Exhibit I

SHADOWRIDGE ESTATES
SEPTIC CAPABILITY REPORT

Prepared for:
Shadowridge Estates
Doug Granade
7501 Brandon Rd
Shingle Springs, CA 95682

Prepared by:
Lawrence A. Patterson
Patterson Development
6610 Merchandise Way
Diamond Springs, CA 95619

Phone: (530) 626-3746 Fax: (530) 621-2997

April 2015

El Dorado County Environmental Management
Environmental Health Department
2850 Fairlane Court
Placerville, CA 95667

Regarding: Granade – APN 087-310-64
Septic and Well Capability Report for a proposed 11 Lot Subdivision

Dear Environmental Specialist:

The following information is provided to satisfy the required Septic Capability and Well Analysis for the proposed 11 Lot Subdivision for APN 087-310-64.

A. **Percolation Data**

The USDA Soil Survey indicates that the property consists of Auburn Very Rock Silt Loam and Auburn Silt Loam. The anticipated rate for these series varies from 30 minutes per inch to 95 minutes per inch. Tests performed on parcels adjacent to and within close proximity of the subject property yielded an average rate of 102 minutes per inch. The existing home was tested and a percolation rate of 80 minutes per inch was established. The Granny Flat was also tested and yielded an average of 75 minutes per inch. A soil mantle test was performed by Patterson Development on the following lots.

- **Test Pit 1**

0' – 2'	Sandy Clay Loam	5YR 4/6	Yellowish Red
2' – 8'	Intensely Weathered Rock	2.5YR 6/1	Reddish Gray

- **Test Pit 2**

0' – 2'	Silty Clay Loam	5YR 4/6	Yellowish Red
2' – 8'	Intensely Weathered Rock	2.5YR 6/1	Reddish Gray

- **Test Pit 3**

0' – 2'	Silty Clay Loam	5YR 4/6	Yellowish Red
2' – 7.5'	Intensely Weathered Rock	2.5YR 6/1	Reddish Gray

- **Test Pit 4**

1'5"	Silty Clay Loam	5YR 4/6	Yellowish Red
0' – 8'	Intensely Weathered Rock	2.5YR 6/1	Reddish Gray

- **Test Pit 5**

0' – 2'	Silty Clay Loam	5YR 4/6	Yellowish Red
2' – 7.5'	Intensely Weathered Rock	2.5YR 6/1	Reddish Gray

- **Test Pit 6**

0' – 2.5'	Silty Clay Loam	5YR 4/6	Yellowish Red
2.5' – 6'	Intensely Weathered Rock	2.5YR 6/1	Reddish Gray

- **Test Pit 7**

0' – 1'	Silty Clay Loam	5YR 4/6	Yellowish Red
1' – 7.5'	Intensely Weathered Rock	10YR 6/3	Pale

- **Test Pit 10**

0' – 3.5'	Sandy Clay Loam	5YR 4/4	Reddish Brown
3.5' – 8'	Silty Clay Loam	5YR 5/6	Yellowish Red

- **Test Pit 11**

0' – 3'	Silty Clay Loam	5YR 4/4	Reddish Brown
3' – 8'	Intensely Weathered Rock	10YR 6/8	Brownish Yellow

B. **Depth of Soil**

USDA Soil Survey data indicates the depth of soil ranges to 14 inches. Field test pits on the subject property verified a minimum of 7.5' feet of soil.

C. **Depth of Groundwater**

Field testing indicates that the depth of groundwater is in excess of 8.0 feet in septic area.

D. **Slope of Terrain**

The terrain is hilly with slopes generally in the 15 percent range.

E. **Terrain Features**

As shown on the accompanying map, a 100-foot setback is provided from existing well and 50-feet from ephemeral drainages. Contours are provided at 5-foot

intervals. Slopes in excess of 30% are shown. Septicable sites are located on each lot.

F. **Water Supply / Locations of Wells**

A well is located on the subject property. The well location is shown on the accompanying map and a 100-foot setback to leach fields is provided. The proposed lots propose wells for water service. The well rate for the existing well is 30 gallons per minute. Well rates on adjoining parcels range from 7 gallons per minute to 75 gallons per minute with an average of 22 gallons per minute. Each lot will be provided a well prior to filing the Final Map.

G. **Septic Areas**

Proposed Lot 8 & 9 have an existing approved Septic Systems. The location of test pits and proposed septic areas are shown on all other lots.

Sincerely,

Lawrence A. Patterson, P.E.

LAP/ctp

enclosure

Average Percolation / Well Rates

Adjacent Parcels:

APN	Percolation Rate	Well Rate
087-310-64 – subject	80-75 mpi	30 gpm
087-310-21	128 mpi	12 gpm
087-310-62	35 mpi	8 gpm
087-300-33	120 mpi	7 gmp
087-300-24	161 mpi	9 gpm
087-350-27	186 mpi	--
087-350-09	72 mpi	--
087-021-01	37 mpi	8 gpm
087-021-05	50 mpi	30 gpm
087-021-65	180 mpi	75 gpm

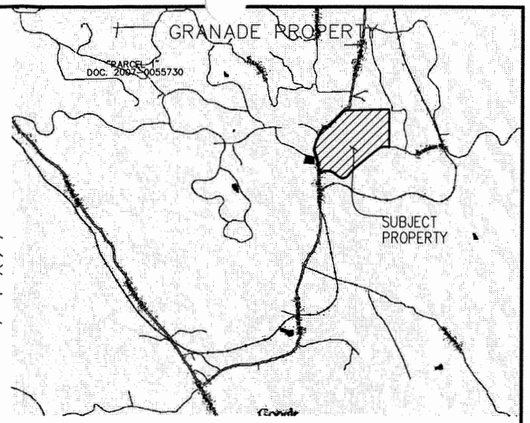
Average Percolation Rate for Adjacent Parcels = 60 mpi

Proposed Lots

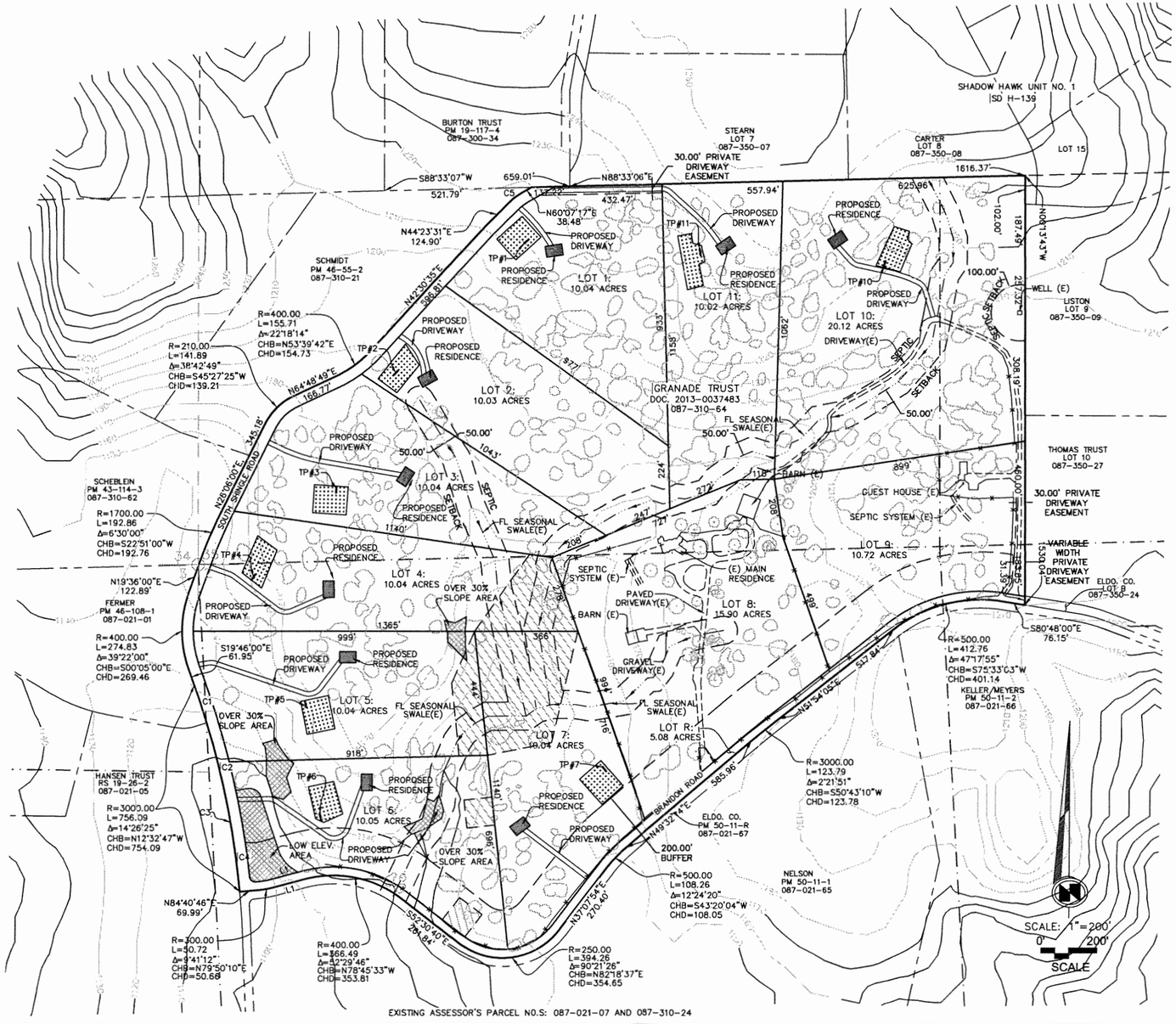
Lot	Required Area	Provided Area
1	12,000 sf	12,000sf
2	12,000 sf	12,000sf
3	12,000 sf	12,000 sf
5	12,000 sf	12,000 sf
6	12,000 sf	12,000 sf
7	12,000 sf	12,000 sf
8	NA	Existing System
9	NA	Existing System
10	12,000 sf	12,000 sf
11	12,000 sf	12,000 sf

SEPTIC CAPABILITY MAP

A PORTION OF THE SOUTH 1/2 OF SECTION 35 T.9N. R.9E. AND A PORTION OF THE NORTH 1/2 OF SECTION 2 AND A PORTION OF THE NORTHEAST 1/4 OF SECTION 3, T.8N., R.9E,. M.D.M. COUNTY OF EL DORADO, CALIFORNIA
APRIL 2015 SCALE: 1" = 200'



VICINITY MAP
NOT TO SCALE



EXISTING ASSESSOR'S PARCEL NO.S: 087-021-07 AND 087-310-24

LEGEND:

- EXISTING PARCEL BOUNDARY
- PROPOSED PARCEL LINES
- ADJACENT PARCEL BOUNDARY
- EXISTING CONTOUR (10 FT INDEX)
- EDGE OF DRIVEWAY (E)
- SEASONAL DRAINAGE SWALES (E)
- ADJACENT EASEMENTS (E)
- PROPOSED EASEMENTS
- SECTION BREAKDOWN LINES
- TREE CANOPY
- TP#4 — 12,000 S.F. SEPTIC AREA WITH TEST PIT LOCATION
- NON-SEPTIC SETBACK AS SHOWN
- NON-BUILDING AREA

NOTES:

1. PROPOSED 15 FOOT DRAINAGE EASEMENT LYING 7.5 FEET ON EACH SIDE OF SEASONAL DRAINAGE SWALES. SEPTIC SETBACK 50 FEET FROM EACH SIDE OF SEASONAL DRAINAGE SWALES.
2. ARCHEOLOGICAL SURVEY SITES ARE LOCATED WITHIN NON-BUILDING AREA.

NOTES AND INFORMATION FOR APN 087-310-64

1. EXISTING ZONING:	AE
2. PROPOSED ZONING:	RE-10
3. EXISTING GENERAL PLAN DESIGNATION:	RURAL RESIDENTIAL
4. PROPOSED GENERAL PLAN DESIGNATION:	RURAL RESIDENTIAL
5. LEGAL DESCRIPTION:	PORTN OF THE S1/2 OF SEC 35 T.9N R.9E & PORTN OF THE N1/2 OF SEC 3 T.8N R.9E MDM.
6. TREE PRESERVATION PLAN:	NO TREES REMOVED

PROPOSED TENTATIVE SUBDIVISION MAP FOR APN 087-310-64

A. OWNER OF RECORD:	DOUG GRANADE GRANADE FAMILY TRUST 4415 COMMODITY WAY SHINGLE SPRINGS, CA 96582
B. NAME OF APPLICANT:	LARRY PATTERSON PATTERSON DEVELOPMENT
C. MAP PREPARED BY:	PATTERSON DEVELOPMENT 6610 MERCHANDISE WAY DIAMOND SPRINGS, CA 95619 PHONE (530) 626-3746
D. SCALE:	1"=200'
E. CONTOUR INTERVAL:	10 FOOT
F. SOURCE OF TOPOGRAPHY:	USGS INTERPOLATED
G. SECTION, TOWNSHIP AND RANGE:	SEC. 35 T.9N, R.9E; MDM SEC. 3 T.8N, R.9E; MDM
H. ASSESSMENT PARCEL NUMBER:	087-310-64
I. PROPOSED ZONING	RE-10
J. TOTAL AREA:	132.123 ACRES
K. TOTAL NUMBER OF LOTS:	12 (11 RES. AND 1 ROAD LOT "R")
L. MINIMUM LOT AREA:	10.02 ACRES
M. WATER SUPPLY:	WELL
N. SEWAGE DISPOSAL:	SEPTIC SYSTEM
O. PROPOSED STRUCTURAL FIRE PROTECTION	EL DORADO COUNTY F.P.D.
P. DATE OF PREPARATION:	JANUARY 12, 2015
Q. SIGNATURES:	
PLANNING COMMISSION:	
APPROVAL/DENIAL DATE:	
BOARD OF SUPERVISORS:	
APPROVAL/DENIAL DATE:	

NUMBER	DATE	DESCRIPTION	BY

REVISION BLOCK

PATTERSON DEVELOPMENT
6610 MERCHANDISE WAY,
DIAMOND SPRINGS, CA. 95619
(530) 626-3746 FAX (530) 626-8972

DRAWN BY:	PAG	SCALE
DESIGNED BY:	LAP	HORIZONTAL: 1"=200'
CHECKED BY:	LAP	VERTICAL: N/A
SUBMITTED BY:		
DRAWING NAME: GRANADE-PM.Dwg		

SEPTIC CAPABILITY MAP
GRANADE APN: 087-310-64

DATE: APR 20, 2015
SHEET 1 OF 1

Exhibit J

Biological Resources Evaluation
for the
Granite Springs Subdivision Project

El Dorado County, CA

Prepared by:

Sycamore Environmental Consultants, Inc.
6355 Riverside Blvd., Suite C
Sacramento, CA 95831
Phone: 916/ 427-0703
Contact: Mr. Chuck Hughes, M.S.

Prepared for:

D.G. Granade, Inc.
4420 Business Dr.
Shingle Springs, CA 95682
Phone: 530/ 677-7484
Contact: Mr. Douglas G. Granade

28 January 2016

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Biological Resources Evaluation
for the
Granite Springs Subdivision Project

El Dorado County, CA

Table of Contents

Figures

Tables

Appendices

I. SUMMARY OF FINDINGS AND CONCLUSIONS

This biological resources evaluation was prepared for the Granite Springs Subdivision Project to identify baseline biological resources in the biological study area (BSA). The Project proposes a subdivision map of 10-acre minimum parcels. The lot layout has been designed so that a home and driveway could be constructed on each lot without any tree removal, any fill of waters or wetlands, and in compliance with standard County setbacks to waters and wetlands. The construction of improvements on new parcels, such as homes and driveways, would occur after lots were sold.

The approximately 132 acre BSA provides potential habitat for some special-status wildlife and plants that may occur in oak woodlands and grasslands. The BSA is in the wintering range of burrowing owl, but outside the breeding range. Grasshopper sparrow, golden eagle, and white-tailed kite could nest in the BSA or nearby. Some oaks in the BSA are large enough to have cavities that could provide roosts for pallid bat. Big-scale balsamroot and Tuolumne button-celery are special-status plants with records in the region and potential habitat in the BSA. The Project is unlikely to have a significant impact on any of these species because the project will avoid tree removal, water/wetland fill, and impacts to habitat that is unique or limiting locally.

Oak woodlands in the BSA are regulated by the County under General Plan Policy 7.4.4.4 and the Interpretive Guidelines. The County has established standard setbacks to waters and wetlands under General Plan Policy 7.3.3.4 and the Interpretive Guidelines.

II. INTRODUCTION

A. Purpose of Report

The purpose of this report is to document baseline biological resources in the BSA. This report may be used in support of permit applications and in the California Environmental Quality Act (CEQA) review process.

B. Project Location

The approximately 132.13 acre BSA is located on the northeast corner of the intersection of South Shingle Road and Brandon Road. The BSA is on the Latrobe U.S. Geological Survey topographic quad (Section 35 [T09N, R09E] and Section 2 [T08N, R09E]; Figure 1), and is in the Upper Cosumnes hydrologic unit (hydrologic unit code 18040013). Its centroid is 38.584427º north, 120.961702° west, UTM coordinates 677,540 meters E, 4,272,630 meters N, Zone 10 (WGS84). Figure 2 is an aerial photograph of the BSA.

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Figure 1. Project Location Map

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Figure 2. Aerial Photograph

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The BSA is not located in an El Dorado County rare plant mitigation area, and is outside the U.S. Fish and Wildlife Service (USFWS) recovery boundary for the Pine Hill plants (USFWS 2002b). The BSA is located outside the El Dorado County Important Biological Corridor (IBC) and Ecological Preserve (EP) overlay areas (El Dorado County 2004b).

