



**MEMO**

TO: Planning and Zoning Commission

FROM: Sheila DeSchaaf,  
Zoning Administrator

DATE: June 9, 2014

SUBJECT: Rezone R1-10 to PAD, 300 W. Rumsey Drive **P14-001**

**Background**

The applicant is requesting approval of a zone change request from R1-10 to Planned Area Development (PAD) for the purpose of a 150 unit residential subdivision, Timber Ridge, on 26.8 acres. The site is surrounded by a variety of uses and zoning districts. Timber Ridge Phase II (R1-10) and Forest Hills Condominiums (R3) border this site to the west. Western Manor (R1-35) borders the site to the north. Walmart (C-2) and Payson Industrial Park (M-1) form the east and south boundaries respectively.

Submittal of a PAD Plan is required as part of the approval process. The applicant has submitted a complete PAD Plan in conjunction with this request for rezoning. The plan has been vetted by the Development Services Committee.

**Analysis**

The Unified Development Code requires land uses and design of the proposed PAD to be consistent with the General Plan. The Land Use Element (Chapter 3) of the 2003 Town of Payson General Plan designates this property for High Density Residential development. High Density Residential designations denote *“areas where multi-family residential development could be appropriate. The density range of 5.5 to 18 dwelling units per acre (DU/Acre) is typical, but not specifically regulated. The maximum density for the development of single-family homes, condominiums, apartments, town homes or patio homes shall be limited by compliance with all other applicable development standards, including but not limited to building height, maximum lot coverage, hillside requirements, parking, setbacks, etc. Multimodal (e.g. bicycle, transit) circulation, transportation access and the proximity/accessibility of public facilities and services should be considered.”*The proposed maximum net density for Timber Ridge is 5.8 dwelling units per acre. This Planned Area Development application is consistent with the Land Use Element of the current General Plan.

It was suggested in the Payson Transportation Study completed in 2011 that the Town complete the construction of Rumsey Drive through this site as part of a list of short-term recommendations (to occur between 2011 and 2015) to alleviate a deficiency in the local traffic

circulation options in this vicinity. The added connectivity between McLane Road and Highway 87 would reduce the traffic on W. Forest Drive north of this site. Since construction of this roadway has not yet been completed by the Town, development of this site is contingent upon the applicant/developer completing the roadway improvements. The applicant has planned the construction of Rumsey Drive as Phase One of this project.

In the traffic study provided by the applicant for this project, there appears to be some errors in their assumptions on the projected traffic volumes. They project an unrealistic amount of traffic to use the Forest Park connection between Longhorn Road and Rumsey Drive. It is way too high. Conversely, the projections for increased traffic to use the intersection of McLane Road and Rumsey Drive is too low. The adjusted projections may show a lower Level of Service at this intersection than currently anticipated. Improvements, such as a roundabout, at the intersection of McLane Road and Rumsey Drive will offset the negative impacts of the additional traffic at this intersection produced by this development and provide additional traffic calming on Rumsey Drive and McLane Road. Therefore, staff has recommended that a roundabout be constructed at the intersection of McLane Road and Rumsey Drive in conjunction with Phase 1 of this development.

The Payson Transportation Study as well as the Payson Area Trails System also identified an extension of the pathway on the north side of the Rumsey Drive through this subdivision (east to west) as part of the required roadway improvements. A compacted granite pathway is the minimum standard. However, the developer is proposing a detached concrete sidewalk to satisfy this requirement. The PATS/sidewalk segment would connect pedestrian improvements from the Highway 87 to McLane Road.

The 2011 Transportation Study as well as the 2003 Town of Payson General Plan forecasted bike lane connections (one bike lane in each direction, east to west) through this property as part of the Rumsey Drive infrastructure improvements as well. The developer has proposed the construction of bike lanes in connection with Phase One Rumsey Drive improvements.

Street lighting is proposed for the roadways within this development. There are several intersections within this proposed project where street lights would be required by the Town of Payson. The lighting fixture utilized for such intersections, if maintained by the Town, is a standard APS cobra head street light. The last sentence in Section 3f of the applicant's PAD narrative states that the development or Homeowners Association will install, maintain and repair, and pay for the electrical costs of all street lights in the development. This is an acceptable proposal. However, if the development installs the standard APS cobra head street light, the Town will accept them for maintenance and repair and electrical costs. Any non-standard APS cobra head street lights will be the responsibility of the development.

Adequate water infrastructure must be installed by the developer to serve this development. This includes connections to the existing water line at Forest Park Drive as well as the 12" line in the future W. Rumsey Drive. The subject site is currently within the Northern Gila County Sanitary District. Public sanitary facilities are required and shall be designed in accordance with Northern Gila County Sanitary District standards prior to approval of the Final Plat.

The applicant is requesting relief from the Town's grading restrictions and hillside provisions for portions of this development. Specifically, the building pads for individual dwelling units and zero lot line dwelling units would be graded simultaneously with the roadways to be constructed in each individual phase of this project. The applicant has provided a proposal for typical grading of building pads within the PAD Plan to support this request for relief. The detail addresses protection (preservation in place) of existing, mature native trees as well. Grading at the exterior boundaries of this parcel(s) should be restricted to the line of the building envelope and/or a minimum of 10 feet from a common property line to buffer adjacent properties.

**Staff Recommendation:**

Staff has reviewed the PAD Plan and finds that the proposal conforms to the intent and purpose of a Planned Area Development District and could be compatible with the topography and surrounding uses so long as certain conditions are met. Staff recommends Approval of this application subject to the conditions listed below:

1. The development shall be in substantial conformance with the Planned Area Development narrative and exhibits submitted with this application and shall not exceed a total of 155 dwelling units.
2. Adequate sanitary facilities shall be designed in accordance with Northern Gila County Sanitary District standards prior to approval of the Final Plat.
3. Storm water detention/retention shall be provided in accordance with the Town of Payson Requirements.
4. Water infrastructure shall be installed by the developer in accordance with Town of Payson standards and shall include a connection to the existing line at Forest Park Drive and the 12" line under the proposed Rumsey Drive.
5. A roundabout shall be constructed at the intersection of McLane Road and Rumsey Drive in conjunction with Phase 1 of this development.
6. The development shall install street lights at least at the locations specified by the Public Works Department. Any standard APS cobra head street lights installed by the development will be owned, maintained and operated by the Town of Payson. Any non-standard APS cobra head street lights will be owned, maintained and operated by the development or HOA.
7. Relief from the provisions concerning lot grading for construction of individual building pads is limited to areas that are a minimum distance of 10 feet from an exterior boundary line of this site.
8. If any conditions above, cannot be met or the applicant does not have an approved Final Plat within one (1) year of the approval date of the zoning change, then the Planned Area Development rezoning may revert back to the original R1-10 zoning designation, pending Council action.

In considering applications for a PAD approval, the Commission may consider sound land use planning principles and the following: a. Conformance to the General Plan; b. The impact of the PAD on the existing and anticipated traffic and parking conditions; c. The adequacy of the PAD Plan and narrative report with respect to proposed land uses and development standards; d. Pedestrian and vehicular ingress and egress, including handicapped accessibility; e. Design criteria; f. Conceptual landscaping proposal; g. Provisions for utilities; h. Site drainage and

grading; i. Open space and/or public land dedications; and j. Non-motorized circulation. k. Any other items the Commission deems necessary.

**Suggested Motion to recommend Approval:**

“I move the Planning & Zoning Commission recommend to the Town Council approval of P14-001, a request to rezone a 26.8 acre property located at 300 W. Rumsey Drive from R1-10 to Planned Area Development as detailed in the PAD Plan subject to the conditions listed in the staff report.”

**Neighborhood Involvement**

A Citizens Participation meeting was conducted on May 19, 2014 at 328 N. Mclane Road, the Payson Public Library. The Citizens Participation Report is included with the submittal documents for review.

# Timber Ridge

## Planned Area Development Overlay District



### Developer

The True Life Companies  
2555 E. Camelback Road, Suite 770  
Phoenix, AZ 85016  
Ph. 602.626.8776

### Planner/Engineer

Otak, Inc.  
51 W 3rd Street, Suite 201  
Tempe, AZ 85281  
Ph. 480.557.6670

## **Narrative**

### **1. Legal Descriptions**

Refer to Exhibit S 1.0 thru S 1.2 - A.L.T.A for the legal description of the property.

### **2. Project Objective**

This project proposes to develop the Timber Ridge property as a single-family subdivision with a density of approximately 5.5-6.0 dwelling units per acre. The site, which is surrounded by low density single family housing to the north and northwest; commercial to the east; industrial to the south; and multifamily to the west, is arranged with three product types that transition across the site from the north to the south. The project proposes single-family detached houses (cottages) in the northern half of the site and single-family attached duplexes and quadplexes in the southern half of the site. The third product type is single-family townhomes with rear driveways located along the north side of Rumsey Drive.

Additionally, as part of this project, Rumsey Drive is extended through the site completing this critical east-west connection in Payson and providing an important link to Rumsey Regional Park. Forest Park Drive is also extended from the southern property line north to Rumsey Drive eliminating the existing dead -end condition providing a means of egress for public safety vehicles servicing the neighborhood to the south.

In addition to developing the property to transition densities across the site based on adjacent land uses, the site is laid out with an emphasis on maintaining, to the greatest extent possible, mature stands of native vegetation, natural land forms, and existing drainage patterns. Two major stands of trees, consisting primarily of Ponderosa Pine, are located in the southern half of the site. The duplexes and quadplexes are arranged to minimize the impact to these mature stands of trees. The remainder of the site consists primarily of Scrub Oak, Manzanita, and other medium to tall shrubs with clusters of mature Ponderosa Pine, individual Alligator Juniper, Pinyon Pine, other Junipers, and Emory Oak. The site is arranged to minimize impact on the mature and native trees while removing the fire-hazard plant material.

The property, approximately 26.8 acres in size, is currently zoned R1-10. The Payson Unified Development Code, adopted by Ordinance #466, February 22, 1996, and updated April 21, 2003, sets forth guidelines for an R1-10 zoning with a minimum lot area of ten-thousand square feet, (10,000 s.f.). The most recent Town of Payson General Plan dated April 21, 2003, shows the parcel as high-density residential, defined as 5.5 to 18 units per acre.

In order to achieve the project objective, the Town's desired density on the site, maintain the mature stands of trees and naturalized character of the property, and phased lot grading, a Planned Area Development (PAD) Overlay is required. Through the PAD Overlay, the property will accomplish the following:

- Create a mix of housing building types and styles, lot arrangements, lot coverage, and densities
- Present an innovative and efficient use of land
- Develop a unique but compatible development
- Provide a transition between adjacent uses; residential in the north and west, industrial and commercial to the south and east, and multifamily to the west
- Preserve mature stands of trees and natural features, particularly in the southern half of the site (firewise, firebreaks, and hydrants)
- Maximize connected open space within the subdivision
- Complete connection of Rumsey Drive as a public street
- Extend Forest Park Road to Rumsey Drive

### 3. Design Rationale

The following Design Rationales have been established as part of the P.A.D. Overlay District for Timber Ridge:

#### a. Architectural Design

The approach to architectural design is to blend in with the overall alpine/cottage theme that is prevalent within the Payson community. Multiple styles for each product type (cottages, townhomes, and duplexes/quadplexes) have been created allowing the site to be developed in a manner that mixes housing types and styles, lot arrangements, lot coverage, and densities. A simple palette of building material and colors is used to blend in with the natural characteristics of the site (*see Exhibit A 1.0 through A 1.14 - Architectural Exhibit*).

#### b. Site Design

The site has been arranged to maximize the number of single family dwelling units, to meet the density goals outlined in the General Plan, and to maintain the natural features and mature stands of trees found in the southern half of the site. The site design also takes into consideration the adjacent land uses (*See Exhibit L 1.0 - Adjacent Land Use Exhibit*) and transitions the product types across the site from north to south by locating single family detached houses in the northern half adjacent to the existing single-family housing and duplexes and quadplexes in the southern half of the site adjacent to the multifamily, industrial, and commercial uses. Additionally, townhomes with rear alley access are located along the northern side Rumsey Drive to minimize the number of access points on this street and incorporates principles of Traditional Neighborhood Design for this important east-west corridor in Payson. (*see Exhibit L 1.1 - Conceptual Development Plan Exhibit*). Key components of the Site Plan include:

- a) A maximum of 155 units will be located throughout the property
- b) A maximum density of 5.8 dwelling units per acre
- c) A mix of housing types and styles
- d) Completion of Rumsey Drive
- e) Extension of Forest Park Drive
- f) Public road and alley servicing the northern half of the site
- g) Private open space and parks
- h) Preservation of mature stands of trees and other natural features

- i) Private drive servicing the southern half of the street

**c. Lot Size**

The Timber Ridge P.A.D. Overlay District will modify the Unified Development Code Lot Development Standard to include new minimum lot sizes for the Timber Ridge Overlay District. The rationale for this change is to achieve the density outline in the General Plan while maintaining the mature stands of trees and the natural character of the property. The following new lot development standards for the Timber Ridge District have been established (*see Exhibit L 1.2 - Typical Lot Layout Exhibit*):

Overlay District	Minimum Lot Size			Min Lot Area per Dwelling Unit	Max. Lot Cover	Minimum Yard Set Backs				Minimum Space Between Buildings	Public Water Sewer Required
	Area sq. ft	Width	Depth			Front	Rear	Side	Street Side		
Timber Ridge	2300	30	75	2300	70%	15	10	5	10	0*	Yes

\* Minimum of 6' between eaves of adjacent buildings.

**d. Landscape Character**

The approach to landscape character is to preserve and enhance the mountain ponderosa character of Payson, preserve and create natural open spaces, develop buffers for adjacent parcels that are zoned differently, and incorporate Traditional Neighborhood Design principles into the streetscape character on public streets, see Section F - Streetscape Character. All new plant material will comply with the accepted Town of Payson plant list and a minimum of 20 percent of the site will be landscaped (*see Exhibit 1.3 - Public Streetscape and Open Space Improvements Exhibit*).

**e. Open Space Character**

The approach to the open space character is to preserve the mature stands of trees, develop neighborhood amenities for residents of Timber Ridge, and preserve natural features and drainage patterns. Additionally, an effort has been made to create an interconnected system of open space with trails that, in conjunction to the sidewalks located on the streets, creates a walkable community. A minimum of 20 percent of the site is dedicated to open space (*see Exhibit 1.3 - Public Streetscape and Open Space Improvements Exhibit*).

**f. Streetscape Character**

A key approach for the project is to create a walkable neighborhood that links internal open space as well as adjacent uses such as Rumsey Park to the west and Walmart to the east. To accomplish this approach, streetscape characteristics have been developed for the two types of streets planned within the development:

- a) Public Streets: Four public streets are developed as part of the project, Rumsey Drive, Forest Park Drive, the north Loop Road, and the alley
- b) Private: Private streets are provided to provide access to the duplexes and quadplexes located in the southern half of the site

Rumsey Drive is a public street designed as a signature street with evenly spaced street trees, shrub, groundcover, and grasses planting, and dark sky compliant street lighting within the public right-of-way, other public streets, except alleys include street trees and dark sky compliant lights. Private streets are located around and through the mature stands of trees and don't have street trees. Private streets will include dark sky compliant lights. The streets, landscape character, and open space have been designed cohesively to create a unified aesthetic for the development and provide enhanced connectivity throughout the property (*see Exhibit 1.3 - Public Streetscape and Open Space Improvements Exhibit*). All street light installation, maintenance, repair, and electricity will be the responsibility of the Developer and/or the Home Owners Association.

**g. Tree Preservation**

As mentioned previously, the site has been planned to minimize the impact on the existing mature stands of trees. The property is heavily vegetated with approximately 5.1 acres of mature stands of healthy, native vegetation as defined by the UDC. These mature stands are comprised of Ponderosa Pines, Emory Oak, Scrub Oak, and ground covers, with the native Ponderosa Pines being the dominant species. The mature tree stands occur in two primary locations, along the eastern property line south of Rumsey Drive and along the southern property line in the western portion of the site. The remainder of the site consists primarily of Scrub Oak, Manzanita, and other medium to tall shrubs with clusters of mature Ponderosa Pine, individual specimen quality Alligator Juniper, Pinyon Pine, and other Junipers. Key elements of the tree preservation plan include (*see Exhibit L 1.4 - Tree Preservation Plan Exhibit*):

- a) A minimum of 75 percent of the mature stands of trees will be preserved
- b) A maximum of 50 percent of the specimen quality native trees throughout the site will be removed
- c) Site design has been developed to minimize the number of mature trees being removed and preserve the mature stands of trees.
- d) Understory (less than 6" diameter measured at 4 1/2') within mature stands of trees will be thinned and/or removed to create a healthy stand of mature trees
- e) Additional native understory plants will be added to create a natural and healthy stand of mature trees
- f) All dangerous, diseased or infested, and dead trees will be removed from the site
- g) All mature stands of trees and native trees to remain will be pruned of dead branches
- h) All plants that constitute a hazard, such as a brush fire potential or spread of disease will be removed in conjunction with the phasing development of the property, see Section 4 - Phasing

**h. Circulation**

The approach to circulation was to develop a road, pedestrian, and bicycle network that minimizes access onto Rumsey Drive, creates separate loop roads that serve the northern and southern halves of the site, reduces the extent of grading required to build the roads, and diminishes the impact on existing mature stands of trees. The following circulation is included as part of this project (*see Exhibit L 1.5 - Circulation and Street Exhibit*):

- a) Vehicular

Four types of roads have been developed for this project, public collector streets, public local streets, public alley, and private streets. All streets will comply with the Town of Payson Street Design Standards with the following exceptions (*see Exhibits L 1.6 and L 1.7 - Typical Roadway Sections Exhibit*):

