Coral Mountain at La Quinta
Specific Plan 218 Amendment 1
Option Property Annexation
Traffic Impact Study

Prepared by: Endo Engineering

November 2001

Endo Engineering *Traffic Engineering* *Air Quality Studies* *Noise Assessments*

November 5, 2001

T.D. Desert Development Corporation
c/o Sophia Investments, Inc.
79-285 Rancho La Quinta Drive
La Quinta, CA 92253

SUBJECT: Coral Mountain Specific Plan No. 218 Amdt. #1 Option Property Annexation Supplemental Traffic Impact Study

Dear Mr. John Gamlin;

Endo Engineering is pleased to submit this analysis of the circulation impacts associated with the addition of 354 acres to the Coral Mountain Specific Plan, which involves the annexation of 574 acres to the City of La Quinta. Approximately 220 acres of this area is within the Coral Mountain Specific Plan 218 Amendment #1 previously adopted by Riverside County. The future land uses in this area were previously addressed in the "Coral Mountain at La Quinta Specific Plan 218 Amendment No.1 Traffic Study" prepared by Endo Engineering in 1999.

The remaining 354 acres are located within the City of La Quinta Sphere of Influence, adjacent to the Coral Mountain Specific Plan area. They are more precisely located south of Avenue 58 and north of Avenue 60, between Madison Street and Monroe Street. Although this area is currently zoned for agricultural use, the project proponent is requesting that the City designate these 354 acres for Low Density Residential use to permit the development of up to 4 dwellings per acre. The supplemental traffic analysis herein evaluates the potential traffic impacts associated with the future development of these 354 acres.

This traffic study follows the methodology specified by the City of La Quinta. It incorporates by reference the traffic count data and existing conditions analysis, the assessment of nine cumulative developments, the key intersections and future horizon years previously addressed in the "Coral Mountain at La Quinta Specific Plan 218 Amendment No.1 Traffic Study" prepared by Endo Engineering (dated February 10, 1999). The methodology employed herein is consistent with that of the previously approved traffic study. Since the land uses proposed as the initial development phase on-site have not changed, the previous year 2004 analysis is also incorporated herein by reference.

The supplemental traffic analysis herein focuses on conditions with and without project buildout in the year 2010. The study addresses any and all changes in the land uses and circulation system within the Coral Mountain Specific Plan since the 1999 "Coral Mountain at La Quinta Specific Plan 218 Amendment No.1 Traffic Study". The goal was to identify all mitigation measures necessary to meet the City of La Quinta peak hour minimum performance standard (Level of Service D).

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We trust that the information provided herein will be of value to La Quinta staff in their review of the impacts and conditions of approval associated with the project. Should questions or comments develop regarding the findings and recommendations within this report, please do not hesitate to contact our offices at (949) 362-0020.

Cordially,

ENDO ENGINEERING

Vicki Lee Endo
Registered Professional
Traffic Engineer TR 1161

SUPPLEMENTAL TRAFFIC IMPACT STUDY

CORAL MOUNTAIN AT LA QUINTA
SPECIFIC PLAN 218 AMENDMENT 1
OPTION PROPERTY ANNEXATION

NORTH OF AVENUE 62 AND SOUTH OF AVENUE 58
ON EITHER SIDE OF MADISON ST. AND MONROE ST.

CITY OF LA QUINTA

November 5, 2001

Prepared For:

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I. INTRODUCTION AND SUMMARY

I. A PURPOSE AND OBJECTIVES

The purpose of this report is to provide in graphic and narrative form:

- probable traffic changes in the year 2010 related to the addition of 354 acres to the Coral Mountain Specific Plan (which involves the annexation of 574 acres to the City of La Quinta);
- an evaluation of the traffic impacts associated with all changes in the land uses and circulation system within the Coral Mountain Specific Plan since the 1999 "Coral Mountain at La Quinta Specific Plan 218 Amendment No.1 Traffic Study"; and
- all mitigation measures required to meet City of La Quinta minimum level of service requirements and traffic engineering design standards.

Approximately 220 acres of the proposed annexation area are within the Coral Mountain Specific Plan 218 Amendment #1 previously approved by Riverside County. The future land uses in this area were previously addressed in the "Coral Mountain at La Quinta Specific Plan 218 Amendment No.1 Traffic Study" prepared by Endo Engineering in 1999.

The remaining 354 acres are located within the City of La Quinta Sphere of Influence, adjacent to the Coral Mountain Specific Plan area. They are more precisely located south of Avenue 58 and north of Avenue 60, between Madison Street and Monroe Street. Although this area is currently zoned for agricultural use, the project proponent is requesting that the City designate these 354 acres for Low Density Residential use to permit the development of up to 4 dwellings per acre. The supplemental traffic analysis herein evaluates the potential traffic impacts associated with the future development of these 354 acres.

This traffic study focuses on conditions with and without project buildout in the year 2010. It follows the methodology specified by Mr. Steve Speer and Ms. Christine diIorio of the City of La Quinta in August of 2001. It incorporates by reference the traffic count data and existing conditions analysis, the assessment of nine cumulative developments, the key intersections and future horizon years previously addressed in the "Coral Mountain at La Quinta Specific Plan 218 Amendment No.1 Traffic Study" prepared by Endo Engineering (dated February 10, 1999). The methodology employed herein is consistent with that of the previously approved traffic study. Since the land uses on-site proposed as the initial development phase have not changed, the previous year 2004 analysis is also incorporated herein by reference.

I. B EXECUTIVE SUMMARY

Site Location and Study Area

The Coral Mountain Specific Plan is located on either side of Madison Street and Monroe Street, between Avenue 58 (to the north) and Avenue 62 (to the south), within unincorporated Riverside County. The 574 acres to be annexed to the City of La Quinta are located south of Avenue 58 and north of Avenue 60, between Madison Street and Monroe Street.

The study area included twenty-one key intersections:

Jefferson Street @
- Avenue 50
- Avenue 52
- Avenue 54

Madison Street @
- Avenue 50
- Avenue 52
- Avenue 54
- Airport Boulevard
- Avenue 58
- Country Club Village
- Avenue 60

Monroe Street @
- Avenue 50
- Avenue 52
- Avenue 54
- Airport Boulevard
- Avenue 58
- Avenue 60
- Country Club Reserve
- Active Adult Reserve
- Active Adult Village
- Avenue 62

Active Adult Village
- Avenue 60

Development Description

The project involves the annexation of 574 acres currently within the City of La Quinta Sphere of Influence. In conjunction with the annexation, the project requests that the La Quinta General Plan be amended within the existing Sphere of Influence to reflect the land uses of Riverside County approved Coral Mountain Specific Plan 218 Amendment #1 where applicable (220 acres).

The project also requests that the City of La Quinta adopt City-proposed Low Density Residential General Plan land use designations for the remaining 354 acres of land located adjacent to the Coral Mountain Specific Plan 218 Amendment #1 area. The Low Density Residential designation would permit the development of up to 4 dwellings per acre (1,416 single family dwelling units) in this area. The supplemental traffic analysis herein evaluates the potential traffic impacts associated with the future development of these 354 acres. No Site Plan is currently available for this area.

Principal Findings

The City of La Quinta has defined Level of Service "D" as the minimum adequate intersection service level during peak hours for planning and design purposes.

Existing Conditions

Thirteen of the fourteen unsignalized key intersections are currently operating at level of service (LOS) B or better during both morning and evening peak hours. The intersection of Jefferson Street and Avenue 50 provides LOS F operation during the morning peak hour and LOS C during the evening peak hour. This intersection appears to currently warrant signalization. Once a traffic signal is installed, the peak hour levels of service will be acceptable at this intersection.

Year 2004 Conditions

All of the key intersections will provide acceptable levels of service (LOS D or better) in the year 2004 with or without site traffic. The peak hour level of service will drop at six of the key intersections, once site traffic is added to the street system.

Year 2010 Conditions

All of the key intersections will provide acceptable levels of service (LOS D or better) in the year 2010 with or without site traffic. The peak hour level of service will drop at eleven of the key intersections, once site traffic is added to the street system.

Conclusions

The annexation of 220 acres to the City of La Quinta that are within the approved Coral Mountain SP 218 Amendment #1 area will not affect the traffic impacts associated with the development of this area. The 354 acres proposed for annexation adjacent to the approved Coral Mountain Specific Plan area are currently designated for "Agricultural" uses, which would generate approximately 2 trip-ends per acre or 708 daily trip-ends.

The redesignation of these 354 acres for Low Density Residential use would permit the development of up to 1,416 single family dwellings in this area. The addition of 1,416 single-family dwellings to the adopted SP 218 Amendment #1 would increase the daily trip generation of the development by approximately 11,220 unadjusted or 9,640 adjusted trip-ends. Of that total, approximately 1,580 trips/day would remain internal to the project site and 8,060 trips/day would be external trips (with either an origin or a destination outside of the specific plan boundaries).

All of the key intersections currently operate at acceptable levels of service (except the intersection of Jefferson Street @ Avenue 50). With development of the initial phase of the proposed project and 45 percent of the cumulative projects, ten key intersections in the project vicinity would require signalization by the year 2004. Upon project build-out (year 2010), nineteen intersections will require signalization, as shown in Table VI-1.

As shown in Figure VI-2, almost all of the roadways in the study area (except in the vicinity of Jefferson Street near Avenue 50 and Avenue 52) will provide adequate levels of service as two-lane facilities in the year 2004. Upon project buildout, Madison Street will need to be extended as a four-lane facility through the study area. Monroe Street will require widening to a 4-lane facility from a point south of Avenue 54 to a point north of Avenue 50 to provide adequate levels of service in the year 2010. In addition, Avenue 50, Avenue 52, and Avenue 54 will require improvements to their master planned cross-sections in the vicinity of Madison Street and Jefferson Street by the year 2010 (as shown in Figure VI-3).

Recommendations

Areawide improvements to the circulation network will be required with or without the project to accommodate year 2004 and year 2010 peak hour traffic demands, as discussed in Sections VI.C and VII.B. Since detailed development plans for the proposed annexation areas have not been developed, traffic control requirements at the access points should be determined when site plans are available.

The City of La Quinta has agreed to accept the County of Riverside roadway designations for the roadways on-site. When/if the Specific Plan is annexed to the City of La Quinta, the project proponent should coordinate with City staff to determine if it is appropriate to reduce the cross-sections of any of the master planned roadways on-site (e.g. Avenue 62).

The following mitigation measures are recommended to reduce potential circulation impacts associated with the proposed project and site access.

1. Specific design standards for internal streets shall be consistent with City street requirements for residential loop streets and residential cul-de-sacs.

2. The proposed internal circulation layout shall be subject to the review and approval of the City of La Quinta during the development review process to insure compliance with City minimum access and design standards.

3. Intersection spacing on-site shall comply with City standards.

4. All internal streets shall be fully constructed to their master planned cross-section as adjacent on-site development occurs.

5. Sidewalks and streetlights shall be installed on-site as specified by the City .

6. Clear, unobstructed sight distance shall be provided at all internal street intersections on-site.

7. The project proponent shall provide (at a minimum) the lane geometrics shown in Figures VI-2 and VI-3 at the site access locations in conjunction with adjacent development.

8. The project proponent shall install a traffic signal when warranted at the intersection of: (1) the Country Club Village access @ Madison Street, (2) the Active Adult Village @ Avenue 60, (3) the Country Club Reserve access @ Monroe Street, and (4) the Country Club Village access @ Avenue 58.

9. The project proponent shall participate in the Traffic Uniform Mitigation Fee (TUMF) Program and the County Traffic Signal Mitigation Program in an effort to make their "fair-share" contribution to future roadway improvements within the project vicinity.

II. PROPOSED DEVELOPMENT

II. A SUMMARY OF DEVELOPMENT

Project Location

The project site is located in unincorporated Riverside County, in the Coachella Valley, south and east of the City of La Quinta. Regional access is provided by Interstate 10 and State Route 111. The project site is located within the Sphere of Influence of the City of La Quinta.

The Coral Mountain Specific Plan 218 Amendment #1 area includes approximately 1,280 acres within unincorporated Riverside County, on either side of Madison Street and Monroe Street, between Avenue 58 (to the north) and Avenue 62 (to the south). The northern and western site boundaries abut the City of La Quinta. Figure II-1 depicts the location of the Coral Mountain Specific Plan 218 Amendment #1 area. It also shows the location of the 220 acres within the Specific Plan, and the 354 acres adjacent to the Specific Plan that are proposed for annexation to the City of La Quinta.

Figure II-1 illustrates the study area and the 21 key intersections evaluated in the previously approved traffic study and herein. The key intersections are listed below, followed by their intersection reference number (as shown in Figure II-1). They include:

Jefferson Street @
- Avenue 50 (1)
- Avenue 52 (2)
- Avenue 54 (3)

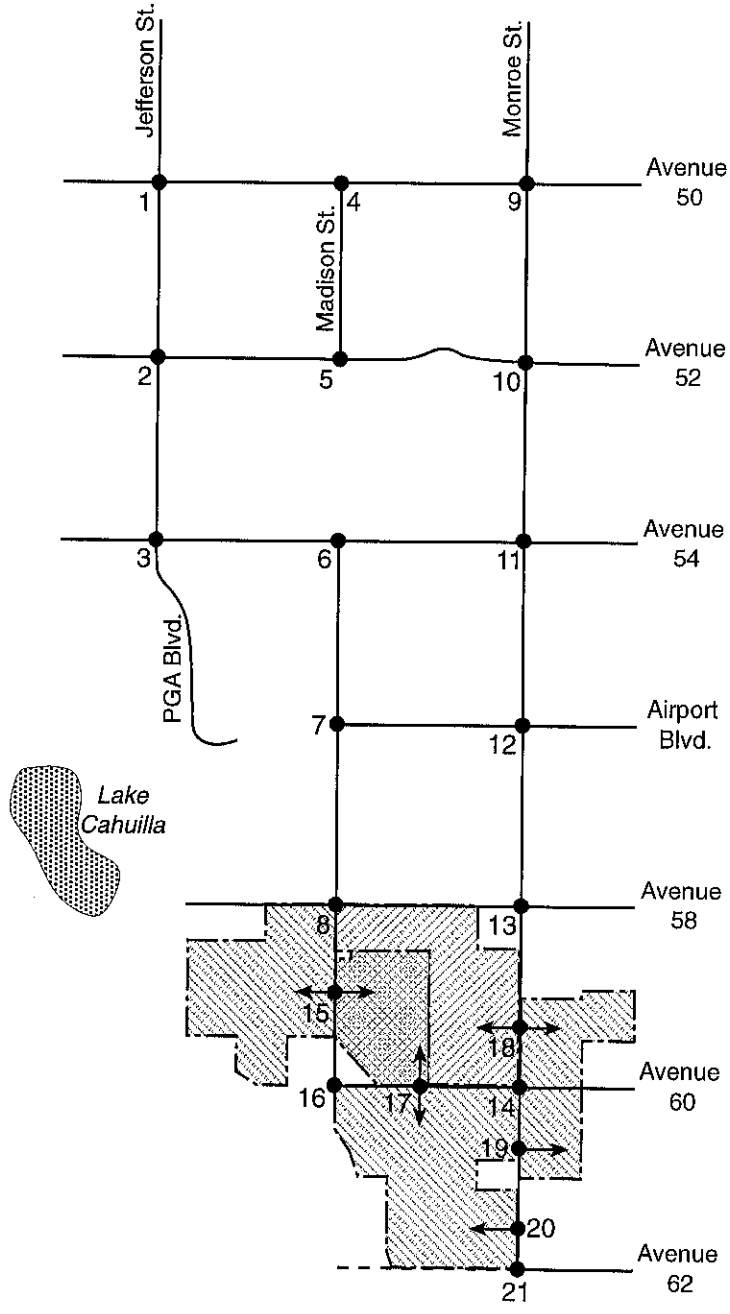
Madison Street @
- Avenue 50 (4)
- Avenue 52 (5)
- Avenue 54 (6)
- Airport Boulevard (7)
- Avenue 58 (8)
- Country Club Village (15)
- Avenue 60 (16)

Active Adult Village
- Avenue 60 (17)

Monroe Street @
- Avenue 50 (9)
- Avenue 52 (10)
- Avenue 54 (11)
- Airport Boulevard (12)
- Avenue 58 (13)
- Avenue 60 (14)
- Country Club Reserve (18)
- Active Adult Reserve (19)
- Active Adult Village (20)
- Avenue 62 (21)

As the names of the various planning areas on-site have evolved through the planning process, the names of three of the key intersections that are proposed to provide site access have also changed slightly since the approved traffic study. Intersection 15 was referred to in the approved traffic study as "Madison Street at the Resort Village" but is referred to herein as "Madison Street at the Country Club Village". Intersection 18 was previously referred to as "Monroe Street at the North Primary Housing Village" but is referred to herein as "Monroe Street at the Country Club Reserve". Intersection 19, which was previously referred to as "Monroe Street at the South Primary Housing Village" is referred to herein as "Monroe Street at the Active Adult Reserve".

Figure II-1
Site Location



Legend

- Coral Mountain SP 218 Amdt. 1
- 354-Acre Annexation Area
- 220-Acre Annexation Area
- ● Key Intersection
- 8 Reference Number

Endo Engineering

Scale: 1" = 5660'

Specific Plan 218 Regulatory Setting

Specific Plan 218 (Rancho La Quinta) and EIR 232 were originally approved and certified complete on October 3, 1988 by the County of Riverside (Resolution No. 88-483). Development Agreement No. 42 was recorded on November 7, 1988. Table II-1 provides the approved land uses within the 1251-acre Specific Plan at that time. The Rancho La Quinta Specific Plan included the development of 4,262 homes, 35 acres of commercial uses, two 18-hole golf courses, and 40 acres of parks and trails on-site.

The "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study" was prepared by Endo Engineering in February of 1999 and approved by Riverside County. It addressed a slightly larger Specific Plan area (1,280 acres) following a more accurate survey of the property, and a reduction in the residential density and the commercial acreage proposed, as shown in Table II-1.

The "Coral Mountain Specific Plan Amendment No.1 Traffic Impact Study" addressed a maximum development of 3,500 dwelling units and 9.2 acres of commercial uses on-site. It also included 6.8 acres of community facilities, 41 acres of parks and trails, two championship golf courses with clubhouses and maintenance facilities and a 10-acre school. The golf courses included recreational amenities such as swimming pools, tennis courts and exercise facilities in a "country club" atmosphere. Figure II-2 shows the Site Development Plan in 1999, when the approved traffic study was prepared.

The "Final Coral Mountain at La Quinta Specific Plan 218 Amendment No. 1 and Addendum EIR 232" was approved by Riverside County on September 26, 2000. The Land Use Plan and Circulation Plan within the Specific Plan area had been refined somewhat from that addressed in the 1999 traffic study (see Figure II-3). The approved land uses are detailed in Table II-1.

The "Coral Mountain Specific Plan Amendment No.1 and Addendum EIR" approved by Riverside County addressed a maximum development of 2,726 single family dwelling units and 23 acres of commercial uses on-site. It also included one acre of community facilities, two 18-hole regulation golf courses and a 9-hole golf course with clubhouses and maintenance facilities. Included within the Country Club Village of this Specific Plan area are 220 acres, located east of Madison Street, that are currently proposed for annexation to the City of La Quinta.

Circulation Plan Changes

The Circulation Plan for the Coral Mountain Specific Plan has been refined, as evidenced by comparing the internal street system shown in Figure 11-2 to that in Figure 11-3. Figure 11-2 shows the Coral Mountain Site Development Plan at the time that the approved traffic study was completed (February 10, 1999). Figure 11-3 provides the Coral Mountain Land Use Plan at the time that the Final Specific Plan 218 Amendment #1 and Addendum EIR 232 were approved and certified be Riverside County (September 26, 2000).

Changes of note include the alignment of the intersection of Madison Street and 60th Avenue. The "Coral Mountain S.P. 218 Amendment #1 Traffic Study" (dated February 10, 1999) included Madison Street (north of Avenue 60) gradually curving 90 degrees easterly to become Avenue 60 (east of Madison Street). Madison Street (south of Avenue 60) was shown as a tee, intersecting the realigned segment of Madison Street/Avenue 60.

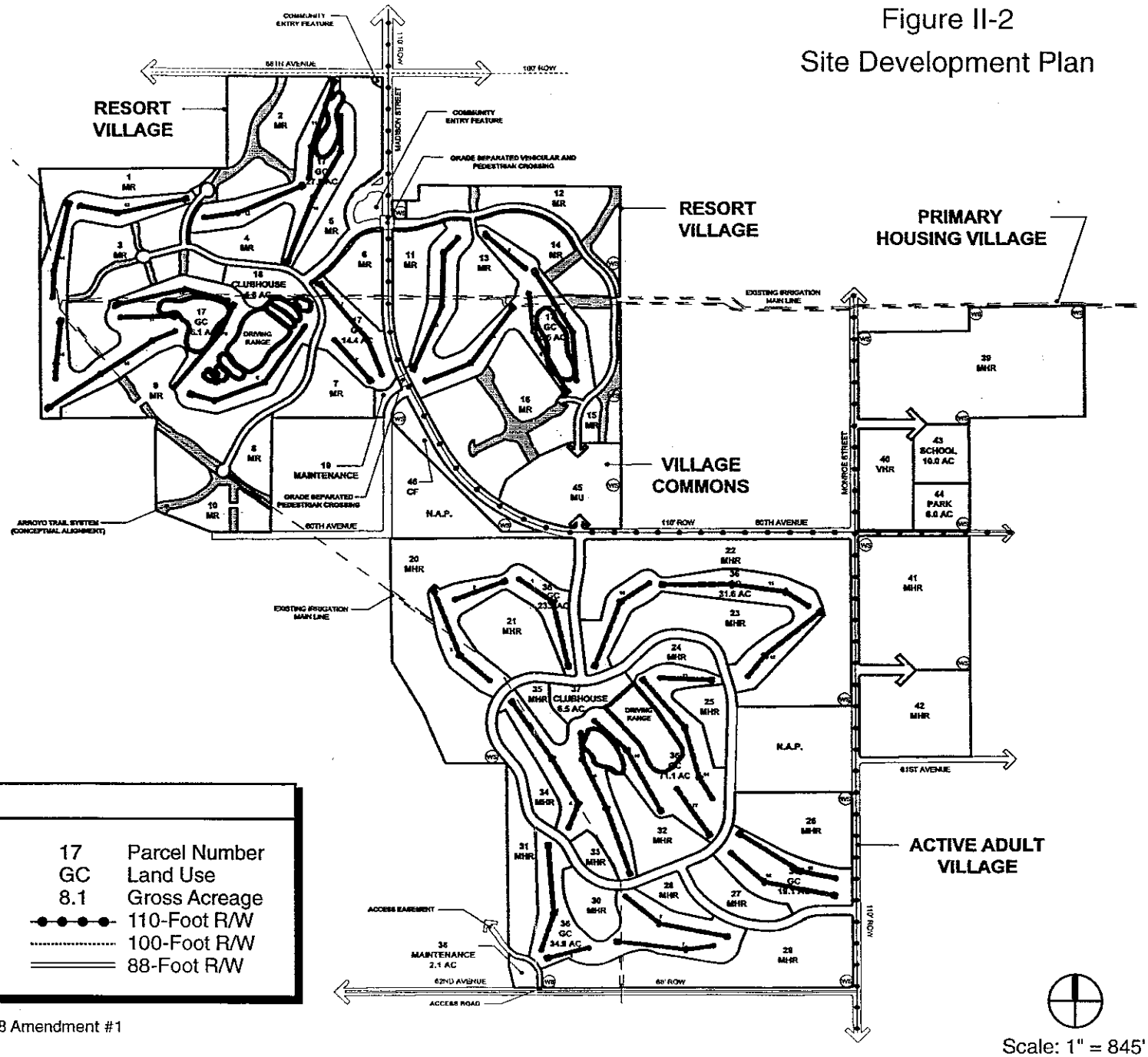
Table II-1
Summary of Approved Versus Proposed
On-Site Land Uses

Development Scenario Land Use	Approved Rancho La Quinta SP 218 Land Uses	Approved SP 218 Amendment 1 Traffic Study Uses	Approved SP 218 Amendment 1 EIR 232 Land Uses	Proposed SP 218 Amdt. 1 Plus Annexation Area Land Uses
Residential - Single Family - Multi-Family Total	4,262 Dwellings -- 4,262 Dwellings	2,936 Dwellings 564 Dwellings 3,500 Dwellings	2,726 Dwellings -- 2,726 Dwellings	4,142 Dwellings[a] -- 4,142 Dwellings
Commercial/Retail	35 Acres	9.2 Acres	23 Acres	23 Acres
Community Facilities	--	6.8 Acres	1 Acre	1 Acre
Golf Courses[b]	380 Acres	371 Acres	567 Acres	567 Acres
Parks/Trails	40 Acres	41 Acres	--	--
School	--	10 Acres	--	--
Total Acreage On-Site	1,251 Acres	1,280 Acres	1,280 Acres	1,634 Acres

a. A density of 4 dwelling units per acre was assumed for the 354 acres to be added to the Specific Plan area and annexed to La Quinta. This would add 1,416 additional single family dwellings to the 2,726 dwellings previously approved for the Coral Mountain Specific Plan 218 Amendment 1 (for a total of 4,142 dwellings).

b. Specific Plan 218 originally included two regulation 18-hole golf courses. With approval of SP 218 Amendment No. 1, two regulation 18-hole golf courses and a 9-hole course were included on-site.