C. Project Owner and Engineer

Mr. Doug Granade
Granade Family Trust
4415 Commodity Way
Shingle Springs, CA 96582

Mr. Larry Patterson, P.E.
Patterson Development
6610 Merchandise Way
Diamond Springs, CA 95619
Phone: (530) 626-3746

D. Project Description

The project is a tentative subdivision map that would subdivide the BSA into 11 residential parcels of 10-acre minimum size. The existing main house and guest house in the BSA would occupy two of the new parcels. The project does not include construction of new residences on any of the lots. Future homes on the lots would be serviced by wells, septic systems, and driveways connecting to the existing public roads. The proposed lots have been designed such that each could contain a new residence, driveway, and septic system without tree removal, and in compliance with standard County setbacks to waters and wetlands.

III. STUDY METHODS

A. Studies Conducted

An evaluation of biological resources was conducted to determine whether any special-status plant or wildlife species, their habitat, or sensitive habitats occurs in the BSA. Data on known special-status species and habitats in the area was obtained from state and federal agencies. Maps and aerial photographs of the BSA and surrounding area were reviewed. A field survey was conducted to determine what habitat types were present. The field survey, map review, and a review of the biology of evaluated species and habitats were used to determine the special-status species and sensitive habitats that could occur in the BSA.

Special-status species in this report are those listed under the federal or state endangered species acts, under the California Native Plant Protection Act, as a California species of special concern or fully protected by the California Department of Fish and Wildlife (CDFW), or that are on List 1 or 2 of the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2015). Special-status natural communities are waters, wetlands, riparian communities, and any natural community ranked S1, S2, or S3 by CDFW (2010).

B. Literature Search

Sycamore Environmental obtained a list through the U.S. Fish and Wildlife Service (USFWS) Sacramento Field Office that identifies federal-listed species that could potentially occur in or could be affected by a project in the BSA. The list is in Appendix A.

The California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) Inventory were queried for the Latrobe quad and eight surrounding USGS quads to determine known records of special-status species that occur in the vicinity of the BSA (Appendix A). The CNDDB tracks some species that have not been designated by CDFW as a California species of special concern and do not otherwise meet the criteria for special-status species in this BRE; these species were not evaluated as special-status species.

C. Survey Dates and Personnel

Fieldwork was conducted by Chuck Hughes, M.S., and Juan Mejia on 31 December 2015.

D. Field Survey Methods

The reconnaissance-level biological survey consisted of walking through the BSA to assess potential habitat for special-status species and sensitive communities. Plant and animal species and vegetative communities were identified and recorded. A list of plant and wildlife species observed in the BSA is in Appendix C. Photographs of the BSA are in Appendix D.

A reconnaissance-level survey of wetlands and waters was included. Areas appearing to meet the U.S. Army Corps of Engineers criteria (Corps 2008) for either waters or wetlands were mapped with a sub-meter accurate GPS and included on Figure 4. In general, features were mapped based on above-ground criteria only (vegetation and some hydrology indicators), with some spot-checking of soil characteristics.

E. Problems Encountered and Limitations That May Influence Results

The surveys conducted for this BRE are not intended to meet the documentation requirements of a formal jurisdictional delineation of waters of the U.S, or any published agency protocol or guideline surveys for special-status species. No other problems or limitations were encountered during the fieldwork that would influence the results.

F. Mapping

An aerial photograph acquired from Google Earth Pro (2015) provided the base layer for Figure 4. Waters and wetland boundaries were mapped with a sub-meter accurate global positioning system (GPS). The aerial photograph and field notes were used to estimate the boundaries of upland biological communities. The minimum mapping unit (MMU) used for uplands was two acres. There was no MMU for waters and wetlands. Areas mapped as oak

woodlands have a minimum of 10% cover of oak tree canopy, consistent with new County oak woodland policies that have not yet been adopted. Acreages were calculated using ArcMap functions.

IV. ENVIRONMENTAL SETTING

The BSA is located in the low foothills of the western slope of the Sierra Nevada Mountains. The elevation ranges from approximately 1,110 to 1,230 feet. The BSA is mostly undeveloped and characterized by rolling hills and oak woodland. There are two single-family homes in the BSA, two outbuildings, and some corrals. The area surrounding the BSA includes similar undeveloped land or rural residential use.

A. Soils

Soil mapping units in the BSA (Figure 3) are summarized below (NRCS 1974, USDA-NRCS 2015). Reported colors are for moist soil. The mapping units in the BSA are not categorized as hydric by the USDA (2014).

Auburn silt loam, 2 to 30% slopes;
Auburn very rocky silt loam, 2 to 30% slopes: The Auburn series consists of well-drained soils underlain by hard metamorphic rocks at a depth of 12 to 26 inches. A typical profile of Auburn very rocky silt loam, 2 to 30% slopes has dark reddish brown (5YR 3/3) slightly acidic silt loam from 0 to 3 inches, dark reddish brown (5YR 3/4) slightly acidic silt loam from 3 to 14 inches, and weathered metabasic rock below 14 inches. In Auburn silt loam less than 5% of the surface is exposed bedrock. In Auburn very rocky silt loam 5–25% of the surface is bedrock outcrops. Permeability is moderate, surface runoff and erosion hazard increases with slope.

Figure 3. Soils Map

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B. Biological Communities

Biological communities are defined by species composition and relative abundance. The biological communities described below correlate where applicable with the list of California terrestrial natural communities recognized by the CNDDB (CDFW 2010) and the El Dorado County General Plan EIR (2004a). The communities were identified based on Sawyer *et al.* (2009). Biological communities are mapped on Figure 4 and listed in Table 1. Photographs of the BSA are in Appendix D.

Table 1. Biological Communities.

Biological Community Common Name (Scientific Name [CDFW Code][1])	**El Dorado County Major Habitat Type [2]**	**Area (ac)**
Blue Oak Woodland (*Quercus douglasii* woodland [71.020.00])	Blue Oak Woodland	71.19
California Annual Grassland (*Bromus* [*diandrus*, *hordeaceus*]–*Brachypodium distachyon* semi-natural herbaceous stands [42.026.00])	Annual Grassland	49.40
Clark Creek	--	0.08
Seeps	--	0.13
Wetland Swale	--	0.85
Structures, Roads, and Landscaping	--	10.48
	Total:	**132.13**

[1] Sawyer *et al.* 2009, CDFW 2010
[2] El Dorado County 2004a

1. Blue Oak Woodland

Blue oak woodland is an upland tree dominated community. In the BSA, the blue oak (*Quercus douglasii*) woodland has an open canopy and a shrub layer is nearly completely lacking. Few individuals of other tree species are mixed with the blue oaks. A single young valley oak (*Q. lobata*) was observed along South Shingle Road, and there is one small patch of mature interior live oaks (*Q. wislizeni*) on the east side of the BSA. The blue oaks are widely spaced with open grassy areas between them. The herbaceous layer is dominated by nonnative grasses and native and nonnative forbs similar to the California annual grassland described below. The blue oak woodland in the BSA does not have the characteristics of any of the community associations within the blue oak woodland alliance that are considered sensitive by CDFW (CDFW 2010; state rarity ranking S3 or lower).

Figure 4. Biological Resources Map
Sheet 1

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Figure 4, Sheet 2

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2. California Annual Grassland

California annual grassland is an upland, herbaceous community dominated by nonnative grasses, and native and nonnative forbs. In the BSA, only a few widely spaced trees (<10% cover) occur within the grassland. Common species include bromes (*Bromus* sp.), wild oat (*Avena* sp.), hedgehog dogtail (*Cynosurus echinatus*), clovers (*Trifolium* sp.), and filaree (*Erodium* sp.). California annual grassland is a community dominated by nonnatives and does not have a State rarity ranking (CDFW 2010).

3. Clark Creek

Clark Creek is identified as an intermittent creek in the BSA on the Latrobe USGS quad map. Clark Creek is identified as a wetland (PEMC; palustrine, emergent, seasonally flooded) on the National Wetlands Inventory (NWI) map for the Latrobe quad. The U.S. Army Corps of Engineers characterizes waters and wetland based on its own definitions. The mapping in this BRE is based on a reconnaissance-level survey using the Corps' definitions.

The BSA is in the uppermost watershed area of Clark Creek. As a result, relatively little of the Clark Creek drainageway in the BSA meets the Corps' definition of a tributary [33 CFR 328.3(c)]. In the BSA, most of the Clark Creek drainageway is more likely to meet the Corps' definition of a wetland (see below).

The area mapped as Clark Creek in the BSA is characterized by the presence of a bed and bank, and an ordinary high water mark (OHWM). The creek bed is typically soil, sand, or bedrock, and the bank is typically soil or bedrock. The OHWM is characterized by scoured soil or the presence of wracking of dead vegetation. Clark Creek had a small amount of flowing water during the fieldwork, and may have continuous flow seasonally based on the USGS quad map, the NWI map, and the site characteristics. There are two small pools up to approximately 18 inches deep just below rock outcrops. There are a few perennial herbaceous plants along Clark Creek, a willow (*Salix* sp.), and some nonnative invasive Himalayan blackberry (*Rubus armeniacus*), but there is no continuous riparian corridor.

4. Seeps

Three seeps in the BSA have clearer wetland indicators than the wetland swales, and may be influenced by seasonal near-surface groundwater. Vegetation is dominated by the wetland obligate pennyroyal (*Mentha pulegium*). Runoff from the seeps ultimately drains to wetland swales in the BSA.

5. Wetland Swales

The wetland swales in the BSA are in the uppermost part of the Clark Creek watershed. They are linear features with flow infrequent enough or insufficient to create a clear OHWM. The wetland swales are dominated by hydrophytic vegetation including rye grass (*Festuca perennis*), water chickweed (*Montia* sp.), and buttercup (*Ranunculus muricatus*). Spot checks were conducted for redoximorphic indicators in the soil and indicators of wetland hydrology that the Corps uses to delineate wetlands (Corps 2008). Areas that did not appear likely to meet the Corp's 3-parameter test for wetlands were not included in the wetland swales.

6. Structures, Roads, and Landscaping

This area includes the existing main house and guest house in the BSA, and adjacent landscaping. Driveways, outbuildings, and livestock corrals are included. The two public roads South Shingle Road and Brandon Road are included. The current parcel boundaries extend into those public right-of-ways. In general, the level of disturbance in this area is high, and native vegetation is intermittent or lacking. Some native blue oaks have been incorporated into landscaping or occur around the edges of outbuildings or corrals and are included in this area. There is landscaping with horticultural species around the main house.

C. The Existing Level of Disturbance

Most of the BSA is relatively undisturbed grazing land. The area mapped as structures, roads, and landscaping is generally highly disturbed or altered, although some native oaks have been incorporated into landscaping. Drainage patterns in the BSA have not been highly disturbed and follow natural contours.

V. BIOLOGICAL RESOURCES IN THE STUDY AREA

A. Determination of Special-Status Species in the Study Area

USFWS file data, CNDDB/CNPS records, and field surveys were used to determine the special-status species that could occur in the BSA (Appendix A). A field survey was conducted to determine whether habitat for special-status species identified in the file data is present in the BSA. Special-status species for which suitable habitat is present in the BSA are listed in Table 2.

Table 2. Special-Status Species and Natural Communities.

Special-Status Species	Common Name	Federal Status [a]	State Status [a] & other codes [b]	Source [c]	Habitat Present? / Species Observed?
Birds					
Nesting Birds (MBTA or CA regulated)		--	--	3	Yes/ Yes
Ammodramus savannarum	Grasshopper sparrow	--	SSC	2	Yes/ No
Aquila chrysaetos	Golden eagle	--	FP	2	Yes/ No
Athene cunicularia	Burrowing owl	--	SSC	2	Yes/ No
Elanus leucurus	White-tailed kite	--	FP	2	Yes/ No
Mammals					
Antrozous pallidus	Pallid bat	--	SSC	2	Yes/No
Plants			**/ CNPS List [b]**		
Balsamorhiza macrolepis var. *macrolepis*	Big-scale balsamroot	--	--/ 1B.2	2	Yes/ No
Eryngium pinnatisectum	Tuolumne button-celery	--	--/ 1B.2	2	Yes/ No
Natural Communities					
Oak Woodlands		--	--	3	Yes/ Yes
Waters and Wetlands		--	--	3	Yes/ Yes

[a] **Listing Status** Federal status determined from USFWS letter. State status determined from CDFW (2015a, b, c, d). Codes used in table are: **E** = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; ***** = Possibly extinct.

[b] **Other Codes** Other codes determined from USFWS letter; DFG (2015a, b, c, and d). Codes used in table are as follows:
SSC = CDFW Species of Special Concern; **FP** = CDFW Fully Protected; **Prot** = CDFW Protected; **CH =** Critical habitat designated.
CNPS List (plants only): **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution
CNPS List Decimal Extensions: .1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in CA (20-80% of occurrences threatened); **.3 =** Not very endangered in CA (< 20% of occurrences threatened or no current threats known).

[c] **Source: 1** = USFWS letter. **2** = CNDDB. **3 =** Observed or included by Sycamore Environmental.

B. Special-Status Species not in the Project Study Area

Special-status species for which suitable habitat is not present, or whose distributional limits preclude the possibility of their occurrence in the BSA, are not discussed in Section V of this report. An evaluation of these species is in Appendix B.

C. Evaluation of Special-Status Wildlife Species

1. Birds

Nesting Birds Listed Under the MBTA or Regulated by CA Fish and Game Code

California Fish and Game Code §3503 protects most birds and their nests. CA Fish and Game Code §3503.5 further protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). Birds of prey include raptors, falcons, and owls. The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) also protects most birds and their nests, including most non-migratory birds in California. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. Any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a 'take' of the species under federal law.

HABITAT PRESENT IN THE BSA: The BSA provides potential nesting habitat for birds listed under the MBTA or regulated by California Fish and Game Code.

DISCUSSION: Depending on the species, birds may nest on trees, shrubs, in or on the ground, and on artificial structures such as buildings, poles, and signs. The Project does not propose any construction and will not impact any nesting birds. Future construction on parcels created by the Project are also subject to the MBTA and CA Fish and Game Code.

Grasshopper sparrow (*Ammodramus savannarum*)

HABITAT AND BIOLOGY: Grasshopper sparrow is a CDFW species of special concern (CDFW 2015c). Grasshopper sparrows occur in California primarily as a summer resident from March to September (Shuford and Gardali 2008). Most migrate south in August or September. Grasshopper sparrows that winter in California are secretive and chiefly occur along the southern coast (CWHR 2015). The grasshopper sparrow's ecology varies substantially from region to region within its wide range, and has received very little study in California. In general, grasshopper sparrows in California prefer short to middle-height, moderately open grasslands with scattered shrubs. In some parts of the sparrow's California range, native bunchgrasses appear to be important habitat components, although this is probably not the case in most of the state, given that non-native annuals dominate most grasslands. Grasshopper sparrows are generally absent from areas with extensive shrub cover, though some shrubs are tolerated and perhaps preferred. Patchy bare ground has also been noted as an important habitat component elsewhere. Grasshopper sparrows are more likely to be found in large tracts of habitat than in small ones (Shuford and Gardali 2008).

Grasshopper sparrows breed from early April to mid-July, with a peak in May and June. A thick cover of grasses and forbs is essential for concealment. Pairs are generally solitary and build a nest of grasses and forbs in a slight depression in the ground, hidden at the base of an overhanging clump of grasses or forbs. They search for food on the ground and in low foliage within relatively dense grasslands (CWHR 2015).

RANGE: In California, grasshopper sparrow is an uncommon and local, summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest, and from Mendocino and Trinity counties south to San Diego County (CWHR 2015). Agriculture and urbanization have greatly reduced numbers in the Central Valley, but anecdotal evidence indicates they still breed very locally, primarily at the edges and in low foothills, but also very sparingly on the valley floor (Shuford and Gardali 2008).

KNOWN RECORDS: The nearest CNDDB record is approximately 7.4 miles southwest of the BSA in habitat described as grassland, rolling hills, and swales. Two adults were observed in May 2007.

HABITAT PRESENT IN THE BSA: The BSA provides potential habitat for grasshopper sparrow.

DISCUSSION: The Project does not propose any construction and will not directly impact grasshopper sparrow. Grasshopper sparrow is listed by the MBTA and regulated by CA Fish and Game Code, which prohibit take by future construction on parcels created by the Project.

Golden eagle (*Aquila chrysaetos*)

HABITAT AND BIOLOGY: Golden eagle is a CDFW species of special concern (CDFW 2015c). Habitat is typically rolling foothills, mountain areas, sage-juniper flats, and desert. Golden eagle requires open terrain for hunting such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats. Golden eagles use secluded cliffs with overhanging ledges and large trees for cover. Nesting occurs on cliffs of all heights and in large trees in open areas. Rugged, open habitats with canyons and escarpments are used most frequently for nesting. Breeding occurs from late January through August, with a peak in March through July (CWHR 2015).

RANGE: Golden eagle is an uncommon permanent resident and migrant throughout California, except in the center of the Central Valley. They range from sea level up to 11,500 feet. They are perhaps more common in Southern California than northern California.

KNOWN RECORDS: There are two CNDDB records of golden eagle approximately 8.7 miles northwest of the BSA, in habitat described as oak woodland and foothill pines with steep slopes. The records are in a strip of oak woodland with pines between residential areas in Folsom and El Dorado Hills. The first record reports two adults and two juveniles were observed on a nest in August 2013. A pair of adults was observed sitting on the same nest in February 2014. One chick fledged in June 2014, and all three eagles were observed through the fall of 2014. The nest tree in this record reportedly blew down in November 2014. The second record is about 0.5 miles from the first, and is recorded as being most likely an alternate nest site for the pair from the first record. The second record reports that two adults were observed at or near the nest tree in February 2015.