Item	Timber Ridge Street Design Standards					
	Collector - Rumsey Dr	Local - Forest Park Dr.	Local	Alley	Cul-de-Sac	Private Drive
Minimum Right-of-Way	60'	50'	50'	20'	50' R	40'
Minimum Roadway Width	32' B/C-B/C	28' B/C-B/C	28' B/C-B/C	16' B/C-B/C	28' B/C-B/C	24' B/C-B/C
Pavement Edge Treatment	6" vert C&G	4" roll c&G	4" roll C&G	4" x6" Asph. Curb/6" v-ditch	4" roll C&G	4" roll C&G
Asphaltic Concrete	Min 2" <sup>(1)</sup>	Min 2" <sup>(1)</sup>	Min 2" <sup>(1)</sup>	Min 2" <sup>(1)</sup>	Min 2" <sup>(1)</sup>	Min 2" <sup>(1)</sup>
Roadway Base	Min 4" <sup>(1)</sup>	Min 4" <sup>(1)</sup>	Min 4" <sup>(1)</sup>	Min 4" <sup>(1)</sup>	Min 4" <sup>(1)</sup>	Min 4" <sup>(1)</sup>
Longitudinal Slope	Max. 18% <sup>(2)</sup>	Max. 18% <sup>(2)</sup>	Max. 18% <sup>(2)</sup>	Max. 18% <sup>(2)</sup>	Max. 18% <sup>(2)</sup>	Max. 18% <sup>(2)</sup>
Cross Slope	2%-4%	2%-4%	2%-4%	2%-4%	2%-4%	2%-4%
Curb Return Radius	25'	25'	25'	N/A	40'	25'
Right-of-way radius	12'	12'	12'	N/A	50'	25'
Minimum Center Line Radius	150'	150'	150'	N/A	N/A	150'
Tangent Between Reverse Curves <sup>(3)</sup>	0'	0'	0'	0'	0'	0'
Intersection Tangent Lengths <sup>(3)</sup>	0'	0'	0'	0'	0'	0'
Vertical Curves	Algebraic Difference Exceeds	2.0%	2.0%	2.0%	2.0%	2.0%
	Minimum Length	50' <sup>(4)</sup>	50'	50'	50'	50'
On Street Parking	No	Yes	Yes	No	Yes	No
ADT	250-1000	<500	<500	<250	<500	<250

<sup>(1)</sup> Pavement design to be per Geotechnical Report

<sup>(2)</sup> Maximum longitudinal slopes of up to 18% to minimize grading impacted on natural features, topography and mature vegetations; not to exceed 300' based on existing terrain

<sup>(3)</sup> Center line tangents reduced to achieve density per General Plan and to minimize impact on existing stands of mature vegetation

<sup>(4)</sup> Vertical curve minimum lengths adjusted to minimize impact on existing infrastructure in Rumsey Road, gas line and water line, and to minimize impact on existing mature vegetation

b) Pedestrian

Pedestrian facilities are provided throughout the site with 5' wide sidewalks located along all streets, trails and paths in open space, and ADA compliant ramps at all intersections.

c) Bicycle

Bicycle facilities are provided along Rumsey Drive with 5'-6" wide striped bicycle lanes on both sides of the streets.

d) Driveways

All dwelling units will have driveways that comply with the Town of Payson Unified Development Code except as noted below:

- Development of a reciprocal shared use access for duplexes and townhomes along Rumsey Drive and Private Street
- All driveways will have:
  - Minimum depth: 15 feet
  - Minimum width: 8 feet
  - Maximum slope: 12%

**i. Traffic Impact**

A traffic impact study was completed as part of the PAD process. Based on this study there will be negligible impact on the existing traffic facilities surrounding the site. However, the addition of Average Daily Trips (ADT) generated from the development, the Completion of Rumsey Drive, and the connection Forest Park Drive north to Rumsey Drive will have an impact on the Rumsey Drive and McLane Drive intersection, changing the Level of Service (LOS) from LOS B to LOS C, which still performs to industry standards. There is no change in the LOS at Rumsey Drive and Beeline Highway (*see Appendix A - Traffic Impact Study*). Currently, there are ongoing discussions between the Timber Ridge Developer and the Public Works Department regarding upgraded traffic control to the Rumsey Dr. & McLane Rd. Intersection. The Developer has submitted the required traffic analysis in conjunction with other application materials and intends to participate in appropriate upgrades.

**j. Drainage Impact**

The approach to drainage for the proposed project is to follow the existing drainage patterns on the property, preserve the natural drainage features, and minimize impact on the mature stands of trees. The design of drainage will comply with the UDC except as follows (*see Appendix B - Drainage Report*):

- a) Co-mingling of onsite and offsite flows to allow use of existing natural features and preserve mature stands of trees.

**4. Operating and Maintenance Requirement for PAD**

A single development entity consisting of the owner, subdivider, and builder will be created for this project. This entity will be responsible for operating and maintaining the site as the project is developed. Upon completion of the development an HOA will be set up to operate and maintain the following elements of the project:

- a. Landscape improvements within the public right-of-way
- b. Open space tracts
- c. Neighborhood park facilities
- d. Drainage facilities outside the public rights-of-way

**5. Phasing Plan**

A phased approach will be developed as part of this project. A single development entity consisting of the owner, subdivider, and builder will be created for this project. This entity will develop the project in the following phases (*see Exhibit PH 1.0 - Phasing Plan Exhibit*):

- a. Phase 1- Development of the initial infrastructure needed to develop the site. This includes:
  - a) Development of Rumsey Drive
  - b) Development infrastructure to be placed in Rumsey Drive
  - c) Stub outs for infrastructure to be installed in subsequent phases
  - d) Drainage facilities needed to adequately drain Rumsey Drive
- b. Phase 2 - Development of the southern portion of the proposed development consisting of:
  - a) Extension of Forest Park Drive
  - b) Development of the Private Street network
  - c) Grading for a maximum of 82 building pads
  - d) Preservation of mature stands of trees per Section 3g of this narrative
  - e) Preservation of native trees per Section 3g of this narrative and as depicted in Exhibit L 1.4 - Tree Preservation Plan Exhibit
  - f) Development of the southern open space tracts J, K, L, M, N, O, and P
- c. Phase 3 - Development of the northwestern portion of the proposed development consisting of:
  - a) Development of the public loop road
  - b) Development of the public alley
  - c) Development infrastructure to be placed in loop road and alley right-of-way
  - d) Development of Basin 2 retention along northern property line
  - e) Grading for a maximum of 19 building pads
  - f) Preservation of native trees per Section 3g of this narrative and as depicted in Exhibit L 1.4 - Tree Preservation Plan Exhibit
  - g) Development of open space tracts A, B, E and H
- d. Phase 4 - Development of the north central portion of the proposed development consisting of:
  - a) Development of the public cul-de-sacs
  - b) Grading for a maximum of 18 building pads
  - c) Preservation of native trees per Section 3g of this narrative and as depicted in Exhibit L 1.4 - Tree Preservation Plan Exhibit
  - d) Development of opens space tracts C and D and a portion of G
- e. Phase 4 will be the development of the north central portion of the proposed development consisting of:
  - a) Grading of a maximum of 25 grading pads
  - b) Preservation of native trees per Section 3g of this narrative and as depicted in Exhibit L 1.4 - Tree Preservation Plan Exhibit
  - c) Development of open space tracts F, G, and I

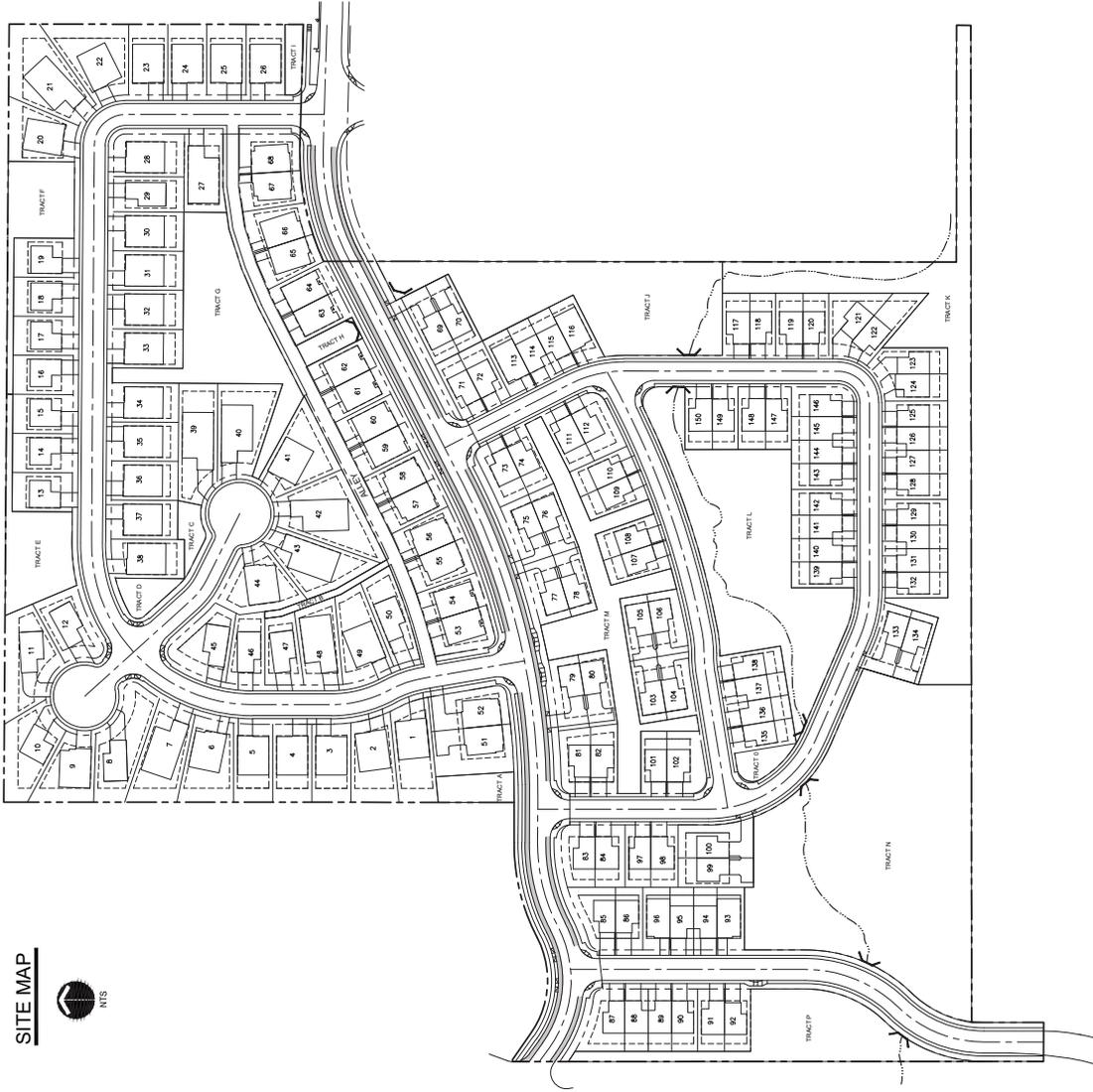
As part of the phasing, the development entity is requesting an exception to the Town of Payson prohibition of grading a lot without a building permit. The development entity is requesting approval with the PAD zoning to be allowed to grade all building pad areas on each lot within each single family phase concurrent with the street grading. All grading will be done within right-of-way of the streets and lots would be graded within 20' of the phase limits (*see Exhibit PH 1.1 - Typical Phase Grading Exhibit*).

## **6. Hillside**

In order to achieve the project objectives, relief from several requirements of the Town of Payson's Hillside Properties Ordinance is needed. Specifically, from the Unified Development Code, Subsections of 15-07-002 H. : 4.b.(2) 4.b.(4)I. 4.b.(4)IV. 4.f.(4)-(5) and 5.b. Additionally, the general requirements for determining the amount of percent of the disturbed areas of lots that would usually be considered hillside. The developer will install appropriate vegetation, landscaping, and erosion control where hillside conditions occur in return for relief from the hillside grading requirements. See Exhibit Ph1.1.

# TIMBER RIDGE

## PLANNED AREA DEVELOPMENT



### OWNER/DEVELOPER

THE TRUE LIFE COMPANIES  
 10000 W. WILLOW ROAD, SUITE 170  
 PHOENIX, AZ 85018  
 PH: 602.268.8776

### LANDSCAPE ARCHITECT

OTAK  
 1100 W. WILLOW STREET, SUITE 201  
 TEMPE, AZ 85281  
 PH: 480.597.4970  
 FAX: 480.597.4970  
 CONTACT: BRAD BIELENGER, RLA

### CIVIL ENGINEER

OTAK  
 1100 W. WILLOW STREET, SUITE 201  
 TEMPE, AZ 85281  
 PH: 480.597.4970  
 FAX: 480.597.4970  
 CONTACT: TOM GREEN, P.E.

### ARCHITECT/BUILDER

MIRAMONTE HOMES  
 2482 E. RIVER RD., SUITE 100  
 PHOENIX, AZ 85034  
 PH: 602.998.2800  
 FAX: 602.998.2800

### SURVEYOR

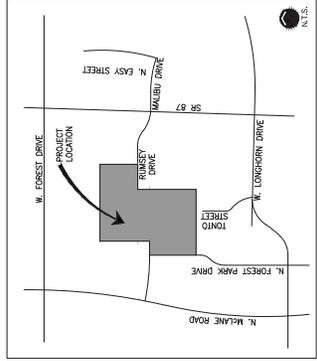
SITE CONSULTANTS  
 111 S. ROCKFORD DRIVE #113  
 PHOENIX, AZ 85004  
 TEL: 480.768.2800  
 FAX: 480.768.2847

### TRAFFIC ENGINEER

HORROCKS ENGINEERS  
 7775 S. POINTE PARKWAY WEST, SUITE 101  
 PHOENIX, AZ 85048  
 PH: 480.244.4800  
 FAX: 480.244.4801

### SHEET INDEX

- CV 1.0 COVERS SHEET
- A 1.0 - 1.16 ARCHITECTURE EXHIBIT
- L 1.1 TYPICAL LOT LAYOUT EXHIBIT
- L 1.2 ADJACENT LAND USES EXHIBIT
- L 1.3 TREE PRESERVATION PLAN EXHIBIT
- L 1.4 TYPICAL ROADWAY CROSS SECTIONS EXHIBIT
- L 1.5 - 1.7 PARKING PLAN EXHIBIT
- PH 1.1 PRELIMINARY SITE PLAN - EXISTING CONDITION SITE DRAINAGE MAP
- C 1.0 PRELIMINARY SITE PLAN - PROPOSED SITE DRAINAGE MAP
- C 2.0 PRELIMINARY SITE PLAN - SANITARY SEWER EXHIBIT
- C 3.0 CONCEPTUAL DEVELOPMENT PLAN - SANITARY SEWER EXHIBIT
- S 1.0 - 1.2 N.T.S.



VICINITY MAP  
N.T.S.

NO.	DATE	BY	CHKD	REVISIONS
1	12/21/14	TJB	BB	PHD SUBMISSION



EXPIRES: 09/30/2015

TIMBER RIDGE  
 PLANNED AREA DEVELOPMENT  
 PAVSON, AZ



Project No. 17060A  
 CV 1.0  
 Exhibit No. 1  
 Sheet 1 of 33  
 © 2014 Otak, Inc.

**SINGLE FAMILY DETACHED**  
 80' 3.00" - 131.1250' FT. COTTAGE LOTS  
 (18) 3.200 - 4.000 SQ. FT. TOWNHOME LOTS

**SINGLE FAMILY ATTACHED**  
 (17) BUILDINGS AT 20' 0" EACH + 3'  
 (1) BUILDING AT 40' 0" EACH + 4'  
 TOTAL: 100 UNITS

**HOUSING TYPE AREAS**

	NO. FT.	ACRES	D.U./ACRE
SINGLE FAMILY DETACHED	341.000'	12.3	28%
SINGLE FAMILY ATTACHED	253.000'	17.3	26%
<b>ALL HOUSING TYPES TOTAL</b>	<b>1,167.391'</b>	<b>30.8</b>	<b>100% 54%</b>

**LEGEND**

- PROPOSED PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED PAVEMENT CENTERLINE
- EXISTING PROPERTY LINE
- EXISTING WASH
- BUILDING SETBACK LINE
- 5'-0" FIRE LANE
- CULVERT HEADWALL



VACANT LOT  
 (ZONED: MULTIFAMILY R-3)

EXISTING SINGLE FAMILY RESIDENTIAL

EXISTING SINGLE FAMILY RESIDENTIAL

EXISTING WALMART

EXISTING MULTIFAMILY RESIDENTIAL

EXISTING INDUSTRIAL

**CONCEPTUAL DEVELOPMENT PLAN EXHIBIT**



**olak**  
 Planning & Design  
 51 WEST THIRD STREET  
 PHOENIX, ARIZONA 85003  
 PHONE: (480) 555-8200  
 FAX: (480) 555-8885

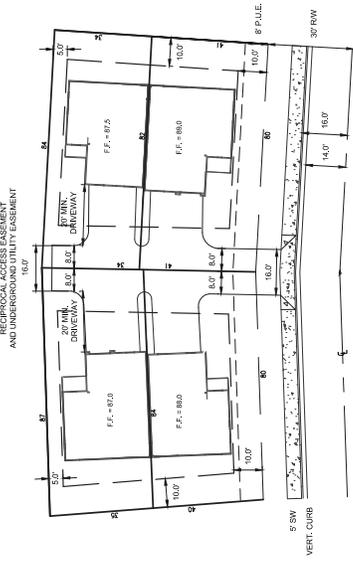
**TIMBER RIDGE**  
 PAVSON, AZ  
 CONCEPTUAL DEVELOPMENT PLAN EXHIBIT

Project No. 17060A  
 Exhibit No. L 1.0  
 Sheet 17 of 33  
 © 2014 Olak, Inc.