Figure II-2
Site Development Plan



Legend

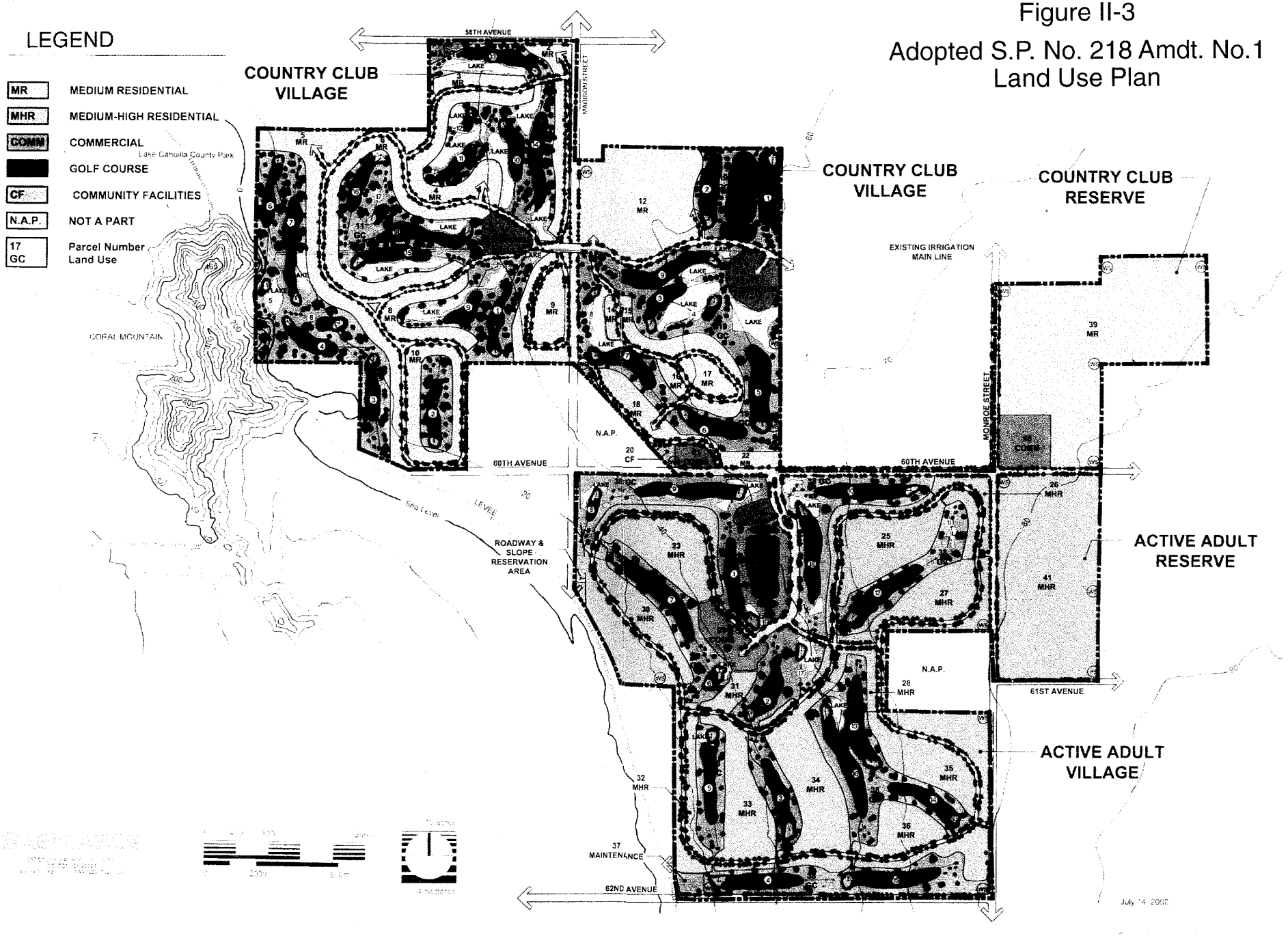
MR	Medium Residential	17	Parcel Number
MHR	Medium High Residential	GC	Land Use
VHR	Very High Residential	8.1	Gross Acreage
MU	Mixed Use		110-Foot R/W
GC	Golf Course		100-Foot R/W
CF	Community Facilities		88-Foot R/W

Source: The AEI CASC Companies, S.P. 218 Amendment #1

Scale: 1" = 845'

Figure II-3

Adopted S.P. No. 218 Amdt. No.1 Land Use Plan



In response to a request by Riverside County staff and City of La Quinta staff (prior to approval of Specific Plan 218 Amendment No. 1) the proposed realignment of Madison Street was dropped in favor of the original north-south alignment. This design allowed Madison Street to maintain its ultimate capacity to support cumulative projects to the south. Avenue 60 is currently proposed to remain along its current east-west grid alignment.

Proposed Project

The proposed project is the annexation of 574 acres located south of Avenue 58 and north of Avenue 60, between Madison Street and Monroe Street to the City of La Quinta. Approximately 220 acres of the proposed annexation area are located within the Coral Mountain Specific Plan 218 Amendment #1 previously approved by Riverside County. The future land uses in this area were previously addressed in the "Coral Mountain at La Quinta Specific Plan 218 Amendment No.1 Traffic Study" prepared by Endo Engineering in 1999. The project proponent is requesting that the City of La Quinta designate these 220 acres on the La Quinta General Plan for uses consistent with the Coral Mountain Specific Plan 218 Amendment #1 approved by Riverside County.

The remaining 354 acres are located within the City of La Quinta Sphere of Influence, adjacent to the Coral Mountain Specific Plan area. Although this area is currently zoned for agricultural use, the project proponent is requesting that the City designate these 354 acres for Low Density Residential use to permit the development of up to 4 dwellings per acre. The supplemental traffic analysis herein evaluates the potential traffic impacts associated with the future development of these 354 acres. No Site Plan is currently available for this area; therefore, access was assumed to occur at one point along each of the four adjacent master planned roadways.

The proposed circulation system for Coral Mountain includes improvements along Madison Street, Monroe Street, Avenue 58, Avenue 60 and Avenue 62. The internal collector system proposed to serve the residential and recreational areas on-site will consist primarily of private streets.

The proposed Circulation Plan differs from the 1997 Riverside County Circulation Element is several respects. The Coral Mountain Specific Plan 218 Amendment No. 1 proposes three major arterials on-site including: Avenue 58, Avenue 60 and Avenue 62. These major arterials will have 100-foot rights-of-way, 64 feet of pavement and 12-foot medians. The Coral Mountain Specific Plan 218 Amendment No. 1 proposes that Madison Street and Monroe Street be improved on-site as arterial highways. As such, they would provide 68 feet of pavement and 18-foot medians within 110-foot rights-of-way. In addition, the project proponent will reserve additional right-of-way and a slope easement for Madison Street, south of Avenue 60, in the event that Madison Street is extended south of the Specific Plan to Avenue 62 in the future.[1]

A variety of intersection improvements will be provided in conjunction with Specific Plan implementation. Traffic signals will be installed at the intersections of Monroe Street with Avenue 58 and Avenue 60. The legs of the intersection of Monroe Street and Avenue 58 will all be widened to provide two lanes in each direction.

---

1. The Conditions of Approval attached to Specific Plan 218 Amendment No. 1 by Riverside County in October of 2000 included reclassification of three master planned roadways on the County Circulation Element Map to be consistent with the improvements proposed on-site including: downgrading Madison Street to an arterial (between Ave. 58 and Ave. 60), redesignating Avenue 60 as a major highway on-site, and designating Avenue 62 as a major highway (between Madison Street and Monroe Street).

Zoning and Land Use Category

Approximately 220 acres of the proposed annexation area are located within the Coral Mountain Specific Plan 218 Amendment No.1 previously approved by Riverside County and zoned Specific Plan. The remaining 354 acres are located within the City of La Quinta Sphere of Influence, adjacent to the Coral Mountain Specific Plan area. This area is currently zoned for agricultural use. The General Plan land use designation is currently being evaluated by the City of La Quinta, as part of their General Plan update process.

Project Phasing

The project will be constructed in several phases. The initial phase will include the golf course construction and some of the adjacent residential planning areas. The remaining phases will include primarily residential and commercial development.

The initial development phase will begin grading upon approval and be completed by the year 2004. It will include 873 single family dwellings and two golf courses with a total of 36 holes. Ultimate development of the site could occur by the year 2010.

III. AREA CONDITIONS

This section was incorporated by reference from the previously approved "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study" (Endo Engineering; February 10, 1999), as directed by the City of La Quinta. It was included here for ease of reference.

III. A STUDY AREA

The study area was developed through coordination with County of Riverside and City of La Quinta staff. As shown in Figure II-1, it includes the following 21 key intersections:

Jefferson Street @
- Avenue 50 (1)
- Avenue 52 (2)
- Avenue 54 (3)

Madison Street @
- Avenue 50 (4)
- Avenue 52 (5)
- Avenue 54 (6)
- Airport Boulevard (7)
- Avenue 58 (8)
- Country Club Village (15)
- Avenue 60 (16)

Active Adult Village
- Avenue 60 (17)

Monroe Street @
- Avenue 50 (9)
- Avenue 52 (10)
- Avenue 54 (11)
- Airport Boulevard (12)
- Avenue 58 (13)
- Avenue 60 (14)
- Country Club Reserve (18)
- Active Adult Reserve (19)
- Active Adult Village (20)
- Avenue 62 (21)

Only fourteen of these key intersections exist today (see Figure II-1, for the intersections numbered 1-14). Six key intersections will not exist in the future without on-site development (refer to Figure II-1 for intersections numbered 15-20).

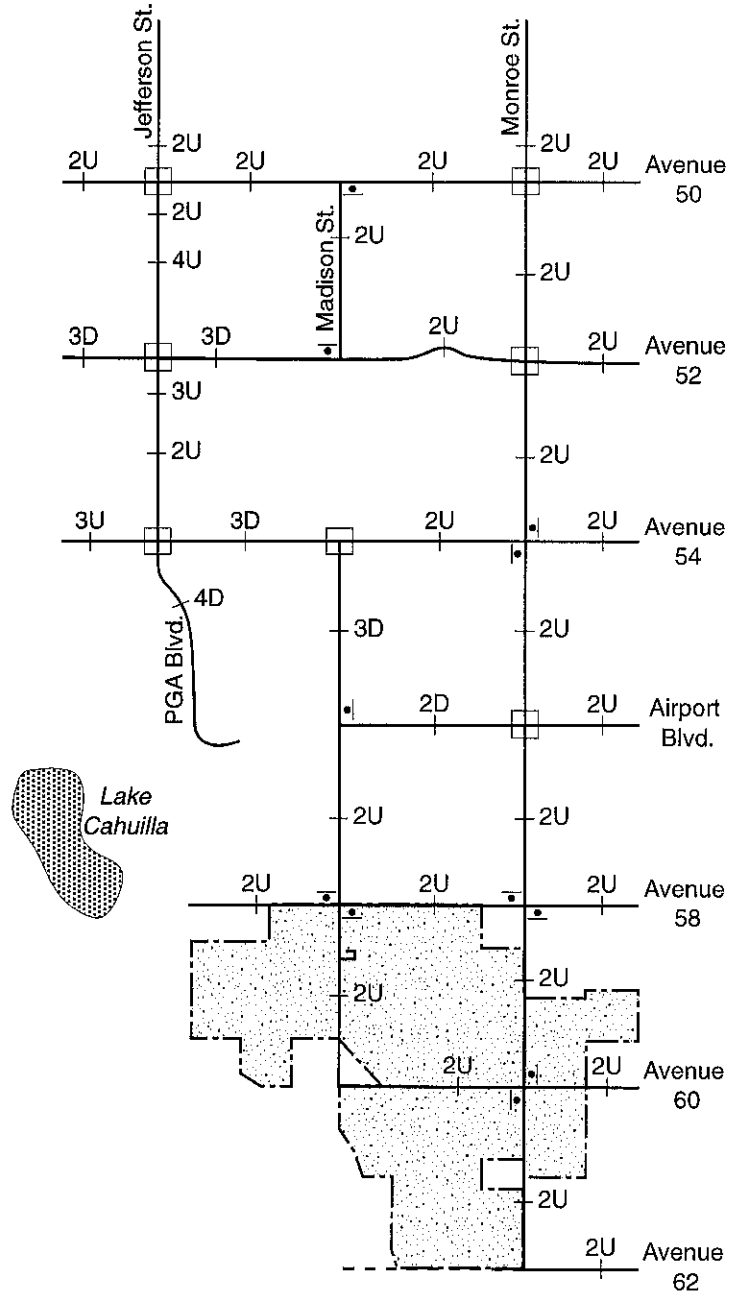
Figure III-1 illustrates the existing transportation system within the study area. As shown therein, Madison Street does not currently extend southerly of Avenue 60 and Avenue 60 does not extend west of Madison Street. Madison Street and Avenue 60 meet and form a "dog leg" rather than an intersection. Similarly, intersection number 21 is currently a "dog leg" where Avenue 62 meets Madison Street. Avenue 62 is currently an unpaved road, west of Monroe Street, that carries so little traffic it functions more like a driveway than a street. Monroe Street does not currently extend south of Avenue 62.

III. B STUDY AREA LAND USE

The Coral Mountain Specific Plan site is located within the jurisdictional boundaries of Riverside County and is included within the Lower Coachella Valley Land Use Planning Area. It is also partially located within the Sphere of Influence of the City of La Quinta. The City of La Quinta boundary borders the project site on the north and west.

The majority of the project site is currently used for agricultural purposes or consists of fallow fields. Approximately 250 acres on-site include native vegetation.

Figure III-1
Existing Transportation System



Legend

- 2U — Number of Through Lanes
  D = Divided U = Undivided
- STOP Sign
- Three or Four-Way Stop

Endo Engineering

Scale: 1" = 5660'

Land adjacent to the site is primarily used for agricultural purposes. A residential/recreational development (PGA West Specific Plan) is located to the northwest, within the City of La Quinta. As shown in Figure III-2, eight approved Specific Plans are located within the study area. These include: the Travertine and Green Specific Plans (to the west), the Vista Santa Rosa Specific Plan and Specific Plan 015, 016 and 017 (to the north). In addition The Ranch Specific Plan (formerly Oak Tree West) is located in the northwest portion of the study area and The Quarry project is located south of Lake Cahuilla.

Table III-1 provides land use information for the approved cumulative non-site developments within the study area. As shown therein, approved non-site developments will include the future development of 2,100 hotel rooms, 530,000 square feet of commercial building area, and 5,827 new homes. The approved non-site residential uses include 774 multi-family dwellings and 5,053 single family dwellings.

III. C SITE ACCESSIBILITY

Area Roadway System

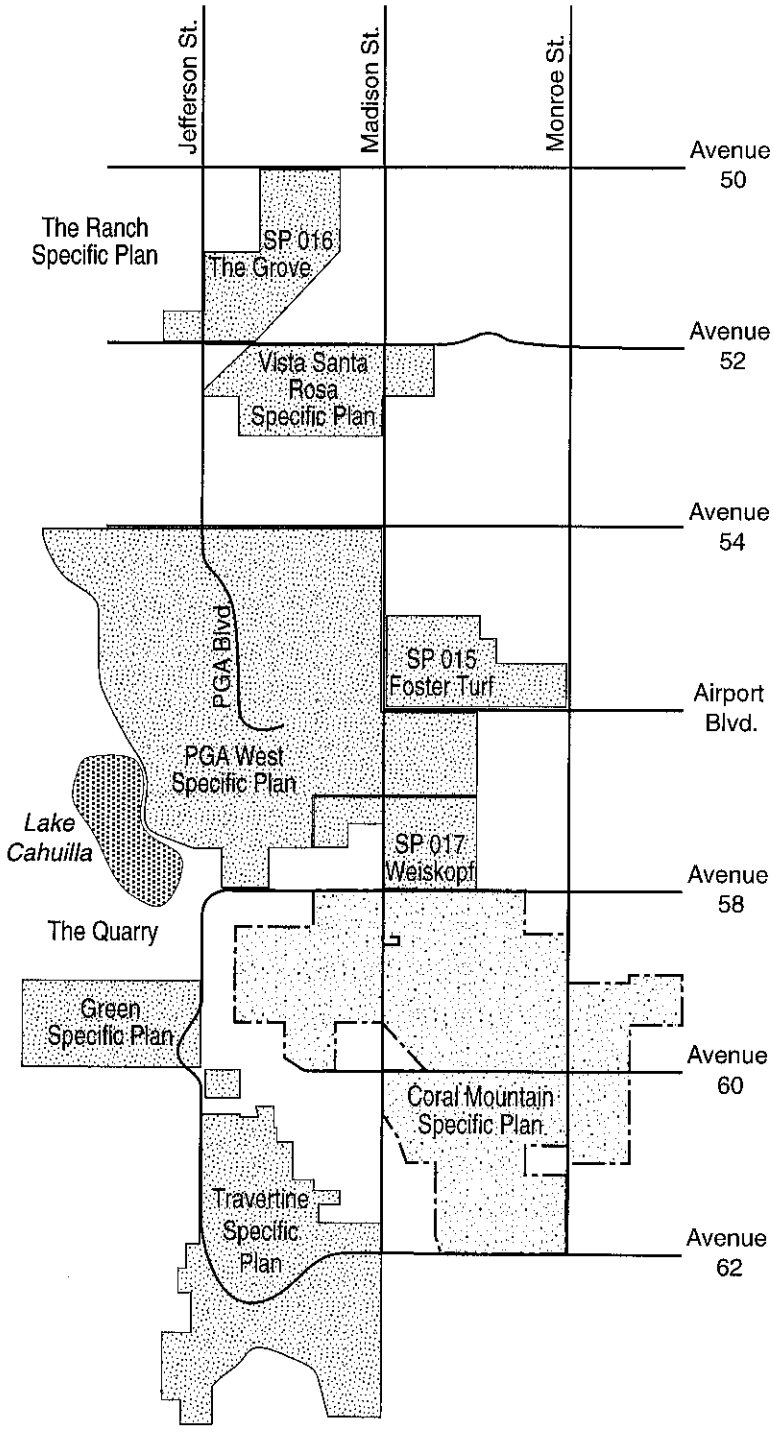
Regional access is currently provided by Interstate 10 and State Highway 111. Although Jefferson Street and Monroe Street provide the most direct access to these regional transportation facilities, the future connection of Madison Street (north of Avenue 54) will facilitate regional access. Figure III-1 depicts the existing transportation system in the study area. Traffic control devices and mid-block lane geometrics are shown based upon a field survey made in May of 1998.

Figure III-3 depicts the future transportation system in the project vicinity, based upon the Circulation Element of the Riverside County Comprehensive General Plan (Amended December, 1997). Figure III-4 provides typical street cross-sections for master planned roadways in Riverside County, including right-of-way requirements.

Madison Street is shown in the Riverside County Circulation Element as an Urban Arterial Highway, north of 60th Avenue, with a 134-foot right-of-way and a 110-foot roadbed. Monroe Street is shown as an Arterial Highway, north of 62nd Avenue, with a 110-foot right-of-way and a 86-foot roadbed. Avenue 60 is shown as a Secondary Highway (between Madison Street and Monroe Street) and as an Arterial Highway (east of Monroe Street). Secondary Highways typically have an 88-foot right-of-way and a 64-foot roadbed. Avenue 58 is shown as a Major Highway with a 100-foot right-of-way and 76 feet curb-to-curb. Avenue 62, adjacent to the project site, is not shown in the Circulation Element as a master planned street. Similarly, Madison Street, south of Avenue 60, is not shown in the Riverside County Circulation Element.