HABITAT PRESENT IN THE BSA: The BSA provides potential habitat for golden eagle. There are no foothill pines in the BSA, but there are on nearby areas. Some of the larger oaks in the BSA could support a golden eagle nest. No nests large enough to support a golden eagle were observed during the reconnaissance survey.

DISCUSSION: The Project does not propose any construction and will not directly impact golden eagle. Golden eagle is listed by the MBTA and regulated by CA Fish and Game Code, which prohibit take by future construction on parcels created by the Project. Take of golden eagle is further regulated by the federal Bald and Golden Eagle Protection Act, and prohibited as a California fully-protected species.

Burrowing Owl (*Athene cunicularia*)

HABITAT AND BIOLOGY: Burrowing owl is a CDFW species of special concern (CDFW 2015c). Burrowing owls inhabit open, dry grassland and desert habitats, and grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats. Main habitat components include burrows for roosting and nesting, and relatively short vegetation with sparse shrubs and taller vegetation. Burrowing owls most commonly use ground squirrel burrows, but they may also use badger, coyote, and fox holes or dens; or human-made structures such as culverts, piles of concrete rubble, pipes and nest boxes. An active nest chamber is often lined with excrement, pellets, debris, grass and feathers (CWHR 2015, Shuford and Gardali 2008).

Burrowing owl may thrive in highly altered human landscapes. In agricultural areas, owls nest along roadsides, under water conveyance structures, and near and under runways and similar structures. In urban areas, burrowing owls persist in low numbers in highly developed areas, busy urban parks, and adjacent to roads with heavy traffic. In the Imperial Valley, owls are able to excavate their own burrows in soft earthen banks of ditches and canals (Shuford and Gardali 2008).

Burrowing owls are a semi-colonial species that breeds from March through August, peaking in April and May, though breeding can begin as early as February and extend into December. The female typically lays two to ten eggs and young emerge from the burrow in about two weeks. The young are able to fly by week four. A large proportion of adults show strong nest site fidelity, though both young and adults have a high dispersal rate. Burrowing owls will perch in open sunlight in the early morning, and move to shade or the burrow when hot. Owls typically feed on a broad range of arthropods, but also feed on small rodents, birds, amphibians, reptiles, and carrion. Foraging usually occurs close to their burrow. The greatest threat to burrowing owls is habitat loss and degradation from rapid urbanization of farmland in the core of the Central and Imperial valleys (Shuford and Gardali 2008, CWHR 2015).

RANGE: Burrowing owls are a year round resident in most of the state, particularly in the Central Valley, San Francisco Bay region, Carrizo Plain, and Imperial Valley. It is generally absent from the coastal counties north of Marin and mountainous areas above 5,300 feet. Burrowing owl has declined along the central and southern coast, but large populations

remain in agricultural areas in the Central and Imperial valleys (CWHR 2015, Shuford and Gardali 2008).

KNOWN RECORDS: The nearest CNDDB record is approximately 5.1 miles southwest of the BSA from 2007.

HABITAT PRESENT IN THE BSA: The BSA is outside the summer, breeding range of burrowing owl (CWHR 2015). The BSA is within the winter range of burrowing owl and non-breeding owls could occur. No burrowing owls or suitable burrows were observed during the reconnaissance survey.

DISCUSSION: The Project does not propose any construction and will not directly impact burrowing owl. Burrowing owl is listed by the MBTA and regulated by CA Fish and Game Code, which prohibit take by future construction on parcels created by the Project. Future construction would not impact nests because the BSA is outside the breeding range.

White-tailed kite (*Elanus leucurus*)

HABITAT AND BIOLOGY: White-tailed kite is a CA fully protected species (CDFW 2015c). White-tailed kites occur in herbaceous and open stages of most habitats in cismontane CA. Areas with substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting. They also roost in saltgrass and Bermuda grass in southern CA. White-tailed kites breed from February to October, with peak activity from May to August. Nests are typically located near the top of dense oak, willow, or other tree stands from 20 to 100 feet above the ground, and are often located near an open foraging area with a dense population of voles (CWHR 2015).

RANGE: White-tailed kites are a year-round resident of coastal and valley lowlands in cismontane CA. They are absent from higher elevations in the Sierra Nevada, the Modoc Plateau, and from most desert regions (CWHR 2015).

KNOWN RECORDS: The nearest CNDDB record is a nest approximately 8.9 miles west of the BSA from 1989. The surrounding habitat is described as oaks and grassland in rolling terrain.

HABITAT PRESENT IN THE BSA: The BSA provides potential habitat for white-tailed kite.

DISCUSSION: The Project does not propose any construction and will not directly impact white-tailed kite. White-tailed kite is listed by the MBTA and regulated by CA Fish and Game Code, which prohibit take by future construction on parcels created by the Project. Take of white-tailed kite is further prohibited as a California fully-protected species.

2. Mammals

Pallid bat (*Antrozous pallidus*)

HABITAT AND BIOLOGY: Pallid bat is a CDFW species of special concern (CDFW 2015c). It occupies a wide variety of habitats including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Pallid bat is most common in open, dry habitats with rocky areas for roosting. It feeds on a wide variety of insects and arachnids, foraging over open ground, usually 1.6 to 8 feet above level ground. Day roosts in caves, crevices, mines, and occasionally buildings and in hollow trees. Roost must protect bats from high temperatures. Night roosts may be in more open sites, such as porches and open buildings. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging (CWHR 2015). Pallid bat may be more dependent on tree roosts than was previously realized. They have been located in tree cavities in oak, ponderosa pine, coast redwood and giant sequoia (Bolster 1998).

RANGE: Locally common in low elevations in CA. It occurs throughout CA and is a yearlong resident in most of the range (CWHR 2015).

KNOWN RECORDS: The nearest CNDDB record is approximately 6 miles south of the BSA. The CNDDB record is based on a record in the Mammal Networked Information System which contains records and specimens from many sources. A specimen was collected prior to 1999, but no more precise date is available. The geographic information is approximate and is recorded as "6 miles west of Plymouth." The next closest CNDDB record is approximately 11.5 miles northwest of the BSA near Folsom.

HABITAT PRESENT IN THE BSA: The BSA provides marginal habitat for pallid bat due to the lack of cliffs or tall rock outcrops. The tallest rock outcrops in the BSA are about six feet high, and most are much shorter. The trees in the BSA are nearly all mature oaks. Some of the oaks are large enough to have cavities that could provide roosts for pallid bat.

DISCUSSION: The Project does not propose any construction and will not directly impact pallid bat. The Project design demonstrates that residences could be constructed on the parcels created by the Project without removing any trees. Trees are widely spaced in the BSA. Although the future construction of residences on the parcels could be done without tree removal, individual applicants could remove trees upon further review and approval from the County. No amount of tree removal that would likely result from the construction of residences would have a significant impact on pallid bat. The BSA contains marginal habitat, tree removal would be limited or none, and pallid bat has a wide range that encompasses most of the State. The BSA does not contain habitat that is unique or limited locally for pallid bat.

D. Evaluation of Special-Status Plants

Big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*)

HABITAT AND BIOLOGY: Big-scale balsamroot is a perennial herb found in chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentine and rocky soils, from 295 to 5,100 feet. Blooms March through July (Baldwin *et al.* 2012; CNPS 2015).

RANGE: Known from the Sierra Nevada foothills, central high Sierra Nevada, Sacramento Valley, and eastern San Francisco Bay (Baldwin *et al.* 2012).

KNOWN RECORDS: The nearest CNDDB record is based on an 1895 collection approximately 16.6 miles southeast of the BSA, near the town of Sutter Creek (Occurrence #43). The next nearest CNDDB record is a 1920 collection in an area that was likely inundated by Folsom Lake, about 17 miles northwest of the BSA (Occurrence #14).

HABITAT PRESENT IN THE BSA: Uplands in the BSA may provide potential habitat for big-scale balsamroot. Areas of the BSA around rock outcrops, or where bedrock is near the surface and the soil is thin are more likely to support big-scale balsamroot than areas of thicker soil densely vegetated with grasses.

DISCUSSION: The Project does not propose any construction and will not directly impact big-scale balsamroot. If big-scale balsamroot occurs in the BSA, it could be impacted by the future construction of residences on the parcels created by the Project. The BSA does not contain habitat that is unique or limited locally for big-scale balsamroot.

Tuolumne button-celery (*Eryngium pinnatisectum*)

HABITAT AND BIOLOGY: Tuolumne button-celery is an annual to perennial herb found in mesic areas in cismontane woodland, lower montane coniferous forest, and vernal pools from 230 to 3,000 feet. Blooms May through August (Baldwin *et al.* 2012; CNPS 2015).

RANGE: Currently known from the northern and central Sierra Nevada foothills including Amador, Calaveras, Sacramento, and Tuolumne counties (Baldwin *et al.* 2012; CNPS 2015).

KNOWN RECORDS: The nearest CNDDB record is a 1941 collection approximately 6 miles southwest of the BSA (Occurrence #17). There is a record in the California Consortium of Herbaria (CCH 2016) labeled "4 miles west of Shingle Springs,' which would place the collection approximately 5.8 miles north of the BSA.

HABITAT PRESENT IN THE BSA: The segment of Clark Creek, the wetland swales, and the seeps in the BSA may provide potential habitat for Tuolumne button-celery.

DISCUSSION: The Project does not propose any construction and will not directly impact Tuolumne button-celery. The Project design demonstrates that residences and driveways could be constructed on the parcels created by the Project without crossing any waters or

wetlands. If Tuolumne button-celery occurs in the BSA, it would not likely be impacted by any future construction.

E. Evaluation of Sensitive Natural Communities

Waters and Wetlands

There are approximately 1.06 acres of waters and wetlands in the BSA (Figure 4). Fill of waters and wetlands generally requires a permit under Sections 404 and 401 of the federal Clean Water Act. The U.S. Army Corps of Engineers would likely request a formal delineation of waters and wetlands prior to processing a permit application. The California Department of Fish and Wildlife could require a Streambed Alteration Agreement for work in the waters and wetlands under Section 1600 of the Fish and Game Code. There are no riparian communities in the BSA, although there are a few widely scattered willows along Clark Creek and Wetland Swale 1. El Dorado County General Plan Policy 7.3.3.4 identifies a standard 50 foot setback for intermittent channels and wetlands (El Dorado County 2004b).

DISCUSSION: The Project does not propose any construction and will not directly impact any waters or wetlands. The Project Design demonstrates that residences and driveways could be constructed on parcels created by the Project without fill of waters or wetlands, and in compliance with the standard County setback.

Oak Woodlands

There are approximately 71.19 acres of oak woodland in the BSA. The oak woodlands mapped in Figure 4 include some open grassy areas between trees. Likewise, some widely spaced oak trees occur in the California annual grassland. Areas mapped as oak woodland have at least 10% canopy cover, consistent with new oak policies being drafted by the County that have not been adopted. The County is currently preparing a revision of Policy 7.4.4.4 and an environmental document for the revised policy pursuant to CEQA. Oak woodlands in the BSA would be subject to the revised policy if it is adopted by the County.

El Dorado County currently regulates oak woodlands pursuant to County General Plan (2004b) Policy 7.4.4.4. Policy 7.4.4.4 limits the amount of oak tree canopy that may be removed by a project, and requires replacement of any removed oak canopy. The County currently implements Policy 7.4.4.4 through Interpretive Guidelines.

DISCUSSION: The Project does not propose any construction and will not directly impact any oak woodlands. The Project Design demonstrates that residences and driveways could be constructed on parcels created by the Project without removal of any oak trees or canopy, in compliance with Policy 7.4.4.4.

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VII. PREPARERS

Chuck Hughes, M.S., Plant Biology, Michigan State University. Thirteen years experience preparing biological/botanical resource evaluations, wetland delineations, arborist reports, impact analyses, and mitigation and restoration plans. He is a Professional Wetland Scientist (#2029), an ISA Certified Arborist (WE-6885A) with a tree risk assessment qualification, and is listed on a USFWS recovery permit for listed fairy and tadpole shrimp (TE799564-3). His bachelor degree from UC Davis is in environmental horticulture and urban forestry, with an emphasis in plant biodiversity.
Responsibilities: Field work and report preparation.

Juan Mejia, B.S., Environmental Science and Management, University of California, Davis. Conducts plant and wildlife surveys, provides technical support for wetland delineations, biological resource evaluations, mitigation plans, and other documents used in the CEQA/NEPA process, queries the CNDDB, and researches special-status species for projects.
Responsibilities: Field work and report preparation.

Aramis Respall, GIS Analyst/ CAD Operator. Over 20 years experience in drafting and spatial analysis using AutoCAD and ArcGIS for public and private projects. He provides geospatial analysis and support for projects involving geodesy, hydrology, watersheds, project impact analysis, CNDDB occurrences, and critical habitat information. Primary experience evolved from conventional surveying and civil engineering practices to advanced GPS and GIS based technology.
Responsibilities: Figure preparation and spatial analysis.

Jeffery Little, Vice President, Sycamore Environmental.
Responsibilities: Principal in charge.

APPENDIX A.

Database Queries

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APPENDIX B.

Species Evaluated Table

Special-Status Species from USFWS Letter, CNDDB Data, CNPS Data

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur in the BSA
Invertebrates					
Branchinecta lynchi Vernal pool fairy shrimp	T, CH	--	1, 2	Exist only in vernal pools or vernal pool-like habitats. Individuals have never been found in riverine, marine, or other permanent bodies of water. Water movement within complexes allows movement between individual pools. Currently found in 28 counties across the Central Valley and coast ranges of California. Occupies a variety of vernal pool habitats (USFWS 2005).	No. There are no vernal pools in the BSA. The BSA is not in critical habitat.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	T, CH	--	1, 2	Requires an elderberry shrub (*Sambucus* sp.) as a host plant (USFWS 1999a).	No. There are no elderberry shrubs in the BSA. The BSA is not in critical habitat.
Lepidurus packardi Vernal pool tadpole shrimp	E, CH	--	2	Occurs in vernal pools and sometimes other areas of similar hydrology across the Central Valley of California and in the San Francisco Bay area. Requires a minimum of about 25 days to mature, and usually inhabits large, deep vernal pools that pool continuously for many months (USFWS 2005). They can also make use of smaller pools that are present as part of a larger vernal pool complex (Witham *et al.* 1998), and they may be able tolerate temporary dry conditions (USFWS 2005).	No. There are no vernal pools in the BSA. The BSA is not in critical habitat.
Fish					
Hypomesus transpacificus Delta smelt	T, CH	T	1	Euryhaline (tolerant of a wide salinity range) species that spawns in freshwater dead-end sloughs and shallow edge-waters of channels of the Delta (USFWS 1994).	No. The project is outside the range and there is no suitable habitat. The BSA is not in critical habitat.
Oncorhynchus mykiss Central Valley steelhead DPS	T, CH	--	2	Anadromous salmonid historically distributed throughout the Sacramento and San Joaquin river drainages. While steelhead are found elsewhere in the Sacramento River system, the principal remaining wild populations are a few hundred fish that spawn annually in Deer and Mill Creeks in Tehama County and a population of unknown size in the lower Yuba River. With the possible exception of a small population in the lower Stanislaus River, steelhead appear to have been extirpated from the San Joaquin system (Moyle 2002). Spawning occurs in small tributaries on coarse gravel beds in riffle areas (Busby *et al.* 1996). Federal listing includes all runs in the Sacramento and San Joaquin Rivers and their tributaries (CDFW 2015d).	No. There is no suitable habitat. The BSA is not in critical habitat.
Oncorhynchus mykiss Northern California steelhead DPS	T, CH	--	1	Fish that exhibits both anadromy and freshwater residency. This DPS includes all naturally spawned populations in California coastal river basins from Redwood Creek southward to, and including, the Gualala River in Mendocino County (NMFS 2006).	No. The BSA is outside the range and there is no suitable habitat. The BSA is not in critical habitat.

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur in the BSA
Amphibians					
Ambystoma californiense California tiger salamander (central population)	T, CH	T	2	Occurs in grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. Requires pools lasting approximately 10 weeks or longer to complete larval development (Jennings and Hayes 1994). Usually breeds in temporary ponds such as vernal pools but may also breed in slower parts of streams and some permanent waters (Stebbins 2003). The state listing refers to the entire range of the species. The federal threatened listing is only for the Central Valley population. The Sonoma and Santa Barbara populations are federally listed as endangered (CDFW 2015d).	No. The BSA is outside the current range. There is no breeding habitat in the BSA and no populations within dispersal distance. The BSA is not in critical habitat.
Rana draytonii California red-legged frog	T, CH	SSC	1, 2	Inhabits quiet pools of streams, marshes, and occasionally ponds with dense, shrubby, or emergent vegetation. Requires permanent or nearly permanent pools for larval development (CWHR 2015; USFWS 2010). The range of CA red-legged frog extends from near sea level to approximately 5,200 ft, though nearly all sightings have occurred below 3,500 ft. California red-legged frog was probably extirpated from the floor of the Central Valley before 1960 (USFWS 2002a).	No. The BSA is outside the current range. There is no breeding habitat in the BSA and no populations within dispersal distance. The BSA is not in critical habitat.
Spea hammondi Western spadefoot	--	SSC	2	Ranges throughout the Central Valley and adjacent foothills, and is usually quite common where it occurs. Occurs primarily in grasslands, but occasionally occurs in valley-foothill hardwood woodlands (CWHR 2015). Primarily found in the lowlands frequenting washes, floodplains of rivers, alluvial fans, playas, and alkali flats. Also ranges into foothills and mountains. Prefers areas of open vegetation and short grasses with sandy or gravelly soil (Stebbins 2003). Spends most of the year in underground burrows up to 36 inches deep, which they generally construct themselves. Most surface movements by adults are associated with rains or high humidity at night. Breeding and egg laying occur almost exclusively in shallow, temporary pools formed by heavy winter rains (CWHR 2015).	No. There is no suitable habitat.
Reptiles					
Emys marmorata Western pond turtle	--	SSC	2	Prefers aquatic habitats with abundant vegetative cover and exposed basking sites such as logs. Associated with permanent or nearly permanent water in a wide variety of habitat types, normally in ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams (CWHR 2015).	No. Clark Creek in the BSA is not large enough, and downstream areas outside the BSA are unsuitable for dispersal.
Phrynosoma blainvillii Coast (California) horned lizard	--	SSC	2	Occurs in valley and foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper and annual grasslands up to 4,000 ft in the Sierra Nevada and 6,000 ft in southern California Basks in the early morning. Often associated with sandy or loose soil areas (CWHR 2015). Feeds mostly on native ants. Tends not to persist where the argentine ant invades (Suarez *et al.* 2000, Suarez and Case 2002).	No, there are no sandy soils in the BSA. All four CNDDB records in El Dorado County are from gabbroic northern mixed chaparral.

