Endo Engineering *Traffic Engineering Air Quality Studies Noise Assessments*

June 6, 2011

Mr. David Lennon
Hofmann Land Development Co.
P.O. Box 758
Concord, CA 94522

SUBJECT: Daily Traffic Projections Associated with Site Access Alternatives for the Isle of Travertine Specific Plan

Dear Mr. Lennon;

The *City of La Quinta General Plan* includes three public streets that would provide access to the Isle of Travertine Specific Plan: Madison Street, the Jefferson Street extension, and Avenue 62. In 2008, the City of La Quinta amended the General Plan to reclassify Madison Street and Jefferson Street as two-lane divided Modified Secondary Arterials rather than four-lane undivided Secondary Arterials near the Isle of Travertine Specific Plan site. Avenue 62 was also downgraded to a two-lane Modified Collector Street at that time.

Even with the reduced street classifications in the *City of La Quinta General Plan*, the cost of constructing all three streets as full access public streets may be impractical and cost prohibitive. As a result, various access options are being evaluated by the Travertine design team in an effort to more precisely identify the minimum access configuration necessary to provide adequate access for the Isle of Travertine Specific Plan and Section 5.

Rather than constructing three independent public street connections to the Isle of Travertine site, it may be possible to improve one or more of the these streets as an emergency access and multi-purpose trail connection. Alternatives to improving Madison Street, Jefferson Street and Avenue 62 as currently shown in the *City of La Quinta General Plan* are being considered. To evaluate the feasibility of each of these access configurations, the future levels of service on each public street connection must be identified to determine whether or not it would provide acceptable levels of service as a two-lane roadway. In addition, the implications of eliminating Madison Street, Jefferson Street and/or Avenue 62 as public streets on the availability of regional trail access and independent routes for emergency access must be assessed.

Pursuant to your request, Endo Engineering has evaluated five site access configurations for the Isle of Travertine Specific Plan. Future daily traffic projections were developed and the daily levels of service upon General Plan build out were evaluated for each alternative. In addition, the potential effects of each access configuration on mobility and accessibility were discussed. The traffic projections herein should be of value in identifying the most cost-effective circulation network that would safely meet the needs of all users in the future while preserving the unique setting and character of this area.

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Trip Generation Assumed

The future traffic projections identified herein reflect all future development anticipated in the study area shown in Figure 1 as well as 2,000 future regional "through" trips per day estimated by the City of La Quinta to ultimately use Avenue 62 and Madison Street. The traffic generated by the Travertine site reflects the Conceptual Land Use Plan evaluated in *The Isle of Travertine Traffic Impact Study*, (dated March 27, 2008) and *The Isle of Travertine S.P. 94-026 Amendment Number 1 GPA 08-113 and Zone Change 08-133 Off-Site Traffic Impact Study*, (dated November 13, 2008). The land uses evaluated included a maximum of 1,400 single-family detached dwelling units and a 500-room hotel.

Cumulative traffic volumes include 1,570 daily trip-ends generated by up to 157 future single-family detached residential dwellings in Section 5 as well as 720 daily trip-ends generated by up to 67 future single-family detached residential dwellings in the 11.9-acre Not-A-Part area surrounded by the Isle of Travertine development. To simplify the graphics, the regional "through" trips were incorporated, where appropriate, in the cumulative traffic projections shown for Madison Street and Avenue 62.

The trip generation forecast previously included in the Isle of Travertine on-site and off-site traffic impact studies prepared by Endo Engineering was assumed to develop the future traffic projections herein. Approximately 4,100 of the daily trip-ends would be associated with the 500-room hotel proposed for the Isle of Travertine site. With no age-restricted dwelling units and no multiple-family attached dwelling units, it is estimated that upon build out, the Isle of Travertine development would generate 15,890 external trips per day.

Future Daily Traffic Projections

Future daily traffic projections reflecting conditions upon General Plan build out were developed for each site access configuration. All assumptions regarding land use, trip generation, and traffic distribution used to develop the traffic projections shown herein were consistent with the previous traffic impact studies submitted to the City of La Quinta for the Isle of Travertine Specific Plan Amendment No. 1.

Figure 2 illustrates the project-related future daily traffic projections for conditions with three two-lane public access connections: Jefferson Street, Madison Street, and Avenue 62. Cumulative traffic projections shown in Figure 2 include: the traffic associated with Section 5 and the 11.9-acre Not-A-Part area as well as the 2,000 regional "through" trips identified by the City of La Quinta. The total daily traffic projections shown represent the sum of the Isle of Travertine traffic and the cumulative traffic, which includes the regional "through" traffic volumes, where appropriate.

Figure 3 shows the future traffic projections with Avenue 62 built as an emergency access and multi-purpose trail connection, rather than a public street connection. With this change in site access, the traffic that would not be able to use Avenue 62 for access would utilize Madison Street instead. Without Avenue 62 as a public street, the 2,000 vehicles per day (VPD) identified by the City of La Quinta as regional "through" trips would be unable to utilize Madison Street, north of Avenue 62.

Figure 4 provides the future traffic projections with Jefferson Street built as an emergency access and multi-purpose trail connection, rather than a public street connection. Avenue 62 was assumed to be downgraded from a Modified Collector Street to a Local Street with this alternative. With this site access configuration, Avenue 62 would accommodate approximately 4,750 vehicles per day. This daily traffic demand would be well within the capacity of any two-lane roadway without direct residential frontage (i.e., without driveways