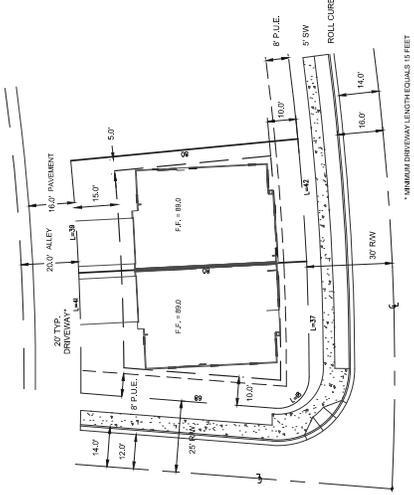


NO.	DATE	BY	REVISIONS
1	12/21/14	TB	ISSUED FOR SUBMISSION

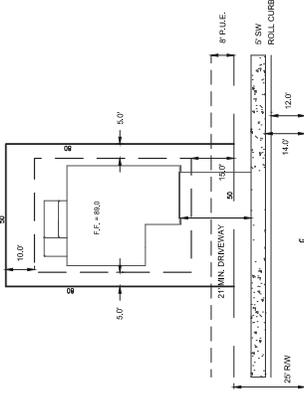
**SINGLE FAMILY ATTACHED WITH HAMMERHEAD DRIVEWAY ON PUBLIC RIGHT-OF-WAY**



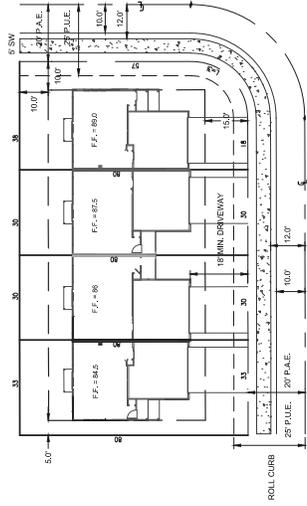
**SINGLE FAMILY ATTACHED TOWNHOMES WITH ALLEY DRIVEWAY**



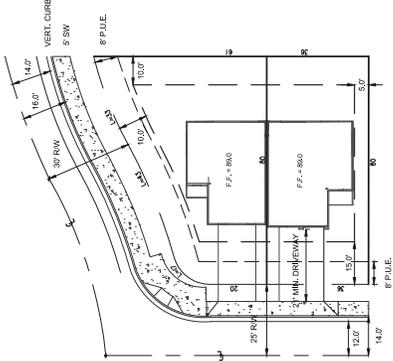
**SINGLE FAMILY DETACHED ON PUBLIC RIGHT-OF-WAY**



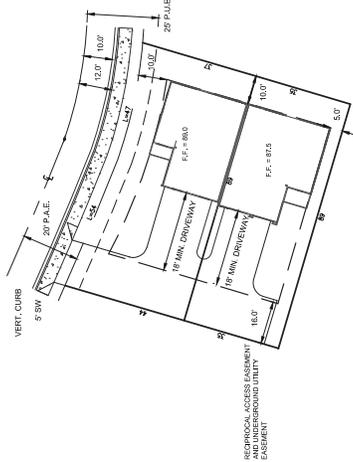
**SINGLE FAMILY ATTACHED ON PRIVATE STREETS**



**SINGLE FAMILY ATTACHED ON PUBLIC RIGHT-OF-WAY**



**SINGLE FAMILY ATTACHED WITH HAMMERHEAD DRIVEWAY ON PRIVATE STREETS**



**LEGEND**

- PROPOSED ROAD
- PROPOSED SIDEWALK
- RIGHT-OF-WAY (R/W)
- PUBLIC UTILITY EASEMENT (P.U.E.)
- CONCRETE SIDEWALK
- FINISH FLOOR
- ACCESS EASEMENT (P.A.E.)



NO.	DATE	BY	APPROVAL
1	02/21/14	AM	PRO SUBMISSION

TIMBER RIDGE  
PARSON, AZ  
TYPICAL LOT LAYOUT EXHIBIT



Professional Engineer  
STATE OF ARIZONA  
TIMBER RIDGE  
PARSON, AZ  
PROJECT NO. 17050A

Project No. 17050A  
Scale: 1/16" = 1'-0"

Sheet 18 of 33  
© 2014 Olak, Inc.

**TYPICAL LOT LAYOUT EXHIBIT**

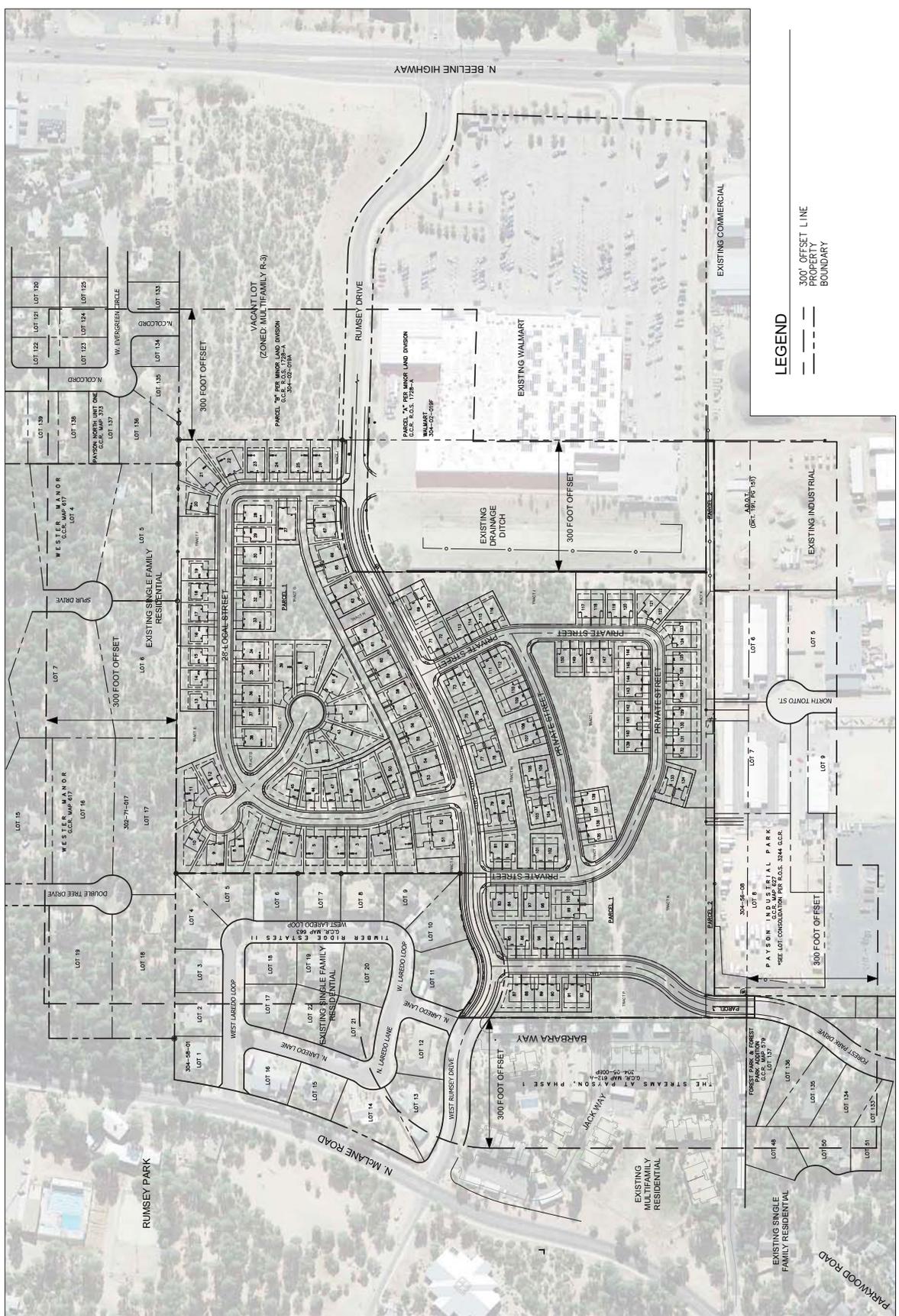
NO.	DATE	BY	Checked	Approved	REVISIONS
1	5/23/14	HR	TS	PM	REVISION



**TIMBER RIDGE**  
 PAYSON, AZ  
 ADJACENT LAND USES EXHIBIT

**otak**  
 51 WEST THIRD STREET  
 PHOENIX, AZ 85003  
 PHONE: (480) 554-8210  
 FAX: (480) 557-6505

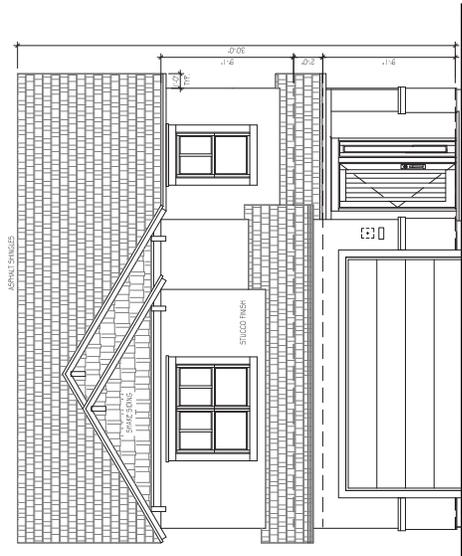
Project No. 17980A  
 Exhibit No. L 1.2  
 Sheet 19 of 33  
 © 2014 Otak, Inc.



**ADJACENT LAND USES EXHIBIT**



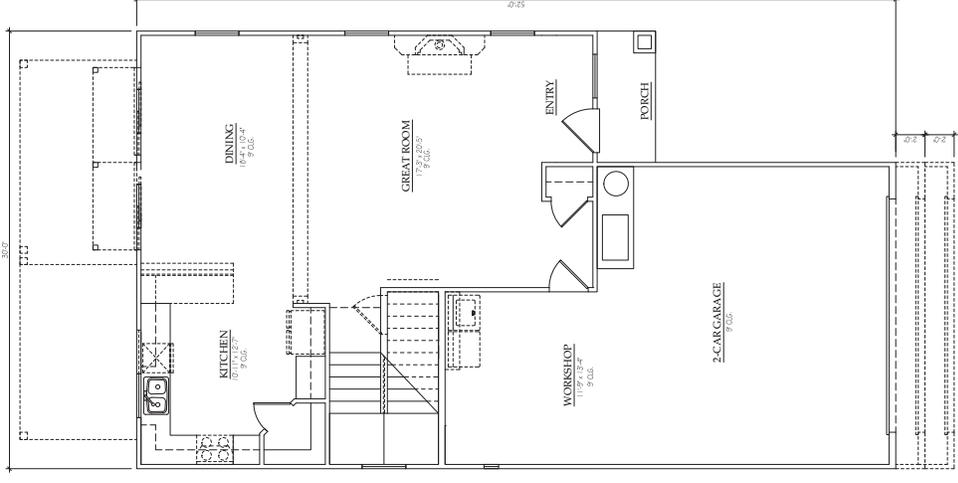




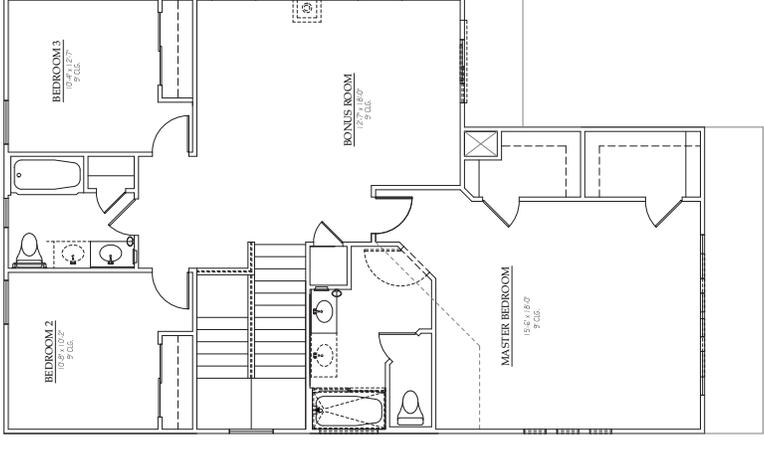
FRONT ELEVATION



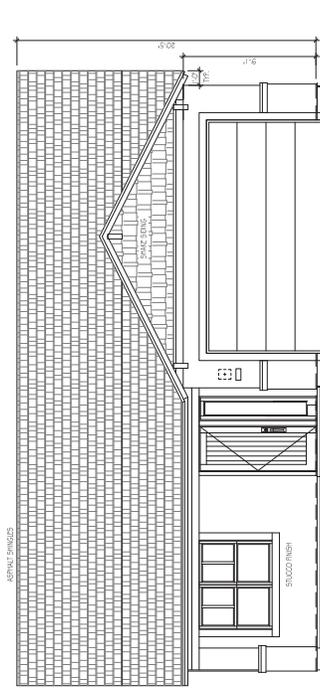
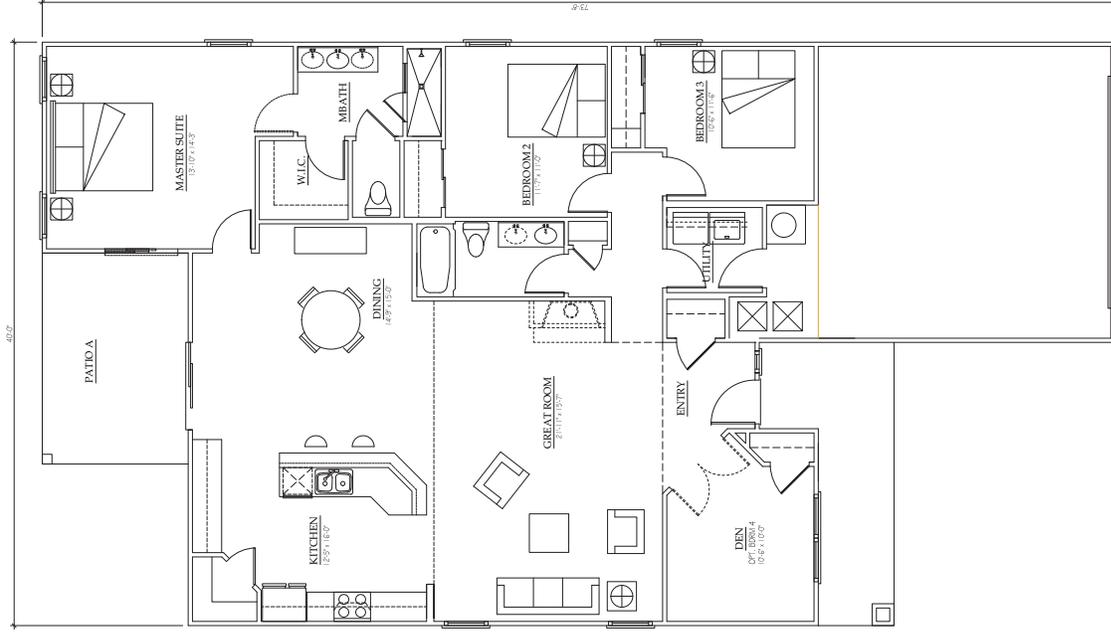
FRONT ELEVATION



