blvd to Fletcher Pkwy	EB	4 + 1	9,200	203,950	4991	9761	24	138	5015	9899	0.545	1.076	B	F(0)
	WB	4	8,000		10184	6499	128	74	10312	6573	1.289	0.822	F(1)	D

Footnotes:

a. Capacities calculated at 2,000 vph per lane and 1,200 vph per auxiliary lane
b. Values calculated in the Existing Conditions table
c. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)
d. Level of Service

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 9–6
NEAR-TERM INTERSECTION OPERATIONS (2012)

Intersection	Control Type	Peak Hour	Near-Term without Project		Near-Term with Project		
			Delay [a]	LOS [b]	Delay	LOS	Δ[e]
1. Fairmount Ave / I-8 WB Off Ramps / Camino del Rio N	Signal	AM	51.1	D	51.1	D	0.0
		PM	169.4	F	169.4	F	0.0
2. Fairmount Ave / I-8 EB Off Ramps	Signal	AM	39.3	D	39.3	D	0.0
		PM	115.7	F	116.3	F	0.6
3. 55th Street / Remington Rd	Signal	AM	9.2	A	9.2	A	0.0
		PM	8.4	A	8.5	A	0.1
4. 55th Street / Montezuma Rd	Signal	AM	110.6	F	111.3	F	0.7
		PM	39.7	D	40.0	D	0.3
5. Campanile Dr / Montezuma Rd	Signal	AM	46.3	D	46.5	D	0.2
		PM	67.3	E	67.8	E	0.5
6. College Ave / Del Cerro Blvd	Signal	AM	75.4	E	**79.2**	**E**	**3.8**
		PM	40.8	D	41.3	D	0.5
7. College Ave / I-8 WB Ramps	Signal	AM	9.9	A	9.9	A	0.0
		PM	11.3	B	12.0	B	0.7
8. College Ave / I-8 EB Ramps	Signal	AM	68.9	E	**72.8**	**E**	**3.9**
		PM	20.1	C	27.6	C	7.5
9. College Ave / Canyon Crest Dr	Signal	AM	80.8	F	**83.7**	**F**	**2.9**
		PM	>120.0	F	**>120**	**F**	**>2.0**
10. College Ave / Zura Way	TWSC[c]	AM	16.5	C	16.9	C	0.4
		PM	>120.0	F	**>120**	**F**	**>2.0**
11. College Ave / Montezuma Rd	Signal	AM	104.8	F	**108.0**	**F**	**3.2**
		PM	98.4	F	**100.2**	**F**	**1.8**
12. Alvarado Ct / Alvarado Rd	TWSC[c]	AM	15.8	C	16.1	C	0.3
		PM	15.1	C	15.5	C	0.4

TABLE 9–6 (CONTINUED)
NEAR-TERM INTERSECTION OPERATIONS (2012)

Intersection	Control Type	Peak Hour	Near-Term without Project		Near-Term with Project		
			Delay [a]	LOS [b]	Delay	LOS	Δ[e]
13. Resevoir Dr / Alvarado Rd	Signal	AM	17.7	B	17.8	B	0.1
		PM	21.5	C	21.5	C	0.0
14. Lake Murray Blvd / Parkway Dr	Signal	AM	33.6	C	34.0	C	0.4
		PM	35.3	D	35.7	D	0.4
15. 70th Street / Alvarado Rd	Signal	AM	32.3	C	32.4	C	0.1
		PM	42.6	D	42.6	D	0.0
16. I-8 WB Ramps /Parkway Dr	AWSC[d]	AM	23.1	C	23.7	C	0.6
		PM	46.1	E	**49.7**	**E**	**3.6**
17. I-8 EB Ramps / Alvarado Rd	Signal	AM	19.8	B	20.3	C	0.5
		PM	18.7	B	19.3	B	0.6

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. TWSC – Two-Way Stop Controlled intersection. Minor street approach delay is reported.
d. AWSC – All-Way Stop Controlled intersection.
e. Δ denotes project induced delay increase.
General Notes:
Bold and shading represents a potential significant impact

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

9.2.2 *Segment Operations*

Table 9–7 summarizes the key segment operations in the study area in the near-term without project scenario. As seen in *Table 9–7* the following study area segments are calculated to operate at LOS E or worse conditions:

- Alvarado Road between East Campus Drive and Reservoir Drive (LOS E)
- Alvarado Road between Reservoir Drive and 70th Street (LOS F)
- College Avenue between I-8 Eastbound Ramps and Zura Way (LOS F)
- College Avenue between Zura Way and Montezuma Road (LOS E)
- College Avenue South of Montezuma Road (LOS F)
- Montezuma Road between Fairmount Avenue and Collwood Boulevard (LOS F)
- Montezuma Road between 55th Street and College Avenue (LOS F)
- Fairmount Avenue between Montezuma Road and I-8 (LOS F)

Table 9-7A shows the near term street segment operations on the residential streets.

Table 9–7
Near-Term Segment Operations (2012)

Segment	LOS E Capacity [a]	Near-Term without Project			Near-Term with Project			V/C Δ
		Volume	LOS [b]	V/C [c]	Volume	LOS	V/C	
Alvarado Road								
E. Campus Dr to Reservoir Dr	10,000	9,220	E	0.92	**9,490**	**E**	**0.95**	**0.03**
Reservoir Dr to 70th St	10,000	11,040	F	1.10	**11,310**	**F**	**1.13**	**0.03**
College Avenue								
Del Cerro Blvd to I-8 EB Ramps	40,000	32,360	D	0.81	32,910	D	0.82	0.01
I-8 EB Ramps to Zura Way	40,000	45,800	F	1.15	**47,260**	**F**	**1.18**	**0.03**
Zura Way to Montezuma Rd	40,000	37,480	E	0.94	38,090	E	0.95	0.01
South of Montezuma Rd	30,000	34,990	F	1.17	35,320	F	1.18	0.01
Montezuma Road								
Fairmount Ave to Collwood Blvd	40,000	56,030	F	1.40	56,210	F	1.41	0.01
Collwood Blvd to 55th St	40,000	31,990	D	0.80	32,170	D	0.80	0.00
55th St to College Ave	30,000	30,990	F	1.03	31,160	F	1.04	0.01
College Ave to E. Campus Dr	30,000	23,870	D	0.80	24,070	D	0.80	0.00
Fairmount Avenue								
Montezuma Rd to I-8	60,000	88,350	F	1.473	88,420	F	1.474	0.001

Footnotes:

a. Capacities based on City of San Diego's Roadway Classification & LOS table (See Appendix C).
b. Average Daily Traffic
c. Volume to Capacity ratio

TABLE 9–7A
NEAR TERM
RESIDENTIAL STREET SEGMENT OPERATIONS

Segment	~~LOS C Capacity~~ Design ADT [a]	Near Term Without Project		Near Term With Entire Project	
		Volume	LOS [b]	Volume	LOS
Adobe Falls Rd/Mill Peak Road					
North of Genoa Dr	1,500	410	C+	~~840~~1,400	C+
Arno Drive					
Helena Pl to Capri Dr	1,500	370	C+	1,170	C+
Capri Drive					
East of Arno Dr	1,500	720	C+	1,520	C
Del Cerro Boulevard					
Genoa Dr to Capri Dr	5,000	3,640	C	3,950	C
Capri Dr to College Ave	5,000	5,170	D	6,290	D
Genoa Drive					
Capri Dr to Arno Pl	1,500	400	C+	830	C+
Lambda Drive					
Rockhurst Dr to College Ave	1,500	600	C+	660	C+
Rockhurst Drive					
Lambda Dr to College Ave	1,500	500	C+	560	C+

Footnotes:

a. ~~Capacities based on City of San Diego's Roadway Classification & LOS table (See Appendix C).~~Design ADT based on City of San Diego Street Design Manual, November 2002.

b. Level of Service

c. LOS Capacity based on City of San Diego Roadway Classification and LOS table (see Appendix C) – Capacity utilized since Del Cerro Blvd is a classified raod.

General Notes:

1. C+ equals better than ~~LOS C.~~Design ADT.
2. Project volume projections include a 10% decrease in overall Adobe Falls trip generation due to the planned shuttle system from the development to the campus. It is planned that the shuttle system would be implemented once the traffic volumes on the residential roadways reach a point that warrant such a system.

9.2.3 *Ramp Meter Operations*

Table 9–8 summarizes the near-term without project ramp meter operations for the I-8/College Avenue and the I-8/Fairmount Avenue interchanges. Using the *fixed rate method*, southbound College Avenue on-ramp to westbound I-8 is calculated to operate with a 34-minute delay. The northbound College Avenue on-ramp to the eastbound I-8 is calculated to operate with a 48-minute delay. A ramp meter delay longer than 15 minutes is considered to be unacceptable as shown in Section 6.0: Significance Criteria.

The *maximum delay method* indicates that with the 15-minute maximum delay, queues of 4,500 feet per lane would be predicted at the southbound College Avenue on-ramp to the westbound I-8. A queue of 6,325 feet per lane would be predicted at the northbound College Avenue on-ramp to the eastbound I-8. These queue lengths exceed the available storage on the ramp.

The project adds less than 20 peak hour trips to the Fairmount Avenue and Waring Road on-ramps and therefore a ramp meter analysis is not required at these locations.

TABLE 9–8

NEAR-TERM RAMP METER OPERATIONS (2012)

Location/Scenario	Peak Hour	Peak Hour Demand	Ramp Meter Rate (Flow)[a]	Excess Demand	Delay per Lane[b]	Queue per Lane[c]
Fixed Rate Method						
SB Fairmount Ave to EB I-8						
Near-Term	PM	447	492	0	0	0
Near-Term + Project	PM	448	492	0	0	0
Project Increase	PM	1	492	0	0	0
NB College Avenue to WB I-8						
Near-Term	AM	273	318	0	0	0
Near-Term + Project	AM	279	318	0	0	0
Project Increase	AM	6	318	0	0	0
SB College Avenue to WB I-8						
Near-Term	AM	498	318	180	34	4500
Near-Term + Project	AM	500	318	182	34	4550
Project Increase	AM	2	318	2	0	50
NB College Avenue to EB I-8						
Near-Term	PM	571	318	253	48	6325
Near-Term + Project	PM	585	318	267	50	6675
Project Increase	PM	14	318	14	2	350

Table 9–8 (Continued)
Near-Term Ramp Meter Operations (2012)

Location/Condition	Peak Hour	Peak Hour Demand	Ramp Meter Rate (Flow)[a]	Excess Demand	Delay per Lane[b]	Queue per Lane[c]
Maximum Delay Method						
SB Fairmount Ave to EB I-8						
Near-Term	PM	447	492	0	0	0
Near-Term + Project	PM	448	492	0	0	0
Project Increase	PM	1	NA	0	0	0
NB College Avenue to WB I-8						
Near-Term	PM	273	318	0	0	0
Near-Term + Project	PM	279	318	0	0	0
Project Increase	PM	6	NA	0	0	0
SB College Avenue to WB I-8						
Near-Term	PM	498	318	180	15	4500
Near-Term + Project	PM	500	318	182	15	4550
Project Increase	PM	2	NA	2	0	50
NB College Avenue to EB I-8						
Near-Term	PM	571	318	253	15	6325
Near-Term + Project	PM	585	318	267	15	6675
Project Increase	PM	14	NA	14	0	350

Footnotes:

a. Meter Rates obtained from Caltrans.
b. Delay expressed in minutes per lane.
c. Queue expressed in feet per lane.

General Notes:

Bold & Shading represents a potential significant impact.

NA = Not Applicable.

TABLE 9–9
NEAR-TERM FREEWAY MAINLINE OPERATIONS
INTERSTATE 8

Scenario	Direction	Number of Lanes	Hourly Capacity [a]	ADT [b]	% K [c]		% D [c]		Truck Factor [d]	Peak Hour Volume [e]		V/C [f]		LOS	
					AM	PM	AM	PM		AM	PM	AM	PM	AM	PM
Near-Term Without Project															
Fairmount Avenue to Waring Road	EB	5M	10,000	254,360	0.075	0.074	0.374	0.604	0.965	7,340	11,723	0.734	1.172	C	F(0)
	WB	~~5~~6M	12~~10~~,000		0.075	0.074	0.626	0.396		12,297	7,677	~~1.230~~1.025	~~0.768~~0.640	F(~~1~~0)	C
Waring Road to College Avenue	EB	5M	10,000	239,960	0.075	0.074	0.374	0.604	0.965	6,925	11,060	0.692	1.106	C	F(0)
	WB	5M	10,000		0.075	0.074	0.626	0.396		11,601	7,242	1.160	0.724	F(0)	C
College Avenue to Lake Murray Boulevard	EB	4M + 1A	9,200	219,040	0.073	0.078	0.330	0.600	0.963	5,439	10,637	0.591	1.156	B	F(0)
	WB	5M	10,000		0.073	0.078	0.670	0.400		11,098	7,082	1.110	0.708	F(0)	C
Lake Murray Boulevard to Fletcher Parkway	EB	4M + 1A	9,200	202,120	0.073	0.078	0.330	0.600	0.963	5,018	9,815	0.545	1.067	B	F(0)
	WB	4M	8,000		0.073	0.078	0.670	0.400		10,240	6,535	1.280	0.817	F(1)	D
Near-Term With Project															
Fairmount Avenue to Waring Road	EB	5M	10,000	255,060	0.075	0.074	0.374	0.604	0.965	7366	11751	0.737	1.175	C	F(0)
	WB	~~5~~6M	~~10~~12,000		0.075	0.074	0.626	0.396		12312	7703	~~1.231~~1.026	~~0.770~~0.642	F(~~1~~0)	C
Waring Road to College Avenue	EB	5M	10,000	240,660	0.075	0.074	0.374	0.604	0.965	6951	11088	0.695	1.109	C	F(0)
	WB	5M	10,000		0.075	0.074	0.626	0.396		11616	7268	1.162	0.727	F(0)	C
College Avenue to Lake Murray Boulevard	EB	4M + 1A	9,200	219,410	0.073	0.078	0.330	0.600	0.963	5445	10651	0.592	1.158	B	F(0)
	WB	5M	10,000		0.073	0.078	0.670	0.400		11112	7095	1.111	0.710	F(0)	C
Lake Murray Boulevard to Fletcher Parkway	EB	4M + 1A	9,200	202,690	0.073	0.078	0.330	0.600	0.963	5028	9837	0.547	1.069	B	F(0)
	WB	4M	8,000		0.073	0.078	0.670	0.400		10261	6556	1.283	0.820	F(1)	D

General Notes:

Bold and Shading—represents a potential significant impact.

Footnotes:

a. Capacity calculated at 2,000 vehicles per hour per lane and 1,200 vehicles per hour per auxiliary lane (M: Mainline, A: Auxiliary)

b. Existing Average Daily Traffic Volumes from CALTRANS

c. Peak Hour Percentage (K) and Direction Split (D) from CALTRANS "2005 Traffic Volumes", June 2006 (*Appendix D*)

d. Truck Factor from "2005 Annual Average Daily Truck Traffic on the California State Highway System", November 2006 (*Appendix D*)

e. Peak Hour Volume = ((ADT)(K)(D)/Truck Factor)

f. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)

FREEWAY V/C / LOS THRESHOLDS	
V / C	LOS
< 0.41	A
0.62	B
0.80	C
0.92	D
1.00	E

FREEWAY V/C / LOS THRESHOLDS	
V / C	LOS
1.25	F(0)
1.35	F(1)
1.45	F(2)
> 1.46	F(3)

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Table 10–1
Horizon Year Intersection Operations (2030)

Intersection	Control Type	Peak Hour	Horizon Year without Project		Horizon Year with Project		
			Delay	LOS	Delay	LOS	Δ[c]
1. Fairmount Ave / I-8 WB Off Ramp / Camino del Rio N	Signal	AM PM	92.6 286.7	F F	**96.1** 287.5	**F** F	**3.5** 0.8
2. Fairmount Ave / I-8 EB Off Ramp	Signal	AM PM	43.0 140.5	D F	43.8 140.9	D F	0.8 0.4
3. 55th Street / Remington Rd	Signal	AM PM	10.2 9.1	B A	10.4 9.1	B A	0.2 0.0
4. 55th Street / Montezuma Rd	Signal	AM PM	>120 56.9	F E	**>120** **66.7**	**F** **E**	**>2.0** **9.8**
5. Campanile Dr / Montezuma Rd	Signal	AM PM	84.0 101.3	F F	**90.0** **105.8**	**F** **F**	**6.0** **4.5**
6. College Ave / Del Cerro Blvd	Signal	AM PM	>120 63.1	F E	**>120** **69.6**	**F** **E**	**>2.0** **6.5**
7. College Ave / I-8 WB Ramps	Signal	AM PM	10.5 51.8	B D	11.1 **65.0**	B **E**	0.6 **13.2**
8. College Ave / I-8 EB Ramps	Signal	AM PM	>120 109.9	F F	**>120** **>120**	**F** **F**	**>2.0** **>2.0**
9. College Ave / Canyon Crest Dr	Signal	AM PM	>120 >120	F F	**>120** **>120**	**F** **F**	**>2.0** **>2.0**
10. College Ave / Zura Way	TWSC[c]	AM PM	21.1 >120	C F	24.3 **>120**	C **F**	3.2 **>2.0**
11. College Ave / Montezuma Rd	Signal	AM PM	>120 >120	F F	**>120** **>120**	**F** **F**	**>2.0** **>2.0**
12. Alvarado Ct / Alvarado Rd	TWSC[c]	AM PM	54.1 35.4	F D	**>120** **>120**	**F** **F**	**>2.0** **>2.0**

Table 10–1 (Continued)
Horizon Year Intersection Operations (2030)

Intersection	Control Type	Peak Hour	Horizon Year without Project		Horizon Year with Project		
			Delay	LOS	Delay	LOS	Δ[c]
13. Resevoir Dr / Alvarado Rd	Signal	AM PM	21.6 36.5	C D	23.4 **67.9**	C **E**	1.8 **31.4**
14. Lake Murray Blvd / Parkway Dr	Signal	AM PM	72.7 65.4	E E	**90.5** **71.6**	**F** **E**	**17.8** **5.8**
15. 70th Street / Alvarado Rd	Signal	AM PM	81.1 119.3	F F	**92.7** **>120**	**F** **F**	**11.6** **>2.0**
16. I-8 WB Ramps /Parkway Dr	AWSC[d]	AM PM	61.3 >120	F F	**80.5** **>120**	**F** **F**	**19.2** **>2.0**
17. I-8 EB Ramps / Alvarado Rd	Signal	AM PM	24.3 101.4	C F	24.8 **105.1**	C **F**	0.5 **3.7**

Footnotes:

a. Average delay expressed in seconds per vehicle.

b. Level of Service.

c. TWSC – Two-Way Stop Controlled intersection. Minor street approach delay is reported.

d. AWSC – All-Way Stop Controlled intersection.

e. Δ denotes project induced delay increase.

General Notes:

Bold and shading represents a potential significant impact

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

10.1.2 *Segment Operations*

Table 10–2 summarizes the key segment operations in the study area in the Horizon Year without project scenario. As seen in *Table10–2* the following study area segments are calculated to operate at LOS E or worse conditions.

- Alvarado Road between East Campus Drive and Reservoir Drive (LOS F)
- Alvarado Road between Reservoir Drive and 70th Street (LOS F)
- College Avenue between Del Cerro Boulevard and I-8 Eastbound Ramps (LOS F)
- College Avenue between I-8 Eastbound Ramps and Zura Way (LOS F)
- College Avenue between Zura Way and Montezuma Road (LOS F)
- College Avenue South of Montezuma Road (LOS F)
- Montezuma Road between Fairmount Avenue and Collwood Boulevard (LOS F)
- Montezuma Road between 55th Street and College Avenue (LOS F)

- Montezuma Road between College Avenue and East Campus Drive (LOS E)
- Fairmount Avenue between Montezuma Road and I-8 (LOS F)

Tables 10-2A shows the street segment operations on the residential streets in the Del Cerro community.

TABLE 10–2
HORIZON YEAR SEGMENT OPERATIONS (2030)

Segment	LOS E Capacity [a]	Horizon Year without Project			Horizon Year with Project			V/C Δ
		Volume	LOS [b]	V/C [c]	Volume	LOS	V/C	
Alvarado Road								
E. Campus Dr to Reservoir Dr	10,000	13,950	F	1.40	**17,510**	**F**	**1.75**	**0.35**
Reservoir Dr to 70th St	10,000	16,450	F	1.65	**18,520**	**F**	**1.85**	**0.20**
College Avenue								
Del Cerro Blvd to I-8 EB Ramps	40,000	52,800	F	1.32	**54,970**	**F**	**1.37**	**0.05**
I-8 EB Ramps to Zura Way	40,000	69,570	F	1.74	**76,140**	**F**	**1.90**	**0.16**
Zura Way to Montezuma Rd	40,000	53,200	F	1.33	**56,040**	**F**	**1.40**	**0.07**
South of Montezuma Rd	30,000	38,490	F	1.28	**40,200**	**F**	**1.34**	**0.06**
Montezuma Road								
Fairmount Ave to Collwood Blvd	40,000	57,000	F	1.43	**58,280**	**F**	**1.46**	**0.03**
Collwood Blvd to 55th St	40,000	32,570	D	0.81	33,850	D	0.85	0.04
55th St to College Ave	30,000	33,430	F	1.11	**35,010**	**F**	**1.17**	**0.06**
College Ave to E. Campus Dr	30,000	28,250	E	0.94	28,800	E	0.96	0.02
Fairmount Avenue								
Montezuma Rd to I-8	60,000	89,000	F	1.483	89,530	F	1.492	0.009

Footnotes:

a. Capacities based on City of San Diego's Roadway Classification & LOS table (See Appendix C).
b. Average Daily Traffic
c. Volume to Capacity ratio

TABLE 10-2A
HORIZON YEAR
RESIDENTIAL STREET SEGMENT OPERATIONS

Segment	~~Capacity~~ Design ADT [a]	Horizon Year Without Project		Horizon Year With Project	
		Volume	LOS [b]	Volume	LOS
Adobe Falls Rd/Mill Peak Road					
North of Genoa Dr	1,500	410	C+	~~840~~1,400	C+
Arno Drive					
Helena Pl to Capri Dr	1,500	370	C+	1,170	C+
Capri Drive					
East of Arno Dr	1,500	720	C+	1,520	C
Del Cerro Boulevard					
Genoa Dr to Capri Dr	5,000[c]	3,640	C	3,950	C
Capri Dr to College Ave	5,000[c]	5,170	D	6,290	D
Genoa Drive					
Capri Dr to Arno Pl	1,500	400	C+	830	C+
Lambda Drive					
Rockhurst Dr to College Ave	1,500	600	C+	660	C+
Rockhurst Drive					
Lambda Dr to College Ave	1,500	500	C+	560	C+

Footnotes:

a. ~~Capacities based on City of San Diego's Roadway Classification & LOS table (See Appendix C).~~Design ADT based on City of San Diego Street Design Manual, November 2002.

b. Level of Service

c. LOS Capacity based on City of San Diego Roadway Classification and LOS table (see Appendix C) – Capacity utilized since Del Cerro Blvd is a classified road.

General Notes:

1. C+ equals better than ~~LOS C~~Design ADT.
2. Project volume projections include a 10% decrease in overall Adobe Falls trip generation due to the planned shuttle system from the development to the campus. It is planned that the shuttle system would be implemented once the traffic volumes on the residential roadways reach a point that warrant such a system.

10.1.3 *Ramp Meter Operations*

Table 10–3 summarizes the horizon year without project ramp meter operations for the I-8/College Avenue and the I-8/Fairmount Avenue interchanges. The significance of the ramp meter impacts is discussed in Section 16.0 of the report.

Using the *fixed rate method*, northbound College Avenue on-ramp to westbound I-8 is calculated to operate with a 3-minute delay. The southbound College Avenue on-ramp to westbound I-8 is calculated to operate with a 43-minute delay. The northbound College Avenue on-ramp to the eastbound I-8 is calculated to operate with a 131-minute delay. A ramp meter delay longer than 15 minutes is considered to be unacceptable as shown in Section 6.0: Significance Criteria.

The *maximum delay method* indicates that with the 15-minute maximum delay, queues of 425 feet per lane would be predicted at the northbound College Avenue on-ramp to westbound I-8. A queue of 5,675 feet per lane would be predicted at the southbound College Avenue on-ramp to westbound I-8. A queue of 17,300 feet per lane would be predicted at the northbound College Avenue on-ramp to eastbound I-8. These queue lengths exceed the available storage on the ramp.

TABLE 10–3
HORIZON YEAR RAMP METER OPERATIONS (2030)

Location/Scenario	Peak Hour	Peak Hour Demand	Ramp Meter Rate (Flow)[a]	Excess Demand	Delay per Lane[b]	Queue per Lane[c]
Fixed Rate Method						
SB Fairmount Ave to EB I-8						
Horizon Year	PM	450	492	0	0	0
Horizon Year + Project	PM	452	492	0	0	0
Project Increase	PM	2	492	0	0	0
NB College Avenue to WB I-8						
Horizon Year	AM	335	318	17	3	425
Horizon Year + Project	AM	346	318	28	5	700
Project Increase	AM	11	318	11	2	275
SB College Avenue to WB I-8						
Horizon Year	AM	545	318	227	43	5675
Horizon Year + Project	AM	552	318	234	44	5850
Project Increase	AM	7	318	7	1	175
NB College Avenue to EB I-8						
Horizon Year	PM	1010	318	692	131	17300
Horizon Year + Project	PM	1079	318	761	144	19025
Project Increase	PM	69	318	69	**13**	1725

Table 10-3 (Continued)
Horizon Year Ramp Meter Operations (2030)

Location/Condition	Peak Hour	Peak Hour Demand	Ramp Meter Rate (Flow)[a]	Excess Demand	Delay per Lane[b]	Queue per Lane[c]
Maximum Delay Method						
SB Fairmount Ave to EB I-8						
Horizon Year	PM	450	492	0	0	0
Horizon Year + Project	PM	454	492	0	0	0
Project Increase	PM	2	NA	0	0	0
NB College Avenue to WB I-8						
Horizon Year	PM	335	318	17	0	425
Horizon Year + Project	PM	346	318	28	0	700
Project Increase	PM	11	NA	11	0	275
SB College Avenue to WB I-8						
Horizon Year	PM	545	318	227	15	5675
Horizon Year + Project	PM	552	318	234	15	5850
Project Increase	PM	7	NA	7	1	175
NB College Avenue to EB I-8						
Horizon Year	PM	1010	318	692	15	17300
Horizon Year + Project	PM	1079	318	761	15	19025
Project Increase	PM	69	NA	69	13	1725

Footnotes:

a. Meter Rates obtained from Caltrans.
b. Delay expressed in minutes per lane.
c. Queue expressed in feet per lane.

General Notes:

Bold & Shading represents a potential significant impact.
NA = Not Applicable.

TABLE 10-4
HORIZON YEAR FREEWAY MAINLINE OPERATIONS
INTERSTATE 8

Scenario	Direction	Number of Lanes	Hourly Capacity [a]	ADT [b]	% K [c]		% D [c]		Truck Factor [d]	Peak Hour Volume [e]		V/C [f]		LOS	
					AM	PM	AM	PM		AM	PM	AM	PM	AM	PM
Horizon Year Without Project															
Fairmount Avenue to Waring Road	EB	5M	10,000	263,000	0.075	0.074	0.374	0.604	0.965	7,590	12,122	0.759	1.212	C	F(0)
	WB	~~5~~6M	~~10~~12,000		0.075	0.074	0.626	0.396		12,714	7,937	~~1.271~~1.060	~~0.794~~0.661	F(1)	C
Waring Road to College Avenue	EB	5M	10,000	245,000	0.075	0.074	0.374	0.604	0.965	7,070	11,292	0.707	1.129	C	F(0)
	WB	5M	10,000		0.075	0.074	0.626	0.396		11,844	7,394	1.184	0.739	F(0)	C
College Avenue to Lake Murray Boulevard	EB	4M + 1A	9,200	232,000	0.073	0.078	0.330	0.600	0.963	5,760	11,266	0.626	1.225	C	F(0)
	WB	5M	10,000		0.073	0.078	0.670	0.400		11,754	7,501	1.175	0.750	F(0)	C
Lake Murray Boulevard to Fletcher Parkway	EB	4M + 1A	9,200	205,000	0.073	0.078	0.330	0.600	0.963	5,090	9,955	0.553	1.082	B	F(0)
	WB	4M	8,000		0.073	0.078	0.670	0.400		10,386	6,628	1.298	0.829	F(1)	D
Horizon Year With Project															
Fairmount Avenue to Waring Road	EB	5M	10,000	265,910	0.075	0.074	0.374	0.604	0.965	7711	12204	0.771	1.220	C	F(0)
	WB	~~5~~6M	~~10~~12,000		0.075	0.074	0.626	0.396		12748	8068	~~1.275~~1.062	~~0.807~~0.672	F(1)	~~D~~C
Waring Road to College Avenue	EB	5M	10,000	247,910	0.075	0.074	0.374	0.604	0.965	7191	11374	0.719	1.137	C	F(0)
	WB	5M	10,000		0.075	0.074	0.626	0.396		11878	7525	1.188	0.753	F(0)	C
College Avenue to Lake Murray Boulevard	EB	4M + 1A	9,200	234,030	0.073	0.078	0.330	0.600	0.963	5775	11337	0.628	1.232	C	F(0)
	WB	5M	10,000		0.073	0.078	0.670	0.400		11819	7542	1.182	0.754	F(0)	C
Lake Murray Boulevard to Fletcher Parkway	EB	4M + 1A	9,200	207,950	0.073	0.078	0.330	0.600	0.963	5114	10093	0.556	1.097	B	F(0)
	WB	4M	8,000		0.073	0.078	0.670	0.400		10514	6702	1.314	0.838	F(1)	D

General Notes:

Bold and Shading—represents a potential significant impact.

Footnotes:

a. Capacity calculated at 2,000 vehicles per hour per lane and 1,200 vehicles per hour per auxiliary lane (M: Mainline, A: Auxiliary)
b. Existing Average Daily Traffic Volumes from CALTRANS
c. Peak Hour Percentage (K) and Direction Split (D) from CALTRANS "2005 Traffic Volumes", June 2006 (*Appendix D*)
d. Truck Factor from "2005 Annual Average Daily Truck Traffic on the California State Highway System", November 2006 (*Appendix D*)
e. Peak Hour Volume = ((ADT)(K)(D)/Truck Factor)
f. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)

FREEWAY V/C / LOS THRESHOLDS		FREEWAY V/C / LOS THRESHOLDS	
V / C	LOS	V / C	LOS
< 0.41	A	1.25	F(0)
0.62	B	1.35	F(1)
0.80	C	1.45	F(2)
0.92	D	> 1.46	F(3)
1.00	E		

peak hour and near capacity in the PM peak hour. The College Avenue / I-8 interchange is calculated to operate under capacity in the AM and PM peak hours except the College Avenue / I-8 EB Ramp, which is calculated to operate near capacity in the PM peak hour. The I-8 EB Ramps / Alvarado Road intersection is calculated to operate under capacity in the AM and PM peak hours.

11.4 Near-Term with Project

Table 11–2 summarizes the results of the near-term with project ILV analysis. As seen in *Table 11–2*, with the addition of near-term project traffic, the Fairmount Avenue / I-8 EB Off Ramp is calculated to continue to operate under capacity in the AM peak hour and near capacity in the PM peak hour. The College Avenue / I-8 interchange is calculated to continue to operate under capacity in the AM and PM peak hours except the College Avenue / I-8 EB Ramp, which is calculated to continue operate near capacity in the PM peak hour. The I-8 EB Ramps / Alvarado Road intersection is calculated to operate under capacity in the AM and PM peak hours.

TABLE 11–2
NEAR-TERM ILV OPERATIONS (2012)

Intersection	Peak Hour	Near-Term without Project		Near-Term with Project	
		Total Operating Level (ILV / Hour)	Capacity	Total Operating Level (ILV / Hour)	Capacity
Fairmount Ave / I-8 EB Off Ramp	AM PM	922 1350	Under Near	961 1350	Under Near
College Ave / I-8 WB Ramps	AM PM	649 816	Under Under	661 838	Under Under
College Ave / I-8 EB Ramps	AM PM	690 1277	Under Near	700 1305	Under Near
I-8 EB Ramps / Alvarado Rd	AM PM	733 995	Under Under	734 996	Under Under

General Notes:
1. See *Appendix L* for ILV calculation sheets.

11.5 Horizon Year without Project

Table 11–3 summarizes the results of the Horizon Year without project ILV analysis. As seen in *Table 11–3*, the Fairmount Avenue / I-8 EB Off Ramp is calculated to operate under capacity in the AM peak hour and near capacity in the PM peak hour. The College Avenue / I-8 WB Ramp is calculated to operate under capacity in the AM and PM peak hours. The College Avenue / I-8 EB Ramp is calculated to operate under capacity in the AM peak hour and over capacity in the PM peak hour. The I-8 EB Ramps / Alvarado Road intersection is calculated to operate under capacity in the AM peak hour and near capacity in the PM peak hour.

11.6 Horizon Year with Project

Table 11–3 summarizes the results of the Horizon Year with project ILV analysis. As seen in *Table 11–3*, with the additional of total project traffic, the Fairmount Avenue / I-8 EB Off Ramp is calculated to continue operate under capacity in the AM peak hour and near capacity in the PM peak hour. The College Avenue / I-8 WB Ramp is calculated to continue to operate under capacity in the AM and PM peak hours. The College Avenue / I-8 EB Ramp is calculated to operate under capacity in the AM peak hour and over capacity in the PM peak hour. The I-8 EB Ramps / Alvarado Road intersection is calculated to continue to operate under capacity in the AM peak hour and near capacity in the PM peak hour.

TABLE 11–3
HORIZON YEAR ILV OPERATIONS (2030)

Intersection	Peak Hour	Horizon Year without Project		Horizon Year with Project	
		Total Operating Level (ILV / Hour)	Capacity	Total Operating Level (ILV / Hour)	Capacity
Fairmount Ave / I-8 EB Off Ramp	AM PM	1014 1424	Under Near	1021 1427	Under Near
College Ave / I-8 WB Ramps	AM PM	783 980	Under Under	828 1080	Under Under
College Ave / I-8 EB Ramps	AM PM	901 1660	Under Over	955 1785	Under Over
I-8 EB Ramps / Alvarado Rd	AM PM	998 1456	Under Near	1007 1460	Under Near

General Notes:
1. See *Appendix L* for ILV calculation sheets.

15.0 College Community Redevelopment Project

The site of the proposed Alvarado Campus is included within the Final College Community Redevelopment Plan, adopted November 30, 1993 by the Redevelopment Agency of the City of San Diego, and referred to as the "Alvarado Road Sub-Area." (Redevelopment Plan, Attachment No. 4, Land Use Map.) Under the Redevelopment Plan, the Alvarado Road Sub-Area, one of five sub-areas within the Plan, is designated for "university-serving commercial / office uses," including office space, research and development facilities, and ancillary retail space. (Redevelopment Plan, p. 16.)

Under the College Community Redevelopment Project, the Alvarado Road Sub-Area would include 600,000 square feet of university serving office uses, and 110,000 square feet of office / research and development uses. An environmental impact report, prepared in connection with the Redevelopment Project, determined that the Alvarado Road Sub-Area portion of the Redevelopment Project would generate 8,253 ADT. Of the total ADT volume, 1,094 trips would be generated during the A.M. peak, and 1,155 trips would be generated during the P.M. peak. (College Community Redevelopment Project Final Program Environmental Impact Report (SCH #92091036), July 1993, *Table 5–14*, Trip Generation (Future Land Uses).) ***Appendix P*** contains a summary of the traffic mitigation measures included within the Redevelopment EIR.

16.0 Transit Assessment

The project will result in an increase in ridership on both local bus service and the San Diego Trolley. The SANDAG forecasted increase in trolley ridership is discussed in Section 8.1.4 of this report. Neither SANDAG nor the City of San Diego has criteria that could be utilized to assess the project's impact on transit service. In addition, the Congestion Management Program (CMP) provides no methodology to analyze potential impacts to transit and there is no criteria to determine whether the increase in ridership would be significant.

The San Diego Trolley line was recently extended to San Diego State University in 2005 and was constructed to accommodate large ridership amounts.

Contribute a fair share towards the provision of an additional left-turn lane on the westbound approach.

E–13. 70th Street / Alvarado Road

Contribute a fair share towards the provision of an additional southbound left turn lane. ~~to the widening of 70th Street to six lanes through the Alvarado Road intersection and over the I-8 bridge. 70th Street will transition to four through lanes north of I-8 and south of Alvarado Road. (Redevelopment EIR, p. 5.10-34, Mitigation Measure No. 5.) Contribute a fair share towards an additional right-turn lane on the southbound approach.~~

E–14. I-8 WB Ramps / Parkway Drive

The provision to install a traffic signal at the I-8 WB Ramps / Parkway Drive intersection (A-6) will mitigate this cumulative impact.

E–15. I-8 EB Ramps / Alvarado Road

Contribute a fair share towards the provision of an additional through lane on the westbound approach.

F–1. Alvarado Road: E. Campus Drive to Reservoir Drive

The Community Plan classification for Alvarado Road is a three-lane Collector. In order to fully mitigate the horizon year impact to Alvarado Road, it would need to be widened to four-lane Collector standards. Since this is beyond the Community Plan designation of the roadway, improvements to four-lanes is not considered feasible, and the impact is considered only partially mitigated.

F–2. Alvarado Road: Reservoir Drive to 70th Street

The Community Plan classification for Alvarado Road is a three-lane Collector. In order to fully mitigate the horizon year impact to Alvarado Road, it would need to be widened to four-lane Collector standards. Since this is beyond the Community Plan designation of the roadway, improvements to four-lanes is not considered feasible, and the impact is considered only partially unmitigated.

F–3. College Avenue: Del Cerro Boulevard to I-8 Eastbound Ramps

The provision of additional lanes at the College Avenue / Del Cerro Boulevard intersection an additional northbound through lane on College Avenue and the fair share contribution towards mitigation (E-5) would mitigate this cumulative impact.

F–4. College Avenue: I-8 Eastbound Ramps to Zura Way

16.3 Mitigation Measure Fair Share Contributions

Table 16–1 shows fair share percentages for each of the mitigation measures listed above. These percentages are calculated according to the commonly used City of San Diego formula:

Near Term Impact Fair Share =

(Near-Term Project Traffic Volumes) / (Horizon Year With Project – Existing Traffic Volumes)

Horizon Year Impact Fair Share =

(Horizon Year Project Traffic Volumes) / (Horizon Year With Project – Existing Traffic Volumes)

TABLE 16–1
MITIGATION FAIR SHARE CONTRIBUTIONS
NEAR TERM IMPACTS (2012)

Mitigation Measure Number	Impacted Locations	Near Term Impacts Fair Share Percentage
A–1	College Avenue / Del Cerro Boulevard intersection	5%
A–2	College Avenue / I-8 EB Ramps intersection	4%
A–3	College Avenue / Canyon Crest Drive intersection	6%
A–4	College Avenue / Zura Way intersection	3%
A–5	College Avenue / Montezuma Road intersection	2%
A–6	I-8 WB Ramps/ Parkway Drive intersection	2%
B–1	Alvarado Road: E. Campus Drive to Reservoir Drive	3%
B–2	Alvarado Road: Reservoir Drive to 70th Street	3%
B–3	College Avenue: I-8 EB Ramps to Zura Way	4%
C–1	Northbound College Avenue to Eastbound I-8	3%

TABLE 16–2
MITIGATION FAIR SHARE CONTRIBUTIONS
HORIZON YEAR IMPACTS (2030)

Mitigation Measure Number	Impacted Locations	Horizon Year Impacts Fair Share Percentage
E–1	I-8 WB Off Ramp/ Fairmount Avenue intersection	1%
E–2	55th Street / Montezuma Road intersection	12%
E–3	Campanile Drive / Montezuma Road intersection	8%
E–4	College Avenue / Del Cerro Boulevard intersection	17%
E–5	College Avenue / I-8 WB Ramps intersection	19%
E–6	College Avenue / I-8 EB Ramps intersection	16%
E–7	College Avenue / Canyon Crest Drive intersection	23%
E–8	College Avenue / Zura Way intersection	16%
E–9	College Avenue / Montezuma Road intersection	11%
E–10	Alvarado Court / Alvarado Road intersection	31%
E–11	Reservoir Drive / Alvarado Road intersection	21%
E–12	Lake Murray Boulevard / Parkway Drive intersection	8%
E–13	70th Street / Alvarado Road intersection	5%
E–14	I-8 WB Ramps / Parkway Drive intersection	11%
E–15	I-8 EB Ramps / Alvarado Road intersection	4%
F–1	Alvarado Road: E. Campus Drive to Reservoir Drive	39%
F–2	Alvarado Road: Reservoir Drive to 70th Street	24%
F–3	College Avenue: Del Cerro Boulevard to I-8 Eastbound Ramps	9%
F–4	College Avenue: I-8 Eastbound Ramps to Zura Way	18%
F–5	College Avenue: Zura Way to Montezuma Road	13%
F–6	College Avenue: South of Montezuma Road	17%
F–7	Montezuma Road: Fairmount Avenue to Collwood Boulevard	15%
F–8	Montezuma Road: 55th Street to College Avenue	15%
G–1	Northbound College Avenue to eastbound I-8	12%

TABLE 17-1
MITIGATED NEAR-TERM INTERSECTION CALCULATIONS (2012)

Intersection	Control Type	Peak Hour	Near-Term without Project		Near-Term with Project			With Mitigation	
			Delay [a]	LOS [b]	Delay	LOS	Δ[d]	Delay	LOS
College Ave / Del Cerro Blvd	Signal	AM	75.4	E	**79.2**	**E**	**3.8**	64.4	E
College Ave / I-8 EB Ramps	Signal	AM	68.9	E	**72.7**	**E**	**3.8**	27.1	C
College Ave / Canyon Crest Dr	Signal	AM	80.8	F	**83.7**	**F**	**2.9**	39.1	D
		PM	>120	F	**>120**	**F**	**>2.0**	70.5	E
College Ave / Zura Way	TWSC[c]	PM	>120	F	**>120**	**F**	**>2.0**	22.6	C
College Ave / Montezuma Rd	Signal	AM	104.8	F	**108.0**	**F**	**3.2**	61.7	E
		PM	98.4	F	**100.2**	**F**	**1.2**	94.1	F
I-8 WB Ramps / Parkway Dr	Signal	PM	46.1	E	**49.7**	**E**	**3.0**	20.9	C

Footnotes:

a. Average delay expressed in seconds per vehicle.

b. Level of Service.

c. TWSC – Two-Way Stop Controlled intersection. Minor street approach delay is reported.

d. Δ denotes project induced delay increase.

General Notes:

Bold and shading represents a significant impact

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

TABLE 17–2
MITIGATED NEAR-TERM SEGMENT OPERATIONS (2012)

Segment	LOS E Capacity [a]	Near-Term without Project			Near-Term with Project			V/C Δ	Mitigated LOS E Capacity [a]	With Mitigation		
		Volume	LOS [b]	V/C [c]	Volume	LOS [b]	V/C [c]			Volume	LOS	V/C
Alvarado Road												
E. Campus Dr to Reservoir Dr	10,000	9,220	E	0.92	**9,490**	**E**	**0.95**	**0.03**	15,000	9,900	C	0.63
Reservoir Dr to 70th St	10,000	11,040	F	1.10	**11,310**	**F**	**1.13**	**0.03**	15,000	11,720	D	0.75
College Avenue												
I-8 EB Ramps to Zura Way	40,000	45,800	F	1.15	**47,260**	**F**	**1.18**	**0.03**	50,000	47,260	E	0.94

Footnotes:

a. Capacities based on City of San Diego's Roadway Classification & LOS table.

b. Average Daily Traffic

c. Volume to Capacity ratio

TABLE 17-3
MITIGATED HORIZON YEAR INTERSECTION OPERATIONS (2030)

Intersection	Control Type	Peak Hour	Horizon Year without Project		Horizon Year with Project			With Mitigation	
			Delay	LOS	Delay	LOS	Δ^{e}	Delay	LOS
Fairmount Ave / I-8 WB Off Ramp / Camino del Rio N	Signal	AM	92.6	F	96.1	F	3.5	70.0	E
		PM	286.7	F	287.5	F	0.8	218.8	F
55th Street / Montezuma Rd	Signal	AM	>120	F	>120	F	>2.0	106.9	F
		PM	56.9	E	66.7	E	9.8	50.4	D
Campanile Dr / Montezuma Rd	Signal	AM	84.0	F	90.0	F	6.0	65.7	E
		PM	101.3	F	105.8	F	4.5	74.5	E
College Ave / Del Cerro Blvd	Signal	AM	137.3	F	>120	F	>2.0	131.2	F
		PM	63.1	E	69.6	E	6.5	61.3	E
College Ave / I-8 WB Ramps	Signal	PM	51.8	D	65.0	E	13.2	64.3	E
College Ave / I-8 EB Ramps	Signal	AM	>120	F	>120	F	>2.0	149.2	F
		PM	109.9	F	>120	F	>2.0	44.3	D
College Ave / Canyon Crest Dr	Signal	AM	>120	F	>120	F	>2.0	110.8	F
		PM	>120	F	>120	F	>2.0	>120	F
College Ave / Zura Way	TWSC[c]	AM	57.6	E	117.2	F	59.6	38.3	D
		PM	>120	F	>120	F	>2.0	65.2	E

TABLE 17-3 (CONTINUED)
MITIGATED HORIZON YEAR INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Horizon Year without Project		Horizon Year with Project			With Mitigation	
			Delay	LOS	Delay	LOS	Δ[e]	Delay	LOS
College Ave / Montezuma Rd	Signal	AM	>120	F	>120	F	>2.0	102.9	F
		PM	>120	F	>120	F	>2.0	86.5	F
Alvarado Ct / Alvarado Rd	TWSC[c]	AM	54.1	F	>120	F	>2.0	16.2	B
		PM	35.4	D	>120	F	>2.0	26.8	C
Reservoir Dr / Alvarado Rd	Signal	PM	36.5	D	96.1	F	3.5	24.7	C
Lake Murray Blvd / Wisconsin Ave	Signal	AM	>120	F	90.5	F	17.8	30.9	C
		PM	86.0	F	71.6	E	5.8	29.2	C
70th Street / Alvarado Rd	Signal	AM	81.1	F	92.7	F	11.6	72.7	E
		PM	119.3	F	>120	F	>2.0	118.6	F
I-8 WB Ramps /Parkway Dr	AWSC[d]	AM	61.3	F	80.5	F	19.2	49.8	D
		PM	>120	F	>120	F	>2.0	32.5	C
I-8 EB Ramps / Alvarado Rd	Signal	PM	101.4	F	105.1	F	3.7	81.1	F

Footnotes:

a. Average delay expressed in seconds per vehicle.

b. Level of Service.

c. TWSC – Two-Way Stop Controlled intersection. Minor street approach delay is reported.

d. AWSC – All-Way Stop Controlled intersection.

e. Δ denotes project induced delay increase.

General Notes:

Bold and shading represents a potential significant impact

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

Table 17–4
Mitigated Horizon Year Segment Operations (2030)

Segment	LOS E Capacity [a]	Horizon Year without Project			Horizon Year with Project			V/C Δ	Mitigated LOS E Capacity [a]	With Mitigation		
		Volume	LOS [b]	V/C [c]	Volume	LOS [b]	V/C [c]			Volume	LOS	V/C
Alvarado Road												
E. Campus Dr to Reservoir Dr	10,000	13,950	F	1.40	**17,510**	**F**	**1.75**	**0.35**	15,000 [d]	17,510	F	1.16
Reservoir Dr to 70th St	10,000	16,450	F	1.65	**18,520**	**F**	**1.85**	**0.20**	15,000 [d]	18,520	F	1.23
College Avenue												
Del Cerro Blvd to I-8 EB Ramps	40,000	52,800	F	1.32	**54,970**	**F**	**1.37**	**0.05**	[e]	54,970	NA	NA
I-8 EB Ramps to Zura Way	40,000	69,570	F	1.74	**76,140**	**F**	**1.90**	**0.16**	50,000	76,140	F	1.52
Zura Way to Montezuma Rd	40,000	53,200	F	1.33	**56,040**	**F**	**1.40**	**0.07**	50,000	56,040	F	1.12
South of Montezuma Rd	30,000	38,490	F	1.28	**40,200**	**F**	**1.34**	**0.06**	50,000	40,200	D	0.80
Montezuma Road												
Fairmount Ave to Collwood Blvd	40,000	57,000	F	1.43	**58,280**	**F**	**1.46**	**0.03**	40,000 [d]	58,280	F	1.45
55th St to College Ave	30,000	33,430	F	1.11	**35,010**	**F**	**1.17**	**0.06**	40,000	35,010	E	0.87

Footnotes:

a. Capacities based on City of San Diego's Roadway Classification & LOS table.
b. Average Daily Traffic
c. Volume to Capacity ratio
d. It is not feasible to fully mitigate this impact; therefore, this segment is considered unmitigated.
e. The additional capacity at the College Ave/Del Cerro Blvd intersection and the additional northbound through lane on College Avenue mitigates this segment impact.

NA = Not Applicable.

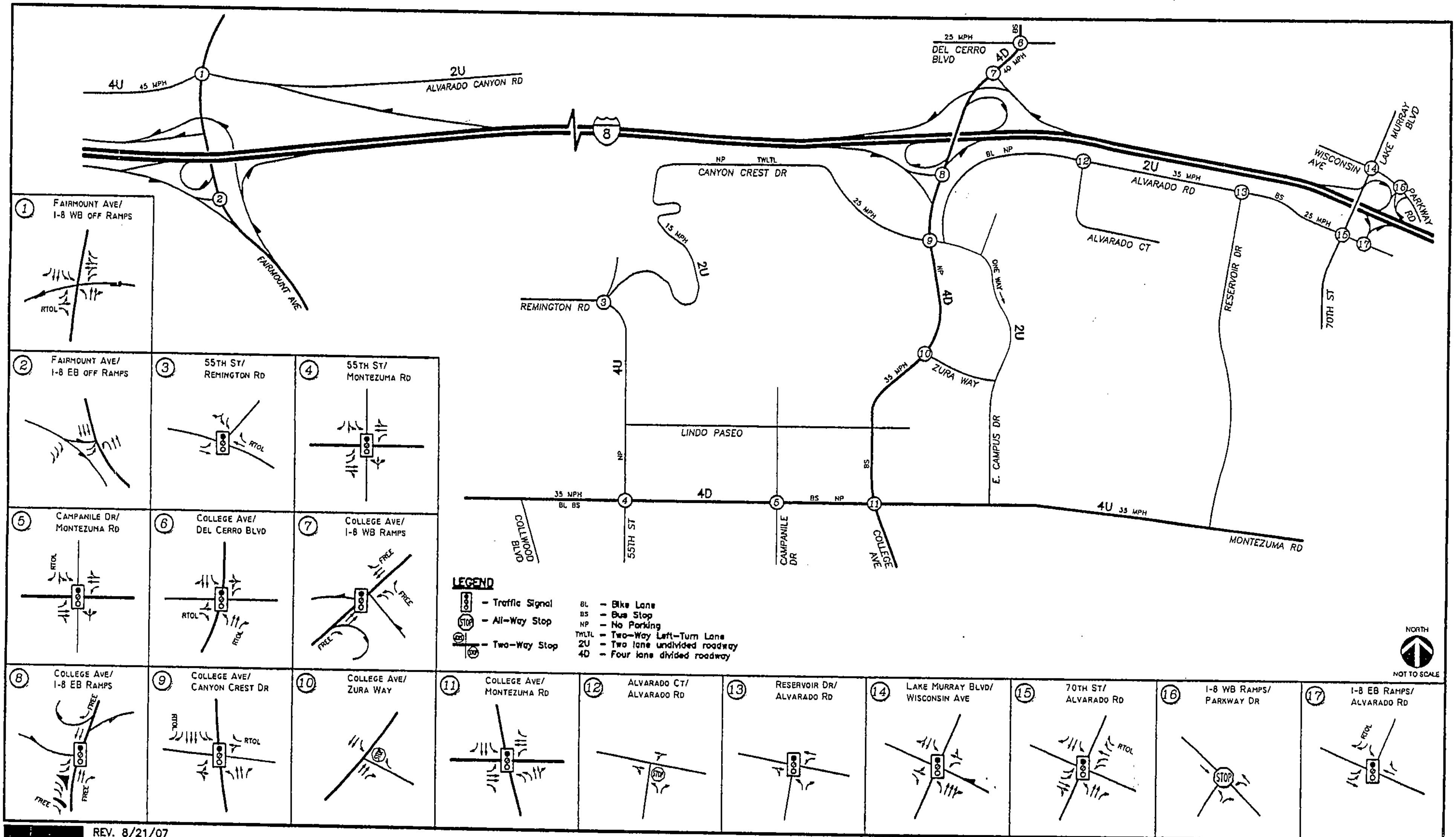

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Figure 4-1

Existing 2006 Conditions Diagram

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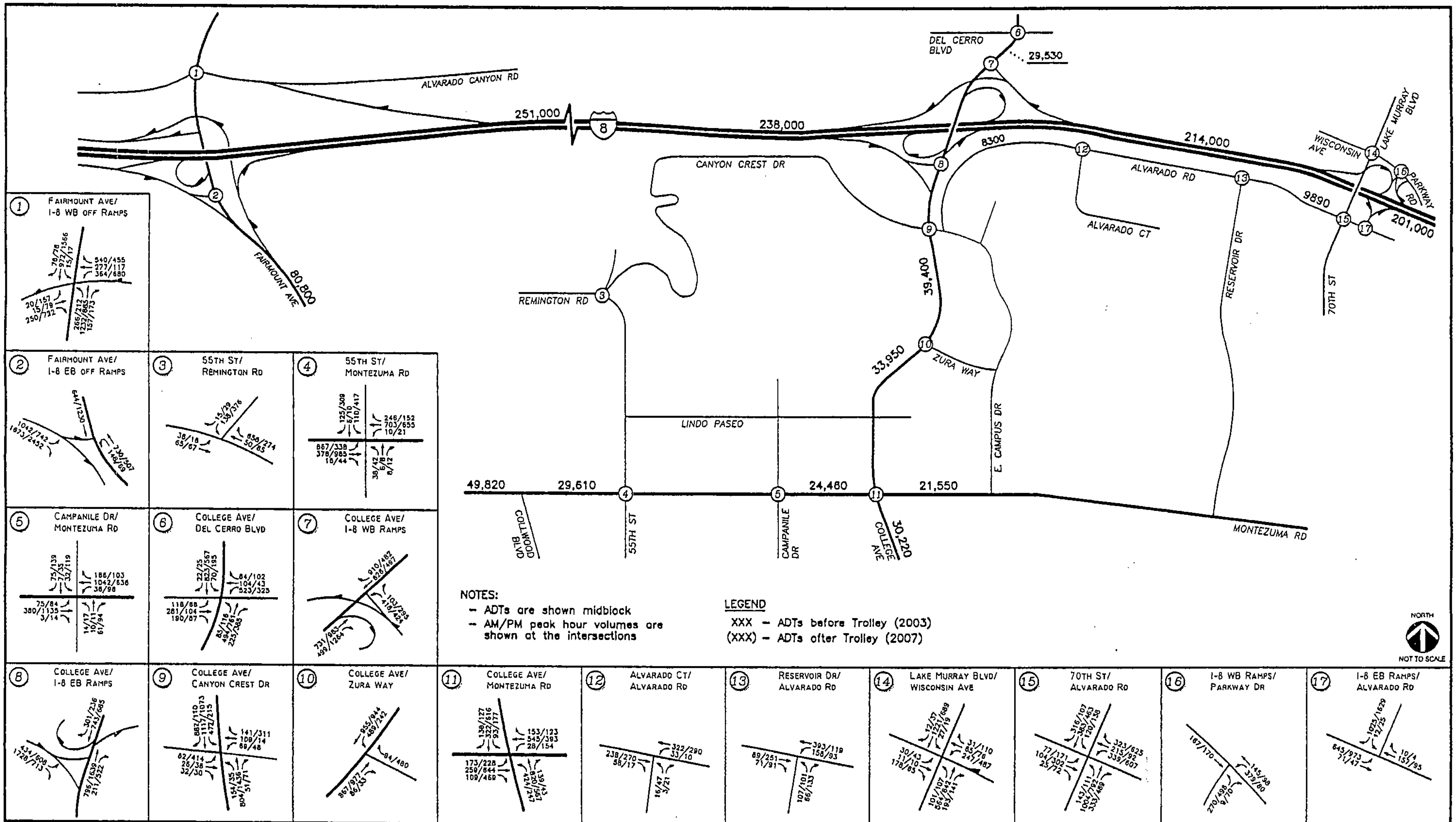

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Figure 4-2

Existing 2006 Traffic Volumes AM/PM Peak Hours & ADT

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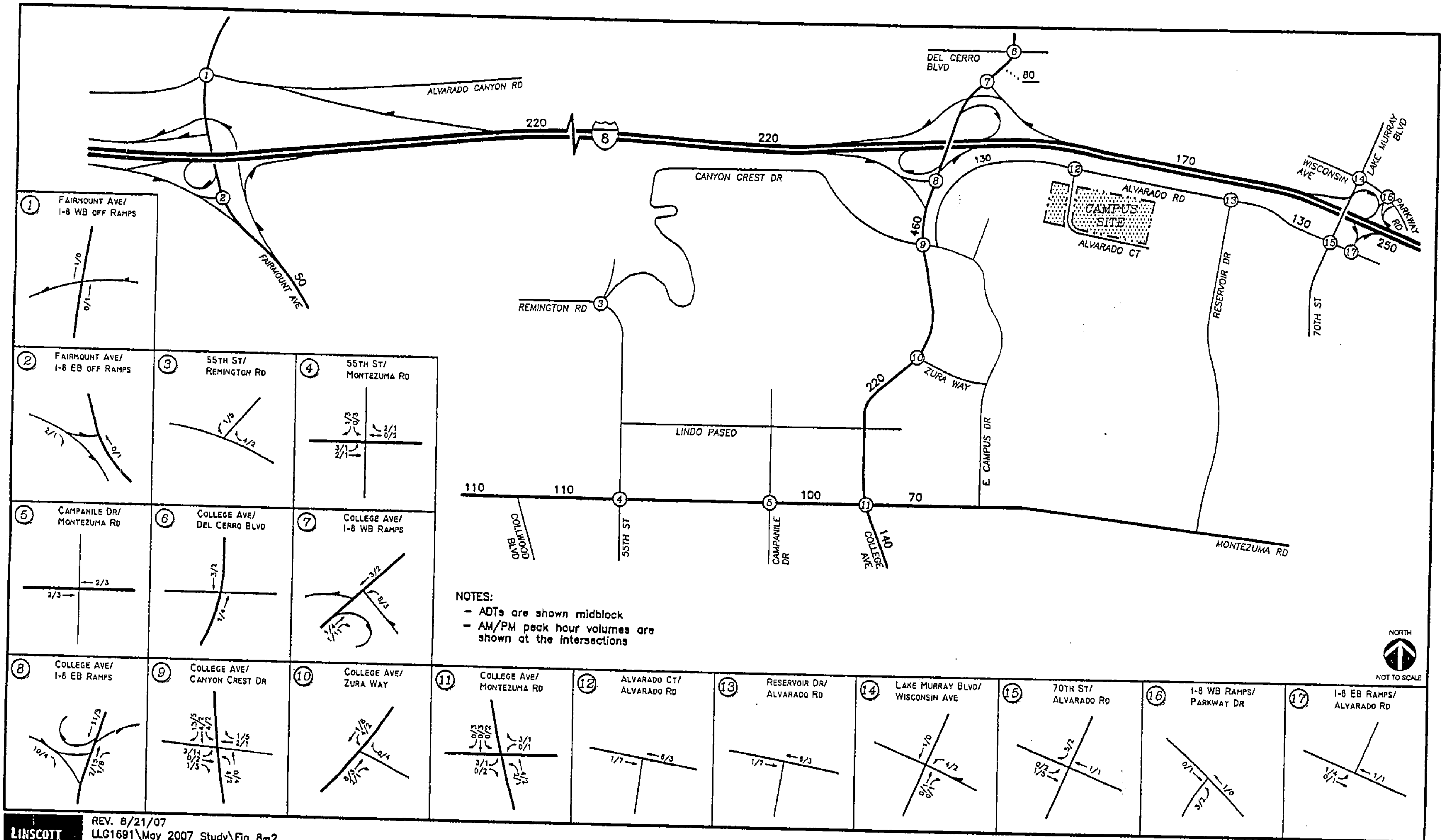

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Figure 8-2

Alvarado Campus (2012) Project Traffic Assignment (Near-Term)
AM/PM Peak Hours & ADT

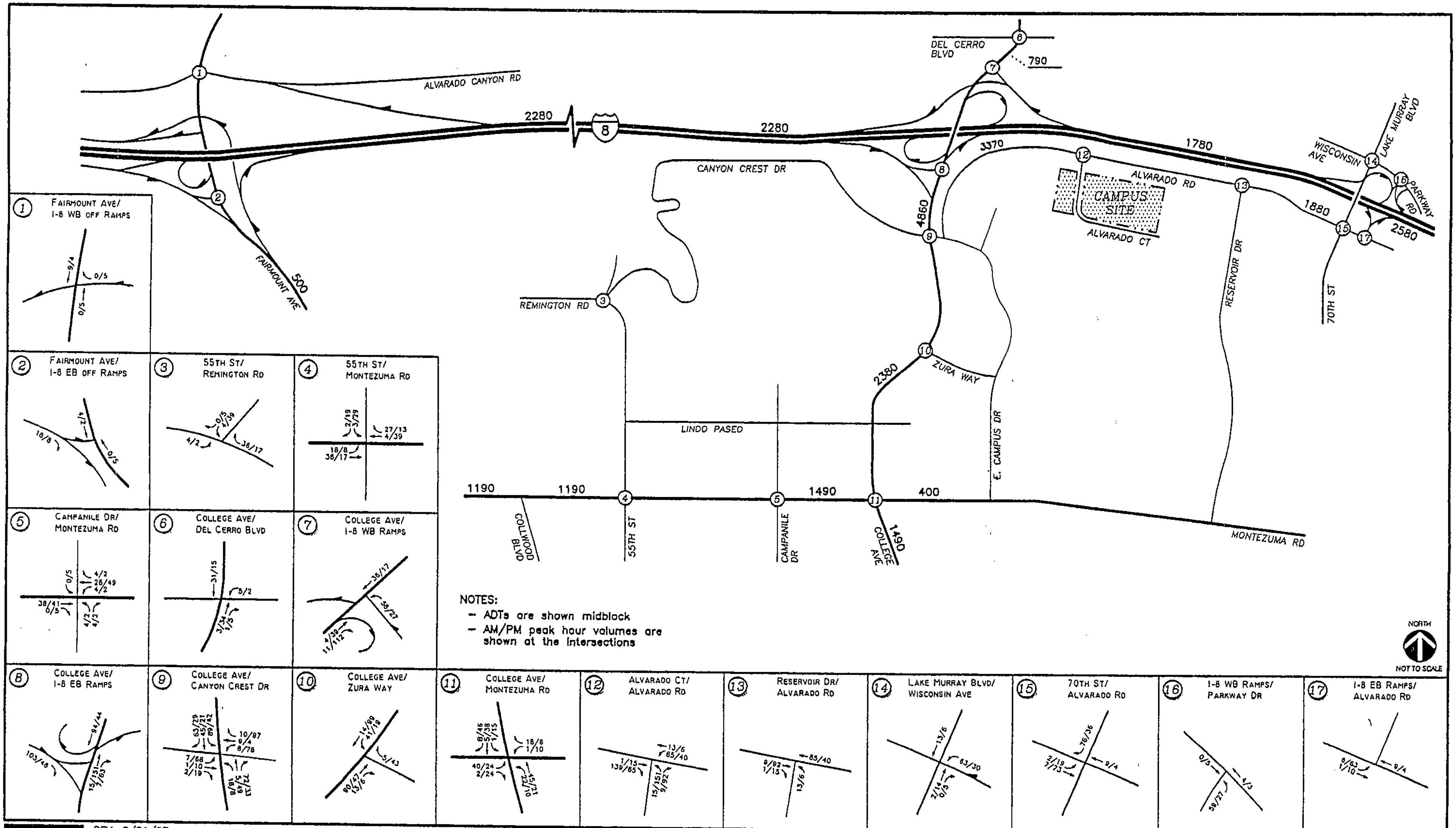

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Figure 8-3

Alvarado Campus (2030) Project Traffic Assignment (Horizon Year)
AM/PM Peak Hours & ADT

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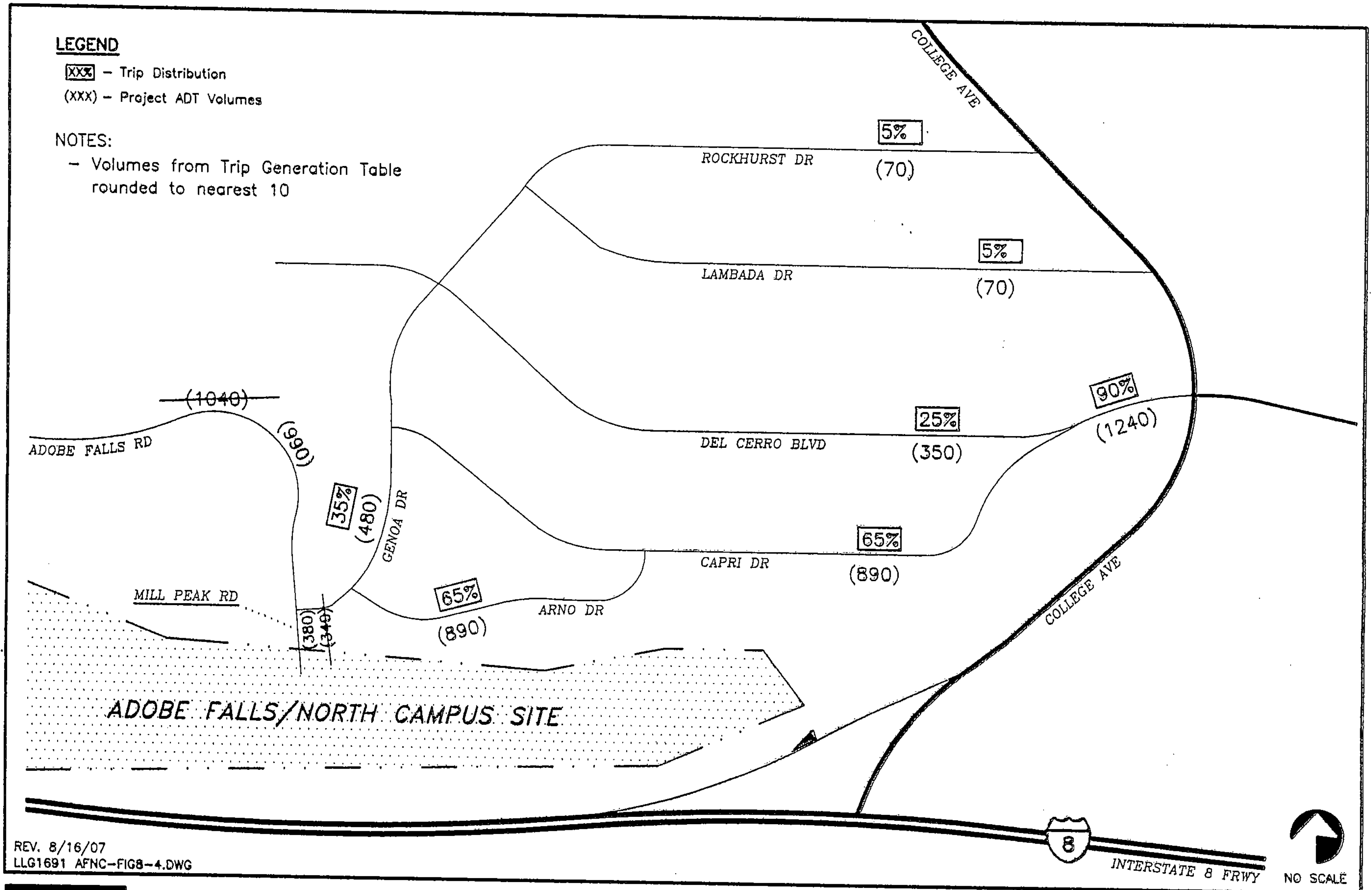

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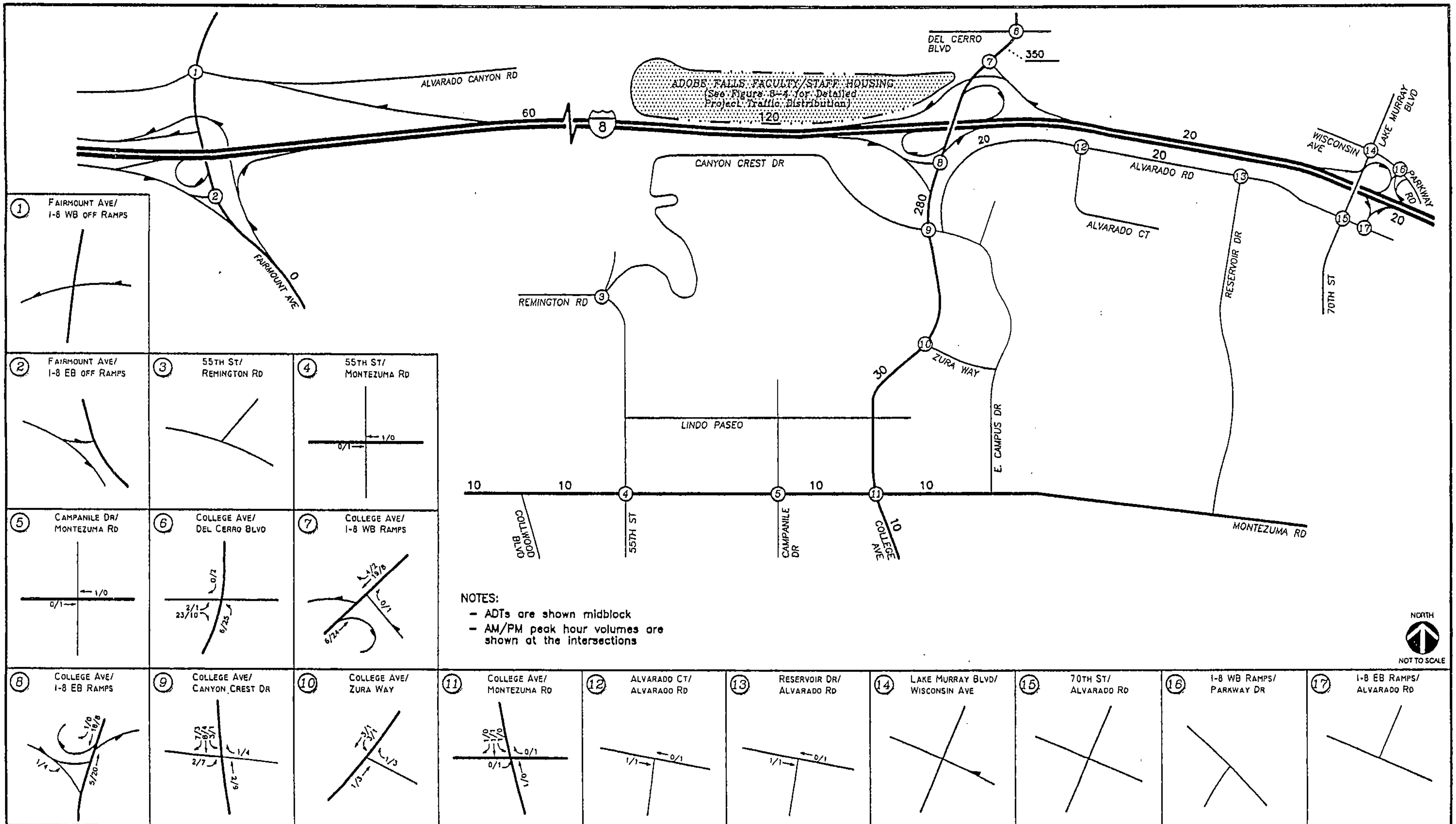
Figure 8-4

Detailed Adobe Falls Faculty/Staff Housing Project Traffic ADT Volumes & Distribution



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LLG1691\May 2007 Study\Fig 8-6

Figure 8-6

Adobe Falls (2012) Faculty/Staff Housing Traffic Assignment (Near-Term)
AM/PM Peak Hours & ADT

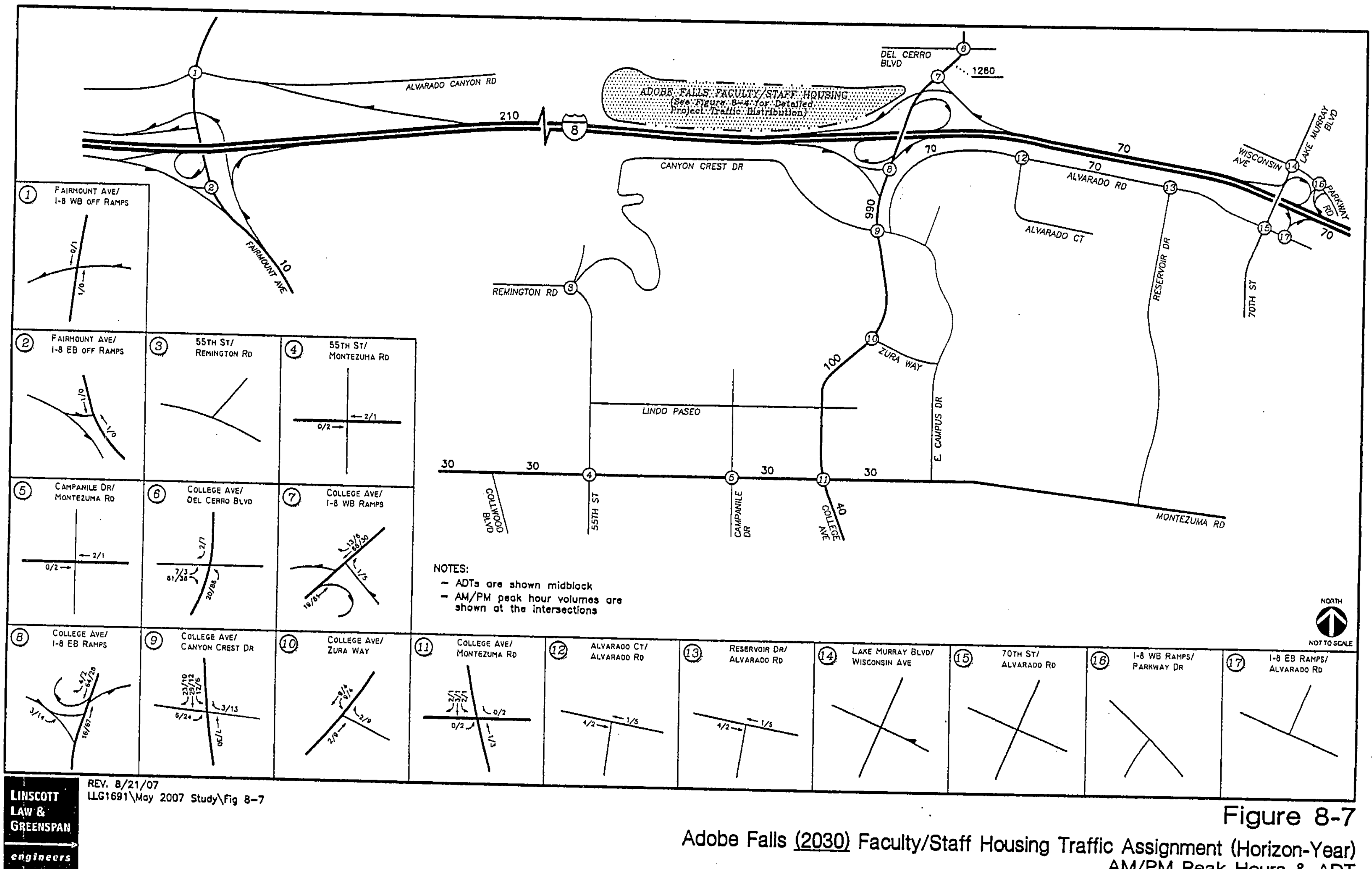
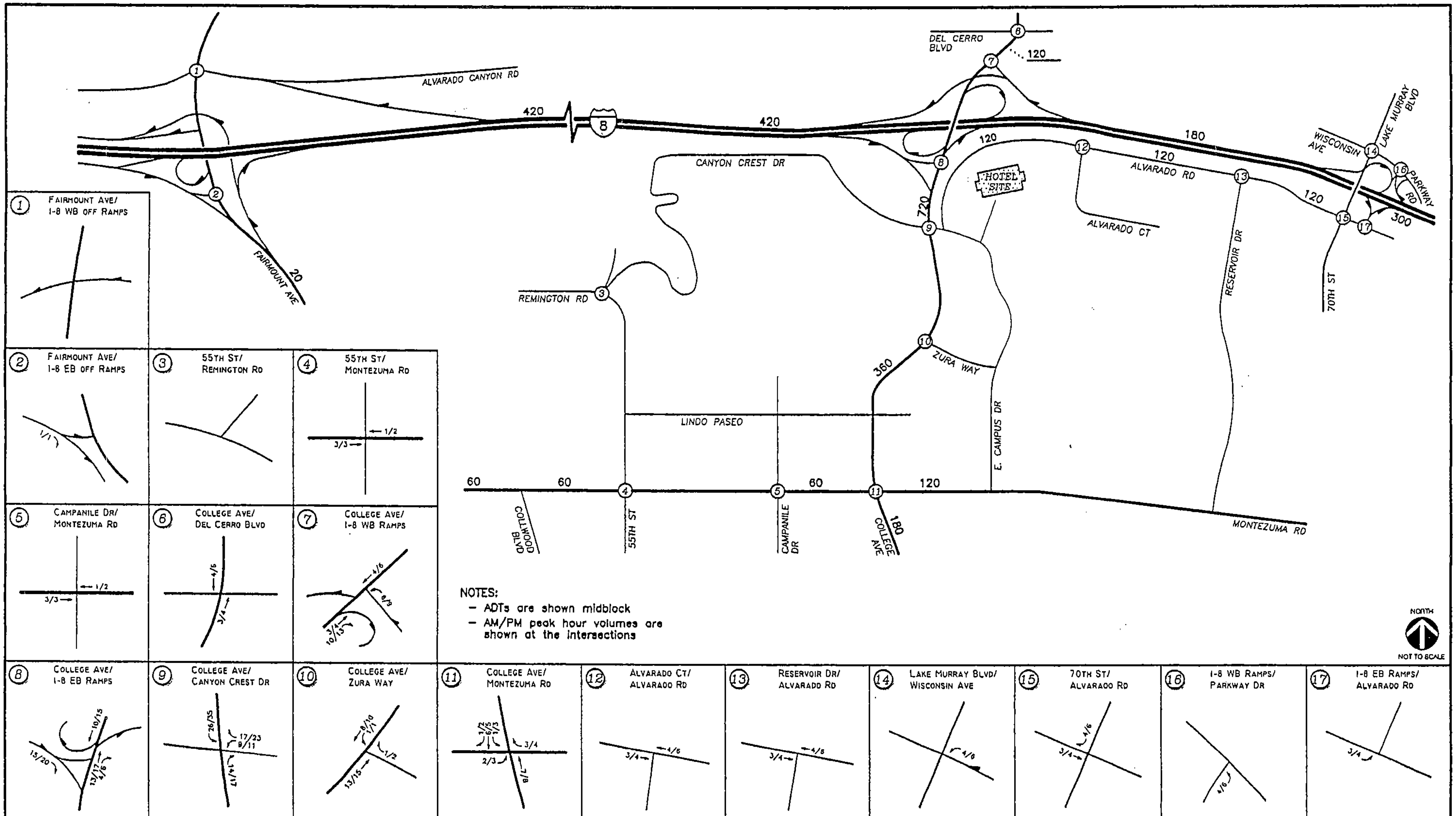


Figure 8-7

Adobe Falls (2030) Faculty/Staff Housing Traffic Assignment (Horizon-Year)
AM/PM Peak Hours & ADT



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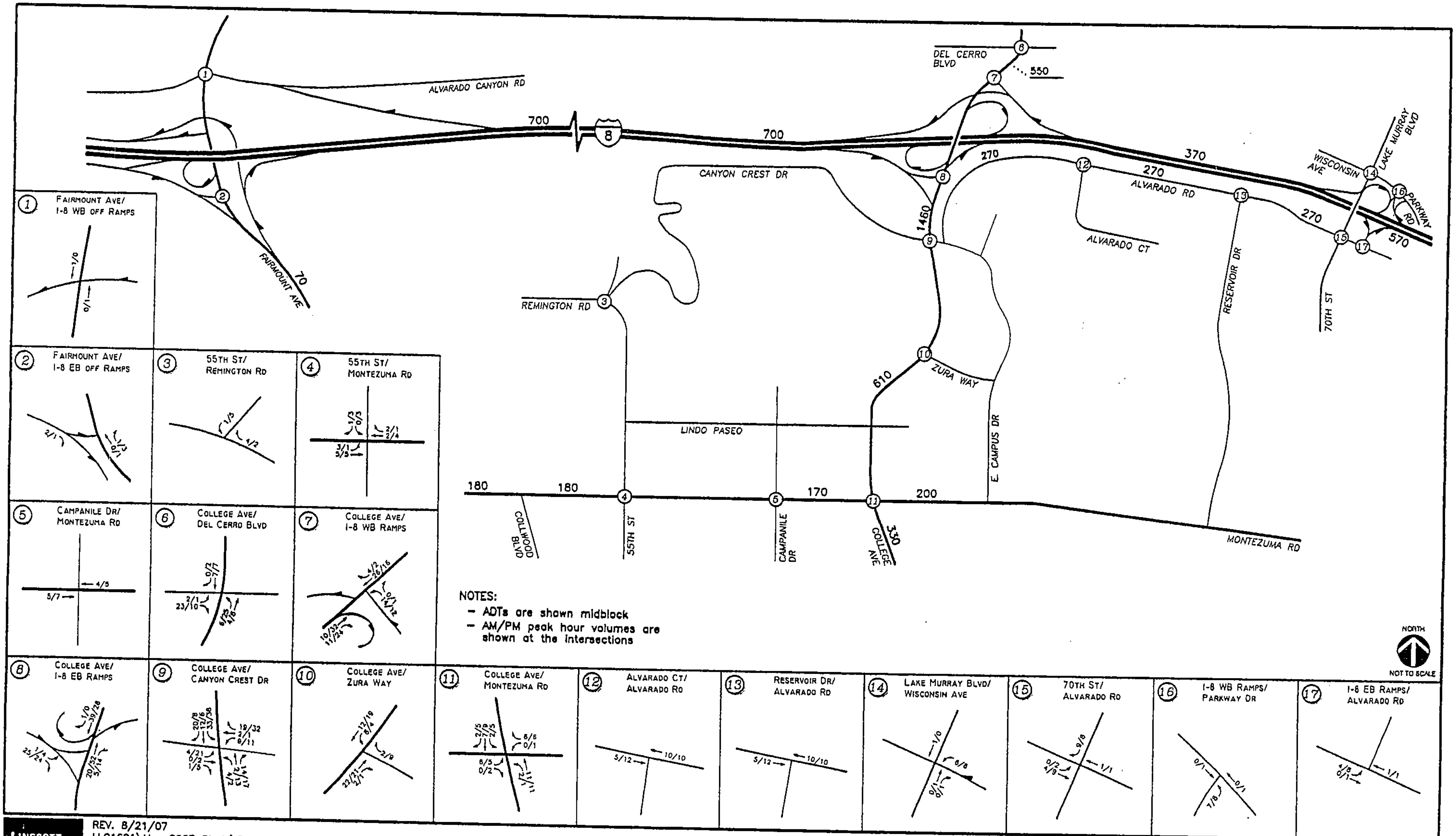
REV. 4/17/07
LLG1691\May 2007 Study\Fig 8-9

Figure 8-9

Alvarado Hotel Project Traffic Assignment AM/PM Peak Hours & ADT

SDSU 2007 Campus Master Plan Revision



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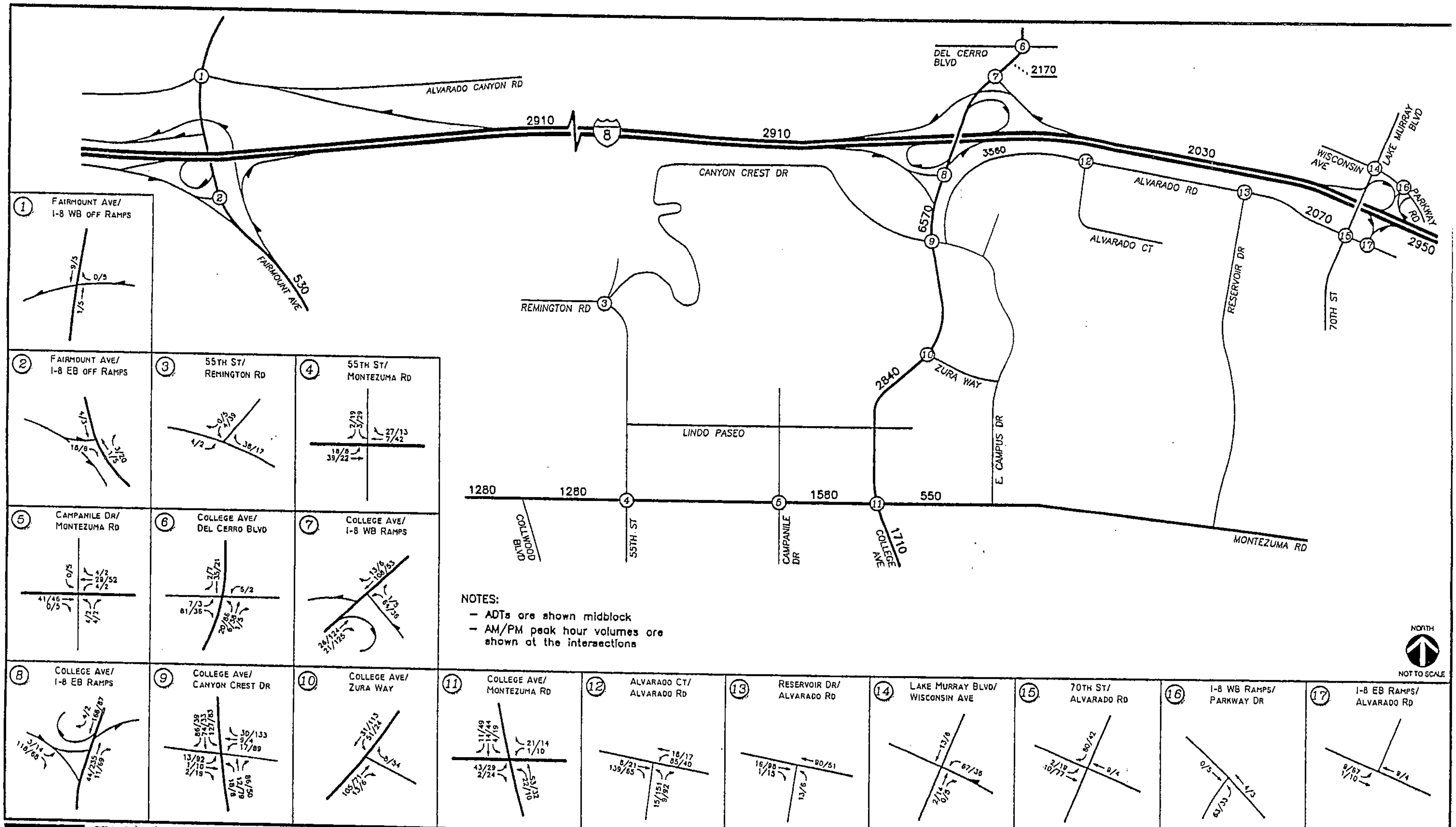
REV. 8/21/07
LLG1691\May 2007 Study\Fig 8-10

Figure 8-10

Near-Term (2012) Total Project Traffic Volumes AM/PM Peak Hours & ADT

SDSU 2007 CAMPUS MASTER PLAN REVISION

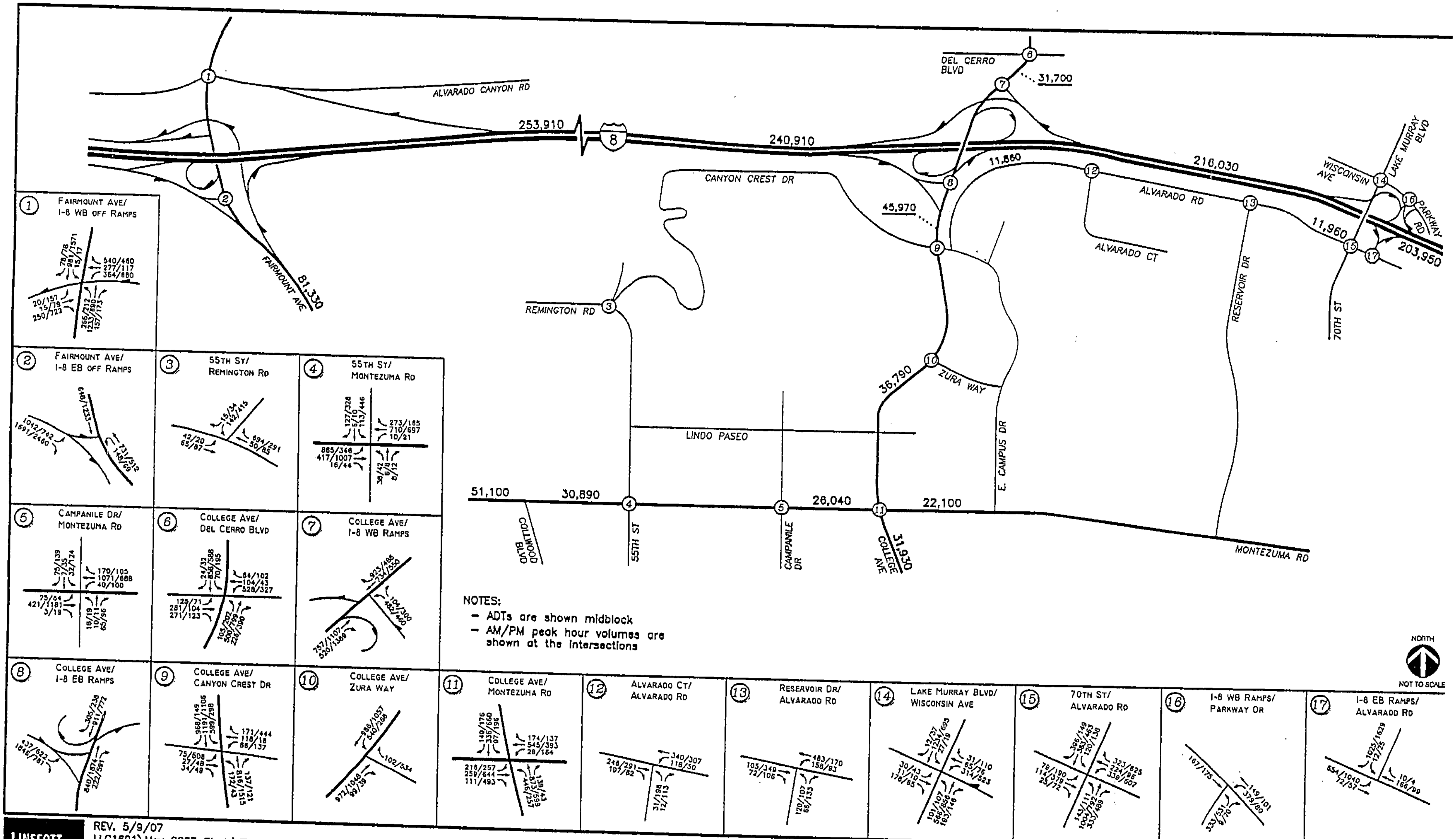


LINSCOTT LAW & GREENSPAN engineers

REV. 8/21/07
LLG1691\May 2007 Study\Fig 8-11

Figure 8-11

Horizon Year (2030) Total Project Traffic Volumes
AM/PM Peak Hours & ADT



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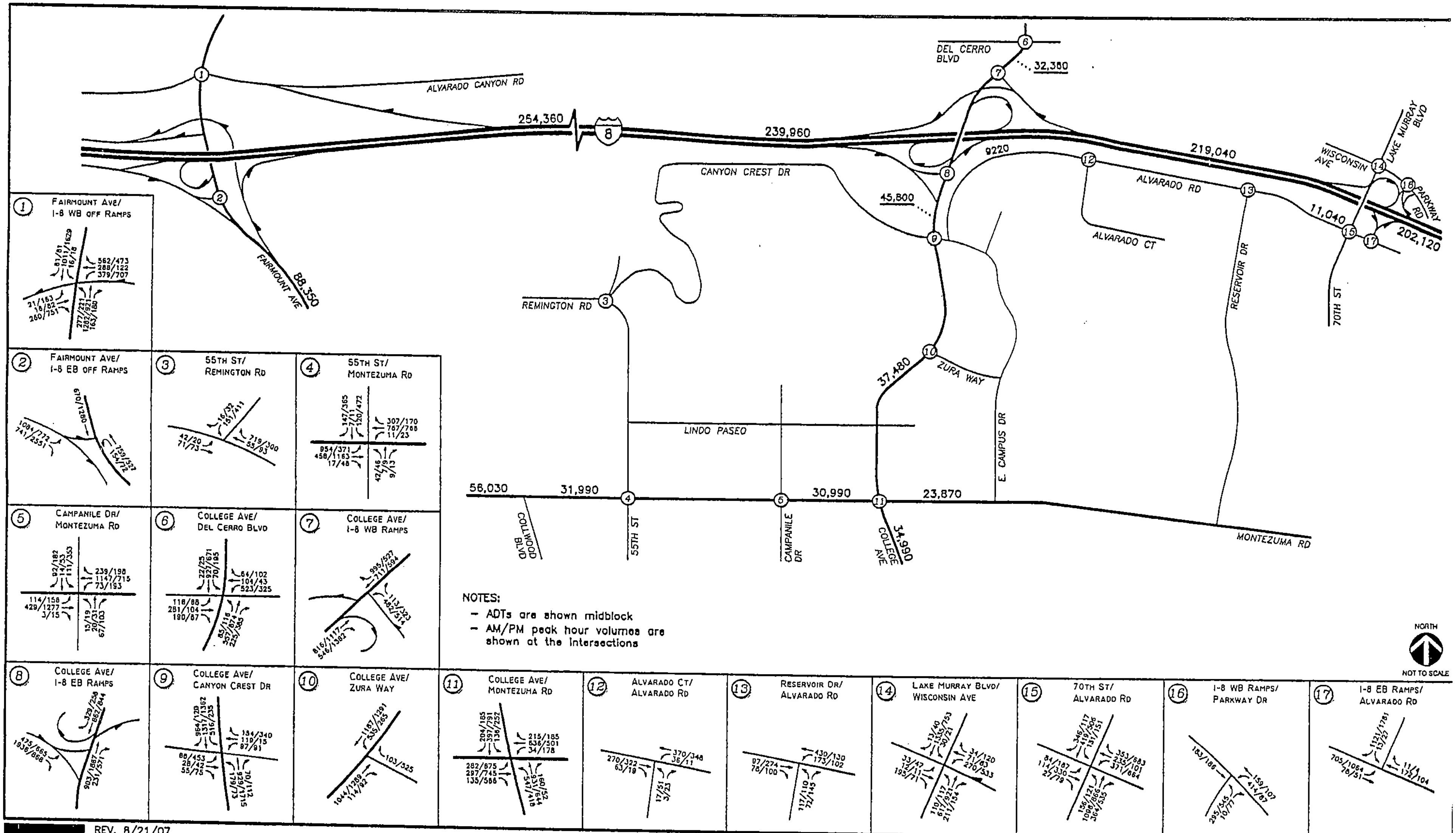
REV. 5/9/07
LLG1691\May 2007 Study\Fig 9-1

Figure 9-1

Existing + Project Traffic Volumes AM/PM Peak Hours & ADT

SDSU 2007 Campus Master Plan Revision



REV. 8/21/07
LLG1691\May 2007 Study\Fig 9-2

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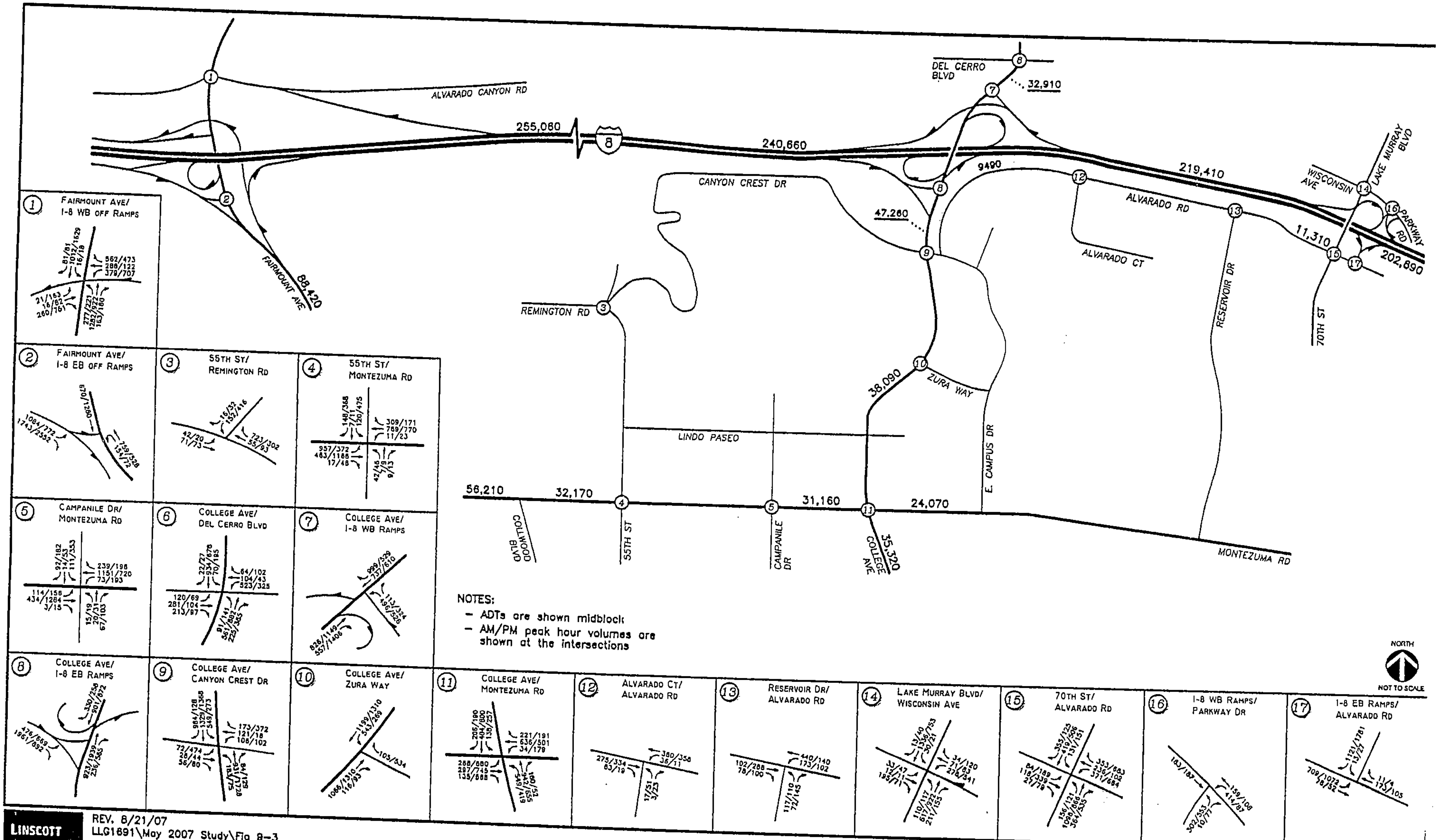
Figure 9-2

Near-Term (2012) without Project Traffic Volumes AM/PM Peak Hours & ADT

SDSU 2007 CAMPUS MASTER PLAN REVISION



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REV. 8/21/07
LLG1691\May 2007 Study\Fig 9-3

Figure 9-3

Near-Term (2012) With Project Traffic Volumes AM/PM Peak Hours & ADT

SDSU 2007 CAMPUS MASTER PLAN REVISION

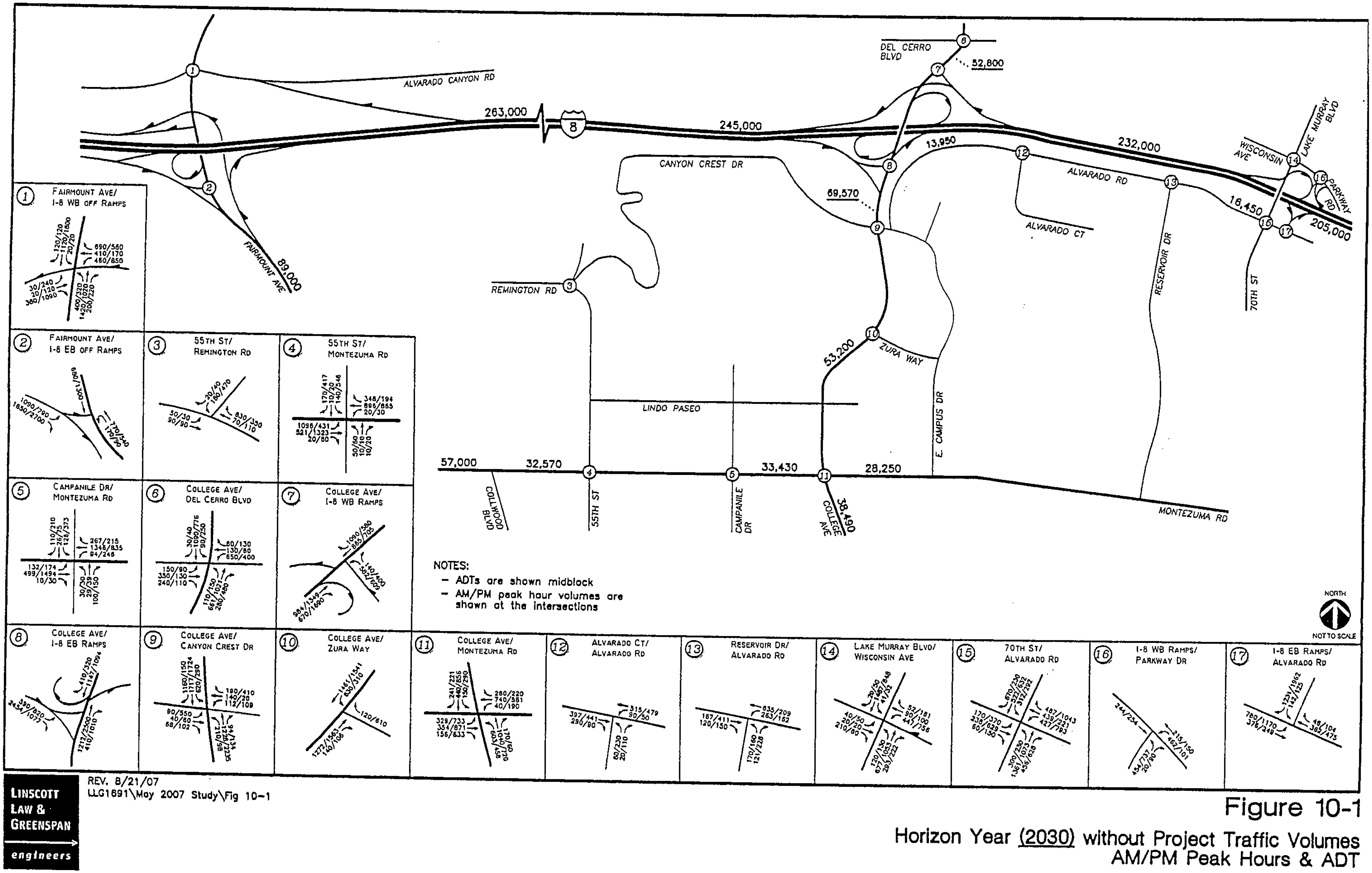
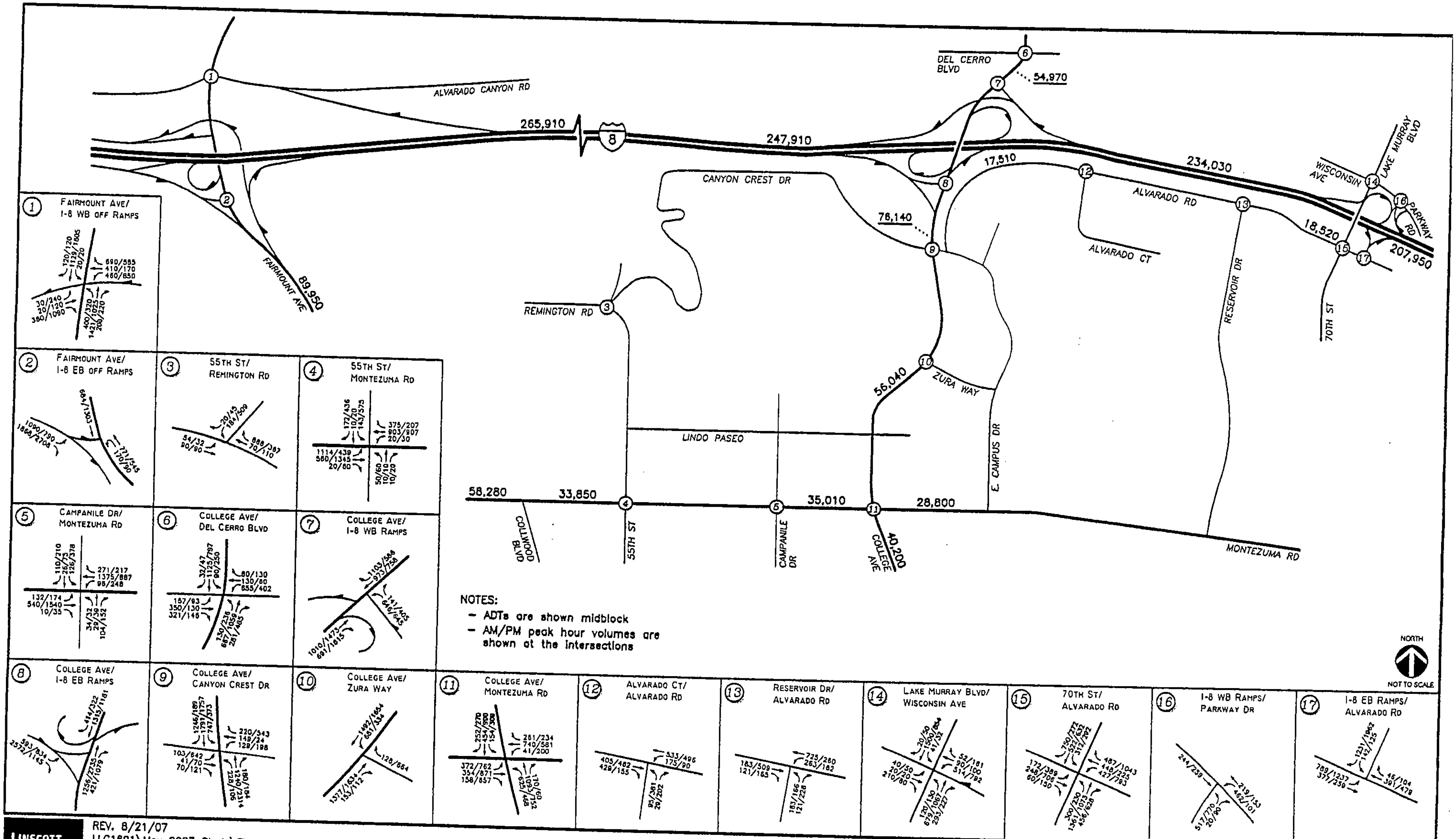


Figure 10-1

Horizon Year (2030) without Project Traffic Volumes AM/PM Peak Hours & ADT

SDSU 2007 CAMPUS MASTER PLAN REVISION



REV. 8/21/07
LLG1691\May 2007 Study\Fig 10-2

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Figure 10-2

Horizon Year (2030) With Project Traffic Volumes AM/PM Peak Hours & ADT

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	1.00	0.88	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3408		3433	1863	2787	1770	3539	1548	3433	3539	1525
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3408		3433	1863	2787	1770	3539	1548	3433	3539	1525
Volume (vph)	172	248	60	427	448	487	300	1361	456	312	522	750
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	270	65	464	487	529	326	1479	496	339	567	815
RTOR Reduction (vph)	0	18	0	0	0	358	0	0	13	0	0	224
Lane Group Flow (vph)	187	317	0	464	487	171	326	1479	483	339	567	591
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split			Split		Over	Prot		pm+ov	Prot		Perm
Protected Phases	4	4		8	8	1	5	2	8	1	6	
Permitted Phases									2			6
Actuated Green, G (s)	14.8	14.8		28.0	28.0	11.0	19.0	49.0	77.0	11.0	41.0	41.0
Effective Green, g (s)	14.8	14.8		28.0	28.0	11.0	19.0	49.0	77.0	11.0	41.0	41.0
Actuated g/C Ratio	0.12	0.12		0.24	0.24	0.09	0.16	0.41	0.65	0.09	0.35	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	428	425		809	439	258	283	1460	1003	318	1221	526
v/s Ratio Prot	0.05	c0.09		0.14	c0.26	0.06	c0.18	0.42	0.11	0.10	0.16	
v/s Ratio Perm									0.20			c0.39
v/c Ratio	0.44	0.75		0.57	1.11	0.66	1.15	1.01	0.48	1.07	0.46	1.12
Uniform Delay, d1	48.1	50.2		40.1	45.4	52.1	49.9	34.9	10.7	53.9	30.3	38.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	7.0		1.0	76.1	6.2	101.0	26.8	0.4	69.0	1.3	77.9
Delay (s)	48.9	57.2		41.1	121.5	58.3	150.9	61.7	11.1	122.9	31.6	116.8
Level of Service	D	E		D	F	E	F	E	B	F	C	F
Approach Delay (s)		54.2			73.7			63.4			89.9	
Approach LOS		D			E			E			F	

Intersection Summary

HCM Average Control Delay	~~63.7~~ 72.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	118.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	1.00	0.88	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3423		3433	1863	2787	1770	3539	1551	3433	3539	1523
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3423		3433	1863	2787	1770	3539	1551	3433	3539	1523
Volume (vph)	389	706	150	793	225	1043	230	1073	628	292	632	272
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	423	767	163	862	245	1134	250	1166	683	317	687	296
RTOR Reduction (vph)	0	15	0	0	0	562	0	0	13	0	0	218
Lane Group Flow (vph)	423	915	0	862	245	572	250	1166	670	317	687	78
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split			Split		Over	Prot		pm+ov	Prot		Perm
Protected Phases	4	4		8	8	1	5	2	8	1	6	
Permitted Phases									2			6
Actuated Green, G (s)	27.0	27.0		26.0	26.0	17.0	19.5	34.0	60.0	17.0	31.5	31.5
Effective Green, g (s)	27.0	27.0		26.0	26.0	17.0	19.5	34.0	60.0	17.0	31.5	31.5
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.14	0.16	0.28	0.50	0.14	0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	772	770		744	404	395	288	1003	776	486	929	400
v/s Ratio Prot	0.12	c0.27		c0.25	0.13	c0.21	0.14	c0.33	0.19	0.09	0.19	
v/s Ratio Perm									0.24			0.05
v/c Ratio	0.55	1.19		1.16	0.61	1.45	0.87	1.16	0.86	0.65	0.74	0.19
Uniform Delay, d1	41.1	46.5		47.0	42.4	51.5	49.0	43.0	26.4	48.7	40.5	34.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	97.7		86.0	2.6	215.2	23.0	84.3	9.8	3.1	5.3	1.1
Delay (s)	41.9	144.2		133.0	45.0	266.7	72.0	127.3	36.2	51.8	45.8	35.5
Level of Service	D	F		F	D	F	E	F	D	D	D	D
Approach Delay (s)		112.2			191.0			91.1			44.9	
Approach LOS		F			F			F			D	

Intersection Summary

HCM Average Control Delay	96.4 118.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

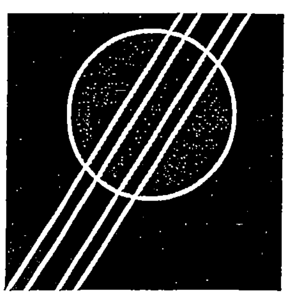
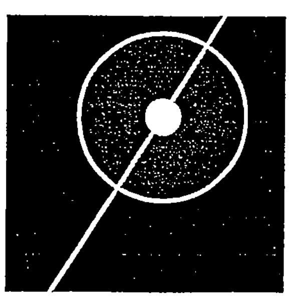
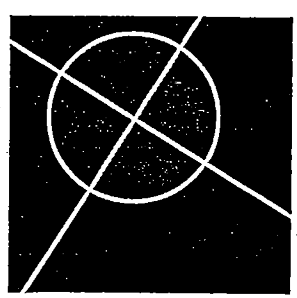
CITY OF SAN DIEGO STREET DESIGN MANUAL

THE CITY OF SAN DIEGO

The City of San Diego Street Design Manual 2002

November 2002

"If we can develop and design streets so that they are wonderful, fulfilling places to be—community-building places, attractive for all people—then we will have successfully designed about one-third of the city directly and will have had an immense impact on the rest," Alan B. Jacobs, Great Streets.