The proposed Circulation Plan differs from the 1997 Riverside County Circulation Element is several respects. The Coral Mountain Specific Plan 218 Amendment No. 1 proposes three major arterials on-site including: Avenue 58, Avenue 60 and Avenue 62. These major arterials will have 100-foot rights-of-way, 64 feet of pavement and 12-foot medians. The Coral Mountain Specific Plan 218 Amendment No. 1 proposes that Madison Street and Monroe Street be improved on-site as arterial highways. As such, they would provide 68 feet of pavement and 18-foot medians within 110-foot rights-of-way. In addition, the project proponent will reserve additional right-of-way and a slope easement for Madison

Figure III-2
Cumulative Development



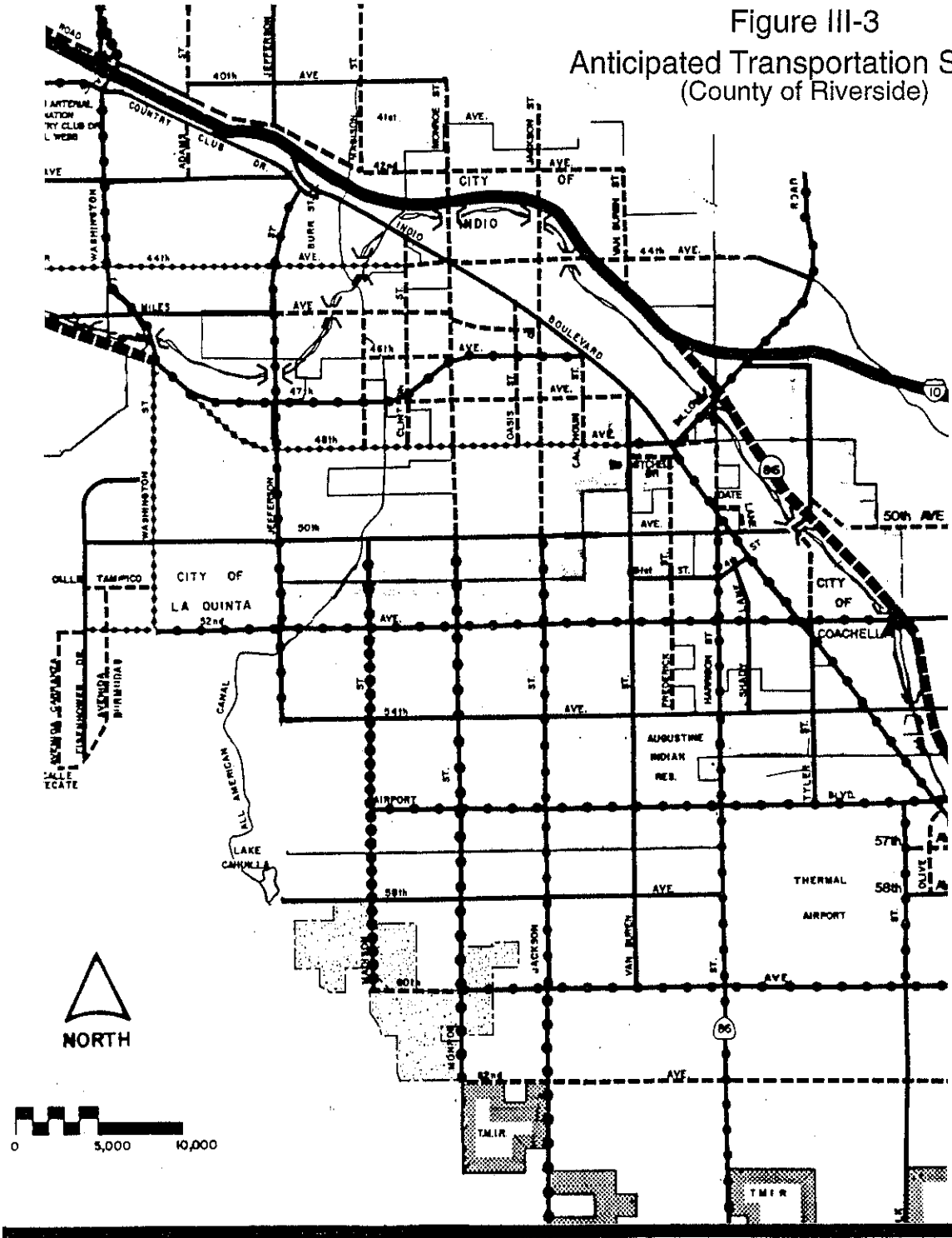
Endo Engineering

Scale: 1" = 5660'

Table III-1
Approved Cumulative Non-Site Developments

Development/Land Use Type	Hotel Rooms	Dwelling Units	Bldg. Area (Square Feet)
The Ranch Specific Plan			
-Commercial/Retail	--	--	120,000
-Hotel	600	--	--
Subtotal	600		120,000
PGA West Specific Plan			
-Single Family Residential	--	400	--
-Hotel	1,000	--	--
-Commercial/Retail	--	--	100,000
Subtotal	1,000	400	100,000
Foster Turf (SP 015)			
-Single Family Residential	--	200	--
The Grove (SP 016)			
-Single Family Residential	--	820	--
-Commercial/Retail	--	--	210,000
Subtotal		820	210,000
PGA Weiskopf (SP 017)			
-Single Family Residential	--	400	--
Vista Santa Rosa Specific Plan			
-Single Family Residential	--	850	--
The Quarry			
-Single Family Residential	--	580	--
Green Specific Plan			
-Single Family Residential	--	277	--
Travertine Specific Plan			
-Single Family Residential	--	1,526	--
-Multiple Family Residential	--	774	--
-Hotel	500	--	--
-Commercial/Retail	--	--	100,000
Subtotal	500	2,300	100,000
Total	**2,100**	**5,827**	**530,000**

Figure III-3
Anticipated Transportation System
(County of Riverside)



LEGEND

CLASSIFICATION	RIGHT OF WAY	SYMBOL
SECONDARY	88'	
MAJOR	100'	
ARTERIAL	110'	
MOUNTAIN ARTERIAL	110'	
URBAN ARTERIAL	134'	
EXPRESSWAY	VARIABLE	
FREEWAY	VARIABLE	
SPECIFIC PLAN ROAD	VARIABLE	
BRIDGE		
SPHERE OF INFLUENCE		
STATE & FEDERAL LANDS		

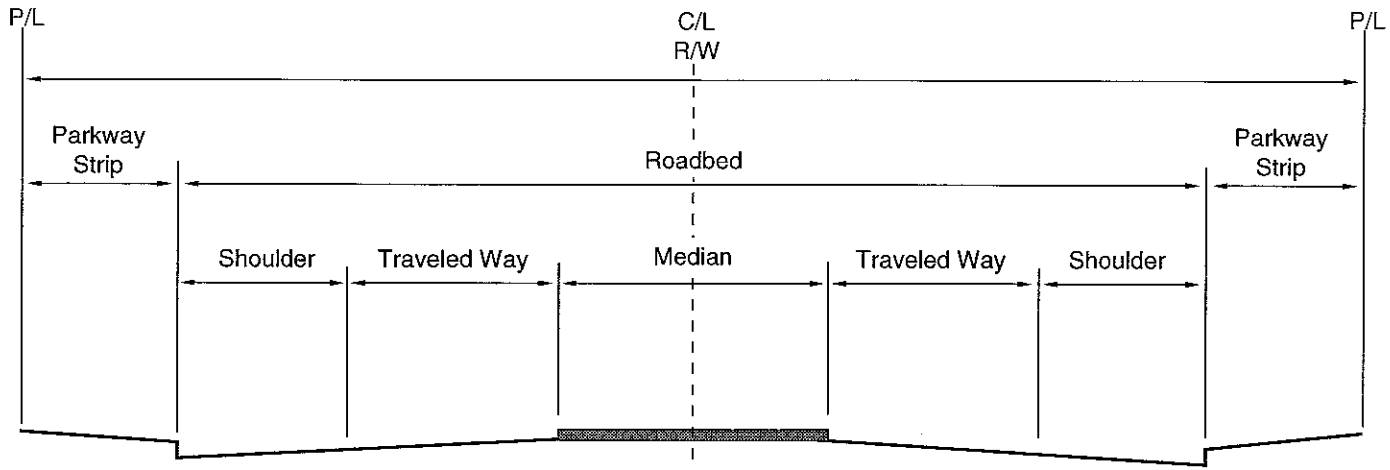
THIS MAP WAS ADOPTED MARCH 6, 1984 BY THE RIVERSIDE COUNTY BOARD OF SUPERVISORS THROUGH RESOLUTION NO. 84-77 AS A PART OF THE PUBLIC FACILITIES AND SERVICES ELEMENT OF THE COMPREHENSIVE GENERAL PLAN.

RESOLUTION	DATE	RESOLUTION	DATE	RESOLUTION	DATE
84 - 452	12-11-84	86 - 485	10- 8-86	94-217	12-27-94
84 - 527	12-18-84	86 - 645	12-19-86	*96-165	06-13-96
85 - 291	5-28-85	86 - 536	11-26-86	96-189	06-07-96
85 - 362	10-29-85	86 - 615	12-19-86	96-217	09-17-96
85 - 750	12-31-85	86 - 639	12-19-86	96-336	12-17-96
86 - 317	7-15-86	90-728	12-19-90	97-087	04-29-97
86 - 454	10-21-86	91 - 036	6- 4-91	97-380	12-09-97
87 - 134	5-12-87	*92 - 585	12-22-92		
87 - 356	12-22-87	*94-322	04-26-94		
88 - 179	6-14-88	94-364	12-27-94		

*INDICATES AMENDMENT TO THIS MAP

NOTE: CIRCULATION MAPS ARE A GRAPHIC REPRESENTATION IDENTIFYING THE GENERAL LOCATION AND CLASSIFICATION OF EXISTING AND PROPOSED THOROUGHFARES IN THE COUNTY. ANY QUESTIONS REGARDING PRECISE ALIGNMENT OR IMPROVEMENT STANDARDS SHOULD BE REFERRED TO THE COUNTY TRANSPORTATION DEPARTMENT.

Figure III-4
Typical Street Cross Sections
(Riverside County)



Corridor Classification	Median	Traveled Way	Shoulder	Parkway Strip	Roadbed	R/W
Urban Arterial Highway	14'	38'	10'	12'	110'	134'
Arterial Highway	18'	26'	8'	12'	86'	110'
Major Highway	12' Painted	24'	8'	12'	76'	100'
Secondary Highway	NA	24'	8'	12'	64'	88'
Collector Street	NA	12'	10'	11'	44'	66'
Local Street	NA	12'	8'	10'	40'	60'

Street, south of Avenue 60, in the event that Madison Street is extended south of the Specific Plan to Avenue 62 in the future.[1]

Traffic Volumes

To analyze the peak hour conditions at the fourteen existing key intersections, morning and evening peak hour traffic counts were made in May of 1998 at the key intersections by Counts Unlimited, Inc. These manual traffic counts were made between 7:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM.

The turning movement count data from the morning and evening peak hours at the key intersections is included in Appendix 1 of the "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study" (Endo Engineering; February 10, 1999). Figure A-1 in Appendix 1 illustrates the location of the traffic counts. Figure A-2 in Appendix 1 illustrates the May 1998 turning movements during the morning and evening peak hours.

Figure III-5 depicts the current peak season daily traffic volumes on roadway links in the study area. The daily volumes shown therein include 24-hour counts collected by CVAG in 1997 and estimated 1999 daily volumes. The 1999 volume estimates were derived from the 1998 evening peak hour traffic counts at the key intersections by assuming that 8.5% of the daily traffic currently occurs during the evening peak hour.[2] A 13 percent adjustment was incorporated in these estimates, since the peak hour counts were made in May of 1998 rather than the peak season (February or March) of 1999.

The morning and evening peak hour traffic counts made before the Memorial Day weekend were proportionally increased by 13 percent to reflect peak season volumes in 1999 (shown in Figure III-6). The traffic counts made after Memorial Day were also adjusted to be consistent with the other intersections and 1997 peak season daily counts from CVAG.

Transit Service

Transit service is provided in the Coachella Valley by the SunLine Transit Agency. There are currently no fixed SunBus routes serving the study area. SunDial, a valley wide curb-to-curb dial-a-ride is available to seniors and persons with disabilities who cannot use SunBus.

Existing Relevant TSM Programs

There are no Transportation System Management plans in effect in the study area at present.

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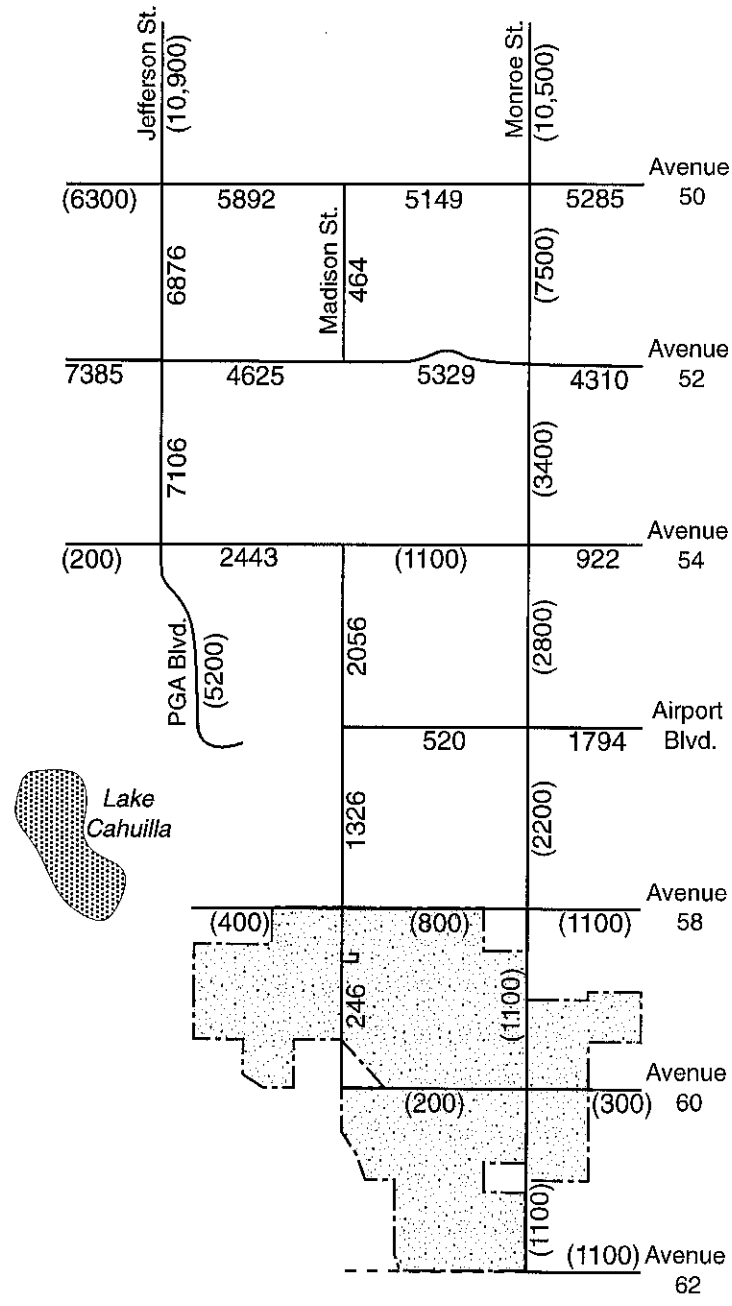
1. The Conditions of Approval attached to Specific Plan 218 Amendment No. 1 by Riverside County in October of 2000 included reclassification of three master planned roadways on the County Circulation Element Map to be consistent with the improvements proposed on-site including: downgrading Madison Street to an arterial (between Ave. 58 and Ave. 60), redesignating Avenue 60 as a major highway on-site, and designating Avenue 62 as a major highway (between Madison Street and Monroe Street).
2. This assumption was verified through coordination with the Riverside County Transportation Department.

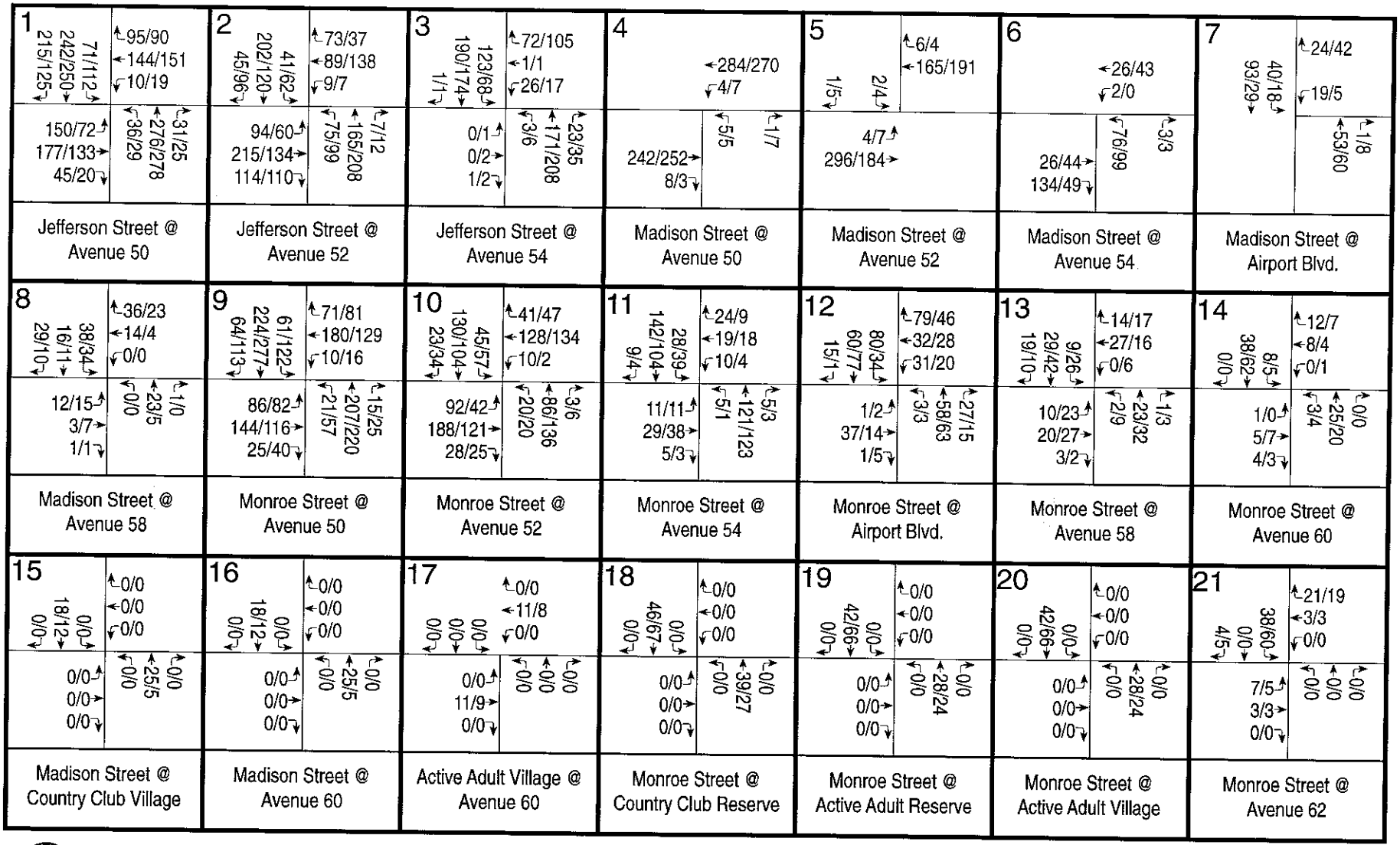
Figure III-5
Current Daily Traffic Volumes



Legend	
2443	1997 Peak Season 24- Hour CVAG Count
(7500)	Estimated 1999 Peak Season Daily Volume

Endo Engineering

Scale: 1" = 5660'



Legend

5/8 AM/PM Peak Hour Turning Volume

Figure III-6

1999 Peak Hour Traffic Volumes
(Peak Season)

Endo Engineering

IV. PROJECTED TRAFFIC

IV. A SITE TRAFFIC

Project-Related Trip Generation

The potential trip generation from development of the 1,634-acre Coral Mountain Specific Plan site (including the 354 acres to be added and all land use changes since the approved 1999 traffic study) was determined from the Institute of Transportation Engineers 1997 publication entitled *Trip Generation* (Sixth Edition). Trip generation forecast for the proposed project (site traffic generation) is shown in Table IV-1.

A trip generation forecast is provided for the initial development phase (2004) as well as project buildout in the year 2010. The trip generation forecast in Table IV-1 is also broken down by development area and by land use type. The trip generation associated with buildout of the site would total approximately 54,320 unadjusted daily trip-ends, of which 3,488 would occur during the morning peak hour (1,098 inbound and 2,390 outbound) and 5,317 would occur during the evening peak hour (3,092 inbound and 2,225 outbound).

The initial phase of site development has not changed since the previously approved "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study" (Endo Engineering; February 10, 1999). It is expected to be completed by the year 2004. It includes the development of 873 single family dwelling units and two 18-hole golf courses. As shown in Table IV-1, the initial phase of site development will generate 8,840 daily trips, of which 719 would occur during the morning peak hour (237 inbound and 481 outbound) and 868 would occur during the evening peak hour (540 inbound and 327 outbound).

It should be noted that the unadjusted Coral Mountain Specific Plan Buildout trip generation forecast in Table IV-1 does not account for trip overlap on-site (i.e. trip interactions on-site between the residences and the commercial uses, the community facilities and golf courses). The development of mixed-use projects reduces the trip generation associated with the development below that which is projected directly from ITE trip generation rates because these rates were developed from isolated single-use developments and therefore ignore trip overlap. When different land uses are combined on one site, the actual trip generation decreases because residents can remain within the site boundaries to do their shopping or play golf. A single trip from home to the commercial development on-site is counted twice in Table IV-1 (first for the residential development and then again for the commercial development). Adjustments can be made to eliminate this double counting of trips that occurs with mixed use developments.

The adjusted trip generation forecast shown in Table IV-2 details the adjustments made to reflect trip overlap for the Coral Mountain Specific Plan. An estimated 15 percent of the residential trips were assigned to the commercial uses on-site. Approximately half of the golf course trips and community facility trips were assigned to the residential uses on-site. As shown in Table IV-2, after these adjustments the Coral Mountain Specific Plan will generate an estimated 33,920 external average weekday trips upon buildout. Of that total, an estimated 2,888 external trip-ends are projected to occur during the morning peak hour (with 798 inbound and 2,090 outbound) and 3,353 external trip-ends are expected to occur during the evening peak hour (with 2,110 inbound and 1,243 outbound).

Table IV-1
Estimated Site Traffic Generation[a]

Planning Area/Land Use (ITE Code)	Land Use Quantity	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily 2-Way
INITIAL PHASE (2004)								
Country Club W/E								
SFD (210)	275 DU	49	147	196	154	87	241	2,420
Golf (430)	18 Holes	41	8	49	31	29	60	650
Subtotal		90	155	245	185	116	301	3,070
Active Adult Village								
SFD (210)	353 DU	62	187	250	187	105	292	2,970
Golf (430)	18 Holes	41	8	49	31	29	60	650
Subtotal		103	195	299	218	134	352	3,620
Active Adult Reserve								
SFD (210)	245 DU	44	131	175	137	77	215	2,150
Year 2004 Total		**237**	**481**	**719**	**540**	**327**	**868**	**8,840**
PROJECT BUILDOUT (YEAR 2010)								
Country Club West								
SFD (210)	300 DU	55	165	220	185	104	289	2,850
Golf (430)	18 Holes	41	8	49	31	29	60	650
Subtotal		96	173	269	216	133	349	3,500
Country Club East								
SFD (210)	1817 DU	320	961	1,281	937	527	1,464	14,940
Commercial (820)	33.8 TSF	51	33	84	147	160	307	3,390
Golf (430)	9 Holes	8	2	10	15	14	29	270
Community Fac. (710)	10 TSF	26	4	30	15	75	90	230
Subtotal		85	39	124	177	249	426	18,830
Active Adult Village								
SFD (210)	1360 DU	240	721	961	722	406	1,128	11,440
Commercial (820)	91.5 TSF	92	59	151	284	308	592	6,440
Golf (430)	18 Holes	41	8	49	31	29	60	650
Subtotal		373	788	1,161	1,037	743	1,780	18,530
Country Club Res.								
SFD (210)	291 DU	53	160	213	180	101	281	2,770
Commercial (820)	108.9 TSF	103	66	169	319	345	664	7,200
Subtotal		156	226	382	499	446	945	9,970
Active Adult Reserve								
SFD (210)	374 DU	68	203	271	226	127	353	3,490
Year 2010 Total		**778**	**1,429**	**2,207**	**2,155**	**1,698**	**3,853**	**54,320**
BY LAND USE TYPE								
Residential (210)	4,142 DU	736	2,210	2,946	2,250	1,265	3,515	35,490
Commercial (820)	234 TSF	246	158	404	750	813	1,563	17,030
Golf (430)	45 Holes	90	18	108	77	72	149	1,570
Community Fac. (710)	10 TSF	26	4	30	15	75	90	230
Year 2010 Total		**1,098**	**2,390**	**3,488**	**3,092**	**2,225**	**5,317**	**54,320**

a. DU=Dwelling Units; SFD=Single Family Detached; TSF=Thousand Square Feet.

Table IV-2
Adjusted Trip Generation Forecast
(Coral Mountain Specific Plan)

Land Use (Interval)	Unadjusted Trips[a]	Internal Trips[b]	External Trips	Adjusted Trips
Residential Trips				
- Daily	35,490	10,000	25,490	30,490
- AM Inbound	736	84	652	694
- AM Outbound	2,210	200	2,010	2,110
- PM Inbound	2,250	512	1,738	1,994
- PM Outbound	1,265	444	821	1,043
Commercial Trips				
- Daily	17,030	9,100	7,930	12,480
- AM Inbound	246	132	114	180
- AM Outbound	158	84	74	116
- PM Inbound	750	404	346	548
- PM Outbound	813	432	381	597
Golf/Community Fac. Trips				
- Daily	1,800	1,300	500	1,150
- AM Inbound	116	84	32	74
- AM Outbound	22	16	6	14
- PM Inbound	92	66	26	59
- PM Outbound	147	106	41	94
All Trips Combined				
- Daily	54,320	20,400	33,920	44,120
- AM Inbound	1,098	300	798	948
- AM Outbound	2,390	300	2,090	2,240
- PM Inbound	3,092	982	2,110	2,601
- PM Outbound	2,225	982	1,243	1,734

a. Taken from Table IV-1 without accounting for trip overlap. Includes 1,416 single family dwellings in 354-acre annexation area for a total of 1,634 developable acres on-site and all land use changes since the previously approved "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study" (Endo Engineering; February 10, 1999).
b. Each value is double counted and must be halved to eliminate the double counting.
c. The community facilities on-site were assumed to be Homeowner's Association offices or recreation center administrative offices.