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur in the BSA
Thamnophis gigas Giant garter snake	T	T	2	Known from low basins in the Central Valley. Habitat requisites consist of 1) adequate water during the snake's active season (early spring through mid-fall) to provide food and cover; 2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; 3) grassy banks and openings in waterside vegetation for basking; and 4) higher elevation uplands for cover and refuge from flood waters during the snake's winter dormant season (USFWS 1999b).	No. The BSA is outside the range and there is no suitable habitat.
Birds					
Agelaius tricolor Tricolored blackbird	--	SSC	2	Forages on ground in cropland, grassland, and on pond edges. Nests near freshwater, preferably in emergent marsh densely vegetated with cattails or tules, but also in thickets of willow, blackberry, and wild rose. Highly colonial; nesting area must be large enough to support a minimum colony of about 50 pairs (CWHR 2015). Chooses areas with widespread water and large, thick patches of vegetation for colonies to reduce predation (Hamilton 2004).	No. There is no suitable nesting habitat in the BSA.
Ammodramus savannarum Grasshopper sparrow	--	SSC	2	An uncommon local summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest from Mendocino and Trinity cos. south to San Diego Co. Occurs in dry, dense grasslands, especially with scattered shrubs for sitting perches. A thick cover of grasses and forbs is essential for concealment. Nests are built of grasses and forbs in slight depressions in ground hidden by a clump of grasses or forbs. Usually nests solitarily from early April to mid-July. May form semicolonial breeding groups of 3-12 pairs (CWHR 2015).	Yes. See text.
Aquila chrysaetos Golden eagle	--	FP	2	Uncommon permanent resident and migrant throughout California, except in the central portion of the Central Valley. Perhaps more common in southern California than in northern California. Ranges from sea level up to 11,500 ft (Grinnell and Miller 1944). Typically inhabits rolling foothills, mountainous areas, sage-juniper flats, and deserts. Uses secluded cliffs with overhanging ledges and large trees for cover. Nest on cliffs of all heights and in large trees in open areas. Rugged, open habitats with canyons and escarpments are used most frequently for nesting. Needs open terrain for hunting (CWHR 2015).	Yes. See text.
Athene cunicularia *Burrowing owl*	--	SSC	2	Yearlong resident of open, dry grassland and desert habitat, and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats. Uses small mammal burrows, often ground squirrel, for roosting and nesting cover (CWHR 2015).	Yes. See text.
Buteo swainsoni Swainson's hawk	--	T	2	Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert. Nests in stands with few trees in juniper-sage flats, in riparian areas and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Feeds on small birds, rodents, mammals, reptiles, large arthropods, amphibians, and, rarely, fish (CWHR 2015).	No. The BSA is outside the range.

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur in the BSA
Elanus leucurus White-tailed kite	--	FP	2	Yearlong resident in coastal and valley lowlands. Rarely found away from agricultural areas. Inhabits herbaceous and open stages of most habitats, mostly in cismontane California. Substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting. Nest placed near top of dense oak, willow, or other tree stand located near open foraging area. Forages in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands (CWHR 2015).	Yes. See text.
Haliaeetus leucocephalus Bald eagle	D	E/ FP	2	Occurs along coasts, rivers, and large, deep lakes and reservoirs in California. Nests mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity cos. More widespread as a winter migrant. Requires large bodies of water or free flowing rivers with abundant fish and perching sites. Nests in large old growth and dominant live trees with open branchwork. Favors ponderosa pine (CWHR 2015).	No. There is no suitable habitat in the BSA. CNDDB records in the nine-quad area occur next to lakes. There are no lakes or large bodies of water in or adjacent to the BSA.
Riparia riparia Bank swallow	--	T	2	Found primarily west of CA deserts in riparian and other lowland habitats during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine textured sandy soils, into which it digs nesting holes. About 75% of the breeding population in CA occurs along banks of the Sacramento and Feather Rivers in the northern Central Valley. Other colonies are known from the central coast from Monterey to San Mateo cos., and in northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc cos. Breeding colonies can have between 10 and 1,500, but typically between 100 and 200, nesting pairs (CWHR 2015).	No. There is no suitable habitat.
Mammals					
Antrozous pallidus Pallid bat	--	SSC	2	Occupies many habitats including desert, grasslands, shrublands, woodlands, rocky canyons, oak savannah, redwood, open farmland and mixed conifer forest from sea level up to 3,000 ft (Bolster 1998, CWHR 2015). Prefers open, dry habitats with rocky areas for roosting, and rock outcrops, cliffs, and crevices with access to open habitats for foraging. Day roosts in caves, crevices, mines, and occasionally buildings and hollow trees. Night roosts may be more open, such as porches and open buildings. Social, often roosting in groups of 20 or more. Absent in the northwest from Del Norte and western Siskiyou cos. south to northern Mendocino Co. (CWHR 2015). May be more dependent on tree roosts than was previously realized. They have been located in tree cavities in oak, ponderosa pine, coast redwood and giant sequoia (Bolster 1998).	Yes. See text.
Pekania pennanti Fisher – West Coast DPS	PT	CT/ SSC	2	Permanent resident of the Sierra Nevada, Cascades, Klamath Mountains, and the North Coast Range. Occurs above 3,200 ft in the Sierra Nevada and Cascades (Jameson and Peeters 2004). Occurs in coniferous or deciduous riparian habitats with intermediate to large trees and closed canopies. Dens in protected cavities, brush piles, logs, or under an upturned tree. Hollow logs, trees, and snags are especially important. Mostly nocturnal and crepuscular (CWHR 2015). Federal candidate status refers to the distinct population segment in WA, OR and CA (CDFW 2015).	No. The BSA is outside the range.

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur in the BSA
Plants		**/ CNPS [d]**			
Allium jepsonii Jepson's onion	--	--/ 1B.2	2	Bulbiferous herb found in serpentine or volcanic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 984 to 4,331 ft. Known from Butte, El Dorado, Placer, and Tuolumne cos. Blooms April through August (Baldwin *et al.* 2012; CNPS 2015).	No. There are no suitable soils in the BSA.
Arctostaphylos myrtifolia Ione Manzanita	T	--/ 1B.2	2	Perennial evergreen shrub found in acidic, Ione soil, and clay or sandy soil in chaparral and cismontane woodland from 197 to 1,903 ft. Known from Amador and Calaveras cos. Blooms November through March (Baldwin *et al.* 2012; CNPS 2015).	No. There are no suitable soils in the BSA. The BSA is outside the range.
Arctostaphylos nissenana Nissenan manzanita	--	--/ 1B.2	2	Perennial evergreen shrub found in rocky closed-coned coniferous forest, chaparral, and woodland from 1,476 to 5,414 ft. Known from El Dorado and Tuolumne cos. Blooms February through March (Baldwin *et al.* 2012; CNPS 2015).	No. There is no suitable habitat in the BSA. The BSA is outside the range.
Balsamorhiza macrolepis Big-scale balsamroot	--	--/ 1B.2	2	Perennial herb found in chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentine soils, from 295 to 5,102 ft. Known from the Bay Area, Sacramento Valley, and Sierra foothills. Blooms March through July (Baldwin *et al.* 2012; CNPS 2015).	Yes. See text.
Calystegia stebbinsii Stebbins' morning-glory	E	E/ 1B.1	2	Perennial rhizomatous herb found in serpentine or gabbroic soils in openings in chaparral and cismontane woodland from 607 to 3,576 ft. Known from El Dorado and Nevada cos. Blooms April through July (Baldwin *et al.* 2012, CNPS 2015).	No. There are no suitable soils in the BSA. The BSA is outside the range. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
Ceanothus roderickii Pine Hill ceanothus	E	R/ 1B.1	2	Perennial evergreen shrub found on serpentine or gabbroic soils in chaparral and cismontane woodland from 804 to 2,067 ft. Known from less than 10 occurrences in El Dorado Co. Blooms April through June (Baldwin *et al.* 2012, CNPS 2015).	No. There are no suitable soils in the BSA. The BSA is outside the range. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
Chlorogalum grandiflorum Red Hills soaproot	--	--/ 1B.2	2	Perennial bulbiferous herb found in serpentine, gabbroic, and other soils in chaparral, cismontane woodland, and lower montane coniferous forest from 804 to 4,067 ft. Known from Amador, Butte, Calaveras, El Dorado, Placer, and Tuolumne cos. Blooms May through June (Baldwin *et al.* 2012, CNPS 2015).	No. There are no suitable soils in the BSA. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
Crocanthemum suffrutescens Bisbee Peak rush-rose	--	--/ 3.2	2	Perennial evergreen shrub found often in gabbroic or Ione soils, burned or disturbed areas, and chaparral from 246 to 2198 ft. Known from Amador, Calaveras, and El Dorado cos. Blooms April through August (Baldwin *et al.* 2012, CNPS 2015).	No. There are no suitable soils, or chaparral in the BSA. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
Downingia pusilla Dwarf downingia	--	--/ 2B.2	2	Annual herb found in mesic valley and foothill grassland and vernal pools from 3 to 1,460 ft. Known from the north Coast Range, Bay Area, and Central Valley. Blooms March through May (Baldwin *et al.* 2012, CNPS 2015).	No. There are no vernal pools or vernal pool complexes in the BSA. The range does not extend into the Sierra foothills.

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur in the BSA
Eriogonum apricum var. *apricum* Ione buckwheat	E	E / 1B.1	2	Perennial herb found in chaparral openings in Ione formation soil from 190 to 480 ft. Blooms July through October (CNPS 2015).	No. There is no suitable habitat or soil in the BSA.
Eriogonum apricum var. *prostratum* Irish Hill buckwheat	E	E / 1B.1	2	Perennial herb found in chaparral openings in Ione formation soil from 290 to 400 ft. Known from two occurrences near Irish Hill and Carbondale Mesa in Amador County. Blooms June through July (CNPS 2015).	No. There is no suitable habitat or soil in the BSA.
Eryngium pinnatisectum Tuolumne button-celery	--	--/ 1B.2	2	Annual to perennial herb found in mesic areas of cismontane woodland, lower montane coniferous forests, and vernal pools/swales, and intermittent streams from 230 to 3,000 ft. Known from Amador, Calaveras, Sacramento, and Tuolumne cos. Blooms May through August (Baldwin *et al.* 2012, CNPS 2015).	Yes. See text.
Fremontodendron decumbens Pine Hill flannelbush	E	R/ 1B.2	2	Perennial evergreen shrub found on rocky, gabbroic, and serpentine soil in chaparral and cismontane woodland from 1,394 to 2,494 ft. Known from 10 occurrences in El Dorado, Nevada, and Yuba cos. Uncertain about distribution or identity in Nevada and Yuba cos. Blooms April through July (Baldwin *et al.* 2012, CNPS 2015).	No. There are no suitable soils in the BSA. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
Galium californicum ssp. *sierrae* El Dorado bedstraw	E	R/ 1B.2	2	Perennial herb found in gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 330 to 1,920 ft. Known from El Dorado County. Blooms March through July (Baldwin *et al.* 2012, CNPS 2015).	No. There are no suitable soils in the BSA. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
Horkelia parryi Parry's horkelia	--	--/ 1B.2	2	Perennial herb found on Ione formation and in other soils in chaparral and cismontane woodland from 260 to 3,510 ft. Known from Amador, Calaveras, El Dorado, and Mariposa cos. Blooms April through September (Baldwin *et al.* 2012, CNPS 2015). Jepson eFlora (2016) describes the habitat as open chaparral.	No. There are no suitable soils or chaparral in the BSA. Only known in El Dorado County east of Placerville.
Legenere limosa Legenere	--	--/ 1B.1	2	Annual herb found in vernal pools from 3 to 2900 ft. Known from Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Tehama, and Yuba cos. Presumed extirpated in Stanislaus Co. Blooms April through June (Baldwin *et al.* 2012, CNPS 2015).	No. There are no vernal pools or vernal pool complexes in the BSA. The range does not extend into the Sierra foothills.
Navarretia myersii ssp. *myersii* Pincussion navarretia	--	--/ 1B.1	2	Annual herb found in vernal pools, often with acidic conditions, from 65 to 1,100 ft. Known from Amador, Calaveras, Merced, Placer, and Sacramento cos. Blooms April through May (Stanislaus Co. Blooms April through June (Baldwin *et al.* 2012, CNPS 2015).	No. There are no vernal pools or vernal pool complexes in the BSA.
Packera (=Senecio) layneae Layne's ragwort	T	R/ 1B.2	2	Perennial herb found in rocky serpentine or gabbroic soils in chaparral and cismontane woodland from 650 to 3,560 ft. Known from Butte, El Dorado, Placer, Tuolumne, and Yuba cos. Blooms April through August (Baldwin *et al.* 2012, CNPS 2015).	No. There are no suitable soils in the BSA. In El Dorado County this species is known primarily from the gabbro soils of the Pine Hill formation, elsewhere in the County.
Sagittaria sanfordii Sanford's arrowhead	--	--/ 1B.2	2	A perennial emergent rhizomatous herb found in assorted shallow freshwater marshes and swamps from 0 to 2,130 ft. Known from northwestern CA, Cascade foothills, Central Valley, and South Coast. Blooms May through November (Baldwin *et al.* 2012, CNPS 2015).	No. There is no suitable habitat. The channels and wetlands do not retain sufficient inundation into the summer dry season.

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur in the BSA
Sphenopholis obtusata Prairie wedge grass	--	--/ 2B.2	2	Perennial herb found in mesic cismontane woodland, and meadows and seeps from 980 to 6,560 ft. Blooms April through July (CNPS 2015).	No. There are no records farther north than the Sutter Creek area in the western Sierra Nevada.
Viburnum ellipticum Oval-leaved viburnum	--	--/ 2B.3	2	Deciduous shrub found in chaparral, cismontane woodland, and lower montane coniferous forest from 700 to 4,600 ft. Known from northwestern CA, Bay Area, and northern/central Sierra foothills. Blooms May through August (Baldwin *et al.* 2012, CNPS 2015). Jepson eFlora (2016) describes the habitat as chaparral, yellow-pine forest, generally on north-facing slopes.	No. There is no suitable habitat in the BSA.
Wyethia reticulata El Dorado County mule ears	--	--/ 1B.2	2	Perennial rhizomatous herb found on clay or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 600 to 2,100 ft. Known from El Dorado and Yuba cos. Blooms April through August (Baldwin *et al.* 2012, CNPS 2015).	No. There are no suitable soils in the BSA. In El Dorado County this species is known from the gabbro soils of the Pine Hill formation, elsewhere in the County.
Natural Communities					
Central Valley drainage hardhead/ squawfish stream	--	--	2	Hardhead occur in low- to mid-elevation streams in the main Sacramento-San Joaquin drainage and in the Russian River. Their range extends from the Kern River in Kern County, in the south, to the Pit River in Modoc County in the north. In the San Joaquin drainage, the species is scattered in tributary streams and absent from valley reaches of the San Joaquin River. In the Sacramento drainage, the hardhead is present in most large tributary streams as well as in the Sacramento River. Hardhead are typically found in undisturbed areas of larger low- to mid-elevation streams, although they are also found in the mainstem Sacramento River at low elevations and in its tributaries to about 4,920 ft. They prefer clear, deep (>32 inches) pools and runs with sand-gravel-boulder substrates and slow velocities. Hardhead are always found in association with Sacramento pikeminnow (squawfish) and usually with Sacramento sucker. They tend to be absent from streams where introduced species, especially centrarchids (sunfish), predominate and from streams that have been severely altered by human activity. Sacramento pikeminnow occur in clear rivers and creeks of central California and occur in small numbers in the Sacramento-San Joaquin Delta. They are most characteristic of low- to mid-elevation streams with deep pools, slow runs, and undercut banks, and overhanging vegetation. They are most abundant in lightly disturbed, tree-lined reaches that also contain other native fish (Moyle 2002).	No. This community does not occur in the BSA. The intermittent channel in the BSA is too small to support this community.

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur in the BSA
Ione Chaparral	--/--	--/--	2	A chaparral community of low shrubs and scattered herbs dominated by Ione manzanita (*Arctostaphylos myrtifolia*). Shrub cover in mature stands usually exceeds 50%. Edaphically restricted to acidic, nutrient-poor, and coarse soils. This community occurs across the Central Valley directly east of the Golden Gate. This creates milder summer high temperatures and higher relative humidities than elsewhere in the Sierran foothills. Additional characteristic species include: *Adenostoma fasciculatum, Ceanothus tomentosus, Eriodictyon californicum, Erigonum apricum, Pinus* spp., and *Quercus* spp. Occurs in western Amador and northern Calaveras counties (Holland 1986).	No. This community does not occur in the BSA.
Northern hardpan vernal pool	--	--	2	A low emergent wetland community dominated by annual herbs and grasses on very acidic soils with an iron-silicon cemented hardpan. Evaporation (not runoff) dries pools in spring creating concentric bands of vegetation. Occurs primarily on old alluvial terraces on the east side of the Great Valley from Tulare or Fresno County north to Shasta County (Holland 1986).	No. There are no vernal pools in the BSA.

