

# **El Corredor**

## **Planned Area Development**



**Mayor & Council Approval - May 16, 2012**

El Corredor  
Planned Area Development  
Linda Vista Boulevard & Oracle Road

*Submitted to:*

**TOWN OF ORO VALLEY**  
Development & Infrastructure Services  
11000 North La Cañada Drive  
Oro Valley, Arizona 85737

*Prepared for:*

**ORACLE LINDA VISTA INVESTORS**  
PO Box 43426  
Tucson, Arizona 85733  
Phone: (520) 850-9300

*Prepared by:*

**THE PLANNING CENTER**  
110 South Church Avenue, Suite 6320  
Tucson, Arizona 85701  
Phone: (520) 623-6146

*With assistance from:*

**Rick Engineering**  
3945 East Fort Lowell, Suite 111  
Tucson, Arizona 85712  
Phone: (520) 795-1000

Mayor & Council Approval  
May 16, 2012



|   |    |
|---|----|
| <b>I. Site Analysis</b>   | 4  |
| A. Project Overview   | 5  |
| B. Existing Land Uses   | 7  |
| 1. Existing On-Site Land Use & Zoning                             | 7  |
| 2. Existing Zoning on Properties within a One-Quarter Mile Radius | 9  |
| 3. Well Sites   | 11 |
| C. Topography and Slope   | 14 |
| 1. Hillside Conservation Areas                                    | 14 |
| 2. Rock Outcrops  | 14 |
| 3. Slopes of 15% or Greater                                       | 14 |
| 4. Other Significant Topographic Features                         | 14 |
| 5. Pre-Development Cross-Slope                                    | 14 |
| D. Hydrology  | 16 |
| 1. Off-Site Watersheds/Balanced and Critical Basins               | 16 |
| 2. Natural or Man-Made Off-site Features                          | 16 |
| 3. Off-Site Watersheds with Discharges Greater than 100 cfs       | 16 |
| 4. On-Site Hydrology  | 18 |
| 5. Downstream Drainage Conditions                                 | 18 |
| E. Native Plants  | 19 |
| 1. Federally-Listed, Threatened or Endangered Species             | 19 |
| 2. Distinctive Native Plant Stands                                | 19 |
| 3. Distinctive Native Plants                                      | 20 |
| F. Biological Resources   | 22 |
| 1. Major Wildlife Linkages  | 22 |
| 2. Critical Resource Areas  | 22 |
| 3. Core Resource Areas  | 22 |
| 4. Arizona Game and Fish Department Environmental Review          | 22 |
| G. Scenic Resources   | 25 |
| 1. Oracle Road Scenic Corridor District                           | 25 |
| 2. Off-Site Viewsheds   | 25 |
| 3. Site Photos  | 25 |
| H. Traffic Circulation and Road System                            | 29 |
| 1. Existing and Proposed Off-Site Streets                         | 29 |
| 2. Roadway Improvements   | 30 |
| 3. Intersections  | 31 |
| 4. Alternate Modes  | 31 |
| I. Recreation and Trails  | 33 |
| 1. Open Space, Recreation Facilities, Parks and Trails            | 33 |
| J. Cultural Resources   | 35 |
| 1. Arizona State Museum Letter                                    | 35 |
| 2. Cultural Resources Survey and Inventory Report                 | 35 |



|     |  |    |
|-----|--|----|
| 3.  | Field Survey Requirements/Results.....                     | 35 |
| K.  | Schools.....   | 37 |
| L.  | Existing Infrastructure .....                              | 39 |
| 1.  | Sewer.....   | 39 |
| 4.  | Water .....  | 42 |
| M.  | McHarg Composite Map.....                                  | 43 |
| II. | Land Use Proposal Cover page.....                          | 45 |
| A.  | Planning Considerations.....                               | 46 |
| 1.  | Response to Site Inventory .....                           | 46 |
| 2.  | Rationale and Benefits for Use of a PAD.....               | 46 |
| 3.  | Conformance with General Plan .....                        | 47 |
| 4.  | Compatibility with Adjoining Land Uses.....                | 50 |
| B.  | Permitted and Excluded Uses.....                           | 55 |
| 1.  | Permitted Uses.....  | 55 |
| 2.  | Accessory Land Uses .....                                  | 55 |
| 3.  | Excluded Land Uses.....                                    | 56 |
| C.  | Development Standards .....                                | 57 |
| 1.  | Site Development.....                                      | 57 |
| 2.  | Vehicular Parking.....                                     | 58 |
| 3.  | Sidewalks.....   | 58 |
| 4.  | Loading Zones and Solid Waste Disposal.....                | 58 |
| 5.  | Lighting .....   | 59 |
| 6.  | Crime Prevention to Environmental Design.....              | 59 |
| D.  | Oracle Road Scenic Corridor Overlay District (ORSCOD)..... | 60 |
| E.  | Landscaping & Bufferyards .....                            | 63 |
| 1.  | Bufferyards .....  | 63 |
| 2.  | Mitigation .....   | 63 |
| F.  | Hydrology .....  | 66 |
| 1.  | Preliminary Development Response to Hydrology .....        | 66 |
| 2.  | Encroachment into 100-year Floodplain .....                | 66 |
| 3.  | Potential Drainage Impacts to Off-Site Land .....          | 66 |
| 4.  | Conformance with Applicable Plans .....                    | 66 |
| G.  | Circulation Plan .....                                     | 67 |
| 1.  | Proposed Circulation.....                                  | 67 |
| 2.  | Future Road Improvements.....                              | 67 |
| 3.  | Traffic Impact Statement.....                              | 68 |
| H.  | Recreation & Open Space.....                               | 68 |
| 1.  | Recreation .....   | 68 |
| 2.  | Open Space .....   | 69 |
| I.  | Wastewater .....   | 71 |
| J.  | Infrastructure Phasing Plan .....                          | 71 |





|    |  |    |
|----|--|----|
| K. | Water Conservation Standards .....       | 71 |
| 1. | Low Water Use Plants .....               | 71 |
| 2. | Rainwater Harvesting.....                | 71 |
| L. | Architectural Design Guidelines .....    | 72 |
| M. | Design Review .....                      | 72 |
| N. | Interpretations and Amendments.....      | 72 |
| 1. | Interpretation .....                     | 72 |
| 2. | Amendments .....                         | 72 |
|    | Appendix A: Traffic Impact Analysis..... | 74 |

## List of Exhibits

|  |    |
|--|----|
| Exhibit I.A.1: Regional Location.....                  | 6  |
| Exhibit I. B.1: Aerial View .....                      | 8  |
| Exhibit I.B.2.a: Existing Zoning .....                 | 12 |
| Exhibit I.C: Topography .....                          | 15 |
| Exhibit I.D.1: Off-Site Hydrology .....                | 17 |
| Exhibit I.E.1: Vegetative Communities .....            | 21 |
| Exhibit: I.F.1: AGFD Online Environmental Review ..... | 24 |
| Exhibit I.G.1.a: Photo Key Map .....                   | 26 |
| Exhibit I.G.1.b: Site Photos .....                     | 27 |
| Exhibit I.G.1.b: Site Photos .....                     | 28 |
| Exhibit I.H: Traffic .....                             | 32 |
| Exhibit I.I: Recreation and Trails.....                | 34 |
| Exhibit I.J: Arizona State Museum Letter .....         | 36 |
| Exhibit I.K: Schools .....                             | 38 |
| Exhibit I.L.1.a: PCWRD Letter .....                    | 40 |
| Exhibit I.L.1.b: Existing Sewer Network .....          | 41 |
| Exhibit I.M: McHarg Composite Map .....                | 44 |
| Exhibit II.A.1: Development Areas.....                 | 53 |
| Exhibit II.A.2: Conceptual Land Use Plan .....         | 54 |
| Exhibit II.E: Landscape Buffer Plan .....              | 65 |
| Exhibit II.G: Circulation Plan .....                   | 70 |



# I. Site Analysis



## A. Project Overview

The El Corredor Planned Area Development (PAD) encompasses approximately 22.8 acres located in an infill area within the Town of Oro Valley (See Exhibit I.A.1: Location Map.) The subject property is situated on the east side of Oracle Road, north of Linda Vista Boulevard. The project site is currently zoned C-1 (Commercial) and a change in zoning to Planned Area Development (PAD) is requested for development of the site.

Under the existing C-1 zoning, the original “El Corredor” development plan was approved in 1991, Case Number OV12-90-07. A single-story office structure was constructed along the northwest boundary of the site. Since that time, a number of development and entitlement approvals have occurred on the property, including:

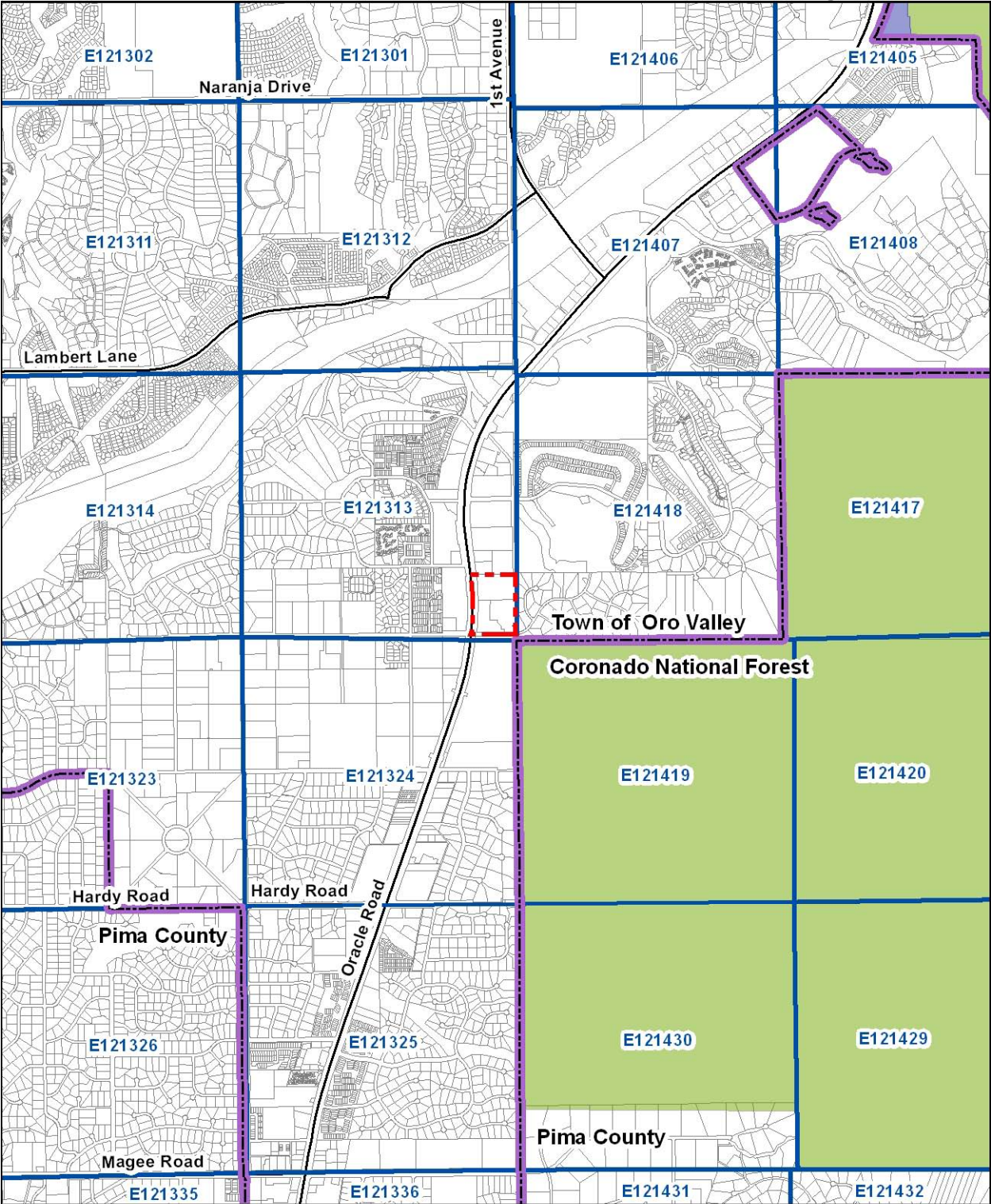
- 2006- Conditional Use Permit for a Drive Through for Starbucks, Case Number OV12-05-03
- 2007-Conditional Use Permit for a 120-room Homewood Suites Hotel, Case Number OV12-05-03B
- 2007- Administrative approval of a development plan for two retail buildings in Phase 2, Case Number OV12-05-03
- 2008- Conditional Use Permit for a 120-room Springhill Suites Hotel, Case Number OV12-05-03
- 2009- Development Plan and Landscape Plan approved for Homewood Suites Hotel, Case Number OV12-05-03B
- 2010-Building permits were approved and the Homewood Suites Hotel was partially constructed but then removed due to poor economic conditions.
- 2011- General Plan Amendment approved for the eastern 13 acres of the site from Commerce Office Park to High Density Residential, Case Number OV1111-003, Resolution 11-82

The primary purpose of the following Site Analysis is to identify the site’s opportunities, constraints and various physical characteristics of the 22.8 acres, the analysis of which will then provide a means whereby development is designed in a sensitive and responsive manner to the physical conditions of the site. Information for this section was compiled from a variety of sources, including site visits, referencing topographic, hydrological, archaeological and traffic analyses, and correspondence with staff from the local jurisdictions. The Site Analysis Document follows the Town of Oro Valley requirements provided in the Town of Oro Valley Zoning Code. Pursuant to such requirements, information on the following physical components of the site was compiled to assess the suitability of the property for development:

- Existing structures, roads and other development
- Topography and slope analyses
- Hydrology and water resources
- Vegetation and wildlife habitat
- Geology and soils
- Viewsheds
- Cultural resources
- Existing infrastructure and public services



Exhibit I.A.1: Regional Location



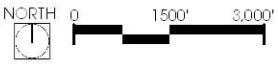
**LEGEND**

- Site Boundary
- Jurisdiction Boundary
- Township, Range & Section
- Catalina State Park
- Coronado National Forest

**NOTES**

Project Site is located at:  
T12S, R13E, S13  
Acreage: Approx. 22.8 AC  
Parcel ID#s:  
22431010B, 22431010C & 22431010D

FILE NAME: CUI-01\_regional\_location.mxd  
SOURCE: Pima County DOT GIS, 2012





## **B. Existing Land Uses**

This section of the Site Analysis Document identifies existing zoning, land use and structures on-site and on surrounding properties, as well as other proposed development in the project vicinity.

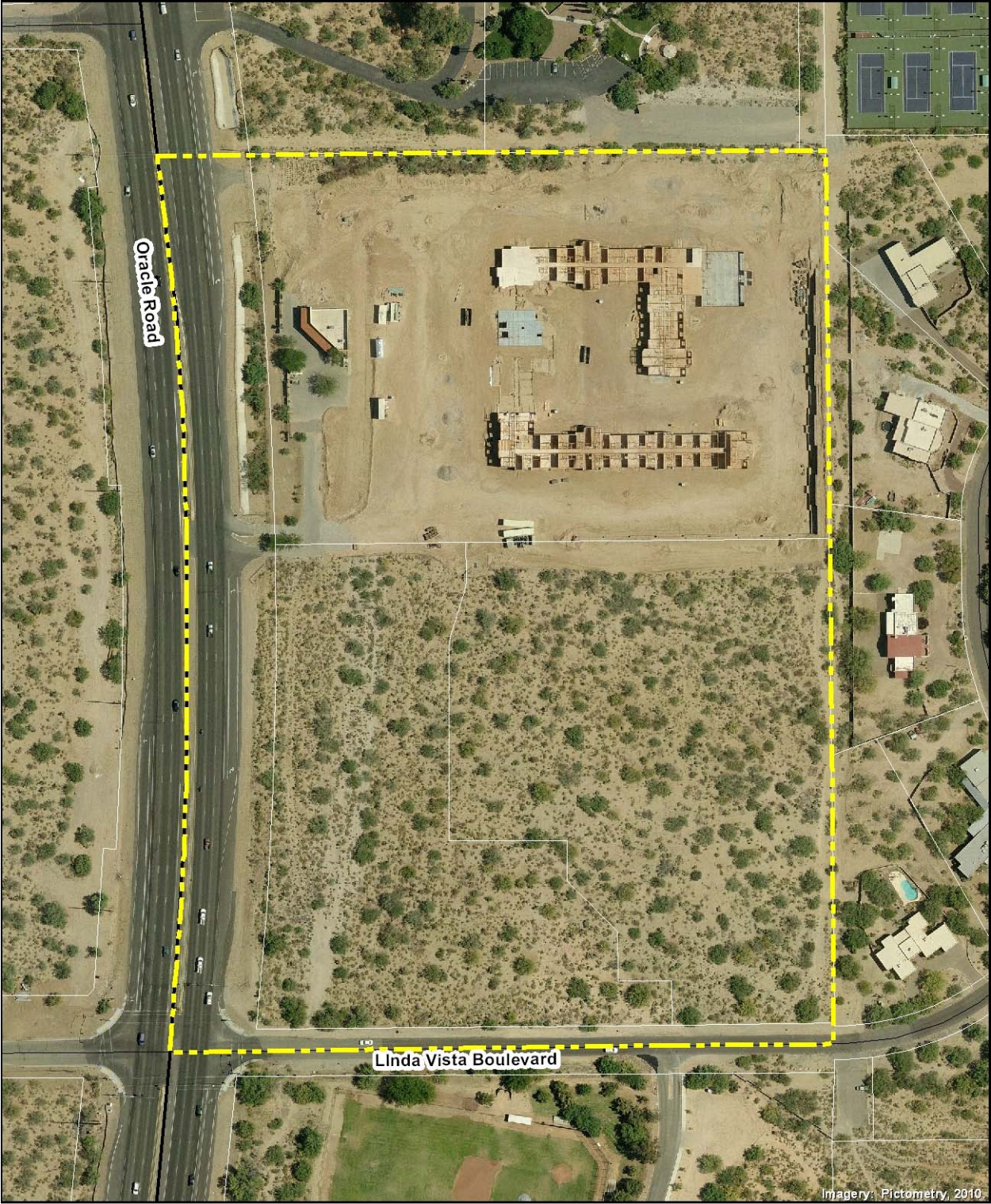
### **1. Existing On-Site Land Use & Zoning**

The entire PAD District is currently zoned C-1 (Commercial District), which permits large scale office complexes and retail centers located along a major arterial road.

Parcel 224-31-010B, within the northern half of the property, is currently a demolition site (See Exhibit I.B.1: Aerial View.) This parcel features a 2,000 square foot repurposed stucco office building with an accompanying asphalt road and parking lot, which presently supports the onsite contractor and demolition crew. Under previous ownership, Sunway Hotel Group initiated the construction of a new hotel. The site was graded, building foundations were poured and set, and the framing had commenced before the property entered foreclosure. Today, the construction initiated by Sunway Hotel Group site has been demolished by the current property owner. The office building and the temporary plant nursery still exists near the northern boundary of the site.

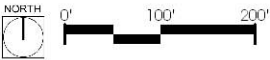
Unlike parcel 224-31-010B, parcels 224-31-010C and 224-31-010D on the southern half of the project site feature relatively undisturbed desert scrub. There are no apparent structures within this portion of the site, and human intervention is relatively absent.

Exhibit I. B.1: Aerial View



LEGEND

 PAD Boundary



FILE NAME: OLI-01\_aerialLocation.mxd  
SOURCE: Pima County DOT GIS, 2012





## **2. Existing Zoning on Properties within a One-Quarter Mile Radius**

### *a. Zoning*

The zoning designations of surrounding properties, as depicted in Exhibit I.B.2.a, are as follows:

- North: C-1 (Commercial District)  
T-P (Technological Park District)  
R-4R (Resort District)  
R1-144 (Single Family District)  
R-6 (Multi-Family Residential District)
- South: PSC (Private Schools and Churches)  
R1-144 (Single Family District)
- East: R1-43 (Single Family Residential)
- West: C-N (Neighborhood Commercial District)  
R-4 (Townhouse Residential District)  
R1-7 (Single Family Residential District)

### *b. Land Use*

The PAD District is mostly surrounded by a mix of vacant land and residential development. Although the majority of surrounding residential development consists of single family homes, an existing multifamily development (Pusch Ridge Apartment Homes) does sit directly northwest of the project site. The expansive Hilton Tucson El Conquistador Golf and Tennis Resort anchor the northeastern corner of the property, while Reflections at the Buttes (wedding/reception center) aligns directly north of the property boundary. The adjoining sports fields of the Pusch Ridge Christian Academy lie directly south of the project site. Exhibit I.B.2.b: Existing Land Uses displays the following surrounding land uses:

- North: Reflections at the Buttes (wedding/reception center)  
Pusch Ridge Apartment Homes  
Hilton El Conquistador Golf and Tennis Resort
- South: Private School: Pusch Ridge Christian Academy
- East: Pusch Ridge Estates (Residential)
- West: Oracle Road, Golder Ranch Fire District Station #377, Vacant Land, Villa Balboa (Residential)

### *c. Number of Stories of Existing Structures*



- North: Reflections at the Buttes: Single Story  
Pusch Ridge Apartment Homes: Two Stories  
Hilton El Conquistador: One to Three Stories
- South: Pusch Ridge Christian Academy: Single Story (with Large gymnasium)
- East: Pusch Ridge Estates: Single Story
- West: Golder Ranch Fire District Station #377: Single Story  
Villa Balboa: Single Story

*d. Pending and Conditional Rezonings*

There are no pending or conditional rezonings within a one-quarter mile radius of the site.

*e. Subdivision/Development Plans Approved*

The approvals to date for the subject property include:

- 1991- Original "El Corredor" Development Plan approval, Case Number OV12-90-07
- 2006- Conditional Use Permit for a Drive Through for Starbucks Coffee, Case Number OV12-05-03B
- 2007-Conditional Use Permit for a 120-room Homewood Suites Hotel, Case Number OV12-05-03
- 2007- Administrative approval of a development plan for two retail buildings in Phase 2, Case Number OV12-05-03
- 2008- Conditional Use Permit for a 120-room Springhill Suites Hotel
- 2009- Development Plan and Landscape Plan approved for Homewood Suites Hotel, Case Number OV12-05-03B

Other Subdivision and Development Plans recently approved for properties within a one-quarter mile radius include:

- 2008- Chuys Restaurant Development Plan located north of the PAD District
- 2008- Oracle Vista Centre for medical and professional office, restaurant and retail located across Oracle Road to the west of the PAD District

*f. Architectural Styles of Adjacent Development*

The prevailing general architectural style for adjacent properties is southwestern stucco. Buildings typically feature flat roofs or gable and hip roofs with Spanish tile. Exterior stucco colors feature a range of light desert earth tones.



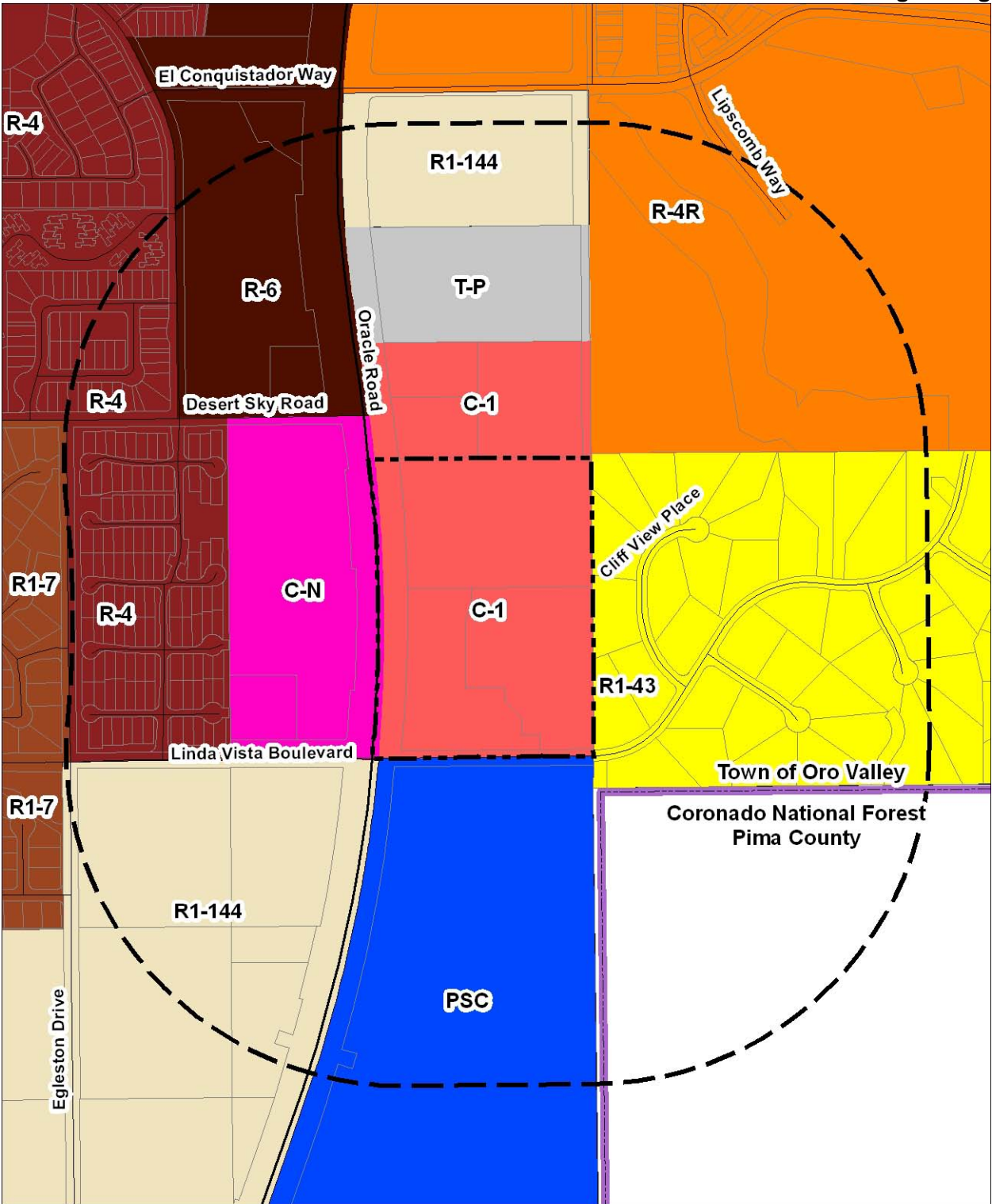


### **3. Well Sites**

There are no well sites within the project site, or within 100' of the project site.



Exhibit I.B.2.a: Existing Zoning



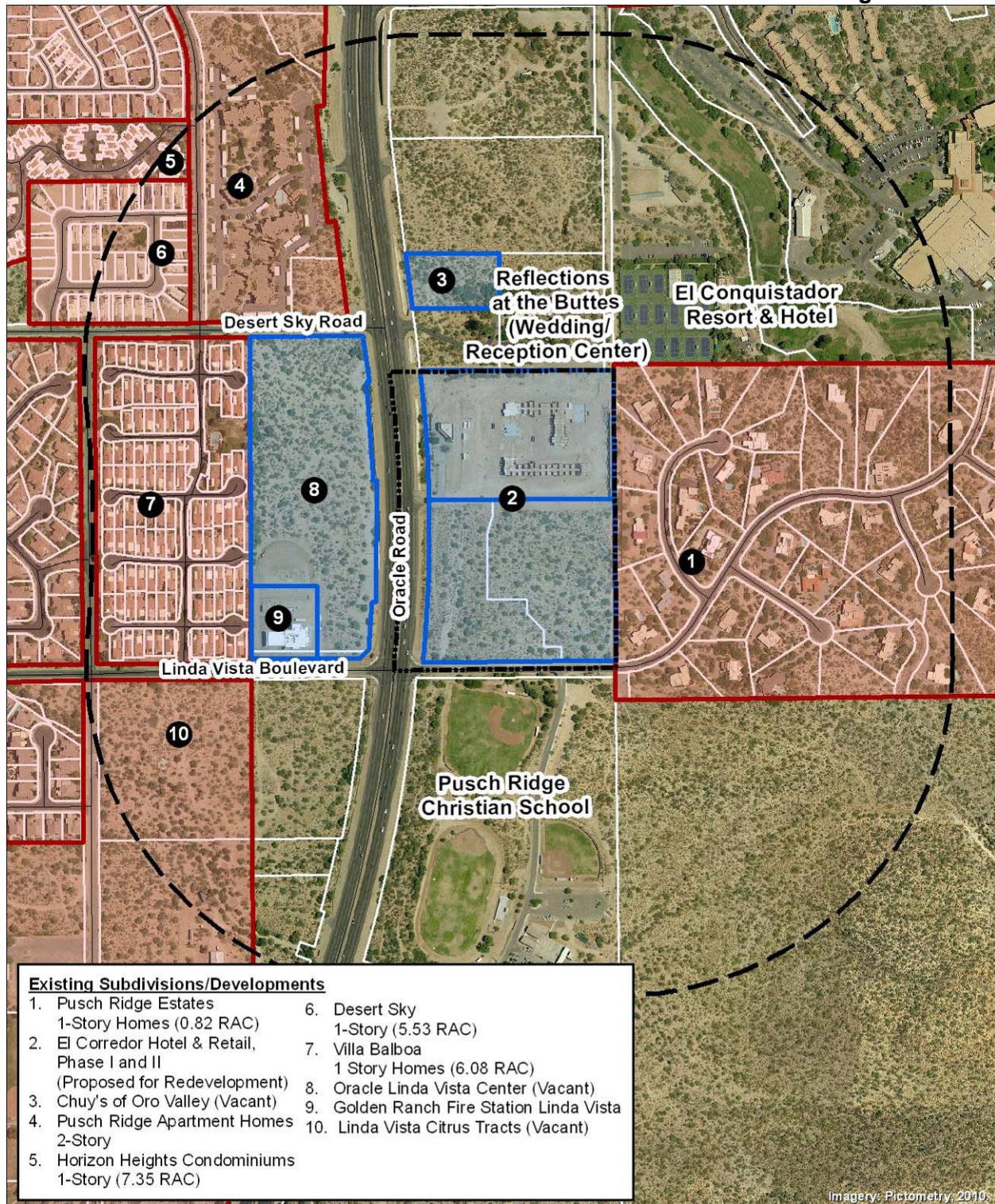
|                           |  |                                  |      |                           |    |
|---------------------------|--|----------------------------------|------|---------------------------|----|
| <b>LEGEND</b>             |  | <b>Town of Oro Valley Zoning</b> |      | <b>Pima County Zoning</b> |    |
| [---] Site Boundary       |  | R1-144                           | R-4  | C-N                       | IR |
| [---] Quarter Mile Radius |  | R1-43                            | R-6  | C-1                       |    |
|                           |  | R1-36                            | R-4R | T-P                       |    |
|                           |  | R1-7                             | PS&C |                           |    |

FILE NAME: OLI-01\_zoning.mxd  
SOURCE: Pima County DOT GIS, 2012



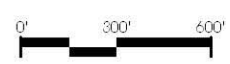


Exhibit I.B.2.b: Existing Land Uses



**LEGEND**

- PAD Boundary
- Quarter Mile Radius
- Approved Subdivision Plat
- Approved Development Plan



FILE NAME: OLI-01\_existinglanduses.mxd  
SOURCE: Pima County DOT GIS, 2012





## C. Topography and Slope

The subject property is slightly sloping with approximately 40 feet of elevation change from east to west across the entire site. (See Exhibit I.C: Topography.)

### 1. Hillside Conservation Areas

There are no Hillside Conservation areas on the subject property.

### 2. Rock Outcrops

There are no rock outcrops on the subject site.

### 3. Slopes of 15% or Greater

There are virtually no slopes 15 percent or greater, with the exception of several small natural rainwater channels. (See Exhibit I.C: Topography.)

### 4. Other Significant Topographic Features

The project site is generally flat with no significant topographic features.

### 5. Pre-Development Cross-Slope

Approximately half of the project site has been completely leveled in association with previous development that has since been removed. As a result, the average cross-slope on the site is 2.8 percent.

$$\text{Average Cross-Slope} = \frac{I \times L \times 0.0023}{A}$$

|            |   |
|------------|---|
| Where: I = | Contour Interval in Feet                      |
| L =        | Total Combined Length of all Contours in Feet |
| 0.0023 =   | Conversion Factor for Feet to Acres Times 100 |
| A =        | Total Area of Site in Acres                   |

$$\text{Average Cross-Slope} = \frac{1 \times 27,720 \times 0.0023}{22.8}$$

$$\text{Average Cross-Slope} = 2.8 \text{ percent}$$



Exhibit I.C: Topography



## **D. Hydrology**

### **1. Off-Site Watersheds/Balanced and Critical Basins**

There are four off-site watersheds that impact the parcel. (See Exhibit I.D.1: Off-Site Watersheds.) Offsite Watersheds OS-1 and OS-2 affect the eastern property line and ultimately discharge to the north, near the northwest corner of the parcel. OS-1 is 13.3 acres, with a 100-year discharge of 106 cfs and OS-2 is 2.5 acres with a discharge of 21 cfs. Offsite Watershed OS-3 affects the eastern property line with an area of 0.5 acres and a discharge of 4 cfs while OS-4 flows along the southern property line with an area of 0.9 acres and a discharge of 6.8 cfs. OS-3 and OS-4 ultimately discharge to the south, near the southwest corner of the parcel.

### **2. Natural or Man-Made Off-site Features**

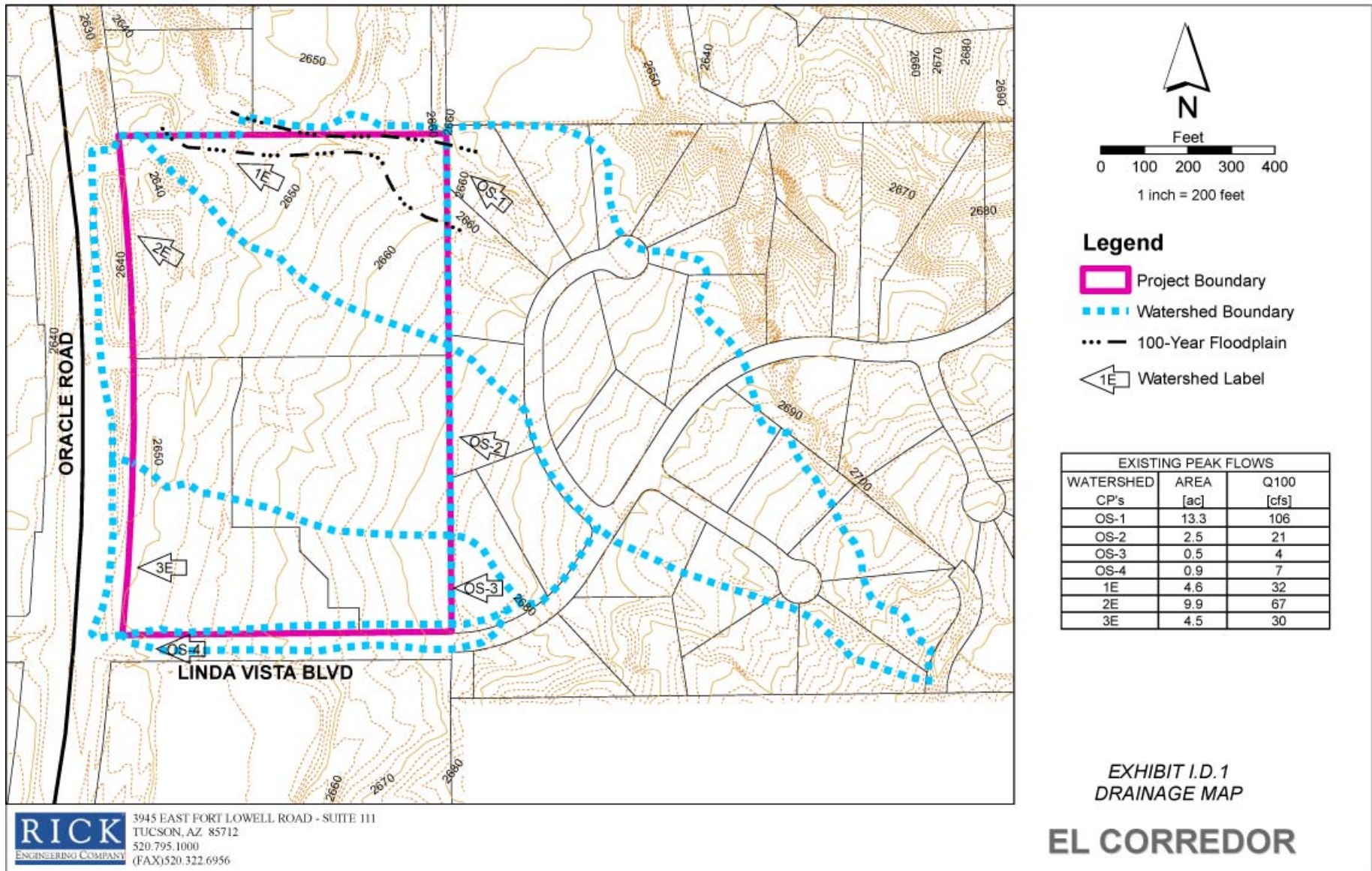
The Pusch Ridge Estates subdivision improvements on the eastern edge of the site affect the way the off-site flows enter the site. The flow from Offsite Watershed OS-1 enters northeast corner of the site via a natural channel. The flows from OS-2 and OS-3 enter the eastern property line in a dispersed nature. The majority of the flows from OS-4 are in Linda Vista Boulevard.