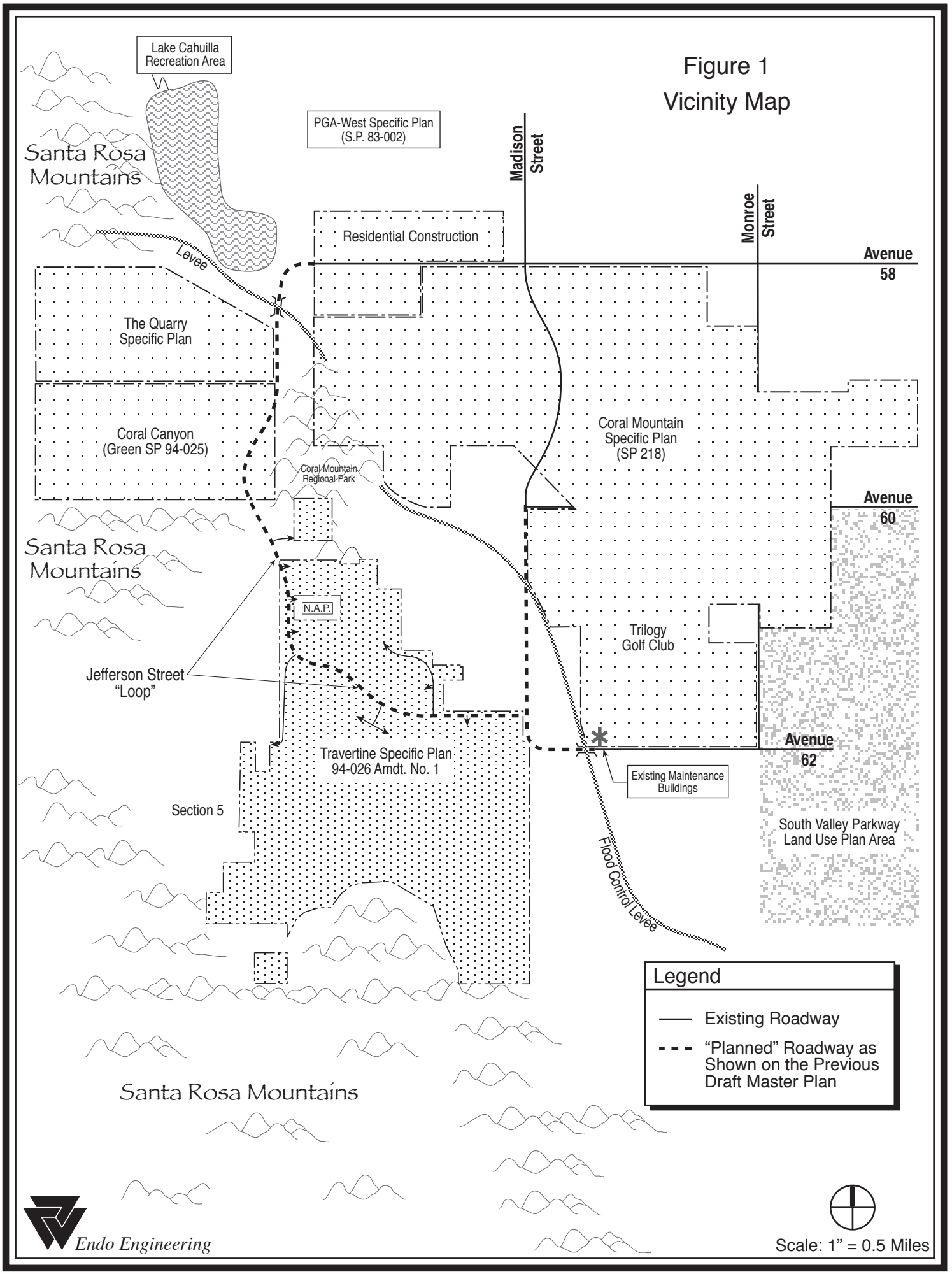
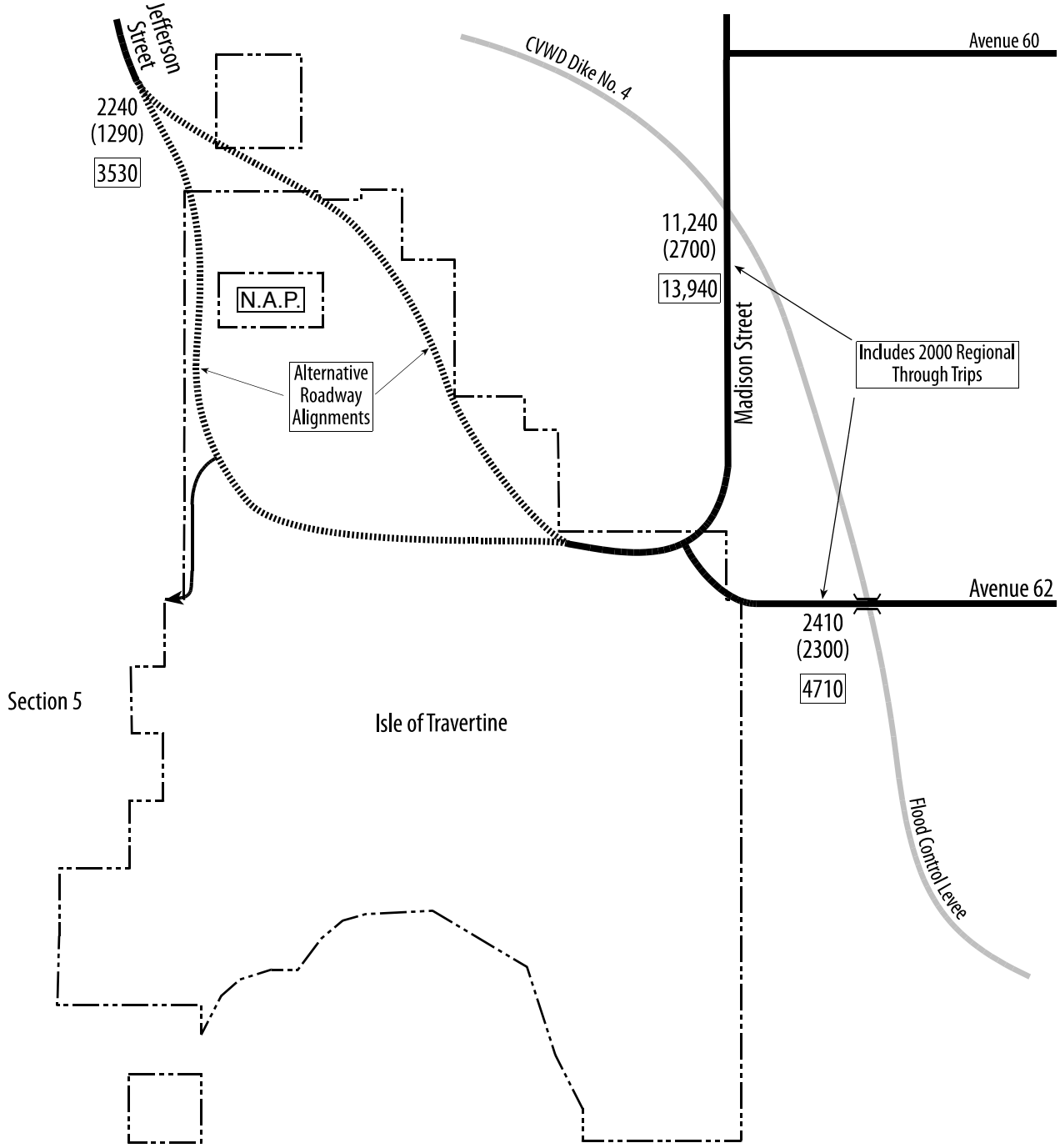