Previous Trip Generation Forecasts

The original environmental documentation for the Rancho La Quinta Specific Plan 218 included a daily trip generation forecast of 47,010 ADT. Table IV-1 indicates that the proposed addition of 354 Low Density Residential acres with 1,416 single family dwellings to the approved SP 218 Amendment No. 1 would increase the daily site traffic generation upon build-out by 7,310 daily trip-ends (15.6 percent). It should be noted, however, that the area to be developed has increased from 1,251 acres to 1,634 acres (an increase of 30.6 percent).

The previously approved "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study" (Endo Engineering; February 10, 1999) included the trip generation associated with buildout of the 1,280-acre site as 37,520 unadjusted daily trip-ends. Of that total, 2,840 trip-ends were morning peak hour trips (904 inbound and 1,936 outbound) and 3,839 trip-ends were evening peak hour trips (2,270 inbound and 1,569 outbound). After internal trip overlap adjustments, the development was projected to generate an estimated 23,436 external and 7,042 internal average weekday trips upon buildout. During the morning peak hour, 2,056 external trip-ends were projected to occur (512 inbound and 1,544 outbound) and 2,307 external trip-ends were projected to occur during the evening peak hour (1,501 inbound and 806 outbound).

Table IV-3 summarizes the previous trip generation forecasts made for the Coral Mountain Specific Plan for comparison purposes. Although the acreage on-site was increased by 29 acres, SP 218 Amendment No. 1 reduced the daily unadjusted trip generation associated the development from that expected with the Rancho La Quinta SP 218 project. The difference between the traffic study trip generation forecast and the approved SP 218 Amendment No. 1 forecast resulted from a decrease in the residential density, an increase in the commercial acreage, a decrease in the commercial facility acreage, and the addition of a 9-hole golf course (see Table II-1).

Table IV-3
Daily Trip Generation Summary
By Site Development Scenario

Development Scenario On-Site	Notes	Unadjusted Trip-Ends	Internal Trip-Ends	External Trip-Ends	Adjusted Trip-Ends
Rancho La Quinta[a]	Approved 1988	47,010	NA	NA	NA
SP 218 Amendment 1[b] Traffic Study	Prepared Feb. 10, 1999	37,520	7,042	23,436	30,478
SP 218 Amendment 1[c]	Approved	(43,100)	NA	NA	NA
354-Acre Annexation Area	1,416 SFD Agriculture	11,220 708	1,580 NA	8,060 NA	9,640 NA
Proposed Project[d]	Currently Proposed	54,320	10,200	33,920	44,120
Increase Since Approved Traffic Study	354 Acres	16,800	3,158	10,484	13,642

a. The Specific Plan area included 1,251 acres.
b. The SP 218 Amendment No. 1 area included 1,280 acres.
c. The SP 218 Amendment No. 1 area included 1,280 acres. The 43,100 unadjusted daily trip-end projection for the approved SP 218 Amendment No. 1 development was not included in EIR 232. It was determined from the projection for the currently proposed project by eliminating the 1,416 single family dwellings in the 354-acre annexation area from the residential land uses in Table IV-1, prior to the application of the ITE Land Use Code 210 trip generation regression equation.
d. The currently proposed project includes the previously approved 1,280 acres plus the 354-acre annexation area, for a total of 1,634 acres.

Cumulative Trip Generation Forecast

Table IV-4 provides the trip generation forecast for the cumulative projects in the study area. The cumulative trip generation forecast was based upon anticipated development by the year 2010. Although the cumulative development shown in Table IV-4 represents less than the approved entitlements, the land uses shown reflect anticipated build-out yields, based upon past development trends. In many cases, the developments are fully lotted, with yields far below the entitlements. Where alternative yields are not known, (e.g. the 1000-room hotel at PGA West) the full potential development was assumed.

The commercial uses shown in Table IV-4 represent support commercial uses for the adjacent residential development or the resort hotel development. Since the study area is on the southern edge of development in the Coachella Valley, very few of the commercial trips will be attracted from outside of the study area. Generally, the commercial trips will be from the adjoining residential area, from residential development further to the south, or pass-by trips to residential development further to the south. Other commercial development is provided for the convenience of the hotel guests, and is not designed to attract trips from outside the area.

The commercial uses in the study area will not develop until there is adequate retail demand. When the commercial uses are built in residential areas on the edge of development, the traffic on the streets should either remain unaffected or decrease slightly. Therefore, only the traffic associated with the residential and hotel uses of the cumulative projects were assigned to the street system. Cumulative project commercial trips, recreational trips (i.e. golfing trips), and school trips were assumed to be ancillary to the residential uses and were not explicitly assigned to the street system.

Project-Related Trip Distribution and Assignment

Traffic distribution is the determination of the directional orientation of traffic. It is based upon the geographical location of the site and land uses which will serve as trip origins and destinations. Traffic assignment is the determination of which specific routes project-related traffic will use, once the generalized traffic distribution is determined. The basic factors affecting route selection are minimizing time and distance. Other considerations might be the aesthetic quality of alternate routes, the number of turning maneuvers, and avoidance of congestion. Site access locations directly affect the project traffic assignment.

For the initial development phase (year 2004), Figure IV-1 presents the percentage of project-related daily traffic utilizing the roadway links in the study area, based upon the existing distribution of land uses, turning movements at intersections, and distributions shown in traffic studies for nearby projects.

Figure IV-2 provides the directional distribution of peak hour site traffic at the key intersections for the initial development phase (year 2004). Figure IV-3 presents the project-related (year 2004) peak hour turning movement volumes in the study area. The year 2004 network did not assume any new roadway extensions (except for those roadways necessary for access to the cumulative projects).

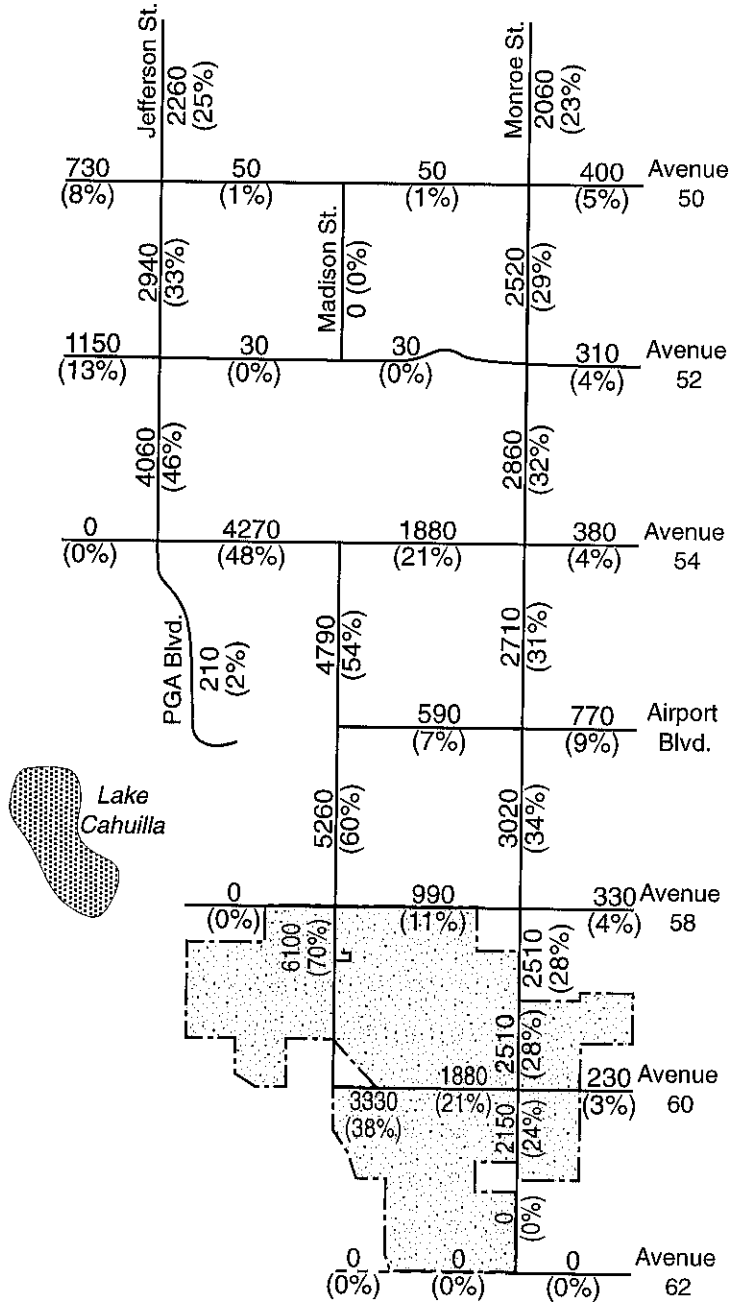
Figure IV-4 presents the percentage distribution of daily project traffic through the study area for the project build-out year (2010). Figure IV-5 provides the directional distribution of peak hour project traffic for the year 2010. Figure IV-6 shows the peak hour site traffic turning movements at the key intersections for the year 2010. The year 2010 roadway network included the completion of Madison Street (north of Avenue 54 and Avenue 50).

Table IV-4
Estimated Trip Generation
for Non-Site Cumulative Development[a]

Land Use Category (ITE Code)	Land Use Quantity	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily 2-Way
The Ranch SP								
Commercial (820)	120 TSF	109	69	178	340	368	708	7,660
Hotel (310)	600 Room	230	147	377	212	188	400	5,000
Subtotal		339	216	555	552	556	1,108	12,660
PGA West SP								
SFD (210)	400 DU	72	217	289	240	135	375	3,710
Hotel (310)	1000 Room	434	278	712	393	349	742	8,580
Commercial (820)	100 TSF	97	62	159	301	327	628	6,820
Subtotal		603	557	1,160	934	811	1,745	19,110
Foster Turf SP								
SFD (210)	200 DU	37	112	149	128	72	200	1,960
The Grove SP								
SFD (210)	820 DU	146	438	584	458	257	715	7,180
Commercial (820)	210 TSF	152	97	249	492	533	1,025	10,980
Subtotal		298	535	833	950	790	1,740	18,160
PGA Weiskopf SP								
SFD (210)	400 DU	72	217	289	240	135	375	3,710
Vista Santa Rosa SP								
SFD (210)	850 DU	151	453	604	473	266	739	7,430
The Quarry								
SFD (210)	58 DU	13	38	51	42	24	66	630
Green SP								
SFD (210)	277 DU	51	153	204	172	97	269	2,650
Travertine SP								
SFD (210)	1526 DU	269	808	1,077	801	450	1,251	12,720
MFA (230)	774 DU	44	214	258	223	110	333	3,710
Commercial (820)	100 TSF	97	62	159	301	327	628	6,820
Hotel (310)	500 Room	184	118	302	170	151	321	4,100
Subtotal		594	1,202	1,796	1,495	1,038	2,533	27,350
Total		**2,158**	**3,483**	**5,641**	**4,986**	**3,789**	**8,775**	**93,660**

a. Based upon trip generation rates published by the ITE Trip Generation (Sixth Edition).

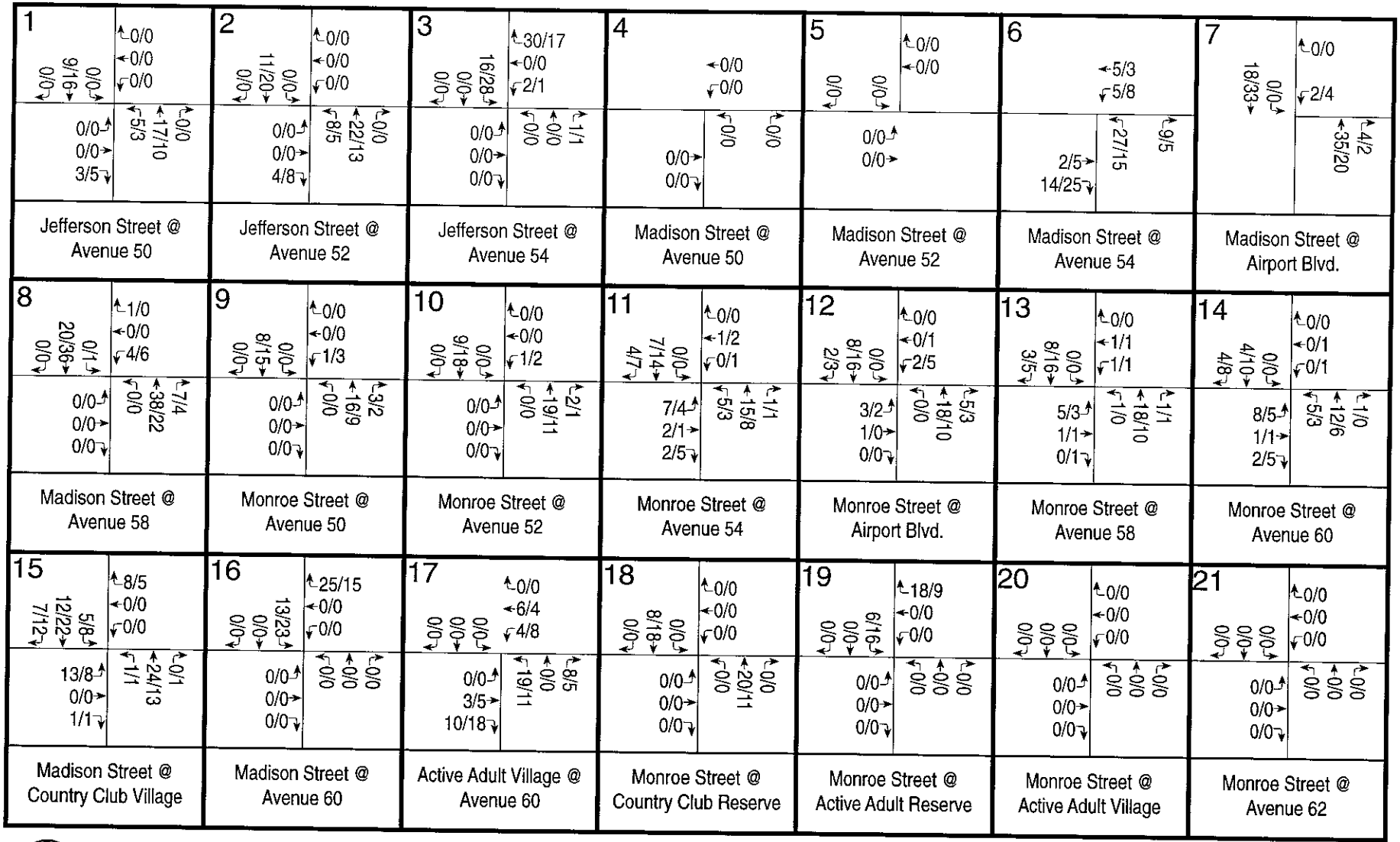
Figure IV-1
Directional Distribution of Daily Site Traffic (Year 2004)



Legend	
2260	Daily Site Traffic Volume
(25%)	Percent of Daily Site External Traffic

Endo Engineering

Scale: 1" = 5660'



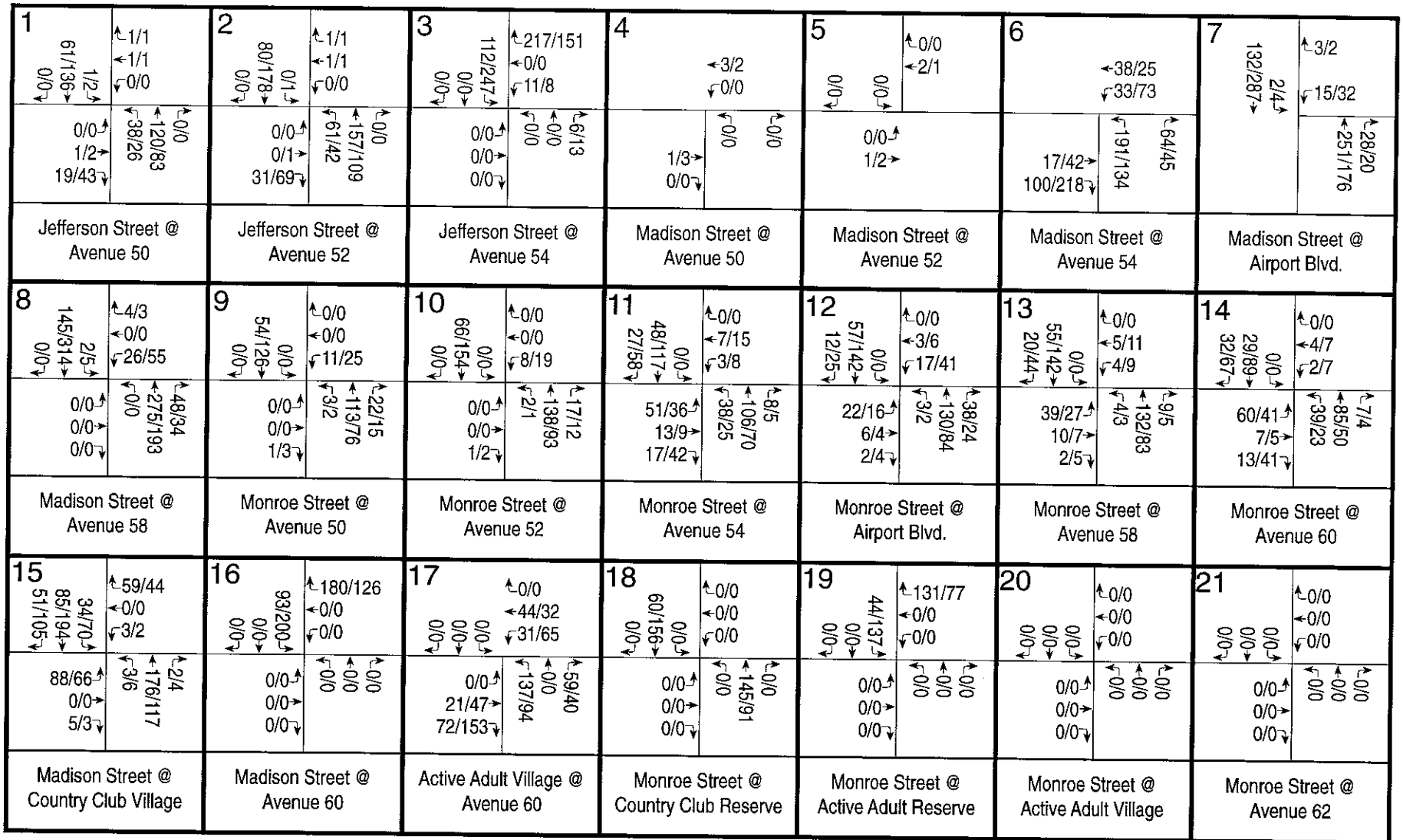
Legend

10/10 Percent of AM/PM Peak Hour Traffic

Figure IV-2

Directional Distribution of Peak Hour Site Traffic (Year 2004)

Endo Engineering



Legend

10/10 AM/PM Peak Hour Turning Volume

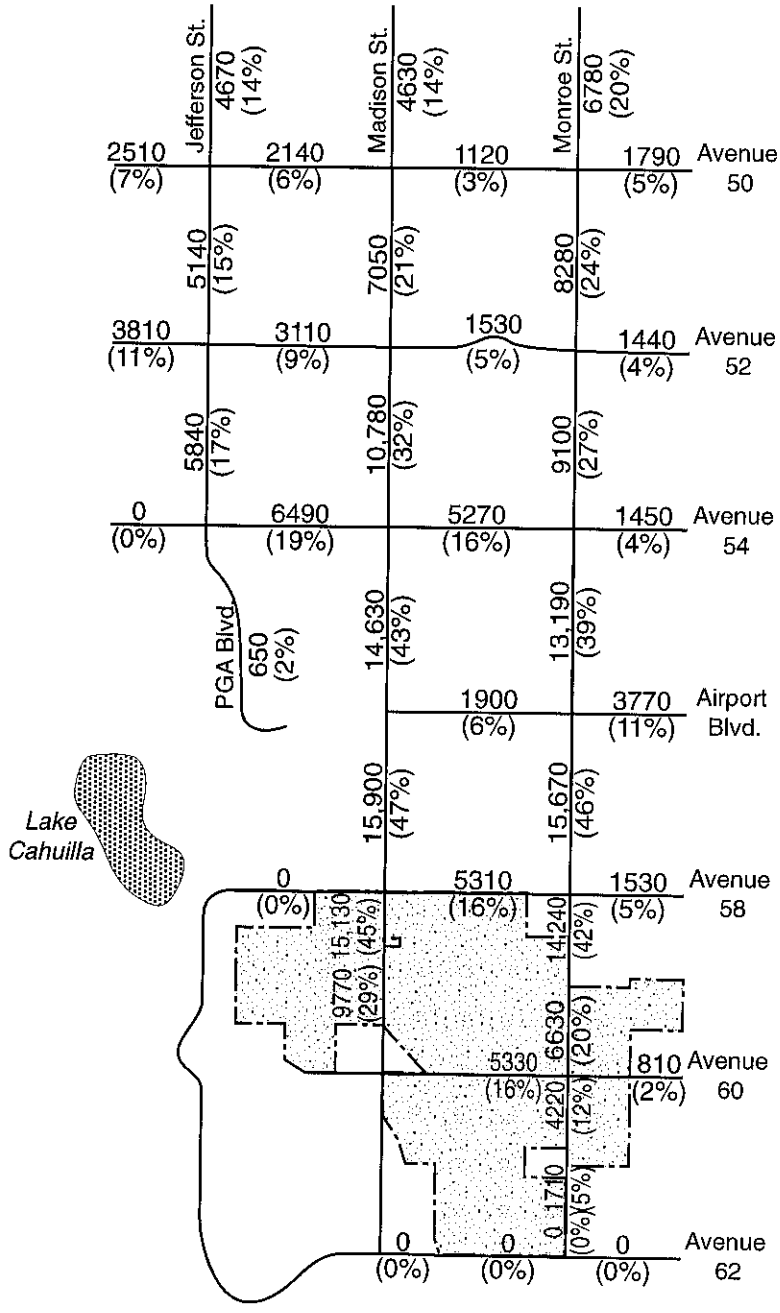
Figure IV-3

Peak Hour Site Traffic Volumes

(Year 2004)