THE CITY OF SAN DIEGO

The City of

San Diego
Street Design Manual 2002

"To offer guidelines for the design of streets that will create harmony and promote function for all users while respecting and supporting the needs of the surrounding community."

City of San Diego
Street Design Manual Advisory Committee

Prepared by:
City of San Diego Street Design Manual Advisory Committee
and the City of San Diego Planning Department

With the assistance of:
The M.W. Steele Group and the Stepner Design Group

Approved by:
Council of the City of San Diego

Resolution Number: 297376
Adopted on: November 25, 2002

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District 4, George Stevens
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Street Design Manual 2002

The City of San Diego

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Street Design Manual 2002

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Street Design Manual 2002

Introduction

Introduction

"Community streets are public rights-of-way, which unite neighborhoods, provide access for motorists and non-motorists, and promote neighborhood identity, health, comfort, and safety." Moorish and Brown, Planning to Stay.

INTRODUCTION

Streets play a major role in shaping the form of the urban environment. The quality of the street experience is a key element in the quality of a neighborhood. *The Progress Guide and General Plan* describes the function of the City's street system as follows:

Streets serve a variety of purposes. One is for the circulation of people, vehicles, goods, and services (utilities). Streets also serve as shopping corridors, restaurant rows, linear parks, residential front yards, extensions of office lobbies, ceremonial gathering places, parade grounds, racing courses, display areas, entertainment strips, etc. The street is really the City, organized along a corridor. It is a continuous forum for gathering where all those activities have their overture, making city life what it is. It has economic, social, aesthetic, political, ecological-even philosophical-implications. And, all this is in addition to providing a right-of-way for people and things.

The City of Villages Initiative recognizes streets as an important element in shaping our urban form and improving our neighborhood quality by:

- Balancing the needs of emergency vehicles with everyday traffic concerns—such as vehicle speeding and pedestrian safety—through street design policy.
- Promoting an interconnected street network that includes pedestrian and bicycle access where topography and land form permit.
- Creating a more attractive and safe pedestrian environment through the promotion of an active streetscape and the use of public art and artistic elements.
- Reducing peak energy demand through the incorporation of urban heat island reduction measures into the appropriate site and street design guidelines, landscape standards, and building codes.
- Promoting pedestrian- and transit-friendly design of City streets.
- Providing capacity and operational improvements to streets to minimize congestion and focus on persons and goods, not just vehicles.

These are the guiding principles of the Street Design Manual.

The purpose of the Street Design Manual is to provide information and guidance for the design of the public right-of-way that recognizes the many and varied purposes that a street serves. The Street Design Manual is intended to assist in the implementation of the *Progress Guide and General Plan*, the Strategic Framework Element, the *Transit-Oriented Development Design Guidelines*, and the Land Development Code. In addition, it is intended to assist in the implementation of the special requirements established through community plans, specific plans, precise plans, or other City Council-adopted policy and/or regulatory documents.

APPLICABILITY

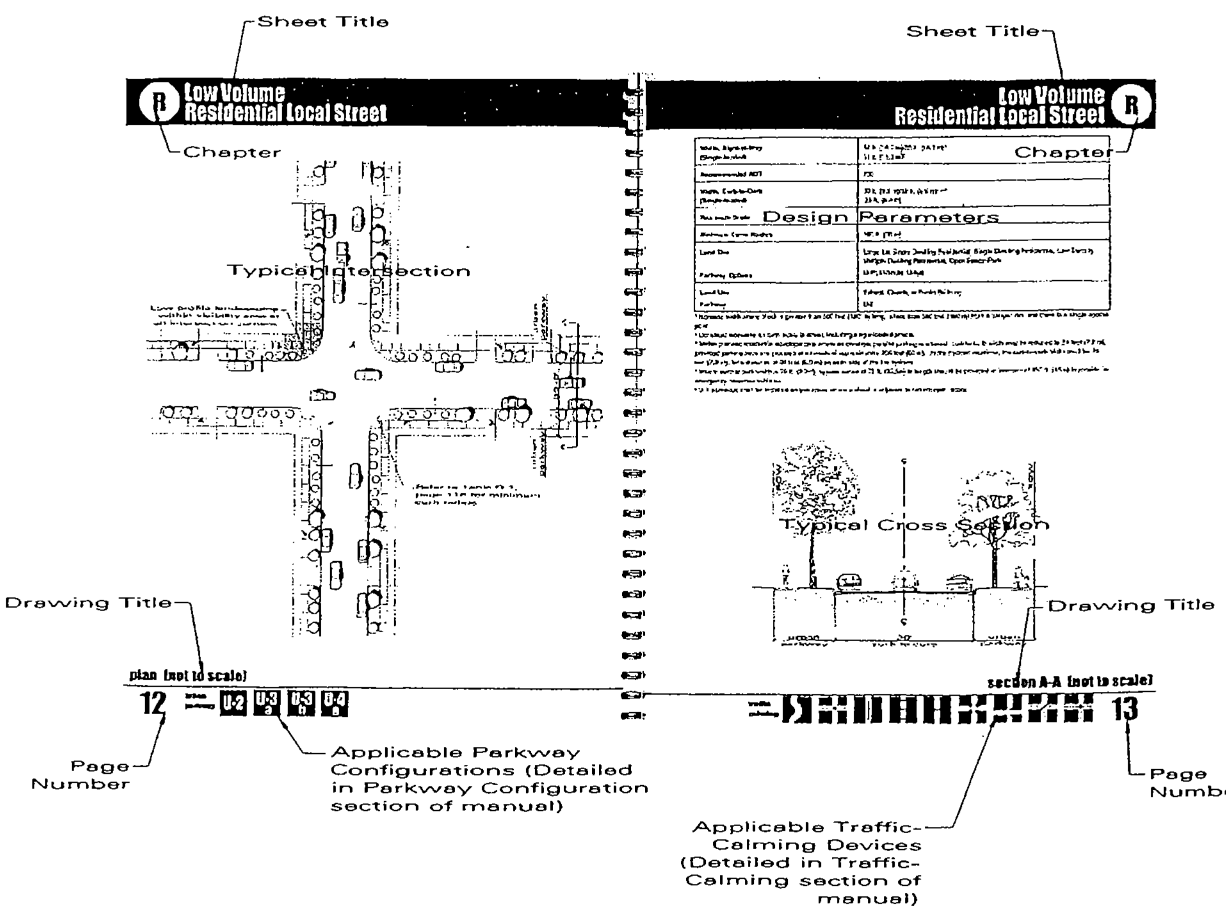
These guidelines are applicable primarily to newly developing areas and to older areas that are undergoing major revitalization and redevelopment. In areas with sensitive habitat or unusual and difficult terrain, these guidelines may be modified as appropriate. In historic and older, developed neighborhoods, the existing character of the streets should be maintained and enhanced. In these older neighborhoods, nonstandard street widths are frequently in place in many locations. Existing street designs and configurations not illustrated in this manual may be considered appropriate for continued use in such neighborhoods.

The manual establishes guidelines to carry out the City's street design functions. It does not establish a legal standard for such functions nor is it intended that it should do so. Moreover, these guidelines do not supersede requirements and policies established through community plans, specific plans, precise plans, regional and City standard drawings or other City Council-adopted policy and/or regulatory documents; but, rather, they are designed to work in concert with them.

It should be noted that all drawings included in this manual are for illustrative purposes only and should not be used as construction plans.

How To Use This Manual

The Street Design Manual is divided into six sections: Roadway Design, Pedestrian Design, Traffic Calming, Street Lighting, Parkway Configurations, and Design Standards. It is important to understand how all six parts work. All six parts should be considered, in order to design an effective street system. The manual complements the *Transit-Oriented Development Design Guidelines* and substantiates the importance of site planning in the design of an effective street system. Each of the street classifications described in this manual includes icons (at the bottom of the page) that indicate the appropriate parkway configuration and traffic calming devices for the type of street, as illustrated below and on the following page.



Parkway Configurations

URBAN

- **U-1** — 10' parkway - contiguous sidewalk
- **U-2** — 10' parkway with tree grates
- **U-3** — 12' parkway - non-contiguous sidewalk
- **U-4 a** — 15' parkway - non-contiguous sidewalk
- **U-4 b** — 22' parkway - non-contiguous sidewalk
- **U-5 a** — 14' parkway - with tree grates
- **U-5** — 14' parkway - with tree grates (transit area)
- **U-6 a** — 20' parkway -with tree grates
- **U-6 b** — 20' parkway - (transit area)

RURAL

- **R-1** — 12' parkway
- **R-2 a** — 14' parkway
- **R-2 b** — 14' parkway
- **R-3** — 18' parkway
- **R-4** — 26' parkway

Traffic Calming

 — chicane

 — traffic circle

 — median slow point

 — road hump

 — speed table raised crosswalk

 — intersection pop-out

 — semi-diverter

 — channelization

DESIGN REQUIREMENTS

- The necessary width and configuration of a street is also related to the estimated future average daily traffic (ADT).

- Ordinarily, the ADT is the motor vehicle volume projected within the next twenty years. However, in newly developing communities, the volume after buildout may be considered.

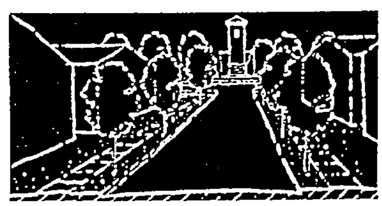
- Special studies may be required to establish future traffic volumes for a given street. When required, the study must be performed by a Registered Traffic Engineer. In the absence of such a study, ADT in residential areas will computed on the basis of the City's standard trip generation factors.

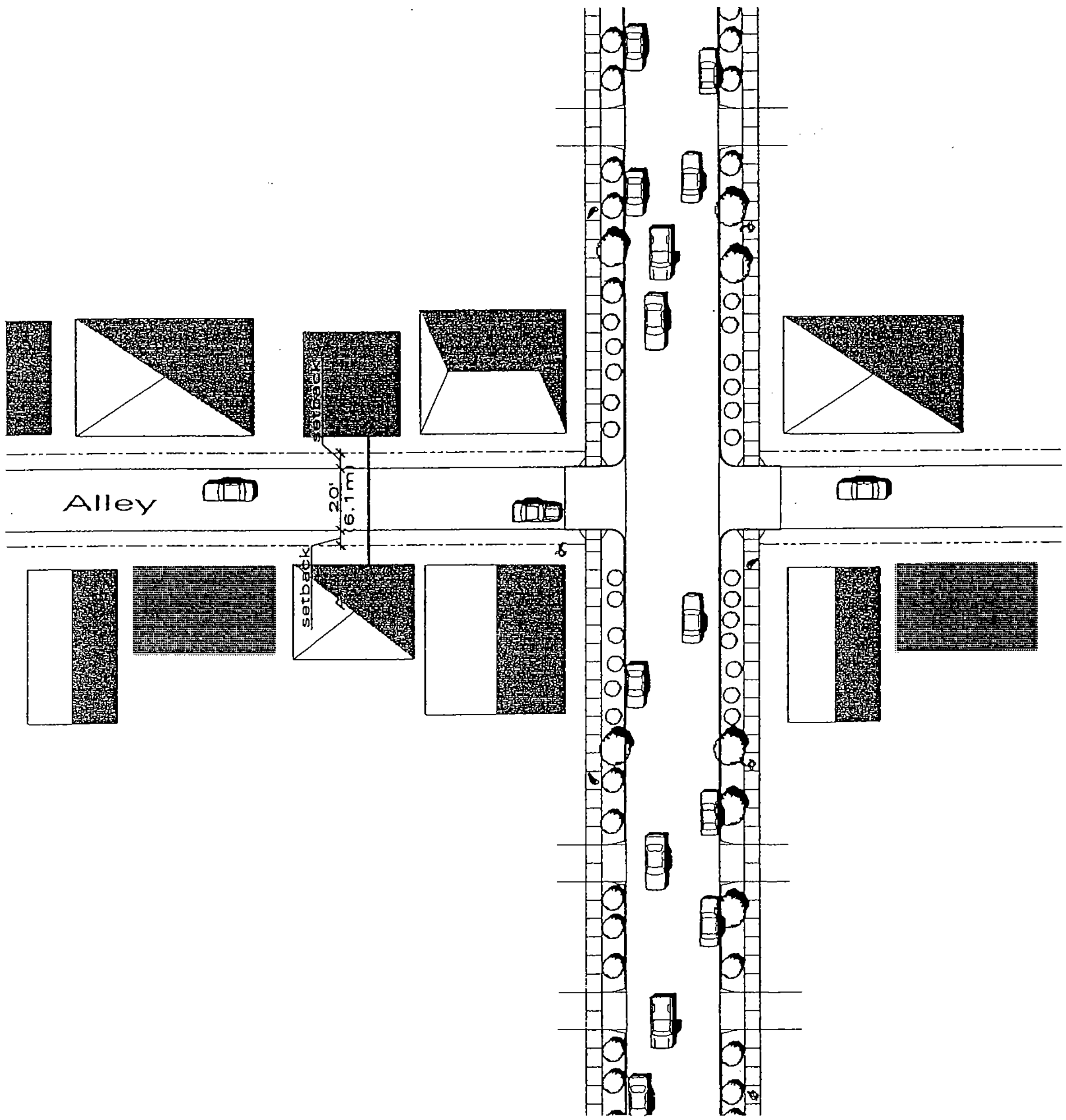
- The "Design ADT" for streets of Collector classification and higher indicates an ADT range. The lower number represents the maximum ADT for LOS C as indicated in the City of San Diego Traffic Impact Study Manual. The higher number represents LOS D according to the Manual. LOS C is the appropriate design parameter for streets in urbanizing communities in accordance with the City's General Plan. LOS D is an acceptable level of service for CEQA (California Environmental Quality Act) review.

- The ADTs corresponding to the various LOS included in the Traffic Impact Studies Manual are intended as guidelines to correlate the quality of traffic service with typical sections of different street classifications. The ADT should not be used as the sole factor in determining the appropriate street classifications, since other factors play an important role in shaping the operating conditions on a facility. Designers are encouraged to perform analysis using Highway Capacity Manual method-ologies to assist in determining appropriate street classifications and accompanying levels of service for their street projects.

- Basic width and alignment requirements are described in the Roadway Design section of this Manual.

Alleys





plan (not to scale)

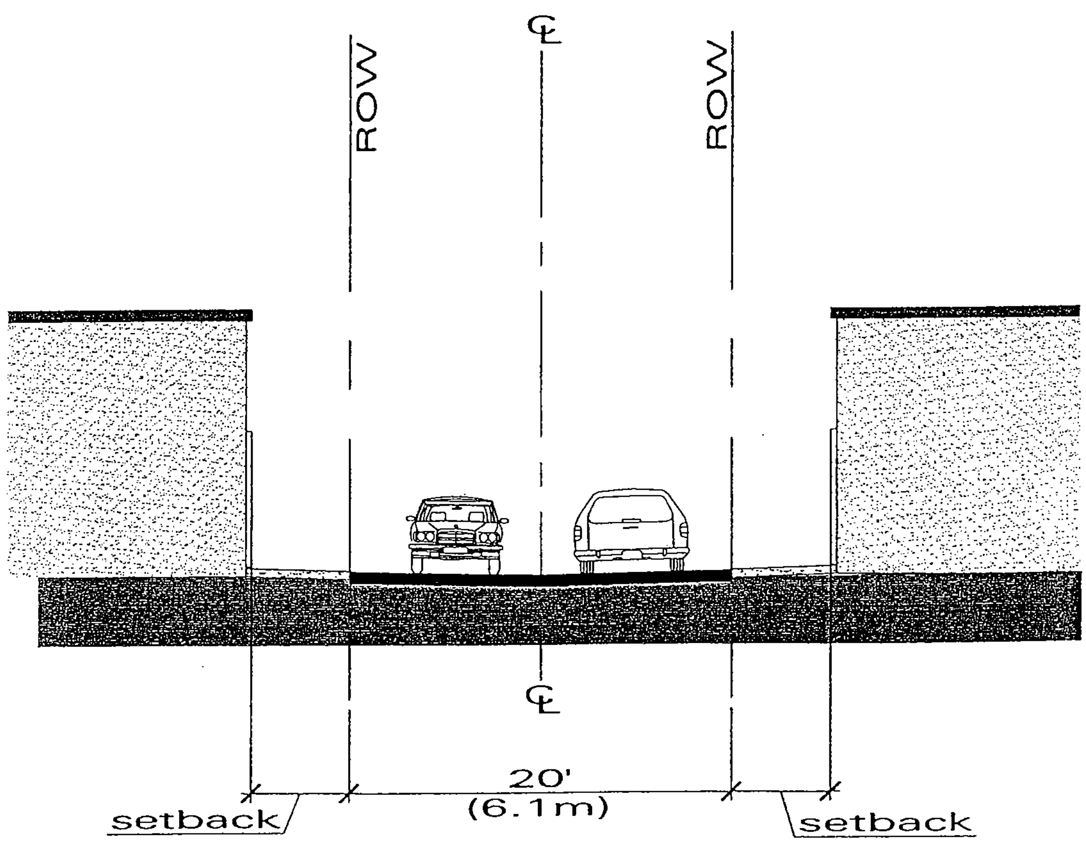
A. An alley is a secondary means of access usually lying along the rear of property, the front of which abuts on and has primary access from a street. Alleys should not intersect streets of four-lane urban major or higher classification.

B. Alleys are to be improved 20 feet (6.1 m) wide within a 20-foot (6.1 m) right-of-way. Where utility services, fire hydrants, etc. are located in the alley, the right-of-way must be widened as required. At the intersection of two alleys, a triangular area at the corner, 20 feet (6.1 m) on each side, shall be improved and included in the right-of-way.

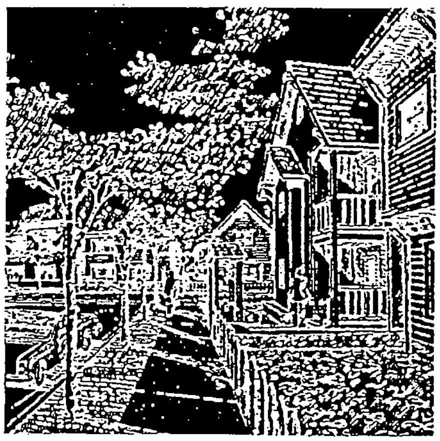
C. Maximum grade is 15 percent. Minimum curve radius is 100 feet (30 m) or as needed to accommodate commercial and emergency vehicle access and provide for 15 mph (25 km/h) minimum sight distance.

D. Curb ramps shall be installed on both sides of an alley entrance in the sidewalk path of travel.

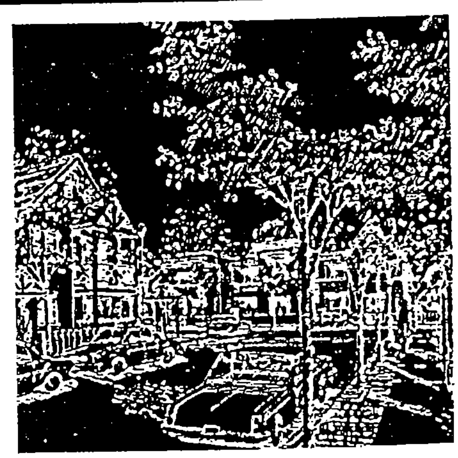
E. Alleys shall be constructed in accordance with San Diego Regional Standard Drawings.

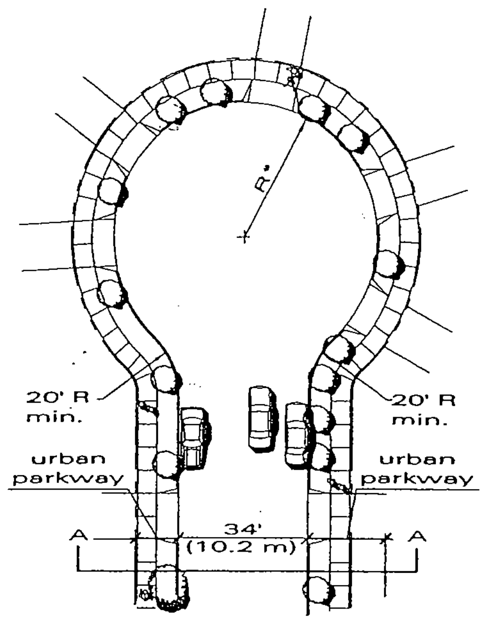


section A-A (not to scale)



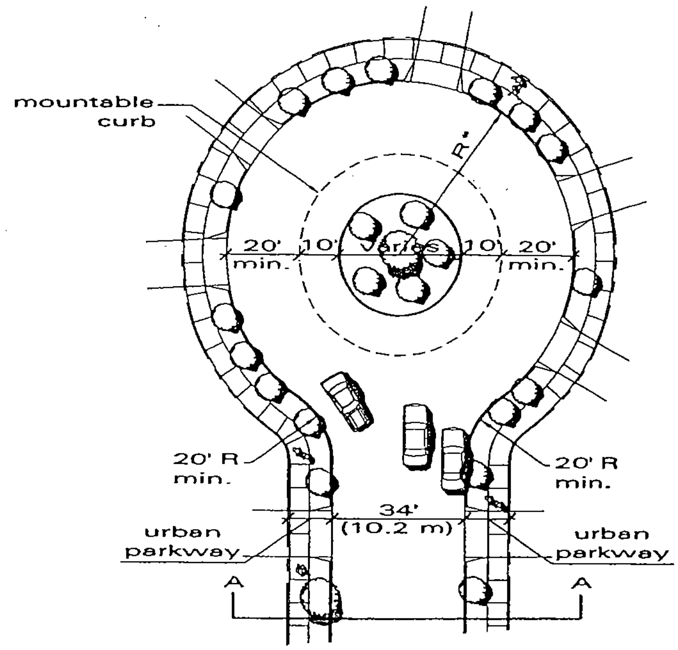
Residential Streets





Cul-de-sac
not to scale

* Refer to Geometric Design, Section E



Enhanced cul-de-sac
not to scale

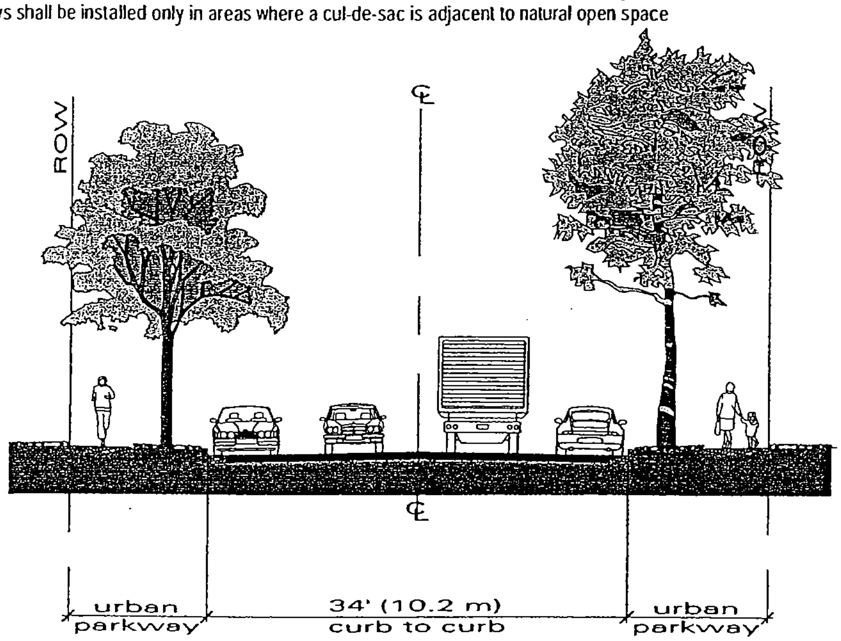
* Refer to Geometric Design, Section E

Note: On-street parking should be prohibited on refuse collection days.

plan (not to scale)

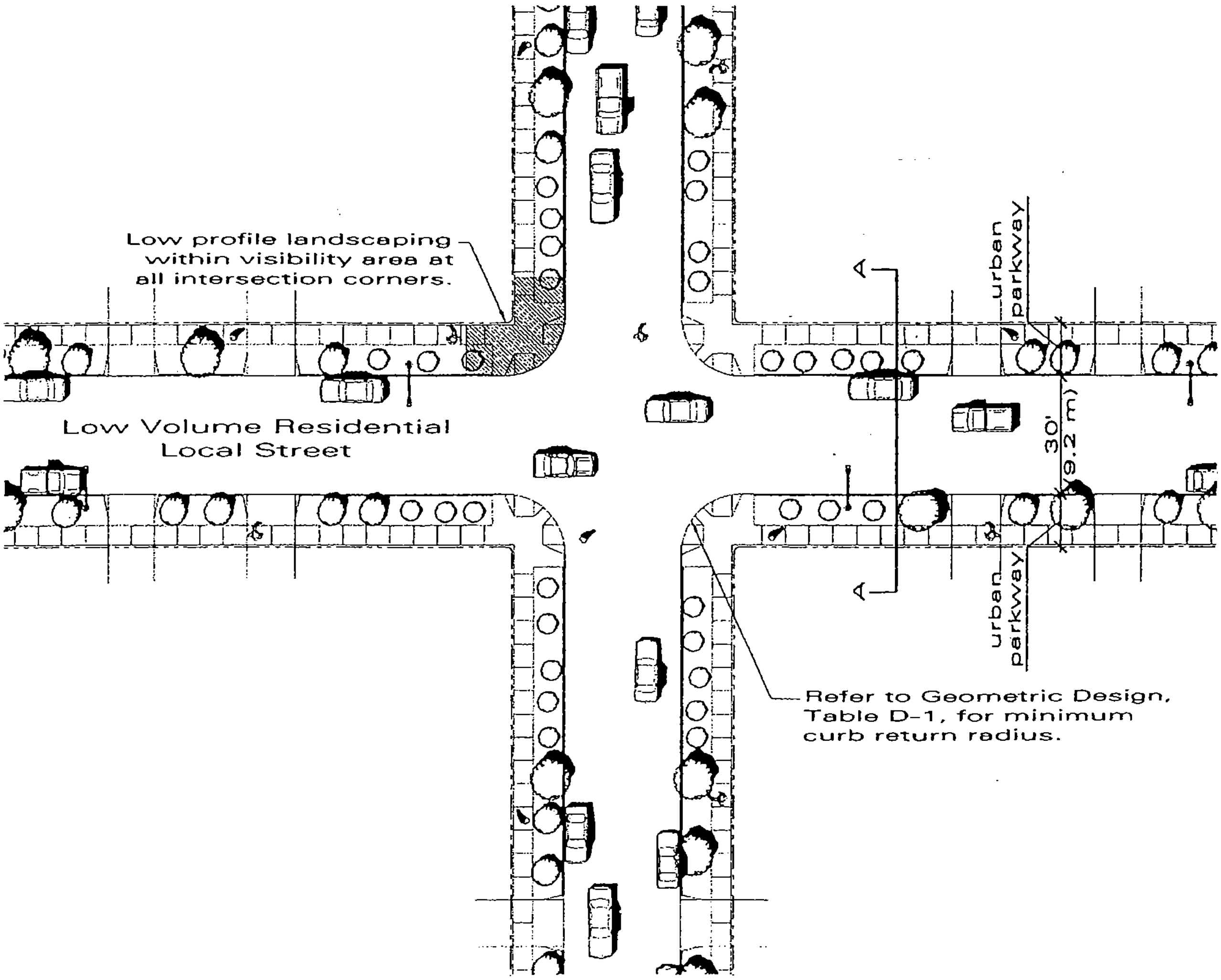
Width, Right-of-Way • Reduced Width[1] • Single-loaded[2]	54 ft. (16.2 m) – 64 ft. (19.2 m) 52 ft. (15.6 m) – 62 ft. (18.6 m) 48 ft. (14.4 m) – 58 ft. (17.4 m)
Design ADT[3]	200
Width, Curb-to-Curb[4] • Reduced Width[1] • Single-loaded	34 ft. (10.2 m) 32 ft. (9.6 m) 28 ft. (8.4 m)
Maximum Grade	15%
Minimum Curve Radius	100 ft. (30 m)
Land Use **Parkway Options[5]**	Large Lot Single Dwelling Residential, Single Dwelling Residential, Low Density Multiple Dwelling Residential, Open Space-Park U-1; U-3; U-4 (a)
Land Use **Parkway**	School, Church, or Public Building U-2

[1] Reduce width only where cul-de-sac is less than 300 feet (90 m) long and is greater than 600 feet (180 m) from a canyon rim.
[2] Construct sidewalks on both sides of street, including single-loaded cul-de-sacs.
[3] Refer to Section E, page 117, for cul-de-sacs serving more than 200 ADT.
[4] Within planned residential developments where no on-street parallel parking is allowed, curb-to-curb width may be reduced to 24 feet (7.2 m), provided parking bays are provided at intervals of approximately 200 feet (60 m). At fire hydrant locations, the curb-to-curb width shall be 26 feet (7.8 m), for a distance of 20 feet (6.0 m) on each side of the fire hydrant.
[5] U-1 parkways shall be installed only in areas where a cul-de-sac is adjacent to natural open space



section A-A (not to scale)

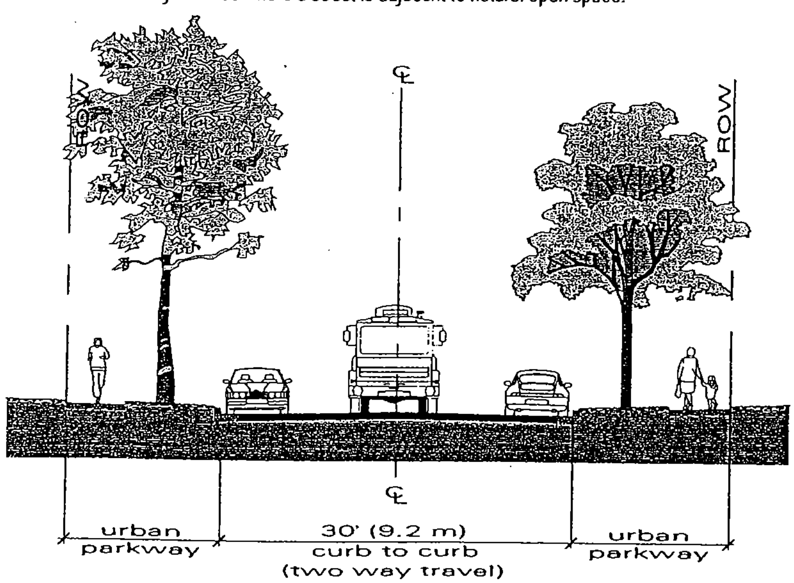
Low Volume Residential Local Street



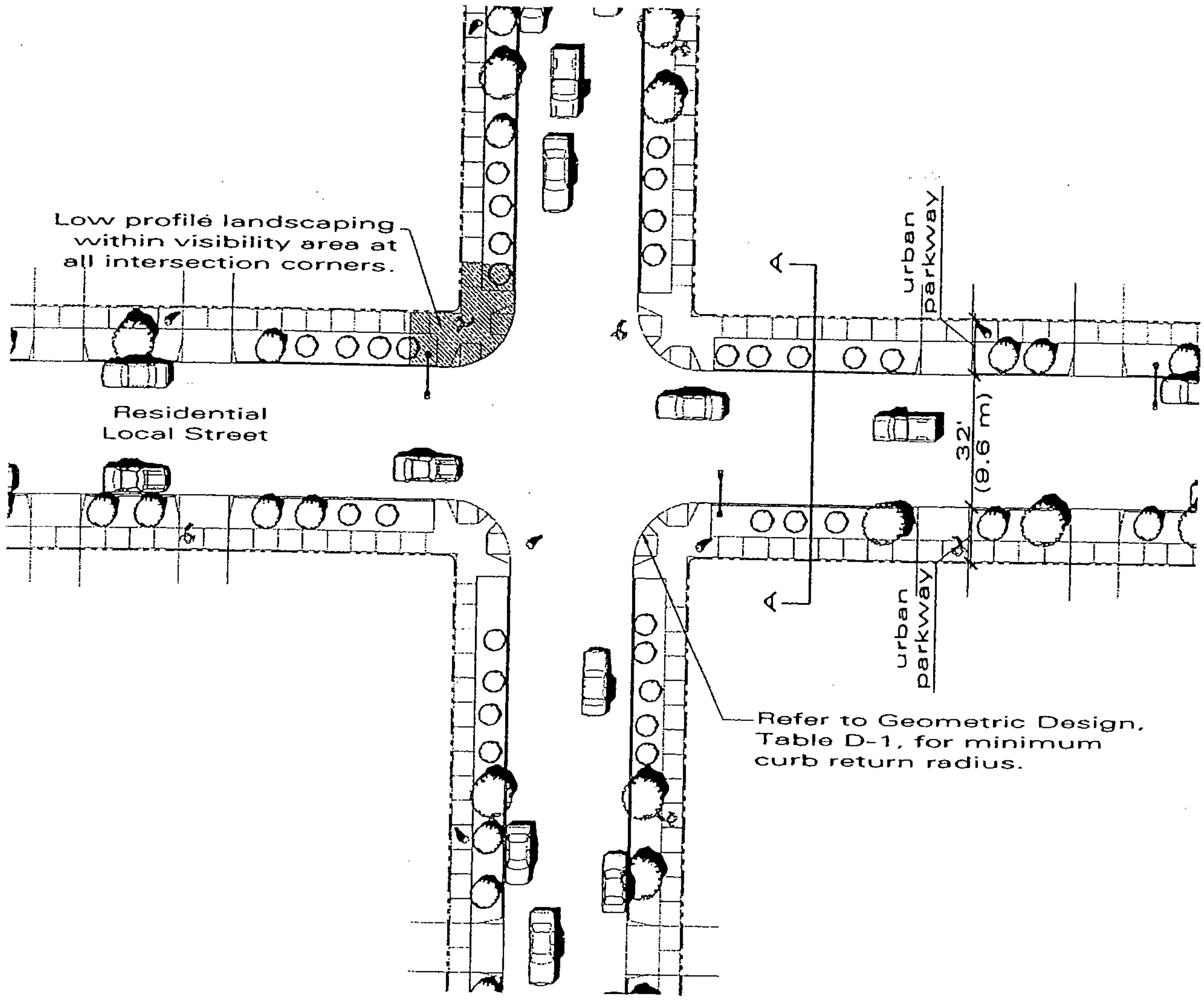
plan (not to scale)

Width, Right-of-Way • Increased Width[1] • Single-loaded[2]	50 ft. (15.2 m) – 60 ft. (18.2 m) 52 ft. (15.6 m) – 62 ft. (18.6 m) 48 ft. (14.4 m) – 58 ft. (17.4 m)
Design ADT	700
Width, Curb-to-Curb[3,4] • Increased Width[1] • Single-loaded	30 ft. (9.2 m) 32 ft. (9.6 m) 28 ft. (8.4 m)
Maximum Grade	15%
Minimum Curve Radius	100 ft. (30 m)
Land Use **Parkway Options**[5]	Large Lot Single Dwelling Residential, Single Dwelling Residential, Low Density Multiple Dwelling Residential, Open Space-Park U-1; U-3; U-4 (a)
Land Use **Parkway**	School, Church, or Public Building U-2

[1] Increase width where block is greater than 600 feet (180 m) long, is less than 600 feet (180 m) from a canyon rim, and there is a single access point.
[2] Construct sidewalks on both sides of street, including single-loaded streets.
[3] Within planned residential developments where no on-street parallel parking is allowed, curb-to-curb width may be reduced to 24 feet (7.2 m), provided parking bays are provided at intervals of approximately 200 feet (60 m). At fire hydrant locations, the curb-to-curb width shall be 26 feet (7.8 m), for a distance of 20 feet (6.0 m) on each side of the fire hydrant.
[4] Where curb-to-curb width is 30 ft. (9.2m), bypass zones of 75 ft. (22.5m) in length should be provided at intervals of 150 ft. (45m) by removal of parking to provide for emergency response vehicles.
[5] U-1 parkways shall be installed only in areas where a street is adjacent to natural open space.



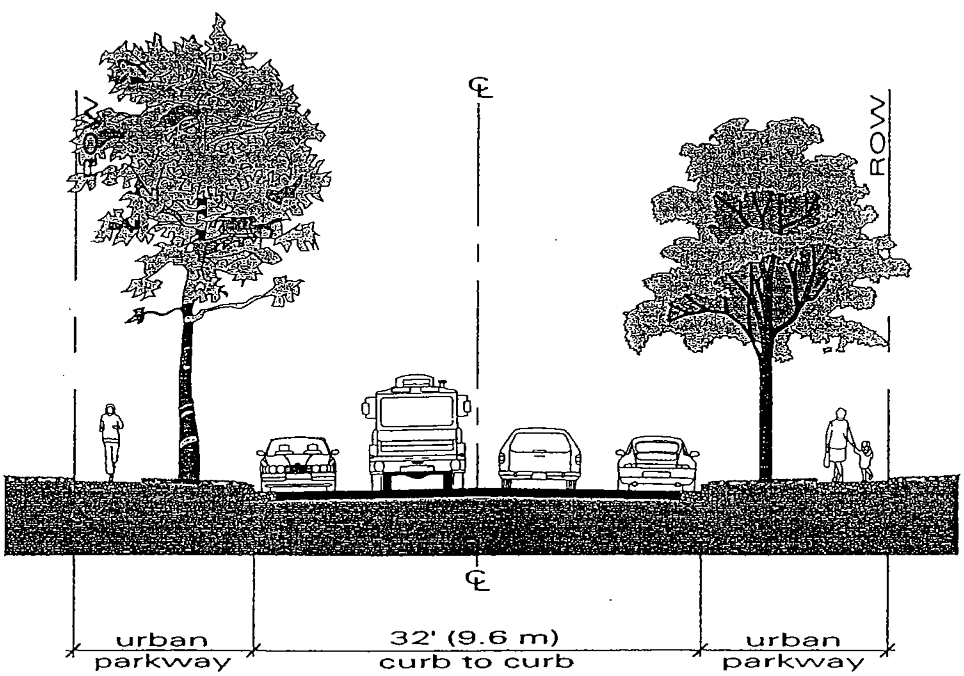
section A-A (not to scale)



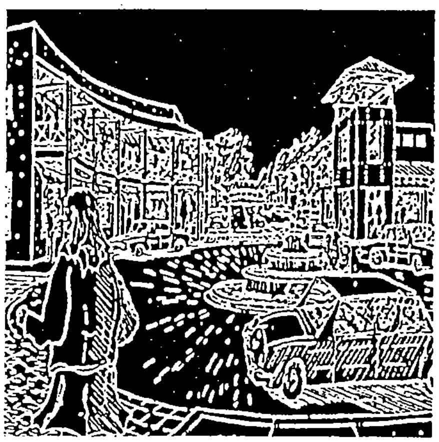
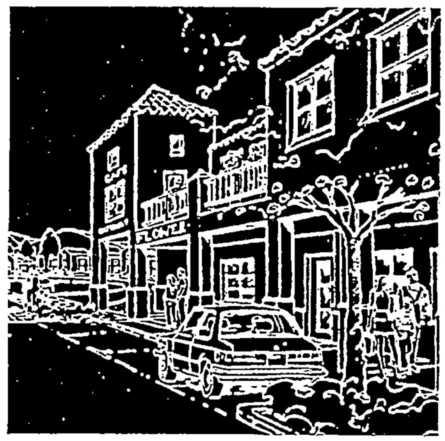
plan (not to scale)

Width, Right-of-Way • Single-loaded[1,2]	52 ft. (15.6 m) - 62 ft. (18.6 m) 48 ft. (14.4 m) – 58 ft. (17.4 m)
Design ADT	1,500
Width, Curb-to-Curb[3] • Single-loaded	32 ft. (9.6 m) 28 ft. (8.4 m)
Maximum Grade	15%
Minimum Curve Radius	100 ft. (30 m)
Land Use **Parkway Options**[4]	Large Lot Single Dwelling Residential, Single Dwelling Residential, Multiple Dwelling Residential, Local Mixed Use, Open Space-Park U-1; U-3; U-4 (a)
Land Use **Parkway**	School, Church, or Public Building U-2

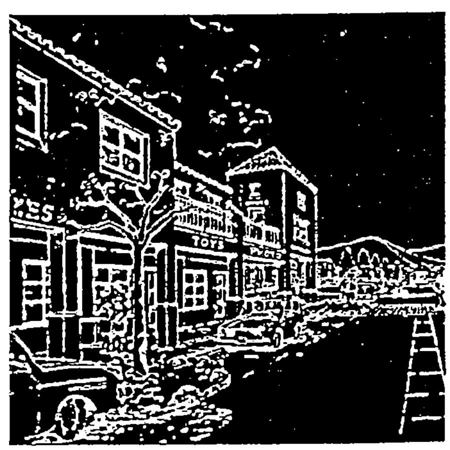
[1] Single-loaded street not permitted in Medium-to-Very High Density Multiple Dwelling Residential areas.
[2] Construct sidewalks on both sides of street, including single-loaded streets.
[3] Curb-to-curb widths may be increased to 44 feet (13.2 m) to allow for angle parking on one side and parallel parking on the other side of street or 52 feet (15.6 m) for angle parking on both sides of street. Angle parking should be installed in accordance with Council approved traffic engineering policies. Angle parking layout should include provisions that allow access to refuse containers.
[4] U-1 parkways shall be installed only in areas where a street is adjacent to natural open space.



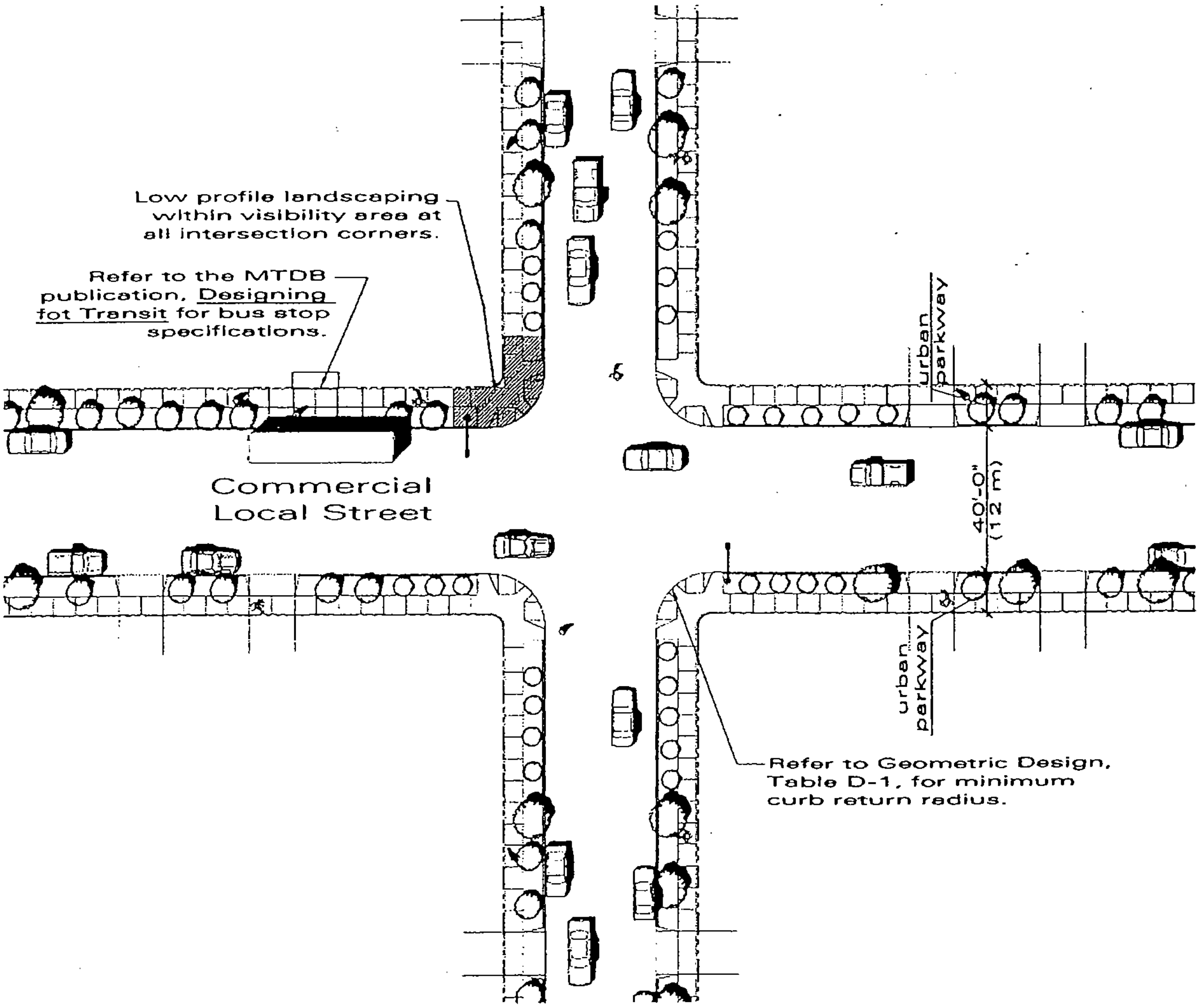
section A-A (not to scale)

Commercial Streets



Cm Commercial Local Street

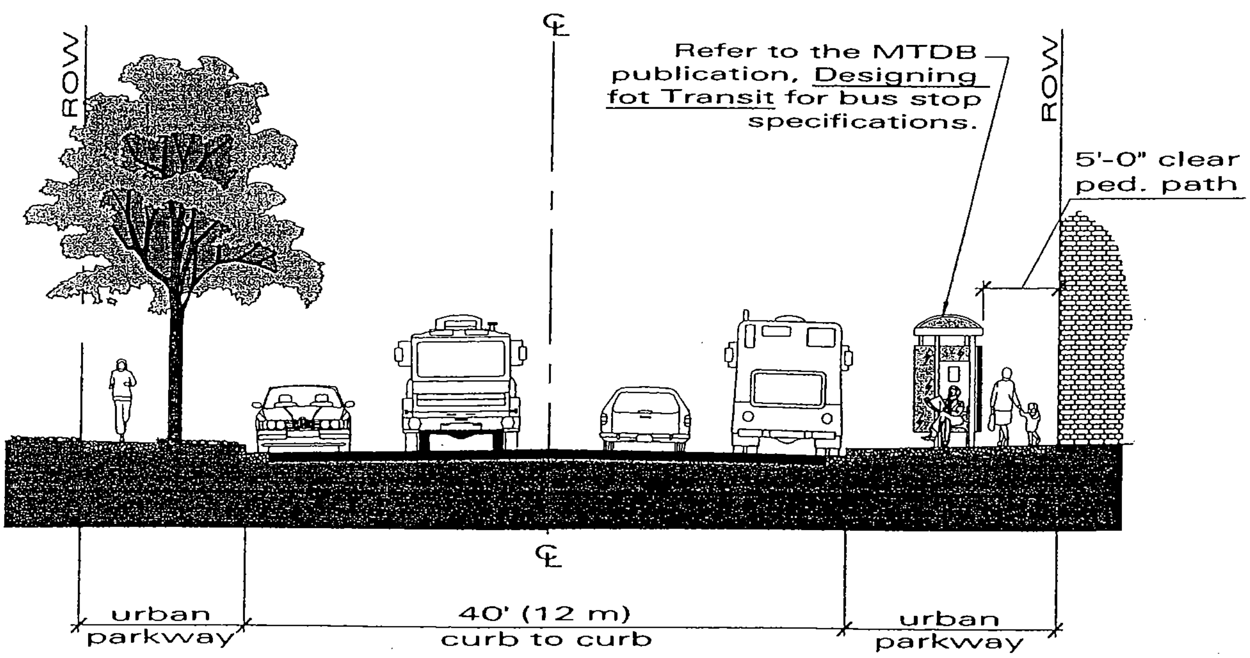


with parallel parking on both sides

plan (not to scale)

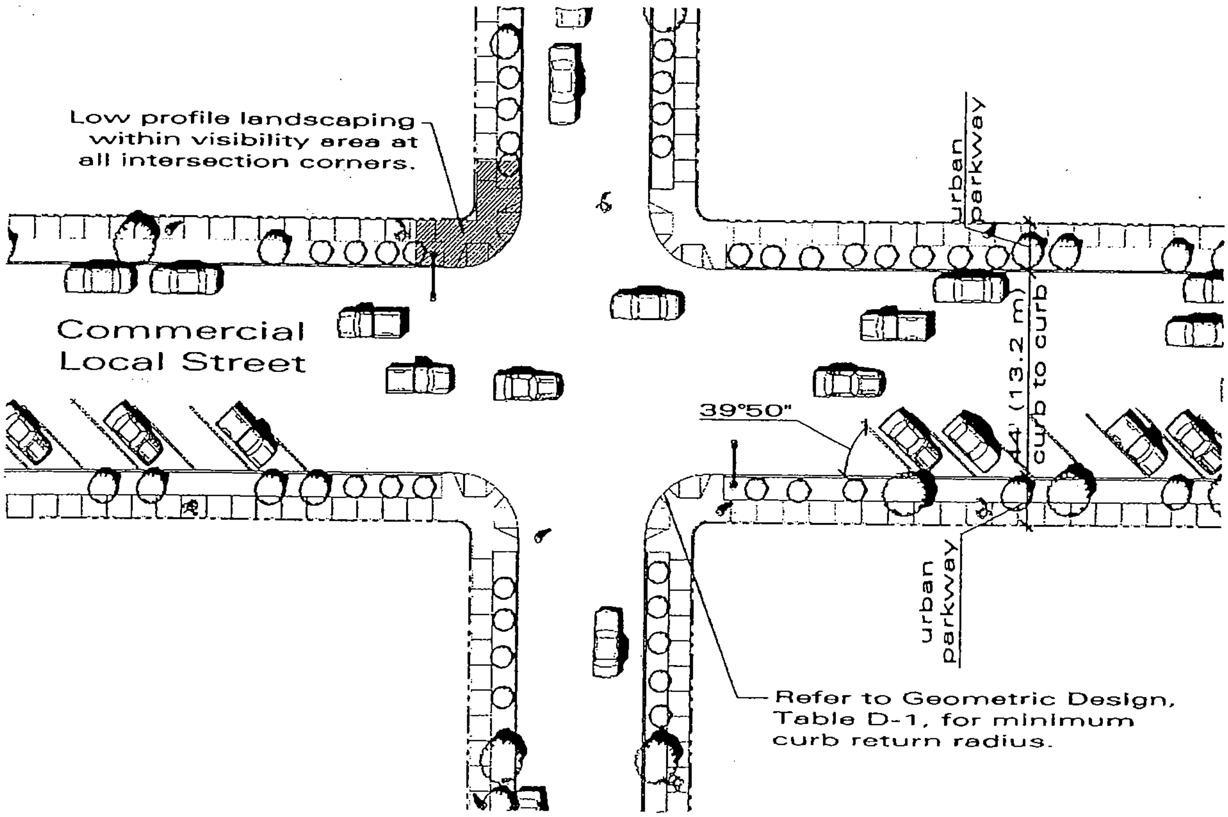
Width, Right-of-Way	60 ft. (18.0 m) - 92 ft. (27.6 m)
Design ADT	2,000
Design Speed	25 mph (40 km/h)
Width, Curb-to-Curb • with parallel parking on both sides • with parallel/angle parking[1,2] • with angle parking on both sides[1,2]	 40 ft. (12.0 m) 44 ft. (13.2 m) 52 ft. (15.6 m)
Maximum Grade	8%
Minimum Curve Radius	290 ft. (85 m)
Land Use **Parkway Options**	Commercial, Open Space-Park, School, Church, or Public Building, Scientific Research U-2; U-5 (a,b); U-6 (a,b)

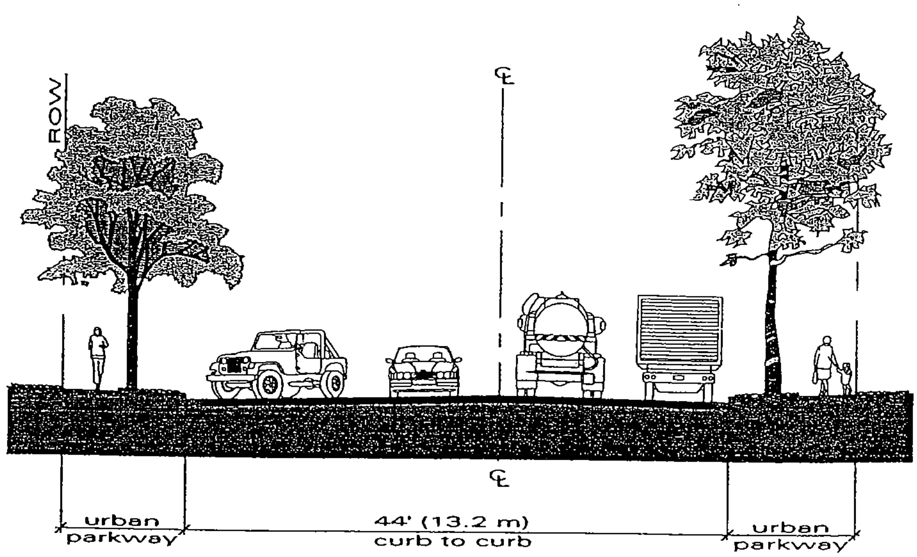
1. Angle parking layout should include provisions that allow access to refuse containers.
2. Angle parking should be installed in accordance with Council approved traffic engineering policies.



section A-A (not to scale)

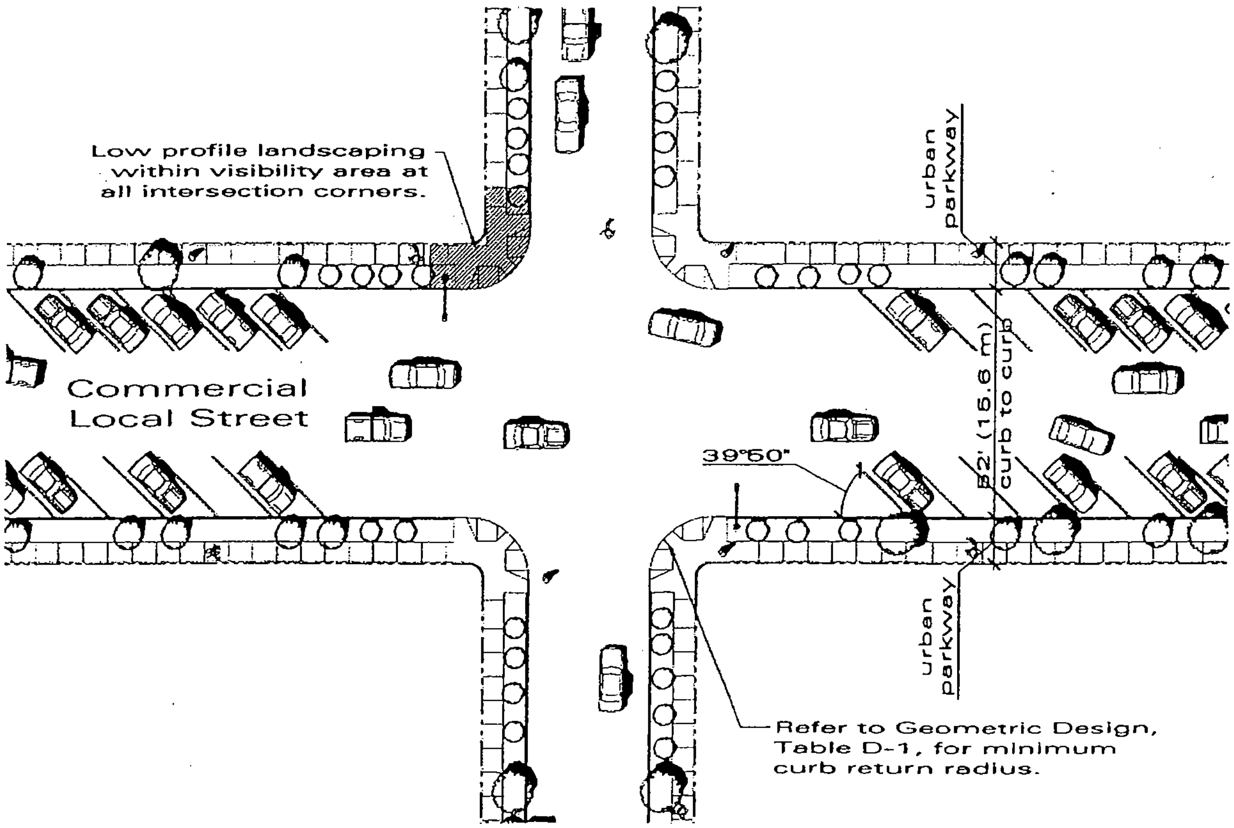
Cm Commercial Local Street

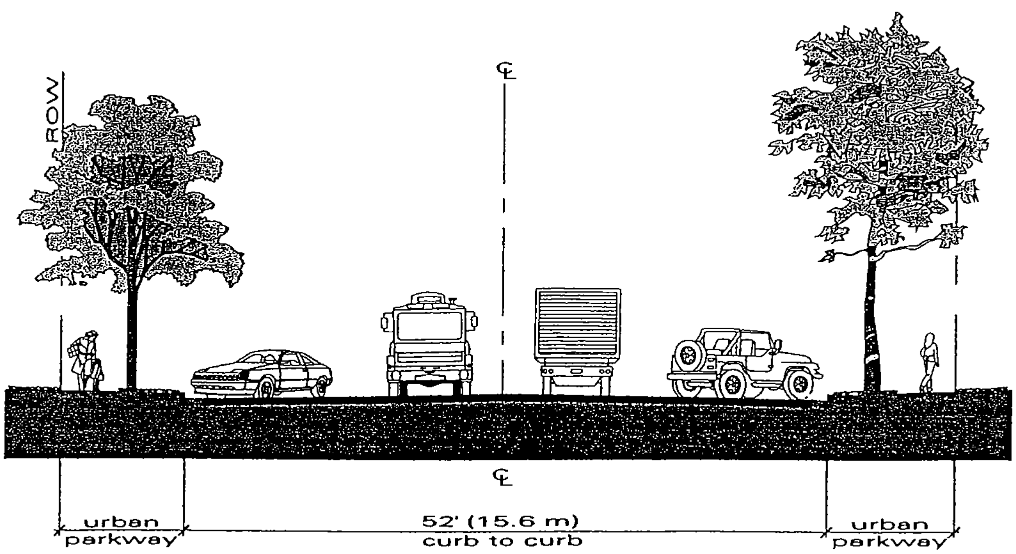




with diagonal / parallel parking

plan (not to scale)

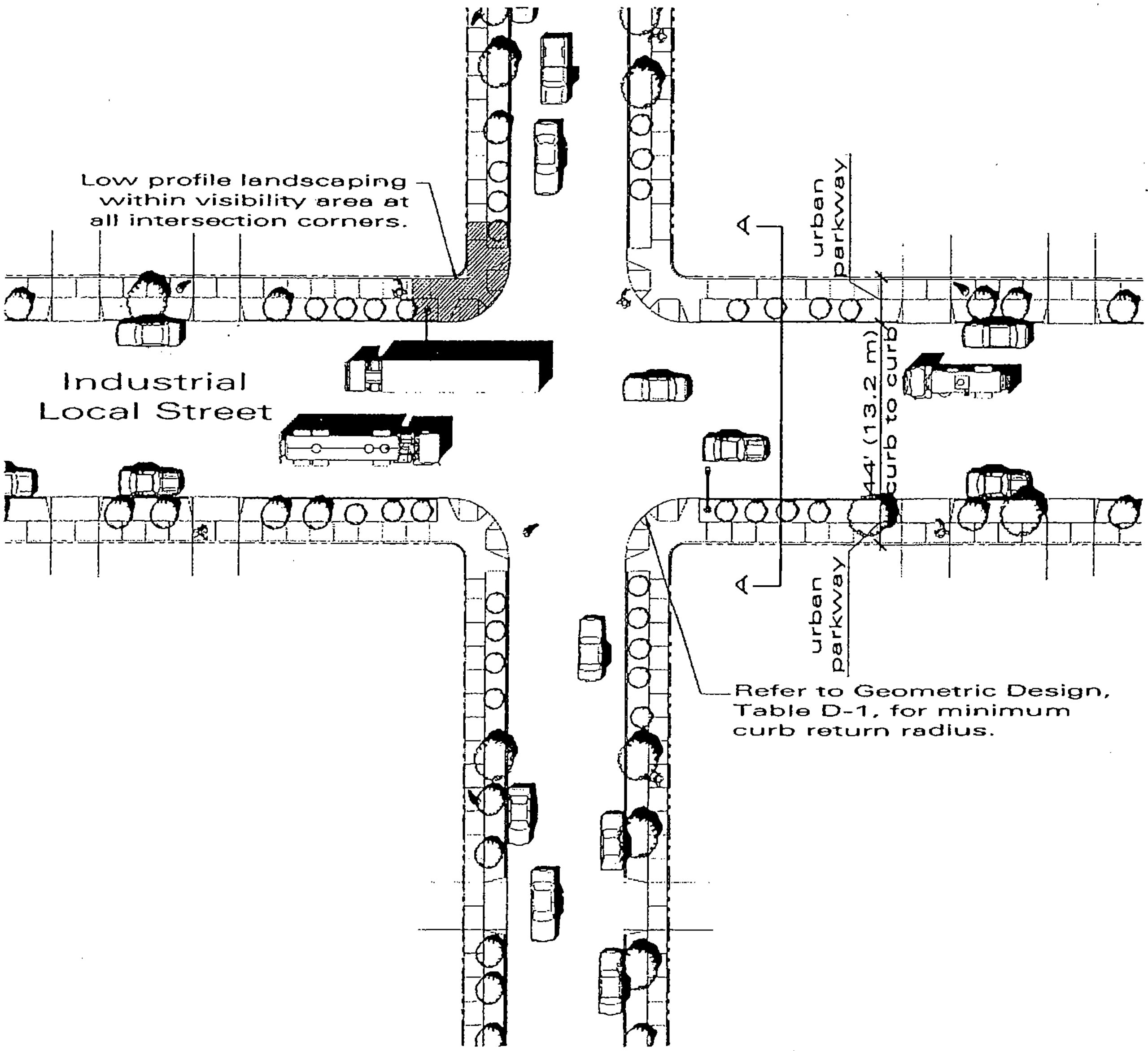




with diagonal parking on both sides

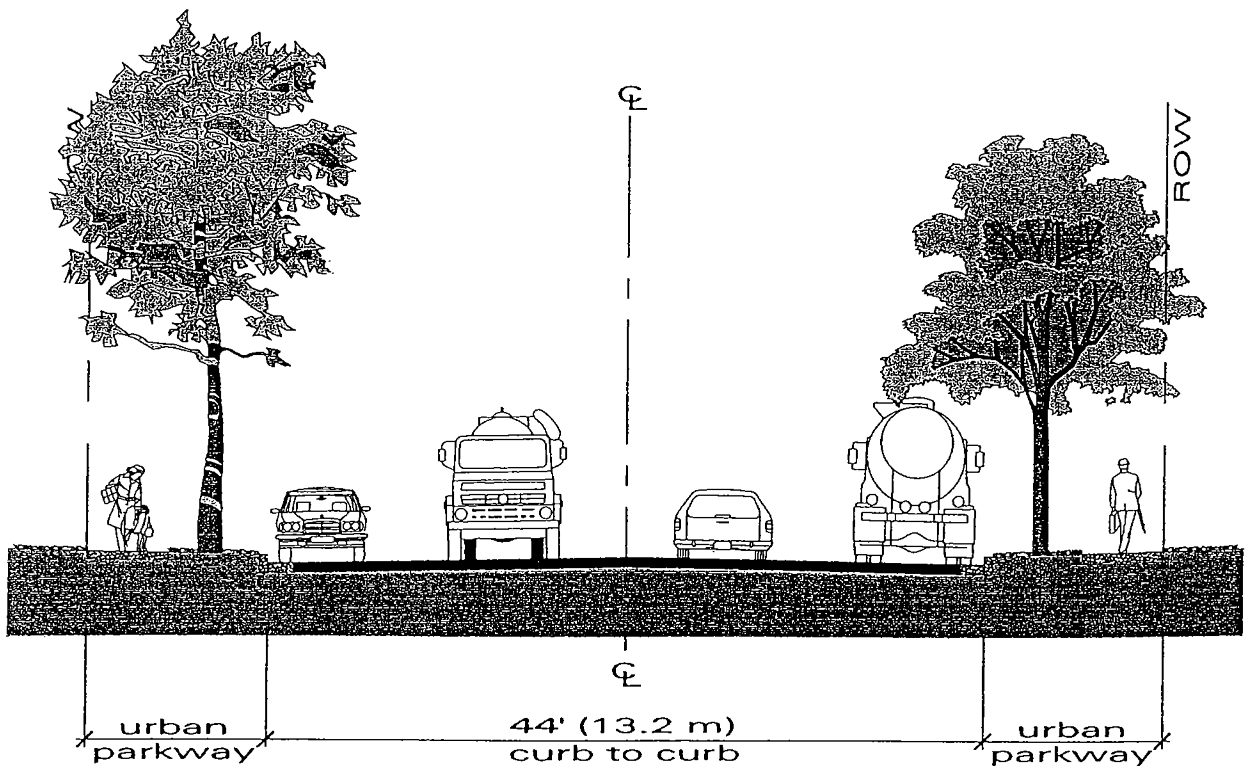
section A-A (not to scale)

Cm Industrial Local Street

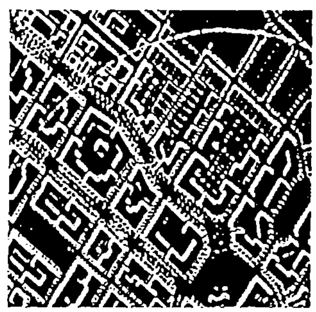


plan (not to scale)

Width, Right-of-Way	64 ft. (19.2 m) - 74 ft. (22.2 m)
Design ADT	2,000
Design Speed	25 mph (40 km/h)
Width, Curb-to-Curb	44 ft. (13.2 m)
Maximum Grade	8%
Minimum Curve Radius	290 ft. (85 m)
Land Use **Parkway Options**	Industrial U-2; U-3; U-4 (a)

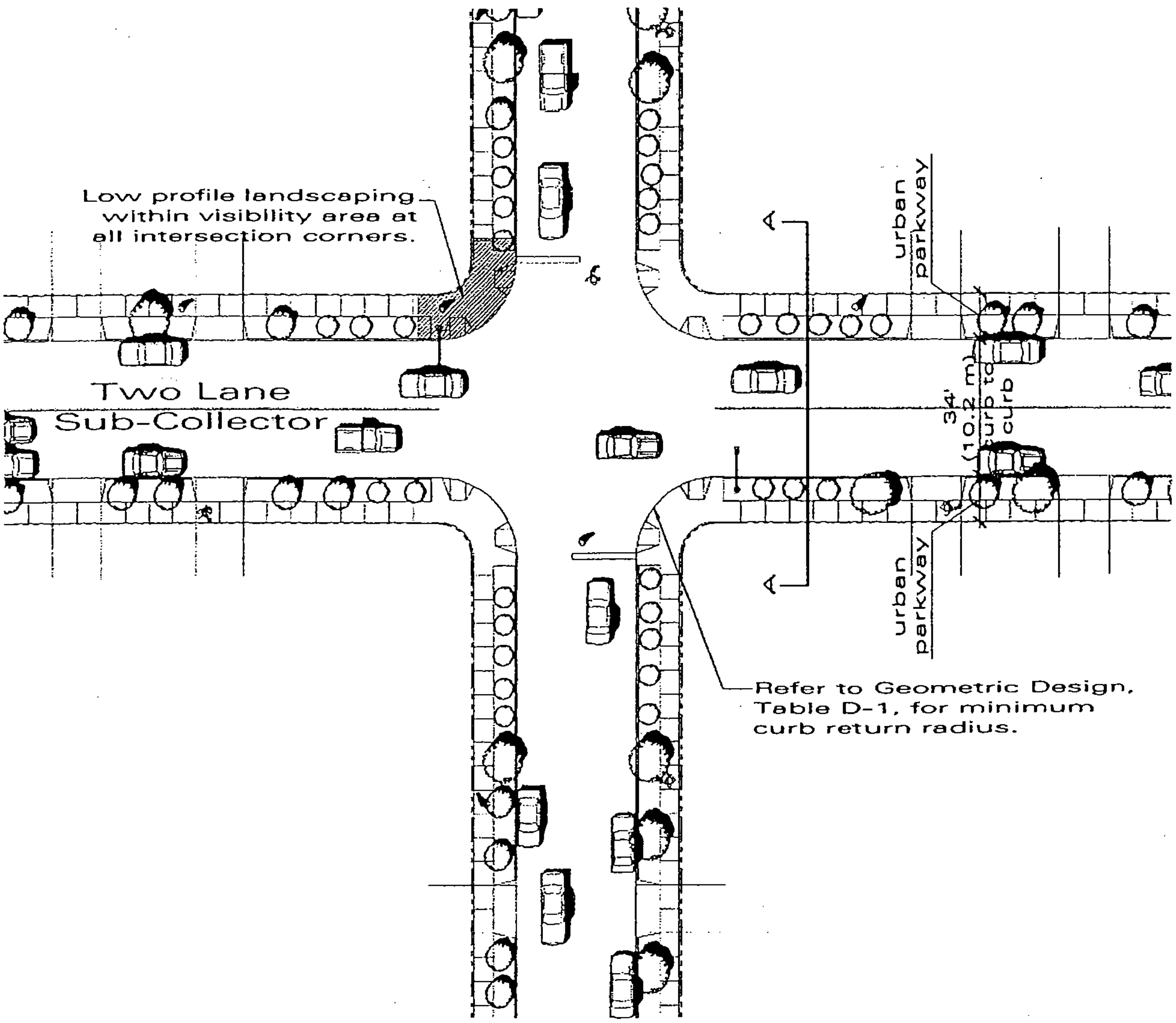


section A-A (not to scale)

Collector Streets

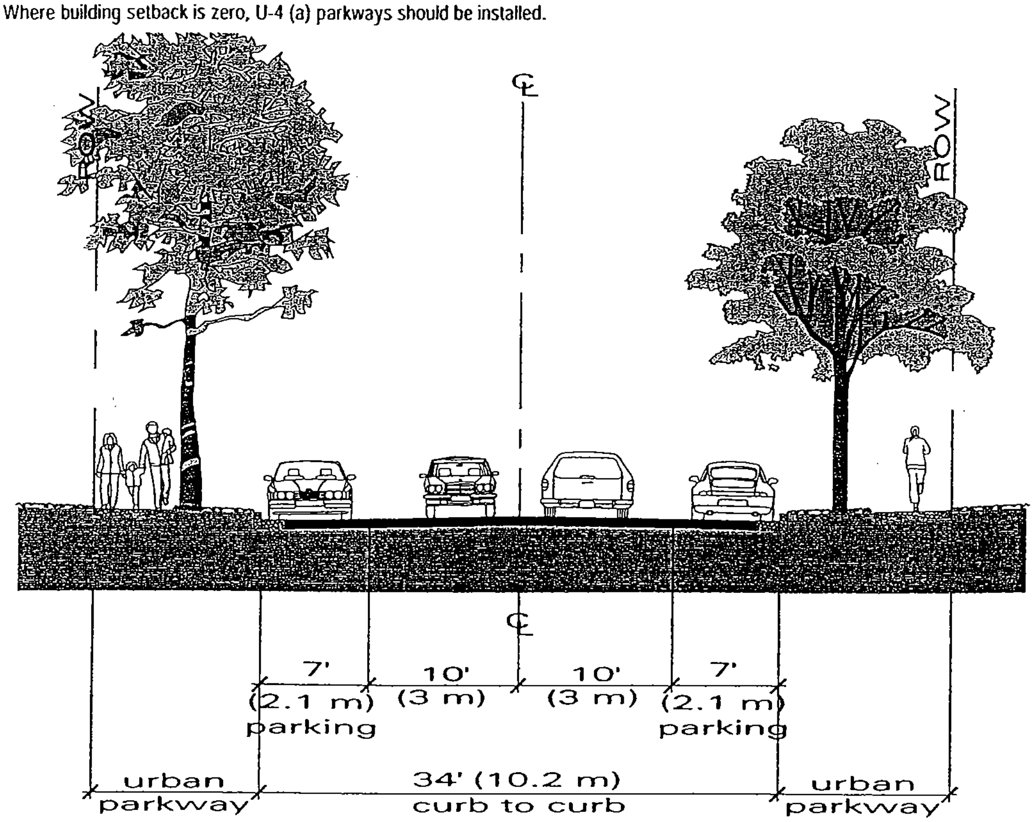
CI Two Lane Sub-collector



plan (not to scale)

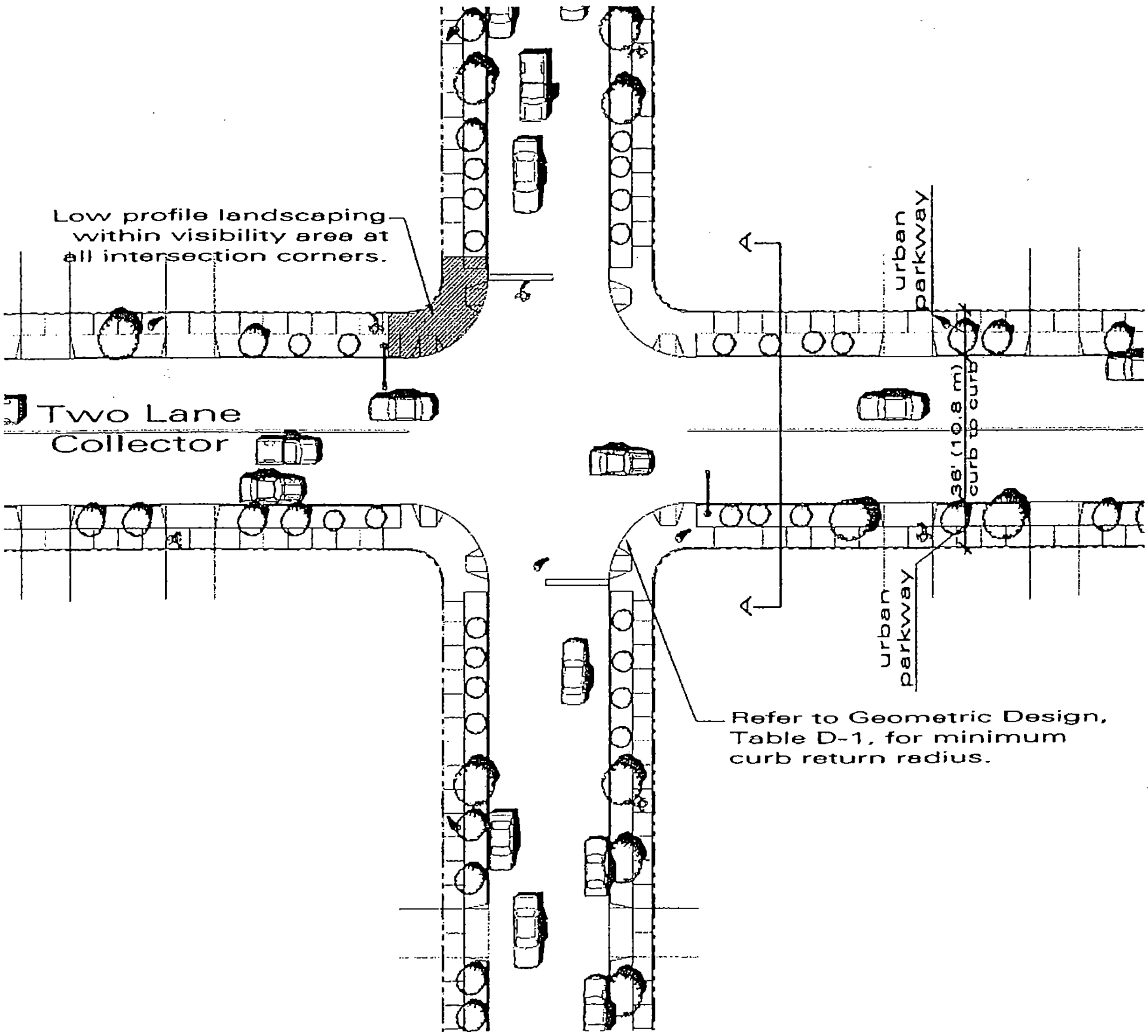
Width, Right-of-Way	54 ft. (16.2 m) - 74 ft. (22.2 m)
Design ADT	2,200
Design Speed	30 mph (50 km/h)
Width, Curb-to-Curb	34 ft. (10.2 m)
Maximum Grade	10% (8% in commercial area)
Minimum Curve Radius	500 ft. (160 m) above 6% grade 450 ft. (145 m) at or below 6% grade
Land Use **Parkway Options**[1]	Large Lot Single Dwelling Residential, Single Dwelling Residential, Low Density Multiple Dwelling Residential, Open Space-Park, Medium-to-Very High Density, Multiple Dwelling Residential U-3; U-4 (a)
Land Use **Parkway Options**	Neighborhood Commercial; Community Commercial, School, Church, or Public Building U-2; U-5 (a,b); U-6 (a,b)

[1] Where building setback is zero, U-4 (a) parkways should be installed.



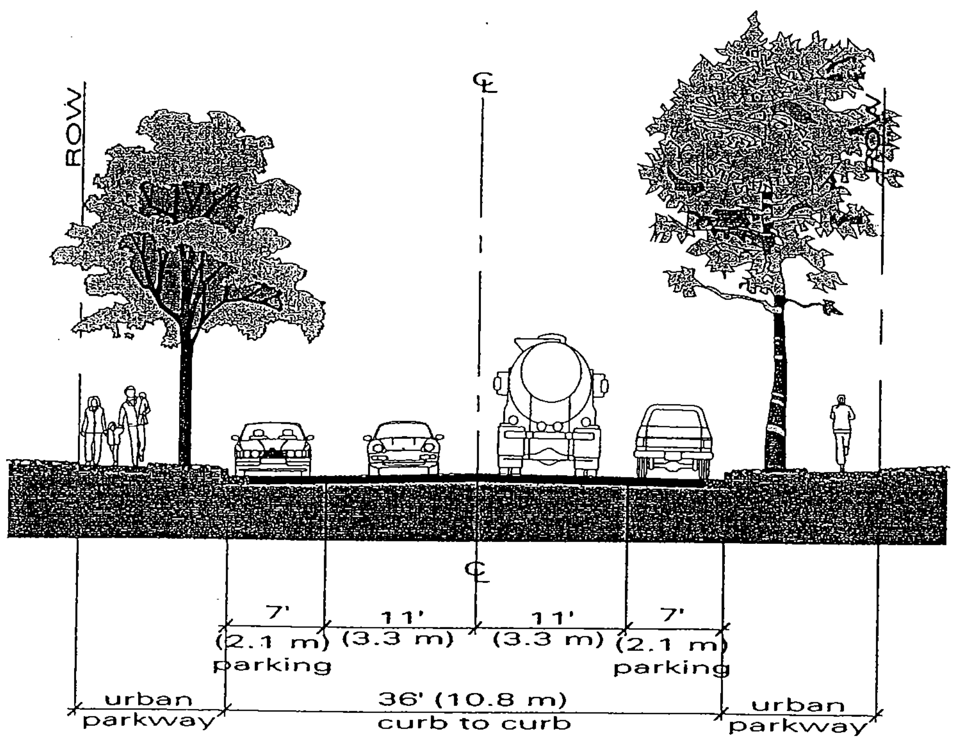
section A-A (not to scale)

CI Two Lane Collector



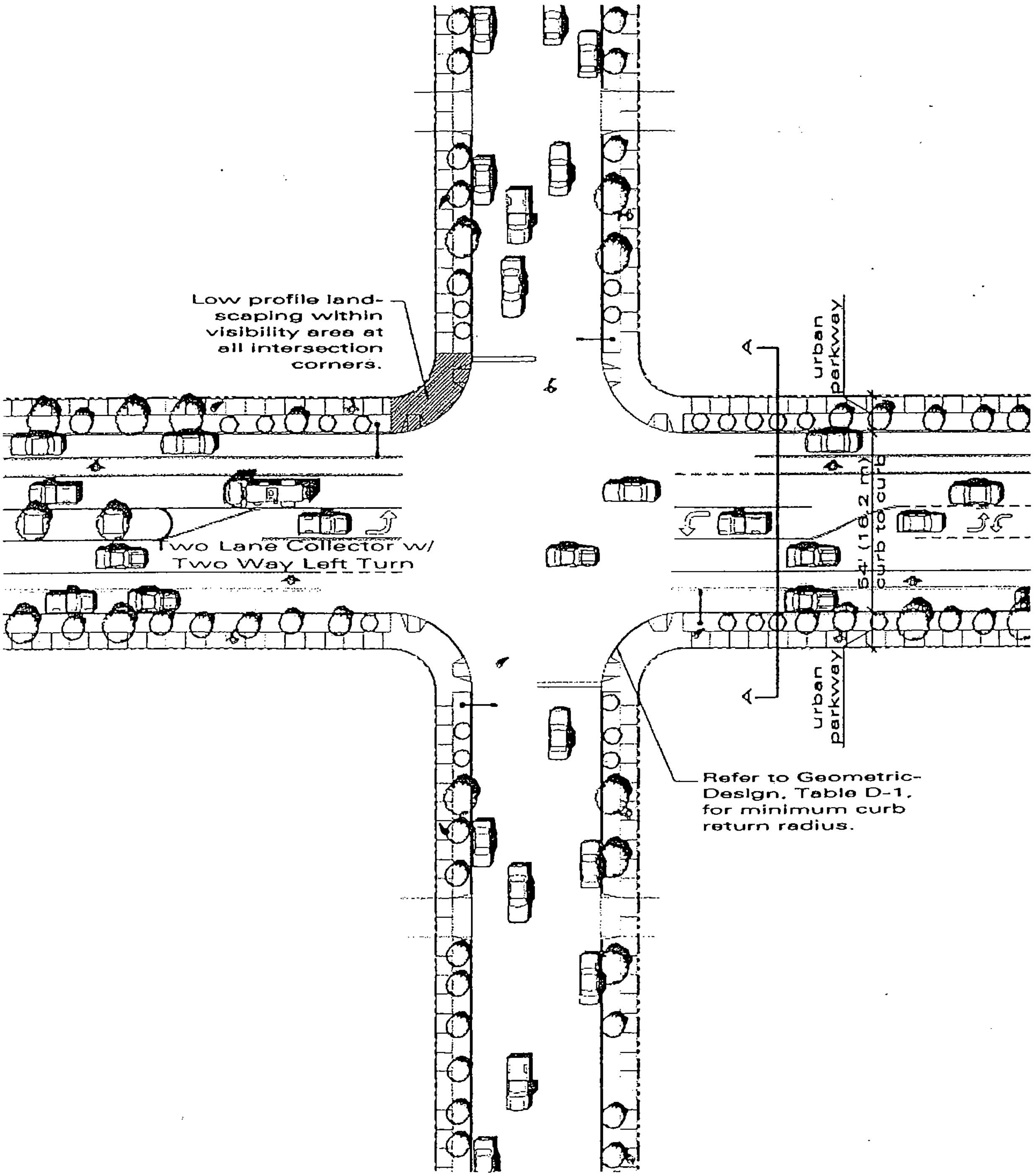
plan (not to scale)

Width, Right-of-Way **(with added bike lanes)**	60 ft. (18.0 m) - 86 ft. (25.8 m) 70 ft. (21.0 m) - 96 ft. (28.8 m)
Design ADT LOS C LOS D	5,000 6,500
Design Speed	30 mph (50 km/h)
Width, Curb-to-Curb **(with added bike lanes)**	36 ft. (10.8 m) 46 ft. (13.8 m)
Maximum Grade	10% (8% in commercial area)
Minimum Curve Radius	500 ft. (160 m) above 6% grade 450 ft. (145 m) at or below 6% grade
Land Use **Parkway Options**	Large Lot Single Dwelling Residential - no front yards, Single Dwelling Residential - no front yards, Low Density Multiple Dwelling Residential - no front yards, Open Space-Park U-3; U-4 (a)
Land Use **Parkway Options**	Commercial; School, Church, or Public Building U-5 (a,b); U-6 (a,b)



section A-A (not to scale)

CI Two Lane Collector with Two Way Left Turn Lane

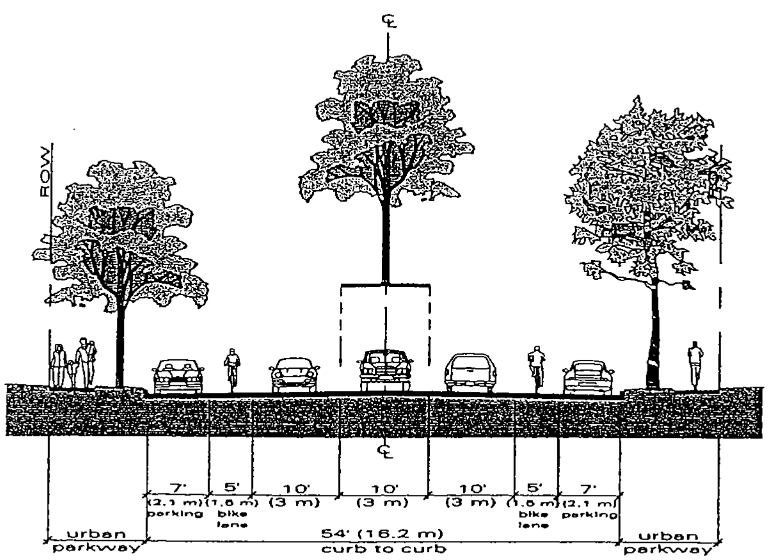


plan (not to scale)

Two Lane Collector with Two Way Left Turn Lane C1

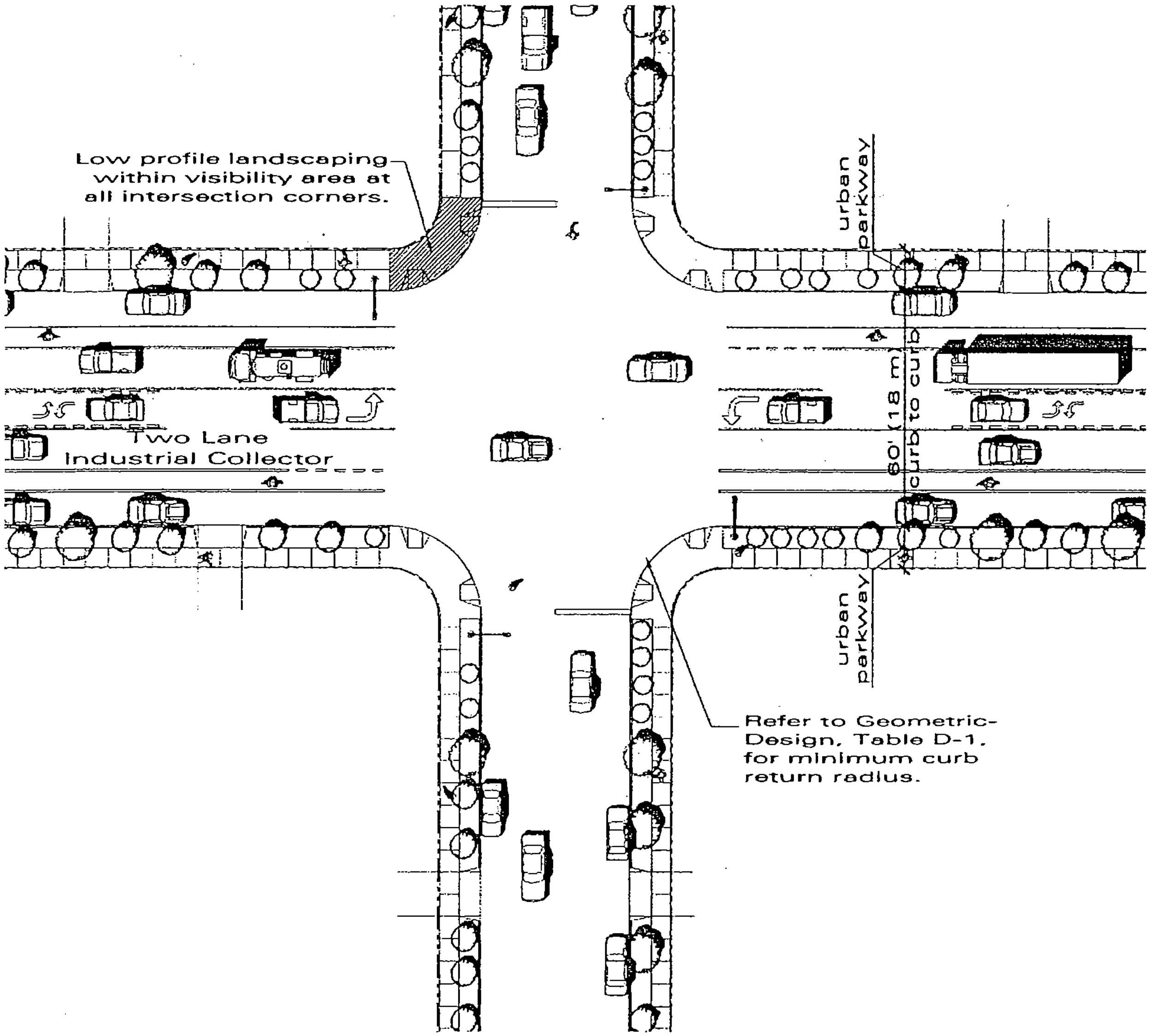
Width, Right-of-Way	78 ft. (23.4 m) - 94 ft. (28.2 m)
Design ADT LOS C LOS D	10,000 13,000
Design Speed	35 mph (60 km/h)
Width, Curb-to-Curb	54 ft. (16.2 m)
Maximum Grade	8%
Minimum Curve Radius	610 ft. (220 m) with no superelevation 470 ft. (170 m) with 2% (min.) superelevation 380 ft. (135 m) with 6% (max.) superelevation
Land Use **Parkway Options**	Single Dwelling Residential-no front yards, Low Density Multiple Dwelling Residential-no front yards, Open Space-Park, Medium to Very High Density, Multiple Dwelling Residential U-3; U-4 (a)
Land Use **Parkway Options**	Neighborhood Commercial; Community Commercial Regional Commercial; Commercial offices Visitor Commercial; School, Church, Public Building U-5 (a,b); U-6 (a,b)
Land Use **Parkway Options**	Pedestrian-Oriented Commercial Retail, Urban Village Commercial Retail U-5 (a,b); U-6 (a,b)

NOTE: Two-way left-turn lane shall be considered only for streets of limited length where intersections are closely spaced or where there is extensive driveway access. For all other conditions, raised center medians should be considered. Where raised center



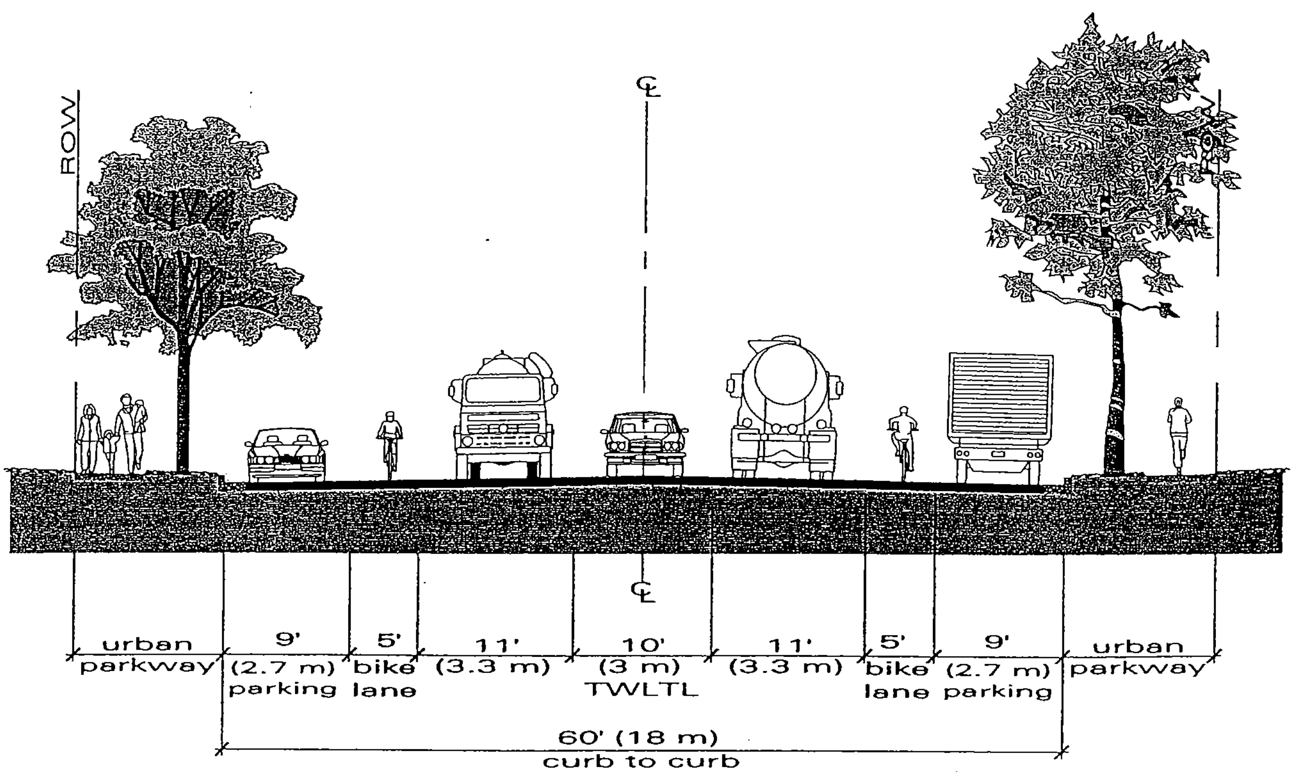
section A-A (not to scale)

CI Two Lane Industrial Collector



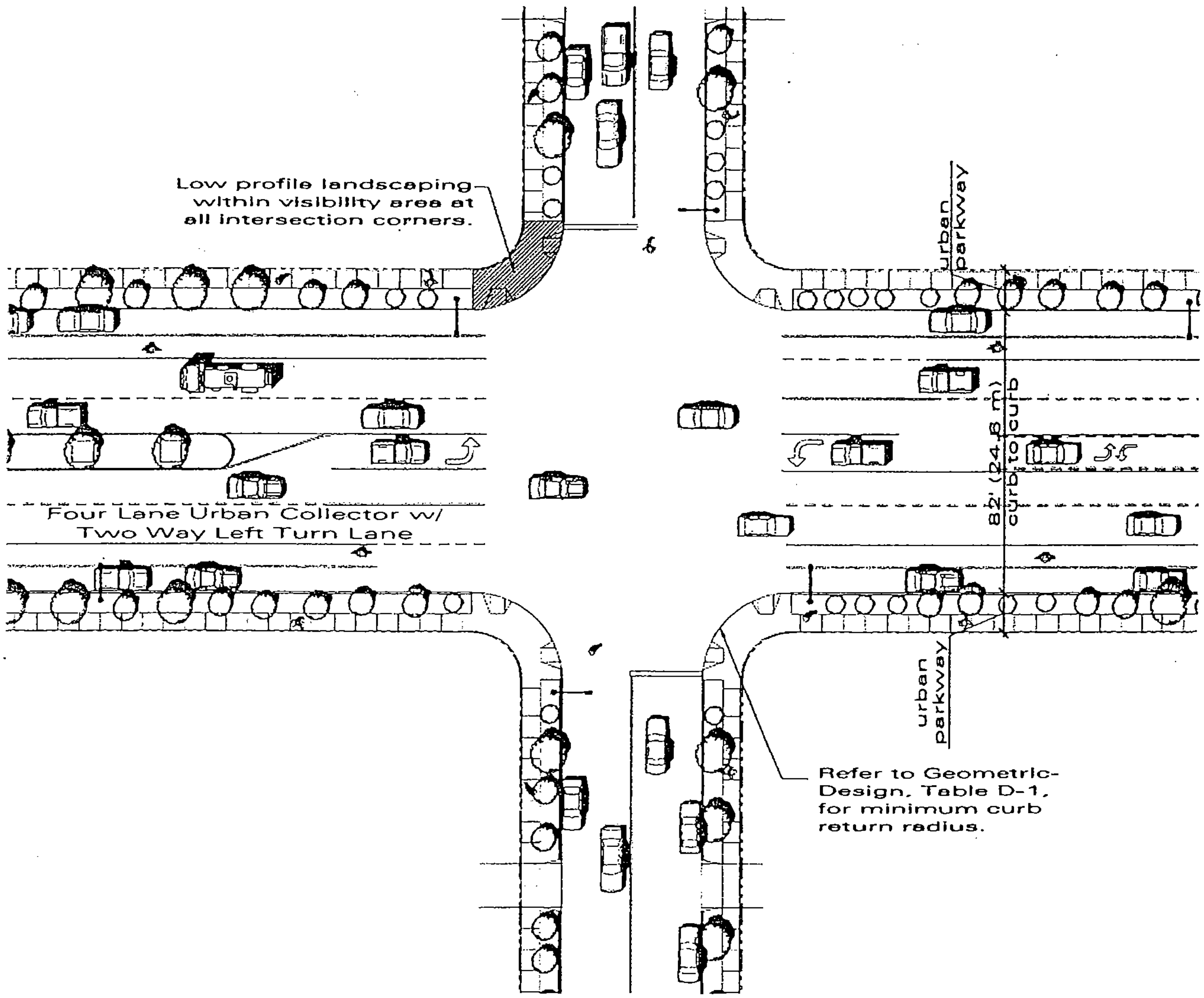
plan (not to scale)

Width, Right-of-Way	80 ft. (24.0 m) - 90 ft. (27 m)
Design ADT LOS C LOS D	5,000 6,500
Design Speed	30 mph (50 km/h)
Width, Curb-to-Curb	60 ft. (18.0 m)
Maximum Grade	8%
Minimum Curve Radius	430 ft. (145 m) with no superelevation 340 ft. (110 m) with 2% (min.) superelevation 300 ft. (100 m) with 4% (max.) superelevation
Land Use **Parkway Options**	Industrial U-2; U-3; U-4 (a)



section A-A (not to scale)

CI Four Lane Urban Collector with Two Way Left Turn Lane



plan (not to scale)

Four Lane Urban Collector with Two Way Left Turn Lane

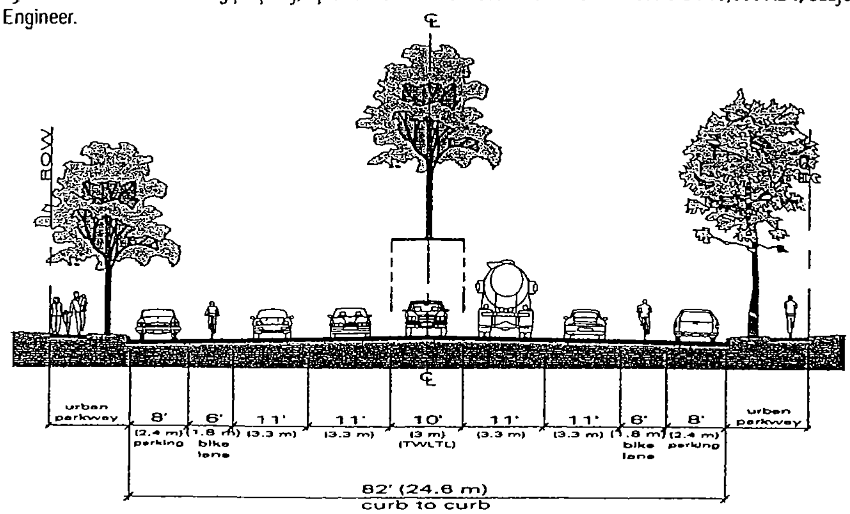
CI

Width, Right-of-Way	110 ft. (33.2 m) - 122 ft. (36.6 m)
Design ADT LOS C LOS D	20,000 25,000
Design Speed	35 mph (60 km/h)
Width (includes bike lanes), **Curb-to-Curb**	82 ft. (24.6 m)
Maximum Grade[1]	8%
Minimum Curve Radius	610 ft. (220 m) with no superelevation 470 ft. (170 m) with 2% (min.) superelevation 380 ft. (135 m) with 6% (max.) superelevation
Land Use **Parkway**	Single Dwelling Residential-no front yards; Low Density Multiple Dwelling Residential-no front yards; Open Space-Park; Industrial; Medium-to-Very High Density Multiple Dwelling Residential-no front yards U-4 (a)
Land Use **Parkway Options**	Neighborhood Commercial; Community Commercial; Regional Commercial; Commercial Office; Visitor Commercial; School; Church; Public Building U-5 (a,b); U-6 (a,b)
Land Use **Parkway Options**	Pedestrian-Oriented Commercial Retail; Urban Village Commercial Retail U-5 (a,b); U-6 (a,b)

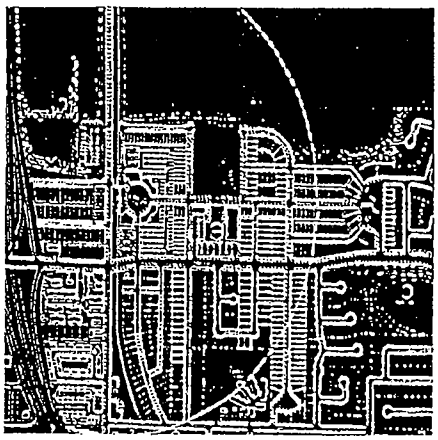
median is installed, access provisions across the median for emergency vehicles should be provided at 300 ft. (90 m) intervals.