Figure 1
Vicinity Map
Lake Cahuilla Recreation Area
PGA-West Specific Plan (S.P. 83-002)
Madison Street
Monroe Street
Avenue 58
Avenue 60
Avenue 62
Residential Construction
Levee
The Quarry Specific Plan
Coral Canyon (Green SP 94-025)
Coral Mountain Specific Plan (SP 218)
Coral Mountain Regional Park
Santa Rosa Mountains
N.A.P.
Trilogy Golf Club
Jefferson Street "Loop"
Travertine Specific Plan 94-026 Amdt. No. 1
Existing Maintenance Buildings
Section 5
South Valley Parkway Land Use Plan Area
Flood Control Levee
Legend
Existing Roadway
"Planned" Roadway as Shown on the Previous Draft Master Plan
Endo Engineering
Scale: 1" = 0.5 Miles

Figure 2

Future Daily Traffic Projections With Option 1
(Three Public Access Roads)



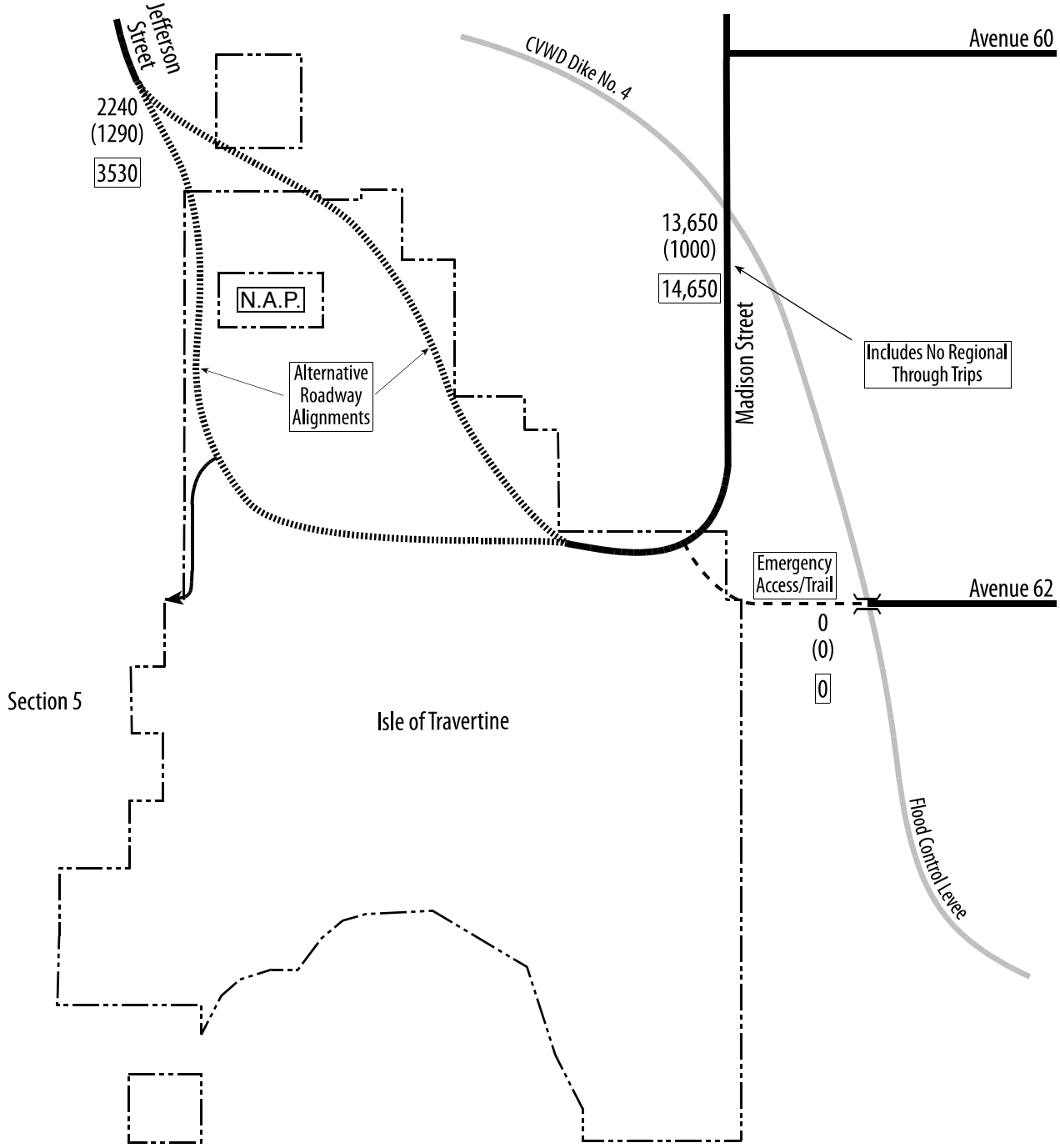
Legend	
2240 (1290)	Project-Related Traffic Cumulative+Regional Through Traffic
3530	Total Daily Traffic

Endo Engineering

Scale: 1" = 1,550'