### **3. Off-Site Watersheds with Discharges Greater than 100 cfs**

There is one offsite watershed with flows that exceed 100-cfs. OS-1 has an area of 13.3 acres and the 100-year discharge exceeds 100 cfs (106 cfs) where it enters the site.



Exhibit I.D.1: Off-Site Hydrology



G:\3663\_Corp\3942\_Corp\Hydro\3942\_DROF.mxd

Date: 03/20/12



## 4. On-Site Hydrology

### *a. 100-Year Floodplains*

The on-site flows are divided into three watersheds. (Although the northern portion of the site was graded for the development of a hotel, the general nature of the drainage on the property has not been affected.) Watersheds 1E and 2E are extensions of Watersheds OS-1 and OS-2, respectively. The watersheds ultimately converge near the northwest corner of the parcel and flow north, into the Rooney Wash. Watershed 1E has an onsite area of 4.6 acres and a 100-year discharge of 32 cfs while 2E has an onsite area of 9.9 acres and a discharge of 67 cfs. Combined with their offsite contributing watersheds, 1E has a peak discharge of over 130 cfs and 2E has a peak discharge of nearly 90 cfs. The runoff in watershed 1E flows along the northern property line in a concentrated manner. This floodplain has been mapped (See Exhibit I.D.1: Off-site Watersheds). Although the runoff in watershed 2E exceeds 50 cfs, it is in a dispersed nature and therefore a floodplain has not been mapped.

Watershed 3E located in the southern third of the site has an onsite area of 4.5 acres and a discharge of 30 cfs. Combined with Offsite Watershed OS-3, 3E has a peak discharge of approximately 34 cfs. The flow from Watersheds 3E and OS-3 ultimately converges with OS-4 and flow south, along Oracle Road to the Carmack Wash.

### *b. Sheet Flooding*

There are no areas designated as having sheet flooding. As mentioned above, the runoff in 2E (as well as 3E) is in a dispersed nature. Due to the minimal discharges, and wide flow paths, the flow depths will be small.

### *c. Federally Mapped Floodways and Floodplains*

The site is located in a FEMA Zone X (areas outside the 500-year flood), therefore there are no areas of federally mapped floodways or floodplains.

## 5. Downstream Drainage Conditions

The downstream drainage is affected by Oracle Road. As discussed above, the roadway fill directs runoff from the northern two-thirds of the site to the north and the southern third of the site to the south. The flows are conveyed in ditches in the Oracle Road right-of-way and flow through multiple driveway and roadway culverts





## E. Native Plants

### 1. Federally-Listed, Threatened or Endangered Species

There are no federally listed, threatened or endangered species identified on the site.

### 2. Distinctive Native Plant Stands

The project site is not identified as being within the Town's Environmentally Sensitive Lands, per the Town Environmentally Sensitive Lands Ordinance. In addition, there are no areas classified as Riparian and there are no washes within the project boundaries.

While the northern half of the site (approximately 9 acres) has been cleared and graded; the southern half (approximately 10 acres) of the site is undisturbed . The northern portion of the site contains a temporary nursery to which native plants (Saguaros and Barrel cacti) were moved during the previous construction of the site. A small number of boxed trees are also located along the northern boundary of the site and are in relatively poor condition.

As shown in Exhibit I.E.1: Vegetative Communities, the southern half is classified as Sonoran Desertscrub. This area contains typical upland vegetation, including various Cholla cacti (*Opuntia bigelovii*, *fulgida*, and *versicolor*), Prickly Pear Cactus (*Opuntia engelmannii* and *phaecantha*), with occasional Velvet Mesquite (*Prosopis velutina*) and Foothills Palo Verde (*Parkinsonia microphyllum*)



Native plant temporary nursery



Box trees along northern boundary



Typical Sonoran upland vegetation on southern portion of site

Based on the preliminary vegetation survey and analysis, there are no “distinctive native plant stands” as defined in Town of Oro Valley Zoning Code, Section 27.6.B.3.b.i. No Ironwood Trees (*Olnea tesota*) nor Ocotillos (*Fouquieria splendens*) were observed on the site.

Approximately 7-12 medium-aged saguaros exist on site, ranging from 4' to over 12' in height. There were no young saguaros (less than 4' in height) observed on site. The majority of Mesquite Trees (*Prosopis velutina*) observed were relatively old and in poor condition/viability due to mistletoe infestation, old age and near end of life span. Neither the Foothills Palo Verde (*Parkinsonia microphyllum*) nor the Mesquite Trees (*Prosopis velutina*) were observed to be in a density of 50% or more coverage across a single acre of the site.

### **3. Distinctive Native Plants**

A full native plant inventory will be conducted at the time of Conceptual Site Plan submittal and will identify distinctive individual native plants. The preliminary vegetation survey did not identify any crested saguaros, native nurse trees with three or more saguaros, or saguaros over 15-feet with two or more arms. There were some Foothills Palo Verde Trees (*Parkinsonia microphyllum*) and Mesquites Trees (*Prosopis velutina*) with greater than 12-foot basal caliper and over 12-feet tall. These individual specimens will be identified in detail during the full native plant inventory.



Exhibit I.E.1: Vegetative Communities



LEGEND

Site Boundary

Vegetative Communities

Sonoran Desertscrub

Agriculture / Developed / Water / Bare Ground



0' 100' 200'

FILE NAME: OLI-01\_vegetation.mxd  
SOURCE: Pima County DOT GIS, 2011



## **F. Biological Resources**

### **1. Major Wildlife Linkages**

The Tucson – Tortolita – Santa Catalina Mountains Link is identified as a wildlife corridor within 3 miles of the project site. However, the corridor does not cross the project site.

### **2. Critical Resource Areas**

The site does not contain any of the following critical resources:

- Riparian areas and minor wildlife linkage
- Major rock outcrops and boulders
- Distinctive habitat resource

### **3. Core Resource Areas**

The site does not contain any of the following core resource areas:

- Pima County Conservation Lands System, biological core management areas adopted by the Board of Supervisors, June 2005.
- Special status species habitat supporting five (5) or more priority vulnerable species.
- Distinctive native plant stands.

### **4. Arizona Game and Fish Department Environmental Review**

The summary page from Arizona's On-line Environmental Review has been included as Exhibit: I.F.1: AGFD Online Environmental Review. There are no state-listed threatened or endangered species or any high densities of any specific species present on the project site.

According to the Arizona Game and Fish Department's Heritage Data Management System (HDMS), the following Special Status species are known to occur within a 3-mile radius of the project site:

**Table I.F.2: Special Status Species within Three Miles the Proposed Site**

| Scientific Name                        | Common Name                  | FWS | USFS | BLM | State |
|--|------------------------------|-----|------|-----|-------|
| <i>Abutilon parishii</i>               | Pima Indian Mallow           | SC  | S    | S   | SR    |
| <i>Choeronycteris mexicana</i>         | Mexican Long-tongued Bat     | SC  | S    | S   | WSC   |
| <i>Glaucidium brasilianum cactorum</i> | Cactus Ferruginous Pygmy-Owl | SC  | S    | S   | WSC   |
| <i>Opuntia versicolor</i>              | Stag-horn Cholla             |     |      |     | SR    |

Status Definitions: C: Candidate  
 LE: Listed Endangered  
 S: Sensitive (BLM & USFS)  
 SC: Species of Concern  
 SR: Salvage Restricted  
 WSC: Wildlife of Special Concern



**Exhibit: I.F.1: AGFD Online Environmental Review**



## **G. Scenic Resources**

### **1. Oracle Road Scenic Corridor District**

The entire PAD District is designated by the Town of Oro Valley as being within the Oracle Road Scenic Corridor Overlay District (ORSCOD). Development standards for the treatment of this area are found in Section II.D.

### **2. Off-Site Viewsheds**

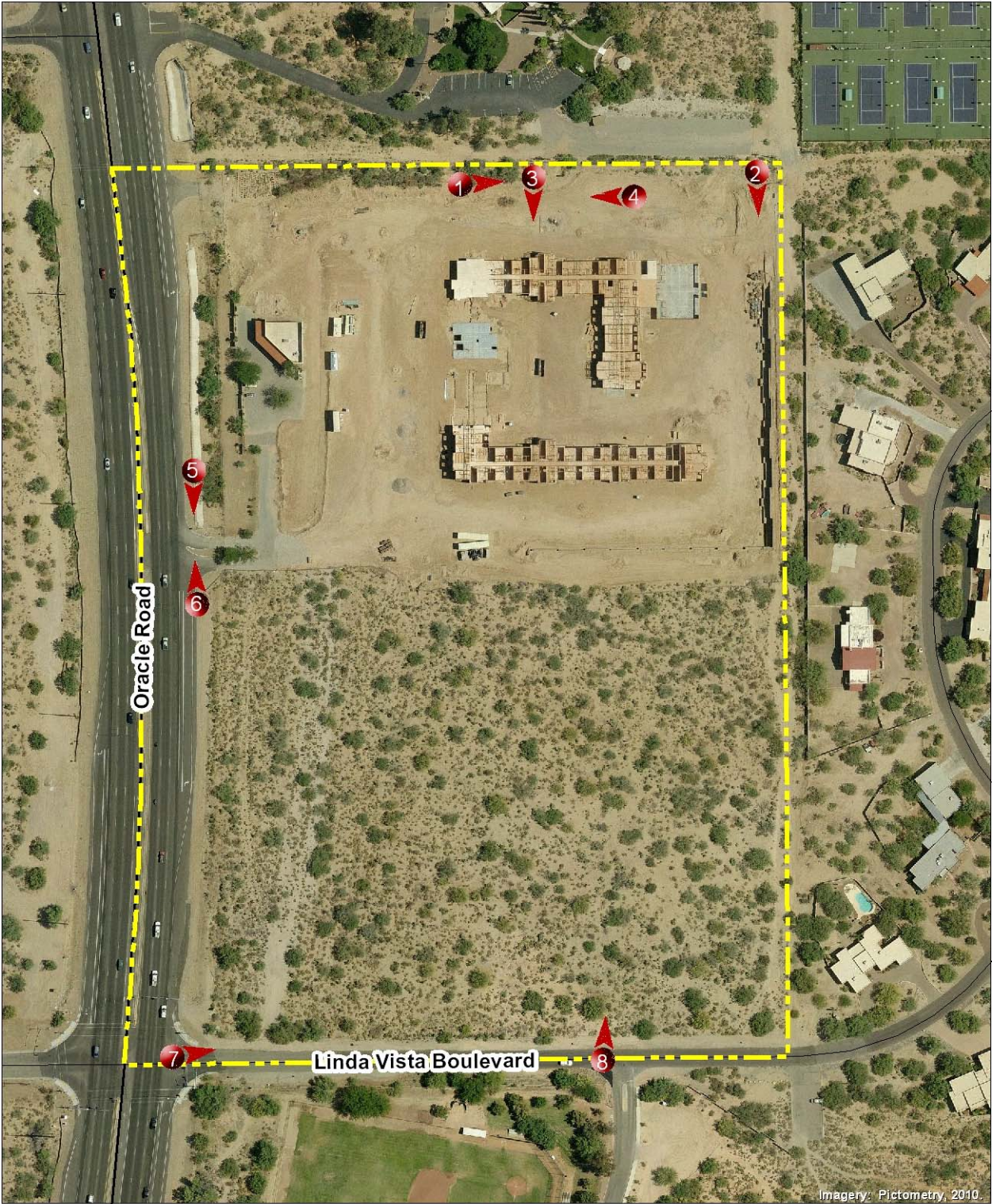
The site is highly visible from its adjacent western boundary, along Oracle Road. This is also the most prominent viewshed onto the site, as Oracle Road receives an average daily traffic (ADT) count above 50,000 (ADT 2007). The site is also highly visible from the northern and southern project boundaries, although the number of viewers from these vantage points is lower than that of Oracle Road. Five residential properties abut the eastern boundary of the property site. Visibility from this location is lower, due to privacy walls behind the homes and the change in topography.

### **3. Site Photos**


As demonstrated in the photographs on the following pages (Exhibit I.G.1.b: Site Photos) views of the Santa Catalina Mountains are prominent from the project site to the east. Oracle Road to the west and the Pusch Ridge Estates to the east are clearly visible along the property line. (Exhibit I.G.1.a: Photo Key Map indicates the locations from which each of the photos was taken.) An official viewshed analysis of the PAD District will be conducted during the PAD subdivision plat/development plan process.

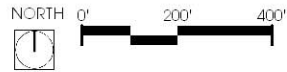


Exhibit I.G.1.a: Photo Key Map



LEGEND

-  Site Boundary
-  Photo ID & location photo was taken



FILE NAME: OLI-03\_photokeymap.mxd  
SOURCE: Pima County DOT GIS, 2012





**Exhibit I.G.1.b: Site Photos**



Photo 1: View looking east along the northern boundary.



Photo 2: View looking south along the east boundary of the site



Photo 3: View looking south from the northern boundary of the site. Note all prior development has been removed.



Photo 4: View looking across the site towards Oracle Road, from the east boundary.



Photo 5: View looking south along Oracle Road along the west boundary of the site.



Photo 6: View looking north along Oracle Road along the west boundary of the site.

**Exhibit I.G.1.b: Site Photos**



Photo 7: View looking east from the corner of Linda Vista Boulevard and Oracle Road.



Photo 8: View looking north from the south boundary of the site.

## H. Traffic Circulation and Road System

### 1. Existing and Proposed Off-Site Streets

Oracle Road and Linda Vista Blvd are currently the only roadways to provide access to the site. Oracle Road runs north/south along the western border of the project site, intersecting with Linda Vista Blvd south of the site.

Oracle Road (Highway 77) is a major 6-lane state highway that runs north/south through Oro Valley and Tucson. Linda Vista Blvd, which connects to the proposed development on the south side of the project site, is classified as a 2-lane minor collector road on the west side of Oracle Road and a local road on the east side of Oracle Road. It is designated a local road along its boundary with the project site.

Additional notable roadways within a one-mile vicinity of the site include Calle Concordia and Pusch View Lane. Calle Concordia is a minor arterial road that runs east-west, between La Canada Dr and Oracle Road. Pusch View Lane, is designated a future arterial in the 2005 Oro Valley General Plan. Pusch View Lane runs east/west and connects Oracle Rd with E Lambert Lane.

In addition, a Minor Arterial, West Hardy Road, is just slightly over a mile south of the project site. This road runs east-west, between Oracle Road and La Canada Drive.

Historically, Oro Valley has been a blend of commercial sites and residential subdivisions and, as compared to urban areas, the demand on the roads has been moderate; therefore, as Oro Valley continues to develop, the demands on its roads will increase. Table I.1: Roadway Inventory gives details on the current roadways within a one-mile radius of the project site. (See also Exhibit I.H: Traffic.)

**Table I.H.1: Roadway Inventory**

|   | Oracle Road                                | Linda Vista Boulevard                                  | Desert Sky Road |
|---|--|--|-----------------|
| Major Routes Classification                           | State Route<br>Major Arterial              | Urban Collector  | Local Collector |
| Existing R.O.W. (feet)                                | 200  | 60   | 60              |
| Future R.O.W. (feet)                                  | 200  | 60   | 60              |
| Number of Lanes                                       | 6  | 2  | 2               |
| Speed Limit   | 50   | 25   | 25              |
| Ownership   | Arizona<br>Department of<br>Transportation | Oro Valley   | Oro Valley      |
| ADT (Source, Year)                                    | 50,181 (PAG,<br>2007)                      | 1,530 (Calle Buena Vista to Oracle Road,<br>PAG, 2007) | N/A             |
| Capacity (Florida Dept<br>of Transportation,<br>2002) | 49,300                                     | 12,600   | 12,600          |
| Conforms to Width<br>Standards                        | Yes  | Yes  | Yes             |
| Surface Conditions                                    | Paved                                      | Paved  | Paved           |

## 2. Roadway Improvements

Table I.H.1: Planned Roadway Improvements identifies planned roadway improvements for arterial roads within a one-mile radius of the project site. The list was compiled by the Pima Association of Governments in the 2040 Regional Transportation Plan, adopted July 1, 2010. The general scope, location, and the ID# used to identify and track the project are given. An "In Plan" status means that the projects are included in the funding, traffic, and air quality analyses of the plan and are expected to be completed by 2025. All costs are given in \$1000's of dollars and the sponsor is the jurisdiction responsible for the implementation of the project.



**Table I.H.3: Planned Roadway Improvements**

| Project Name  | Plan ID# | Status  | Cost (in \$1000s) | Sponsor |
|---|----------|---------|-------------------|---------|
| SR 77 #7 Oracle Road<br>Calle Concordia to<br>County Line Widen to 6<br>Lanes | 240.98   | In Plan | \$53,000          | ADOT    |

### 3. Intersections

The intersections at Calle Concordia/Oracle Road, Linda Vista Boulevard/Oracle Road, Pusch View Lane/Oracle Road and El Conquistador Road/Oracle Road all are located within one mile of the project site. The intersection at Linda Vista Boulevard/Oracle Road is most likely to be used by traffic from this site, as it anchors the southwestern corner of the property boundary.

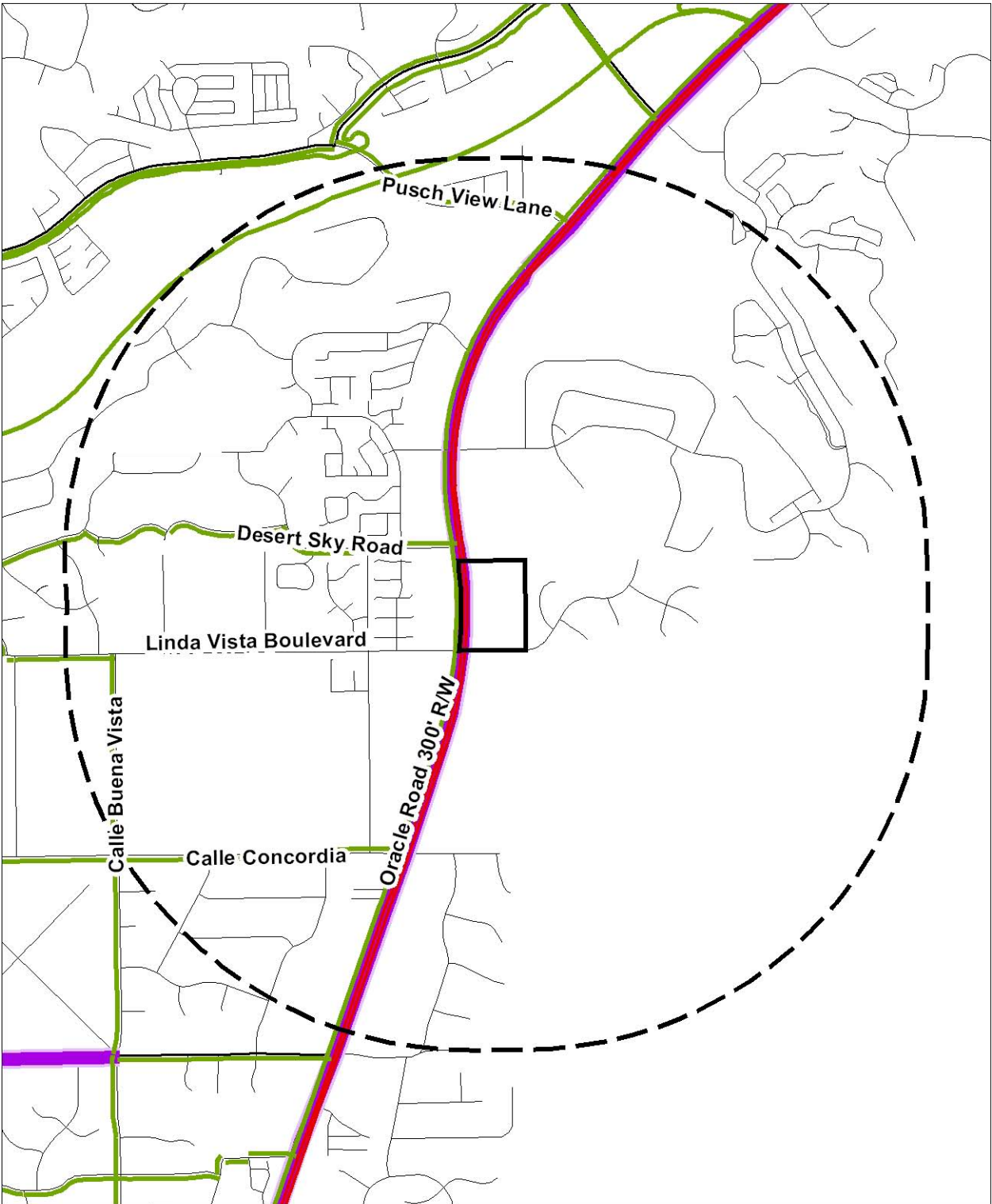
### 4. Alternate Modes

Oracle Road features amenities for cyclists and bus riders on the western edge of the project site. A designated bike route with striped shoulder runs along both directions of Oracle Road. Bus Route 312X travels the length of Oracle Road alongside the subject property (Exhibit I.H: Traffic.)

There are no sidewalks that connect to the subject property. An existing bus stop exists along the east side of Oracle Road, north of Linda Vista Boulevard adjacent to the PAD District.



Exhibit I.H: Traffic



LEGEND

- |                              |                       |
|------------------------------|-----------------------|
| Site Boundary                | Bicycle Routes        |
| One-Mile Radius              | Bus Routes (Sun Tran) |
| Scenic Corridor Streets (PC) | (300) Right of Way    |



FILE NAME: VVC-01\_traffic.mxd  
SOURCE: Pima County DOT GIS, 2012



## **I. Recreation and Trails**

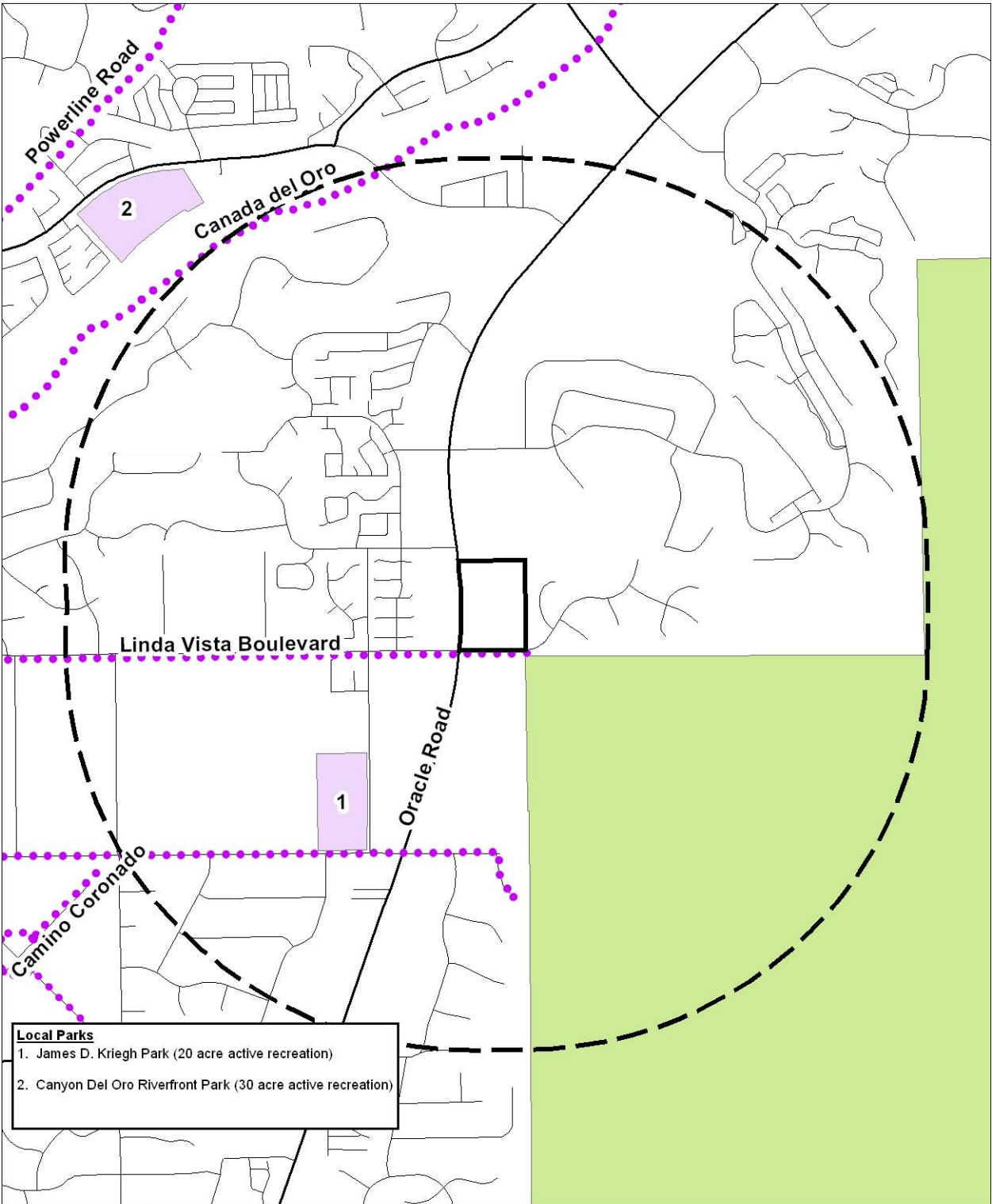
### **1. Open Space, Recreation Facilities, Parks and Trails**

James D. Kriegh Municipal Park is the closest recreation facility to the property and is located approximately nine tenths of a mile southwest of the project site on the northwest corner of Oracle Road and E Calle Concordia. (See Exhibit I.I: Recreation and Trails.) This 20-acre park features the following amenities:

- 5 lighted ball fields
- 8 lighted batting cages
- 3 covered ramadas with gas grills, lighting and electrical outlets
- 4 lighted racquetball courts
- 1 sand volleyball court
- 1 outdoor Olympic size swimming pool
- 1 covered playground area
- 1 off leash dog park
- 1 birding trail
- 16 picnic tables with 12 grills
- 2 lighted restrooms
- 1 concession stand

Within a one-mile radius, The Pusch Ridge Wilderness Trailhead is located just south of the PAD District across Linda Vista Boulevard within the boundaries of the Coronado National Forest. The Linda Vista Blvd Trail is located along Linda Vista Boulevard just south of the PAD site. According to the Town of Oro Valley's Trail Task Force Report and Protected Trail, the Linda Vista trail is a Primary Trail. The Powerline Road Trail, a secondary trail, runs southwest-northeast and is located northwest of the site. The Camino Coronado Trail, also a secondary trail, forms a loop just north of Hardy Road, to the southwest of the project. There is also an unknown trail that runs east-west to the south of the project along Calle Concordia.

Exhibit I.I: Recreation and Trails



**LEGEND**

- PAD Boundary
- One-Mile Radius
- Trail
- Park
- Coronado National Forest



FILE NAME: OLI-01\_recreation.mxd  
SOURCE: Pima County DOT GIS, 2012





## **J. Cultural Resources**

### **1. Arizona State Museum Letter**

According to the Arizona State Museum (Exhibit I.J: Arizona State Museum Letter), the proposed PAD District was inspected for historic properties in 2008. No historic properties have been identified within the PAD District area. Seven historic properties were recorded and thirty-four additional archaeological inspections have been completed within a mile of the PAD District between 1976 and 2008.

### **2. Cultural Resources Survey and Inventory Report**

No historic properties were identified.

### **3. Field Survey Requirements/Results**

The ASM recommends that the proposed development proceed as planned without any additional archaeological investigation since the project area was inspected in 2008 with no evidence of any historic properties.



Arizona State Museum

**Exhibit I.J: Arizona State Museum Letter**

OCT 27 2011

P.O. Box 210026  
Tucson, AZ 85721-0026  
Tel: (520) 621-6302  
Fax: (520) 621-2976

**ARCHAEOLOGICAL SITE RECORDS SEARCH RESULTS**

E-mail Request Received: 10/11/2011

Search Completed: 10/25/2011

**Requester Name and Title:** Daniel Bradshaw, Landscape Designer  
**Company:** The Planning Center  
**Address:** 110 S Church, Suite 6320  
**City, State, Zip Code:** Tucson 85701  
**Phone/Fax/or E-mail:** 623-6146

**Project Name and/or Number**  
TPC # OLI-01 / Parcels 224-31-010B / C / & D

**Project Description**  
PAD development on about 20 acres

**Project Area Location:** NEC Linda Vista & Oracle / 9600/9610 & 9730/9740/9750 N Oracle Rd, Town of Oro Valley, Pima County, Arizona.

**Legal Description:** a portion of the E½, SE, SE, S13, T12S, R13E, G&SRB&M, Oro Valley, Pima Co, AZ.

**Search Results:** A search of the archaeological site files retained at the Arizona State Museum (ASM) found that the proposed project area was inspected for historic properties in 2008. There are no historical properties recorded in the project area. Seven historic properties are recorded within a mile radius of the proposed project area and thirty-four additional archaeological inspections have been completed within a mile of the project area between 1976 and 2008. A color orthophotograph taken in 2010 depicts unmodified ground covered with native vegetation in the south half of the project area. The north half is developed with a commercial hotel and other structures and some landscaping. Paved roads and additional undeveloped land and developed residential land surround the subject parcels.

**Sites in Project Area:** None.

**Recommendations:** Because the project area was intensively inspected for historic properties in 2008 with no evidence of any historic properties in the project area, the ASM recommends that the proposed development proceed as planned without any additional archaeological investigation. In the unlikely event that historic properties are uncovered during construction, work will cease in that area, and a qualified archaeological contractor will be contacted immediately to evaluate the discovered archaeological evidence. A list of qualified professional archaeologists is maintained on the ASM website at the following address: <http://www.statemuseum.arizona.edu/crservices/permits/index.shtml>.

Pursuant to *Arizona Revised Statutes* §41-865 *et seq.*, if any human remains or funerary objects are discovered during your project work, all effort will stop within the area of the remains and Dr. Todd Pitezel, ASM assistant curator of archaeology, will be contacted immediately at (520) 621-4795.

If you have any questions about the results of this records search, please contact me at the letterhead address or the phone number or e-mail address as follows.

Sincerely,

Nancy E. Pearson  
Assistant Permits Administrator  
(520) 621-2096  
[nepearso@email.arizona.edu](mailto:nepearso@email.arizona.edu)



## K. Schools

The project site is located within the Amphitheater Unified School District. There are two schools within one mile of the site: Canyon Del Oro High School and Pusch Ridge Christian Academy. Canyon Del Oro High School is located at 255 W. Calle Concordia southwest of the project site. Pusch Ridge Christian Academy is location just south of the project site at 9500 N. Oracle Road.

Any children living within the development would attend Copper Creek Elementary, northwest of the site at 11620 Copper Spring Trail, Cross Middle School, located southwest of the site at 1000 W Chapala Dr, and Canyon Del Oro High School.

Other schools that may serve the site include: BASIS Charter School, a public charter school at 11155 N. Oracle Road and Immaculate Heart High School, a parochial school at 625 E Magee Rd.

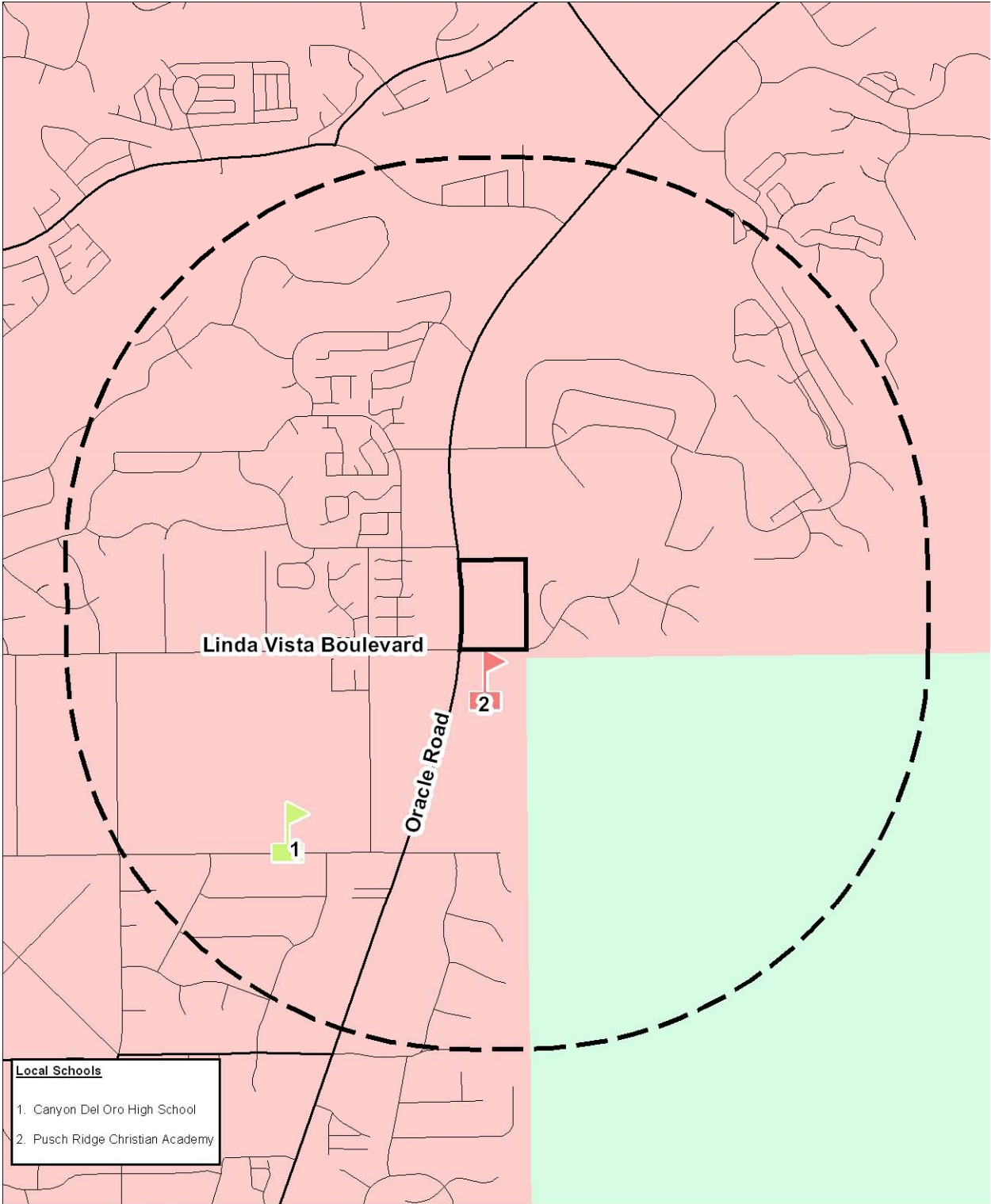
See Exhibit I.K: Schools and Table I.K: Public Schools Enrollment Projections.