NOTE: Two-way left-turn lane shall be considered only for streets of limited length where intersections are closely spaced or where there is extensive driveway access. For all other conditions, raised center medians should be considered.

[1] Whenever topographic constraints would cause excessive slope heights or create unmitigable landform impacts, the maximum street grade may exceed 8% for no-fronting property, up to a maximum of 10% for streets with less than 10,000 ADT, subject to approval of the City Engineer.

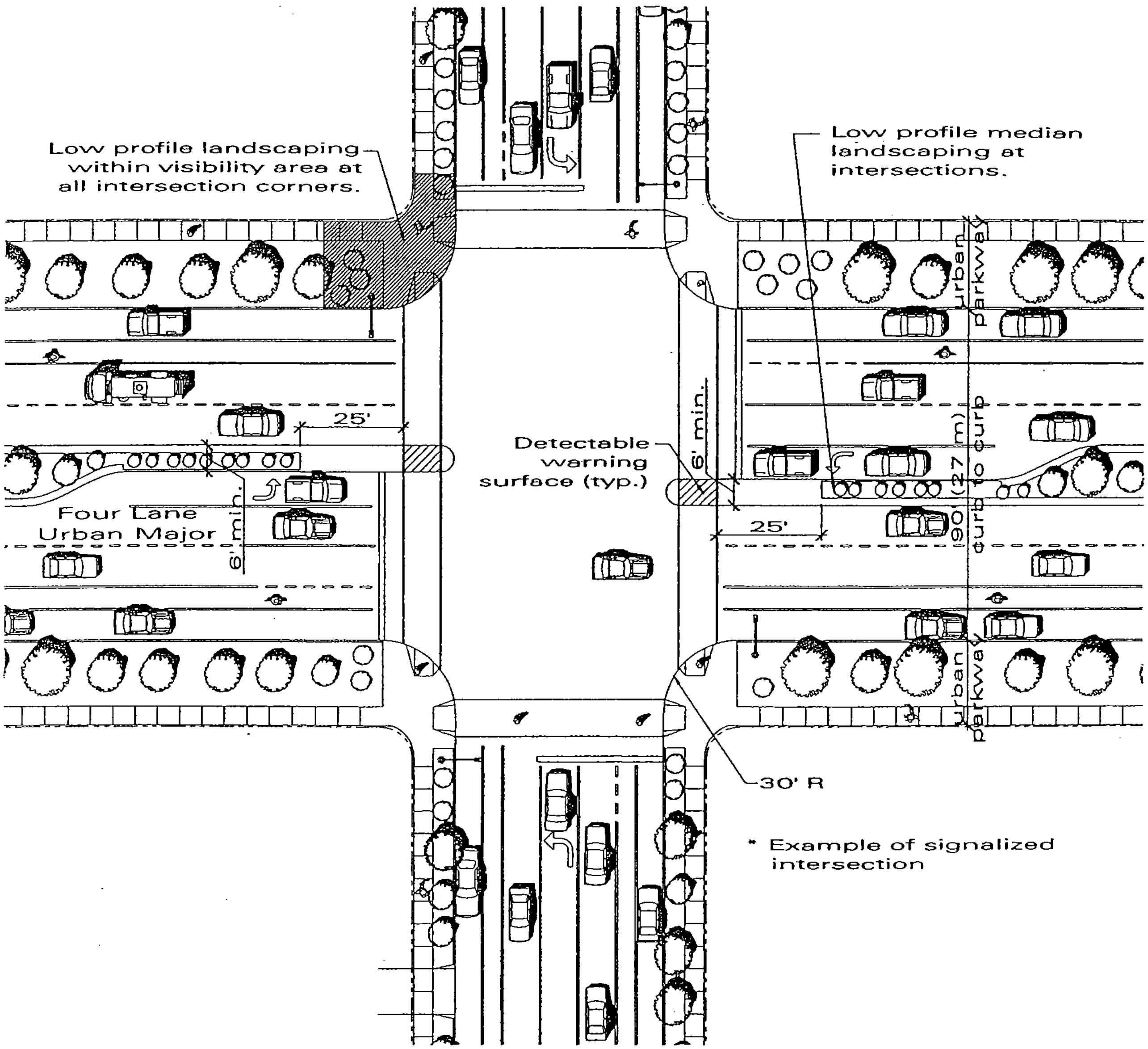


section A-A (not to scale)



Major Streets

Mj Four Lane Urban Major



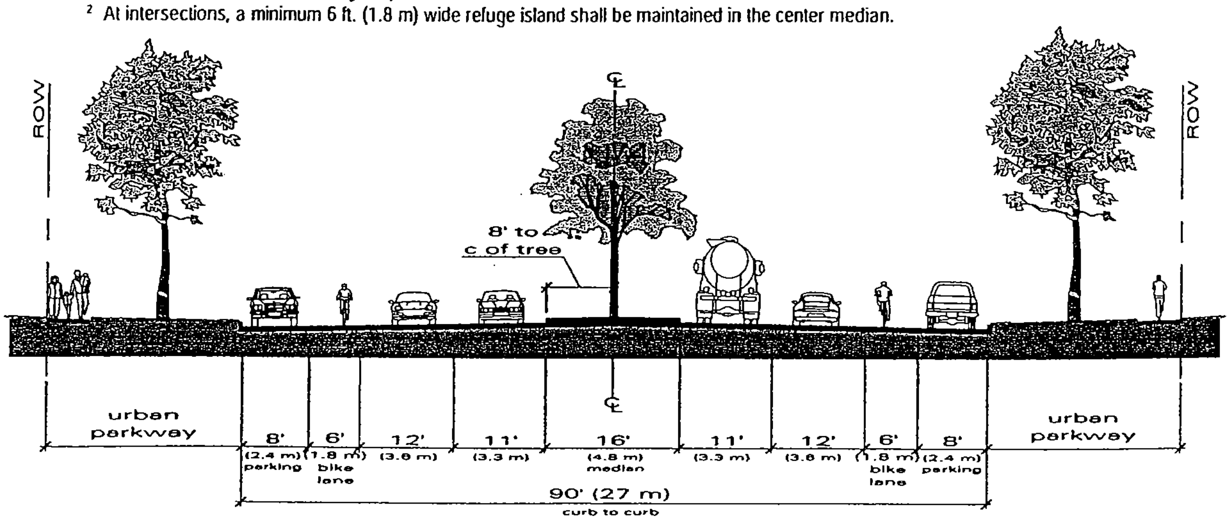
plan (not to scale)

Width, Right-of-Way	118 ft. (35.6 m) - 130 ft. (39.0 m)
Design ADT LOS C LOS D	30,000 35,000
Design Speed	45 mph (70 km/h)
Width (includes bike lanes and 16 ft. (4.8 m) raised center median), **Curb-to-Curb**[1,2]	90 ft. (27.0 m)
Maximum Grade	7%
Minimum Curve Radius	1,090 ft. (325 m) with no superelevation 830 ft. (245 m) with 2% (min.) superelevation 660 ft. (195 m) with 6% (max.) superelevation
Land Use **Parkway Options**	Single Dwelling Residential-no front or side yards; Multiple Dwelling Residential-no front or side yards; Neighborhood Commercial; Community Commercial; Regional Commercial; Commercial Office; Visitor Commercial; School (high school and above); Church; Public Building; Urban Village Commercial Retail; Industrial U-4 (a); U-5 (a,b); U-6 (a,b)

NOTE: Four-Lane Urban Major street classification is applicable to streets of limited length, where intersections are closely spaced, where there is extensive driveway access, or in other situations where the speed is expected to be less 45 mph (70 km/h) or less.

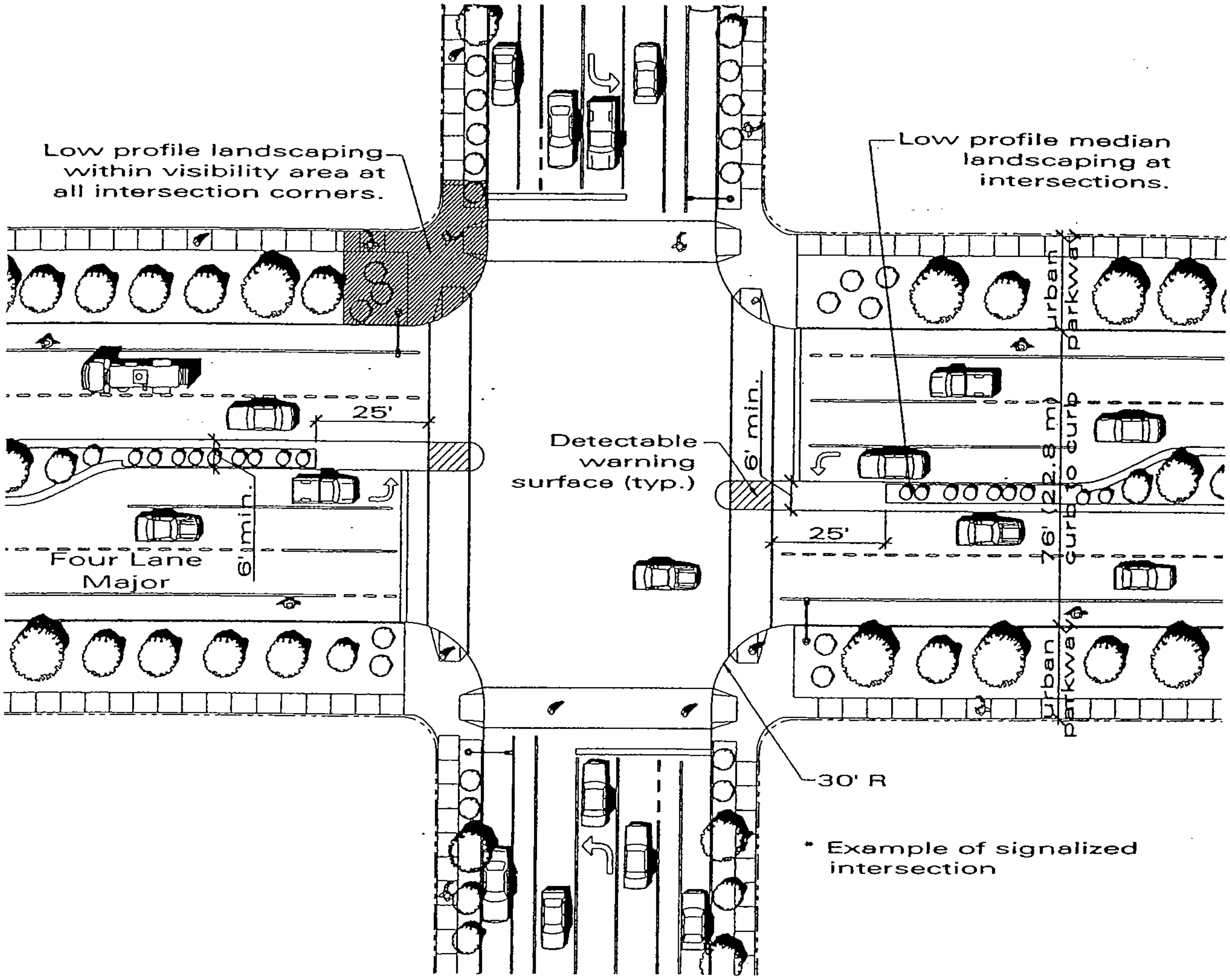
[1] Widen additional 10 ft. (3.0 m) at approaches to intersecting four- or six-lane streets to provide a minimum of 250 ft. (75 m) of two-lane left-turn storage, exclusive of transitions. Receiving lanes for dual lefts shall be 12 ft. (3.6 m) wide. In instances where supporting information exists, such as an approved traffic impact study, showing clearly that dual left-turn lanes would not be warranted, the standard curb-to-curb width may be permitted.

[2] At intersections, a minimum 6 ft. (1.8 m) wide refuge island shall be maintained in the center median.



section A-A (not to scale)

Mj Four Lane Major

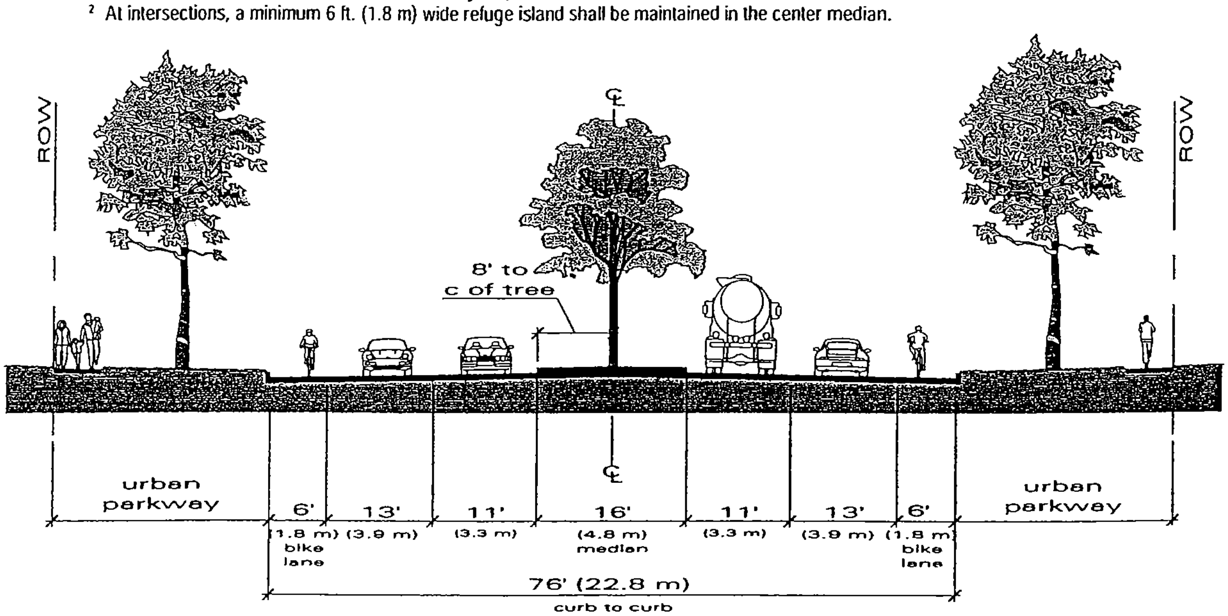


plan (not to scale)

Width, Right-of-Way	120 ft. (36.0 m)
Design ADT LOS C LOS D	30,000 35,000
Design Speed	55 mph (90 km/h)
Width (includes bike lanes and 16 ft. (4.8 m) raised center median), **Curb-to-Curb**[1,2]	76 ft. (22.8 m)
Maximum Grade	7%
Minimum Curve Radius	1,850 ft. (585 m) with no superelevation 1,350 ft. (430 m) with 2% (min.) superelevation 880 ft. (275 m) with 10% (max.) superelevation
Land Use	Single Dwelling Residential-no front or side yards; Multiple Dwelling Residential-no front or side yards; Community Commercial-no front yards; Regional Commercial; Commercial Office; Visitor Commercial; Church; Public Building; Industrial; Open Space
Parkway	U-4 (b)

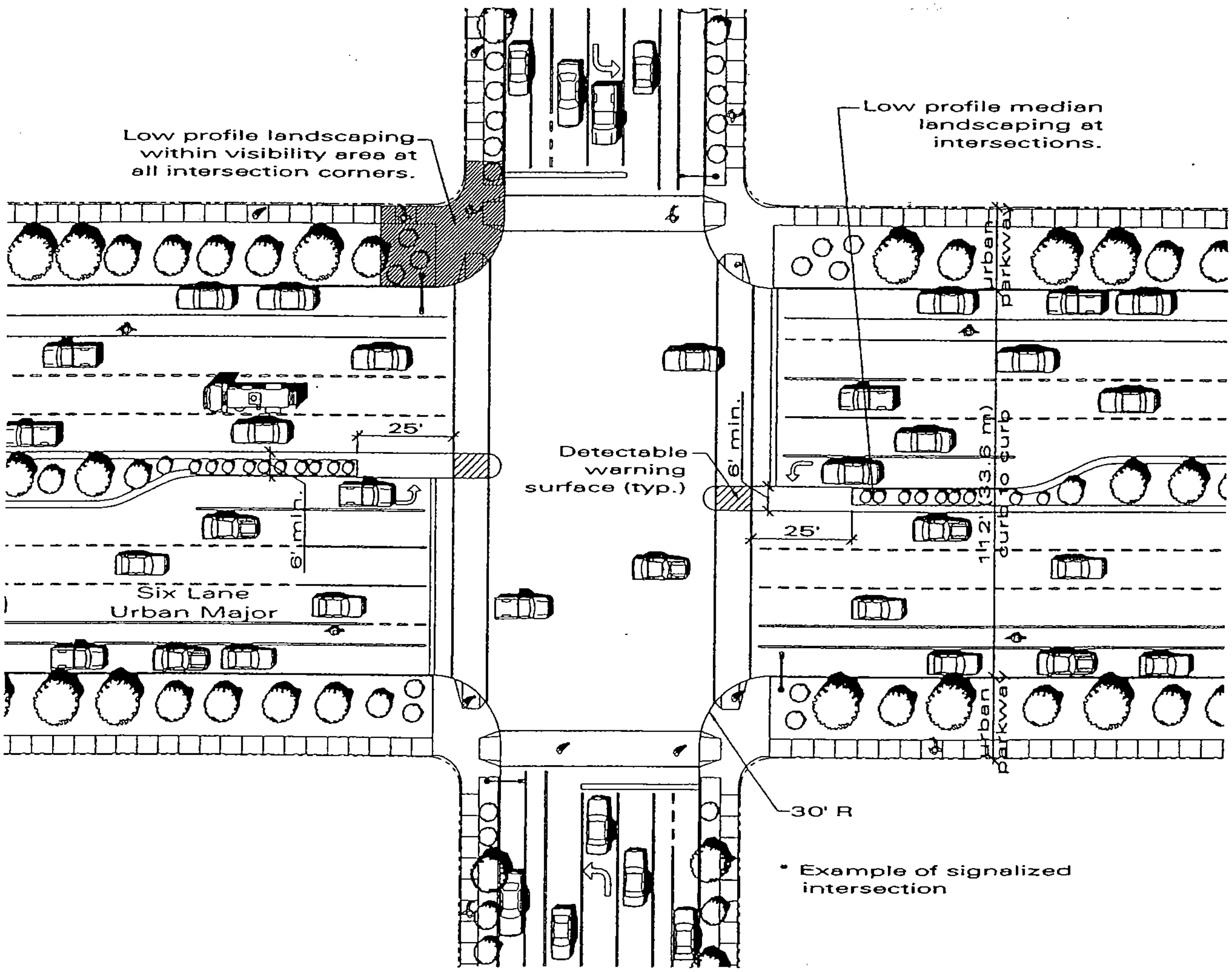
[1] Widen additional 10 ft. (3.0 m) at approaches to intersecting four-or-six-lane streets to provide a minimum of 250 ft. (75 m) of two-lane left-turn storage, exclusive of transitions. Receiving lanes for dual lefts shall be 12 ft. (3.6 m) wide. In instances where supporting information exists, such as an approved traffic impact study, showing clearly that dual left-turn lanes would not be warranted, the standard curb-to-curb width may be permitted.

[2] At intersections, a minimum 6 ft. (1.8 m) wide refuge island shall be maintained in the center median.



section A-A (not to scale)

Mj Six Lane Urban Major



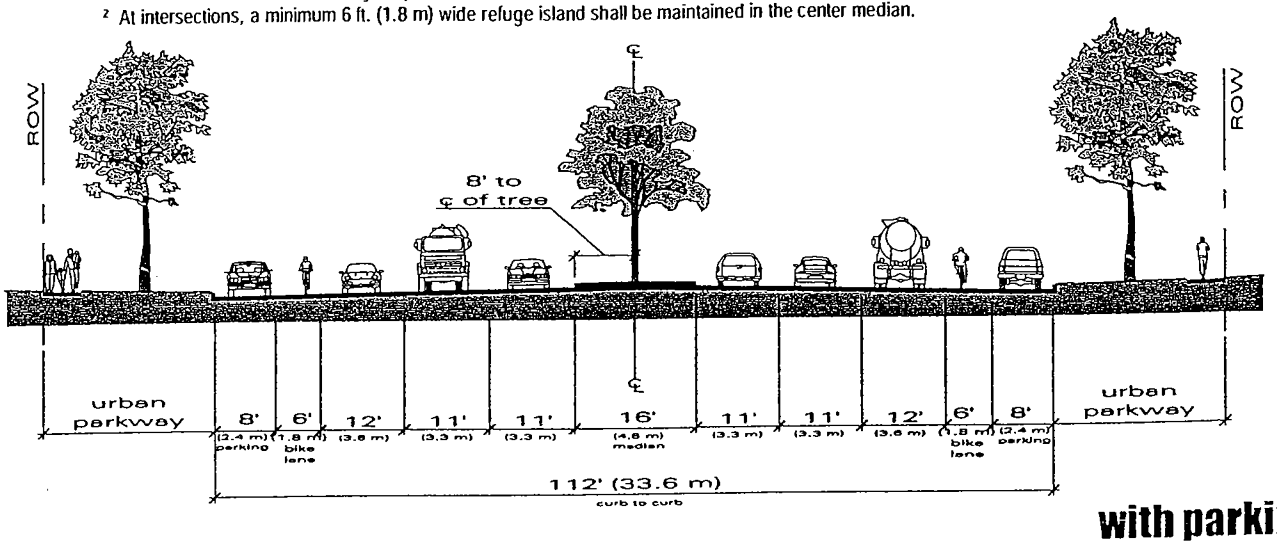
plan (not to scale)

Width, Right-of-Way	140 ft (42.2 m) - 152 ft. (45.6 m)
Design ADT LOS C LOS D	40,000 45,000
Design Speed	45 mph (70 km/h)
Width (includes bike lanes and 16 ft. (4.8 m) raised center median), **Curb-to-Curb**[1,2]	112 ft. (33.6 m)
Maximum Grade	7%
Minimum Curve Radius	1,090 ft. (325 m) with no superelevation 830 ft. (245 m) with 2% (min.) superelevation 660 ft. (195 m) with 6% (max.) superelevation
Land Use	Single Dwelling Residential–no front or side yards; Multiple Dwelling Residential–no front or side yards; Community Commercial; Regional Commercial; Commercial Office; Visitor Commercial; school (high school and above); Church; Public Building; Urban Village Commercial Retail; Industrial; Open Space
Parkway Options	U-4 (a); U-5 (a,b); U-6 (a,b)

NOTE: Six-Lane Urban Major street classification is applicable to streets of limited length, where intersections are closely spaced, where there is extensive driveway access, or in other situations where the speed limit is expected to be 45 mph (70 km/h) or less.

[1] Widen additional 10 ft. (3.0 m) at approaches to intersecting four-or-six-lane streets to provide a minimum of 250 ft. (75 m) of two-lane left-turn storage, exclusive of transitions. Receiving lanes for dual lefts shall be 12 ft. (3.6 m) wide. In instances where supporting information exists, such as an approved traffic impact study, showing clearly that dual left-turn lanes would not be warranted, the standard curb-to-curb width may be permitted.

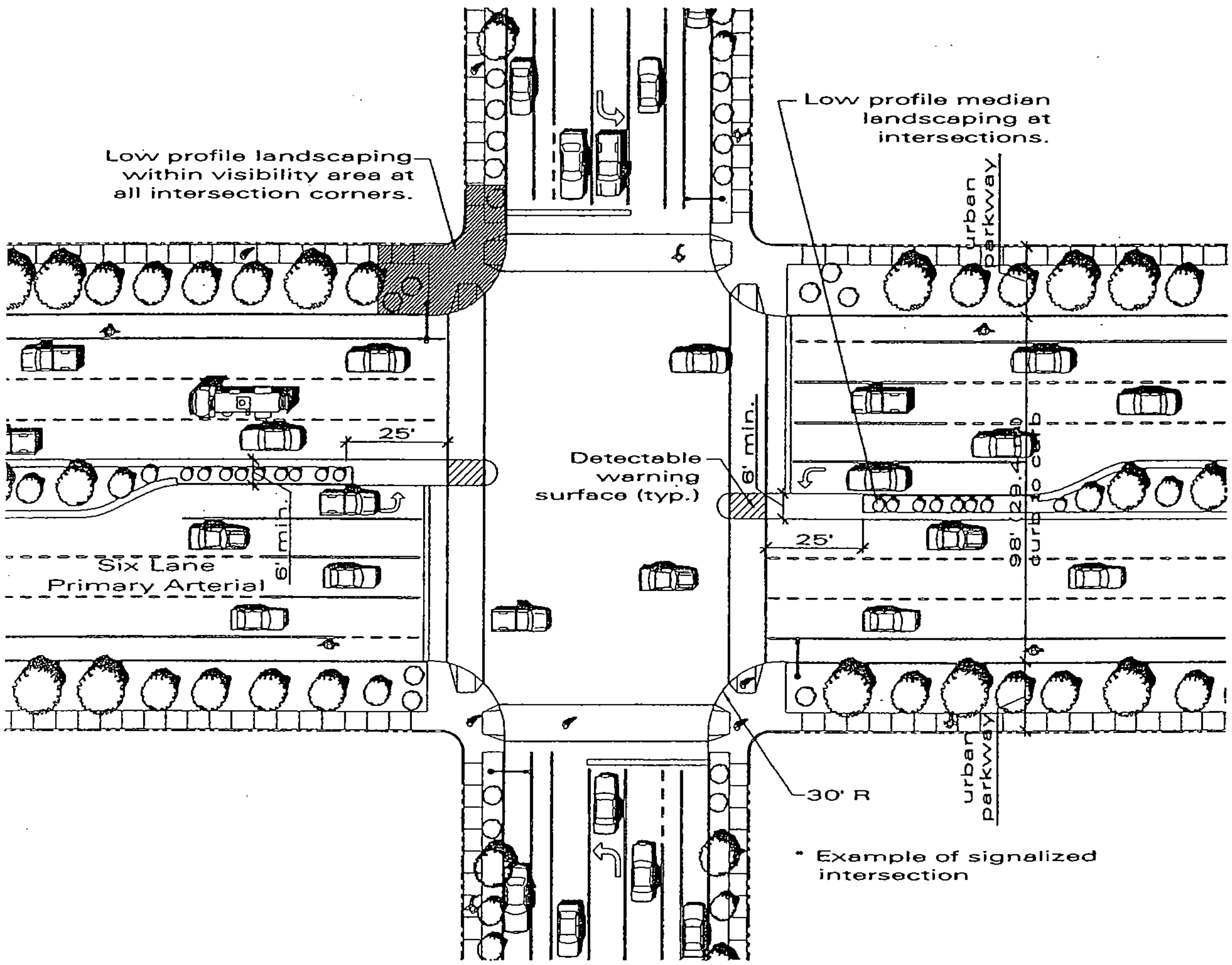
[2] At intersections, a minimum 6 ft. (1.8 m) wide refuge island shall be maintained in the center median.



with parking

section A-A (not to scale)

Mj Six Lane Primary Arterial

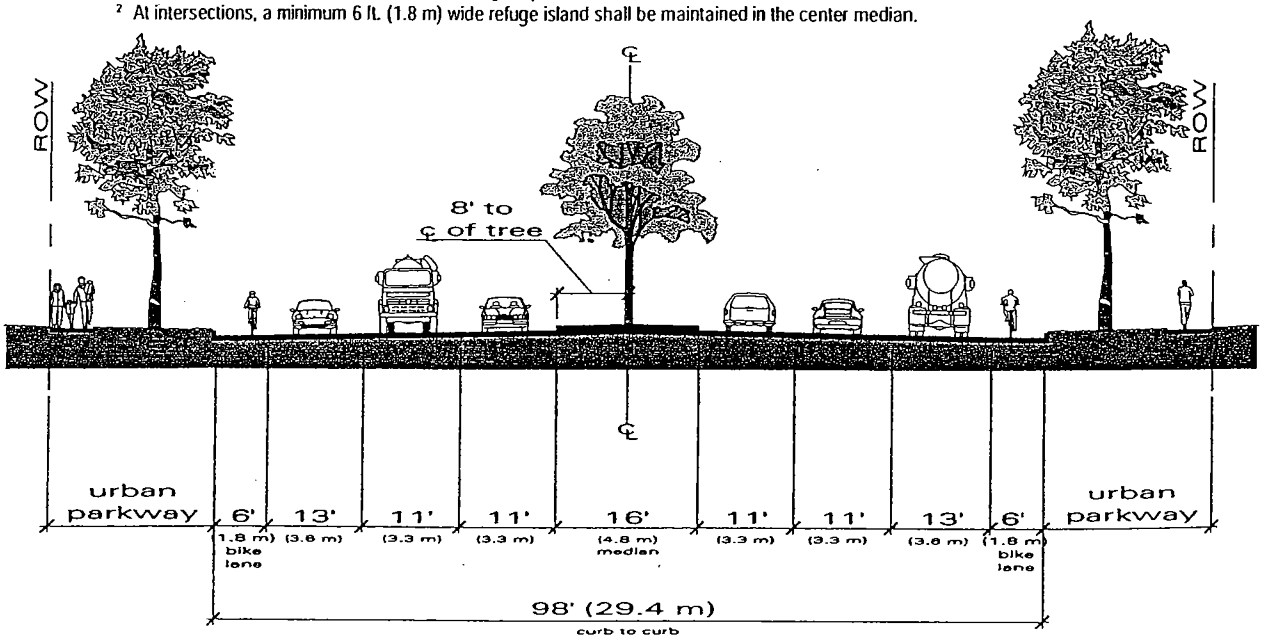


plan (not to scale)

Width, Right-of-Way	142 ft. (42.6 m)
Design ADT LOS C LOS D	50,000 55,000
Design Speed	55 mph (90 km/h)
Width (includes bike lanes and a 16 ft. (4.8 m) raised center median), **Curb-to-Curb**[1, 2]	98ft. (29.4 m)
Maximum Grade	6%
Minimum Curve Radius	1,850 ft. (585 m) with no superelevation 1,350 ft. (430 m) with 2% (min.) superelevation 880 ft. (275 m) with 10% (max.) superelevation
Land Use	Large Lot Single Dwelling Residential-o front or side yards; Single Dwelling Residential-o front or side yards; Multiple Dwelling Residential-o front or side yards; Community Commercial - no front yards; Regional Commercial; Commercial Office; Visitor Commercial; Church – no front yards; Public Building - no front yards; Industrial - no front yards; Open Space
Parkway	U-4 (b)

[1] Widen additional 10 ft. (3.0 m) at approaches to intersecting four-or-six-lane streets to provide a minimum of 250 ft. (75 m) of two-lane left-turn storage, exclusive of transitions. Receiving lanes for dual lefts shall be 12 ft. (3.6 m) wide. In instances where supporting information exists, such as an approved traffic report, showing clearly that dual left-turn lanes would not be warranted, the standard curb-to-curb width may be permitted.

[2] At intersections, a minimum 6 ft. (1.8 m) wide refuge island shall be maintained in the center median.



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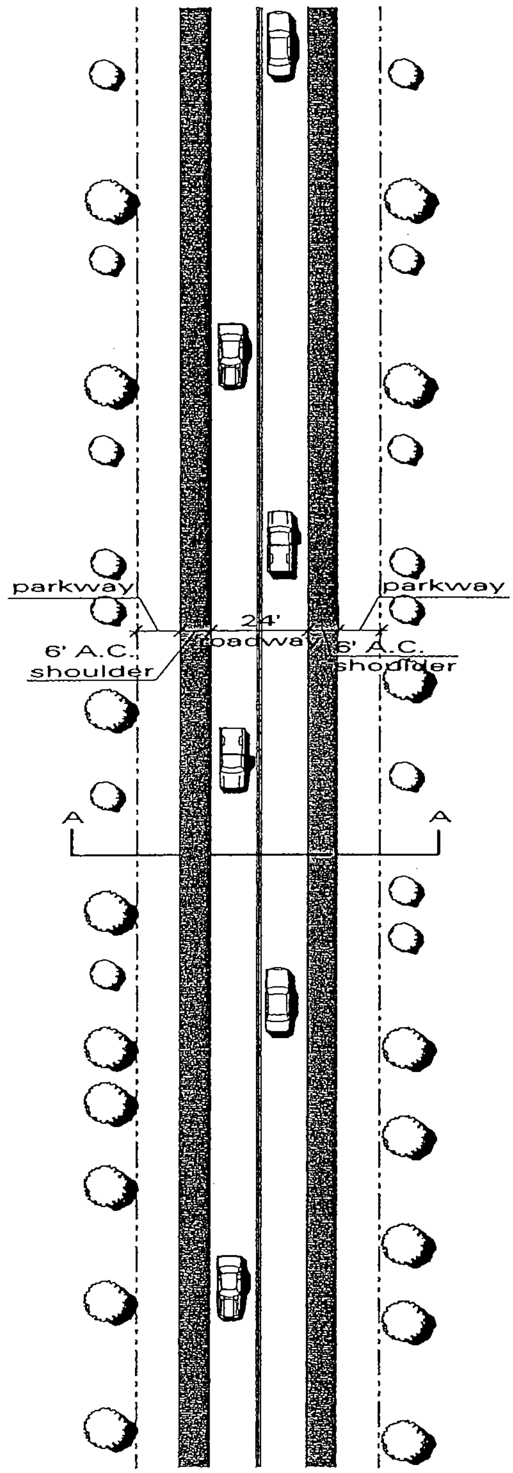
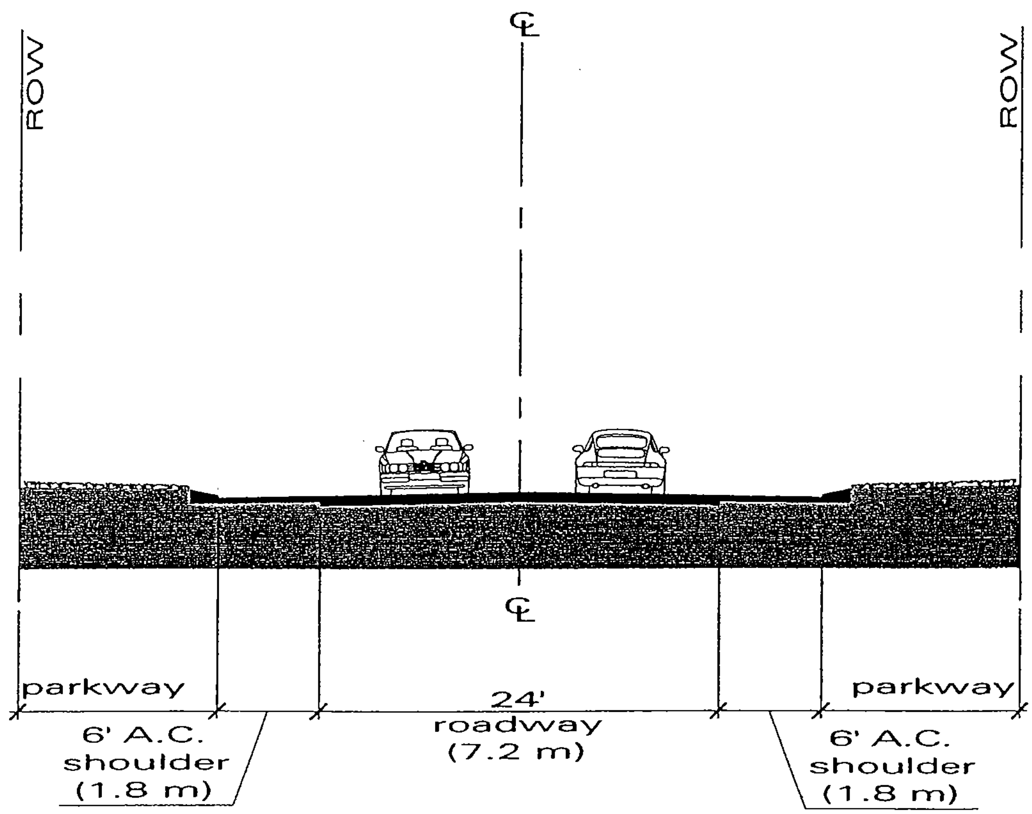
Rural Roads



plan (not to scale)

Width, Right-of-Way	60 ft. (18.0 m)
Design ADT	1,500
Design Speed	30 mph (50 km/h)
Width of Traveled Way	24 ft. (7.2 m)
Maximum Grade	15%
Minimum Radius	430 ft. (145 m) with no superelevation 340 ft. (110 m) with 2% (min.) superelevation 300 ft. (100 m) with 4% (max.) superelevation
Land Use **Parkway Options**	Large Lot Single Dwelling Residential (>2.5 acres) Agriculture Open Space-Park Open Space-Conservation Open Space-Floodplain R-1; R-2 (a); R-2 (b)



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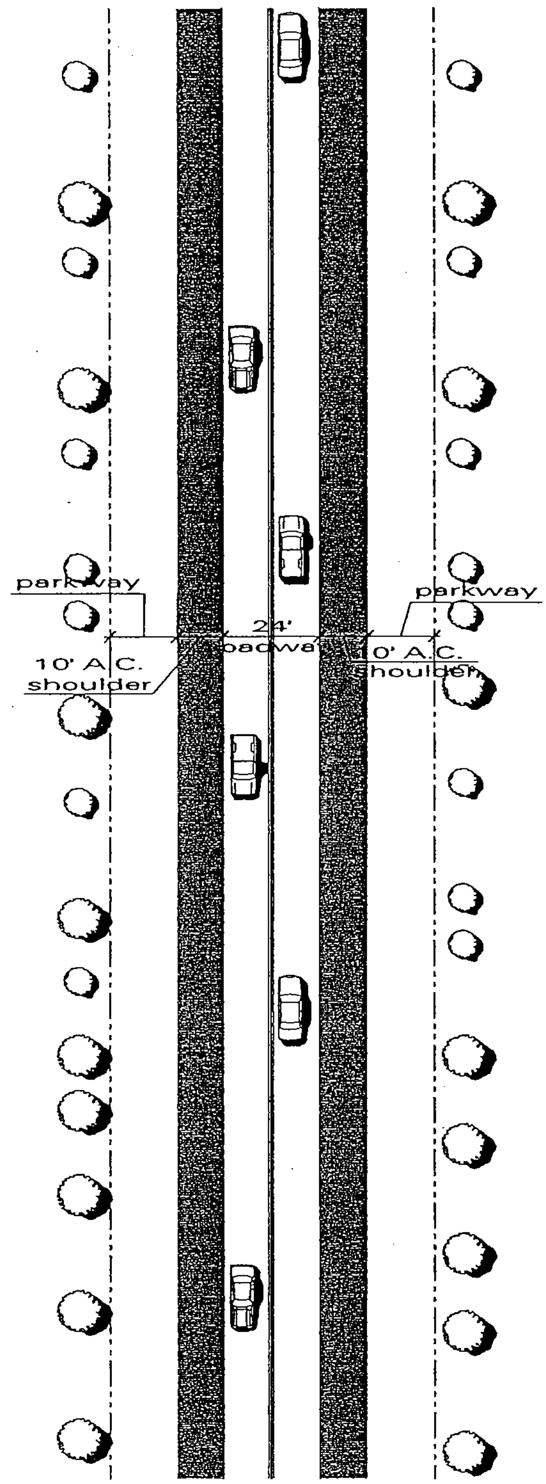
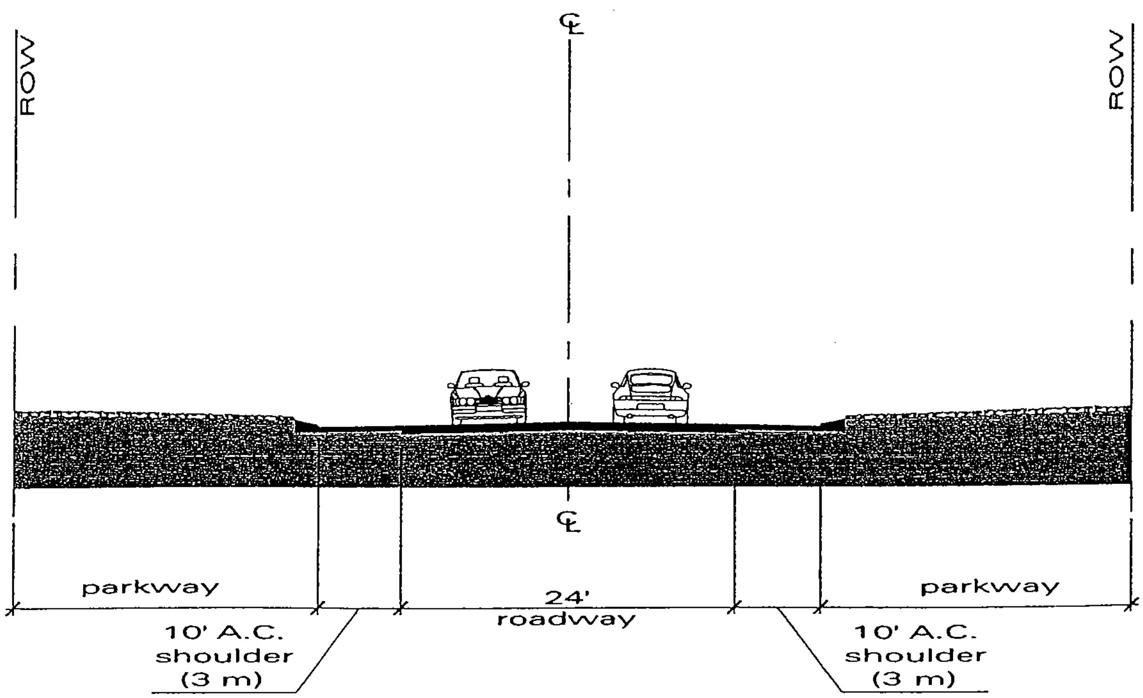
Ru Rural Collector Road

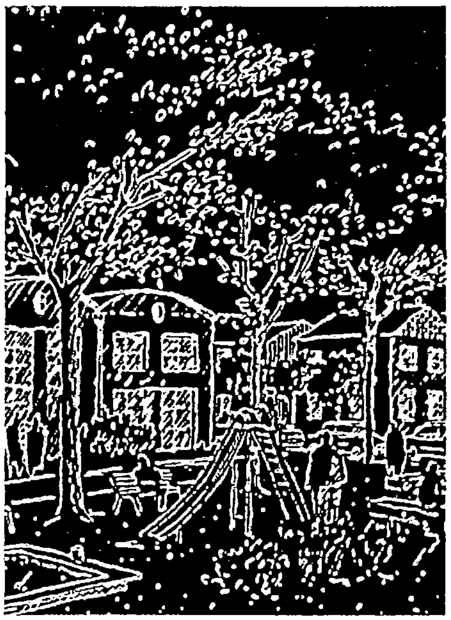


plan (not to scale)

Width, Right-of-Way	80 ft. (24.0 m) – 96 ft. (29.0 m)
Design ADT	7,500
Design Speed	55 mph (90 km/h)
Width of Traveled Way	24 ft. (7.2 m)
Maximum Grade	4% in flat terrain 5% in rolling terrain 7% in mountainous terrain
Minimum Curve Radius	1,850 ft. (585 m) with no superelevation 1,350 ft. (430 m) with 2% (min.) superelevation 970 ft. (305 m) with 8% (max.) superelevation
Land Use **Parkway Options**	Large Lot Single Dwelling Residential (>2.5 acres) Agriculture Open Space-Park Open Space-Conservation Open Space-Floodplain R-3; R-4

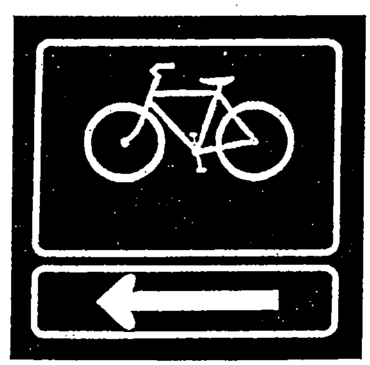


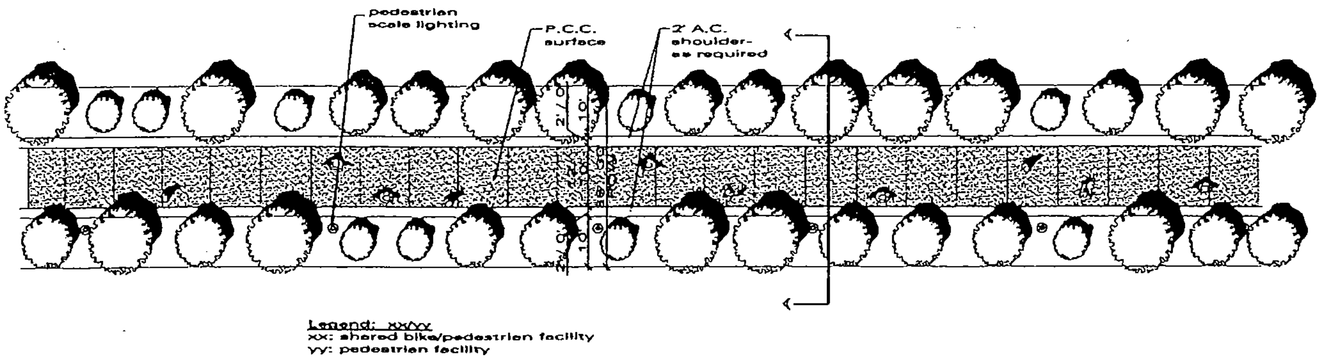
section A-A (not to scale)

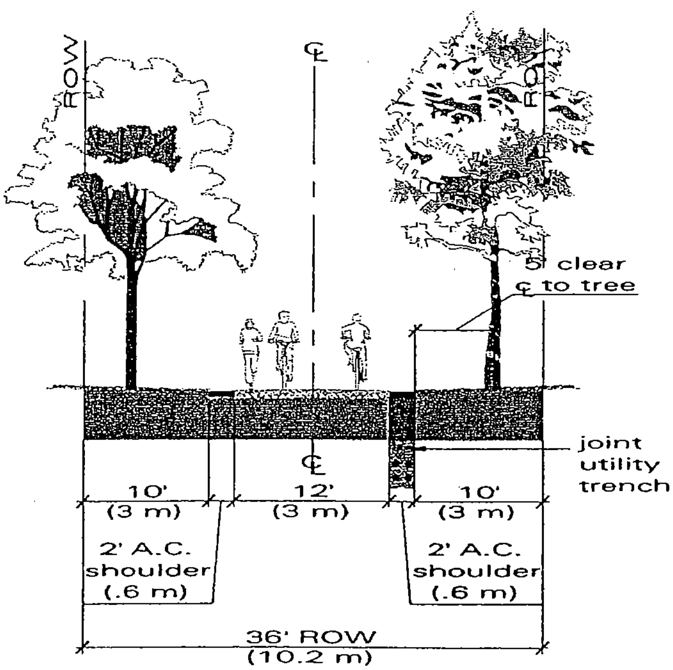


F

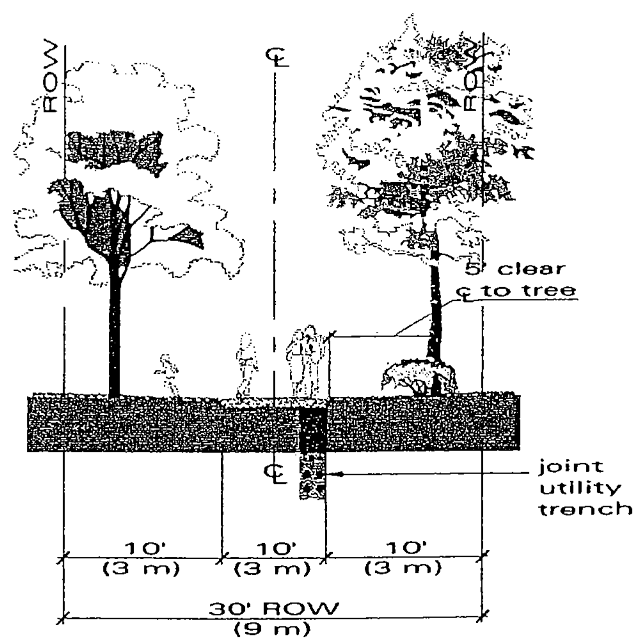
Facilities Without the Automobile







Shared Pedestrian Bikeway Facility



Pedestrianway

plan (not to scale)

SHARED PEDESTRIAN/BIKEWAY

Width, Right-of-Way[1,2]	36 ft. (10.2 m)
Width of Traveled Way[3]	12 ft. (3.6 m)
Width of Shoulder[4]	2 ft. (0.6 m)
Maximum Grade	5%
Street Trees	Permitted
Street Lights	Pedestrian scale
Utilities	One side
Land Use	Single Dwelling Residential-no front yards Multiple Dwelling Residential-no front yards Open Space-Park Commercial-no front yards Urban Village-no front yards Industrial Park-no front yards Small-Lot Industrial-no front yards

1. Right-of-way of 30 ft. (9.0 m) is required for pedestrianways only.
2. Where right-of-way is constrained, parkway width may be reduced to 6 ft. (1.8 m).
3. Width of traveled way of 10 ft. (3.0m) is required for pedestrianways.
4. Shoulders are not required for pedestrianways.

A. Bikeways

1. Bikeways are to be provided in accordance with adopted community plans and the City's Bicycle Master Plan and should be continuous, leading to all major activity centers.
2. Intersections of bike paths with roadways shall conform to CalTrans Highway Design Manual, Chapter 1000, Bikeway Planning and Design.

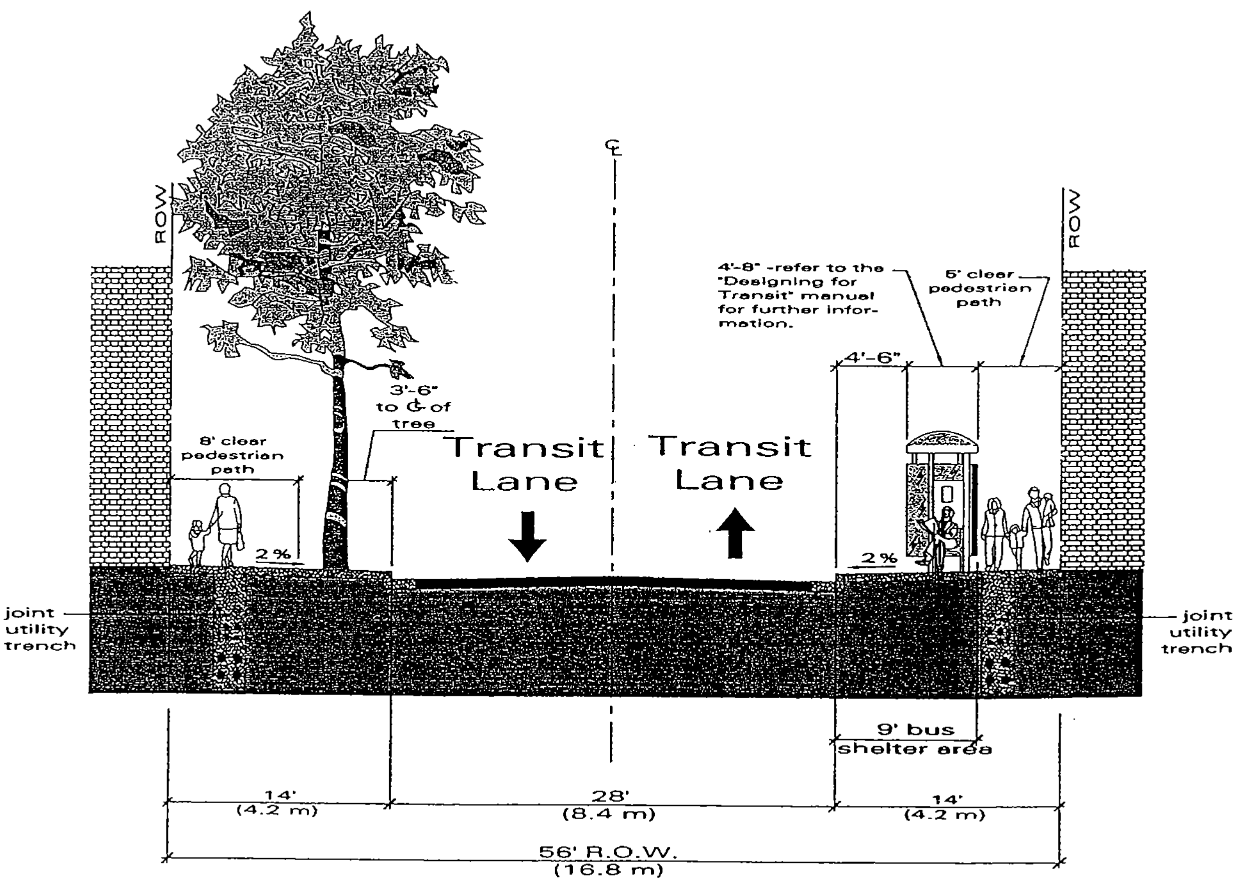
B. Class II Bicycle Lanes

1. Bicycle lanes shall be one way. Bicycle lanes should be 5 to 6 ft. (1.5 to 1.8 m) wide when adjacent to curb and gutter. Bicycle lanes should be 5 ft. (1.5 m) wide when adjacent to a parking lane. If parking is to be retained, street cross section shall be widened as necessary.
2. Where abutting property is not to be developed or does not front on the street, bicycle lanes may be provided by a parking prohibition nstead of street widening. Such parking prohibition shall be implemented as soon as the street is opened to traffic.
3. Adjacent to a mandatory right-turn lane, the bicycle facility may be 4 ft. (1.2 m) in width, located to the left of the turn lane.

TRANSITWAY

Width, Right-of-Way	56 ft. (17.1 m) – 68 ft. (20.5 m)
Design Speed	20 mph (30 km/h)
Width, Curb-to-Curb	28 ft. (8.5 m)
Maximum Grade	8%
Minimum Curve Radius	65 ft. (20 m)
Street Lights	Pedestrian scale, both sides
Land Use **Parkway**	Medium-to-Very High Density Multiple Dwelling Residential—no front yards Commercial Office—no front yards U-5
Land Use **Parkway**	Pedestrian-Oriented Commercial retail Urban Village Commercial Retail U-6

Note: Refer to the MTDB publication, *Designing for Transit,* for more information.



Pedestrian Design

PEDESTRIAN DESIGN

The 1979 *Progress Guide and General Plan* states that walking within an urban community should be a pleasant and enjoyable experience, an opportunity for healthful exercise and quiet relaxation on the way to work, shopping, or other destinations. Instead, the pedestrian must often contend with annoying vehicular noise and fumes from the adjacent street, narrow and irregular sidewalk surfaces, and a veritable obstacle course of poles, fire hydrants, and trash containers within the public walkway. Additionally, adequate street lighting for nighttime safety is often lacking, especially at bus stops. Moreover, amenities such as shade trees, landscaping, and comfortable seating areas are infrequently provided in commercial districts where walking is the normal transportation mode[1].

The City of Villages strategy calls for a convenient, efficient, and attractive multimodal transportation system in which pedestrians, bicycles, and transit vehicles are accommodated in addition to automobiles. This system should improve mobility for San Diegans by providing competitive—even preferred—alternatives to the automobile for many trips in the region. The strategy, as a policy, recommends: *Promote pedestrian- and transit-friendly design of City streets*[2].

NOTE: This section of the Street Design Manual is derived from *Planning and Designing for Pedestrians, Model Guidelines for the San Diego Region*, June 2002, prepared for the San Diego Association of Governments by Community Design and Architecture. The Pedestrian Design Guideline section complements and supports the other sections of the Street Design Manual.

1. *Progress Guide and General Plan, 1979.*
2. City of Villages Strategic Framework Element, Draft January 2002.

Who are Pedestrians?
'Pedestrian" is used throughout these guidelines to include people who walk, sit, stand in public spaces, or use a wheelchair, be they children, teens, adults, elderly, people with disabilities, workers, residents, shoppers or people-watchers. Pedestrian-oriented design is accessible design for all people.

The principal issue in the design of a pedestrian-supportive street is how to allocate its space; i.e.: How much space is required to satisfy the needs of pedestrians; how much to create active public space for deliveries; and, how much to provide for parking, bicycles, and vehicular movement?

The following discusses the pedestrian experience at street level, including street design, intersection design, sight distance, pedestrian-crossings, pedestrian refuge islands, sidewalks for overpasses and underpasses and highway on/off ramps, and pedestrian realm.

1. Understanding ADA & Designing for Various Disabilities and Ages

The following discussion focuses on the accessibility needs and requirements as defined by both federal and state (California Title 24) accessibility standards.

Millions of persons in the United States have some sort of permanent or temporary disability caused by injury, age, or illness. The Americans with Disabilities Act (ADA) was signed into law on July 26, 1990. This civil rights law assures that a disabled person will have full access to all public facilities—primarily to public transit, public buildings and facilities, and along public rights-of-way. Generally, this involves removing barriers to wheelchairs and installing accessible wheelchair ramps.

It is essential, however, the design of pedestrian facilities take into account the abilities and disabilities of ALL pedestrians. Mobility impairment is but one classification of disability, along with sensory deficits (the sight and hearing impaired) and cognitive impairments—those with diminished ability to process information, including language barriers.

A. Grades

1. There should be enough sidewalk cross slope for adequate drainage. The maximum cross slope should be no more than 2 percent for compliance.

2. Along walkways, pedestrian ways, and shared pedestrian/bikeway facilities, long, steep grades should have level areas every 400 feet for the pedestrian to stop and rest. In areas where it is impossible to avoid steep grades, an alternative route should be provided.

B. Sidewalks

1. Minimum unobstructed sidewalk width shall be 5 feet. (Exceptions may be made to a minimum of 3 feet because of right-of-way (ROW) restrictions, natural barriers, or other existing conditions. The minimum width should be expanded when there is either a vertical barrier fronting the sidewalk or a vehicle travel lane.

2. If a sidewalk is less than 5 feet wide, there shall be a 5 feet x 10 feet passing space every 200 feet of length along the sidewalk.

C. Curb Ramps at Intersections

1. At new intersections, curb ramp should align in the direction of crosswalks, with two per corner at each intersection.

2. Curb ramps shall be installed in accordance with the San Diego Regional Standard drawings.

3. Curb ramps or full cut-throughs 48 inches in width minimum, should be provided at channelization and pedestrian refuge islands.

4. Storm drainage inlets should be placed on the uphill side of the curb ramps to prevent standing water at corner.

D. Surfaces

1. All surfaces should be stable, firm, and slip-resistant with a minimum static coefficient of friction of 0.5.

2. Surface treatments that include irregular surfaces, such as cobblestone, can be difficult to navigate and should be avoided within the primary walkway area. Low profile textured surfaces are acceptable.

E. Eliminating Barriers for Disabled

Since 1971, the state of California has mandated within Health and Safety Codes, section 19956.5, that sidewalks and walks shall be made accessible to and usable by persons with disabilities.

In addition to the following guidelines, individual sections of the guidelines include discussions and guidelines pertaining to ADA accessibility issues.

2. Street Design

At a site and detail design level, the design of streets must consider the mobility and safety of the pedestrian ensuring that maximizing traffic capacity and speeds are not the dominant consideration in street design, particularly in pedestrian-oriented areas.

A. Issues to Consider

General

- A prevailing condition in much of the San Diego region is the location of buildings set back from the street, which can result in a built environment that encourages traffic to travel at higher speeds.

- While it can be important to buffer residential neighborhoods from adjacent busy and noisy streets, the need to buffer should be balanced with the need for pedestrians to easily get from the neighborhood to transit or uses along busy streets.

- Excessively wide lanes encourage higher speeds on streets that can then divide a community.

- Frequent curb cuts along a street both impede traffic flow and create more conflict points between autos and pedestrians, thus reducing the effectiveness of sidewalks as a pedestrian realm.

- Throughout the San Diego region, there are canyons and mesas that make pedestrian connections difficult to achieve.

- The warm and mild climate in San Diego throughout most of the year creates opportunities to make pedestrian travel a realistic option for many people.

B. ADA Accessibility

- Pedestrian facilities must comply with ADA standards and California Title 24, and take into account the entire range of disabilities.

- ADA accessibility requirements most often help to create a better pedestrian environment, particularly for seniors, as well as for those with disabilities.

C. New Development vs. Retrofit

- The guidelines and standards describe the minimum desirable improvements in most cases; and, in many cases, discussions of trade-offs between different needs are discussed to help the reader identify the compromises that may be necessary in the retrofitting of existing streets and developments.

- Improvements to accessibility should consider both sides of the street.

- Neighborhoods evolve over time and the public right-of-way configuration has an influence as to what type of development occurs.

- Prior to improvements to an existing street, utilities such as lighting, electrical and storm drains should be identified and either incorporated into the design or relocated.

D. Relation to Transit

- All streets that are directly served by transit should also be designed or retrofitted to serve pedestrians since there must be adequate facilities to access transit.

- Streets, sites, and buildings within an area that is walkable to transit stops should be designed or retrofitted to serve pedestrians.

E. Guidelines

1. Parallel routes serving all forms of traffic should be considered when resulting curb-to-curb width may not accommodate all other forms of traffic (i.e., a dedicated bicycle or transit lane, a parking lane, or a travel lane).

2. The number of pedestrian crossings should be maximized in order to prevent a street from becoming a barrier in the community.

3. More frequent intersections along arterial roads (even if they only provide right-in and right-out access for cars), coupled with an overall interconnected system of roads within the grid of arterial streets should be built in new development. This will allow better transit coverage and pedestrian access as well as improved overall circulation and community aesthetics.

4. Access Control Plans should be developed for new and existing streets that consolidate access points to adjacent properties, either through local access lanes, shared easements, or establishment of access via less-busy cross streets.

5. For retrofitting or improving existing rights-of-way, sidewalks should be constructed. Where the existing right-of-way is too narrow to accommodate sidewalk construction, additional right-of-way or public walkway easement should be acquired or the existing roadway narrowed but maintained in accordance with established minimum roadway standards.

3. Intersection Design and Operations

The word "intersection" means more than just the meeting of two (or more) streets. It is the where the auto realm and the pedestrian realm converge, sometimes in conflict. It is because of this that intersections are often the most vital areas along a street notwithstanding that they are the point of most conflicts between vehicles, pedestrians, and bicycles.

Intersections must be designed with pedestrian safety and accessibility in mind. If pedestrians are either prohibited from crossing or discouraged from crossing, walking as a mode of travel is hampered. The spacing of intersections or crossing points is also an important element in the creation of a supportive pedestrian environment.

This section describes how intersections can be made more pedestrian friendly by reducing crossing distances and improving visibility for both the pedestrian and the driver. Detailed discussion of specific crossing designs and elements is included in the following Pedestrian Crossings section.

A. Issues to Consider

General

- Pedestrians should be made as visible as possible since multiple conflict points for vehicles and pedestrians exist at intersections.
- Intersections that limit the crossing distance, crossing time, and exposure to traffic tend to be more acceptable to pedestrian travel.
- Drivers traveling at a slower rate of speed have more time to process and react to pedestrian conflicts at intersections.

B. ADA Accessibility

- Pedestrian facilities, including curb ramps, signal equipment, etc., must comply with ADA standards and California Title 24, and take into account the entire range of disabilities.

C. New Development vs. Retrofit

- Prior to improvements to an existing intersection, utilities such as lighting, electrical, and storm drains should be identified and either incorporated into the design or relocated.
- New intersections provide the opportunity to clarify new forms of traffic control that may provide a more pedestrian-friendly setting.

D. Relation to Transit

- The location and design of transit stops at intersections should consider the access needs of adjacent land uses that generate pedestrian demand for transit as well as pedestrian and traffic safety issues at the intersection.

4. Sight Distance

More often than not, sight distance is discussed only from the standpoint of the driver and not the pedestrian. This is of particular concern at crosswalk locations where parked cars, utility poles, street furnishing or landscape can obstruct the line of sight for pedestrians.

A. Issues to Consider

General

- The sightlines of traffic approaching an intersection on a significant grade are compromised.
- Streets that support pedestrian movements allow for the placement of elements such as trees and medians with landscaping. The presence of such elements creates a slower speed environment that is more conducive to pedestrians. These elements shall be placed in such a fashion that adequate sight distance is provided for all users of the public ROW.
- Sightlines for vehicles at an intersection are affected both by buildings, street trees, street furniture, etc., and by the location of the stop line relative to the intersection.

B. ADA Accessibility

At all pedestrian crossing locations, persons in wheelchairs and small children shall be visible to the driver with on-street parking present.

Relation to Current Standards and Practices

- AASHTO Green Book recommends a 90-degree angle of roadways whenever possible.
- The CalTrans Highway Design Manual defines stopping sight distance requirements based on the approaching speed of vehicles (Section 201.3). These standards range from 125 feet for speeds of 20 mph to 360 feet for speeds of 45 mph.

C. Guidelines

1. Parking restrictions near crosswalks should be considered to remove potential obstructions to the pedestrian's line of sight, particularly that of young children and those in wheelchairs.
2. When street furnishings or other objects that obstruct view cannot be relocated, curb extension or other treatments should be considered.

5. Pedestrian Crossings

One of the most effective means of turning an important corridor into a community "spine" or "seam" rather than a "divider" is providing for safe street crossings. Guidelines for installation of marked crosswalks at uncontrolled intersections and mid-block crossings are contained in Council Policy 200-07 Comprehensive Pedestrian Crossing Policy.

A. Issues to Consider

General

- The width of the street, the geometry of the intersection, the timing of signalization, and the frequency of crossing opportunities all play important roles in achieving a pedestrian-friendly environment.
- Closing a crosswalk does not mean that pedestrians will not continue to try to cross a street in that location.
- Crossing opportunities should be provided at regular and convenient intervals.
- Marked crosswalks are useful in channelizing pedestrian crossing activity at specified locations.
- Marked crosswalks identify appropriate crossing locations for pedestrians and alert drivers to the possible presence of pedestrians.
- The use of marked crosswalks is generally considered appropriate at signalized intersections where pedestrian activity occurs.
- Street width and traffic speed can be mitigated with the use of sidewalk pop-outs.
- Some pedestrians may become overconfident or be less aware of vehicles when crossing in a marked crosswalk. Therefore, marked crosswalks should not be used indiscriminately.

B. ADA Accessibility

- Appropriate ADA ramps should be provided at all pedestrian crossings and median refuge areas.

C. New Development vs. Retrofit

- Pedestrian refuge islands and pop-outs can be effective retrofit improvements that serve pedestrians who are unable to cross during one signal interval or in situations where there are no pedestrian signals and the road is excessively wide.
- Textured paving or speed tables are effective means of retrofitting streets to encourage reduced speeds in a pedestrian oriented area.

D. Relation to Current Standards and Practices

- Details on innovative pedestrian crossing treatments for both signalized and unsignalized intersections have been published in a document by the Institute of Transportation Engineers, *Alternative Treatments for At-Grade Pedestrian Crossings, 2001*. This source described a number of measures, including those incorporating signing, striping, lighting, vertical displacement treatments, horizontal displacement, narrow lanes, curb extensions, alternative surface treatments, backdrops, overhead devices, in-pavement devices, signal equipment, pedestrian detection, etc. The study included the following conclusions:

- There are a number of geometric design features, such as curb extensions and pedestrian refuge islands, that can be used to improve safety of marked crosswalks, especially those on high-volume, multi-lane facilities.

- Areas of high pedestrian activity benefit most from being designed in ways that promote pedestrian activity and afford pedestrians a reasonable measure of comfort and safety when crossing streets.

- Lower speed streets, such as those found in active mixed-use areas and residential neighborhoods, allow the use of less complex treatments such as signs and markings.

E. Relation to Transit

- All transit stops require that pedestrians be able to cross the street safely and within proximity to the stop.

F. Guidelines

1. The width of crosswalks should be a minimum of 10 feet (3.0) wide. Unless small-scale intersection conditions dictate otherwise, widths should be increased where there is greater pedestrian activity.

2. Adequate lighting at the levels specified in the chapter on street lighting should be present.

3. Marked crosswalks should be considered for uncontrolled crossing locations if there are no controlled crossings (by a traffic signal or stop sign) within 600 feet of the proposed crossing location (provided that the other guidelines presented here are met).

4. Marked crosswalks should be provided at all signalized intersections where pedestrian crossing equipment is provided.

5. Marked crosswalks alone are insufficient (i.e., without traffic-calming treatments, traffic signals, pedestrian signals when warranted, or other substantial crossing improvements presented in these guidelines) and should not be used under the following conditions:
   (a) Where the speed limit exceeds 40 mph.
   (b) On a roadway with four or more lanes without a raised median or crossing island that has (or will soon have) an ADT of 12,000 vehicles per day or greater.
   (c) On a roadway with four or more lanes with a raised median or crossing island that has (or will soon have) an ADT of 15,000 vehicles per day or greater.

6. Special crosswalk markings should be used in order to increase the visibility of the crosswalk and on uncontrolled approaches to unsignalized intersections. These special markings are generally more appropriate on roads where the adjacent land use may divert drivers' attention.

7. Curb ramps (two per corner preferred) should be provided at all crosswalks. If a raised central median extends into the crosswalk, an ADA-compliant channel must be provided through the median. A detectable warning surface should be installed within the channel.

G. Residential Street Crossings

Issues to Consider

- Enhanced pedestrian crossings in residential neighborhoods are a key component of pedestrian-oriented street design and lead to both improved pedestrian safety and the "livability" of the neighborhood.

- Residential street crossings are often combined with traffic calming measures that are designed to maintain low vehicle speeds, such as raised crosswalks, chicanes, and gateway narrowings. Refer to the Traffic Calming section of the manual.

- Enhanced pedestrian crossings in residential neighborhoods may not be used if traffic volumes are low enough that pedestrians are comfortable crossing at any location.

Guidelines

1. Marked crosswalks in residential areas should be warranted if traffic volumes exceed 2,000 vehicles per day.

2. Enhanced pedestrian crossing measures should be considered in residential neighborhoods where a demonstrated crossing demand exists.

3. On residential streets that experience excessive vehicle speeds, enhanced pedestrian crossings should be combined with traffic calming measures such as pop-outs.

H. Mid-block Crosswalks

Issues to Consider

- Mid-block crosswalks provide convenient crossing locations for pedestrians when other crossing opportunities are distant or where there is a presence of concentrated mid-block pedestrian crossing demand.

- As may be the case for crosswalks at intersections, mid-block crosswalks help to concentrate pedestrian crossing activity and alert drivers to the possible presence of pedestrians.

- Safety concerns arise at mid-block crosswalks as drivers typically do not anticipate pedestrians or crosswalks at non-intersection locations.

Guidelines

1. Mid-block crosswalks shall be installed in accordance with Council Policy 200-07.

2. Mid-block crosswalks shall be well illuminated (refer to Street Lighting section).

3. An ADA-compliant curb ramp should be provided at each end of the crosswalk.

4. Curb extensions may be considered at the crosswalk to enhance pedestrian crossing visibility and reduce crossing distance.

5. High contrast detectable surface should be installed on the sidewalk at each end of mid-block crosswalk (see Appendix IV).

6. If mid-block crosswalks are signalized, audible devices should be installed.

7. On streets that experience excessive vehicle speeds, enhanced pedestrian crossings should be combined with traffic calming measures, such as raised crosswalks or curb extensions.

6. Pedestrian Refuge Islands

Pedestrian refuges in wide or busy streets improve safety for pedestrians and vehicles. They are defined as areas within an intersection or between lanes of traffic where pedestrians may safely walk until vehicular traffic clears, allowing them to cross a street. Another benefit to pedestrians is that it can significantly reduce delay in crossing unsignalized intersections since the pedestrian need only search for vehicles in one direction at a time.

A. Issues to Consider

General

- Pedestrian refuge islands work well on wider streets where there are long pedestrian crossing times and exposure to vehicular traffic or on streets with speeds higher than 35 mph.

B. ADA Accessibility

- Particularly useful for slower pedestrians, such as the very young, elderly, or those with mobility disabilities.

- Where it is not possible to include ramps and waiting pads that meet ADA requirements, waiting areas should be at-grade with the roadway (channels), although slopes should facilitate drainage and planting or bollards should buffer pedestrians from moving traffic.

C. New Development vs. Retrofit

- Pedestrian islands may be installed at intersections or mid-block locations deemed appropriate through engineering studies.

- Pedestrian islands should be considered from the outset of design for intersections that are either complex, irregular in shape, excessively wide or in areas where children and older people are expected to cross frequently

D. Relation to Transit

- The use of pedestrian islands should be considered where transit is "running" within the street right-of-way, particularly in station areas.

E. Guidelines

1. Refuge islands should be a minimum of four feet wide by eight feet long.

2. Pedestrian refuge islands should be well illuminated.

7. Sidewalks for Overpasses, Underpasses, and Highway On/Off Ramps

Access on an overpass across a highway is often along a narrow sidewalk where the pedestrian is against a wall or guardrail and is highly exposed and vulnerable to speeding traffic. The unappealing environment of underpasses is often exacerbated by poor lighting and obscured sightlines. Pedestrian access across on- and off-ramps can also be difficult since the driver is preoccupied with making the transition between the highway and the street network.

The overpass discussion is applicable to all bridges with pedestrian access and the overpass and underpass discussions are applicable to grade-separated railroad crossings.

A. Overpasses and Underpasses

Issues to Consider

General

- Overpasses and underpasses necessitate accessible ramps that require a considerable amount of additional land for installation.

New Development vs. Retrofit

- Opportunities to widen sidewalks when retrofits occur.

Guidelines

1. Minimum widths for walkways on over and underpasses should follow the guidelines for sidewalk width.

2. Underpasses should have a daytime illuminace minimum of 10 footcandles achievable through artificial and/or natural light provided through an open gap to sky between the two sets of highway lanes and a nighttime level of 4 footcandles.

3. Consider acoustics measures within underpasses to reduce noise impacts to pedestrians and bicyclists.

B. Highway On/Off Ramps

Issues to Consider

General

- Pedestrian safety measures should be considered where drivers are in the process of "transitioning" from high-speed highways to local streets.

New Development vs. Retrofit

- Many existing highway access points have been designed with limited provision for pedestrian access along the local streets and the resulting situations often leave little space for retrofit.

- New highway access improvements such as reducing the turning radii need to be considered to address pedestrian and bicycle safety and access issues.

Guidelines

1. Free-flowing entrance and exit ramps shall not be constructed in areas where pedestrians are expected.

2. A right angle intersection should be provided where the ramp meets the cross street to improve visibility for both the motorists and pedestrians as well as to reduce the crossing distance.

8. Creating a Pedestrian Realm

Safe and direct sidewalk connections are of key importance to creating a pedestrian-friendly environment. Sidewalks should support activities that will occur in the area and provide a comfortable place for pedestrians to take part in various activities. However, creating a high-quality pedestrian realm that supports and encourages walking takes much more than simply providing sidewalks.

The design of the sidewalk and the elements within it and the location and design of buildings are just some of the additional considerations of creating a pedestrian-supportive environment. Furthermore, walking provides more opportunities to observe details than any other form of transport. Landscape and architectural details are necessary, therefore, to sustain interest for the pedestrians as well as to provide a safe and comfortable experience.

A. Sidewalk Design

Sidewalks are not merely thoroughfares for pedestrians. They are also important social spaces where people interact and walk together, catch a bus, window shop, or have a cup of coffee at a café. The sidewalk must be wide enough to accommodate movement in addition to amenities such as seating that facilitate social interaction. This makes the sidewalk more comfortable and appealing, which can encourage uses that increase security.

B. Issues to Consider

General

- Existing excessive right-of-way widths also allow for widening sidewalks and on-street parking, both of which significantly improve the pedestrian experience.
- Increased buffering between fast-moving traffic and abutting properties created by wider sidewalks or local access lanes makes the street more attractive for buildings to front directly onto the street.
- Provide appropriate sidewalk widths given the use and amount of activity that is expected.
- Select materials with consideration for maintenance and long-term appearance.
- Minimize obstructions and conflict points.

C. New Development vs. Retrofit

- Dimensions of an existing sidewalk can be increased either through the acquisition of additional right-of-way, zoning a setback requirement for new development to create additional pedestrian space, or through a reduction in curb-to-curb roadway width where applicable. Another alternative to reducing roadway width in these cases could be to revise the parking from parallel to diagonal, which would slow speeds and create opportunities for improved pedestrian environment.
- New streets must balance the needs of all users in determining right-of-way width.

D. Relation to Transit

- The "footprint" of and access to transit facilities such as bus shelters must be considered in the design of sidewalks.
- Sidewalks must connect transit facilities with the adjacent uses within walking distance of the station or bus stop.
- Review MTDB publication, "Designing for Transit," as well as these guidelines in relation to pedestrian access to transit facilities.

E. Establishing "Zones"

The Sidewalk Corridor is typically located within the street right-of-way between the curb and building face and/or property line. The sidewalk corridor is composed of four distinct zones: the Edge Zone, the Furnishing Zone, the Throughway Zone, and the Frontage Zone.

1. Edge Zone

The Edge Zone (sometimes referred to as the "Curb Zone") is the interface between the roadway and the sidewalk. At a minimum, this zone includes the 6"-wide curb. In more active, mixed-use areas with on-street parking, this zone should be a minimum of 1'6" to accommodate the door swing of a parked car to prevent conflict with elements within the Furnishing Zone. At transit stops with shelters, this zone should be widened to four feet to provide wheelchair access to the shelter. (In constrained conditions, transit shelters are available with partially open sides, allowing the Edge Zone to be reduced to 2'6"). Providing a pop-out for the entire length of the transit stop is also an effective way to increase Edge Zone width.

2. Furnishings Zone

The Furnishing Zone also accommodates street trees and landscaping. It is the zone that provides the buffer between the active pedestrian walking area, the Throughway Zone, and street traffic. Street trees, tree lawns, street furniture, utility poles, phone booths, parking meters, fire hydrants, bicycle racks, and the like are consolidated in this zone to keep them from being obstacles in the Throughway Zone. Planting in this zone must comply with the standards and guideline in this manual and the Landscape Technical Manual, particularly in the case of street tree well dimensions. The placement of these aforementioned elements must comply with the Land Development Code, San Diego Municipal Code and applicable Council Policies.

Installing pedestrian pop-outs is an effective way to increase sidewalk space for street furniture and other features. The dimension of the Furnishing Zone must consider whether street parking is provided (an effective buffer) and the speed of traffic.

3. Throughway Zone

The Throughway Zone is intended for pedestrian travel only and should be entirely clear of obstacles, including driveway aprons. This zone should be at least five feet wide. For high pedestrian volume areas, additional width should be provided. "Overhanging" elements, such as awnings, store signage, bay windows, etc., may occupy this zone as long as there is a clear distance under them of at least eight feet.

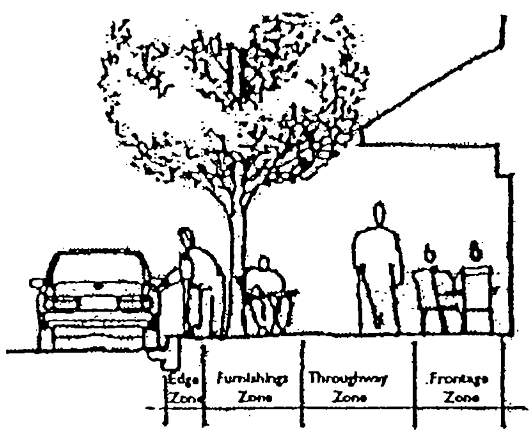
4. Frontage Zone

The Frontage Zone is the area adjacent to the property line that may be defined by a building façade, landscaping, or a fence. Generally, pedestrians do not feel comfortable moving at a full pace directly along a wall; and, because of this, the minimum frontage zone should be 1'6" in these situations. This is also the zone where pedestrians slow down and window-shop and enter and exit buildings. Adjacent businesses may use this zone for outdoor displays and seating, and municipalities must ensure that there is adequate space to accommodate these uses without impeding the Throughway Zone.

Architectural elements that encroach into the street, such as awnings, stairs, front stoops, artistic elements, planters, marquees, and the like may also occupy this zone. These elements add vitality and visual interest to the street but, nevertheless, must comply with local, state and Federal Regulations.

Where no Furnishings Zone exists, elements that would normally be sited there, such as benches, light poles, signals, trash cans, etc., may occupy the Frontage Zone in order to keep the Throughway Zone clear and maintain at least minimum ADA requirements

Where the sidewalk passes a parking lot, there should be some type of buffer, such as a hedge or a low wall in order to maintain a more aesthetic frontage along the sidewalk and prevent parked vehicles from overhanging into the Frontage Zone.



Pedestrian sidewalk zones

F. Public Art and Amenities

Pedestrian improvements create a unique opportunity where people can see and be positively impacted by public art as part of their everyday activities; they also help create more walkable communities. Pedestrian improvements, which include public art, can convert ordinary spaces into places of meaning. Improvement projects constructed using public monies may designate a portion of their budget for public art.

Issues to Consider

- On a large scale, public art has the ability to unify a neighborhood with a theme, and at a pedestrian level can provide visual interest for the passerby.
- Public art is an effective means of creating a neighborhood identity, and ideally should reflect the character and history of the community.
- Good design can encourage the use of streets for festivals, parades, and other cultural events that promote neighborhood pride and a sense of place.

Guidelines

1. Public art should be located so as to be a pedestrian amenity without compromising safety.
2. When appropriate, consideration should be given to commissioning artists to create unique street elements such as light poles, benches, trash cans, manhole covers, tree grates, etc.
3. When appropriate, consideration should be given to a design that is conducive to using streets for festivals, parades, and other community events.

Traffic Calming

Traffic Calming

A. Purpose
This section is intended to provide design options for traffic calming on new streets and streets being considered for retrofit. Some general design specifications are provided to assist designers in developing comprehensive streetscape plans for proposed development and redevelopment projects. It is emphasized that these are just guidelines and that innovative street designs that incorporate traffic calming are encouraged.

B. Overview
Traffic calming involves the use of various geometric features designed to reduce vehicle speeds or discourage shortcutting traffic. To achieve the desired effect of traffic calming, the effectiveness of such measures and their impacts should be evaluated on an area-wide basis.

Landscaping, street trees, street lighting, and street furniture are other methods of traffic calming that also create distinctive and pleasing streetscapes that encourage sidewalk activity. These improvements may involve consideration of irrigation and long-term maintenance to be provided by maintenance assessment districts or other agreements with the City.

Traffic calming is appropriate along circulation element roads as well as commercial and residential local streets. Local streets should be designed to function efficiently and safely, yet minimize the need for extensive traffic regulation, control devices, and enforcement. The function of the local street should be readily apparent to the user through its appearance and design.

C. General Guidelines
The following general guidelines should be considered in traffic calming installations:

- Delays to emergency vehicles should be minimized by the appropriate placement and design of traffic calming devices. In some cases, certain traffic calming devices may not be appropriate.
- Traffic calming installations should not divert traffic to other local residential streets. Traffic calming installations should support the street classifications established in community plans. Traffic may be diverted from residential streets to classified through streets. The potential impacts of traffic diversion should be evaluated for all traffic calming installations.
- Traffic calming devices on designated transit routes should be limited to those that permit the efficient movement of transit vehicles.
- Traffic calming installations must meet State and Federal accessibility requirements.
- Traffic calming should not impair the mobility of non-motorized users to of the street.
- Traffic calming installations must address drainage, sight distance, and location of underground utilities.
- All traffic calming installations are required to have a landscape element that includes trees and shrubs consistent with the Landscape Technical Manual. If traffic calming devices include decorative pavement, it shall comply with section E of the Design Standards in this Manual.

D.Traffic Calming Techniques

Traffic calming strategies generally fall into six categories:

- Horizontal deflections (chicanes, mini traffic circles, median slow points or chokers)
- Vertical deflections (road humps, speed tables, and raised crosswalks)
- Intersection pop-outs
- Traffic diverters (semi-diverters)
- Channelization

Enhancing the streetscape environment should have the same level of priority in the design scheme as traffic calming impacts. A general discussion of these categories follows along with more specific details and design guidelines for various traffic calming techniques.

Traffic calming" features such as median slow points or chokers, chicanes, mini traffic circles, and intersection 'pop-outs' may be provided in accordance with this design manual. Road humps or speed tables may be installed by the City on existing streets under some circumstances but should not be included in street construction or improvement projects.

E. Horizontal Deflections

Horizontal deflections are used to achieve speed reductions by breaking up the linear path of vehicle travel. Traffic calming designs that involve horizontal shifts in the travel way are inappropriate for major streets and arterials. Horizontal deflections include chicanes (mid-block) mini circles (intersections), and median slow points (mid-block and intersections).

Chicanes - A chicane is a channelization that causes a series of tight turns in opposite directions in an otherwise straight stretch or road. The combination of narrowed street width and the serpentine path of travel slows traffic. On new streets, chicanes narrow the street by widening the sidewalk or landscaped parkway. On streets considered for retrofit, raised islands are installed to narrow the street. The advantages of chicanes include: slow traffic, may create opportunity for landscaping, and tends not to divert traffic to nearby streets. Chicanes are inappropriate for use on streets classified as collector or higher, bus routes, emergency response routes, where there is a grade that exceeds 5 percent, or where there is limited stopping sight distance such as at the crest of a hill. Chicanes may cause some loss of on-street parking, may impact driveways, may increase emergency response time, or may affect drainage and street sweeping.

Mini Circles - A mini circle is a raised circular island placed in the center of an intersection. Traffic yields on entry, then enters to the right, traveling around the circle counter clockwise. A mini circle slows traffic on each approach, reduces right-of-way conflicts, creates a landscaping opportunity, and tends not to divert traffic to nearby streets. Mini circles are appropriate for usage on low volume local residential streets with alternative access points. Mini circles should not be used on streets classified as collector or high, bus routes or emergency response route, where the grade exceeds 5 percent on any approach, or where there is limited stopping sight distance. A mini circle may impact large vehicles' turns or may increase emergency response time.

Median Slow Points - A median slow point is a small median or island placed in the center of a roadway that causes traffic to shift its path to the right in order to travel around it. It may be on an approach to an intersection or mid-block. If median slow points are installed at an intersection, the street should have alternative access points. A median slow point slows traffic, creates a pedestrian refuge area, creates a landscaping opportunity, and tends not to divert traffic to nearby streets. Median slow points may be used on two lane streets. It should not be used on streets classified as major or higher or where there is limited stopping sight distance. Median slow points may cause some loss of on-street parking or may impact large vehicles' turns when installed at intersections.

F. Vertical Deflections

Vertical deflections are an effective traffic calming technique for speed reductions and discouraging shortcutting on local streets. Vertical shifts are only appropriate on two-lane streets. Traffic calming designs that involve vertical shifts are inappropriate for collector streets, major streets and arterials. Vertical deflections include road humps and speed tables/raised crosswalks.

Road Humps - Road humps are rounded raised areas placed across the road. Road humps are approximately 12 feet long (in the direction of travel), 3.5 inches high, and parabolic in shape. It is usually constructed with a taper on each side within a foot or two of the gutter line to allow unimpeded drainage between the hump and curb. They are most effective when used in groups that are spaced close enough to avoid encouraging speeding between humps. Road humps are different from speed bumps. Speed bumps are much more abrupt, usually less than three feet in length, and are used in parking lots and private drives. Speed bumps are not used on public streets.

While primarily used for speed reductions, road humps can also result in the reduction of traffic volumes on streets where they are employed by diverting traffic to other nearby streets. Road humps should not be used on streets classified as collector or higher, emergency response routes, bus routes, where grade exceeds 5 percent, or where there is limited stopping sight distance. The disadvantages of road humps may include diverting traffic to other low-volume local streets, increasing emergency response time, or increasing noise.

Speed Tables/Raised Crosswalks - Speed tables, essentially, are flat-topped road humps, often constructed with brick or other textured materials on the flat section. Speed tables are 3-1/2 inches high and 22 feet long in the direction of travel, with 6-foot ramps at the ends and a 10-foot field on top. The brick or other textured materials improve the appearance of speed tables and draw attention to them. Speed tables are less jarring than the standard 12 road humps. Speed tables are most effective when installed in groups of two or more, about 300 feet apart. Where extended from curb-to-curb and appropriately marked, speed tables serve as raised crosswalks. Raised crosswalks bring the street up to sidewalk level. Drainage requirements must be evaluated and addressed where raised crosswalks are installed.

Speed tables and raised crosswalks reduce vehicle speeds. Raised crosswalks enhance pedestrian safety. The disadvantages of speed tables/ raised crosswalks may include diverting traffic to nearby low-volume local streets, increasing noise and increasing emergency response times. Speed tables/raised crosswalks should not be installed on streets classified as collector or higher, emergency response routes, bus routes, where grade exceeds 5 percent, or where there is limited stopping sight distance.

G. Intersection Pop-outs

Intersection pop-outs are curb extensions that narrow the street at intersections by widening the sidewalks at the point of crossing. They are used to make pedestrian crossings shorter and reduce the visual width of long, straight streets. Where intersection pop-outs are constructed by widening the landscaped planting strip, they can have a positive effect on the visual appearance of the neighborhood. Pop-outs can be used at intersections to create a street gateway effect, visually announcing an entrance to a neighborhood. Intersection pop-outs must accommodate bicyclists, transit vehicles and emergency response vehicles. Pop-outs improve pedestrian visibility, create shorter pedestrian crossing width, and may reduce vehicle speeds. Pop-outs may impact large vehicle turns, may impact accessibility by transit vehicles or emergency response vehicles, and may require parking removal. Intersection pop-outs may be installed on local streets, collector streets, and urban major streets. Pop-outs are inappropriate on major streets and primary arterials. The entire intersection should be designed and constructed at one time.

H. Traffic Diverters

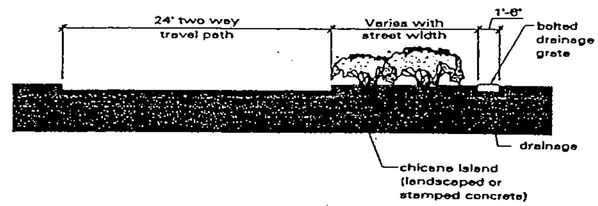
Traffic diversion devices eliminate through trips on streets on which they are installed and divert those trips to other streets. There are several available traffic diversion designs that may be used to calm traffic. Traffic diverters are not primarily installed for the purpose of speed control. Diverters are best suited on long, straight, low-volume, local residential streets. Wherever traffic diversion techniques are employed, provision should be made for continuation of pedestrian and bicycle routing around or through the diversion. Care must be taken in design of diversion installations to allow for emergency vehicles.

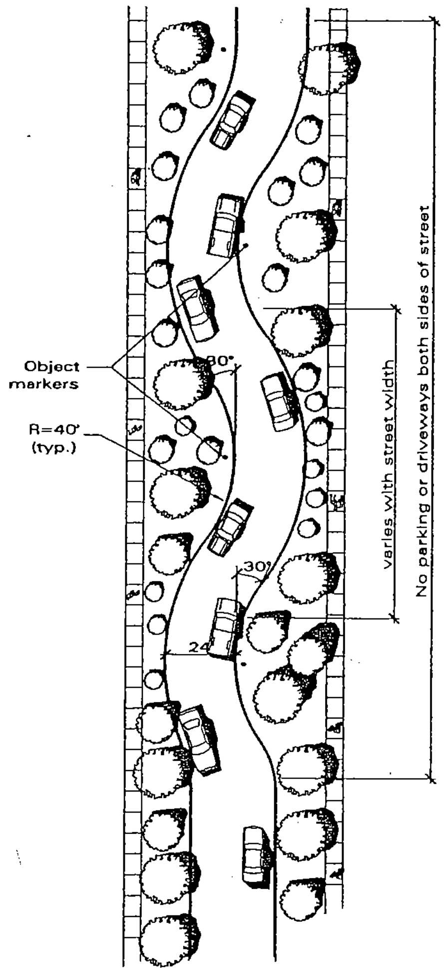
Semi diverters. - A semi diverter is a barrier to traffic in one direction of a street that permits traffic in the opposite direction to pass through. It is an alternative to one-way street operation for a block and it allows residents on the block limited two-way travel opportunity. A semi diverter may be used on low-volume, local residential streets and it is best located at the end of a block to prevent entrance and allow exit. Semi diverters reduce cut-through motorized vehicle traffic, reduce pedestrian crossing widths, and create opportunity for landscaping. Semi diverters may divert traffic to other low-volume streets, may increase trip lengths, may cause loss of parking, and may increase emergency response time. Semi diverters are inappropriate for use on emergency response routes, bus routes, or streets classified as collector or higher. No specific geometric features are included in this manual since semi diverters are site specific and should be designed on a case-by-case basis.

I. Channelization

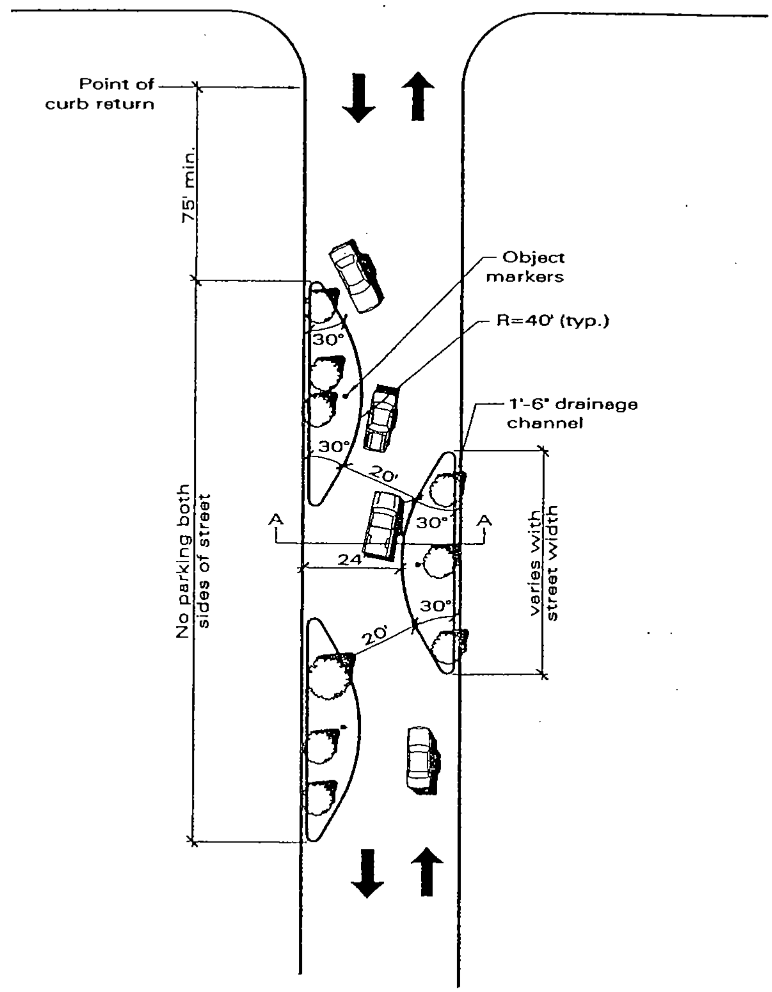
Channelization may be used on arterial streets to prevent cut-through traffic onto local streets or to control turning traffic in or out of a neighborhood. Channelization can be achieved through regulatory signs and pavement markings, landscaping, or raised channelization islands aimed at motorized, non-motorized, or pedestrian traffic. Channelization may be designed to prevent cut-through traffic, reduce speed, create opportunity for landscaping, control turning traffic in and out of a neighborhood, or physically guide pedestrians. The disadvantages of channelization may include creating out-of-direction travel, increasing trip lengths, increasing emergency response time, or impacting accessibility. No specific geometric features are included in this manual since channelization devices are site specific and should be designed on a case-by-case basis.

Tc Traffic Calming -Chicane



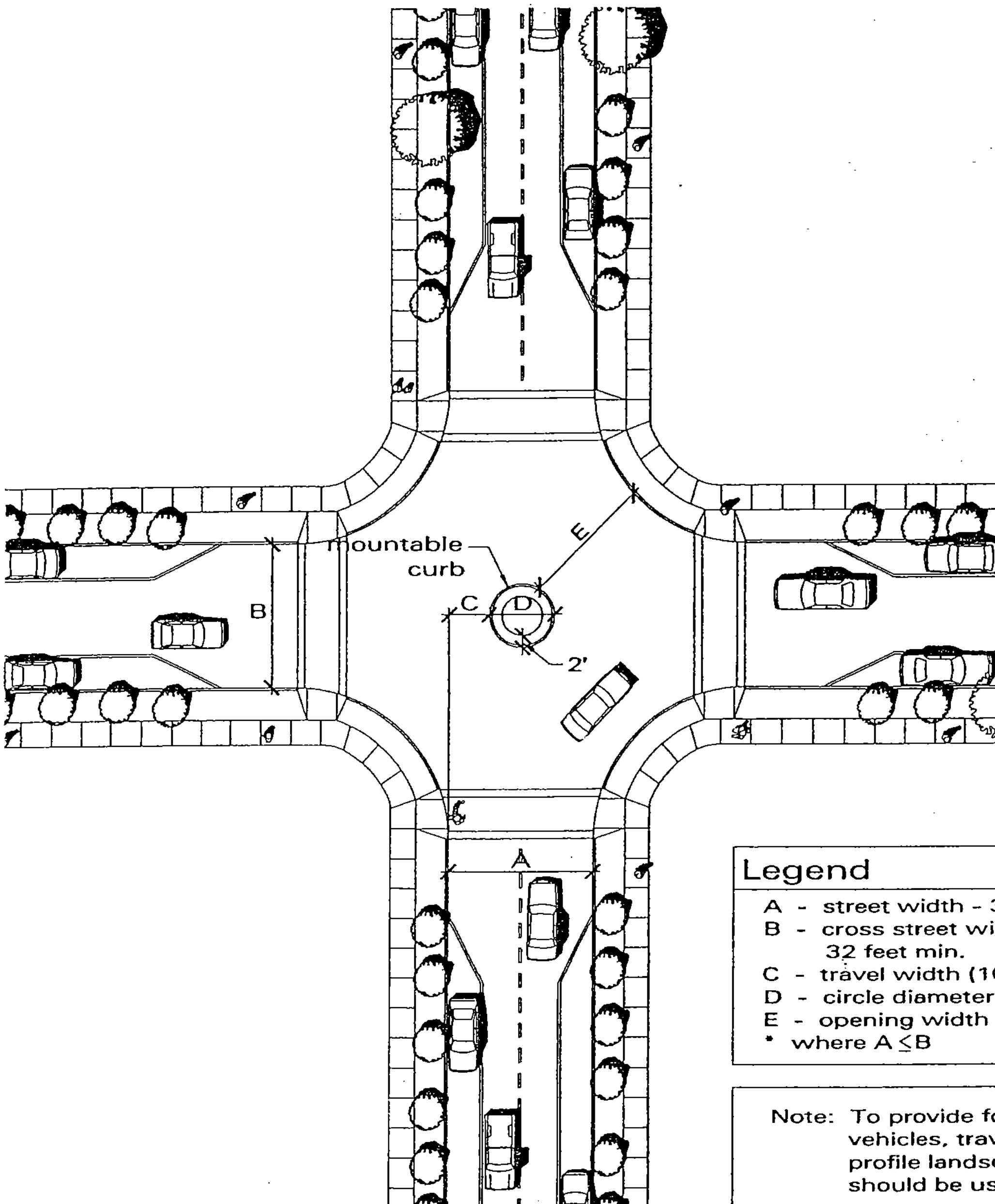


New Installations



Retrofit Installations

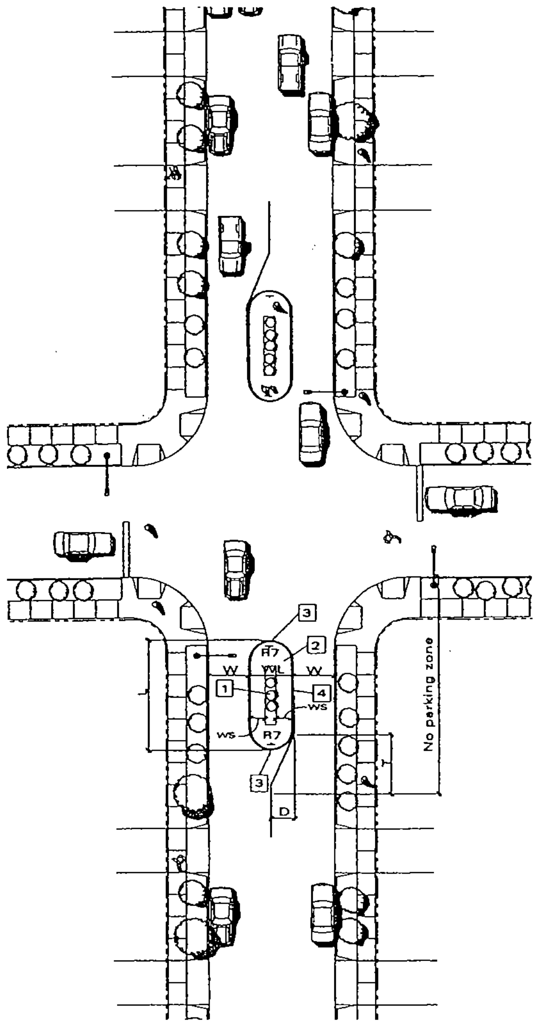
NOTES:
- Spacing of chicane segments depend on site considerations, e.g. driveway locations.
- Island plantings should not obscure driver's view of chicane traffic (24" maximum height).
- Stamped concrete may be used in the chicane island.
- Bicycles are to use the same path as motor vehicles, not the drainage channel.