Figure 3

Future Daily Traffic Projections With Option 2
(Avenue 62 Emergency Access and Multi-Purpose Trail)



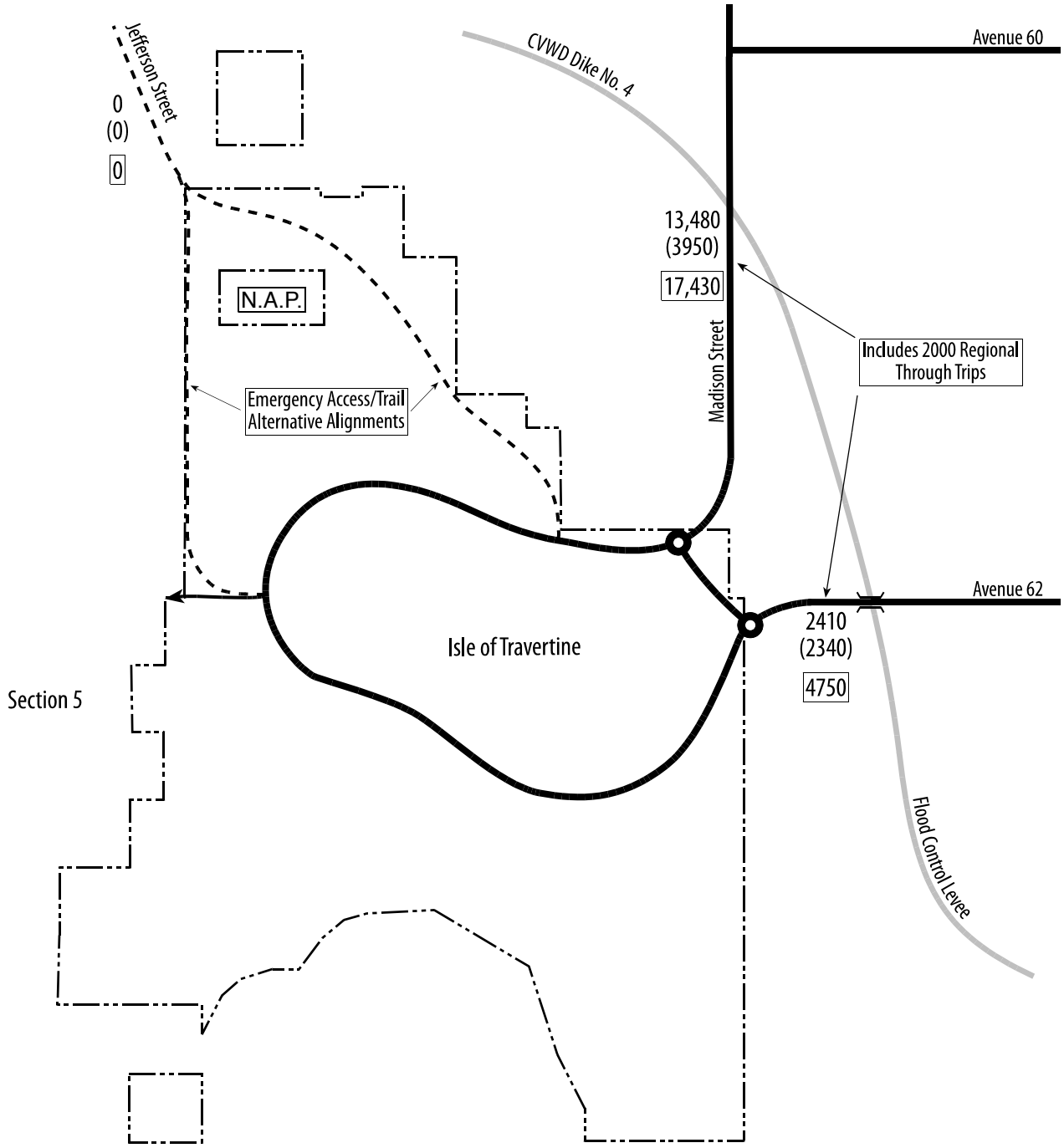
Legend	
2240	Project-Related Traffic
(1290)	Cumulative+Regional Through Traffic
3530	Total Daily Traffic

Endo Engineering

Scale: 1" = 1,550'

Figure 4

Future Daily Traffic Projections With Option 3
(Jefferson Street Emergency Access and Multi-Purpose Trail with Avenue 62 Downgraded)



Legend	
2240	Project-Related Traffic
(1290)	Cumulative+Regional Through Traffic
3530	Total Daily Traffic

Endo Engineering

Scale: 1" = 1,550'

that require residents to back out into the roadway). With this site access configuration, both Madison Street and Avenue 62 would carry 2,000 VPD identified by the City of La Quinta as regional "through" trips. Madison Street would serve approximately 17,430 VPD. This future traffic projection would exceed the daily design capacity of Madison Street as a two-lane divided roadway by approximately two percent or 330 vehicles per day.

Figure 5 illustrates the future daily traffic projections with both Jefferson Street and Avenue 62 built as emergency access and multi-purpose trail connections, rather than public streets. With this roadway configuration, Madison Street would carry approximately 18,180 VPD upon build out of the General Plan and require four through lanes to meet the City of La Quinta minimum circulation performance standard of LOS D on a daily basis.

Figure 6 provides the future traffic projections with Madison Street built as an emergency access and multi-purpose trail connection, rather than a public street connection. Avenue 62 was assumed to be downgraded from a Modified Collector Street to a Local Street with this alternative. Jefferson Street was assumed to be constructed as a two-lane divided Modified Secondary Arterial with this alternative.

Without Madison Street as a public street between Avenue 60 and Avenue 62, approximately 6,180 vehicles per day would utilize Avenue 62. This daily traffic demand would be well within the capacity of any two-lane roadway without direct residential frontage (i.e., without driveways that require residents to back out into the roadway). There would be no regional through trips diverting from Monroe Street across Avenue 62 to Madison Street with this access configuration. Although the daily traffic on Jefferson Street would increase to 12,000 vehicles per day with this alternative, this traffic volume would be within the capacity of Jefferson Street as a two-lane divided Modified Secondary Arterial.