[a] **Listing Status** **E** = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; **D** = Delisted; ***** = Possibly extinct.

[b] **Other Codes** **SSC** = CA Species of Special Concern; **FP** = CA Fully Protected; **Prot** = CA Protected; **CH =** Critical habitat designated.
CNPS Rank (plants only): **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution

CNPS List Decimal Extensions: **.1** = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in CA (20-80% of occurrences threatened); **.3 =** Not very endangered in CA (< 20% of occurrences threatened or no current threats known).

[c] **Source:** **1** = USFWS letter. **2** = CNDDB/CNPS. **3 =** Observed or included by Sycamore Environmental.

APPENDIX C.

Plant and Wildlife Species Observed

Plant species observed.

FAMILY	SCIENTIFIC NAME	COMMON NAME	NATIVE/ INTRODUCED	CAL-IPC PEST RATING [1]
FERNS & ALLIES				
Polypodiaceae	*Polypodium* sp.	Polypody	N	--
Pteridaceae	*Pentagramma triangularis*	Goldback fern	N	--
EUDICOTS				
Anacardiaceae	*Toxicodendron diversilobum*	Western poison oak	N	--
Apiaceae	*Daucus pusillus*	Daucus	N	--
	Torilis arvensis	Tall sock-destroyer	I	Moderate
Asteraceae	*Baccharis pilularis*	Coyote Brush	N	--
	Carduus sp.	Carduus	I	--
	Centaurea solstitialis	Yellow star-thistle	I	High
	Centromadia sp.	Spikeweed	N	--
	Cirsium vulgare	Bull thistle	I	Moderate
	Holocarpha virgata	Tarplant	N	--
	Hypochaeris glabra	Smooth cat's ear	I	Limited
	Lactuca sp.	Lettuce	--	--
	Logfia sp.	Logfia	--	--
	Senecio vulgaris	Common groundsel	I	--
	Soliva sessilis	Soliva	I	--
Boraginaceae	*Eriodictyon californicum*	California yerba santa	N	--
	Phacelia sp.	Phacelia	N	--
	Plagiobothrys sp.	Popcornflower	N	--
Brassicaceae	*Hirschfeldia incana*	Hirschfeldia	I	Moderate
	Nasturtium officinale	Water cress	N	--
Caryophyllaceae	*Silene gallica*	Small-flower catchfly	I	--
	Stellaria sp.	Chickweed, starwort	--	--
Chenopodiaceae	*Salsola* sp.	Salsola	I	--
Crassulaceae	*Crassula* sp.	Crassula	--	--
	Dudleya sp.	Dudleya, liveforever	N	--
Euphorbiaceae	*Croton setigerus*	Turkey-mullein	N	--
Fabaceae	*Acmispon* sp.	Deervetch, deerweed	N	--
	Lupinus sp.	Lupine	N	--
	Trifolium glomeratum	Clustered clover	I	--
	Trifolium hirtum	Rose clover	I	Moderate
	Trifolium subterraneum	Subterranean clover	I	--
	Vicia sp.	Vetch	--	--
Fagaceae	*Quercus berberidifolia*	Scrub oak	N	--
	Quercus douglasii	Blue oak	N	--
	Quercus lobata	Valley oak	N	--
	Quercus wislizenii	Interior live oak	N	--
Gentianaceae	*Zeltnera* sp.	Centaury	N	--
Geraniaceae	*Erodium botrys*	Storksbill, filaree	I	--
	Erodium moschatum	Greenstem filaree	I	--
	Geranium sp.	Cranesbill, geranium	--	--
Hypericaceae	*Hypericum* sp.	Hypericum	--	--
Lamiaceae	*Mentha pulegium*	Pennyroyal	I	Moderate
	Trichostema lanceolatum	Vinegar weed	N	--
Linaceae	*Linum* sp.	Flax	--	--
Limnanthaceae	*Limnanthes* sp.	Meadowfoam	N	--

Lythraceae	*Lythrum* sp.	Loosestrife	--	--
Montiaceae	*Claytonia perfoliata*	Miner's lettuce	N	--
	Montia sp.	Water chickweed	N	--
Oleaceae	*Olea europaea*	Olive	I	Limited
Onagraceae	*Clarkia* sp.	Clarkia	N	--
	Epilobium sp.	Willowherb	--	--
	Epilobium densiflorum	Willowherb	N	--
Plantaginaceae	*Kickxia* sp.	Kickxia	I	--
	Plantago lanceolata	English plantain	I	Limited
Polygonaceae	*Polygonum* sp.	Knotweed	--	--
	Rumex sp.	Dock	--	--
Ranunculaceae	*Ranunculus muricatus*	Buttercup	I	--
Rubiaceae	*Galium parisiense*	Wall bedstraw	I	--
	Sherardia arvensis	Field madder	I	--
Rosaceae	*Rubus armeniacus*	Himalayan blackberry	I	High
Salicaceae	*Populus fremontii* ssp. *fremontii* (Sapling)	Fremont cottonwood	N	--
	Salix sp.	Willow	--	--
Viscaceae	*Phoradendron villosum*	Oak mistletoe	N	--
MONOCOTS				
Agavaceae	*Chlorogalum* sp. (fibrous bulb coat)	Soap plant, amole	N	--
Araceae	*Lemna* sp.	Duckweed	N	--
Cyperaceae	*Cyperus eragrostis*	Nutsedge	N	--
Juncaceae	*Juncus* sp.	Rush	--	--
Poaceae	*Avena* sp.	Oat	I	--
	Elymus caput-medusae	Medusa head	I	High
	Briza minor	Small quaking grass	I	--
	Bromus diandrus	Ripgut grass	I	Moderate
	Bromus hordeaceus	Soft chess	I	Limited
	Bromus madritensis ssp. *rubens*	Red brome	I	High
	Cynodon dactylon	Bermuda grass	I	Moderate
	Cynosurus echinatus	Hedgehog dogtail	I	Moderate
	Festuca perennis	Rye grass	I	Moderate
	Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	I	Moderate
	Hordeum marinum ssp.*leporinum*	Hare barley	I	Moderate
	Muhlenbergia rigens	Deer grass	N	--
	Paspalum sp.	Paspalum	--	--
	Polypogon sp.	Beard grass	I	

[1] High/Moderate/Limited = CA-IPC Inventory; reflects level of each species' negative ecological impact in California.

Wildlife species observed.

COMMON NAME	SCIENTIFIC NAME
Birds	
Acorn woodpecker	*Melanerpes formicivorus*
Brewer's blackbird	*Euphagus cyanocephalus*
Dark-eyed junco	*Junco hyemalis*
Common raven	*Corvus corax*
Lesser goldfinch	*Carduelis psaltria*
Mourning dove	*Zenaida macroura*
Northern flicker	*Colaptes auratus*
Oak titmouse (Plain titmouse)	*Baeolophus inornatus*
Turkey vulture	*Cathartes aura*
Western meadowlark	*Sturnella neglecta*
White-crowned sparrow	*Zonotrichia leucophrys*

APPENDIX D.

Photographs
31 December 2015

Photo 1. View looking north of Wetland Swale 1 in oak woodland.

Photo 2. Grassland in the foreground, and oak woodland in the background, on the north side of the BSA. This area is typical of much of the BSA.

Photo 3. An area of small rock outcrops and near surface bedrock near the northeastern corner of the BSA.

Photo 4. View looking north of Seep 1.

Photo 5. View looking west of Wetland Swale 1 in the low area in the center of the photo. The main house in the BSA is on the left.

Photo 6. View looking west along Brandon Road. The intersection with South Shingle Road is in the background. The low area in the foreground is Wetland Swale 6.

Photo 7. A landscaped area between the main house and barn. Some native oaks have been incorporated into the landscaping.

COUNTY OF EL DORADO

AGRICULTURAL COMMISSION

311 Fair Lane
Placerville, CA 95667
(530) 621-5520
(530) 626-4756 FAX
eldcag@edcgov.us

Greg Boeger, Chair – Agricultural Processing Industry
Dave Bolster, Vice-chair – Fruit and Nut Farming Industry
Chuck Bacchi – Livestock Industry
Bill Draper – Forestry/Related Industries
Ron Mansfield – Fruit and Nut Farming Industry
Tim Neilsen – Livestock Industry
Lloyd Walker – Other Agricultural Interests

MEMORANDUM

DATE: August 9, 2017

TO: Development Services/Planning

FROM: David Bolster, Chair

Subject: Granade Subdivision TM15-1527/Z15-0003 APN 087-310-64

During the Agricultural Commission's regularly scheduled meeting held on August 9, 2017 a request to review a new rezone and tentative map application for a 9-lot rural tentative subdivision map in the Latrobe area. The subdivision would include a change in zoning from Rural Lands Twenty-Acre (RL-20) to Estate Residential 10-Acre (RE-10) for six of the proposed lots. The three lots fronting Brandon Road would remain RL-20. Both zoning designations are consistent with the Rural Residential (RR) General Plan Land Use Designation. The proposed project includes the installation of wells and septic systems. Lots range in size from 10.02 to 25.17 acres. The property, identified by Assessor's Parcel Number 087-310-64, consists of 134.05 acres, and is located on the east side of South Shingle Road at the intersection with Brandon Road, in the Shingle Springs area. (District 2)

Relevant Policies:

General Plan Policy 8.1.4.1 - The County Agricultural Commission shall review all discretionary development applications and the location of proposed public facilities involving land zoned for or designated agriculture, or lands adjacent to such lands and shall make recommendations to the reviewing authority. Before granting approval, a determination shall be made by the approving authority that the proposed use:

A. Will not intensify existing conflicts or add new conflicts between adjacent residential areas and agricultural activities; and
B. Will not create an island effect wherein agricultural lands located between the project site and other non-agricultural lands will be negatively affected; and
C. Will not significantly reduce or destroy the buffering effect of existing large parcel sizes adjacent to agricultural lands.

General Plan Policy 8.1.3.1 - Agriculturally zoned lands including Williamson Act Contract properties shall be buffered from increases in density on adjacent lands by requiring a minimum of 10 acres for any parcel created adjacent to such lands. Parcels used to buffer agriculturally zoned lands should have a similar width to length ratio of other parcels when feasible.

Rural Residential (RR): This land use designation establishes areas for residential and agricultural development. These lands will typically have limited infrastructure and

public services and will remain for the most part in their natural state. This category is appropriate for lands that are characterized by steeper topography, high fire hazards, and limited or substandard access as well as “choice” agricultural soils. The RR designation shall be used as a transition between LDR and the Natural Resource (NR) designation. Clustering of residential units under allowable densities is encouraged as a means of preserving large areas in their natural state or for agricultural production. Typical uses include single family residences, agricultural support structures, a full range of agricultural production uses, recreation, and mineral development activities. The allowable density for this designation is one dwelling unit per 10 to 160 acres. This designation is considered appropriate only in the Rural Regions.

Parcel Description:

- Parcel Number and Acreage: 087-310-64, 134.05 acres
- Agricultural District: No
- Land Use Designation: RR – Rural Residential
- Zoning: RL-20 – Rural Land 20 Acres
- Soil Type:
    - No choice soil

Discussion:

A site visit was conducted to review the tentative subdivision map in relation to the LA-20 (Limited Agriculture – 20 Acre) zoned land to the south.

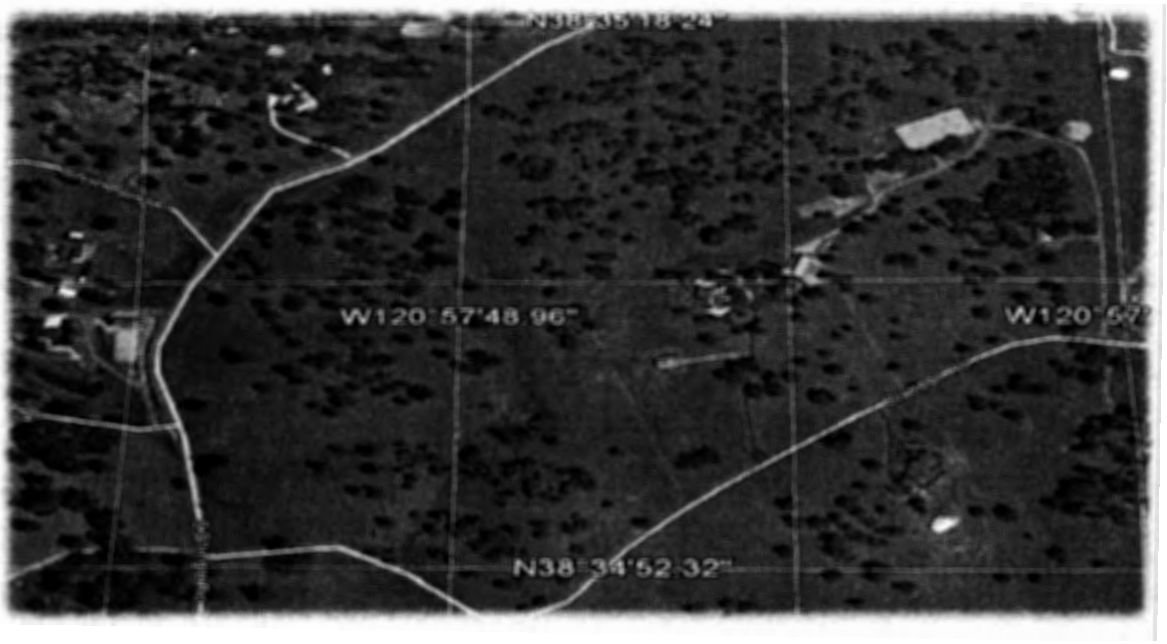
Buffering the LA-20 zoned land to the south is Brandon Rd. The applicant has also increased the proposed size of the parcels boarding Brandon Rd. to a minimum of 20 acres. Parcels to the north of the subject parcel already are consistent in size and zoning with the applicants requested subdivision map and rezone. The minimum requested parcel size of approximately 10 acres is consistent with General Plan Policy 8.1.3.1.

Chair Bolster addressed the public for comment; the applicant Doug Granade was available and stated that he had modified the subdivision map per the Ag Commissions review on January 10, 2017. Mr.Dan Naygrow, a neighbor of the project spoke in opposition of the project due to water, traffic, and noise concerns.

It was moved by Commissioner Bacchi and seconded by Commissioner Draper to recommend APPROVAL of the subdivision and tentative map application for an 9-lot rural tentative subdivision map in the Latrobe area, on the parcel identified by Assessor’s Parcel Number 087-310-64 does not conflict with General Plan Policy 8.1.4.1 and General Plan 8.1.3.1.

Motion passed
AYES: Draper, Walker, Bacchi, Mansfield, Bolster
NOES: None
ABSENT: Neilsen, Boeger

Exhibit L



TRANSPORTATION IMPACT ANALYSIS

GRANDE SUBDIVISON

SHINGLE SPRINGS, El Dorado COUNTY

Prepared by:
Farhad Iranitalab, P.E., T.E.
FSI Traffic Engineering
Elk Grove, California

Prepared For:
Patterson Development
6610 Merchandise Way
Diamond Springs, CA 95619

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The purpose of this report is to present the traffic impact associated with a proposed tentative map submittal in Shingle Springs in El Dorado County.

The proposed project is for Estate Planning purposes only and consists of development of 11 Estate Residential single-family homes on 11 parcels totaling 115- acres located at the northeast corner of S. Shingle Road and Brandon Road in El Dorado County. See Figure 1.

Applicant applied for re-zoning from Exclusive Agricultural (EA-20) to Estate Residential (RE-10). The proposed project is located in TAZ 340 and is consistent with the General Plan designation therefore, a cumulative year conditions is not required.

The project would generate an average of 105 daily trips during a weekday, 9 trips during the a.m., and 11 trips during the p.m. peak hours. The calculation is based on the ITE Trip Generation Manual, 9th Edition.

Access to the sites are proposed via driveways from S. Shingle Road (seven proposed driveway access to seven individual parcels from S. Shingle Road) and three from Brandon Road. Figure 1 presents the approximate location of driveways with respect to one another. The specifics on the design of these driveways will be dictated by the County Standards and condition of approval.

Based on the standard of significance and criteria presented on the El Dorado County Transportation Impact Study Guidelines the project does not have any negative significant impacts on the roadway segment or on the intersection of S. Shingle Road and Brandon Road.

The generated project trips are insignificant at each driveway and there are no impacts at any of the proposed driveways. As shown on figure 1 driveways are spaced minimum of 350 feet apart. Analysis indicates that the operational level-of-service at the studied intersection is "A" in the existing, existing plus project, near-term (Year 2025), and near-term plus project conditions.

The speed survey study indicates that the 85th percentile and average speed on S. Shingle Road north of Brandon Road are 53 mph and 46 mph respectively. Table 1 present the level of service for the existing and existing plus project condition, and Table 2 presents the level-of-service for the near-term and near-term plus project condition.