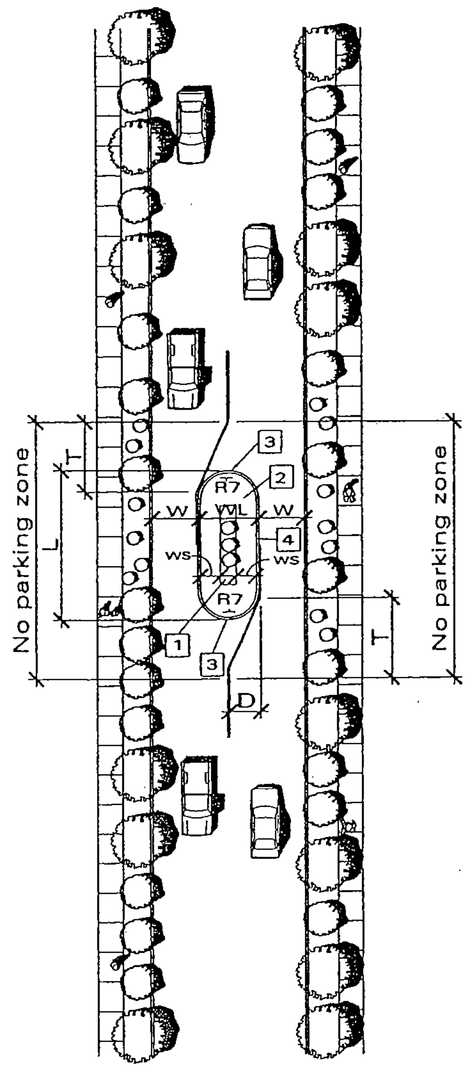


Legend
A - street width - 32 feet min.
B - cross street width (varies) 32 feet min.
C - travel width (10'*)
D - circle diameter (12' minimum)
E - opening width (18' minimum)
* where A ≤B

Note: To provide for emergency vehicles, traversable low profile landscaping should be used.

Traffic Calming -Median Slow Point





Legend

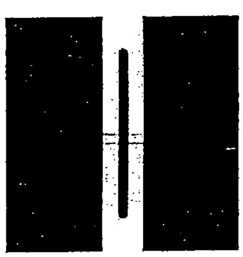
1 area that may be landscaped (landscape, irrigation, and long term maintenance must be considered by a maintenance assessment district or other agreements with the City of San Diego.)

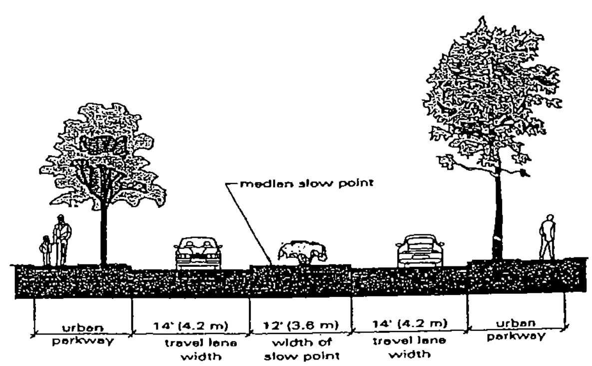
2 stamped concrete

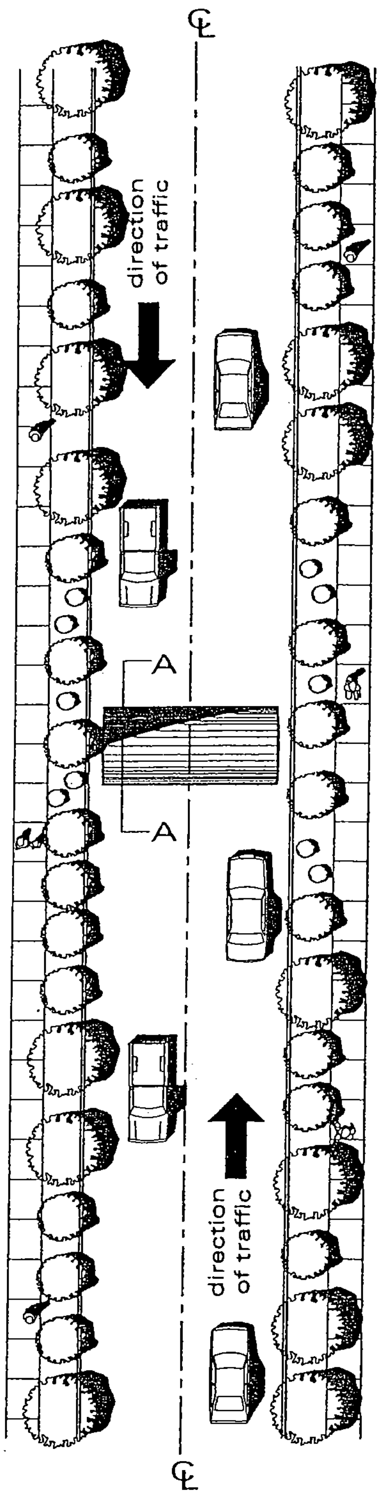
3 yellow painted island nose

4 6" curb

W - travel lane width - 14'
WL- Width of slow point (varies depending on street width- 12' minimum)
Ws - For landscaped slow point, 2' typical
L - Length of slow point, varies depending on parking and driveways
D - horizontal deflection, 6' minimum
T - Transition, calculated as follows: $T=(D \times S^2)/120$ - minimum
Where: D= deflection in feet
S= 85th percentile speed in mph



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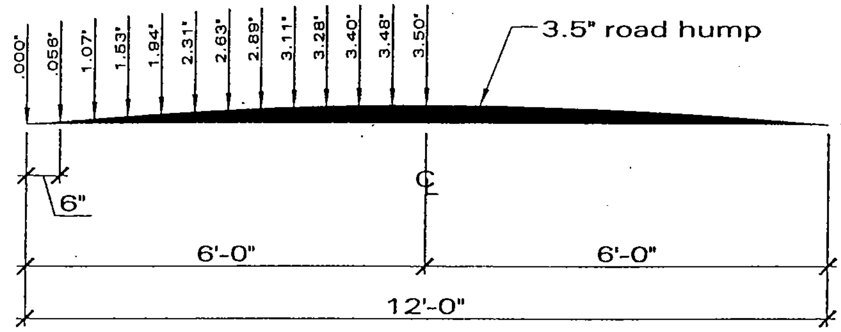
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3.11'
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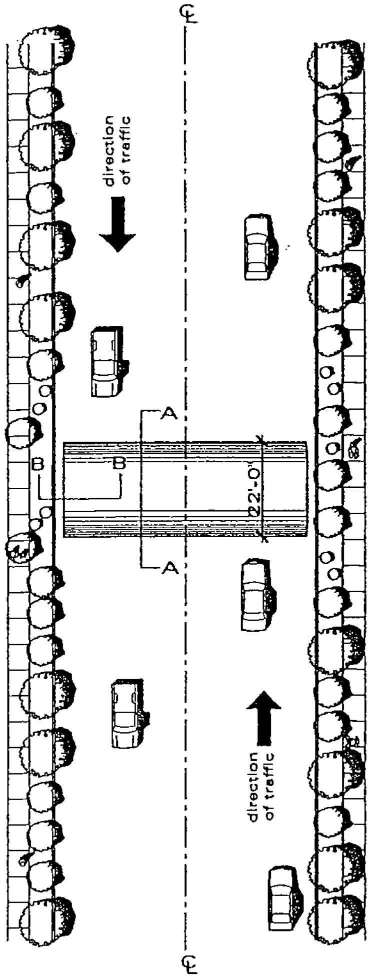
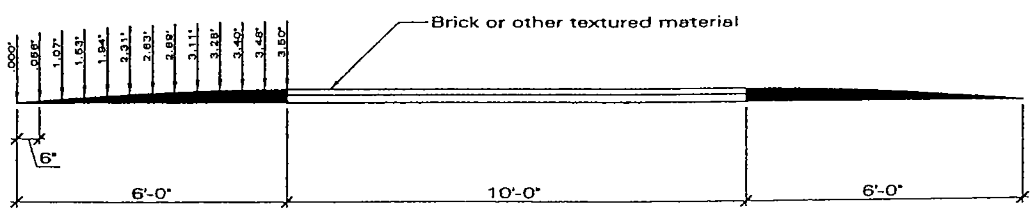
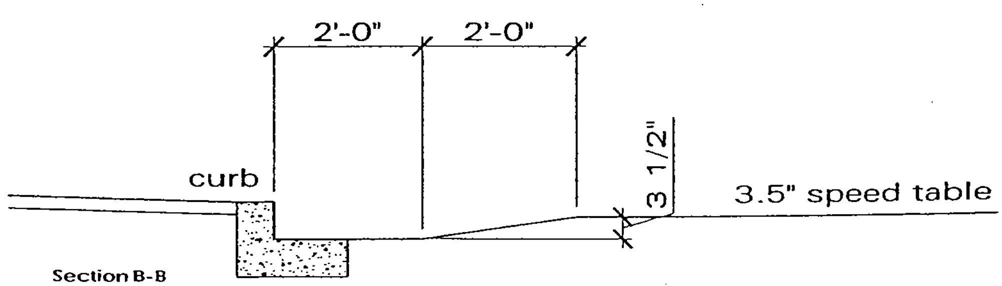
3.50'
3.5" road hump
6"
CL
6'-0"
6'-0"
12'-0"



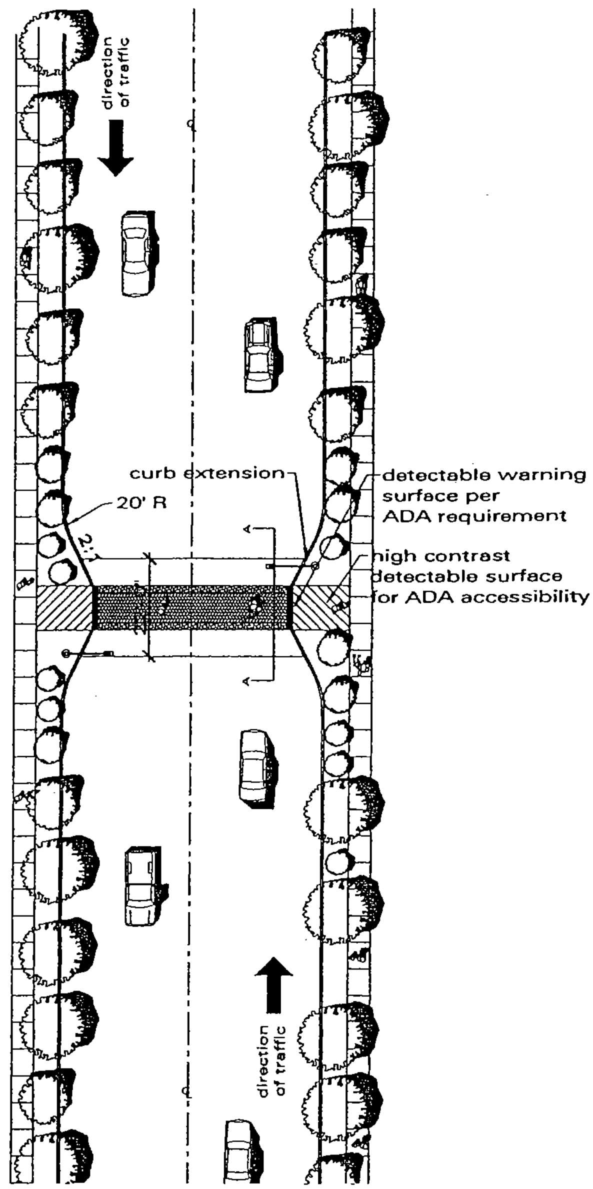
NOTE:
- Drainage requirements must be evaluated and addressed.



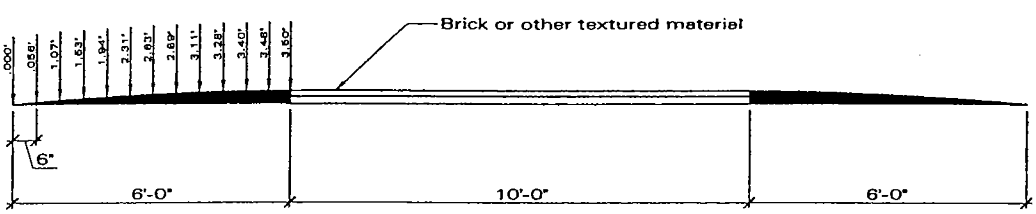
Section A-A



Section B-B

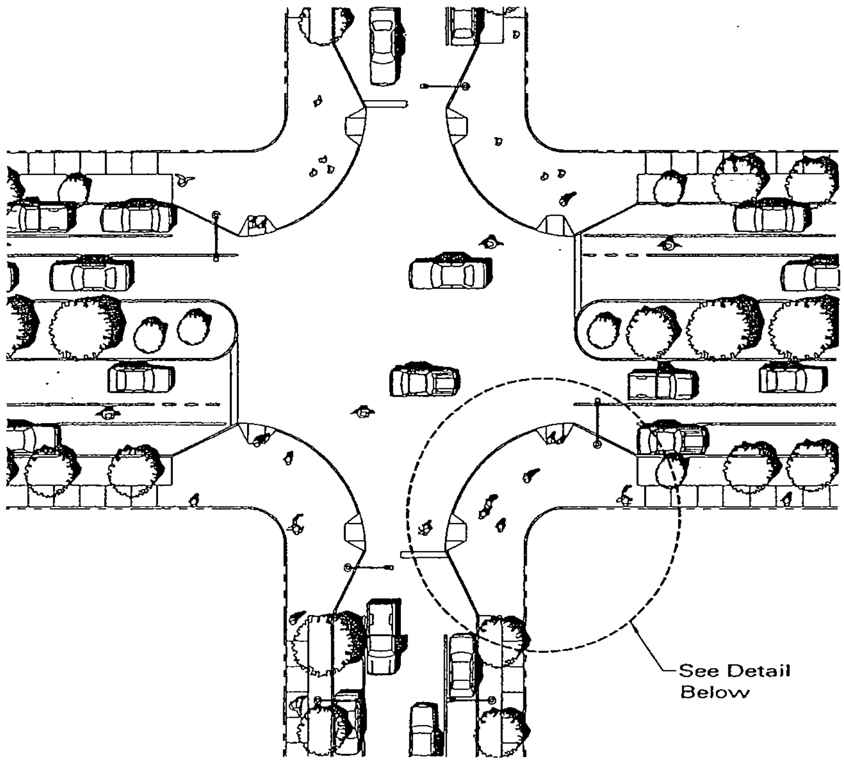


NOTES:
- Drainage requirements must be evaluated and addressed.
- Crosswalks should meet traffic engineering requirements approved by the City Council. Refer to Policy 200-07.



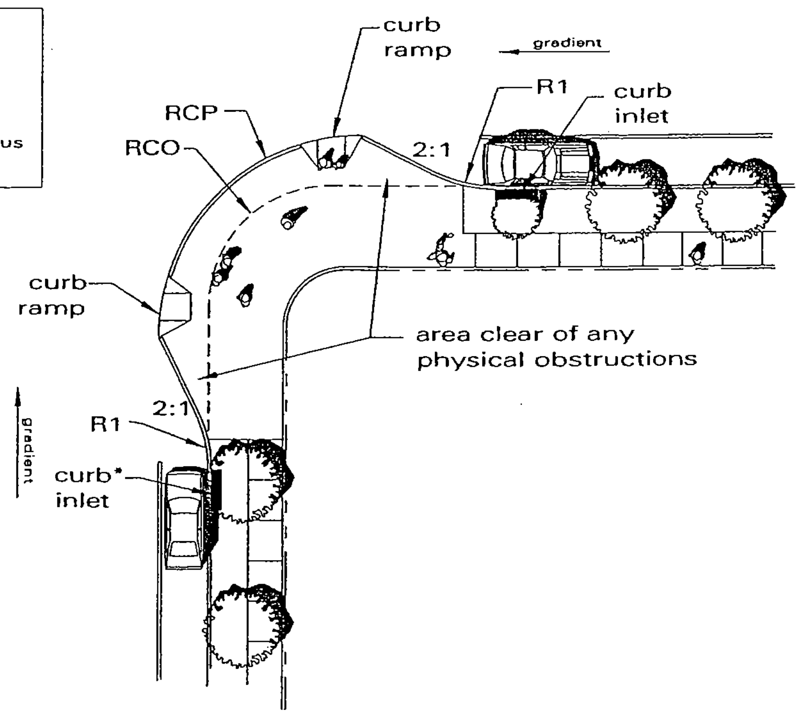
Section A-A

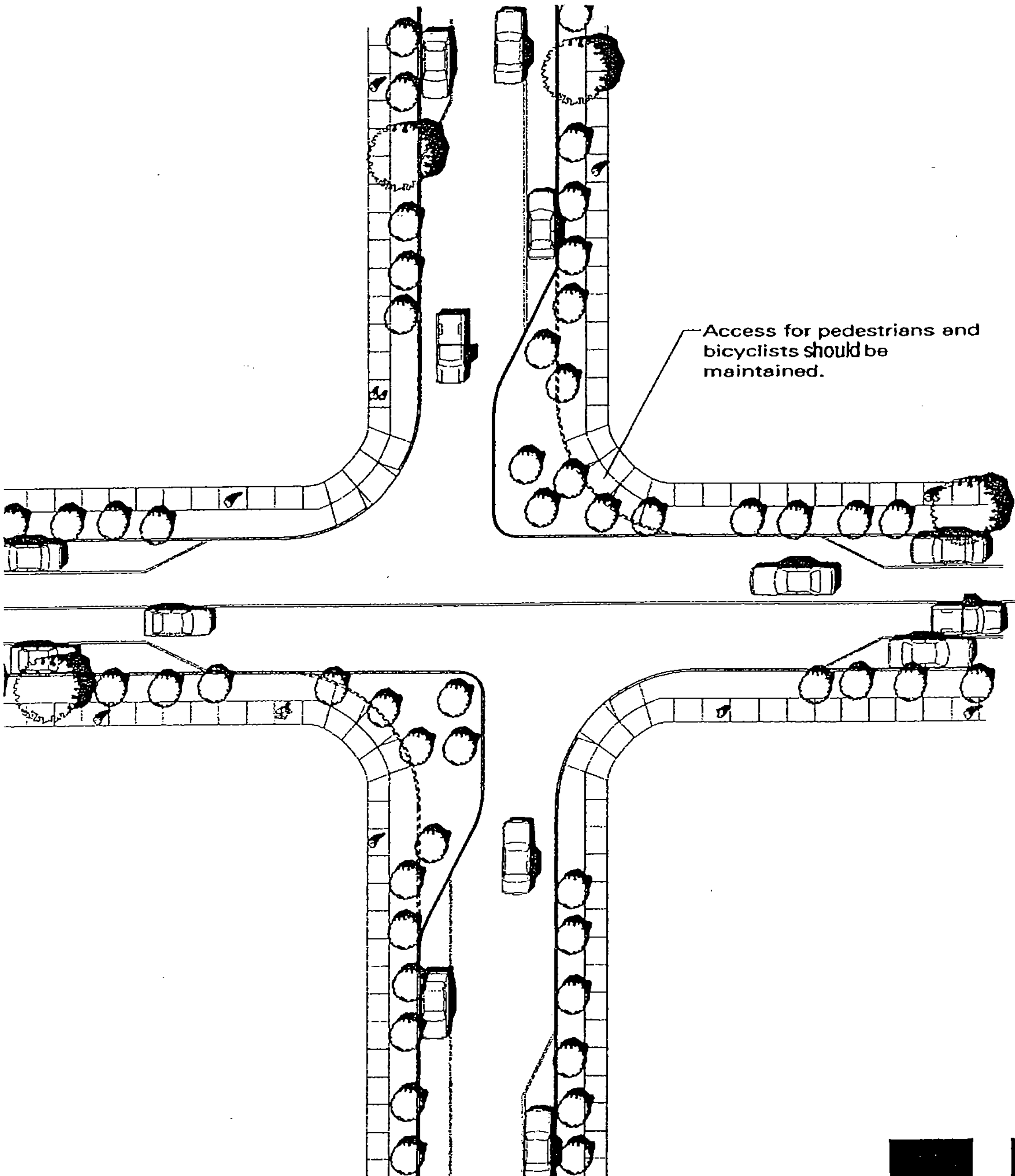
Tc Traffic Calming -Intersection Pop-out



NOTE:
* Drainage requirements must be evaluated and addressed.

<u>Legend</u>
RCP - 30' (9.2 m) minimum
RCO - Retrofit installations- original curb radius
R1 - Curb radius 20' (6 m)





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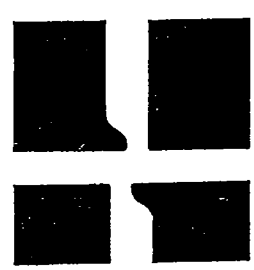
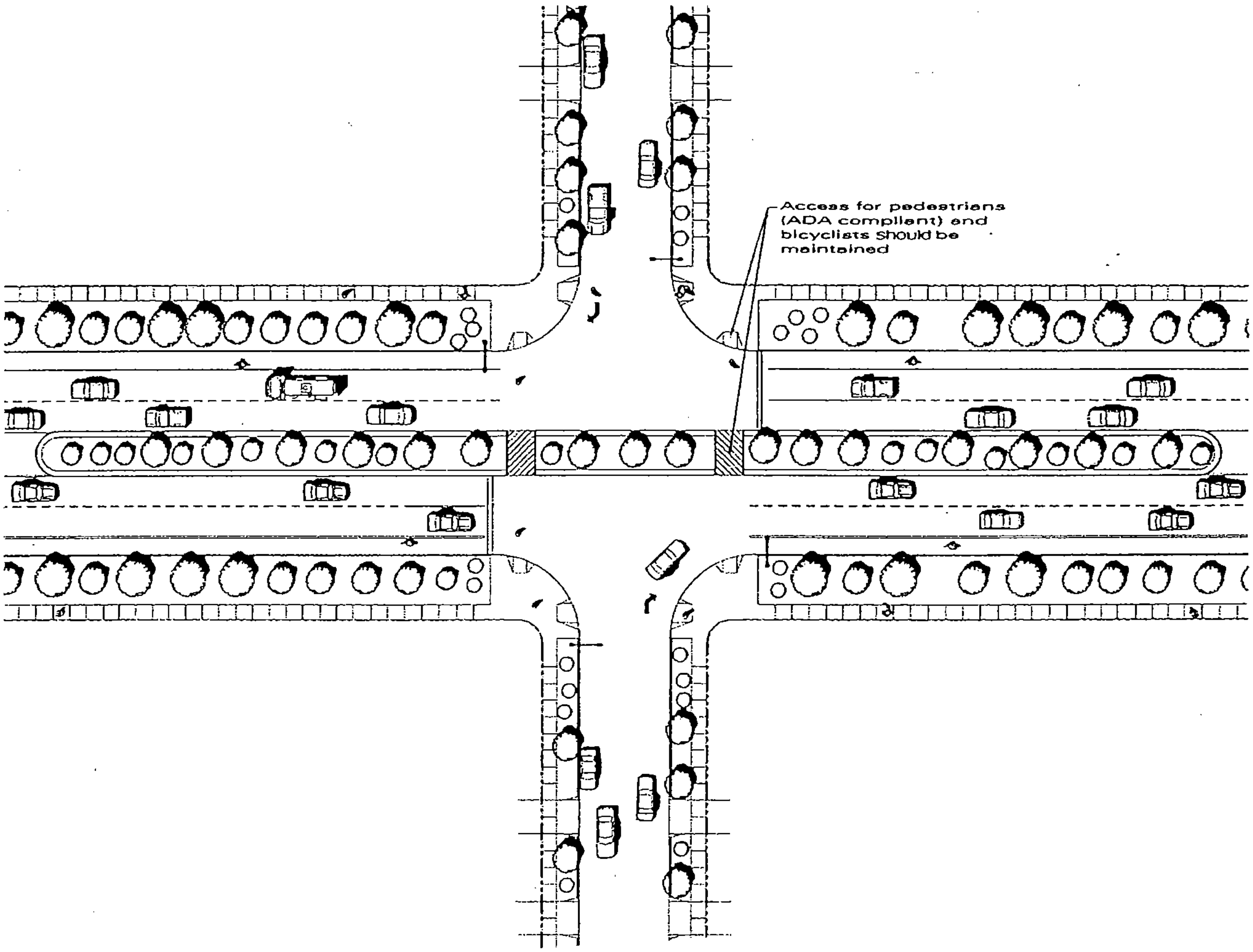




For illustrative purposes only

Street Lighting

–Street Lights shall be provided in accordance with the approved Council Policy 200-18, Street Lighting.

Street Lights

1. Street lighting shall be installed at all street intersections and shall conform to Table L-1. All street lighting shall be high-pressure sodium vapor (HPS) except for areas which are designated for low pressure sodium vapor (LPS). Contact the Development Services Department for current information.

2. Midblock street lighting shall be installed as follows:

a. On residential and collector streets, staggered at intervals not to exceed 150 feet (45m) within 1, 320 feet (400 m) of transit stops and in residential and commercial high-crime census tracts, or in other areas staggered at intervals not to exceed 300 feet (90 m).

b. On Four-Lane Urban Major Streets or higher with center medians, on both sides of the street at intervals not to exceed 150 feet (45 m) within 1,3020 feet (400 m) of transit stops and in residential and commercial high-crime census tracts, or in other areas on both sides of the street at intervals not to exceed 300 feet (90m).

c. Near the end of cul-de sacs that exceed 150 feet (45m) within 1,320 feet (400 m) of transit stops and in residential and commercial high-crime census tracts, or in other areas near the end of cul-de-sacs that exceed 200 feet (60 m) in length.

d. One light on each side of the street at at-grade railroad crossings to illuminate the side of the train facing the motorist.

e. In areas of high pedestrian activity, such as schools, parks, transit centers, access to transit, and commercial and recreational facilities that draw large numbers of pedestrians.

f. At other locations, such as at abrupt changes in horizontal or vertical alignment, or areas of heavy pedestrian use, as needed.

3. Agriculture-zoned or natural open space land may be exempted from midblock street lighting provisions, at the directions of the City Engineer.

4. Midblock street lighting shall be full cutoff, Type III fixtures and shall conform to the following:

a. 100 Watt HPS or 55 Watt LPS, as applicable, in alleys.

b. 150 Watt HPS, or 90 Watt LPS, as applicable, for local residential streets (any width) and streets classified as collector or higher with curb-to-curb width up to and including 40 feet (12.2 m).

c. 250 Watt HPS or 135 Watt LPS, as applicable, for streets classified as collector or higher with curb-to-curb width greater than 40 feet (12.2m) up to and including 52 feet (16.0m).

d. 250 Watt HPS or 180 Watt LPS, as applicable, for streets classified as collector or higher with curb-to-curb width greater than 52 feet (16.0 m).

5.Supplemental street lighting, for: a) ornamental, b) continuous street lighting, or c) pedestrian-scale lighting purposes, shall be installed in street lighting assessment districts. Street lighting assessment districts will be formed only upon the request of the properties which will be included in the district.

a. Ornamental street lighting shall be designed to meet the desires of the street lighting assessment district. Custom poles, luminaries, and spacing may be used.

b. Continuous street lighting shall conform to RP-8, "American National Standard Practice for Roadway Lighting," or the Illuminating Engineering Society of North America.

Table L-1
Street Lighting at Non-Signalized Intersections*

Street A / Street B	B1 Local residential streets (any width) and collector or higher streets up to and including 40 ft. wide, curb-to-curb	B2 Collector or higher streets greater than 40 ft. and up to and including 52 ft. wide, curb-to-curb	B3 Collector or higher streets greater than 52 ft. wide, curb-to-curb
A1 Local residential streets (any width) and collector or higher streets up to and including 40 ft. wide, curb-to-curb	(A1-b1) Install one 150 W. HPS or 90 W. LPS light, as applicable, on the far right corner of the higher volume street.	(Same as A2-B1)	(Same as A3-B1)
A2 Collector or higher streets greater than 40 ft. and up to and including 52 ft. wide, curb-to-curb	(A2-B1) Install one 250 W. HPS or 135 W. LPS light, as applicable, on each of the far right corners of the wider street.	(A2-B2) Install one 250 W. HPS or 135 W. LPS light, as applicable, on each of the far right corners of the higher volume street.	(Same as A3-B2)
A3 Collector or higher streets greater than 52 ft. wide, curb-to-curb	(A3-B1) Install one 250 W. HPS or 180 W. LPS light, as applicable, on each of the far right corners of the wider street, and 150 W. HPS or 90 W. LPS light, as applicable, on each of the far right corners of the narrower street.	(A3-B2) Install one 250 W. HPS or 180 W. LPS light, as applicable, on each of the far right corners of the wider street, and one 250 W. HPS or 135 W. LPS light, as applicable, on each of the far right corners of the narrower street.	(A3-B3) Install one 250 W. HPS or 180 W. LPS light, as applicable, on each of the far right corners of the intersection.

* Energy and maintenance costs are provided by the City.

NOTES:
1. Street lighting fixtures shall be HPS or LPS full cutoff, Type III.
2. Street lighting standards and mounting heights shall conform to City of San Diego Standard Drawing SDE-101.
3. Street Lighting at signalized intersections shall conform to the Caltrans Traffic Manual.

c. Pedestrian Scale Lighting
Where pedestrian-scale lighting is installed, sidewalk or walkway lighting shall provide adequate lighting for pedestrians of all abilities and shall conform to the following:

1. In commercial areas, the average maintained horizontal illuminance (FC) on the sidewalk or walkway shall not be less than 0.9 foot-candles and shall not exceed illuminance uniformity ratio (UR) of 4:1 (FC_{Avg}:FC_{Min}).

2. In mixed-use areas, the average maintained horizontal illuminance on the sidewalk or walkway shall not be less than 0.6 foot-candles and shall not exceed UR of 4:1 (FC_{Avg}:FC_{Min}).

3. In residential areas, the average maintained horizontal illuminance on the sidewalk or walkway shall not be less than 0.4 foot-candles and shall not exceed UR of 6:1 (FC_{Avg}:FC_{Min}).

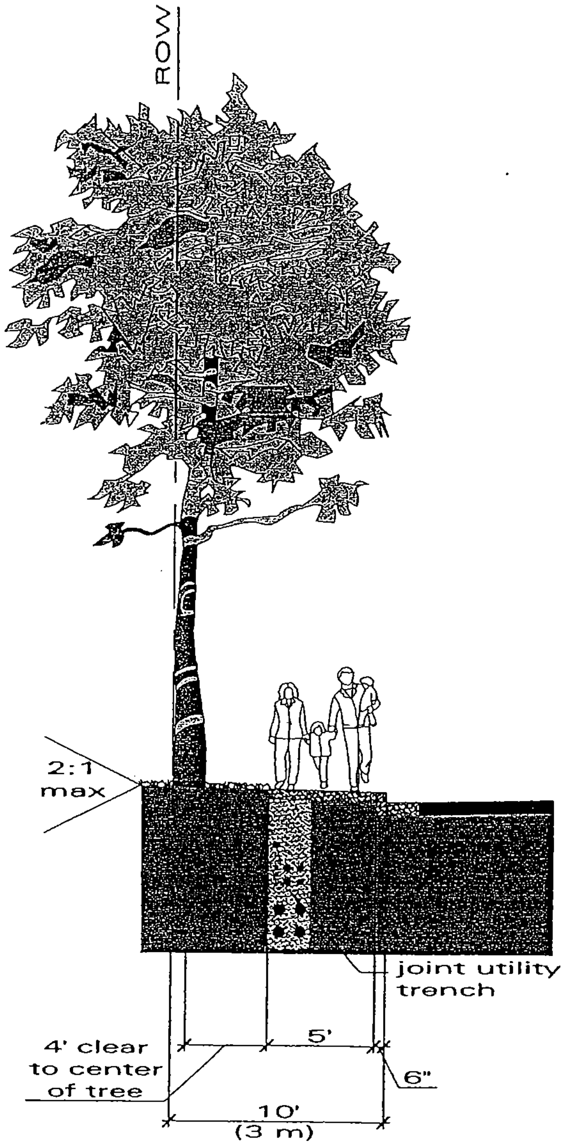
4. In commercial areas, contributions from other nearby storefront lighting, private lighting, sign lighting and/or reflections from structures on private property should not be considered as a reason for reducing the sidewalk or walkway illuminance levels indicated above.

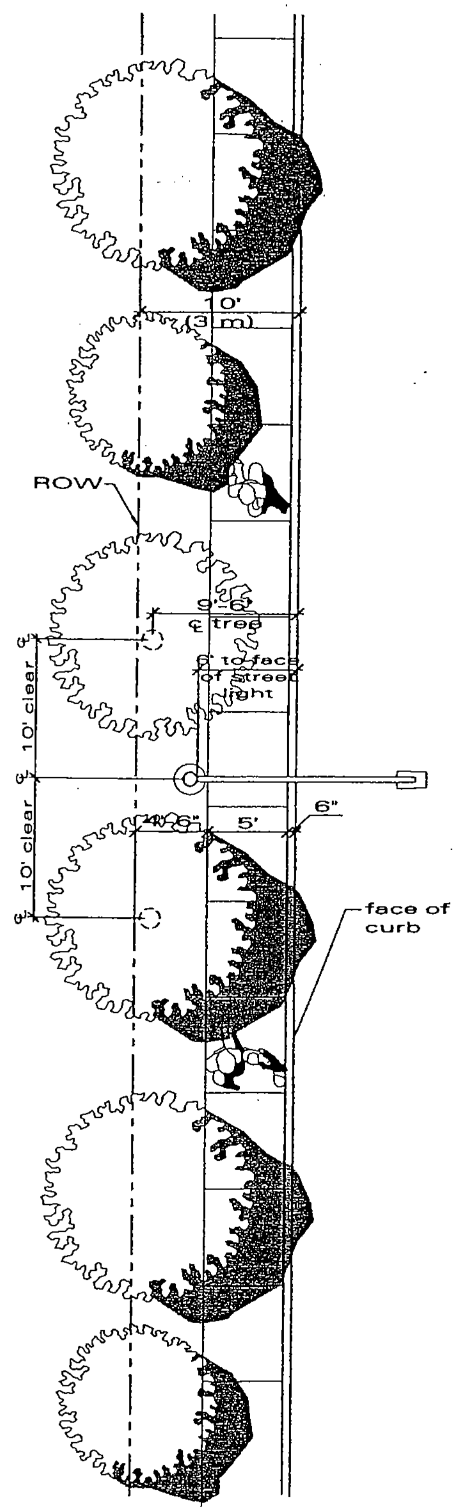
5. Sidewalk or walkway lights shall have cutoff fixtures that keep light pollution, light trespass, and glare to drivers to a minimum, as approved by the City Engineer. Manufacturer models for sidewalk and walkway lighting shall be approved by the City Engineer.

6. Agriculture-zoned land or open space may be exempt, at the discretion of the City Engineer, from pedestrian scale lighting provisions.

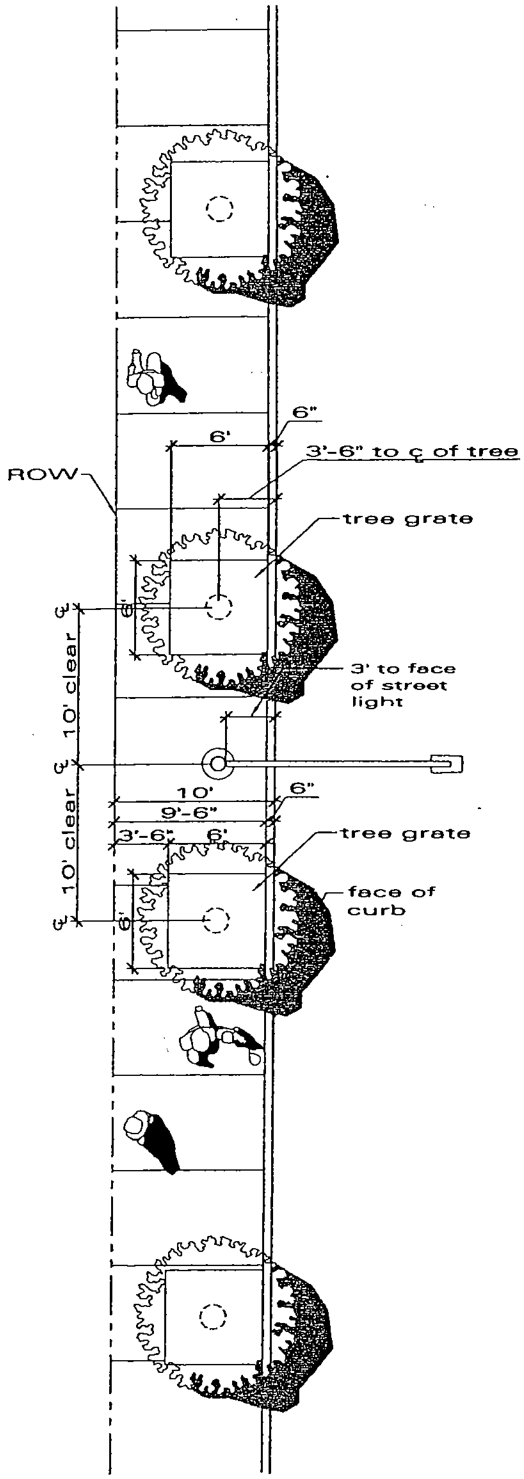
7. Further design guidelines can be found in the RP-8 publication of the Illuminating Engineering Society of North America, "American National Standard Practice for Roadway Lighting."

Urban Parkway Configurations

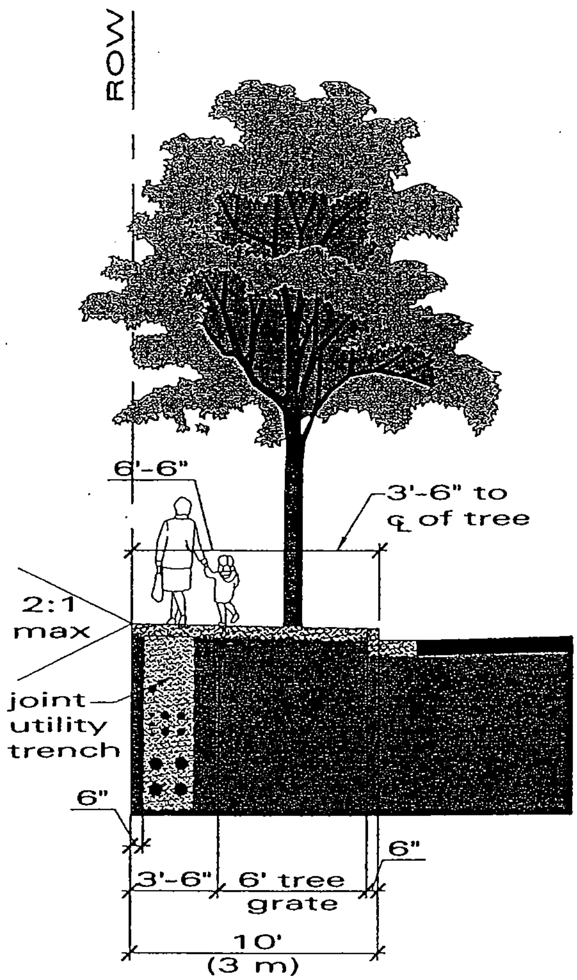

ROW
2:1
max
joint utility
trench
4' clear
to center
of tree
5'
6"
10'
(3 m)


10'
(3 m)
ROW
9'-6"
℄ tree
6" to face
of street
light
10' clear
10' clear
4'-6"
5'
6"
face of
curb

U-1

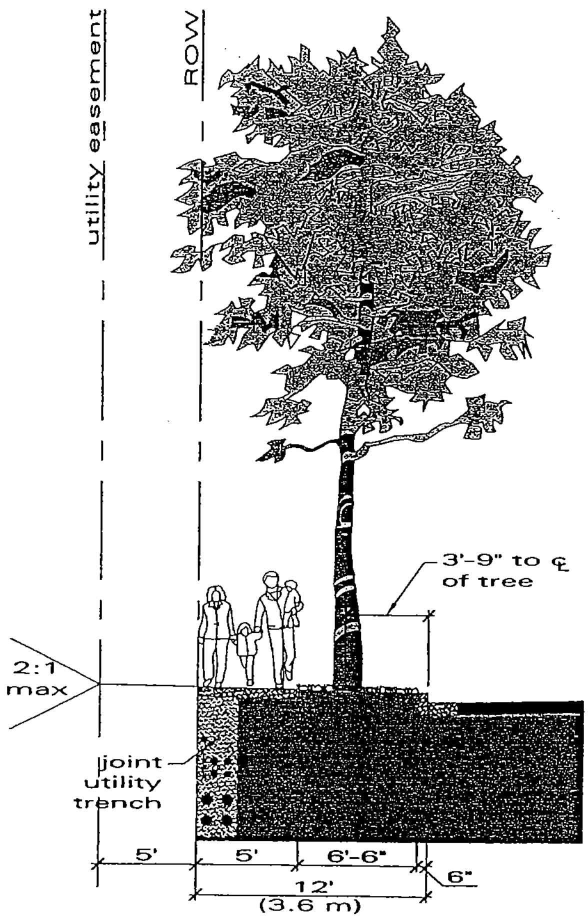


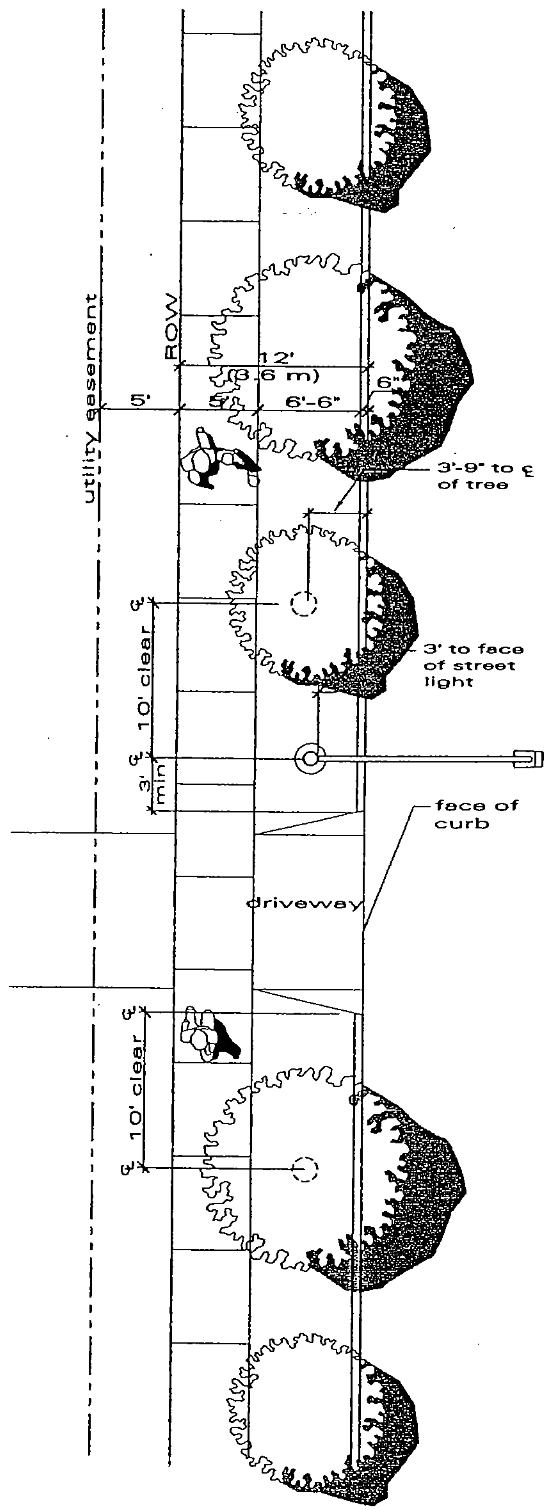
ROW
6"
6'
3'-6" to ℄ of tree
tree grate
℄
6'
10' clear
3' to face of street light
℄
10'
6"
9'-6"
3'-6"
6'
tree grate
10' clear
face of curb
℄
6'



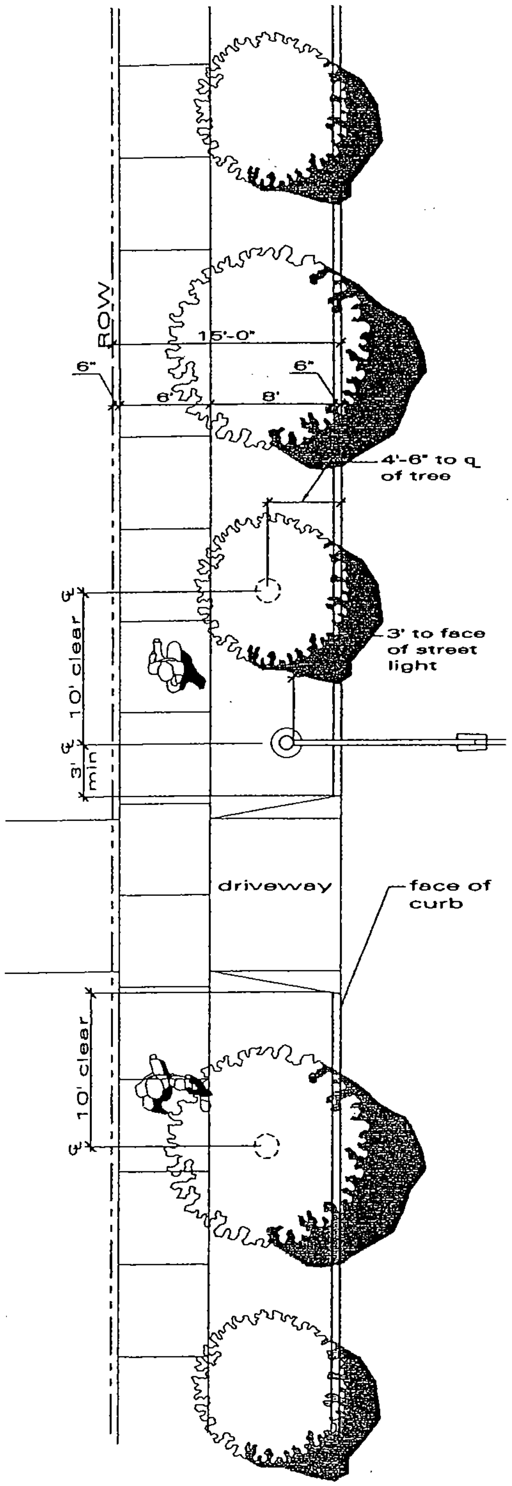
ROW
6'-6"
3'-6" to ℄ of tree
2:1 max
joint utility trench
6"
6"
3'-6"
6' tree grate
10'
(3 m)

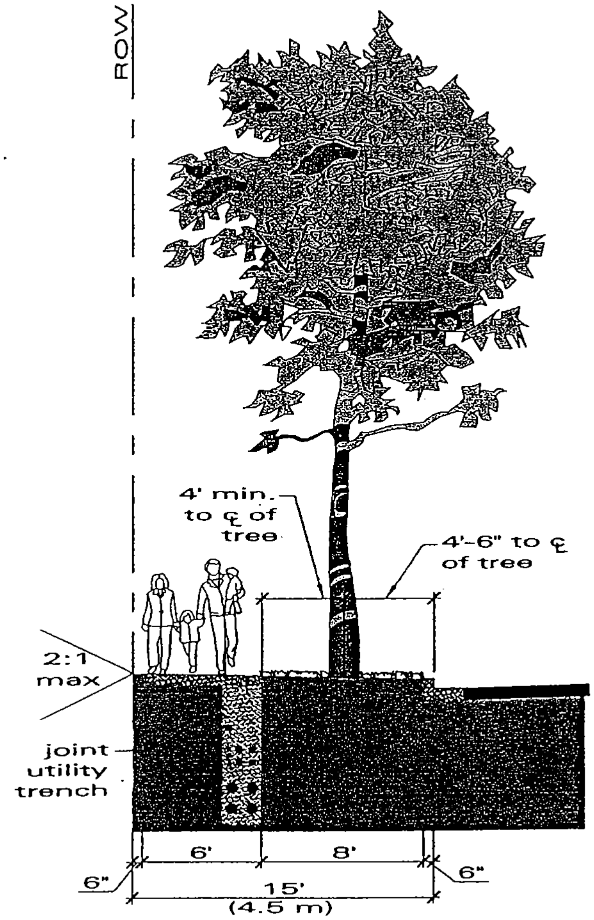
U-2


utility easement
ROW
3'-9" to ℄ of tree
2:1 max
joint utility trench
5'
5'
6'-6"
6"
12' (3.6 m)

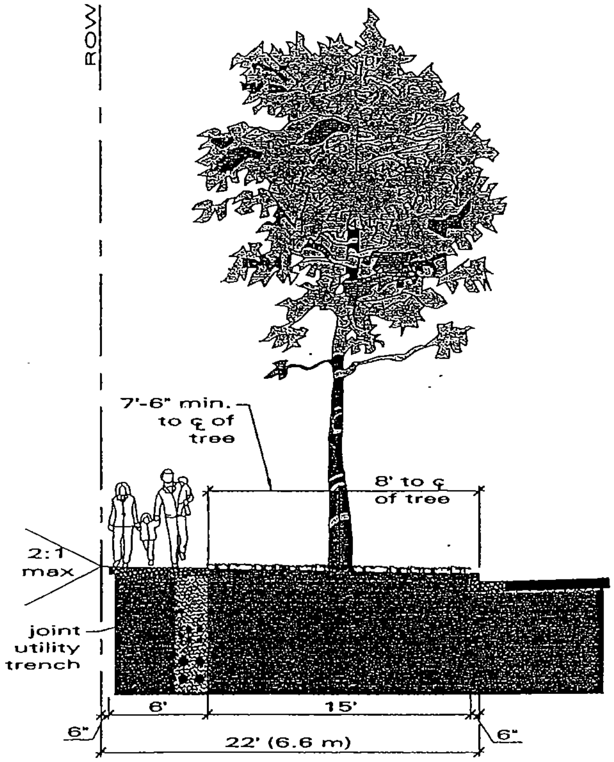

utility easement
ROW
12' (3.6 m)
5'
5'
6'-6"
6"
3'-9" to ℄ of tree
3' to face of street light
10' clear
3' min
face of curb
driveway
10' clear

U-3

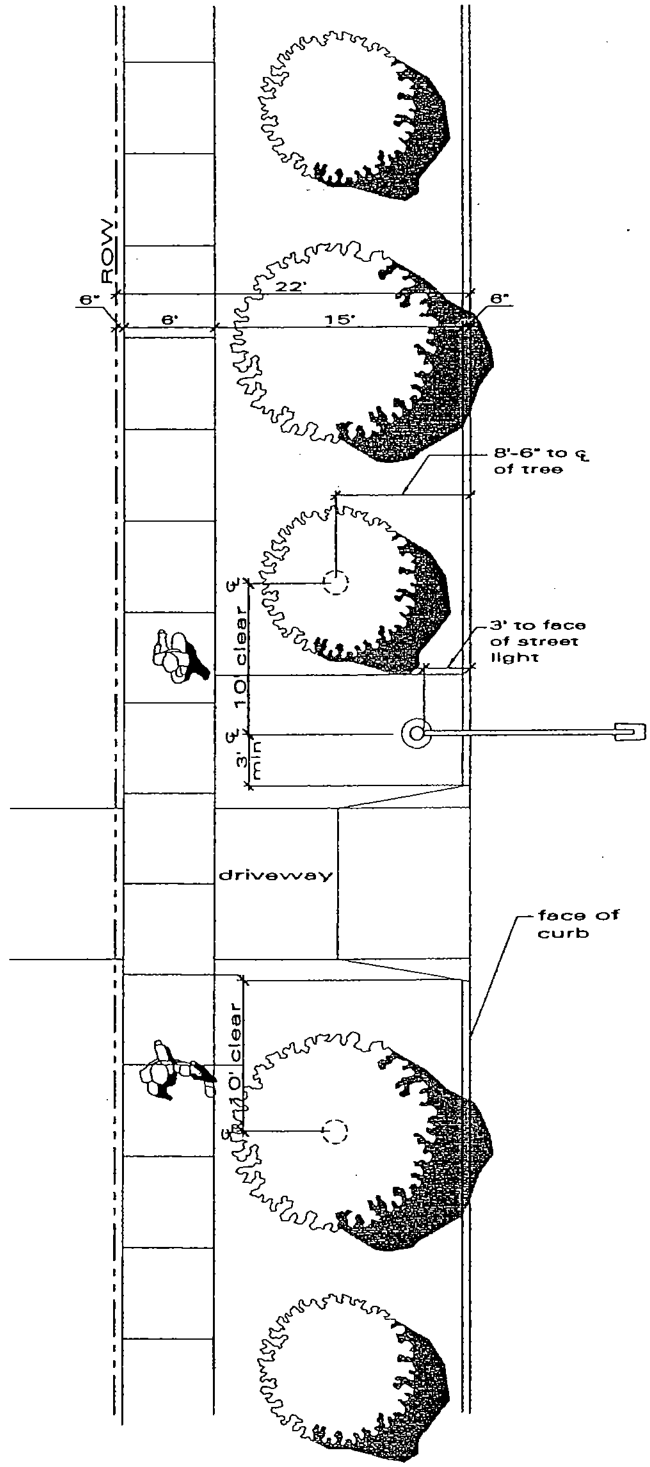

ROW
15'-0"
6"
6'
8'
6"
4'-6" to ℄ of tree
3' to face of street light
10' clear
3' min
driveway
face of curb
10' clear


ROW
4' min. to ℄ of tree
4'-6" to ℄ of tree
2:1 max
joint utility trench
6'
8'
6"
6"
15'
(4.5 m)

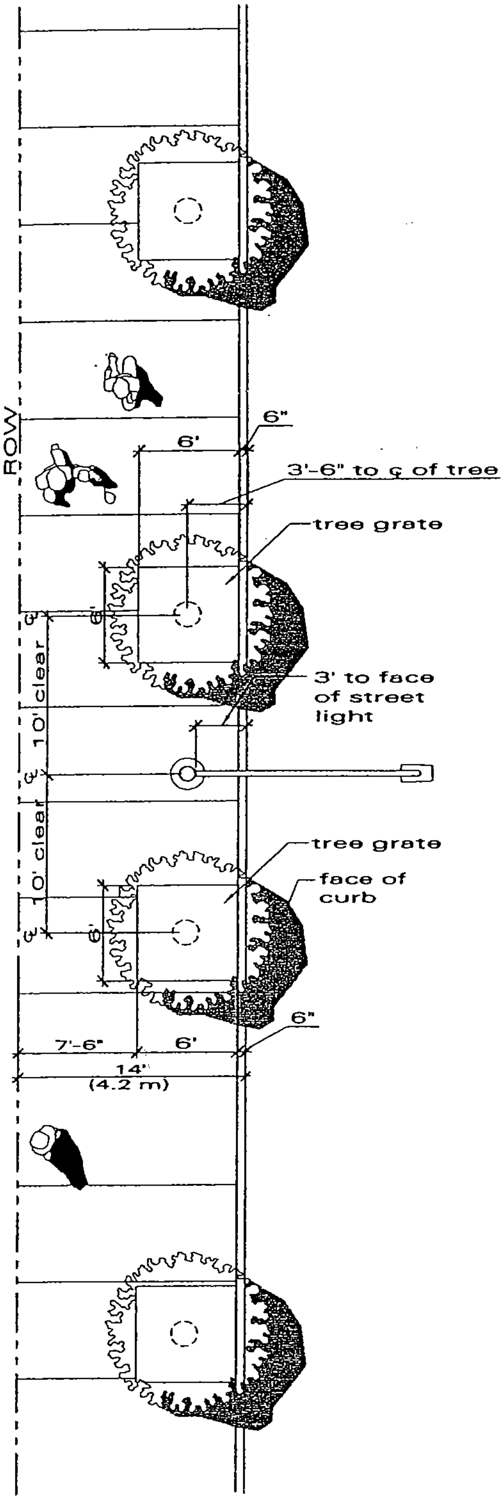
U-4
a

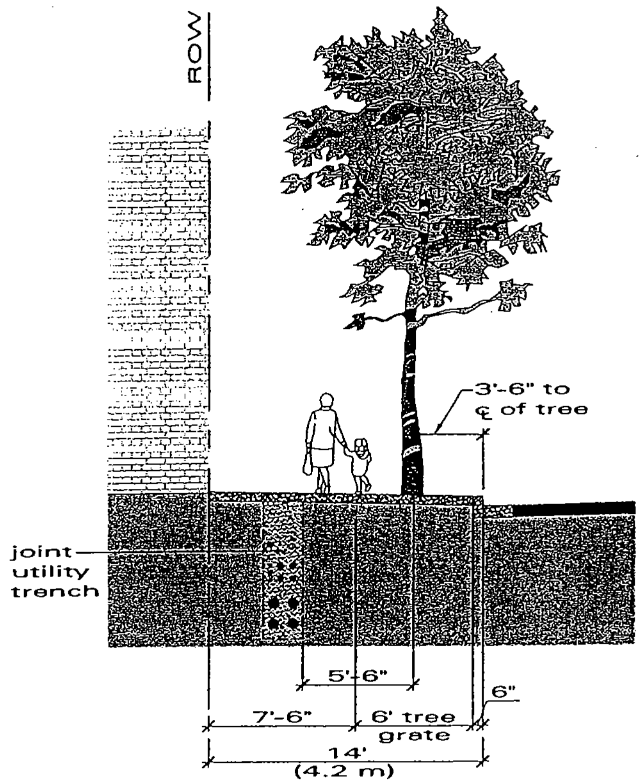


* Alternative configuration of sidewalk and landscape strip may be installed subject to approval of the city engineer.



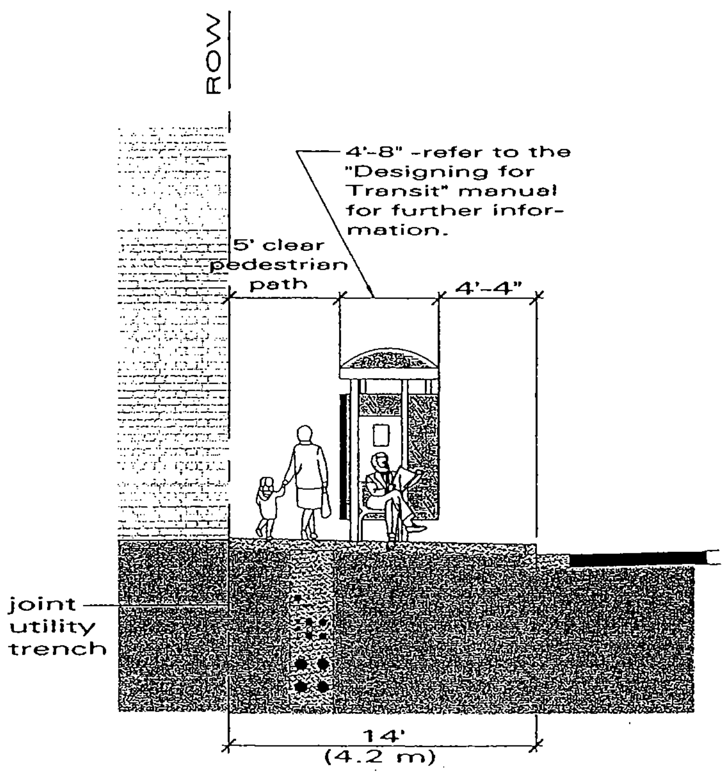
U-4 b



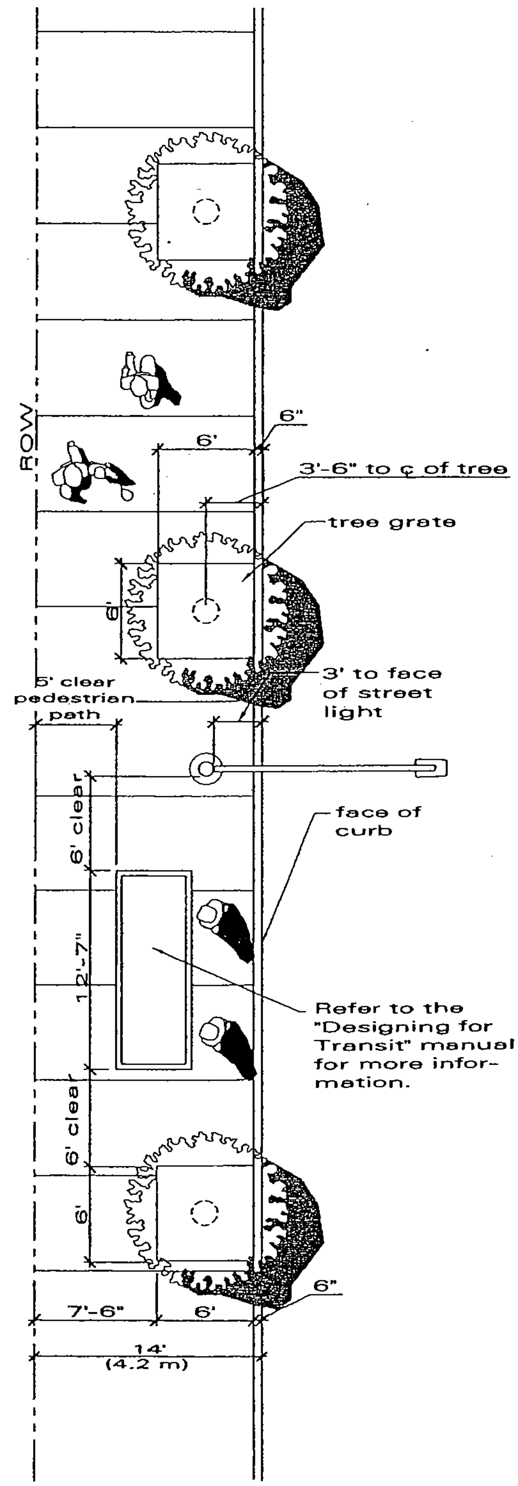


* Where storefront furniture is provided, the clear pedestrain passage way shall not be less than 5'-0".

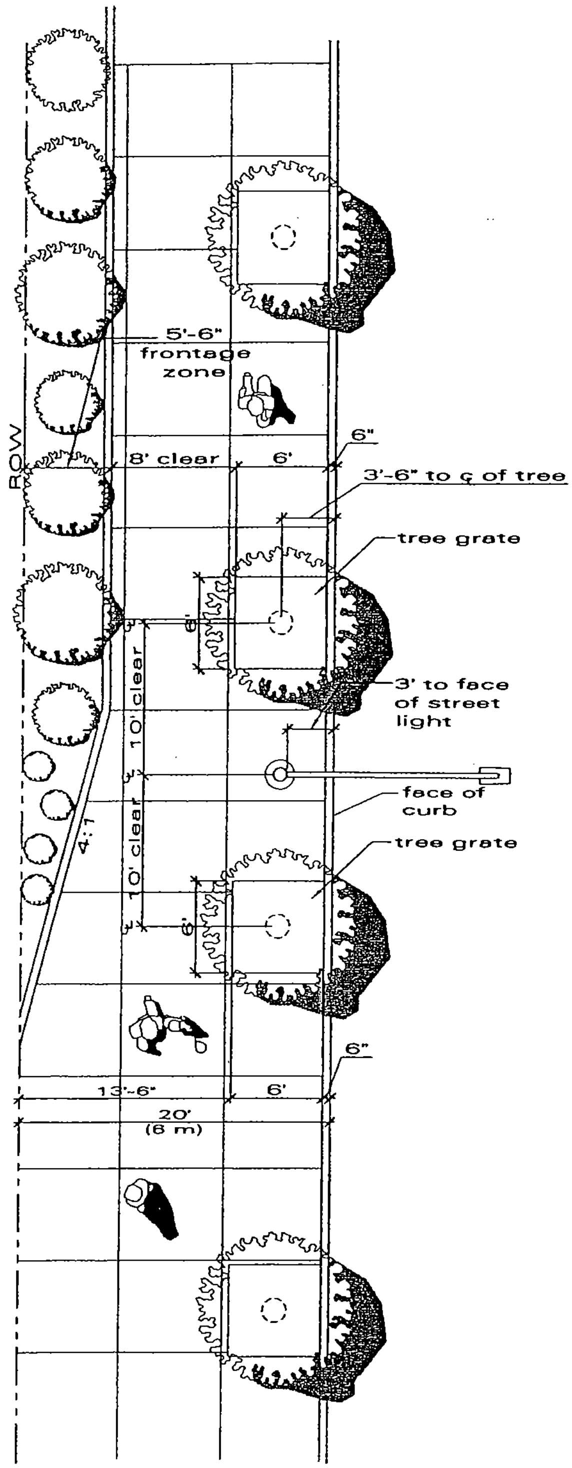
U-5 a

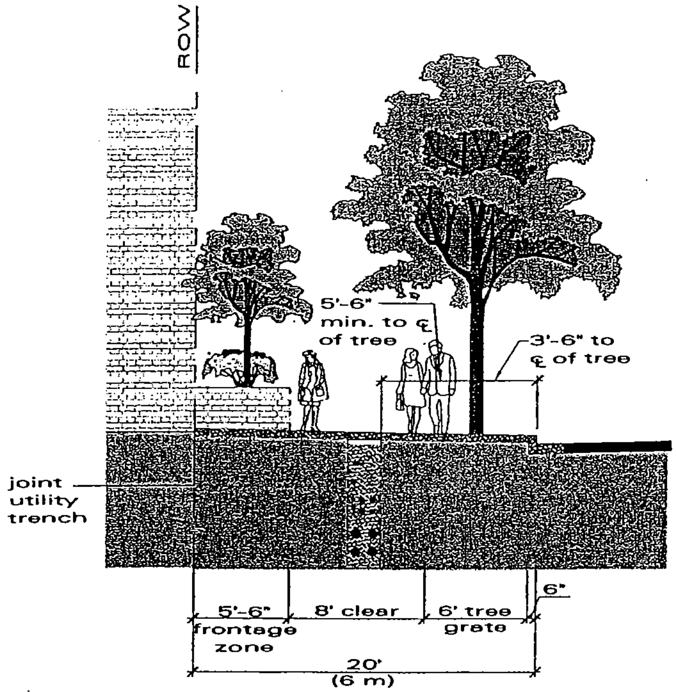


* Where storefront furniture is provided, the clear pedestrain passage way shall not be less than 5'-0".



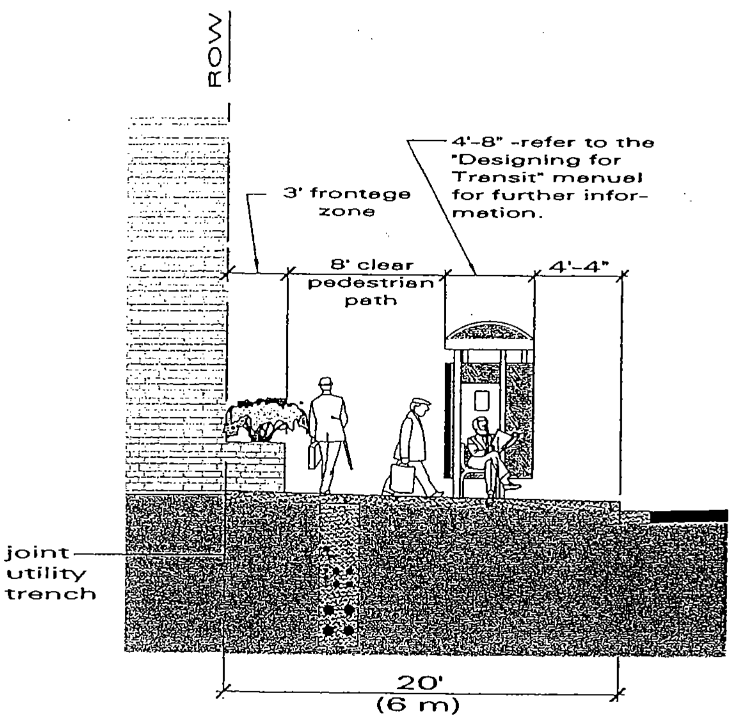
U-5



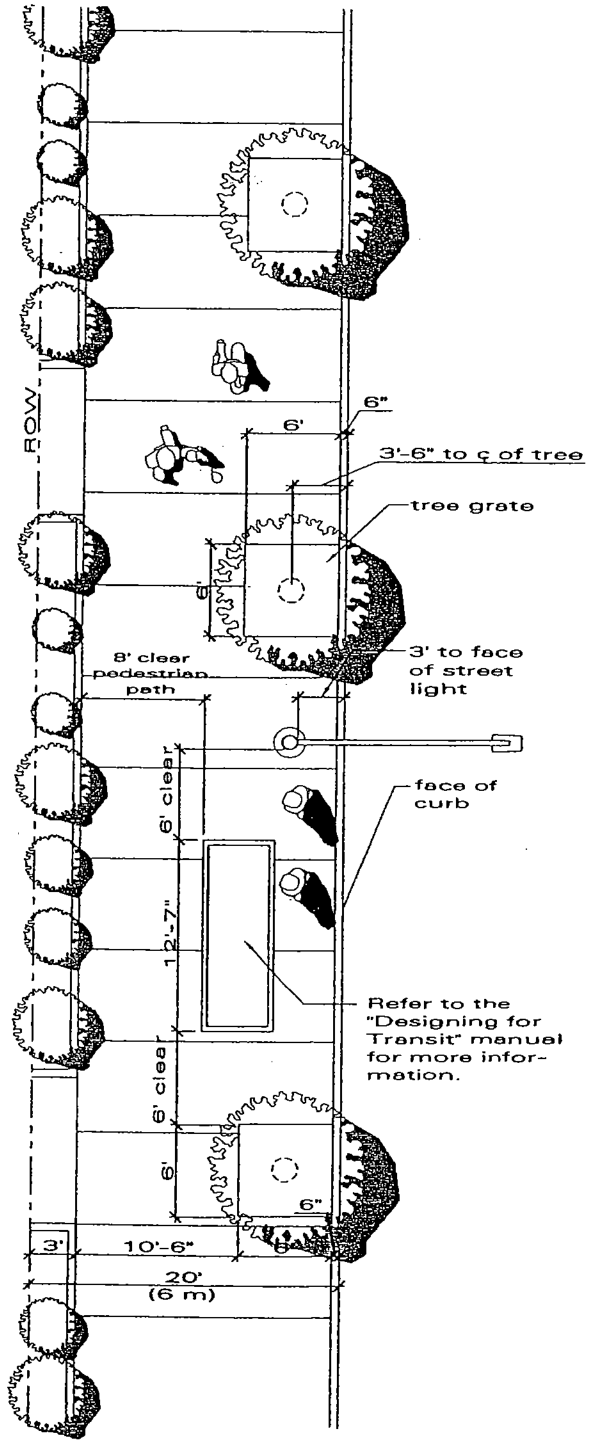


* Where storefront furniture is provided, the clear pedestrain passage way shall not be less than 8'-0".

U-6 a

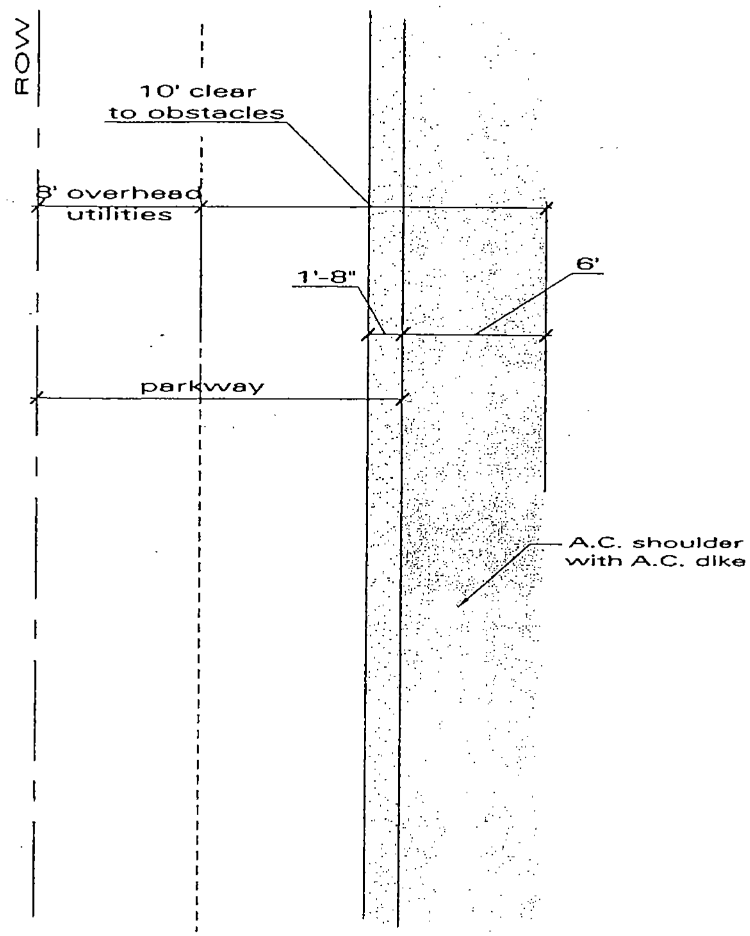


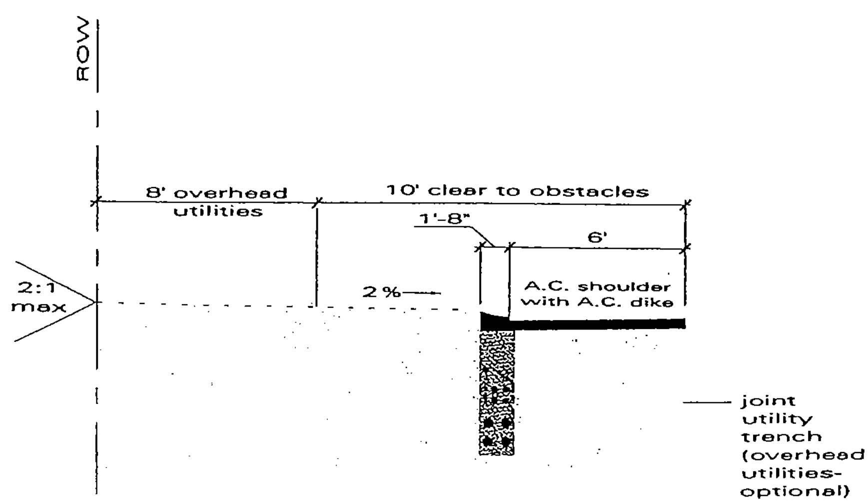
* Where storefront furniture is provided, the clear pedestrain passage way shall not be less than 8'-0".



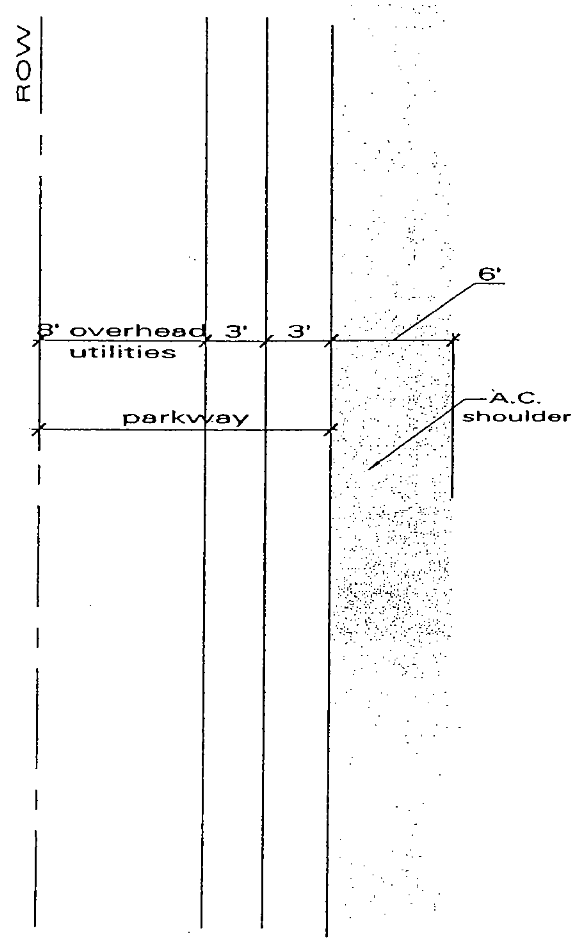
U-6 b

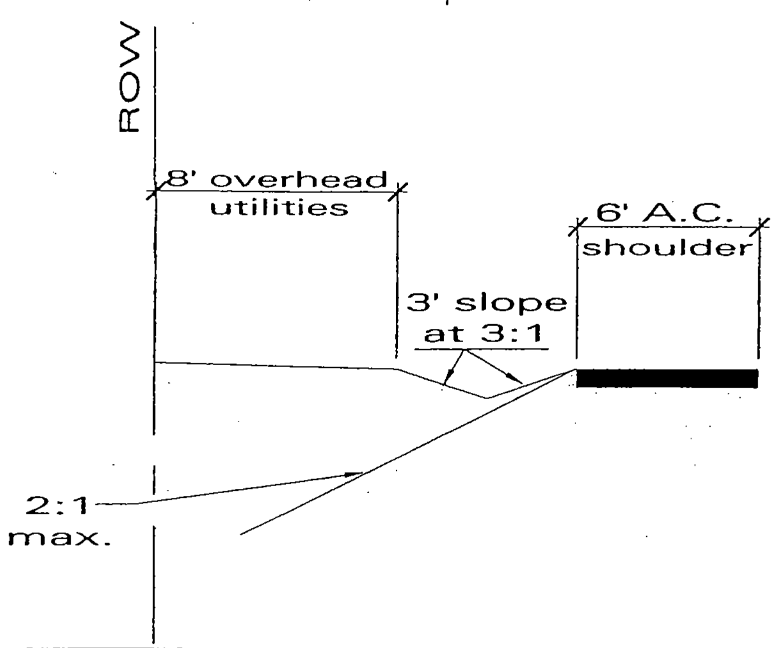
Rural Parkway Configurations


ROW
10' clear
to obstacles
8' overhead
utilities
1'-8"
6'
parkway
A.C. shoulder
with A.C. dike

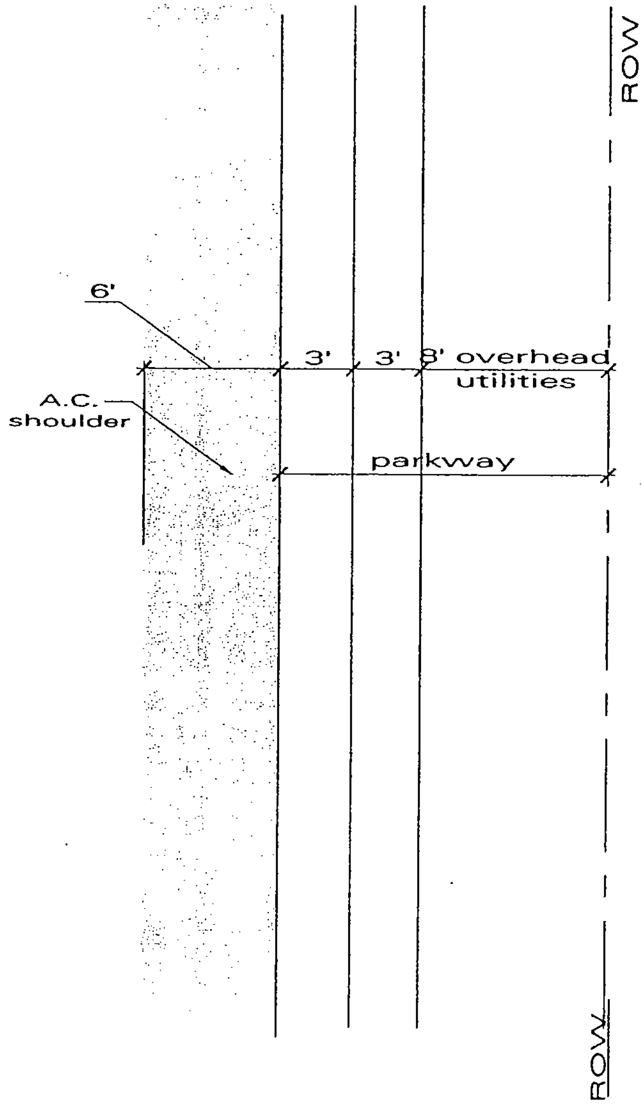

ROW
8' overhead
utilities
10' clear to obstacles
1'-8"
6'
2:1
max
2%
A.C. shoulder
with A.C. dike
joint
utility
trench
(overhead
utilities-
optional)

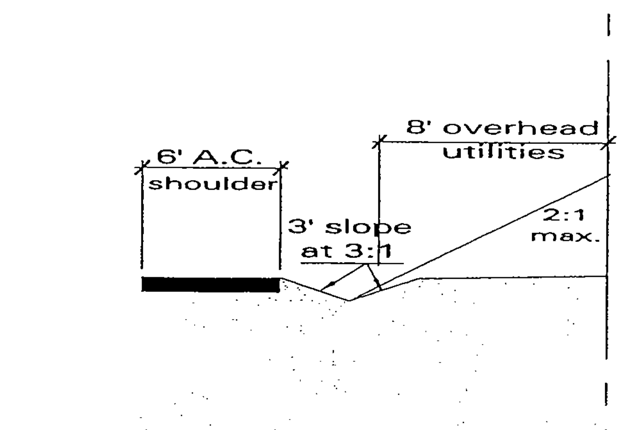
R-1


ROW
6'
8' overhead utilities
3'
3'
parkway
A.C. shoulder

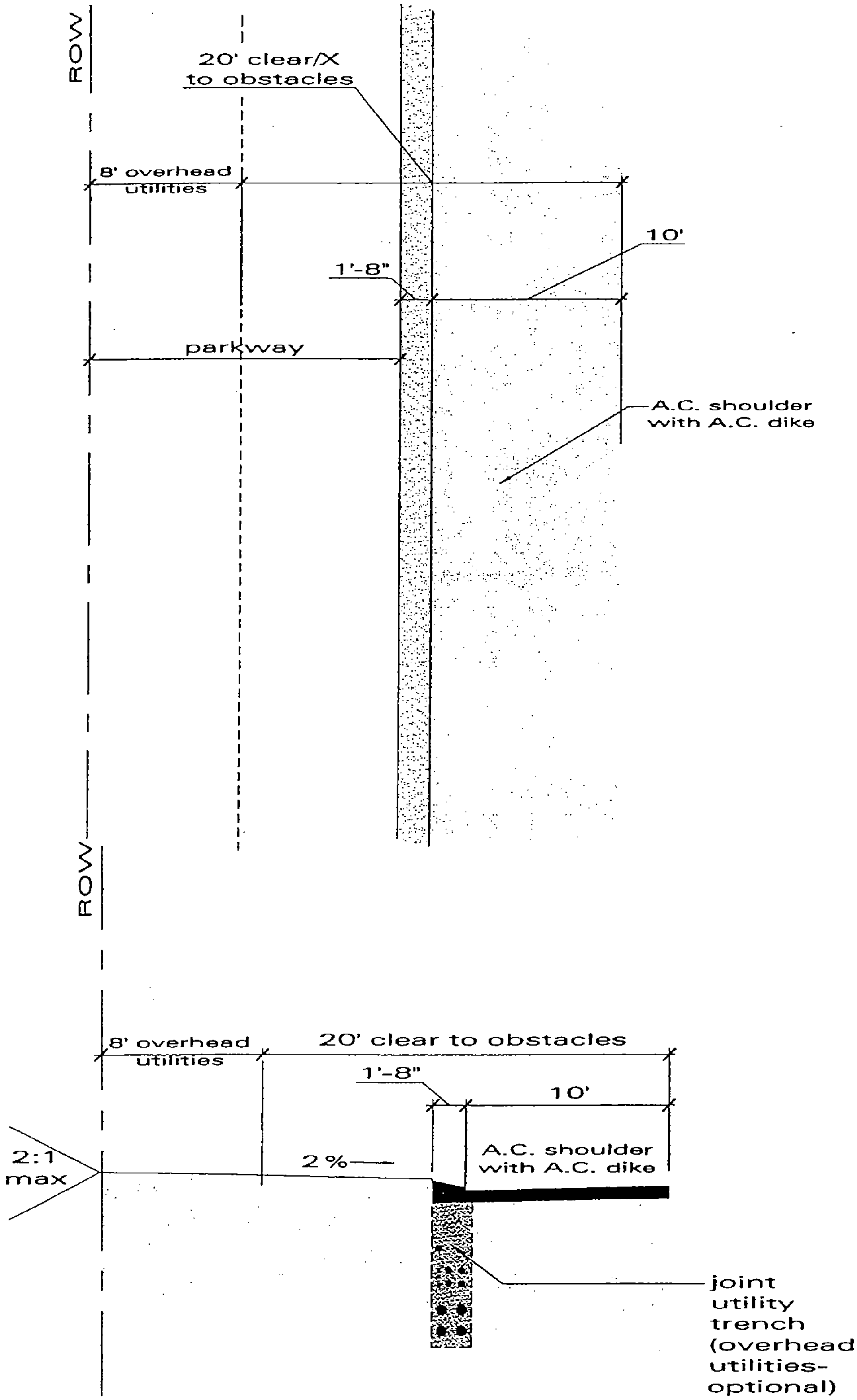

ROW
8' overhead utilities
6' A.C. shoulder
3' slope at 3:1
2:1 max.

R-2
a


ROW
6'
3'
3'
8' overhead utilities
A.C. shoulder
parkway
ROW

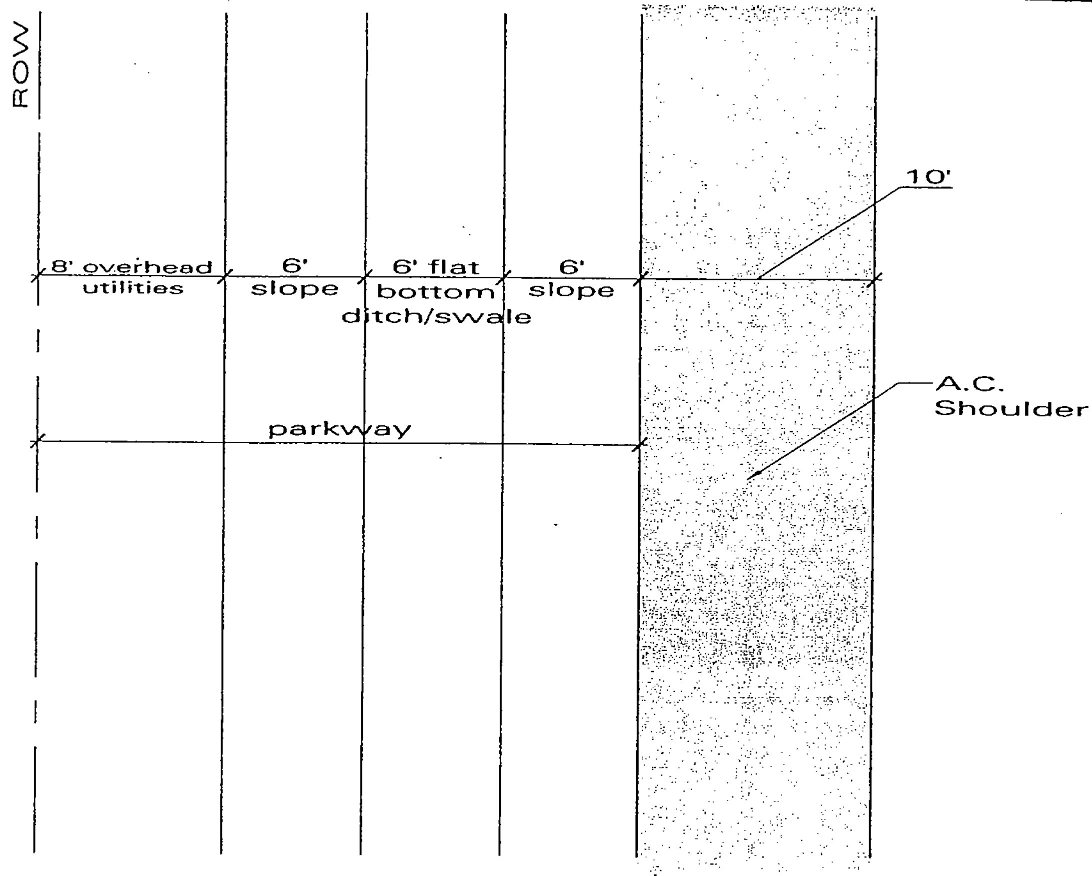

8' overhead utilities
6' A.C. shoulder
3' slope at 3:1
2:1 max.

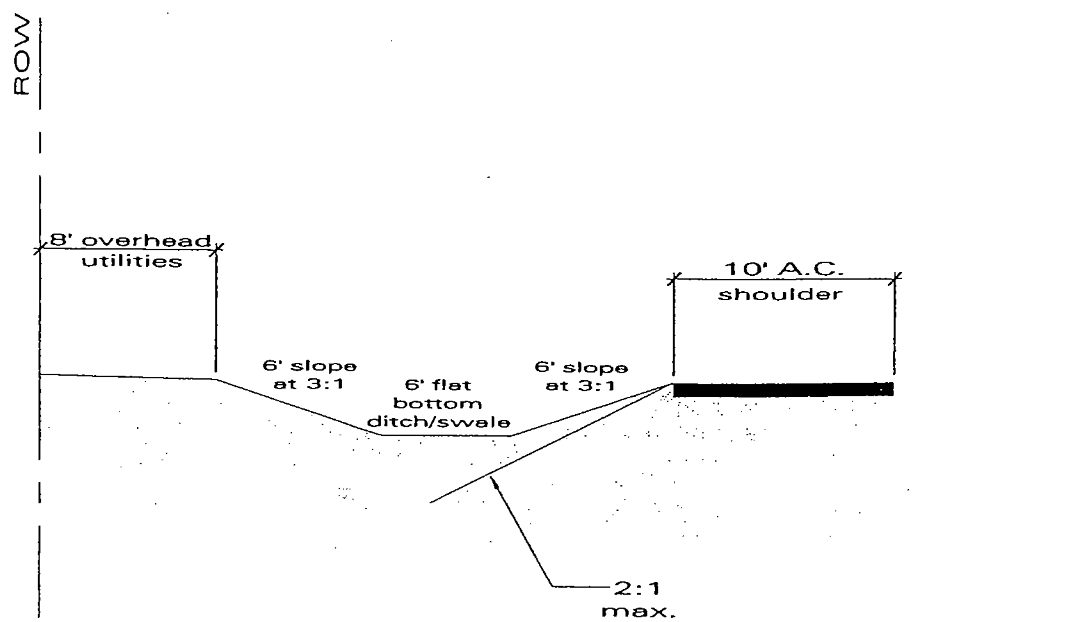
R-2 b


ROW
20' clear/X to obstacles
8' overhead utilities
10'
1'-8"
parkway
A.C. shoulder with A.C. dike
ROW
8' overhead utilities
20' clear to obstacles
1'-8"
10'
2:1 max
2%
A.C. shoulder with A.C. dike
joint utility trench (overhead utilities-optional)

R-3

Rp Rural Parkway Configurations





R-4

Design Standards

Design Standards - Geometric Design

A. Horizontal Curves

1. Minimum curve radii with and without superelevation are shown in the Roadway Design section for the various classifications of streets. These radii are derived from the California Department of Transportation (CalTrans) Highway Design Manual comfortable speed on horizontal curves chart.

2. Superelevation

a. Local streets and two-lane residential collectors should not be superelevated at curves.

b. Superelevation is allowed on all other streets if required to maintain the design speed along curves.

c. When superelevation is required, the minimum amount permitted is plus 2 percent. The maximum superelevation permitted, regardless of circumstances, is 4 percent for design speeds of 30 mph (50 km/h) and lower, 6 percent for urban classifications with design speeds between 35 mph (60 km/h) and 45 mph (70 km/h), and 10 percent for rural classifications and for design speeds of 50 mph (80 km/h) and higher.

d. Superelevation must be designed to show length, transition, and crown runoff. Design must follow CalTrans standards as provided in its Highway Design Manual, Chapter 200.

e. Superelevation shall extend uniformly from the flow line of the gutter on the high side of the street to the lip of the gutter on the low side of the street, keeping the standard slope of the gutter on the low side unchanged. This shall also include the slope of median gutters, if any, as shown in Regional Standard Drawing G-6.

f. All streets not superelevated shall be crowned at 2 percent.

3. Sight distance on horizontal curves shall be determined from CalTrans Highway Design Manual Figure 201.6, "Stopping Sight Distance on Horizontal Curves."

4. Compound curves are prohibited.

5. Reversing Curves

a. Reversing curves are permitted; but, for all streets other than local streets, they must be separated by a tangent length adequate to provide safety of travel.

b. For non-superelevated reversing curves, the tangent length provided shall be compatible with probable driving speed, type of vehicle use, and individual curve radius and length.

c. Superelevated reversing curves shall be separated by tangents sufficient to contain all of the superelevation runoff required.

6. Knuckles. Knuckles may be approved on an exception basis for residential cul-de-sacs with 200 ADT or under, intersecting at right angles plus or minus 5 degrees. Knuckles should not be used in lieu of providing a 100-foot (30 m) minimum curve radius required on residential cul-de-sacs.

7. Sharp horizontal curves must not begin near the top of pronounced crest vertical curves or near the low point of pronounced sag vertical curves.

B. Vertical Curves

1. Vertical curves shall be designed to the current CalTrans Highway Design Manual Stopping Sight Distance based on design speed.

2. For local streets, the minimum acceptable vertical curve is ten feet (3 m) of curve for each one percent difference in grade.

3. Vertical curves leading into intersections shall be designed such that the grade immediately approaching a cross gutter is no greater than 4 percent.

4. Sight distance on vertical curves shall be determined from CalTrans Highway Design Manual figures 201.2 and 201.4, "Passing and Stopping Sight Distance on Crest Vertical Curves," and from CalTrans Figure 201.5, "Stopping Sight Distance on Sag Vertical Curves."

C. Intersections

1. Streets are to intersect at 90-degree angles or as close thereto as practicable.

2. Two streets intersecting opposite sides of a third street are to have the same points of intersection or else their centerlines are to be separated by a minimum of 120 feet (40 m) for local streets and a minimum of 200 feet (60 m) for all other streets on the third street.

3. Median breaks for intersections along major streets with other streets of collector or higher classification shall be no closer than one-fourth of a mile (400 m).

4. Full access intersections of local streets with major streets should be kept to a minimum, and such intersections shall be at least 500 feet (150 m) apart, measured between centerlines, and shall be farther apart where turn pockets dictate longer spacing. The need for left-turn storage may require a greater distance. Pedestrian access to transit and adjacent commercial uses should be considered in major street intersection spacing.

5. Local streets should not intersect primary arterials.

6. Maximum grade across intersections along local and two-lane sub-collector and two-lane collector streets shall not exceed 8 percent and along four-lane streets and greater shall not exceed 5 percent.

7. Curb return radius should accommodate the expected amount and type of traffic and allow for safe turning speeds at intersections. Curb return radius shall be installed in accordance with Table D-1.

Table D-1 Curb Return Radius [a]

	Local Residential	Collector	Major
Local Residential	15 ft (4.5m)	20 ft (6.0m)	30 ft (9.0m)
Collector	20 ft (6.0m)	25 ft (7.5m)	30 ft (9.0m)
Major	30 ft (9.0m)	30 ft (9.0m)	30 ft (9.0m)

a. Curb return radius for all other intersections not covered in Table D-1 shall be 30 feet (9.0m).

8. Sight distance at intersections must consider the following factors: grades, curvature, and superelevation.

a. The minimum corner sight distance at an intersection of a street (public or private) or multiple dwelling residential/ commercial/ industrial driveway with a collector or higher classification street shall be in conformance with AASHTO Standards.

b. Adequate sight distances at intersections and along horizontal curves must be obtained. A sight distance easement that requires fences, monuments, signs, landscaping, walls, and slopes or any other obstruction at and beyond the right-of-way line to be eliminated, kept low, or set back is only acceptable when relocation of the intersection or redesign of the curve does not permit adequate sight distance.

9. The City Engineer may prohibit parking at critical locations.

10. The City Engineer may control access along major streets at critical locations.

D. Transitions

1. No pavement widening transition is required to increase the number of travel lanes beyond that needed for drainage flow.

2. When reducing the number of through travel lanes, the paved section shall undergo a transition as follows:
for V > 40 mph, L = W x V;
for V 40 mph, L = W x V^2/60;
where:
V = design speed, in miles per hour;
W = width of roadway transition, in feet;
and
L = transition length, in feet.

E. Cul-de-Sacs

1. Objectives

a. Cul-de-sacs can be used to minimize encroachments into steep topography or other sensitive environmental features. However, when utilizing cul-de-sacs, care should be taken to design an interconnected street pattern within a residential neighborhood in order to provide, to the maximum extent feasible, direct pedestrian/bicycle routes to local destinations.

b. In an effort to encourage walking, bicycling, and transit as a viable means of transportation within residential neighborhoods, cul-de-sacs may be utilized within a subdivision so long as the development does not result in a circuitous street system that unnecessarily inhibits pedestrian circulation, discourages transit service, or causes added traffic impacts to other residences within the neighborhood.

2. Connections/Access

a. When a cul-de-sac exceeds 150 feet (45 m) in length, and/or pedestrian or bicycle circulation is being or will be significantly impacted and the traffic levels on neighboring streets are being or will be degraded, additional design features, including but not limited to: 1) providing for pedestrian and bicycle connections through the cul-de-sac, or 2) the interconnection of the turnaround of the cul-de-sac with an adjacent local street, should be considered in order to provide access to adjacent streets or to adjacent land uses such as open space, parks, trails, or commercial areas.

b. The design of pedestrian and bicycle access ways should address the following to provide for the safety of users:
   (1) Length should be kept to a minimum, normally not in excess of 200 feet (60 m).
   (2) Adequate lighting should be provided.
   (3) Landscaping, fences, grade differences, or other obstructions should not hinder visibility into the access way from adjacent streets and properties.
   (4) Surrounding land uses should be designed to provide surveillance opportunities from those uses into the access way, such as with the placement of windows.
   (5) Emergency vehicle access should be provided in cases where external surveillance is inadequate.

3. Industrial and Commercial Areas
   a. Turnaround curb radius shall be 55 feet (16.8m).

   b. Such cul-de-sacs shall be limited to 500 feet (150 m) in length from property line of the intersecting street to end of the bulb unless there are clearly defined topographic conditions requiring greater lengths. In such instances, intermediate turnarounds or secondary emergency vehicle only access may be required.

4. Residential Areas
   a. Cul-de-sacs serving more than four dwelling units or over 150 feet (45 m) in length and dead-end alleys require a turn-around. Cul-de-sacs of 150 feet (45 m) or less shall be developed such that access can be provided without backing onto streets intersecting the cul-de-sac.

   b. Turnaround curb radius shall be 50 feet (15.0 m).

   c. Turnaround curb radius may be reduced to 35 feet (10.7 m) if cul-de-sac length is less than 150 feet (45m), measured to the end of the bulb.

   d. Residential cul-de-sacs are limited to a maximum of 200 ADT unless there are clearly defined topographic constraints that require greater volumes. Intermediate turnarounds shall have a 50-foot (15.0 m) radius. In all cases, intermediate turnarounds and/or special design may be required to accommodate access by emergency vehicles and/or emergency evacuations.

Design Standards – Street Element Design

A. Standard Drawings

Most design details, location requirements, pavement computations, and construction methods are included in San Diego Regional and City of San Diego Standard Drawings

B. Street Requirements

Curb-to-curb width is that distance between the curb lines of the respective curbs, as shown in San Diego Regional Standard Drawings.

C. Drainage

1. Street drainage is covered in detail in the City of San Diego Drainage Design Manual.

2. In streets with raised medians, storm water must be intercepted at the median in super-elevated sections to prevent flow at points of transition to crowned sections.

3. In superelevated streets, storm water must be intercepted at side curbs to prevent flow from side streets across the superelevated street.

4. Minimum grade is 0.6 percent unless drainage conditions cause a steeper minimum grade to be required in accordance with City of San Diego Drainage Design Manual.

D. Medians

1. All center medians shall be raised, bounded by 6-inch B-2 concrete curbs and surfaced with stamped concrete, brick pavers, or other decorative paving as called for in the City of San Diego Standard Drawings.
2. Landscaped medians shall conform to City of San Diego Standard Drawing SDG-112. Maintenance for landscaped medians shall be provided for through a maintenance assessment district or by other agreement with the City of San Diego.

E. Pavement

1. Streets shall be paved with asphalt concrete over cement-treated base, concrete, or full-depth asphalt concrete in accordance with City of San Diego Standard Drawing, SDG-113 or with a com-parable structural section approved by the City Engineer.

2. P.C.C. pavement is required for streets with grades greater than 12 percent.

3. The same pavement section is required in shoulders as well as driving lanes, except for rural road classifications.

4. Concrete bus pads are required for bus stops along main transit corridors and shall consist of nine inches of Portland cement concrete. Refer to MTDB Design Guidelines for other dimensions.

5. Raised pavement markers are required for all streets of collector or greater classification. Installation and criteria must be according to the latest edition of the State of California Traffic Manual.

6. Stamped concrete or other types of decorative paving will be permitted in the traveled roadway of a public and/or private street provided the following conditions are met:
   a. At signalized intersections to designate pedestrian crosswalks (brick pavers, but not stamped concrete, may be used);
   b. The street grade is 8 percent or less;
   c. Maintenance is assured by either an encroachment removal agreement or by inclusion in an assessment district.

   Construction plans shall be prepared by a Registered Civil Engineer and shall indicate the location, color, type of material, and stamping pattern. Decorative paving may be allowed at other locations through the deviation process (see Appendix VIII).

7. Stamped concrete or other types of decorative paving will not be permitted at non-signalized intersections to designate pedestrian crosswalks or at locations where it might appear to be a pedestrian crosswalk, in cross-gutters or gutters, or to be used to delineate pedestrian ramps. Stamped concrete or other types of decorative paving is permitted at locations designated and marked as pedestrian crosswalks.

8. Engineers are cautioned that use of stamped concrete in residential areas may cause adverse community reaction due to noise where the roadway is immediately adjacent to dwelling units.

F. Rolled curbs
Rolled curbs are not permitted on publicly dedicated streets but may be used on private streets where the grade does not exceed 5 percent.

G. Right-of-Way
That portion of the right-of-way beyond curbs shall slope upward away from the street at 2 percent grade.

H. Sidewalks
Widths
1. Minimum widths are set forth in the Parkway configuration section for various street classifications.
2. The width of a contiguous sidewalk is measured from the back of the curb.
3. Sidewalk widths are intended to be clear widths. Where fire hydrants, street furniture, or other above ground appurtenances reduce such width, additional sidewalk shall be constructed around the obstacles.
4. Where feasible, the location of transit stops and shelters shall be determined and the sidewalk width shall be 10 feet (3.0 m) where shelters are proposed. Other bus stop locations shall provide eight feet (2.4 m) of sidewalk. The wider sidewalk widths for bus shelters shall extend for 25 feet (8 m) parallel to the curb measured from the bus stop sign. This will provide adequate clearance to accommodate bus lifts for disabled persons. Refer to MTDB design guidelines for further information.
5. Sidewalks less than 5 ft (1.5m) in continuous width shall provide passing space at reasonable intervals not to exceed 200ft (61 m). Passing space shall provide a 5ft by 10ft (1.5 m by 3.0 m) minimum clear space and may be provided at driveways, at building entrances, and at sidewalk intersections.