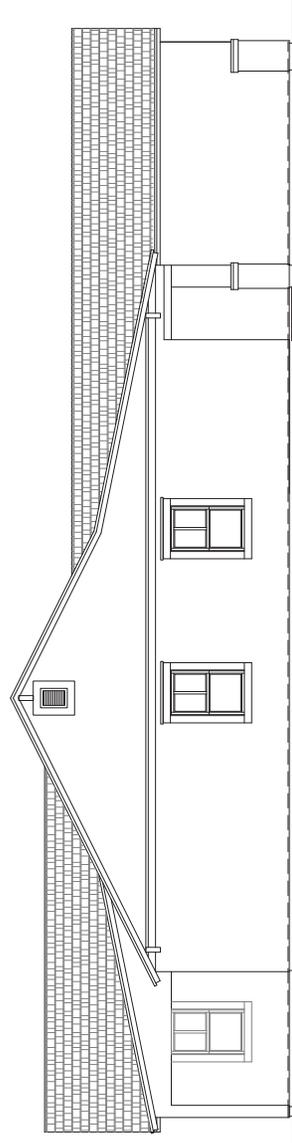
FIRST FLOOR



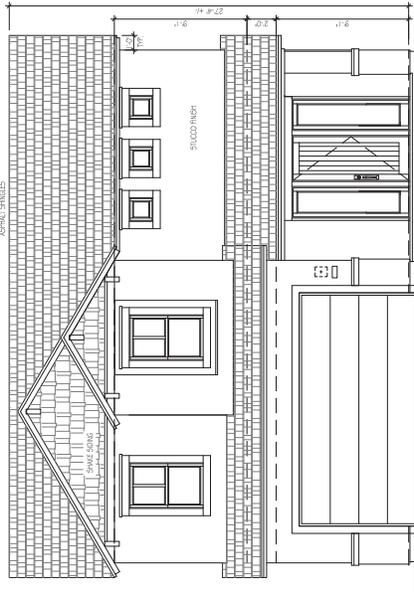
SECOND FLOOR



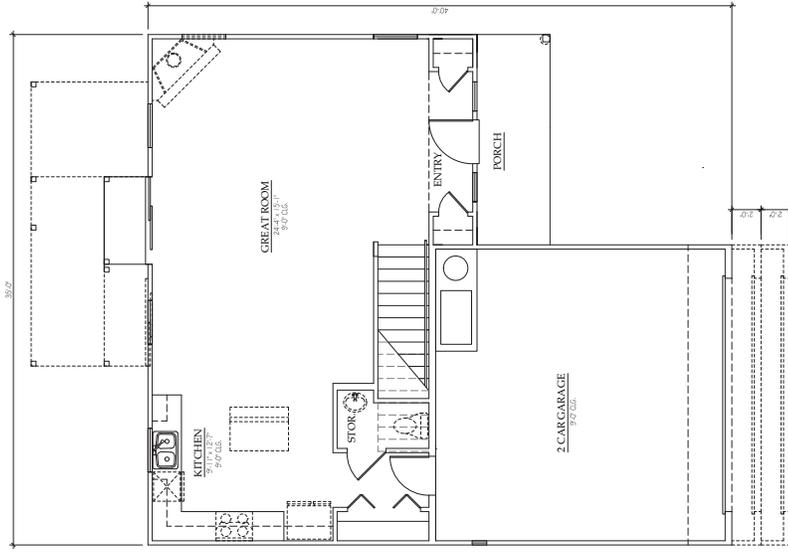
FRONT ELEVATION



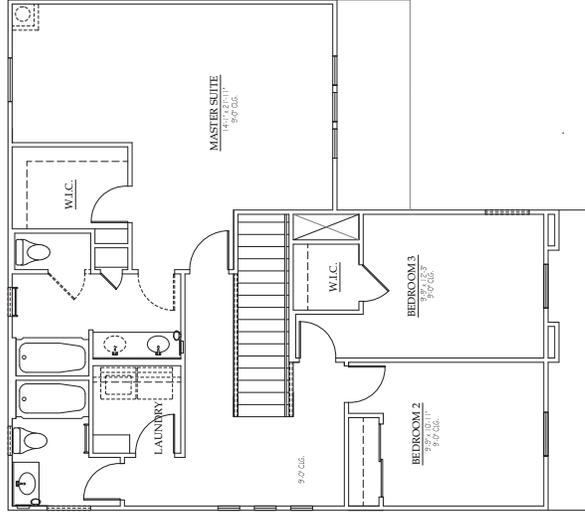
SIDE ELEVATION



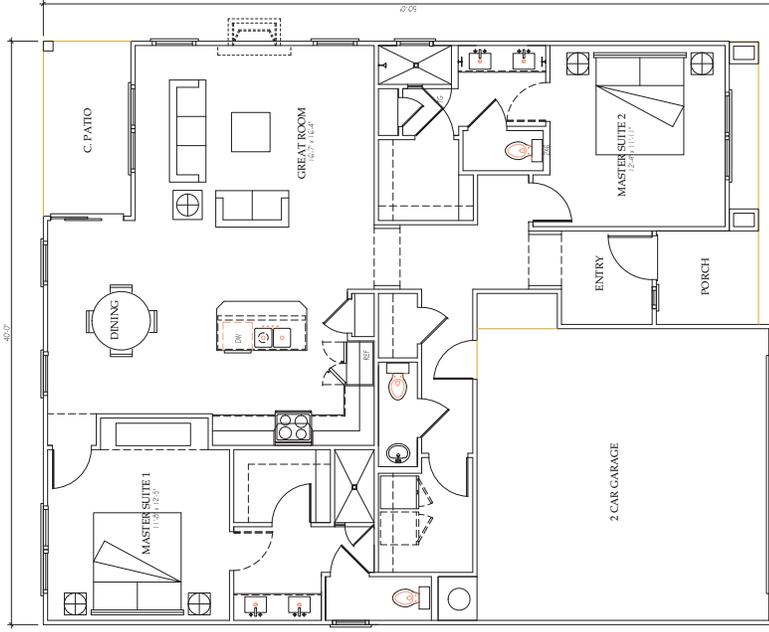
FRONT ELEVATION



FIRST FLOOR

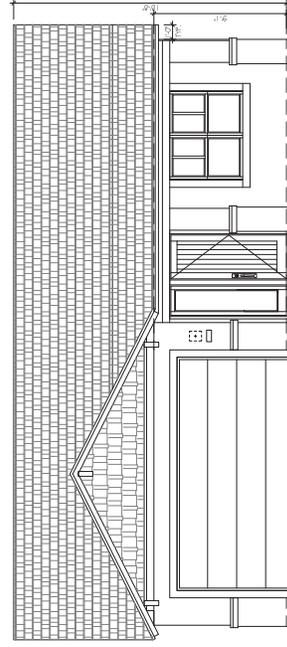


SECOND FLOOR

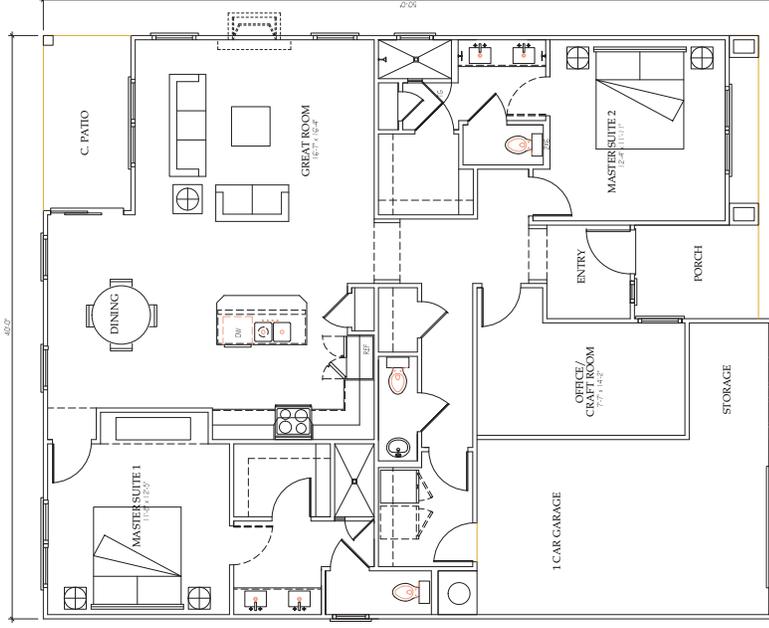


1402 S.F.

STANDARD: TWO MASTER SUITE PLAN

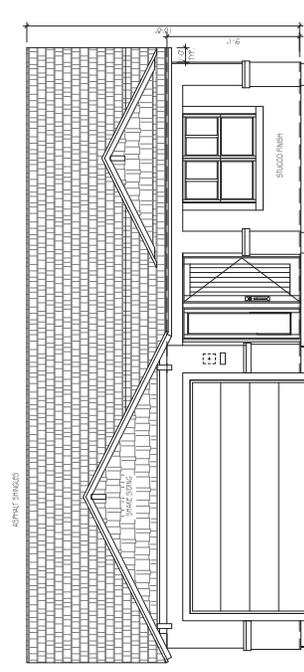


FRONT ELEVATION



1523 S.F.

TWO MASTER SUITE PLAN  
W/ CRAFT ROOM-1 CAR GARAGE



FRONT ELEVATION

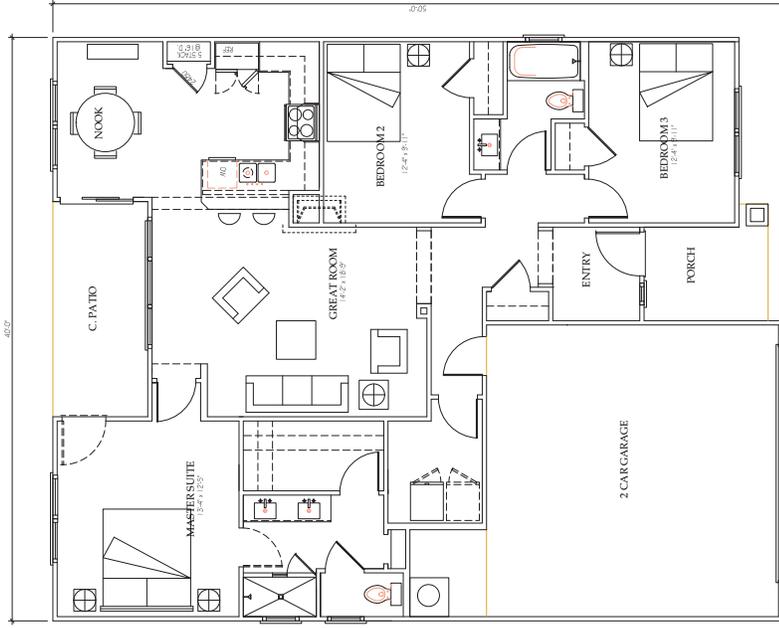
COTTAGE MODEL 1402

TIMBER RIDGE



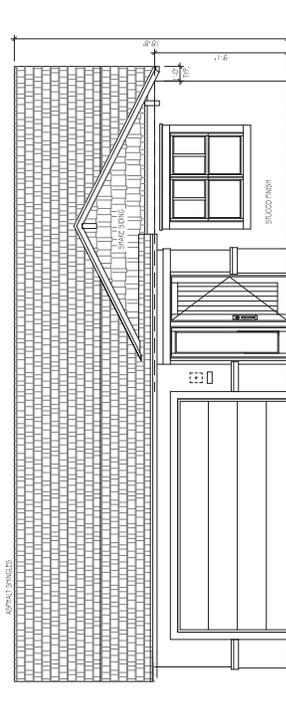
285 E. RIVER ROAD S-100 TUCSON, AZ 85718 (520) 815-8400

1402

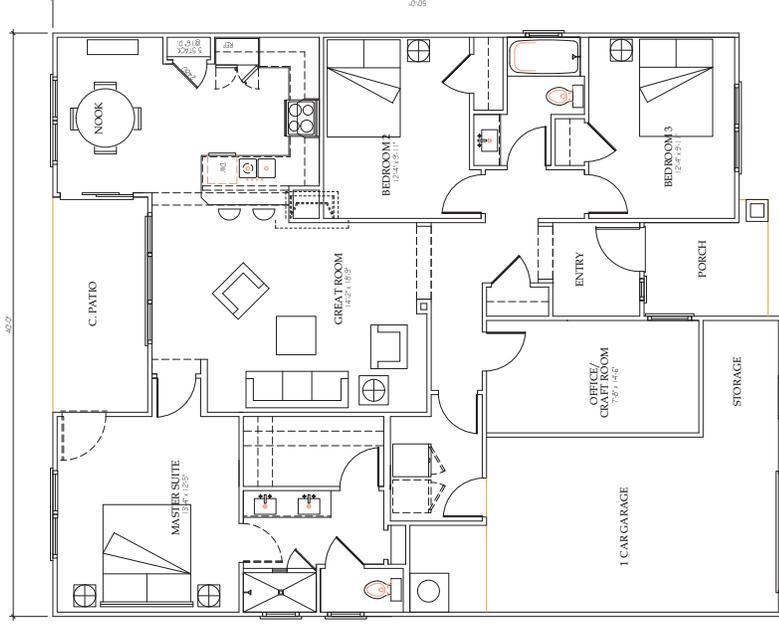


1357 S.F.

STANDARD: MASTER SUITE w/ BEDROOM 2 & 3

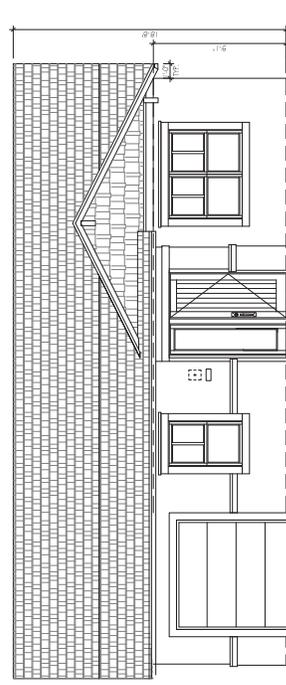


FRONT ELEVATION



1477 S.F.

MASTER SUITE w/ BEDROOM 2 & 3  
OPT. CRAFT ROOM & 1 CAR GARAGE

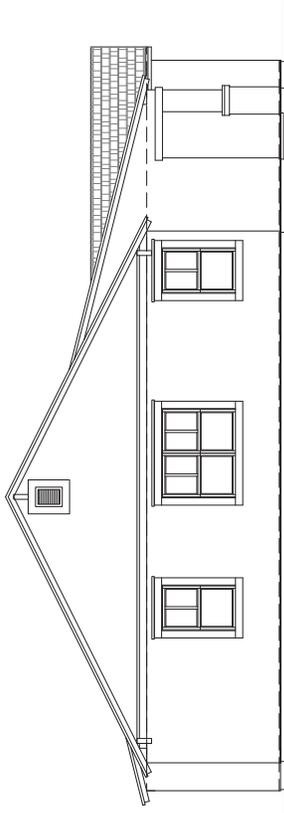


FRONT ELEVATION

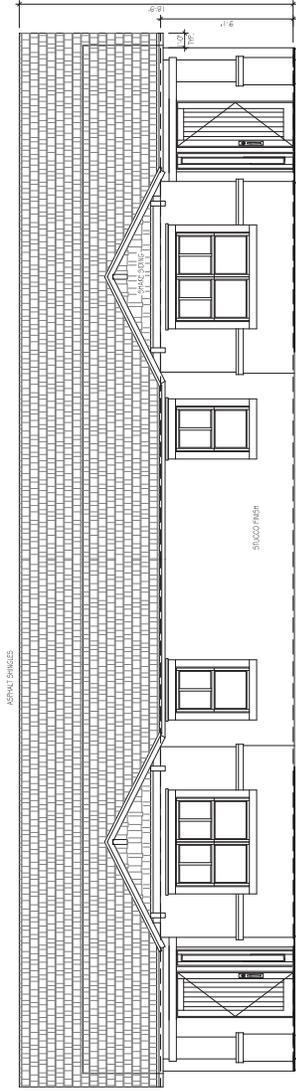
COTTAGE MODEL 1357

TIMBER RIDGE

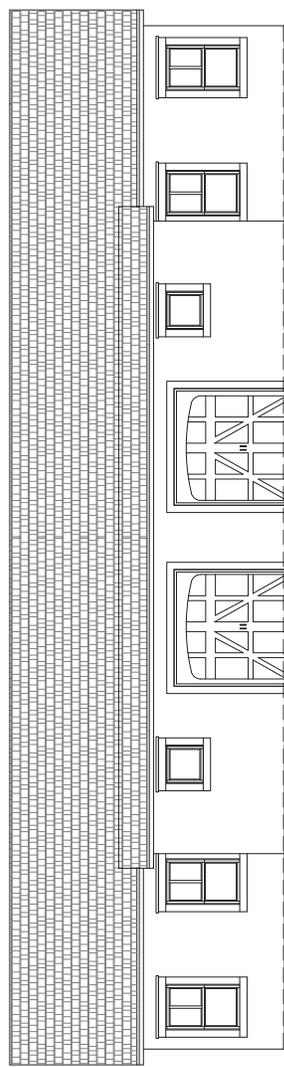
1357



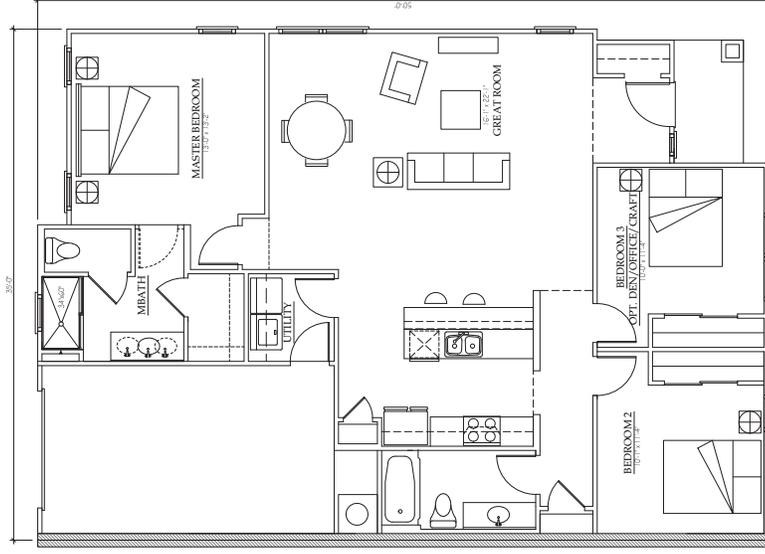
SIDE ELEVATION



FRONT ELEVATION



REAR ELEVATION



1400 S.F.

STANDARD: MASTER SUITE & BEDROOMS 2 & 3



TOWNHOME MODEL 1400

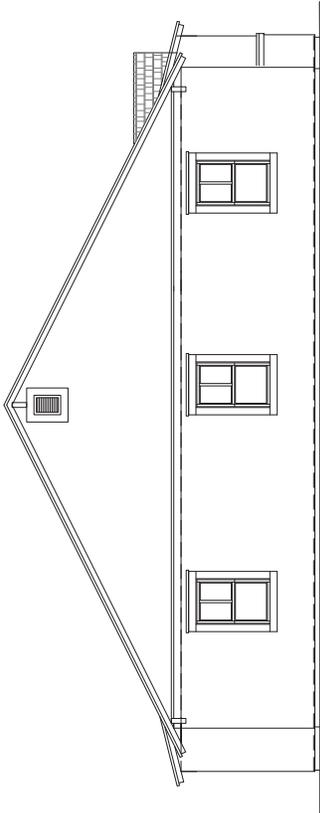
TIMBER RIDGE

1400

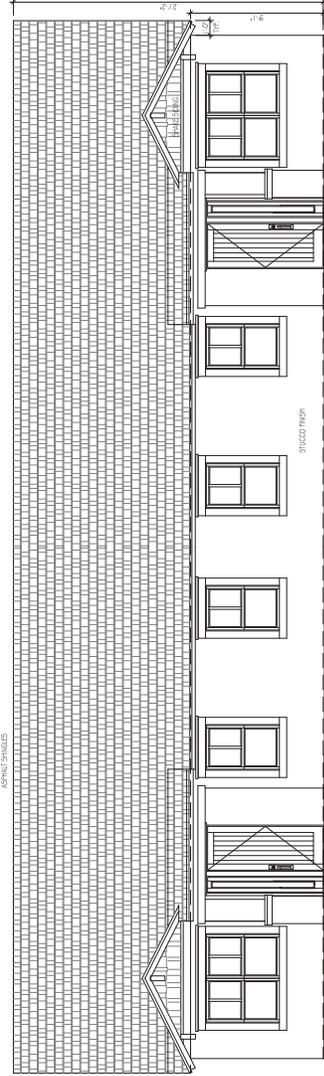
200 E. RIVER ROAD S-10 TUCSON, AZ 85718 (520) 415-5800