Endo Engineering

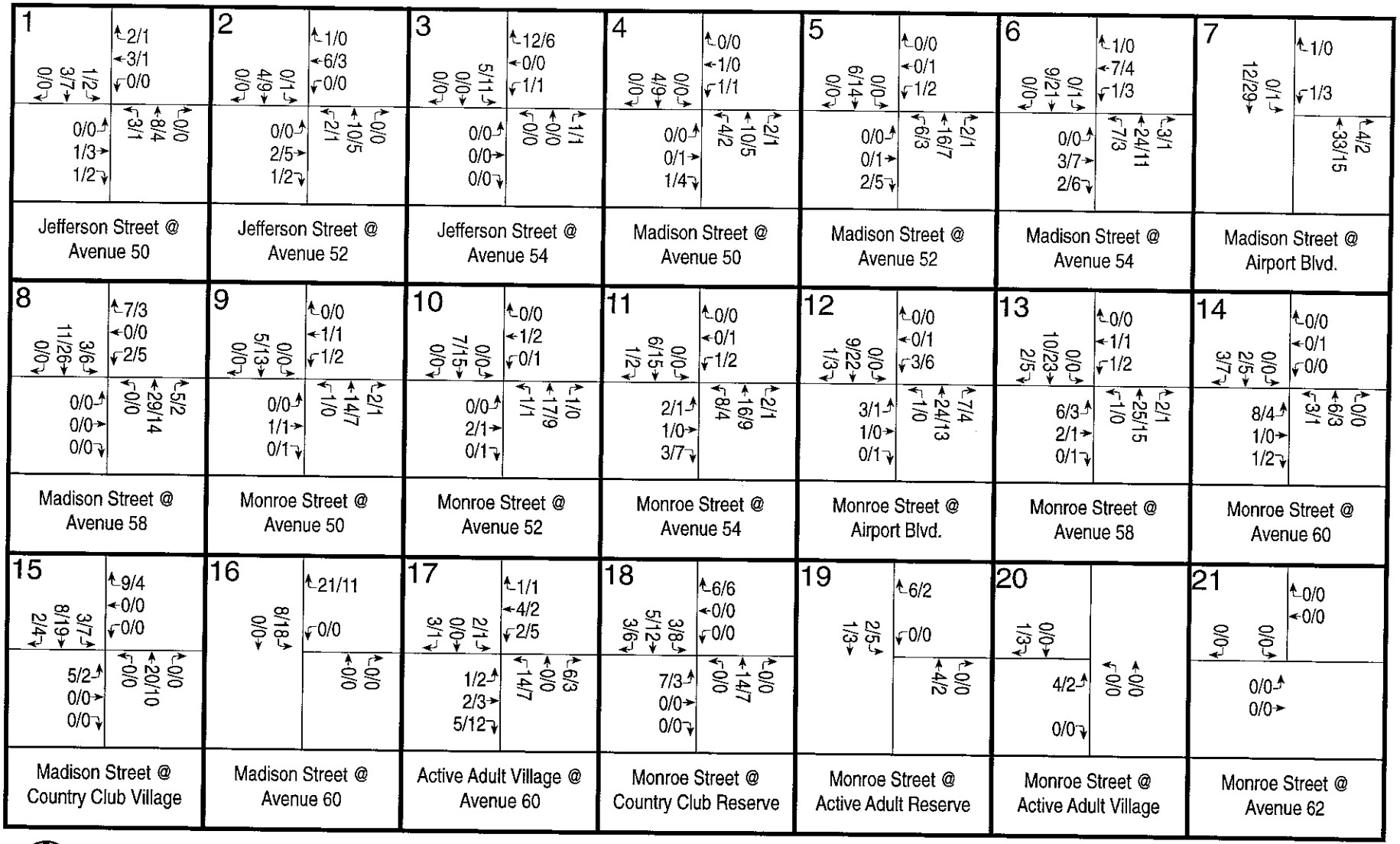
Figure IV-4
Directional Distribution of Daily Site Traffic (Year 2010)



Legend	
7050	Daily Site Traffic Volume
(21%)	Percent of Daily Site External Traffic

Endo Engineering

Scale: 1" = 5660'



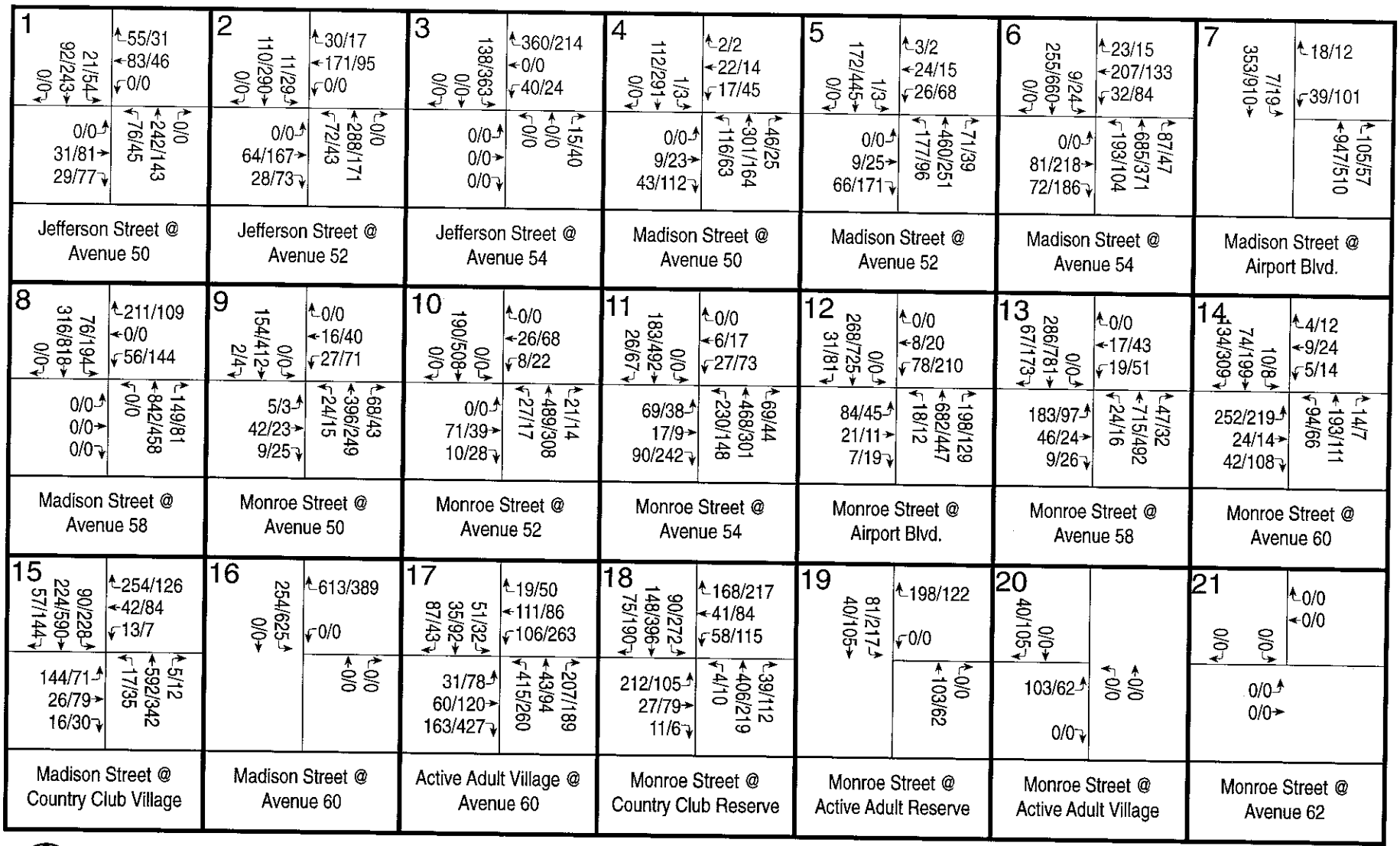
Legend

10/10 ↑ Percent of AM/PM Peak Hour External Site Traffic

Figure IV-5

Directional Distribution of Peak Hour Site Traffic (Year 2010)

Endo Engineering



Legend

10/10 AM/PM Peak Hour Site Traffic Volume

Note: Includes internal and external site traffic.

Figure IV-6
Peak Hour Site Traffic Volumes
(Year 2010)

Endo Engineering

Table IV-5 provides daily traffic projections within the study area for each future scenario including year 2004 conditions (with and without the proposed project), and year 2010 conditions (with and without the proposed project). Year 1999 peak season daily volumes are included for comparison.

Table IV-5
Daily Traffic Volumes By Scenario

Roadway Link	1999[a] Peak Season	2004 Ambient	2004 +Project	2010 Ambient	2010 +Project
Jefferson Street					
- N/O Avenue 50	10,900	20,760	23,020	29,510	34,270
- N/O Avenue 52	7,300	18,920	21,860	27,150	32,290
- N/O Avenue 54	6,600	20,090	24,150	27,130	32,970
PGA Boulevard					
- S/O Avenue 54	5,200	12,280	12,490	20,110	20,760
Madison Street					
- N/O Avenue 50	0	0	0	9,540	14,170
- N/O Avenue 52	300	290	290	14,940	21,990
- N/O Avenue 54	0	0	0	22,450	33,230
- N/O Airport Boulevard	1,800	11,180	15,970	23,180	37,810
- N/O Avenue 58	1,200	10,700	15,960	22,810	38,710
- N/O Country Club Village	200	7,800	13,900	17,250	32,380
- N/O Avenue 60	200	7,800	11,130	17,250	27,610
- S/O Avenue 60	0	7,840	7,840	17,250	17,250
Monroe Street					
- N/O Avenue 50	10,500	15,190	17,250	19,010	25,790
- N/O Avenue 52	7,500	12,530	15,050	16,200	24,480
- N/O Avenue 54	3,400	7,950	10,810	10,060	19,160
- N/O Airport Boulevard	2,800	5,600	8,310	9,380	22,570
- N/O Avenue 58	2,200	4,590	7,610	8,050	23,720
- S/O Avenue 58	1,100	2,380	4,890	4,190	18,430
- N/O Avenue 60	1,100	2,380	4,890	4,190	13,020
- S/O Avenue 60	1,100	2,150	4,300	3,470	8,590
- S/O Active Adult Reserve	1,100	2,150	2,150	3,470	5,180
- N/O Avenue 62	1,100	2,140	2,150	3,470	3,470
Avenue 50					
- W/O Jefferson Street	6,300	14,540	15,270	11,080	13,590
- E/O Jefferson Street	7,500	8,090	8,140	13,890	16,030
- E/O Madison Street	6,300	7,840	7,890	11,090	12,210
- E/O Monroe Street	5,800	7,550	7,950	10,740	12,530
Avenue 52					
- W/O Jefferson Street	7,500	11,540	12,690	18,860	22,670
- E/O Jefferson Street	4,600	6,610	6,640	13,520	16,630
- E/O Madison Street	4,500	6,500	6,530	10,050	11,580
- E/O Monroe Street	4,300	5,730	6,040	8,100	9,540

a. Estimated from 1998 peak hour traffic counts at the key intersections after they were seasonally adjusted and increased by an annual traffic growth rate. These volumes were rounded to the nearest hundred vehicles.

Table IV-5 (Continued)
Daily Traffic Volumes By Scenario

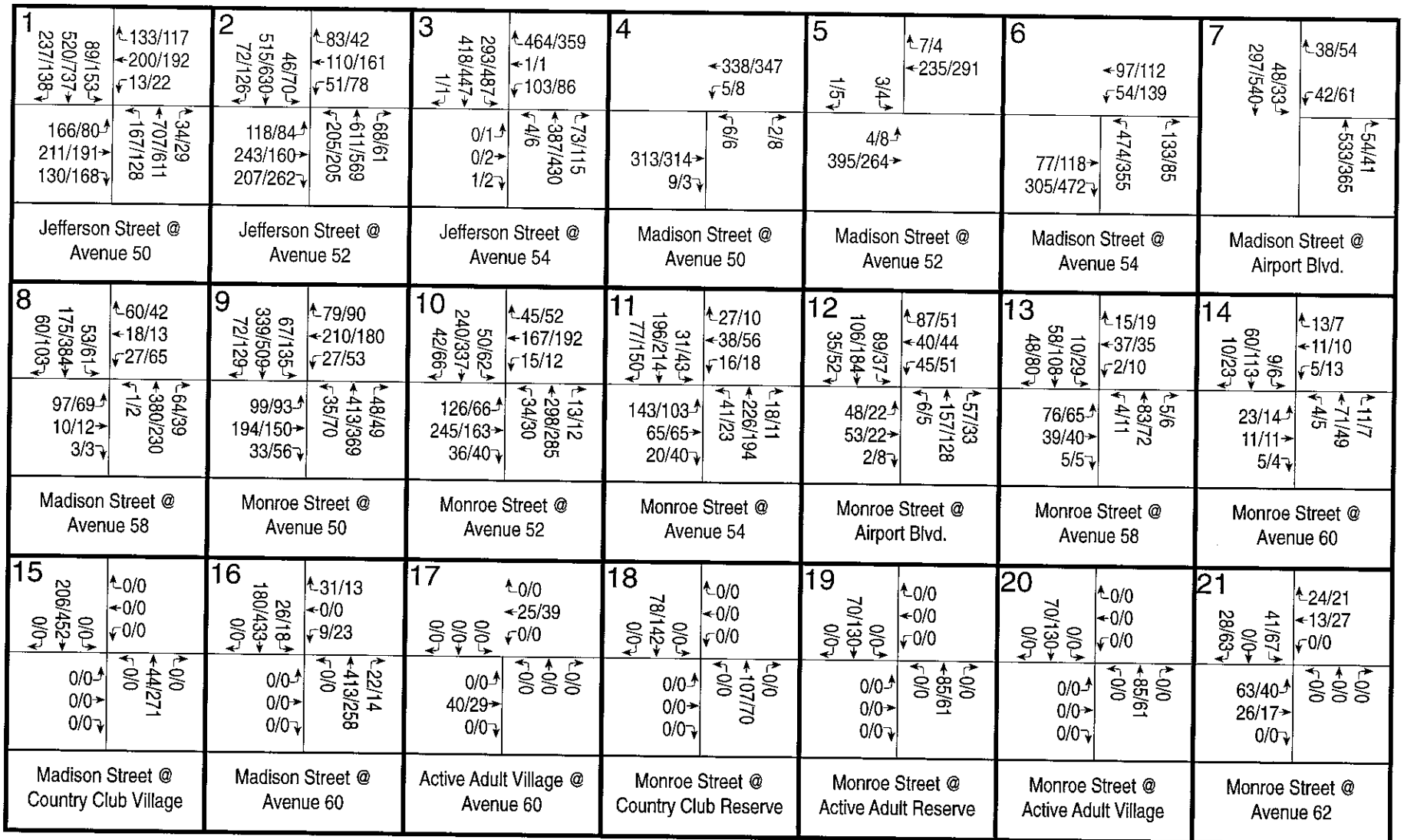
Roadway Link	1999[a] Peak Season	2004 Ambient	2004 +Project	2010 Ambient	2010 +Project
Avenue 54					
- W/O Jefferson Street	200	180	180	200	200
- E/O Jefferson Street	2,800	11,420	15,690	11,100	17,590
- E/O Madison Street	1,100	4,910	6,790	5,150	10,420
- E/O Monroe Street	1,300	2,290	2,670	2,620	4,070
Airport Boulevard					
- E/O Madison Street	900	2,070	2,660	3,570	5,470
- E/O Monroe Street	1,900	2,730	3,500	3,940	7,710
Avenue 58					
- W/O Madison Street	400	2,060	2,060	4,030	4,030
- E/O Madison Street	800	2,610	3,600	4,970	10,280
- E/O Monroe Street	1,100	1,590	1,920	2,260	3,790
Avenue 60					
- E/O Madison Street	200	740	4,070	1,720	9,370
- W/O Monroe Street	200	740	2,620	1,720	12,080
- E/O Monroe Street	300	600	830	1,070	1,880
Avenue 62					
- W/O Monroe Street	0	1,610	1,610	3,320	3,320
- E/O Monroe Street	1,100	1,520	1,520	2,160	2,160

a. Estimated from 1998 peak hour traffic counts at the key intersections after they were seasonally adjusted and increased by an annual traffic growth rate. These volumes were rounded to the nearest hundred vehicles.

IV. B THROUGH TRAFFIC

Year 2004 non-site traffic volumes are provided in Figure IV-7. They were developed by increasing existing turning movements by a 2% annual traffic growth factor and explicitly including the traffic volumes from a portion of eight cumulative projects shown in Table IV-4. The Vista Santa Rosa Specific Plan was not included in the year 2004 non-site traffic because the extension of Madison Street north of Avenue 54 was not assumed for the year 2004. The year 2004 analysis assumed that approximately 45 percent of the remaining eight cumulative projects were completed by the year 2004 (5 years of the assumed 11 year build-out). The year 2004 daily traffic projections are shown in Table IV-5.

Year 2010 non-site peak hour traffic volumes are provided in Figure IV-8. They were developed by increasing existing turning movements by a 2% annual traffic growth factor and explicitly including the traffic volumes from the nine cumulative projects shown in Table IV-4. The year 2010 analysis assumes the extension of Madison Street from Avenue 54 to the north past Avenue 50 is completed. The year 2010 daily traffic projections are shown in Table IV-5.



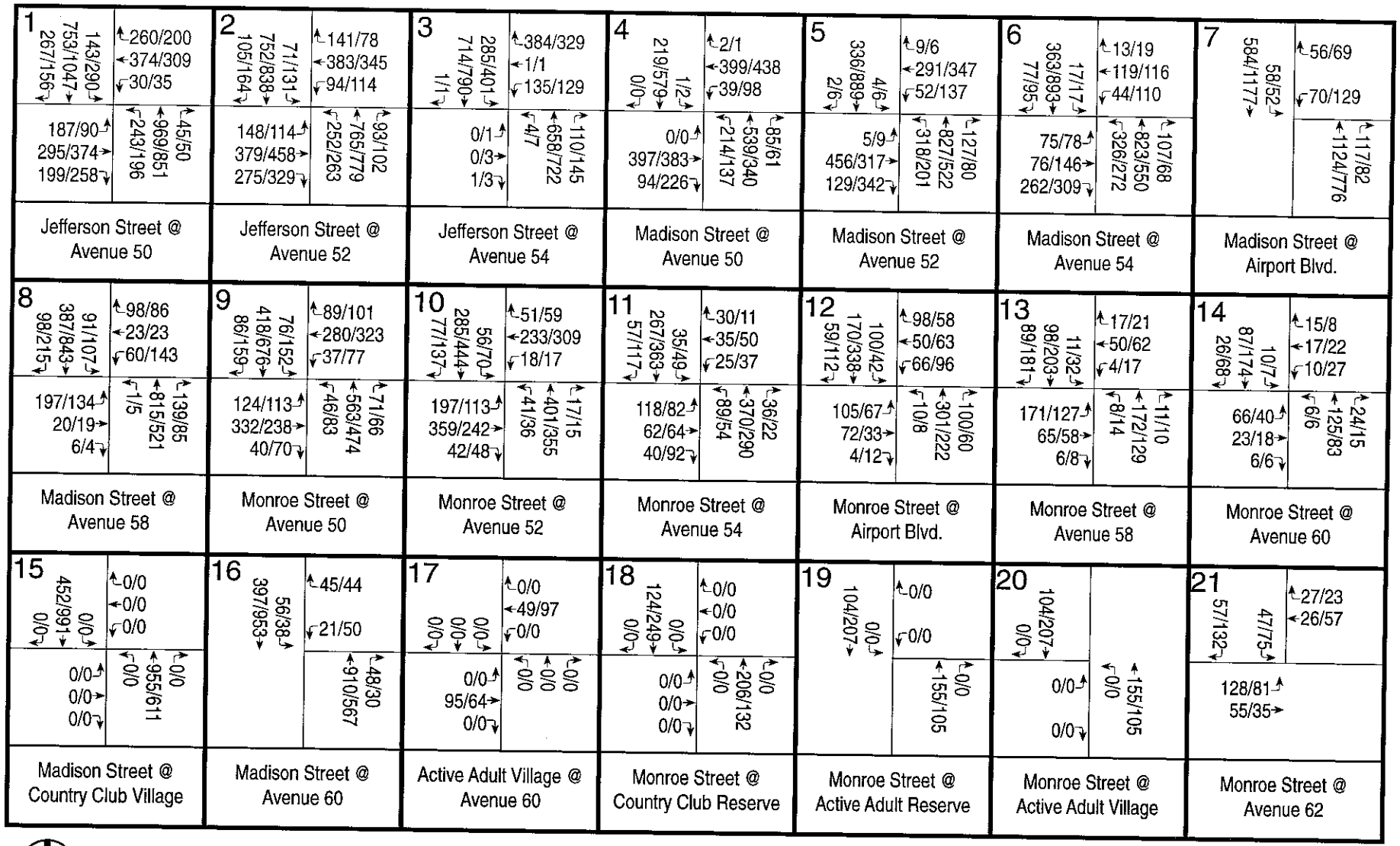
Legend

10/10 AM/PM Peak Hour Turning Volume

Figure IV-7

Estimated Peak Hour Non-Site Traffic
(Year 2004)

Endo Engineering



Legend

10/10 AM/PM Peak Hour Turning Volume

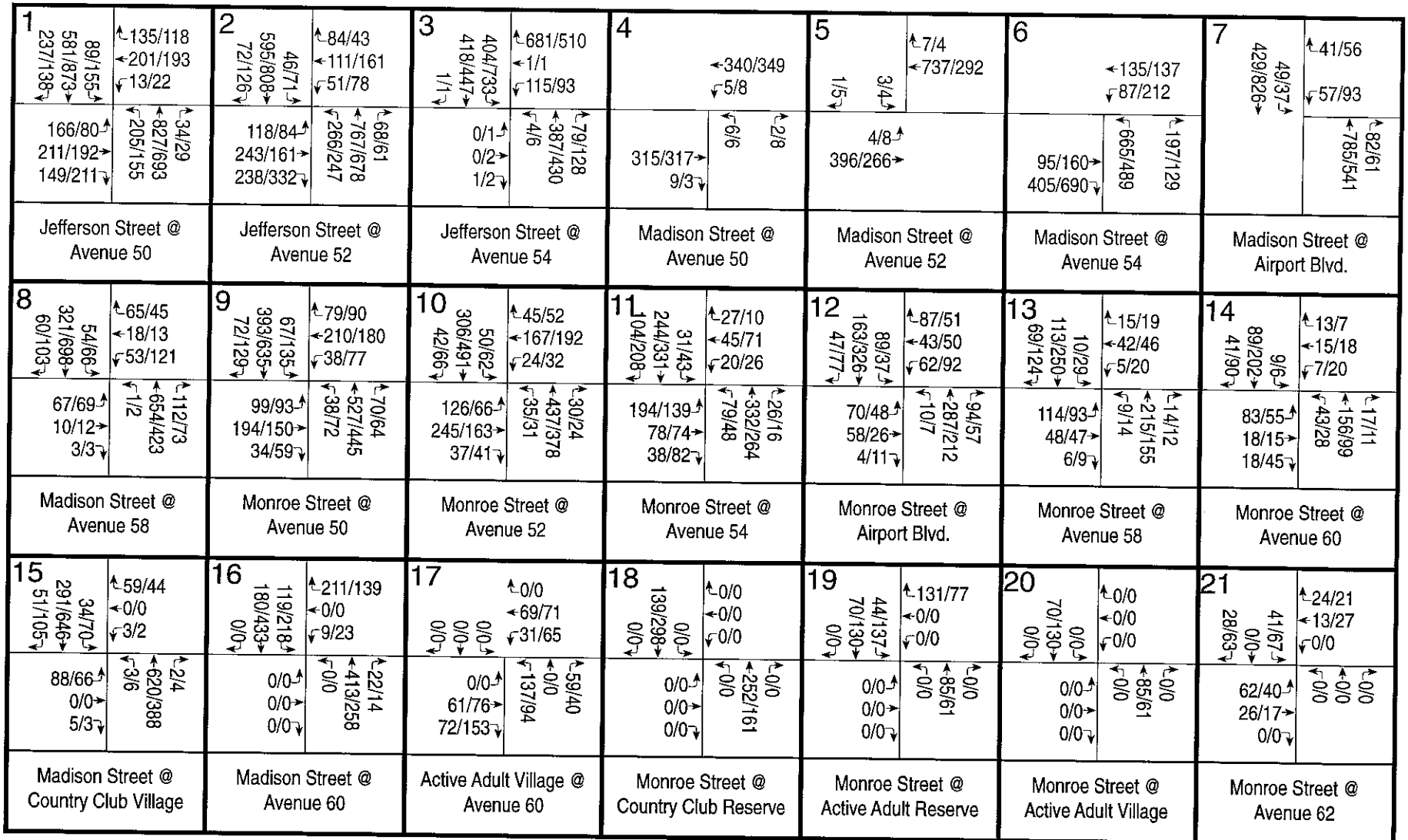
Figure IV-8
Estimated Peak Hour Non-Site Traffic
(Year 2010)

Endo Engineering

IV. C TOTAL TRAFFIC

Figure IV-9 shows the year 2004 total peak hour traffic volumes within the study area upon completion of the initial project phase. The total peak hour volumes shown in Figure IV-9 were developed by adding the site traffic (shown in Figure IV-3) to the 2004 non-site traffic (depicted in Figure IV-7).

Figure IV-10 shows the year 2010 total peak hour traffic volumes within the study area upon build-out of the proposed project and cumulative projects. The total peak hour volumes shown in Figure IV-10 were developed by adding the site traffic (shown in Figure IV-6) to the 2010 non-site traffic (depicted in Figure IV-8).