Locations
1. Sidewalk areas within curb returns are to be completely paved at all collector, major, and primary arterial intersections, and at other intersections where significant pedestrian volumes are anticipated.
2. A variation or transition in sidewalk location from that recommended above shall be considered to achieve consistency with existing adjacent sidewalks.
3. Transitions shall be four-to-one.

Curb Ramps
1. All sidewalk installations are to include curb ramps at curbed intersections, T intersections, and alley aprons.
2. Installation of two curb ramps per corner is required for new intersections.
3. Existing intersections to be retrofitted for curb ramps, one curb ramp per corner may be installed.

Innovative Sidewalks
Innovative sidewalks may be considered for area enhancement and to avoid existing features such as trees and may be approved on an individual basis provided they are located within the street right-of-way and maintenance of the area

between the sidewalk and curb is provided by special assessment district or other agreement with the City of San Diego. All other requirements shown in Standard Drawings, such as 2 percent fall between property line and face of curb, should be complied with. Sidewalks and the pedestrian path shall be parallel to the curb to the greatest extent practicable.

Construction

1. Sidewalks shall be constructed in accordance with San Diego Regional Standard Drawings.

2. Utility access panels within sidewalks must be slip resistant, flush mounted, and must not include holes greater than 1/4 inch.

3. Throughout the city, contractors stamp the work with their name and the date of construction of the sidewalk. In addition to the contractors' stamp, the name of the street is often imprinted in the curb. In many of the city's older neighborhoods, these street names may not be the current name of the street. However, these markers are an indicator of the age of a particular neighborhood and provide a sense of continuity and history for the residents. When existing sidewalks are being repaired or replaced, care must be taken to retain in place these stamps and imprints or to place them near the new sidewalk work.

I. Landscape Requirements

Street trees are urban amenities whose value is recognized in many of the City's land use policy documents. These documents call for street tree plantings to achieve various goals including: establishing and preserving neighborhood character, encouraging commercial revitalization, and creating a comfortable pedestrian environment. For requirements for street trees and other landscaping in the right-of-way, refer to the citywide Landscape Regulations (San Diego Municipal Code section 142, chapter 14, Article 2, Division 4) and the associated Landscape Technical Manual.

The citywide Landscape Regulations addresses requirements such as the quantity, distribution, size, selection, and approval of plant material, including street trees. The Landscape Technical Manual establishes standards, guidelines, and criteria for all landscaping in the public right- of-way, such as: locational criteria (distance of trees from the face of curb for certain street classifications and speeds, and from traffic signals, signs, and underground utilities), plant selection, maintenance, median landscaping, irrigation, and electrical services.

For all street trees and landscape plantings in roadway islands, watering and maintenance will be assured through an agreement with the City, such as a street tree permit, encroachment removal and maintenance agreement, or maintenance assessment district.

J. Driveways

1. Access to private property from public and private streets shall be by standard concrete driveways. Curb returns will be permitted when the driveway is signalized. Driveway widths on streets with collector or higher classification shall be consistent with the Land Development Code. Driveways shall be designed such that access can be provided without backing onto streets that are collector or higher.

2. No driveway access is normally permitted to a primary arterial. Should a lot have frontage only on a primary arterial, driveway access limited only to right turns in and out will be permitted at locations and under conditions specified by the City Engineer and may require an additional lane.

3. Median breaks for driveway access to major streets will not normally be permitted unless all the following conditions exist:
   a. The property to be served is a major traffic generator and has a continuous frontage of 1,200 feet (360 m) or more along the major street and is situated between streets that intersect the major street from the side occupied by the property.

   b. The median opening is not less than 600 feet (180 m) from an intersection with a major or collector street.

   c. The median opening is not less than 400 feet (120 m) from an intersection with a local street. The need for left-turn storage may require a greater distance.

   d. The median opening is not less than 600 feet (180 m) from any other existing or proposed mid-block median opening.

   e. All costs, i.e., base material, surfacing, traffic safety street lighting, traffic signals, reconstruction or utility relocation required by a mid-block opening will be borne by the requesting party.

K. Guardrail and Safety Devices

1. All guardrail installations must be done in conformance with the latest edition of State of California Traffic Manual and Regional/City of San Diego Standard Drawings.
2. Guardrail may be required at certain locations for safety purposes in accordance with guidelines in the State of California Traffic Manual.
3. Reflectors and other safety structures may be required when necessary for public safety.
4. Where fire hydrants are required, guardrail shall be installed in a manner so as to not interfere with the operation of such hydrants.

L. Street Name Signs

Metal street name signs on metal posts are required at each intersection, at any point of street name change, and at midpoint in blocks over 2,000 feet (600 m) in length, in conformance with City of San Diego Standard Drawings.

M. Traffic Control and Signalization

Where two or more streets intersect, some form of traffic control is usually needed to define the right-of-way of the vehicles entering the intersection. This control can take the form of yield signs, stop signs on the minor street, all-way stop control, or traffic signals. Stop signs and all-way stop controls are installed according to City Council Policy 200-8. Traffic signals are installed according to City Council Policy 200-6. These Council Policies prescribe warrants based on City, state of California, and federal standards. The warrants take into consideration vehicular and pedestrian volumes, accident history, traffic safety, the transportation system, and other relevant factors.

When traffic signals are synchronized and operating in a coordinated system, they can facilitate the flow of vehicular traffic along a street corridor and within a network of streets. Coordinated traffic signals can reduce delay and travel times of vehicles, minimize the number of stops and starts and improve air quality by reducing vehicular emissions caused by the starts and stops. For efficient coordination, intersections controlled by traffic signals should be spaced approximately one-fourth mile (400 m) to one-half mile (800 m) apart.

N. Street Furniture

1. Street Furniture and above-ground appurtenances placed in the public right-of-way shall conform to the requirements set forth in the San Diego Municipal Code and applicable council policies.

2. Street Furniture and above-ground appurtenances shall be located in a fashion that preserves the safety, integrity, and layout of the pedestrian passageway and assures that the right of the public to use the public sidewalk is not unreasonably restricted.

3. Bicycle racks, where placed in the public right-of-way, should be sited in a well-lit area as close to building entrances and regular foot traffic as possible without unreasonably restricting pedestrian passageway. The rack must support the bicycle frame (not the wheel) at two points of contact and permit the use of a U-shaped lock to secure the frame and one wheel. The rack must be positioned to provide 2 feet by 6 feet (0.6m by 1.8m) of space per bicycle.

Design Standards- Planned Residential Developments

A. General

These standards shall apply only to areas that have an approved Planned Residential Development Permit.

B. Private Streets

1. Private streets may be utilized where there is a homeowners association established that would maintain the street system.

2. The entrance to private streets shall advise the public of the nondedicated status of the street system and shall have an entrance design that visibly reinforces the private access. As a minimum, absent other design features, this design shall consist of signage designating the street as private. Such entrances must be provided with adequate visitor parking and turnaround facilities.

3. Private streets shall be designed and constructed to the same structural, geometric, lighting, and drainage standards as dedicated streets. Private streets with parking on both sides of the street shall have a minimum curb-to-curb width of 34ft (10.2 m).

4. General utility easements will be required over private streets. Width of easement should be consistent with street right-of-way.

C. Driveways

1. Driveways, where permitted in lieu of either dedicated or private streets, must be designed to allow direct access to all developed areas of the project.

2. Driveways serving as fire lanes shall be designed with a semi truck turning radius of 50 feet (*15.2 m*).

3. Minimum driveway width shall be consistent with the Land Development Code, with a 26-foot (*7.9 m*) width within 20 feet (*6.0 m*) of a fire hydrant.

D. Walkways

A system of improved all-weather walkways must be provided connecting each dwelling unit to street sidewalks within and adjacent to the development and to major points of pedestrian attraction within the development.

E. Parking on Private Streets and Driveways

1. Parking shall meet the minimum requirements established by the applicable zone as contained in the Land Development Code.

2. An unobstructed minimum distance of 25 feet (7.5 m) from the circulation driveway curb to the structure or carport area and not less than 20 feet (6.0 m) from the back of sidewalk shall be provided.

3. Parking bays, both parallel and perpendicular, may be utilized on low-volume residential streets. Such facilities, normaly, would be included within the right-of-way or private street easement and would be maintained as part of the street. Where a sidewalk is located on the same side of the roadway as the parking bay, a continuous walkway must be maintained either by restricting parking within five feet of the extended curb line or by providing an improved walkway around the parking bay. All parking bays shall accommodate full-size vehicles.

Appendix

APPENDIX I - Street Classification

A. Functional Classification
The width, street configuration, alignment, and design speed of a street is related to its functional classification. For the purpose of these guidelines, the following functional classifications shall apply.

1. **Alley:** A roadway, usually unnamed, which primarily provides secondary vehicular access to the rear and side entrances of abutting property. It should be a minimum of 20 ft (6m) and a maximum of 24 ft (7.2m) in width.

2. **Private Street:** A street that provides, primarily, direct access to abutting property. It carries low vehicular movement, low-to-heavy pedestrian movement, and low-to-moderate bicycle movement. It has the same overall standards, design and construction as a public street with the exception that the responsibility for maintenance is private.

3. **Pedestrianway/Bikeway:** A facility that provides, primarily, for pedestrian and bicycle circulation between two closely spaced (250 feet (*75 m*) or less) streets. It has a walkway/ riding surface and landscaping, and may include pedestrian-scale lighting and an underground utility corridor.

4. **Bike Path:** A facility that provides exclusively for bicycle circulation along major corridors. It has an all-weather riding surface.

5. **Transitway:** A street that provides, primarily, for moderate-to-heavy transit movement and moderate-to-heavy pedestrian movement in a pedestrian/transit mall setting, with commercial retail, food service, and entertainment uses. It has a narrow transit roadway, wide sidewalks, street trees, traffic safety street lighting, and landscaping. It may include planter boxes, pedestrian-scale lighting, and other pedestrian amenities, and an underground utility corridor.

6. **Local Street:** A street that provides, primarily, direct access to abutting property. It carries low vehicular movement, low-to-heavy pedestrian movement, and low-to-moderate bicycle movement. It has on-street parking, street trees, traffic safety street lighting, and sidewalks. It may include landscaping, pedestrian-scale lighting, and underground utilities.

7. **Collector Street:** A street that primarily provides movement between local/collector streets and streets of higher classifi- cation and, secondarily, provides access to abutting property. It carries low-to-moderate vehicular movement, low-to-heavy pedestrian movement, moderate-to-heavy bicycle movement, and low-to-moderate transit movement. It has on-street parking, street trees, traffic safety street lighting, and sidewalks. It may also include landscaping, pedestrian-scale lighting, and underground utilities.

8. **Major Street:** A street that primarily provides a network connecting vehicles and transit to other major streets and primary arterials, and to the freeway system and secondarily providing access to abutting commercial and industrial property. It carries moderate-to-heavy vehicular movement, low-to-high pedestrian and bicycle movements, and moderate-to-high transit movement. It has a raised center median, street trees, traffic safety street lighting, and sidewalks, and may include landscaping, pedestrian-scale lighting, underground utilities, on-street parking, and/or bike lanes.

9. **Primary Arterial:** A street that primarily provides a network connecting vehicles and transit to other primary arterials and to the freeway system. It carries heavy vehicular

movement while providing low pedestrian movement and moderate bicycle and transit movements. It has a raised center median, bicycle lanes, street trees, traffic safety street lighting, sidewalks, and no access from abutting property. It may include underground utilities.

10. **Rural Local Road:** A road in agricultural, natural open space, and large lot (greater than 2.5 acres) residential areas that primarily provides direct access to abutting property. It carries low vehicular movement, low pedestrian movement, and low bicycle movement. It may include traffic safety street lighting and underground utilities. It typically does not have sidewalks or landscaping.

11. **Rural Collector Road:** A road in agricultural, natural open space, and large lot (greater than 2.5 acres) residential areas that primarily provides movement between local and collector roads and roads or streets of higher classification and secondarily provides access to abutting property. It carries low-to-moderate vehicular movement, low pedestrian movement, low-to-moderate bicycle movement, and low transit movement. It may include traffic safety street lighting and underground utilities. It typically does not have sidewalks or landscaping.

B. Boulevards

The progress Guide and General Plan and various community plans designate certain streets as being of great importance to a community and recommend special treatment to recognize this. The Bay-Park Link and Broadway in Centre City are two such examples. The recommendations may call for the street to be designed as a boulevard. A boulevard is defined as "a street or promenade planted with trees."

The Boulevard Book[1] describes three boulevard types:

1. A street with a wide central landscaped median flanked on either side by roadways and sidewalks. The central median may be a pedestrian promenade or planted with grass.

2. A street with a wide central roadway and broad, tree-lined sidewalks along each side.

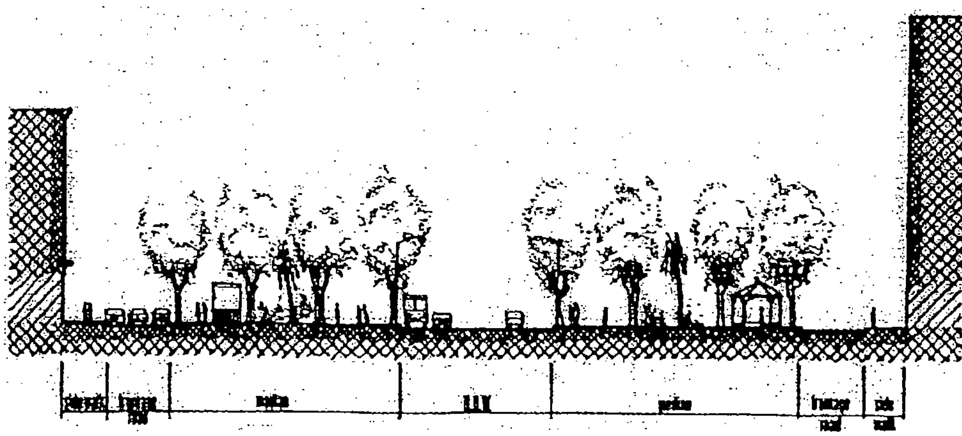
3. A multi-way boulevard is designed to separate through traffic from local traffic and, often, to provide special pedestrian ways on tree-lined malls. It is characterized by a central roadway of at least four lanes for generally fast and non-local traffic. On either side of this roadway are tree-lined medians that separate it from parallel, one-way side access roads for slow-moving traffic.

Each street designated as a boulevard will require a unique and specialized design treatment; therefore, no standards are provided in the Street Design Manual. Boulevard designers are referred to the design and policy guidelines found in The Boulevard Book cited above.

[1] Allan B. Jacobs, et al., MIT Press, 2000

A median on Avenida da Liberdade

Eastern Parkway Median



Source: Allan B. Jacobs, et al, *The Boulevard Book*, MIT Press, 2000.

APPENDIX II-Land Use

A. Open Space
Land protected for outdoor recreation and education, for scenic and visual enjoyment, and for controlling urban form and design. Environmentally sensitive lands are also preserved in open space.

Open Space-Park
Public parks and facilities, once they are dedicated as park land, and providing for various types of recreational needs of the community.

Open Space-Conservation
Land preserved for the purpose of protecting natural and cultural resources and environmentally sensitive lands.

Open Space-Floodplain
Land within floodplains where development is controlled to protect the public health, safety, and general welfare, and land areas identified by the flood insurance rate maps on file with the City of San Diego Floodplain Administrator.

B. Agriculture
Areas that are rural in character and are designated for agricultural uses or are not designated for long-term agricultural use but are awaiting development at urban intensities. Includes all types of agricultural uses and some minor agricultural sales.

C. Residential

Large Lot Single Dwelling Residential
Single dwelling units on large lots with some accessory agricultural uses. Applies to areas that are rural in character. Lots are greater than 2.5 acres. Densities are 0.4 dwelling units per acre or less.

Single Dwelling Residential
Single dwelling units on individual lots that have a variety of lot sizes and residential product types. Lot sizes range from 3,000 square feet to 2.5 acres. Densities range from 0.4 dwelling units per acre to 8.7 dwelling units per acre.

Low Density Multiple Dwelling Residential
Two dwelling units per lot, with lot sizes ranging from 4,000 square feet to over 6,000 square feet and densities up to 21.8 dwelling units per acre. Includes townhouse developments with densities up to 19.8 dwelling units per acre.

Medium to Very High Density Multiple Dwelling
More than two dwelling units per lot with densities ranging up to 217.8 dwelling units per acre.

D. Commercial
Includes a wide range of uses for the employment, shopping, services, recreational, and lodging needs of the residents and visitors to the City of San Diego. Also includes mixed use development.

Neighborhood Commercial
Smaller scale, lower density developments that are consistent with the character of the surrounding residential areas. May include mixed use (commercial/ /residential). Primarily located along local and selected collector streets.

Pedestrian-Oriented Commercial Retail
Developed in a pedestrian-oriented pattern. A functional, convenient, and pleasant environment has been created for people arriving on foot, bicycle, and transit. Also accessible by the automobile.

Community Commercial
Developments with community-serving commercial services, retail uses of moderate

intensity and small-to-medium scale. Includes shopping centers and auto-oriented strip commercial areas. Primarily located along collector streets, major streets, and public transportation lines.

Regional Commercial
Has the broadest mix of retail, wholesale, commercial service, and business/professional office uses. Includes large scale, high intensity developments. Primarily located along arterials, major streets, and major public transportation lines.

Commercial Office
Includes employment uses together with limited complementary retail and medium-to-high density residential development.

Visitor Commercial
Provides for the lodging, dining, and recreational needs of both tourists and the local population.

Urban Village
An Urban Village is a compact pattern of land use including housing, public parks and plazas, offices, stores, and major transit stops on the existing and planned transit system, where pedestrian and bicycle activity is desired. Urban Villages are characterized by interconnected streets, building entries along the street, and architectural features and outdoor activities that encourage pedestrian and bicycle activity and transit accessibility. Urban Villages have their highest intensity of development focused near transit, and a mix of land uses convenient to residents and employees.

E. Industrial
Includes a wide range of industrial/manufacturing activities.

Industrial Park
Includes high quality science and business park development in a campus-like environment characterized by comprehensive site design and substantial landscaping.

Small Lot Industrial
Small-scale industrial activities within urbanized areas.

APPENDIX III–References

A. Federal Government and Other National Sources

Americans With Disabilities Act Accessibility Guidelines, (ADAAG), Department of Justice; Title II, "State and Local Government Programs and Services," and Title III, "Public Accommodations and Commercial Facilities."

A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials (AASHTO)

Manual on Uniform Traffic Control Devices, (MUTCD), Federal Highway Administration.

B. State Government and Other Regional Sources

Highway Design Manual, California Department of Transportation (Caltrans).

Standard Plans, California Department of Transportation.

Standard Specifications, California Department of Transportation.

Title 24, Office of the State Architect, Access Compliance Section.

Traffic Manual, California Department of Transportation.

C. Local Sources

Centre City Streetscape Manual, Centre City Development Corporation (CCDC), latest version.

Designing for Transit, A Manual for Integrating Public Transportation and Land Development in the San Diego Metropolitan Area, Metropolitan Transit Development Board (MTDB), latest version.

Drainage Design Manual, City of San Diego, Engineering & Capital Projects Department, Transportation & Drainage Design Division.

Landscape Technical Manual, City of San Diego, Planning Department, Landscape Planning Section; Document No. RR-274506, approved by City Council on October 3, 1989.

Standard Special Provisions Street Lighting & Traffic Signal Systems of the City of San Diego, City of San Diego, Engineering & Capital Projects Department, latest version.

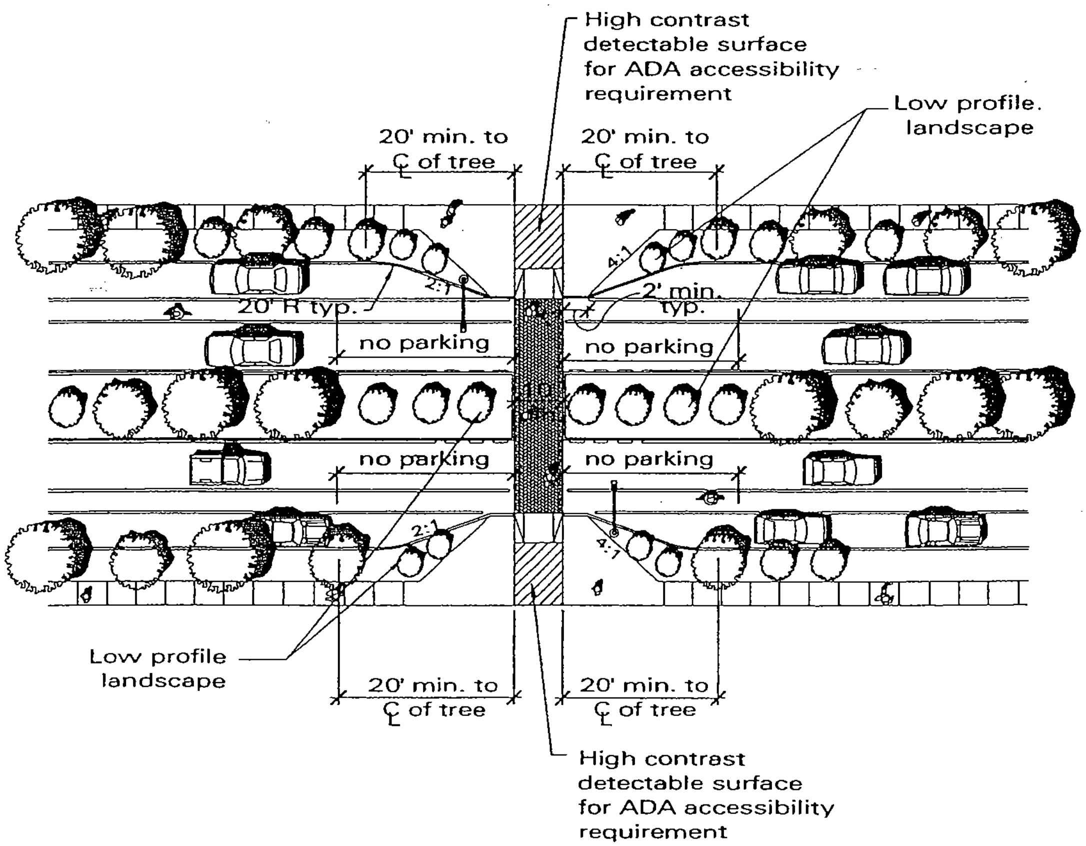
Transportation & Drainage Design Division; Document No. 769814, filed on October 21, 1993 in the Office of the City Clerk.

Standard Drawings of City of San Diego, includes all San Diego Area Regional Standard Drawings; latest version.

Standard Specifications for Public Works Construction, latest version, with City of San Diego Supplement Amendments and Regional Supplement Amendments, Document No. 769818, filed on February 2, 1995 in the Office of the City Clerk.

Transit-Oriented Development Design Guidelines, prepared by Calthorpe Associates for the City of San Diego; approved by the City Council on August 4, 1992.

APPENDIX IV–Midblock Pedestrian Crosswalk



NOTES:

- On multi-lane streets brick pavers or any other approved contrasting textured materials should be considered in crosswalk area.
- Flashing beacons may be installed if State warrants are met.
- Refer to State Traffic Manual for appropriate pavement markings and signange.
- Drainage requirements must be evaluated and addressed.
- Crosswalks must meet traffic requirements per City Council Policy 200-07.
- "No Parking" shall be determined based on visibility requirements set forth in the Caltrans Highway Design Manual.
- Placement of landscaping shall be consistent with the Landscape Technical Manual and shall allow for sight distance requirements.
- Curb extensions as shown may be installed to improve pedestrian visibility and reduce crossing distance.

APPENDIX V-Summary of Traffic Calming Measures

Category	Traffic Calming Device	Description	Applicability	Advantages	Disadvantages
Horizontal Deflections	Chicanes	A chicane is a channelization that causes a series of tight turns in opposite directions in an otherwise straight stretch of road	• A chicane may be used on local streets. • It is inappropriate for use on: - Streets classified as collector of higher, - Bus routes, - Emergency response routes, - Where there is limited stopping sight distance, or - Where there is a grade that exceeds 5%	A chicane: • Slows traffic, • Creates opportunity for landscaping, and • Tends not to divert traffic to nearby streets	A chicane may: • Cause some loss of on-street parking, • Increase emergency response time • Impact driveways, or • Affect drainage and street sweeping
	Mini Circles	A raised circular island placed in the center of an intersection	• A mini circle may be used on local streets with alternative access points. • It is inappropriate to use on: - Streets classified as collector or higher, - Bus routes, - Emergency response route, - Where there is a grade that exceeds 5% on any approach, or - Where there is limited sight distance	A mini circle: • Slows traffic on each approach, • Creates landscaping opportunity, • Reduces right-of-way conflict, and • Tends not to divert traffic to nearby streets	A mini circle may: • Impact large vehicles' turns, or • Increase emergency response time
	Median Slow Points	A small median or island placed in the center of a roadway that causes traffic to shift its path to the right in order to travel around it. It may be installed on an approach to an intersection or mid-block.	• A median slow point may be used on two lane streets. • If installed at an intersection, street should have alternative access points. • It is inappropriate for usage on: - Streets classified as major or higher, or - Where there is limited stopping sight distance	A median slow point: • Slows traffic, • Creates pedestrian refuge area, • Creates landscaping opportunity, and • Tends not to divert traffic to nearby streets	A median slow point may: • Cause some loss of on-street parking, or • Impact large vehicles' turns when placed at intersections

Category	Traffic Calming Device	Description	Applicability	Advantages	Disadvantages
Vertical Deflections	Road Humps	Rounded raised areas placed across the road, approximately 12 feet long, 3.5 inches high, and parabolic in shape. They are most effective when used in groups spaced appropriately to discourage speeding between humps	• Road humps may be used on local streets. • Road humps are inappropriate on: - Streets classified as collector or higher, - Emergency response routes, - Bus routes, - Where there is a grade that exceeds 5%, or - Where there is limited stopping sight distance	Road humps: • Slow traffic, and • Discourage short-cutting	Road humps may: • Divert traffic, • Increase noise, or • Increase emergency response time
	Speed Table	Essentially flat-topped road humps often constructed with brick or other textured materials on the flat section. They have gentler effect on buses than road humps.	• A speed table may be used on local streets. • It is inappropriate on: - Streets classified as collector or higher, - Emergency response routes, - Where there is a grade that exceeds 5%, or - Where there is limited stopping sight distance	A speed table: • Slows traffic, and • Discourages short-cutting	A speed table may: • Divert traffic, • Increase noise, • Increase emergency response time, or • Impact buses
	Raised Crosswalks	An extension of speed table where street is brought up to sidewalk level	• A raised crosswalk may be used on local streets. • It is inappropriate on: - Streets classified as collector or higher, - Emergency response routes, - Where there is a grade that exceeds 5%, or - Where there is limited stopping sight distance	A raised crosswalk: • Slows traffic, • Discourages short-cutting, and • Enhances pedestrian safety	A raised cross walk may: • Divert traffic to nearby streets, • Increase noise, • Increase emergency response time, or • Impact buses • Require special drainage considerations

Category	Traffic Calming Device	Description	Applicability	Advantages	Disadvantages
Intersection Pop-out	Intersection pop-out	Curb extensions that narrow the street at intersections by widening the sidewalks at the point of crossing. It can be used at an intersection to create a street gateway effect visually announcing an entrance to a neighborhood	Intersection pop-outs: • May be used on: - Local streets, - Collector streets, or - Urban major streets • Are inappropriate for usage on: - Major streets, or - Primary arterial streets	Intersection pop-outs: ° Improve pedestrian visibility, ° Create shorter pedestrian crossing width, and • May reduce vehicle speeds	Intersection pop-outs may: • Impact large vehicle turns, • Impact accessibility by transit vehicles and emergency vehicles, • Require parking removal,
Traffic Diverters	Semi-diverters	A barrier placed at the end of a block that prevents entrance by blocking traffic in one direction of a street and allows exit by permitting traffic in the opposite direction to pass through. It includes provisions for emergency vehicles and continuation of pedestrian or bicycle routing.	A semi-diverter: • May be used on low volume local residential streets • Is inappropriate for usage on: - Emergency response routes - Bus routes, or - Streets classified as collector or higher	A semi-diverter: • Reduces cut-through traffic, • Reduces pedestrian crossing widths, and • Creates opportunity for landscaping	A semi-diverter may: • Divert traffic to other low volume streets, • Increase trip lengths, • Cause loss of parking, • Increase emergency response time, or
Channelization	Regulatory signs, markings, landscaping, or raised islands aimed at motorized, non-motorized, or pedestrian traffic	Channelization may be achieved through right-of-way controls at intersections, controls affecting or restricting the direction or speed of traffic, or design features that physically restrict the movement of traffic	Channelization is site specific and should be evaluated on a case-by-case basis	Channelization may be designed to: • Prevent cut-through traffic • Reduce speed • Create opportunity for landscaping, • Control turning traffic in/out of a neighborhood, or • Physically control pedestrian movements	Channelization may: • Increase trip lengths • Impact emergency response time, or • Impact accessibility

APPENDIX VI-Best Management Practices Available To Address Storm Runoff Water Quality Associated with Street Design

The 1972 Federal Clean Water Act established the National Pollutant Elimination System (NPDES) permit program to regulate the discharge of pollutants to waters of the United States. Governmental agencies in San Diego County collect and discharge storm water and urban runoff containing pollutants through their storm water conveyance systems. These agencies, including the City of San Diego, implement programs to reduce pollutants under NPDES permit requirements commonly known as the Municipal Storm Water Permit for San Diego Copermittees. The City of San Diego is committed to protecting and improving water quality of the rivers, bays, and ocean in the region, and achieving Municipal Permit compliance. To comply with the Municipal Permit, the City will "enforce the use of storm water Best Management Practices (BMPs) to prevent or reduce discharges of pollutants to the municipal storm drain system."

The intent of this appendix is to provide developers, project engineers, and planners with site design concepts or BMPs that could potentially be incorporated into the design of streets to address adverse impacts to water quality associated with storm water runoff. It is important to note that other City regulations, including, but not limited to, the *Storm Water Standards* (scheduled to become effective December 2, 2002), will dictate the mandatory site design, source control and treatment control requirements related to development projects of all types, including streets.

The feasibility of using a BMP listed in this appendix should be evaluated by project engineers on a project-by-project basis. Certain BMPs discussed in the appendix may not be appropriate for a street classification due to constraints associated with site conditions.

A. Effect of Storm Water Runoff From Streets on Water Quality

Storm water runoff from streets contains a variety of pollutants collected and concentrated from impervious surfaces [1]. Streets and other transportation structures typically can comprise between 60 and 70% of an urban city's total impervious area and, streets are almost always directly connected to an underground storm water system[1]. Pollutants collect on impervious surfaces and are conveyed into the storm drain system in higher concentrations following a rain event. Discharge of concentrated pollutants from impervious surfaces to the storm drain system after a significant rain event is referred to as the "first flush".

Urban runoff from a developed site including streets has the potential to contribute pollutants, including oil and grease, suspended solids, metals, gasoline, pesticides, and pathogens to the storm water conveyance system and receiving waters[2]. Primary sources of oil and grease in storm runoff are petroleum hydrocarbon products, motor products from leaking vehicles, esters, oils, fats, waxes, and high molecular-weight fatty acids[2]. Introduction of these pollutants to the water bodies are very possible in association with typical development projects due to the wide uses and applications of some of these products in municipal, residential, commercial, industrial, and construction areas[2]. Elevated oil and grease content from, in part, automobile sources can decrease the aesthetic value of the water body, as well as the water quality[2].

B. Site Design Best Management Practices for Roadways

A BMP incorporated into a street design is primarily intended to minimize the amount of impervious surface. A goal of project site design should involve constructing streets, sidewalks and parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.

The design of private roadway drainage should consider using at least one of the following (for further guidance, see *Start at the Source* [1999]). (Note: the City may impose the following and other requirements to private roadway designs through the Storm Water Standards [scheduled to be implemented on December 2, 2002]. Consult the Development Services Department for more information.

- Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings;
- Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter;
- Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.
- Other methods that are comparable and equally effective within the project.

Private roadways for storm water requirement purposes are defined as low traffic private roads. However, use of these type of site design BMPs could be applied to public road classifications. Descriptions of these systems are discussed below.

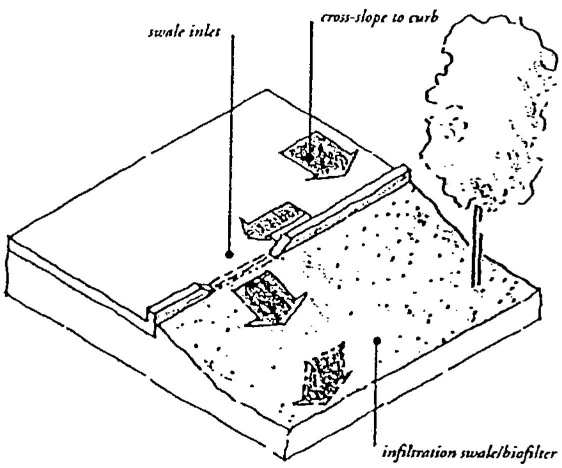
1. Descriptions of Best Management Practices for Urban Curb/Swale System Roadways

For streets where a rigid pavement edge is required, curb and gutter systems can be designed to empty into drainage swales. Runoff travels along the gutter, but instead of being emptied into a catch basin, multiple openings in the curb direct runoff into surface swales or infiltration/detention basins[1]. The urban curb/swale system design would be appropriate for Local Street, Collector Street, Major Street, Primary Arterial, Expressway and Freeway classifications that require use of curb and gutter.

a. Urban Curb/Swale Inlet Design

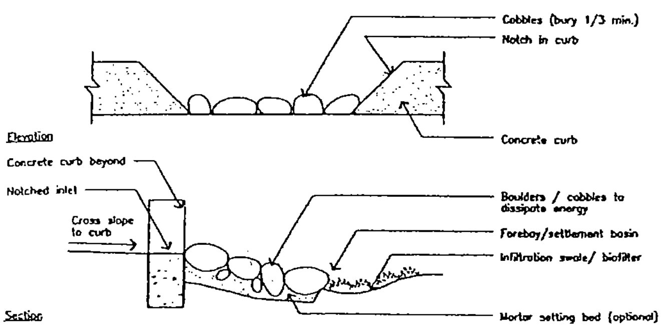
Typical, curb and gutter systems collect runoff into an underground pipe system. A swale inlet collects runoff into a surface infiltration system. A diagram and section of a typical urban curb/swale system are shown in Figures 1 and 2. The swale inlet includes features such as cobbles to dissipate flow velocities and minimize erosion from initial first flush of runoff. Swales remove dissolved pollutants, suspended solids (including heavy metals, nutrients), oil and grease by infiltration using the following features: 1) runoff through the swale topography that collects water in a forebay/ settlement basin prior to discharge; and 2) infiltration of runoff into groundwater through vegetative surface layer or Biofilter. [1]

Figure 1
Urban Curb/Swale System-Diagram[1]



6.2c Urban curb/swale system

Figure 2
Urban Curb/Swale Inlet Design Section[1]



b. Surface Vegetated Swale/Bio Filter Design

Vegetated swales used in the urban curb/swale design are vegetated earthen channels that convey and infiltrate water and remove pollutants. A grass swale is planted with turf grass; a vegetated swale is planted with bunch grasses shrubs or trees. [1] A photograph as well as sections of typical vegetated swale are shown in Figures 3 and 4.

Figure 3
Vegetative Swale Design Section[1]

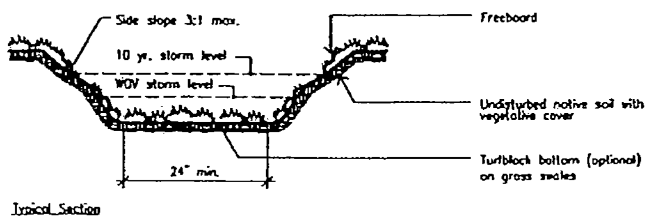
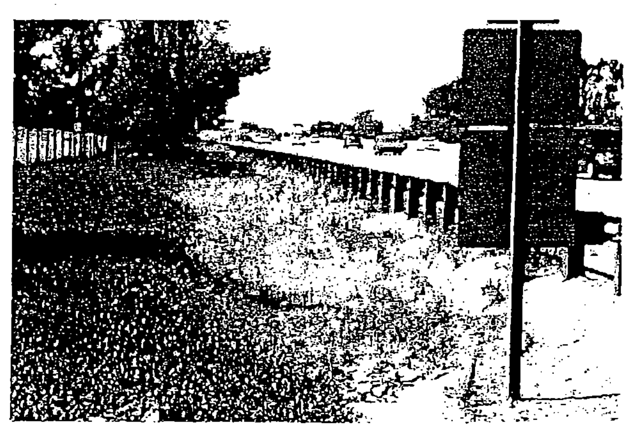


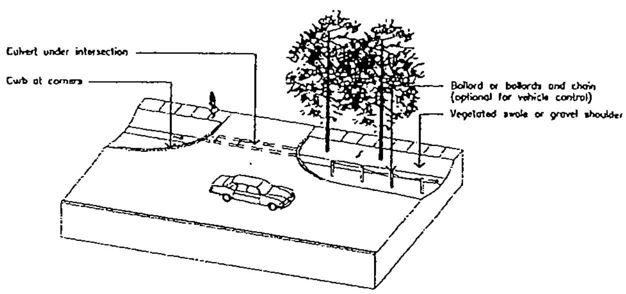
Figure 4
Vegetative Swale – Southbound Interstate 5 near La Costa Avenue Offramp



2. Descriptions of Best Management Practices for Rural Swale System Roadway Classifications

Rural swale systems are a combination of street design elements that allow for surface drainage while simultaneously protecting the roadway edge, organizing parking and allowing for driveway access. [1] A section of a typical rural swale system is illustrated in Figure 5. As shown in Figure 5, curb and gutter is not required. The street is crowned to direct runoff to shoulders where it is collected into a vegetated swale or gravel shoulder. The rural swale system would be appropriate for Private Street, Rural Local Road and Rural Collector Road classifications.

Figure 5
Rural Swale System Diagram[1]

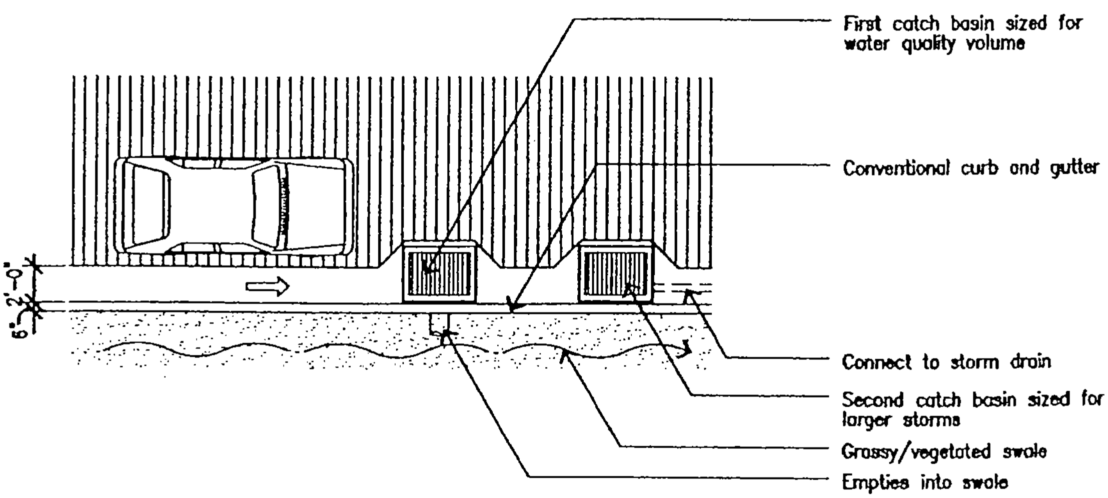


3. Description of Best Management Practices for Dual Drainage Systems

Dual drainage systems provide a pair of catch basins at each inlet point. The first is sized to direct the water quality volume into a landscaped infiltration area, and the second collects the overflow of larger storms and directs it to the storm drain system. A section of a typical dual drainage system is shown in Figure 6. [1] The Dual Drainage system design would be appropriate for Local Street, Collector Street, Major Street, Primary Arterial, Expressway and Freeway classifications that require use of curb and gutter.

As shown in Figure 6, in a dual drainage system two catch basins are located adjacent to each other. The first uphill catch basin involves a design outlet pipe to accommodate the water quality volume and direct to adjacent grass or vegetated swale. When first catch basin is full, water will flow past first basin inlet and enter second catch basin. [1]

Figure 6
Dual Drainage System Diagram[1]

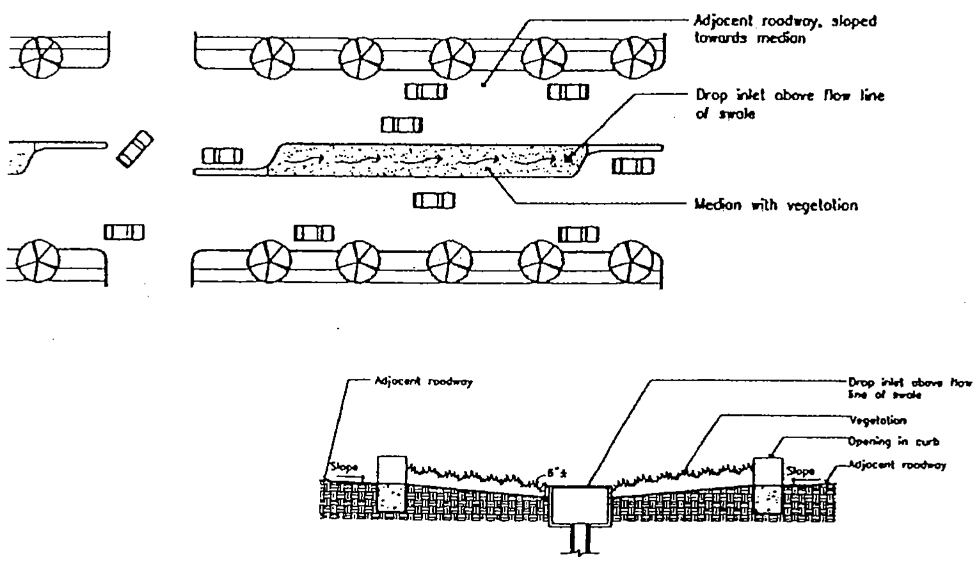


4. Description of Best Management Practices for Concave Medians

Conventional medians are normally designed as a convex surface to shed water onto adjacent pavement and into a curb and gutter system. Concave medians reverse this relationship by designing the median to receive runoff. [1] A diagram and section of a typical concave median is shown in Figure 7.

The infiltration portion of the landscape median can be designed as a landscaped swale or turf-lined biofilter to treat first-flush runoff. Catch basin and underground storm drain systems may be required for high flows depending on the available area for infiltration and the duration that water is retained in the swale. [1]

Figure 7
Concave Median Diagram and Section [1]

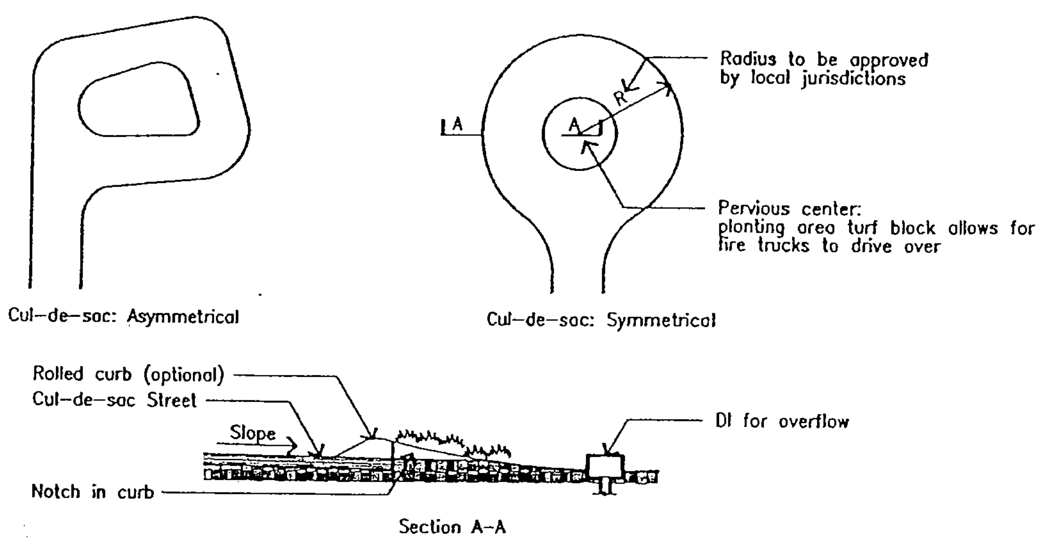


Conditions, dimensions, and materials shown are typical. Modifications may be required for proper application, consult qualified professional.

5. Description of Best Management Practices for Cul-de-sacs

Typical cul-de-sacs are paved across their entire diameter. This large impervious area adds to environmental degradation by increasing runoff. Adding a landscaped area in the center of the cul-de-sac (See Figure 8) can reduce impervious land coverage by 30-40%, depending on configuration, while maintaining the required turning radius. [1]

Figure 8
Cul-de-sac Best Management Practices [1]



References

1. *Start at the Source*, Bay Area Stormwater Management Agencies Association, 1999.

2. *Reference Guide for Stormwater Best Management Practices*, City of Los Angeles Stormwater Management Division, July 2000, www.lacity.org/SAN/wpd/index.htm.

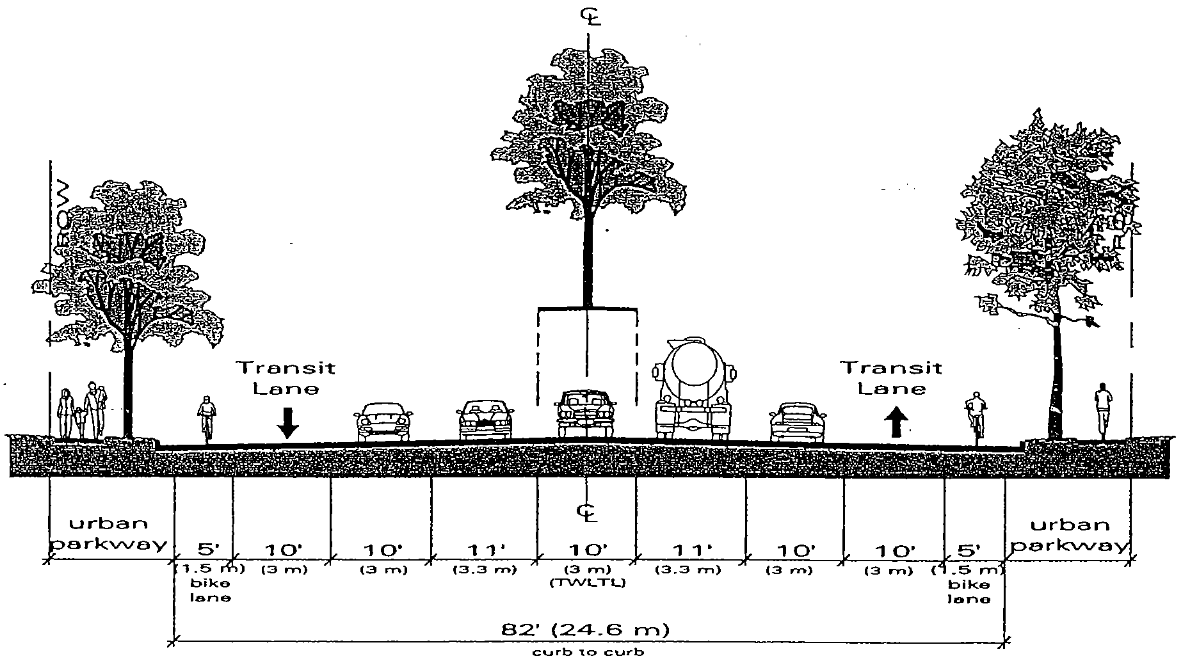
APPENDIX VII – Transit Streets

The Strategic Element of the City of San Diego *Progress Guide and General Plan* and the Transit First initiative of the Metropolitan Transit Development Board recommend major improvements to the region's transit system. These improvements include a system of rubber tire trolleys operated on separate rights-of-way within road alignments.

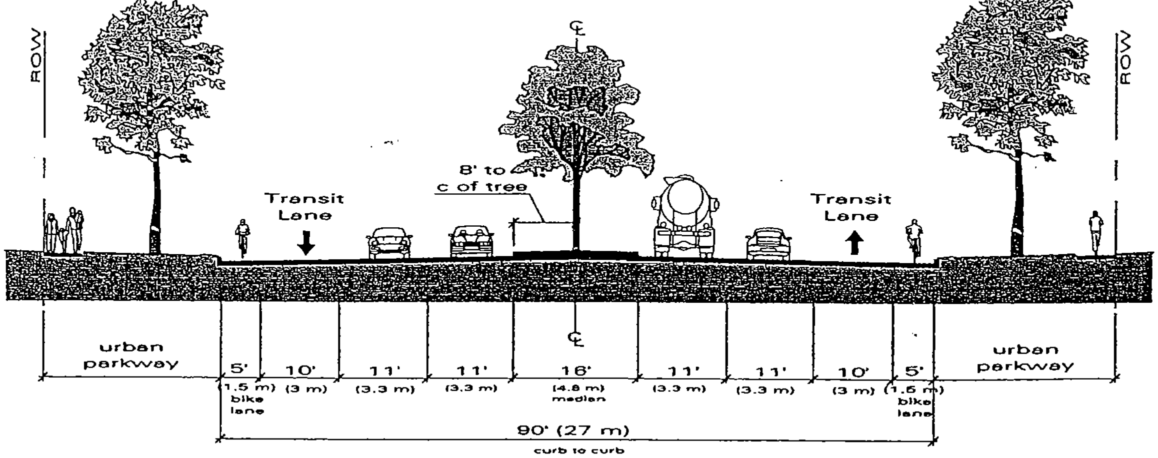
The first phase includes several "showcase" pilot projects; and, each of them will require a special and unique design solution. This design manual sets forth basic design guidelines for the design of transit streets.

Reference: Designing for Transit, A Manual for Integrating Public Transportation and Land Development in the San Diego Metropolitan Area. MTDB, July 1993.

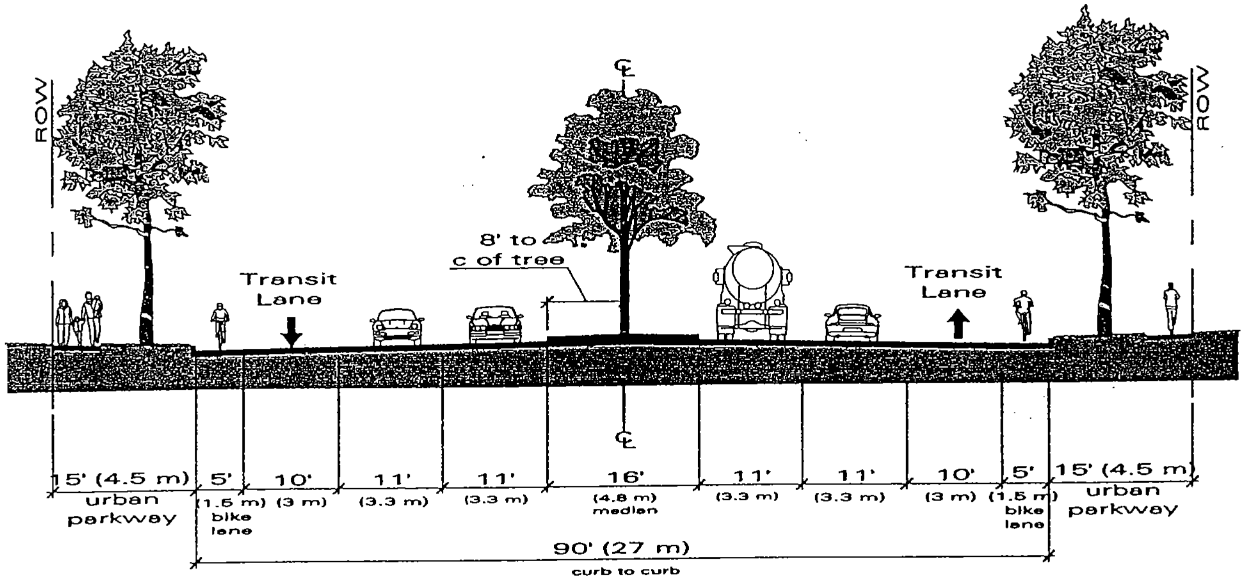
The following includes few examples of how to accommodate exclusive transit lanes within the public right-of-way.



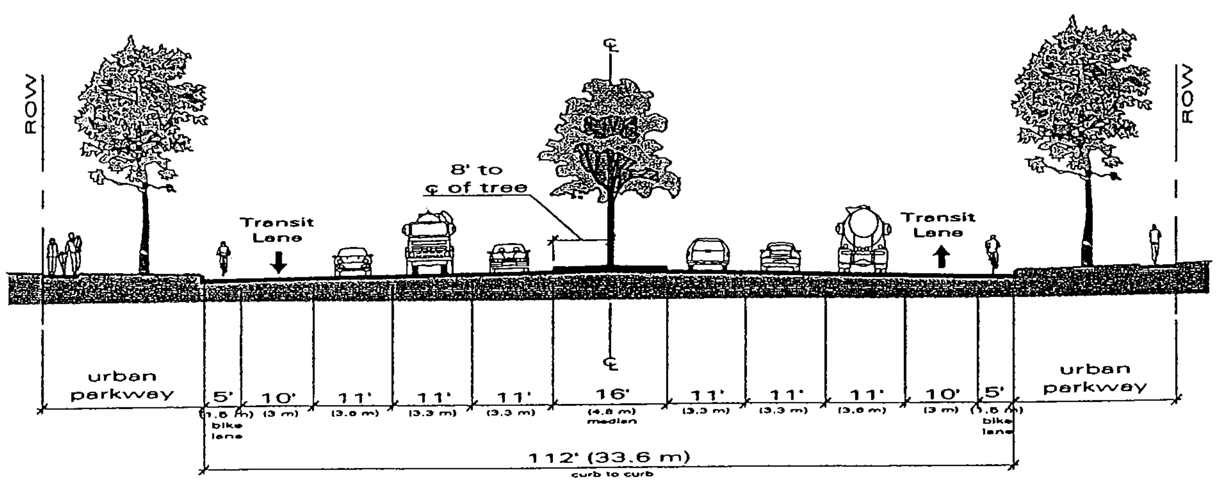
Transit Lanes - Four Lane Urban Collector



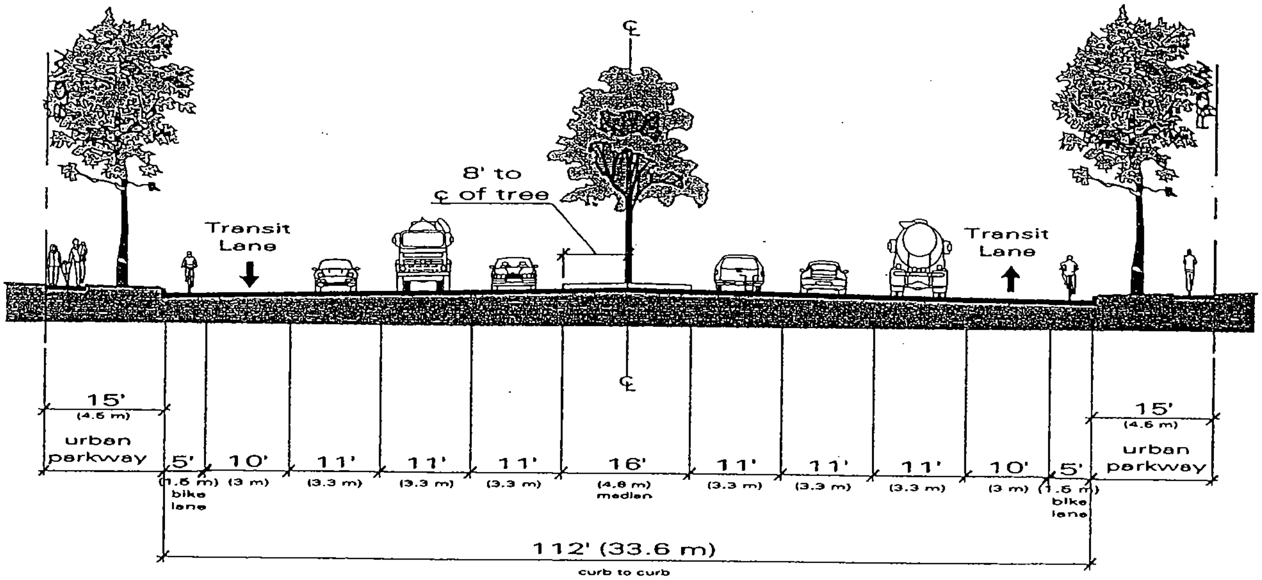
Transit Lanes - Four Lane Urban Major



Transit Lanes – Four Lane Major



Transit Lanes – Six Lane Urban Major



Transit Lanes – Six Lane Primary Arterial

APPENDIX VIII–Deviation From Standards Form

CITY OF SAN DIEGO
LAND DEVELOPMENT REVIEW
DEVIATION FROM STANDARDS

CASE/PERMIT/WO NUMBER: ______________________ COORD: ____________

PROJECT DESCRIPTION/?LOCATION: ____

____

ENGINEER OF WORK: __________________ RCE NO.____________ EXP DATE: ___________

STANDARD BEING DEVIATED FROM : ____

DESCRIPTION OF DEVIATION:

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ANALYSIS:

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REVIEWED BY: ____ DATE: ____________

APPROVED BY DEPUTY CITY ENGINEER: _______________________ DATE: ____________

DEPUTY DIRECTOR: _________________ DATE: ___________

Devfm std REVI(SED 8/19/96

Glossary

ADT–Average Daily Traffic: the number of vehicles to pass a given point on a roadway during a 24-hour period on an average day of a given year. Existing volumes may be measured with a recording device (machine counter) placed on the roadway. Existing volumes may also be estimated, or future volumes forecast, with the aid of computerized travel models representing existing or future land use and transportation networks.

Concrete; P.C.C.; A.C.–terms and abbreviations used to describe the materials used in the construction of roadways, bridges, and sidewalks. Concrete and P.C.C. refer to portland cement concrete, a material consisting of portland cement, coarse and fine aggregates, and water. A.C. refers to asphaltic concrete, a material consisting of asphalt cement, coarse aggregates, and fine aggregates.

Design Speed–the maximum safe speed that can be maintained over a specified section of roadway when conditions are so favorable that the design features of the roadway govern.

Easement–an interest in land owned by another that entitles its holder to a specified limited use or enjoyment.

Horizontal Curve–a geometric design feature of a roadway–provides a smooth change in direction to the left or right.

Low Profile Landscaping-plantings with mature height of 24 inches.

Major Street/Minor Street–descriptive terms of the relative traffic volumes on two streets at an intersection. The major street carries the higher volume of traffic and is usually wider than the minor street. At a T-intersection, the major street is the through street and the minor street forms the stem of the "T."

Median–the part of the roadway, wider than a double yellow line, that separates opposing directions of traffic. It is usually raised and delineated by curbs, and may be landscaped. It may also be depressed or level with the traffic lanes.

Parkway–the part of the street between the face of the curb (or edge of the traveled way) and the right-of-way line.

Passing Sight Distance–the distance required for a vehicle to safely overtake a slower vehicle on a two-lane roadway by maneuvering into the lane of opposing traffic and then back into the right lane when past the slower vehicle. It is rarely provided on urban streets, but is common on rural roads in flat or rolling terrain.

Pedestrian-scale lighting-Adequate and aesthetically pleasing lighting should be provided for safety, security, and a greater sense of comfort for pedestrians of all abilities, alllowing them to quickly and accurately recognize cues that will enable their safe navigation. The appropriate height for pedestrian lighting is between 12 and 20 feet high. Light standards may also be combined on one post. Low, pedestrian-oriented lights can be affixed to a post and direct light onto sidewalks while the same post may also accommodate auto-oriented lights directed at roadways.

Precise Plan–a detailed, long-term plan for the development of a sub-area of a community plan. Generally, a precise plan would include a residential neighborhood, commercial area, industrial area, or some geographical area sharing common facilities or problems. Usually a precise plan proposes specific land uses for each parcel and is often based on a detailed grading plan. In some instances, very specific proposals relative to the layout of buildings, parking, and landscaping are included within the precise plan. A precise plan is adopted by resolution.

Right-of-way–the property dedicated for public roadway.

Single loaded street–a single loaded street is a street serving property (front yard or side yard) on one side only, with no need for access (to a rear yard or to open space) or parking on the other side.

Specific Plan–a tool to implement a general or community plan (policy documents). The minimum contents of a specific plan are stipulated by state law. At various degrees of detail, specific plans address land use, infrastructure, development standards, and implementation measures. Specific plans are adopted by ordinance.

Stopping Sight Distance–the distance required for a vehicle traveling at a particular speed to come to a safe stop to avoid colliding with an object in the roadway. It is measured with a driver's eye height of 3.50 feet (*1070 mm*) above the roadway and an object height of 6 inches (*150 mm*) above the roadway. The distance includes vehicular travel during the driver's perception of and reaction to the object and the vehicular travel during braking.

Street Tree–a tree adjacent to a street and located within the public right-of-way.

T.O.D. (Transit-Oriented Development)–a mixed-use community within a typical 2,000-foot (*600 m*) walking distance of a transit stop and core commercial area. The design, configuration, and mix of uses emphasize a pedestrian-oriented environment and reinforce the use of public transportation without ignoring the role of the automobile. TODs mix residential, retail, office, open space, and public uses within a comfortable walking distance, making it convenient for residents and employees to travel by transit, bicycle, or foot, as well as by car.

Transit–the carrying of passengers in a bus or trolley along a regularly scheduled route for a fixed, basic fare.

Traveled Way–the lanes of a street or roadway in which the moving vehicles travel; does not include shoulders or parking lanes.

Vertical Curve–a geometric design feature of a roadway–provides a smooth transition between an ascending grade and a descending grade, or vice-versa. A *crest* vertical curve begins with an ascending grade and ends with a descending grade. A *sag* vertical curve begins with a descending grade and ends with an ascending grade.

Visibility Area –Specified areas along intersection corners that should be clear of obstructions that might block a driver's view of pedestrians and potentially conflicting vehicles. The dimensions of the visibility area depend on the design speeds of the intersecting roadways and the type of traffic control used at the intersection.

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CITY OF SAN DIEGO
TRAFFIC IMPACT STUDY MANUAL

TRAFFIC IMPACT STUDY MANUAL

JULY
1998

City of San Diego

TRAFFIC IMPACT STUDY MANUAL

FINAL

JULY 1998

This information, document, or portions thereof, will be made available in alternative formats

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PREFACE

This manual was prepared and updated by the City's Transportation Development Section of the Land Development Review Division of the Development Services Center. Procedures addressed in this manual include:

- Procedure for determining the type of traffic impact study needed: computerized or non-computerized

- Requirements for performing traffic impact studies

The manual was originally prepared to replace Department Instructions formulated in 1987 regarding traffic impact study procedures. These instructions had become obsolete in many areas and had been replaced by unwritten practices that reflected changing legislation, updated analysis techniques and new staff with varying perspectives. This led to a sense of confusion among consultants. A meeting was held in November 1992 to solicit feedback from traffic consultants on City procedures and reviews. The lack of predictability was a universal complaint. It had become common for study preparers to throw together an incomplete draft study simply to determine staff requirements for their particular study. The City embarked on an organization-wide effort to improve the development review process. As part of this effort, Transportation Development Section staff began to rewrite the above mentioned Department Instructions. All area traffic consultants were invited to serve on a task force to provide input and direction to staff on the traffic impact study process. It was decided that the Department Instructions would be replaced with a Traffic Impact Study Manual that would be more user friendly and easily updated to reflect new methodologies and practices. The original Traffic Impact Study Manual was produced in August, 1993.

Equally important to the clearly defined process is an aggressive commitment from the reviewers (the Transportation Development Section) to embrace a partnership with the landowner/developer and the preparer (traffic consultant) to produce a high quality document that adequately serves the needs of all parties. This will also enable the review process to be completed in an expeditious manner.

This 1998 update reflects revisions to the City's land development code and improvements in capacity analysis techniques and increases consistency with the City's overall California Environmental Quality Act (CEQA) review process.

1. INTRODUCTION

This manual describes the key elements required for preparing and reviewing traffic impact studies for new and expanding land developments in San Diego. Not all analysis described in this report will have application to each particular study. Applicable analysis will be determined by the Transportation Development Section staff, in consultation with the traffic study preparer. These procedures indicated in this text are not intended to cover every conceivable situation. New procedures and analysis techniques may be needed to evaluate unique situations.

Need and Purpose

The primary purpose of this manual is to provide guidance to consultants on how to prepare traffic impact studies in San Diego. It is intended to ensure consistency among consultants, predictability to the preparer, consistency among reviewers, and conformance with all applicable City and State regulations. Every attempt was made to ensure consistency with national practices prescribed in <u>TRAFFIC ACCESS AND IMPACT STUDIES FOR SITE DEVELOPMENT</u>, Institute of Transportation Engineers, 1991 and current local practices. This manual generally memorializes current practices. Traffic Impact Studies are intended to identify the transportation impacts of proposed development projects and to determine the need for any improvements to the adjacent and nearby road system to maintain a satisfactory level of service, safety, and the appropriate access provisions for a proposed development.

Review Process

Objectives

Ideally, the review process should be iterative and should begin when the development's planning is initiated, not after a development has been planned and a traffic study completed. This will ensure that City guidelines and requirements are met while allowing the landowner/developer's goals to be accomplished. It is recommended that the developer, study preparer and staff reviewer meet at the earliest possible point in the study process.

Who Should Prepare Traffic Impact Studies?

Traffic impact studies shall be prepared under the supervision of a qualified and experienced Traffic Engineer who has specific training and experience in traffic engineering and transportation planning, including several years of experience related to preparing traffic studies for existing or proposed developments. The ability to forecast and analyze traffic needs for both developments and roadway systems is essential. All traffic impact studies shall be stamped by a California Registered Traffic Engineer.

Who Should Review Traffic Impact Studies?

Traffic impact study reviews should be conducted or directed by properly trained transportation engineers, under supervision of a California Registered Traffic Engineer. In some cases, staff from other jurisdictions (cities, County, SANDAG, Caltrans or MTDB) should be included in the review process. Reviewers should have an understanding of the development process and an understanding of City transportation policies and practices. Reviewers should be competent and confident to be able to apply sound engineering judgement in the scoping and review of traffic impact studies. Reviewers should be open minded to be able to seek solutions to landowner/developer desires while ensuring that City standards and objectives are met.

Standard Review Times

The following standards have been set to ensure that traffic impact studies are reviewed quickly. The City's goal is to complete 90% of all studies at or before the review times shown.

Standard City Review Times

TYPE OF STUDY	REVIEW TIME (Working Days)
Traffic Study Screen Check	5 days
Small Traffic Studies	
a. First Submittal	15 days
b. Second and Third Submittals	10 days
Large Traffic Studies	
a. First and Second Submittals	20 days
b. Third Submittals	15 days
Complex Traffic Studies	
a. First Submittal	30 days
b. Second Submittal	20 days
c. Third Submittal	15 days

Ethics and Objectivity

Although study preparers and reviewers will sometimes have different objectives and perspectives, all parties involved in the process should adhere to established engineering ethics and conduct all analysis and review objectively and professionally.

2. INITIATING TRAFFIC IMPACT STUDIES

Warrants for a Traffic Impact Study

The need for a traffic impact study is based on estimated daily trip generation and conformance with the community plan land use and transportation element. This determination is usually made by the Transportation Development Section staff during the project scoping stages. Figure 1 should be used to determine if a traffic impact study is needed and to determine the type of study required. In general, traffic impact studies may be required for developments that do not conform to the community plan and generate more than 500 daily trip ends. The threshold is 1,000 daily trip ends if a project conforms to the community plan. See page 4, **Figure 1** Flow Chart.

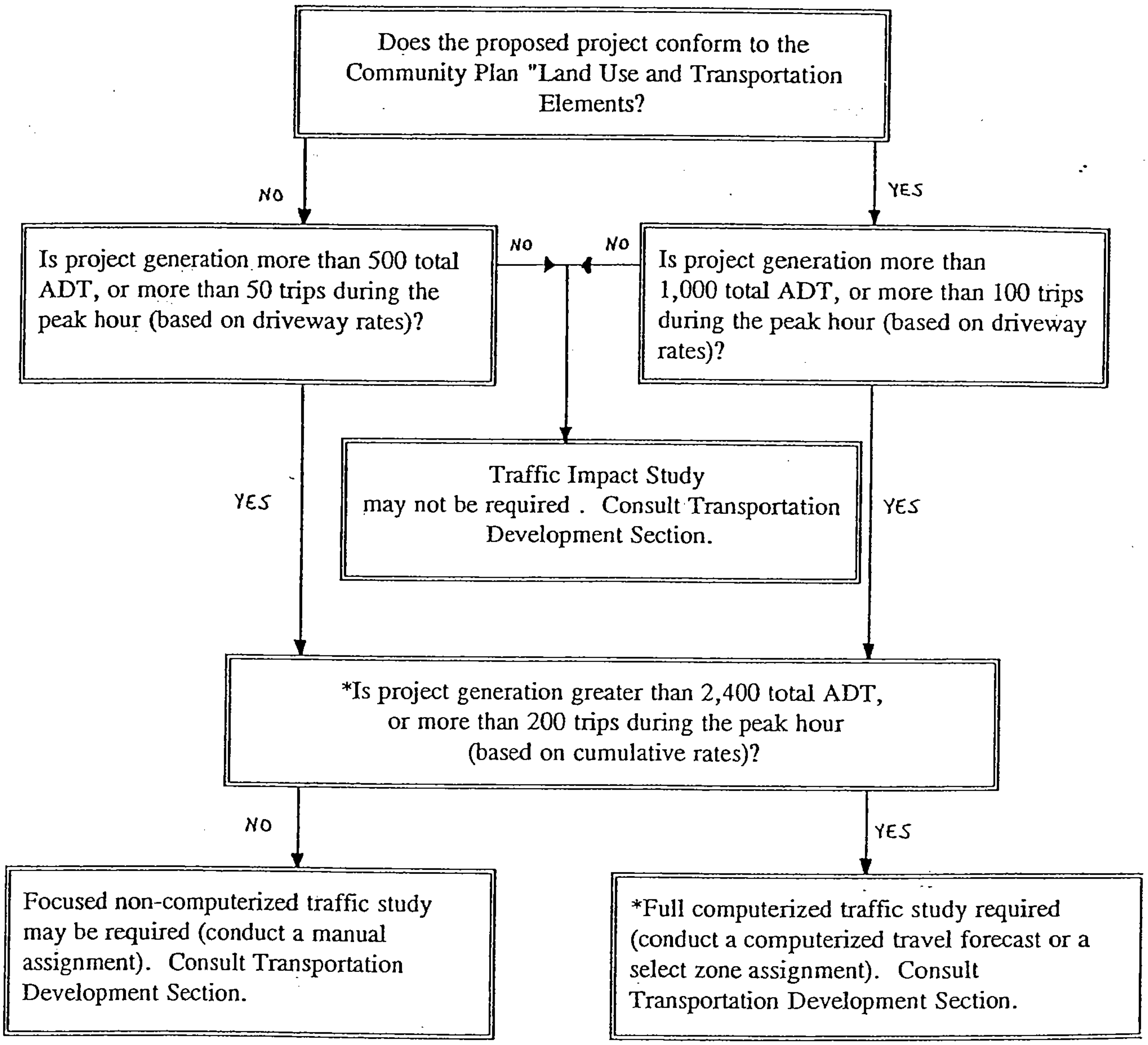
Extent of the Study

While the need for a traffic impact study is usually determined by City staff, the extent of a study should be shared by the preparer and reviewer of the study. **Figure 1** provides some guidance on the type of study, manual versus computerized. Computerized forecasts or select zone assignments are usually required for developments that generate more than 2,400 daily trip ends, per Congestion Management Program requirements. However, many projects and area specific details cannot be adequately addressed with a generalized flow chart. The following study details should be worked out between the preparer and the reviewer in a presubmittal conference:

- Which components of a full traffic impact study are needed to address issues associated with the site, proposed development, and the nearby transportation system?
- How will trip generation be determined? If rates other than City standard rates are proposed, staff concurrence must be obtained. Will pass-by reductions be applied?
- How large will the study area be?
- How should adjacent developments be considered in the study?
- How should future traffic volumes be determined? Should an adopted community plan forecast be used, should a regional or subregional forecast be used, should growth factors apply, or should a new modeling effort be undertaken?

October 1997

FIGURE 1
TRAFFIC IMPACT STUDY
REQUIREMENT FLOW CHART



*To conform with the 1991 Congestion Management Program Enhanced California Environmental Quality Act (CEQA) review process for traffic analysis.

- How should planned or programmed transportation improvements be accounted for ?

- Should the various stages of multi-planned developments be analyzed individually? If so, what horizon years should be used?

- Which trip distribution and assignment methods should be used?

- Which roadway sections and which intersections should be analyzed?

- Which capacity analysis technique should be used?

- Are other analyses needed, such as accident analyses, sight distance analyses, weaving analyses, gap analyses and queuing analyses?

In situations where Caltrans or another agency will review the study, staff from these agencies should be included in the presubmittal conference. This will foster improved coordination and reduce the potential for revisions to the study.

Study Area

The contents and extent of a traffic impact study depend on the location and size of the proposed development and the conditions prevailing the surrounding area. Larger developments proposed in congested areas obviously require a more extensive traffic impact study. Smaller sites may require only minimal analysis. An inappropriately large analysis area will unnecessarily increase costs and time to the developer, the study preparer and the reviewer. In addition, large volumes of meaningless analysis can obscure the real issues that need to be addressed. At a minimum, any traffic impact study must address site access and adjacent intersections, plus the first major signalized intersection in each direction from the site. Beyond this minimum requirement, all known congested or potentially congested locations that may be impacted by the proposed development should be studied. The following methodology based on Average Daily Traffic (ADT), project trip distribution and generalized daily roadway capacity has been prepared to offer some predictability to consultants bidding for jobs and to determine an initial study area to discuss with City staff. Knowledge of the area and judgement may cause the study area to be either expanded or contracted.

Procedure for Determining Initial Study Area

1. Calculate project trip generation based on driveway trip rates and standard City trip generation rates.

2. Determine an approximate project trip distribution and assign the project's ADT to the surrounding street system.

3. Obtain existing configurations and future street classifications for all facilities likely to have site traffic assigned to them.

4. Obtain existing and future ADT for the above mentioned streets.

5. Use the following levels of significance to determine if the project will add enough traffic to street segments for short-term and future conditions to warrant studying this location.

TABLE 1

LEVEL OF SERVICE WITH SITE TRAFFIC	ALLOWABLE INCREASE IN V/C* RATIO WITH SITE TRAFFIC ADDED
A	0.10
B	0.06
C	0.04
D	0.02
E	0.02
F	0.02

* Capacity at level of service E (see Table 2) should be used for calculating the volume to capacity ratio.

6. Using **Table 2**, determine the short-term and future level-of-service with and without site traffic, for each link.

In addition, the 1993 Guidelines for Congestion Management Program (CMP) Transportation Impact Reports (TIR) states the following for the study area:

The geographic area examined in the TIR must include the following as a minimum:

- All Regionally Significant Arterial system segments and intersections, including freeway on/off ramp intersections, where the proposed project will add 50 or more peak hour trips in either direction to adjacent street traffic.

- Mainline freeway locations where the project will add 150 or more peak hour trips in either direction.

Staff Consultation

It is critical that the study preparer discuss the project with the reviewing agency's staff engineer at an early stage in the planning process. An understanding as to the level of detail and the assumptions required for the analysis can be determined at this time. While a presubmittal conference is highly encouraged, it will not be a requirement for submitting work to the City. For straightforward studies prepared by consultants familiar with City procedures, a phone call followed by a fax verifying key assumptions may suffice.

Screen Check Procedures

As part of the first draft of a traffic impact study, the preparer must ensure that all required elements have been included. This procedure was implemented to reduce the number of submittals and to encourage earlier dialogue between the reviewer and preparer. The reviewer will check the study for completeness and return all incomplete submittals within five working days of receipt. **Appendix 1** contains the screen check list which the preparer must complete and submit along with the first draft of every traffic impact study. The screen check list should also be used during presubmittal conferences to determine which elements are not required for the proposed study.

Traffic studies shall not be resubmitted until all staff comments have been incorporated. Consultants are encouraged to contact the reviewer to seek clarification, if needed, on comments made to the traffic study. All comments and conditions are subject to appeal or modification.

TABLE 2
ROADWAY CLASSIFICATIONS, LEVELS OF SERVICE (LOS)
AND AVERAGE DAILY TRAFFIC (ADT)

STREET CLASSIFICATION	LANES	CROSS SECTIONS	LEVEL OF SERVICE A	B	C	D	E
Freeway	8 lanes		60,000	84,000	120,000	140,000	150,000
Freeway	6 lanes		45,000	63,000	90,000	110,000	120,000
Freeway	4 lanes		30,000	42,000	60,000	70,000	80,000
Expressway	6 lanes	102/122	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6 lanes	102/122	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes	102/122	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes	78/98	15,000	21,000	30,000	35,000	40,000
Collector	4 lanes	72/92	10,000	14,000	20,000	25,000	30,000
Collector (no center lane) (continuous left-turn lane)	4 lanes 2 lanes	64/84 50/70	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 lanes	40/60	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 lanes	50/70	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 lanes	40/60	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 lanes	36/56	—	—	2,200	—	—

LEGEND:

XXX/XXX = Curb to curb width (feet)/right of way width (feet): based on the City of San Diego Street Design Manual.

XX/XXX = Approximate recommended ADT based on the City of San Diego Street Design Manual.

NOTES:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.

2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

3. CONTENT AND FRAMEWORK

This chapter discusses the selection of horizon years, time periods to be analyzed and study data needs.

Selection of Horizon Years

The following scenarios should be evaluated in each traffic impact study:

- Existing Conditions
- Existing Conditions with Approved Projects (when applicable)
- Existing Conditions with Approved Projects and Site Traffic
- Buildout Community Plan Conditions
- Buildout Community Plan with Additional Site Traffic
  (if project deviates from the Community Plan)
- Cumulative Analysis Due to Precedence Setting
  (if a land use change will likely encourage other property owners to seek similar land use changes)

Project Phasing

If the project is a large multi-phased development in which several stages of development activity are planned, a number of horizon years may be needed to coincide with each major stage of development or increment of area transportation system improvements. Smaller developments may need to phase themselves to transportation improvements that others are providing, yet are crucial to their accessibility.

Peak Traffic Hours

In general, the traditional morning and afternoon peak hour of the street system should be evaluated in each impact study. The peaking of the adjacent street system can usually be determined by reviewing traffic count data. The time periods that provide the highest cumulative directional traffic demands should be used to assess the impact of site traffic on the adjacent street system and to define the roadway configurations and traffic control measure changes needed in the study area.

In rare cases, weekend and other typically off-peak traffic periods should be studied. These situations may occur with large retail uses, recreational uses, stadiums and theme parks.

Background Study Area Data

All pertinent transportation system and land development information, both short- and long-range, prepared in the last five years or considered to be current by the Transportation Development Section should be reviewed. Any development that has been approved but not yet occupied should be considered for use as background traffic. Average daily traffic counts and peak hour turning movements can frequently be obtained through the City's Traffic Safety Information and Research Section in the Traffic Engineering Division.

The count data used in traffic impact studies should be no more than two years old. If recent traffic data is not available from the City, current counts must be made by the consultant.

Field Reconnaissance and Data Collection

The assembly of available data should be accompanied by a detailed reconnaissance of the project site, area roadways and the surrounding vicinity. Current data should also be collected as necessary to supplement that information already available. These data frequently include some or all of the following:

- Peak period turning movement counts
- Machine counts
- Primary traffic control devices
- Signal timing and phasing
- Roadway configurations, geometric features and intersection lane configurations
- Parking regulations and usage
- Driveways serving sites across from or adjacent to the site
- Transit stops
- Adjacent land uses

4. NON-SITE TRAFFIC

Estimates of non-site traffic are required to complete an analysis of horizon year conditions. These estimates characterize the base conditions (without site traffic). There are a number of methods for developing non-site traffic; the appropriate method depends largely on the availability of data.

Build-up Method Using Specific Developments

This method is used when other projects in the area have been approved, but are not yet occupied. This concept consists of projecting peak hour traffic to be generated by approved developments in the study area, and assigning it to the projected street system. This method is used for the "Existing Conditions with Approved Projects" scenario. A list of "other" projects can be obtained from the City's Transportation Development Section.

Community Plan, Regional or Subregional Modeled Volumes

The adopted community plan should be used for 20-year or buildout area wide conditions, when reliable information exists. Often times, this information is out-dated and its use would render unreasonable results. In these cases, regional or subregional models conducted by SANDAG should be reviewed for appropriateness.

When justified, and particularly in the case of very large developments or new community plans, a transportation model should be run, with and without the new development to show the net impacts on all parts of the area's transportation system.

Trends or Growth Rates

Trends or growth rates should be used only in situations where a transportation model does not exist, no new major transportation facilities are planned for the area, and the area's growth rate has been stable. Average daily traffic volumes from the past five to ten years should be used to develop these growth rates. If other major new developments are expected in the area, a combination of the growth rate and build-up method should be considered.

Cumulative Analysis Due to Precedence Setting

Often times, a land use change on one property may have the effect of encouraging other property owners to ask for the same zoning or intensification, particularly if the change has an appreciable impact on property values.

The Transportation Development Section in consultation with other City staff, decides if a cumulative analysis should be conducted and which properties should be included in the analysis. The Transportation Development Section in consultation with the traffic consultant will decide the appropriate methodology for developing these non-site traffic volumes.

5. SITE TRAFFIC GENERATION

One of the most critical elements of the traffic impact study is estimating the amount of traffic to be generated by a proposed development. This is usually done by using trip generation rates or equations.

Rates are commonly expressed in trips per unit of development. Equations provide a direct estimate of trips based upon development units being multiplied in a mathematical relationship. Trips are defined as a single or one-directional travel movement with either an origin or destination of the trip inside the study site. The outcome of the entire traffic impact study can depend solely on the question of appropriate trip generation estimates. Trip generation estimates must be determined carefully and must be defensible using a combination of available data and professional judgement.

General Procedure

The following basic steps should be followed in determining the appropriate trip generation estimates:

- Check the City of San Diego's Trip Generation Manual for trip generation rates of similar land use types. If rates other than those included in this manual are proposed, the consultant should obtain concurrence from the study reviewer prior to submitting a study.

- If City data does not exist, check for appropriate SANDAG data or national data, typically contained in SANDAG's "Traffic Generators" publication or the ITE Trip Generation Manual or ITE Journal articles.

- If local or sufficient national data do not exist, conduct trip generation studies at sites with characteristics similar to those of the proposed development.

- Determine any adjustments that may be applied to trip rates to account for specific characteristics of the development in question (high transit usage or true mixed used developments).

- Select the most appropriate and defensible trip generation rate or equations and document the basis for selection if the rates vary from standard City rates.

Special or Unusual Generators

Some unique land uses have never been studied for trip generation characteristics. In these cases, it may be necessary to conduct a trip generation study on a similar use to determine the appropriate trip generation rate for that use. In some instances, it may be acceptable to assume a trip rate, based on comparisons to other uses. In either case, the Transportation Development Section should be consulted.

Driveway Volumes Versus Traffic Added to the Adjacent Streets

It is usually assumed that all trips entering and exiting a new development are new trips that were not made to or through the area prior to the development being completed. However, a portion of these trips may be "captured" from trips already being made to other existing developments on the adjacent street system. Any commercial real estate agent will confirm that the three most important factors in a successful retail business are location, location and location. This phenomenon has been verified by limited studies of commercial sites. The City's Trip Generation Manual has recommended a percentage reduction in driveway trip generation rates for numerous retail uses. These recommendations are based on local and national trip generation studies, as well as SANDAG's Travel Behavior Study conducted in 1985. The pass-by reduction includes true pass-by trips that were on an adjacent street and a portion of the linked trips that were diverted off a nearby route. The report must clearly indicate the new trips and the pass-by trips for the site. All site access points should be evaluated using the higher driveway rates, whereas far off intersections will be evaluated using the reductions for pass-by trips. The next chapter provides guidance on how to distribute and assign pass-by trips.

Refer to the City's "Trip Generation Manual" for driveway and cumulative trip rates for various land uses.

Adjustments for Developments Near Transit Stations

Most trip generation date are from suburban locations where little or no public transportation exists. Since San Diego has an expanding mass transit system, with opportunities for land use/transit interaction, adjustments to the standard trip generation rates may be necessary. The following trip rate reductions are allowable for development planned within a walking distance of 1,500 feet from a transit station:

TABLE 3.
Recommended Trip Reductions at Transit Stations

LAND USE TYPE	DAILY	A.M. PEAK	P.M. PEAK
Residential	5%	9%	6%
Industrial	5%	6.5%	5.5%
Commercial Office	3%	5.5%	2%
Commercial Retail	N/A	N/A	N/A

Adjustments for Mixed-Use Developments

Most of the trip generation rate data available have been developed from measurements at isolated single use developments. When uses are combined, simply adding the single-use estimates together can result in a total trip generation estimate that is too great for the site. The following trip generation rate reductions are allowable for mixed-use projects:

TABLE 4.
Recommended Trip Reductions for Mixed-use Developments
Which Include Commercial Retail

LAND USE TYPE	DAILY	A.M. PEAK	P.M. PEAK
Residential	10%	8%	10%
Industrial	4%	5%	5%
Commercial Office	3%	5%	4%
Commercial Retail	*	*	*

Source: Kris Berg - Kimley Horn

Note: * - The commercial retail reduction equals the sum of the total mixed-use reduction in residential, industrial and commercial office.

- These reductions apply to commercial retail of a minimum of 100,000 square feet which is predominantly neighborhood oriented.

6. SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT

Traffic expected to be generated by a development project must be distributed and assigned to the roadway system so that the impacts of the proposed project on roadway links and intersections within the study area can be analyzed. The trip distribution step produces estimates of trip origins and destinations. The assignment step produces estimates of the amount of site traffic that will use each access route between origins and destinations.

Trip Distribution

One way to determine a trip distribution for a site is to use data from a computerized travel forecast model. SANDAG, the regional planning agency for San Diego County, maintains a regional travel forecast computer model to project future traffic volumes. The City also prepares "community plan" level forecast models. The City models usually provide a more detailed street system than does SANDAG's latest regional model. Raw modeled results should never be directly applied. A thorough review for reasonableness should first be undertaken.

Frequently, computerized travel forecast model data are not available or may not be up to date. In these cases, manual estimates based on traffic volumes, experience, judgement, and knowledge of the area are appropriate. Previous traffic impact studies conducted for other projects in the area should also be considered in estimating trip distributions.

Regardless of the trip distribution methodology used, it is crucial that the traffic consultant and the reviewer of the study agree on the proper distribution prior to the preparation of detailed analysis to avoid having to rework the analysis.

Trip Assignment

Trip assignment should be made considering logical routings, available capacities, left turns at critical intersections, and projected (and perceived) minimum travel times. Multiple paths should often be assigned between origins and destinations to achieve realistic estimates, rather than assigning all trips to the route with the shortest travel time.

The assignment should reflect the horizon year(s) and should consider land use and road improvements at that time. Assignments may vary between morning and afternoon peaks. The assignment should be carried out through external site access points and, in larger projects, the internal roadways.

Assignments may be performed manually or by a computer model. For large sites, with large study areas, it may be advantageous to use a computer model to assign site traffic. This allows some matching of trip origins and destinations within the study area, rather than assigning all site trips externally.

Pass-by Trips

As mentioned in the previous chapter, trip generation analysis yields the number of vehicle trips that a site is expected to generate at its driveways, and retail sites don't add as much traffic to the community street system since a portion of their trips are simply diverted from vehicle trips already on the roadway system. If a reduction for pass-by trips is to be applied, the cumulative trip generation rates identified in the City's "Trip Generation Manual" should be used as follows:

- For the peak hour being analyzed, determine the percentage of pass-by trips. Split the total trip generation into new trips and pass-by trips.

- In addition to estimating normal trip distribution (for new trips), also estimate the distribution for pass-by trips (giving strong consideration to the commuting work trip).

- Perform two separate trip assignments, based on the two trip distributions. Pass-by assignment percentages should not automatically be applied to two-way traffic since an outbound pass-by trip may use a different route than an inbound pass-by trip. Also, the pass-by procedure implies subtracting trips from some existing movements and assigning to other movements. Care must be taken not to subtract a relatively large movement from a low volume facility. For this reason, the pass-by reduction on any given facility shall be no more than ten percent of the volume on that facility. It would be unreasonable to assume that more than one out of ten drivers would divert to a site on a daily basis.

- Combine the results of the "new trips" and "pass-by" assignments.

Congestion Management Program Procedures

The Congestion Management Program (CMP) requires that a regional travel forecast model be used to assign site traffic to the CMP roadway system. This applies to all developments generating more than 2,400 daily trips or 200 pm peak hour trips. For these developments, it is necessary to perform a select zone traffic assignment for site traffic to identify the project's impact on the CMP roadway system.

7. ANALYSIS

This chapter describes the analytical techniques used to derive the study findings, conclusions, and recommendations. This recognizes current methodologies. However, other techniques may be considered once they are developed or unique problems are encountered. This chapter attempts to provide guidance on the proper analysis technique to be applied; it does not attempt to document any particular analysis technique or preclude the use of any technique not specifically mentioned. Analysis techniques should be discussed by the preparer and reviewer of the traffic impact study prior to beginning the study.

Total Traffic Estimate

For each analysis period being studied, a projected total traffic volume must be estimated for each segment of roadway system being analyzed.

Identification of Impacts and Deficiencies

Acceptable Level of Service

The standard used to evaluate traffic operating conditions of the transportation system is referred to as level of service. This is a qualitative assessment of the quantative effect of factors such as speed, volume of traffic, geometric features, traffic interruptions, delays and freedom to maneuver. The acceptable level of service standard for roadways and intersections in San Diego is level of service D. However, for undeveloped locations, the goal is to achieve a level of service C.

Levels of Significance

To determine if a project contributes enough traffic to a transportation facility to consider mitigation measures, a level of significance threshold is used. **Table 5** identifies the levels of significance for several analysis techniques at varying levels of service. If the project causes a change greater than the level shown, the developer is considered to be responsible for all or part of the improvements required to mitigate the site traffic to the level previously held on the facility prior to the project's traffic impacts.

Signalized Intersection Analysis

The measure of effectiveness for signalized intersections is average stopped delay per vehicle. The current Highway Capacity Manual's signalized intersection operational methodology is the basis for determining intersection delay. The Highway Capacity Software (HCS), based on the HCM methodology, is acceptable except in cases of extreme congestion, where alternative software must be used to obtain average seconds of delay. Alternative acceptable software includes TRAFFIX, SIGNAL 94 and NCAP. These methodologies require numerous inputs and assumptions. To ensure consistency among consultants (and City staff), the City has developed input guidelines shown in **Table 6.** These guidelines are not intended to be absolute, but any proposed deviations should first be discussed with City staff.

TABLE 5

SIGNIFICANT TRANSPORTATION IMPACT MEASURE

LEVEL OF SERVICE WITH PROJECT	ALLOWABLE INCREASE/DECREASE DUE TO PROJECT IMPACTS *		
	INTERSECTIONS	ROADWAY SECTIONS	
	DELAY (SEC)	V/C	SPEED (MPH)
A	N/A	0.10	5
B	6	0.06	3
C	4	0.04	2
D**	2	0.02	1
E**	2	0.02	1
F**	2	0.02	1

NOTES:

* If a proposed project's traffic impacts exceed the values shown in the table, then the impacts are deemed "significant". The project applicant shall identify "feasible mitigations", to bring the facility back to the level previously held by the facility prior to the project's traffic impacts.

** The acceptable level of service standard for roadways and intersections in San Diego is level of service D. However, for undeveloped locations, the goal is to achieve a level of service C.

KEY:
- DELAY = Average stopped delay per vehicle measured in seconds
- V/C = Volume to Capacity Ratio [capacity at level of service E should be used (use Table 1)]
- SPEED = Arterial speed measured in miles per hour
- N/A = Not Applicable

Signal Warrant Analysis

If new intersections are being created by a development or if a development adds traffic to existing unsignalized intersections, traffic signal warrant analyses must be performed. The Caltrans Traffic Manual should be consulted for procedures on conducting signal warrant analysis. Typically, the warrant based on Estimated Average Daily Traffic is used. For selected locations, the School Crossing Traffic Signal Warrant should be considered.

TABLE 6

INPUTS AND ASSUMPTIONS FOR INTERSECTION CAPACITY ANALYSIS USING THE HIGHWAY CAPACITY MANUAL (HCM) METHOD

- Arrival Type = 3-5
- Cycle Length (C) = 60-120 seconds (or observed at existing locations)
- Ideal Saturation Flow Rate for HCM software = 1,900 pcphpl
- Minimum Green for each phase = 5-10 seconds
- Yellow Interval:

85% Approach Speed (mph)	*Yellow Interval (seconds)
35 or less	3.0
40	3.5
45	4.0
50	4.5
55	5.0
60	5.5

* Add 1 second for an all-red interval at all intersections.

- Minimum Heavy Vehicles = 2-4%
- Peak Hour Factor (PHF) = 0.80-0.95
- Minimum Pedestrians = 10/hour/approach

The following factors are used to convert daily volumes to peak hour volumes:

- Directional Factor (D) = 0.55-0.75
- Design Hour Factor (K) = 0.07-0.11
- Peak Hour Peak Direction = 0.05-0.08

NOTES:

1. Arrival Type 4 or 5 should be used for intersection approaches which are part of a coordinated arterial system.
2. Ideal Saturation Flow rate inputs may be higher than 1,900 pcphpl for individual movements at intersections with very high traffic volume. The use of higher saturation flow rate must be identified.
3. Level of Service F is not acceptable for intersection approaches except for side streets on an interconnected arterial system.
4. The 85% speeds can be obtained from the City's Traffic Engineering Division, Traffic Safety Information and Research Section.

When a new signal is proposed on a major arterial where a coordinated signal progression system exists or may exist, the impacts of adding a new signal on progression should be thoroughly analyzed. The software recommended for this analysis is PASSER II, Synchro or TRANSYT-7F.

Unsignalized Intersection Analysis

The measure of effectiveness for unsignalized intersections is average total delay per vehicle. Total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. This methodology is described in Chapter 10 of the current Highway Capacity Manual. This methodology should be used for unsignalized intersections, yield and T-intersections.

Arterial Analysis

All arterials within the study area should be evaluated using the Daily Level of Service matrix shown in Table 2 (shown in chapter 2 of this manual). The results of this analysis may not accurately reflect actual peak hour operation of the street, but is intended as a guide to help determine arterial classification and sizing.

The Congestion Management Program arterials must be analyzed in greater detail. These arterials must be evaluated using the peak hour analysis contained in Chapter 11 of the current Highway Capacity Manual. This methodology uses the results of signalized intersection analyses, the arterial classification and free flow speed to calculate an average travel speed. The average travel speed is used to determine the arterial level of service. The HCS computer software may be used to determine arterial level of service.

Freeway Interchange Analysis

Since all freeways are on the Congestion Management Program system, their interchanges must be evaluated using CMP analysis techniques. All signalized intersections of freeway ramps with arterials should be evaluated using the Highway Capacity Manual signalized intersection operational method. For diamond interchanges, the timing and phasing of the two signals must be coordinated to ensure queue clearances. The software package recommended for this analysis is Passer III - 90.

If ramp metering is to occur, the effects of metering should be analyzed. Inputs to this analysis are peak hour demands, flow rates, and ramp geometrics. The flow rates and ramp configurations are usually available from Caltrans. Outputs are excess demand, delay and queue length. This methodology is explained in **Appendix 2.**

8. SITE ACCESS AND OFF-SITE IMPROVEMENTS

Recommendations

During the final phase of the study, all analyses are reviewed and reassessed to best respond to the actual transportation needs of the project and the adjacent area. It is important that recommendations be made at each of the scenarios identified in Chapter 3, so that the responsibility for the improvements can be clearly established. All necessary improvements should be displayed on a study area map. A table shall be prepared identifying which improvements are needed, when they are needed and who is responsible for the improvements.

Project Phasing

In situations where an improvement is the responsibility of someone else or a joint responsibility, it may be necessary for the proposed development to be phased or for the developer to front the entire cost of an improvement (s). At the developer's option, a reimbursement district can be established. Where multiple improvements are needed, it may be advantageous to phase a development and associated improvements over time, to avoid large up front mitigation expenses. Appropriate analyses are required to permit projects to be phased.

Intersection Lane Configurations

Diagrams of typical intersection lane configurations are shown in **Appendix 4.** There are a number of lane configurations that can be used depending on the intersecting streets. Additional left-turn lanes, dual left-turn lanes and separate right turn lanes will be based on the intersection turn volumes and level-of-service.

9. ON-SITE PLANNING AND PARKING

An integral part of an overall traffic impact study relates to basic site planning principles. Internal design will have a direct bearing on the adequacy of site access points.

Access Points

Access points should be designed with the same perspective as public streets. Site access points should be located and designed in accordance with the San Diego Regional Standard Drawings and the following guidelines:

- Driveways should align with opposing streets and driveways, if no raised center median exists on the cross street.
- If not aligned, adequate spacing should be maintained from adjacent street and driveway intersections. Distance between driveways and adjacent street intersections should be sufficient to minimize driveway blockage by queues from adjacent intersections.
- If the driveway is proposed to be signalized, it should be located to facilitate traffic progression past the site. A signal progression analysis may be required in such a situation. Curb return type access is allowed for signalized driveways.
- Access driveways should intercept traffic approaching the site as efficiently as possible; adequate inbound and outbound capacity should be provided.
- Adequate driveway capacity should be provided. The number of driveways should be compatible with site access capacity needs and should minimize adverse impacts on adjacent roads. A capacity analysis, gap check or lane adequacy check should be conducted for each driveway. Joint access should be considered where several adjacent properties have relatively short frontages or where low-volume driveways would otherwise result.
- Two-way driveways should intersect adjacent roadways at 90-degree angles, wherever possible.
- The capacity of on-site intersections should be sufficient to prevent traffic entering the site from backing up on the adjacent street.
- Traffic safety aspects of all proposed site access facilities should be reviewed to ensure adequate sight distance and other applicable factors.
- Deceleration and acceleration lanes may be required on the City street at the access driveway.

Vehicular Queuing Storage

Provision for appropriate vehicular exit queuing should be made at all access drives for a development. For small developments, parking areas and access points should be designed so drivers waiting to exit can align their vehicles perpendicular to the off-site roadway system. For large developments, queuing areas should be sufficient so that vehicles stored at exits do not block internal circulation and so that drivers enter a signalized intersection at minimum headways to achieve maximum flow rates. The queue storage just inside a parking facility should be sufficient to allow vehicles to enter the parking facility and come to a complete stop without blocking or hampering internal circulation and without causing traffic to back up on the off-site roadway.

Drive-through developments such as banks, car washes and fast food restaurants, should be provided with adequate capacity to accommodate normal peak queues.

Internal Vehicular Circulation

Internal circulation roadways should permit access between all areas in a manner which is safe, has adequate capacity, and is clearly understandable to the driver.

Service and Delivery Vehicles

Service and delivery vehicles require separate criteria for movement to and from site:

- Vehicle turning paths should be sufficient to accommodate the largest vehicles anticipated to travel on the site.
- Access points anticipated to be used by service vehicles should have turning paths sufficient to allow service to enter and exit the site without encroaching upon opposing lanes or curbed areas.
- There should be sufficient separation between external and internal circulation roads so large vehicles can be queued on entry or exit without blocking access to parking spaces or internal roadway circulation systems.
- Service vehicle routes should be as direct as possible.
- The number of loading berths provided should be sufficient to accommodate anticipated service and delivery activity.

Emergency Vehicle Access

- Entrance curb to curb widths must be 20 feet minimum.
- An emergency vehicle only access shall be restricted with a chain, gate or bollard, and properly signed to the satisfaction of the Fire Department.
- Extra aisle widths may be required adjacent to fire hydrants.
- "No Parking - Fire Lane" signs may be required on-site.

Parking

Adequate parking should be provided to meet site generated demands. On-site parking should be provided in accordance with the Transportation Development Section's recommended parking ratios shown in **Appendix 3.** Minimum parking requirements may vary where superseded by the San Diego Municipal Code. Parking should be dispersed throughout the site for convenience to destinations. The Municipal Code addresses parking lot design considerations.

Shared parking is a valid approach to the determination of total parking needs of any mixed use development. Close building proximity and efficient internal circulation systems and access drives are necessary for shared parking to be successful. **Appendix 3** also contains procedures for reducing parking requirements for mixed use developments.

For major developments, bicycle parking should be provided at a ratio of 2 spaces per 100 auto parking spaces.

The location of bicycle parking and carpool or vanpool parking should be in close proximity to the building entrances.

Pedestrian, Transit and Bicycle Considerations

The overall site plans should also consider public transportation, pedestrians, and bicyclists. Appropriate public transportation facilities and shuttle bus staging areas should be accommodated adjacent to service drives and entrance areas, at key locations along circulation drives or at major pedestrian focal points along the roadway system. Pedestrian connections between these facilities, public sidewalks and the site buildings should be integrated in the overall design of the project. Proper design of pedestrian facilities can reduce the use of motor vehicles for trips within a development and between nearby developments.

APPENDIX 1

SCREEN CHECK

CITY OF SAN DIEGO
TRANSPORTATION DEVELOPMENT SECTION
TRAFFIC IMPACT STUDY
SCREEN CHECK

To be completed by City Staff.
Date Received ________
Reviewer ________
Date Screen Check ____

To be completed by consultant (including page #):
Name of Traffic Study ______________________________
Consultant ______________________________
Date Submitted ______________________________

Indicate Page # in report:

Page	Item	Satisfactory YES	Satisfactory NO	NOT REQUIRED
pg. ___	1. Table of contents, list of figures and list of tables.	☐	☐	
pg. ___	2. Executive summary.	☐	☐	
pg. ___	3. Map of the proposed project location	☐	☐	
	4. General project description and background information:			
pg. ___	a. Proposed project description (acres, dwelling units....)	☐	☐	
pg. ___	b. Total trip generation of proposed project.	☐	☐	
pg. ___	c. Community plan assumption for the proposed site.	☐	☐	
pg. ___	d. Discuss how project affects the Congestion Management program.	☐	☐	
pg. ___	5. Parking, transit and on-site circulation discussions are included.	☐	☐	
pg. ___	6. Map of the Transportation Impact Study Area and specific intersections studied in the traffic report.	☐	☐	
pg. ___	7. Existing Transportation Conditions:			
	a. Figure identifying roadway conditions including raised medians, median openings, separate left and right turn lanes, roadway and intersection dimensions, bike lanes, parking, number of travel lanes, posted speed, intersection controls, turn restrictions and intersection lane configurations.	☐	☐	
	b. Figure indicating the daily (ADT) and peak hour volumes.	☐	☐	
	c. Figure or table showing level of service (LOS) for intersections during peak hours and roadway sections within the study area (analysis sheets included in the appendix).	☐	☐	
	8. Project Trip Generation:			
pg. ___	Table showing the calculated project generated daily (ADT) and the peak hour volumes.	☐	☐	
pg. ___	9. Project Trip Distribution using the current TRANPLAN Computer Traffic Model (provide a computer plot) or manual assignment if previously approved. (Identify which method was used.)	☐	☐	
	10. Project Traffic Assignment:			
pg. ___	a. Figure indicating the daily (ADT) and peak hour volumes.	☐	☐	
pg. ___	b. Figure showing pass-by-trip adjustments, if cumulative trip rates are used.	☐	☐	☐
	11. Existing + Other Pending Projects:			
pg. ___	a. Figure indicating the daily (ADT) and peak hour volumes.	☐	☐	
pg. ___	b. Figure or table showing the projected LOS for intersections during peak hours and roadway sections within the study area (analysis sheets included in the appendix).	☐	☐	
pg. ___	c. Traffic signal warrant analysis for appropriate locations (signal warrants included in the appendix).	☐	☐	

	Satisfactory YES	NO	NOT REQUIRED

12. Existing + Other Pending Projects + Project (short term cumulative):

pg. ____ a. Figure or table showing the projected LOS for intersections during peak hours and roadway sections with the project (analysis sheets included in the appendix). ☐ ☐

pg. ____ b. Figure showing other projects that were included in the study, and the assignment of their site traffic. ☐ ☐

pg. ____ c. Traffic signal warrant analysis for appropriate locations (signal warrants in the appendix). ☐ ☐

13. Build-out Transportation Conditions (if project conforms to the community plan):

pg. ____ a. Build-out ADT and street classification that reflect the community plan. ☐ ☐ ☐

pg. ____ b. Figure or table showing the build-out LOS for intersections during peak hours and roadway sections with the project (analysis sheets included in the appendix). ☐ ☐ ☐

pg. ____ c. Traffic signal warrant analysis at appropriate locations (signal warrants included in the appendix). ☐ ☐ ☐

14. Build-out Transportation Conditions (if project does not conform to the community plan).

pg. ____ a. Build-out ADT and street classification as shown in the community plan. ☐ ☐ ☐

pg. ____ b. Build-out ADT and street classification for two scenarios: with the proposed project and with the land use assumed in the community plan. ☐ ☐ ☐

pg. ____ c. Figure or table showing the build-out LOS for intersections during peak hours and roadway sections for two scenarios: with the proposed project and with the land use assumed in the community plan (analysis sheets included in the appendix). ☐ ☐ ☐

pg. ____ d. Traffic signal warrant analysis at appropriate locations with the land use assumed in the community plan (signal warrants included in the appendix). ☐ ☐ ☐

pg. ____ 15. A summary table showing the comparison of Existing, Existing + Other Pending Projects, Existing + Other Pending Projects + Proposed Project, and Buildout, LOS on roadway sections and intersections during peak hours. ☐ ☐

16. Transportation Mitigation Measures.

pg. ____ a. Table identifying the mitigations required that are the responsibility of the developer and others. A phasing plan is required if mitigations are proposed in phases. ☐ ☐

pg. ____ b. Figure showing all proposed mitigations that include: intersection lane configurations, lane widths, raised medians, median openings, roadway and intersection dimensions, right-of-way, offset, etc. ☐ ☐

pg. ____ 17. The traffic study is signed by a California Registered Traffic Engineer. ☐ ☐

pg. ____ 18. The Highway Capacity Manual Operational Method or other approved method is used at appropriate locations within the study area. ☐ ☐

pg. ____ 19. Analysis complies with Congestion Management requirements. ☐ ☐ ☐

pg. ____ 20. Appropriate freeway analysis is included. ☐ ☐ ☐

pg. ____ 21. Appropriate freeway ramp metering analysis is included. ☐ ☐ ☐

THE TRAFFIC STUDY SCREEN CHECK FOR THE SUBJECT PROJECT IS:

__________ Approved

__________ Not approved because the following items are missing:

____

____

____

____

____

APPENDIX 2

RAMP METER ANALYSIS

APPENDIX 2. RAMP METERING ANALYSIS

Ramp metering analysis should be performed for each horizon year scenario in which ramp metering is expected. The following table shows relevant information that should be included in the ramp meter analysis (calculations are shown in the footnotes):

LOCATION	DEMAND[1] (veh/hr)	METER RATE[2] (veh/hr)	EXCESS DEMAND[3] (veh/hr)	AVERAGE DELAY[4] (min)	AVERAGE QUEUE[5] (feet)
I-5/Carmel Mountain Road (SB/AM Peak)	985	788	197	15.0[6]	4,925
I-5/Carmel Mountain Road (SB/PM Peak)	510	1000	0	0	0

Notes:

1 DEMAND is the peak hour demand expected to use the on-ramp.

2 METER RATE is the peak hour capacity expected to be processed through the ramp meter. This value is usually available from Caltrans.