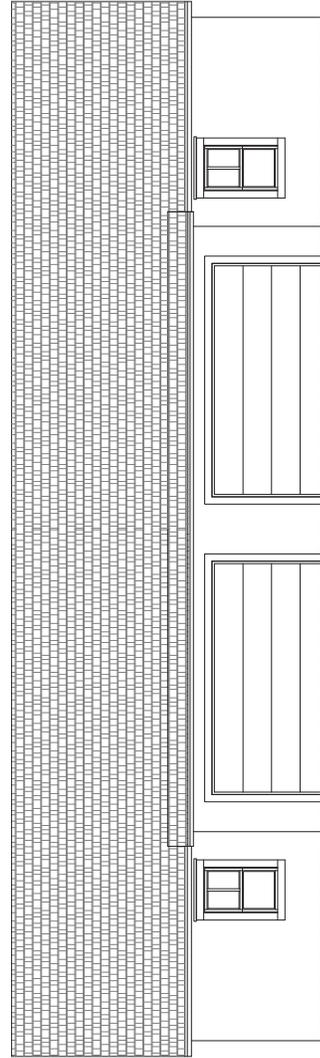




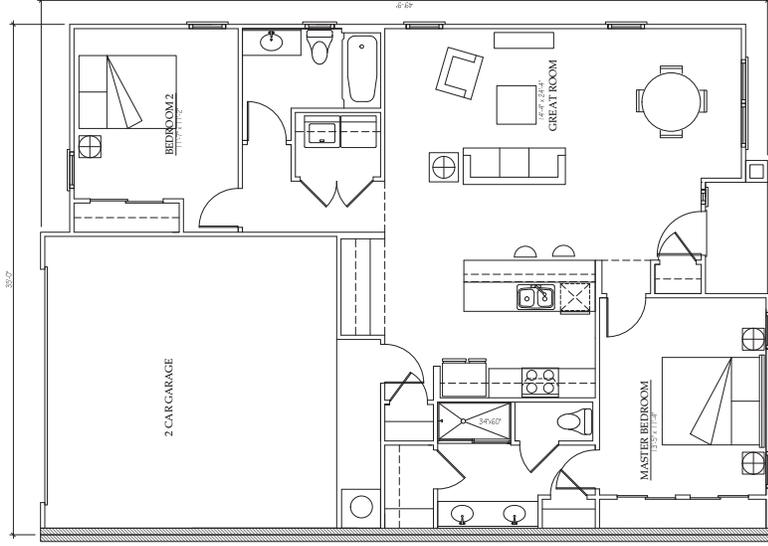
SIDE ELEVATION



FRONT ELEVATION

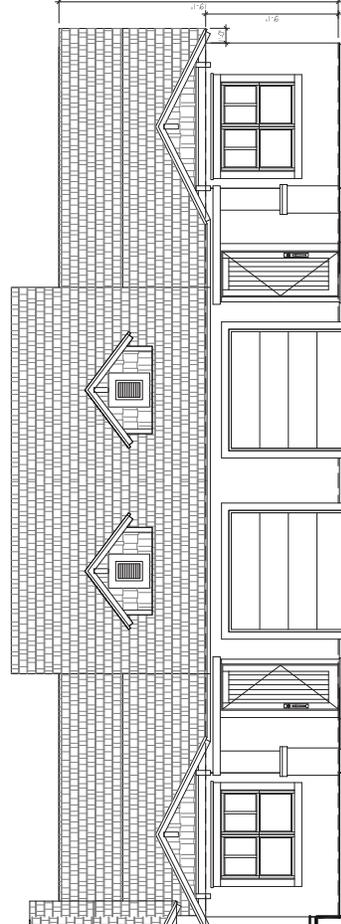
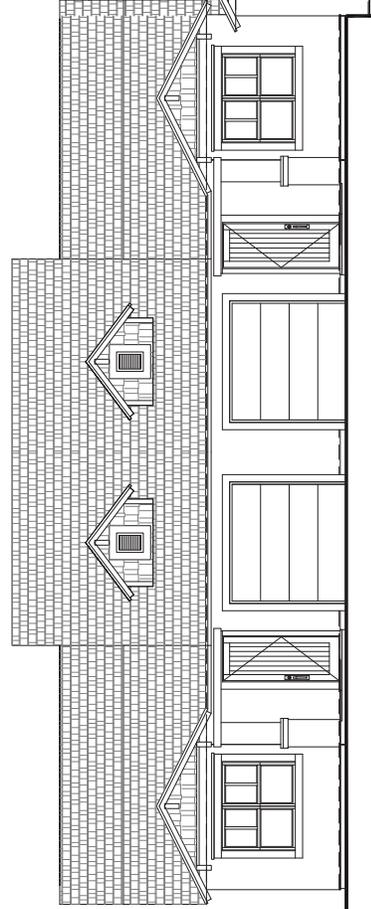
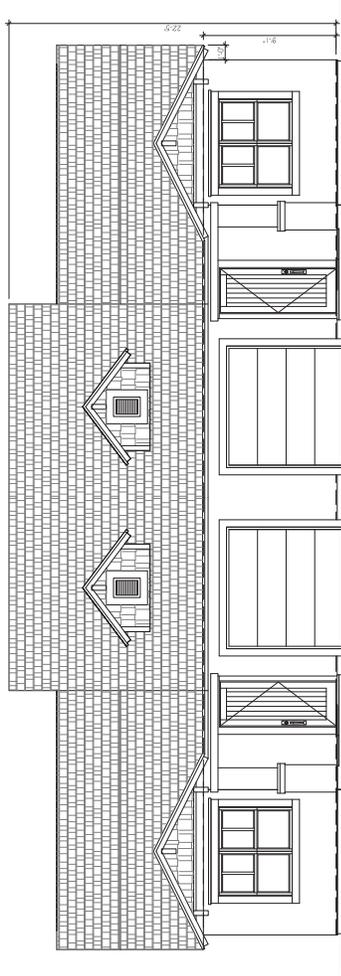
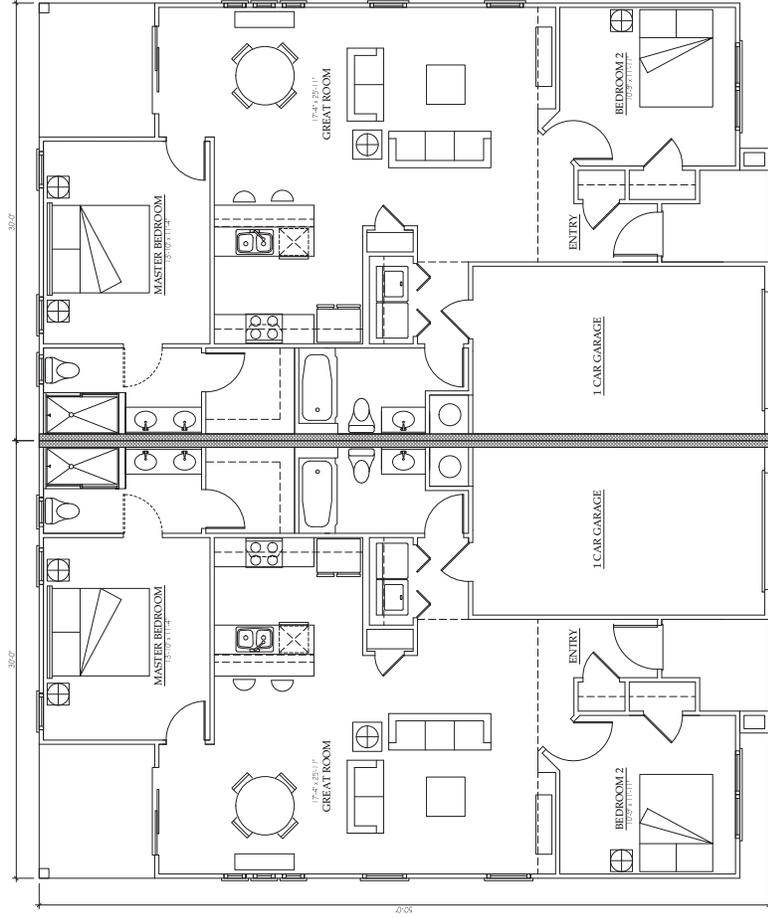
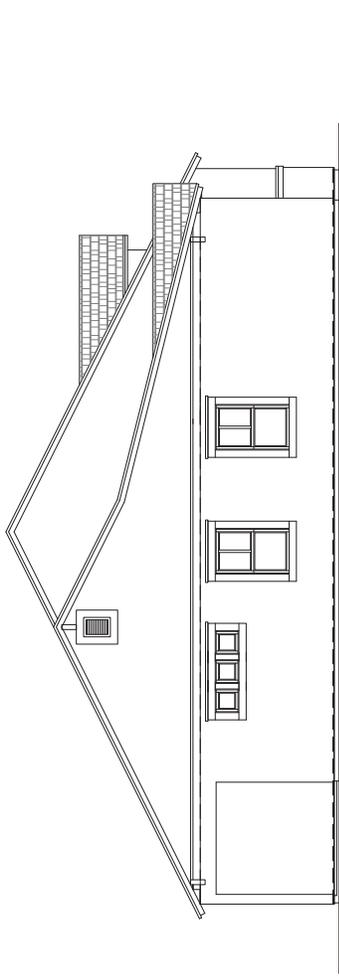


REAR ELEVATION



1213 S.F.

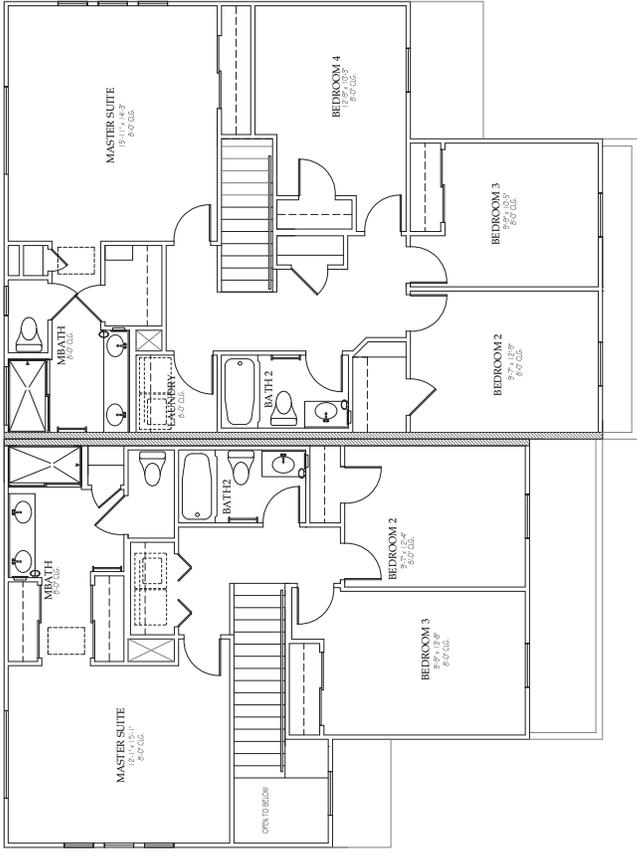
STANDARD: MASTER SUITE & BEDROOM 2  
2 CAR GARAGE



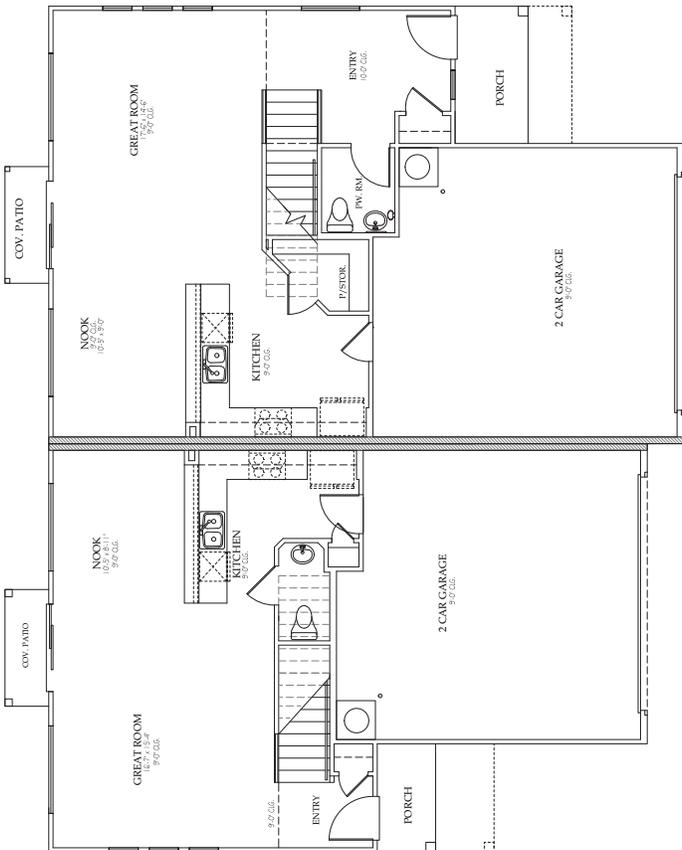
MULTI FAMILY MODEL 1120  
 DUPLEX/4-PLEX

TIMBER RIDGE

1120



SECOND FLOOR PLAN



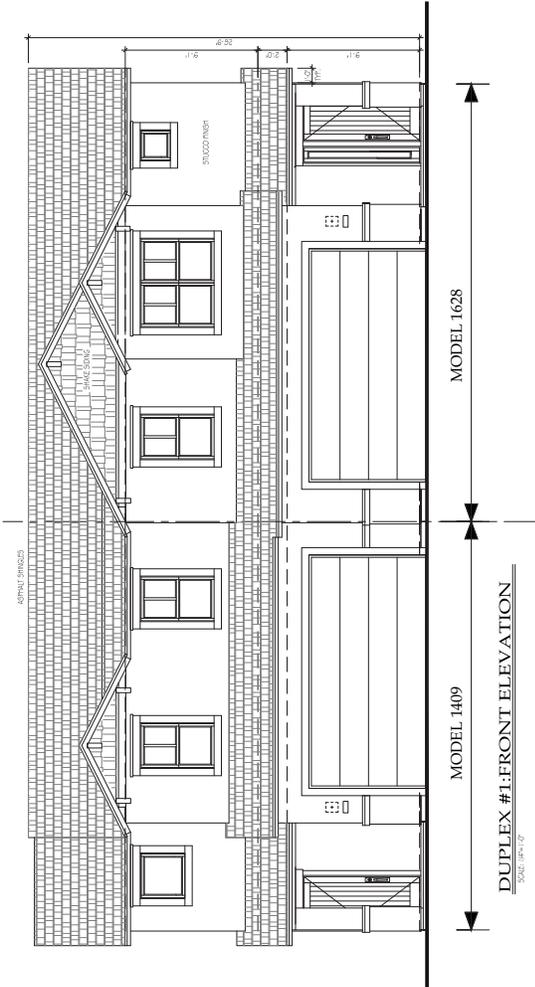
FIRST FLOOR PLAN



MULTIFAMILY  
MODELS 1409 & 1800

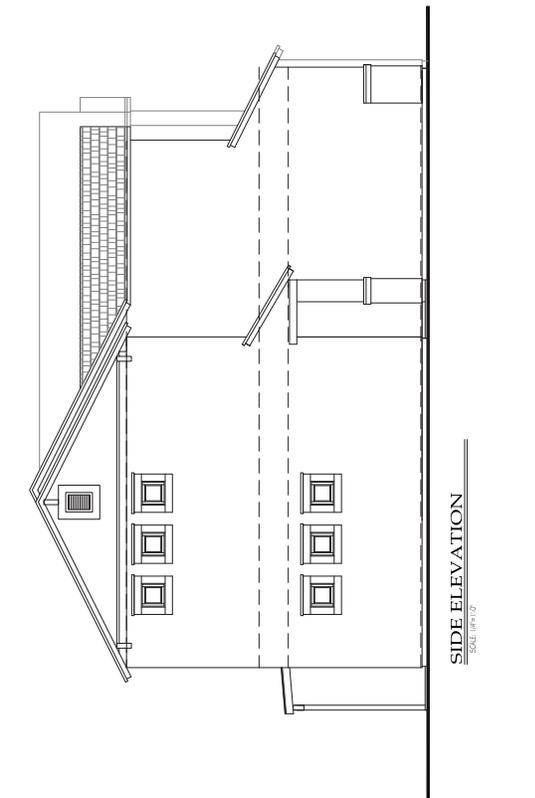
TIMBER RIDGE

DUPEX #2

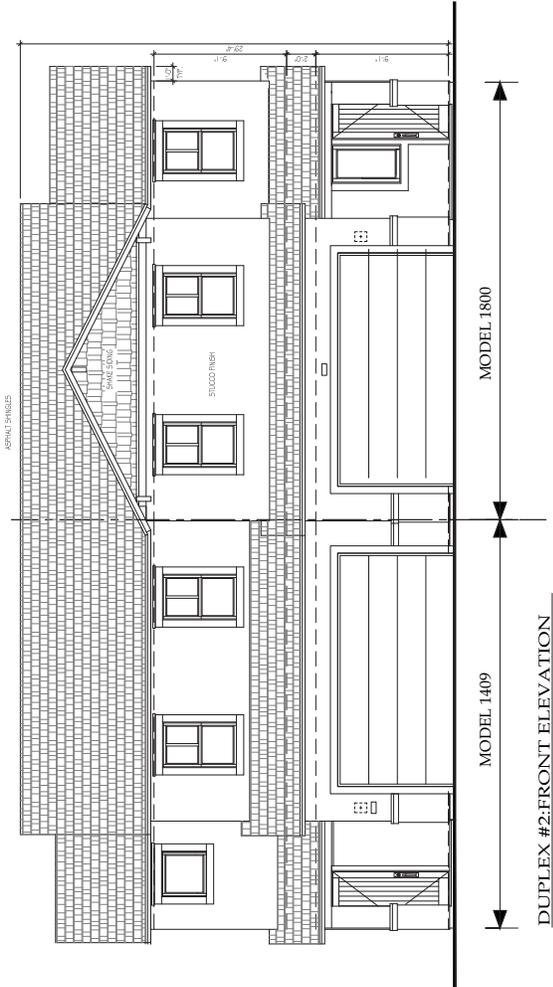


MODEL 1409

DUPLEX #1: FRONT ELEVATION  
SCALE: 1/8"=1'-0"

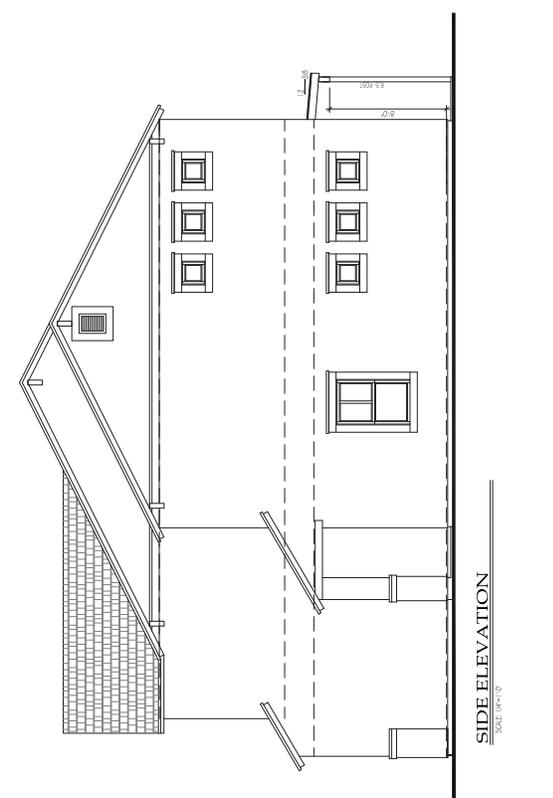


SIDE ELEVATION  
SCALE: 1/8"=1'-0"



MODEL 1800

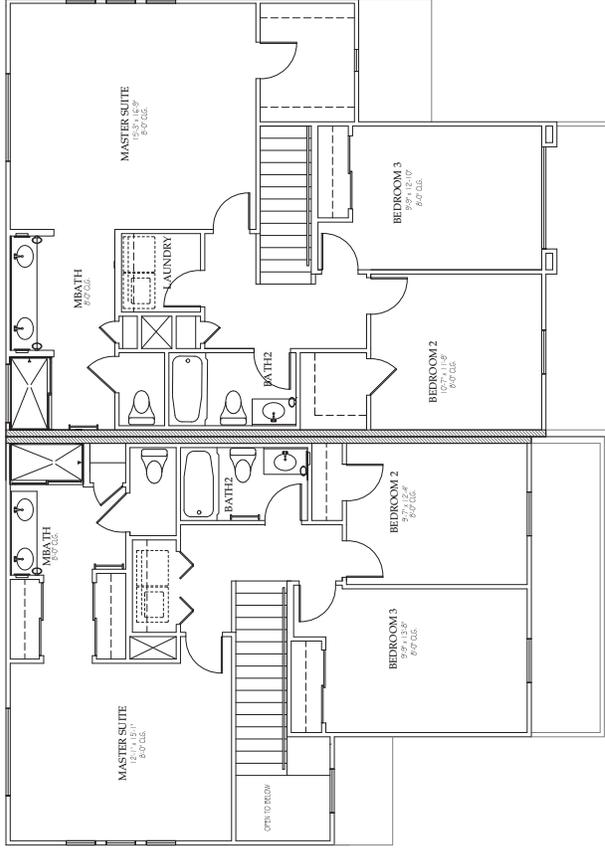
DUPLEX #2: FRONT ELEVATION  
SCALE: 1/8"=1'-0"