TABLE 1- SUMMARY OF LEVEL-OF-SERVICE (YEAR 2015)

INTERSECTION	PEAK	EXISTING LOS (Delay in sec.)	EXISTING + PROJECT LOS (Delay in sec.)
South Shingle Rd at Brandon (un-signalized)	AM	**A** (8.80)	**A** (8.80)
	PM	**A** (8.80)	**A** (8.80)
South Shingle Road North of Brandon (section)	AM	**A** (52vph)	**A** (61vph)
	PM	**A** (63vph)	**C** (74vph)

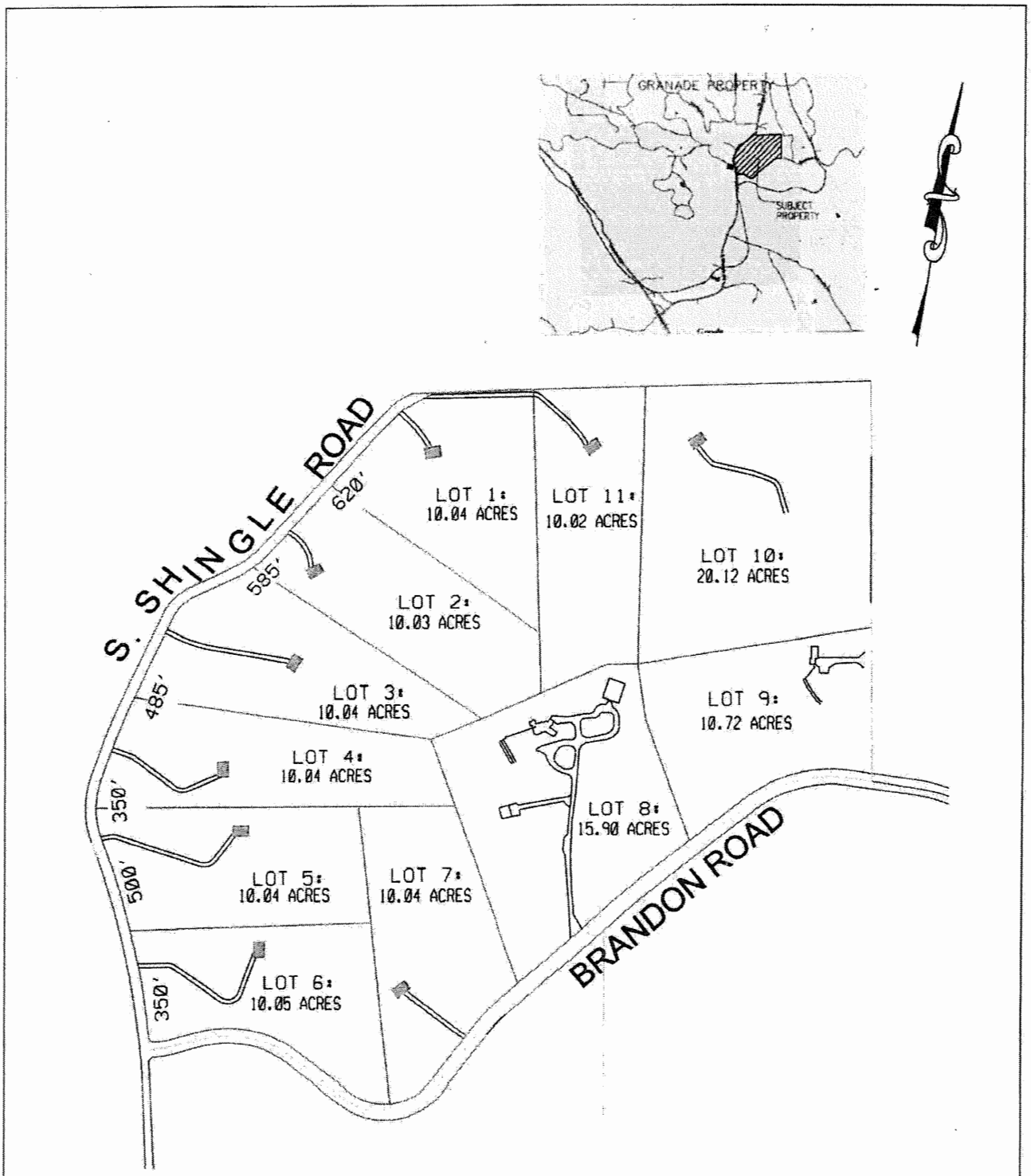


FIGURE 1- SITE PLAN

TABLE 2- SUMMARY OF LEVEL-OF-SERVICE
((Near-Term YEAR 2025)

INTERSECTION	PEAK	NEAR-TERM LOS (Delay in sec.)	NEAR-TERM + PROJECT LOS (Delay in sec.)
South Shingle Rd at Brandon (un-signalized)	AM	**A** (8.80)	**A** (8.80)
	PM	**A** (8.90)	**A** (8.90)
South Shingle Road North of Brandon (section)	AM	**A** (59vph)	**A** (66vph)
	PM	**A**(72vph)	**C** (83vph)

CONCLUSIONS AND RECOMMENDATIONS

Analysis indicates that this project does not have any significant impacts on the transportation system. Based on the traffic volumes and turning movement counts, the intersection of S. Shingle Road and Brandon Road does not meet the peak hour traffic signal warrant per the California MUTCD approach and criteria for the existing, existing plus project, near-term, and near-term plus project.

Based on the information provided in this report, no recommendation is proposed besides the requirements as set forth by the Conditions of Approval.

INTRODUCTION

The purpose of this report is to present the traffic impact associated with a proposed tentative map submittal in Shingle Springs in El Dorado County.

The impact analysis evaluates operating conditions during a weekday for the a.m. and p.m. peaks.

Project Description – The proposed project is for Estate Planning purposes only and consists of development of 11 Estate Residential single-family homes on 11 parcels totaling 115- acres located on the northeast corner of S. Shingle Road and Brandon Road in El Dorado County. See Figure 1.

The project access is from seven private driveways from South Shingle Road and three driveways from Branden Road. See Figure 1.

Study Methodology- This Traffic Impact Report was prepared based on the El Dorado County Traffic Impact Study Protocols and Procedures dated November 2014.

Study scenarios- The traffic impact study incorporate the following scenarios:

Existing Conditions- Evaluation of existing conditions level-of-service at the intersection of South Shingle Road and Branden Avenue, and S. Shingle Road roadway section north of Brandon Road.

Existing plus Project Conditions- This scenario would evaluate the level-of-service at the studied intersection by adding the project trips to the existing volume.

Near-Term Conditions- this scenario would evaluate the level-of-service at the studied intersection and roadway section ten year after the project is submitted ***(Year 2025)***

Near-Term plus Project Conditions- Project generated traffic volumes are added to the scenario 3.

EXISTING CONDITIONS

A. Existing Land Use

The existing parcel is currently vacant and zoned as Exclusive Agricultural (AE); the General Plan land use designation is Estate Residential (RE-10). The proposed project is consistent with the General Plan Designation.

B. Roadway Network

South Shingle Road- S. Shingle Road is a two-lane north-south roadway that extends south from U.S. 50 to Latrobe Road. S. Shingle Road and is designated as a major roadway in the El Dorado General Plan. South Shingle Road currently carries an average daily traffic (ADT) of 835 vehicles per day.

Brandon Road- Brandon Road is a two-lane east-west roadway and connects S. Shingle Road at the west to French Creek Road to the east. Brandon Road is designated as a major roadway in the El Dorado General Plan.

C. Bicycle and Pedestrian Facilities- The review of the county Bike and Trail plan does not show any bicycle facility near the project. Chapter 5 indicates that the rural roads such as S. Shingle Road are predominantly used for recreational cycling. There are no existing bike facilities on S. Shingle Road.

D. Traffic Volume

The existing turning movement counts were collected on South Shingle Road at the intersection of Brandon Road for a.m. and p.m. on Tuesday June 09, 2015. See Attachment "A." Figure 2 present the summary of volume counts.

D. Traffic Speed

Per the request of the County, we performed speed survey on South Shingle Road using mechanical tubes. The data indicates that the 85th percentile speed is 53 mph and the average speed is 46 mph to the north of Brandon Road. See Attachment "B."

E. Intersection Levels of Service

The study utilizes the Highway Capacity Manual Methodology (HCM 2000) for the analysis of un-signalized intersection.

Levels-of-service (LOS) are designated by letters "A" through "F." LOS "A" represents the best conditions and "F" is the worst (highest delay).

Table 3 presents the average delay criteria used to determine the LOS at the un-signalized intersections. Table 4 presents the criteria for roadway segment level-of-service.

At un-signalized intersection, Main street traffic is mostly un-delayed, and by definition have acceptable conditions. The main street left-turn movements and the minor street movements are all susceptible to delay of varying degrees.

Figure 2 presents the existing turning movements at the study intersection. Results of the intersection analysis are summarized in Table 5. Detailed calculations are contained in Attachment "C."

Table 3- Level of Service Criteria for Signalized Intersections

Level of Service (LOS)	Average Delay (Second per vehicle)	Description
A	0 - 10.0	Little of no delay
B	10.1 - 15.0	Short traffic delay
C	15.1 –25.0	Average traffic delay
D	25.1 – 35.0	Long traffic delay
E	35.1 – 50.0	Very long delay
F	> 50	Volume>Capacity

Table 4: El Dorado County Peak Hour Roadway Segment LOS Criterion

code	Functional Class Codes (Updated to HCM 2010)	A	B	C	D	E
2A	Two-Lane Arterial	-	-	850	1,540	1,650

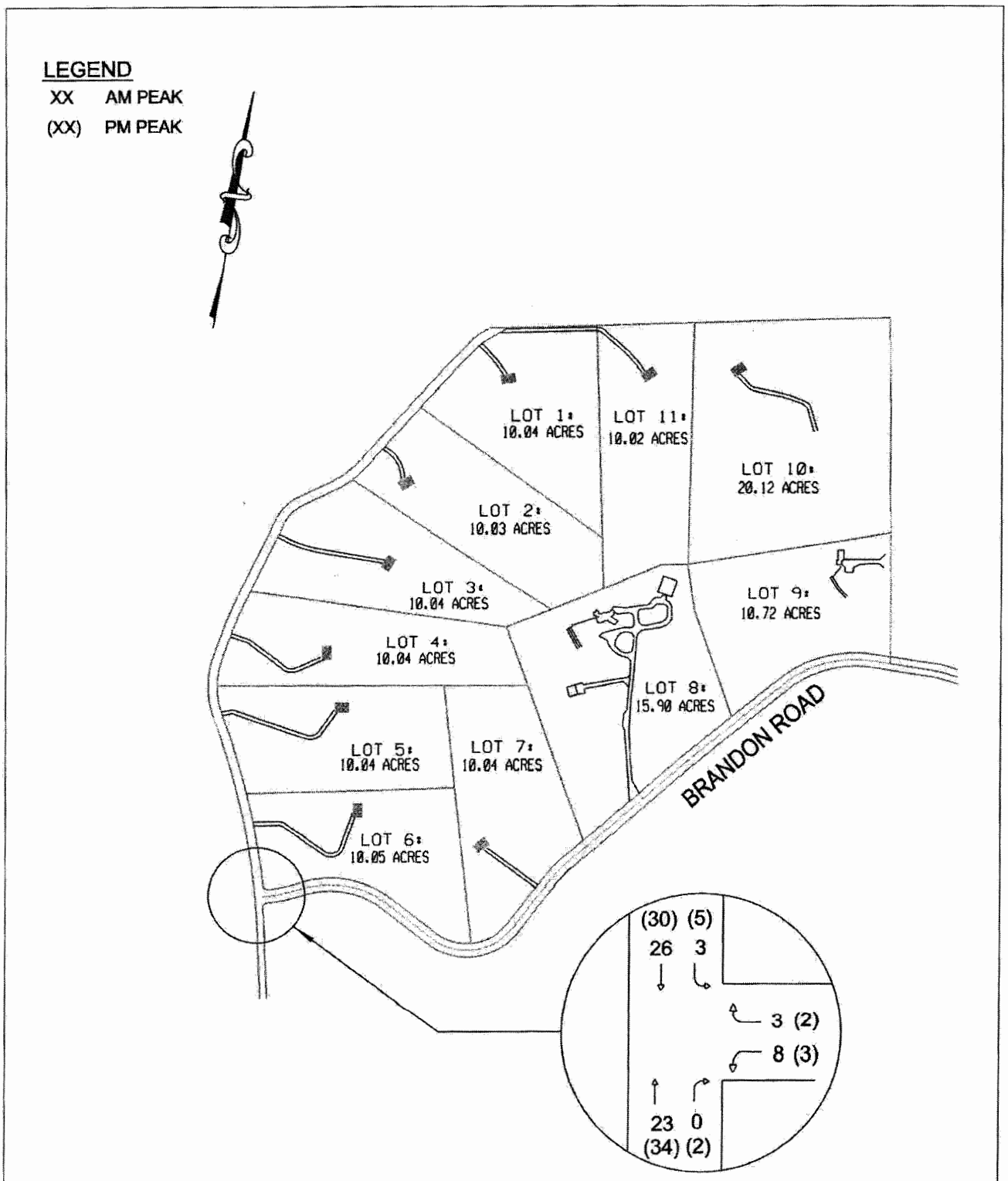


FIGURE 2 - EXISTING AM AND PM TURNING MOVEMENTS AT THE INTERSECTION OF S. SHINGLE RD. AND BRANDON RD.

TABLE 5- SUMMARY OF LEVEL-OF-SERVICE (YEAR 2015)

INTERSECTION	PEAK	Existing LOS (Delay in sec.)
South Shingle Rd at Brandon (un-signalized)	AM	**A** (8.80)
	PM	**A** (8.80)
South Shingle Road North of Brandon (section)	AM	**A** (52vph)
	PM	**A**(63vph)

Table 5 indicates that the intersection of S. Shingle Road at Brandon Road and roadway segment operate at level-of-service "A."

F. Signal Warrants

Traffic signal warrant is a series of standards that provide guidelines for determining if a traffic signal is appropriate or not. Based on the traffic volume at the existing, existing plus project, near-term, and near-term plus project conditions, the approach volume are not within the range of traffic signal warrant evaluation. The intersection does not meet the warrant for traffic signal consideration.

PROJECT CONDITION

A. Projects Description

The proposed project is for Estate Planning purposes only and consists of development of 11 Estate Residential single-family homes on 11 parcels totaling 115- acres located on the northeast corner of S. Shingle Road and Brandon Road in El Dorado County. See Figure 1.

The Project is consistent with the new General Plan designation of Estate Residential (RE-10). The purpose of this report is to evaluate the traffic impacts associated with the proposed development.

B. Site Access

Access to the sites are proposed via driveways from S. Shingle Road (seven proposed driveway access to seven individual parcels from S. Shingle Road) and three from Brandon Road. Figure 1 presents the approximate location of driveways with respect to one another. The specifics on the design of these driveways will be dictated by the County Standards and condition of approval.

C. Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Handbook 9th edition is utilized to estimate trip generation rate for this development. Land Use 210 (single-family detached) are used to estimate trips that is being generated by the proposed project.

The following table presents the estimate trips generated by this project:

Component	Daily Trips	AM Peak Hour			PM Peak Hour		
		In 25%	Out 75%	Total 100%	In 63%	Out 37%	Total 100%
Parcel (APN: 087- 310-64) (11 single-family units) (9.57 daily trips/unit) (0.79 a.m. trips/D.U.) (1.00 p.m. trips/D.U.)	105	2	7	9	7	4	11
Total	**105**	**2**	**7**	**9**	**7**	**4**	**11**

Trip generation analysis indicates that the project would generate 105 daily trips, 9 trips during the a.m. and 11 trips during the p.m. peak hours.

D. *Trip Distribution*

Trips are distributed on to the roadway based on the existing traffic pattern on S, Shingle Road. Based on the existing traffic pattern 55% of trips are headed north on S. Shingle Road to Highway 50 and 45% travel south on S. Shingle Road. Figure 3 presents trip distributions and assignments at the intersection of S. Shingle Road and all Driveways locations.

E. Project Level of Service

This section evaluates the operation level (Levels-of -Service) at the intersection of S, Shingle Road, and Brandon Road. Figure 4 shows the existing plus project traffic volumes at the study intersection. Results of the intersection analysis are summarized in Table 6 Detailed calculations are contained in Attachment "D."

Table 6 indicates that studied intersection is operating at level-of-service "A" during both a.m. and p.m.