Daily Levels of Service

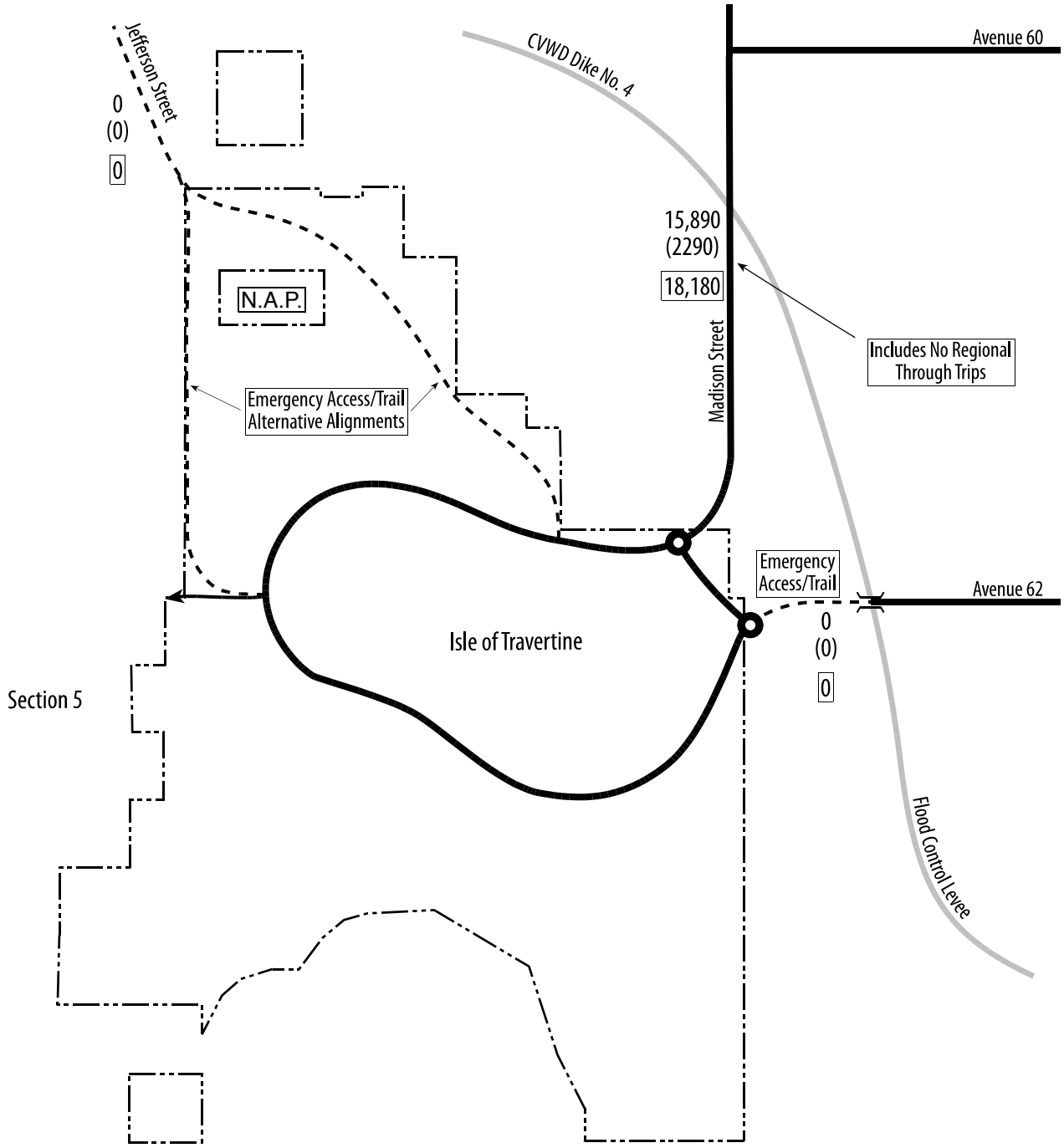
Table 1 summarizes the daily traffic projections and levels of service by access roadway segment and site access alternative. As shown therein, the construction of three public streets for access would provide a combined capacity of 46,800 daily trips. This network capacity could accommodate more than twice the future traffic demand associated with full development of the study area. However, Madison Street would operate at 82 percent of its two-lane divided Modified Secondary Arterial capacity. Jefferson Street and Avenue 62 would operate at 21 percent and 37 percent of their daily capacities, respectively.

Roadways can typically carry traffic volumes that comprise up to 60 percent of their daily capacity and still operate with very little delay at Level of Service A (LOS A). Therefore, a two-lane Modified Secondary Arterial (e.g., Jefferson Street) that is expected to operate at only 21 percent of its daily capacity could be downsized to either Collector or Local Street standards and still operate at LOS A with Access Option 1. Similarly, Avenue 62 could be downsized to Local Street standards and still operate at LOS A with Access Option 1.

Although Access Option 2 more closely matches the capacity to the travel demand on Madison Street, the capacity of Jefferson Street would substantially exceed the anticipated future travel demand. With this access configuration Madison Street would function as the primary site access in the future and operate at Level of Service C on a daily basis. Avenue 62 would be built as an emergency access and trail connection. With Madison Street as a two-lane divided Modified Secondary Arterial, Jefferson Street would serve only 3,530 VPD and could provide adequate site access as well as public access to regional trails as a Modified Collector Street or as a two-lane Local Street.