Legend

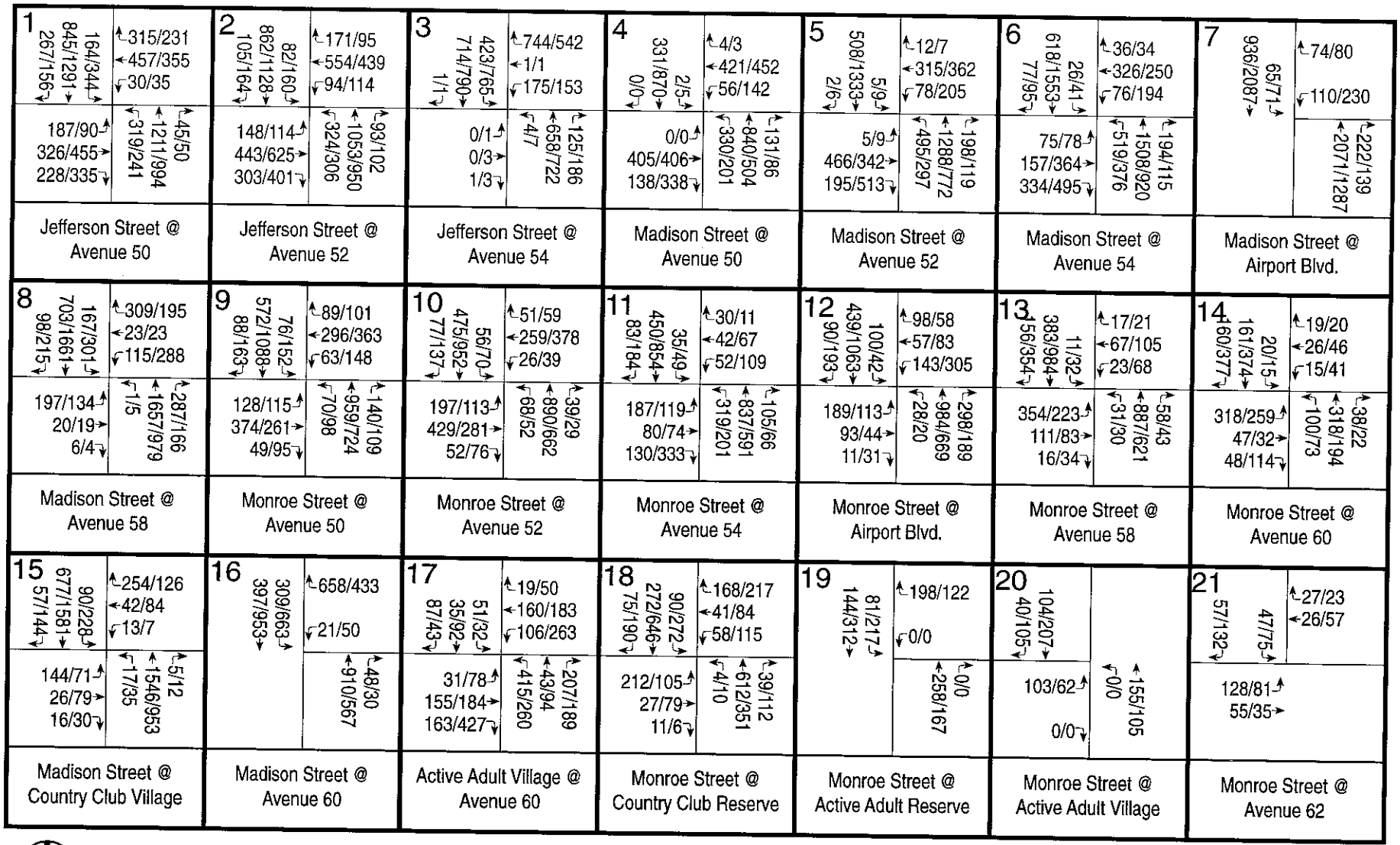
10/10 AM/PM Peak Hour Turning Volume

Figure IV-9

Estimated Peak Hour Total Future Traffic

(Year 2004)

Endo Engineering



Legend

10/10 AM/PM Peak Hour Turning Volume

Figure IV-10

Estimated Peak Hour Total Future Traffic (Year 2010)

Endo Engineering

V. TRAFFIC ANALYSIS

The analysis below of existing 1999 traffic conditions and year 2004 ambient conditions was incorporated by reference from the previously approved "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study" (Endo Engineering; February 10, 1999), as directed by the City of La Quinta. It was included herein for ease of reference.

The increase in trip generation associated with the proposed annexation will occur upon project buildout (year 2010), but will not affect Phase 1 (year 2004) development on-site, which has not changed since the previously approved traffic study. Therefore, the analysis below of year 2004-plus project conditions was incorporated by reference from the previously approved "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study" with two exceptions.

The analysis of the intersection of Madison Street and the Country Club Village access was modified to reflect the approved SP 218 Amendment No. 1 design (which includes a standard four-leg intersection instead of the tee intersection with vehicular overcrossing addressed in the approved 1999 traffic study). In addition, the intersection of Madison Street and Avenue 60 was changed from a tee intersection with a large radius curve (in the approved traffic study) to a standard 4-leg alignment in the approved Coral Mountain Specific Plan. This change was previously addressed in a letter addendum to the 1999 traffic study and has been incorporated herein for completeness.

To maintain consistency with the previously approved analysis of 1999 and year 2004 analysis, the modifications to the evaluation of (1) the intersection of Madison Street and the Country Club Village access and (2) the intersection of Madison Street and Avenue 60 herein employed the Highway Capacity Software Version HCS 2.1d and HCS 2.4d. These programs are consistent with the 1994 update to the "Highway Capacity Manual" which was utilized in the approved 1999 "Coral Mountain Specific Plan 218 Amendment No. 1 Traffic Impact Study". Since the year 2010 analysis was totally revised, the traffic analysis herein utilized the more recent Highway Capacity Software Version 3.1b, which is based upon the 1998 "Highway Capacity Manual".

V. A SITE ACCESS

The proposed project benefits from access to several master planned roadways. Madison Street, Monroe Street, and Avenue 60 bisect the project site. Avenue 58 is adjacent to the northern site boundary. Avenue 62 currently terminates at the project site and will be extended adjacent to the southern site boundary in the future to serve the Travertine Specific Plan. Site access is adequate to serve the future traffic demands associated with proposed project.

V. B CAPACITY AND LEVEL OF SERVICE AND IMPROVEMENT ANALYSIS

Roadway capacity has been defined as the maximum number of vehicles that can pass over a given roadway during a given time period under prevailing roadway and traffic conditions. By comparison, levels of service are a relative measure of driver satisfaction, with values ranging from A (free flow) to F (forced flow). Levels of service (LOS) reflect a number of factors such as speed and travel time, traffic interruptions, vehicle delay, freedom to maneuver, driver comfort and convenience, safety and vehicle operating costs.

Peak hour traffic creates the heaviest demand on the circulation system and the lane configuration at intersections is the limiting factor in roadway capacity; consequently, peak hour intersection capacity analyses are useful indicators of "worst-case" conditions. The relationship between peak hour intersection capacity and levels of service per the 1994 HCM is provided in Appendix 2 (Table A-1) for unsignalized intersections and Appendix 4 (Table A-2) for signalized intersections. The City of La Quinta has defined Level of Service "D" as the minimum adequate intersection service level during peak hours for planning and design purposes.

Existing 1999 Traffic Conditions

None of the existing key intersections in the project vicinity are controlled by traffic signals. Figure III-1 indicates where stop signs control traffic at the fourteen existing key intersections.

Unsignalized Intersection Analysis

The measure of effectiveness for unsignalized intersections is average total delay per vehicle. The 1994 update to the *Highway Capacity Manual* (TRB Special Report 209) includes an unsignalized intersection operational methodology which is the basis for determining unsignalized intersection delay. The existing unsignalized key intersections were evaluated with the methodology outlined in the 1994 *Highway Capacity Manual* (HCM). A general discussion of this methodology is included in Appendix 2 of the approved traffic study.

The Highway Capacity Software (HCS) package is a direct computerized implementation of the 1994 HCM procedures, prepared under FHWA sponsorship and maintained by the McTrans Center at the University of Florida Transportation Research Center. HCS Release 2.1d was employed to assess the unsignalized key intersections in the project vicinity. Computerized HCS worksheets for the unsignalized intersections analyzed are included in Appendix 2 of the approved traffic study.

Existing average total delay per vehicle values and the corresponding levels of service for the fourteen unsignalized key intersections are provided in Table V-1, assuming existing lane geometrics. As shown therein, all of unsignalized key intersections are operating at level of service (LOS) C or better during both morning and evening peak hours, except one.

Thirteen of the fourteen unsignalized key intersections are currently operating at level of service (LOS) C or better during both morning and evening peak hours. Average intersection delays range from 0.1 to 8.7 seconds per vehicle at these key intersections. The movements with the worst delay at these intersections are operating at LOS C or better (with average delays ranging from 1.9 to 10.0 seconds per vehicle).

The intersection of Jefferson Street and Avenue 50 was found to provide LOS F operation during the morning peak hour and LOS C during the evening peak hour. This intersection appears to currently warrant signalization. Once a traffic signal is installed, the peak hour LOS will be acceptable at this intersection.

Table V-1
Existing Unsignalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Unsignalized Intersection	Existing Condition (1999 No Project)				
	Intersection		Movement With The Most Delay		
	Delay	Level of Service	Move	Delay	Level of Service
Jefferson Street @ Avenue 50					
- AM Peak Hour	72	LOS F	EB	135	LOS F
- PM Peak Hour	14.9	LOS C	SB	28.6	LOS D
Jefferson Street @ Avenue 52					
- AM Peak Hour	5.2	LOS B	NB	9.0	LOS B
- PM Peak Hour	5.8	LOS B	NB	10.0	LOS C
Jefferson Street @ Avenue 54					
- AM Peak Hour	3.2	LOS A	SB	4.5	LOS A
- PM Peak Hour	2.7	LOS A	SB	3.2	LOS A
Madison Street @ Avenue 50					
- AM Peak Hour	0.1	LOS A	NB	6.5	LOS B
- PM Peak Hour	0.1	LOS A	NB	5.1	LOS B
Madison Street @ Avenue 52					
- AM Peak Hour	0.1	LOS A	SB	5.3	LOS B
- PM Peak Hour	0.1	LOS A	SB	4.3	LOS A
Madison Street @ Avenue 54					
- AM Peak Hour	2.0	LOS A	EB	2.5	LOS A
- PM Peak Hour	1.7	LOS A	EB	1.9	LOS A
Madison Street @ Airport Boulevard					
- AM Peak Hour	1.1	LOS A	WB	3.7	LOS A
- PM Peak Hour	1.1	LOS A	WB	3.1	LOS A

a. Delay=Average Total Delay (seconds/vehicle); NB=northbound; SB=southbound; WB=westbound; EB=eastbound. LOS was determined from the delay (0-5 sec./veh.=LOS A; 5-10 sec./veh.=LOS B; 10-20 sec./veh.=LOS C; 20-30 sec./veh.=LOS D; 30-45 sec./veh.=LOS E; 45+ sec./veh. = LOS F) per 1994 HCM page 10-12. Appendix 2 of the approved 1999 traffic study includes the existing HCS unsignalized intersection peak hour worksheets.

Table V-1 (Continued)
Existing Unsignalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Unsignalized Intersection	Existing Condition (1999 No Project)				
	Intersection		Movement With The Most Delay		
	Delay	Level of Service	Move	Delay	Level of Service
Madison Street @ Avenue 58					
- AM Peak Hour	2.4	LOS A	SB	3.7	LOS A
- PM Peak Hour	2.3	LOS A	SB	3.6	LOS A
Monroe Street @ Avenue 50					
- AM Peak Hour	6.4	LOS B	NB	8.8	LOS B
- PM Peak Hour	8.7	LOS B	SB	10.1	LOS C
Monroe Street @ Avenue 52					
- AM Peak Hour	5.6	LOS B	SB	7.4	LOS B
- PM Peak Hour	4.0	LOS A	WB	4.5	LOS A
Monroe Street @ Avenue 54					
- AM Peak Hour	1.4	LOS A	EB	5.2	LOS B
- PM Peak Hour	1.4	LOS A	EB	5.1	LOS B
Monroe Street @ Airport Boulevard					
- AM Peak Hour	2.5	LOS A	WB	3.4	LOS A
- PM Peak Hour	1.9	LOS A	WB	2.3	LOS A
Monroe Street @ Avenue 58					
- AM Peak Hour	2.0	LOS A	NB	3.7	LOS A
- PM Peak Hour	2.6	LOS A	SB	4.1	LOS A
Monroe Street @ Avenue 60					
- AM Peak Hour	1.2	LOS A	EB	3.4	LOS A
- PM Peak Hour	0.8	LOS A	EB	3.5	LOS A

a. Delay=Average Total Delay (seconds/vehicle); NB=northbound; SB=southbound; WB=westbound; EB=eastbound. LOS was determined from the delay (0-5 sec./veh.=LOS A; 5-10 sec./veh.=LOS B; 10-20 sec./veh.=LOS C; 20-30 sec./veh.=LOS D; 30-45 sec./veh.=LOS E; 45+ sec./veh. = LOS F) per 1994 HCM page 10-12. Appendix 2 of the approved 1999 traffic study includes the existing HCS unsignalized intersection peak hour worksheets.

Traffic Signal Warrants

The justification for the installation of a traffic signal at an intersection is based on the warrants adopted by Caltrans and the Federal Highway Administration. There are 11 types of traffic signal warrants including one for minimum vehicular volume, interruption of continuous traffic, minimum pedestrian volume, school crossings, progressive movement, accident experience, systems organization, a combination of warrants, a four-hour volume warrant, a peak hour delay warrant, and a peak hour volume warrant.

The installation of a traffic signal should be considered if one or more of the warrants is met; however, the satisfaction of a warrant is not necessarily sufficient justification in and of itself for the installation of signals. Delay, congestion, approach conditions, driver confusion, future land use or other evidence of the need for right-of-way assignment beyond that which could be provided by stop signs must be demonstrated. Improper or unwarranted signal installations may cause: (1) excessive delay; (2) disobedience of the signal indications; (3) circuitous travel on alternate routes; and (4) increased accident frequency.[1]

Rural volume warrants (70 percent of the urban warrants) apply when the 85th percentile speed of traffic on the major street exceeds 40 mph in either an urban or a rural area, or when the intersection lies within the built-up area of an isolated community with a population under 10,000. All other areas are considered urban and urban warrants should apply.

Planning level signal warrants (in terms of daily traffic volumes) were checked for the unsignalized key intersections for 1999 peak season conditions. Rural warrants were applied because the existing speeds of traffic on the major streets are greater than 40 mph. As shown in Appendix 3, one intersection (Jefferson Street at Avenue 50) appears to currently meet planning level daily signal warrants.

Year 2004 Ambient Conditions

Traffic Signal Warrants

Planning level signal warrants (in terms of daily traffic volumes) were checked for the unsignalized key intersections for 2004 peak season conditions without the proposed project. Rural warrants were applied because the speeds of traffic on the major streets are expected to be greater than 40 mph. As shown in Appendix 3, eight intersections appear to meet planning level daily signal warrants based upon year 2004 non-site (ambient) volumes including:

Jefferson Street @
- Avenue 52
- Avenue 54

Monroe Street @
- Avenue 50
- Avenue 52
- Avenue 54

Madison Street @
- Avenue 54
- Airport Boulevard
- Avenue 58

One of these intersections (Monroe Street @ Avenue 54) is projected to provide acceptable levels of service for year 2004 non-site traffic volumes without signalization.

1. Caltrans; *Traffic Manual;* Revised 3/1/95; pg. 9-1 and 9-2.

Unsignalized Intersection Analysis

Table V-2 provides the delay values and levels of service at the unsignalized key intersections, for year 2004 conditions without the proposed project. The non-site traffic volumes included 45 percent of the cumulative traffic (excluding Vista Santa Rosa because Madison Street was not expected to be extended by the year 2004).[2] The lane geometrics assumed for the year 2004 at all key intersections are shown in Figure VI-2.

As shown in Table V-2, all of the unsignalized key intersections will provide LOS B or better operation in the year 2004. The movements with the most delay at the unsignalized key intersections are projected to experience LOS C or better, with average total delays of up to 13.3 seconds/vehicle.

Signalized Intersection Analysis

The measure of effectiveness for signalized intersections is average stopped delay per vehicle. The 1994 update to the *Highway Capacity Manual* includes a signalized intersection operational methodology which is the basis for determining signalized intersection delay. The Highway Capacity Software (HCS) package is a direct computerized implementation of the 1994 HCM procedures. HCS Release 2.4d was utilized to evaluate the one key signalized intersection in the project vicinity.

The 1994 *Highway Capacity Manual* (HCM) signalized intersection capacity and level of service methodology addresses the capacity and level of service of intersection approaches as well as the level of service of the intersection as a whole. The analysis is undertaken in terms of the ratio of demand flow rate to capacity (V/C ratio) for individual movements during the peak hour and the composite V/C ratio for the sum of critical movements or lane groups within the intersection. The level of service is determined based upon average stopped delay per vehicle.

Average stopped delay is the total time vehicles are stopped in an intersection approach during a specified time interval divided by the volume departing from the approach during the same time period. It does not include queue follow-up time (i.e. the time required for the vehicle to travel from the last-in-queue position to the first-in- queue position).

A critical V/C ratio less than 1.00 indicates that all movements at the intersection can be accommodated within the defined cycle length and phase sequence by proportionally allocating green time. In other words, the total available green time in the phase sequence is adequate to handle all movements, if properly allocated.

It is possible to have unacceptable delays (LOS F) while the V/C ratio is below 1.00 (when the cycle length is long, the lane group has a long red time because of signal timing and/or the signal progression for the subject movements is poor). Conversely, a saturated approach (with V/C ratio $\geq$ 1.00) may have low delays if the cycle length is short and/or the signal progression is favorable. Therefore, an LOS F designation may not necessarily mean that the intersection, approach or lane group is overloaded and LOS A to LOS E does not automatically imply available unused capacity.

2. The 45% factor was determined as 2004 is 5 years from 1999 and buildout of the cumulative developments was assumed to occur by the year 2010, which is 11 years from 1999.

Table V-2
Year 2004 Unsignalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Unsignalized Intersection	No-Project			With Project			Change In	
	Intersection Delay/LOS	Move w/ Most Delay Move	Most Delay/LOS	Intersection Delay/LOS	Move w/ Most Delay Move	Most Delay/LOS	Intersection Delay	LOS
Madison Street @ Avenue 50								
- AM Peak Hour	0.1/LOS A	NB	7.4/LOS B	0.1/LOS A	NB	7.4/LOS B	0.0	No
- PM Peak Hour	0.2/LOS A	NB	5.9/LOS B	0.2/LOS A	NB	6.0/LOS B	0.0	No
Madison Street @ Avenue 52								
- AM Peak Hour	0.1/LOS A	SB	6.9/LOS B	0.1/LOS A	SB	6.9/LOS B	0.0	No
- PM Peak Hour	0.1/LOS A	SB	5.2/LOS B	0.1/LOS A	SB	5.2/LOS B	0.0	No
Madison Street @ Avenue 60[b]								
- AM Peak Hour	0.5/LOS B	WB	5.5/LOS B	2.0/LOS B	WB	6.5/LOS B	1.5	No
- PM Peak Hour	0.4/LOS A	WB	7.6/LOS B	1.7/LOS B	WB	6.7/LOS B	1.3	A-B
Monroe Street @ Avenue 54								
- AM Peak Hour	4.1/LOS A	EB	9.7/LOS B	Signalized			NA	NA
- PM Peak Hour	4.0 LOS A	EB	13.3/LOS C	(See Table V-3)			NA	NA
Monroe Street @ Airport Boulevard								
- AM Peak Hour	5.1/LOS B	WB	8.9/LOS B	10.5/LOS C	WB	19.4/LOS C	5.4	B-C
- PM Peak Hour	4.3/LOS A	WB	6.6/LOS B	10.6/LOS C	WB	19.2/LOS C	6.3	A-C

a. Delay=Average Total Delay (seconds/vehicle). NA=Not Applicable (since this intersection will be signalized with the project, a comparison between conditions with and without the project is not possible). NB=northbound; SB=southbound; EB=eastbound. LOS was determined from the delay (0-5 sec./veh.=LOS A; 5-10 sec./veh.=LOS B; 10-20 sec./veh.=LOS C; 20-30 sec./veh.=LOS D; 30-45 sec./veh.=LOS E; 45+ sec./veh.=LOS F) per 1994 HCM page 10-12. Appendix 2 of the approved 1999 traffic study includes the 2004 HCS unsignalized intersection peak hour worksheets.

b. Appendix 2 includes the revised HCS (Version 2.1d) unsignalized peak hour worksheets that reflect the re-alignment from a 3-way to a 4-way intersection.

Table V-2 (Continued)
Year 2004 Unsignalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Unsignalized Intersection	No-Project			With Project			Change In	
	Intersection Delay/LOS	Move w/ Most Delay Move	Most Delay/LOS	Intersection Delay/LOS	Move w/ Most Delay Move	Most Delay/LOS	Intersection Delay	LOS
Monroe Street @ Avenue 58								
- AM Peak Hour	2.9/LOS A	NB	4.8/LOS A	4.6/LOS A	NB	7.1/LOS B	1.7	No
- PM Peak Hour	3.6/LOS A	SB	5.1/LOS B	5.8/LOS B	SB	8.4/LOS B	2.2	A-B
Monroe Street @ Avenue 60								
- AM Peak Hour	1.3/LOS A	EB	4.3/LOS A	2.1/LOS A	EB	6.4/LOS B	0.8	No
- PM Peak Hour	1.1/LOS A	EB	4.4/LOS A	1.8/LOS A	EB	6.1/LOS B	0.7	No
Monroe Street @ Adult Village Reserve								
- AM Peak Hour	NA	NA	NA	1.6/LOS A	WB	3.2/LOS A	NA	NA
- PM Peak Hour	NA	NA	NA	1.4/LOS A	WB	3.0/LOS A	NA	NA
Monroe Street @ Avenue 62								
- AM Peak Hour	2.1/LOS A	SB	3.8/LOS A	2.1/LOS A	SB	3.8/LOS A	0.0	No
- PM Peak Hour	2.5/LOS A	SB	3.9/LOS A	2.5/LOS A	SB	3.9/LOS A	0.0	No
Active Adult Village @ Avenue 60								
- AM Peak Hour	NA	NA	NA	2.6/LOS A	NB	5.3/LOS B	NA	NA
- PM Peak Hour	NA	NA	NA	1.9/LOS A	NB	5.7/LOS B	NA	NA

a. Delay=Average Total Delay (seconds/vehicle). NA=Not Applicable (this intersection does not exist with the "no project" scenario so a comparison between conditions with and without the project is not possible). NB=northbound; SB=southbound; EB=eastbound; WB=westbound. LOS was determined from the delay (0-5 sec./veh.=LOS A; 5-10 sec./veh.=LOS B; 10-20 sec./veh.=LOS C; 20-30 sec./veh.=LOS D; 30-45 sec./veh.=LOS E; 45+ sec./veh.=LOS F) per 1994 HCM page 10-12. Appendix 2 of the approved 1999 traffic study includes the 2004 HCS unsignalized intersection peak hour worksheets.

The morning and evening peak hour levels of service were determined for the signalized key intersections with the methodology outlined in the 1994 HCM. A brief discussion of this methodology is provided in Appendix 4 in conjunction with the corresponding LOS criteria and HCS worksheets. The peak hour intersection delay, volume-to-capacity ratios, and levels of service for key intersections that will be signalized by the year 2004 are provided in Table V-3.

As shown in Table V-3, the signalized key intersections will operate at acceptable levels of service (LOS C or better) in the year 2004 prior to the addition of site traffic. The intersection with the longest average stopped delay is Jefferson Street @ Avenue 50 during the evening peak hour (with an average of 22.1 seconds/vehicle which corresponds to LOS C).

Year 2004 Plus Project Traffic Conditions

Traffic Signal Warrants

Planning level signal warrants (in terms of daily traffic volumes) were checked for the unsignalized key intersections for 2004 peak season conditions with the proposed project. Rural warrants were applied because the speeds of traffic on the major streets are expected to be greater than 40 mph. As shown in Appendix 3, five intersections appear to meet planning level daily signal warrants based upon year 2004+project (total) volumes.