TABLE 6- EXISTING PLUS PROJECT LEVEL-OF-SERVICE (YEAR 2015)

INTERSECTION	PEAK	EXISTING + PROJECT LOS (Delay in sec.)
South Shingle Rd at Brandon (un-signalized)	AM	A (8.80)
	PM	A (8.80)
South Shingle Road North of Brandon (section)	AM	A (61vph)
	PM	A (74vph)

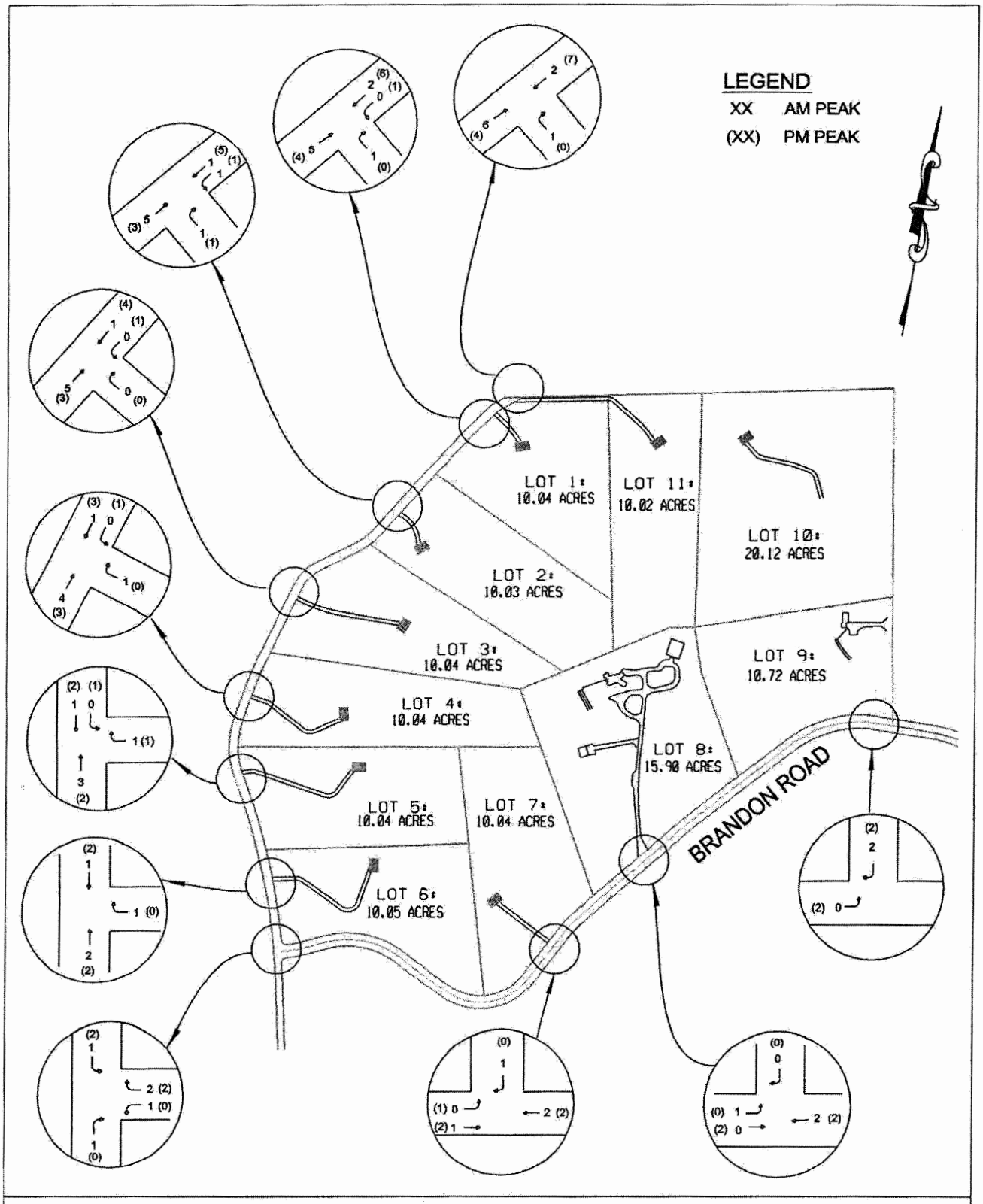


FIGURE 3 - PROJECT TRIP DISTRIBUTION

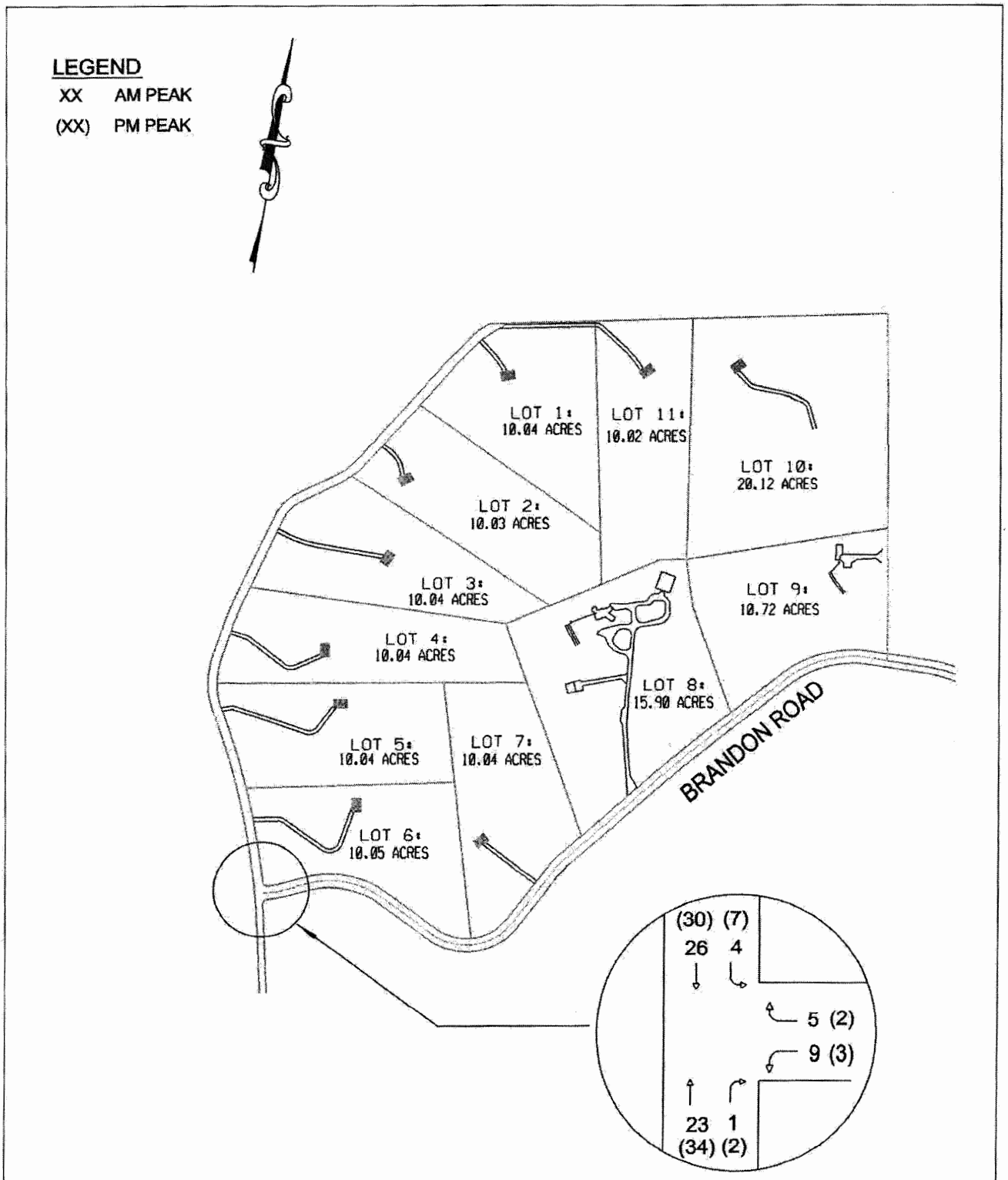


FIGURE 4 - EXISTING + PEOJECT TRIPS AM AND PM PEAK AT THE INTERSECTION OF S. SHINGLE RD. AND BRANDON RD.

NEAR-TERM CONDITIONS (Year 2025)

This section evaluates the operating level-of-service at the studied intersection ten years in to the future. Growth rate was calculated from a linear interpolation between the 2015 and 2035 County Traffic Model run. The growth rate was calculated to be 1.013 percent per year on S. Shingle Road approaches to the studied intersection. Figure 5 shows the near-term traffic volumes at the intersection of S. Shingle and Brandon Road.

A. Near-Term- Level of Service

This section evaluates the operation level (Levels-of -Service) at the intersection of S. Shingle Road for the near-term without the project condition. Figure 5 presents the turning movements at the study intersection. Results of the intersection analysis are summarized in Table 7. Detailed calculations are contained in Attachment "E."

Table 7 indicates that all studied intersections would operate at level-of-service "A" during both a.m. and p.m. peaks.

TABLE 7- SUMMARY OF LEVEL-OF-SERVICE NEAR-TERM (YEAR 2025)

INTERSECTION	PEAK	NEAR-TERM LOS (Delay in sec.)
South Shingle Rd at Brandon (un-signalized)	AM	A (8.80)
	PM	A (8.90)
South Shingle Road North of Brandon (section)	AM	A (59vph)
	PM	A(72vph)

NEAR-TERM PLUS PROJECT CONDITIONS (Year 2025)

This section evaluates the operating level-of-service at the studied intersection at the near-term plus added project trip conditions. Figure 6 shows the turning movements at the study intersection.

A. Near-Term Plus Project Level of Service

Results of the intersection analysis are summarized in Table 8. Detailed calculations are contained in Attachment "F."

Table 8 indicates that S. Shingle Road at Brandon Road intersection would operate at level-of-service "A" during both a.m. and p.m. peaks.

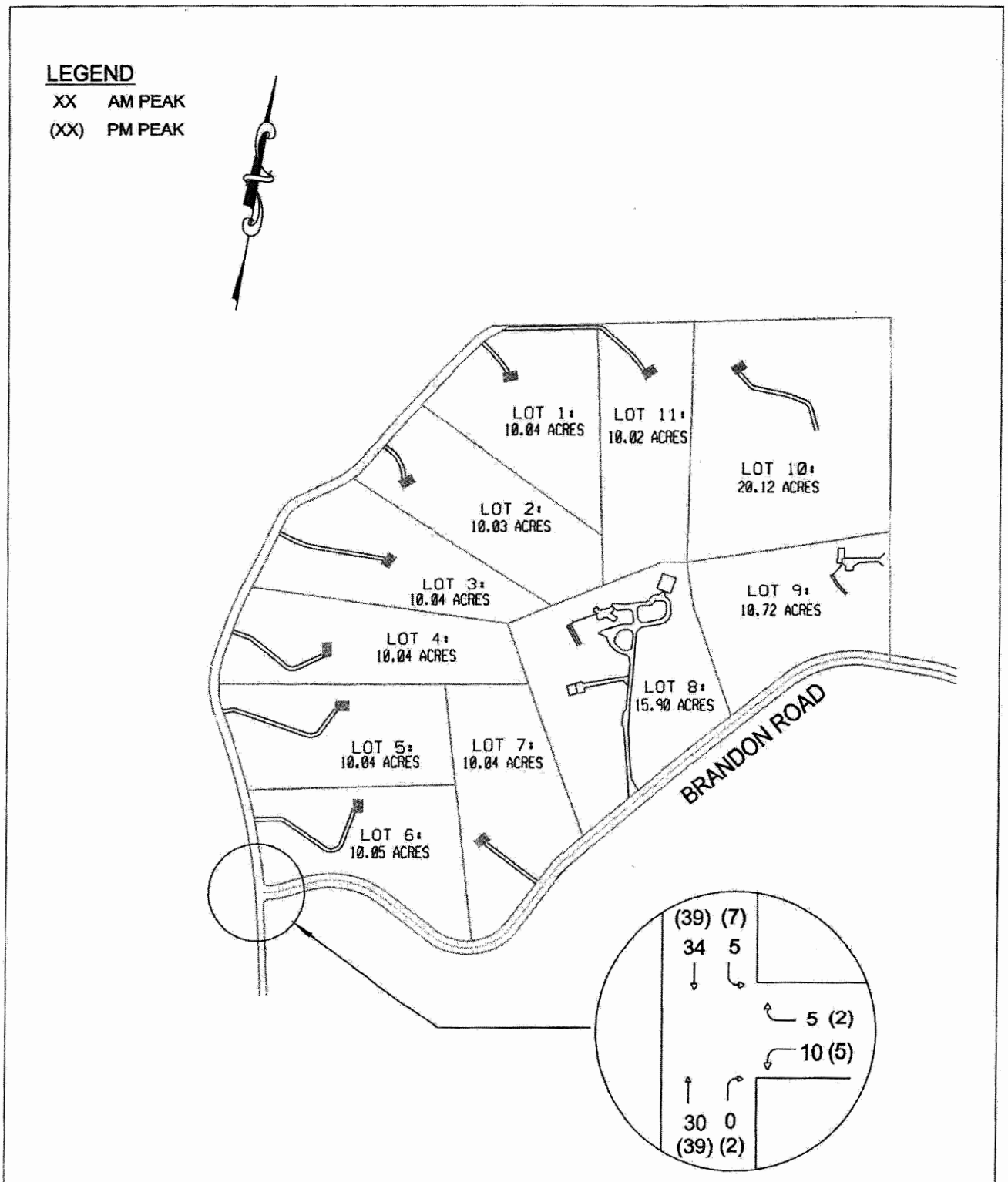


FIGURE 5 - NEAR-TERM AM AND PM PEAK AT THE INTERSECTION OF S. SHINGLE RD. AND BRANDON RD.

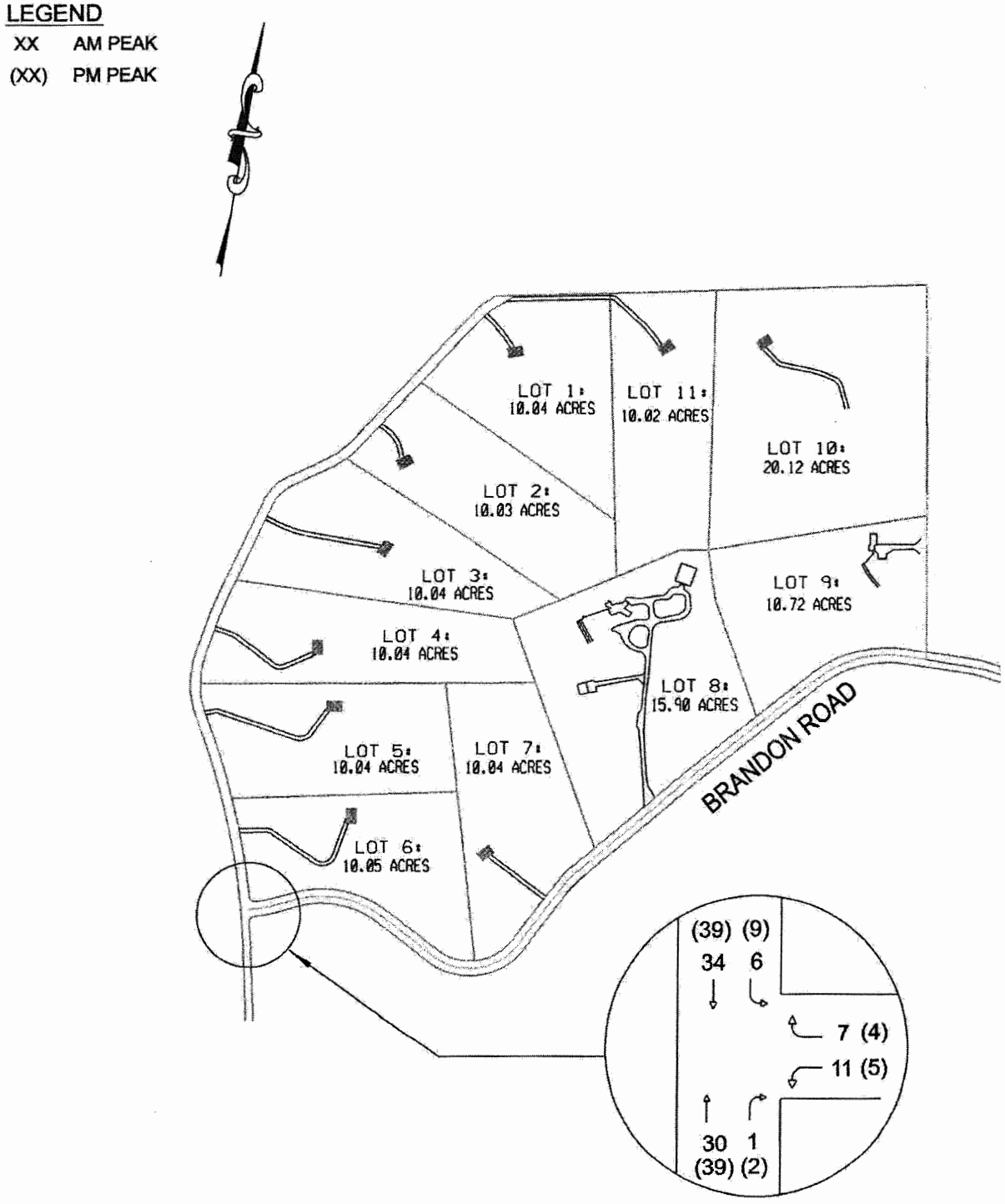


FIGURE 6 - NEAR-TERM + PROJECT AM AND PM PEAK AT THE INTERSECTION OF S. SHINGLE RD. AND BRANDON RD.

TABLE 8- SUMMARY OF LEVEL-OF-SERVICE NEAR-TERM PLUS PROJECT (YEAR 2025)

INTERSECTION	PEAK	NEAR-TERM + PROJECT LOS (Delay in sec.)
South Shingle Rd at Brandon (un-signalized)	AM	A (8.80)
	PM	A (8.90)
South Shingle Road North of Brandon (section)	AM	A (66vph)
	PM	C (83vph)

CONCLUSIONS AND RECOMMENDATIONS

Analysis indicates that this project does not have any significant impacts on the transportation system. Based on the traffic volumes and turning movement counts, the intersection of S. Shingle Road and Brandon Road does not meet the peak hour traffic signal warrant per the California MUTCD approach and criteria for the existing, existing plus project, near-term, and near-term plus project.

Based on the information provided in this report, no recommendation is proposed besides the requirements as set forth by the Conditions of Approval.