Figure 5

Future Daily Traffic Projections With Option 4
(Jefferson Street and Avenue 62 As Emergency Access and M.P. Trails)



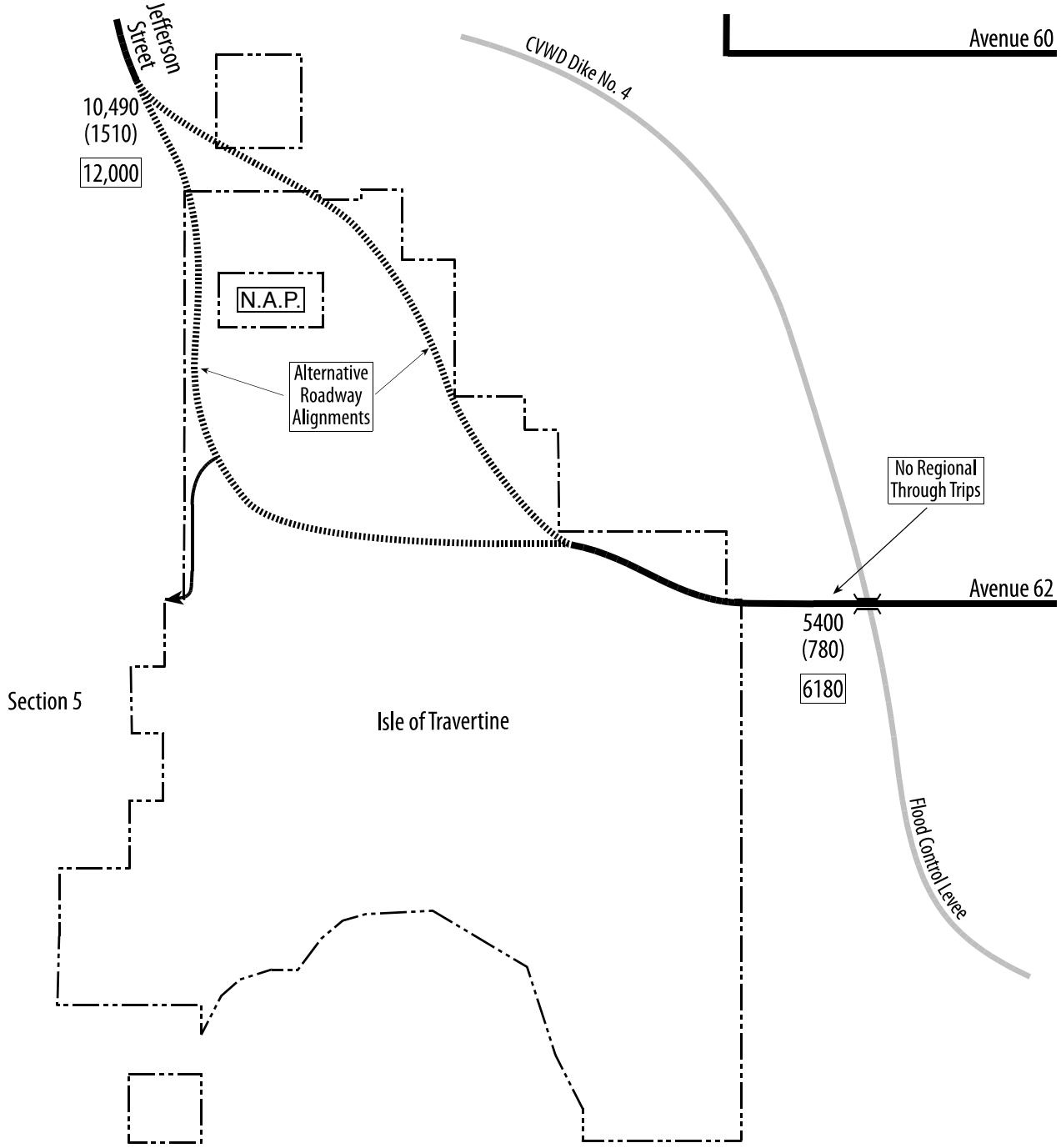
Legend	
2240	Project-Related Traffic
(1290)	Cumulative+Regional Through Traffic
3530	Total Daily Traffic

Endo Engineering

Scale: 1" = 1,550'

Figure 6

Future Daily Traffic Projections With Option 5
(Madison Street Not Extended)



Legend	
2240	Project-Related Traffic
(1290)	Cumulative Through Traffic
3530	Total Daily Traffic

Endo Engineering

Scale: 1" = 1,550'

Table 1
Daily Levels of Service Upon General Plan Build Out

Access Option Roadway Segment	Classification[a]	Lane Configuration	Volume (VPD)	Capacity[b] (VPD)	Daily V/C Ratio-LOS
Access Option 1: Three Public Streets					
-Jefferson Street	Mod. Sec. B	2-Divided	3,530	17,100	0.21-LOS A
-Madison Street	Mod. Sec. A	2-Divided	13,940	17,100	0.82-LOS C
-Avenue 62	Mod. Collector	2 Lanes	4,710	12,600	0.37-LOS A
Access Option 2: Avenue 62 Emergency Access					
-Jefferson Street	Mod. Sec. B	2-Divided	3,530	17,100	0.21-LOS A
-Madison Street	Mod. Sec. A	2-Divided	14,650	17,100	0.86-LOS C
-Avenue 62	ETA Connection	-	-	-	-
Access Option 3: Jefferson Street Emergency Access & Downgrade Avenue 62					
-Jefferson Street	ETA Connection	-	-	-	-
-Madison Street	Mod. Sec. A Secondary	2-Divided 4-Undivided	17,430 17,430	17,100 25,200	1.02-LOS E 0.69-LOS B
-Avenue 62	Local	2-Undivided	4,750	8,100	0.59-LOS A
Access Option 4: Jefferson Street and Avenue 62 Emergency Access					
-Jefferson Street	ETA Connection	-	-	-	-
-Madison Street	Mod. Sec. A Secondary	2-Divided 4-Undivided	18,180 18,180	17,100 25,200	1.06-LOS E 0.72-LOS B
-Avenue 62	ETA Connection	-	-	-	-
Access Option 5: Madison Street Emergency Access					
-Jefferson Street	Mod. Sec. A	2-Divided	12,000	17,100	70.2-LOS B
-Madison Street	ETA Connection	-	-	-	-
-Avenue 62	Local	2-Undivided	6,180	8,100	0.76-LOS B

a. ETA=Emergency and Trail Access connection (not a public street).
b. Capacities reflect the City of La Quinta minimum performance standard (the upper limit of LOS D).