The intersections that appear to meet planning level daily signal warrants with 2004+project traffic volumes include:

Monroe Street @
- Avenue 54
- Airport Boulevard
- Avenue 58

Madison Street @
- Country Club Village
- Avenue 60

Three of these intersections are projected to provide acceptable levels of service based upon year 2004 total traffic volumes without signalization (Monroe Street @ Airport Boulevard, Monroe Street @ Avenue 58, and Madison Street @ Avenue 60).

Unsignalized Intersection Analysis

With the addition of project-related traffic, all of the unsignalized key intersections will provide LOS C or better operation in the year 2004, as shown in Table V-2. The initial phase site traffic will cause the peak hour LOS in the year 2004 to drop at three of the ten unsignalized key intersections analyzed. The movements with the most delay at these intersections are projected to operate at LOS C or better.

Signalized Intersection Analysis

As shown in Table V-3, all ten of the signalized key intersections are projected to operate at LOS C or better (acceptable levels of service) during peak hours with or without the initial phase of the proposed project. The peak hour level of service will drop at three of the ten signalized key intersections, once site traffic is added to the street system. Two signalized key intersections will experience a drop from LOS A to LOS B (Madison Street @ Airport and Monroe Street @ Avenue 54). One key intersection (Jefferson Street @ Avenue 54) will experience a drop from LOS B to LOS C.

Table V-3
Year 2004 Signalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Signalized Intersection	No-Project			With Project			Change In	
	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	LOS
Jefferson Street @ Avenue 50								
- AM Peak Hour	20.4	0.854	LOS C	19.9	0.700	LOS C	-0.5	No
- PM Peak Hour	22.1	0.911	LOS C	20.8	0.805	LOS C	-1.3	No
Jefferson Street @ Avenue 52								
- AM Peak Hour	16.3	0.620	LOS C	17.3	0.716	LOS C	1.0	No
- PM Peak Hour	14.5	0.524	LOS B	14.9	0.612	LOS B	0.4	No
Jefferson Street @ Avenue 54								
- AM Peak Hour	10.1	0.529	LOS B	10.7	0.611	LOS B	0.6	No
- PM Peak Hour	13.2	0.666	LOS B	22.2	0.834	LOS C	9.0	B-C
Madison Street @ Avenue 54								
- AM Peak Hour	5.7	0.407	LOS B	6.7	0.585	LOS B	1.0	No
- PM Peak Hour	6.4	0.427	LOS B	7.6	0.638	LOS B	1.2	No
Madison Street @ Airport Boulevard								
- AM Peak Hour	3.4	0.463	LOS A	4.3	0.668	LOS A	0.9	No
- PM Peak Hour	4.4	0.415	LOS A	5.3	0.613	LOS B	0.9	A-B
Madison Street @ Avenue 58								
- AM Peak Hour	7.2	0.417	LOS B	8.4	0.660	LOS B	1.2	No
- PM Peak Hour	6.9	0.525	LOS B	12.8	0.876	LOS B	5.9	No
Madison Street @ Country Club Village[b]								
- AM Peak Hour	NA	NA	NA	4.8	0.446	LOS A	NA	NA
- PM Peak Hour	NA	NA	NA	3.6	0.517	LOS A	NA	NA

a. Average Delay=Average Stopped Delay (seconds per vehicle). Appendix 4 of the approved 1999 traffic study includes the 2004 HCS (version 2.4d) signalized intersection peak hour worksheets. NA=Not Applicable (this intersection does not exist with the No Project scenario).
b. Appendix 4 herein includes the revised HCS 2.4d signalized intersection peak hour worksheets for this intersection that reflect its redesign as a 4-way intersection.

Table V-3 (Continued)
Year 2004 Signalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Signalized Intersection	No-Project			With Project			Change In	
	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	LOS
Monroe Street @ Avenue 50								
- AM Peak Hour	10.1	0.469	LOS B	10.3	0.555	LOS B	0.2	No
- PM Peak Hour	9.9	0.574	LOS B	11.3	0.774	LOS B	1.4	No
Monroe Street @ Avenue 52								
- AM Peak Hour	10.0	0.365	LOS B	10.1	0.462	LOS B	0.1	No
- PM Peak Hour	9.5	0.405	LOS B	9.4	0.499	LOS B	-0.1	No
Monroe Street @ Avenue 54								
- AM Peak Hour	Unsignalized (See Table V-2)			11.9	0.660	LOS B	7.8	A-B
- PM Peak Hour				12.1	0.707	LOS B	8.1	A-B

a. Average Delay=Average Stopped Delay (seconds per vehicle). Appendix 4 of the approved 1999 traffic study includes the 2004 HCS (version 2.4d) signalized intersection peak hour worksheets.

Year 2010 Ambient Conditions

Traffic Signal Warrants

Daily planning level signal warrants were checked for the unsignalized key intersections for 2010 peak season conditions without the proposed project. Rural warrants were applied because the speed of traffic on the major streets is expected to be greater than 40 mph. As shown in Appendix 3, five intersections are projected to meet planning level daily signal warrants, based upon year 2010 non-site (ambient) volumes including:

Monroe Street @
- Airport Boulevard
- Avenue 58

Madison Street @
- Avenue 50
- Avenue 52
- Avenue 60

Unsignalized Intersection Analysis

The 1998 update to the *Highway Capacity Manual* (TRB Special Report 209) includes an unsignalized intersection operational methodology which is the basis for determining unsignalized intersection delay. A general discussion of this methodology and the LOS criteria that apply are included in Appendix 2. The measure of effectiveness for unsignalized intersections is the average approach control delay per vehicle.

The Highway Capacity Software (HCS) package is a direct computerized implementation of the 1998 HCM procedures, prepared under FHWA sponsorship and maintained by the McTrans Center at the University of Florida Transportation Research Center. HCS Release 3.1b was employed to assess the unsignalized key intersections. Computerized HCS worksheets for the intersections analyzed are included in Appendix 2.

Table V-4 provides the peak hour average approach control delay values and levels of service at the unsignalized key intersections, for year 2010 conditions with and without the proposed project. The non-site traffic volumes included all of the traffic associated with buildout of the cumulative developments. Year 2010 lane geometrics assumed for all intersections are shown in Figure VI-3.

As shown in Table V-4, the unsignalized key intersections are expected to provide LOS A operation in the year 2010, prior to the addition of site traffic. The movements with the most delay at the unsignalized key intersections are projected to experience LOS B or better operation during peak hours, with average approach control delays of up to 5.7 seconds/vehicle.

Signalized Intersection Analysis

Both capacity and levels of service must be considered to evaluate the overall operational characteristics of signalized intersections in the 1998 *Highway Capacity Manual.* Capacity at intersections is defined for each lane group. It is the maximum rate of flow that may pass through the intersection under prevailing traffic, roadway and signalization conditions. It is generally measured or projected for a 15-minute period and stated in terms of vehicles per hour.

A separate capacity and volume-to-capacity (V/C) ratio is computed for each lane group approaching the intersection. A composite V/C ratio for the sum of the critical lane groups within the intersection is computed.

Table V-4
Year 2010 Unsignalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Unsignalized Intersection	No-Project			With Project			Change In	
	Major Left Delay/LOS	Minor Approach Move	Minor Approach Delay/LOS	Major Left Delay/LOS	Minor Approach Move	Minor Approach Delay/LOS	Minor Approach Delay	Minor Approach LOS
Monroe Street @ Avenue 60 (14)								
- AM Peak Hour	7.6/A	EB	11.7/B	Signalized (See Table V-5)			NA	NA
- PM Peak Hour	7.5/A	EB	11.8/B				NA	NA
Monroe St. @ Active Adult Reserve (19)								
- AM Peak Hour	NA	NA	NA	8.0/A	EB	11.3/B	NA	NA
- PM Peak Hour	NA	NA	NA	8.1/A	EB	9.9/A	NA	NA
Monroe St. @ Active Adult Village (20)								
- AM Peak Hour	NA	NA	NA	0.0/A	WB	11.0/B	NA	NA
- PM Peak Hour	NA	NA	NA	0.0/A	WB	11.4/B	NA	NA
Monroe Street @ Avenue 62 (21)								
- AM Peak Hour	7.6/A	WB	10.4/B	7.6/A	WB	10.4/B	0.0	No
- PM Peak Hour	7.6/A	WB	10.6/B	7.6/A	WB	10.6/B	0.0	No

a. Delay=Average Approach Control Delay (seconds/vehicle). Based upon the 1998 *Highway Capacity Manual* Unsignalized Operation Methodology implemented by the latest release (Version 3.1b) of the Highway Capacity Software (1998). EB=eastbound. WB=westbound. LOS was determined from the delay (LOS A ≤ 10 sec./veh.; LOS B ≥ 10 and ≤ 15 sec./veh.; LOS C ≥ 15 and ≤ 25 sec./veh.; LOS D ≥ 25 and ≤ 35 sec./veh.; LOS E ≥ 35 and ≤ 50 sec./veh.; LOS F ≥ 50 sec./veh.) per 1998 HCM page 10-25. NA=Not Applicable (either this intersection does not exist with the "no project" scenario or a comparison between conditions with and without the project is not possible). Appendix 2 includes the 2010 HCS unsignalized intersection peak hour worksheets.

The level of service is based on the average control delay per vehicle for various intersection movements. The following parameters affect levels of service: (1) V/C ratio; (2) quality of progression; (3) length of green phases; (4) cycle lengths; and (5) average control delay.

Delay is a measure of the quality of service to the road user. An intersection cannot operate beyond its capacity indefinitely without experiencing excessive delay. For planning purposes, it is critical that adequate future capacity be provided in terms of geometric design features. Delay may be improved significantly through coordination of signals and improved signal design.

The measures of effectiveness for signalized intersections are: V/C ratios, average control delay per vehicle, and levels of service. The 1998 update to the *Highway Capacity Manual* includes a signalized intersection operational methodology which is the basis for determining signalized intersection delay. The Highway Capacity Software (HCS) package is a direct computerized implementation of the 1998 HCM procedures.

HCS-3 Release 3.1b was utilized herein to evaluate the key signalized intersections in the project vicinity. A general discussion of this methodology and the computerized HCS worksheets for the signalized intersections analyzed are included in Appendix 4. The relationship between peak hour intersection delay and levels of service for signalized intersections is also provided in Appendix 4.

The 1998 *Highway Capacity Manual* (HCM) signalized intersection capacity and level of service methodology addresses the capacity, V/C ratio, and level of service of intersection approaches as well as the level of service of the intersection as a whole. The analysis is undertaken in terms of the ratio of demand flow rate to capacity (V/C ratio) for individual movements or approach lane groups during the peak hour and the composite V/C ratio for the sum of critical movements or lane groups within the intersection. The composite V/C ratio is an indicator of whether or not the physical geometry and signal design provide sufficient capacity for the movements.

The level of service is determined based upon the average control delay per vehicle. Average control delay is the total time vehicles are stopped in an intersection approach during a specified time interval divided by the volume departing from the approach during the same time period. It does not include queue follow-up time (i.e. the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position).

A critical V/C ratio less than 1.00 indicates that all movements at the intersection can be accommodated within the defined cycle length and phase sequence by proportionally allocating green time. In other words, the total available green time in the phase sequence is adequate to handle all movements, if properly allocated.

It is possible to have unacceptable delays (LOS F) while the V/C ratio is below 1.00 (when the cycle length is long, the lane group has a long red time because of signal timing and/or the signal progression for the subject movements is poor). Conversely, a saturated approach (with V/C ratio $\geq$ 1.00) may have low delays if the cycle length is short and/or the signal progression is favorable. Therefore, an LOS F designation may not necessarily mean that the intersection, approach or lane group is overloaded and LOS A to LOS E does not automatically imply available unused capacity.

The year 2010 peak hour intersection delay, volume-to-capacity ratios, and level of service values at the signalized key intersections without the project were determined with the methodology outlined in the 1998 HCM, as shown in Table V-5. The analysis summarized assumed an eight percent truck mix. As shown therein, the signalized key intersections will operate at level of service C or better in the year 2010, prior to the addition of site traffic. The intersection with the longest average control delay is projected to be Jefferson Street @ Avenue 52 during the evening peak hour (with an average of 31.9 seconds/vehicle of delay).

Year 2010 Plus Project Traffic Conditions

Traffic Signal Warrants

Daily planning level signal warrants were checked for the unsignalized key intersections for 2010 peak season conditions with the proposed project. Rural warrants were applied because the speed of traffic on the major streets is expected to be greater than 40 mph. As shown in Appendix 3, three intersections are projected to meet daily planning level signal warrants, based upon year 2010+project (total) volumes including: Monroe Street @ Avenue 60, Monroe Street @ the Country Club Reserve Access, and Avenue 60 @ the Active Adult Village Access.

Unsignalized Intersection Analysis

With the addition of site traffic, the unsignalized key intersections will provide LOS A operation in the project buildout year 2010, as shown in Table V-4. The movements with the most delay at these intersections are projected to operate at LOS B or better.

Signalized Intersection Analysis

As shown in Table V-5, the signalized key intersections will operate at acceptable levels of service (LOS D or better) in the year 2010 with site traffic. The peak hour levels of service at eleven of the eighteen signalized key intersections are projected to change with the addition of project-related traffic. During the morning peak hours, the LOS will drop from A to B at one intersection, from LOS B to LOS C at 3 intersections, and from LOS C to LOS D at one intersection. During the evening peak hours, the LOS is projected to drop at 10 of the signalized key intersections. It is expected to drop from LOS A to LOS C at 2 intersections, from LOS B to LOS C at 3 intersections, from LOS B to LOS D at one intersection and from LOS C to LOS D at 4 intersections. The intersection with the longest average delay is expected to be Monroe Street @ Avenue 54 during the evening peak hour. This intersection is projected to have an average control delay of 51.9 seconds/vehicle under year 2010+project conditions, which corresponds to LOS D operation.

Level of Service Summary

Table V-6 summarizes the morning and evening peak hour LOS findings at each of the key intersections with each development scenario. As shown therein, acceptable levels of service are projected to occur for all scenarios, provided traffic signals are installed when warranted and roadway improvements consistent with Figures VI-2 and VI-3 are phased to coincide with projected increases in traffic volumes. These roadway improvements are generally consistent with the master planned cross-sections.

Table V-5
Year 2010 Signalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Signalized Intersection	No-Project			With Project			Change In	
	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	LOS
Jefferson Street @ Avenue 50 (1)								
- AM Peak Hour	27.9	0.75	C	32.1	0.84	C	4.2	No
- PM Peak Hour	28.1	0.75	C	33.7	0.88	C	5.6	No
Jefferson Street @ Avenue 52 (2)								
- AM Peak Hour	27.8	0.70	C	35.6	0.86	D	7.8	C-D
- PM Peak Hour	31.9	0.75	C	51.0	0.94	D	19.1	C-D
Jefferson Street @ Avenue 54 (3)								
- AM Peak Hour	16.0	0.66	B	17.0	0.74	B	1.0	No
- PM Peak Hour	18.1	0.73	B	27.4	0.89	C	9.3	B-C
Madison Street @ Avenue 50 (4)								
- AM Peak Hour	25.3	0.45	C	27.3	0.61	C	2.0	No
- PM Peak Hour	29.5	0.65	C	39.0	0.86	D	9.5	C-D
Madison Street @ Avenue 52 (5)								
- AM Peak Hour	23.0	0.49	C	24.3	0.67	C	1.3	No
- PM Peak Hour	21.6	0.58	C	26.8	0.81	C	5.2	No
Madison Street @ Avenue 54 (6)								
- AM Peak Hour	17.6	0.42	B	23.7	0.76	C	6.1	B-C
- PM Peak Hour	20.6	0.56	C	51.9	0.98	D	31.3	C-D

a. Average Delay=Average Control Delay (seconds per vehicle). Based upon the 1998 *Highway Capacity Manual* Signalized Operation Methodology implemented by the latest release (Version 3.1b) of the Highway Capacity Software (1998). LOS was determined from the delay (≤10 sec./veh.=LOS A; >10 and ≤20 sec./veh.=LOS B; >20 and ≤35 sec./veh.=LOS C; >35 and ≤55 sec./veh.=LOS D; >55 and ≤80 sec./veh.=LOS E; >80 sec./veh. = LOS F) per 1998 HCM page 9-7. Appendix 4 includes the 2010 HCS signalized intersection peak hour worksheets.

Table V-5 (Continued)
Year 2010 Signalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Signalized Intersection	No-Project			With Project			Change In	
	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	LOS
Madison Street @ Airport Boulevard (7)								
- AM Peak Hour	6.6	0.48	A	19.4	0.85	B	12.8	A-B
- PM Peak Hour	9.6	0.50	A	29.1	0.86	C	19.5	A-C
Madison Street @ Avenue 58 (8)								
- AM Peak Hour	19.2	0.52	B	31.4	0.89	C	12.2	B-C
- PM Peak Hour	11.4	0.49	B	37.5	1.00	D	26.1	B-D
Madison Street @ Country Club Village (15)								
- AM Peak Hour	NA	NA	NA	24.4	0.93	C	NA	NA
- PM Peak Hour	NA	NA	NA	13.6	0.76	B	NA	NA
Madison Street @ Avenue 60 (16)								
- AM Peak Hour	3.4	0.68	A	2.9	0.68	A	-0.5	No
- PM Peak Hour	4.7	0.63	A	20.8	0.99	C	16.1	A-C
Monroe Street @ Avenue 50 (9)								
- AM Peak Hour	16.4	0.45	B	17.7	0.64	B	1.3	No
- PM Peak Hour	24.8	0.66	C	39.2	0.96	D	14.4	C-D
Monroe Street @ Avenue 52 (10)								
- AM Peak Hour	16.1	0.39	B	17.9	0.61	B	1.8	No
- PM Peak Hour	16.1	0.43	B	17.6	0.64	B	1.5	No

a. Average Delay=Average Control Delay (seconds per vehicle). Based upon the 1998 *Highway Capacity Manual* Signalized Operation Methodology implemented by the latest release (Version 3.1b) of the Highway Capacity Software (1998). LOS was determined from the delay (≤10 sec./veh.=LOS A; >10 and ≤20 sec./veh.=LOS B; >20 and ≤35 sec./veh.=LOS C; >35 and ≤55 sec./veh.=LOS D; >55 and ≤80 sec./veh.=LOS E; >80 sec./veh. = LOS F) per 1998 HCM page 9-7. NA=Not applicable because this intersection does not exist with this scenario or a comparison between "no project" conditions and "with project" conditions is inappropriate. Appendix 4 includes the 2010 HCS signalized intersection peak hour worksheets.

Table V-5 (Continued)
Year 2010 Signalized Intersection Peak Hour Delay and LOS Summary[a]
(Peak Season Average Weekday)

Signalized Intersection	No-Project			With Project			Change In	
	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	Critical V/C	LOS	Avg. Delay (Sec./Veh.)	LOS
Monroe Street @ Avenue 54 (11)								
- AM Peak Hour	11.7	0.24	B	12.6	0.61	B	0.9	No
- PM Peak Hour	11.9	0.27	B	30.6	0.81	C	18.7	B-C
Monroe Street @ Airport Boulevard (12)								
- AM Peak Hour	10.8	0.28	B	14.6	0.78	B	3.8	No
- PM Peak Hour	12.6	0.29	B	27.9	0.93	C	15.3	B-C
Monroe Street @ Avenue 58 (13)								
- AM Peak Hour	14.9	0.26	B	25.2	0.87	C	10.3	B-C
- PM Peak Hour	14.2	0.24	B	19.0	0.83	B	4.8	No
Monroe Street @ Avenue 60 (14)								
- AM Peak Hour	Unsignalized			16.6	0.50	B	NA	NA
- PM Peak Hour	(See Table V-4)			19.2	0.73	B	NA	NA
Monroe Street @ Country Club Reserve (18)								
- AM Peak Hour	NA	NA	NA	17.0	0.65	B	NA	NA
- PM Peak Hour	NA	NA	NA	17.7	0.75	B	NA	NA
Active Adult Village @ Avenue 60 (17)								
- AM Peak Hour	NA	NA	NA	17.2	0.60	B	NA	NA
- PM Peak Hour	NA	NA	NA	20.3	0.76	C	NA	NA

a. Average Delay=Average Control Delay (seconds per vehicle). Based upon the 1998 *Highway Capacity Manual* Signalized Operation Methodology implemented by the latest release (Version 3.1b) of the Highway Capacity Software (1998). LOS was determined from the delay (≤10 sec./veh.=LOS A; >10 and ≤20 sec./veh.=LOS B; >20 and ≤35 sec./veh.=LOS C; >35 and ≤55 sec./veh.=LOS D; >55 and ≤80 sec./veh.=LOS E; >80 sec./veh. = LOS F) per 1998 HCM page 9-7. NA=Not applicable because this intersection does not exist with this scenario or a comparison between "no project" conditions and "with project" conditions is inappropriate. Appendix 4 includes the 2010 HCS signalized intersection peak hour worksheets.

Table V-6
Level of Service Summary[a]

Key Intersection	1999 Peak Season	2004 Ambient	2004 +Project	2010 Ambient	2010 +Project
Jefferson Street					
- Avenue 50	F/C[b]	C/C	C/C	C/C	C/C
- Avenue 52	B/B	C/B	C/B	C/C	D/D
- Avenue 54	A/A	B/B	B/C	B/B	B/C
Madison Street					
- Avenue 50	A/A	A/A	A/A	C/C	C/D
- Avenue 52	A/A	A/A	A/A	C/C	C/C
- Avenue 54	A/A	B/B	B/B	B/C	C/D
- Airport Boulevard	A/A	A/A	A/B	A/A	B/C
- Avenue 58	A/A	B/B	B/B	B/B	C/D
Monroe Street					
- Avenue 50	B/B	B/B	B/B	B/C	B/D
- Avenue 52	B/A	B/B	B/B	B/B	B/B
- Avenue 54	A/A	A/A	B/B	B/B	B/C
- Airport Boulevard	A/A	B/A	C/C	B/B	B/C
- Avenue 58	A/A	A/A	A/B	B/B	C/B
- Avenue 60	A/A	A/A	A/A	A/A	B/B
Madison Street					
- Country Club Village Access	NA	NA	A/A	NA	C/B
- Avenue 60	NA	B/A	B/B	A/A	A/C
Active Adult Village Access					
- Avenue 60	NA	NA	A/A	NA	B/C
Monroe Street					
- Country Club Reserve Access	NA	NA	NA	NA	B/B
- Active Adult Reserve Access	NA	NA	A/A	NA	A/A
- Active Adult Village Access	NA	NA	NA	NA	A/A
- Avenue 62	NA	A/A	A/A	A/A	A/A

a. Format is AM/PM peak hour Level of Service.
b. This intersection warrants signalization and will operate at acceptable levels of service when signalized.

VI. FINDINGS AND CONCLUSIONS

VI.A Site Accessibility

The project has adequate access to serve the proposed land uses. No improvements beyond those shown in the Riverside General Plan Circulation Element (within unincorporated Riverside County) or in the La Quinta General Plan (within the City of La Quinta) are required to accommodate site traffic at LOS D or better.

Thirteen of the fourteen unsignalized key intersections are currently operating at level of service (LOS) B or better during both morning and evening peak hours with the existing lane geometrics shown in Figure VI-1. One key intersection, Jefferson Street at Avenue 50, was found to provide LOS F operation during the morning peak hour and LOS C during the evening peak hour. This intersection appears to currently warrant signalization. Once a traffic signal is installed, the peak hour LOS will be acceptable at this intersection.

Figure VI-2 shows the minimum lane requirements for acceptable levels of service at the key intersections for the initial phase of the proposed development and cumulative development through the year 2004. As shown therein, most of the key access roadways (including Monroe Street and Madison Street) can remain two-lane facilities.