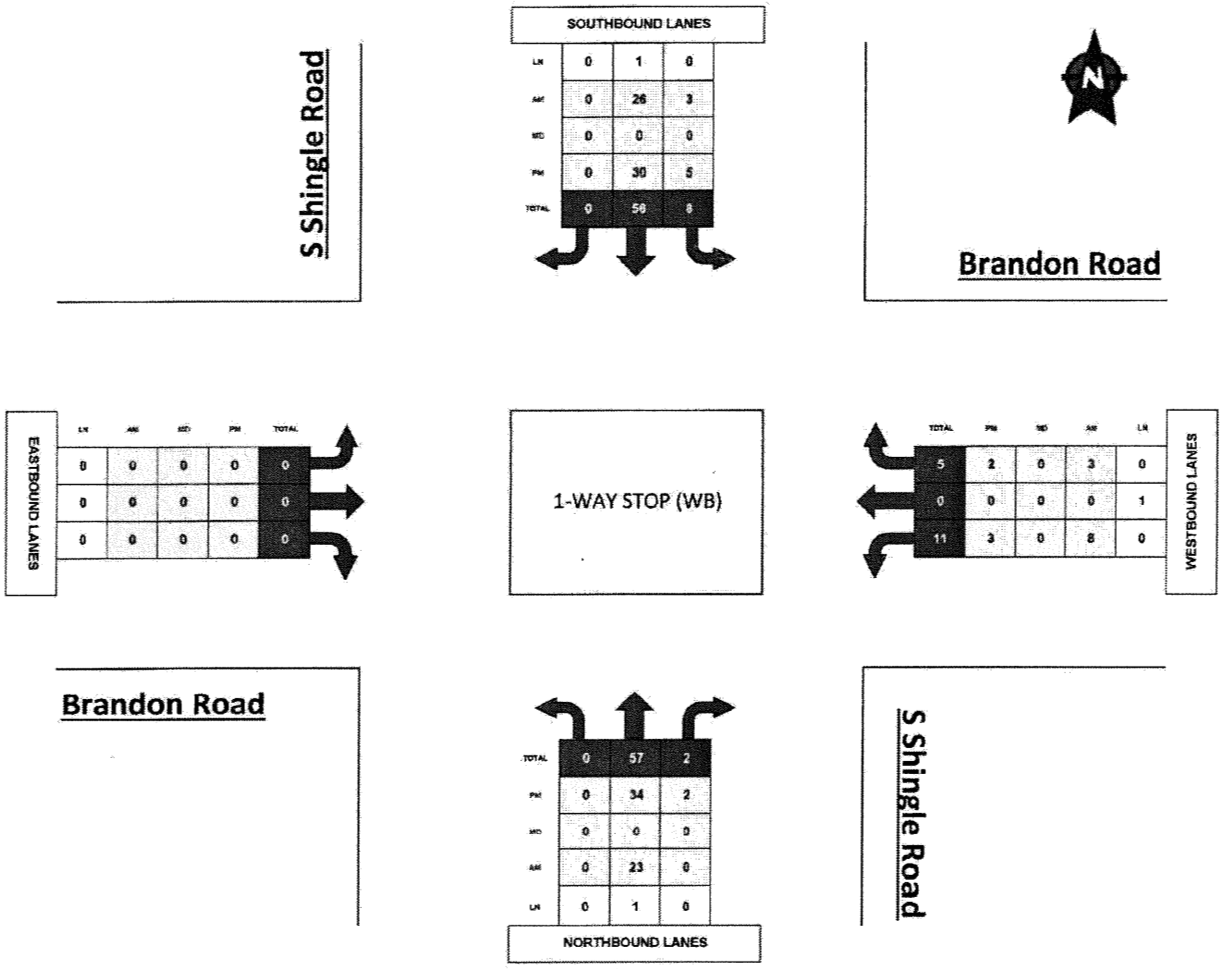
ATTACHMENT "A"

New traffic volume counts

PEAK HOUR ITM SUMMARY

#001 S Shingle Road & Brandon Road

LOCATION#:	001	QTD PROJ#:	2015203	AM PEAK:	745 AM
NORTH / SOUTH:	S Shingle Road	DATE:	Tuesday, June 9, 2015	MD PEAK:	
EAST / WEST:	Brandon Road	VICINITY:	El Dorado County	PM PEAK:	430 PM



QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

AM COUNT	7:00 AM	TO	9:00 AM
MD COUNT	-	TO	-
PM COUNT	4:00 PM	TO	6:00 PM

VEHICLE TURNING MOVEMENT COUNT

#001 S Shingle Road & Brandon Road - AM PEAK

LOCATION#:	001	QTD PROJ#:	2015203
NORTH / SOUTH:	S Shingle Road	DATE:	Tuesday, June 9, 2015
EAST / WEST:	Brandon Road	VICINITY:	El Dorado County

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
7:00 AM	0	3	0	0	5	0	0	0	0	1	0	0	9
7:15 AM	0	4	0	0	10	0	0	0	0	0	0	0	14
7:30 AM	0	6	0	0	8	0	0	0	0	2	0	0	16
7:45 AM	0	6	0	1	7	0	0	0	0	1	0	0	15
8:00 AM	0	5	0	1	3	0	0	0	0	3	0	0	12
8:15 AM	0	4	0	1	9	0	0	0	0	1	0	0	15
8:30 AM	0	8	0	0	7	0	0	0	0	3	0	3	21
8:45 AM	0	5	3	2	4	0	0	0	0	0	0	0	14

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	41	3	5	53	0	0	0	0	11	0	3	116
P.H.V: [1]	0	23	0	3	26	0	0	0	0	8	0	3	63
P.H.F: [2]		0.719			0.725			0.000			0.458		0.750

(1) Peak Hour Volume (Peak Hour Begins At 745 AM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

VEHICLE TURNING MOVEMENT COUNT

#001 S Shingle Road & Brandon Road - PM PEAK

LOCATION#:	001	QTD PROJ#:	2015203
NORTH / SOUTH:	S Shingle Road	DATE:	Tuesday, June 9, 2015
EAST / WEST:	Brandon Road	VICINITY:	El Dorado County

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
4:00 PM	0	8	0	0	4	0	0	0	0	0	0	1	13
4:15 PM	0	7	1	1	9	0	0	0	0	1	0	0	19
4:30 PM	0	8	0	2	9	0	0	0	0	0	0	1	20
4:45 PM	0	11	0	1	7	0	0	0	0	2	0	0	21
5:00 PM	0	7	0	0	8	0	0	0	0	1	0	0	16
5:15 PM	0	8	2	2	6	0	0	0	0	0	0	1	19
5:30 PM	0	8	1	2	6	0	0	0	0	0	0	0	17
5:45 PM	0	7	0	0	7	0	0	0	0	2	0	2	18

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	64	4	8	56	0	0	0	0	6	0	5	143
P.H.V: (1)	0	34	2	5	30	0	0	0	0	3	0	2	76
P.H.F: (2)		0.818			0.795			0.000			0.625		0.905

(1) Peak Hour Volume (Peak Hour Begins At 430 PM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

ATTACHMENT "B"

Mechanical result of speed survey

SPEED PROFILE

South Shingle Road - Brandon Road (NORTH BOUND)

QTD PROJ/LOC #:	2015203 - 002	GPS COORDINATES:	0
ON STREET:	South Shingle Road	START DATE:	Tuesday, June 9, 2015
CROSS STREETS:	Brandon Road	VICINITY:	El Dorado County

Time	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	Total
0:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
1:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
2:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	1	0	0	1	0	0	0	0	0	2
5:00	0	0	0	0	0	0	0	1	3	2	0	0	0	6
6:00	0	0	0	1	2	1	1	5	4	5	0	0	0	19
7:00	0	0	0	0	1	1	2	6	7	3	1	0	0	21
8:00	0	0	0	0	1	2	7	8	4	2	0	0	0	24
9:00	0	0	0	2	1	1	9	13	3	1	1	0	0	31
10:00	0	0	0	1	0	0	3	8	1	1	0	1	0	15
11:00	0	0	0	0	4	7	5	7	5	1	0	0	0	29
12:00	0	0	0	0	1	0	10	4	7	0	0	0	0	22
13:00	0	0	0	1	1	8	11	7	4	2	1	0	0	35
14:00	0	0	0	0	0	3	11	10	8	3	1	0	0	36
15:00	0	0	0	0	4	7	11	17	7	5	0	0	0	51
16:00	0	0	0	0	1	3	7	11	11	2	1	0	0	36
17:00	0	0	1	1	3	1	4	9	9	4	2	0	0	34
18:00	0	0	0	1	0	2	6	10	0	0	1	0	0	20
19:00	0	0	0	0	0	4	2	4	1	2	1	0	0	14
20:00	0	0	0	0	0	4	1	7	1	1	0	0	0	14
21:00	0	0	0	1	1	3	2	1	2	0	0	0	0	10
22:00	0	0	0	0	0	1	1	3	0	0	0	0	0	5
23:00	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	**0**	**0**	**1**	**9**	**21**	**49**	**93**	**134**	**77**	**34**	**9**	**1**	**0**	**428**
% of Total	0%	0%	0%	2%	5%	11%	22%	31%	18%	8%	2%	0%	0%	

PERECENTILE SPEEDS:	10%	15%	50%	85%	90%
	35.2 mph	37.4 mph	45.5 mph	52.7 mph	54.2 mph

SPEED EXCEEDED:	15 MPH	25 MPH	35 MPH	45 MPH	55 MPH	65 MPH
	100.0%	99.8%	92.8%	59.8%	10.3%	0.2%
	428	427	397	255	44	1

10 MPH PACE:	SPEED	NUMBER IN PACE	% IN PACE
	40 - 50 MPH	227	53.0%

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SPEED PROFILE

South Shingle Road - Brandon Road (SOUTH BOUND)

QTD PROJ/LOC #:	20152013 - 002	GPS COORDINATES:	0
ON STREET:	South Shingle Road	START DATE:	Tuesday, June 9, 2015
CROSS STREETS:	Brandon Road	VICINITY:	El Dorado County

Time	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	Total
0:00	0	0	0	0	0	0	0	1	2	1	0	0	0	4
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	2	1	4	0	0	0	0	7
5:00	0	0	0	0	0	0	5	6	4	1	1	0	0	17
6:00	0	0	0	0	0	0	1	4	7	2	2	0	0	16
7:00	0	0	0	0	1	1	2	13	7	7	0	0	0	31
8:00	0	0	1	0	1	2	3	13	5	1	1	0	0	27
9:00	0	0	0	0	1	1	4	7	2	1	0	0	0	16
10:00	0	0	0	0	0	4	4	11	5	3	1	0	0	28
11:00	0	0	0	1	0	2	8	10	4	0	0	0	0	25
12:00	0	0	0	0	0	2	10	7	6	0	0	0	0	25
13:00	0	0	0	0	2	6	4	6	4	3	1	0	0	28
14:00	0	0	0	0	0	1	6	6	7	1	1	0	0	22
15:00	0	0	0	0	0	2	7	10	7	1	0	0	0	27
16:00	0	0	0	1	1	3	7	13	9	1	1	0	0	36
17:00	0	0	0	0	2	4	2	8	8	4	0	1	0	29
18:00	0	0	1	0	0	2	5	5	2	1	0	1	0	17
19:00	0	0	0	0	1	0	3	7	5	4	0	0	0	20
20:00	0	0	0	0	0	2	2	6	2	2	0	0	0	14
21:00	0	0	0	0	0	0	2	3	3	0	0	0	0	8
22:00	0	0	0	0	0	2	1	1	1	1	0	0	0	6
23:00	0	0	0	0	0	1	0	1	0	0	1	0	0	3
Total	0	0	2	2	9	35	79	141	94	34	9	2	0	407
% of Total	0%	0%	0%	0%	2%	9%	19%	35%	23%	8%	2%	0%	0%	

PERECENTILE SPEEDS:	10%	15%	50%	85%	90%
	38.0 mph	39.8 mph	46.7 mph	53.1 mph	54.6 mph

SPEED EXCEEDED:	15 MPH	25 MPH	35 MPH	45 MPH	55 MPH	65 MPH
	100.0%	99.5%	96.6%	68.8%	11.1%	0.5%
	407	405	394	280	45	2

10 MPH PACE:	SPEED	NUMBER IN PACE	% IN PACE
	45 - 55 MPH	235	57.7%

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SPEED PROFILE

South Shingle Road - Brandon Road (COMBINED)

QTD PROJ/LOC #:	2015285 - 002	GPS COORDINATES:	0
ON STREET:	South Shingle Road	START DATE:	Tuesday, June 9, 2015
CROSS STREETS:	Brandon Road	VICINITY:	El Dorado County

Time	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	Total
0:00	0	0	0	0	0	0	0	2	2	1	0	0	0	5
1:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
2:00	0	0	0	1	0	0	1	0	0	0	0	0	0	2
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	1	0	2	2	4	0	0	0	0	9
5:00	0	0	0	0	0	0	5	7	7	3	1	0	0	23
6:00	0	0	0	1	2	1	2	9	11	7	2	0	0	35
7:00	0	0	0	0	2	2	4	19	14	10	1	0	0	52
8:00	0	0	1	0	2	4	10	21	9	3	1	0	0	51
9:00	0	0	0	2	2	2	13	20	5	2	1	0	0	47
10:00	0	0	0	1	0	4	7	19	6	4	1	1	0	43
11:00	0	0	0	1	4	9	13	17	9	1	0	0	0	54
12:00	0	0	0	0	1	2	20	11	13	0	0	0	0	47
13:00	0	0	0	1	3	14	15	15	8	5	2	0	0	63
14:00	0	0	0	0	0	4	17	16	15	4	2	0	0	58
15:00	0	0	0	0	4	9	18	27	14	6	0	0	0	78
16:00	0	0	0	1	2	6	14	24	20	3	2	0	0	72
17:00	0	0	1	1	5	5	8	17	17	8	2	1	0	63
18:00	0	0	1	1	0	4	11	15	2	1	1	1	0	37
19:00	0	0	0	0	1	4	5	11	6	6	1	0	0	34
20:00	0	0	0	0	0	6	3	13	3	3	0	0	0	28
21:00	0	0	0	1	1	3	4	4	5	0	0	0	0	18
22:00	0	0	0	0	0	3	2	4	1	1	0	0	0	11
23:00	0	0	0	0	0	2	0	1	0	0	1	0	0	4
Total	**0**	**0**	**3**	**11**	**30**	**84**	**172**	**275**	**171**	**68**	**18**	**3**	**0**	**835**
% of Total	0%	0%	0%	1%	4%	10%	21%	33%	20%	8%	2%	0%	0%	

PERECENTILE SPEEDS:	10%	15%	50%	85%	90%
	36.4 mph	38.8 mph	46.1 mph	52.9 mph	54.4 mph

SPEED EXCEEDED:	15 MPH	25 MPH	35 MPH	45 MPH	55 MPH	65 MPH
	100.0%	99.6%	94.7%	64.1%	10.7%	0.4%
	835	832	791	535	89	3

10 MPH PACE:	SPEED	NUMBER IN PACE	% IN PACE
	40 - 50 MPH	447	53.5%

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ATTACHMENT "C"

Level-of-service Calculations for the Existing Conditions

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	8	3	23	0	3	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	3	25	0	3	28

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	60	25	0	0	25	0
Stage 1	25	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	947	1051	-	-	1589	-
Stage 1	998	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	945	1051	-	-	1589	-
Mov Cap-2 Maneuver	945	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	985	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	972	1589	-
HCM Lane V/C Ratio	-	-	0.012	0.002	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	3	2	34	2	5	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	2	37	2	5	33

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	81	38	0	0	39	0
Stage 1	38	-	-	-	-	-
Stage 2	43	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	921	1034	-	-	1571	-
Stage 1	984	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	918	1034	-	-	1571	-
Mov Cap-2 Maneuver	918	-	-	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	976	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	961	1571	-
HCM Lane V/C Ratio	-	-	0.006	0.003	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

ATTACHMENT "D"

Level-of-service Calculations for the Existing plus Projects Conditions

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	9	6	23	1	4	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	7	25	1	4	28

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	63	26	0	0	26	0
Stage 1	26	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	943	1050	-	-	1588	-
Stage 1	997	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	940	1050	-	-	1588	-
Mov Cap-2 Maneuver	940	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	982	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	981	1588	-
HCM Lane V/C Ratio	-	-	0.017	0.003	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	3	4	34	2	7	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	4	37	2	8	33

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	86	38	0	0	39	0
Stage 1	38	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	915	1034	-	-	1571	-
Stage 1	984	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	910	1034	-	-	1571	-
Mov Cap-2 Maneuver	910	-	-	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	969	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	977	1571	-
HCM Lane V/C Ratio	-	-	0.008	0.005	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

ATTACHMENT "E"

Level-of-service Calculations for the Near-Term Conditions

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	10	5	30	0	5	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	5	33	0	5	37

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	81	33	0	0	33	0
Stage 1	33	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	921	1041	-	-	1579	-
Stage 1	989	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	918	1041	-	-	1579	-
Mov Cap-2 Maneuver	918	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	956	1579	-
HCM Lane V/C Ratio	-	-	0.017	0.003	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	2	39	2	7	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	2	42	2	8	42

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	101	43	0	0	45	0
Stage 1	43	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	898	1027	-	-	1563	-
Stage 1	979	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	894	1027	-	-	1563	-
Mov Cap-2 Maneuver	894	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	960	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	928	1563	-
HCM Lane V/C Ratio	-	-	0.008	0.005	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

ATTACHMENT "F"

Level-of-service Calculations for the Near-Term Plus Project Conditions

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	11	8	30	1	6	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	9	33	1	7	37

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	83	33	0	0	34	0
Stage 1	33	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	919	1041	-	-	1578	-
Stage 1	989	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	914	1041	-	-	1578	-
Mov Cap-2 Maneuver	914	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	967	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	963	1578	-
HCM Lane V/C Ratio	-	-	0.021	0.004	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	4	39	2	9	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	4	42	2	10	42

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	105	43	0	0	45	0
Stage 1	43	-	-	-	-	-
Stage 2	62	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	893	1027	-	-	1563	-
Stage 1	979	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	887	1027	-	-	1563	-
Mov Cap-2 Maneuver	887	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	954	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	944	1563	-
HCM Lane V/C Ratio	-	-	0.01	0.006	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-