With Access Option 3, Jefferson Street would be built as an emergency and trail access, and Avenue 62 would be downgraded. As either a Local Street or a Collector Street, Avenue 62 would accommodate only 4,750 VPD and operate at Level of Service A on a daily basis. However, if 2,000 daily regional "through" trips were to utilize Madison Street, the future traffic volume would exceed LOS D by 330 vehicles per day (two percent).

Access Option 3 may be feasible with Madison Street as a two-lane divided arterial, given that the daily traffic projection for Madison Street exceeds the daily capacity by only two percent. The daily traffic projections for Madison Street are based upon a series of conservative assumptions that may overestimate the travel demand. As a two-lane divided

limited access arterial, Madison Street will not have driveways or intersections that typically result in turning movements and weaving that impedes the flow of through traffic. Therefore, Madison Street, between Avenue 60 and Avenue 62, would exhibit a somewhat higher capacity than a typical two-lane divided arterial.

With Access Option 4, both Jefferson Street and Avenue 62 would be constructed as emergency access and trail connections. With this access configuration, the future daily traffic demand on Madison Street would exceed LOS D by six percent (1,080 vehicles per day). This would not be the result of 2,000 regional "through" trips, because Avenue 62 would not provide a public street connection to Madison Street. As a two-lane divided Modified Secondary Arterial, Madison Street would exceed the City of La Quinta minimum performance standard and operate at LOS E on a daily basis. To retain Madison Street as a two-lane divided Modified Secondary Arterial, the future traffic demand would have to be reduced by 1,080 vehicles per day. As a four-lane undivided Secondary Arterial, Madison Street would accommodate traffic volumes equivalent to 72 percent of its daily capacity and provide Level of Service B on a daily basis with Access Option 4.

With Access Option 5, Avenue 62 would be downgraded. As either a Local Street or a Collector Street, Avenue 62 would accommodate approximately 6,180 VPD and operate at Level of Service B on a daily basis. Jefferson Street would be constructed as a two-lane divided Modified Secondary Arterial. Jefferson Street would serve approximately 12,000 VPD, and operate at Level of Service B on a daily basis. Madison Street could be built as an emergency and trail access with Access Option 5.

Roadway Sizing Conclusions

With the options that include Madison Street as a public street, the projected traffic volumes for Jefferson Street and Avenue 62 could be accommodated at Level of Service A by any two-lane roadway (including a Local Street) which provides 12-foot travel lanes and does not have direct residential frontage (i.e., no individual residential driveways where residents must back out into the street). With Access Options 1 and 2, Madison Street would be operating at 82 to 86 percent of its daily capacity as a two-lane divided roadway. With Access Options 3 and 4, Madison Street could operate at or slightly beyond the capacity of a typical two-lane divided roadway.

Option 5, which eliminates Madison Street as a public street between Avenue 60 and Avenue 62, increases the traffic volumes on both Jefferson Street and Avenue 62. With Option 5, the projected traffic volumes for Jefferson Street and Avenue 62 could be accommodated at Level of Service B with Jefferson Street improved as a two-lane divided Modified Secondary Arterial, and Avenue 62 improved as any two-lane roadway (including a Local Street) which provides 12-foot travel lanes and does not have direct residential frontage).

With Jefferson Street eliminated as a public street (Options 3 and 4), Avenue 62 would provide acceptable levels of service on a daily basis with two lanes as either a Collector Street or a Local Street, provided no direct residential frontage is permitted. Although with Access Option 3 Madison Street is projected to exceed its two-lane daily planning capacity by two percent, it would most likely not operate at LOS E because the projections include several conservative assumptions. The limited access roadway would exhibit somewhat more capacity than a typical two-lane divided roadway. In addition, any regional "through" traffic volume would decrease if the travel demand approached the capacity and travel speeds decreased.

With Option 4 (both Jefferson Street and Avenue 62 eliminated as public streets), Madison Street is projected to exceed LOS D on a daily basis by six percent as a two-lane divided Modified Secondary Arterial. It may be feasible to either reduce the trip generation projection or increase the capacity assumed for Madison Street based on its limited access. With four lanes, Madison Street would provide acceptable levels of service even without Jefferson Street and Avenue 62 as public street connections.

Potential Changes in Access

Circulation system needs must be balanced with the needs of the environment and community goals and objectives. Like any other gated community, the Isle of Travertine would be served by private internal streets accessible to residents and guests but not the general public. From a capacity perspective, a single crossing of the flood control levee would be sufficient to serve the Travertine development. However, the availability of two independent access routes separated as much as possible is desirable for emergency access.

It is in the public interest to construct and maintain only those circulation improvements necessary to support the future development expected to occur in the study area. The provision of excess roadway capacity in an area where development intensities are substantially lower than the maximum permitted under the existing entitlements is not efficient or fiscally responsible. With three public access connections, all of the undeveloped land in the study area would have public access and the public would have access to regional trails. However if each access route were constructed as a two-lane roadway, three public access connections would provide more than twice the capacity necessary to accommodate the future development of this area.

The travel demand in the study area is primarily in the north-south direction. Consequently, Madison Street would provide the most direct access for the Isle of Travertine Specific Plan in the future. Direct access is desirable for commuter travel, for future hotel guests who may be unfamiliar with the area, and to minimize emergency response times. Madison Street would provide new multi-purpose trail connections and reduce the ultimate travel demand on the Jefferson Street extension. Even if Madison Street is not extended as a public street (Option 5) a bike trail and multi-use trail could be constructed along the one mile long Madison Street alignment.

The Jefferson Street extension would provide a scenic north-south access route that would improve access to the western and northern portions of the Travertine development and Section 5. The Jefferson Street extension would also improve network continuity for the Coral Canyon and Quarry Ranch developments. If the Jefferson Street extension is built as an emergency access and trail connection, future residents of Section 5 and the Not-A-Part area would be required to pass through the Isle of Travertine development on private streets and travel further to use Madison Street for north-south access.

Avenue 62 provides circulation network continuity, improved emergency access, access to the east, and access to regional trails. However, physical constraints and insufficient right-of-way dedications limit the widening of Avenue 62 where it crosses the existing dike and flood control channel. The elimination of Avenue 62 as a public street connection would make access to/from the east more circuitous for future residents of the study area.