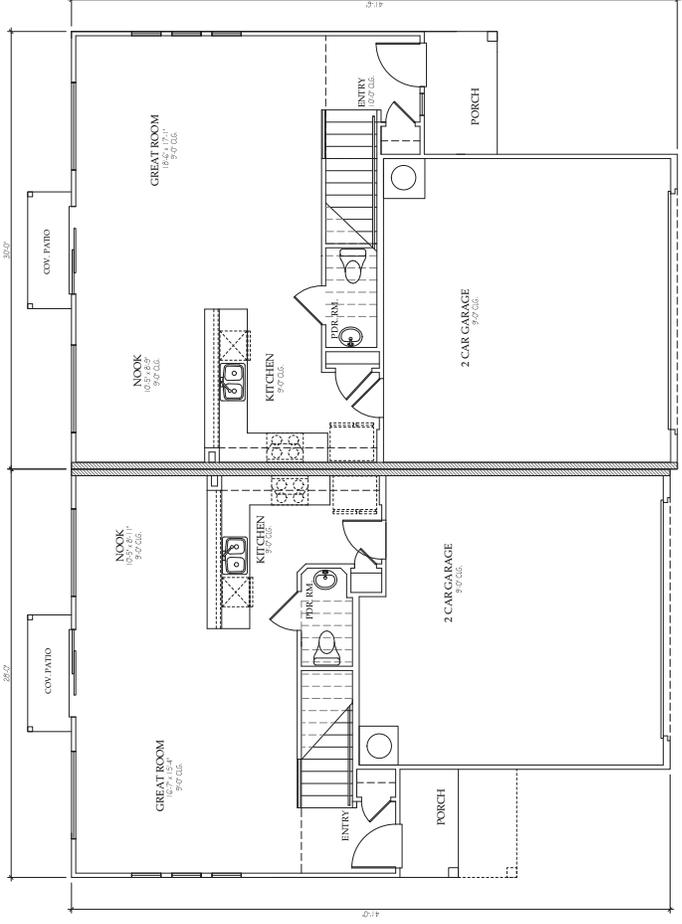
SIDE ELEVATION  
SCALE: 1/8"=1'-0"

# DUPLEX 1 & 2

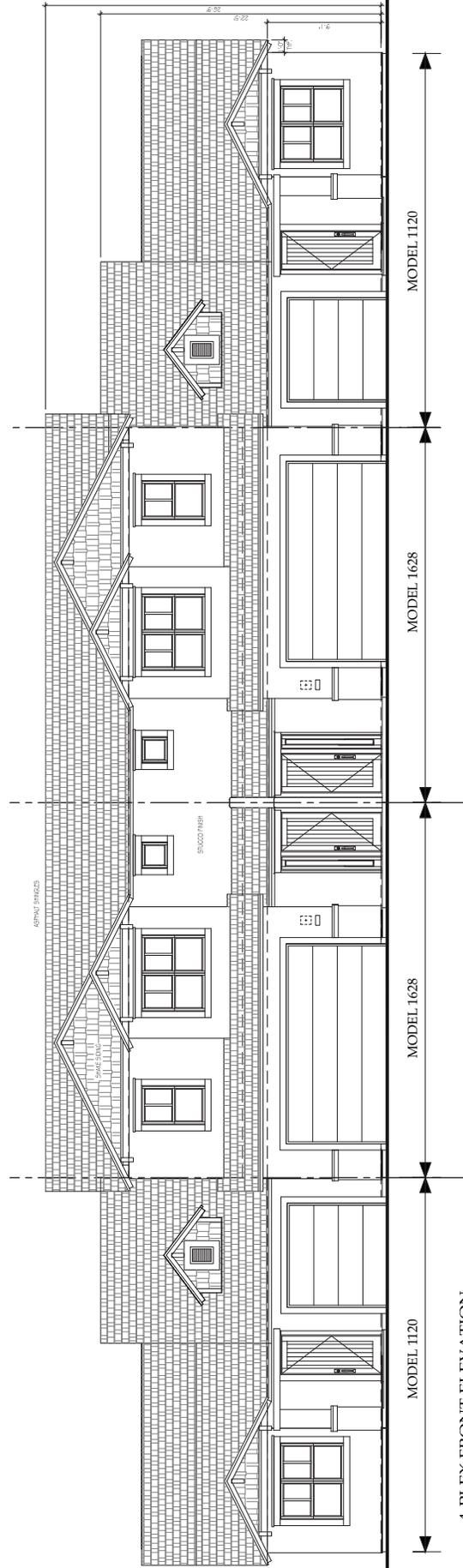
MULTI FAMILY  
MODEL 1409, 1628, 1800  
TIMBER RIDGE



SECOND FLOOR PLAN



FIRST FLOOR PLAN



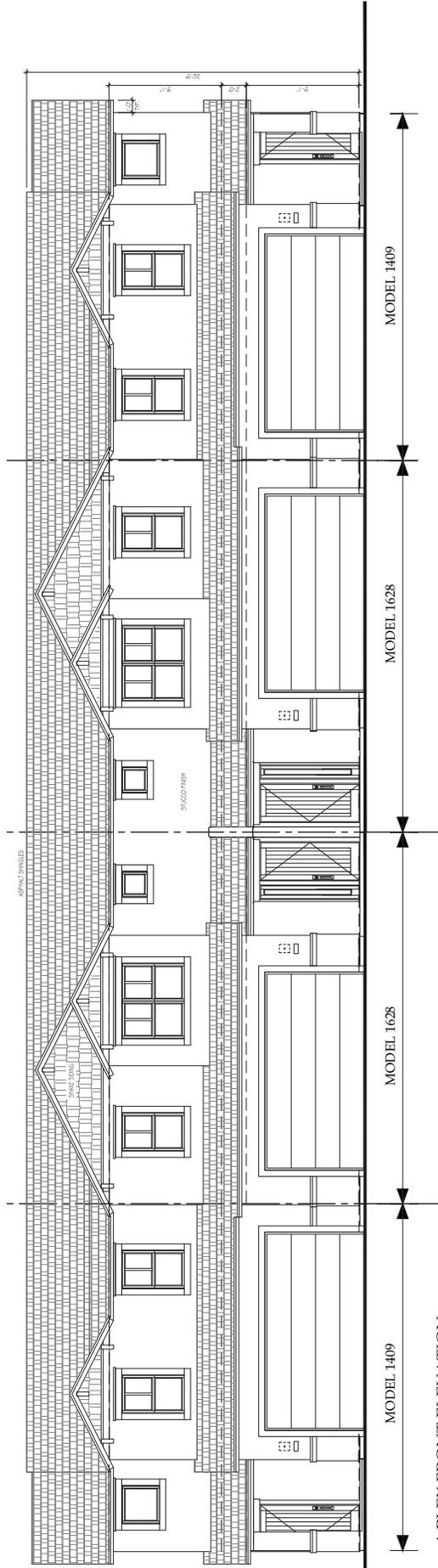
4-PLEX FRONT ELEVATION  
SCALE: 1/4" = 1'-0"



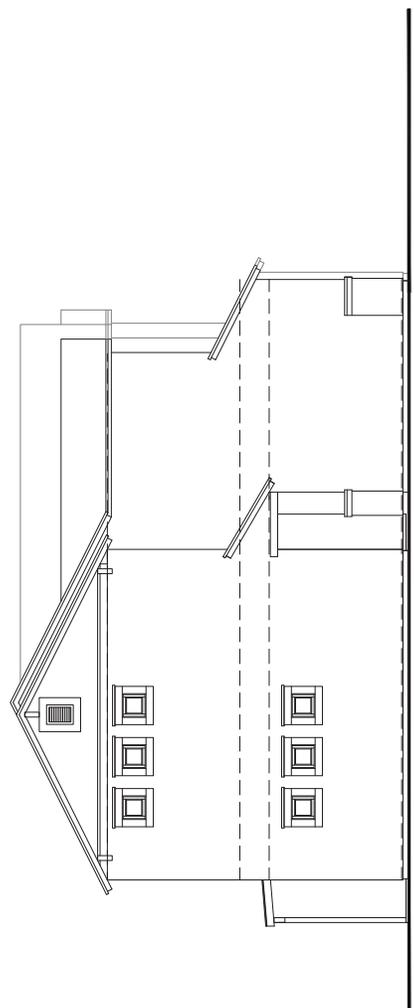
MULTI FAMILY  
MODELS 1120 & 1628

TIMBER RIDGE

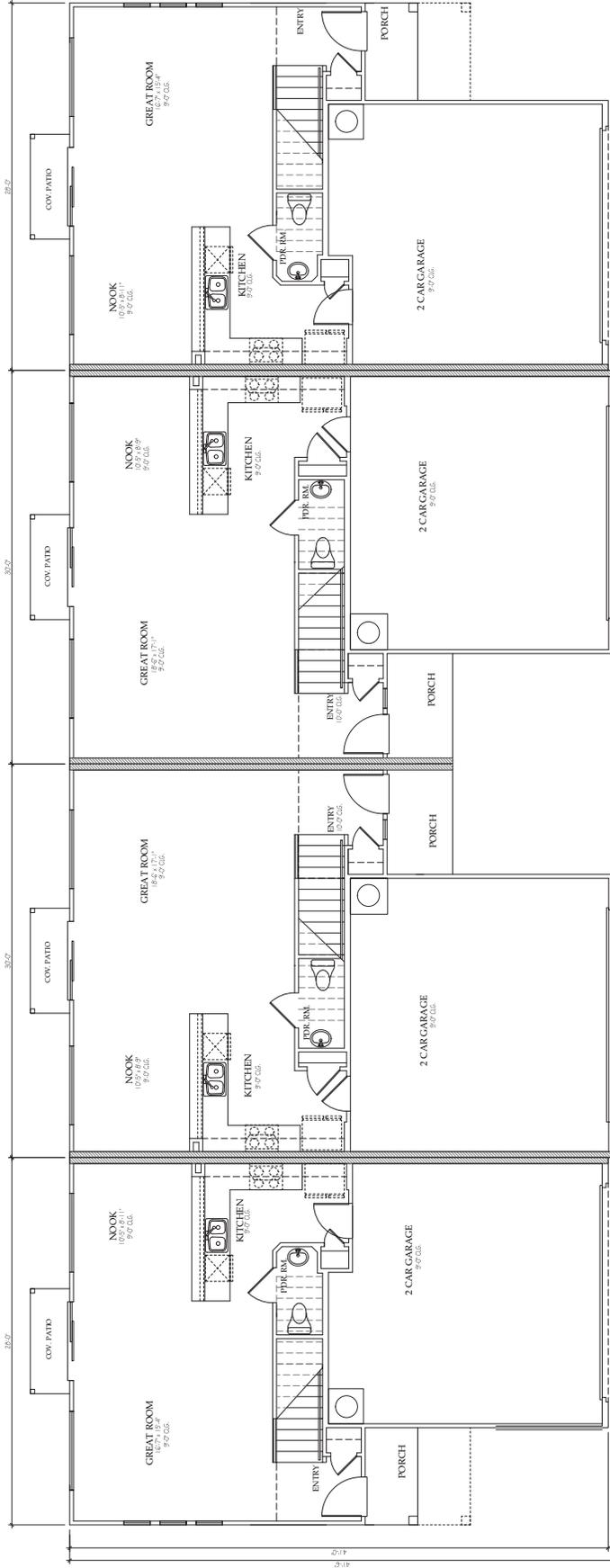
4-PLEX #2



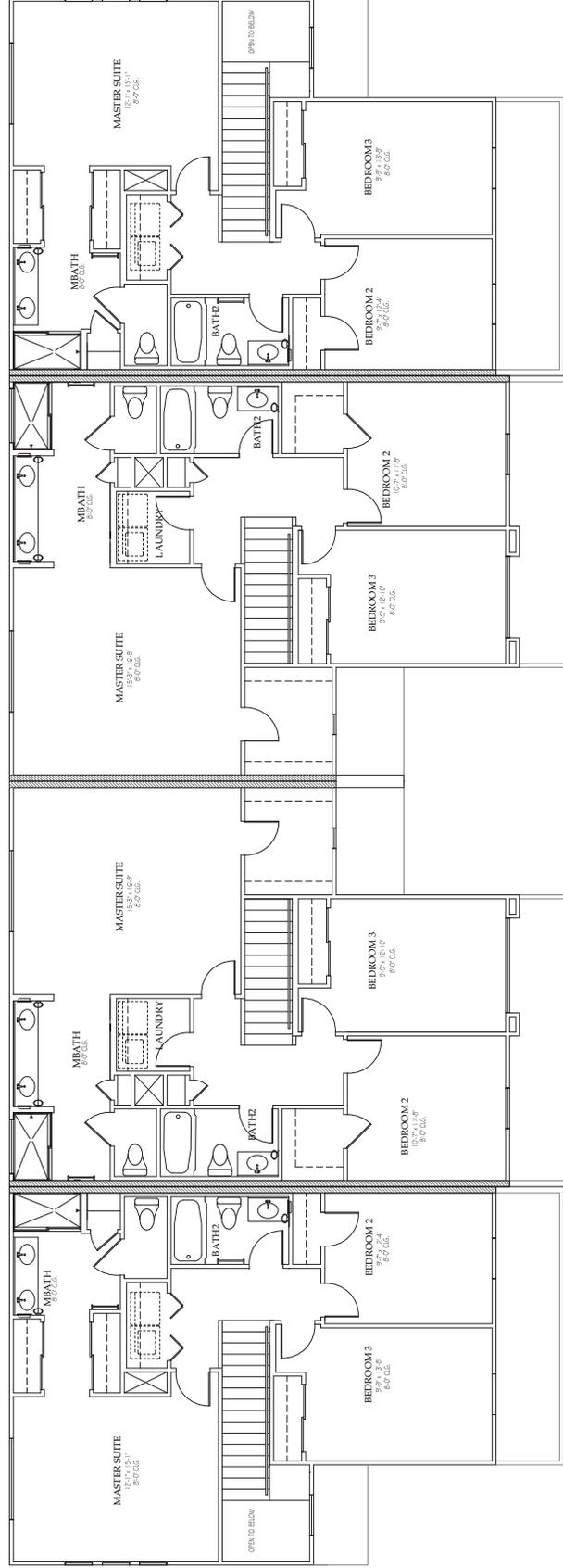
4-PLEX FRONT ELEVATION  
SCALE: 1/8"=1'-0"



SIDE ELEVATION  
SCALE: 1/8"=1'-0"



FIRST FLOOR PLAN



SECOND FLOOR PLAN

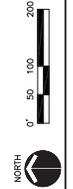
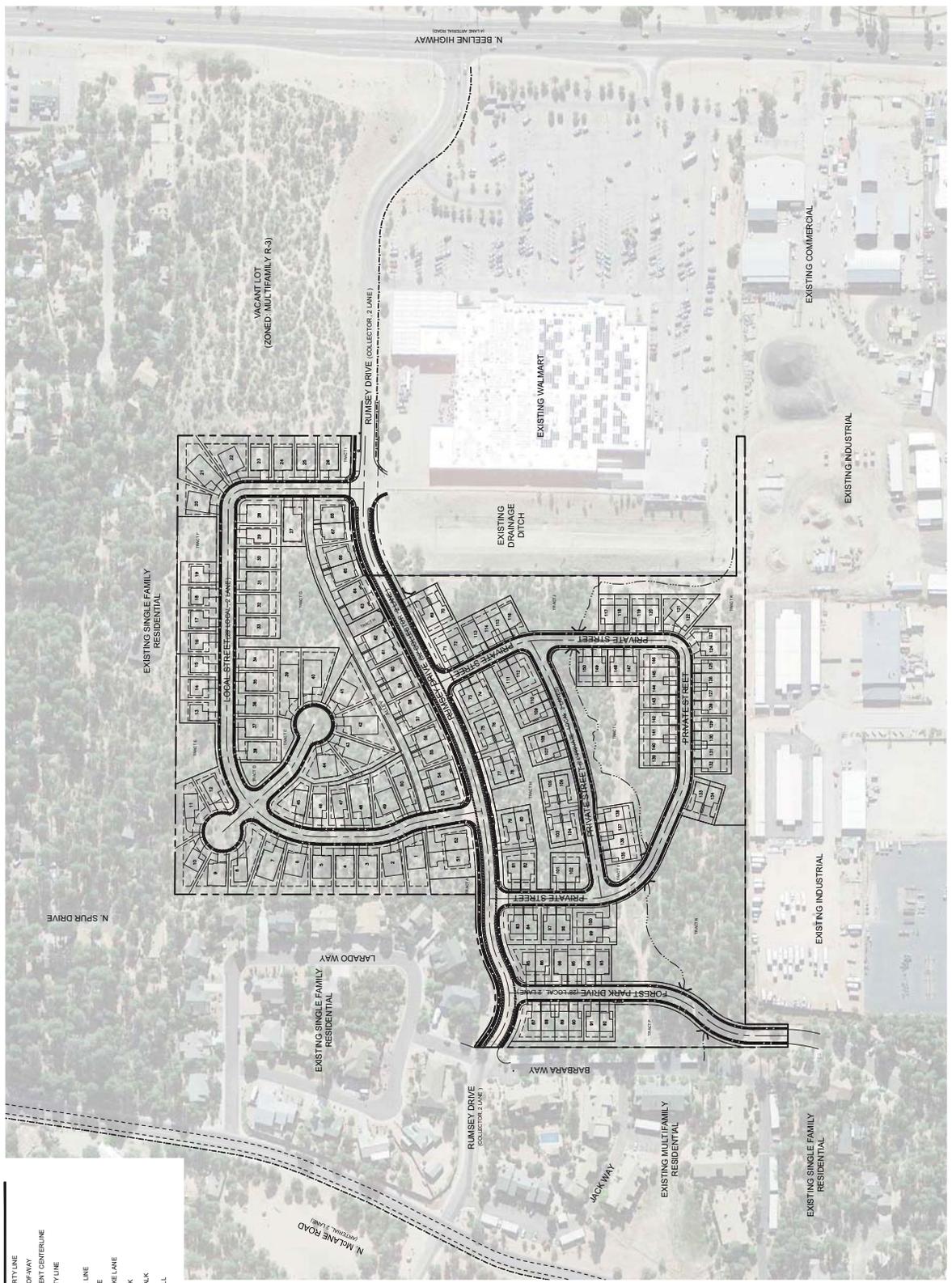
NO.	DATE	BY	Checked Approved	REVISIONS
1	12/24/14	TB	BB	PLD SUBMISSION



TIMBER RIDGE  
 PAYSON, AZ  
 CIRCULATION AND STREETS EXHIBIT

**otak**  
 O'Connell & Associates, Inc.  
 51 WEST THIRD STREET  
 PHOENIX, ARIZONA 85003  
 PHONE: (480) 555-6800  
 FAX: (480) 555-6885

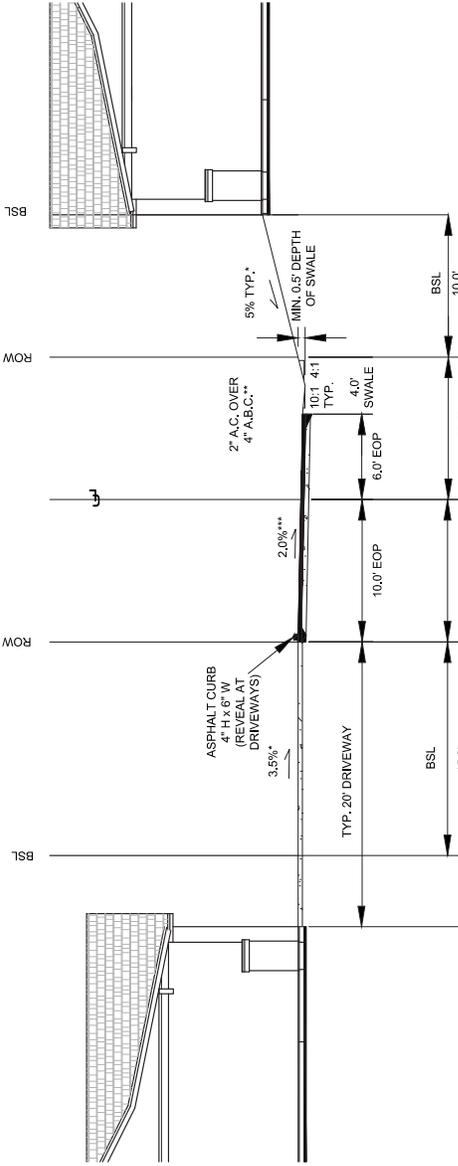
Project No. 17060A  
 Exhibit No. L 1.5  
 Sheet 22 of 33  
 © 2014 Otak, Inc.