**Table I.K: Public Schools Enrollment Projections**

| School                         | School Capacity | Current Enrollment<br>2011-2012 |
|--------------------------------|-----------------|---------------------------------|
| Copper Creek Elementary School | 1,200           | 710                             |
| Cross Middle School            | 1,250           | 890                             |
| Canyon Del Oro High School     | 2,250           | 1,750                           |



Exhibit I.K: Schools



**LEGEND**

|                              |                |
|------------------------------|----------------|
| PAD Boundary                 | Unorganized    |
| One Mile Radius              | Private School |
| Amphitheater School District | Public School  |

NORTH 0' 1,000' 2,000'

FILE NAME: OLI-01\_schools.mxd  
SOURCE: Pima County DOT GIS, 2011



## **L. Existing Infrastructure**

### **1. Sewer**

A letter from Pima County Regional Wastewater Reclamation Department was received stating capacity is currently available for this project (See Exhibit I.L.1.a: Sewer Letter.) There is currently an 8" sewer line (G-81-030) that runs the length of the northern and western edges of the property boundary. The line features five circular manholes and one cleanout within the subject site (See Exhibit I.L.1.b: Existing Sewer Network.)





Exhibit I.L.1.a: PCWRD Letter



**Pima County  
Regional Wastewater Reclamation Department**

Jackson Jenkins  
Director

201 N. Stone Ave., 8<sup>th</sup> Floor  
Tucson, Arizona 85701  
(520) 740-6500

Visit our website:  
<http://www.pima.gov/wwrm>

October 21, 2011

Daniel Bradshaw  
The Planning Center  
110 S. Church, # 6320  
Tucson, AZ 85701

**Capacity Response No. 11-192 Type I**

**RE: OLI-01, Oracle & Linda Vista, Parcels # 224-31-010B, -010C & -010D.  
Estimated Flow 56,680 gpd (ADWF).**

Greetings:

The above referenced project is tributary to the Ina Road Wastewater Reclamation Facility via the Cañada del Oro Interceptor.

Capacity is currently available for this project in the 8-inch public sewer G-81-030, downstream from manhole 2729-70.

This letter is not a reservation or commitment of treatment or conveyance capacity for this project. It is an analysis of the system as of this date and valid for one year. Allocation of capacity is made by the Type III Capacity Response.

**Note: Conditions within the public sewer system constantly change. Type II response letter must be obtained to verify that capacity exists in the downstream public sewer system, just prior to submitting the development plan or subdivision plat for review and approval.**

If further information is needed, please feel free to contact us at (520) 740-6534.

Respectfully,

A handwritten signature in blue ink, appearing to read "Mary Hamilton", is written over a horizontal line.

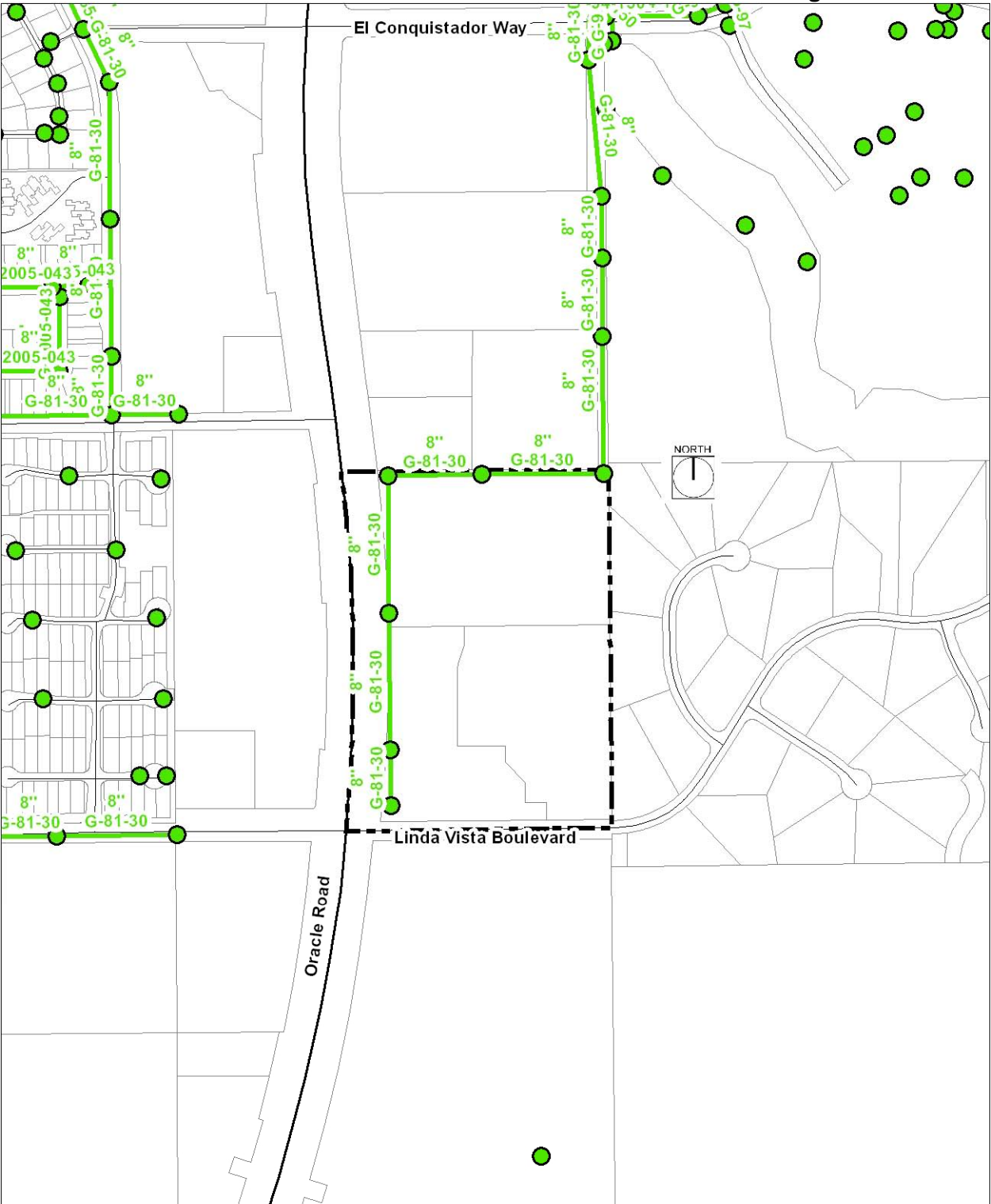
Mary Hamilton, P.E.  
PCRWRD Planning Section Manager

MH:ks

c: T12, R13, Sec. 13



Exhibit I.L.1.b: Existing Sewer Network



**LEGEND**

- Site Boundary
- Manhole Covers
- Sewer Network with Pipe Diameter and As-Built Identification Number



FILE NAME: OLI-01\_sewer.mxd  
SOURCE: Pima County DOT GIS, 2012



## 2. Water

All parcels with the PAD District are located within the Oro Valley Water Utility service area and are assured water supply from Oro Valley Water Utility. A confirmation email from Mark Moore, Town of Oro Valley Water Utility, is shown below.

From: Moore, Mark [mailto:mmoore@orovalleyaz.gov]  
Sent: Thursday, October 13, 2011 9:06 AM  
To: Daniel Bradshaw  
Subject: RE: OLI-01 Status of Water Assurance

Daniel, I am the contact for any new development projects. Those parcels are in our service area and have an assured water supply from Oro Valley Water. The northern one has had an approved water plan that actually was partially constructed. The Town has approved a development plan for the southern portion previously. I will review your PAD amendment submittal for the water utility.

Thanks

Mark Moore  
Office 520-229-5017  
Cell 520-631-4940  
Fax 520-229-5029  
mmoore@orovalleyaz.gov



## **M. McHarg Composite Map**

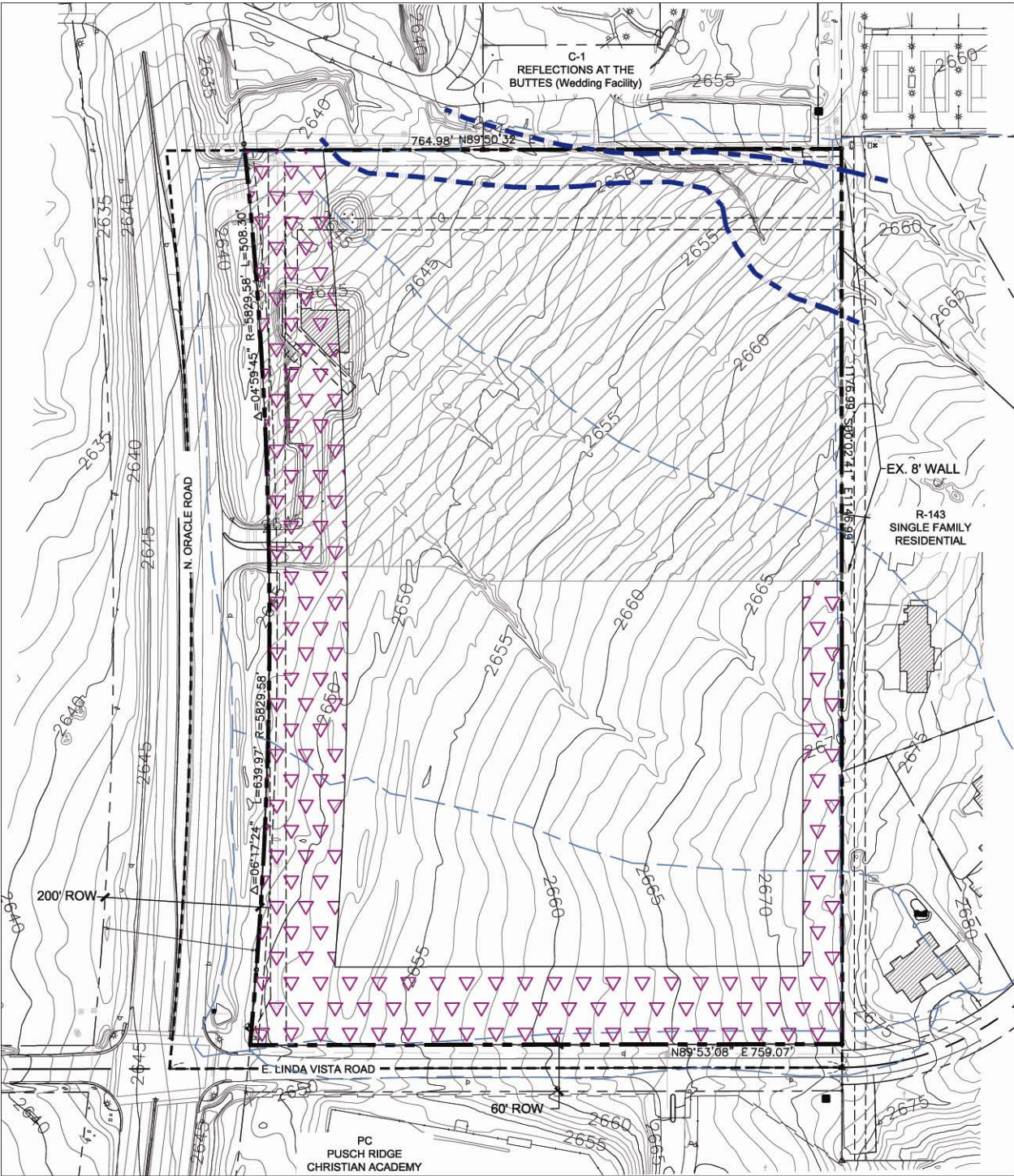
Information regarding topography, hydrology, vegetation, wildlife and views has been combined to form the McHarg Composite Map. The purpose of the McHarg Composite Map is to highlight areas that are available for development. The following site characteristics are shown on Exhibit I.M:

- 100-year floodplains greater than or equal to 50 cfs;
- Sheet flooding areas with flood depths greater than or equal to one foot;
- Federally mapped floodway and floodplains;
- Areas where vegetation facilitates soil stabilization;
- Areas onsite that are highly visible from offsite locations

Refer to Section II of the EI Corredor PAD for information on how the land use concept responds to the site's physical constraints.



Exhibit I.M: McHarg Composite Map



**LEGEND**

|                      |                         |
|----------------------|-------------------------|
| Site Boundary        | Graded Area (Disturbed) |
| P.A.D. Boundary      | Highly Visible Area     |
| 2' Elevation Contour | 100 Year Floodplain     |
|                      | Watershed Boundary      |

NORTH  
 0' 100' 200'  
FILE NAME: OLI-01-PLAN.DWG/COMPOSITE

## II. PAD Proposal



## A. Planning Considerations

The goal of the El Corredor PAD is to provide high-quality mixed use center allowing for complementary commercial/retail and multi-family residential development along Oracle Road. A map indicating the proposed PAD development areas has been provided on *Exhibit II.A.1: PAD Development Areas*. There are two development areas: Development Area A and Development Area B. Development Area A is the main commercial retail area consisting of 6.6 acres, and Development Area B is proposed for multi-family development containing approximately 13.3 acres.

In addition, a Conceptual Land Use Plan showing one of the possible land use concepts for the property has been provided on *Exhibit II.A.2: Conceptual Land Use Plan*. This plan is merely an artist's conception based upon land uses desired when the rendering was made. It is intended to serve as a general guide and does not imply a completed site plan. This illustration is not to scale and should not be relied upon to establish the relative locations of, or distances between, any depicted facilities. The plan does not include any engineering or hydrology features are subject to change without notice, and must be in accordance with the rules and regulations of this PAD.

### 1. Response to Site Inventory

The PAD District Proposal section of the PAD articulates the vision for El Corredor PAD while allowing sufficient flexibility to respond to future market demands. Various physical opportunities and constraints were identified during the site inventory phase of this project, including the transition from the existing single-family residential subdivisions to the east and the visibility to and from Oracle Road (Oracle Road Scenic Corridor Overlay District).

### 3. Rationale and Benefits for Use of a PAD

The Town of Oro Valley Planned Area Development (PAD) zoning designation is intended to provide land use guidance for the future development of El Corredor. It will allow for the entire 22.8 acres to be designed as a mixed use community rather than developing in a piecemeal fashion. The intent is to integrate the multi-family and commercial uses through site design. Since the current Town of Oro Valley General Plan or zoning code does not include a designation or zone that allows for a mix of uses, the PAD zoning regulations will allow a cohesive mixed use development as opposed to two separate developments with no relationship or connectivity. It allows for a more sustainable and beneficial form of development for the community than the typical "suburban strip" development and strict separation of uses. It also promotes the following PAD objectives:

- Protect the privacy of adjacent neighborhoods through the use of development standards and established neighborhood commitments (see pages 49-51)





- Encompass Oro Valley's high aesthetic standards and will be subject to a design review process in later stages of the project;
- Focus the on-site activity toward Oracle Road and away from adjacent homeowners;
- Reduce automobile dependence by allowing for close proximity from a multi-family residential community to neighborhood commercial services;
- Increase public access to transit services along Oracle Road;
- Minimize adverse environmental impacts of development;
- Take advantage of existing infrastructure in an urban infill area; and
- Design circulation and access points to provide for safe vehicular and pedestrian traffic interaction within the interior of the development and adjacent development.

#### **4. Conformance with General Plan**

The Oro Valley General Plan designates the western portion of the PAD District as Neighborhood Commercial and Office and the eastern portion of the PAD District as High Density Residential. The PAD is consistent with the General Plan Land Use Designations. Both designations are encouraged in areas with access to an arterial roadway, such as Oracle Road. The purpose of Neighborhood Commercial and Office in conjunction with High Density Residential is to: create a more concentrated development pattern in select areas of the Town providing opportunities for people to live close to work and shopping. The PAD responds to the long range vision of the Town of Oro Valley's General Plan by incorporating the following elements into the PAD District:

##### *a. Land Use Element*

The PAD District promotes the Land Use Element (Policy 1.3 and 1.3.2) by utilizing varied types and intensities of development as well locating uses that depend on convenient transportation access near major arterial streets, such as, Oracle Road, a State highway and Linda Vista Boulevard, a collector street.. Currently the Town has a limited supply of High Density Residential products and Mixed Use Developments. The PAD District fills a niche by utilizing existing infrastructure and reducing the amount of vehicular traffic by allowing for close proximity from a multi-family residential community to neighborhood commercial services. It also provides for an appropriate land use transition from Oracle Road and Development Area A by restricting the land directly adjacent to the existing subdivision (Development Area B) to High Density Residential.

##### *b. Transportation Element*

The Transportation Element (Policy 5.1 and 5.3) encourages the safe, convenient and efficient vehicular and non-motorized traffic circulation to serve the community and a transportation network that promotes the reduction of





traffic volumes and vehicle miles traveled. The PAD District provides alternatives to automobile transportation including improvements of roadways (lighting, landscaping, sidewalks and bus stops) and promotion of pedestrian walkways from residential to commercial as alternatives to the automobile. Other developer commitments to aid in traffic/pedestrian safety include:

- An additional 8 overflow parking spaces provided on-site for the trail users of the Pusch Ridge Wilderness Trail.
- A pedestrian crosswalk across Linda Vista Boulevard providing access to the Pusch Ridge Christian School and the Pusch Ridge Wilderness Trail
- Requirement for bicycle parking within both residential and commercial areas.
- New sidewalks provided along Linda Vista Boulevard and Oracle Road
- Roadway improvements as required by a future Traffic Impact Analysis
- Access restrictions as suggested by the adjacent neighborhood

*c. Economic Development Element*

The Economic Development Element (Policy 3.1) encourages a long term financial and economic sustainability for the Town. The goal of the El Corredor PAD is to attract commercial and multi-family residential uses to an infill area that features multi-modal transportation opportunities and affordable housing close to work and/or neighborhood commercial services. As mentioned above, mixed use developments and multi-family residential are currently lacking in the Town. There is a great need for new multi-family residential in close proximity to neighborhood services based upon market demand and on the availability of financing for new apartment projects. The Multi-Family portion of the project provides a customer base for the commercial, thereby encouraging more immediate retail development.

*d. Community Design Element*

The Community Design Element (Policy 2.1.1 and 2.3) supports architectural themes and project site design that blends the built environment with natural surroundings. The PAD supports the policies of the Community Design Element of the General Plan by the following:

- Use earth tone colors and colors predominant in the surrounding natural landscape;
- Screen parking lots with greater than 20-car capacity from adjacent uses and public thoroughfares, clustered or distributed to reduce heat concentration, increase landscape areas, and provide green belts.



- Require residential development calling for building height in excess of 18 feet to show a variety of rooflines.
- Allow for a comprehensive community involvement process. After several meetings and correspondence with the adjacent neighborhood, many of the neighborhood concerns have been taken into consideration during the writing of the PAD development standards. Approximately 20 neighborhood commitments are included in the PAD District to ensure development is compatible with the existing neighborhood character especially where adjacent to single family residential uses.
- Adhere to maintenance of dark skies and at the same time provide for the safety of its residents.

*e. Housing*

In accordance with Policy 7.2.1, the PAD District supports the development of a variety of housing types to accommodate the varied needs of residents, (including single-family attached, townhomes, small apartment and condominiums). Development Area B, allowing for multi-family residential is supported by the following:

- Change in demographic and market preference over time
- Young adults and empty nesters are increasingly looking at highly amenitized multi-family housing as an alternative to single family homes.
- Densification of the Town's housing is necessary to create a built environment that is more economically and environmentally sustainable.

*f. Parks, Recreation, Open Space and Trails*

The regional vision (Policy 8.5) for parks, open space, trails, and recreational opportunities is to create a system of pedestrian trails/walkways, equestrian trails, and bicycle facilities that not only function as recreational amenities but that can also be used in conjunction with alternate modes of transportation. One of the goals of the El Corredor PAD is provide for a mixed use project with internal pedestrian walkways fostering reduction of the automobile by allowing for multi-family residential in close proximity to neighborhood commercial services. In addition, the recreational amenities provided within the multi-family area will reflect the Town's requirements for adequate park and recreational space.



## 5. Compatibility with Adjoining Land Uses

The land uses surrounding the site are commercial to the north, single-family residential to the east and a large school property to the south. The proposed development standards take into account the surrounding land uses with larger setbacks and landscape buffers to protect the privacy of the existing neighborhoods. Multi-family residential provides a transition of uses between the single-family residences to the east and the more intense commercial uses and the major arterial roadway (Oracle Road) to the west.

Several neighborhood meetings have taken place to allow for discussion on the project proposal during the plan amendment and planned area development process. As a result, neighborhood concerns have been taken into consideration during the writing of the PAD development standards. The following table indicates approximately 20 neighborhood commitments that will be incorporated into C, C, & R's upon development and will transfer to simple fee ownership.

**Table II.A.3: Neighborhood Commitments**

| <b>Neighborhood Comments on Project Proposal</b>          | <b>How the Developer has addressed Neighborhood concerns</b>  |
|---|---|
| Residential Density                                       | <ul style="list-style-type: none"> <li>Decreased density from 18 to 17 dwelling units per acre</li> </ul>   |
| Building Setback from existing residential property lines | <ul style="list-style-type: none"> <li>The minimum building setback increased from 87 feet to 100 feet from the east property line</li> </ul>   |
| Building Mass   | <ul style="list-style-type: none"> <li>Most large buildings were broken into smaller buildings</li> </ul>   |
| Building Height   | <ul style="list-style-type: none"> <li>Limited to two-story or 27.5 feet within Development Area B; limited to 1-story or 18 feet within 100 feet of Oracle Road</li> </ul>   |
| Privacy & Security  | <ul style="list-style-type: none"> <li>Residential portion of the site will be gated to limit access, including walkways</li> </ul>   |
| Ingress/Egress (Traffic Circulation)                      | <ul style="list-style-type: none"> <li>Vehicular gated access into residential limited to exit-only onto Linda Vista Boulevard</li> <li>Main entrance into project via Oracle Road</li> <li>Road Improvements to Linda Vista Boulevard (to be determined by Traffic Impact Analysis)</li> </ul> |



|   |  |
|---|--|
| Privacy along the eastern boundary of the subject property adjacent to existing residences              | <ul style="list-style-type: none"> <li>A solid 8-foot screen wall (desert buff color) and dense vegetation landscape buffer along the eastern boundary</li> </ul>  |
| Proposed site conditions remain consistent  | <ul style="list-style-type: none"> <li>Common areas and landscape buffers to be maintained by a management association</li> </ul>  |
| Dumpster location   | <ul style="list-style-type: none"> <li>All dumpsters shall be setback a minimum of 125 feet from adjacent residential property lines</li> </ul>  |
| Lighting  | <ul style="list-style-type: none"> <li>All lighting shall be low profile, shielded and limited to an 8-foot height limitation within 50 feet of the east boundary and in accordance with the Dark Sky Ordinance</li> </ul>   |
| Trail users parking in existing neighborhoods   | <ul style="list-style-type: none"> <li>Additional parking will be provided on the subject property across from the Pusch Ridge Wilderness Trail entrance. Parking will be dedicated to the Coronado National Forest</li> </ul>   |
| Developer commits to agreed upon Concept Plan and the concept plan must be conditional to zoning change | <ul style="list-style-type: none"> <li>The future development plan must be in substantial compliance with the approved PAD concept plan</li> </ul>   |
| Privacy from the Pool & Recreation areas  | <ul style="list-style-type: none"> <li>All recreational areas shall be setback a minimum of 90 feet from eastern property line</li> <li>General use pathways shall be incorporated into the development</li> </ul>   |
| Architecture Compatibility with existing neighborhood   | <ul style="list-style-type: none"> <li>The architecture shall be designed in a southwestern style with an integrated design theme through the use of similar materials</li> <li>All rooftop or ground mounted electrical or mechanical equipment shall be screened from public view</li> <li>Electrical meter and service components shall be screened and painted to match buildings</li> </ul> |
| Limited recreational vehicular parking restrictions included in C, C, & R's                             | <ul style="list-style-type: none"> <li>Agreed</li> </ul>   |





|   |   |
|---|---|
| Conditions, Covenants and Restrictions (C, C, & Rs) of above agreements | <ul style="list-style-type: none"><li>▪ C, C, &amp; R's will be required stating the above agreements and will transfer to simple fee ownership</li></ul> |
|---|---|



Exhibit II.A.1: Development Areas

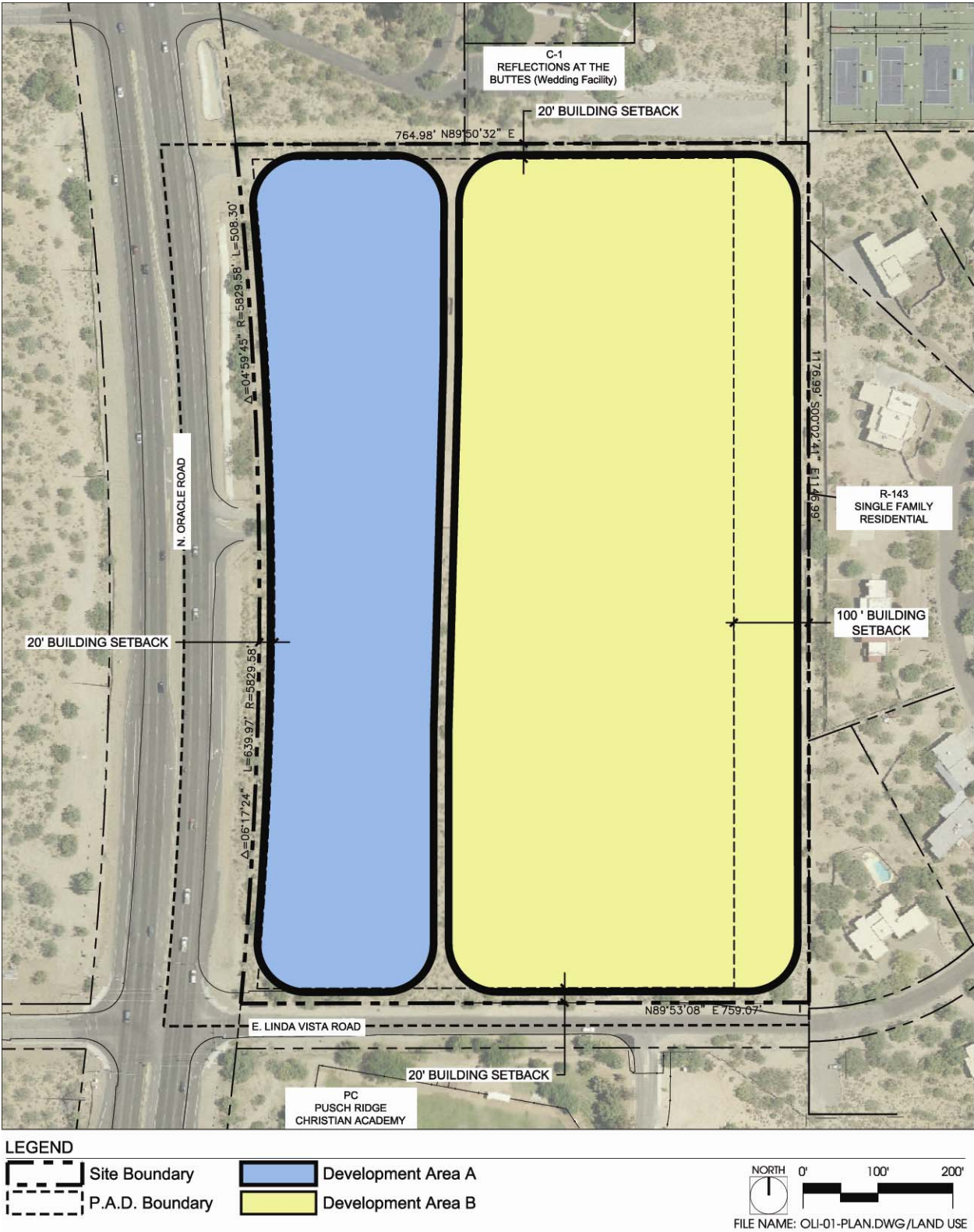




Exhibit II.A.2: Conceptual Land Use Plan



**TODD & ASSOCIATES, INC.**  
ARCHITECTURE PLANNING LANDSCAPE ARCHITECTURE  
602.952.8280p www.toddassoc.com

Oro Valley, Arizona  
Neighborhood Meeting  
Project No. 12-2006-00 Date 03-28-12

SCHEMATIC NOT  
FOR CONSTRUCTION  
OR RECORDING





## **B. Permitted and Excluded Uses**

El Corredor Planned Area Development proposes a single zoning district based on a modified R-6 and C-1 Zone to allow for the development of a Mixed Use Development consisting of Multi-Family Residential and Neighborhood Commercial. (See Exhibit II.A.2: Conceptual Site Plan.) The PAD shall include all those uses permitted by Town of Oro Valley Zoning Code Section 23.3 under R-6 and C-1 zoning. Existing and future development within the PAD shall conform to the regulations and standards set forth in this PAD. Where these regulations and standards vary from the LUC or other City standards, the PAD regulations and standards shall control.

### **1. Permitted Uses**

#### *a. Development Area A*

All permitted uses in the C-1 zoning district, as shown in Table 23-1, Table of Permitted Uses, in Chapter 23 of the zoning code shall be enabled, with the following modifications:

The following uses shall be added as permitted (P) or conditional (C), as indicated:

- Full service restaurant with alcohol (P)
- One (1) convenience use with drive-through (P); one additional convenience use subject to a Conditional Use Permit
- No more than two (2) convenience uses total

#### *b. Development Area B*

All permitted uses in the R-6 zoning district, as shown in Table 23-1, Table of Permitted Uses, in Chapter 23 of the zoning code shall be enabled, with the following modifications:

The following uses shall be added as permitted (P) or conditional (C), as indicated:

- Short term rental properties (P)
- Model homes (P)
- Temporary real estate offices (P)
- Restaurant, café or delicatessen as an accessory use to the multi-family residential, with or without alcohol (C)

### **2. Accessory Land Uses**

Land uses accessory to the Permitted Land Uses are allowed within the PAD, subject to compliance to the Town of Oro Valley Zoning Code.





### **3. Excluded Land Uses**

Land uses not listed as a Permitted use, or land uses that are not an accessory to the Primary Use are prohibited within the El Corredor PAD.



## C. Development Standards

The PAD seeks to conform to the plan goals and policies established in the Town of Oro Valley General Plan. In order to achieve those goals, the PAD will provide appropriate transitioning to surrounding development through the use of development standards. The entire site will meet the PAD criteria by the completion of the last new building.

The PAD shall be considered as a single parcel. for the purpose of building setback, buffer requirements and other similar development standards that would otherwise apply to separately owned lots or parcels under the Oro Valley Zoning Code. All new development within the PAD shall conform to applicable building, fire and other life safety standards.

These standards will supersede the standards in the Town of Oro Valley Zoning Code Chapter 23 Zoning Districts and Chapter 25 Use Regulations, except where specific references to such standards are provided in this section of the document.

### 1. Site Development

|                                | Non-Residential Development   | Residential Development |
|--------------------------------|---|-------------------------|
| Minimum Site Area              | None  |                         |
| Minimum Area Per Dwelling Unit | n/a   | 17 RAC                  |
| Maximum FAR                    | .30   | n/a                     |
| Maximum Building Height        | 28 feet (18 feet or 1-story within 100-feet of Oracle Road)   | 27.5 feet               |
| Minimum Building Setback       | <ul style="list-style-type: none"> <li>• 20 feet adjacent to Oracle Road right-of-way line (Average of 80 feet)</li> <li>• 20 feet to the north property line</li> <li>• 20 feet to the Linda Vista Boulevard right-of-way line.</li> <li>• 100 feet to the east property line</li> </ul> |                         |
| Minimum Building Separation    | Per Zoning Code   |                         |
| Open Space                     | 20% of the gross area of the PAD District<br>(See Section II.H for details)   |                         |
| Landscape Bufferyards          | See Section II.D: Landscape Program   |                         |



## **2. Vehicular Parking**

To accommodate for a thriving mixed-use community, the El Corredor PAD vehicular parking spaces shall be a minimum of 9 feet wide by 19 feet long for on-site spaces. Off-site trailhead parking spaces shall be a minimum of 9 feet wide by 20 feet long.

ADA accessible parking will be provided in accordance with ADA requirements from the 2010 ADA Standards for Accessible Design and ICC/ANSI 117.1, 2003 Edition. Accessible spaces and “Van Accessible” spaces will connect to the accessible route as required by the 2010 ADA Standards for accessible design and ICC/ANSI 117.1, 2003 Edition. Newly constructed sidewalks and curb ramps will comply with accessibility requirements as required. The entire circulation system will meet these requirements by the issuance of the last Certificate of Occupancy for the last new building to be built on-site.

In accordance with agreements made with the adjoining neighbors:

- A minimum of 8 parking spaces located within the PAD district shall be designated for Pusch Ridge Wilderness Trail users. This parking area shall be dedicated to and maintained by the Coronado National Forest, and
- Limited recreational vehicle parking restrictions shall be included in the Covenants, Conditions and Restrictions.

## **3. Sidewalks**

Sidewalks shall be provided along the south and west boundaries, along Linda Vista Boulevard and Oracle Road. A crosswalk shall be incorporated across Linda Vista Boulevard to provide access from the commercial, residential and additional parking area to the Pusch Ridge Wilderness Trail and Pusch Ridge Christian School. All sidewalks and pedestrian routes shall comply with accessibility standards per 2010 ADA Standards for Accessible Design and ICC/ANSI 117.1, 2003 Edition. Accessibility routes from buildings to the public right-of-way will be marked in compliance with the code. All sidewalks required for new development or redevelopment within the PAD shall measure a minimum of five (5) feet in width. No separation between a sidewalk and a building is required.

In addition, all sidewalks, and curb ramps will comply with accessibility requirements as required. The entire circulation system will meet these requirements by the issuance of the last Certificate of Occupancy for the last building to be built on-site.

## **4. Loading Zones and Solid Waste Disposal**

All trash enclosures shall be enclosed on three sides by a 6-foot masonry wall. The fourth side shall incorporate a self-closing, self-latching opaque gate utilizing colors



and materials consistent with the project architecture. Enclosure finishes shall match the architectural character of the project. In addition, all trash enclosures shall be located a minimum of 125 feet away from adjacent residential or residentially zoned properties.

## **5. Lighting**

All lighting shall be subject to Section 27.5 of the Town of Oro Valley Outdoor Lighting requirements. In particular, the lighting shall be low profile, shielded and limited to 8-foot height limitation within 50 feet of the east boundary adjacent to existing residential development.

## **6. Crime Prevention to Environmental Design**

The PAD District shall be designed in accordance with the standards of Section 4.1.H of the Town of Oro Valley Addendum “A”, Crime Prevention to Environmental Design. The following elements will be considered in planning for the site:

- Design drives, streets and pathways to maximize pedestrian and bicycle traffic.
- Place windows overlooking sidewalks, parking lots, common, areas and recreational areas.
- Landscape designs should provide surveillance, especially in proximity to designated points of entry and other undefined opportunistic points of entry
- Place lighting along pathways and other pedestrian-use areas, including recreational areas.