3 EXCESS DEMAND = (DEMAND) - (METER RATE) or zero, whichever is greater

4 AVERAGE DELAY = $\frac{\text{EXCESS DEMAND}}{\text{METER RATE}}$ * 60 minutes/hour

5 AVERAGE QUEUE = (EXCESS DEMAND) * 25 feet/vehicle

6 Ramp meter delays above 15 minutes are not acceptable.

APPENDIX 3

PARKING REQUIREMENTS

Transportation Development Section
Parking Rates Used for Discretionary Review

LAND USE	RATE
RESIDENTIAL USES	
Single-family Residential	2 per dwelling unit
Multi-family Residential	
Resident portion	
Studio	1.00 per dwelling unit
One bedroom	1.25 per dwelling unit
Two bedroom	1.50 per dwelling unit
Three or more bedrooms	1.75 per dwelling unit
Supplemental portion	
General	add 30% of resident portion*
Beach or Campus impact area	add 50% of resident portion*
*Transit Reductions	
Transit Corridor	0.10 of supplemental
Nodal Corridor/Transfer Node	0.20 of supplemental
Transit Node	0.30 of supplemental
Transit Hub	0.60 of supplemental
* Density Reductions	
42 - 72 units per acre	0.10 of supplemental
73 - 142 units per acre	0.20 of supplemental
143 or more units per acre	0.30 of supplemental
* Commercial Use Reductions	
4% to 8.9% gross floor area	0.10 of supplemental
9% to 12.9% gross floor area	0.20 of supplemental
13% or more gross floor area	0.30 of supplemental
Common Area portion	In planned urbanizing areas only, 20% of resident & supplemental spaces must be located in a common area

(See next page for additional land uses)

NOTE:
- These parking rates are subject to change.
* If a PDO exists, parking requirements may vary from the above rates.

OTHER LAND USES

Hotel	1 per guest room
Restaurant	
Free-standing building	1 per 60 gross sq. ft.
Combined in project	1 per 80 gross sq. ft.
Banquet Room	1 per 80 gross sq. ft.
Retail	1 per 200 gross sq. ft.
Medical Office	1 per 250 gross sq. ft.
Commercial Office	1 per 300 gross sq. ft.
Scientific Research and Development	1 per 400 gross sq. ft.
Library	
with high meeting room use	1 per 175 gross sq. ft.
without high meeting room use	1 per 200 gross sq. ft.
Daycare Center	
Staff	1 per each adult (1 per 6 students)
Loading/unloading area	add 1 per 12 students
Hospital	
with transit	1.75 per bed
without transit	2 per bed
Convalescent Hospital	1 per 3 beds
Theatre	
1-3 screens	1 per 3 seats
4 or more screens	1 per 3.3 seats
Church	1 per 3 seats
Health Club	1 per 200 gross sq. ft.
Marina	1 per 3 boat slips
General Aviation Airport	
parking in hangars/tiedowns	9 per 100 hangars/tiedowns
no parking in hangars/tiedowns	27 per 100 hangars/tiedowns
Industrial	1 per 400 gross sq. ft.
Warehousing	
Storage area	1 per 1,000 gross sq. ft.
Office area	1 per 300 gross sq. ft.

NOTE:
- These parking rates are subject to change.
- If a PDO exists, parking requirements may vary from the above rates.

§ 142.0540 Cont'd Footnote to Table 142-05G

(1) The City Engineer will determine whether a *lot* has adequate *alley* access according to accepted engineering practices.

(b) Exceeding Maximum Permitted Parking. Development proposals may exceed the maximum permitted automobile parking requirement shown in Tables 142-05D, 142-05E, and 142-05F with the approval of a Neighborhood Development Permit, subject to the following:

(1) The *applicant* must show that the proposed parking spaces are required to meet anticipated parking demand, will not encourage additional automobile trips, and will not result in adverse site design impacts; and

(2) The number of automobile parking spaces provided shall not be greater than 125 percent of the maximum that would otherwise be permitted.

(c) Varying From Minimum Parking Requirements. Development proposals may, at the applicant's option, vary from the minimum parking requirements of this division with the approval of a Transportation Demand Management (TDM) Plan and Site Development Permit decided in accordance with Process Three, subject to the following requirements.

(1) The TDM Plan shall be designed to reduce peak period automobile use with such techniques as carpooling, vanpooling, transit, bicycling, walking, telecommuting, compressed work weeks, or flextime.

(2) To compensate for a reduction in parking, the TDM Plan shall specify only those measures that would not otherwise be required by this division.

(3) In no case shall the number of automobile parking spaces provided be less than 85 percent of the minimum that would otherwise be required.

(4) The *applicant* shall show that the TDM Plan adequately mitigates the proposed reductions in automobile parking.

(5) The owner shall set aside land for a parking facility or allow for future construction or expansion of a structured parking facility that is sufficient to provide additional parking spaces equal in number to the number reduced.

(6) In the event of noncompliance with the TDM Plan, the City Manager shall require the owner to construct additional parking spaces equal in number to the spaces originally reduced.

§ 142.0545 Shared Parking Requirements

(a) Approval Criteria. In all zones except single unit residential zones, *shared parking* may be approved through a Building Permit subject to the following requirements.

(1) *Shared parking* requests shall be for two or more different land uses located adjacent or near to one another, subject to the standards in this section.

(2) All *shared parking* facilities shall be located within a 600-foot horizontal distance of the uses served.

§ 142.0545
Cont'd

(3) Parties involved in the shared use of a parking facility shall provide an agreement for the shared use in a form that is acceptable to the City Attorney.

(4) *Shared parking* facilities shall provide *signs* on the *premises* indicating the availability of the facility for patrons of the participating uses.

(5) Modifications to the *structure* in which the uses are located or changes in tenant occupancy require review by the City Manager for compliance with this section.

(b) Shared Parking Formula. *Shared parking* is based upon the variations in the number of parking spaces needed (parking demand) over the course of the day for each of the proposed uses. The hour in which the highest number of parking spaces is needed (peak parking demand) for the proposed *development*, based upon the standards in this section, determines the minimum number of required *off-street parking spaces* for the proposed *development*.

(1) The *shared parking* formula is as follows:

A, B, C	=	proposed uses to share parking spaces
PA	=	parking demand in the peak hour for Use A
PB	=	parking demand in the peak hour for Use B
PC	=	parking demand in the peak hour for Use C
HA%	=	the percentage of peak parking demand for Use A in Hour H
HB%	=	the percentage of peak parking demand for Use B in Hour H
HC%	=	the percentage of peak parking demand for Use C in Hour H
P(A, B, C)	=	peak parking demand for Uses A, B and C combined

Formula:

P(A, B, C) = (PA x HA%) + (PB x HB%) + (PC x HC%),
where H = that hour of the day (H) that maximizes P(A, B, C)

(2) Table 142-05G contains the peak parking demand for selected uses, expressed as a ratio of parking spaces to *floor* area.

(3) Table 142-05H contains the percentage of peak parking demand that selected uses generate for each hour of the day (hourly accumulation curve), in some cases separated into weekdays and Saturdays. The period during which a use is expected to generate its peak parking demand is indicated as 100 percent, and the period during which no parking demand is expected is indicated with "-".

(4) The parking demand that a use generates in a particular hour of the day is determined by multiplying the peak parking demand for the use by the percentage of peak parking demand the use generates in that hour.

(5) The parking demand of the proposed *development* in a particular hour of the day is determined by adding together the parking demand for each use in that hour.

§ 142.0545
Cont'd

(6) The minimum number of required *off-street parking spaces* for the proposed *development* is the highest hourly parking demand.

(7) Uses for which standards are not provided in Tables 142-05H and 142-05I may nevertheless provide *shared parking* with the approval of a Neighborhood Development Permit, provided that the *applicant* shows evidence that the standards used for the proposed *development* result in an accurate representation of the peak parking demand.

(c) Single Use Parking Ratios. *Shared parking* is subject to the parking ratios in Table 142-05H.

Table 142-05H
Parking Ratios for Shared Parking

Use	Peak Parking Demand (Ratio of spaces per 1,000 square feet of floor area unless otherwise noted. Floor area includes gross floor area plus below grade *floor* area and excludes floor area devoted to parking)	Transit Area[1]
Office (except medical office)		
Weekday	3.3	2.8
Saturday	0.5	0.5
Medical office		
Weekday	4.0	3.4
Saturday	0.5	0.5
Retail sales	5.0	4.3
Eating & drinking establishment	15.0	12.8
Cinema 1-3 screens 4 or more screens	1 space per 3 seats 1 space per 3.3 seats	1 space per 3 seats 1 space per 3.3 seats
Visitor accommodations	1 space per *guest room*	1 space per *guest room*
Conference room	10.0	10.0
Multiple dwelling units	(see Section 142.0525)	

Footnote for Table 142-05H

(1) *Transit Area*. The *transit area* peak parking demand applies in the *Transit Area* Overlay Zone (see Chapter 13, Article 2, Division 10).

(d) Hourly Accumulation Rates. Table 142-05I contains, for each hour of the day shown in the left column, the percentage of peak demand for each of the uses, separated in some cases into weekdays and Saturdays.

§ 142.0545
Cont'd

Table 142-05I
Representative Hourly Accumulation by Percentage of Peak Hour

Hour of Day	Office (Except Medical Office)		Medical Office		Retail Sales		Eating & Drinking establishment.		Cinema	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
6 a.m.	5%	-	5%	-	-	-	15%	20%	-	-
7 a.m.	15	30%	20	20%	10%	5%	55%	35%	-	-
8 a.m.	55	50	65	40	30	30	80	55	-	-
9 a.m	90	80	90	80	50	50	65	70	-	-
10 a.m.	100	90	100	95	70	75	25	30	5%	-
11 a.m.	100	100	100	100	80	90	65	40	5	-
Noon	90	100	80	100	100	95	100	60	30	30%
1 p.m.	85	85	65	95	95	100	80	65	70	70
2 p.m.	90	75	80	85	85	100	55	60	70	70
3 p.m.	90	70	80	95	80	90	35	60	70	70
4 p.m.	85	65	80	50	75	85	30	50	70	70
5 p.m.	55	40	50	45	80	75	45	65	70	70
6 p.m.	25	35	15	45	80	65	65	85	80	80
7 p.m.	15	25	10	40	75	60	55	100	100	90
8 p.m.	5	20	5	5	60	55	55	100	100	100
9 p.m.	5	-	5	-	45	45	45	85	100	100
10 p.m.	5	-	5	-	30	35	35	75	100	100
11p.m.	-	-	-	-	15	15	15	30	80	80
Midnight	-	-	-	-	-	-	5	25	70	70

Hour of Day	Visitor Accommodations					
	Guest Room		Eating & Drinking Establishment		Conference Room	Exhibit Hall and Convention Facility
	Weekday	Saturday	Weekday	Saturday	Daily	Daily
6 a.m.	100%	90%	15%	20%	-	-
7 a.m.	95	80	55	35	—	-
8 a.m.	85	75	80	55	50%	50%
9 a.m	85	70	65	70	100	100
10 a.m.	80	60	25	30	100	100
11 a.m.	75	55	65	40	100	100
Noon	70	50	100	60	100	100
1 p.m.	70	50	80	65	100	100
2 p.m.	70	50	55	60	100	100

§ 142.0545 Cont'd

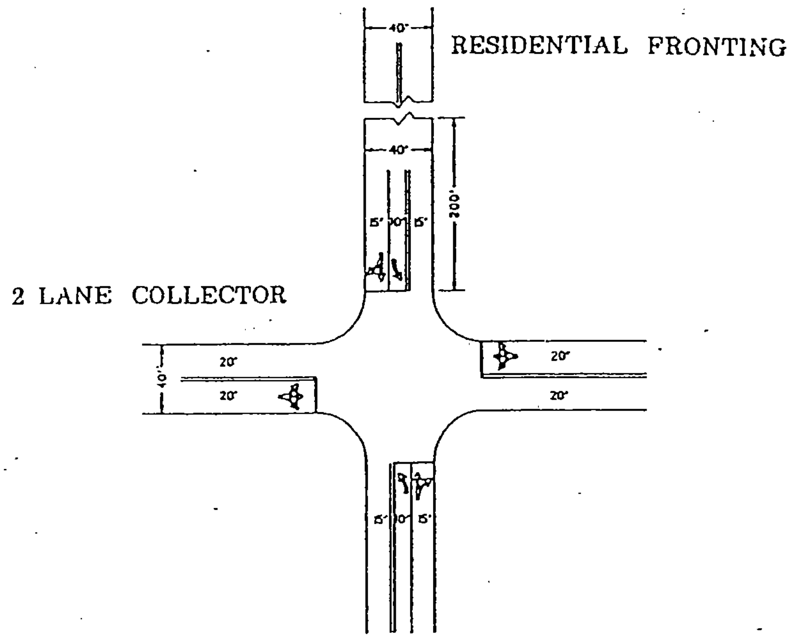
Hour of Day	Visitor Accommodations					
	Guest Room		Eating & Drinking Establishment		Conference Room	Exhibit Hall and Convention Facility
3 p.m.	60	50	40	60	100	100
4 p.m.	65	50	30	50	100	100
5 p.m.	60	60	45	65	100	100
6 p.m.	65	65	65	85	100	100
7 p.m.	75	70	55	100	100	100
8 p.m.	85	70	55	100	100	100
9 p.m.	90	75	45	85	100	100
10p.m.	90	85	35	75	50	50
11p.m.	100	95	15	30	-	-
Midnight	100	100	10	25	-	-

Hour of Day	Residential	
	Weekday	Saturday
6 a.m.	100%	100%
7 a.m.	80	100
8 a.m.	60	95
9 a.m	50	85
10 a.m.	40	80
11 a.m.	40	75
Noon	40	70
1 p.m.	35	65
2 p.m.	40	65
3 p.m.	45	65
4 p.m.	45	65
5 p.m.	50	65
6 p.m.	65	70
7 p.m.	70	75
8 p.m.	75	80
9 p.m.	85	80
10 p.m.	90	85
11 p.m.	95	90
Midnight	100	95

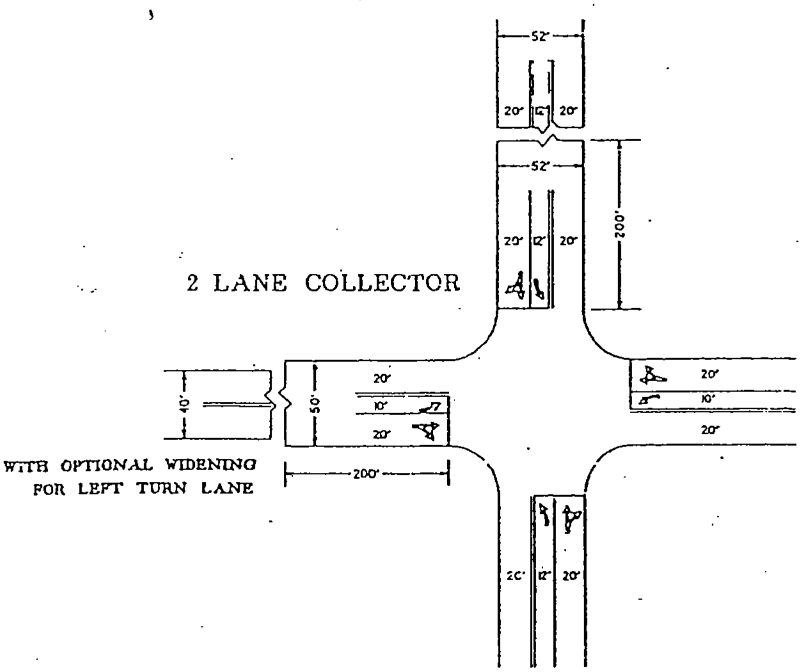
APPENDIX 4

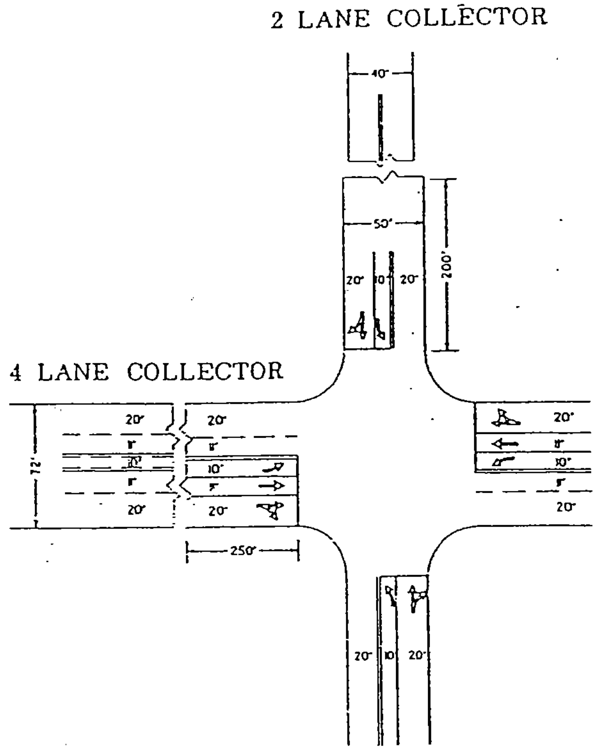
INTERSECTION LANE CONFIGURATIONS

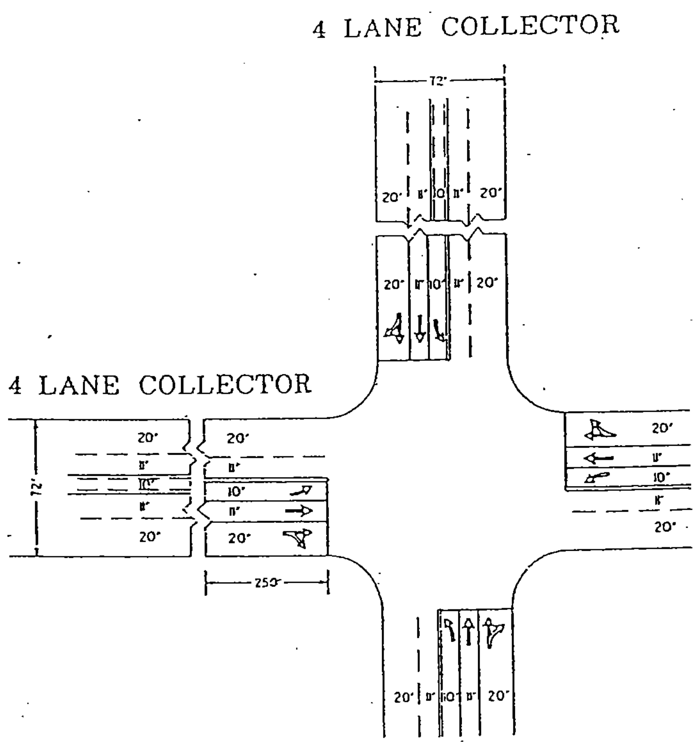
2 LANE COLLECTOR

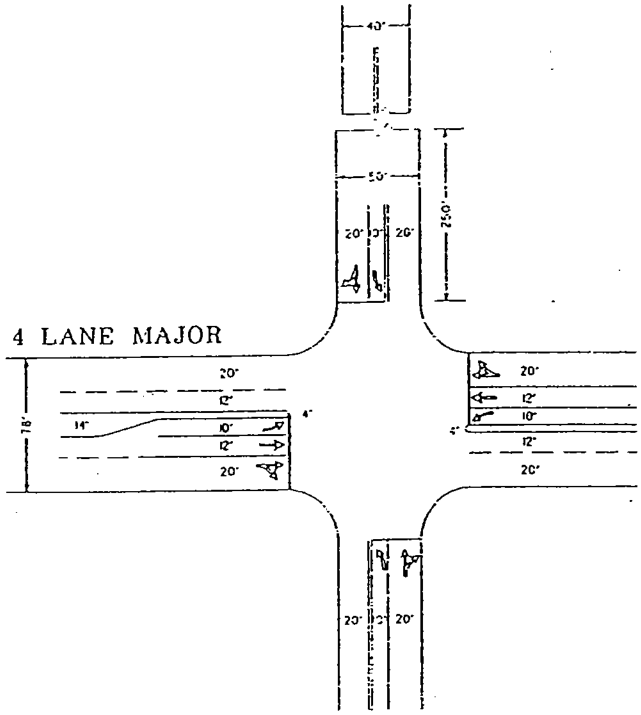


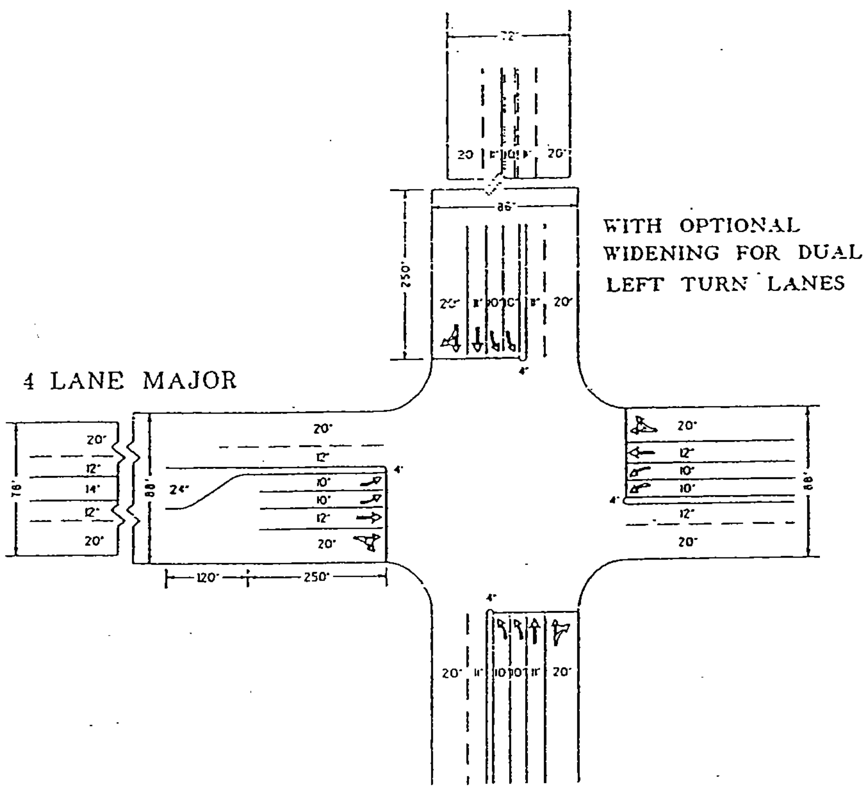
2 LANE COLLECTOR
WITH CONTINOUS TWO-WAY
LEFT-TURN LANE




2 LANE COLLECTOR
4 LANE COLLECTOR
40'
50'
200'
72'
250'
20'
10'
11'

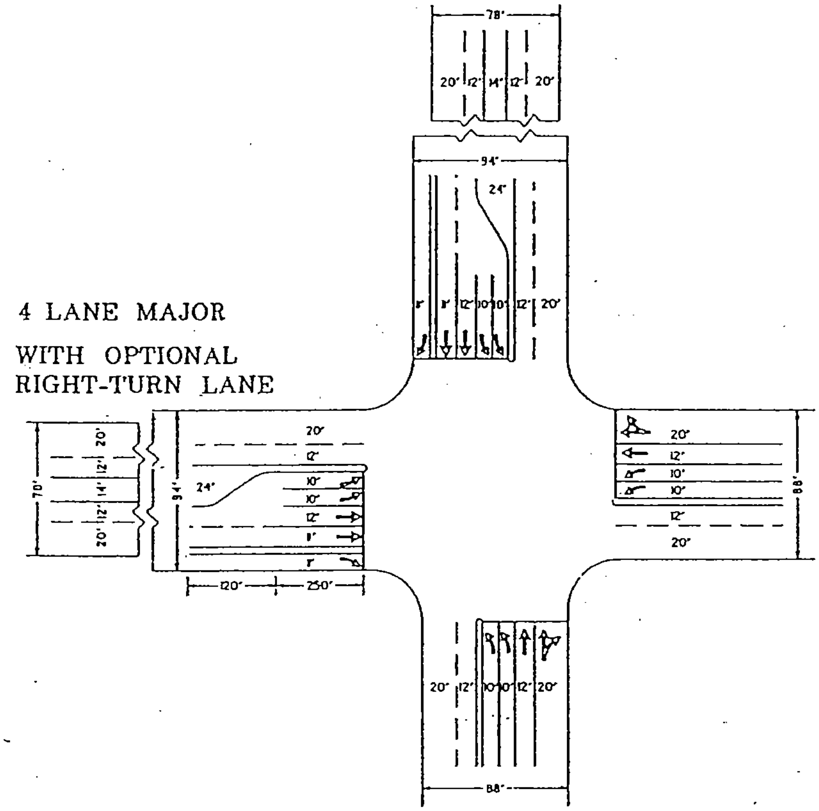

4 LANE COLLECTOR
4 LANE COLLECTOR
72'
72'
250'
20'
10'
11'


2 LANE COLLECTOR
4 LANE MAJOR


4 LANE COLLECTOR
WITH OPTIONAL WIDENING FOR DUAL LEFT TURN LANES
4 LANE MAJOR

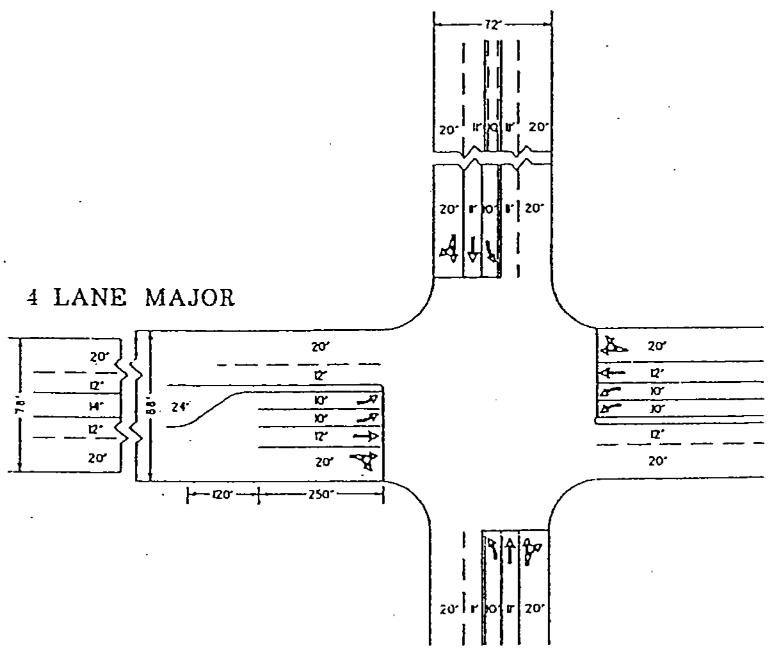
4 LANE MAJOR

4 LANE MAJOR
WITH OPTIONAL
RIGHT-TURN LANE

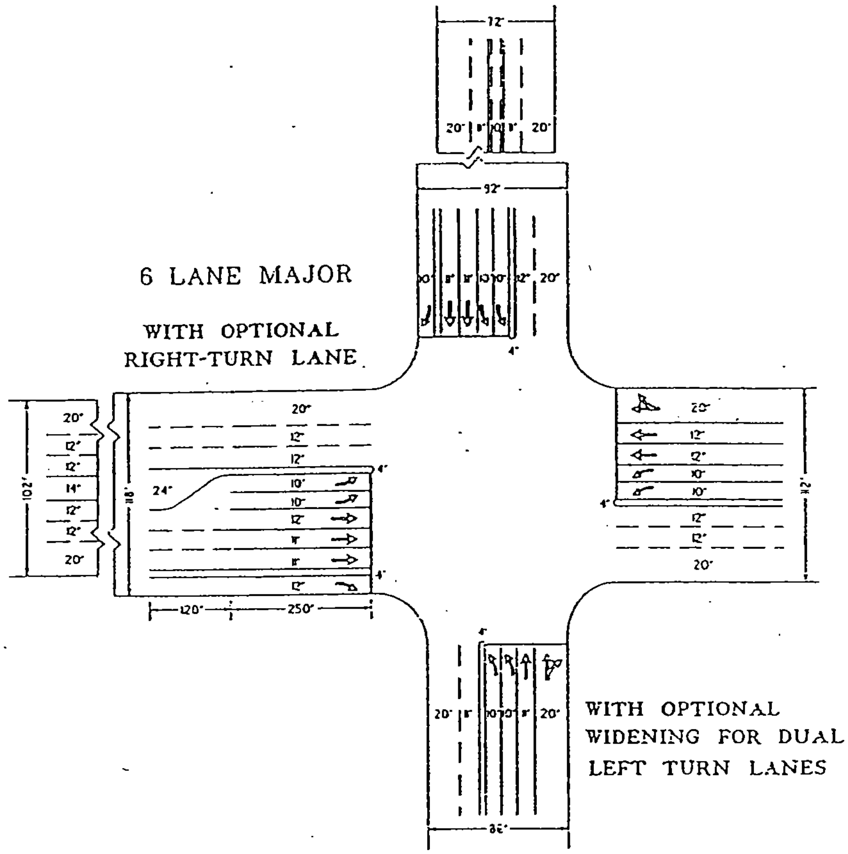


4 LANE COLLECTOR

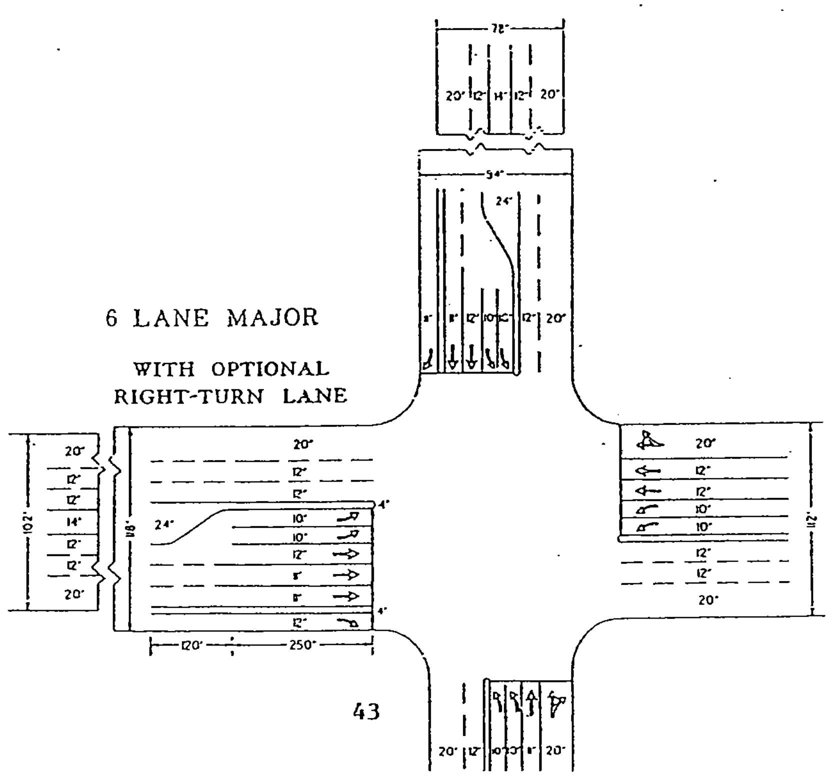
4 LANE MAJOR

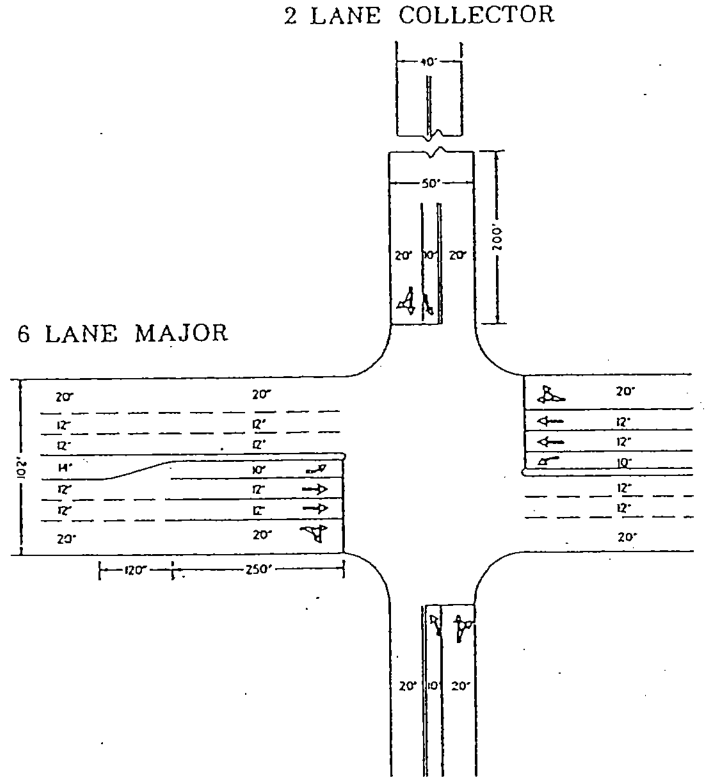


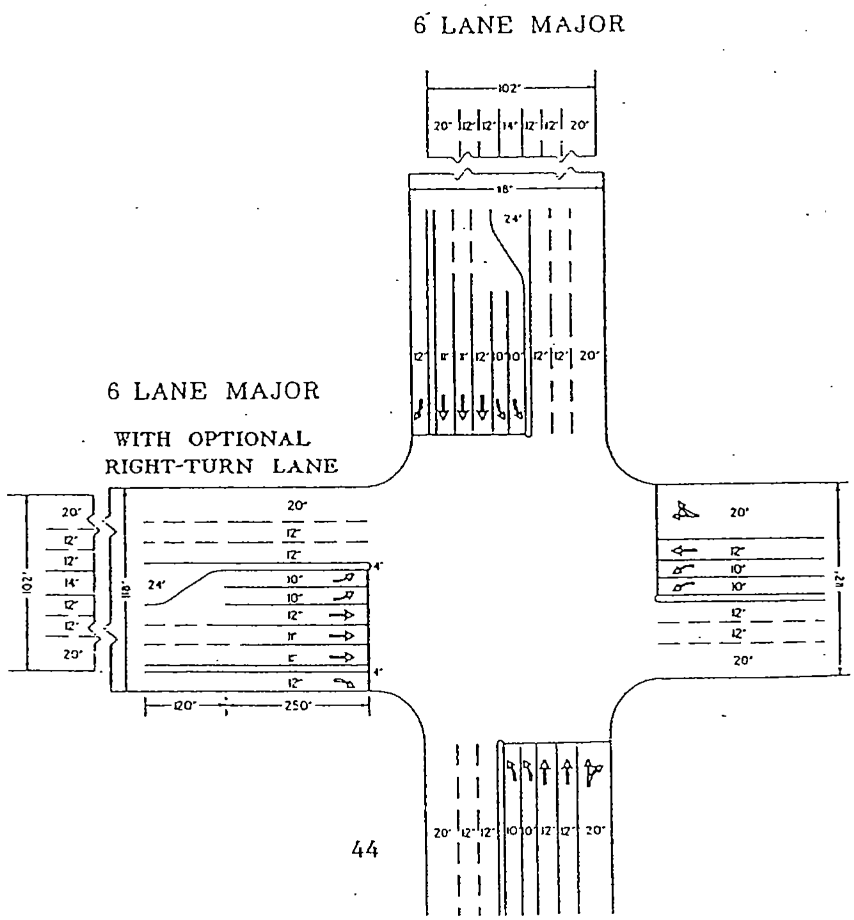
4 LANE COLLECTOR



4 LANE MAJOR




2 LANE COLLECTOR
6 LANE MAJOR


6 LANE MAJOR
6 LANE MAJOR
WITH OPTIONAL
RIGHT-TURN LANE

NAVAJO COMMUNITY PLAN - EXCERPTS

CIRCULATION

INTRODUCTION

Traffic circulation is an important concern inasmuch as the movement of people and goods within the Navajo community is directly related to its future economic, physical and social well-being. An adequate circulation system is essential to provide necessary services to households and businesses in the community.

Because the Navajo area has a greatly varying terrain, and because it is adjacent to the cities of Santee, La Mesa and El Cajon, some of the transportation problems encountered here are unique. Through the application of sound planning and engineering principles, it is possible to develop a balanced transportation system that that will serve the community's internal travel needs and provide access to other communities outside the immediately surrounding area.

It is beginning to be realized that, "(t)he effects from pollution, increasing dependency upon a single mode of transportation (motor driven vehicle) for all uses, and immobility among the poor, the aging, the young and the handicapped have caused doubt everywhere about the ultimate wisdom of our expanding roadway systems" (Report on Interim Hearings to the State Senate by the Senate Select Committee on Rapid Transit, 1971). It is therefore necessary to make strenuous efforts to reduce our almost complete dependence on the automobile by providing efficient alternative methods for moving people. Buses and Light Rail Transit (LRT) service provide two of the most efficient, alternative and growing modes of transportation in San Diego. San Diego's Metropolitan /transit System has an integrated bus/rail system. Currently, a network of bus routes serves the Navajo area. In October 1997, the MTD Board approved the extension of LRT through the Navajo community, continuing to San Diego State University and La Mesa. Service is schedule to start in late 2004. The extension includes a station in Grantville that is planned to have a park-and-ride lot and would be served by the improved bus system. The LRT project included the extension of Alvarado Canyon Road over Waring Road to Adobe Falls Road, which will provide a direct connection between the Navajo Community and the LRT station. Another recent development to reduce dependence on the automobile is the Employer Transit Assistance Program (ETAP) in which employers subsidize monthly transit passes for employees to encourage transit use. The program is administered through MTDB and Ridelink.

Future transportation requirements in the Navajo area are based upon anticipated future traffic volumes or "travel forecasts". Travel forecasts depend upon many factors, one of the most important of which is the future land use proposed for a particular area. Any substantial changes in proposed land uses and/or traffic forecasts in the Navajo area, therefore, may require a modification of the proposed transportation system, as would any change in present dependencies on the automobile for transportation. In addition to the local land use projections for Navajo, future travel demands for the entire region done by the San Diego Association of Governments (SANDAG) were used in evaluating the year 2000 transportation needs. Based on review of existing and currently anticipated future transportation needs of the Navajo area, it is proposed that the road and bikeway systems as indicated be adopted as a guideline for future street and bikeway development in the area. Additionally, it is strongly recommended that there be accelerated expansion of public transportation for the area.

OBJECTIVES

The basic objective of the circulation system is to provide each member of the community with safe, ready access around, as well as in and out of the community, by a mode of transportation of individual choice with minimal environmental damage.

To achieve this purpose will require that a fully integrated system of pedestrian, bicycle, public transit and automobile facilities be developed. The system should link all sections of the community--residential, commercial, employment, educational, recreational and cultural--by a safe mode best suited to the trip being made. With a well balanced transportation system available, the necessity for a third or even a second car per household will be greatly reduced, thus decreasing air pollution and congested streets.

The following additional objectives concerning the circulation element are established for the Navajo community:

- Develop a balanced transportation system that adequately links the Navajo area to nearby communities as well as regional facilities.

- Encourage use of the integrated bus/LRT system to maximize the benefits of the transportation system and its ability to efficiently move people and goods.

- Develop a balanced transportation system that adequately accommodates the community's internal needs.

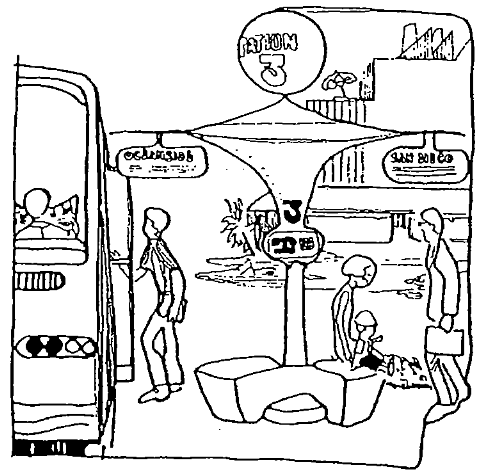
- Strive to separate automobile, pedestrian and bicycle conflicts and, where safe and practical, provide specially designated bikeways to accommodate the increased demand for this mode of travel.

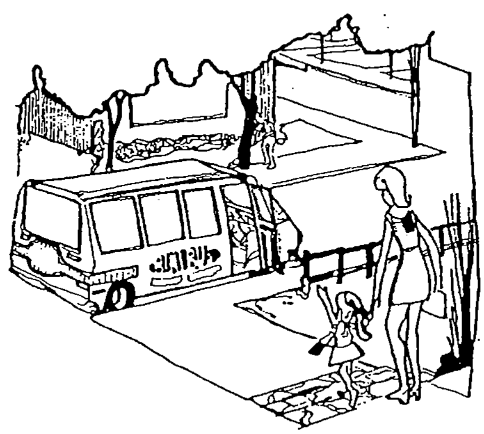
- Encourage hillside view preservation in the design of new streets. Fit streets carefully into the topography to minimize grading to insure that the street is compatible with the total landscape. The geology of an area may preclude or minimize grading in some specific cases.

PUBLIC TRANSPORTATION

INTRODUCTION

The future improvements in public transportation should be viewed objectively with regard to requirements to meet Navajo's future transportation needs. A SANDAG report titled "Transit Development, Plan and Program" completed in June, 1970 discussed future transit improvements for the entire region. Mentioned as possible problems in expanding service to areas such as Navajo is the low density development, the varying terrain of the area, and the lack of a grid street pattern. Mentioned as positive factors for an increase in public transportation are the future anticipated increases in automobile congestion, concern over air pollution caused by automobiles, the increase in costs of parking for those who work downtown, and the progressive attitude of the San Diego Transit Corporation and other governmental agencies. With increased transit service, many residents will be given alternatives to multi-car ownership.





EXISTING CONDITIONS

Currently, there are five bus routes that operate in the Navajo community areas. Bus Route 13 provides cross-town service on College Avenue, Waring Road, Zion Avenue, and Mission Gorge Road. Its southerly terminus is the LRT station at Euclid Avenue and Market Street in Southeastern San Diego. At present, this route provides modified service on weekends and holidays. Bus Route 115 operates from Fletcher Hills to Downtown San Diego with service in the community along Lake Murray Boulevard, Jackson Drive, Navajo Road, and College Avenue.

Bus Route 115 offers modified service on weekends and holidays. Route 854, County Transit System, provides limited service to the Navajo community. This route operates between Grossmont College in El Cajon and Grossmont Shopping Center in La Mesa, via Navajo Road and Lake Murray Boulevard in the City of San Diego. Bus route 40 provides service five days/week during AM/PM peak hours only from Fletcher Hills to Downtown San Diego with service in the community along Navajo Road and Waring Road. A fifth bus route, Bus Route 81, serves the southeast portion of the Navajo community via Baltimore Drive and Lake Murray Boulevard.

A study of Fiscal Year 1997 operating characteristics of the various buses serving Navajo showed that Route 115 is the most heavily used, carrying over 1,000,000 passengers annually with ten percent of its daily trips incurring standing loads. Of the five bus routes serving the Navajo community, Bus Route 40 carries the lowest number of passengers with annual boardings totaling 41,000.

A survey of transit passengers in San Diego conducted in 1995 by SANDAG, showed that many people who use routes servicing the Navajo community are transit-dependent. While passengers on Bus Routes 13, 40 and 81 used the bus for transportation to work (35-87 percent), most passengers on Bus Routes 115 and 854 used the bus for transportation to school (36-54 %). Because of the community's proximity to San Diego State University and Grossmont College the percentage of riders using public transit for the home to school trips exceeds the citywide average.

PROPOSALS

Implied in the transportation recommendations is the realization that circulation systems for personal vehicles can be designed only to accommodate a desired optimum traffic volume. Before traffic reaches this point, other modes of transportation must be programmed. In the past the alternative has been to continually increase rights-of-way or acquire new alignments to accommodate heavier traffic volumes. This alternative can no longer be considered the only solution.

The Metropolitan Transit Development Board has embarked on a program to improve bus service for San Diego. Planned transit improvements and others under consideration include:

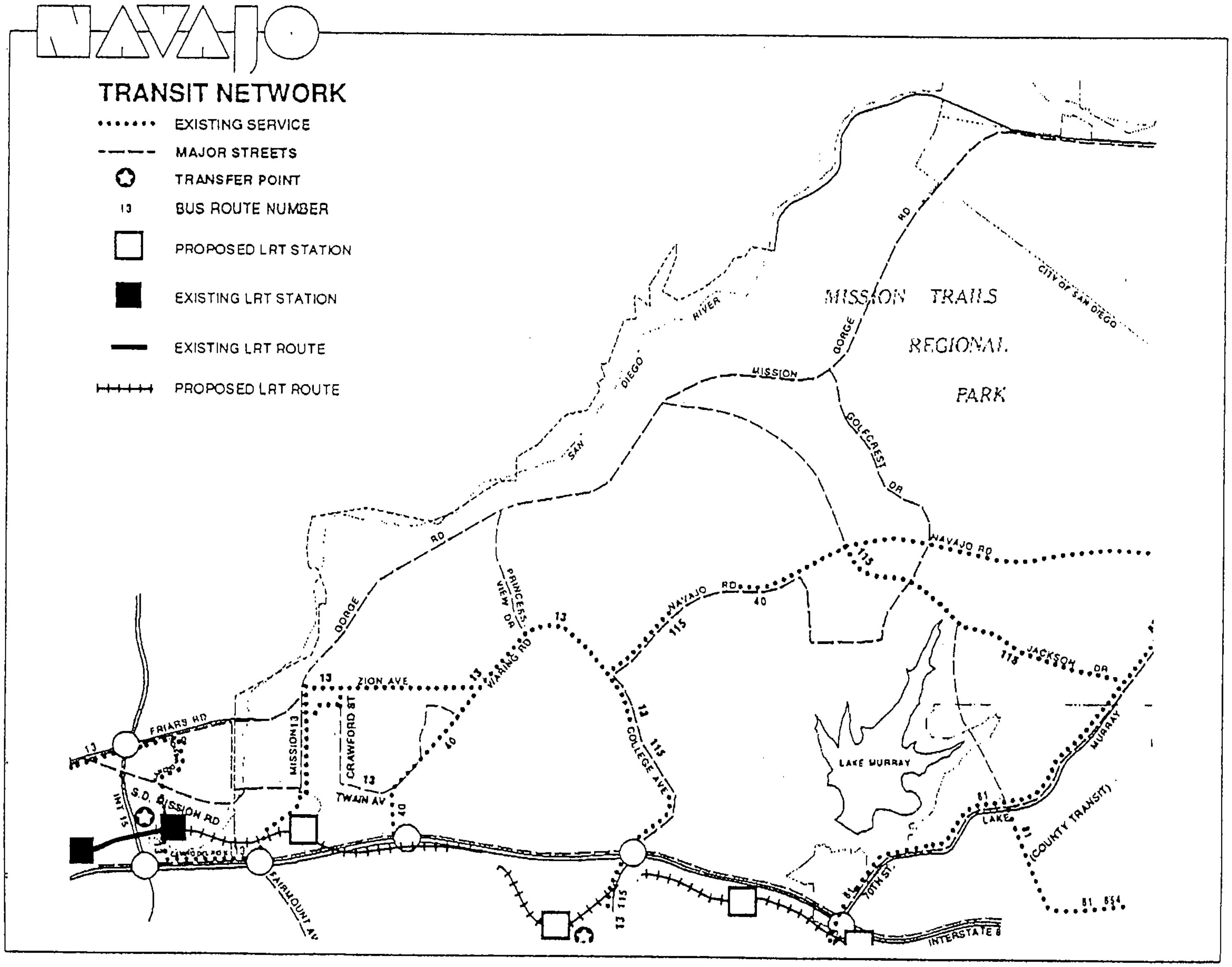
- Evaluation of rerouting Bus Route 13 to serve the future Grantville LRT station.

- Increase service on Bus Route 40 to operate all day, routing midday and selected peak period trips to the Grantville station. Evaluate effect of marketing efforts, need and possible service reductions in this route.

- Possible elimination of bus Route 81 to coincide with the opening of the Mission Valley East Light Rail Extension.

- Work with the city of La Mesa to possibly implement Westside Shuttle route operation to serve the future 70th Street trolley station.

For longer term improvements (up to the year 2000) there should be additional local and express service similar to that described above, with emphasis on minimizing travel time and wait time, extending service to provide a greater number of destinations and making transit travel more pleasing (e.g., modern vehicles and terminals).



CITY OF SAN DIEGO • PLANNING DEPARTMENT

BICYCLES

INTRODUCTION

Today across the United States the bicycle boom continues. People of all ages are riding bicycles as never before. People have turned to bicycles for exercise, recreation and transportation. Schools within a community often generate a high demand for bicycle facilities. Bikes do not pollute, are energy efficient, and they offer an opportunity to bypass congested streets.

The City has design standards for the construction of bikeways and an ongoing program of providing a comprehensive bikeway system for City residents that will connect to a regional bikeway network. Bikeways fall into three categories based on the degree or extent of their improvements: bicycle paths (Class I), lanes (Class II) and routes (Class III). Four such bikeways have been constructed in Navajo, and are noted on the bikeways map. They are described in the following section along with the proposed routes.

PROPOSALS

- **Regional Bikeway**

  A regional bike route is proposed from the ocean through Mission Valley to Mission Gorge Road and northeasterly along Mission Gorge Road. This route will also continue east parallel to the north side of I-8 from Mission Gorge Road to the vicinity of College Avenue.

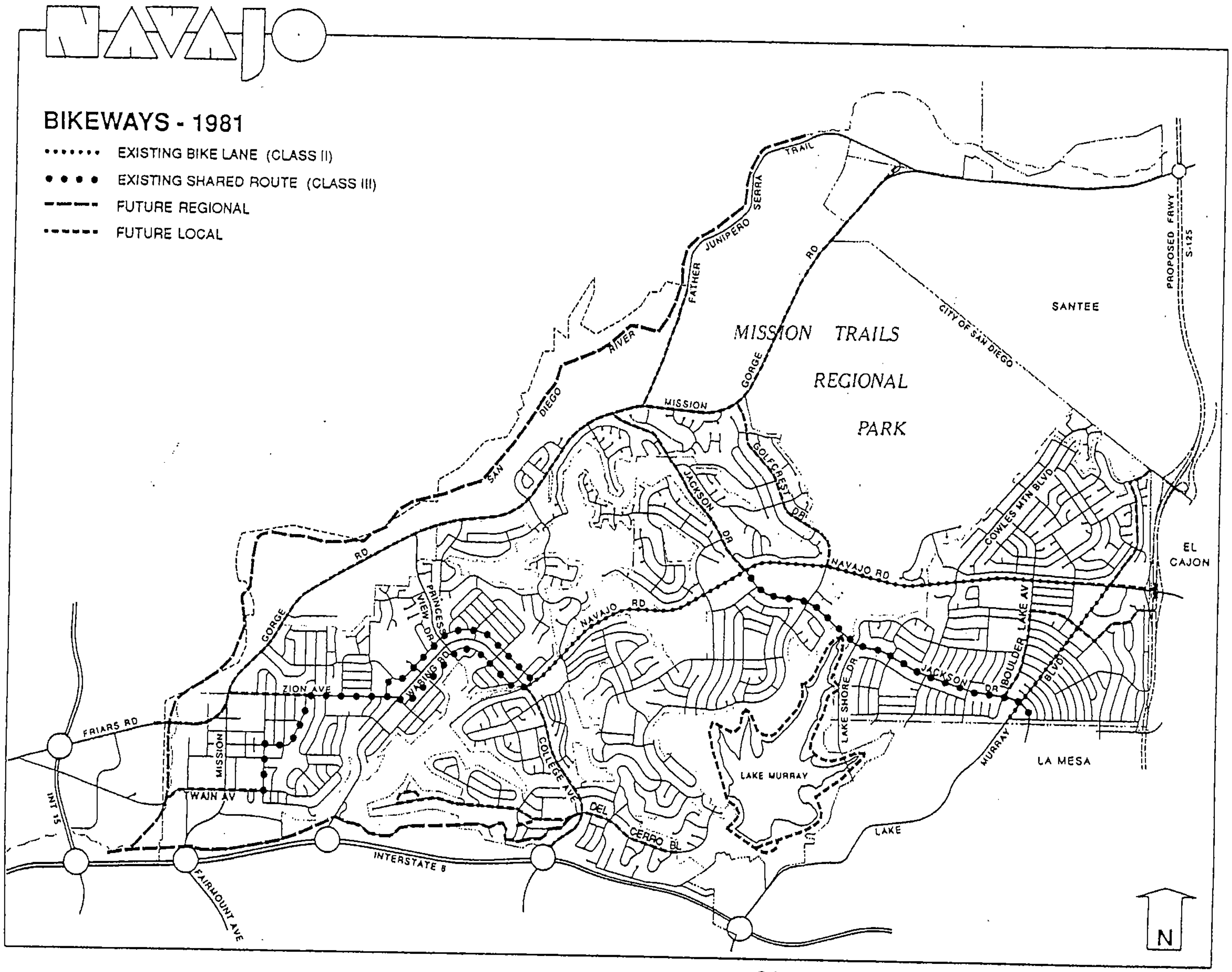
- **Del Cerro Route**

  This route would be oriented to the Del Cerro area and would utilize Del Cerro Boulevard from Trinity Way on the west to Linfield Avenue on the east. The intended alignment would provide a scenic overlook of Mission Valley. Length: 2.0 miles.

- **Allied Gardens Route**

  This route would be oriented to Allied Gardens and also provide for the extension of bicycling opportunities from that community easterly to the Del Cerro area. This existing route utilizes Barclay Avenue and Brunswick Avenue between Galewood Street and Zion Avenue. Both streets run through attractive residential areas. College Avenue, the link to Del Cerro, would provide scenic overlooks of San Diego. Length: 2.0 miles.

  Connector - This route provides a connection between the Allied Gardens route and the proposed San Diego River route in the vicinity of Zion Avenue. The route is aligned along Zion Avenue, Delbarton Street, Crawford Street, and Twain Avenue. Except for Twain Avenue, this route exists. Length: 2.0 miles.



CITY OF SAN DIEGO • PLANNING DEPARTMENT

- **Jackson Drive Extension**

  An extension of the Jackson Drive route would be a route that lies largely outside the San Diego City limits. This route would run from the City limits to the San Carlos Community Center by way of East Lake Avenue, Lake Ashmere, Lake Arrowhead, San Carlos Drive, Boulder Lake Avenue, and Jackson Drive. The Jackson Drive portion now exists. Length: 3.2 miles.

- **Lake Murray Boulevard Route**

  This route would be along Lake Murray Boulevard from Grossmont Community College to a connection with the Del Cerro route extension at Jackson Drive. This route presently utilizes a portion of the Lake Murray Boulevard frontage road from Jackson Drive to the Navajo shopping center. From the shopping center to the college, a portion of Lake Murray Boulevard would be set aside with appropriate striping for use as a bike route. The southerly portion of the route is a tree lined boulevard through an attractive residential area. Length: 1.75 miles.

- **Jackson Drive Route**

  This route consists of an existing Class III bikeway from the City of La Mesa to Mission Gorge Road. Total length: 3.0 miles.

- **Navajo Road Route**

  This route is along Navajo Road from the intersection of Waring Road and College Avenue, easterly to the City limits at Fanita Drive with the possibility of extensions into El Cajon. This route exists except for the most eastern half-mile. Total length: 3.7 miles.

- **Golfcrest Drive Route**

  This route would be along Golfcrest Drive from Navajo Road to Mission Gorge Road and would serve as a connector between the bike routes on those streets. Length: 1.25 miles.

- **Mission Gorge Road Route**

  This route would be along Mission Gorge Road from the Santee - San Diego City limits to the western limit of the community. Although the parallel bikeway along the San Diego River will remain as a desirable goal for future implementation, its construction is not imminent. In the meantime, relatively minimal and inexpensive work on Mission Gorge Road can produce a usable improvement for bicyclists. Total length: 5.2 miles.

  Connector - This proposed route provides a connection between the Mission Gorge Road route and the proposed San Diego River route. The route would be aligned along Father Junipero Serra Trail. Length: 1.2 miles.

The routes shown and described above are bikeway corridors, and not exact alignments. When this plan is implemented, minor deviations may be necessary.

STREETS

INTRODUCTION

The five basic functional categories of streets in San Diego are present in Navajo. They are: freeways, primary arterials, major streets, collector streets, and local streets.

Street and Highway Standards adopted for the City of San Diego in 1964 and revised in 1980, are shown in the Standards and Definitions section of this plan. Although these standards are applicable primarily to streets in new subdivisions, they also indicate desirable features to be obtained whenever improvement of an existing street system is undertaken. Also shown on the table are the maximum average daily volumes (ADT) of traffic desirable for each type of street.

EXISTING CONDITIONS

The Street Classification and Traffic Volumes map (page 92) shows the existing functional classifications for streets in the Navajo community, from the primary arterial to the collector street level. Interstate 8 forms the southern boundary of the area. Friars Road, Mission Gorge Road east of Friars Road, and Navajo Road all function as primary arterials. The other streets shown on the existing road network map function as major or collector streets.

The traffic volumes carried by each street in the Navajo roadway network are also shown on the Street Classification and Traffic Volumes map. The volumes listed are in vehicles per average weekday.

Volumes of over 20,000 vehicles per day exist on portions of Mission Gorge Road, Waring Road, College Avenue, Friars Road, Navajo Road, and Lake Murray Boulevard. The highest traffic volume recorded on a surface street is on Mission Gorge Road between Friars Road and Zion Avenue (52,700) where a six-lane facility exists.

There are several streets in the area that are carrying traffic volumes in excess of their design volume. Fairmount Avenue extension between Mission Gorge Road and Twain Avenue is 50 feet wide, yet carries 7,600 vehicles on an average weekday. The maximum desirable ADT for a two-lane collector street is 5,000 vehicles per day. Zion Avenue varies in width from 40 to 50 feet and has a maximum desirable ADT of 5,000 yet is currently carrying over 14,300 vehicles per day. Similarly, College Avenue between I-8 and Del Cerro Boulevard, Twain Avenue between Mission Gorge Road and 50th Street, Mission Gorge Road between Fairmount Avenue and Twain Avenue, and Madra Avenue north of Del Cerro Boulevard all carry volumes that exceed what is desirable for their classifications. (All traffic counts are as of 1987.)

PROPOSALS

Freeways and Expressways

- A recently completed study by SANDAG concluded that the easterly extension of State Route 52 is the most critical improvement needed to relieve traffic congestion on Mission Gorge Road, Friars Road, and Interstate 8. Construction of SR-52 from Santo Road in Tierrasanta to the City of Santee will be scheduled as soon as environmental clearance is obtained.

- An extension of Route 125 north to State Route 52 is proposed. When built, this freeway and/or expressway would parallel the eastern edge of the Navajo Community.

- Improvement by Caltrans of Interstate 15 to 6-8 lanes between 1-8 and State Route 163, and eight or more lanes north of Route 163 is being implemented.

- An additional westbound traffic lane on Interstate 8 between College Avenue and Interstate 15 is being proposed by Caltrans. This improvement will relieve traffic congestion on Interstate 8 and Navajo community streets that access Interstate 8 (i.e., College Avenue, Waring Road, and Mission Gorge Road). Caltrans is scheduled to advertise for bids for the widening in 1991.

Streets

1. The synchronization of traffic signals along Mission Gorge Road, between Interstate 8 and Rainier Avenue is currently being designed (Fiscal Year 1988). The traffic signals north of Rainier Avenue cannot be synchronized because they are spaced in excess of one-quarter mile apart, the maximum practical distance for synchronization.

2. Friars Road, between Riverdale Street and Santo Road, is planned to be widened to six lanes to alleviate congestion at the intersection of Mission Gorge Road and Friars Road that is caused by the three westbound lanes on Friars Road narrowing to two lanes west of Riverdale. This project is included in the Capital Improvements Program for design in Fiscal Year 1989.

3. Jackson Drive is planned to be extended as a major street from Mission Gorge Road northerly to connect to Clairemont Mesa Boulevard and SR-52 in the Tierrasanta community concurrent with the completion of SR-52. This project is scheduled in the Capital Improvements Program for design in Fiscal Year 1990.

4. The easterly extension of Alvarado Canyon Road will be constructed as part of the Mission Valley East LRT project as a two-lane collector crossing over Waring Road to Adobe Falls Road. The road will provide improved access to the planned Grantville LRT Station and help to mitigate traffic impacts on Fairmount Avenue, Mission Gorge Road, and the westbound I-8 offramp.

5. A study of the realignment of Alvarado Canyon Road should be completed and the project undertaken as soon as feasible. Subject to environmental review, the intersection of Alvarado Canyon Road with Mission Gorge Road should be moved northward to align with the Mission Gorge Road/Fairmount Avenue intersection. This realignment will help alleviate traffic congestion on the westbound I-8 offramp/Fairmount Avenue intersection. Consideration should also be given to widening the southbound Fairmount Avenue to westbound I-8 on-ramp in conjunction with this project.

The circulation plan must be oriented to provide a balanced transportation system for the Navajo community. Additional streets and alterations to existing streets should be limited to remedial and corrective measures. Only as a last resort should the widening or addition of streets, as would be required by the City's street standards, be considered.

Special treatment should be provided as indicated on the Street Classification Map to handle capacity problems. The special treatment required may take the form of parking prohibitions, widening at intersections to obtain additional lanes, adding or changing intersection channelization to facilitate heavy directional moves, and special traffic signal phasing or interconnection.

In the event the above techniques cannot adequately facilitate traffic, the following improvements should be considered:

1. Navajo Road should be widened to a six-lane major street east of Lake Murray Boulevard.

2. Mission Gorge Road should be widened to a six-lane facility north of Zion Avenue with no left-turn lanes except at signaled intersections. Between Fairmount Avenue extension and Interstate 8 (at its southerly terminus) Mission Gorge Road should also be improved to be a six-lane major street.

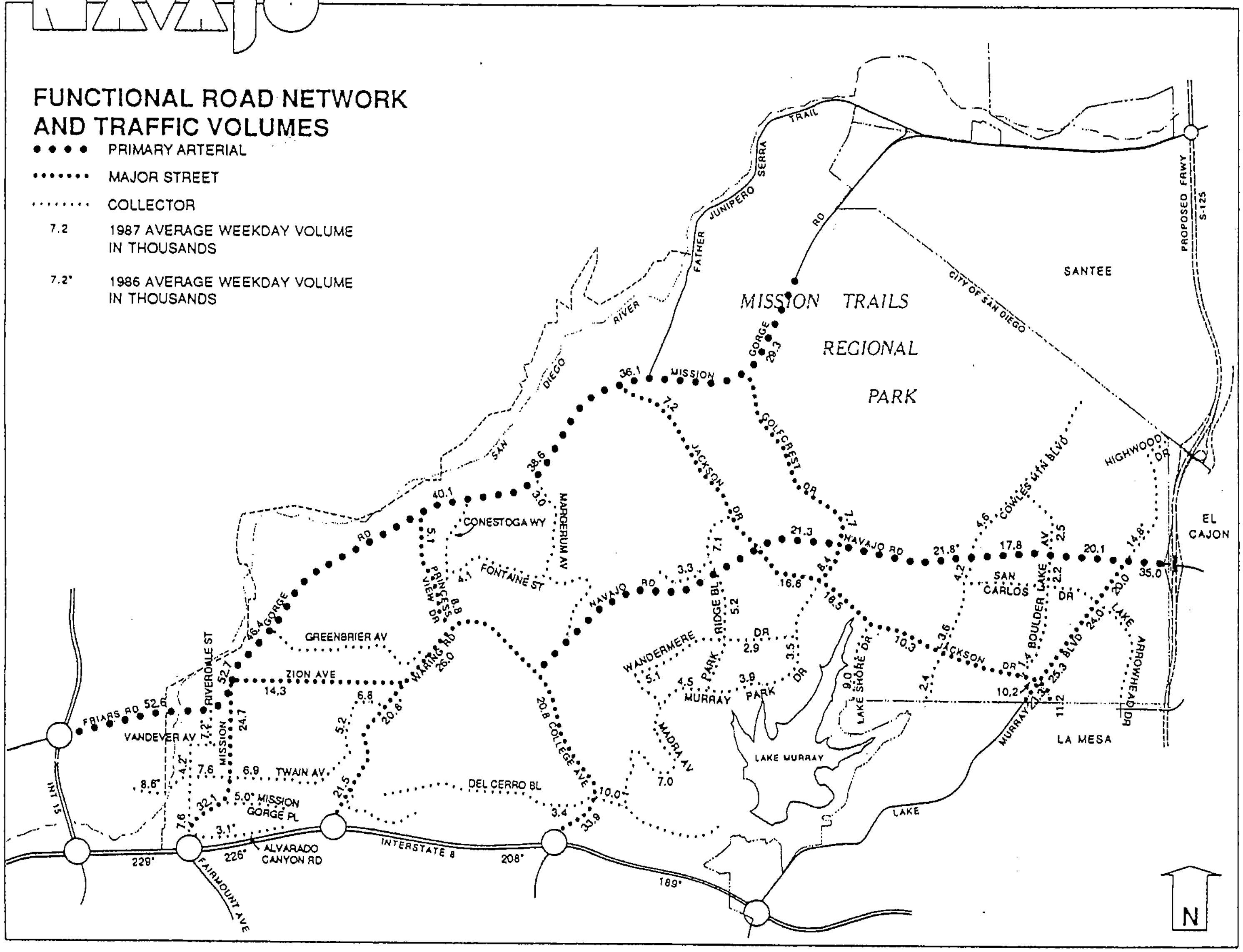
3. In preparing this next recommendation, City and State agencies and community interests were consulted and numerous alternatives were considered and analyzed. The recommendation for the extension of Navajo Road through Navajo Canyon appears to be the best solution at this time, but only under the following conditions:

   Since this plan recommends maintaining Navajo Canyon as open space, the extension of Navajo Road through the canyon should be designed to parkway standards and limited to a two-lane facility with four lanes at the intersections with College Avenue and Waring Road and no intermediate access; sufficient capacity must exist on Interstate 8 to accommodate the Navajo Road traffic; and a reevaluation of the entire recommendation shall be undertaken if at any time before construction, any curb on automobile traffic, such as the use of gasoline rationing, etc., takes place in San Diego.

   If the Navajo Road extension is not built, it is projected that volumes on Waring Road will approach 30,000 vehicles per day by the year 2000. This forecast volume exceeds the design capacity of this four-lane street with driveways, parking and houses fronting

NAVAJO

FUNCTIONAL ROAD NETWORK AND TRAFFIC VOLUMES



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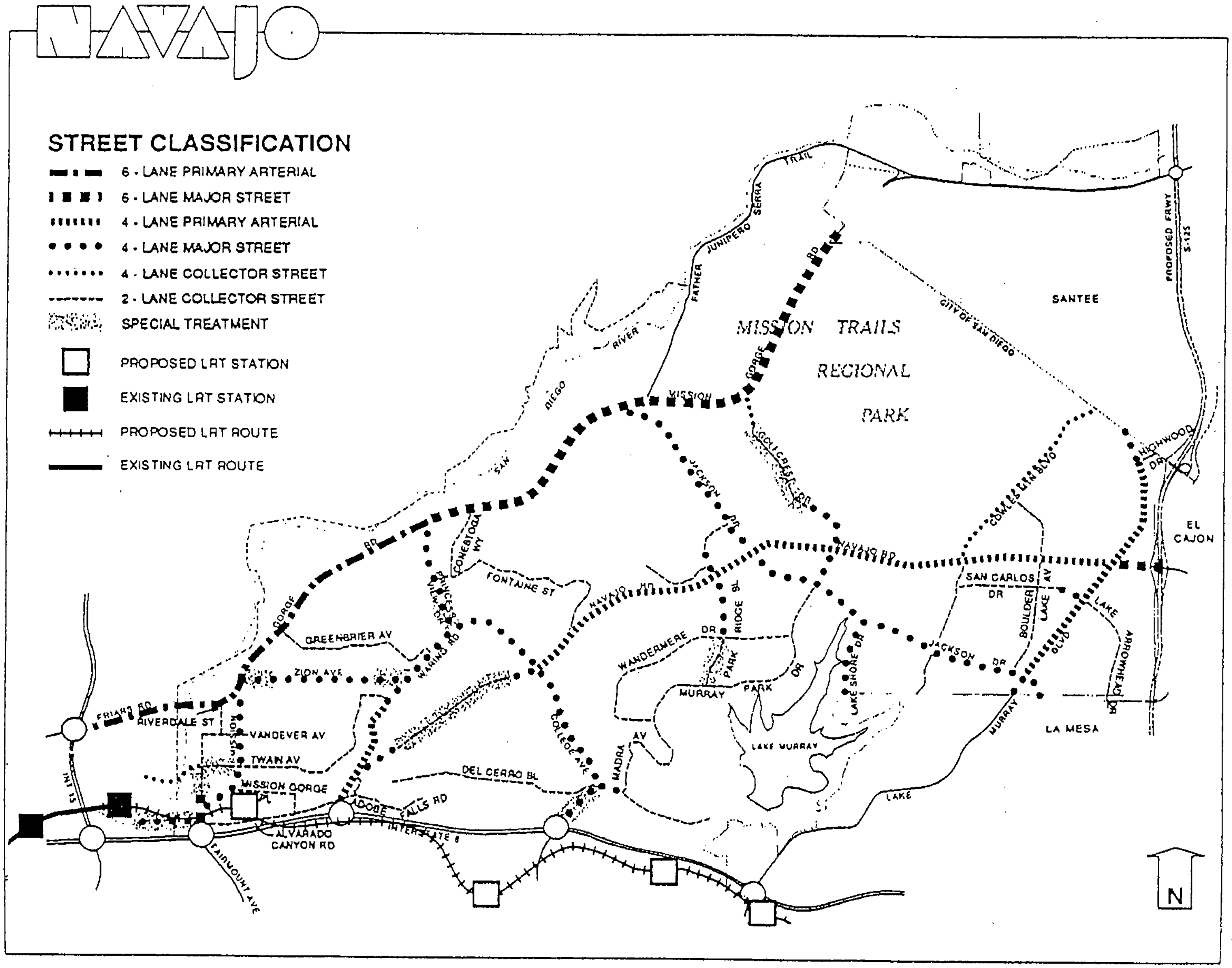

NAVAJO
STREET CLASSIFICATION
6 - LANE PRIMARY ARTERIAL
6 - LANE MAJOR STREET
4 - LANE PRIMARY ARTERIAL
4 - LANE MAJOR STREET
4 - LANE COLLECTOR STREET
2 - LANE COLLECTOR STREET
SPECIAL TREATMENT
PROPOSED LRT STATION
EXISTING LRT STATION
PROPOSED LRT ROUTE
EXISTING LRT ROUTE
MISSION TRAILS
REGIONAL
PARK
SANTEE
EL CAJON
LA MESA
CITY OF SAN DIEGO
FATHER JUNIPERO SERRA TRAIL
MISSION GORGE RD
SAN DIEGO RIVER
PROPOSED FRWY S-125
HIGHWOOD DR
NAVAJO RD
JACKSON DR
GOLFCREST DR
COWLES MTN BLVD
SAN CARLOS DR
LAKE MURRAY BLVD
BOULDER LAKE AV
ARROWHEAD DR
FONTAINE ST
CONESTOGA WY
PRINCESS VIEW DR
WARING RD
GREENBRIER AV
ZION AVE
FRIARS RD
RIVERDALE ST
VANDEVER AV
TWAIN AV
MISSION GORGE PL
ALVARADO CANYON RD
FAIRMOUNT AVE
ADOBE FALLS RD
INTERSTATE 8
DEL CERRO BL
COLLEGE AVE
MADRA AV
WANDERMERE DR
RIDGE BL
PARK RIDGE BL
MURRAY PARK DR
LAKE SHORE DR
LAKE MURRAY
N

on the street. Waring Road could become congested, resulting in inconvenience to motorists and nearby residents. In addition, the omission of the Navajo Road extension from the future roadway network would increase volumes on College Avenue, making it desirable to improve College Avenue to six lanes between Del Cerro Boulevard and Interstate 8.

Design Principles

One aspect of transportation planning which has been overlooked is that portion of its site planning which involves the art or form of the transportation facility. It is especially important that roadways be regarded as an integral part of the landscape in which they are sited. They must be something more than the standard provision of a surface for moving cars or guiding public transit vehicles. However, the design of the facility must not override, but be considered equally with, the safety and capacity of the facility.

Because of topography, many of the city standards for streets are not suitable for the Navajo community. The following standards are suggested for use in these areas.

- **Street Widening**

  Widening and realignment frequently destroys the visual character and identity of streets by the removal of mature trees, other landscaping, and median strips. The approach to street widening and realignment should be more sensitive to the character of the street and the quality of adjacent development. When substantial environmental damage may result to adjoining properties, the traffic carrying capacity of the street might be improved by eliminating on-street parking or using reverse lanes at peak hours rather than physical widening. When a street must be widened and necessarily encroaches on a dwelling's front or side yard, variations should be permitted in the zoning code requirements that would permit high walls to give residents privacy from the sight and noise of traffic.

- **Street Accessories**

  1) Standards for street paving and lighting are not varied systematically throughout the city. Most of the streets and sidewalks in the city are paved in the same materials, and lighting fixtures often do not reflect the character and scale of the frontage development.

  2) Placement of telephones, police and fire call boxes, mail deposit boxes, street numbers and news stands in consistent locations along the street would facilitate their use. These accessories should not be placed in the path of pedestrians or wheelchair users.

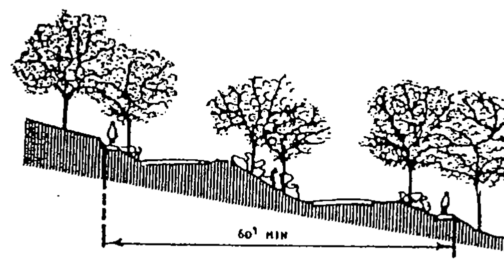
3) A coordinated system of variation in the use and placement of street trees, lighting, and other details could give streets better visual continuity and provide differentiation between through streets and local streets to aid driver orientation and traffic flow. The variations could include size, spacing and species of street trees and other landscaping, and intensity, spacing, and design of lighting fixtures. For example, major streets might have tall, widely spaced street trees; bright, closely spaced street lights; and large street signs. Local streets might have smaller, dense and more closely spaced trees; compass headings could be indicated by symbols on light poles or on the pavement. A more logical and systematic method of street naming should be used.

- **Hillside Streets**

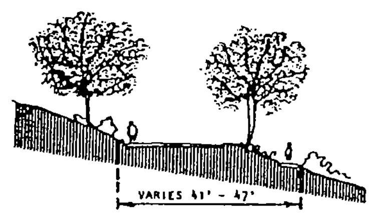
Hillside street standards should be reviewed for compatibility with the terrain. More restrictive grading controls, street landscaping, and limitation of on-street parking to one side of all hillside roads, should all be considered. Even under existing standards however, the use of retaining walls and horizontally or vertically split street alignments would make the road blend into this special topography. These methods were common in earlier hillside street construction.

- **Pedestrian Walkways (Sidewalks)**

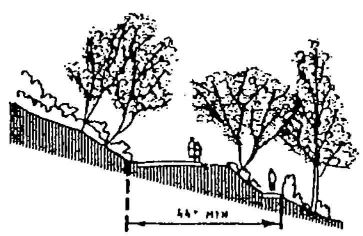
1) Design walkways and parking facilities to minimize danger to pedestrians. Pedestrian walkways should be sharply separated from traffic areas and set apart where possible to provide a separate circulation system. Where necessary and practical, the separation should include



HILL COLLECTOR STREET
STREET DIVIDED TO BETTER FIT THE TOPOGRAPHY AND TO MINIMIZE EARTHWORK. PARKING ONE SIDE OF EACH ROADWAY.



HILL RESIDENTIAL STREET
A SINGLE SIDEWALK IS PROVIDED WHICH COULD BE LOCATED AT A DIFFERENT LEVEL THAN THE MAIN ROADWAY.



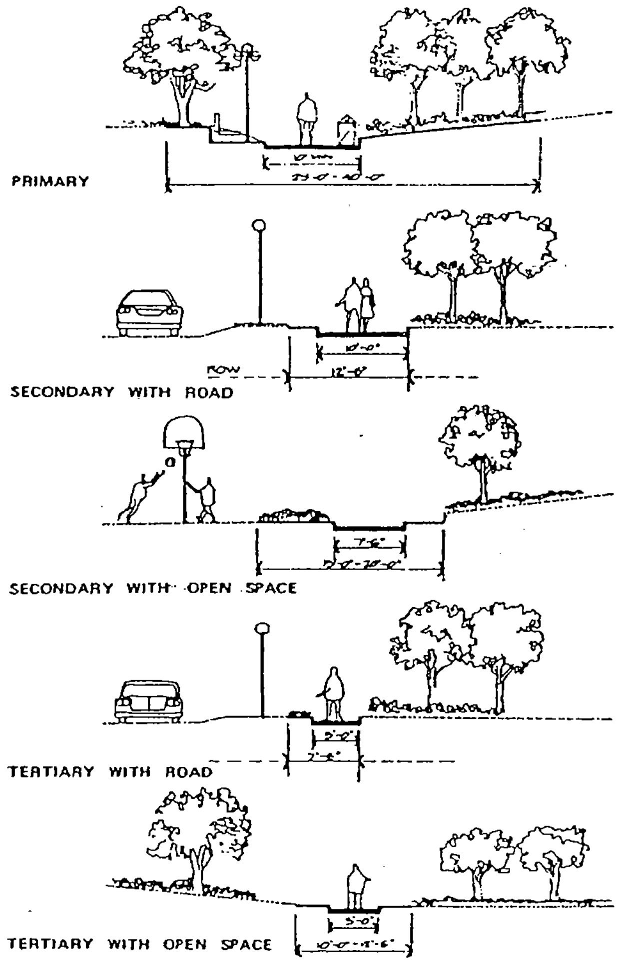
HILL RESIDENTIAL STREET
ASSUMED HERE THAT ON-STREET PARKING IS PROHIBITED. EMERGENCY PARKING BAYS PROVIDED AT APPROXIMATELY 500 FOOT INTERVALS. DEVELOPMENT ONLY ON DOWNHILL SIDE.

HILLSIDE STREET TREATMENTS

landscaping and other barriers. Walkways should pass through the interiors of blocks. Walkways that cross street corners should have good sight distances for motorists and pedestrians.

2) Driveways across sidewalks should be kept to a practical minimum, with control maintained over the number and width of curb cuts. Barriers should be installed along parking lots to avoid encroachments on sidewalks, with adequate sight distances maintained at driveways.

3) Commercial and industrial truck loading should occur on private property rather than in roadways or on sidewalks. Residential parking should be as close as possible to the dwellings served, with adequate lighting along the walking route from the parking to the dwellings.



PEDESTRIAN WALKWAYS

STANDARDS AND DEFINITIONS

Balanced Transportation System - A transportation network in which the several circulation subsystems (auto, bus, LRT, bike, etc.) complement and reinforce one another and provide mobility, accessibility and safety for residents of the community.

Bikeways fall into three general categories based on the degree or extent of their improvements:

Bicycle paths (Class I) are completely separate from vehicle traffic.

Bicycle lanes (Class II) along streets are reserved for bikes only. They may be marked with a painted stripe on the road (more a psychological than a physical protection) or with curb barriers.

Bicycle routes (Class III) are simply lightly traveled streets marked with signs encouraging bicycle use and cautioning motorists.

Commercial

Regional Centers emphasize such shopping goods as apparel, major household appliances, and furnishings. The dominant establishments are usually one or more department stores. Variety and specialized stores are typical tenants, as are business and professional services. Recently, automobile agencies and major recreational facilities have made their appearance. In all, more than forty different kinds of establishments are generally required to provide the range of goods and services associated with regional centers.

Community Centers provide a wide range of convenience goods as well as some shopping goods. A variety or junior department store may be the primary facility among the more than twenty different kinds of establishments normally found in this type of center.

Neighborhood Centers characteristically provide goods and services of a convenience nature, designed to meet daily needs. The dominant store is usually a supermarket. Other establishments may include a drug store, liquor store, self-service laundry, beauty and barber shop, shoe repair and service station. At least fifteen different kinds of establishments are necessary to provide a complete range of convenience goods and services.

A smaller center is sometimes economically feasible and will provide public convenience where the distance to the nearest shopping center is at least one mile, or where the local topography isolates an area of residences. These smaller centers, which can be supported by resident populations of one to two thousand, consist of a small grocery store, service station, and one or more service establishments. However, the limited size and composition of such small centers place them at a competitive disadvantage except under the unusual circumstances noted.

Specialized commercial uses include automobile sales agencies, furniture stores, bowling alleys, drive-in theaters, hotels, motels and a wide variety of business, personal and repair services. Their trade areas are normally not easily definable since these establishments may attract patronage from a metropolitan or regional area. Specialized commercial uses are generally found in strip developments along major streets; however, they occasionally seek to cluster for mutual support, and sometimes locate within or adjacent to community and regional centers.

Visitor-oriented commercial uses are intended primarily to serve tourists, business travelers, or those persons attending conventions. Such uses largely include hotels, motels, trailer parks and convention facilities. Locations are determined by regional access routes and terminals, specialized recreational facilities, and centers of financial and administrative facilities.

Business and professional office development is often efficiently clustered near such institutional facilities as hospitals, clinics, and research complexes. In addition, it may be appropriately located at the periphery, or even within major concentrations of commercial activities.

Planned Commercial Development (PCD) - a Planned Commercial Development is a predominantly commercial project designed and improved in accordance with a comprehensive project plan located within any commercial zoning district except CP (Commercial Parking). It may include residential, office, institutional, cultural, selected light manufacturing and recreational uses and facilities. A Planned Commercial Development may be subject to a development phasing program reflecting anticipated needs of project population growth in the service area of the project.

The PCD regulations provide for a greater variety of goods and services than is normally found within a center built under typical commercial zone regulations. Included are residential and certain light industrial or handicraft uses as well as a full range of both light and heavy retail uses, commercial recreation activities and public services.

An underlying purpose of the Planned Commercial Development is to encourage full-time use of the center's facilities while minimizing space allocated to parking. Consequently, it is conceived that reductions in the total off-street parking requirement might be granted by the Planning Commission where it can be shown that different uses utilize the same parking facilities at different times of the day. This provision could, in some instances, significantly reduce the vast parking areas typically required in larger regional and community centers.

The PCD regulations also provide for a program of phased development where it is deemed desirable. Such a program would be based upon population growth within the potential service area of a Planned Commercial Development. This provision requires that the developer present and follow a construction program that will ensure that residents of the service area are provided with adequate commercial services during development of the center and to ensure that community and regional shopping centers are not developed in a piecemeal manner with a resultant loss in design cohesiveness and sensitivity.

Conditional Use Permits are issued for special uses of land which are not included in the normal range of permitted uses in any zone. Examples include churches, schools, service stations, etc.

Demography is the science of vital and social statistics, such as the births, deaths, diseases, marriages, etc.

Density is the ratio between numbers of persons or dwellings and land area.

Density Ranges

Very low density	0-4 dwelling units per acre
Low density	5-9 dwelling units per acre
Low-medium density	10-14 dwelling units per acre
Medium density	15-29 dwellings units per acre
Medium-high density	30-43 dwelling units per acre

Developed land is land upon which improvements have been made (grading, structures, agricultural use).

Dial-A-Bus is a system of small buses on fixed routes or in designated areas. On-call vehicles will pick up passengers at home and take them to their destination.

Dwelling unit - a room or suite of rooms in a building or portion thereof, used, intended, or designed to be used or occupied for living purposes by one family, and containing only one kitchen.

Express Bus - buses operating nonstop or with limited stops between two points over existing streets and/or freeways.

Field Act - Long Beach, in 1933, experienced an earthquake that destroyed a large number of school buildings. As a consequence of this earthquake, the State Legislature enacted legislation known as the "Field Act" which provided for the establishment of structural standards both in design and construction of school buildings. This Act was amended in 1968 to provide that any building classified as unsafe shall not be used for classroom purposes after July 1, 1975.

Fire Stations - require a site size of approximately three-quarters of an acre. This is regarded by many authorities as appropriate for a fire station. This provides an adequate amount of layout area for fire hoses.

According to present General Plan standards, fire station service areas should be determined on the basis of present and proposed land use patterns and freeway and major street systems. Currently, in newly developing areas, fire stations are being provided on the basis of a four-mile service area and five-minute response time. Fire stations should be situated so as to permit easy access to major streets.

Floodplain - the relatively flat area of low lands adjoining, and including, the channel of a river, stream, water course, bay or other body of water which is subject to inundation by flood waters of the Standard Project Flood established by the U. S. Army Corps of Engineers.

Floodplain Fringe - all that land in a floodplain not lying within a delineated floodway. Land within a floodplain fringe is subject to inundation by relatively low velocity flows and shallow water depths.

Floodway - that land in a floodplain, which is delineated on a map approved by the City Council, required for passage of a 100-year frequency flood in an unlined channel with a resultant rise in the natural flood water profile of one foot. The natural flood water profile is the water surface elevation of a nonconfined 100-year frequency flood in the natural undeveloped floodplain.

Health Care Facilities - Hospitals should be located as near as possible to the center of the population served. Community hospitals should be located not more than 20 minutes automobile travel time from any point in the service area.

General hospitals should have frontage on a prime arterial or major street. Specialized hospitals and long-term care facilities should have frontage on a collector or local street. Community general hospitals should have public transportation available within one-quarter mile of the facility. Regional general hospitals, because of the very large area served, should have convenient access to all forms of transportation.

Hospitals normally should not be located adjacent to lands that create an exceptionally high degree of activity or generate undue noise such as that emanating from railroads, freight yards, schools, stadia, or playgrounds. Specialized hospitals and long-term care facilities should be a part of or in proximity to a community or metropolitan general hospital in order to provide a full range of medical care for the inpatients.

Site area should be sufficiently large to accommodate the facility, the required off-street parking, planned future additions, and open space. When fully developed, about 50 percent of the site should remain uncovered by buildings.

Libraries

Community Branches - Currently, the General Plan standards state that a branch library should have a minimum of 5,000 square feet of floor area and contain a minimum book collection of 20,000 volumes. The branch library should have a site size of approximately one acre and should serve a resident population of at least 15,000 persons. Recently, the City Librarian advocated a system of larger branches or community libraries. Under this proposal, these facilities would be spaced farther apart and serve larger geographical areas. Large branch libraries would be from 10,000-15,000 square feet in floor area and house 44,000 to 66,000 volumes. The service area would have a radius of about two miles and include from 33,000 to 45,000 residents. Site size would be approximately one and one-half acres. In some cases, medium size branch of 8,000-10,000 square feet of floor space with 35,000-44,000 volumes would be provided to serve a resident population within a radius of slightly less than two miles. Small branches under 8,000 square feet would be provided for areas between large branches as funding became available and after there had been an opportunity to observe the effectiveness of the larger unit's operation.

Bookmobiles - Bookmobiles should contain 2,000 to 3,000 books per unit and serve sparsely populated or inadequately served areas on a once or twice a week basis, as demand indicates. Bookmobiles should also be used to test future locations for new branch libraries.

Modal Split - the separation of person trips by type of travel used, such as driving automobiles, riding on transit facilities, or walking.

Multiple Dwelling - a building used or designed to be used for housing three or more families.

Open Space - Although definitions of "open space" abound, clearly none of them has yet attained universal acceptance; nor is this surprising, for open space by its very nature resists explicit description. One of the more recognizable difficulties, surely, is that "open space means different things to different people for different reasons."[1]

As might be anticipated, somewhat differing definitions of open space have been set forth in various legislative enactments. Under the Housing Act of 1961, open space land was defined as any undeveloped or predominately undeveloped land in an urban area which has value for (a) park and recreational purposes, (b) conservation of land or other resources, or (c) historic or scenic purposes.[2]

A 1959 California statute authorizing cities and counties to expand public funds for the acquisition of open space declared that:

> ...an "open space" or "open area" is any place or area characterized by (1) great natural scenic beauty or (2) whose existing openness, natural condition, or present state of use, if retained, would enhance the present or potential value of abutting or surrounding urban development, or would maintain or enhance the conservation of natural or scenic resources.[3]

More recently, state legislation defined "open space land" as "any parcel or area of land or water which is essentially unimproved and devoted to an open space use..."[4] The latter term "open space use" is defined as "the use of land for (1) public recreation, (2) enjoyment of scenic beauty, (3) conservation or use of natural resources, or (4) production of food or fiber."[5] Within the City of San Diego Municipal Code, the following definition is found:

"Open Space Land" means any land or water area:

> which is primarily in its natural state and has value for park and recreation purposes, and which, in the opinion of the City Council of the City, (a) conforms to the criteria established for open space land set forth in the Progress Guide and General Plan for The

City of San Diego, as amended, and (b) would, if retained in its natural state or improved, enhance the present or potential value of abutting or surrounding prope6ties or would maintain or enhance the conservation of natural or scenic resources.[6]

1. California Legislation, Joint Committee on Open Land Final Report, Feb. 1970, p. 51.
2. U. S. Congress, Housing Act of 1961, Sec. 706 Public Law 87-70, 87th Cong., 1st Sess., 1961.
3. California, Government Code, Title 1, Div. 7, Section 6954.
4. California, Government Code, Title 7, Chp. 3, Section 65560.
5. Ibid.
6. San Diego, San Diego Municipal Code, Section 61.0601.

Parks

Population-Based parks[1] - those intended to serve the recreational needs of the immediately surrounding residential population. The two categories of such parks are discussed below.

Neighborhood Parks and Playgrounds - Neighborhood parks should contain a minimum usable area of five acres when located adjacent to an elementary school (the ideal situation) and ten acres when not so located. They should serve a resident population of 3,500 to 5,000 persons. In order to assure ready accessibility to residents of the neighborhood, the maximum service area radius should generally not exceed one-half mile. The arrangement of space and the type of facilities located within each park must be related to the population and use characteristics of the neighborhood served.

However, each park should have at least a play area, multipurpose courts, picnic facilities, lawn area and landscaping.

Community Park and Recreation Centers - Community parks and recreation centers should serve 18,000 to 25,000 residents within an effective radius of approximately one and one-half miles. The ideal location for this type of facility is adjacent to a junior high school. If so located, a minimum of thirteen usable acres is required; if not, a minimum of twenty acres is needed. Community parks should provide a wide range of facilities including athletic fields and multipurpose courts, picnic facilities, a variety of play areas, a recreation center building, lawn areas, and landscaping.

Resource-based parks[2] - Resource-based parks and recreation areas should be located in areas notable for scenic, natural, or cultural attractions. The two subcategories of resource-based parks are identified and discussed below.

Resource Parks - Resource parks may either be oriented toward one dominant function (Mission Bay) or toward a multiplicity of recreational activities (Balboa Park). While often containing several hundred acres, the actual amount of land included should be based primary upon physical or historical factors rather than upon any fixed standards. Within resource parks, sufficient land acreage should generally be left in a natural condition to permit such activities as hiking and horseback riding. However, the natural landscape may be supplemented with a variety of recreational facilities including tennis courts, outdoor theaters, and play fields. In sum, the degree to which such a park should be developed or preserved in a natural state will depend largely on its unique characteristics of size, topography and locale.

Natural Parks - The natural park should be preserved as nearly as possible in its original condition and should provide for only those recreational activities which will not impair the features that inspired its designation as a natural park. Such a park is relatively spacious with a natural character reflecting scenic, topographic, scientific, or related values.

Mini Parks - Small areas used for open space or recreation. They may be used as play areas for small children, in which case they supplement individual backyards. They may serve senior citizens only, older children, or all age groups, depending on the needs in the neighborhood. They may include play apparatus, paved areas, sand pits, wading pools or simply be planted in grass. Their size usually ranges from 2,500 square feet to five acres, although in the past the size and location generally depended more on availability of vacant parcels of land than on other factors. The effective service radius varies somewhat depending on the type of person served, although it is rarely more than the walking range of a preschool child or about 1/8 mile.

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1. Term derived from Park and Recreation Citizens Study Committee Report (San Diego, 1963, p. 10. Refers to neighborhood and community parks only.
2. Park and Recreation Citizens Study Committee Report, p. 15 refers to "Park... established to preserve those areas which are... outstanding... because of scenic, natural or cultural features... the location of these parks is dependent on the natural resource itself."

Park and Ride - Terminals where passengers may leave their cars and transfer to public transportation.

Planned Residential Development - A predominately residential development improved in accordance with an overall project plan and characterized by the following:

1. The density regulations of the zone in which the Planned Residential Development is located are applied to the total area of the Planned Residential Development rather than separately to individual lots or building sites.
2. The right to use and enjoy any privately-owned common open space areas and recreational facilities provided on the site of the Planned Residential Development shall be coupled with the severalty interests of the owners of the dwelling units. Ownership may be of lots or condominiums or both.
3. A Planned Residential Development may include accessory commercial, office and recreational facilities limited in size and capacity to the needs of the occupants of the development and their guests.

Public Transportation, Mass Transit, Mass Transportation - General terms, often used interchangeably to describe a system of common carrier facilities offering transportation service on a fare payment basis and operating on established schedules along designated routes with specific stops.

1. LRT-Light Rail Transit is a mode of urban transportation utilizing predominantly reserved but not necessarily grade-separated rights-of-way. Electrically propelled rail vehicles operate singly or in trains. LRT provides a wide range of passenger capabilities and performance characteristics.

2. Bus Transit is a mode of urban transportation operating primarily in 40 foot transit vehicles on public rights-of-way. Buses operate on clean diesel or compressed natural gas (CNG). Bus transit is characterized by route and planning flexibility to allow service modifications as community dynamics change.

Rapid Transit - Mass transportation either by rail or bus, distinguished from other transit by its operating at high average speeds over exclusive, grade separated rights-of-way.

Street Classifications - The five basic functional categories of streets in San Diego are present in Navajo. They are freeways, prime arterial, major streets, collector streets and local streets.

Freeways (usually under the jurisdiction of the California Division of Highways) - are designed to carry large volumes of through traffic and are always divided highways. They have no at-grade intersections and traffic may cross, enter, or leave it only via the ramps of an interchange.

Prime arterials also are intended to facilitate the movement of large volumes of traffic and are usually, but not always, divided highways. Most street crossings will be at-grade, but there may be a few interchanges. There will be no driveways from abutting property, and traffic may cross, enter, or leave the road only at an interchange or intersection.

Major streets are designed primarily to carry traffic through an area but will generally also provide access to abutting property. They may be divided but normally all street crossings will be at-grade and there will be little or no restriction of driveway access.

Collector streets function both to distribute traffic from arterial thoroughfares and to provide access to abutting property. They are rarely divided, all street crossings will be at-grade, and there will be no restriction of driveway access.

Local streets are designed primarily to provide access to abutting property. They normally are not divided, but have all street crossings at-grade and have no restriction on driveway access.

Parkways are limited access roads that traverse a corridor within which all natural scenic resources and aesthetic values are protected and enhanced.

CITY OF SAN DIEGO CEQA SIGNIFICANCE DETERMINATION THRESHOLDS

City of San Diego
Development Services

Land Development
Review Division
(619) 446-5460

California Environmental Quality Act

Significance Determination Thresholds

Development Services Department

JANUARY 2007*

*Note: Development Services Department staff periodically revises sections of the thresholds in response to CEQA case law, and changes in federal, state, and local regulations. Staff also periodically provides updated information and clarification and direction for environmental analysts.

O. TRANSPORTATION / CIRCULATION and PARKING

Note: This section is to be applied for projects deemed complete on or after January 1, 2007. For projects deemed complete prior to January 1, 2007, the following Section O.1. on Page 73 is to be applied.

Project-related traffic impacts are one of the most commonly identified environmental impacts under the CEQA. Traffic operations and safety impacts are addressed in this section. Other environmental impacts associated with project- related traffic and transportation infrastructure improvements (e.g., air quality, noise, biology) are addressed in the applicable sections of this manual which pertain to such issues.

Direct traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (near term).

Cumulative traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when the affected community plan area reaches full planned build out (long-term cumulative).

It is possible that a project's near term (direct) impacts may be reduced in the long term, as future projects develop and provide additional roadway improvements (for instance, through implementation of traffic phasing plans). In such a case, the project may have direct impacts but not contribute considerably to a cumulative impact.

For intersections and roadway segments affected by a project, level of service (LOS) D or better is considered acceptable under both direct and cumulative conditions.

INITIAL STUDY CHECKLIST QUESTIONS

The following are taken from the City's Initial Study Checklist. They provide guidance on determining the potential significance of impacts to transportation, circulation systems, and parking:

Would the proposal result in:

1. Traffic generation in excess of specific community plan allocation?
2. An increase in projected traffic which is substantial (see table on following page) in relation to the existing traffic load and capacity of the street system?
3. Addition of a substantial amount of traffic to a congested freeway segment, interchange, or ramp as shown in the table on the next page?
4. An increased demand for off-site parking?
5. Effects on existing parking?
6. Substantial impact upon existing or planned transportation systems?

7. Substantial alterations to present circulation movements including effects on existing public access to beaches, parks, or other open space areas?
8. Increase in traffic hazards for motor vehicles, bicyclists or pedestrians due to a proposed, non-standard design feature (e.g., poor sight distance or driveway onto an access-restricted roadway)?
9. A conflict with adopted policies, plans or programs supporting alternative transportation models (e.g., bus turnouts, bicycle racks)?

SIGNIFICANCE THRESHOLDS

The following thresholds have been established to determine significant traffic impacts:

1. If any intersection, roadway segment, or freeway segment affected by a project would operate at LOS E or F under either direct or cumulative conditions, the impact would be significant if the project exceeds the thresholds shown in the table below.

2. At any ramp meter location with delays above 15 minutes, the impact would be significant if the project exceeds the thresholds shown in the table below.

3. If a project would add a substantial amount of traffic to a congested freeway segment, interchange, or ramp, the impact may be significant.

4. Addition of a substantial amount of traffic to a congested freeway segment, interchange, or ramp as shown in the table below?

5. If a project would increase traffic hazards to motor vehicles, bicyclists or pedestrians due to proposed non-standard design features (e.g., poor sight distance, proposed driveway onto an access-restricted roadway), the impact would be significant. Note: analysts should refer readers to a discussion of this issue in the Health and Safety section of the environmental document.

5. If a project would result in the construction of a roadway which is inconsistent with the General Plan and/or a community plan, the impact would be significant if the proposed roadway would not properly align with other existing or planned roadways.

6. If a project would result in a substantial restriction in access to publicly or privately owned land, the impact would be significant.

Level of Service with Project *	Allowable Change Due To Project Impact **					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	*Speed (mph)*	*V/C*	*Speed (mph)*	*Delay (sec.)*	*Delay (min.)*
E (or ramp meter delays above 15 min.)	0.010	1.0	0.02	1.0	2.0	2.0
F (or ramp meter delays above 15 min.)	0.005	0.5	0.01	0.5	1.0	1.0

Note 1: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes.
Note 2: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.

* All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual. The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

** If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see above * note), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.

KEY:
Delay = Average control delay per vehicle measured in seconds for intersections, or minutes for ramp meters
LOS = Level of Service
Speed = Speed measured in miles per hour
V/C = Volume to Capacity ratio

PARKING

Parking requirements vary by land use and location and are dictated by the City of San Diego Municipal Code and adopted by the City Council policies.

SIGNIFICANCE THRESHOLDS

Non-compliance with the City's parking ordinance does not necessarily constitute a significant environmental impact. However, it can lead to a decrease in the availability of existing public parking in the vicinity of the project. Generally, if a project is deficient by more than ten percent of the required amount of parking and at least one of the following criteria applies, then a significant impact may result:

1. The project's parking shortfall or displacement of existing parking would substantially affect the availability of parking in an adjacent residential area, including the availability of public parking.
2. The parking deficiency would severely impede the accessibility of a public facility, such as a park or beach.

COLLEGE COMMUNITY REDEVELOPMENT PROJECT FEIR

TRANSPORTATION/CIRCULATION

5.10 TRANSPORTATION/CIRCULATION

Information contained in this section is taken from the Transportation and Parking analysis for the project, completed by JHK & Associates (JHK), which is included as Appendix E to this EIR.