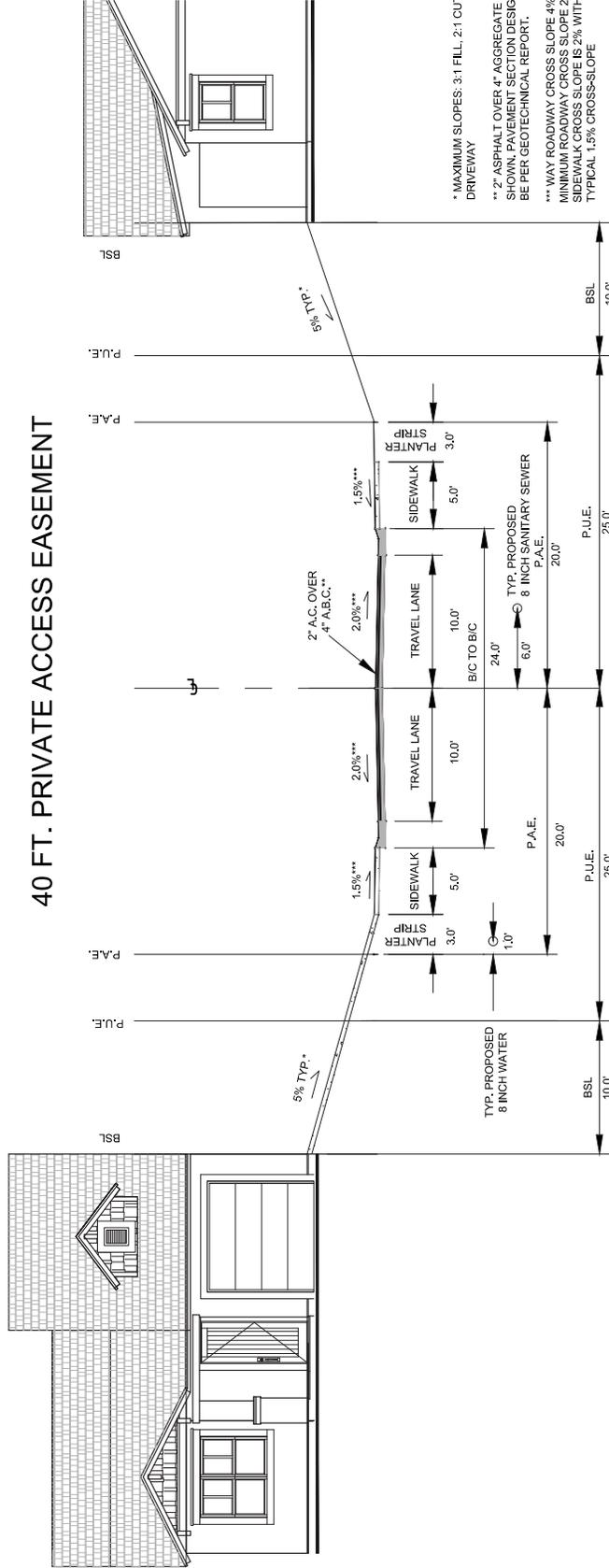
CIRCULATION AND STREETS EXHIBIT



PUBLIC ALLEY WAY



40 FT. PRIVATE ACCESS EASEMENT



- \* MAXIMUM SLOPES: 3:1 FILL, 2:1 CUT, AND 12% DRIVEWAY
- \*\* 2" ASPHALT OVER 4" AGGREGATE BASE SHOWN. PAVEMENT SECTION DESIGN SHALL BE PER GEOTECHNICAL REPORT.
- \*\*\* WAYSIDE ROADWAY CROSS SLOPE 4%; MINIMUM ROADWAY CROSS SLOPE 2%; MAX SIDEWALK CROSS SLOPE IS 2% WITH TYPICAL 1.5% CROSS-SLOPE

NO.	DATE	BY	CHKD	APPROVAL
1	02/24/14	AH	TD	PAID SUBMISSION



DATE: 09/30/2015

TIMBER RIDGE  
PARSON, AZ  
TYPICAL ROADWAY CROSS SECTIONS EXHIBIT



Project No. 17056A  
Sheet No. 1.7  
Sheet 24 of 33  
© 2014 Oak, Inc.











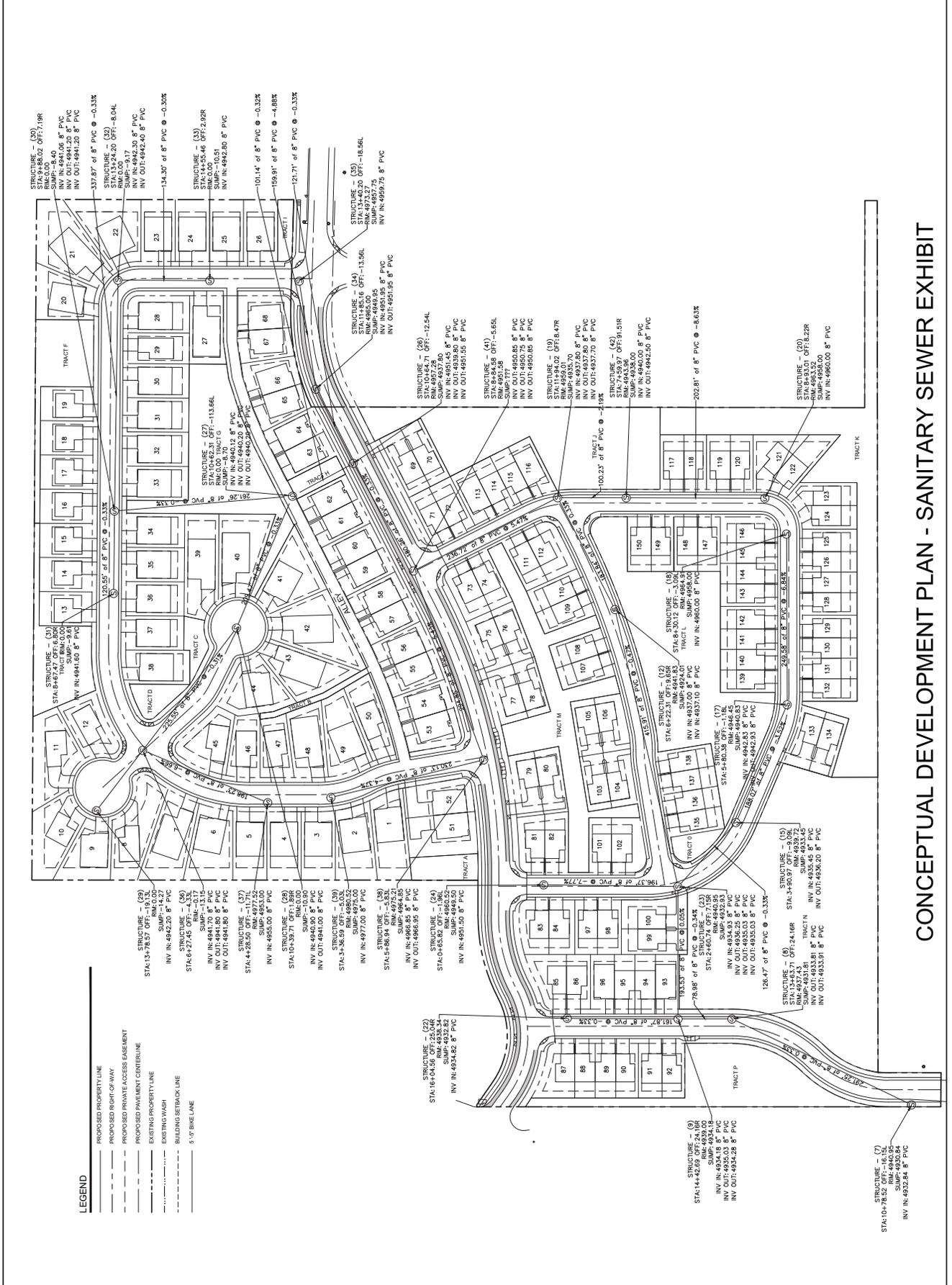
NO.	DATE	BY	REVISIONS
1	12/27/14	TS	ISSUED FOR PERMITS



CONCEPTUAL DEVELOPMENT PLAN - SANITARY SEWER EXHIBIT  
 PAYSON, AZ



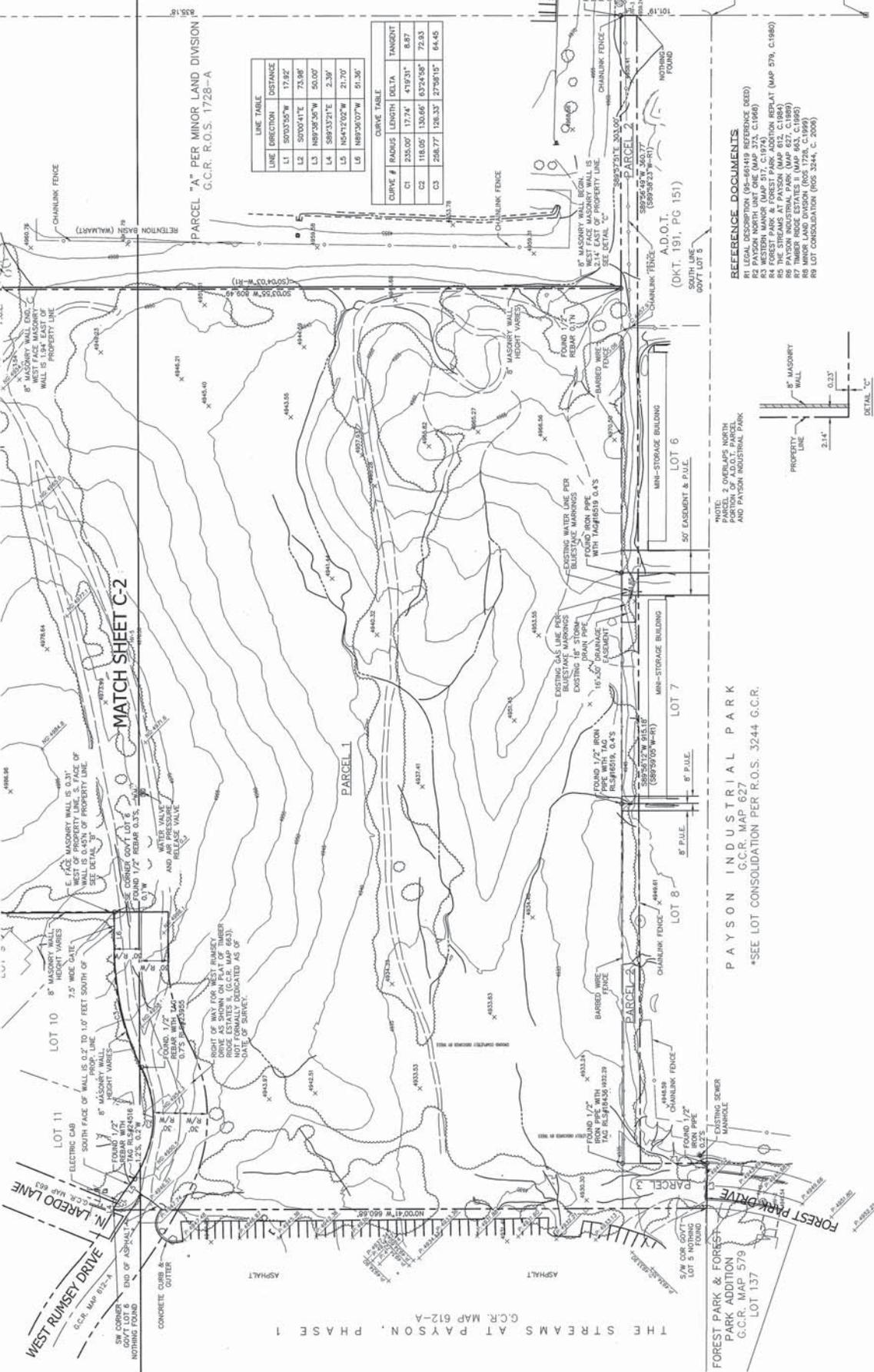
Project No. 17060A  
 Exhibit No. C.3.0  
 Sheet 30 of 33  
 © 2014 Oak, Inc.



CONCEPTUAL DEVELOPMENT PLAN - SANITARY SEWER EXHIBIT







LINE TABLE

LINE	DIRECTION	DISTANCE
L1	S070°35'W	17.92'
L2	S070°41'E	73.96'
L3	N89°35'30"W	50.00'
L4	S89°33'21"E	2.39'
L5	N54°12'02"W	21.70'
L6	N89°35'07"W	51.36'

CURVE TABLE

CURVE #	RADIUS	LENGTH	DELTA	TANGENT
C1	235.00'	17.74'	4°19'31"	8.87'
C2	118.00'	130.66'	83°24'58"	72.83'
C3	258.77'	128.33'	27°58'15"	64.45'

PARCEL "A" PER MINOR LAND DIVISION  
G.C.R. R.O.S. 1728-A

MATCH SHEET C-2

WEST RUMSEY DRIVE  
G.C.R. MAP 612-A

THE STREAMS AT PAYSON, PHASE 1  
G.C.R. MAP 612-A

FOREST PARK & FOREST PARK ADDITION  
G.C.R. MAP 579

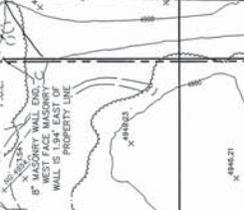
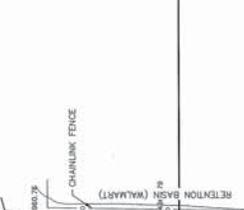
PAYSON INDUSTRIAL PARK  
G.C.R. MAP 627

\*SEE LOT CONSOLIDATION PER R.O.S. 3244 G.C.R.

NOTE: PARCEL 2 OVERLAPS NORTH AND PAYSON INDUSTRIAL PARK

REFERENCE DOCUMENTS

- R2 LACON NORTH UNIT ONE (MAP 325, C1966)
- R3 WESTERN MANOR (MAP 517, C1974)
- R4 FOREST PARK & FOREST PARK ADDITION REPLAT (MAP 579, C1980)
- R5 PAYSON INDUSTRIAL PARK (MAP 627, C1899)
- R6 PAYSON INDUSTRIAL PARK (MAP 627, C1899)
- R7 TIMBER RIDGE ESTATES I (MAP 623, C1895)
- R8 TIMBER RIDGE ESTATES II (MAP 623, C1895)
- R9 LOT CONSOLIDATION (R.O.S. 3244, C. 2008)



FOUND 1/2" REBAR WITH TAG

FOUND

# Appendix A - Traffic Impact Analysis

# Timber Ridge: Payson, AZ

---

## Traffic Impact Study



PG-999-1404

May 14<sup>th</sup>, 2014

***Table of Contents***

Table of Contents ..... ii

List of Tables ..... iii

List of Figures ..... iii

Introduction ..... 4

Proposed Project ..... 5

Study Area Conditions ..... 6

Analysis Methodology ..... 7

    Analysis of Existing Conditions ..... 8

Projected Traffic ..... 9

    Trip Generation ..... 9

    Trip Distribution and Assignment ..... 9

    Daily Traffic Counts ..... 9

    Project Access/Traffic Circulation ..... 10

Traffic Analysis ..... 10

    Existing Without Project with Rumsey Drive Analysis ..... 10

    Existing Plus Project Traffic Analysis ..... 11

    5-Year Background Traffic Condition ..... 13

    5-Year Traffic Condition (Background Plus Rumsey Dr. without Project Traffic) ..... 13

    5-Year Traffic Condition (Background Plus Project Traffic) ..... 14

Rumsey Dr. and Mc Lane Rd Intersection ..... 16

Appendices ..... 18

    Traffic Counts ..... 18

    Traffic Capacity Analysis ..... 18

**List of Tables**

Table 1: LOS Criteria for Intersections ..... 8  
Table 2: Existing Traffic Analysis Results ..... 8  
Table 3: Project Trip Generation ..... 9  
Table 4: Background Plus Rumsey Dr. without Project Traffic Operations ..... 11  
Table 5: Background Plus Traffic Operations (With Rumsey Dr./Forest Park Dr. Open) ..... 11  
Table 6: 5-Year Traffic Operations Results ..... 13  
Table 7: 5-Year Plus Rumsey Dr. without Project Traffic Operations Results ..... 13  
Table 8: 5-Year Plus Project Traffic Operations Results ..... 14  
Table 9: Mc Lane Rd and Rumsey Dr. Conditions ..... 16