## **D. Oracle Road Scenic Corridor Overlay District (ORSCOD)**

The PAD District is located along Oracle Road and lies within the boundaries of ORSCOD. The purpose of the Oracle Road Scenic Corridor District is to protect significant views along the Oracle Road transportation corridor consistent with the Oracle Road Scenic Corridor Specific Plan. Several properties along the Oracle Corridor have been granted exemptions from the requirements of ORSCOD, including the approved El Corredor Development Plan. One of the main reasons for exemptions from ORSCOD is to allow for more density along Oracle that create sustainable, thriving projects. The objective of allowing mixed-use developments along Oracle is to reduce the amount of vehicular traffic by allowing for close proximity from commercial services to a multi-family residential community. This type of urban mixed-use infill project requires a certain amount of commercial building pads to make it viable.

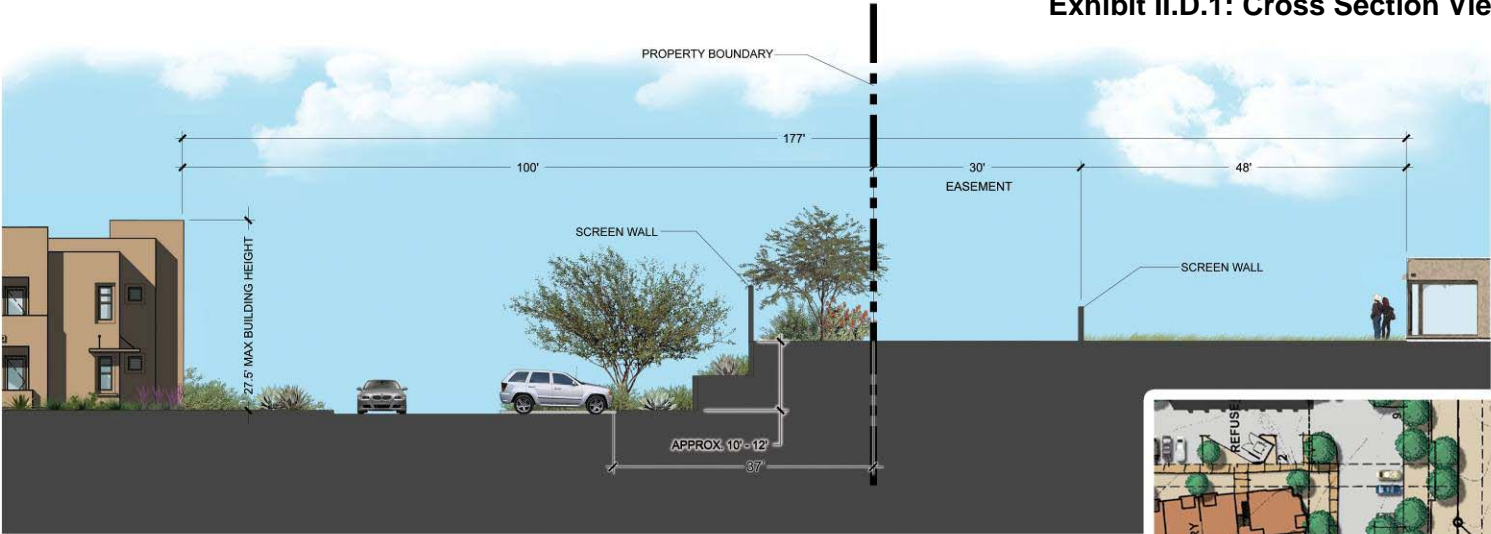
As the site sits today, the northern portion has been graded and a single office structure exists along the west boundary of the site. Per a preliminary analysis of the viewsheds from Oracle Road, the impact will be minimal for the following reasons:

- The PAD District slopes upward from west to east making the proposed building height visually the same as the existing single-family residential homes to the east. An example of the perspective view from the adjacent homes to the proposed multi-family residential housing is shown on Exhibit II.D.1 and Exhibit II.D.2.
- The view from Oracle Road is elevated from the PAD district, and looks down onto the site; not upward toward the mountain views at a much higher elevation
- The building heights are limited to 27.5 feet
- The plan is limited to an average setback of 80 feet

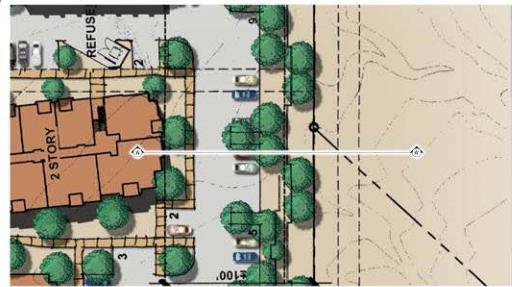
In summary, an exemption from the setbacks, freestanding building pads and view corridor requirements of the ORSCOD are proposed to allow for more sustainable and beneficial form of development for the community than the typical “suburban strip” development and strict separation of uses. The El Corredor Conceptual Site Plan is less intense than the previous approved development and adequate screening, native vegetation as well as improved landscape bufferyards will ensure protection of the scenic qualities along Oracle Road.



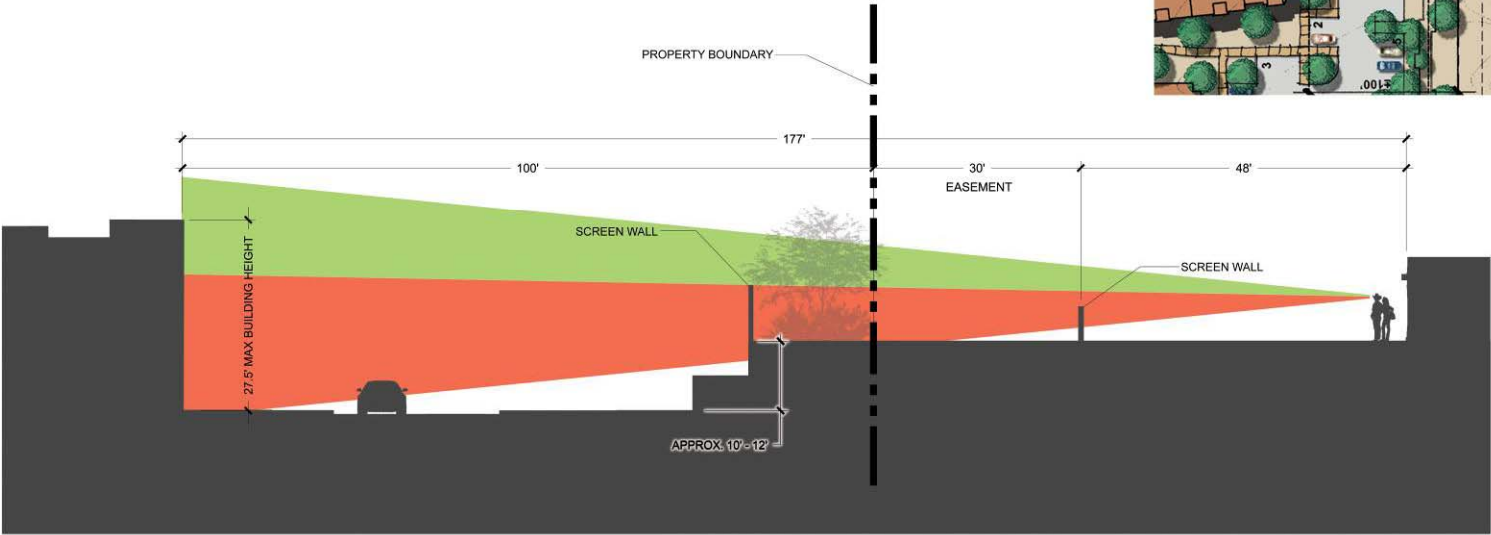
Exhibit II.D.1: Cross Section View (North End)



RENDERED SECTION



SECTION CUT

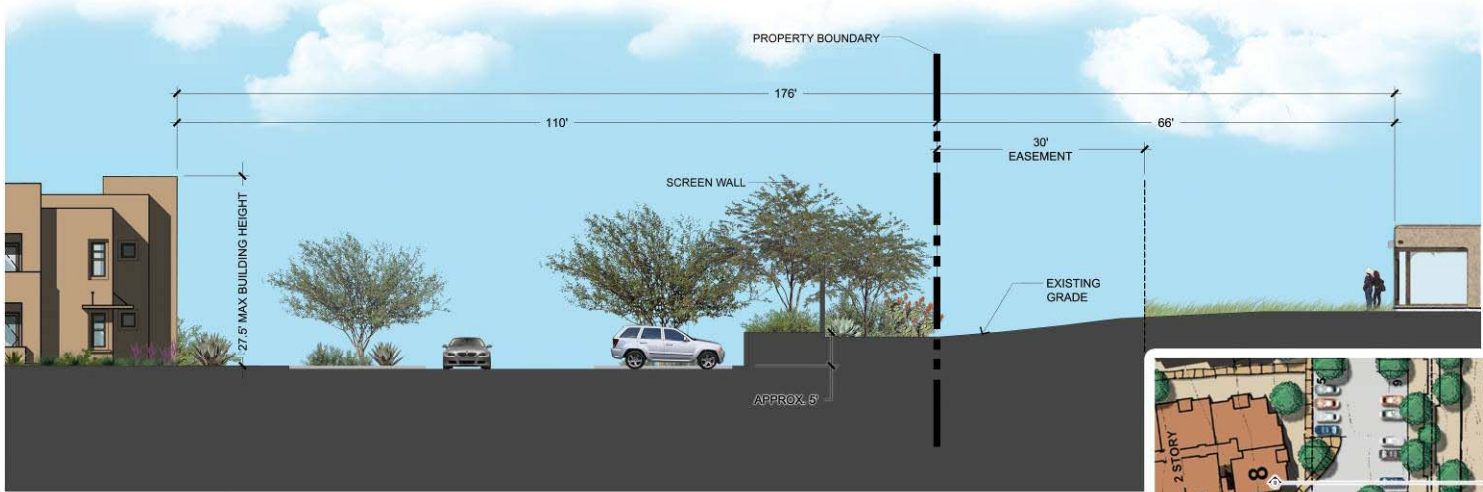


FIELD OF VIEW DIAGRAM

NOTE: HORIZONTAL DIMENSIONS ARE ACCURATE, VERTICAL DIMENSIONS ARE CONCEPTUAL UNTIL FINAL GRADING PLAN



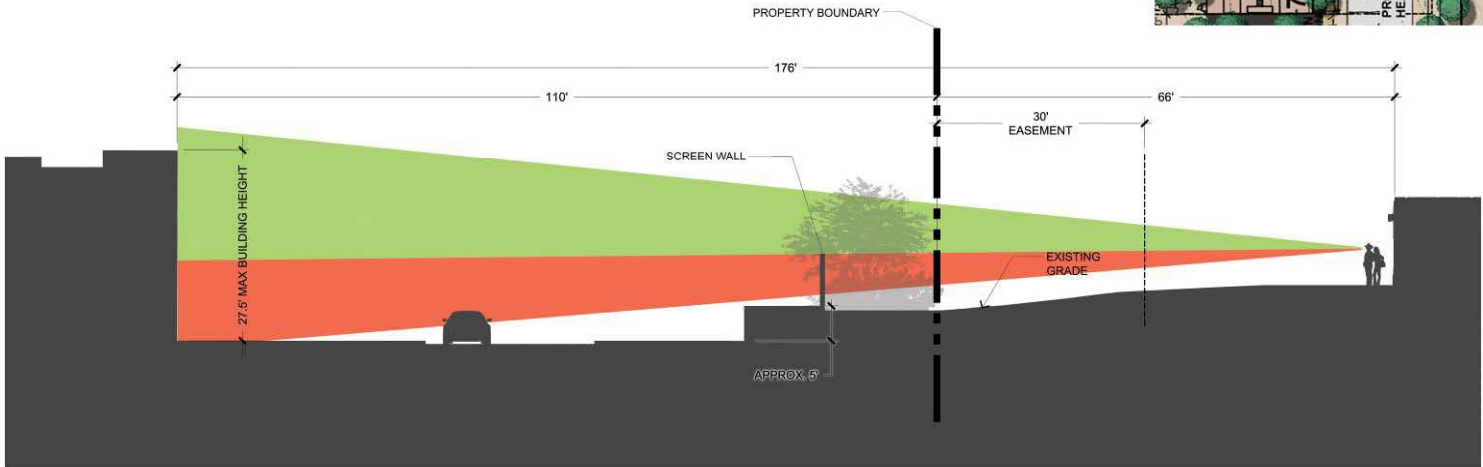
Exhibit II.D.1: Cross Section View (South End)



RENDERED SECTION



SECTION CUT



FIELD OF VIEW DIAGRAM

NOTE: HORIZONTAL DIMENSIONS ARE ACCURATE, VERTICAL DIMENSIONS ARE CONCEPTUAL UNTIL FINAL GRADING PLAN



## **E. Landscaping & Bufferyards**

Landscaping will be in conformance with Oro Valley Zoning Code, Section 27.6 and addendum C, D and E.

### **1. Bufferyards**

Landscape bufferyards will be provided on all sides of the project site and be designed so as to screen uses from neighbors as well as provide visibility of retail uses along Oracle Road (See Exhibit II.E: Landscape Buffer Plan.) Development Area B shall be gated and prohibit pedestrian access to surrounding areas with the exception of cross access from Development Area A to Development Area B and surrounding public sidewalks.

No bufferyard is required along the northern property boundary as it is adjacent to an existing commercial use. However, due to a grade change and an existing 20-foot public sewer easement, landscaping and/or screening may be placed within the 20-foot sewer easement or immediately south of the easement with Town approval.

The eastern boundary bufferyard shall be 30-feet wide consisting of two retaining walls and one 8' tall screening wall (See Exhibit II.E: Landscape Buffer Plan.) The screen wall shall provide visual relief by undulations/offsets in alignment and use of plantings on the external side of the screen wall. Plantings within the eastern bufferyard will be at a rate of 4 trees and 15 shrubs, accents, or cacti per 100 linear feet.

The southern boundary bufferyard will be 20-foot wide and consist of plantings at a rate of 4 trees and 15 shrubs, accents, or cacti per 100 linear feet. Any parking adjacent to Linda Vista Boulevard will be screened by a minimum 3-foot tall screen wall.

The western boundary bufferyard shall be a minimum of 40-foot wide and consist of natural desert, including trees and understory. Any parking adjacent to Oracle Road will be screened by a minimum 3-foot tall screen wall. The southern portion of the western boundary bufferyard shall be maintained at roughly its existing density and species composition. The northern portion of the western boundary has been previously graded, and thus, the bufferyard shall be revegetated at a similar density and species composition to that of the southern portion.

### **2. Mitigation**

There are no distinctive native plant stands on the project site as determined by the preliminary vegetation analysis. Distinctive individual native plant will be identified during the development plan process under a separate native plant inventory.

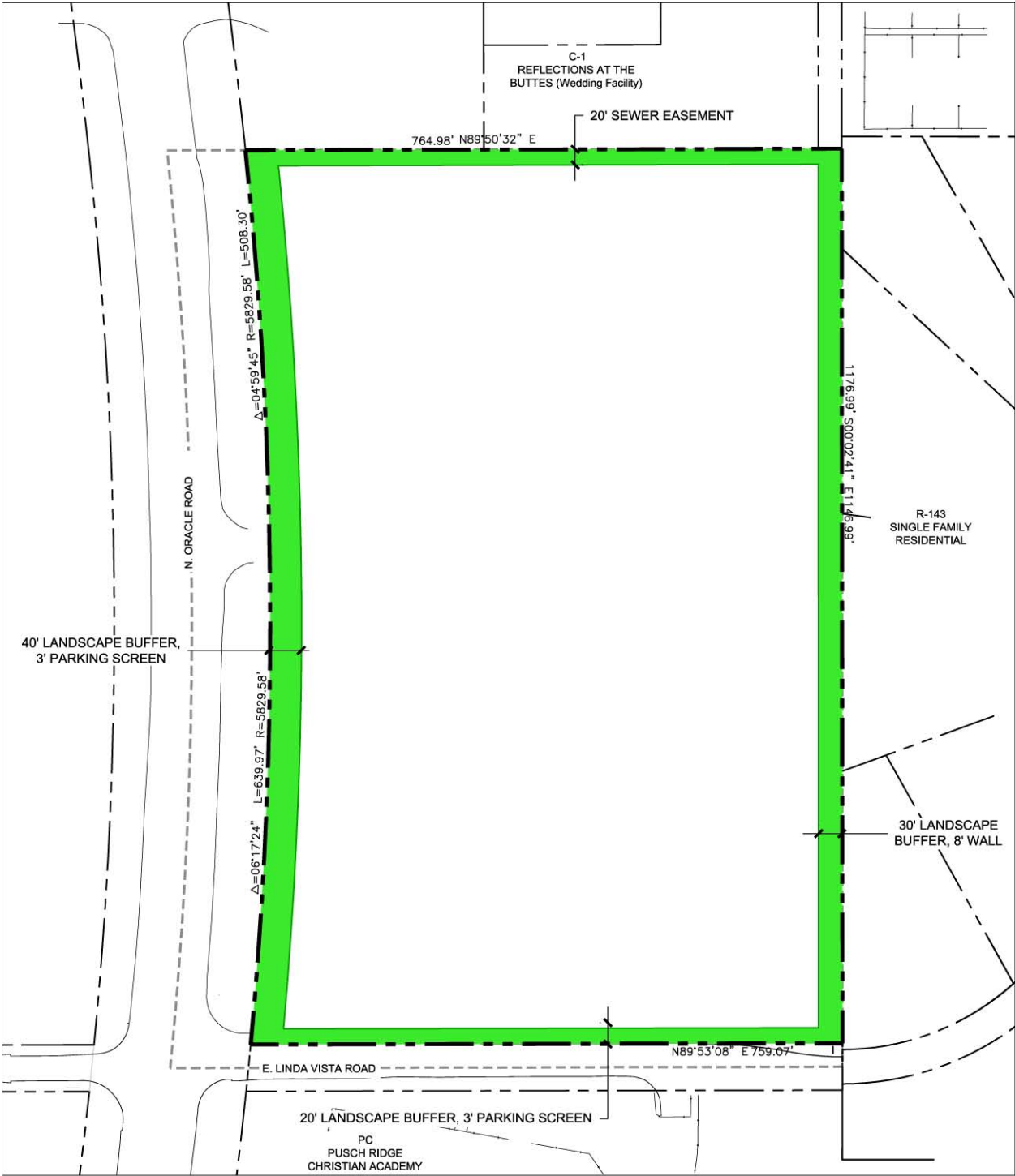




Distinctive individual native trees that are viable shall be salvaged for transplant on site per Town of Oro Valley requirements. All saguaros will be salvaged for transplant on site. Viable cacti and trees within the existing temporary nursery at the northwestern corner of the site will be transplanted on site.

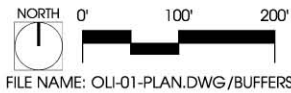


Exhibit II.E: Landscape Buffer Plan



LEGEND

- Site Boundary
- P.A.D. Boundary
- Landscape Buffer



## **F. Hydrology**

### **1. Preliminary Development Response to Hydrology**

The site will be designed so that the quantity and quality of the flows is consistent with the current conditions. The existing offsite flows will be accepted on to the property in their current locations and conveyed through the site. The use of detention facilities/basins and water harvesting will ensure that flows leaving the site will mimic the existing conditions.

### **2. Encroachment into 100-year Floodplain**

Due to the dispersed nature of the drainage through the site, the only anticipated encroachment into the floodplains is along the northern boundary of the site. Drainage improvements will be provided as necessary to convey the flows in this area.

### **3. Potential Drainage Impacts to Off-Site Land**

Detention facilities and water harvesting will be used to ensure that the Town's detention requirements are met. The drainage/detention concept will be developed on an overall site basis, rather than with each individual use. Preliminary estimates show that the northern portion of the site, which drains to the northwest corner of the parcel, will require approximately 1.2 ac-ft of detention storage. The southern portion of the site, which drains to the southwest corner of the site, will require approximately 0.4 ac-ft of detention storage. Additionally, catch basin filters, or other Town approved methods will be utilized to ensure that First Flush requirements are also met.

### **4. Conformance with Applicable Plans**

Detention facilities and water harvesting will be used to moderate and mitigate the increased flows due to the improvements to the site. Slope protection will also be used as necessary. Drainage mitigation measures will be designed to conform with the Town's Drainage Criteria Manual and shall require Town Engineer approval.



## **G. Circulation Plan**

### **1. Proposed Circulation**

As shown on *Exhibit II.G: Proposed Circulation*, the conceptual circulation proposal has one primary access point on Oracle Road providing access to the commercial and residential. These will be gated entries with a turnaround at the entrance of the multi-family residential portion of the site. There are also three secondary access points, including:

- Oracle Road/northernmost driveway provides access for right-turn only via the existing curb opening with unsignalized traffic control
- Linda Vista Boulevard/westernmost driveway provides for unsignalized full access. The southbound approach will be stop-sign controlled.
- Linda Vista Boulevard/easternmost driveway provides access for outbound right-turns only onto Linda Vista Boulevard. The southbound approach shall be stop-sign controlled and will be limited to outbound traffic and emergency access.

Internal site circulation for the proposed development will be provided via 24-foot Parking Area Access Lanes in accordance with Town of Oro Valley Street Standards.

### **2. Future Road Improvements**

Right-of-way dedication and road improvements may be required along Linda Vista Boulevard as determined by a future Traffic Impact Analysis and approved by the Town Engineer.

Sidewalks will be incorporated along the Linda Vista Boulevard and Oracle Road right-of-way within the PAD boundaries.

An existing bus stop exists along Oracle Road, just north of Linda Vista Boulevard, adjacent to the PAD District. The master developer will work with Town staff on any required bus pullout improvements.

The developer agrees to participate in the funding for the traffic signal at Linda Vista and Oracle Road and does so with the understanding that the degree of participation required by the Town of Oro Valley is subject to the developer's review and approval.

Any other road improvements will be determined by a Traffic Impact Analysis during the development plan stage of the project.





### 3. Traffic Impact Statement

A traffic impact statement has been prepared in order to review the need for full impact analysis (See Appendix A). The total average daily traffic is approximately 5,632, which is half the amount of average daily traffic proposed by the previous development plan for the subject property.

## H. Recreation & Open Space

### 1. Recreation

Pedestrian access and connectivity will be required throughout the PAD development. Integration of commercial and multi-family residential land uses will be a key component to the horizontal mixed use compatibility of the project. There will be a minimum of two pedestrian connections providing access from the commercial to the residential and the following standards shall be followed:

- Any recreational use shall be located a minimum of 90 feet from the eastern property line.
- All common areas shall be maintained by the master developer and/or Property Management Company.
- General use pathways shall be incorporated into the development.
- A crosswalk shall be provided across Linda Vista Boulevard providing access to the Pusch Ridge Wilderness Trailhead and the Pusch Ridge Christian School.
- A continuous network of on-site pedestrian walkways will be provided to allow for direct access and connections to and between the following:
  - The primary entrance or entrances to each commercial building on the site;
  - Any sidewalks or walkways on adjacent properties that extend to the boundaries shared with the commercial development;
  - Public sidewalks along the perimeter streets of Oracle Road and Linda Vista Boulevard;
  - Adjacent land uses and development including, but not limited to, adjacent residential developments and retail shopping centers; and
  - Shading along pedestrian paths will be provided.
- At each point that a designated on-site pedestrian walkway crosses a parking lot, street or driveway, the walkway will be clearly visible to pedestrians and motorists through the use of one or more of the following delineation methods:
  - A change in paving material, paving height or paving color;
  - Decorative bollards;
  - A painted crosswalk and change in paving material;
  - Signage and change in paving material; or



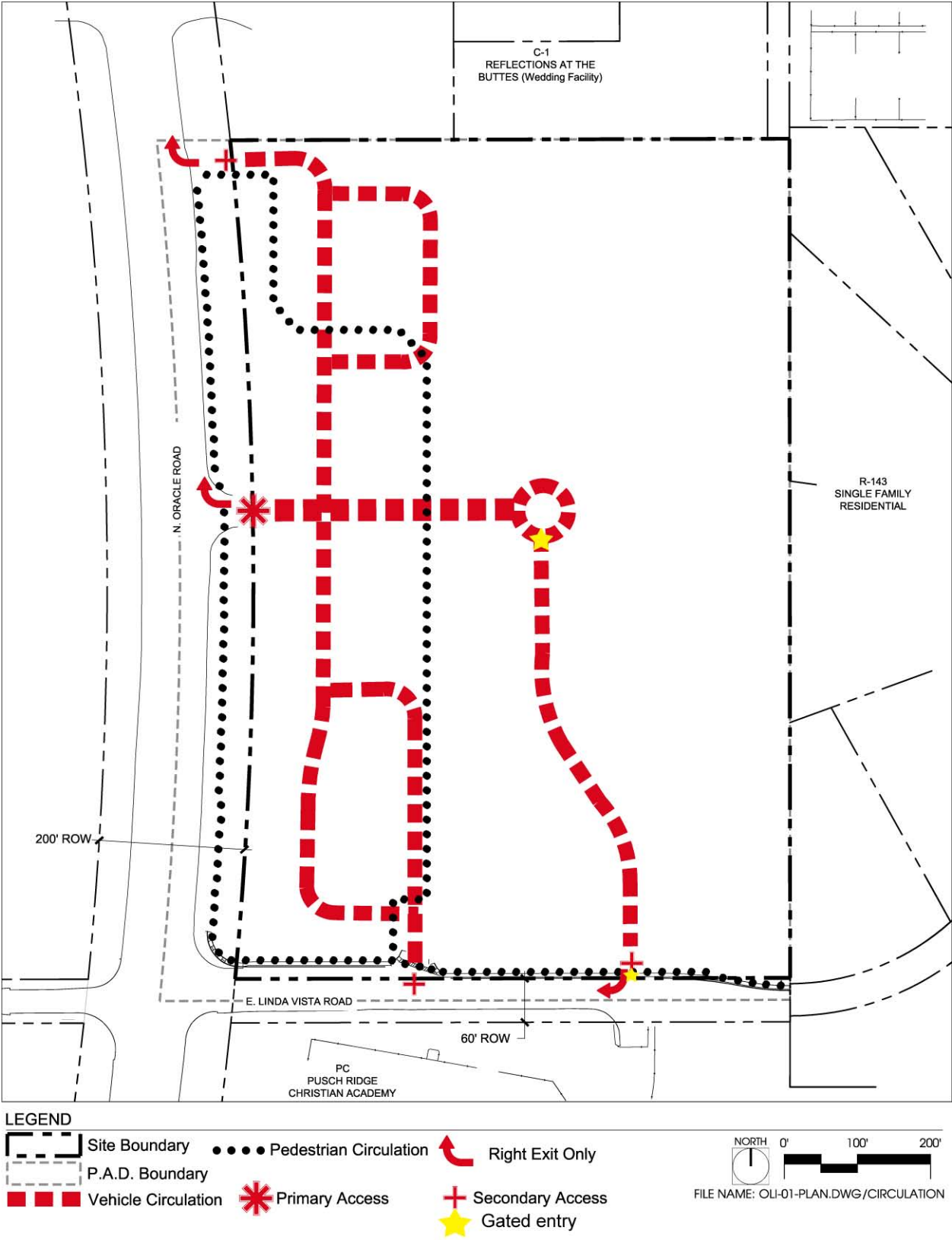
- A safely delineated median walkway buffered by landscaping.

## **2. Open Space**

Open space requirements shall be a minimum 20 percent of the gross area of the PAD District. Open space areas may include, but not limited to: general use pathways, ramadas, turf areas, patios, balconies, recreational areas, landscape bufferyards, hardscape courtyards, and landscaped areas. The goal is to provide for safe pedestrian access and recreational opportunities for the community. All open space areas shall be maintained by a property management association.



Exhibit II.G: Circulation Plan



## **I. Wastewater**

The owner/developer shall obtain written documentation from the Pima County Regional Wastewater Reclamation Department (PCRWRD) that treatment and conveyance capacity is available for any development within the rezoning area, no more than 90 days before submitting any tentative plat, development plan, sewer improvement plan or request for building permit for review. Should treatment and/or conveyance capacity not be available at that time, the owner/developer shall have the option of funding, designing and constructing the necessary improvements to Pima County's public sewerage system at his or her sole expense or cooperatively with other affected parties. All such improvements shall be designed and constructed as directed by the PCRWRD.

## **J. Infrastructure Phasing Plan**

The phasing is unknown at this point until the master developer confirms future tenants for the property. However, all necessary infrastructures will be provided to accommodate the phasing of the development. The roadway infrastructure, traffic improvements and additional right-of-way dedication along Linda Vista Boulevard will be determined by a future Traffic Impact Analysis completed as part of the Conceptual Design Phase for Phase I.

## **K. Water Conservation Standards**

Conservation standards will be accomplished via low water use plants, efficient irrigation and rainwater harvesting.

### **1. Low Water Use Plants**

In accordance with Section 27.6 of the Town Zoning Code, the plant palette will consist of predominately low water use, native and regionally adapted plants. The plants will be located relative to their functionality and the uses associated with the zones within which they are planted. The use of low water use plants in locations appropriate with their species characteristics provides for the conservation of potable water while assuring the survivability and long term health of such plant material.

### **2. Rainwater Harvesting**

In accordance with Section 27.6 of the Town Zoning Code, a number passive rainwater harvesting techniques will be employed to direct and capture rainfall for the benefit of the landscape: curb cuts, flush curbs, recessed planting areas, minimized compaction of planting areas and semi-pervious pavers.





## **L. Architectural Design Guidelines**

El Corredor shall be subject to the Town of Oro Valley Addendum “A” Design Standards adopted in July 2011. The overall design elements shall exhibit a coordinated and unified theme which reinforces the southwestern theme of the overall project with features including, but not limited to: signage, landscaping, screening, and lighting.

The following shall be incorporated into the design:

- All rooftop or ground mounted electrical or mechanical equipment shall be screened from public view to the greatest extent feasible.
- Electrical services entrances shall be screened and painted to match buildings
- The entire PAD District shall be designed in a southwestern architectural style with an integrated design theme through the use of similar materials, shapes, details and colors.

## **M. Design Review**

The property owner, in collaboration with the project consultant team, will review and approve all details of project design through a self-certification process. A copy of the self certification will be provided to the Town of Oro Valley at the time of plan submittal advising whether the design conforms to the project's guidelines.

## **N. Interpretations and Amendments**

### **1. Interpretation**

The regulations and guidelines provided within this PAD supersede existing regulations within the Town of Oro Valley Zoning Code. If an issue arises regarding definitions, conditions, standards and/or situations not addressed in this PAD, those in the Zoning Code, or other Town regulations shall prevail, as interpreted by the Planning Director.

### **2. Amendments**

Amendments to this PAD may be necessary over time to respond to the changing market demands, or financial conditions, or to respond to the unanticipated needs of new users. Non-substantial changes to the PAD shall be approved by the Town of Oro Valley Planning Director and Zoning Administrator may include the following:

- Modifications to the permitted and secondary uses that do not change the overall intent of the PAD.
- Modifications to tax code parcel boundaries, including changes to interior boundaries or combining parcels, except that changes to the PAD perimeter boundary may not be considered a minor amendment or non-substantial change to the PAD.



- Modifications to the proposed site plan provided the Development Standards set forth in the PAD are maintained.



# Appendix A: Traffic Impact Statement



**EL CORREDOR PAD  
TRAFFIC IMPACT ANALYSIS**

**JUNE 7, 2012**

**(JOB NUMBER 16415-I)**

**RICK**  
**RICK ENGINEERING COMPANY**

**RICK**  
ENGINEERING COMPANY

[rickengineering.com](http://rickengineering.com)



**EL CORREDOR PAD  
TRAFFIC IMPACT ANALYSIS**

**June 7, 2012**

**Prepared for:**

**Oracle Linda Vista Investors  
PO Box 43426  
Tucson, Arizona 85733**

**Prepared by:**



**Job Number 16415-I**

## **TABLE OF CONTENTS**

|   |    |
|---|----|
| Introduction .....  | 1  |
| Project Description.....  | 1  |
| Existing Transportation Conditions .....                              | 1  |
| Existing Traffic Volumes.....   | 4  |
| Traffic Analysis Methodology .....                                    | 4  |
| Existing Operations.....  | 4  |
| Project Traffic Generation .....                                      | 8  |
| Trip Distribution/Assignment .....                                    | 8  |
| Opening Year 2013 Total (Background + Project) Traffic Analysis ..... | 8  |
| Conclusions/Recommendations .....                                     | 16 |

## **Appendices**

Appendix A – Manual Turning Movement Count Sheets

Appendix B – Intersection Calculation Sheets

Appendix C – ITE Trip Generation Rate Sheets

Appendix D – Turn Lane Warrants/Queuing/Storage Calculations

## **Tables**

|   |    |
|---|----|
| 1. Existing Intersection Operations .....         | 7  |
| 2. El Corredor Pad Total Traffic Generation ..... | 9  |
| 3. 2013 Intersection Operations .....             | 15 |
| 4. Intersection Operations Summary .....          | 17 |

## **Exhibits**

|     |  |    |
|-----|--|----|
| 1.  | Project Area Map .....                   | 2  |
| 2.  | Proposed Site Plan .....                 | 3  |
| 3.  | Existing Transportation Conditions ..... | 5  |
| 4.  | Existing Traffic Volumes.....            | 6  |
| 5.  | Project Distribution Percentages .....   | 10 |
| 6.  | Project Primary Trip Assignment .....    | 11 |
| 7.  | Project Pass-By Trip Assignment .....    | 12 |
| 8.  | Project Traffic Volumes.....             | 13 |
| 9.  | 2013 Total Traffic Volumes.....          | 14 |
| 10. | Project Access Recommendations .....     | 19 |

# **EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS**

**June 7, 2012**

## **INTRODUCTION**

The following Traffic Impact Analysis (TIA) has been prepared to determine any traffic-related impacts within the project area roadways and intersections due to the proposed El Corredor PAD project. The proposed project is located at the north east corner of the existing intersection of Oracle Road (State Route 77) and Linda Vista Boulevard within the Town of Oro Valley. **Exhibit 1** shows the project area map.

This TIA was prepared following *ADOT's Traffic Impact Analysis for proposed Development publication*. Based on the estimated number of peak hour trips of the proposed project, the level of analysis detail required for the TIS will follow the criteria for a Study Category I analysis (Developments which generate 100-499 peak hour trips).

## **PROJECT DESCRIPTION**

The El Corredor PAD project proposes to develop approximately 220 multi-family units and approximately 47,200 sf of retail uses within the 20 acres site.

The project proposes to have two access points off of Linda Vista Boulevard and two access points off of Oracle Road. Access along Oracle Road will consist of a right turn only driveway and the southerly access will be at the existing limited access driveway with the left turn outbound movement restricted. For this analysis, it was assumed that the project-opening year would be 2013. **Exhibit 2** shows the proposed site plan. It should be noted that the project proposes to utilize the existing curb and median opening along Oracle Road for both access points off of Oracle Road. Additionally, the easterly driveway on Linda Vista Boulevard (Driveway #4) is proposed to provide for outbound right turn traffic and emergency access only. This project access is proposed to be aligned with the existing access to Pusch Ridge Christian Academy located south of Linda Vista Boulevard. It should be noted that this access to Pusch Ridge Christian Academy is closed during school hours (9 am through 2 pm) via a gate.