The minimum year 2010 intersection lane requirements shown in Figure VI-3 can be accommodated within the master planned cross-sections, with minor exceptions near some intersections. For example, the south leg of the intersection of Madison Street and Avenue 54 may need to flare at the intersection, or a reduced parkway section may be necessary to accommodate the dual northbound left-turn lanes and dedicated northbound right-turn lane.

VI.B Traffic Impacts

The following are the circulation impacts associated with the proposed project:

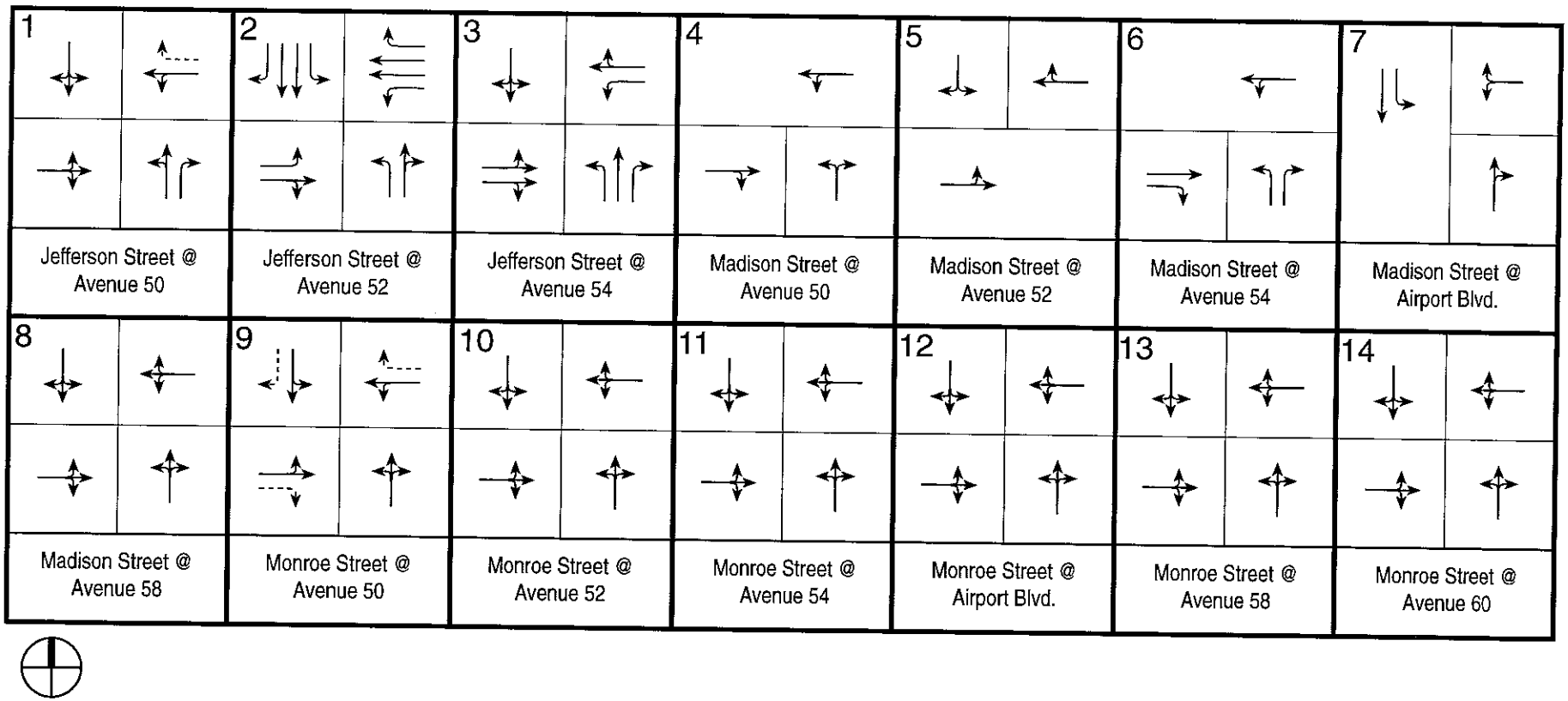
1. The annexation of 220 acres to the City of La Quinta that are within the approved Coral Mountain SP 218 Amendment #1 area will not affect the traffic impacts associated with the development of this area.

2. The 354 acres proposed for annexation adjacent to the approved Coral Mountain Specific Plan area are currently designated for "Agricultural" uses, which would generate approximately 2 trip-ends per acre or 708 daily trip-ends.

3. The redesignation of these 354 acres for Low Density Residential use would permit the development of up to 1,416 single family dwellings in this area.

4. The addition of 1,416 single-family dwellings to the adopted SP 218 Amendment #1 would increase the daily trip generation of the development by approximately 11,220 unadjusted or 9,640 adjusted trip-ends. Of that total, approximately 1,580 trips/day would remain internal to the project site and 8,060 trips/day would be external trips (with either an origin or a destination outside of the specific plan boundaries).

5. Other land use changes since the approved 1999 traffic study, when added to the 1,416 additional single-family dwellings, will increase the daily unadjusted trip generation of the Coral Mountain development by 16,800 trips-ends (13,642 adjusted trip-ends) compared to the forecast in the approved 1999 traffic study.



Legend

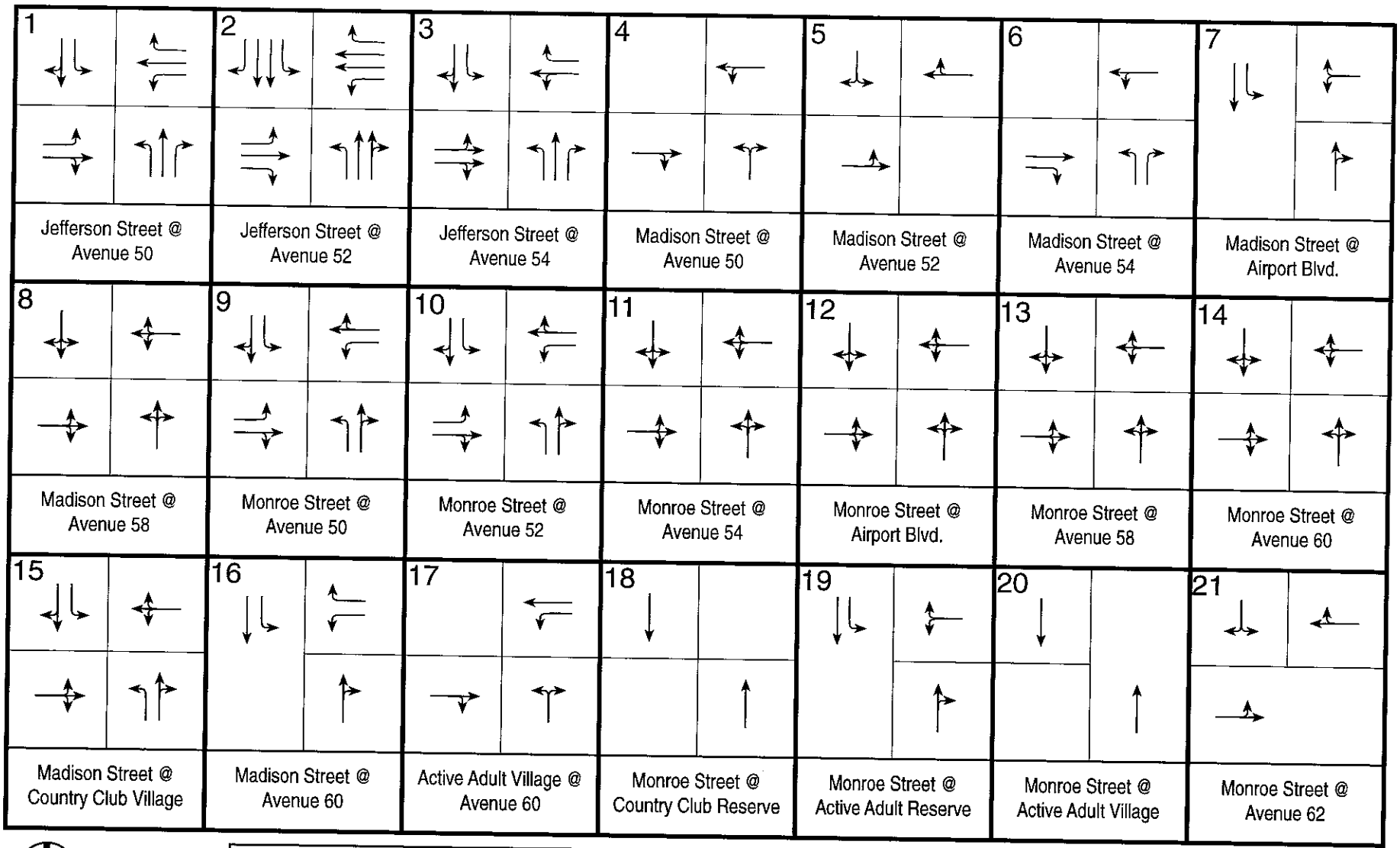
- 1 Intersection Number
- Exclusive Right-Turn Lane
- Through Lane
- Exclusive Left-Turn Lane
- Opt. Through/Right/Left Lane
- Optional Through/Right Lane
- Optional Through/Left Lane
- Non-Striped Right-Turn Lane

Figure VI-1

Existing Lane Geometrics

Year (1999)

Endo Engineering

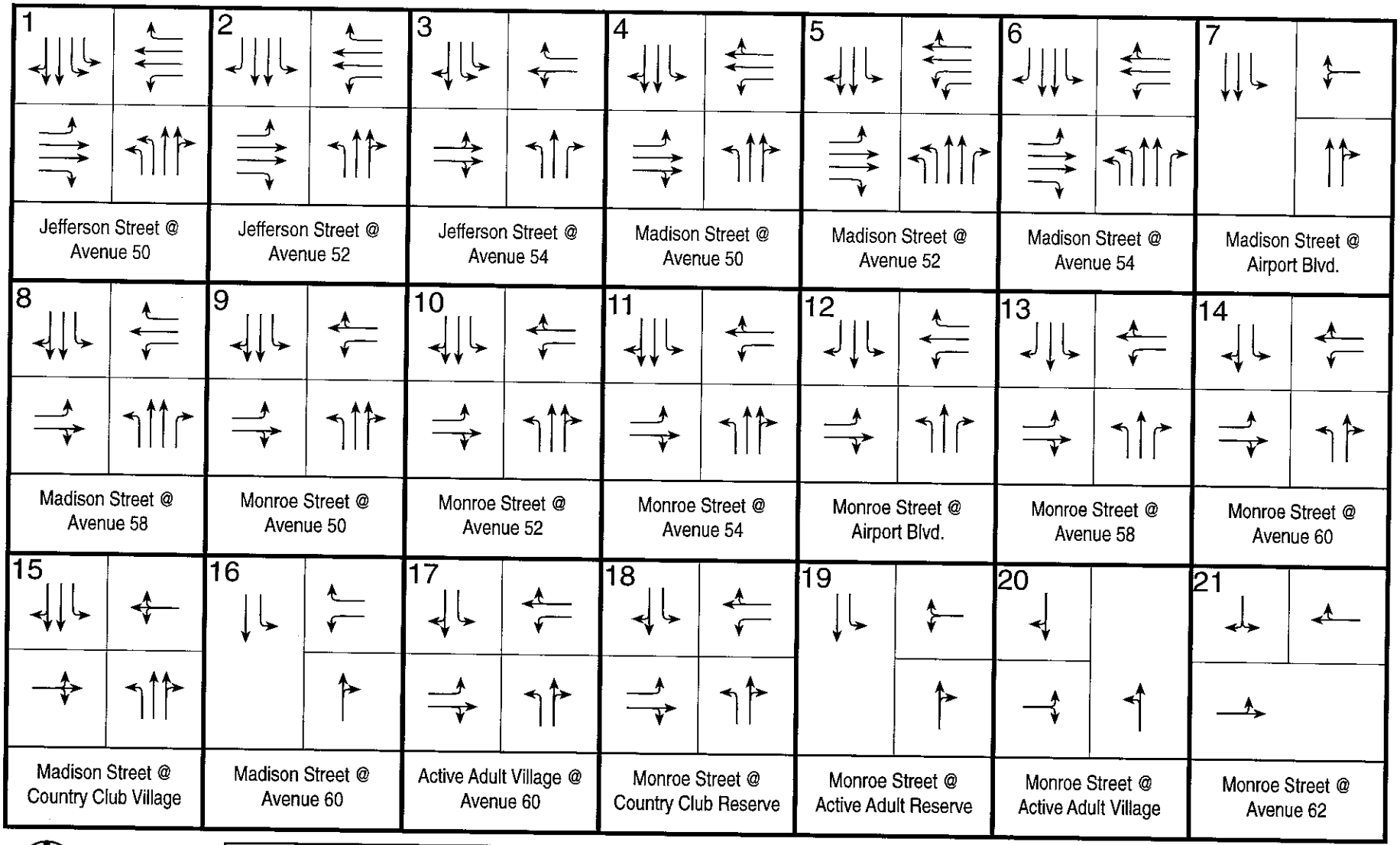


Legend

- 1 Intersection Number
- Exclusive Right-Turn Lane
- Through Lane
- Exclusive Left-Turn Lane
- Opt. Through/Right/Left Lane
- Optional Through/Right Lane
- Optional Through/Left Lane

Endo Engineering

Figure VI-2
Required Year 2004 Lane Geometrics



Legend

- 1 Intersection Number
- Exclusive Right-Turn Lane
- Through Lane
- Exclusive Left-Turn Lane
- Opt. Through/Right/Left Lane
- Optional Through/Right Lane
- Optional Through/Left Lane

Endo Engineering

Figure VI-3
Required Year 2010 Lane Geometrics

6. The trip generation associated with the initial phase (year 2004) of the proposed project would total approximately 8,840 daily trips, of which 719 would occur during the morning peak hour (237 inbound and 481 outbound) and 868 would occur during the evening peak hour (540 inbound and 327 outbound).

7. The trip generation associated with build-out (year 2010) of the proposed project would total approximately 54,320 unadjusted daily trip-ends, of which 3,488 would occur during the morning peak hour (1,098 inbound and 2,390 outbound) and 5,317 would occur during the evening peak hour (3,092 inbound and 2,225 outbound).

8. After trip overlap adjustments, the Coral Mountain Specific Plan will generate an estimated 44,120 adjusted average weekday trips upon buildout. Of that total, an estimated 3,188 trip-ends are projected to occur during the morning peak hour (with 948 inbound and 2,240 outbound) and 4,335 external trip-ends are expected to occur during the evening peak hour (with 2,601 inbound and 1,734 outbound).

9. The primary source for traffic increases in the project vicinity will be nine cumulative projects, which will generate a total of 93,660 daily trips by the year 2010 (more than twice the proposed project's daily trip generation).

10. The increase in trip generation associated with the proposed annexation will occur upon project buildout (year 2010), but will not affect Phase 1 (year 2004) development on-site, which has not changed since the previously approved traffic study.

11. The initial phase site traffic will cause the peak hour LOS in the year 2004 to drop at six of the key intersections, but the they will continue to provide LOS C or better operation, provided signalization is installed when warranted and the approach lanes depicted in Figure VI-2 are phased to coincide with projected increases in traffic volumes.

12. The addition of site traffic to year 2010 ambient volumes will cause the peak hour level of service to drop at eleven of the twenty-one key intersections.

13. Upon project buildout, all of the key intersections will operate at acceptable levels of service (LOS D or better) during peak hours, provided traffic signals are installed when warranted and roadway improvements consistent with Figure VI-3 are phased to coincide with projected increases in traffic volumes.

14. All of the key intersections are currently controlled by stop signs. One of the key intersections currently requires signalization.

15. Ten of the key intersections will require traffic signals to serve projected year 2004 total traffic volumes as shown in Table VI-1.

16. Nineteen intersections will require traffic signals under year 2010 conditions with build-out of the proposed project and nine cumulative projects (as shown in Table VI-1). Four of the required traffic signals are necessary for control of site access locations.

Table VI-1
Traffic Signal Warrants Summary[a]

Intersection	Scenario When Daily Traffic Signal Volume Warrants Are First Met				
	Year 1999 Peak Season	Year 2004 Ambient	Year 2004 With Project	Year 2010 Ambient	Year 2010 With Project
Jefferson Street @					
• Avenue 50	●	--	--	--	--
• Avenue 52	--	●	--	--	--
• Avenue 54	--	●	--	--	--
Madison Street @					
• Avenue 50	--	--	--	●	--
• Avenue 52	--	--	--	●	--
• Avenue 54	--	●	--	--	--
• Airport Boulevard	--	●	--	--	--
• Avenue 58	--	●	--	--	--
• Country Club Village	--	--	●	--	--
• Avenue 60	--	--	○	●	--
Avenue 58 @					
• Country Club Village	--	--	--	--	●

a. Based upon daily planning level volume warrants for use at new intersections or other locations where actual traffic volumes cannot be counted.
○ = Daily Planning Signal Warrants appear to be met, but the intersection operates adequately without signalization during peak hours.
● = Requires signalization to provide adequate levels of service during peak hours

Table VI-1 (Continued)
Traffic Signal Warrants Summary[a]

Intersection	Scenario When Daily Traffic Signal Volume Warrants Are First Met				
	Year 1999 Peak Season	Year 2004 Ambient	Year 2004 With Project	Year 2010 Ambient	Year 2010 With Project
Monroe Street @					
• Avenue 50	○	●	--	--	--
• Avenue 52	--	●	--	--	--
• Avenue 54	--	○	●	--	--
• Airport Boulevard	--	--	○	●	--
• Avenue 58	--	--	○	●	--
• Avenue 60	--	--	--	--	●
• Country Village Reserve	--	--	--	--	●
• Active Adult Reserve	--	--	--	--	--
• Active Adult Village	--	--	--	--	--
• Avenue 62	--	--	--	--	--
Avenue 60 @					
• Active Adult Village	--	--	--	--	●

a. Based upon daily planning level volume warrants for use at new intersections or other locations where actual traffic volumes cannot be counted.
○ = Daily Planning Signal Warrants appear to be met, but the intersection operates adequately without signalization during peak hours.
● = Requires signalization to provide adequate levels of service during peak hours.

VI.C Off-Site Improvements Needed

Figure VI-1 depicts the existing lane geometrics. Only one intersection, Jefferson Street @ Avenue 50, currently requires signalization to provide acceptable levels of service. None of the key intersections require additional lanes to provide acceptable levels of service (LOS D or better) for current traffic volumes.

Figure VI-2 illustrates the minimum lane requirements to accommodate year 2004 traffic volumes at acceptable levels of service (with or without the proposed project). Intersections which require signalization under 2004 no-project conditions were generally shown with left-turn lanes along the links with sizable traffic volumes to provide space for the turning vehicles to queue outside of the through travel lanes.

Figure VI-3 shows the minimum lane requirements for acceptable levels of service at the key intersections upon build-out of the proposed development and cumulative development (year 2010 conditions). As shown therein, Madison Street will need to be extended from Avenue 54 to north of Avenue 50. In addition, Madison Street will need to be extended from Avenue 62 to Avenue 60 to provide access for the Travertine Specific Plan. Madison Street will need to be fully improved as a 4-lane facility along its entire length through the study area.

Monroe Street will require widening to a 4-lane facility, from a point south of Avenue 54 to a point north of Avenue 50, to provide adequate levels of service in the year 2010. In addition, Avenue 50, Avenue 52, and Avenue 54 will require improvements to their master planned cross-sections in the vicinity of Madison Street and Jefferson Street by the year 2010 (as shown in Figure VI-3).

Planning level daily traffic signal warrants were checked for the unsignalized key intersections in the study area, as shown in Table VI-1 and the worksheets in Appendix 3. One intersection, Jefferson Street @ Avenue 50, appears to warrant signalization with existing peak season traffic volumes. Nine additional key intersections will require signalization by the year 2004 to accommodate the proposed project and cumulative development.[1] A total of nineteen intersections will require signalization by the year 2010 to accommodate the proposed project and cumulative development.[2]

VI.D Compliance With General Plan Circulation Policies

The proposed circulation system is consistent with the Riverside County Circulation Element as required by the Riverside County Conditions of Approval on S.P. 218 Amendment #1. The City of La Quinta has agreed to accept the master planned roadway classifications approved by Riverside County within the Specific Plan area.

VI.E CMP System Improvements Needed

There are no CMP roadways in the study area.

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1. One of the eight intersections requiring signalization by the year 2004 is Madison Street @ Avenue 58. The site occupies two of the four corners at this intersection.
2. The intersection of Monroe Street and Avenue 60 will require signalization by the year 2010, with or without the project, and was assumed to be on-site as the site will occupy all four corners at this intersection, following annexation.

VII. RECOMMENDATIONS

VII.A Site Access/Circulation Plan

The proposed development is served by a grid of master planned roadways as shown in Figure II-1. The primary project access is to the north along Madison Street, Jefferson Street and Monroe Street. Access to the east is provided along Avenue 50, 52, 54, 58, 60, 62, and Airport Boulevard. Access to the west is provided by Avenue 50 and 52.

The Coral Mountain Specific Plan focuses site traffic through six major entry points. As shown in Table VI-1, four of the six major entries appear to require signalization upon project buildout, and two will be controlled by stop signs. Since detailed development plans for the proposed annexation areas have not been developed, traffic control requirements at the access points should be reviewed when site plans are available. All of the internal site access roads will have adequate capacity with two through travel lanes.

The City of La Quinta has agreed to accept the County of Riverside roadway designations for the roadways on-site. When/if the Specific Plan is annexed to the City of La Quinta, the project proponent should coordinate with City staff to determine if it is appropriate to reduce the cross-sections of any of the master planned roadways on-site (e.g. Avenue 62).

The following mitigation measures are recommended to reduce potential circulation impacts associated with the proposed project and site access.

1. Specific design standards for internal streets shall be consistent with City street requirements for residential loop streets and residential cul-de-sacs.

2. The proposed internal circulation layout shall be subject to the review and approval of the City of La Quinta during the development review process to insure compliance with City minimum access and design standards.

3. Intersection spacing on-site shall comply with City standards.

4. All internal streets shall be fully constructed to their master planned cross-section as adjacent on-site development occurs.

5. Sidewalks and streetlights shall be installed on-site as specified by the City .

6. Clear, unobstructed sight distance shall be provided at all internal street intersections on-site.

7. The project proponent shall provide (at a minimum) the lane geometrics shown in Figures VI-2 and VI-3 at the site access locations in conjunction with adjacent development.

8. The project proponent shall install a traffic signal when warranted at the intersection of: (1) the Country Club Village access @ Madison Street, (2) the Active Adult Village @ Avenue 60, (3) the Country Club Reserve access @ Monroe Street, and (4) the Country Club Village access @ Avenue 58.

9. The project proponent shall participate in the Traffic Uniform Mitigation Fee (TUMF) Program and the County Traffic Signal Mitigation Program in an effort to make their "fair-share" contribution to future roadway improvements within the project vicinity.

VII.B Roadway Improvements

A number of roadway and traffic signal improvements will be required throughout the study area, as detailed in Figures VI-2 and VI-3 and Table VI-1 to provide adequate capacity for the proposed Coral Mountain Specific Plan and nine cumulative projects. The project should contribute to the funding for any improvements of areawide benefit on a "fair share" basis, based upon any established fee programs (e.g. Traffic Signal Mitigation Fee), and be responsible for the implementation of site specific mitigation required by Riverside County.

VII.C Transportation System Management Actions

The California Environmental Quality Act specifies that mitigation measures be identified which would further reduce the impacts of a project, even though the measures are not incorporated in the project. This allows local decision makers to decide whether or not the additional measures are warranted. Transportation System Management (TSM) actions fall into this category inasmuch as they would further reduce project-related impacts but are not incorporated in the project as proposed. The County of Riverside could require a TSM Plan as a condition of approval. Such a plan would include those measures which are feasible on-site.

However, the proposed project is located near the southern edge of development in the Coachella Valley. With the anticipated intensity of development in the area, TSM measures may be ineffective and difficult to implement. Since year 2010 total traffic volumes can be adequately served by the master planned roadways, TSM actions do not appear to be needed.