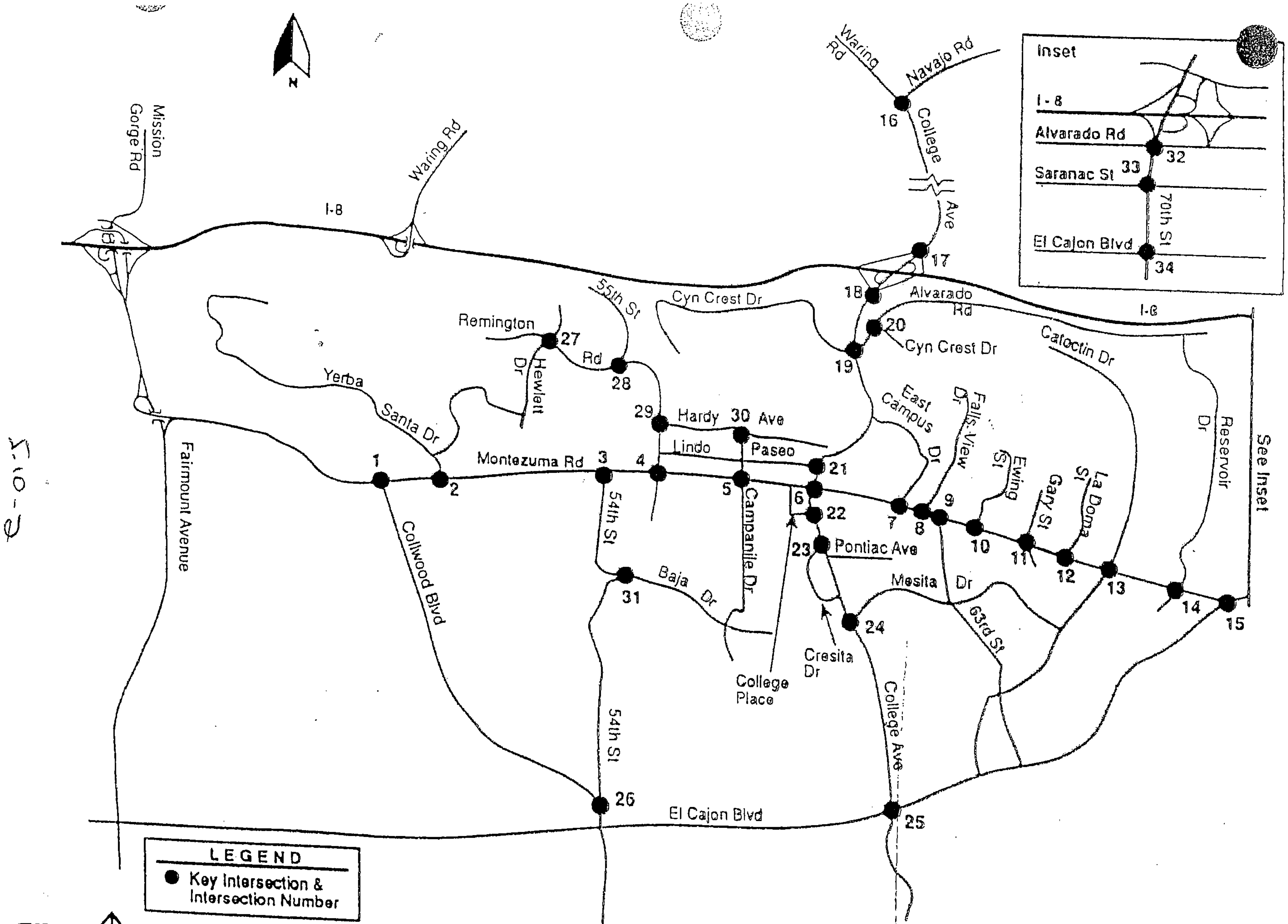
ENVIRONMENTAL SETTING

Traffic Conditions

As shown in Figure 5-8, major regional access to the Project Area is provided by Interstate 8, an eight-lane freeway which runs in an east-west direction. Other major roadways include College Avenue and Montezuma Road, both four-lane arterial streets which provide the major surface street access to the project Sub-Area. To provide documentation of existing traffic conditions, traffic counts for intersections and roadway segments were conducted by JHK during the spring, summer, and fall of 1992. Figure 5-8 shows the 34 key intersections where AM and PM peak period turning movement counts were taken. The individual intersection counts, included in Appendix E to this EIR, are based on adjustments to traffic counts taken during the spring, summer, and fall of 1992 to reflect expected traffic conditions in the San Diego State University (SDSU) area during a typical fall semester, the period of historically highest enrollment.

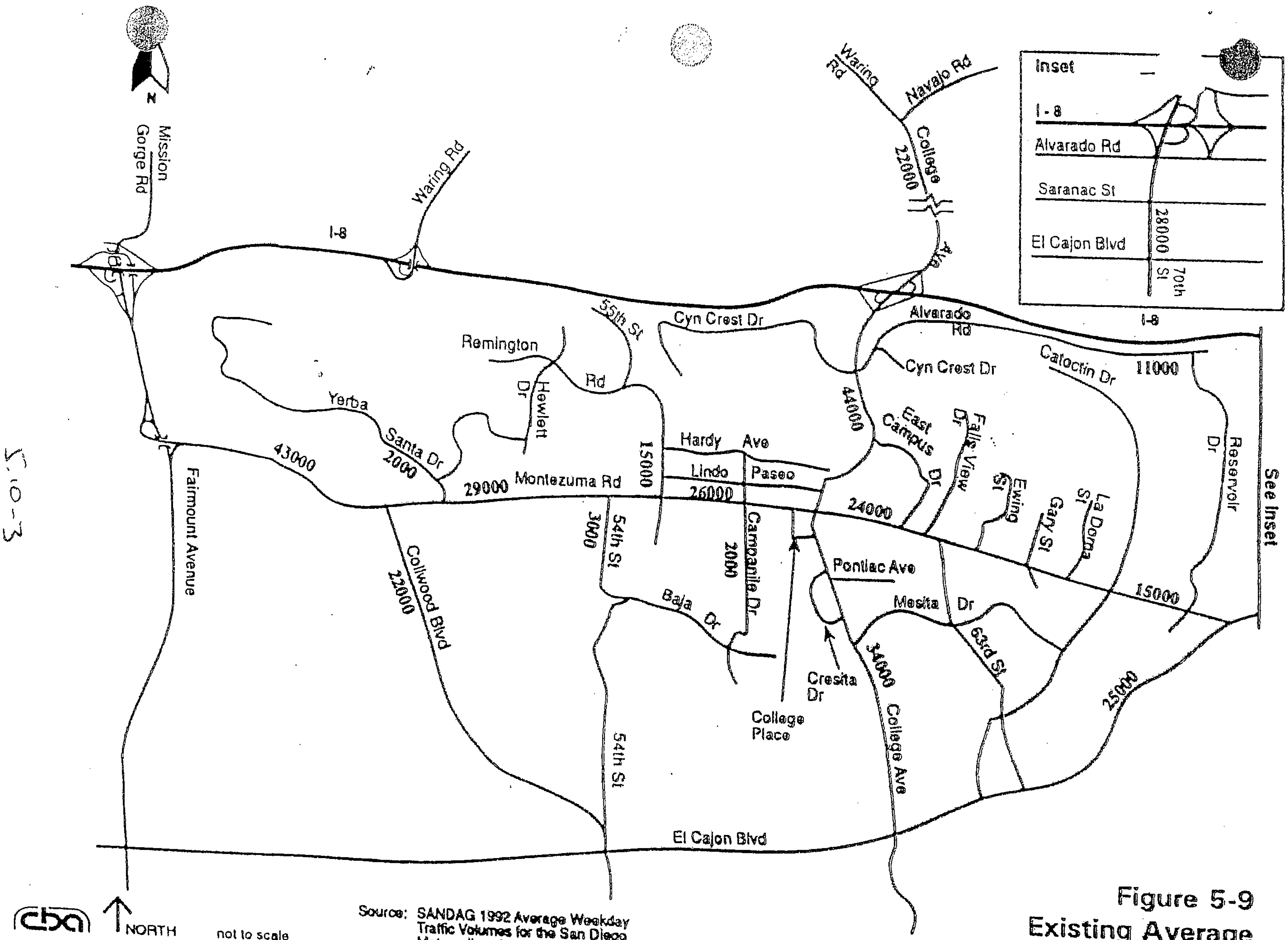
In addition, 24-hour road tube counts were conducted for selected roadway segments to develop estimates of existing average daily traffic (ADT) on streets in the area surrounding the project area. Estimates of existing ADT are shown in Figure 5-9. As with the key intersection counts, existing ADT estimates are based on adjustments to traffic counts taken during the spring, summer, and fall of 1992 to reflect expected traffic conditions in the SDSU area during a typical fall semester, the period of historically highest enrollment. The resulting roadway segment capacity under existing conditions is described in Table 5-11. As described in the table, existing ADT is compared to the typical maximum ADT capacity for various classifications of streets (four-lane prime, four-lane major, etc). The table indicates that the existing ADT for portions of College Avenue, Montezuma Road, 55th Street, and Alvarado Road exceed the typical maximum ADT capacity for their respective classifications.

Existing operational conditions for key signalized and unsignalized intersections within the area are described in Tables 5-12 and 5-13. Conditions for signalized intersections are described in terms of level of service (LOS) ranging from A to F for morning and evening peak traffic periods, and for peak periods of inbound and outbound traffic from an evening event at the Student Activity Center. For example, LOS A refers to light traffic conditions with minimum delay to all



SOURCE: JHK & Associates, June 1993.

Figure 5-8
Study Area



Source: SANDAG 1992 Average Weekday Traffic Volumes for the San Diego Metropolitan Area

Figure 5-9
Existing Average Daily Traffic Volumes

College Community Redevelopment EIR

Redevelopment Agency of the City of San Diego

5.0-3

Table 5-11

EXISTING STREET SEGMENT ANALYSIS [1]

Street	Location	Classification [2]	Existing Average Daily Traffic [3]	Typical Maximum Average Daily Traffic [4]	Volume to Capacity Ratio	Level of Service
College Ave	Navajo Rd to I-8	Four-Lane Major	22,000	30,000	0.73	C
	I-8 to Montezuma Rd	Four-Lane Major	44,000	30,000	1.47	E
	Montezuma Rd to El Cajon Blvd	Four-Lane Major	34,000	30,000	1.23	D
Montezuma Rd	Fairmount Ave to Collwood Blvd	Four-Lane Prime	43,000	35,000	1.23	D
	Collwood Bvd to 54th St	Four-Lane Major	29,000	30,000	0.97	C
	54th St to College Ave	Four-Lane Major	26,000	30,000	0.86	C
	College Ave to 63rd St	Four-Lane Major	24,000	30,000	0.80	C
	63rd St to El Cajon Blvd	Four-Lane Major	15,000	30,000	0.50	A
El Cajon Blvd	63rd St to Montezuma Rd	Four-Lane Major	25,000	30,000	0.83	C
Yerba Santa Dr	North of Montezuma Rd	Two-Lane Collector [5]	2,000	3,500	0.57	B
Collwood Blvd	Montezuma Rd to 54th St	Four-Lane Major	22,000	30,000	0.73	C
54th St	Montezuma Rd to Baja Dr	Two-Lane Collector [5]	3,000	3,500	0.86	C
55th St	Montezuma Rd to Hardy Ave	Two-Lane Collector [5]	15,000	7,500	2.00	F
Campanile Dr	Montezuma Rd to Baja Dr	Two-Lane Collector [5]	2,000	3,500	0.57	B
Alvarado Rd	Canyon Crest Dr to 70th St	Two-Lane Collector [5]	11,000	7,500	1.47	E
70th St	Alvarado Rd to El Cajon Blvd	Four-Lane Major	28,000	30,000	0.93	C

1 "Existing" conditions refers to the traffic conditions which would have occurred in the Fall of 1992, if this were a typical year at SDSU.

2 Source: College Area Community Plan

3 Source: SANDAG 1992 Average Weekday Traffic Volumes for San Diego Metropolitan Area.

4 Source: City of San Diego Street Design Manual

5 Typical maximum ADT is 3,500 in areas with single-family dwelling units and 5,000 in other areas.

5.0-4

Table 5-12

EXISTING SIGNALIZED INTERSECTION OPERATIONS[1]

Intersection	AM Peak Hour	PM Peak Hour	SAC Inbound Peak Hour	SAC Outbound Peak Hour
	Level of Service/Average Delay (Sec)[2]			
Montezuma Rd/College Ave	D/35.9	D/39.9	C/22.5	C/20.6
Collwood Blvd/54th St	B/11.2	B/9.8	A/5.0	A/4.1
Montezuma Rd/Campanile Dr	B/14.8	C/16.9	B/11.7	B/10.4
Montezuma Rd/54th St	B/7.8	B/7.7	B/5.1	A/4.3
El Cajon Blvd/College Ave	C/24.7	D/38.8	C/21.6	C/19.8
Montezuma Rd/El Cajon Blvd	B/5.2	C/15.9	B/11.0	B/9.7
College Ave/I-8 WB Off Ramp	B/8.6	B/9.8	B/6.9	B/6.1
College Ave/I-8 EB Off Ramp	B/13.4	D/37.6	B/11.6	B/10.2
Montezuma Rd/Catoctin Dr	A/4.4	B/7.5	B/6.1	B/5.6
Montezuma Rd/63rd St	B/9.0	B/7.8	B/5.9	B/5.3
Montezuma Rd/E. Campus Dr	B/11.1	B/12.7	B/10.2	B/9.4
College Ave/Lindo Paseo	C/17.4	C/18.6	B/12.3	B/10.6
College Ave/Navajo Rd	D/25.5	C/24.7	B/14.9	B/13.4
Montezuma Rd/55th St	B/14.8	C/17.1	B/12.3	B/10.9
Montezuma Rd/Collwood Blvd	C/24.0	D/32.5	B/10.8	B/9.0
College Ave/Canyon Crest Blvd	C/19.0	F/*[3]	B/14.8	B/10.9
70th St/El Cajon Blvd	D/38.2	E/47.1	C/22.3	C/20.1
70th St/Alvarado Rd	C/21.4	D/29.9	C/18.3	C/16.7

1 "Existing" conditions refer to the traffic conditions which would have occurred in the Fall of 1992, if this were a typical year at SDSU.

2 Source: JHK & Associates based on the operations and design procedure of the Highway Capacity Manual.

3 Average delay is greater than 60 seconds, but can not be precisely estimated due to limitations of the capacity procedure.

Table 5-13

EXISTING UNSIGNALIZED INTERSECTION OPERATIONS[1]

Intersection	Traffic Signal Warrants Met (Y/N)[2] AM Peak Hour	PM Peak Hour	SAC Inbound Peak Hour	SAC Outbound Peak Hour
Montezuma Rd/Yerba Santa Dr	N	N	N	N
Remington Rd/Hewlett Dr	N	N	N	N
Remington Rd/55th St	N	N	N	N
55th St/Hardy Ave	N	N	N	N
Hardy Ave/Campanile Dr	N	N	N	N
54th St/Baja Dr	N	N	N	N
Alvarado Rd/Canyon Crest Dr	N	N	N	N
College Ave/College Pl	N	N	N	N
College Ave/Cresita/Pontiac	N	N	N	N
College Ave/Mesita Dr	N	N	N	N
Montezuma Rd/Falls View Dr	N	N	N	N
Montezuma Rd./Ewing St	N	N	N	N
Montezuma Rd/Gary St	N	N	N	N
Montezuma Rd/La Doma St	N	N	N	N
Montezuma Rd/Reservoir Dr	N	N	N	N
70th St/Saranac St	N	N	N	N

1 "Existing" conditions refer to the traffic conditions which would have existed in the Fall of 1992, if this were a typical year at SDSU.

2 Source: JHK & Associates based on the Manual of Uniform Traffic Control Devices.

vehicles which pass through the intersection. LOS F refers to congested conditions with traffic demands beyond the capacity of the intersection. LOS C, or in some cases LOS D, is typically the lowest acceptable level of service based on City of San Diego standards. As shown in Table 5-12, most signalized intersections are operating at LOS D or better. However, the intersection of 70th Street/El Cajon Boulevard is operating at LOS E during the evening peak period, while the intersection of College Avenue/Canyon Crest Boulevard operates at LOS F during that same period.

Unsignalized intersections are compared with established warrants for the installation of traffic signals during the same peak traffic periods. As shown in Table 5-13, none of the unsignalized intersections studied presently meet traffic signal warrants for signal installation.

Transit Conditions

See Section 9.0 Response 15-E The area surrounding the project is well served by existing bus routes operated by San Diego Transit. A transit center is located on the SDSU campus near the intersection of Hardy Avenue and Campanile Drive, and existing bus routes serving the area are shown in Figure 5-10.

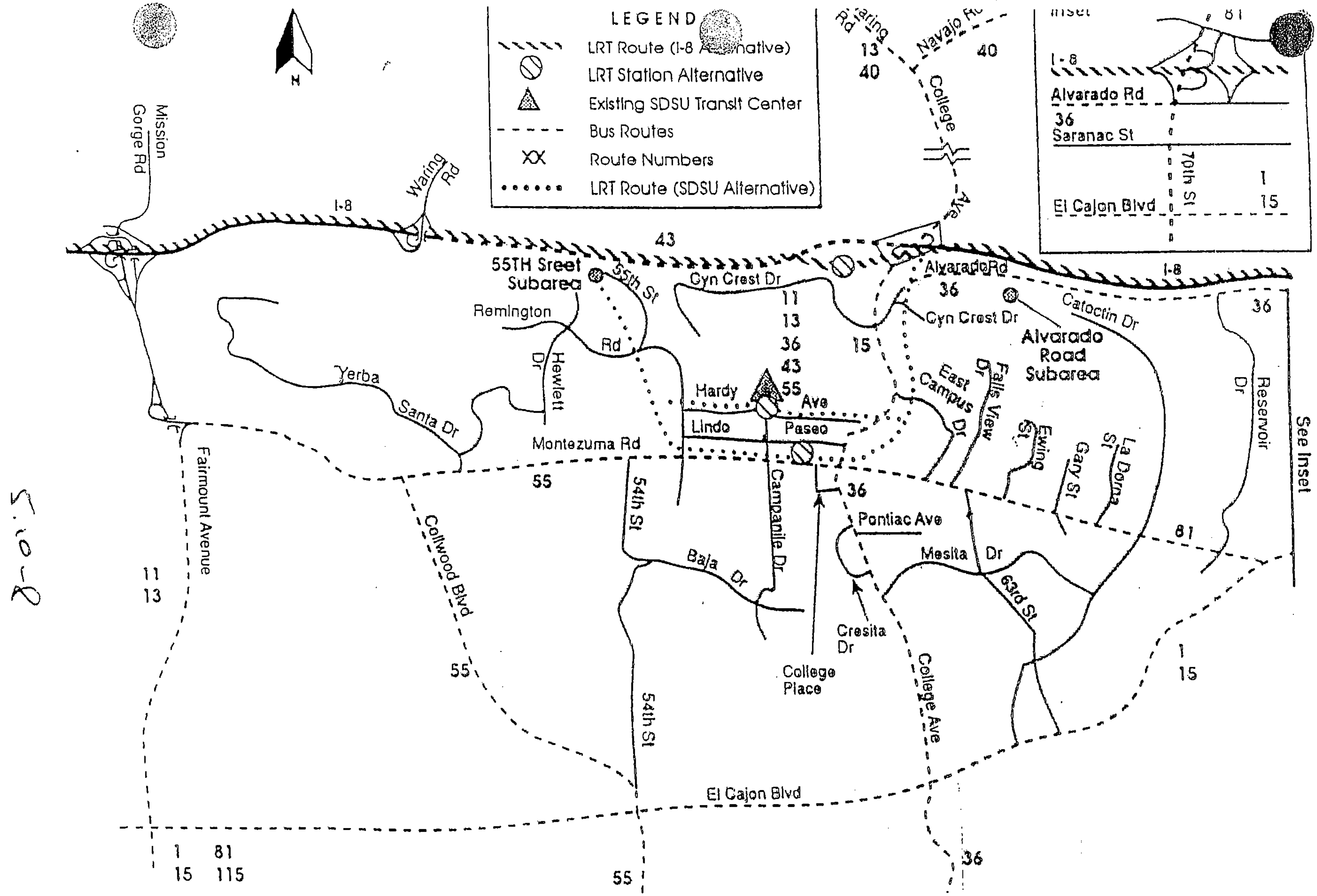
In addition to existing transit service, the Metropolitan Transit Development Board is presently studying a possible extension of the San Diego Trolley easterly through Mission Valley to connect with the existing East line in La Mesa. Two potential alignments with slight variations are under consideration: 1) an alignment along Interstate 8 with a trolley station on the north side of the SDSU campus and Project Area in Lot A; or 2) an alignment which would generally follow Interstate 8, with deviation to the south to run through the central portion of the campus and Project Area including a station near the Hardy/Campanile or Lindo Paseo/Campanile intersection.

Parking Conditions

The area near the project site currently experiences considerable parking demand due to the influence of San Diego State University and related developments. The parking demand is such that many students and visitors to the area pay for parking. In order to keep students from parking in residential areas near the site, the City of San Diego has established a residential parking permit program which allows only residents to park on certain streets in the study area. A fee is charged to residents to obtain on-street parking permits. The City of San Diego has designated the study area as a campus impact area for parking, which requires additional parking to be provided at developments in the area, beyond the level of parking which would be required in other areas of the City.

THRESHOLD FOR DETERMINING SIGNIFICANCE

Transportation impacts are considered potentially significant if: 1) a project will generate more than 500 average daily trips and results in a level of service D, E,



cba NORTH not to scale SOURCE: JHK & Associates, June 1993.

Figure 5-10
Existing Transit Routes

or F; 2) a project will exceed the designed road capacity; 3) a project does not provide adequate ingress/egress sight distances; 4) a project will result in the premature extension of a roadway to accommodate development; or 5) a project will conflict with or restrict access to publicly or privately owned land.

ENVIRONMENTAL IMPACT

Traffic Conditions

The traffic forecasts and analyses prepared by JHK assume the implementation of roadway improvements which are expected to occur with or without implementation of the project. These include the following:

- Extension of the Route 52 freeway from I-15 to Santee (which will tend to divert some through traffic from I-8);
- Completion of improvements to the I-8/Fairmount Avenue/Mission Gorge Road/Montezuma Road area. A project is currently being undertaken by the City of San Diego to upgrade these roadways; and
- Implementation of intersection improvements specified in the Student Activity Center (SAC) supplemental EIR. The JHK study assumes that the Redevelopment Project will be required to implement SAC improvements if, for any reason, those improvements are not implemented in connection with the SAC.

Future traffic conditions with the Redevelopment Project were analyzed by adding the amount of traffic expected to be generated in the Project Area to the future traffic levels expected to occur within the College Area Community without implementation of the Redevelopment Project. The net Project Area trip generation was calculated by determining the trip generation of future development in the area and subtracting the trip generation of existing development in the area. A further subtraction of trips was made to account for SDSU faculty, staff, and students who now commute, but are expected to relocate to occupy the residential development proposed within the Project Area. The relocation of SDSU faculty, staff, and students from external areas to the Project Area is estimated to remove approximately 7,400 vehicle trips from the street system. The trip generation analysis is generally described in Tables 5-14 though 5-16, indicating: a) a net Project Area generation of 15,620 daily trips; and b) a net Project Area generation of 1,363 trips during the SAC inbound peak hour and 712 trips during the SAC inbound peak hour and 712 trips during the SAC outbound peak hour. The inbound peak hour for SAC events is assumed to occur after the PM peak hour.

See Section 9.0 Responses 9-I and 15-E

The traffic analysis also assumes that there will be an extension of the San Diego trolley along the I-8 Corridor through the study area. The Trolley is assumed to

Table 5-14
TRIP GENERATION (FUTURE LAND USES)
(With Reductions for Transit/Walking Trips)

Subarea	Location	Type	Land Use	Daily Trip Rate	Land Use Intensity	Total Daily Trips	AM Peak Hour Trips Total	AM Peak Hour Trips In	AM Peak Hour Trips Out	PM Peak Hour Trips Total	PM Peak Hour Trips In	PM Peak Hour Trips Out
1	Core	Mixed Use	High Density Residential	3.1/DU	755 DU	2,341	187	37	150	234	164	70
			Very High Density Residential	3.1/DU	1,745 DU	5,410	433	87	346	541	379	162
			Commercial/Retail	31.4/1000 SF	302,600 SF	9,502	380	228	152	1,045	523	523
			Religious Center	(1)	(1)	974	108	98	10	105	27	78
			Fraternity/Sorority	3.1/DU	448 DU	1,389	111	22	89	139	97	42
			Total			**19,614**	**1,219**	**472**	**747**	**2,064**	**1,189**	**875**
2	55th Street	Residential	Medium-Medium/High Density Residential	4.4/DU	600 DU	2,640	211	42	169	264	185	79
			Total			**2,640**	**211**	**42**	**169**	**264**	**185**	**79**
3	Alvarado Road	University-Serving Office/R & D	Large Office	12.6/1000 SF	600,000 SF	7,560	983	885	98	1,058	212	847
			Industrial (Research & Development)	6.3/1000 SF	110,000 SF	693	111	100	11	97	10	87
			Total			**8,253**	**1,094**	**984**	**109**	**1,155**	**221**	**934**
4	Lot A	University-Serving Commercial	Hotel/Conference Center	6.7/Room	300 Rooms	2,010	121	72	48	161	96	64
			Total			**2,010**	**121**	**72**	**48**	**161**	**96**	**64**
5	Montezuma School	Commercial/ Institution	Small Office	18.0/1000 SF	20,000 SF	360	50	45	5	47	9	37
			Daycare/Preschool	2.7/Student	117 Students	316	54	27	27	57	28	28
			Library	18.0/1000 SF	10,000 SF	180	4	3	1	18	9	9
			Total			**856**	**108**	**75**	**33**	**122**	**47**	**75**
			Grand Total			33,373	2,752	1,646	1,106	3,766	1,739	2,027

0.3

1. Religious Center Rate based on composite land use types of the six ministries.

Table _ (Continued)

TRIP GENERATION (FUTURE LAND USES - SAC TIME PERIODS)

(With Reductions for Transit/Walking Trips)

Subarea	Location	Type	Land Use	Daily Trip Rate	Land Use Intensity	Total Daily Trips	SAC Inbound Trips Total	SAC Inbound Trips In	SAC Inbound Trips Out	SAC Outbound Trips Total	SAC Outbound Trips In	SAC Outbound Trips Out
1	Core	Mixed Use	High Density Residential	3.1/DU	755 DU	2,341	117	82	35	70	49	21
			Very High Density Residential	3.1/DU	1,745 DU	5,410	270	189	81	162	114	49
			Commercial/Retail	31.4/1000 SF	302,600 SF	9,502	760	380	380	380	76	304
			Religious Center	(1)	(1)	974	78	39	39	39	8	31
			Fraternity/Sorority	3.1/DU	448 DU	1,389	69	49	21	42	29	12
			Total			**19,614**	**1,295**	**739**	**556**	**693**	**276**	**417**
2	55th Street	Residential	Medium-Medium/High Density Residential	4.4/DU	600 DU	2,640	132	92	40	79	55	24
			Total			**2,640**	**132**	**92**	**40**	**79**	**55**	**24**
3	Alvarado Road	University-Serving Office/R & D	Large Office	12.6/1000 SF	600,000 SF	7,560	227	45	181	76	15	60
			Industrial (Research & Development)	6.3/1000 SF	110,000 SF	693	21	4	17	7	1	6
			Total			**8,253**	**248**	**50**	**198**	**83**	**17**	**66**
4	Lot A	University-Serving Commercial	Hotel/Conference Center	6.7/Room	300 Rooms	2,010	101	60	40	60	36	24
			Total			**2,010**	**101**	**60**	**40**	**60**	**36**	**24**
5	Montezuma School	Commercial/Institution	Small Office	18.0/1000 SF	20,000 SF	360	11	2	9	4	1	3
			Daycare/Preschool	2.7/Student	117 Students	316	9	2	8	3	1	3
			Library	18.0/1000 SF	10,000 SF	180	14	7	7	7	1	6
			Total			**856**	**35**	**11**	**23**	**14**	**3**	**11**
			Grand Total			**33,373**	**1,810**	**952**	**857**	**929**	**387**	**543**

1. Religious Center Rate based on composite land use types of the six ministries.

Source: JHK & Associates

Table 5-15A
NET PROJECT SITE TRIP GENERATION

With Reduction for Transit/Walking Trips

Trip Generation Component	Daily	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
Future Project Site	33,373	2,752	1,646	1,106	3,766	1,739	2,027
Existing Project Site	-10,347	-1,110	-751	-360	-1,278	-499	-779
Faculty/Staff/Student Relocation	-7,406	-741	-667	-74	-667	-200	-467
Net Project Site Trip Generation	15,620	901	228	672	1,821	1,040	781

Table 5-15B
NET PROJECT SITE TRIP GENERATION
(SAC Inbound and Outbound Peak Hours)

With Reduction for Transit/Walking Trips

Trip Generation Component	Daily	SAC Inbound Total	SAC Inbound In	SAC Inbound Out	SAC Outbound Total	SAC Outbound In	SAC Outbound Out
Future Project Site	33,373	1,810	952	857	929	387	543
Existing Project Site	-10,347	-447	-216	-230	-217	-103	-114
Net Project Site Trip Generation	23,026	1,363	736	627	712	284	429

Table 5-16

TRIP REDUCTION ESTIMATES FOR FACULTY/STAFF/STUDENT RELOCATION TO THE PROJECT SITE

	Number of Dwelling Units							AM Peak Hour			PM Peak Hour		
ype of esident	55th St.[1]	Core[2]	Total	Commuters Per Dwelling Unit[3]	Daily Trips Per Commuter[4]	% Auto	Number of Daily Trips	Total	In	Out	Total	In	Out
ılty/Staff	450	250	700	1.0	2.0	80%	1,120	112	101	11	101	30	71
ıent Student	120	2,125	2,245	2.0	2.0	70%	6,286	629	566	63	566	170	396
ɛr	30	125	155	0.0	0.0	100%	0	0	0	0	0	0	0
ıl	600	2,500	3,100	6280/2245 = 2,8			7,406	741	667	74	667	200	467

Distribution of residences in the 55th Street Subarea was assumed to be 75% Faculty/Staff, 20% Students, and 5% Other.

Distribution of residences in the Core Subarea was assumed to be 10% Faculty/Staff, 85% Students, and 5% Other.

An assumption was made that an average of one commuter would be located in each Faculty/Staff dwelling unit and two commuters would be located in each student dwelling unit.

It was assumed that there would be an average of two trips per commuter per day (one inbound trip and one outbound trip).

AM and PM Peak Hour trip generation characteristics were based on the City of San Diego Trip Generation Manual for Universities.

·9/9

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be located adjacent to I-8 with a station located in Lot A near the interchange of Canyon Crest Drive and College Avenue. The location of this station is subject to discussions with SDSU. If the Trolley line is not implemented, the total net future project ADT listed in Table 5-15A is expected to increase to approximately 20,000 vehicles per day. If instead, the Trolley line is extended directly to the Core Sub-Area rather than to Lot A along I-8, the net project ADT is expected to decrease to approximately 13,000 vehicles per day.

Street Segment and Intersection Analysis

The origins and destinations of project traffic (trip distribution) were estimated using the regional travel model for the San Diego region developed by the San Diego Association of Governments (SANDAG) with further refinements by JHK in consultation with the City of San Diego. Forecasts of average daily traffic (ADT) volumes for street segments in the study area are described in Figure 5-11 for project-generated traffic and Figure 5-12 for project-generated traffic plus the increase in traffic resulting from growth associated with other development in surrounding areas.

Specific information describing future peak period intersection turning movements with implementation of the Redevelopment Project are included in Appendix E of this EIR. Tables 5-17, 5-18, and 5-19 provide the capacity analyses for signalized intersections, unsignalized intersections, and street segments, respectively, under future traffic conditions following implementation of the Redevelopment Project. For comparative purposes, Tables 5-20, 5-21, and 5-22 provide the same information for the future if the Redevelopment Project is not implemented.

Implementation of the Redevelopment Project will have significant effects on certain signalized intersections and street segments within the study area. As shown in Table 5-17, seven key intersections will have a LOS E or F during either the AM or PM peak hour or both. The effected intersections include Montezuma Road/College Avenue, El Cajon Boulevard/College Avenue, College Avenue/I-8 Eastbound Off Ramp, College Avenue/Lindo Paseo, Montezuma Road/Collwood Boulevard, College Avenue/Canyon Crest Boulevard, and 70th Street/El Cajon Boulevard, and 70th Street/Alvarado Road. Two other intersections, Montezuma Road/Campanile Drive and College Avenue/Navajo Road will also experience a LOS D during both the morning and evening peak hours. The intersections of Montezuma Road/College Avenue, College Avenue/Canyon Crest will have a LOS E or F during inbound or outbound travel for a SAC event. By comparison with Table 5-20, five of the same seven intersections will also have a LOS E or F during the AM or PM peak hour or both, and three intersections will experience a LOS D. Under the same conditions, the intersection of College Avenue/Canyon Crest will have a LOS F during outbound travel for a SAC event.

Table 5-18 indicates that none of the unsignalized intersections analyzed will experience traffic volumes warranting the installation of a traffic signal with implementation of the Redevelopment Project.

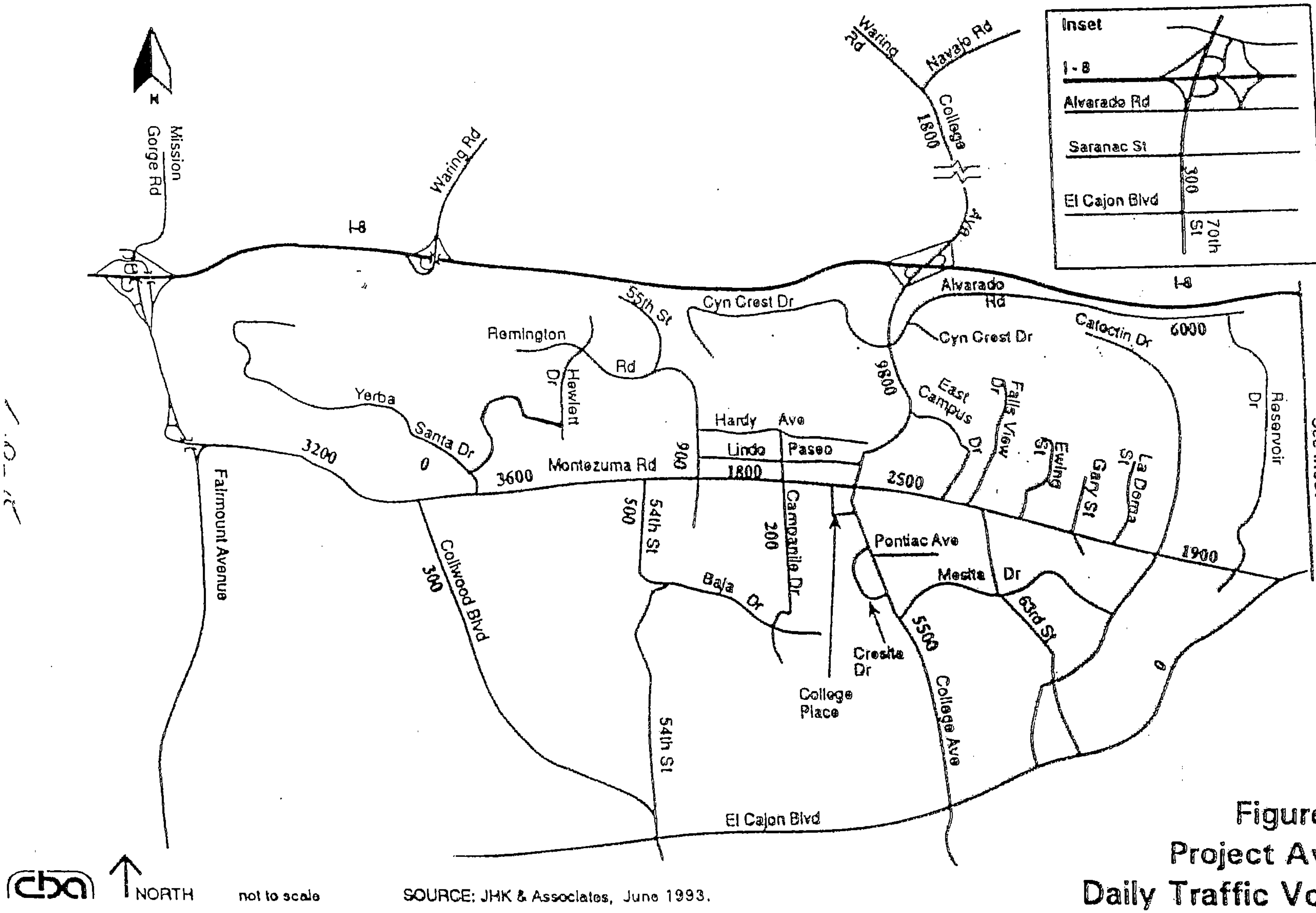
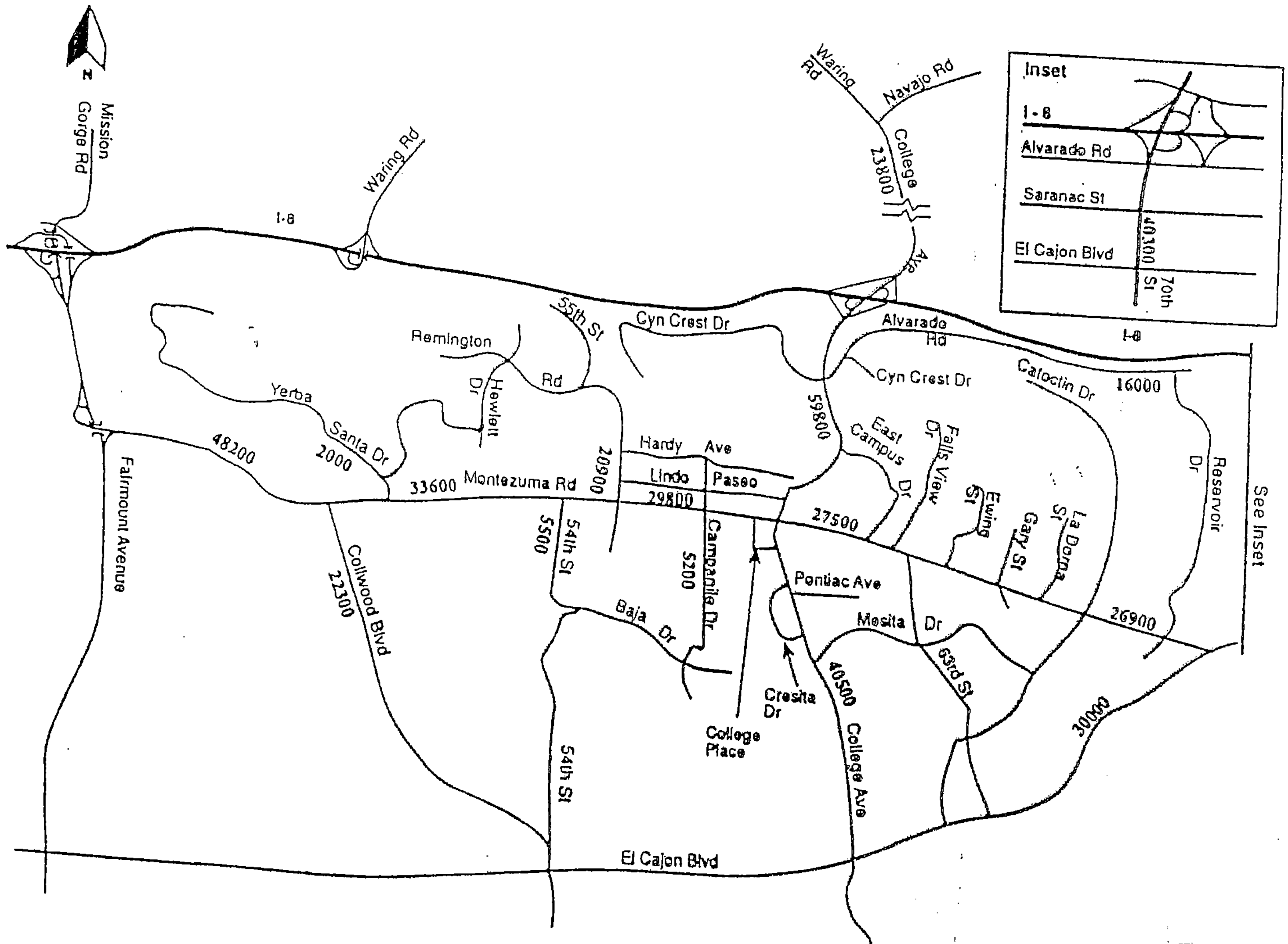


Figure 5-11
Project Average Daily Traffic Volumes



cba NORTH not to scale SOURCE: JHK & Associates, June 1993.

Figure 5-12
Future with Project Average Daily Traffic Volumes

College Community Redevelopment EIR

Redevelopment Agency of the City of San Diego

Table 5-17

FUTURE WITH PROJECT SIGNALIZED INTERSECTION OPERATIONS

Intersection	AM Peak Hour	PM Peak Hour	SAC Inbound Peak Hour	SAC Outbound Peak Hour
	Level of Service/Average Delay (Sec)[1]			
Montezuma Rd/College Ave	F/*2	F/*2	D/30.1	E/45.5
Collwood Blvd/54th St	B/5.6	B/5.7	B/5.0	A/4.0
Montezuma Rd/Campanile Dr	D/34.5	D/35.8	C/17.9	C/24.6
Montezuma Rd/54th St	B/9.1	B/12.5	B/6.5	A/4.6
El Cajon Blvd/College Ave	E/43.5	F/*2	D/25.4	C/19.6
Montezuma Rd/El Cajon Blvd	B/6.8	C/19.9	B/12.0	B/12.7
College Ave/I-8 WB Off Ramp	B/8.3	C/17.3	B/11.7	B/5.4
College Ave/I-8 EB Off Ramp	B/14.2	F/*2	B/12.5	B/9.8
Montezuma Rd/Catoctin Dr	A/3.9	B/7.9	B/5.6	A/4.5
Montezuma Rd/63rd St	B/10.0	B/8.8	B/5.5	A/4.3
Montezuma Rd/E. Campus Dr	B/13.3	B/14.7	B/10.8	B/9.1
College Ave/Lindo Paseo	F/*2	E/56.9	D/26.3	C/20.8
College Ave/Navajo Rd	D/28.1	D/32.4	B/14.7	B/14.3
Montezuma Rd/55th St	C/20.0	C/24.0	C/17.1	C/17.2
Montezuma Rd/Collwood Blvd	D/26.7	E/52.2	B/11.8	B/8.4
College Ave/Canyon Crest Blvd	F/60.9	F/*2	E/48.7	F/*2
70th St/El Cajon Blvd	E/55.5	F/*2	C/24.6	C/20.6
70th St/Alvarado Rd	D/25.0	E/48.4	C/19.6	C/16.7
Remington Rd/55th St[3]	B/11.6	B/12.3	B/14.6	B/11.3

1 Source: JHK & Associates based on the operations and design procedure of the Highway Capacity Manual.

2 Average delay is greater than 60 seconds, but cannot be precisely estimated due to the limitations of the capacity procedure.

3 The installation of a signal at Remington Road/55th Street is required as a mitigation for the SAC.

Table 5-21

FUTURE NO REDEVELOPMENT PROJECT
UNSIGNALIZED INTERSECTION OPERATIONS

	Traffic Signal Warrants Met (Y/N)[1]			
Intersection	AM Peak Hour	PM Peak Hour	SAC Inbound Peak Hour	SAC Outbound Peak Hour
Montezuma Rd/Yerba Santa Dr	N	N	N	N
Remington Rd/Hewlett Dr	N	N	N	N
55th St/Hardy Ave	N	N	N	N
Hardy Ave/Campanile Dr	N	N	N	N
54th St/Baja Dr	N	N	N	N
Alvarado Rd/Canyon Crest Dr	N	N	N	N
College Ave/College Pl	N	N	N	N
College Ave/Cresita/Pontiac	N	N	N	N
College Ave/Mesita Dr	N	N	N	N
Montezuma Rd/Falls View Dr	N	N	N	N
Montezuma Rd/Ewing St	N	N	N	N
Montezuma Rd/Gary St	N	N	N	N
Montezuma Rd/La Doma St	N	N	N	N
Montezuma Rd/Reservoir Dr	N	N	N	N
70th St/Saranac St	N	N	N	N

1 Source: JHK & Associates based on the Manual of Uniform Traffic Control Devices.

Table 5-22

FUTURE NO REDEVELOPMENT PROJECT STREET SEGMENT ANALYSIS

Street	Location	Classification [1]	Future No Project Average Daily Traffic [1]	Typical Project Average Daily Traffic [2]	Volume to Capacity Ratio	Level of Service
College Ave	Navajo Rd to I-8	Four-Lane Major	22,000	30,000	0.73	C
	I-8 to Montezuma Rd	Four-Lane Major	50,000	30,000	1.67	F
	Montezuma Dr to El Cajon Blvd	Four-Lane Major	35,000	30,000	1.17	D
Montezuma Rd	Fairmount Ave to Collwood Blvd	Four-Lane Prime	45,000	35,000	1.29	D
	Collwood Blvd to 54th St	Four-Lane Major	30,000	30,000	1.00	C
	54th St to College Ave	Four-Lane Major	28,000	30,000	0.93	C
	College Ave to 63rd St	Four-Lane Major	25,000	30,000	0.83	C
	63rd St to El Cajon Blvd	Four-Lane Major	25,000	30,000	0.83	C
El Cajon Blvd	63rd St to Montezuma Rd	Four-Lane Major	30,000	30,000	1.00	C
[illegible]ba Santa Dr	North of Montezuma Rd	Two-Lane Collector [3]	2,000	3,500	0.57	B
Collwood Blvd	Montezuma Rd to 54th St	Four-Lane Major	22,000	30,000	0.73	C
54th St	Montezuma Rd to Baja Dr	Two-Lane Collector [3]	5,000	3,500	1.43	E
55th St	Montezuma Rd to Hardy Ave	Two-Lane Collector [3]	20,000	7,500	2.67	F
Campanile Dr	Montezuma Rd to Baja Dr	Two-Lane Collector [3]	5,000	3,500	1.43	E
Alvarado Rd	Canyon Crest Dr to 70th St	Two-Lane Collector [3]	10,000	7,500	1.33	E
70th St	Alvarado Rd to El Cajon Blvd	Four-Lane Major	40,000	30,000	1.33	E

1 Source: College Area Community Plan

2 Source: City of San Diego Street Design Manual

3 Typical maximum ADT is 3,500 in areas with single-family dwelling units and 5,000 in other areas.

Table 5-19
FUTURE WITH PROJECT STREET SEGMENT ANALYSIS

Street	Location	Classification [1]	Future With Project Average Daily Traffic [1]	Typical Maximum Average Daily Traffic[2]	Volume to Capacity Ratio	Level of Service
College Ave	Navajo Rd to I-8	Four-Lane Major	23,800	30,000	0.79	C
	I-8 to Montezuma Rd	Four-Lane Major	59,800	30,000	1.99	F
	Montezuma Rd to El Cajon Blvd	Four-Lane Major	40,500	30,000	1.35	E
Montezuma Rd	Fairmount Ave to Collwood Blvd	Four-Lane Prime	48,200	35,000	1.38	E
	Collwood Blvd to 54th St	Four-Lane Major	33,600	30,000	1.12	D
	54th St to College Dr	Four-Lane Major	29,800	30,000	0.99	C
	College Ave to 63rd St	Four-Lane Major	27,500	30,000	0.92	C
	63rd St to El Cajon Blvd	Four-Lane Major	26,900	30,000	0.90	C
El Cajon Blvd	63rd St to Montezuma Rd	Four-Lane Major	30,000	30,000	1.00	C
Yerba Santa Dr	North of Montezuma Rd	Two-Lane Collector [3]	2,000	3,500	0.57	B
Collwood Blvd	Montezuma Rd to 54th St	Four-Lane Major	22,300	30,000	0.74	C
54th St	Montezuma Rd to Baja Dr	Two-Lane Collector [3]	5,500	3,500	1.57	E
55th St	Montezuma Rd to Hardy Ave	Two-Lane Collector [3]	20,800	7,500	2.79	F
Campanile Dr	Montezuma Rd to Baja Dr	Two-Lane Collector [3]	5,200	3,500	1.49	E
Alvarado Rd	Canyon Crest Dr to 70th St	Two-Lane Collector [4]	16,000	7,500	2.13	F
70th St	Alvarado Rd to to El Cajon Blvd	Four-Lane Major[3]	40,300	30,000	1.34	E

1 Source: College Area Community Plan

2 Source: City of San Diego Street Design Manual

3 Typical maximum ADT is 3,500 in areas with single-family dwelling units and 5,000 in other areas.

Table 5-20

FUTURE NO REDEVELOPMENT PROJECT SIGNALIZED INTERSECTION OPERATIONS

Intersection	AM Peak Hour	PM Peak Hour	SAC Inbound Peak Hour	SAC Outbound Peak Hour
	Level of Service/Average Delay (Sec)[1]			
Montezuma Rd/College Ave	F/71.5	F/*2	D/25.4	D/35.0
Collwood Blvd/54th St	B/5.4	B/5.7	B/5.0	A/4.0
Montezuma Rd/Campanile Dr	C/23.6	D/25.4	B/14.9	D/30.6
Montezuma Rd/54th St	B/8.5	B/9.4	B/5.5	B/11.7
El Cajon Blvd/College Ave	D/39.3	F/92.4	D/26.0	C/19.5
Montezuma Rd/El Cajon Blvd	B/5.3	C/18.0	B/11.4	B/12.7
College Ave/I-8 WB Off Ramp	B/8.3	B/11.0	B/10.1	A/4.6
College Ave/I-8 EB Off Ramp	B/14.1	F/*2	B/12.1	B/9.5
Montezuma Rd/Catoctin Dr	A/3.9	B/8.1	B/6.0	A/4.8
Montezuma Rd/63rd St	B/10.1	B/8.8	B/5.9	A/4.6
Montezuma Rd/E. Campus Dr	B/13.3	B/13.7	B/10.5	B/9.2
College Ave/Lindo Paseo	C/21.6	C/20.2	B/13.3	C/15.8
College Ave/Navajo Rd	D/26.9	C/22.4	B/14.3	B/14.0
Montezuma Rd/55th St	C/18.3	C/20.9	C/18.2	C/22.3
Montezuma Rd/Collwood Blvd	C/24.4	D/33.9	B/11.5	B/8.4
College Ave/Canyon Crest Blvd	D/35.7	F/*2	C/18.3	F/*2
70th St/El Cajon Blvd	E/56.1	F/74.6	C/23.7	C/20.4
70th St/Alvarado Rd	C/22.2	D/35.7	C/19.3	C/16.6
Remington Rd/55th St[3]	B/10.9	B/12.0	B/14.2	B/10.9

1 Source: JHK & Associates based on the operations and design procedure of the Highway Capacity Manual.

2 Average delay is greater than 60 seconds, but cannot be precisely estimated, due to the limitations of the capacity procedure.

3 The installation of a signal at Remington Road/55th Street is required as a mitigation for the SAC.

With and without implementation of the Redevelopment Project, portions of several streets serving the Project Area are expected to experience LOS D, E, or F in the future. As shown in Tables 5-19 and 5-22, these include College Avenue, Montezuma Road, 54th Street, 55th Street, Campanile Drive, Alvarado Road and 70th Street.

Redevelopment Project impacts to street segments and intersections are considered significant and will require system improvements to mitigate such impacts.

College Avenue/I-8 Interchange Ramps

In addition to the street segment and intersection analysis, a study of the College Avenue/I-8 interchange ramps was conducted. The results of the analysis are provided in Table 5-23. The table compares ramp traffic expected with future traffic, including implementation of the Redevelopment Project, with the typical ramp capacities of 1,400 vehicles per hour for loop ramps and 1,700 vehicles per hour for straight ramps. As noted in the table, these typical ramp capacities are sometimes exceeded when ramp metering systems are in place. In general, the forecasted ramp traffic appears to present no traffic operational problems. The exception is the College Avenue northbound to I-8 westbound ramp. This ramp currently carries approximately 1,700 vehicles per hour and is forecasted to increase to 1,973 vehicles per hour. The existing ramp metering system allows this ramp to operate beyond its typical capacity and this situation is expected to continue in the future. The following programmed improvements will tend to improve this situation:

See Section 9.0 Response 4-U

- Implementation of the I-8 westbound auxiliary lane which is currently under construction; and
- Improvements to the I-8/Fairmount Avenue/Mission Gorge Road/Montezuma Road area which have been proposed by the City of San Diego.

Given the effect of the programmed roadway improvements on the College Avenue northbound to I-8 westbound ramp, and the modest level of traffic increases compared to existing traffic levels, no significant impact is anticipated and no roadway improvements are expected to be required.

The section of I-8 through the study area currently experiences traffic congestion on a regular basis during the AM and PM peak hours of typical weekdays. This traffic congestion becomes more significant in the event of a traffic accident or poor weather. As a result of the congestion on I-8, traffic which would otherwise be on I-8 tends to divert to parallel local streets such as Montezuma Road and El Cajon Boulevard.

In the future, traffic diversions from I-8 are expected to lessen and traffic operations on I-8 are expected to improve as a result of: (1) completion of the Route 52 freeway from I-15 to Santee; (2) implementation of a San Diego trolley line parallel to I-8; and (3) completion of the added westbound land on I-8 which is currently under construction. This assumption is consistent with the College Area Community Plan which shows future traffic forecasts on I-8 which are less than existing traffic. Between Fairmount Avenue and Waring Road, the daily traffic on I-8 is forecasted to decrease from 214,100 to 180,000, and between Waring Road and College Avenue, the I-8 daily traffic is forecasted to decrease from 198,200 to 180,000.

As an adjunct to the analysis conducted, the extension of Waring Road from the Waring Road/I-8 interchange to Canyon Crest Drive as a two-lane roadway was reviewed (see Figure 5-13). The extension is not proposed as part of the Redevelopment Project, and its implementation would require additional environmental review and consideration of associated environmental impacts by SDSU and other agencies that are beyond the scope of the Redevelopment Project analyzed in this EIR.

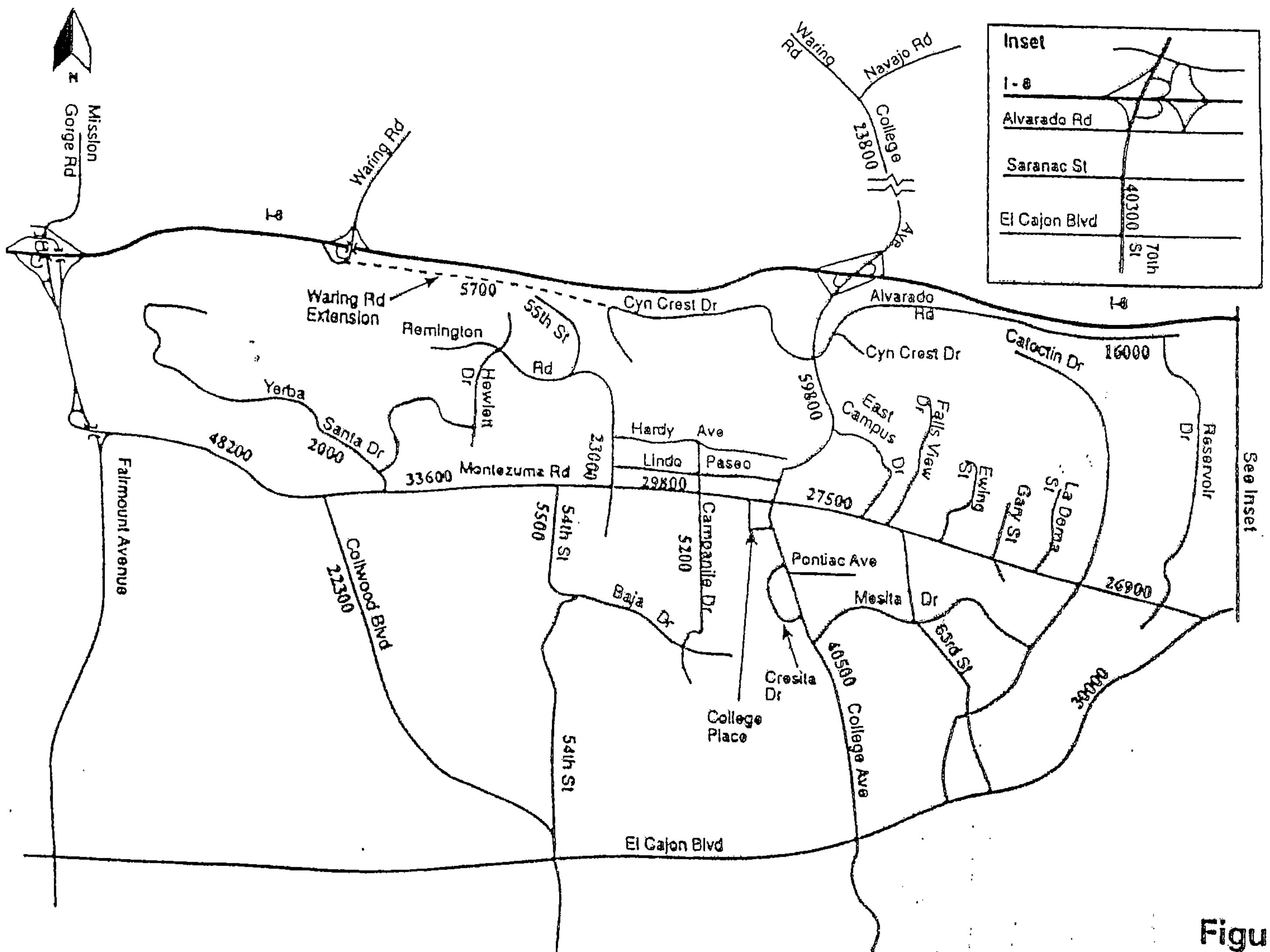
See Section 9.0 Response 9-K

This extension would be expected to carry 5,700 vehicles per day and extending Waring Road could provide several major benefits including:

- Improved traffic operations at the intersections of College Avenue with Canyon Crest Drive and I-8 Eastbound Ramp. At the College Avenue and the I-8 Eastbound Ramp, the post-mitigation level of service would improve from level of service D to level of service C;
- Lower traffic demand at the I-8 on-ramps from College Avenue resulting in less delay at the ramp meters during peak hour and/or improved freeway operations along I-8 between Waring Road and College Avenue; and
- Easier ingress/egress and more efficient traffic operations associated with SAC events.

Transit Conditions

Although public transit is a very important aspect of the transportation system serving the Project Area, the project is not considered to have direct adverse transit impacts. Rather, transit may be used to meet the overall transportation demands of the Project Area, and as its use increases, traffic congestion within the College Area Community will be reduced. Several alternative modes of transportation exist which may be used to support demand generated within the Project Area. Some of the more applicable alternative modes include the following: (1) public transit (trolley, fixed route regional bus service, and shuttle bus service); (2) ridesharing (in private automobiles); (3) vanpooling; (4) bicycling; and (5) walking.



NORTH

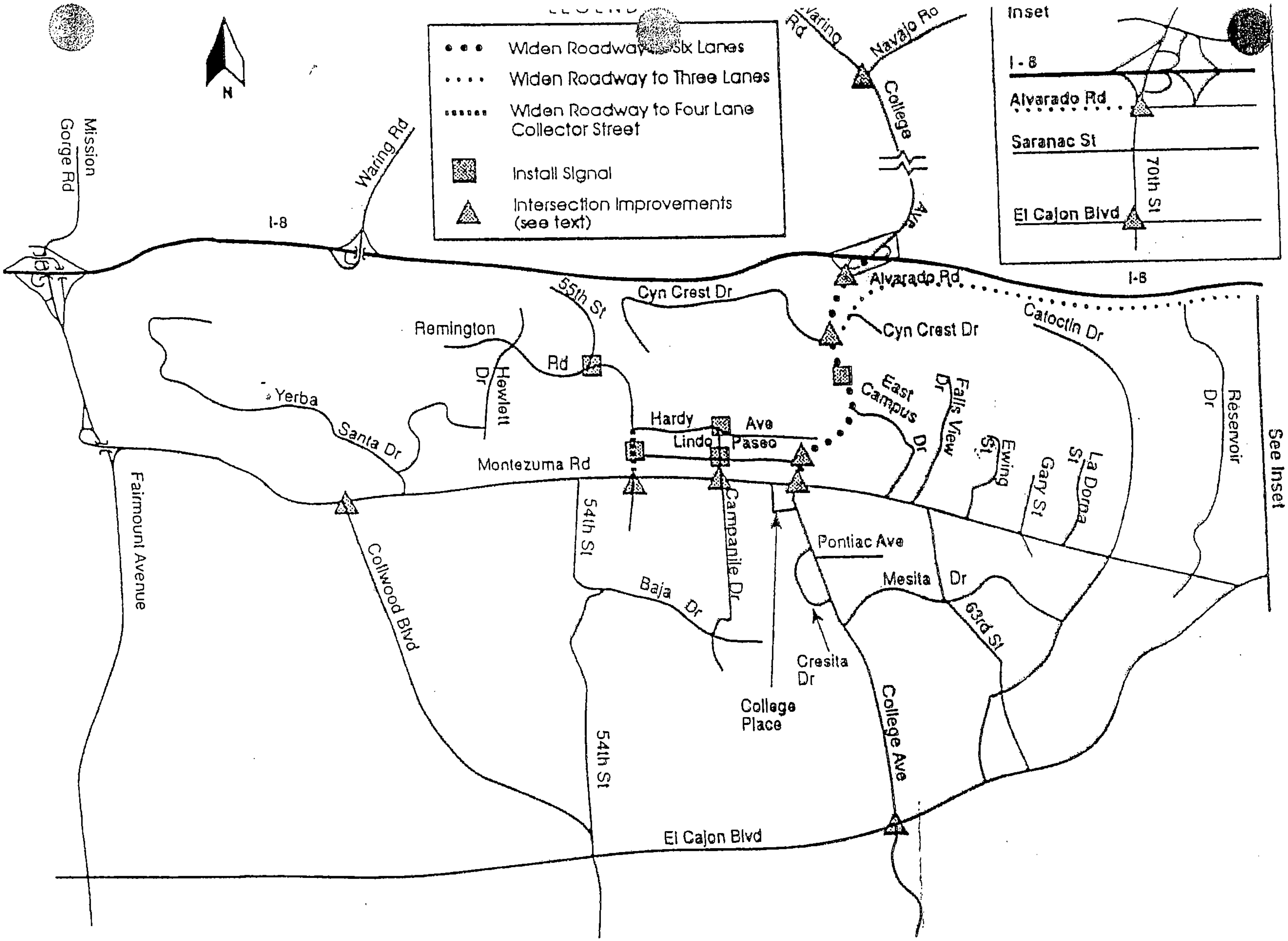
not to scale

SOURCE: JHK & Associates, June 1993.

Figure 5-13
Future with Project Average Daily Traffic Volumes with Waring Road Extension

Activities Center at SDSU. If the SAC proceeds and its required mitigation measures are built, the Redevelopment Project will not be required to participate in those improvements. However, if these mitigation measures are not provided through implementation of the SAC, the Redevelopment Project will be required to pay a fair share of those improvements. A summary of required mitigation measures for traffic is shown in Figure 5-14 and post-mitigation traffic conditions for signalized and unsignalized intersections are documented in Tables 5-25A and 5-25B.

Transit improvements are not required to reduce significant traffic/circulation impacts to less than significant levels, but are recommended in lieu of mitigation to level of service C to further reduce expected impacts. Recommended transit mitigation is shown in Figure 5-15. This figure shows two proposed shuttle routes. If the alternative of routing the Trolley line through the campus is implemented, the shuttle between the campus and the I-8/College Avenue area will not be required.



cba NORTH not to scale SOURCE: JHK & Associates, June 1993.

Figure 5-14
Summary of Mitigation Measures

Table 5-24

COLLEGE COMMUNITY REDEVELOPMENT PROJECT EIR
ESTIMATED PARKING DEMAND[1]

Subarea	Type of Land Use	Size	Parking Ratio	Required Parking Spaces
Core	High Density Residential	755 du	- - - 2	1,180
	Very High Density Residential	1,745 du	- - - 2	2,727
	Retail	302,600 sf	1/400 sf[3]	757
	Religious Centers	42,000 sf	1/300 sf[4]	140
	Fraternity/Sorority	1,520 students	0.58/student [5]	882
			Subtotal	5,686
55th Street	Medium-Medium High Density Residential	600 du	- - - 2	1,125
			Subtotal	1,125
Alvarado Rd	University-Serving Office	600,000 sf	1/300 sf	2,000
	University-Serving R&D	110,000 sf	1/400 sf	275
			Subtotal	2,275
Lot A	Hotel/Conference Center	300 rooms	1/room	300
			Subtotal	300
Montezuma School	Office	20,000 sf	1/300 sf	67
	Daycare/Preschool	117 students	0.25/student	30
	Library	10,000 sf	1/200 sf[6]	50
			Subtotal	147
			Grand Total	9,533

1. Unless otherwise noted, parking demand was estimated based on Transportation Planning Division parking rates dated August 30, 1992.

2. Parking ratio varies for residential units depending on a variety of factors. For this calculation, it was assumed that the residential units would be one third studios, one third one bedroom units, and one third two bedroom units. In the Core Subarea, it was also assumed that a density of 73 to 142 units per acre would be achieved and that the retail gross floor area would be 13% or more of the total of the residential and retail gross floor area. The final project parking demand should be revised when site plans are available and the assumptions listed above can be verified.

3. The recommended parking ratio for retail use in the Core Subarea is less than the 1/200 sf ratio shown in the Transportation Planning Division parking rates for retail uses. The recommendation of 1/400 sf is based on the high level of walking trips expected in the Core Subarea and will have to be verified at the time of site plan approval. See text.

4. Parking demand based on office parking ratio. See text.

5. Parking ratio based on City of San Diego Transporation Planning Division Memorandum dated February 10, 1992. Fraternities and sororities are not mentioned in the Transportation Planning Division parking rates.

6. Assumes no high meeting room use.

4526BT-12/14/92

Table 5-25A

POST-MITIGATION SIGNALIZED INTERSECTION OPERATIONS

Intersection	AM Peak Hour	PM Peak Hour	SAC Inbound Peak Hour	SAC Outbound Peak Hour
	Level of Service/Average Delay (Sec)[1]			
Montezuma Rd/College Ave	C/23.1	D/33.6	C/20.5	C/19.0
Montezuma Rd/Campanile Dr	C/24.2	C/24.7	C/17.2	C/24.5
El Cajon Blvd/College Ave	C/19.9	D/26.9	C/18.2	B/13.9
College Ave/I-8 EB Off Ramp	B/12.3	D/31.5	B/10.3	B/7.3
College Ave/Lindo Paseo	C/18.2	B/14.2	C/16.1	B/13.8
College Ave/Navajo Rd	C/24.9	C/21.0	B/12.8	B/11.3
Montezuma Rd/Collwood Blvd	C/24.6	D/31.4	B/11.9	B/7.1
College Ave/Canyon Crest Blvd	D/36.6	D/37.7	B/14.2	D/34.7
70th St/El Cajon Blvd	D/29.6	D/33.0	C/17.9	C/15.4
70th St/Alvarado Rd	C/18.0	C/22.7	C/15.9	B/13.2

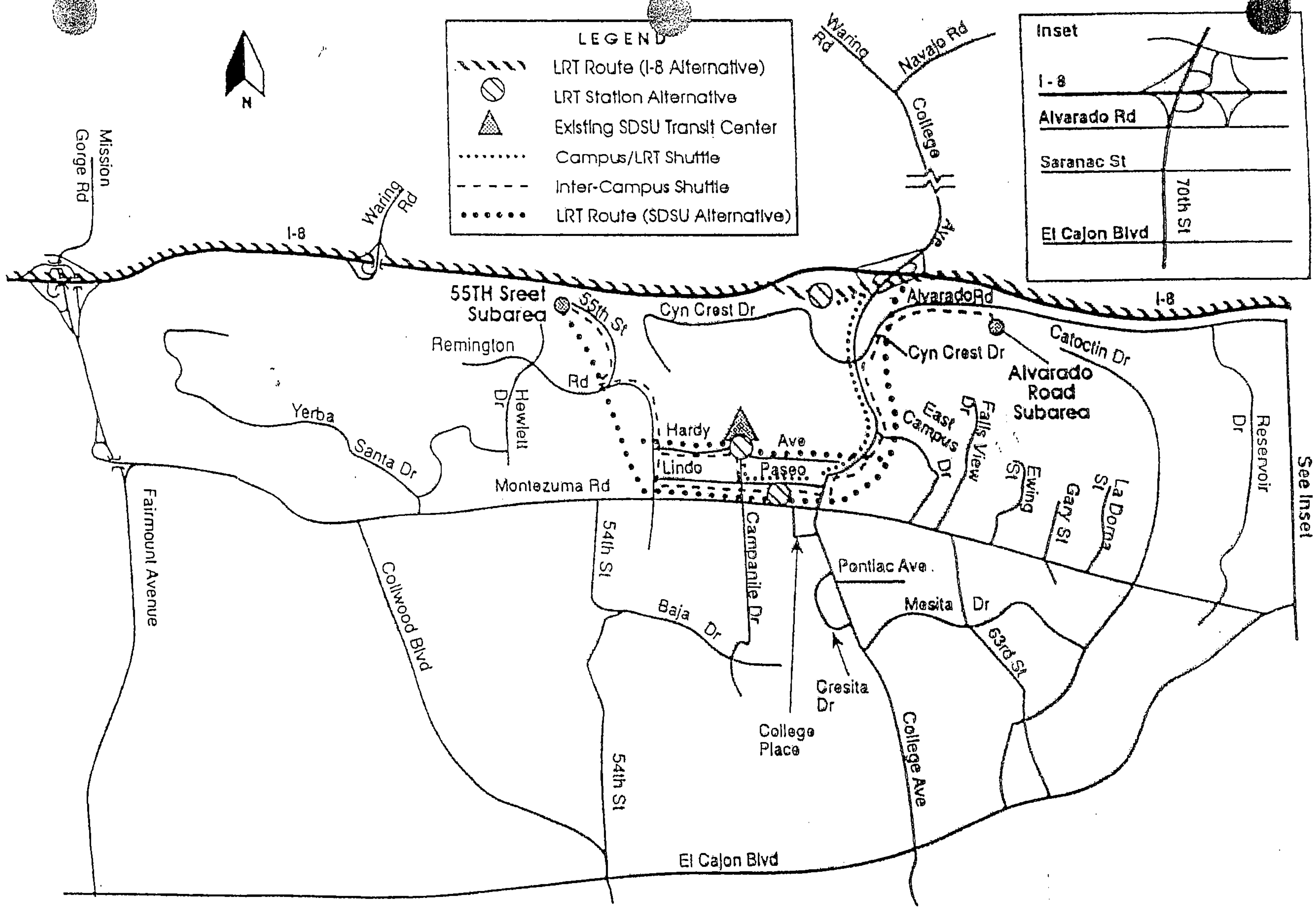
1 Source: JHK & Associates based on the operations and design procedure of the Highway Capacity Manual.

Table 5-25B

POST-MITIGATION INTERSECTION OPERATIONS AT KEY INTERSECTIONS WHERE SIGNAL INSTALLATION IS RECOMMENDED

	Level of Service/Average Delay (Sec)[1]			
Intersection	**AM Peak Hour**	**PM Peak Hour**	**SAC Inbound Peak Hour**	**SAC Outbound Peak Hour**
Hardy Ave/Campanile Dr	C/20.1	C/15.0	C/21.0	C/17.7

[1] Source: JHK & Associates based on the operations and design procedure of the Highway Capacity Manual.



5-10-32

Figure 5-15
Multi-Modal Transportation Plan
Proposed Shuttle Bus Route

cba NORTH not to scale SOURCE: JHK & Associates, June 1993.

The following mitigation measures are required to reduce impacts to a less than significant level:

Traffic

Transportation Phasing Plan

1. A transportation phasing plan shall be prepared and implemented to address the following issues associated with proposed phases of development within the Project Area:

   a. Traffic improvements phasing (which mitigation measures are required at each stage of development);

   b. Site access (determination of appropriate traffic control to allow access from an individual development project site to the street system); and

   c. Review of individual development project site plans and analysis of internal circulation issues.

   d. Review of project parking demand and determination of required parking spaces based on project site plans.

For each proposed individual development project or combination of projects, a study of this type will be conducted to the satisfaction of the City's Engineering and Development department and the conclusions of that study shall be implemented. The transportation phasing analysis for all project phases must be included at the time of development of the first phase of the project and the transportation phasing plan should consider the likelihood of implementation of expected transportation improvements such as the East Mission Valley trolley extension and include appropriate revisions to the traffic analysis as necessary.

College Avenue

See Section 9.0 Response 3-S

2. College Avenue shall be widened to six lanes between Montezuma Road and Interstate 8. The College Avenue bridge over I-8 shall be widened to include three northbound lanes and two southbound lanes. College Avenue shall be realigned in the area north of Lindo Paseo to eliminate the existing substandard curve.

See Section 9.0 Response 3-T

3. As part of the College Avenue widening project, a signal should be installed to accommodate left turn access into the SDSU parking structure east of College Avenue. This signal is required because the City of San Diego does not typically allow unsignalized access to a six-lane roadway.

4. As part of the College Avenue widening project, the existing three pedestrian bridges to the campus shall be maintained and/or lengthened as necessary to continue to provide grade-separated pedestrian access.

70th Street

5. 70th Street shall be widened to six lanes through the Alvarado Road intersection and over the I-8 bridge, as recommended in the College Area Community Plan.

Alvarado Road

See Section 9.0 Response 15-I

6. Alvarado Road shall be widened to two through lanes plus a two-way left turn lane between College Avenue and 70th Street with the widening to occur to the south of existing Alvarado Road. The road shall be realigned to eliminate existing substandard curves in the area east of College Avenue.

55th Street

See Section 9.0 Response 5-T

7. 55th Street shall be widened to a four-lane collector between Montezuma Road and Hardy Avenue.

College Avenue/Montezuma Road Intersection and Vicinity (mitigation to achieve level of service D)

8. College Avenue shall be widened to six through lanes.

9. Double left turn lanes shall be provided for southbound, eastbound, and westbound movements.

10. A separate right turn land northbound shall be provided.

11. Median breaks at College Avenue/College Place and Montezuma Road/Rockford Road shall be closed and only right turns in and out will be allowed at these locations.

Montezuma Road/Campanile Drive Intersection

12. A double left turn lane southbound shall be provided (required mitigation for the SAC).

13. A separate right turn lane northbound shall be provided.

El Cajon Boulevard/College Avenue Intersection and Vicinity (mitigation to achieve level of service D)

14. College Avenue shall be widened to six through lanes in the vicinity of El Cajon Boulevard with transition to four through lanes outside the intersection area.

15. Eastbound and westbound separate right turn lanes shall be provided.

16. Double left turn lanes northbound and southbound shall be provided.

College Avenue/Lindo Paseo Intersection

17. College Avenue shall be widened to six through lanes.

18. Double left turn lanes, a through lane, and a right turn lane eastbound shall be provided.

19. A left turn lane, through lane, and right turn lane westbound shall be provided.

20. A separate right turn land northbound shall be provided.

College Avenue/Navajo Road Intersection

21. Two through lanes and two separate right turn lanes shall be provided on the northbound approach.

Montezuma Road/55th Street Intersection

22. A left turn lane, left/through/right lane, and a right turn lane on the southbound approach shall be provided (required mitigation for the SAC).

College Avenue/Canyon Crest Drive Intersection (mitigation to achieve level of service D)

23. College Avenue shall be widened to six through lanes.

24. A left turn lane, a left/through, and a right turn lane eastbound shall be provided.

25. A left turn lane, a left/through, and double right turn lanes westbound shall be provided.

26. As an alternative to widening Canyon Crest Drive/Alvarado Road along its present alignment, consider re-routing Alvarado Road directly through the SDSU parking lot C during the preliminary design of the Alvarado Road widening and the College Avenue/Canyon Crest Drive intersection improvement, subject to discussions with SDSU.

Alvarado Road/70th Street Intersection

27. 70th Street shall be widened to six through lanes through this intersection and the 70th Street interchange with I-8. 70th Street shall transition to four through lanes north of I-8 and south of Alvarado Road.

28. A left turn lane, through lane, and right turn lane on the eastbound approach shall be provided.

El Cajon Boulevard/70th Street (mitigation to achieve level of service D)

29. Double left turn lanes and a separate right turn lane eastbound shall be provided.

Montezuma Road/Collwood Boulevard (mitigation to achieve level of service D)

30. Double left turn lanes westbound shall be provided.

Remington Road/55th Street

31. A traffic signal shall be installed and a separate left turn lane eastbound shall be provided. **Remington Road and 55th Street (westbound) shall be widened to accommodate two through lanes eastbound ~~and a through~~ and through/right lane westbound. One additional left turn lane south bound shall be provided (all improvements are required as mitigation for the SAC).**

Hardy Street/Campanile Drive Intersection

32. A traffic signal shall be installed if this intersection is in existence after development of this portion of the Project Area.

Lindo Paseo/Campanile Drive Intersection

33. A traffic signal shall be installed if this intersection is in existence after development of this portion of the Project Area.

55th Street/Lindo Paseo Intersection

34. A traffic signal shall be installed if this intersection is in existence after development of this portion of the Project Area.

Traffic Signal Interconnect

35. A system to interconnect all existing and future traffic signals in the study area shall be implemented. This may be accomplished through integration with the City's central traffic signal system or implementation of one or more local signal systems.

Travel Demand Management

36. Travel demand management strategies will be implemented to met or exceed city-wide and regional requirements.

Ridesharing/Van Pooling

37. Development within the Core Sub-Area, Alvarado Road Sub-Area, and Lot A Sub-Area shall meet or exceed the region-wide and city-wide standards related to carpooling/vanpooling.

Bicycling/Walking

38. Development within the Project Area shall finance its fair share of bicycle and pedestrian facilities which are part of roadway improvement projects constructed as Redevelopment Project mitigation.

39. To the extent which bicycle and pedestrian facilities are included in a community-wide facilities financing plan for transportation improvements, development within the Project Area shall contribute a fair share toward such improvements. This fair share should be calculated as the proportion of roadway financing required from the project compared to the total roadway financing cost.

40. All site plans for individual development projects proposed within the Project Area shall meet or exceed city standards which are in place at the time of their approval for the encouragement of bicycling and walking as transportation modes. Bicycle storage areas including racks and lockers shall be provided.

Transit

The following mitigation measures are recommended to further reduce traffic/circulation impacts:

41. The SDSU Foundation should implement two shuttle bus routes to serve the campus area and the Project Area. One route should connect the SDSU transit center with the proposed Trolley station at College Avenue and I-8. The second proposed route would serve the campus area as well as the Alvarado Road and 55th Street Sub-Areas. Other routings are possible to meet the intent of the recommended shuttle service. Shuttle service to the Trolley station should be on 15 minute headways from 6:00 AM to 11:00 PM. Shuttle service to the 55th Street/Alvarado Road Sub-Area should be on 15 minute headways from 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM, and on 30 minute headways at other periods of the day with operation from 6:00 AM to 8:00 PM. If the alternative of routing the Trolley line through the campus is implemented, the shuttle between the campus and the I-8/College Avenue area will not be required.

See Section 9.0 Response 15-J

42. The SDSU Foundation should work with the University, the City of San Diego, and the College Area Community to encourage the extension of the trolley line to the SDSU campus in order to improve traffic conditions.

43. All site plans for individual development projects within the Project Area should meet or exceed City standards which are in place at the time of their approval for the encouragement of transit use.

IMPACT AFTER MITIGATION

With implementation of the identified mitigation measures following the evaluation of proposed individual development projects, impacts to traffic/circulation can be reduced to a less than significant level.

Genoa/Capri/Arno Intersection Analyses

TABLE A
ADOBE FALLS INTERSECTION ANALYSIS

Intersection	Peak Hour	Existing		Existing + Project		Δ
		Delay	LOS	Delay	LOS	
Genoa Drive / Capri Drive	AM	8.5	A	9.1	A	0.6
	PM	8.7	A	9.6	A	0.9
Genoa Drive / Arno Drive	AM	8.5	A	9.8	A	1.3
	PM	8.7	A	10.5	B	1.8

2005 SDSU Campus Master Plan
Adobe Falls / North Campus Intersection Analysis

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Genoa Drive / Capri Drive	A	8.5	0.000	A	8.5	0.000	+ 0.000 D/V
# 2 Genoa Drive / Arno Drive	A	8.5	0.000	A	8.5	0.000	+ 0.000 D/V

2005 SDSU Campus Master Plan
Adobe Falls / North Campus Intersection Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Genoa Drive / Capri Drive

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: A[8.5]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 1	0	0 0	1 0	0	0 0	0 0	0	0 0	1! 0	0
Volume Module: AM Peak												
Base Vol:	0	14	4	0	7	0	0	0	0	1	0	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	14	4	0	7	0	0	0	0	1	0	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	15	4	0	8	0	0	0	0	1	0	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	15	4	0	8	0	0	0	0	1	0	4
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	28	xxxx	20
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	992	xxxx	1063
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	990	xxxx	1060
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	0.00
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1045	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	8.5	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	A	*
ApproachDel:		xxxxxx			xxxxxx			xxxxxx			8.5	
ApproachLOS:		*			*			*			A	

```
----------------------------------------------------------------------------
                      2005 SDSU Campus Master Plan
              Adobe Falls / North Campus Intersection Analysis
----------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
****************************************************************************
Intersection #2 Genoa Drive / Arno Drive
****************************************************************************
Average Delay (sec/veh):        0.6     Worst Case Level Of Service:    A[  8.5]
****************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:      Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Lanes:       0  0  0  1  0   0  1  0  0  0   0  0  0  0  0   0  0  1!  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: AM Peak
Base Vol:       0   15    17     1    7     0     0    0     0     1    0     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   15    17     1    7     0     0    0     0     1    0     1
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0   16    18     1    8     0     0    0     0     1    0     1
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0   16    18     1    8     0     0    0     0     1    0     1
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    35 xxxx xxxxx  xxxx xxxx xxxxx    35 xxxx    26
Potent Cap.: xxxx xxxx xxxxx  1590 xxxx xxxxx  xxxx xxxx xxxxx   983 xxxx  1056
Move Cap.:   xxxx xxxx xxxxx  1590 xxxx xxxxx  xxxx xxxx xxxxx   982 xxxx  1056
Volume/Cap:  xxxx xxxx  xxxx  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.00 xxxx  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx 1018 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.0 xxxxx
Shrd StpDel:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.5 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    A     *
ApproachDel:      xxxxxx           xxxxxx           xxxxxx              8.5
ApproachLOS:        *                *                *                 A
```



```
----------------------------------------------------------------------------
                      2005 SDSU Campus Master Plan
              Adobe Falls / North Campus Intersection Analysis
----------------------------------------------------------------------------
                         Impact Analysis Report
                            Level Of Service

Intersection                          Base           Future         Change
                                    Del/   V/      Del/   V/         in
                                LOS Veh    C   LOS Veh    C
# 1 Genoa Drive / Capri Drive     A   8.7 0.000  A   8.7 0.000  + 0.000 D/V

# 2 Genoa Drive / Arno Drive      A   8.7 0.000  A   8.7 0.000  + 0.000 D/V
```

```
---------------------------------------------------------------------------
                       2005 SDSU Campus Master Plan
            Adobe Falls / North Campus Intersection Analysis
---------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
***************************************************************************
Intersection #1 Genoa Drive / Capri Drive
***************************************************************************
Average Delay (sec/veh):      1.2   Worst Case Level Of Service:     A[  8.7]
***************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:      Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Lanes:       0  0  0  1  0    0  1  0  0  0    0  0  0  0  0    0  0  1!  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: PM Peak
Base Vol:       0    9     4     3   29     0     0    0     0     3    0     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    9     4     3   29     0     0    0     0     3    0     1
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0   10     4     3   32     0     0    0     0     3    0     1
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0   10     4     3   32     0     0    0     0     3    0     1
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    17 xxxx xxxxx  xxxx xxxx xxxxx    53 xxxx    15
Potent Cap.: xxxx xxxx xxxxx  1613 xxxx xxxxx  xxxx xxxx xxxxx   960 xxxx  1070
Move Cap.:   xxxx xxxx xxxxx  1609 xxxx xxxxx  xxxx xxxx xxxxx   957 xxxx  1068
Volume/Cap:  xxxx xxxx  xxxx  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.00 xxxx  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:       xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx   7.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  982 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.0 xxxxx
Shrd StpDel:xxxxx xxxx xxxxx   7.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.7 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    A     *
ApproachDel:      xxxxxx           xxxxxx           xxxxxx             8.7
ApproachLOS:         *                *                *                A
```



```
---------------------------------------------------------------------------
                       2005 SDSU Campus Master Plan
            Adobe Falls / North Campus Intersection Analysis
---------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
***************************************************************************
Intersection #2 Genoa Drive / Arno Drive
***************************************************************************
Average Delay (sec/veh):      2.6   Worst Case Level Of Service:     A[  8.7]
***************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:      Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Lanes:       0  0  0  1  0    0  1  0  0  0    0  0  0  0  0    0  0  1!  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: PM Peak
Base Vol:       0    9    15     2   16     0     0    0     0    12    0     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    9    15     2   16     0     0    0     0    12    0     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0   10    16     2   17     0     0    0     0    13    0     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0   10    16     2   17     0     0    0     0    13    0     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    26 xxxx xxxxx  xxxx xxxx xxxxx    40 xxxx    18
Potent Cap.: xxxx xxxx xxxxx  1601 xxxx xxxxx  xxxx xxxx xxxxx   977 xxxx  1066
Move Cap.:   xxxx xxxx xxxxx  1601 xxxx xxxxx  xxxx xxxx xxxxx   976 xxxx  1066
Volume/Cap:  xxxx xxxx  xxxx  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.01 xxxx  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:       xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  997 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx
Shrd StpDel:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  8.7 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    A     *
ApproachDel:      xxxxxx           xxxxxx           xxxxxx             8.7
ApproachLOS:         *                *                *                A
```

2005 SDSU Campus Master Plan
Adobe Falls / North Campus Intersection Analysis

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Genoa Drive / Capri Drive	A	9.1	0.000	A	9.1	0.000	+ 0.000 D/V
# 2 Genoa Drive / Arno Drive	A	9.8	0.000	A	9.8	0.000	+ 0.000 D/V

2005 SDSU Campus Master Plan
Adobe Falls / North Campus Intersection Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Genoa Drive / Capri Drive

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: A(9.1)

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module: AM Peak												
Base Vol:	0	102	14	0	29	0	0	0	0	4	0	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	102	14	0	29	0	0	0	0	4	0	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	111	15	0	32	0	0	0	0	4	0	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	111	15	0	32	0	0	0	0	4	0	4
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	153	xxxx	121
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	843	xxxx	935
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	841	xxxx	933
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	0.00
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT	- LTR	- RT	LT	- LTR	- RT	LT	- LTR	- RT	LT	- LTR	- RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	885	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.1	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	A	*
ApproachDel:		xxxxxx			xxxxxx			xxxxxx			9.1	
ApproachLOS:		*			*			*			A	

```
---------------------------------------------------------------------------
                    2005 SDSU Campus Master Plan
          Adobe Falls / North Campus Intersection Analysis
---------------------------------------------------------------------------
                  Level Of Service Computation Report
         2000 HCM Unsignalized Method (Base Volume Alternative)
***************************************************************************
Intersection #2 Genoa Drive / Arno Drive
***************************************************************************
Average Delay (sec/veh):       0.9   Worst Case Level Of Service:    A[  9.8]
***************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:      Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Lanes:       0  0  0  1  0   0  1  0  0  0   0  0  0  0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: AM Peak
Base Vol:       0  113   115     1   32     0     0    0     0    26    0     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  113   115     1   32     0     0    0     0    26    0     1
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0  123   125     1   35     0     0    0     0    28    0     1
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0  123   125     1   35     0     0    0     0    28    0     1
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   248 xxxx xxxxx  xxxx xxxx xxxxx   222 xxxx   185
Potent Cap.: xxxx xxxx xxxxx  1330 xxxx xxxxx  xxxx xxxx xxxxx   770 xxxx   862
Move Cap.:   xxxx xxxx xxxxx  1330 xxxx xxxxx  xxxx xxxx xxxxx   770 xxxx   862
Volume/Cap:  xxxx xxxx  xxxx  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.04 xxxx  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx   7.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  773 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx
Shrd StpDel:xxxxx xxxx xxxxx   7.7 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.8 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    A     *
ApproachDel:     xxxxxx           xxxxxx           xxxxxx             9.8
ApproachLOS:        *                *                *                A
```



```
---------------------------------------------------------------------------
                    2005 SDSU Campus Master Plan
          Adobe Falls / North Campus Intersection Analysis
---------------------------------------------------------------------------
                        Impact Analysis Report
                           Level Of Service

Intersection                          Base             Future         Change
                                    Del/   V/        Del/   V/          in
                               LOS  Veh    C    LOS  Veh    C
#  1 Genoa Drive / Capri Drive   A    9.6 0.000  A    9.6 0.000   + 0.000 D/V

#  2 Genoa Drive / Arno Drive    B   10.5 0.000  B   10.5 0.000   + 0.000 D/V
```

```
--------------------------------------------------------------------------------
                        2005 SDSU Campus Master Plan
               Adobe Falls / North Campus Intersection Analysis
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Genoa Drive / Capri Drive
********************************************************************************
Average Delay (sec/veh):        0.8   Worst Case Level Of Service:      A[  9.6]
********************************************************************************
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:      Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Lanes:       0  0  0  1  0    0  1  0  0  0    0  0  0  0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: PM Peak
Base Vol:       0   49     8     3  120     0     0    0     0    13    0     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   49     8     3  120     0     0    0     0    13    0     1
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0   53     9     3  130     0     0    0     0    14    0     1
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0   53     9     3  130     0     0    0     0    14    0     1
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    65 xxxx xxxxx  xxxx xxxx xxxxx   198 xxxx    61
Potent Cap.: xxxx xxxx xxxxx  1550 xxxx xxxxx  xxxx xxxx xxxxx   796 xxxx  1010
Move Cap.:   xxxx xxxx xxxxx  1546 xxxx xxxxx  xxxx xxxx xxxxx   792 xxxx  1008
Volume/Cap:  xxxx xxxx  xxxx  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.02 xxxx  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  805 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.1 xxxxx
Shrd StpDel:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.6 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    A     *
ApproachDel:     xxxxxx           xxxxxx           xxxxxx             9.6
ApproachLOS:        *                *                *                A
```



```
--------------------------------------------------------------------------------
                        2005 SDSU Campus Master Plan
               Adobe Falls / North Campus Intersection Analysis
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Genoa Drive / Arno Drive
********************************************************************************
Average Delay (sec/veh):        3.6   Worst Case Level Of Service:      B[ 10.5]
********************************************************************************
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:      Uncontrolled     Uncontrolled       Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Lanes:       0  0  0  1  0    0  1  0  0  0    0  0  0  0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: PM Peak
Base Vol:       0   53    60     2  117     0     0    0     0   113    0     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   53    60     2  117     0     0    0     0   113    0     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0   58    65     2  127     0     0    0     0   123    0     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0   58    65     2  127     0     0    0     0   123    0     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   123 xxxx xxxxx  xxxx xxxx xxxxx   222 xxxx    90
Potent Cap.: xxxx xxxx xxxxx  1477 xxxx xxxxx  xxxx xxxx xxxxx   771 xxxx   973
Move Cap.:   xxxx xxxx xxxxx  1477 xxxx xxxxx  xxxx xxxx xxxxx   770 xxxx   973
Volume/Cap:  xxxx xxxx  xxxx  0.00 xxxx  xxxx  xxxx xxxx  xxxx  0.16 xxxx  0.00
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  776 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.6 xxxxx
Shrd StpDel:xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 10.5 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    B     *
ApproachDel:     xxxxxx           xxxxxx           xxxxxx            10.5
ApproachLOS:        *                *                *                B
```

ADOBE FALLS TRAFFIC DATA
SPEED HISTOGRAMS

Traffic Data Service Southwest
Speed Histogram

Eastbound

SpeedHist-154 – English (ENU)

Datasets:

Site:	**[15301] Capri Drive Btwn Genoa Dr. and Helena Pl.**
Direction:	6 - West bound A>B, East bound B>A., **Lane:** 0
Survey Duration:	7:21 Tuesday, May 10, 2005 => 5:27 Thursday, May 12, 2005
File:	C:\Traffic Data\MCData\LLG\2005\153\1530112MAY2005.EC0 (Plus)
Identifier:	A999VJFX MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Factory default
Data type:	Axle sensors - Paired (Class, Speed, Count)

Profile:

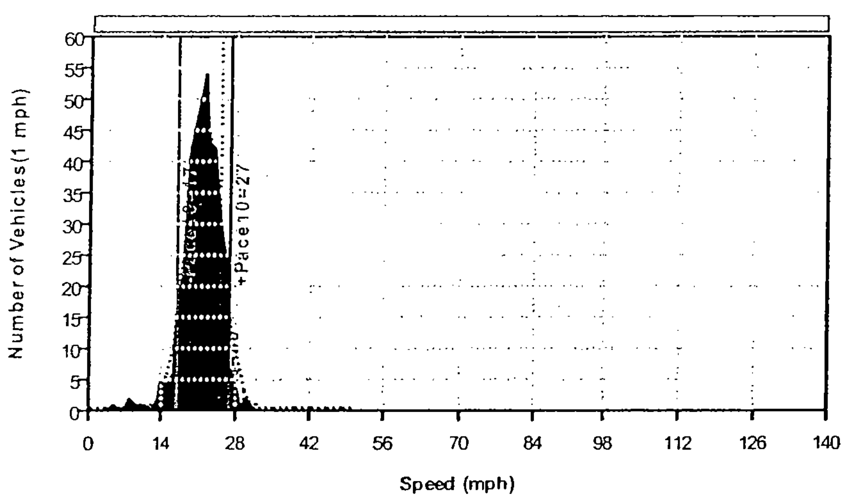
Filter time:	**8:00 Tuesday, May 10, 2005 => 8:00 Wednesday, May 11, 2005**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	0 - 100 mph.
Direction:	East (bound)
Separation:	All - (Headway)
Name:	Factory default profile
Scheme:	Vehicle classification (Scheme F99)
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	403 Vehicles

Speed Statistics

403 Vehicles
Posted speed limit = 0 mph - **Exceeding** = 403 (100.00%)
Posted speed limit + 9.32057 = 9.32057 mph - **Exceeding** = 399 (99.01%)
Maximum = 31.3 mph, **Minimum** = 5.4 mph, **Mean** = 21.9 mph
85% Speed = 25.1 mph, 95% Speed = 26.4 mph, **Median** = 21.9 mph
10 mph Pace = 17 - 27, **Number in Pace** = 366 (90.82%)
Variance = 11.39, **Standard Deviation** = 3.38 mph

Speed Histogram

SpeedHist-154 (Non metric) **Site:** 15301.0EW
Description: Capri Drive Btwn Genoa Dr. and Helena Pl.
Filter time: 8:00 Tuesday, May 10, 2005 => 8:00 Wednesday, May 11, 2005
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12 13) Dir(E) Sp(0,100) Sep(>0)
Scheme: Vehicle classification (Scheme F99)



Traffic Data Service Southwest
Speed Histogram

Westbound

SpeedHist-154 -- English (ENU)

Datasets:

Site:	**[15301] Capri Drive Btwn Genoa Dr. and Helena Pl.**
Direction:	6 - West bound A>B, East bound B>A., **Lane:** 0
Survey Duration:	7:21 Tuesday, May 10, 2005 => 5:27 Thursday, May 12, 2005
File:	C:\Traffic Data\MCData\LLG\2005\153\1530112MAY2005.EC0 (Plus)
Identifier:	A999VJFX MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Factory default
Data type:	Axle sensors - Paired (Class, Speed, Count)

Profile:

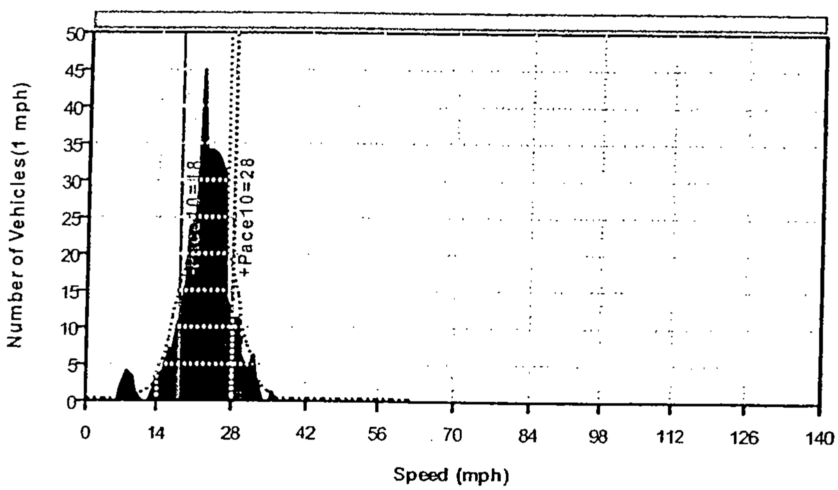
Filter time:	**8:00 Tuesday, May 10, 2005 => 8:00 Wednesday, May 11, 2005**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	0 - 100 mph.
Direction:	West (bound)
Separation:	All - (Headway)
Name:	Factory default profile
Scheme:	Vehicle classification (Scheme F99)
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	340 Vehicles

Speed Statistics

340 Vehicles
Posted speed limit = 0 mph - **Exceeding** = 340 (100.00%)
Posted speed limit + 9.32057 = 9.32057 mph - **Exceeding** = 333 (97.94%)
Maximum = 36.3 mph, **Minimum** = 7.4 mph, **Mean** = 23.3 mph
85% Speed = 27.3 mph, **95% Speed** = 30.2 mph, **Median** = 23.5 mph
10 mph Pace = 18 - 28, **Number in Pace** = 270 (79.41%)
Variance = 21.35, **Standard Deviation** = 4.62 mph

Speed Histogram

SpeedHist-154 (Non metric) **Site:** 15301.0EW
Description: Capri Drive Btwn Genoa Dr. and Helena Pl.
Filter time: 8:00 Tuesday, May 10, 2005 => 8:00 Wednesday, May 11, 2005
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12 13) Dir(W) Sp(0,100) Sep(>0)
Scheme: Vehicle classification (Scheme F99)



Traffic Data Service Southwest
Speed Histogram

Northbound

SpeedHist-155 -- English (ENU)

Datasets:

Site:	**[15302] Genoa Drive Btwn Capri Dr. and Arno Dr.**
Direction:	5 - South bound A>B, North bound B>A., **Lane:** 0
Survey Duration:	7:29 Tuesday, May 10, 2005 => 5:26 Thursday, May 12, 2005
File:	C:\Traffic Data\MCData\LLG\2005\153\1530212MAY2005.EC0 (Plus)
Identifier:	A33158DF MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Factory default
Data type:	Axle sensors - Paired (Class, Speed, Count)

Profile:

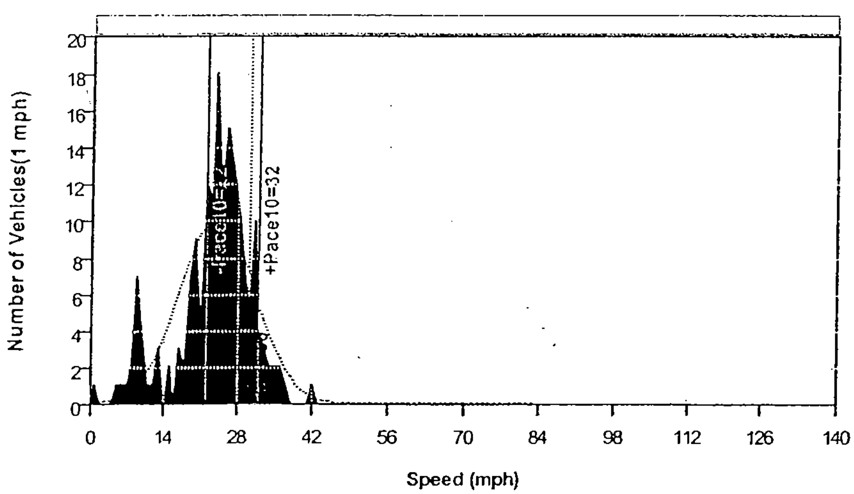
Filter time:	**8:00 Tuesday, May 10, 2005 => 8:00 Wednesday, May 11, 2005**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	0 - 100 mph.
Direction:	North (bound)
Separation:	All - (Headway)
Name:	Factory default profile
Scheme:	Vehicle classification (Scheme F99)
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	179 Vehicles

Speed Statistics

179 Vehicles
Posted speed limit = 0 mph - Exceeding = 179 (100.00%)
Posted speed limit + 9.32057 = 9.32057 mph - Exceeding = 173 (96.65%)
Maximum = 42.8 mph, Minimum = 1.7 mph, Mean = 24.1 mph
85% Speed = 30.4 mph, 50% Speed = 24.8 mph, Median = 24.8 mph
10 mph Pace = 22 - 32, Number in Pace = 116 (64.80%)
Variance = 48.59, Standard Deviation = 6.97 mph

Speed Histogram

SpeedHist-155 (Non metric) Site: 15302.0NS
Description: Genoa Drive Btwn Capri Dr. and Arno Dr.
Filter time: 8:00 Tuesday, May 10, 2005 => 8:00 Wednesday, May 11, 2005
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12 13) Dir(N) Sp(0,100) Sep(>0)
Scheme: Vehicle classification (Scheme F99)



Traffic Data Service Southwest
Speed Histogram

Southbound

SpeedHist-155 -- English (ENU)

Datasets:

Site:	**[15302] Genoa Drive Btwn Capri Dr. and Arno Dr.**
Direction:	5 - South bound A>B, North bound B>A., **Lane:** 0
Survey Duration:	7:29 Tuesday, May 10, 2005 => 5:26 Thursday, May 12, 2005
File:	C:\Traffic Data\MCData\LLG\2005\153\1530212MAY2005.EC0 (Plus)
Identifier:	A33158DF MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Factory default
Data type:	Axle sensors - Paired (Class, Speed, Count)

Profile:

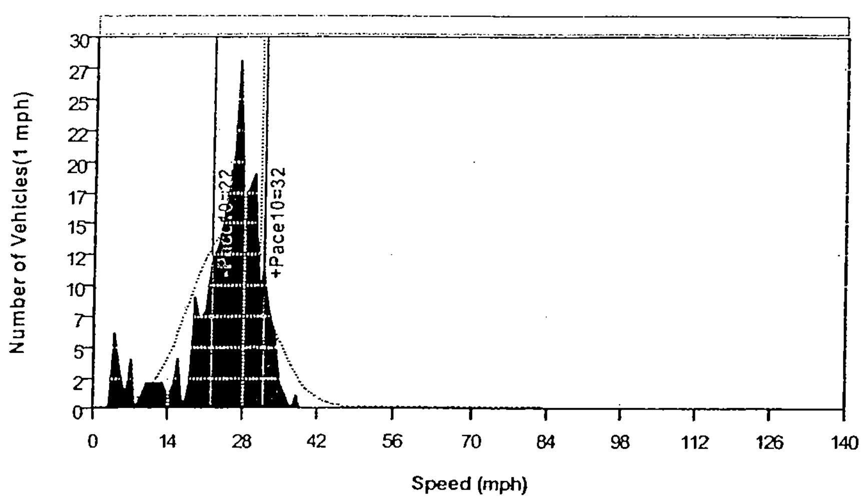
Filter time:	**8:00 Tuesday, May 10, 2005 => 8:00 Wednesday, May 11, 2005**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	0 - 100 mph.
Direction:	South (bound)
Separation:	All - (Headway)
Name:	Factory default profile
Scheme:	Vehicle classification (Scheme F99)
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	252 Vehicles

Speed Statistics

252 Vehicles
Posted speed limit = 0 mph - Exceeding = 252 (100.00%)
Posted speed limit + 9.32057 = 9.32057 mph - Exceeding = 238 (94.44%)
Maximum = 38.9 mph, Minimum = 4.1 mph, Mean = 25.1 mph
85% Speed = 30.9 mph, 50% Speed = 26.4 mph, Median = 26.4 mph
10 mph Pace = 22 - 32, Number in Pace = 170 (67.46%)
Variance = 48.38, Standard Deviation = 6.96 mph

Speed Histogram

SpeedHist-155 (Non metric) Site: 15302.0NS
Description: Genoa Drive Btwn Capri Dr. and Arno Dr.
Filter time: 8:00 Tuesday, May 10, 2005 => 8:00 Wednesday, May 11, 2005
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12 13) Dir(S) Sp(0,100) Sep(>0)
Scheme: Vehicle classification (Scheme F99)



College Area Public Facilities Financing Plan

COPY

COLLEGE AREA
Public Facilities Financing Plan

October
1993

City of San Diego ◆ Planning Department

(R-94-123)

RESOLUTION NUMBER R-282802

ADOPTED ON OCT 12 1993

A RESOLUTION OF THE COUNCIL OF THE CITY OF SAN DIEGO, APPROVING THE COLLEGE AREA PUBLIC FACILITIES FINANCING PLAN.

BE IT RESOLVED, by the Council of The City of San Diego, that the City Council hereby approves that document entitled "College Area Public Facilities Financing Plan, June 1993," a copy of which is on file in the office of the City Clerk as Document No. RR-282802.

APPROVED: JOHN W. WITT, City Attorney

By

Allisyn L. Thomas
Deputy City Attorney

(R-94-121)

RESOLUTION NUMBER R-282803

ADOPTED ON OCT 12 1993

BE IT RESOLVED, by the Council of The City of San Diego, that existing development impact fees for the College Area Community are hereby rescinded.

BE IT FURTHER RESOLVED, by the Council, that new development impact fees for all properties within the College Area Community as described in the College Area Public Facilities Financing Plan of June 1993, a copy of which is on file in the office of the City Clerk as Document No. RR-282802, are hereby established.