## **EXISTING TRANSPORTATION CONDITIONS**

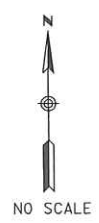
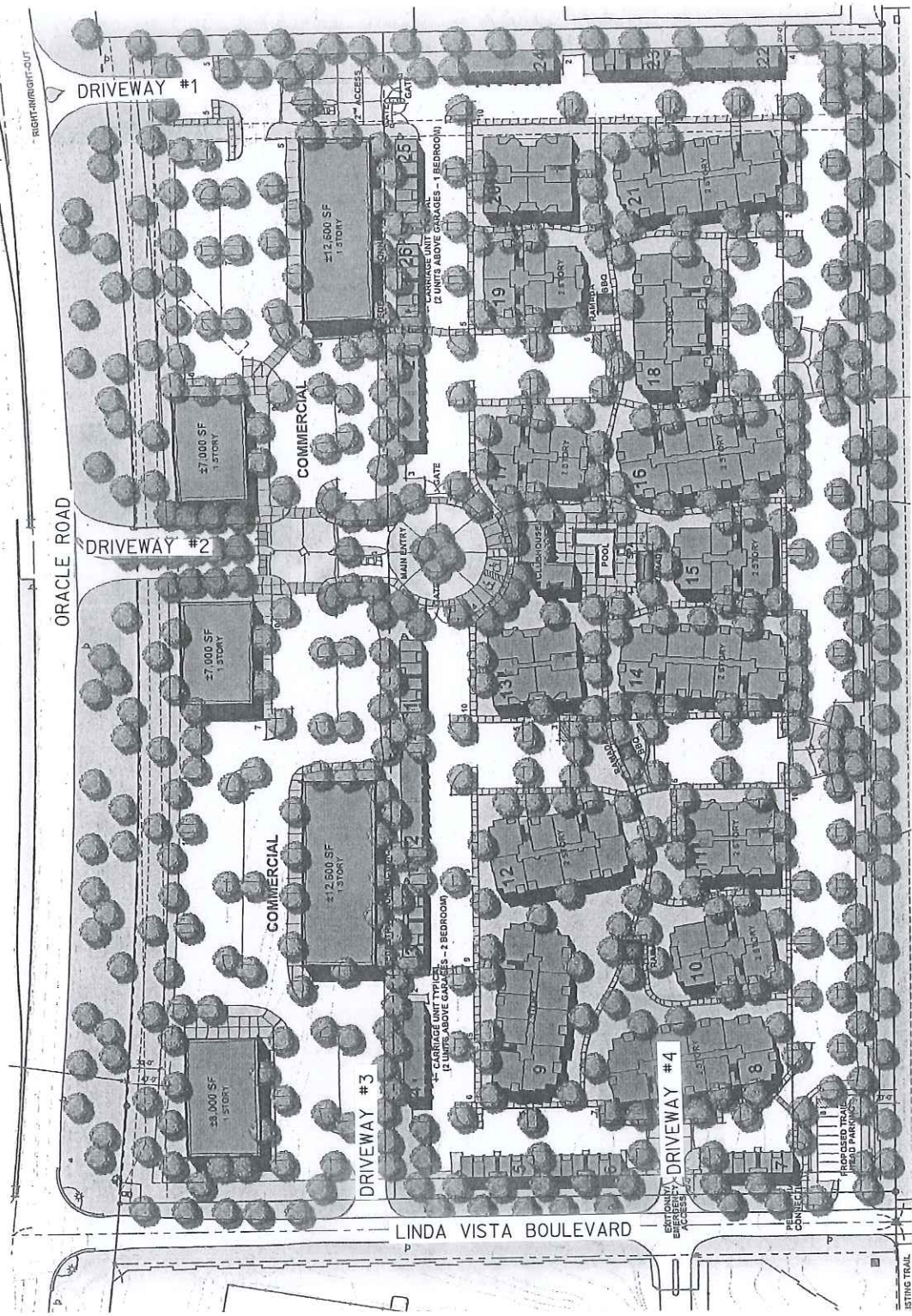
The following is a brief description of the roadways within the project area.

Oracle Road (State Route 77) is classified as an Urban Principal Arterial. It currently provides three vehicular lanes in each direction that is separated by a raised median. Within the immediate project area, a traffic signal is provided at its intersection with Linda Vista Boulevard. The posted speed limit is 50 mph and on-street parking is prohibited. Bike lanes also exist in each direction of Oracle Road.









© 2000 Rick Engineering Company



# EXHIBIT 2

## PROPOSED SITE PLAN

### EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

T:\164151\exhibits\164151\_2\_prop\_site\_plan.dgn  
 \\srv-trn1\RiskStandards\Bentley\_2006\workspace\projects\CorpStds\_2005\_SD\1plot\CorpStds\_2005\_SD.pen  
 26-MAR-2012 10:40

Desert Sky Road is a Local Collector Roadway. It currently provides for an undivided two-lane roadway without shoulders. The posted speed limit is 25 mph and on-street parking is generally prohibited.

Linda Vista Boulevard is classified as an Urban Collector west of Oracle Road and as an unclassified roadway east of Oracle Road. It currently provides for an undivided two-lane roadway without shoulders. The posted speed limit is 25 mph and on-street parking is generally prohibited.

**Exhibit 3** shows the existing transportation conditions within the project area.

## **EXISTING TRAFFIC VOLUMES**

Existing traffic volumes at the project area intersections were obtained from traffic counts conducted by Field Data Services of Arizona on Tuesday, March 6, 2012. The turning movement counts were conducted during the AM (7-9) and PM peak (4-6) periods. **Exhibit 4** shows the existing (2012) turning movement counts at the study intersections. **Appendix A** contains the manual turning movement count sheets.

## **TRAFFIC ANALYSIS METHODOLOGY**

The intersections and roadways within the project area were analyzed for the following scenarios:

- Existing
- 2013 Opening year

The level of service for signalized intersections was calculated using the methodologies described in Chapter 16 of the 2000 Highway Capacity Manual (HCM). The level of service for signalized intersections is defined in terms of control delay, which is made up of a number of factors that relate to right-of-way control, geometrics, traffic volumes, and incidents. The signalized intersection analysis also takes into account intersection spacing and coordination.

The level of service for unsignalized intersections was calculated using the methodologies described in Chapter 17 of the 2000 HCM. The level of service for an unsignalized (two-way stop controlled) intersections is determined by the computed control delay for each minor street movement and major street left-turns, and not for the intersection as a whole.

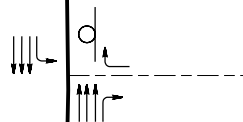
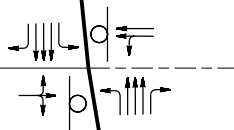
Level of Service A through D is considered acceptable for peak hour intersection operations. The project area intersections were analyzed during the AM and PM peak hours.

The intersection calculation sheets are contained in **Appendix B**.

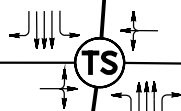
## **EXISTING OPERATIONS**

**Table 1** shows the signalized intersection of Oracle Road/ Linda Vista Boulevard to currently operate at LOS B or better during the AM and PM peak periods. In addition, all the traffic

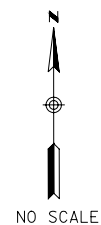
DESERT SKY ROAD



LINDA VISTA  
BOULEVARD





ORACLE ROAD  
(STATE ROUTE 77)



# EXHIBIT 3

EXISTING TRANSPORTATION CONDITIONS  
EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

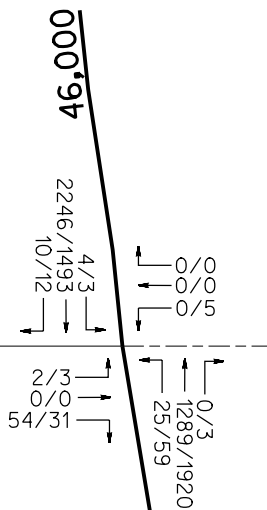
## LEGEND

-  = STOP-CONTROLLED
-  = TRAFFIC SIGNAL



1,040

DESERT SKY ROAD

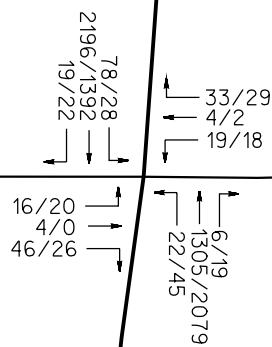


2300/1529

0/0  
0/0  
1314/1982

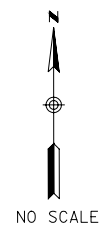
2,000

LINDA VISTA  
BOULEVARD



1,120

ORACLE ROAD  
(STATE ROUTE 77)



## EXHIBIT 4

EXISTING TRAFFIC VOLUMES

EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

### LEGEND

XXXX = ADT  
XXXX/XXXX = AM/PM PEAK HR

**TABLE 1**  
**EXISTING INTERSECTION OPERATIONS**

| INTERSECTION   |         |                | EXISTING    |          |
|--|---------|----------------|-------------|----------|
|  |         |                | DELAY       | LOS      |
| <b>Oracle Road (SR-77)/Desert Sky Road (U)</b>       |         |                |             |          |
|  | AM peak |                |             |          |
|  |         | NB L           | 26.6        | D        |
|  |         | SB L           | 12.4        | B        |
|  |         | EB LTR         | 25.5        | D        |
|  |         | LTR            | 50.7        | F        |
|  | PM peak |                |             |          |
|  |         | NB L           | 15.4        | C        |
|  |         | SB L           | 18.6        | C        |
|  |         | EB LTR         | 17.3        | C        |
|  |         | LTR            | 134.0       | F        |
| <b>Linda Vista Boulevard/Oracle Road (SR-77) (S)</b> |         |                |             |          |
|  | AM peak | <b>Overall</b> | <b>15.9</b> | <b>B</b> |
|  |         | NB L           | 26.1        | C        |
|  |         | NB T           | 14.6        | B        |
|  |         | NB R           | 10.6        | B        |
|  |         | SB L           | 13.5        | B        |
|  |         | SB T           | 15.2        | B        |
|  |         | SB R           | 7.7         | B        |
|  |         | EB LTR         | 44.0        | D        |
|  |         | LTR            | 43.2        | D        |
|  | PM peak | <b>Overall</b> | <b>15.1</b> | <b>B</b> |
|  |         | NB L           | 12.8        | B        |
|  |         | NB T           | 14.3        | B        |
|  |         | NB R           | 7.7         | A        |
|  |         | SB L           | 23.9        | C        |
|  |         | SB T           | 14.6        | B        |
|  |         | SB R           | 10.4        | B        |
|  |         | EB LTR         | 42.7        | D        |
|  |         | LTR            | 42.8        | D        |

- Delays and Level of Service calculated utilizing the methodologies described in Chapters 16 & 17 of the 2000 Highway Capacity Manual (HCM).

DELAY is measured in seconds

LOS = Level of Service

NB = northbound, SB=southbound, etc.

T=thru movement, L=left-turn movement, etc.

(S) = Signalized intersection

(U) = Unsignalized intersection

movements for each approach are calculated to currently operate at LOS D or better during the AM and PM peak periods.

**Table 1** also shows that all the critical movements of the unsignalized intersections to currently operate at LOS D or better with the exception of the following:

- ❑ Oracle Road/Desert Sky Road

WB approach (LOS F during the AM and PM peak hour)

This poor level of service for this movement is typically an indication that adequate gaps in the major street traffic are currently not being provided during the peak periods due to the heavy through volumes along Oracle Road.

## PROJECT TRAFFIC GENERATION

Based on ITE (Institute of Transportation Engineer)'s *Trip Generation* publication, the relevant trip generation rates for Apartment and Shopping Center (ITE Code 220 and 820 respectively, See **Appendix C**) were utilized.

The total project site is estimated to generate 4,798 ADT with 211 trips during the AM peak (83 inbound/128 outbound) and 391 trips during the PM peak (208 inbound/183 outbound). For the Shopping Center (ITE Code 820) uses 34% pass-by trips (PM Peak Only) were calculated. **Table 2** shows the summary of the project traffic generation calculations.

## TRIP DISTRIBUTION/ASSIGNMENT

The site traffic distribution was estimated based on the site's proximity to the nearby major roadways, existing local traffic patterns and existing traffic counts at the project area intersections. **Exhibit 5** shows the project traffic distribution percentages. **Exhibits 6** and **Exhibit 7** shows the project primary and pass-by trip assignment, respectively. **Exhibit 8** shows the total project site traffic assignment.

Once this has been established, the project traffic volumes were added to the project area intersections and roadways. In order to estimate opening year background traffic volumes, the existing traffic volumes were increased 3% per year to reflect 2013 traffic volumes. **Exhibit 9** shows the opening year 2013 total traffic volumes (background plus project traffic).

## OPENING YEAR 2013 TOTAL (BACKGROUND + PROJECT) TRAFFIC ANALYSIS

**Table 3** shows the signalized intersection of Oracle Road/ Linda Vista Boulevard to continue to operate at LOS B or better during the AM and PM peak periods. In addition, all the traffic movements for each approach are calculated to continue to operate at LOS D or better during the AM and PM peak periods with the exception of the westbound approach (LOS E during the AM and PM peak hour). Providing a separate westbound left turn lane will improve the approach to LOS D or better. This will be discussed in the conclusions/recommendations section.

**TABLE 2  
EL CORREDOR PAD  
TOTAL TRAFFIC GENERATION**

| LAND USE                         | SIZE      | RATE | ADT*         | AM PEAK* |       |           |            | PM PEAK* |       |            |            |
|----------------------------------|-----------|------|--------------|----------|-------|-----------|------------|----------|-------|------------|------------|
|                                  |           |      |              | RATE     |       | VOLUME    |            | RATE     |       | VOLUME     |            |
|                                  |           |      |              | IN       | OUT   | IN        | OUT        | IN       | OUT   | IN         | OUT        |
| Apartment (ITE Code 220)         | 220 DU    | 6.65 | 1,463        | 0.015    | 0.061 | 22        | 89         | 0.062    | 0.033 | 90         | 49         |
| Shopping Cener (ITE Code 820)    | 47,200 sf | -    | 4,169*       | 0.015    | 0.009 | 61        | 39         | 0.044    | 0.048 | 183        | 199        |
| 66% Primary Trips (PM Peak Only) | -         | -    | -            | -        | -     | -         | -          | -        | -     | 118        | 134        |
| 34% Pass-by Trips (PM Peak Only) | -         | -    | -            | -        | -     | -         | -          | -        | -     | 65         | 65         |
| 80% Primary ADT                  | -         | -    | 3,335        | -        | -     | -         | -          | -        | -     | -          | -          |
| 20% Pass-by ADT                  | -         | -    | 834          | -        | -     | -         | -          | -        | -     | -          | -          |
| <b>Total</b>                     | -         | -    | <b>5,632</b> | -        | -     | <b>83</b> | <b>128</b> | -        | -     | <b>273</b> | <b>248</b> |
| <b>Total Primary ADT</b>         | -         | -    | <b>4,798</b> | -        | -     | -         | -          | -        | -     | -          | -          |
| <b>Total Pass-by ADT</b>         | -         | -    | <b>834</b>   | -        | -     | -         | -          | -        | -     | -          | -          |
| <b>Total Primary Trips</b>       | -         | -    | -            | -        | -     | -         | -          | -        | -     | <b>208</b> | <b>183</b> |
| <b>Total Pass-by Trips</b>       | -         | -    | -            | -        | -     | -         | -          | -        | -     | <b>65</b>  | <b>65</b>  |

\*Trips calculated based on associated land use fitted curve equations in ITE Trip Generation, 8th Edition Publication



2%

DESERT SKY ROAD

40%

DRIVEWAY  
#1

DRIVEWAY  
#2

DRIVEWAY  
#3

DRIVEWAY  
#4

**PROJECT  
SITE**

5%

LINDA VISTA  
BOULEVARD

50%

ORACLE ROAD  
(STATE ROUTE 77)

3%



NO SCALE

**RICK**  
ENGINEERING COMPANY

**EXHIBIT 5**  
PROJECT DISTRIBUTION PERCENTAGES  
EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

96

DESERT SKY ROAD

1,919

33/84

2/4

51/73  
13/23

45/107

22/26

DRIVEWAY #1

6/16  
42/69

61/82  
23/91

39/60

DRIVEWAY #2

27/75  
8/26

DRIVEWAY #3

5/14  
6/7  
55/75

3/4  
22/69

1/2  
43/27

DRIVEWAY #4

42/23

2/6

**PROJECT SITE**

240

LINDA VISTA BOULEVARD

3/7  
1/3

13/25  
29/79

21/41  
0/1

4/5

144

2,399

ORACLE ROAD  
(STATE ROUTE 77)



NO SCALE



## EXHIBIT 6

PROJECT PRIMARY TRIP ASSIGNMENT

EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

### LEGEND

XXXX = ADT  
XXXX/XXXX = AM/PM PEAK HR

17  
DESERT SKY ROAD

333

**PROJECT  
SITE**

DRIVEWAY  
#1

DRIVEWAY  
#2

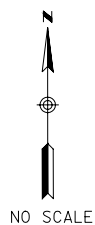
DRIVEWAY  
#3

DRIVEWAY  
#4

42  
LINDA VISTA  
BOULEVARD

417  
ORACLE ROAD  
(STATE ROUTE 77)

25



**EXHIBIT 7**  
PROJECT PASS-BY TRIP ASSIGNMENT  
EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

LEGEND

XXXX = ADT  
XXXX/XXXX = AM/PM PEAK HR

113

DESERT SKY ROAD

2,252

33/84

2/4

51/73  
13/23

45/107

12/26

DRIVEWAY  
#1

6/31  
41/54

28/90  
16/17

39/80

DRIVEWAY  
#2

27/95  
8/6

**PROJECT  
SITE**

DRIVEWAY  
#3

4/14  
6/9  
55/87

3/14  
22/89

1/7  
43/22

DRIVEWAY  
#4

42/23

169

282

LINDA VISTA  
BOULEVARD

3/7  
1/3

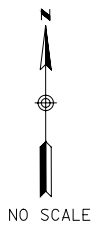
13/25  
30/83

21/51  
0/-9

4/5

ORACLE ROAD  
(STATE ROUTE 77)

2,816



## EXHIBIT 8

PROJECT TRAFFIC VOLUMES

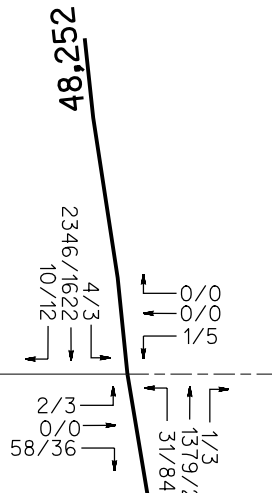
EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

### LEGEND

XXXX = ADT  
XXXX/XXXX = AM/PM PEAK HR

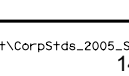
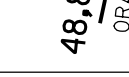
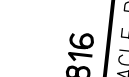
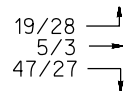
1,153

DESERT SKY ROAD



2,282

LINDA VISTA  
BOULEVARD



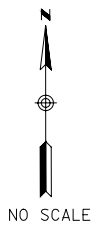
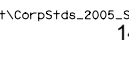
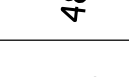
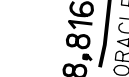
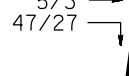
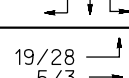
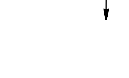
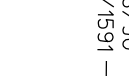
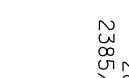
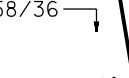
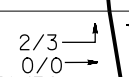
**PROJECT  
SITE**

DRIVEWAY  
#1

DRIVEWAY  
#2

DRIVEWAY  
#3

DRIVEWAY  
#4



## EXHIBIT 9

2013 TOTAL TRAFFIC VOLUMES

EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

### LEGEND

XXXX = ADT  
XXXX/XXXX = AM/PM PEAK HR



**TABLE 3**  
**2013 INTERSECTION OPERATIONS**

| INTERSECTION   | OPENING YEAR<br>(2013) |          |
|--|------------------------|----------|
|  | DELAY                  | LOS      |
| <b>Oracle Road (SR-77)/Desert Sky Road (U)</b>       |                        |          |
| AM peak  |                        |          |
| NB L   | 31.9                   | D        |
| SB L   | 13.0                   | B        |
| EB LTR   | 28.5                   | D        |
| WB LTR   | 65.5                   | F        |
| PM peak  |                        |          |
| NB L   | 18.6                   | C        |
| SB L   | 20.5                   | C        |
| EB LTR   | 19.0                   | C        |
| WB LTR   | 216.3                  | F        |
| <b>Oracle Road (SR-77)/Project Driveway #1 (U)</b>   |                        |          |
| AM peak  |                        |          |
| WB R   | 4.9                    | B        |
| PM peak  |                        |          |
| WB R   | 7.0                    | B        |
| <b>Oracle Road (SR-77)/Project Driveway #2 (U)</b>   |                        |          |
| AM peak  |                        |          |
| SB L   | 13.6                   | B        |
| WB R   | 12.4                   | B        |
| PM peak  |                        |          |
| SB L   | 34.7                   | D        |
| WB R   | 18.0                   | C        |
| <b>Linda Vista Boulevard/Oracle Road (SR-77) (S)</b> |                        |          |
| AM peak  | <b>Overall 17.3</b>    | <b>B</b> |
| NB L   | 27.5                   | C        |
| NB T   | 14.6                   | B        |
| NB R   | 10.4                   | B        |
| SB L   | 15.4                   | B        |
| SB T   | 15.8                   | B        |
| SB R   | 7.7                    | A        |
| EB LTR   | 44.4                   | D        |
| WB LTR   | 61.3                   | E        |
| PM peak  | <b>Overall 19.0</b>    | <b>B</b> |
| NB L   | 15.4                   | B        |
| NB T   | 17.5                   | B        |
| NB R   | 8.9                    | A        |
| SB L   | 30.5                   | C        |
| SB T   | 15.9                   | B        |
| SB R   | 11.1                   | B        |
| EB LTR   | 43.3                   | D        |
| WB LTR   | 60.4                   | E        |
| <b>Linda Vista Boulevard/Project Driveway #3 (U)</b> |                        |          |
| AM peak  |                        |          |
| SB LTR   | 9.1                    | A        |
| EB L   | 7.5                    | A        |
| PM peak  |                        |          |
| SB LTR   | 9.3                    | A        |
| EB L   | 7.5                    | A        |
| <b>Linda Vista Boulevard/Project Driveway #4 (U)</b> |                        |          |
| AM peak  |                        |          |
| SB LTR   | 8.8                    | A        |
| PM peak  |                        |          |
| SB LTR   | 8.7                    | A        |

- Delays and Level of Service calculated utilizing the methodologies described in Chapters 16 & 17 of the 2000 Highway Capacity Manual (HCM).

DELAY is measured in seconds

LOS = Level of Service

NB = northbound, SB=southbound, etc.

T=thru movement, L=left-turn movement, etc.

(S) = Signalized intersection

(U) = Unsignalized intersection

**Table 3** also shows that all the critical movements of the unsignalized intersections to currently operate at LOS D or better with the exception of the following:

- ❑ Oracle Road/Desert Sky Road  
WB approach (LOS F during the AM peak and PM peak hour)

The poor level of services for this movement is typically an indication that adequate gaps in the major street traffic are currently not being provided during the peak periods due to the heavy through volumes along Oracle Road.

Options to improve operations for these movements include, eliminating these conflicting movements (essentially limiting access to right-turn only) or signalizing the intersection.

**Table 4** shows the overall intersection operations of all the analysis scenarios evaluated in this study.

## CONCLUSIONS/RECOMMENDATIONS

Based on the traffic analysis of the proposed El Corredor PAD project, the nearby project area intersections were calculated to operate at acceptable levels of services (LOS D or better) during opening year (2013) with the exception of the westbound approach at the signalized Oracle Road/Linda Vista Boulevard intersection (LOS E). In addition, the westbound approach was calculated to operate at LOS F at the Oracle Road/Desert Sky Road intersection. This poor level of service for these movements at Oracle Road/Desert Sky Road are typically an indication that adequate gaps in the major street traffic are currently not being provided during the peak periods due to the heavy through volumes along Oracle Road. However, with its proximity to the existing signalized intersections of Oracle Road/Linda Vista Boulevard and Oracle Road/El Conquistador Way, these intersections should provide adequate gaps in Oracle Road traffic to accommodate the eastbound and westbound maneuvers at Oracle Road/Desert Sky Road. It is recommended that the intersection of Oracle Road/Desert Sky Road remain full access unsignalized. Additionally, in the near future, Linda Vista Boulevard at Oracle Road is proposed to be widened which will include

The following is a description of the El Corredor PAD project access points:

### Oracle Road/Driveway #1

- Provide for right turn only access via the existing curb opening with unsignalized traffic control. The westbound approach shall be stop-signed controlled. It should be noted that the existing distance of this driveway to the Oracle Road/Desert Sky Road intersection is approximately 195 feet which satisfies the *Town of Oro Valley Subdivision Standards and Policies Manual* requirement of a minimum distance of 150 feet measured from the nearest driveway edge to the center line of a major street intersection.

**TABLE 4  
INTERSECTION OPERATIONS SUMMARY**

| INTERSECTION   | EXISTING            |          | OPENING YEAR<br>(2013) |          |
|--|---------------------|----------|------------------------|----------|
|  | DELAY               | LOS      | DELAY                  | LOS      |
| <b>Oracle Road (SR-77)/Desert Sky Road (U)</b>       |                     |          |                        |          |
| AM peak  |                     |          |                        |          |
| NB L   | 26.6                | D        | 31.9                   | D        |
| SB L   | 12.4                | B        | 13.0                   | B        |
| EB LTR   | 25.5                | D        | 28.5                   | D        |
| WB   | 50.7                | F        | 65.5                   | F        |
| PM peak  |                     |          |                        |          |
| NB L   | 15.4                | C        | 18.6                   | C        |
| SB L   | 18.6                | C        | 20.5                   | C        |
| EB LTR   | 17.3                | C        | 19.0                   | C        |
| WB   | 134.0               | F        | 216.3                  | F        |
| <b>Oracle Road (SR-77)/Project Driveway #1 (U)</b>   |                     |          |                        |          |
| AM peak  |                     |          |                        |          |
| WB R   | -                   | -        | 4.9                    | B        |
| PM peak  |                     |          |                        |          |
| WB R   | -                   | -        | 7.0                    | B        |
| <b>Oracle Road (SR-77)/Project Driveway #2 (U)</b>   |                     |          |                        |          |
| AM peak  |                     |          |                        |          |
| SB L   | -                   | -        | 13.6                   | B        |
| WB R   | -                   | -        | 12.4                   | B        |
| PM peak  |                     |          |                        |          |
| SB L   | -                   | -        | 34.7                   | D        |
| WB R   | -                   | -        | 18.0                   | C        |
| <b>Linda Vista Boulevard/Oracle Road (SR-77) (S)</b> |                     |          |                        |          |
| AM peak  | <b>Overall 15.9</b> | <b>B</b> | <b>17.3</b>            | <b>B</b> |
| NB L   | 26.1                | C        | 27.5                   | C        |
| NB T   | 14.6                | B        | 14.6                   | B        |
| NB R   | 10.6                | B        | 10.4                   | B        |
| SB L   | 13.5                | B        | 15.4                   | B        |
| SB T   | 15.2                | B        | 15.8                   | B        |
| SB R   | 7.7                 | B        | 7.7                    | A        |
| EB LTR   | 44.0                | D        | 44.4                   | D        |
| WB   | 43.2                | D        | 61.3                   | E        |
| PM peak  | <b>Overall 15.1</b> | <b>B</b> | <b>19.0</b>            | <b>B</b> |
| NB L   | 12.8                | B        | 15.4                   | B        |
| NB T   | 14.3                | B        | 17.5                   | B        |
| NB R   | 7.7                 | A        | 8.9                    | A        |
| SB L   | 23.9                | C        | 30.5                   | C        |
| SB T   | 14.6                | B        | 15.9                   | B        |
| SB R   | 10.4                | B        | 11.1                   | B        |
| EB LTR   | 42.7                | D        | 43.3                   | D        |
| WB   | 42.8                | D        | 60.4                   | E        |
| <b>Linda Vista Boulevard/Project Driveway #3 (U)</b> |                     |          |                        |          |
| AM peak  |                     |          |                        |          |
| SB LTR   | -                   | -        | 9.1                    | A        |
| EB L   | -                   | -        | 7.5                    | A        |
| PM peak  |                     |          |                        |          |
| SB LTR   | -                   | -        | 9.3                    | A        |
| EB L   | -                   | -        | 7.5                    | A        |
| <b>Linda Vista Boulevard/Project Driveway #4 (U)</b> |                     |          |                        |          |
| AM peak  |                     |          |                        |          |
| SB LTR   | -                   | -        | 8.8                    | A        |
| PM peak  |                     |          |                        |          |
| SB LTR   | -                   | -        | 8.7                    | A        |

- Delays and Level of Service calculated utilizing the methodologies described in Chapters 16 & 17 of the 2000 Highway Capacity Manual (HCM).

DELAY is measured in seconds

LOS = Level of Service

NB = northbound, SB=southbound, etc.

T=thru movement, L=left-turn movement, etc.

(S) = Signalized intersection

(U) = Unsignalized intersection

#### Oracle Road/Driveway #2

- Provide for limited access via the existing curb at this location. The westbound approach shall be stop-signed controlled. This intersection will be unsignalized providing right turn only access and left inbound only access (left turns outbound prohibited).

#### Oracle Road/Linda Vista Boulevard

- Widen the westbound approach to include a separate left turn lane that provides a minimum 150' of storage and a shared through-right turn lane.

#### Linda Vista Boulevard/Driveway #3

- Provide for unsignalized full access at this driveway. The southbound approach shall be stop-signed controlled. It should be noted that the distance of this proposed driveway to the Oracle Road/Linda Vista Boulevard intersection is approximately 330 feet which satisfies the *Town of Oro Valley Subdivision Standards and Policies Manual* requirement of a minimum distance of 150 feet measured from the nearest driveway edge to the center line of a major street intersection. No separate turn lanes were warranted at this driveway. Also, a separate eastbound left-turn lane at this location was not warranted.

#### Linda Vista Boulevard/Driveway #4

- Provide access for outbound right turns only unto Linda Vista Boulevard. The southbound approach shall be stop-signed controlled. It should be noted that this proposed driveway will be limited to outbound right turn traffic and for emergency access only. This driveway shall be aligned with the Pusch Ridge Christian Academy access, south of Linda Vista Boulevard.

Turn lane warrant calculations at the proposed project driveways were conducted based on methodologies described in section 3.1.3.1. Left Turn Lane Warrants and section 3.1.3.2. Right Turn Lane Warrants of the *Pima County Department Subdivision and Development Street Standards*.

**Appendix D** contains the turn lane warrants and queuing/storage calculations for these intersections. **Exhibit 10** shows a graphical representation of the El Corredor PAD project access points.