The public would be able to access regional trails from Madison Street, Jefferson Street, and Avenue 62, even if they were not constructed as public street connections. Future residents would have an adequate number of independent emergency access routes if one public access connection were constructed and either one or two emergency access and trail

connections were provided to the Isle of Travertine Specific Plan rather than three public access connections.

Summary of Findings

The Isle of Travertine, Section 5, and the 11.9-acre Not-A-Part area could ultimately be developed with up to 1,624 single family detached dwelling units and a 500-room hotel. This future development could generate up to 18,180 "external" trips per day. External trips have either an origin or a destination within the site and involve travel across the site boundaries. The City of La Quinta wants to provide sufficient capacity for 2,000 regional through trips per day as well as new multi-purpose trail connections and public access to regional trails.

Access Option 1

Providing three public access routes to the Isle of Travertine Specific Plan will clearly result in acceptable levels of service, more than adequate access, and exceptional levels of mobility. However, the anticipated traffic demand of this area upon General Plan build out does not appear to require three public access routes with enough capacity to accommodate 46,800 daily trips. Access Option 1 would provide more than twice the capacity needed as well as three rather than two independent public access routes for the future development.

Access Option 2

This access option would provide two independent access routes for future development plus an emergency access and trail connection via Avenue 62. All access roadways would operate at acceptable levels of service. As a two-lane divided Modified Secondary Arterial B, Jefferson Street would provide substantially more capacity than necessary. The future traffic demand on this facility would be less than 21 percent of its capacity. Any two-lane roadway would provide sufficient capacity to accommodate the 3,530 VPD ultimate traffic projection for Jefferson Street. This access option eliminates the 2,000 regional through trips on both Avenue 62 and Madison Street.

Access Option 3

Even though the daily traffic volume projected for Madison Street is identified as 330 VPD more than the capacity of a two-lane divided Modified Secondary Arterial A in Table 1, Access Option 3 could provide adequate access for the study area. Madison Street will be a limited access facility between Avenue 60 and Avenue 62. Limited access 2-lane divided arterials have been shown to have higher capacities than those with numerous driveways and intersections where turning vehicles interfere with the flow of through traffic. However, the City of La Quinta would need to concur with a higher daily capacity for this limited access roadway.

The City of La Quinta estimate of 2,000 regional through trips per day missing the right turn onto Monroe Street from Avenue 62 and opting instead to use Madison Street may be high by substantially more than 330 VPD. This estimate may exceed the number of regional "through" trips that will ultimately utilize Madison Street by as much as 1,000 vehicles per day.

The future residents of the Isle of Travertine may make fewer trips per day than expected because they have fewer children living with them and include more retired homeowners than the national average. Recent traffic counts at PGA West have found that residents

there generate only one-half the number of daily trips that they were expected to generate, even though the residential dwellings have no age restrictions. Some of the1,624 dwelling units may ultimately be constructed as second homes that are not occupied or rented consistently and others may be constructed as multiple-family attached units or as age-restricted units that would generate substantially less traffic.

Upon build out, the development in the Isle of Travertine, Section 5, and the Not-A-Part area may ultimately yield fewer single family detached dwelling units than the 1,624 dwelling units assumed or the hotel may ultimately have fewer rooms than the 500 assumed to develop the traffic projections herein. A reduction in the development yield could reduce the traffic demand on Madison Street sufficiently to achieve LOS D. The future daily traffic volume on Madison Street could be reduced by 330 vehicles per day by: (1) a decrease of 38 single-family detached (SFD) dwellings in the Not-A-Part area, or (22) a decrease of 42 SFD dwellings in Section 5, or (3) a reduction of 40 to 50 SFD dwellings or 44 hotel rooms from the Isle of Travertine Specific Plan.

The range in the number of dwelling units that would need to be dropped from the Isle of Travertine Specific Plan reflects the variation in the residential trip generation rates assumed for the different sized Planning Areas. The ITE trip generation equations project lower trip generation rates per unit for larger developments.

Access Option 4

With Access Option 4, Madison Street is projected to carry 1,080 VPD more than its daily planning capacity at the upper limit of LOS D. That conclusion assumes that the Isle of Travertine is built with 1,400 SFD and a 500-room hotel and that Section 5 is built with 157 SFD and that the Not-A-Part area is built with 67 SFD. It also assumes that the limited access afforded by the levee crossing and no adjacent development south of Avenue 60 will not result in a higher daily capacity than a traditional two-lane divided roadway with numerous driveway connections and intersections.

The future traffic demand on Madison Street could be reduced by 1,080 VPD in a variety of ways. For example, if the 500-room Isle of Travertine hotel were reduced in size to 358 rooms, Madison Street would operate at LOS D with a two-lane divided cross section. A decrease of 113 SFD dwellings in Section 5 (leaving a maximum of 44 SFD dwelling units), or a reduction of 104 to 145 SFD dwelling units from the Isle of Travertine would reduce the future daily traffic volume on Madison Street by 1,080 vehicles per day.

Access Option 5

This access option would provide two independent access routes for future development and may include an emergency access and trail connection via Madison Street. Both access roadways would operate at acceptable levels of service with Jefferson Street and Avenue 62 constructed to their current General Plan cross-sections. As a two-lane divided Modified Secondary Arterial B, Jefferson Street would provide sufficient capacity to accommodate traffic that would be unable to utilize Madison Street for north-south access. Avenue 62 would provide sufficient capacity as any two-lane roadway, including a Local Street. Jefferson Street and Avenue 62 are projected to operate at LOS B with two-lane roadway cross-sections. This access option would eliminate the 2,000 regional through trips on both Avenue 62 and Madison Street.

We trust that the information herein will be of value to you in your continuing efforts to size the roadway network appropriately in the vicinity of the Isle of Travertine site. Should you have questions or comments, please do not hesitate to contact our offices by telephone at (949) 362-0020 or via e-mail (at endoengr@cox.net). We look forward to discussing this further with you.

Sincerely,

ENDO ENGINEERING

Gregory Endo
Principal

Vicki Lee Endo

REGISTERED PROFESSIONAL ENGINEER
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