APPROVED: JOHN W. WITT, City Attorney

By

Allisyn L. Thomas
Deputy City Attorney

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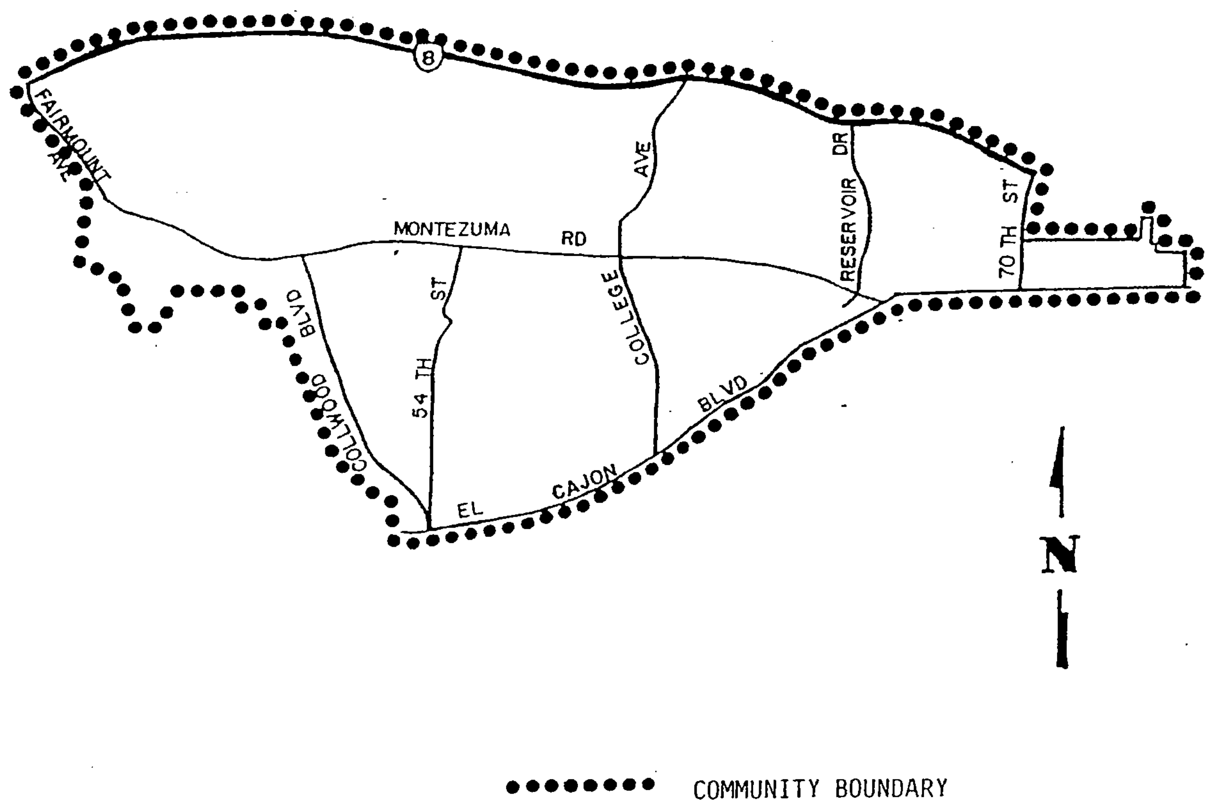
This information will be made available in alternative formats upon request. To request a financing plan in an alternative format, call the Facilities Financing Section At (619) 533-3850.



COLLEGE AREA

SUMMARY

This document is the first Public Facilities Financing Plan for the College Area Community Plan area and sets forth the major public facilities needs in the areas of transportation (streets, storm drains, traffic signals etc.), libraries, park and recreation and fire stations. Other public needs such as police facilities, public works yards, landfills, Central Library, etc., concern a broader area than a single community or even multiple communities. Accordingly, they are being analyzed and financing strategies will be developed separately.

The facilities included in this financing plan will be needed over the next approximately twenty years when the ultimate build-out of the community is expected. The College Area Community Plan was adopted in May 1989 and then amended in October 1993 to reflect adoption of the College Community Redevelopment Plan. This Community Plan, is a guide for future development within the community and served to determine the public facility needs reflected in this document. The City Council has previously adopted impact fees to help mitigate the cost of the public facilities necessitated by development in the community. Impact fees for residential and commercial/industrial development were adopted on August 4, 1987, by Resolution #R-269032, and by Resolution R-209274 on September 14, 1987. This document provides the basis for a revision of the impact fees for the College Area Community.

Development Forecast and Analysis

The College Area Community Plan is a comprehensive policy guide for the physical development of the Community. The College Area Community is generally bounded on the north by Interstate 8, on the east by 70th Street and the City of La Mesa, on the south by El Cajon Boulevard, and on the west by Fairmount Avenue and Collwood Boulevard.

An analysis of present and projected development and using the community plan as a guide indicates that, over the next approximate twenty year period, 2300 residential dwelling units will be constructed and an additional 850,000 square feet of commercial/industrial development will take place. Accordingly, it is estimated that combined residential and commercial/industrial development will result in an increase from 200,000 existing trip ends to approximately 238,000 trip ends at Community build-out.

Priority of Facilities as Indicated by the Community

The College Area Community Council (CACC) has given staff a priority listing of facilities included in the financing plan. These recommendations are displayed as submitted in Appendix B. Upon adoption of this plan on October 12, 1993, the City Council directed the Waring Road, I-8 Waring Road Interchange to Canyon Crest Feasibility Study (CA-18) to be Priority #1, the College Heights Branch Library (CA-33) to be Priority #2, and College Avenue: Lindo Paseo to Canyon Crest Drive (CA-1) to be last in priority. The following list reflects these priorities but has been arranged by project category. Only those facilities included in the Community Plan and not already programmed for construction are listed. Since the following projects are complete or not in the Community Plan, they are not included:

Fairmount Avenue from Montezuma Road to I-8 Widen and Improvement

Lindo Paseo Storm Drain

Adelphi Place Drain

Austin Drive Drain

Chaparral Way Drain

* West Campus Drive: 54th St to Remington Road Study

The CACC did not include the Mission Valley East Light Rail Transit Extension (CA-A) in its priority listing. This project was added to the plan by the City Council at the time of adoption.

* Not recommended in the Community Plan.

Community Planning Group Priority List

Transportation

Priority	Project #	Description
1	18	Waring Road, I-8 Waring Road Interchange to Canyon Crest: Feasibility Study
2	7	Montezuma Road and Campanile Road: Intersection Improvements
3	6	College Ave. at Montezuma Rd and at Linda Paseo Intersections: Intersection Improvements
4	10	College Ave., and Canyon Crest Dr./Alvarado Rd: Intersection Improvements and Street Alignment
5	11	Alvarado Rd. Approach to 70th St: Intersection Improvements
6	5	55th St., Montezuma Rd. to Hardy Ave: Widen
7	4	Alvarado Rd: Widen
8	9	Montezuma Rd. and 55th St: Intersection Improvements
9	17	Traffic Signal Interconnect
10	15	Lindo Paseo at Campanile: Traffic Signal
11	28	55th St.: Hardy Ave. to Remington Rd. widening
12	21	El Cajon Blvd.: Montezuma Rd. to 70th St. turn lanes
13	22	El Cajon Blvd. at Montezuma Rd: Intersection Improvements
14	8	College Ave. at El Cajon Blvd: Intersection Improvements
15	13	Montezuma Rd. at Collwood Blvd: Intersection Improvements
16	12	El Cajon Blvd. at 70th St: Intersection Improvements

Transportation (continued)

Priority	Project #	Description
17	2	College Ave. Bridge over I-8: Widen
18	29	55th St. at Remington Rd: Traffic Signal
19	3	70th St. at Alvarado Rd: Widen
20	16	55th St. at Lindo Paseo: Traffic Signal
21	14	Hardy Ave. at Campanile Dr: Traffic Signal
22	27	Storm Drains: Various Locations
23	20	El Cajon Blvd: 54th to 58th widening
24	26	Architectural Barrier Removal
25	1	College Ave: Lindo Paseo to Canyon Crest widening

Park & Recreation

Priority	Project #	Description
1	31	Neighborhood Park Acquisition and Development
2	32	Muir Elementary School Site Improvements

Library

Priority	Project #	Description
1	33	College Heights Branch Library

EXISTING PUBLIC FACILITIES & FUTURE NEEDS

Transportation

The College Area is served by a transportation network which consists of automobile and public transportation systems, a bicycle system, and a pedestrian circulation system. Provision of adequate transportation facilities has been a continuing process of providing those facilities. Additional transportation improvements will be necessary to meet both existing needs and the needs of future development.

Transportation improvements in the College Area are dictated by traffic volume. Improvements will be funded through a combination of Development Impact Fees (DIF), Redevelopment Agency funding, TRANSNET, Gas Tax and other funding sources yet to be determined. Additional details on Transportation Improvements are provided in Table 1 and Appendix A.

Fire Protection

Fire protection for College Area is provided by Station #10 located on 62nd Street and Station #17 located on Chamoune Avenue.

There is no anticipated need to build additional fire stations or to enlarge the existing facilities.

Library

The College Area is served by College Heights Branch Library located at 4710 College Avenue, just north of Adams Avenue.

This facility is too small for the community at buildout. A new 10,000 square foot branch library is proposed for the community.

Park and Recreation

The College Area is currently served by a single one-acre park, Montezuma Park. In addition, the recreational facilities of San Diego State University are available for use by the community. A portion of the Hardy Elementary School Site is presently leased and developed with a turfed paying field area. Colina del Sol Community Park and Clay Neighborhood Park, both in the Mid-City Community, provide recreational facilities to the area, but there exists a significant deficiency of park facilities for community residents.

Park and Recreation needs, which are based on General Plan Standards, and are consistent with the community plan, consist of the acquisition and development of one neighborhood park and the turfing of an elementary school playing field. The projects are further described in Table 1 and Appendix A.

SUMMARY OF FACILITIES NEEDS

The following figure and tables summarize facilities needs of the College Area Community. Figure 1 illustrates general locations for the projects described. Table 1 reflects both long range needs and those reflected in the current Council adopted Capital Improvements Program (CIP). These projects are more fully described in Appendix A.

The near term needs listed in Table 1 are subject to annual revision in conjunction with Council adoption of the Annual Budget. Depending on priorities and availability of resources, substantial changes from year to year are possible.

In addition to the projects outlined in Table 1 and Appendix A are certain improvements programmed on a City-wide basis which may include projects in the College Area. Utilities Undergrounding (CIP 37-028.0), minor signal requirements (CIP 62-002.0), and bicycle detector loops (CIP 58-079.0) are examples of additional capital improvements more fully detailed in the City's Annual Budget. Water Utilities projects which may be located in the College Area are funded by water and sewer revenues.

FIGURE 1 - CAPITAL IMPROVEMENTS PROGRAM

COLLEGE AREA

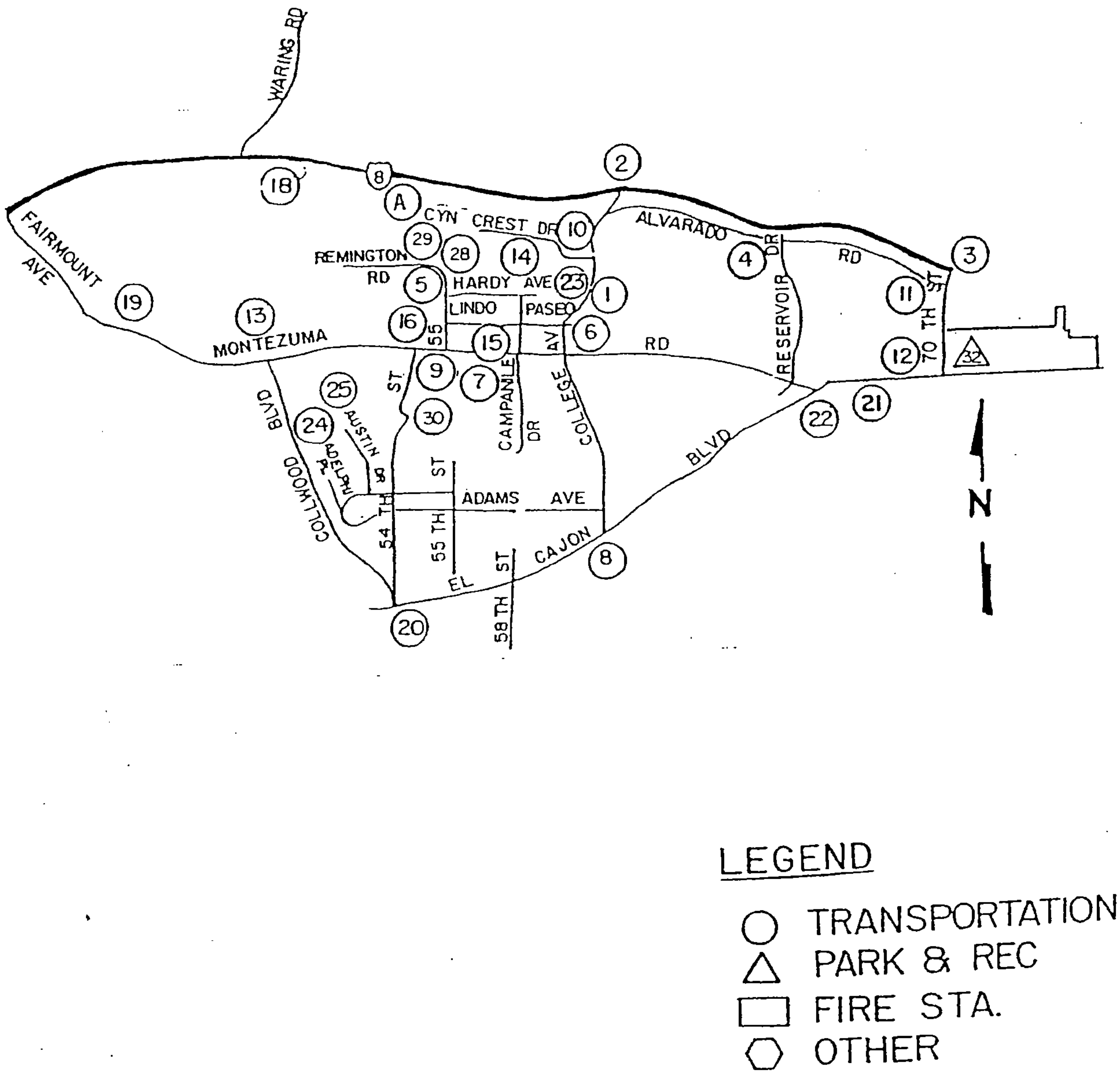


TABLE 1

COLLEGE AREA – CAPITAL NEEDS

FISCAL YEAR 1994

PROJECT NO.	PROJECT DESCRIPTION (See Appendix A for more details)	ESTIMATED COST (1994)	C.I.P. NUMBER/ YEAR OF CONSTR.	IDENTIFIED FUNDING	FUNDING SOURCE (C= CITY) (N= NON-CITY)	BASIS FOR D.I.F.
	TRANSPORTATION PROJECTS					
	NOTE: BICYCLE FACILITIES ARE NOT PROVIDED FOR UNLESS OTHERWISE NOTED.					
1	COLLEGE AVENUE; LINDO PASEO TO CANYON CREST DRIVE: WIDEN TO SIX LANE MAJOR STREET WITH CLASS II BICYCLE LANES.	$7,800,000		$4,836,000	REDEV. N	$7,800,000
2	COLLEGE AVENUE OVER I-8 BRIDGE AND APPROACHES: WIDEN TO SIX LANE MAJOR STREET WITH CLASS II BICYCLE LANES.	$3,200,000		$1,984,000	REDEV. N	$3,200,000
3	70TH STREET AT ALVARADO ROAD AND AT I-8 BRIDGE: WIDEN TO SIX LANES.	$1,700,000		$425,000	REDEV. N	$1,700,000
4	ALVARADO ROAD: WIDEN TO THREE LANES.	$3,200,000		$3,200,000	REDEV. N	$3,200,000
5	55TH STREET, MONTEZUMA ROAD TO HARDY AVENUE: WIDEN TO FOUR LANES.	$2,400,000		$768,000	REDEV. N	$2,400,000
6	COLLEGE AVENUE AT MONTEZUMA ROAD AND AT LINDO PASEO INTERSECTIONS: INTERSECTION IMPROVEMENTS.	$4,000,000		$2,000,000	REDEV. N	$4,000,000
7	MONTEZUMA ROAD AND CAMPANILE ROAD: INTERSECTION IMPROVEMENTS.	$35,000		$23,000	REDEV. N	$35,000
8	COLLEGE AVENUE AND EL CAJON BOULEVARD: INTERSECTION IMPROVEMENTS.	$2,700,000		$702,000	REDEV. N	$2,700,000
9	MONTEZUMA ROAD AND 55TH STREET: INTERSECTION IMPROVEMENTS.	$85,000		$43,000	REDEV. N	$85,000
10	COLLEGE AVENUE AND CANYON CREST DR./ALVARADO ROAD: INTERSECTION IMPROVEMENTS AND STREET ALIGNMENT.	$3,000,000		$1,560,000	REDEV. N	$3,000,000

TABLE 1

COLLEGE AREA – CAPITAL NEEDS

FISCAL YEAR 1994

PROJECT NO. / PROJECT DESCRIPTION (See Appendix A for more details)	ESTIMATED COST (1994)	C.I.P. NUMBER/ YEAR OF CONSTR.	IDENTIFIED FUNDING	FUNDING SOURCE (C= CITY) (N= NON–CITY)	BASIS FOR D.I.F.
TRANSPORTATION PROJECTS (continued)					
11 ALVARADO ROAD APPROACH TO 70TH STREET: INTERSECTION IMPROVEMENTS.	$80,000		$80,000	REDEV. N	$80,000
12 EL CAJON BOULEVARD AT 70TH STREET INTERSECTION IMPROVEMENTS..	$1,000,000		$310,000	REDEV. N	$1,000,000
13 MONTEZUMA ROAD AND COLLWOOD BOULEVARD: INTERSECTION IMPROVEMENTS.	$350,000		$322,000	REDEV. N	$350,000
14 HARDY AVENUE AND CAMPANILE DRIVE: TRAFFIC SIGNAL	$110,000		$110,000	REDEV. N	$110,000
15 LINDO PASEO AND CAMPANILE DRIVE: TRAFFIC SIGNAL	$110,000		$110,000	REDEV. N	$110,000
16 55TH STREET AND LINDO PASEO: TRAFFIC SIGNAL	$110,000		$110,000	REDEV. N	$110,000
17 TRAFFIC SIGNAL INTERCONNECT	$800,000		$448,000	REDEV. N	$800,000
18 WARING ROAD, I–8 WARING ROAD INTERCHANGE TO CANYON CREST: FEASIBILITY STUDY.	$100,000		$100,000	REDEV. N	$100,000
19 FAIRMOUNT AVENUE, MONTEZUMA ROAD TO I–8: WIDEN TO SIX LANES.	$4,490,150 *	52–433.0 FY 94	$948,240 $50,000 $3,059,220 $432,690	TRANS C S/L N BONDS N GASTAX C	$4,440,150
20 EL CAJON BOULEVARD, 54TH STREET TO 58TH STREET: WIDEN TO FOUR LANES.	$1,125,000 *				$1,125,000
21 EL CAJON BOULEVARD FROM MONTEZUMA ROAD TO 70TH ST: MODIFY RAISED MEDIAN TO CREATE LEFT–TURN POCKETS.	$700,000				$700,000
22 EL CAJON BOULEVARD AND MONTEZUMA ROAD: INTERSECTION IMPROVEMENTS.	$150,000				$150,000

* REFLECTS COLLEGE AREA PORTION ONLY.

TABLE 1

COLLEGE AREA – CAPITAL NEEDS

FISCAL YEAR 1994

PROJECT NO. / PROJECT DESCRIPTION (See Appendix A for more details)	ESTIMATED COST (1994)	C.I.P. NUMBER/ YEAR OF CONSTR.	IDENTIFIED FUNDING	FUNDING SOURCE (C= CITY) (N= NON-CITY)	BASIS FOR D.I.F.
TRANSPORTATION PROJECTS (continued)					
23 LINDO PASEO STORM DRAIN	$57,000	11-285.0 FY 92	$7,000 $50,000	DIF C CAPOUT C	$57,000
24 ADELPHI PLACE DRAIN	$25,000	11-295.0 FY 92	$25,000	DIF C	$25,000
25 AUSTIN DRIVE DRAIN	$80,000	11-296.0 FY 92	$50,000 $30,000	TRANS C DIF C	$80,000
26 ARCHITECTURAL BARRIER REMOVAL	$1,200,000		$672,000	REDEV. N	$1,200,000
27 STORM DRAINS AT VARIOUS LOCATIONS	$2,200,000				$2,200,000
28 55TH STREET, HARDY AVENUE TO REMINGTON ROAD: WIDEN TO FOUR LANES	$900,000		$900,000	SDSU N	
29 55TH STREET AND REMINGTON ROAD: TRAFFIC SIGNAL	$110,000		$110,000	SDSU N	
30 CHAPARRAL WAY DRAIN	$120,000	11-251.0 FY 93	$120,000	TRANS C	$120,000
A MISSION VALLEY EAST LRT EXTENSION	$94,000,000 *	2001	$34,320,000 $5,060,000 $4,620,000	FEDERAL N STATE N TRANSNET N	
TOTAL TRANSPORTATION PROJECTS	$135,937,150		$67,585,150		$40,877,150

* SDSU SEGMENT COST

TABLE 1

COLLEGE AREA – CAPITAL NEEDS

FISCAL YEAR 1994

PROJECT NO. / PROJECT DESCRIPTION (See Appendix A for more details)	ESTIMATED COST (1994)	C.I.P. NUMBER/ YEAR OF CONSTR.	IDENTIFIED FUNDING	FUNDING SOURCE (C= CITY) (N= NON-CITY)	BASIS FOR D.I.F.
PARK AND RECREATION PROJECTS					
31 NEIGHBORHOOD PARK ACQUISITION AND DEVELOPMENT	$7,700,000				$7,700,000
32 MUIR ELEMENTARY SCHOOL SITE IMPROVEMENTS	$400,000				$400,000
TOTAL PARK AND RECREATION PROJECTS	**$8,100,000**				**$8,100,000**
LIBRARY PROJECTS					
33 COLLEGE HEIGHTS BRANCH LIBRARY	$3,750,000	35–071.0	$50,000	DIF C	$3,750,000
TOTAL LIBRARY PROJECTS	**$3,750,000**		**$50,000**		**$3,750,000**
TOTAL COLLEGE AREA CAPITAL PROJECTS	**$147,787,150**		**$67,635,150**		**$52,727,150**

COLLEGE AREA - PUBLIC FACILITIES FINANCING PLAN

General

The PROGRESS GUIDE AND GENERAL PLAN (General Plan) for the City of San Diego recommends the division of the City into planning areas which are designed as Urbanized, Planned Urbanizing and future Urbanizing areas. Urbanized areas include the central portion of San Diego as well as the remaining developed/older sections of the City. Planned Urbanizing areas consists of newly developing communities. Future Urbanizing areas include land which is presently undeveloped.

The College Area is an Urbanized area. This document constitutes the first Public Facilities Financing Plan for the College Area Community.

Development Forecast and Analysis

The College Area Community, totalling approximately 1,950 acres, is developing in accordance with the Community Plan to be amended by Council concurrently with this document. Currently, the College Area contains approximately 7,500 dwelling units with a population of approximately 19,000 persons. An analysis of projected development and using the Community Plan as a guide, indicates that over the next twenty years, additional development will take place in the following categories:

Use	Estimated Development
Residential	2300 Dwelling Units
Commercial/Industrial	21,900 Trip Ends

Periodic Revision

To ensure that this program maintains its viability, this plan will be periodically revised to include, but not necessarily be limited to, Council changes to the Capital Improvements Program and the Community Plan.

FINANCING STRATEGY

The City of San Diego has at its disposal a wide variety of potential funding sources for financing public facilities. A portion of the funding for the needed facilities will be provided as a part of the subdivision process by developers and by impact fees. Potential methods for financing public facilities are described below:

1. **IMPACT FEES (DIF)** - Impact fees are a method whereby the impact of new development upon the infrastructure is measured and a fee system developed and imposed on developers to mitigate the impact. The impact fees are collected at the time of issuance of individual building permits. Funds so collected are deposited in a special interest bearing account which retains all monies for use in the community in which they were collected. As sufficient funds are collected, the City proceeds with a construction program, in order of priority. This is one of the financing methods recommended for the College Area. The City Council has determined that the payment of development impact fees is not required in redevelopment project areas where redevelopment plans provide for the fair share funding of needed facilities by redevelopment.

2. **TRANSNET, GAS TAX**, and other programs such as a state-local partnership program may provide some funds for community transportation projects. These funds will be allocated annually and may be used to fund a portion of the long-range capital needs for transportation improvements in the College Area in the future.

3. **ASSESSMENT DISTRICTS** - Special assessment financing, using 1913/1915 Assessment Acts or a Mello-Roos District could be used as a supplementary or alternative method of financing some facilities. The Mello-Roos District requires a 2/3 vote for passage. Other assessment districts require the support of the community.

4. **GENERAL OBLIGATION BOND ISSUES** - Prior to the late 1960's, bond issues were considered the most appropriate method of funding many types of public facilities. These require 2/3 vote approval for passage.

5. **ANNUAL ALLOCATION** - In the years prior to the passage of Proposition 13, the City was able to respond to community facility needs by using a portion of the sales tax revenue to support the Capital Improvement Program. This has not been possible for some time. However, if other revenues were increased, annual allocations could again be used to fund some capital facilities. This is a recommended method of funding some park and recreation facilities and transportation improvements.

6. **FACILITIES BENEFIT ASSESSMENT (FBA)** - This method of financing, used solely in Planned Urbanizing Communities, spreads costs fairly and equally and follows the procedures specified in City Council Ordinance O-15318 dated August 25, 1980. However, this method cannot be used in Urbanized areas such as the College Area.

7. **REDEVELOPMENT AGENCY FUNDING** - The Redevelopment Agency will employ a variety of financing methods within the Project Area, which may include financial assistance from governmental agencies, tax increment, special assessment districts, sales and transient occupancy tax funds, donations, interest income, Agency bonds,

loans from private financial institutions, the lease of Agency-owned property, and sale of Agency-owned property.

GENERAL ASSUMPTIONS AND CONDITIONS

In connection with the application of the above methods of financing, the following general assumptions and conditions would apply:

1. Developers would be required to provide facilities normally provided within the subdivision process as a condition of subdivision approval, including traffic signals.
2. Abutting property owners are responsible for frontage improvements such as sidewalks, curbs and gutters.
3. The DEVELOPMENT IMPACT FEE would be paid by the developer at the time of building permit issuance.
4. DEVELOPMENT IMPACT FEE funds collected would be placed in a trust account providing interest earnings for the community area.
5. A developer or group of developers can propose to build or improve a specific facility identified in the Capital Improvements Program and, upon City Council approval, enter into an agreement to provide the facility for reimbursement.
6. Within the Redevelopment Project Area, the Redevelopment Agency will negotiate the provision of public facilities in lieu of payment of impact fees.

DEVELOPMENT IMPACT FEE

DETERMINATION

Background

The College Area Community Plan Area is almost fully developed. Thus, the majority of the required public improvements will have to be provided through special funding mechanisms. In late 1987, staff developed and recommended impact fees for 28 urbanized communities. The City Council adopted the recommended fees, including those for the College Area Community Plan Area, to mitigate the impact of development on public facilities. Since the community is near buildout, the fees will provide only a small portion of the financing needed for the facilities.

Outside the Redevelopment Project Area, all undeveloped or underdeveloped parcels are subject to the DIF. Monies collected are placed in City interest accruing accounts, to be used only for capital improvements in the College Area Community.

Distribution of Project Costs and Fee Determination

Development of the actual charge to be imposed by the DIF is based on the extent or degree to which each type of development generates a demand for, or receives benefit from the various public facilities involved. For example, all development generates vehicular traffic and thus, on an equitable basis, should share in the cost of transportation projects.

Development Impact Fees were determined for the various categories of needed public facilities on the basis of total amount of development at community plan build-out and on the basis of all additional public facilities needed at community plan build-out. The impact fee base includes all project needs aside from those to be funded by the State, a subdivider or by adjacent existing residents. In addition, the fees include a 2% charge to cover City administrative costs.

<u>Transportation</u>

There is a clear relationship between the use of transportation facilities and the generation of traffic trips based upon land use. In the report "San Diego Traffic Generators," authored by CALTRANS and SANDAG, the traffic generated by various classes of use are detailed. This report summarizes data collected at major regional traffic generators as well as neighborhood and local traffic generators in the San Diego area. Traffic counts taken at each facility are related to various characteristics of the facility such as the size, number of employees, floor area, parking spaces, or number of persons. The report distinguishes between the average daily traffic (ADT) generated by a single-family dwelling and a multi-family dwelling. For impact fee purposes, a single type of residential development was assumed for the College Area (and all other urbanized communities). The residential portion of the impact fee reflects use of an average daily traffic factor (ADT) of

7 as a basis for determining the rate.

A considerable range has been found for traffic generation for commercial and industrial developments depending on the character and use of the property. Non-residential land-uses typically generated between 100 to 900 average daily traffic per acre. For non-residential development in the College Area Community, average daily trips were measured. The 1989 College Area Community Plan and the Transportation and Parking Analysis prepared for the College Area Redevelopment Project in 1992 were used in the development of this Financing Plan.

Using the approved land use intensity and trip generation rates, the total number of trip ends at community plan build-out is estimated to be 238,000. An analysis of the City-funded street improvements required at community build-out (costs estimated FY 1994) totaling $40,877,150 indicates the cost per average daily traffic for transportation facilities is $175 per trip (and $1251/dwelling unit) to be paid by all future development. The fee per dwelling unit was calculated using the average daily trip factor of seven, as previously explained.

<u>Fire Facilities</u>

The Fire Station portion of the fee relates to the cost of fire stations providing fire protection services to both residential and non-residential establishments within the community. Residential impact fees are based on the average cost per dwelling unit.

Since the Fire Department has determined that existing fire facilities are adequate to meet the needs of existing and future development, no additional facilities are needed. Therefore, no fire fee has been calculated.

__Libraries__

Library needs are based on population which is derived from the number of dwelling units estimated by staff. Therefore, only residential developments are charged a DIF for library facilities.

Based upon General Plan standards and a forecast of total population in the College Area at build-out the existing branch library is adequate to meet community needs. The facility occupies a 4,430 square foot facility and expansion is not possible. Therefore, it is recommended to construct a new 10,000 square foot branch at a new location. Allocating total library requirements only to residential property results in a library impact fee of $390 per dwelling unit. This was calculated by dividing total library requirements of $3,750,000 by the residential dwelling units at build-out of 9,800.

Park and Recreation

Park and Recreation needs have traditionally been based on population derived from the number of dwelling units in the community. Council Policy 600-17, adopted in November of 1989, provides for the equitable contribution of funds by both residential and non-residential development to park and recreation facilities. However, since there is insufficient data currently available on which to base the allocation of park and recreation facilities costs to industrial and commercial users in the College Area, these costs are attributed only to residential users. Future revisions of this financing plan may include a different cost distribution.

The Park and Recreation Department has identified projects which will be needed in the College Area Community at build-out. These are shown in Table 1 and Appendix A in detail. Allocating total park and recreation facility costs of $8,100,000 only to the residential development at build-out of 9,800 units results in an impact fee of $843 per unit.

FEE SCHEDULE

The resulting impact fees for the College Area are as follows:

RESIDENTIAL PROPERTY					COMM/INDUST	
Trans	Fire	Park	Library	Total	Trans	Fire
$ Per Unit		$ Per Unit		Res. $/Unit	$/Trip	$/1000 sq. ft. of GBA
1251	0	843	390	2484	175	0

APPENDIX A

CAPITAL NEEDS IN THE

COLLEGE AREA COMMUNITY

CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-1
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **COLLEGE AVENUE: LINDO PASEO TO CANYON CREST DRIVE**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS:
LAND 3,600,000
ENGR/CONSTR 4,200,000

FUNDING: SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
4,836,000 REDEVELOPMENT								
2,964,000 UNIDENTIFIED								
7,800,000 TOTAL			0	0	0	0	0	0

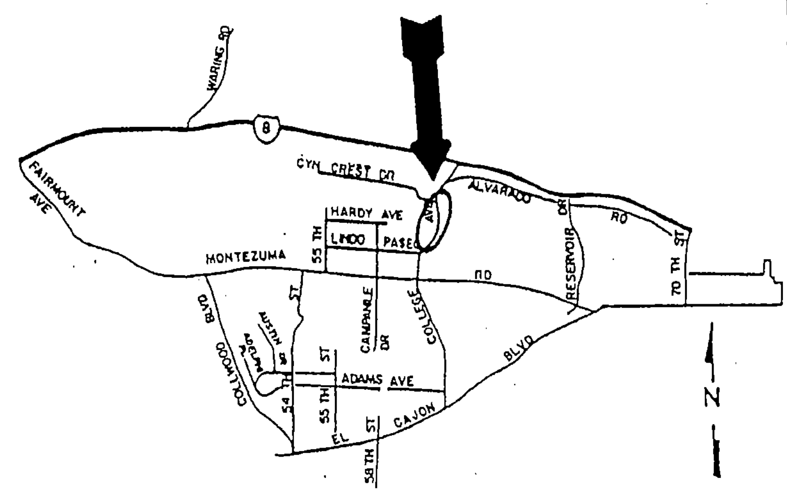
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR WIDENING OF COLLEGE AVENUE FROM LINDO PASEO TO CANYON CREST DRIVE INTERSECTION TO A MODIFIED SIX LANE MAJOR STREET. THE IMPROVEMENTS INCLUDE RIGHT-OF-WAY ACQUISITION, EXISTING STRUCTURES REMOVAL AND PEDESTRIAN BRIDGE RECONSTRUCTION. IT ALSO INCLUDES CLASS II BIKE LANES. IMPROVEMENTS TO LINDO PASEO AND CANYON CREST DRIVE INTERSECTIONS ARE COVERED IN SEPARATE PROJECTS.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-2
COUNCL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **COLLEGE AVENUE OVER I-8 BRIDGE AND APPROACHES**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 3,200,000

FUNDING: SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
1,984,000 REDEVELOPMENT								
1,216,000 UNIDENTIFIED								
3,200,000 TOTAL	0	0	0	0	0	0	0	0

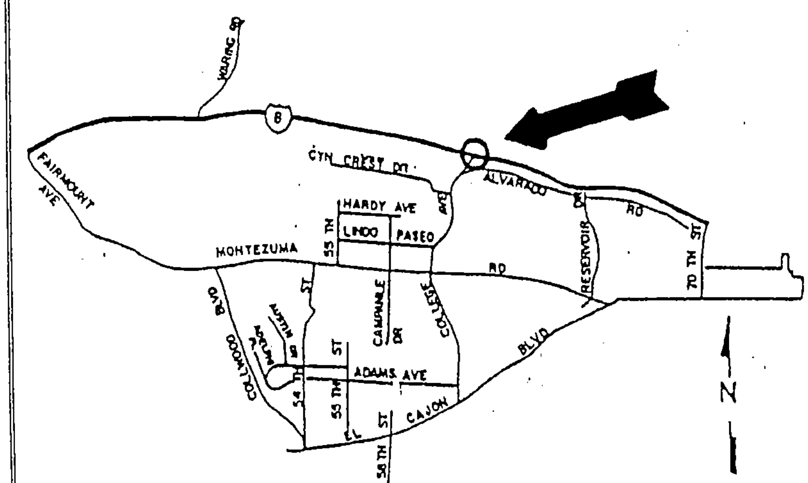
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR THE WIDENING OF COLLEGE AVENUE AT THE I-8 BRIDGE AND APPROACHES TO A MODIFIED SIX-LANE MAJOR STREET. THIS PROJECT ALSO PROVIDES CLASS II BIKE LANES.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-3
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **70TH STREET AT ALVARADO ROAD AND AT I-8 BRIDGE**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND 100,000
ENGR/CONSTR 1,600,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
425,000	REDEVELOPMENT								
1,275,000	UNIDENTIFIED								
1,700,000	TOTAL	0	0	0	0	0	0	0	0

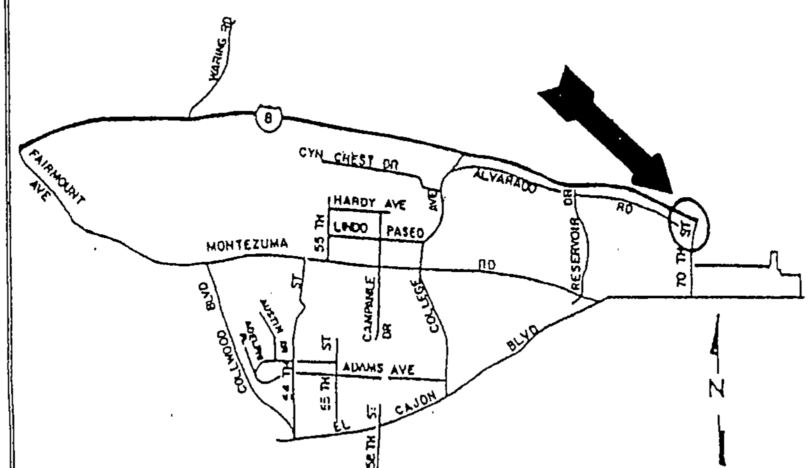
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR A THIRD NORTHBOUND THROUGH LANE ON 70TH STREET FROM THE I-8 BRIDGE TO SOUTH OF THE ALVARADO ROAD INTERSECTION. THESE IMPROVEMENTS INCLUDE I-8 BRIDGE WIDENING AND RIGHT-OF-WAY ACQUISITION AT THE SOUTHEAST CORNER OF 70TH STREET AND ALVARADO ROAD INTERSECTION. THIS PROJECT DOES NOT INCLUDE THE WESTERLY SIDE OF THE ALVARADO ROAD AND 70TH STREET INTERSECTION.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-4

COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **ALVARADO ROAD WIDENING**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND 1,800,000
ENGR/CONSTR 1,400,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
3,200,000	REDEVELOPMENT								
3,200,000	TOTAL	0	0	0	0	0	0	0	0

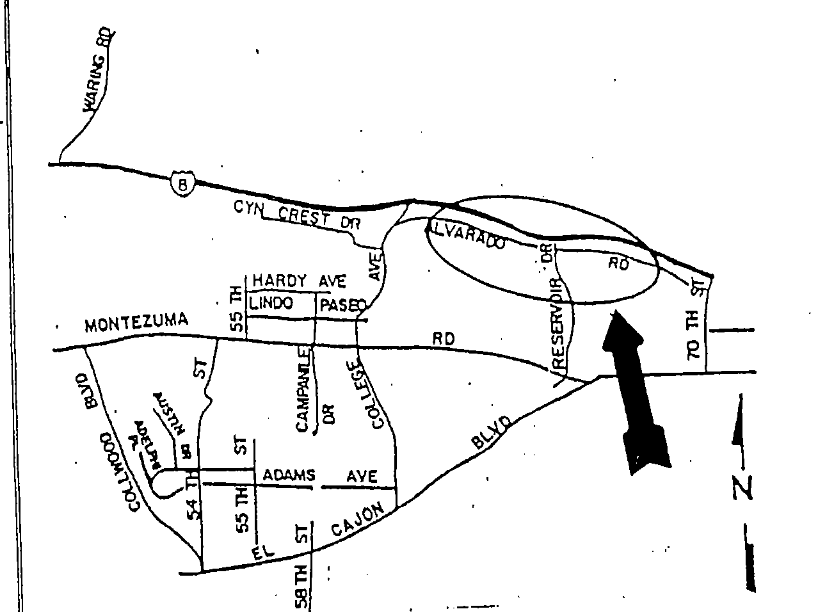
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL WIDEN ALVARADO ROAD TO A THREE-LANE COLLECTOR (52' CURB TO CURB) FROM 1600' EAST OF COLLEGE AVENUE TO 300' WEST OF 70TH STREET. THIS IMPROVEMENT REQUIRES ADDITIONAL RIGHT-OF-WAY ACQUISITION. THE REALIGNMENT PART OF ALVARADO ROAD NEAR COLLEGE AVENUE AND THE ALVARADO ROAD APPROACH TO 70TH STREET ARE NOT INCLUDED IN THIS PROJECT.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-5
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: # 55TH STREET-MONTEZUMA ROAD TO HARDY AVENUE

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND 2,000,000
ENGR/CONSTR 400,000

FUNDING: SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
768,000 REDEVELOPMENT 1,632,000 UNIDENTIFIED								
2,400,000 TOTAL	0	0	0	0	0	0	0	0

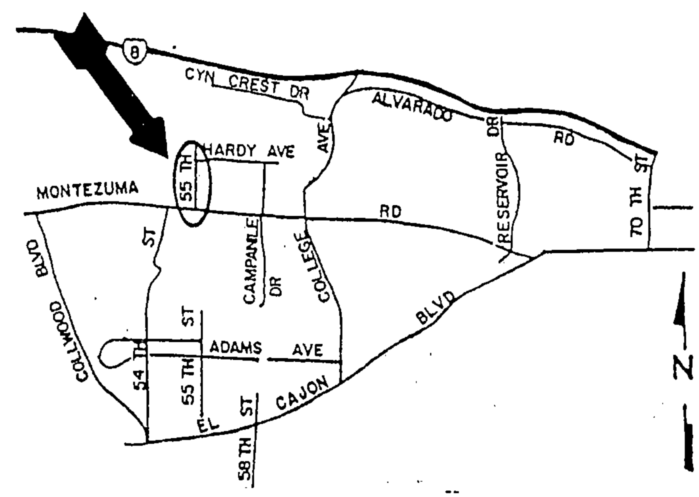
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR WIDENING 55TH STREET TO A FOUR-LANE COLLECTOR FROM MONTEZUMA ROAD TO HARDY AVENUE. THE WIDENING REQUIRES RIGHT-OF-WAY ACQUISITION AND EXISTING STRUCTURE (HOUSES) REMOVAL. THE TRAFFIC SIGNAL MODIFICATIONS ON 55TH STREET AT MONTEZUMA ROAD AND AT HARDY AVENUE ARE NOT INCLUDED WITH THIS PROJECT.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-6

COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **COLLEGE AVENUE AT MONTEZUMA ROAD AND LINDO PASEO INTERSECTIONS**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND 3,500,000
ENGR/CONSTR 500,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
2,000,000	REDEVELOPMENT								
2,000,000	UNIDENTIFIED								
4,000,000	TOTAL	0	0	0	0	0	0	0	0

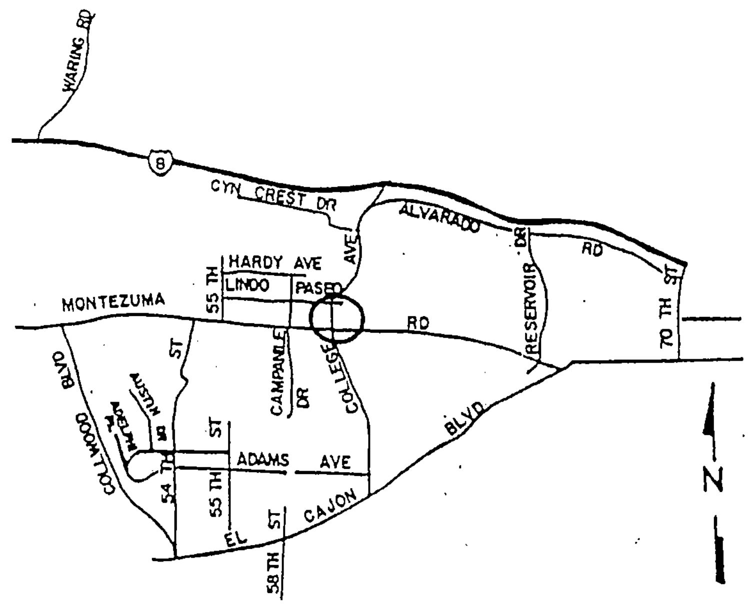
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE IMPROVEMENT OF COLLEGE AVENUE AT THE MONTEZUMA ROAD AND LINDO PASEO INTERSECTIONS. THESE IMPROVEMENTS INCLUDE RIGHT-OF-WAY ACQUISITION, REMOVAL OF EXISTING STRUCTURES/BUILDINGS, TRAFFIC SIGNAL MODIFICATIONS AND RELOCATING RAISED CENTER MEDIAN. THESE IMPROVEMENTS WILL PROVIDE THREE THROUGH LANES, SEPARATE RIGHT-TURN LANES ON THE NORTH AND SOUTH LEGS OF COLLEGE AVENUE AT BOTH INTERSECTIONS. IT ALSO PROVIDES CLASS II BICYCLE LANES.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-7
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **MONTEZUMA ROAD AND CAMPANILE ROAD INTERSECTION IMPROVEMENTS**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 35,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
23,000	REDEVELOPMENT								
12,000	UNIDENTIFIED								
35,000	TOTAL	0	0	0	0	0	0	0	0

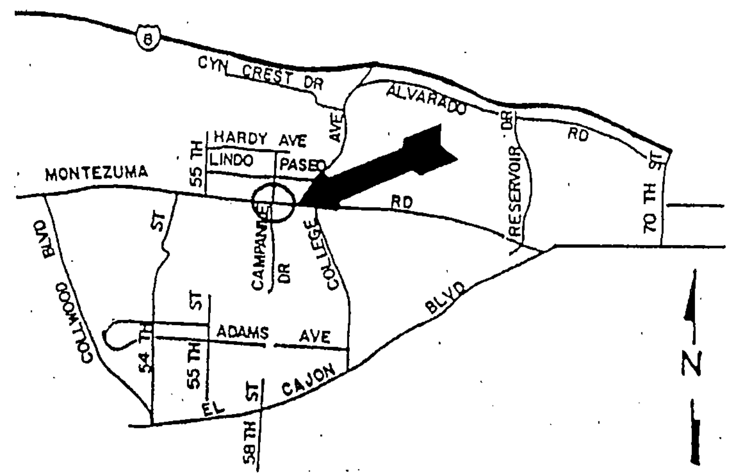
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE MODIFICATION OF THE EXISTING TRAFFIC SIGNAL AND LANE RESTRIPING AT THE MONTEZUMA ROAD AND COMPANILE DRIVE INTERSECTION.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-8
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **COLLEGE AVENUE AND EL CAJON BOULEVARD INTERSECTION**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND 2,000,000
ENGR/CONSTR 700,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
702,000	REDEVELOPMENT								
1,998,000	UNIDENTIFIED								
2,700,000	TOTAL	0	0	0	0	0	0	0	0

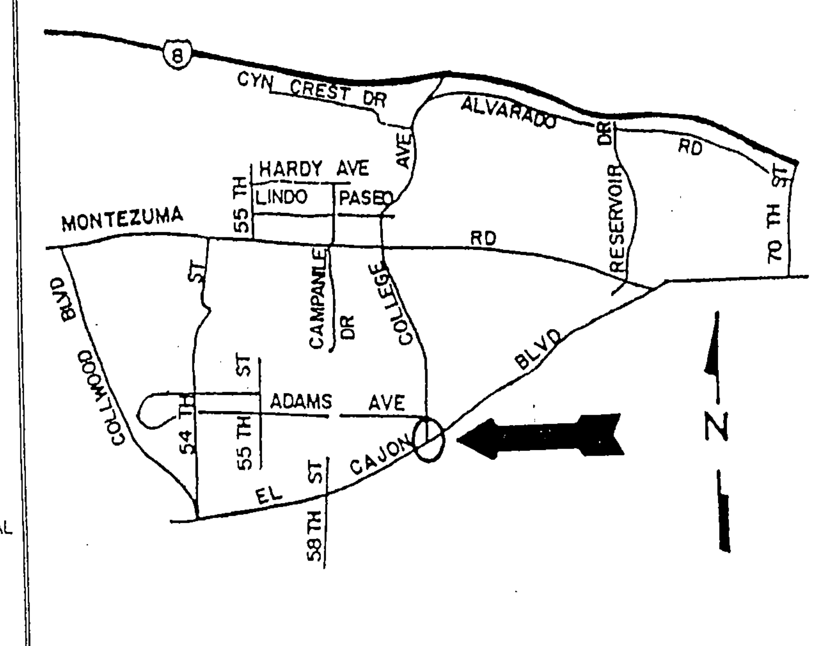
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE IMPROVEMENT OF THE COLLEGE AVENUE AND EL CAJON BOULEVARD INTERSECTION. THE IMPROVEMENTS INCLUDE WIDENING, WHICH REQUIRES RIGHT-OF-WAY ACQUISITION, REMOVAL OF EXISTING STRUCTURES AND RELOCATING THE RAISED CENTER MEDIAN. THESE IMPROVEMENTS WILL PROVIDE THREE THROUGH LANES, DUAL LEFT-TURN LANES AND SEPARATE RIGHT-TURN LANES ON THE NORTH AND SOUTH LEGS AND TWO THROUGH LANES, DUAL LEFT-TURN AND SEPARATE RIGHT-TURN LANES ON THE EAST AND WEST LEGS. IT ALSO PROVIDES CLASS II BICYCLE LANES.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-9
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **55TH STREET AND MONTEZUMA ROAD INTERSECTION IMPROVEMENTS**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 85,000

FUNDING: SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
43,000 REDEVELOPMENT								
42,000 UNIDENTIFIED								
85,000 TOTAL	0	0	0	0	0	0	0	0

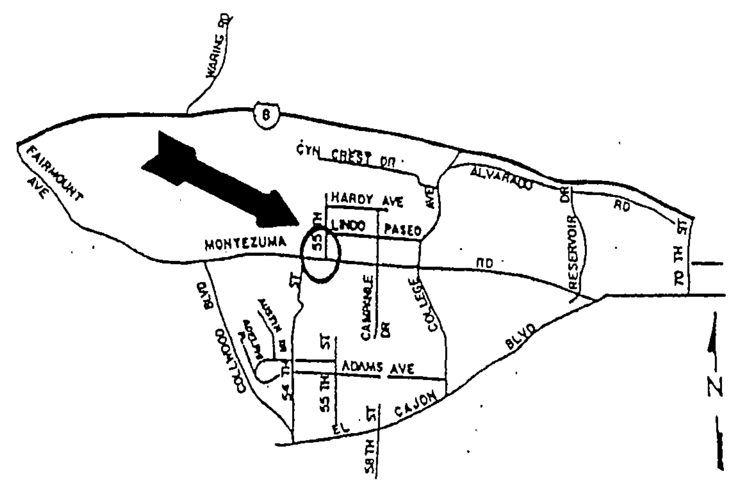
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR THE MODIFICATION OF THE EXISTING TRAFFIC SIGNAL AND LANE RESTRIPING AT THE 55TH STREET AND MONTEZUMA ROAD INTERSECTION.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-10

COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: COLLEGE AVENUE AND CANYON CREST DRIVE/ALVARADO ROAD INTERSECTION IMPROVEMENTS AND STREET REALIGNMENT

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND 400,000
ENGR/CONSTR 2,600,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
1,560,000	REDEVELOPMENT								
1,440,000	UNIDENTIFIED								
3,000,000	TOTAL	0	0	0	0	0	0	0	0

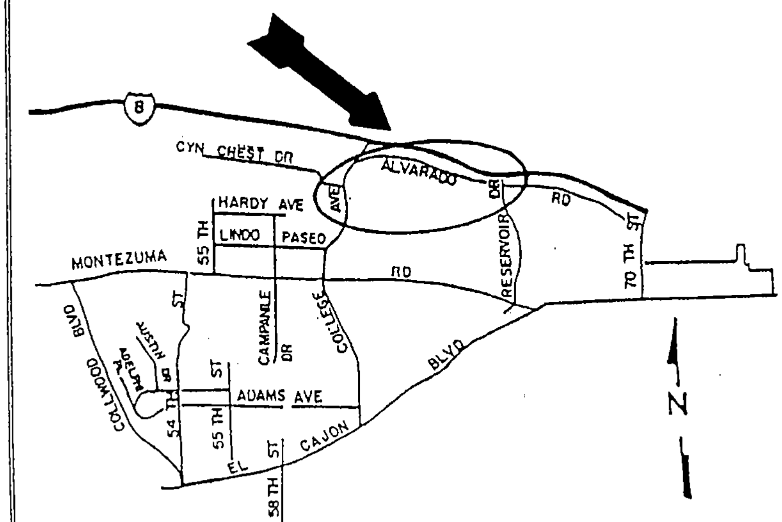
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE IMPROVEMENT OF THE COLLEGE AVENUE/CANYON CREST DRIVE/ALVARADO ROAD INTERSECTION. THE REALIGNMENT OF ALVARADO ROAD FOR APPROXIMATELY 1600 FEET EAST OF COLLEGE AVENUE IS INCLUDED IN THIS PROJECT. THIS PROJECT ALSO PROVIDES CLASS II BICYCLE LANES ON COLLEGE AVENUE/CANYON CREST DRIVE.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-11
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **ALVARADO ROAD APPROACH TO 70TH STREET**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND 50,000
ENGR/CONSTR 30,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
80,000	REDEVELOPMENT								
80,000	TOTAL	0	0	0	0	0	0	0	0

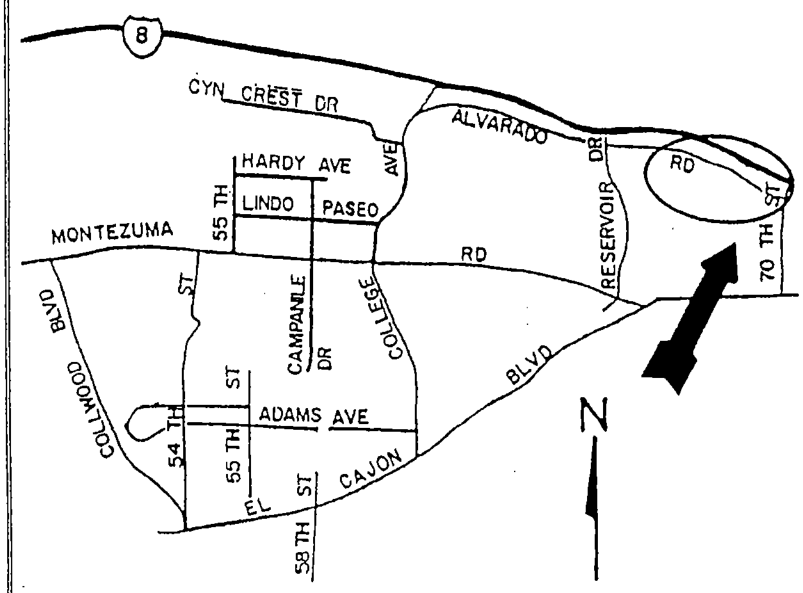
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE IMPROVEMENT OF THE WESTERLY ALVARADO ROAD APPROACH TO 70TH STREET. THESE IMPROVEMENTS INCLUDE RIGHT-OF-WAY ACQUISITION TO PROVIDE A SEPARATE RIGHT-TURN LANE, FROM EASTBOUND ALVARADO ROAD TO SOUTHBOUND 70TH STREET.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-12
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **EL CAJON BOULEVARD AT 70TH STREET INTERSECTION IMPROVEMENTS**

DEPARTMENT: ENGINEERING AND DEVELOPMENT

COSTS:		
	LAND	720,000
	ENGR/CONSTR	280,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
310,000	REDEVELOPMENT								
690,000	UNIDENTIFIED								
1,000,000	TOTAL	0	0	0	0	0	0	0	0

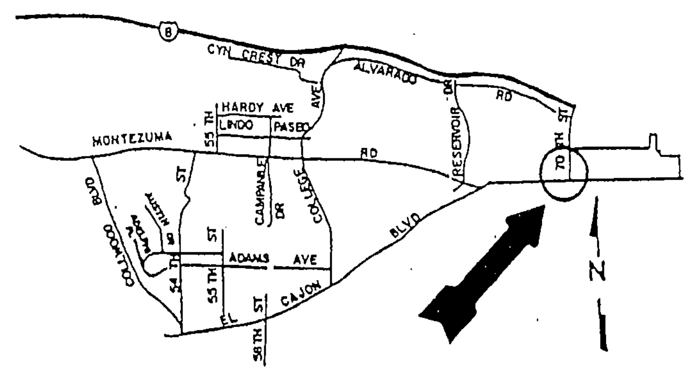
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE IMPROVEMENTS ON EL CAJON BOULEVARD AT THE 70TH STREET INTERSECTION. THESE IMPROVEMENTS INCLUDE WIDENING, WHICH REQUIRES ADDITIONAL RIGHT-OF-WAY, AND RELOCATING THE RAISED CENTER MEDIAN TO PROVIDE A SEPARATE RIGHT-TURN LANE ON THE WEST AND EAST LEGS, DUAL LEFT-TURN LANES ON THE WEST LEG AND A SINGLE LEFT-TURN LANE ON THE EAST LEG. IT ALSO PROVIDES FOR CLASS II BICYCLE LANES.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-13
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **MONTEZUMA ROAD AND COLLWOOD BOULEVARD INTERSECTION IMPROVEMENTS**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 350,000

FUNDING: SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
322,000 REDEVELOPMENT								
28,000 UNIDENTIFIED								
350,000 TOTAL	0	0	0	0	0	0	0	0

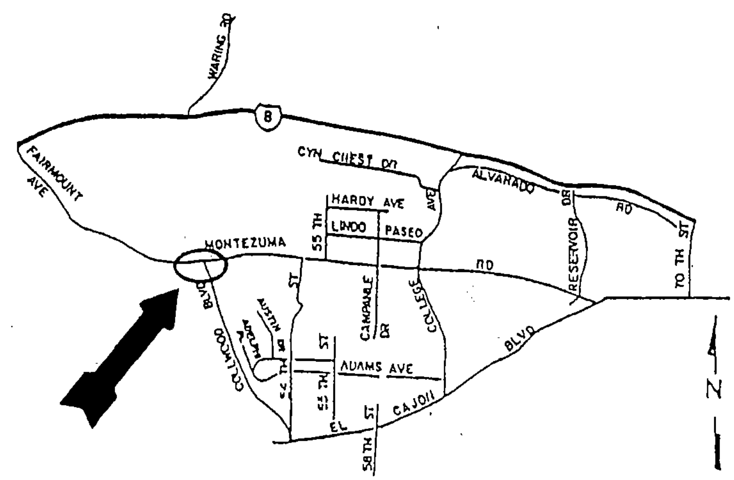
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE IMPROVEMENTS OF THE MONTEZUMA ROAD AND COLLWOOD BOULEVARD INTERSECTION WITHIN THE EXISTING RIGHT-OF-WAY. THESE IMPROVEMENTS INCLUDE RELOCATING THE RAISED CENTER MEDIAN TO PROVIDE DUAL LEFT-TURN LANES FROM WESTBOUND MONTEZUMA ROAD TO SOUTHBOUND COLLWOOD BOULEVARD, THE BIKE LANE AND RESTRICTED PARKING ARE RETAINED.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-14,15,16
COUNCIL DISTRICT: 2
COMMUNITY: COLLEGE AREA

TITLE: **TRAFFIC SIGNALS**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 330,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
330,000	REDEVELOPMENT								
330,000	TOTAL	0	0	0	0	0	0	0	0

L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

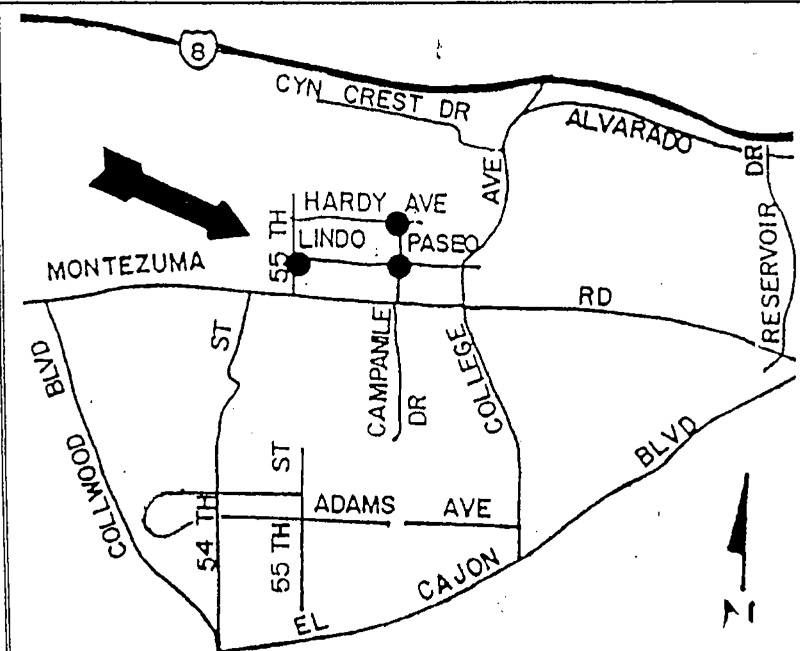
DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE INSTALLATION OF NEW TRAFFIC SIGNALS AT THE FOLLOWING LOCATIONS.

14 – HARDY AVENUE AND CAMPANILE DRIVE ($110,000)
15 – LINDO PASEO AND CAMPANILE DRIVE ($110,000)
16 – 55TH STREET AND LINDO PASEO ($110,000)

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF GROWTH CAUSED BY REDEVELOPMENT AND TO IMPLEMENT THE COLLEGE COMMUNITY REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-17
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **TRAFFIC SIGNAL INTERCONNECT**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 800,000

FUNDING: SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
448,000 REDEVELOPMENT 352,000 UNIDENTIFIED								
800,000 TOTAL	0	0	0	0	0	0	0	0

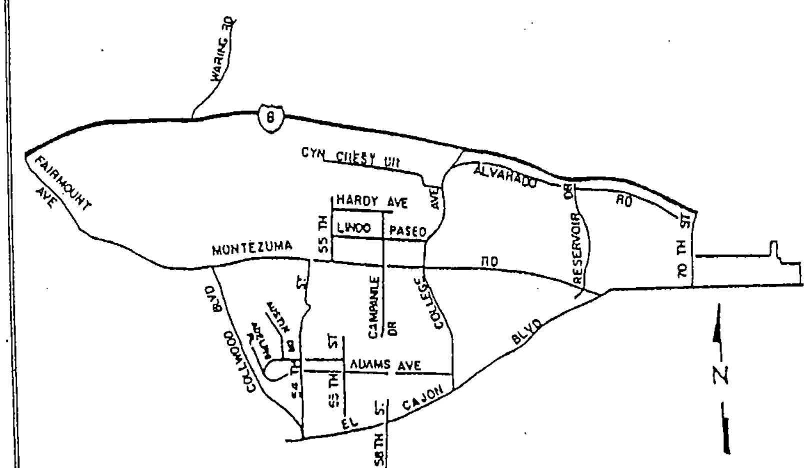
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR THE CONSTRUCTION OF VARIOUS TRAFFIC SIGNAL SUBSYSTEMS THROUGHOUT THE COMMUNITY.

JUSTIFICATION: THIS PROJECT IS NEEDED TO ACCOMMODATE THE GROWING NEED TO CENTRALLY CONTROL HEAVILY TRAVELLED ARTERIALS, WITH MORE EFFICIENT SIGNAL COORDINATION.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-18

COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: WARING ROAD, I-8 WARING ROAD INTERCHANGE TO CANYON CREST: FEASIBILITY STUDY

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 100,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
100,000	REDEVELOPMENT								
100,000	TOTAL	0	0	0	0	0	0	0	0

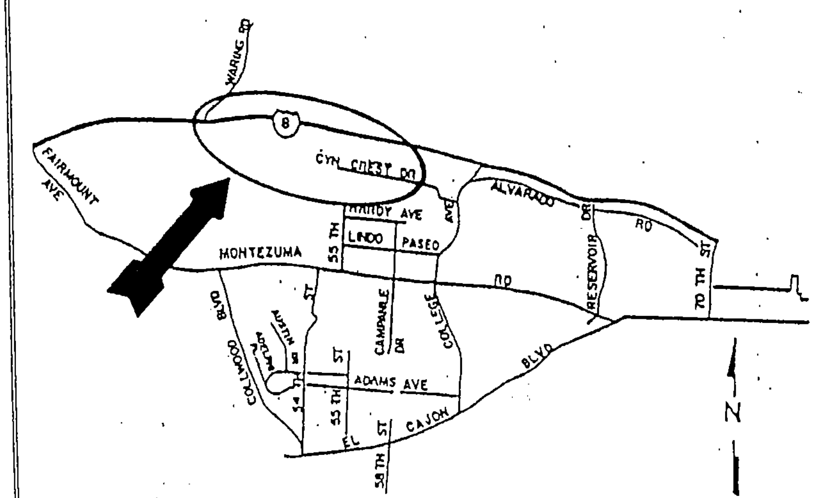
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT IS FOR A STUDY OF THE FEASIBILITY OF EXTENDING WARING ROAD ALONG THE SOUTH SIDE OF INTERSTATE 8 (BEGINNING AT THE EXISTING I-8/WARING ROAD INTERCHANGE) AND CONNECTING TO CANYON CREST DRIVE. THE STUDY COULD BE ACCOMPLISHED AS PART OF MTDB'S EVALUATION OF A LIGHT RAIL TRANSIT LINE ALONG INTERSTATE 8 AS AN ELEMENT OF AN ENVIRONMENTAL ANALYSIS, OR AS PART OF THE CITY REVIEW OF THE COLLEGE AREA CIRCULATION SYSTEM.

JUSTIFICATION: DETERMINATION SHOULD BE MADE IF SUCH A CONNECTION COULD OFFER CONGESTION RELIEF AT THE I-8 COLLEGE AVENUE INTERCHANGE.

SCHEDULE: THIS PROJECT WILL BE CONDUCTED WHEN FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-19
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **FAIRMOUNT AVENUE FROM MONTEZUMA ROAD TO I-8 WIDEN AND IMPROVEMENT**

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STREETS
COSTS: LAND
ENGR/CONSTR 4,490,150

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
948,240	TRANS C	250,000	698,240						
50,000	S/L N		50,000						
3,059,220	TNBOND C		3,059,220						
432,690	GASTAX C		432,690						
		D	DC						
4,490,150	TOTAL	250,000	4,240,150	0	0	0	0	0	0

L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

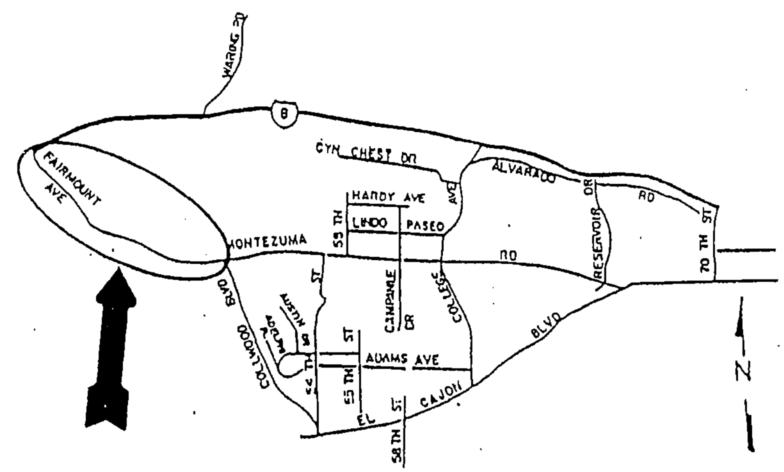
DESCRIPTION: THIS PROJECT WILL PROVIDE FOR WIDENING FAIRMOUNT AVENUE TO SIX LANES FROM I-8 TO MONTEZUMA ROAD AND WIDENING RAMPS AND THE OVERPASS TO INCREASE THE CAPACITY OF THE MONTEZUMA ROAD/FAIRMOUNT AVENUE INTERCHANGE. 50% OF TOTAL PROJECT COSTS OF $8,980,300 ARE REFLECTED IN THIS COMMUNITY AND 50% IN THE MID-CITY COMMUNITY.

JUSTIFICATION: CURRENT TRAFFIC VOLUMES ARE BEYOND THE DESIRABLE CAPACITY FOR THE EXISTING IMPROVEMENT OF FAIRMOUNT BETWEEN I-8 AND MONTEZUMA ROAD. IMPROVEMENT OF FAIRMOUNT AVENUE TO MEET PRIMARY ARTERIAL STREET STANDARDS AND IMPROVEMENT OF THE INTERCHANGE ARE REQUIRED TO ASSURE THE EFFICIENT MOVEMENT OF TRAFFIC.

SCHEDULE: DESIGN OF THIS PROJECT WILL BE COMPLETED IN FY 1994. CONSTRUCTION IS SCHEDULED TO BEGIN IN FY 1994 AND BE COMPLETED IN 1995.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.

CIP NO: 52-433.0



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-20
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: # EL CAJON BOULEVARD FROM 54TH STREET TO 58TH STREET

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STREETS
COSTS: LAND 200,000
ENGR/CONSTR 925,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
1,125,000	UNIDENTIFIED								
1,125,000	TOTAL	0	0	0	0	0	0	0	0

L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

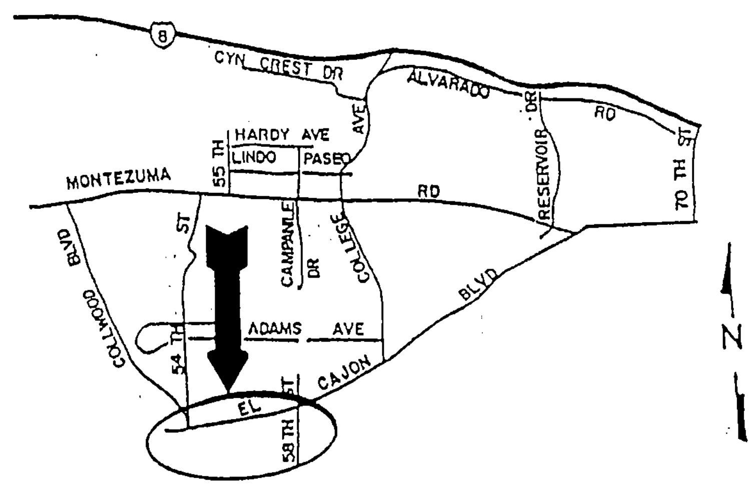
43

DESCRIPTION: THIS PROJECT PROVIDES FOR THE WIDENING OF EL CAJON BOULEVARD TO A MODIFIED FOUR LANE MAJOR STREET (74'/90') FROM 54TH STREET TO 58TH STREET. 50% OF TOTAL PROJECT COSTS OF $2,250,000 ARE REFLECTED IN THIS COMMUNITY AND 50% IN THE MID-CITY COMMUNITY.

JUSTIFICATION: THIS PROJECT WILL IMPROVE TRAFFIC CIRCULATION IN THE COLLEGE COMMUNITY.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED WHEN FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-21

COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **EL CAJON BOULEVARD; MONTEZUMA ROAD TO 70TH STREET**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 700,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
700,000	UNIDENTIFIED								
700,000	TOTAL	0	0	0	0	0	0	0	0

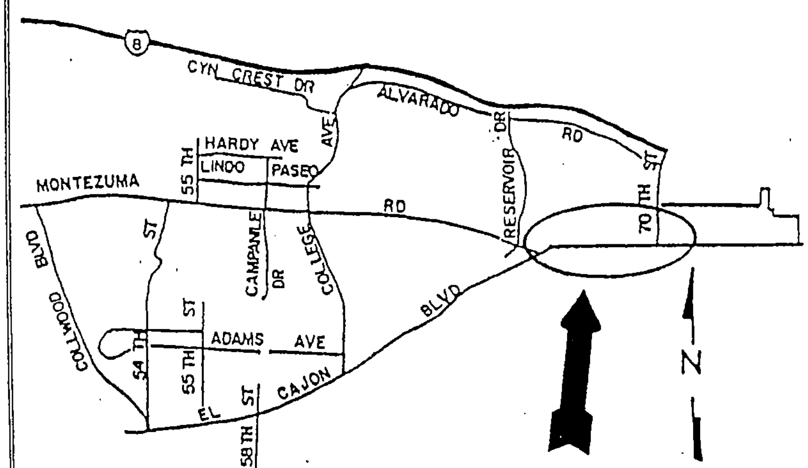
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

<u>DESCRIPTION</u>: THIS PROJECT PROVIDES FOR THE MODIFICATION OF THE EXISTING RAISED CENTER MEDIAN TO CREATE LEFT-TURN POCKET IN BOTH DIRECTIONS AT INTERVENING INTERSECTIONS.

<u>JUSTIFICATION</u>: THIS PROJECT IS NEEDED TO IMPROVE TRAFFIC FLOW AND ACCOMMODATE HIGH VOLUMES, WITHOUT WIDENING THE STREET SECTION.

<u>SCHEDULE</u>: DESIGN AND CONSTRUCTION WILL BE SCHEDULED WHEN FUNDING IS IDENTIFIED.

<u>RELATIONSHIP TO GENERAL AND COMMUNITY PLANS</u>: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-22
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **EL CAJON BOULEVARD AND MONTEZUMA ROAD INTERSECTION**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 150,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
150,000	UNIDENTIFIED								
150,000	TOTAL	0	0	0	0	0	0	0	0

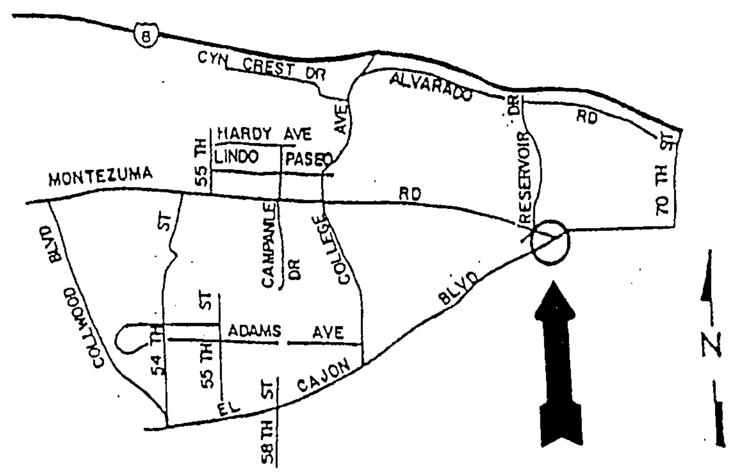
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR THE CONSTRUCTION OF A LEFT-TURN LANE FROM EASTBOUND EL CAJON BOULEVARD TO NORTHBOUND MONTEZUMA ROAD WITHIN THE EXISTING RIGHT-OF-WAY. IT ALSO PROVIDES FOR THE MODIFICATION OF THE EXISTING TRAFFIC SIGNAL AT EL CAJON BOULEVARD AND MONTEZUMA ROAD INTERSECTION.

JUSTIFICATION: THIS PROJECT WILL IMPROVE TRAFFIC FLOW AT THIS INTERSECTION.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED WHEN FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-23

COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **LINDO PASEO STORM DRAIN**

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STORM DRAINS/FLOOD CONTROL
COSTS: LAND
ENGR/CONSTR 57,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
7,000	DIF C		7,000						
50,000	CAPOUT C		50,000						
			DC						
57,000	TOTAL	0	57,000						

L=Land Acquisition R=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

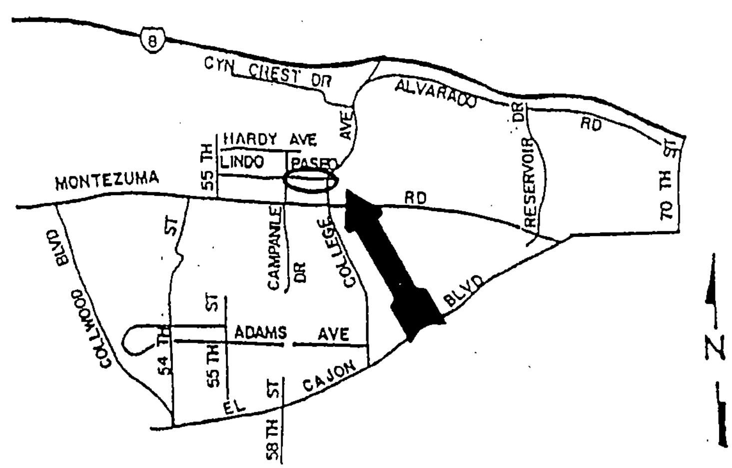
DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE DESIGN AND CONSTRUCTION OF CURB, GUTTER AND A STORM DRAIN SYSTEM ON THE NORTH SIDE OF LINDO PASEO DRIVE BETWEEN COLLEGE AVENUE AND CAMPANILE DRIVE.

JUSTIFICATION: THE EXISTING STREET SURFACE DRAINAGE SYSTEM IS INADEQUATE AND TENDS TO POND. THE PROPOSED SYSTEM WILL ALLEVIATE THESE PROBLEMS AND ALLOW FOR IMPROVED RUNOFF.

SCHEDULE: THIS PROJECT WAS SCHEDULED FOR DESIGN IN FY 1993 AND CONSTRUCTION IN FY 1994.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.

CIP NO: 11-285.0



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-24
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: # ADELPHI PLACE DRAIN

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STORM DRAINS/FLOOD CONTROL
COSTS: LAND
ENGR/CONSTR 25,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP.	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
25,000	DIF C	25,000							
		DC							
25,000	TOTAL	25,000	0	0	0	0	0	0	0

L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

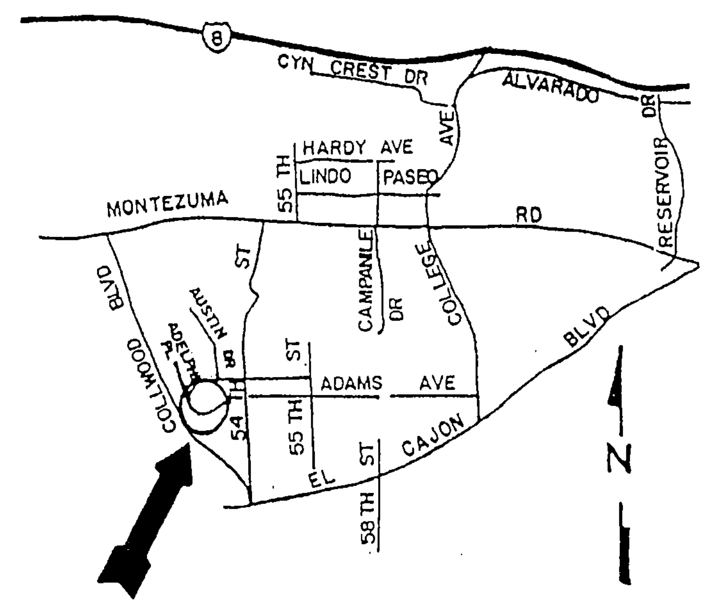
DESCRIPTION: THIS PROJECT WILL REPLACE THE EXISTING DRAINAGE SYSTEM WITH APPROXIMATELY 100 LINEAR FEET OF 18-INCH DRAIN PIPE AT THE WESTERLY END OF ADELPHI PLACE.

JUSTIFICATION: THE EXISTING DRAINAGE SYSTEM IS NOT ADEQUATE TO MEET EXISTING AND FUTURE COMMUNITY NEEDS. THIS PROJECT WILL REDUCE REQUIRED MAINTENANCE.

SCHEDULE: DESIGN WAS COMPLETED IN FY 1993. CONSTRUCTION IS SCHEDULED FOR FY 1994.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.

CIP NO: 11-295.0



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-25
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **AUSTIN DRIVE DRAIN**

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STORM DRAINS/FLOOD CONTROL
COSTS: LAND
ENGR/CONSTR 80,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
30,000	DIF C	30,000							
50,000	TRANS C			50,000					
		DC		C					
80,000	TOTAL	30,000	0	50,000	0	0	0	0	0

L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

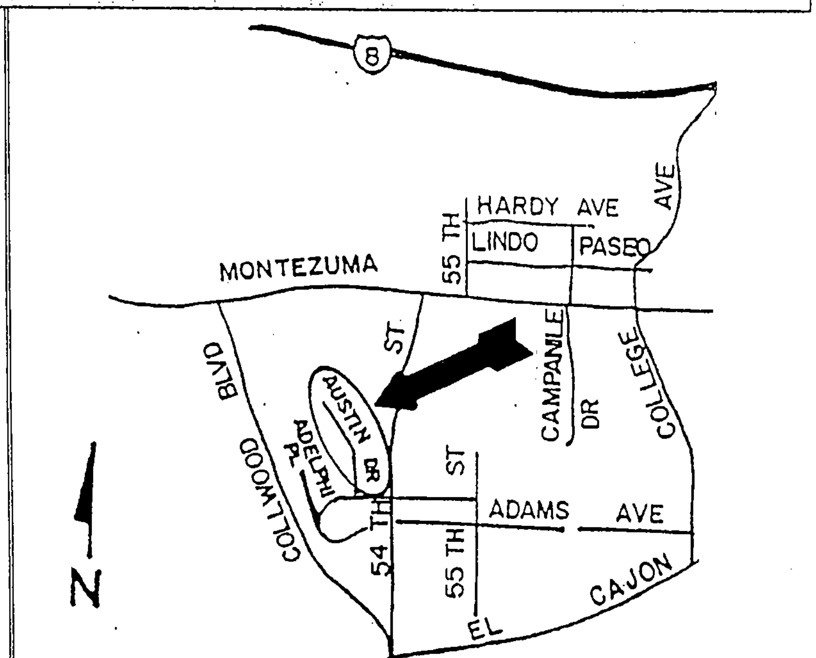
DESCRIPTION: THIS PROJECT WILL REPLACE THE EXISTING DRAINAGE SYSTEM WITH APPROXIMATELY 170 LINEAR FEET OF 18-INCH DRAIN PIPE AND ASSOCIATED STRUCTURES ADJACENT TO 4876 AUSTIN DRIVE.

JUSTIFICATION: THIS EXISTING DRAINAGE SYSTEM IS NO LONGER ADEQUATE TO MEET COMMUNITY NEEDS. THIS PROJECT WILL REDUCE REQUIRED MAINTENANCE.

SCHEDULE: DESIGN AND CONSTRUCTION ARE SCHEDULED FOR FY1994.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.

CIP NO: 11-296.0



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-26
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **ARCHITECTURAL BARRIER REMOVAL**

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 1,200,000

FUNDING: SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
672,000 REDEVELOPMNT								
528,000 UNIDENTIFIED								
1,200,000 TOTAL	0	0	0	0	0	0	0	0

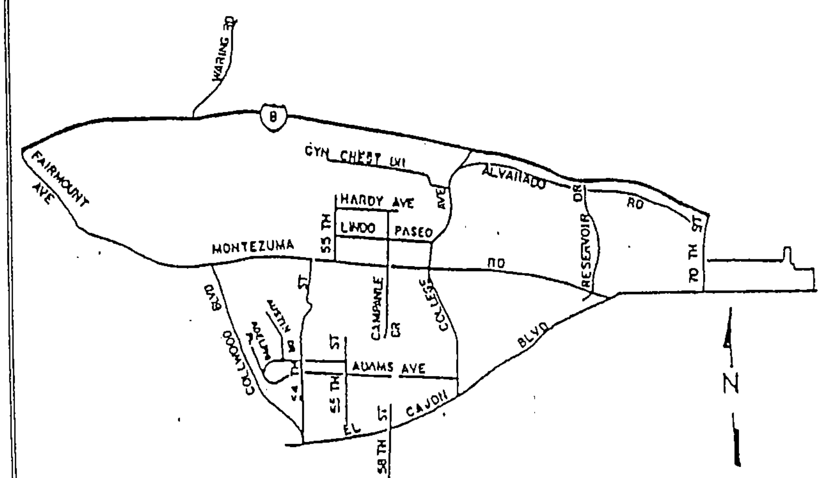
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR THE CONSTRUCTION OF 900 PEDESTRIAN RAMPS AT VARIOUS LOCATION THROUGHOUT THE COMMUNITY.

JUSTIFICATION: THE PHYSICALLY DISABLED, VISUALLY DISABLED AND MANY SENIOR CITIZENS FIND THEIR MOBILITY RESTRICTED BY CURBS WHICH THEY FIND DIFFICULT OR IMPOSSIBLE TO NEGOTIATE.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-27
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: STORM DRAINS

DEPARTMENT: ENGINEERING AND DEVELOPMENT
COSTS: LAND
ENGR/CONSTR 2,200,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
2,200,000	UNIDENTIFIED								
2,200,000	TOTAL	0	0	0	0	0	0	0	0

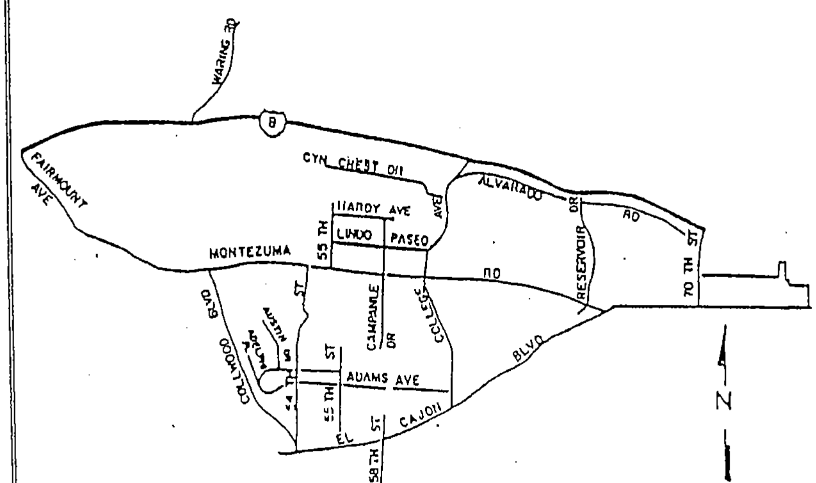
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: INSTALL, RECONSTRUCT AND UPGRADE STORM DRAINS AT VARIOUS LOCATIONS THROUGHOUT THE COMMUNITY.

JUSTIFICATION: IMPROVED DRAINAGE AT VARIOUS LOCATIONS IS REQUIRED.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED AS REDEVELOPMENT OCCURS AND FUNDING IS IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-28
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **55TH STREET - HARDY AVENUE TO REMINGTON ROAD**

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STREETS
COSTS: LAND 500,000
ENGR/CONSTR 400,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
900,000	SDSU								
900,000	TOTAL	0	0	0	0	0	0	0	0

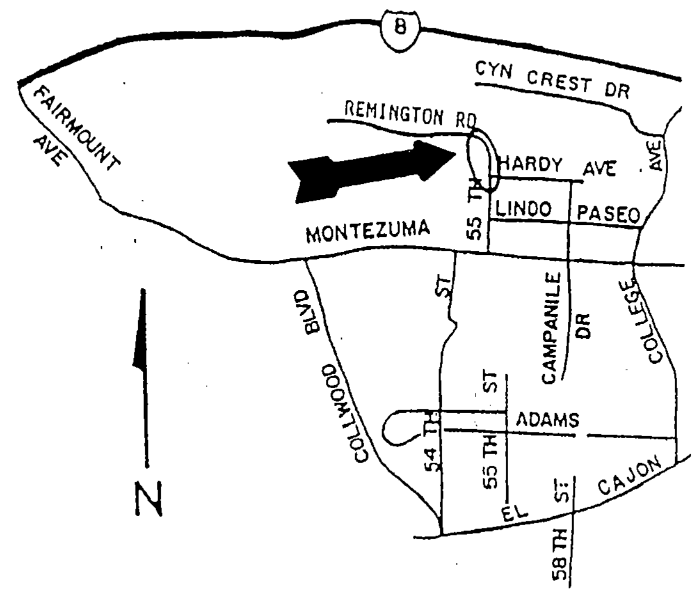
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR THE WIDENING OF 55TH STREET TO A FOUR-LANE COLLECTOR FROM HARDY AVENUE TO REMINGTON ROAD. THE WIDENING REQUIRES RIGHT-OF-WAY ACQUISITION AND EXISTING STRUCTURE REMOVAL. THE INSTALLATION OF TRAFFIC SIGNALS AT HARDY AVENUE AND REMINGTON ROAD ARE NOT INCLUDED WITH THIS PROJECT.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF CONSTRUCTING THE STUDENT ACTIVITY CENTER. IT HAS ALSO BEEN IDENTIFIED AS A MITIGATION PROJECT IN THE COLLEGE AREA REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED TO COINCIDE WITH CONSTRUCTION OF THE STUDENT ACTIVITY CENTER.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-29
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **55TH STREET AND REMINGTON ROAD: TRAFFIC SIGNAL**

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STREETS
COSTS: LAND
ENGR/CONSTR 110,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
110,000	SDSU								
110,000	TOTAL	0	0	0	0	0	0	0	0

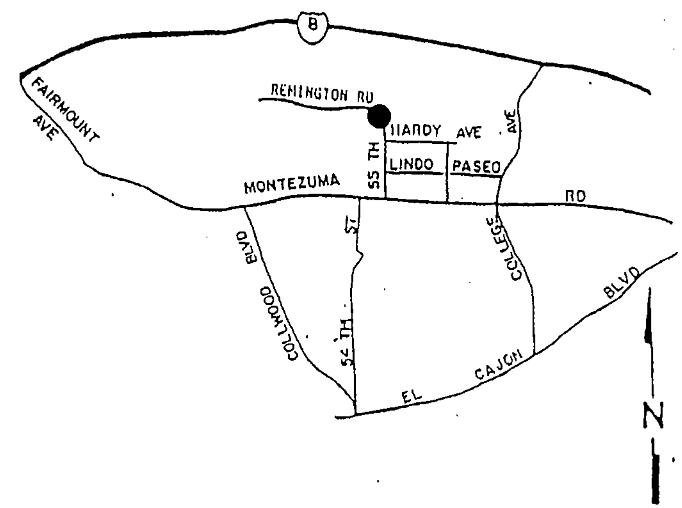
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE INSTALLATION OF A NEW TRAFFIC SIGNAL AT 55TH STREET AND REMINGTON ROAD.

JUSTIFICATION: THIS PROJECT IS REQUIRED TO MITIGATE THE EFFECTS OF CONSTRUCTING THE STUDENT ACTIVITY CENTER. IT HAS ALSO BEEN IDENTIFIED AS A MITIGATION PROJECT IN THE COLLEGE AREA REDEVELOPMENT PLAN.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED TO COINCIDE WITH CONSTRUCTION OF THE STUDENT ACTIVITY CENTER.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-30
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: # CHAPARRAL WAY DRAIN - NORTH OF BAJA DRIVE

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STREETS
COSTS: LAND
ENGR/CONSTR 120,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
120,000	TRANS C	15,000	105,000						
120,000	TOTAL	DC 15,000	DC 105,000	0	0	0	0	0	0

L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

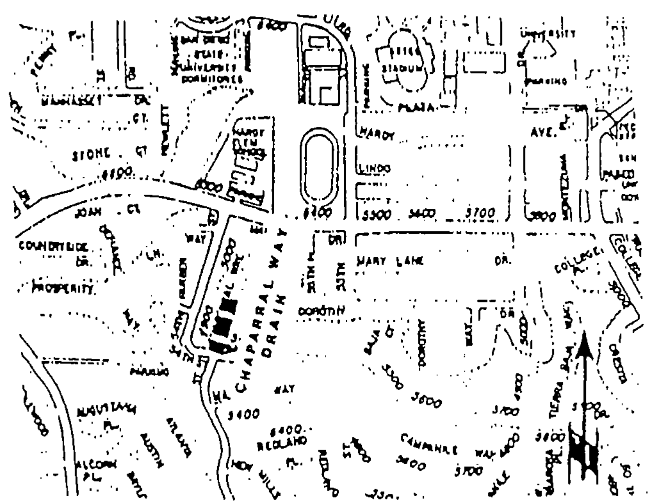
DESCRIPTION: THIS PROJECT WILL CONSTRUCT 84 LINEAR FEET OF 18-INCH REINFORCED CONCRETE PIPE AND ASSOCIATED CLEANOUTS AND INLETS ON CHAPARRAL WAY NORTH OF BAJA DRIVE.

JUSTIFICATION: THIS PROJECT WILL UNDERGROUND THE EXISTING STREET SURFACE DRAINAGE SYSTEM, ELIMINATING POTENTIAL STREET FLOODING.

SCHEDULE: DESIGN OF THIS PROJECT WAS COMPLETED IN FY 1993; CONSTRUCTION IS SCHEDULED FOR FY 1994.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.

CIP NO: 11-251.0



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-A
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **MISSION VALLEY EAST LRT EXTENSION**

DEPARTMENT: ENGINEERING AND DEVELOPMENT - STREETS
COSTS: LAND
ENGR/CONSTR 94,000,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
34,320,000	FEDERAL		227,888	1,974,258	5,410,548	7,275,840	8,923,200	8,923,200	1,585,066
5,060,000	STATE		30,702	266,858	713,822	946,050	1,160,250	1,160,250	782,068
4,620,000	TRANSNET		260,985		428,224	918,490	1,126,450	1,126,450	759,401
50,000,000	UNFUNDED			1,000,000	4,000,000	10,000,000	15,000,000	18,000,000	2,000,000
94,000,000	TOTAL		519,575	3,241,116	10,552,594	19,140,380	26,209,900	29,209,900	5,126,535

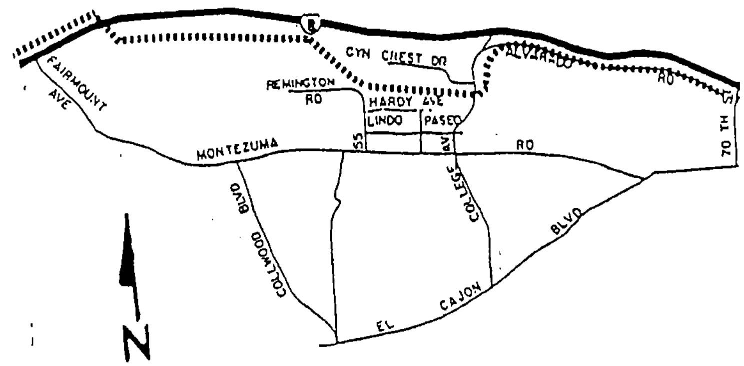
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR THE CONSTRUCTION OF THE MISSION VALLEY EAST LIGHT RAIL TRANSIT LINE AT AN ESTIMATED TOTAL COST OF $305,000,000. THE SDSU SEGMENT, AT A COST OF $94,000,000, INCLUDES A LOOP ALIGNMENT THROUGH THE SDSU CAMPUS.

JUSTIFICATION: THIS PROJECT REFLECTS THE SHARE OF COSTS ATTRIBUTABLE TO THE COLLEGE AREA.

SCHEDULE: CONSTRUCTION IS SCHEDULED FOR THE YEARS 1998-2001.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-31
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **NEIGHBORHOOD PARK - ACQUISITION AND DEVELOPMENT**

DEPARTMENT: PARK AND RECREATION DEPARTMENT - OTHER PARKS
COSTS: LAND 5,700,000
ENGR/CONSTR 2,000,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
7,700,000	UNIDENTIFIED								
7,700,000	TOTAL	0	0	0	0	0	0	0	0

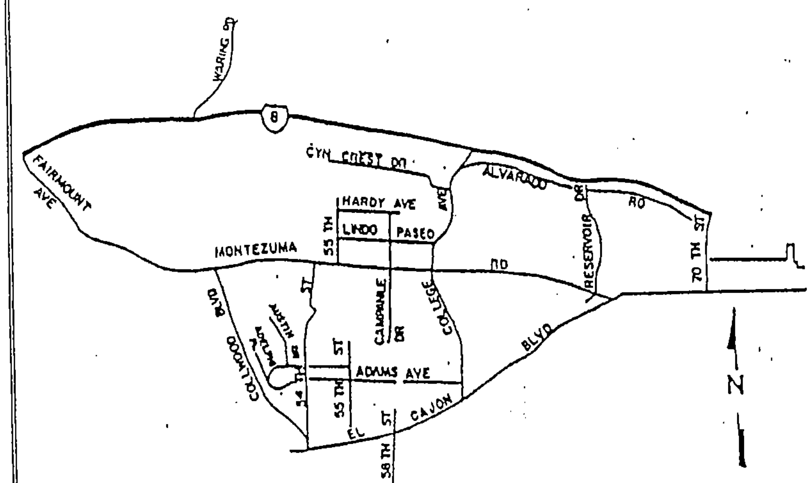
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT WILL PROVIDE FOR THE ACQUISITION, DESIGN AND CONSTRUCTION OF A NEW PARK AND RECREATION FACILITY IN THE COLLEGE AREA COMMUNITY.

JUSTIFICATION: THIS PROJECT WILL PROVIDE A NEW PARK IN A COMMUNITY DEFICIENT IN PARK AND RECREATIONAL FACILITIES.

SCHEDULE: ACQUISITION, DESIGN AND CONSTRUCTION WILL BE SCHEDULED WHEN FUNDING AND A SITE ARE IDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-32
COUNCIL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: # MUIR ELEMENTARY SCHOOL-SITE IMPROVEMENTS

DEPARTMENT: PARK AND RECREATION - OTHER PARKS
COSTS: LAND
ENGR/CONSTR 400,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
400,000	UNIDENTIFIED								
400,000	TOTAL	0	0	0	0	0	0	0	0

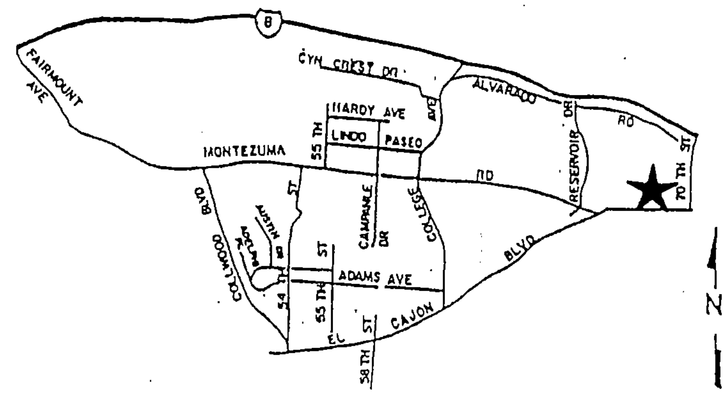
L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

DESCRIPTION: THIS PROJECT PROVIDES FOR THE TURFING OF PLAYGROUND AREAS AT THE MUIR ELEMENTARY SCHOOL SITE.

JUSTIFICATION: DEVELOPMENT OF THE SCHOOL SITE AS A JOINT USE FACLITY WILL PROVIDE PARK ACREAGE IN ACCORDANCE WITH GENERAL PLAN STANDARDS.

SCHEDULE: DESIGN AND CONSTRUCTION WILL BE SCHEDULED WHEN FUNDING IS INDENTIFIED.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.



CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

PROJECT: CA-33
COUNCL DISTRICT: 7
COMMUNITY: COLLEGE AREA

TITLE: **COLLEGE HEIGHTS BRANCH LIBRARY**

DEPARTMENT: LIBRARY DEPARTMENT

COSTS:				
	LAND	1,300,000	FURNISH	200,000
	ENGR/CONSTR	2,150,000	BOOKS	100,000

FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPROP	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
3,700,000	UNIDENTIFIED								
50,000	DIF C	30,000	20,000						
		D	D						
3,750,000	TOTAL	30,000	20,000	0	0	0	0	0	0

L=Land Acquisition P=Preliminary Design D=Design C=Construction R=Reimbursement F=Furnishings

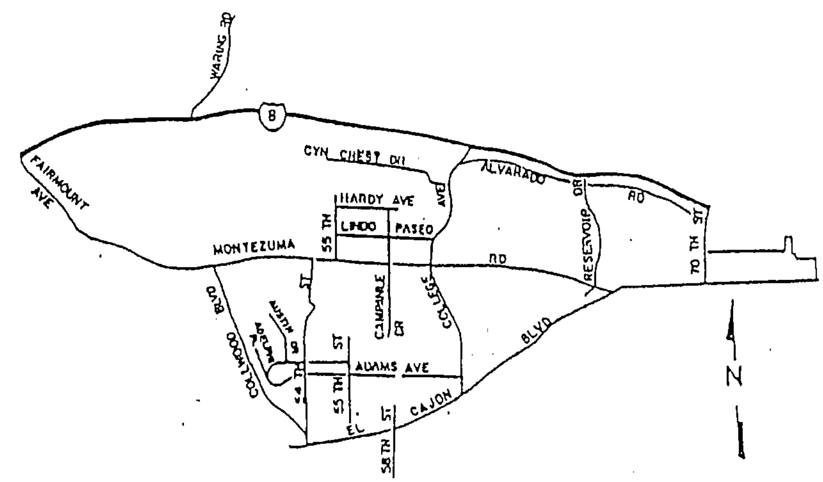
DESCRIPTION: THIS PROJECT WILL PROVIDE A 10,000 SQUARE FOOT LIBRARY ON PROPERTY TO BE ACQUIRED IN THE COLLEGE AREA COMMUNITY PLANNING AREA, WITH DESIGN CAPABILITY OF BEING EXPANDED TO 15,000 SQUARE FEET.

JUSTIFICATION: THE EXISTING LIBRARY WILL BE TOO SMALL TO PROVIDE ADEQUATE LIBRARY SERVICES TO THE COMMUNITY AT BUILD-OUT AND THERE ARE NO MEETING ROOM FACILITIES.

SCHEDULE: PRELIMINARY DESIGN, FINAL DESIGN AND CONSTRUCTION WILL BE SCHEDULED PENDING SITE LOCATION AND IDENTIFICATION OF FUNDING.

RELATIONSHIP TO GENERAL AND COMMUNITY PLANS: THIS PROJECT IS CONSISTENT WITH THE COLLEGE AREA COMMUNITY PLAN AND THE CITY'S GENERAL PLAN GUIDELINES.

CIP NO: 35-071.0



APPENDIX B

COMMUNITY PLANNING GROUP PRIORITIES

6 November 1993
5181 Dorman Drive
San Diego, CA 92115

City of San Diego
Engineering & Development Department
1010 Second Ave, Suite 500, M.S. 656
San Diego, CA 92101-4904

Attn: Mr. Gary Hess, Project Manager

Dear Gary,

Enclosed you will find the CACC priority listing of the projects in the College Area - Capitol Needs discribed in the Public Facilities Financing Plan. Originally, the CACC approved the priorities on July 14, 1993 based on the listing in the Preliminary Draft report, dated May 1993, with an appended four additional projects, which we discussed. The Public Facilities Financing Plan Draft, dated June 1993, was recieved showing only three additional projects within the list. Our list herein has four modifications to match your latest including the addition of No. 34, West Campus Drive/Remington Road study.

We understand that the light rail trolley may be added. The CACC's position has been to favor the S1 alignment along the south side of I-8. MTDB is still studying new options and is about a year before their recommendation will come forward. CACC would have to know this information to determine its priority. For the time being, you may want to add it to your list.

Sincerely,

Tony

Anthony J. Navoy

cc. Judy McCarty/Kriston McDade

CACC PRIORITIZED PUBLIC FACILITIES PROJECTS

CACC PRIO.	FFP PROJ.	PROJECT NAME
01	(18)	Waring Road Interchange new access to Canyon Crest Drive
02	(19)	Fairmount Avenue Interchange, Montezuma Road to I-8: widen
03	(07)	Montezuma Road and Campanile Road: intersection improvement
04	(06)	College Ave at Montezuma Rd and Lindo Paseo: intersections improvements
05	(33)	College Heights Branch Library: construction
06	(10)	College Ave, Canyon Crest Dr/Alvarado Rd: intersection improvement
07	(11)	Alvarado Road at 70^{th} St: intersection improvement
08	(05)	55^{th} St: Montezuma Rd to Hardy Ave widen
09	(04)	Alvarado Road: widen
10	(09)	Montezuma Rd/55^{th} St: intersection improvement
11	(17)	Traffic Signals interconnect: synchronization control
12	(15)	Lindo Paseo/Campanile Dr: traffic signal
13	(31)	Neighborhood Park: acquisition and development
14	(28)	55^{th} St: Hardy Ave to Remington Rd widen
15	(21)	El Cajon Blvd: Montezuma Rd to 70^{th} St turn lanes
16	(22)	El Cajon Blvd/Montezuma Rd: intersection improvements
17	(08)	College Ave/El Cajon Blvd: intersection improvements
18	(13)	Montezuma Rd/Collwood Blvd: interesection improvements
19	(23)	Lindo Paseo: curb/gutter/storm drain
20	(12)	El Cajon Blvd/70^{th} St: intersection improvement
21	(02)	College Ave: bridge over I-8 widen
22	(29)	55^{th} St/Remington Rd: traffic Signal
23	(32)	Muir Elementary School: site improvements
24	(34)	West Campus Drive: 54^{th} St to Remington Rd study
25	(03)	70^{th} St at Alvarado Rd: widen
26	(16)	55^{st} St/Lindo Paseo: traffic signal
27	(01)	College Ave: Lindo Paseo to Canyon Crest Dr widen
28	(14)	Hardy Dr/Campanile Dr: traffic signal
29	(27)	Storm drains: install & improve at various locations
30	(20)	El Cajon Blvd: 54^{th} St to 58^{th} St widen
31	(26)	Architectural barrier removal and pedestrian ramps addition
32	(24)	Adelphi drain: add
33	(25)	Austin Dr drain:add
34	(30)	Chaparral Way drain: add

Note: The project numbers are consistent with Public Facilities Financing Plan Draft, dated June 1993.