DESERT SKY ROAD

LINDA VISTA BOULEVARD

ORACLE ROAD  
(STATE ROUTE 77)

DRIVEWAY  
#1

DRIVEWAY  
#2

DRIVEWAY  
#3

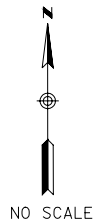
RIGHT OUT AND  
EMERGENCY ACCESS

DRIVEWAY  
#4

**PROJECT  
SITE**



TS

150' MIN



**EXHIBIT 10**  
PROJECT ACCESS RECOMENDATIONS  
EL CORREDOR PAD TRAFFIC IMPACT ANALYSIS

LEGEND

-  = STOP-CONTROLLED
-  = TRAFFIC SIGNAL



# **APPENDIX A**

## **Manual Turning Movement Count Sheets**

# Intersection Turning Movement

Prepared by:



**FIELD DATA SERVICES OF ARIZONA, Inc.**  
520.316.6745

N-S STREET: Oracle Rd DATE: 03/06/2012 LOCATION: Tucson  
E-W STREET: Desert Sky Rd DAY: TUESDAY PROJECT#: 12-1049-001

|        | NORTHBOUND |    |    | SOUTHBOUND |    |    | EASTBOUND |    |    | WESTBOUND |    |    |       |
|--------|------------|----|----|------------|----|----|-----------|----|----|-----------|----|----|-------|
| LANES: | NL         | NT | NR | SL         | ST | SR | EL        | ET | ER | WL        | WT | WR | TOTAL |
|        | 1          | 3  | 1  | 1          | 3  | 1  | 0         | 1  | 0  | 1         | 1  | 0  |       |

|          |   |     |   |   |     |   |   |   |    |   |   |   |      |
|----------|---|-----|---|---|-----|---|---|---|----|---|---|---|------|
| 6:00 AM  |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 6:15 AM  |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 6:30 AM  |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 6:45 AM  |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 7:00 AM  | 5 | 303 | 0 | 3 | 562 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | 884  |
| 7:15 AM  | 7 | 261 | 0 | 1 | 617 | 2 | 0 | 0 | 14 | 0 | 0 | 0 | 902  |
| 7:30 AM  | 6 | 409 | 0 | 0 | 585 | 2 | 2 | 0 | 18 | 0 | 0 | 0 | 1022 |
| 7:45 AM  | 7 | 316 | 0 | 0 | 482 | 5 | 0 | 0 | 12 | 0 | 0 | 0 | 822  |
| 8:00 AM  | 5 | 353 | 0 | 0 | 385 | 0 | 1 | 0 | 16 | 0 | 0 | 0 | 760  |
| 8:15 AM  | 4 | 295 | 0 | 0 | 416 | 3 | 1 | 0 | 7  | 0 | 0 | 0 | 726  |
| 8:30 AM  | 4 | 313 | 1 | 1 | 409 | 4 | 1 | 0 | 8  | 0 | 0 | 0 | 741  |
| 8:45 AM  | 1 | 278 | 1 | 1 | 413 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | 705  |
| 9:00 AM  |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 9:15 AM  |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 9:30 AM  |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 9:45 AM  |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 10:00 AM |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 10:15 AM |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 10:30 AM |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 10:45 AM |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 11:00 AM |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 11:15 AM |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 11:30 AM |   |     |   |   |     |   |   |   |    |   |   |   |      |
| 11:45 AM |   |     |   |   |     |   |   |   |    |   |   |   |      |

| TOTAL      | NL   | NT    | NR   | SL   | ST    | SR   | EL   | ET   | ER    | WL   | WT   | WR   | TOTAL |
|------------|------|-------|------|------|-------|------|------|------|-------|------|------|------|-------|
| Volumes    | 39   | 2528  | 2    | 6    | 3869  | 18   | 5    | 0    | 95    | 0    | 0    | 0    | 6562  |
| Approach % | 1.52 | 98.40 | 0.08 | 0.15 | 99.38 | 0.46 | 5.00 | 0.00 | 95.00 | #### | #### | #### |       |
| App/Depart | 2569 | /     | 2533 | 3893 | /     | 3964 | 100  | /    | 8     | 0    | /    | 57   |       |

AM Peak Hr Begins at: 700 AM

PEAK

|            |      |       |      |      |       |      |      |      |       |      |      |      |      |
|------------|------|-------|------|------|-------|------|------|------|-------|------|------|------|------|
| Volumes    | 25   | 1289  | 0    | 4    | 2246  | 10   | 2    | 0    | 54    | 0    | 0    | 0    | 3630 |
| Approach % | 1.90 | 98.10 | 0.00 | 0.18 | 99.38 | 0.44 | 3.57 | 0.00 | 96.43 | #### | #### | #### |      |

PEAK HR.

|         |       |       |       |       |       |
|---------|-------|-------|-------|-------|-------|
| FACTOR: | 0.792 | 0.911 | 0.700 | 0.000 | 0.888 |
|---------|-------|-------|-------|-------|-------|

CONTROL: 2-WAY STOP (EB & WB)

COMMENT 1:

COMMENT 2:

# Intersection Turning Movement



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745

N-S STREET: Oracle Rd DATE: 03/06/2012 LOCATION: Tucson  
E-W STREET: Desert Sky Rd DAY: TUESDAY PROJECT#: 12-1049-001

|        | NORTHBOUND |    |    | SOUTHBOUND |    |    | EASTBOUND |    |    | WESTBOUND |    |    |       |
|--------|------------|----|----|------------|----|----|-----------|----|----|-----------|----|----|-------|
| LANES: | NL         | NT | NR | SL         | ST | SR | EL        | ET | ER | WL        | WT | WR | TOTAL |
|        | 1          | 3  | 1  | 1          | 3  | 1  | 0         | 1  | 0  | 1         | 1  | 0  |       |

|         |    |     |   |   |     |   |   |   |    |   |   |   |     |
|---------|----|-----|---|---|-----|---|---|---|----|---|---|---|-----|
| 1:00 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 1:15 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 1:30 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 1:45 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 2:00 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 2:15 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 2:30 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 2:45 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 3:00 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 3:15 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 3:30 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 3:45 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 4:00 PM | 15 | 534 | 1 | 0 | 404 | 4 | 0 | 0 | 6  | 0 | 0 | 0 | 964 |
| 4:15 PM | 13 | 469 | 0 | 1 | 361 | 5 | 0 | 0 | 8  | 1 | 0 | 0 | 858 |
| 4:30 PM | 17 | 492 | 0 | 1 | 337 | 3 | 0 | 0 | 8  | 4 | 0 | 0 | 862 |
| 4:45 PM | 15 | 442 | 3 | 0 | 344 | 3 | 0 | 0 | 4  | 1 | 0 | 0 | 812 |
| 5:00 PM | 11 | 498 | 0 | 1 | 377 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 900 |
| 5:15 PM | 16 | 488 | 0 | 1 | 435 | 3 | 3 | 0 | 9  | 0 | 0 | 0 | 955 |
| 5:30 PM | 18 | 485 | 1 | 0 | 286 | 3 | 0 | 0 | 12 | 2 | 0 | 2 | 809 |
| 5:45 PM | 12 | 485 | 0 | 0 | 332 | 2 | 0 | 0 | 5  | 0 | 0 | 0 | 836 |
| 6:00 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 6:15 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 6:30 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |
| 6:45 PM |    |     |   |   |     |   |   |   |    |   |   |   |     |

| TOTAL      | NL   | NT    | NR   | SL   | ST    | SR   | EL   | ET   | ER    | WL    | WT   | WR    | TOTAL |
|------------|------|-------|------|------|-------|------|------|------|-------|-------|------|-------|-------|
| Volumes    | 117  | 3893  | 5    | 4    | 2876  | 26   | 3    | 0    | 62    | 8     | 0    | 2     | 6996  |
| Approach % | 2.91 | 96.96 | 0.12 | 0.14 | 98.97 | 0.89 | 4.62 | 0.00 | 95.38 | 80.00 | 0.00 | 20.00 |       |
| App/Depart | 4015 | /     | 3898 | 2906 | /     | 2946 | 65   | /    | 9     | 10    | /    | 143   |       |

PM Peak Hr Begins at: 430 PM

PEAK

|            |      |       |      |      |       |      |      |      |       |        |      |      |      |
|------------|------|-------|------|------|-------|------|------|------|-------|--------|------|------|------|
| Volumes    | 59   | 1920  | 3    | 3    | 1493  | 12   | 3    | 0    | 31    | 5      | 0    | 0    | 3529 |
| Approach % | 2.98 | 96.87 | 0.15 | 0.20 | 99.01 | 0.80 | 8.82 | 0.00 | 91.18 | 100.00 | 0.00 | 0.00 |      |

PEAK HR.

|         |       |       |       |       |       |
|---------|-------|-------|-------|-------|-------|
| FACTOR: | 0.973 | 0.859 | 0.708 | 0.313 | 0.924 |
|---------|-------|-------|-------|-------|-------|

CONTROL: 2-WAY STOP (EB & WB)

COMMENT 1: 0

COMMENT 2: 0

# Intersection Turning Movement

Prepared by:



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745

N-S STREET: Oracle Rd DATE: 03/06/2012 LOCATION: Tucson  
E-W STREET: Linda Vista Blvd DAY: TUESDAY PROJECT#: 12-1049-002

|          | NORTHBOUND |         |         | SOUTHBOUND |         |         | EASTBOUND |         |         | WESTBOUND |         |         |       |
|----------|------------|---------|---------|------------|---------|---------|-----------|---------|---------|-----------|---------|---------|-------|
| LANES:   | NL<br>1    | NT<br>3 | NR<br>1 | SL<br>1    | ST<br>3 | SR<br>1 | EL<br>0   | ET<br>1 | ER<br>0 | WL<br>1   | WT<br>1 | WR<br>0 | TOTAL |
| 6:00 AM  |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 6:15 AM  |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 6:30 AM  |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 6:45 AM  |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 7:00 AM  | 3          | 297     | 1       | 11         | 568     | 5       | 4         | 0       | 10      | 5         | 1       | 4       | 909   |
| 7:15 AM  | 4          | 277     | 2       | 2          | 620     | 2       | 1         | 0       | 11      | 3         | 0       | 1       | 923   |
| 7:30 AM  | 9          | 372     | 0       | 11         | 549     | 3       | 7         | 1       | 15      | 0         | 0       | 8       | 975   |
| 7:45 AM  | 6          | 359     | 3       | 54         | 459     | 9       | 4         | 3       | 10      | 11        | 3       | 20      | 941   |
| 8:00 AM  | 5          | 385     | 2       | 19         | 423     | 4       | 6         | 0       | 5       | 9         | 2       | 26      | 886   |
| 8:15 AM  | 4          | 299     | 4       | 2          | 434     | 0       | 5         | 0       | 13      | 4         | 1       | 2       | 768   |
| 8:30 AM  | 8          | 333     | 1       | 3          | 486     | 0       | 2         | 0       | 12      | 0         | 0       | 2       | 847   |
| 8:45 AM  | 6          | 298     | 1       | 6          | 428     | 4       | 7         | 1       | 9       | 2         | 0       | 2       | 764   |
| 9:00 AM  |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 9:15 AM  |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 9:30 AM  |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 9:45 AM  |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 10:00 AM |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 10:15 AM |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 10:30 AM |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 10:45 AM |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 11:00 AM |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 11:15 AM |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 11:30 AM |            |         |         |            |         |         |           |         |         |           |         |         |       |
| 11:45 AM |            |         |         |            |         |         |           |         |         |           |         |         |       |

| TOTAL      | NL   | NT    | NR   | SL   | ST    | SR   | EL    | ET   | ER    | WL    | WT   | WR    | TOTAL |
|------------|------|-------|------|------|-------|------|-------|------|-------|-------|------|-------|-------|
| Volumes    | 45   | 2620  | 14   | 108  | 3967  | 27   | 36    | 5    | 85    | 34    | 7    | 65    | 7013  |
| Approach % | 1.68 | 97.80 | 0.52 | 2.63 | 96.71 | 0.66 | 28.57 | 3.97 | 67.46 | 32.08 | 6.60 | 61.32 |       |
| App/Depart | 2679 | /     | 2721 | 4102 | /     | 4086 | 126   | /    | 127   | 106   | /    | 79    |       |

AM Peak Hr Begins at: 700 AM

PEAK

|            |      |       |      |      |       |      |       |      |       |       |      |       |      |
|------------|------|-------|------|------|-------|------|-------|------|-------|-------|------|-------|------|
| Volumes    | 22   | 1305  | 6    | 78   | 2196  | 19   | 16    | 4    | 46    | 19    | 4    | 33    | 3748 |
| Approach % | 1.65 | 97.90 | 0.45 | 3.40 | 95.77 | 0.83 | 24.24 | 6.06 | 69.70 | 33.93 | 7.14 | 58.93 |      |

PEAK HR.

|         |       |       |       |       |       |
|---------|-------|-------|-------|-------|-------|
| FACTOR: | 0.875 | 0.919 | 0.717 | 0.412 | 0.961 |
|---------|-------|-------|-------|-------|-------|

CONTROL: Signal

COMMENT 1:

COMMENT 2:

# Intersection Turning Movement



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745

N-S STREET: Oracle Rd DATE: 03/06/2012 LOCATION: Tucson  
E-W STREET: Linda Vista Blvd DAY: TUESDAY PROJECT#: 12-1049-002

|         | NORTHBOUND |     |    | SOUTHBOUND |     |    | EASTBOUND |    |    | WESTBOUND |    |    |       |
|---------|------------|-----|----|------------|-----|----|-----------|----|----|-----------|----|----|-------|
| LANES:  | NL         | NT  | NR | SL         | ST  | SR | EL        | ET | ER | WL        | WT | WR | TOTAL |
|         | 1          | 3   | 1  | 1          | 3   | 1  | 0         | 1  | 0  | 1         | 1  | 0  |       |
| 1:00 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 1:15 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 1:30 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 1:45 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 2:00 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 2:15 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 2:30 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 2:45 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 3:00 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 3:15 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 3:30 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 3:45 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 4:00 PM | 6          | 566 | 7  | 9          | 401 | 3  | 4         | 0  | 11 | 6         | 0  | 8  | 1021  |
| 4:15 PM | 11         | 472 | 5  | 5          | 332 | 6  | 4         | 0  | 8  | 2         | 1  | 7  | 853   |
| 4:30 PM | 13         | 525 | 2  | 9          | 344 | 7  | 6         | 0  | 4  | 2         | 0  | 5  | 917   |
| 4:45 PM | 11         | 503 | 4  | 11         | 326 | 6  | 5         | 0  | 11 | 6         | 0  | 2  | 885   |
| 5:00 PM | 9          | 518 | 8  | 5          | 384 | 5  | 7         | 0  | 4  | 4         | 0  | 11 | 955   |
| 5:15 PM | 12         | 533 | 5  | 3          | 338 | 4  | 2         | 0  | 7  | 6         | 2  | 11 | 923   |
| 5:30 PM | 18         | 485 | 5  | 10         | 262 | 5  | 7         | 0  | 7  | 12        | 2  | 16 | 829   |
| 5:45 PM | 10         | 503 | 2  | 9          | 296 | 9  | 16        | 0  | 9  | 13        | 2  | 9  | 878   |
| 6:00 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 6:15 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 6:30 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |
| 6:45 PM |            |     |    |            |     |    |           |    |    |           |    |    |       |

| TOTAL      | NL   | NT    | NR   | SL   | ST    | SR   | EL    | ET   | ER    | WL    | WT   | WR    | TOTAL |
|------------|------|-------|------|------|-------|------|-------|------|-------|-------|------|-------|-------|
| Volumes    | 90   | 4105  | 38   | 61   | 2683  | 45   | 51    | 0    | 61    | 51    | 7    | 69    | 7261  |
| Approach % | 2.13 | 96.98 | 0.90 | 2.19 | 96.20 | 1.61 | 45.54 | 0.00 | 54.46 | 40.16 | 5.51 | 54.33 |       |
| App/Depart | 4233 | /     | 4225 | 2789 | /     | 2795 | 112   | /    | 99    | 127   | /    | 142   |       |

PM Peak Hr Begins at: 430 PM

PEAK

|            |      |       |      |      |       |      |       |      |       |       |      |       |      |
|------------|------|-------|------|------|-------|------|-------|------|-------|-------|------|-------|------|
| Volumes    | 45   | 2079  | 19   | 28   | 1392  | 22   | 20    | 0    | 26    | 18    | 2    | 29    | 3680 |
| Approach % | 2.10 | 97.01 | 0.89 | 1.94 | 96.53 | 1.53 | 43.48 | 0.00 | 56.52 | 36.73 | 4.08 | 59.18 |      |

PEAK HR.

|         |       |       |       |       |       |
|---------|-------|-------|-------|-------|-------|
| FACTOR: | 0.974 | 0.915 | 0.719 | 0.645 | 0.963 |
|---------|-------|-------|-------|-------|-------|

CONTROL: Signal

COMMENT 1: 0

COMMENT 2: 0



# **APPENDIX B**

## **Intersection Calculation Sheets**

---

Scenario Report

Scenario: existing am

Command: existing am

Volume: existing am

Geometry: existing

Impact Fee: Default Impact Fee

Trip Generation: none

Trip Distribution: Default Trip Distribution

Paths: Default Path

Routes: Default Route

Configuration: Default Configuration

---

Impact Analysis Report  
Level Of Service

| Intersection |                                | Base |      |       | Future |      |       | Change      |
|--------------|--------------------------------|------|------|-------|--------|------|-------|-------------|
|              |                                | Del/ | V/   |       | Del/   | V/   |       | in          |
|              |                                | LOS  | Veh  | C     | LOS    | Veh  | C     |             |
| # 1          | Oracle Road/Desert Sky Road    | F    | 50.7 | 0.180 | F      | 60.3 | 0.221 | + 9.629 D/V |
| # 4          | Oracle Road/Linda Vista Boulev | B    | 15.9 | 0.864 | B      | 16.9 | 0.866 | + 1.052 D/V |

-----

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #1 Oracle Road/Desert Sky Road

\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: F[ 50.7]

\*\*\*\*\*

| Approach: | North Bound  |   |   |   |   | South Bound  |   |   |   |   | East Bound |   |   |   |   | West Bound |   |   |   |   |
|-----------|--------------|---|---|---|---|--------------|---|---|---|---|------------|---|---|---|---|------------|---|---|---|---|
| Movement: | L            | - | T | - | R | L            | - | T | - | R | L          | - | T | - | R | L          | - | T | - | R |
| Control:  | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   | Stop Sign  |   |   |   |   | Stop Sign  |   |   |   |   |
| Rights:   | Include      |   |   |   |   | Include      |   |   |   |   | Include    |   |   |   |   | Include    |   |   |   |   |
| Lanes:    | 1            | 0 | 3 | 0 | 1 | 1            | 0 | 3 | 0 | 1 | 0          | 0 | 1 | 0 | 0 | 1          | 0 | 0 | 0 | 0 |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 25   | 1289 | 0    | 4    | 2246 | 10   | 2    | 0    | 54   | 1    | 0    | 0    |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 25   | 1289 | 0    | 4    | 2246 | 10   | 2    | 0    | 54   | 1    | 0    | 0    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 27   | 1401 | 0    | 4    | 2441 | 11   | 2    | 0    | 59   | 1    | 0    | 0    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 27   | 1401 | 0    | 4    | 2441 | 11   | 2    | 0    | 59   | 1    | 0    | 0    |

Critical Gap Module:

|              |     |      |       |     |      |       |     |     |     |     |      |       |
|--------------|-----|------|-------|-----|------|-------|-----|-----|-----|-----|------|-------|
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.5 | 6.5 | 6.9 | 7.5 | xxxx | xxxxx |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | 4.0 | 3.3 | 3.5 | xxxx | xxxxx |

Capacity Module:

|              |      |      |       |      |      |       |      |      |       |      |      |       |
|--------------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|
| Cnflct Vol:  | 2452 | xxxx | xxxxx | 1401 | xxxx | xxxxx | 2971 | 3905 | 814   | 2278 | xxxx | xxxxx |
| Potent Cap.: | 193  | xxxx | xxxxx | 494  | xxxx | xxxxx | 6    | 3    | 325   | 22   | xxxx | xxxxx |
| Move Cap.:   | 193  | xxxx | xxxxx | 494  | xxxx | xxxxx | 6    | 3    | 325   | 16   | xxxx | xxxxx |
| Total Cap:   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 28   | 42   | xxxxx | 80   | 26   | xxxxx |
| Volume/Cap:  | 0.14 | xxxx | xxxx  | 0.01 | xxxx | xxxx  | 0.08 | 0.00 | 0.18  | 0.01 | xxxx | xxxx  |

Level Of Service Module:

|              |        |      |       |        |      |       |       |      |       |       |      |       |     |   |    |
|--------------|--------|------|-------|--------|------|-------|-------|------|-------|-------|------|-------|-----|---|----|
| 2Way95thQ:   | 0.5    | xxxx | xxxxx | 0.0    | xxxx | xxxxx | xxxx  | xxxx | xxxxx | 0.0   | xxxx | xxxxx |     |   |    |
| Control Del: | 26.6   | xxxx | xxxxx | 12.4   | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 50.7  | xxxx | xxxxx |     |   |    |
| LOS by Move: | D      | *    | *     | B      | *    | *     | *     | *    | *     | F     | *    | *     |     |   |    |
| Movement:    | LT     | -    | LTR   | -      | RT   | LT    | -     | LTR  | -     | RT    | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | 236  | xxxxx | xxxx  | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | 1.0  | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | 25.5 | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *      | *    | *     | *     | D    | *     | *     | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       | xxxxxx |      |       | 25.5  |      |       | 50.7  |      |       |     |   |    |
| ApproachLOS: | *      |      |       | *      |      |       | D     |      |       | F     |      |       |     |   |    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

## Level Of Service Computation Report

## 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

## Intersection #4 Oracle Road/Linda Vista Boulevard

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.864

Loss Time (sec): 12 Average Delay (sec/veh): 15.9

Optimal Cycle: 51 Level Of Service: B

\*\*\*\*\*

| Approach:   | North Bound |     |     | South Bound |     |     | East Bound  |     |     | West Bound  |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| Movement:   | L           | T   | R   | L           | T   | R   | L           | T   | R   | L           | T   | R   |
| Control:    | Permit+Prot |     |     | Permit+Prot |     |     | Split Phase |     |     | Split Phase |     |     |
| Rights:     | Include     |     |     | Include     |     |     | Include     |     |     | Include     |     |     |
| Min. Green: | 7           | 10  | 10  | 7           | 10  | 10  | 10          | 10  | 10  | 10          | 10  | 10  |
| Y+R:        | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 |
| Lanes:      | 1           | 0   | 3   | 0           | 1   | 1   | 0           | 0   | 1   | 0           | 0   | 0   |

## Volume Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:     | 22   | 1305 | 6    | 78   | 2196 | 19   | 16   | 4    | 46   | 19   | 4    | 33   |
| Growth Adj:   | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:  | 22   | 1305 | 6    | 78   | 2196 | 19   | 16   | 4    | 46   | 19   | 4    | 33   |
| User Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:      | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:   | 24   | 1418 | 7    | 85   | 2387 | 21   | 17   | 4    | 50   | 21   | 4    | 36   |
| Reduct Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:  | 24   | 1418 | 7    | 85   | 2387 | 21   | 17   | 4    | 50   | 21   | 4    | 36   |
| PCE Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume: | 24   | 1418 | 7    | 85   | 2387 | 21   | 17   | 4    | 50   | 21   | 4    | 36   |

## Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.07 | 0.91 | 0.85 | 0.13 | 0.91 | 0.85 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Lanes:      | 1.00 | 3.00 | 1.00 | 1.00 | 3.00 | 1.00 | 0.24 | 0.06 | 0.70 | 0.34 | 0.07 | 0.59 |
| Final Sat.: | 140  | 5187 | 1615 | 252  | 5187 | 1615 | 412  | 103  | 1185 | 583  | 123  | 1013 |

## Capacity Analysis Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:      | 0.17 | 0.27 | 0.00 | 0.34 | 0.46 | 0.01 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| Crit Moves:   | **** |      |      |      | **** |      | **** |      |      | **** |      |      |
| Green/Cycle:  | 0.64 | 0.54 | 0.54 | 0.71 | 0.61 | 0.61 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| Volume/Cap:   | 0.09 | 0.51 | 0.01 | 0.20 | 0.75 | 0.02 | 0.42 | 0.42 | 0.42 | 0.35 | 0.35 | 0.35 |
| Uniform Del:  | 25.9 | 14.5 | 10.6 | 13.3 | 14.1 | 7.7  | 42.3 | 42.3 | 42.3 | 42.0 | 42.0 | 42.0 |
| IncremntDel:  | 0.2  | 0.1  | 0.0  | 0.2  | 1.1  | 0.0  | 1.7  | 1.7  | 1.7  | 1.3  | 1.3  | 1.3  |
| InitQueueDel: | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:    | 26.1 | 14.6 | 10.6 | 13.5 | 15.2 | 7.7  | 44.0 | 44.0 | 44.0 | 43.2 | 43.2 | 43.2 |
| User DelAdj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:   | 26.1 | 14.6 | 10.6 | 13.5 | 15.2 | 7.7  | 44.0 | 44.0 | 44.0 | 43.2 | 43.2 | 43.2 |
| LOS by Move:  | C    | B    | B    | B    | B    | A    | D    | D    | D    | D    | D    | D    |
| HCM2kAvgQ:    | 0    | 10   | 0    | 1    | 20   | 0    | 3    | 3    | 3    | 2    | 2    | 2    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*



---

Scenario Report

Scenario: existing pm

Command: existing pm

Volume: existing pm

Geometry: existing

Impact Fee: Default Impact Fee

Trip Generation: none

Trip Distribution: Default Trip Distribution

Paths: Default Path

Routes: Default Route

Configuration: Default Configuration

---

Impact Analysis Report  
Level Of Service

| Intersection |                                | Base    |       | Future  |       | Change      |
|--------------|--------------------------------|---------|-------|---------|-------|-------------|
|              |                                | Del/    | V/    | Del/    | V/    | in          |
|              |                                | LOS Veh | C     | LOS Veh | C     |             |
| # 1          | Oracle Road/Desert Sky Road    | F 134.0 | 0.164 | F 162.7 | 0.201 | +28.656 D/V |
| # 4          | Oracle Road/Linda Vista Boulev | B 15.1  | 0.836 | B 16.1  | 0.843 | + 1.017 D/V |

-----

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #1 Oracle Road/Desert Sky Road

\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: F[134.0]

\*\*\*\*\*

| Approach: | North Bound  |   |   |   |   | South Bound  |   |   |   |   | East Bound |   |   |   |   | West Bound |   |   |   |   |
|-----------|--------------|---|---|---|---|--------------|---|---|---|---|------------|---|---|---|---|------------|---|---|---|---|
| Movement: | L            | - | T | - | R | L            | - | T | - | R | L          | - | T | - | R | L          | - | T | - | R |
| Control:  | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   | Stop Sign  |   |   |   |   | Stop Sign  |   |   |   |   |
| Rights:   | Include      |   |   |   |   | Include      |   |   |   |   | Include    |   |   |   |   | Include    |   |   |   |   |
| Lanes:    | 1            | 0 | 3 | 0 | 1 | 1            | 0 | 3 | 0 | 1 | 0          | 0 | 1 | 0 | 0 | 1          | 0 | 0 | 0 | 0 |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 59   | 1920 | 3    | 3    | 1493 | 12   | 3    | 0    | 31   | 5    | 0    | 0    |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 59   | 1920 | 3    | 3    | 1493 | 12   | 3    | 0    | 31   | 5    | 0    | 0    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 64   | 2087 | 3    | 3    | 1623 | 13   | 3    | 0    | 34   | 5    | 0    | 0    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 64   | 2087 | 3    | 3    | 1623 | 13   | 3    | 0    | 34   | 5    | 0    | 0    |

Critical Gap Module:

|              |     |      |       |     |      |       |     |     |     |     |      |       |
|--------------|-----|------|-------|-----|------|-------|-----|-----|-----|-----|------|-------|
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.5 | 6.5 | 6.9 | 7.5 | xxxx | xxxxx |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | 4.0 | 3.3 | 3.5 | xxxx | xxxxx |

Capacity Module:

|              |      |      |       |      |      |       |      |      |       |      |      |       |
|--------------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|
| Cnflct Vol:  | 1636 | xxxx | xxxxx | 2090 | xxxx | xxxxx | 2453 | 3848 | 541   | 2763 | xxxx | xxxxx |
| Potent Cap.: | 402  | xxxx | xxxxx | 268  | xxxx | xxxxx | 16   | 4    | 491   | 9    | xxxx | xxxxx |
| Move Cap.:   | 402  | xxxx | xxxxx | 268  | xxxx | xxxxx | 14   | 3    | 491   | 8    | xxxx | xxxxx |
| Total Cap:   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 76   | 44   | xxxxx | 33   | 38   | xxxxx |
| Volume/Cap:  | 0.16 | xxxx | xxxx  | 0.01 | xxxx | xxxx  | 0.04 | 0.00 | 0.07  | 0.16 | xxxx | xxxx  |

Level Of Service Module:

|              |        |      |       |        |      |       |       |      |       |       |      |       |     |   |    |
|--------------|--------|------|-------|--------|------|-------|-------|------|-------|-------|------|-------|-----|---|----|
| 2Way95thQ:   | 0.6    | xxxx | xxxxx | 0.0    | xxxx | xxxxx | xxxx  | xxxx | xxxxx | 0.5   | xxxx | xxxxx |     |   |    |
| Control Del: | 15.7   | xxxx | xxxxx | 18.6   | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 134.0 | xxxx | xxxxx |     |   |    |
| LOS by Move: | C      | *    | *     | C      | *    | *     | *     | *    | *     | F     | *    | *     |     |   |    |
| Movement:    | LT     | -    | LTR   | -      | RT   | LT    | -     | LTR  | -     | RT    | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | 331  | xxxxx | xxxx  | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | 0.4  | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | 17.3 | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *      | *    | *     | *     | C    | *     | *     | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       | xxxxxx |      |       | 17.3  |      |       | 134.0 |      |       |     |   |    |
| ApproachLOS: | *      |      |       | *      |      |       | C     |      |       | F     |      |       |     |   |    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

## Level Of Service Computation Report

## 2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #4 Oracle Road/Linda Vista Boulevard

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.836

Loss Time (sec): 12 Average Delay (sec/veh): 15.1

Optimal Cycle: 49 Level Of Service: B

\*\*\*\*\*

| Approach:   | North Bound |     |     | South Bound |     |     | East Bound  |     |     | West Bound  |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| Movement:   | L           | T   | R   | L           | T   | R   | L           | T   | R   | L           | T   | R   |
| Control:    | Permit+Prot |     |     | Permit+Prot |     |     | Split Phase |     |     | Split Phase |     |     |
| Rights:     | Include     |     |     | Include     |     |     | Include     |     |     | Include     |     |     |
| Min. Green: | 7           | 10  | 10  | 7           | 10  | 10  | 10          | 10  | 10  | 10          | 10  | 10  |
| Y+R:        | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 |
| Lanes:      | 1           | 0   | 3   | 0           | 1   | 1   | 0           | 3   | 0   | 1           | 0   | 0   |

## Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 45   | 2079 | 19   | 28   | 1392 | 22   | 20   | 0    | 26   | 18   | 2    | 29   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 45   | 2079 | 19   | 28   | 1392 | 22   | 20   | 0    | 26   | 18   | 2    | 29   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 49   | 2260 | 21   | 30   | 1513 | 24   | 22   | 0    | 28   | 20   | 2    | 32   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 49   | 2260 | 21   | 30   | 1513 | 24   | 22   | 0    | 28   | 20   | 2    | 32   |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 49   | 2260 | 21   | 30   | 1513 | 24   | 22   | 0    | 28   | 20   | 2    | 32   |

## Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.11 | 0.91 | 0.85 | 0.07 | 0.91 | 0.85 | 0.90 | 1.00 | 0.90 | 0.90 | 0.90 | 0.90 |
| Lanes:      | 1.00 | 3.00 | 1.00 | 1.00 | 3.00 | 1.00 | 0.43 | 0.00 | 0.57 | 0.37 | 0.04 | 0.59 |
| Final Sat.: | 209  | 5187 | 1615 | 139  | 5187 | 1615 | 747  | 0    | 971  | 631  | 70   | 1016 |

## Capacity Analysis Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:      | 0.23 | 0.44 | 0.01 | 0.22 | 0.29 | 0.01 | 0.03 | 0.00 | 0.03 | 0.03 | 0.03 | 0.03 |
| Crit Moves:   | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green/Cycle:  | 0.71 | 0.61 | 0.61 | 0.65 | 0.55 | 0.55 | 0.10 | 0.00 | 0.10 | 0.10 | 0.10 | 0.10 |
| Volume/Cap:   | 0.12 | 0.71 | 0.02 | 0.12 | 0.53 | 0.03 | 0.29 | 0.00 | 0.29 | 0.31 | 0.31 | 0.31 |
| Uniform Del:  | 12.7 | 13.5 | 7.7  | 23.7 | 14.4 | 10.4 | 41.7 | 0.0  | 41.7 | 41.8 | 41.8 | 41.8 |
| IncrementDel: | 0.1  | 0.8  | 0.0  | 0.2  | 0.2  | 0.0  | 0.9  | 0.0  | 0.9  | 1.0  | 1.0  | 1.0  |
| InitQueueDel: | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:    | 12.8 | 14.3 | 7.7  | 23.9 | 14.6 | 10.4 | 42.7 | 0.0  | 42.7 | 42.8 | 42.8 | 42.8 |
| User DelAdj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:   | 12.8 | 14.3 | 7.7  | 23.9 | 14.6 | 10.4 | 42.7 | 0.0  | 42.7 | 42.8 | 42.8 | 42.8 |
| LOS by Move:  | B    | B    | A    | C    | B    | B    | D    | A    | D    | D    | D    | D    |
| HCM2kAvgQ:    | 1    | 18   | 0    | 0    | 11   | 0    | 2    | 0    | 2    | 2    | 2    | 2    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

-----  
-----  
Scenario Report

Scenario: opening year (2013) with proj am  
Command: opening year (2013) with proj am  
Volume: opening year (2013) am  
Geometry: existing  
Impact Fee: Default Impact Fee  
Trip Generation: project am  
Trip Distribution: Default Trip Distribution  
Paths: Default Path  
Routes: Default Route  
Configuration: Default Configuration



Impact Analysis Report  
Level Of Service

| Intersection |                                | Base |             |         | Future |             |         | Change<br>in |
|--------------|--------------------------------|------|-------------|---------|--------|-------------|---------|--------------|
|              |                                | LOS  | Del/<br>Veh | V/<br>C | LOS    | Del/<br>Veh | V/<br>C |              |
| # 1          | Oracle Road/Desert Sky Road    | F    | 54.5        | 0.193   | F      | 65.5        | 0.241   | +10.958 D/V  |
| # 2          | Oracle Road/Driveway #1        | A    | 0.0         | 0.000   | A      | 0.0         | 0.000   | + 0.000 D/V  |
| # 3          | Oracle Road/Driveway #2        | A    | 0.0         | 0.000   | B      | 13.6        | 0.080   | +13.596 D/V  |
| # 4          | Oracle Road/Linda Vista Boulev | B    | 16.2        | 0.880   | B      | 17.3        | 0.882   | + 1.070 D/V  |
| # 5          | Linda Vista Blvd/Diveway #3    | A    | 0.0         | 0.000   | A      | 9.1         | 0.025   | + 9.051 D/V  |
| # 6          | Linda Vista Blvd/Driveway#4    | A    | 0.0         | 0.000   | A      | 8.8         | 0.045   | + 8.753 D/V  |

-----

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 Oracle Road/Desert Sky Road

\*\*\*\*\*

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: F[ 65.5]

\*\*\*\*\*

| Approach: | North Bound  |   |   |   |   | South Bound  |   |   |   |   | East Bound |   |   |   |   | West Bound |   |   |   |   |
|-----------|--------------|---|---|---|---|--------------|---|---|---|---|------------|---|---|---|---|------------|---|---|---|---|
| Movement: | L            | - | T | - | R | L            | - | T | - | R | L          | - | T | - | R | L          | - | T | - | R |
| Control:  | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   | Stop Sign  |   |   |   |   | Stop Sign  |   |   |   |   |
| Rights:   | Include      |   |   |   |   | Include      |   |   |   |   | Include    |   |   |   |   | Include    |   |   |   |   |
| Lanes:    | 1            | 0 | 3 | 0 | 1 | 1            | 0 | 3 | 0 | 1 | 0          | 0 | 1 | 0 | 0 | 1          | 0 | 0 | 0 | 0 |

-----

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 25   | 1289 | 1    | 4    | 2246 | 10   | 2    | 0    | 54   | 1    | 0    | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 26   | 1328 | 1    | 4    | 2313 | 10   | 2    | 0    | 56   | 1    | 0    | 0    |
| Added Vol:   | 13   | 51   | 0    | 0    | 33   | 0    | 0    | 0    | 2    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 39   | 1379 | 1    | 4    | 2346 | 10   | 2    | 0    | 58   | 1    | 0    | 0    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 42   | 1499 | 1    | 4    | 2550 | 11   | 2    | 0    | 63   | 1    | 0    | 0    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 42   | 1499 | 1    | 4    | 2550 | 11   | 2    | 0    | 63   | 1    | 0    | 0    |

-----

Critical Gap Module:

|              |     |      |       |     |      |       |     |     |     |     |      |       |
|--------------|-----|------|-------|-----|------|-------|-----|-----|-----|-----|------|-------|
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.5 | 6.5 | 6.9 | 7.5 | xxxx | xxxxx |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | 4.0 | 3.3 | 3.5 | xxxx | xxxxx |

-----

Capacity Module:

|              |      |      |       |      |      |       |      |      |       |      |      |       |
|--------------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|
| Cnflct Vol:  | 2562 | xxxx | xxxxx | 1500 | xxxx | xxxxx | 3143 | 4143 | 850   | 2442 | xxxx | xxxxx |
| Potent Cap.: | 175  | xxxx | xxxxx | 453  | xxxx | xxxxx | 5    | 2    | 308   | 17   | xxxx | xxxxx |
| Move Cap.:   | 175  | xxxx | xxxxx | 453  | xxxx | xxxxx | 4    | 2    | 308   | 11   | xxxx | xxxxx |
| Total Cap:   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 23   | 35   | xxxxx | 61   | 10   | xxxxx |
| Volume/Cap:  | 0.24 | xxxx | xxxx  | 0.01 | xxxx | xxxx  | 0.10 | 0.00 | 0.20  | 0.02 | xxxx | xxxx  |

-----

Level Of Service Module:

|              |        |      |       |        |      |       |       |      |       |       |      |       |     |   |    |
|--------------|--------|------|-------|--------|------|-------|-------|------|-------|-------|------|-------|-----|---|----|
| 2Way95thQ:   | 0.9    | xxxx | xxxxx | 0.0    | xxxx | xxxxx | xxxx  | xxxx | xxxxx | 0.1   | xxxx | xxxxx |     |   |    |
| Control Del: | 31.9   | xxxx | xxxxx | 13.0   | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 65.5  | xxxx | xxxxx |     |   |    |
| LOS by Move: | D      | *    | *     | B      | *    | *     | *     | *    | *     | F     | *    | *     |     |   |    |
| Movement:    | LT     | -    | LTR   | -      | RT   | LT    | -     | LTR  | -     | RT    | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | 217  | xxxxx | xxxx  | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | 1.2  | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | 28.5 | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *      | *    | *     | *     | D    | *     | *     | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       | xxxxxx |      |       | 28.5  |      |       | 65.5  |      |       |     |   |    |
| ApproachLOS: | *      |      |       | *      |      |       | D     |      |       | F     |      |       |     |   |    |

-----

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

## Level Of Service Computation Report

## 1994 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

## Intersection #2 Oracle Road/Driveway #1

\*\*\*\*\*

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A

\*\*\*\*\*

| Approach: | North Bound  |   |   |   |   | South Bound  |   |   |   |   | East Bound |   |   |   |   | West Bound |   |   |   |   |
|-----------|--------------|---|---|---|---|--------------|---|---|---|---|------------|---|---|---|---|------------|---|---|---|---|
| Movement: | L            | - | T | - | R | L            | - | T | - | R | L          | - | T | - | R | L          | - | T | - | R |
| Control:  | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   | Stop Sign  |   |   |   |   | Stop Sign  |   |   |   |   |
| Rights:   | Include      |   |   |   |   | Include      |   |   |   |   | Include    |   |   |   |   | Include    |   |   |   |   |
| Lanes:    | 0            | 0 | 2 | 1 | 0 | 0            | 0 | 3 | 0 | 0 | 0          | 0 | 0 | 0 | 0 | 0          | 0 | 0 | 0 | 1 |

## Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 1314 | 0    | 0    | 2300 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 0    | 1353 | 0    | 0    | 2369 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Added Vol:   | 0    | 41   | 6    | 0    | 45   | 0    | 0    | 0    | 0    | 0    | 0    | 22   |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 0    | 1394 | 6    | 0    | 2414 | 0    | 0    | 0    | 0    | 0    | 0    | 22   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 0    | 1516 | 7    | 0    | 2624 | 0    | 0    | 0    | 0    | 0    | 0    | 24   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 0    | 1516 | 7    | 0    | 2624 | 0    | 0    | 0    | 0    | 0    | 0    | 24   |

## Adjusted Volume Module:

| Grade:        | 0%   |      |      | 0%   |      |      | 0%   |      |      | 0%   |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| % Cycle/Cars: | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      |
| % Truck/Comb: | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      |
| PCE Adj:      | 1.10 | 1.00 | 1.00 | 1.10 | 1.00 | 1.00 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| Cycl/Car PCE: | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      |
| Trck/Cmb PCE: | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      |
| Adj Vol.:     | 0    | 1516 | 7    | 0    | 2624 | 0    | 0    | 0    | 0    | 0    | 0    | 26   |

## Critical Gap Module:

|              |       |      |       |       |      |       |       |      |       |       |      |     |
|--------------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-----|
| MoveUp Time: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 2.6 |
| Critical Gp: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 5.5 |

## Capacity Module:

|              |      |      |       |      |      |       |      |      |       |      |      |      |
|--------------|------|------|-------|------|------|-------|------|------|-------|------|------|------|
| Cnflct Vol:  | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 508  |
| Potent Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 765  |
| Adj Cap:     | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 1.00 |
| Move Cap.:   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 765  |

## Level Of Service Module:

|              |       |      |       |       |      |       |        |      |       |       |      |       |     |   |    |
|--------------|-------|------|-------|-------|------|-------|--------|------|-------|-------|------|-------|-----|---|----|
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | 4.9   |     |   |    |
| LOS by Move: | *     | *    | *     | *     | *    | *     | *      | *    | *     | *     | *    | A     |     |   |    |
| Movement:    | LT    | -    | LTR   | -     | RT   | LT    | -      | LTR  | -     | RT    | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx  | xxxx | xxxxx | xxxx  | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *     | *    | *     | *     | *    | *     | *      | *    | *     | *     | *    | *     |     |   |    |
| ApproachDel: | 0.0   |      |       | 0.0   |      |       | xxxxxx |      |       | 4.9   |      |       |     |   |    |
| ApproachLOS: | A     |      |       | A     |      |       | *      |      |       | A     |      |       |     |   |    |

## Level Of Service Computation Report

## 2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

## Intersection #3 Oracle Road/Driveway #2

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: B[ 13.6]

\*\*\*\*\*

| Approach: | North Bound  |   |   |   |   | South Bound  |   |   |   |   | East Bound |   |   |   |   | West Bound |   |   |   |   |
|-----------|--------------|---|---|---|---|--------------|---|---|---|---|------------|---|---|---|---|------------|---|---|---|---|
| Movement: | L            | - | T | - | R | L            | - | T | - | R | L          | - | T | - | R | L          | - | T | - | R |
| Control:  | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   | Stop Sign  |   |   |   |   | Stop Sign  |   |   |   |   |
| Rights:   | Include      |   |   |   |   | Include      |   |   |   |   | Include    |   |   |   |   | Include    |   |   |   |   |
| Lanes:    | 0            | 0 | 3 | 0 | 1 | 1            | 0 | 3 | 0 | 0 | 0          | 0 | 0 | 0 | 0 | 0          | 0 | 0 | 0 | 1 |

## Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 1314 | 0    | 0    | 2300 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 0    | 1353 | 0    | 0    | 2369 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Added Vol:   | 0    | 8    | 27   | 28   | 16   | 0    | 0    | 0    | 0    | 0    | 0    | 39   |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 0    | 1361 | 27   | 28   | 2385 | 0    | 0    | 0    | 0    | 0    | 0    | 39   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 0    | 1480 | 29   | 30   | 2592 | 0    | 0    | 0    | 0    | 0    | 0    | 42   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 0    | 1480 | 29   | 30   | 2592 | 0    | 0    | 0    | 0    | 0    | 0    | 42   |

## Critical Gap Module:

|              |       |      |       |     |      |       |       |      |       |       |      |     |
|--------------|-------|------|-------|-----|------|-------|-------|------|-------|-------|------|-----|
| Critical Gp: | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 6.9 |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 3.3 |

## Capacity Module:

|              |      |      |       |      |      |       |      |      |       |      |      |       |
|--------------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|
| Cnflct Vol:  | xxxx | xxxx | xxxxx | 1509 | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 493   |
| Potent Cap.: | xxxx | xxxx | xxxxx | 449  | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 527   |
| Move Cap.:   | xxxx | xxxx | xxxxx | 449  | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 527   |
| Total Cap:   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 20   | 33   | xxxxx | 117  | 34   | xxxxx |
| Volume/Cap:  | xxxx | xxxx | xxxx  | 0.07 | xxxx | xxxx  | xxxx | xxxx | xxxx  | xxxx | xxxx | 0.08  |

## Level Of Service Module:

|              |        |      |       |        |      |       |        |      |       |       |      |       |     |   |    |
|--------------|--------|------|-------|--------|------|-------|--------|------|-------|-------|------|-------|-----|---|----|
| 2Way95thQ:   | xxxx   | xxxx | xxxxx | 0.2    | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | xxxx | 0.3   |     |   |    |
| Control Del: | xxxxx  | xxxx | xxxxx | 13.6   | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | 12.4  |     |   |    |
| LOS by Move: | *      | *    | *     | B      | *    | *     | *      | *    | *     | *     | *    | B     |     |   |    |
| Movement:    | LT     | -    | LTR   | -      | RT   | LT    | -      | LTR  | -     | RT    | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *      | *    | *     | *      | *    | *     | *     | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       | xxxxxx |      |       | xxxxxx |      |       |       | 12.4 |       |     |   |    |
| ApproachLOS: | *      |      |       | *      |      |       | *      |      |       |       | B    |       |     |   |    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

## Intersection #4 Oracle Road/Linda Vista Boulevard

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.882

Loss Time (sec): 12 Average Delay (sec/veh): 17.3

Optimal Cycle: 59 Level Of Service: B

\*\*\*\*\*

| Approach:   | North Bound |     |     | South Bound |     |     | East Bound  |     |     | West Bound  |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| Movement:   | L           | T   | R   | L           | T   | R   | L           | T   | R   | L           | T   | R   |
| Control:    | Permit+Prot |     |     | Permit+Prot |     |     | Split Phase |     |     | Split Phase |     |     |
| Rights:     | Include     |     |     | Include     |     |     | Include     |     |     | Include     |     |     |
| Min. Green: | 7           | 10  | 10  | 7           | 10  | 10  | 10          | 10  | 10  | 10          | 10  | 10  |
| Y+R:        | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 |
| Lanes:      | 1           | 0   | 3   | 0           | 1   | 1   | 0           | 3   | 0   | 1           | 0   | 0   |

## Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 22   | 1305 | 6    | 78   | 2196 | 19   | 16   | 4    | 46   | 19   | 4    | 33   |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 23   | 1344 | 6    | 80   | 2262 | 20   | 16   | 4    | 47   | 20   | 4    | 34   |
| Added Vol:   | 0    | 29   | 13   | 7    | 9    | 1    | 3    | 1    | 0    | 55   | 6    | 5    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 23   | 1373 | 19   | 87   | 2271 | 21   | 19   | 5    | 47   | 75   | 10   | 39   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 25   | 1493 | 21   | 95   | 2468 | 22   | 21   | 6    | 52   | 81   | 11   | 42   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 25   | 1493 | 21   | 95   | 2468 | 22   | 21   | 6    | 52   | 81   | 11   | 42   |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 25   | 1493 | 21   | 95   | 2468 | 22   | 21   | 6    | 52   | 81   | 11   | 42   |

## Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.07 | 0.91 | 0.85 | 0.13 | 0.91 | 0.85 | 0.90 | 0.90 | 0.90 | 0.93 | 0.93 | 0.93 |
| Lanes:      | 1.00 | 3.00 | 1.00 | 1.00 | 3.00 | 1.00 | 0.27 | 0.07 | 0.66 | 0.60 | 0.08 | 0.32 |
| Final Sat.: | 139  | 5187 | 1615 | 250  | 5187 | 1615 | 462  | 122  | 1125 | 1065 | 144  | 557  |

## Capacity Analysis Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:      | 0.18 | 0.29 | 0.01 | 0.38 | 0.48 | 0.01 | 0.05 | 0.05 | 0.05 | 0.08 | 0.08 | 0.08 |
| Crit Moves:   | **** |      |      |      | **** |      |      | **** |      |      | **** |      |
| Green/Cycle:  | 0.65 | 0.55 | 0.55 | 0.71 | 0.61 | 0.61 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| Volume/Cap:   | 0.10 | 0.53 | 0.02 | 0.23 | 0.78 | 0.02 | 0.46 | 0.46 | 0.46 | 0.76 | 0.76 | 0.76 |
| Uniform Del:  | 27.3 | 14.4 | 10.4 | 15.1 | 14.5 | 7.7  | 42.4 | 42.4 | 42.4 | 43.8 | 43.8 | 43.8 |
| IncrcmntDel:  | 0.2  | 0.2  | 0.0  | 0.3  | 1.3  | 0.0  | 1.9  | 1.9  | 1.9  | 17.5 | 17.5 | 17.5 |
| InitQueueDel: | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:    | 27.5 | 14.6 | 10.4 | 15.4 | 15.8 | 7.7  | 44.4 | 44.4 | 44.4 | 61.3 | 61.3 | 61.3 |
| User DelAdj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:   | 27.5 | 14.6 | 10.4 | 15.4 | 15.8 | 7.7  | 44.4 | 44.4 | 44.4 | 61.3 | 61.3 | 61.3 |
| LOS by Move:  | C    | B    | B    | B    | B    | A    | D    | D    | D    | E    | E    | E    |
| HCM2kAvgQ:    | 0    | 11   | 0    | 1    | 22   | 0    | 3    | 3    | 3    | 6    | 6    | 6    |

\*\*\*\*\*



-----

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Linda Vista Blvd/Diveway #3

\*\*\*\*\*

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: A[ 9.1]

\*\*\*\*\*

| Approach: | North Bound |   |   | South Bound |   |   | East Bound   |   |   | West Bound   |   |   |   |   |   |
|-----------|-------------|---|---|-------------|---|---|--------------|---|---|--------------|---|---|---|---|---|
| Movement: | L           | - | T | -           | R | L | -            | T | - | R            | L | - | T | - | R |
| Control:  | Stop Sign   |   |   | Stop Sign   |   |   | Uncontrolled |   |   | Uncontrolled |   |   |   |   |   |
| Rights:   | Include     |   |   | Include     |   |   | Include      |   |   | Include      |   |   |   |   |   |
| Lanes:    | 0           | 0 | 0 | 0           | 0 | 0 | 0            | 1 | 0 | 0            | 0 | 0 | 0 | 1 | 0 |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 88   | 0    | 0    | 56   | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 91   | 0    | 0    | 58   | 0    |
| Added Vol:   | 0    | 0    | 0    | 3    | 0    | 22   | 21   | 1    | 0    | 0    | 43   | 1    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 0    | 0    | 0    | 3    | 0    | 22   | 21   | 92   | 0    | 0    | 101  | 1    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 0    | 0    | 0    | 3    | 0    | 24   | 23   | 100  | 0    | 0    | 109  | 1    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 0    | 0    | 0    | 3    | 0    | 24   | 23   | 100  | 0    | 0    | 109  | 1    |

Critical Gap Module:

|              |       |      |       |     |     |     |     |      |       |       |      |       |
|--------------|-------|------|-------|-----|-----|-----|-----|------|-------|-------|------|-------|
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | 6.5 | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | 4.0 | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |

Capacity Module:

|              |      |      |       |      |      |      |      |      |       |      |      |       |
|--------------|------|------|-------|------|------|------|------|------|-------|------|------|-------|
| Cnflct Vol:  | xxxx | xxxx | xxxxx | 255  | 255  | 110  | 111  | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 738  | 652  | 949  | 1492 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.:   | xxxx | xxxx | xxxxx | 729  | 642  | 949  | 1492 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap:  | xxxx | xxxx | xxxx  | 0.00 | 0.00 | 0.03 | 0.02 | xxxx | xxxx  | xxxx | xxxx | xxxx  |

Level Of Service Module:

|              |        |      |       |       |      |       |        |      |       |       |        |       |     |   |    |
|--------------|--------|------|-------|-------|------|-------|--------|------|-------|-------|--------|-------|-----|---|----|
| 2Way95thQ:   | xxxx   | xxxx | xxxxx | xxxx  | xxxx | xxxxx | 0.0    | xxxx | xxxxx | xxxx  | xxxx   | xxxxx |     |   |    |
| Control Del: | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.5    | xxxx | xxxxx | xxxxx | xxxx   | xxxxx |     |   |    |
| LOS by Move: | *      | *    | *     | *     | *    | *     | A      | *    | *     | *     | *      | *     |     |   |    |
| Movement:    | LT     | -    | LTR   | -     | RT   | LT    | -      | LTR  | -     | RT    | LT     | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | xxxx | xxxxx | xxxx  | 916  | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | xxxx   | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx | 0.1  | xxxxx | 0.0    | xxxx | xxxxx | xxxxx | xxxx   | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx | 9.1  | xxxxx | 7.5    | xxxx | xxxxx | xxxxx | xxxx   | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *     | A    | *     | A      | *    | *     | *     | *      | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       |       | 9.1  |       | xxxxxx |      |       |       | xxxxxx |       |     |   |    |
| ApproachLOS: | *      |      |       |       | A    |       | *      |      |       |       | *      |       |     |   |    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

-----

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Linda Vista Blvd/Driveway#4

\*\*\*\*\*

Average Delay (sec/veh): 1.9 Worst Case Level Of Service: A[ 8.8]

\*\*\*\*\*

| Approach: | North Bound |   |   |   |   | South Bound |   |   |   |   | East Bound   |   |   |   |   | West Bound   |   |   |   |   |
|-----------|-------------|---|---|---|---|-------------|---|---|---|---|--------------|---|---|---|---|--------------|---|---|---|---|
| Movement: | L           | - | T | - | R | L           | - | T | - | R | L            | - | T | - | R | L            | - | T | - | R |
| Control:  | Stop Sign   |   |   |   |   | Stop Sign   |   |   |   |   | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   |
| Rights:   | Include     |   |   |   |   | Include     |   |   |   |   | Include      |   |   |   |   | Include      |   |   |   |   |
| Lanes:    | 0           | 0 | 1 | 0 | 0 | 0           | 0 | 0 | 0 | 1 | 0            | 0 | 1 | 0 | 0 | 0            | 0 | 1 | 0 | 0 |

-----

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 88   | 0    | 0    | 56   | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 91   | 0    | 0    | 58   | 0    |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 42   | 0    | 4    | 0    | 0    | 2    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 0    | 0    | 0    | 0    | 0    | 42   | 0    | 95   | 0    | 0    | 60   | 0    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 0    | 0    | 0    | 0    | 0    | 46   | 0    | 103  | 0    | 0    | 65   | 0    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 0    | 0    | 0    | 0    | 0    | 46   | 0    | 103  | 0    | 0    | 65   | 0    |

-----

Critical Gap Module:

|              |     |     |     |       |      |     |       |      |       |       |      |       |
|--------------|-----|-----|-----|-------|------|-----|-------|------|-------|-------|------|-------|
| Critical Gp: | 7.1 | 6.5 | 6.2 | xxxxx | xxxx | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |

-----

Capacity Module:

|              |      |      |      |      |      |      |      |      |       |      |      |       |
|--------------|------|------|------|------|------|------|------|------|-------|------|------|-------|
| Cnflct Vol:  | 191  | 168  | 103  | xxxx | xxxx | 65   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | 774  | 729  | 958  | xxxx | xxxx | 1005 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.:   | 739  | 729  | 958  | xxxx | xxxx | 1005 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap:  | 0.00 | 0.00 | 0.00 | xxxx | xxxx | 0.05 | xxxx | xxxx | xxxx  | xxxx | xxxx | xxxx  |

-----

Level Of Service Module:

|              |        |      |       |       |      |       |        |      |       |        |      |       |     |   |    |
|--------------|--------|------|-------|-------|------|-------|--------|------|-------|--------|------|-------|-----|---|----|
| 2Way95thQ:   | xxxx   | xxxx | xxxxx | xxxx  | xxxx | 0.1   | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx |     |   |    |
| Control Del: | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | 8.8   | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| LOS by Move: | *      | *    | *     | *     | *    | A     | *      | *    | *     | *      | *    | *     |     |   |    |
| Movement:    | LT     | -    | LTR   | -     | RT   | LT    | -      | LTR  | -     | RT     | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | 0    | xxxxx | xxxx  | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *     | *    | *     | *      | *    | *     | *      | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       |       |      | 8.8   | xxxxxx |      |       | xxxxxx |      |       |     |   |    |
| ApproachLOS: | *      |      |       |       |      | A     | *      |      |       | *      |      |       |     |   |    |

-----

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

-----  
-----  
Scenario Report

Scenario: opening year (2013) with proj pm  
Command: opening year (2013) with proj pm  
Volume: opening year (2013) pm  
Geometry: existing  
Impact Fee: Default Impact Fee  
Trip Generation: project pm  
Trip Distribution: Default Trip Distribution  
Paths: Default Path  
Routes: Default Route  
Configuration: Default Configuration

Impact Analysis Report  
Level Of Service

| Intersection                       | Base |             |         | Future |             |         | Change<br>in |
|------------------------------------|------|-------------|---------|--------|-------------|---------|--------------|
|                                    | LOS  | Del/<br>Veh | V/<br>C | LOS    | Del/<br>Veh | V/<br>C |              |
| # 1 Oracle Road/Desert Sky Road    | F    | 152.8       | 0.189   | F      | 216.3       | 0.257   | +63.500 D/V  |
| # 2 Oracle Road/Driveway #1        | A    | 0.0         | 0.000   | B      | 0.1         | 0.000   | + 0.000 D/V  |
| # 3 Oracle Road/Driveway #2        | A    | 0.0         | 0.000   | D      | 34.7        | 0.452   | +34.699 D/V  |
| # 4 Oracle Road/Linda Vista Boulev | B    | 15.4        | 0.851   | B      | 19.0        | 0.870   | + 3.617 D/V  |
| # 5 Linda Vista Blvd/Diveway #3    | A    | 7.2         | 0.000   | A      | 9.3         | 0.098   | + 2.150 D/V  |
| # 6 Linda Vista Blvd/Driveway#4    | A    | 0.0         | 0.000   | A      | 8.7         | 0.025   | + 8.657 D/V  |

-----

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 Oracle Road/Desert Sky Road

\*\*\*\*\*

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: F[216.3]

\*\*\*\*\*

| Approach: | North Bound  |   |   |   |   | South Bound  |   |   |   |   | East Bound |   |   |   |   | West Bound |   |   |   |   |
|-----------|--------------|---|---|---|---|--------------|---|---|---|---|------------|---|---|---|---|------------|---|---|---|---|
| Movement: | L            | - | T | - | R | L            | - | T | - | R | L          | - | T | - | R | L          | - | T | - | R |
| Control:  | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   | Stop Sign  |   |   |   |   | Stop Sign  |   |   |   |   |
| Rights:   | Include      |   |   |   |   | Include      |   |   |   |   | Include    |   |   |   |   | Include    |   |   |   |   |
| Lanes:    | 1            | 0 | 3 | 0 | 1 | 1            | 0 | 3 | 0 | 1 | 0          | 0 | 1 | 0 | 0 | 1          | 0 | 0 | 0 | 0 |

-----

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 59   | 1920 | 3    | 3    | 1493 | 12   | 3    | 0    | 31   | 5    | 0    | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 61   | 1978 | 3    | 3    | 1538 | 12   | 3    | 0    | 32   | 5    | 0    | 0    |
| Added Vol:   | 23   | 73   | 0    | 0    | 84   | 0    | 0    | 0    | 4    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 84   | 2051 | 3    | 3    | 1622 | 12   | 3    | 0    | 36   | 5    | 0    | 0    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 91   | 2229 | 3    | 3    | 1763 | 13   | 3    | 0    | 39   | 6    | 0    | 0    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 91   | 2229 | 3    | 3    | 1763 | 13   | 3    | 0    | 39   | 6    | 0    | 0    |

-----

Critical Gap Module:

|              |     |      |       |     |      |       |     |     |     |     |      |       |
|--------------|-----|------|-------|-----|------|-------|-----|-----|-----|-----|------|-------|
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.5 | 6.5 | 6.9 | 7.5 | xxxx | xxxxx |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | 4.0 | 3.3 | 3.5 | xxxx | xxxxx |

-----

Capacity Module:

|              |      |      |       |      |      |       |      |      |       |      |      |       |
|--------------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|
| Cnflct Vol:  | 1776 | xxxx | xxxxx | 2232 | xxxx | xxxxx | 2695 | 4184 | 588   | 3005 | xxxx | xxxxx |
| Potent Cap.: | 355  | xxxx | xxxxx | 236  | xxxx | xxxxx | 11   | 2    | 458   | 6    | xxxx | xxxxx |
| Move Cap.:   | 355  | xxxx | xxxxx | 236  | xxxx | xxxxx | 8    | 2    | 458   | 4    | xxxx | xxxxx |
| Total Cap:   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 60   | 31   | xxxxx | 22   | 21   | xxxxx |
| Volume/Cap:  | 0.26 | xxxx | xxxx  | 0.01 | xxxx | xxxx  | 0.06 | 0.00 | 0.09  | 0.25 | xxxx | xxxx  |

-----

Level Of Service Module:

|              |        |      |       |        |      |       |       |      |       |       |      |       |     |   |    |
|--------------|--------|------|-------|--------|------|-------|-------|------|-------|-------|------|-------|-----|---|----|
| 2Way95thQ:   | 1.0    | xxxx | xxxxx | 0.0    | xxxx | xxxxx | xxxx  | xxxx | xxxxx | 0.7   | xxxx | xxxxx |     |   |    |
| Control Del: | 18.6   | xxxx | xxxxx | 20.5   | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 216.3 | xxxx | xxxxx |     |   |    |
| LOS by Move: | C      | *    | *     | C      | *    | *     | *     | *    | *     | F     | *    | *     |     |   |    |
| Movement:    | LT     | -    | LTR   | -      | RT   | LT    | -     | LTR  | -     | RT    | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | 299  | xxxxx | xxxx  | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | 0.5  | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | 19.0 | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *      | *    | *     | *     | C    | *     | *     | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       | xxxxxx |      |       | 19.0  |      |       | 216.3 |      |       |     |   |    |
| ApproachLOS: | *      |      |       | *      |      |       | C     |      |       | F     |      |       |     |   |    |

-----

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

## Level Of Service Computation Report

## 1994 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

## Intersection #2 Oracle Road/Driveway #1

\*\*\*\*\*

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: B

\*\*\*\*\*

| Approach: | North Bound  |   |   |   |   | South Bound  |   |   |   |   | East Bound |   |   |   |   | West Bound |   |   |   |   |
|-----------|--------------|---|---|---|---|--------------|---|---|---|---|------------|---|---|---|---|------------|---|---|---|---|
| Movement: | L            | - | T | - | R | L            | - | T | - | R | L          | - | T | - | R | L          | - | T | - | R |
| Control:  | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   | Stop Sign  |   |   |   |   | Stop Sign  |   |   |   |   |
| Rights:   | Include      |   |   |   |   | Include      |   |   |   |   | Include    |   |   |   |   | Include    |   |   |   |   |
| Lanes:    | 0            | 0 | 2 | 1 | 0 | 0            | 0 | 3 | 0 | 0 | 0          | 0 | 0 | 0 | 0 | 0          | 0 | 0 | 0 | 1 |

## Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 1982 | 0    | 0    | 1529 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 0    | 2041 | 0    | 0    | 1575 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Added Vol:   | 0    | 69   | 16   | 0    | 107  | 0    | 0    | 0    | 0    | 0    | 0    | 26   |
| PasserByVol: | 0    | -15  | 15   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 15   |
| Initial Fut: | 0    | 2095 | 31   | 0    | 1682 | 0    | 0    | 0    | 0    | 0    | 0    | 41   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 0    | 2278 | 34   | 0    | 1828 | 0    | 0    | 0    | 0    | 0    | 0    | 45   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 0    | 2278 | 34   | 0    | 1828 | 0    | 0    | 0    | 0    | 0    | 0    | 45   |

## Adjusted Volume Module:

| Grade:        | 0%   |      |      | 0%   |      |      | 0%   |      |      | 0%   |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| % Cycle/Cars: | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      |
| % Truck/Comb: | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      |
| PCE Adj:      | 1.10 | 1.00 | 1.00 | 1.10 | 1.00 | 1.00 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| Cycl/Car PCE: | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      |
| Trck/Cmb PCE: | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      | xxxx | xxxx |      |
| Adj Vol.:     | 0    | 2278 | 34   | 0    | 1828 | 0    | 0    | 0    | 0    | 0    | 0    | 49   |

## Critical Gap Module:

|              |       |      |       |       |      |       |       |      |       |       |      |     |
|--------------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-----|
| MoveUp Time: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 2.6 |
| Critical Gp: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 5.5 |

## Capacity Module:

|              |      |      |       |      |      |       |      |      |       |      |      |      |
|--------------|------|------|-------|------|------|-------|------|------|-------|------|------|------|
| Cnflct Vol:  | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 776  |
| Potent Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 560  |
| Adj Cap:     | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 1.00 |
| Move Cap.:   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 560  |

## Level Of Service Module:

|              |       |      |       |       |      |       |        |      |       |       |      |       |     |   |    |
|--------------|-------|------|-------|-------|------|-------|--------|------|-------|-------|------|-------|-----|---|----|
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | 7.0   |     |   |    |
| LOS by Move: | *     | *    | *     | *     | *    | *     | *      | *    | *     | *     | *    | B     |     |   |    |
| Movement:    | LT    | -    | LTR   | -     | RT   | LT    | -      | LTR  | -     | RT    | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx  | xxxx | xxxxx | xxxx  | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *     | *    | *     | *     | *    | *     | *      | *    | *     | *     | *    | *     |     |   |    |
| ApproachDel: | 0.0   |      |       | 0.0   |      |       | xxxxxx |      |       | 7.0   |      |       |     |   |    |
| ApproachLOS: | A     |      |       | A     |      |       | *      |      |       | B     |      |       |     |   |    |



## Level Of Service Computation Report

## 2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

## Intersection #3 Oracle Road/Driveway #2

\*\*\*\*\*

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: D[ 34.7]

\*\*\*\*\*

| Approach: | North Bound  |   |   |   |   | South Bound  |   |   |   |   | East Bound |   |   |   |   | West Bound |   |   |   |   |
|-----------|--------------|---|---|---|---|--------------|---|---|---|---|------------|---|---|---|---|------------|---|---|---|---|
| Movement: | L            | - | T | - | R | L            | - | T | - | R | L          | - | T | - | R | L          | - | T | - | R |
| Control:  | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   | Stop Sign  |   |   |   |   | Stop Sign  |   |   |   |   |
| Rights:   | Include      |   |   |   |   | Include      |   |   |   |   | Include    |   |   |   |   | Include    |   |   |   |   |
| Lanes:    | 0            | 0 | 3 | 0 | 1 | 1            | 0 | 3 | 0 | 0 | 0          | 0 | 0 | 0 | 0 | 0          | 0 | 0 | 0 | 1 |

## Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 1982 | 0    | 0    | 1529 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 0    | 2041 | 0    | 0    | 1575 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Added Vol:   | 0    | 26   | 75   | 75   | 32   | 0    | 0    | 0    | 0    | 0    | 0    | 60   |
| PasserByVol: | 0    | -20  | 20   | 15   | -15  | 0    | 0    | 0    | 0    | 0    | 0    | 20   |
| Initial Fut: | 0    | 2047 | 95   | 90   | 1592 | 0    | 0    | 0    | 0    | 0    | 0    | 80   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 0    | 2226 | 103  | 98   | 1730 | 0    | 0    | 0    | 0    | 0    | 0    | 87   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 0    | 2226 | 103  | 98   | 1730 | 0    | 0    | 0    | 0    | 0    | 0    | 87   |

## Critical Gap Module:

|              |       |      |       |     |      |       |       |      |       |       |      |     |
|--------------|-------|------|-------|-----|------|-------|-------|------|-------|-------|------|-----|
| Critical Gp: | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 6.9 |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 3.3 |

## Capacity Module:

|              |      |      |       |      |      |       |      |      |       |      |      |       |
|--------------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|
| Cnflct Vol:  | xxxx | xxxx | xxxxx | 2329 | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 742   |
| Potent Cap.: | xxxx | xxxx | xxxxx | 216  | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 363   |
| Move Cap.:   | xxxx | xxxx | xxxxx | 216  | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | 363   |
| Total Cap:   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 31   | 0    | xxxxx | 51   | 33   | xxxxx |
| Volume/Cap:  | xxxx | xxxx | xxxx  | 0.45 | xxxx | xxxx  | xxxx | xxxx | xxxx  | xxxx | xxxx | 0.24  |

## Level Of Service Module:

|              |        |      |       |        |      |       |        |      |       |       |      |       |     |   |    |
|--------------|--------|------|-------|--------|------|-------|--------|------|-------|-------|------|-------|-----|---|----|
| 2Way95thQ:   | xxxx   | xxxx | xxxxx | 2.2    | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | xxxx | 0.9   |     |   |    |
| Control Del: | xxxxx  | xxxx | xxxxx | 34.7   | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | 18.0  |     |   |    |
| LOS by Move: | *      | *    | *     | D      | *    | *     | *      | *    | *     | *     | *    | C     |     |   |    |
| Movement:    | LT     | -    | LTR   | -      | RT   | LT    | -      | LTR  | -     | RT    | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx  | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *      | *    | *     | *      | *    | *     | *     | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       | xxxxxx |      |       | xxxxxx |      |       |       | 18.0 |       |     |   |    |
| ApproachLOS: | *      |      |       | *      |      |       | *      |      |       |       | C    |       |     |   |    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

## Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

## Intersection #4 Oracle Road/Linda Vista Boulevard

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.870

Loss Time (sec): 12 Average Delay (sec/veh): 19.0

Optimal Cycle: 61 Level Of Service: B

\*\*\*\*\*

| Approach:   | North Bound |     |     | South Bound |     |     | East Bound  |     |     | West Bound  |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| Movement:   | L           | T   | R   | L           | T   | R   | L           | T   | R   | L           | T   | R   |
| Control:    | Permit+Prot |     |     | Permit+Prot |     |     | Split Phase |     |     | Split Phase |     |     |
| Rights:     | Include     |     |     | Include     |     |     | Include     |     |     | Include     |     |     |
| Min. Green: | 7           | 10  | 10  | 7           | 10  | 10  | 10          | 10  | 10  | 10          | 10  | 10  |
| Y+R:        | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 |
| Lanes:      | 1           | 0   | 3   | 0           | 1   | 1   | 0           | 3   | 0   | 1           | 0   | 0   |

## Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 45   | 2079 | 19   | 28   | 1392 | 22   | 20   | 0    | 26   | 18   | 2    | 29   |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 46   | 2141 | 20   | 29   | 1434 | 23   | 21   | 0    | 27   | 19   | 2    | 30   |
| Added Vol:   | 0    | 79   | 25   | 14   | 17   | 2    | 7    | 3    | 0    | 74   | 7    | 14   |
| PasserByVol: | 0    | 0    | 0    | 0    | -13  | -2   | 0    | 0    | 0    | 13   | 2    | 0    |
| Initial Fut: | 46   | 2220 | 45   | 43   | 1438 | 23   | 28   | 3    | 27   | 106  | 11   | 44   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 50   | 2413 | 48   | 47   | 1563 | 25   | 30   | 3    | 29   | 115  | 12   | 48   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 50   | 2413 | 48   | 47   | 1563 | 25   | 30   | 3    | 29   | 115  | 12   | 48   |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 50   | 2413 | 48   | 47   | 1563 | 25   | 30   | 3    | 29   | 115  | 12   | 48   |

## Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.10 | 0.91 | 0.85 | 0.08 | 0.91 | 0.85 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 |
| Lanes:      | 1.00 | 3.00 | 1.00 | 1.00 | 3.00 | 1.00 | 0.48 | 0.05 | 0.47 | 0.66 | 0.07 | 0.27 |
| Final Sat.: | 186  | 5187 | 1615 | 143  | 5187 | 1615 | 837  | 91   | 812  | 1165 | 122  | 484  |

## Capacity Analysis Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:      | 0.27 | 0.47 | 0.03 | 0.33 | 0.30 | 0.02 | 0.04 | 0.04 | 0.04 | 0.10 | 0.10 | 0.10 |
| Crit Moves:   | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green/Cycle:  | 0.69 | 0.59 | 0.59 | 0.63 | 0.53 | 0.53 | 0.10 | 0.10 | 0.10 | 0.12 | 0.12 | 0.12 |
| Volume/Cap:   | 0.13 | 0.79 | 0.05 | 0.18 | 0.57 | 0.03 | 0.36 | 0.36 | 0.36 | 0.79 | 0.79 | 0.79 |
| Uniform Del:  | 15.3 | 16.0 | 8.8  | 30.2 | 15.7 | 11.1 | 42.0 | 42.0 | 42.0 | 42.6 | 42.6 | 42.6 |
| IncrcmntDel:  | 0.2  | 1.5  | 0.0  | 0.3  | 0.3  | 0.0  | 1.3  | 1.3  | 1.3  | 17.8 | 17.8 | 17.8 |
| InitQueueDel: | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:    | 15.4 | 17.5 | 8.9  | 30.5 | 15.9 | 11.1 | 43.3 | 43.3 | 43.3 | 60.4 | 60.4 | 60.4 |
| User DelAdj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:   | 15.4 | 17.5 | 8.9  | 30.5 | 15.9 | 11.1 | 43.3 | 43.3 | 43.3 | 60.4 | 60.4 | 60.4 |
| LOS by Move:  | B    | B    | A    | C    | B    | B    | D    | D    | D    | E    | E    | E    |
| HCM2kAvgQ:    | 1    | 22   | 1    | 1    | 12   | 0    | 2    | 2    | 2    | 7    | 7    | 7    |

\*\*\*\*\*

-----

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Linda Vista Blvd/Diveway #3

\*\*\*\*\*

Average Delay (sec/veh): 4.9 Worst Case Level Of Service: A[ 9.3]

\*\*\*\*\*

| Approach: | North Bound |   |   | South Bound |   |   | East Bound   |   |   | West Bound   |   |   |   |   |   |
|-----------|-------------|---|---|-------------|---|---|--------------|---|---|--------------|---|---|---|---|---|
| Movement: | L           | - | T | -           | R | L | -            | T | - | R            | L | - | T | - | R |
| Control:  | Stop Sign   |   |   | Stop Sign   |   |   | Uncontrolled |   |   | Uncontrolled |   |   |   |   |   |
| Rights:   | Include     |   |   | Include     |   |   | Include      |   |   | Include      |   |   |   |   |   |
| Lanes:    | 0           | 0 | 0 | 0           | 0 | 0 | 0            | 1 | 0 | 0            | 0 | 0 | 0 | 1 | 0 |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 47   | 0    | 0    | 49   | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 48   | 0    | 0    | 50   | 0    |
| Added Vol:   | 0    | 0    | 0    | 4    | 0    | 69   | 41   | 1    | 0    | 0    | 27   | 2    |
| PasserByVol: | 0    | 0    | 0    | 10   | 0    | 20   | 10   | -10  | 0    | 0    | -5   | 5    |
| Initial Fut: | 0    | 0    | 0    | 14   | 0    | 89   | 51   | 39   | 0    | 0    | 72   | 7    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 0    | 0    | 0    | 15   | 0    | 97   | 55   | 43   | 0    | 0    | 79   | 8    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 0    | 0    | 0    | 15   | 0    | 97   | 55   | 43   | 0    | 0    | 79   | 8    |

Critical Gap Module:

|              |       |      |       |     |     |     |     |      |       |       |      |       |
|--------------|-------|------|-------|-----|-----|-----|-----|------|-------|-------|------|-------|
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | 6.5 | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | 4.0 | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |

Capacity Module:

|              |      |      |       |      |      |      |      |      |       |      |      |       |
|--------------|------|------|-------|------|------|------|------|------|-------|------|------|-------|
| Cnflct Vol:  | xxxx | xxxx | xxxxx | 236  | 236  | 83   | 86   | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 756  | 668  | 983  | 1523 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.:   | xxxx | xxxx | xxxxx | 735  | 643  | 983  | 1523 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap:  | xxxx | xxxx | xxxx  | 0.02 | 0.00 | 0.10 | 0.04 | xxxx | xxxx  | xxxx | xxxx | xxxx  |

Level Of Service Module:

|              |        |      |       |       |      |       |        |      |       |        |      |       |     |   |    |
|--------------|--------|------|-------|-------|------|-------|--------|------|-------|--------|------|-------|-----|---|----|
| 2Way95thQ:   | xxxx   | xxxx | xxxxx | xxxx  | xxxx | xxxxx | 0.1    | xxxx | xxxxx | xxxx   | xxxx | xxxxx |     |   |    |
| Control Del: | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.5    | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| LOS by Move: | *      | *    | *     | *     | *    | *     | A      | *    | *     | *      | *    | *     |     |   |    |
| Movement:    | LT     | -    | LTR   | -     | RT   | LT    | -      | LTR  | -     | RT     | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | xxxx | xxxxx | xxxx  | 939  | xxxxx | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx | 0.4  | xxxxx | 0.1    | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx | 9.3  | xxxxx | 7.5    | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *     | A    | *     | A      | *    | *     | *      | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       |       | 9.3  |       | xxxxxx |      |       | xxxxxx |      |       |     |   |    |
| ApproachLOS: | *      |      |       |       | A    |       | *      |      |       | *      |      |       |     |   |    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

-----

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Linda Vista Blvd/Driveway#4

\*\*\*\*\*

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: A[ 8.7]

\*\*\*\*\*

| Approach: | North Bound |   |   |   |   | South Bound |   |   |   |   | East Bound   |   |   |   |   | West Bound   |   |   |   |   |
|-----------|-------------|---|---|---|---|-------------|---|---|---|---|--------------|---|---|---|---|--------------|---|---|---|---|
| Movement: | L           | - | T | - | R | L           | - | T | - | R | L            | - | T | - | R | L            | - | T | - | R |
| Control:  | Stop Sign   |   |   |   |   | Stop Sign   |   |   |   |   | Uncontrolled |   |   |   |   | Uncontrolled |   |   |   |   |
| Rights:   | Include     |   |   |   |   | Include     |   |   |   |   | Include      |   |   |   |   | Include      |   |   |   |   |
| Lanes:    | 0           | 0 | 1 | 0 | 0 | 0           | 0 | 0 | 0 | 1 | 0            | 0 | 1 | 0 | 0 | 0            | 0 | 1 | 0 | 0 |

-----

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 47   | 0    | 0    | 49   | 0    |
| Growth Adj:  | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| Initial Bse: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 48   | 0    | 0    | 50   | 0    |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 23   | 0    | 5    | 0    | 0    | 6    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 0    | 0    | 0    | 0    | 0    | 23   | 0    | 53   | 0    | 0    | 56   | 0    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume:  | 0    | 0    | 0    | 0    | 0    | 25   | 0    | 58   | 0    | 0    | 61   | 0    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 0    | 0    | 0    | 0    | 0    | 25   | 0    | 58   | 0    | 0    | 61   | 0    |

-----

Critical Gap Module:

|              |     |     |     |       |      |     |       |      |       |       |      |       |
|--------------|-----|-----|-----|-------|------|-----|-------|------|-------|-------|------|-------|
| Critical Gp: | 7.1 | 6.5 | 6.2 | xxxxx | xxxx | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |

-----

Capacity Module:

|              |      |      |      |      |      |      |      |      |       |      |      |       |
|--------------|------|------|------|------|------|------|------|------|-------|------|------|-------|
| Cnflct Vol:  | 132  | 119  | 58   | xxxx | xxxx | 61   | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | 845  | 775  | 1014 | xxxx | xxxx | 1009 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.:   | 824  | 775  | 1014 | xxxx | xxxx | 1009 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap:  | 0.00 | 0.00 | 0.00 | xxxx | xxxx | 0.02 | xxxx | xxxx | xxxx  | xxxx | xxxx | xxxx  |

-----

Level Of Service Module:

|              |        |      |       |       |      |       |        |      |       |        |      |       |     |   |    |
|--------------|--------|------|-------|-------|------|-------|--------|------|-------|--------|------|-------|-----|---|----|
| 2Way95thQ:   | xxxx   | xxxx | xxxxx | xxxx  | xxxx | 0.1   | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx |     |   |    |
| Control Del: | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | 8.7   | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| LOS by Move: | *      | *    | *     | *     | *    | A     | *      | *    | *     | *      | *    | *     |     |   |    |
| Movement:    | LT     | -    | LTR   | -     | RT   | LT    | -      | LTR  | -     | RT     | LT   | -     | LTR | - | RT |
| Shared Cap.: | xxxx   | 0    | xxxxx | xxxx  | xxxx | xxxxx | xxxx   | xxxx | xxxxx | xxxx   | xxxx | xxxxx |     |   |    |
| SharedQueue: | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| Shrd ConDel: | xxxxx  | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx  | xxxx | xxxxx | xxxxx  | xxxx | xxxxx |     |   |    |
| Shared LOS:  | *      | *    | *     | *     | *    | *     | *      | *    | *     | *      | *    | *     |     |   |    |
| ApproachDel: | xxxxxx |      |       |       |      | 8.7   | xxxxxx |      |       | xxxxxx |      |       |     |   |    |
| ApproachLOS: | *      |      |       |       |      | A     | *      |      |       | *      |      |       |     |   |    |

-----

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

# **APPENDIX C**

## **ITE Trip Generation Rate Sheets**

## Land Use: 220 Apartment

### Description

Apartments are rental dwelling units located within the same building with at least three other dwelling units, for example, quadraplexes and all types of apartment buildings. The studies included in this land use did not identify whether the apartments were low-rise, mid-rise, or high-rise. Low-rise apartment (Land Use 221), high-rise apartment (Land Use 222) and mid-rise apartment (Land Use 223) are related uses.

### Additional Data

This land use included data from a wide variety of units with different sizes, price ranges, locations and ages. Consequently, there was a wide variation in trips generated within this category. As expected, dwelling units that were larger in size, more expensive, or farther away from the central business district (CBD) had a higher rate of trip generation per unit than those smaller in size, less expensive, or closer to the CBD. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

The peak hour of the generator typically coincided with the peak hour of the adjacent street traffic.

The sites were surveyed between the late 1960s and the 2000s throughout the United States and Canada.

***Many of the studies included in this land use did not indicate the total number of bedrooms. To assist in the future analysis of this land use, it is important that this information be collected and included in trip generation data submissions.***

### Source Numbers

2, 4, 5, 6, 9, 10, 11, 12, 13, 14, 16, 19, 20, 34, 35, 40, 72, 91, 100, 108, 188, 192, 204, 211, 253, 283, 357, 436, 525, 530, 579, 583, 638



# Apartment (220)

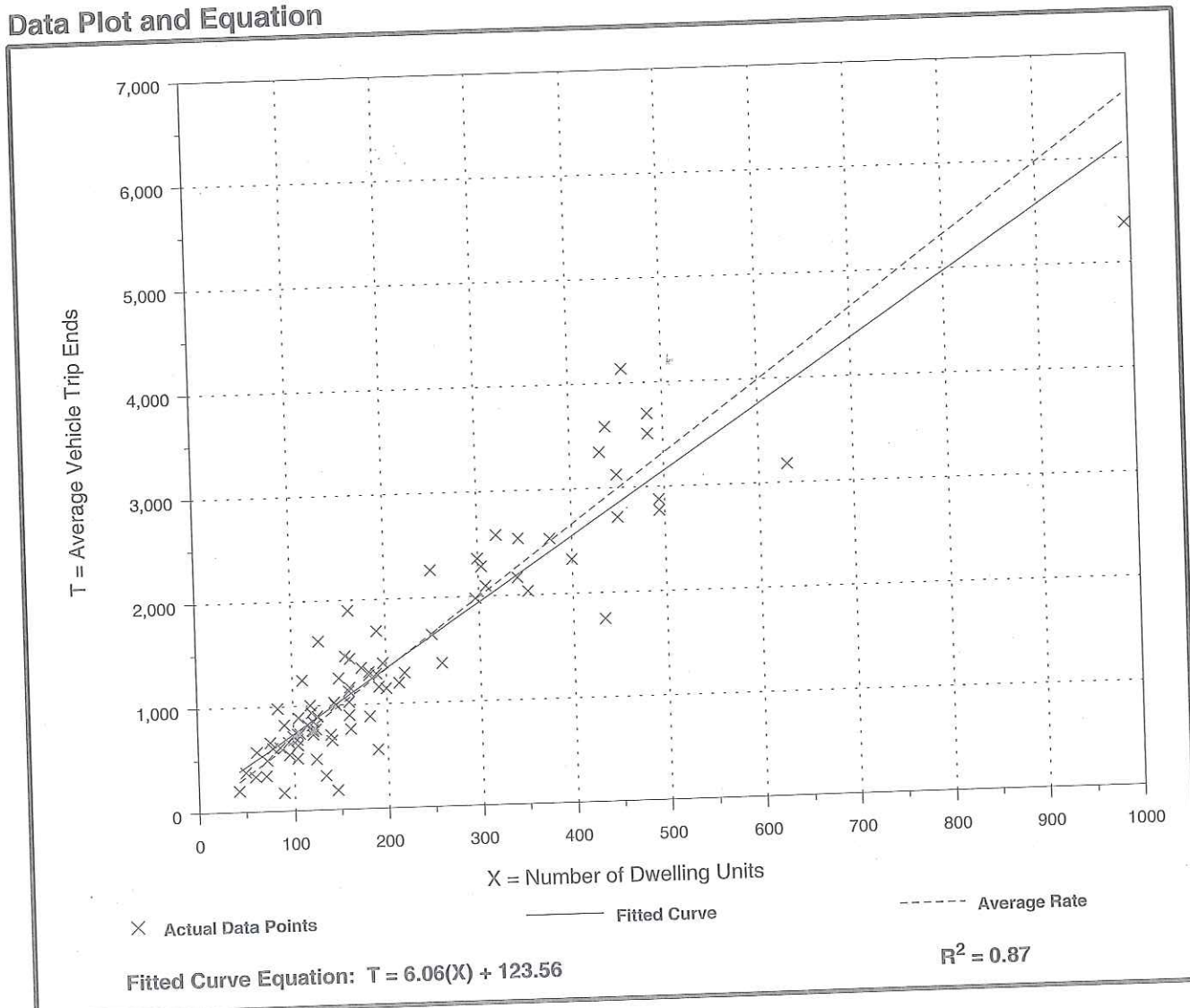
Average Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday

Number of Studies: 88  
Avg. Number of Dwelling Units: 210  
Directional Distribution: 50% entering, 50% exiting

## Trip Generation per Dwelling Unit

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 6.65         | 1.27 - 12.50   | 3.07               |

## Data Plot and Equation



# Apartment (220)

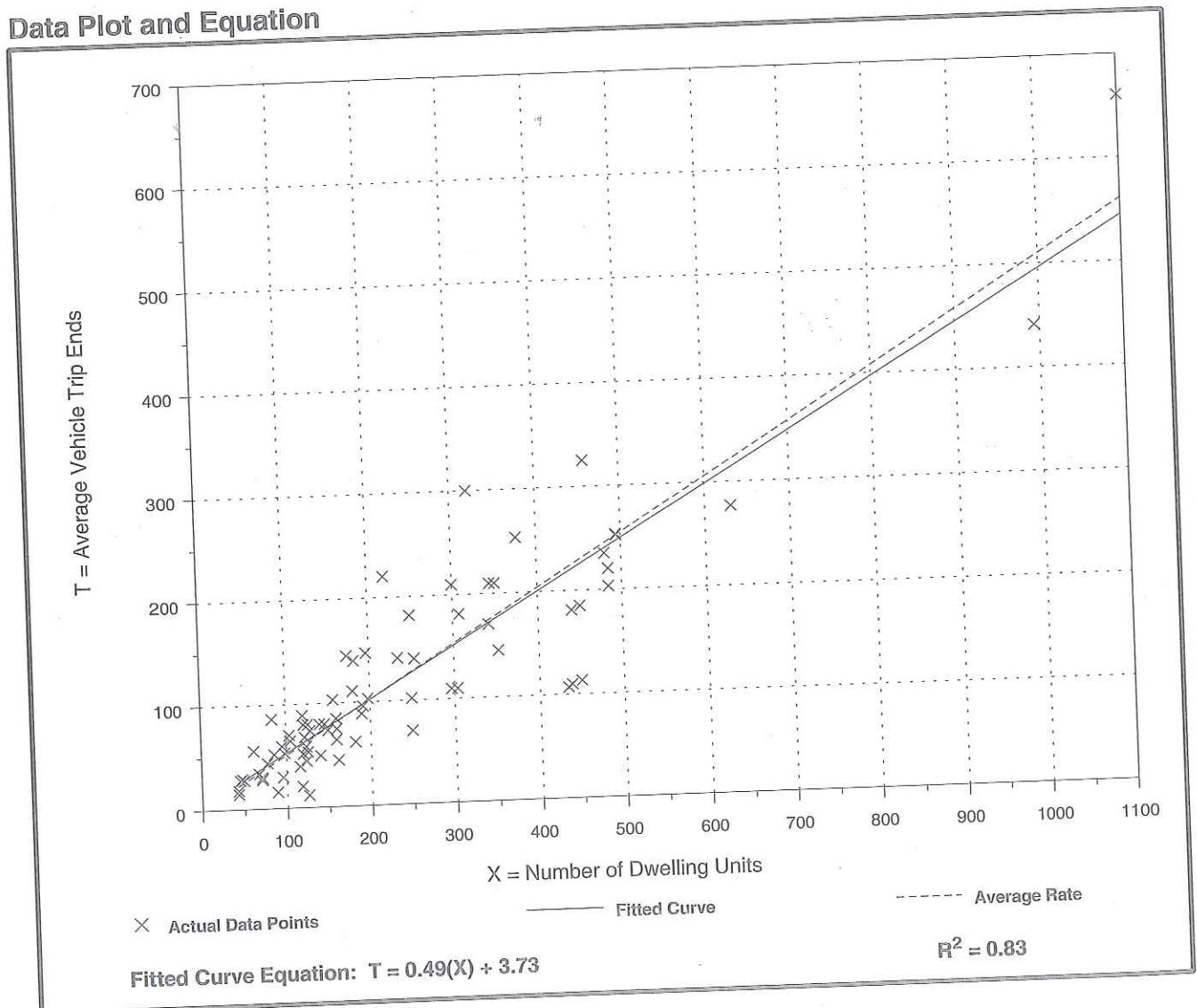
Average Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 7 and 9 a.m.

Number of Studies: 78  
Avg. Number of Dwelling Units: 235  
Directional Distribution: 20% entering, 80% exiting

## Trip Generation per Dwelling Unit

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 0.51         | 0.10 - 1.02    | 0.73               |

## Data Plot and Equation



# Apartment (220)

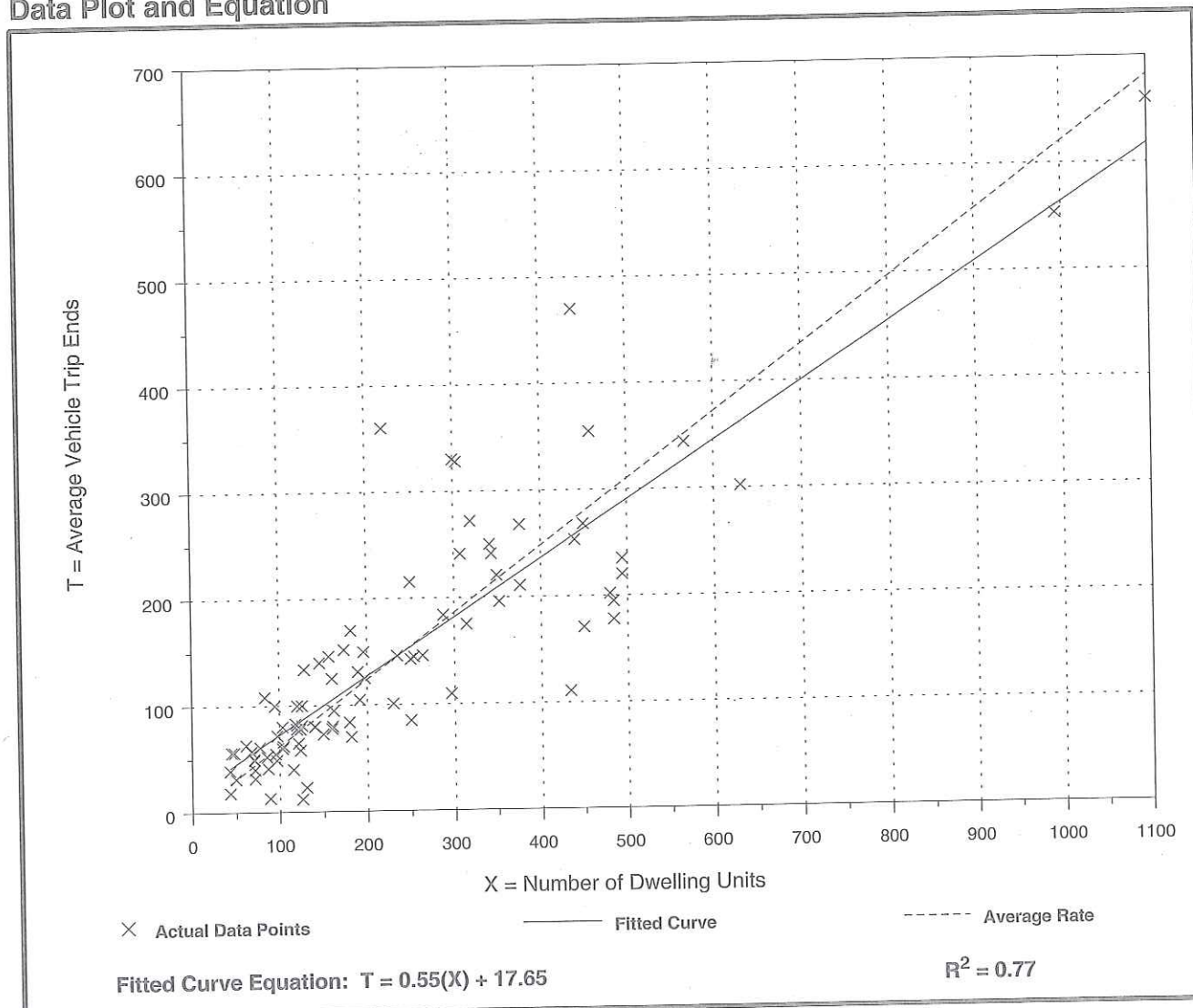
Average Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.

Number of Studies: 90  
Avg. Number of Dwelling Units: 233  
Directional Distribution: 65% entering, 35% exiting

## Trip Generation per Dwelling Unit

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 0.62         | 0.10 - 1.64    | 0.82               |

## Data Plot and Equation





# Land Use: 820

## Shopping Center

### Description

A shopping center is an integrated group of commercial establishments that is planned, developed, owned and managed as a unit. A shopping center's composition is related to its market area in terms of size, location and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands. Specialty retail center (Land Use 814) and factory outlet center (Land Use 823) are related uses.

### Additional Data

Shopping centers, including neighborhood centers, community centers, regional centers and super regional centers, were surveyed for this land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs and recreational facilities (for example, ice skating rinks or indoor miniature golf courses). The centers ranged in size from 1,700 to 2.2 million square feet gross leasable area (GLA). The centers studied were located in suburban areas throughout the United States and therefore represent typical U.S. suburban conditions.

Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied included peripheral buildings, it can be assumed that some of the data show their effect.

The vehicle trips generated at a shopping center are based upon the total GLA of the center. In cases of smaller centers without an enclosed mall or peripheral buildings, the GLA could be the same as the gross floor area of the building.

Separate equations have been developed for shopping centers during the Christmas shopping season. Plots were included for the weekday peak hour of adjacent street traffic and the Saturday peak hour of the generator.

Information on approximate hourly, monthly and daily variation in shopping center traffic is shown in Tables 1-4. It should be noted, however, that the information contained in these tables is based on a limited sample size. Therefore, caution should be exercised when applying the data. Also, some information provided in the tables may conflict with the results obtained by applying the average rate or regression equations. When this occurs, it is suggested that the results from the average rate or regression equations be used, as they are based on a larger number of studies.

# Shopping Center (820)

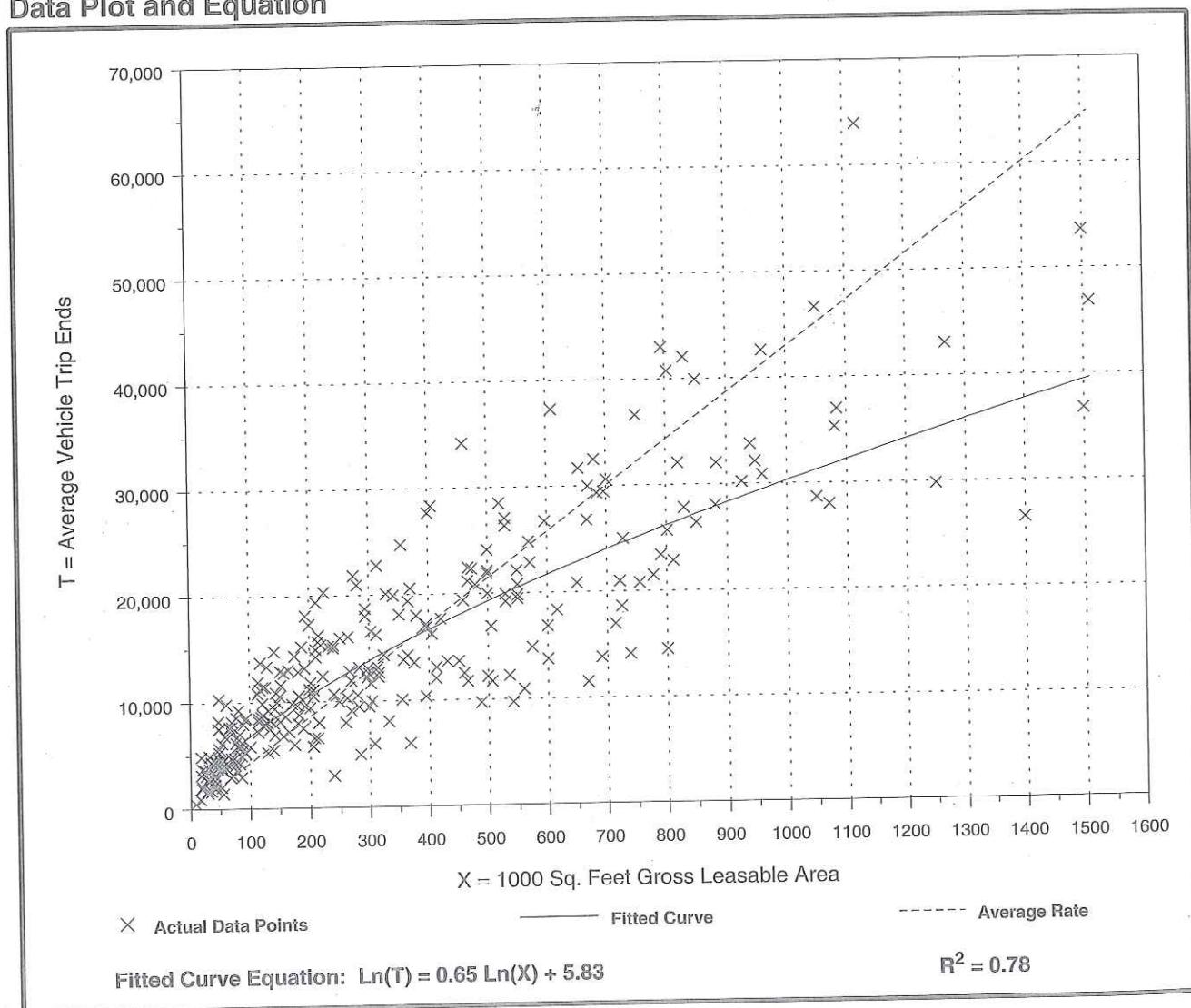
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area  
On a: Weekday

Number of Studies: 302  
Average 1000 Sq. Feet GLA: 328  
Directional Distribution: 50% entering, 50% exiting

## Trip Generation per 1000 Sq. Feet Gross Leasable Area

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 42.94        | 12.50 - 270.89 | 21.38              |

## Data Plot and Equation





# Shopping Center (820)

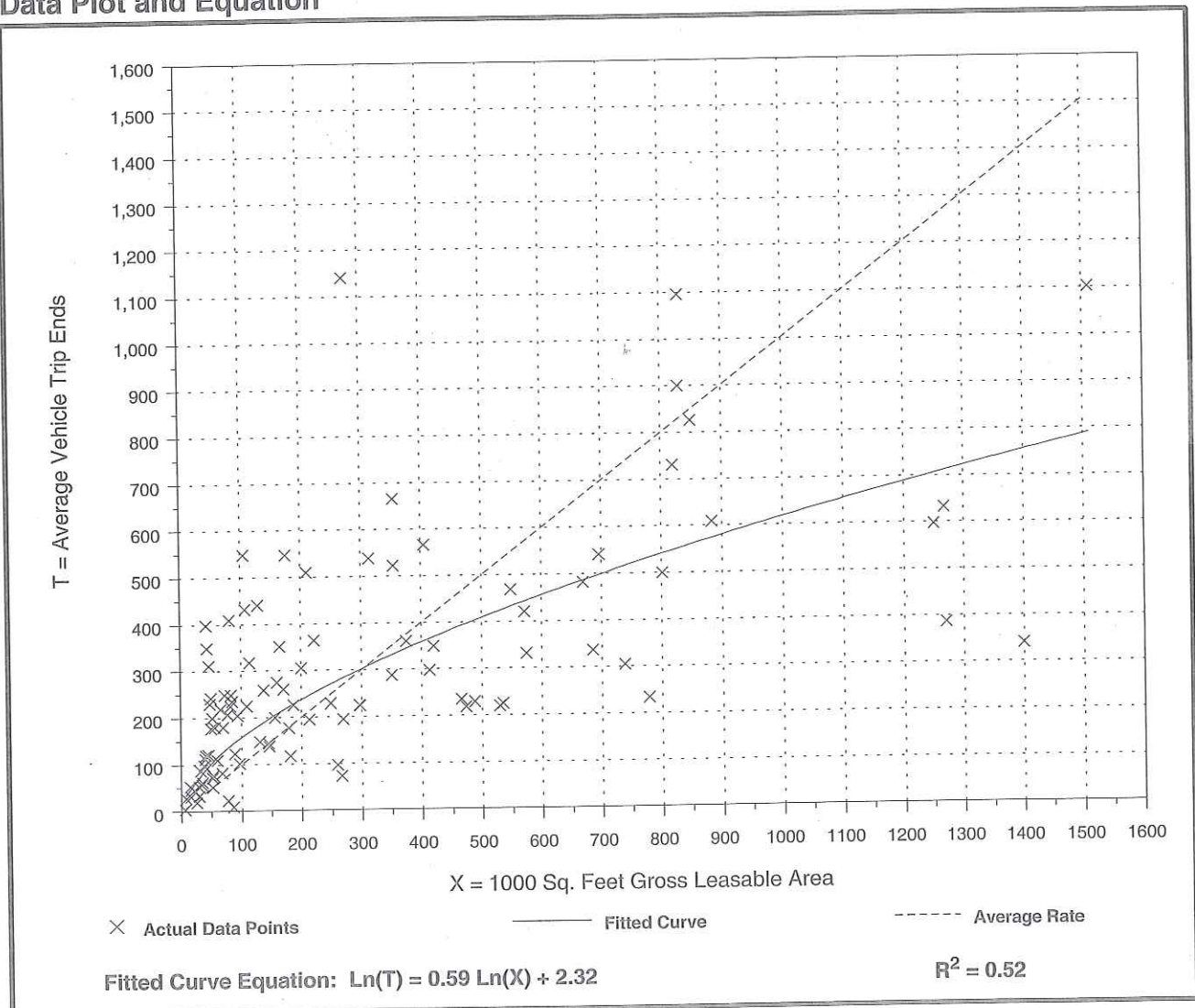
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 7 and 9 a.m.

Number of Studies: 101  
Average 1000 Sq. Feet GLA: 296  
Directional Distribution: 61% entering, 39% exiting

## Trip Generation per 1000 Sq. Feet Gross Leasable Area

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 1.00         | 0.10 - 9.05    | 1.38               |

## Data Plot and Equation





# Shopping Center (820)

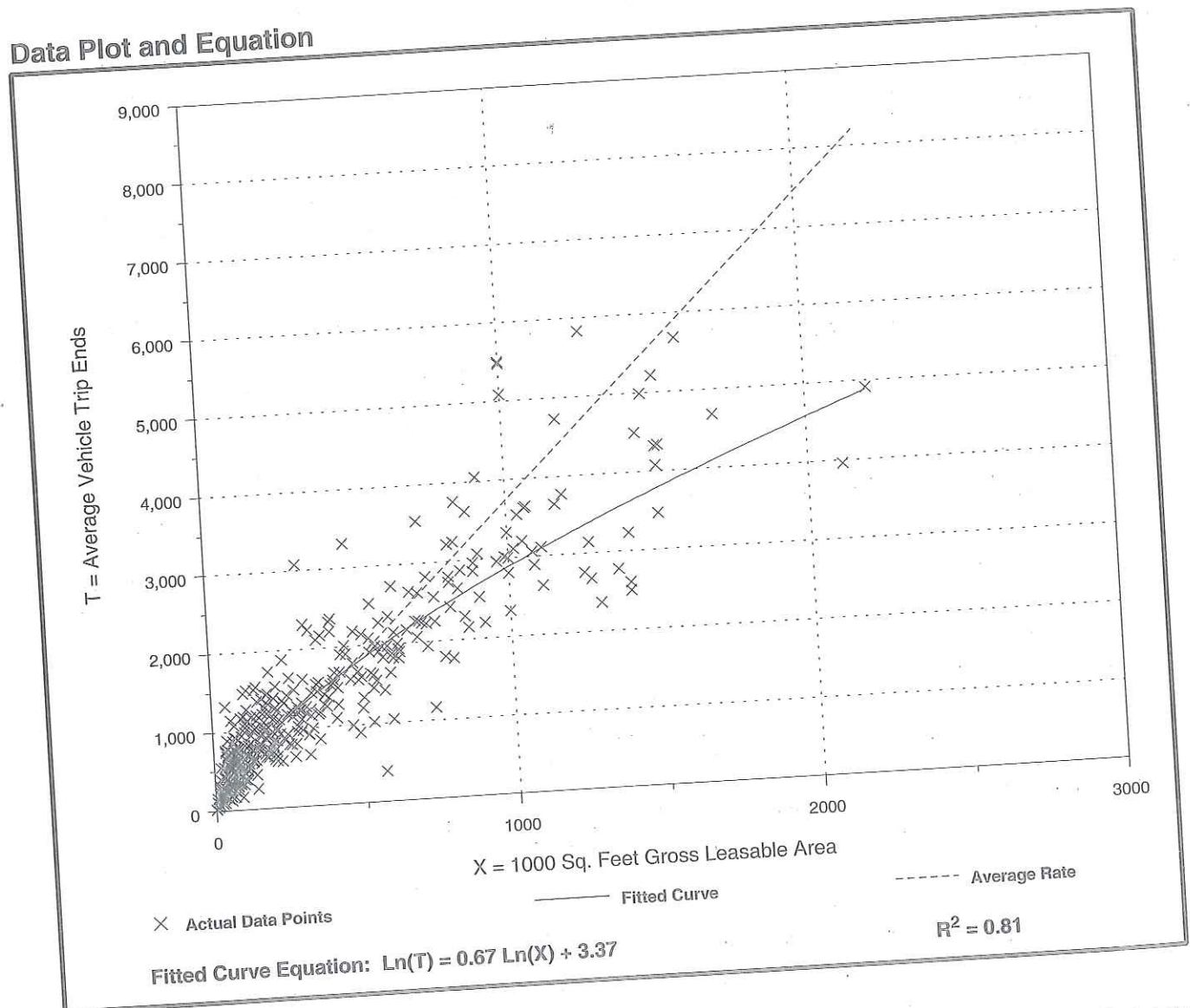
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.

Number of Studies: 412  
Average 1000 Sq. Feet GLA: 379  
Directional Distribution: 49% entering, 51% exiting

## Trip Generation per 1000 Sq. Feet Gross Leasable Area

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 3.73         | 0.68 - 29.27   | 2.74               |

## Data Plot and Equation



# **APPENDIX D**

## **Turn Lane Warrants/Queuing/Storage Calculations**

|                               |                                   |
|-------------------------------|-----------------------------------|
| 21/23<br>2271/1438<br>1-86/43 | 39/44<br>10/11<br>75/106          |
| 19/28<br>5/3<br>47/27         | 115<br>46/220<br>23/1373<br>19/95 |

## Oracle Road / Linda Vista Blvd LT Lane Warrant

Per Pima County Subdivision and Development Street Standards maximum vehicles without LT Lane is 75 vph for ADT less than 2,500 and 25 mph. 106 vph > 75 vph ∴ Left Turn Lane is warranted

## RT Lane Warrant

Per Pima County Subdivision and Development Street Standards maximum vehicles without RT Lanes is 100 for ADT 2,500 - 5,000. 44 vph < 100 vph ∴ RT lane not warranted

## LT Queue

$$\text{Queue Length} = 2(25) \left( \frac{\text{Volume}}{\text{Cycle per hour}} \right)$$

$$= 2(25) \left( \frac{106}{36} \right)$$

$$= 147.22 \approx 150'$$

Use 150' Storage length

22/3  
- 84/14

L 1/7  
- 101/72

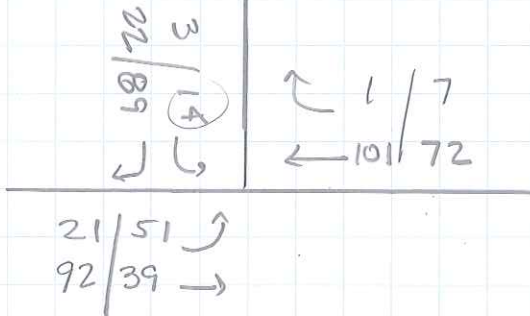
21/51  
92/39-

Linda Vista Blvd/Driveway #3  
LT Lane Warrant

Per Pima County Subdivision and  
Development Street Standards the  
Maximum uph without a left  
turn lane and ADT < 2,500 is  
75. 51 uph < 75 uph ∴ LT Lane  
is not warranted.

Linda Vista Blvd / Driveway #3

SB LT Lane Warrant



Per Pima County Subdivision and Development Street Standards  
Maximum Vehicles without LT Lane is 75 vph for ADT less than 2,500 and 25 mph.  
14 vph < 75 vph.

Left turn lane not Warranted.

SB RT Lane Warrant

Per Pima County Subdivision and Development Street Standards  
Maximum Vehicles without RT Lanes is 100 vph. 86 vph < 100 vph

Right Turn Lane is not warranted