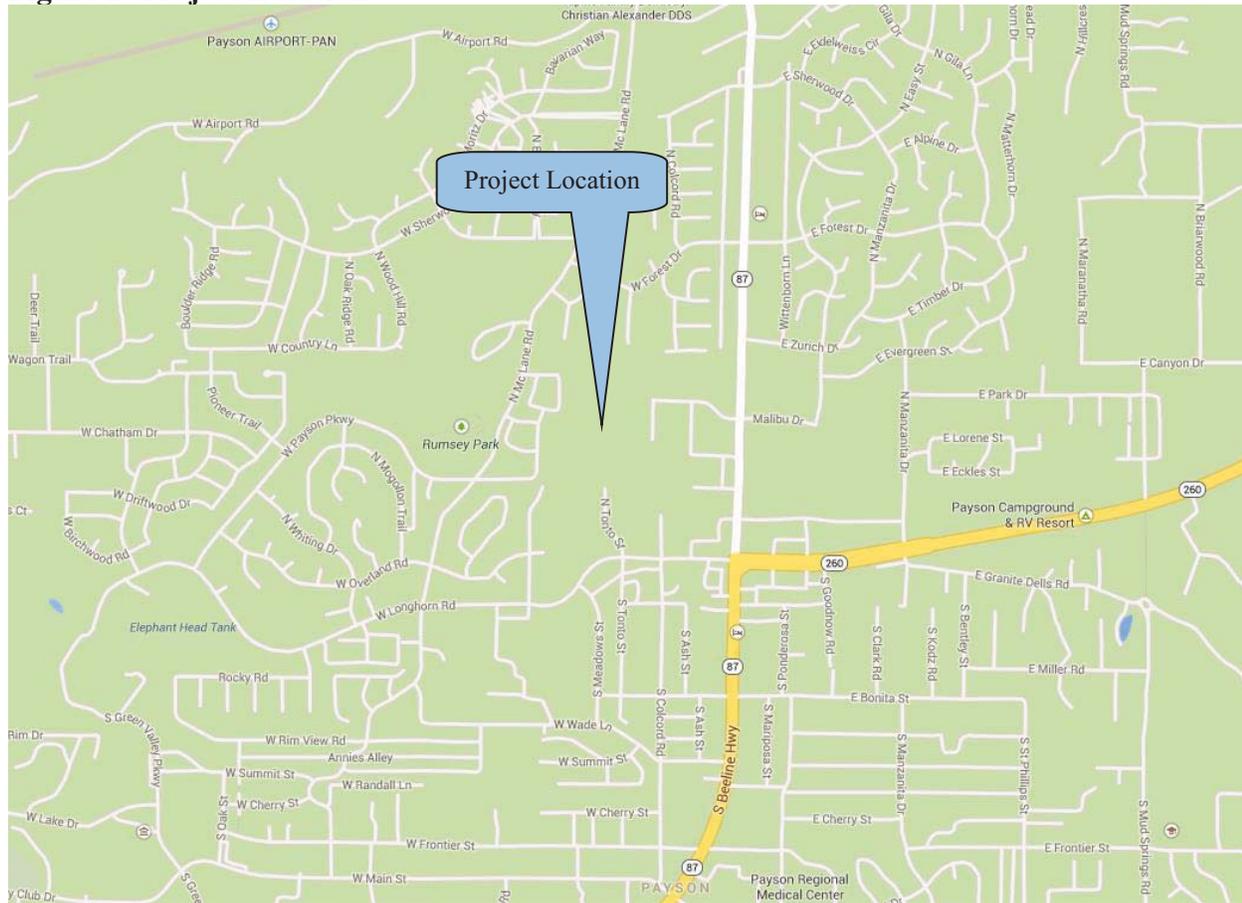
**List of Figures**

Figure 1: Project Location ..... 4  
Figure 2: Project Layout ..... 5  
Figure 3: Existing Land Use and Project Location ..... 6  
Figure 4: Project Access Distribution ..... 10  
Figure 5: Existing, With Rumsey Dr. Open, Plus Project Traffic Volumes ..... 12  
Figure 6: 5-Year Existing With Rumsey Dr. Open, Plus Project Traffic Volumes ..... 15

## Introduction

The purpose of this report is to present the findings of the traffic impact analysis performed for the proposed Timber Ridge development located near the Walmart supercenter, just west of the Beeline Highway in Payson, AZ. **Figure 1** displays the location of the project.

**Figure 1: Project Location**



## Proposed Project

The site plan shown in **Figure 2** displays 151 single family homes. Some of the 151 units (62) have “zero” lot lines and share a common wall or walls. However, each unit has their own driveway, garage, and separate yard. These units were considered in this analysis to be single-family units.

**Figure 2: Project Layout**



The existing land is currently vacant and is surrounded by existing single-family residential neighborhoods, an industrial center, a Wal-Mart shopping center and other vacant land, as shown in Figure 3.

**Figure 3: Existing Land Use and Project Location**



### *Study Area Conditions*

The study area consists of three off-site intersections:

- Beeline Highway/Malibu Drive                      Signalized Intersection
- Mc Lane Road/Rumsey Drive                      Two-Way Stop-Controlled Intersection
- Longhorn Road/Forest Park Drive              Two-Way Stop-Controlled Intersection

**Beeline Highway**

Beeline Highway is a 5-lane roadway that is also State Route 87. The speed limit is 40 mph with two travel lanes in each direction. There is a center two-way left-turn lane near the project area with turn pockets at most major intersections.

**Malibu Drive**

Malibu Drive crosses the Beeline Highway to a Wal-Mart Supercenter. East of Beeline Highway, Malibu Drive has two travel lanes in each direction with a two-way left-turn lane. West of Beeline Highway, Malibu Drive has one travel lane in each direction and has left-turn pockets at intersections. The speed limit is 25 mph.

**Mc Lane Road**

Mc Lane Road is a 3-lane roadway that runs north/south. It has one travel lane in each direction with a two-way left-turn lane. It has a posted speed limit of 25 mph and provides access to Rumsey Drive as well as Longhorn Road.

**Rumsey Drive**

Rumsey Drive is a short 2-lane road that has one travel lane in each direction with no turning lanes. The road runs from Rumsey Park to Barbara Way and has a posted speed limit of 25 mph.

**Longhorn Road**

Longhorn Road is a 3-lane road with one travel lane in each direction and a two-way left-turn lane. It eventually expands into a 5-lane roadway and becomes State Route 260 as it intersects Beeline Highway. While it is only 3 lanes wide, its speed limit is 25 mph. The speed limit increases to 35 mph as it becomes SR-260.

**Forest Park Drive**

Forest Park Drive is a 2-lane road that only has one travel lane in each direction with no turning lanes. The speed limit is 25 mph and runs from Rim County Middle School to the projected project site.

## *Analysis Methodology*

In order to quantify the traffic conditions currently exhibited in the study area, the roadway geometries, traffic data, and signal timings were entered in the PTV Vistro software package. Using the Highway Capacity Manual (HCM) method of calculating intersection delay, a Level of Service (LOS) grade was assigned to each intersection for the PM peak hour.

LOS is a term used by the HCM to describe the traffic operations of an intersection, based on congestion and delay. LOS ranges from A (almost no congestion or delay) to F (traffic demand exceeds capacity and the intersection experiences long queues and delay). LOS D is generally acceptable for intersections like the ones studied in this report. LOS E is the threshold when the intersection reaches capacity. The delay criteria used to assign a letter grade to an intersection for signalized and unsignalized intersections is shown below in **Table 1**.

**Table 1: LOS Criteria for Intersections**

Level of Service	Average Control Delay (sec/veh) Signalized Intersection	Average Control Delay (sec/veh) Unsignalized Intersections
A	≤ 10	≤ 10
B	> 10 - 20	> 10 – 15
C	> 20 - 35	> 15 – 25
D	> 35 - 55	> 25 – 35
E	> 55 - 80	> 35 – 50
F	> 80	> 50

Source: Highway Capacity Manual 2010

**Analysis of Existing Conditions**

Traffic data was manually gathered at study intersections during the PM peak hour between 4 PM and 6 PM. Traffic counts were obtained at each of the previously mentioned study intersections and was used to establish a base traffic condition.

The background PM peak hour traffic counts were added to a model of the existing road network in the Vistro software. A level of service (LOS) analysis was performed using Highway Capacity Manual (HCM) 2010 methodologies. The results of the existing condition analysis are shown in **Table 2**. All intersections operate at the LOS B threshold with substantial reserve capacity during the PM peak hour.

**Table 2: Existing Traffic Analysis Results**

Intersection	PM	
	Worst Movement Delay (average sec/veh)	LOS
Beeline Hwy/ Malibu Dr.	10.9 WBT	B
Longhorn Rd./ Forest Park Dr.	13.7 SBL	B
Mc Lane Dr./ Rumsey Dr.	12.9 SEBL	B

Source: Vistro Software using HCM 2010 Methodologies

## Projected Traffic

### Trip Generation

Project trip generation was estimated using the trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9<sup>th</sup> Ed. The number of trips generated during the average weekday and PM peak hour are shown in **Table 3**.

**Table 3: Project Trip Generation**

Variable	Quantity	Daily			PM Peak Hour		
		Total	In	Out	Total	In	Out
<b>Single-Family Detached (ITE 210)</b>		<b>9.52</b>	50%	50%	<b>1.00</b>	63%	37%
Units	151	1,438	719	719	151	95	56
<b>Total New Trips</b>		<b>1,438</b>	<b>719</b>	<b>719</b>	<b>151</b>	<b>95</b>	<b>56</b>

Source: ITE Trip Generation Manual, 9<sup>th</sup> Ed.

### Trip Distribution and Assignment

Project traffic was distributed to the roadway network based on existing traffic patterns and the proximity to arterial streets. **Figure 4** displays the project distribution percentages for traffic entering and leaving the project site during the PM peak hours.

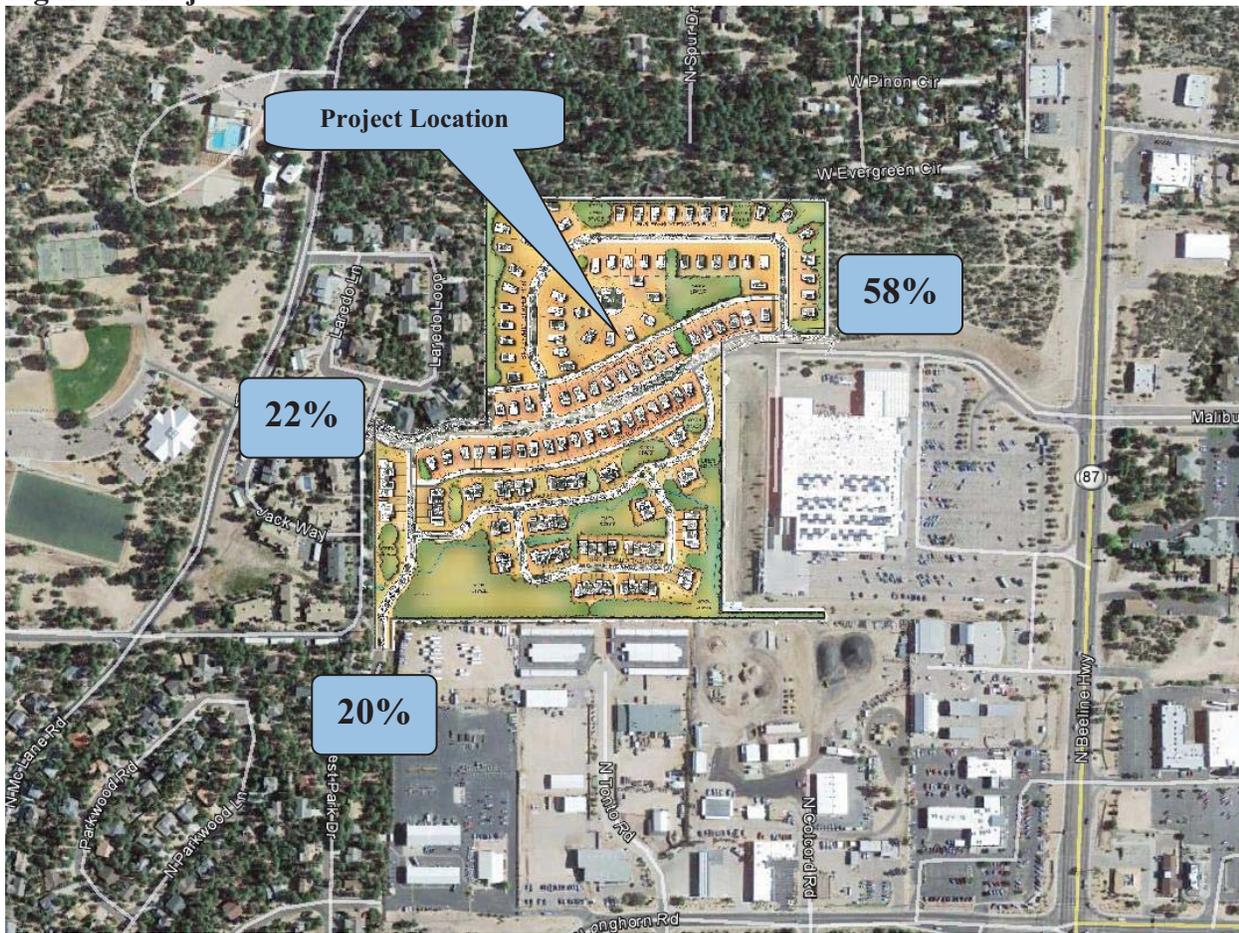
### Daily Traffic Counts

Historical Annual Average Daily Traffic (AADT) values for the past 5 years were acquired from ADOT’s website publication for US-87 and US-260 near the proposed site. Historical traffic data is displayed below.

2012	2011	2010	2009	2008	2007
19,231	19,231	20,000	21,000	27,000	26,000

The 5-year historical average annual growth rate is **-5.4%** of traffic growth per year. To be conservative, a **1%** annual growth rate was applied to background count data obtained at the study intersections.

**Figure 4: Project Access Distribution**



**Project Access/Traffic Circulation**

All project accesses will provide vehicle access directly to/from Rumsey Drive and Forest Park Drive. Vehicles will then either travel to/from Beeline Highway, Mc Lane Road, and Longhorn Road.

**Traffic Analysis**

**Existing Without Project with Rumsey Drive Analysis**

Under this condition, it was assumed that Rumsey Drive would be constructed and connect Beeline Highway and Mc Lane Drive. Forest Park Drive would also connect to Rumsey Drive. Existing traffic volumes were redistributed to account for Rumsey Drive being an alternative connection between Beeline Highway and Mc Lane Drive; other than Forest Drive or Airport Road. It is estimated that traffic from Mc Lane Road would now have an alternative access to Walmart. Once traffic was redistributed to the roadway network, a level of service analysis was performed to estimate the change in intersection operations with the new traffic volume distributions.

**Table 4** displays the results of the traffic analysis after adding traffic to Rumsey Drive. The LOS and delay slightly increase during the peak periods, however, the intersection operates at an acceptable LOS

**Table 4: Background Plus Rumsey Dr. without Project Traffic Operations**

Intersection	PM	
	Worst Movement Delay (average sec/veh)	LOS
Beeline Hwy/ Malibu Dr.	14.1 EBR	B
Longhorn Rd./ Forest Park Dr.	14.2 NWBL	B
Mc Lane Dr./ Rumsey Dr.	14.2 SBL	B

Source: Vistro Software using HCM 2010 Methodologies

**Existing Plus Project Traffic Analysis**

The Existing Conditions analysis has already been presented in this report. However, with this project Rumsey Drive and Forest Park Drive will be constructed. The redistributed traffic with this new construction served as the “background” or base traffic in the subsequent traffic analysis scenarios presented in this section. All of the traffic analysis scenarios were analyzed using the existing intersection controls and geometries. If needed, intersection or geometric changes will be recommended in each subsequent analysis scenario.

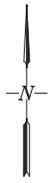
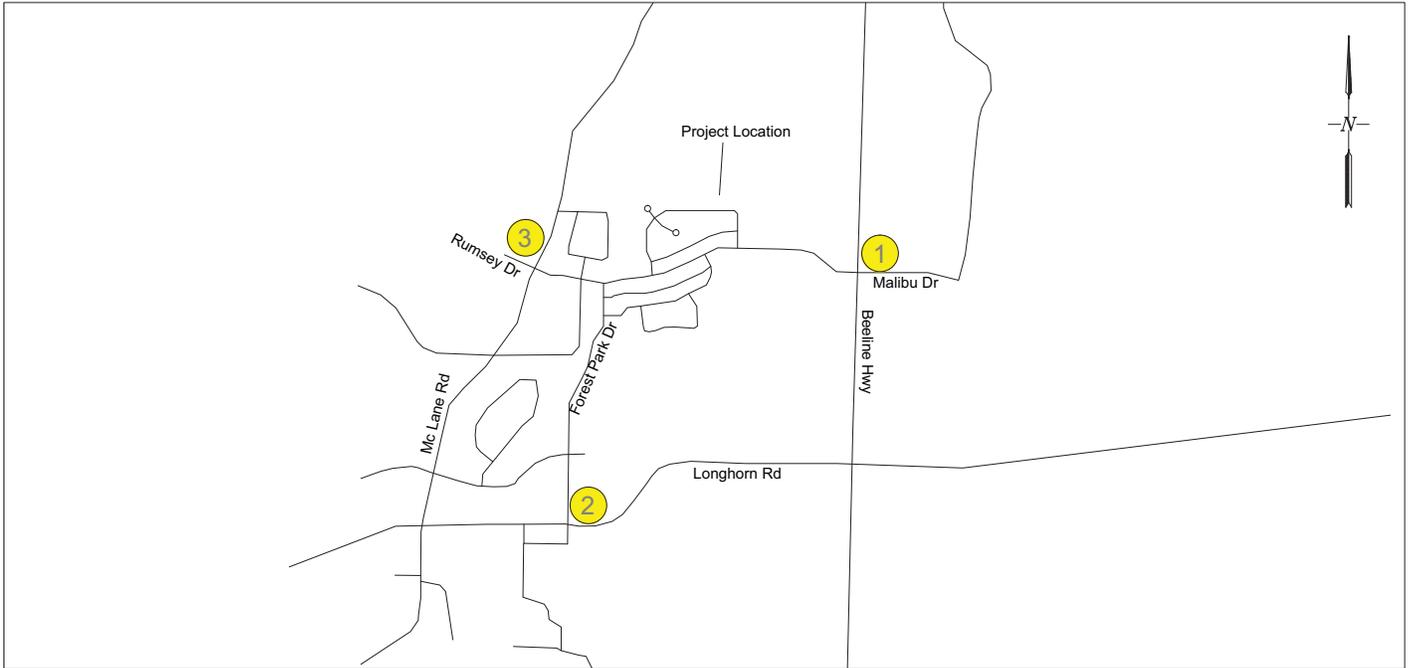
**Table 5** displays the results of the traffic analysis after adding background traffic; assuming 100% build-out of the project. Though the LOS and delay increase, the LOS at the study intersections continues to operate at acceptable levels (LOS D or better).

**Table 5: Background Plus Traffic Operations (With Rumsey Dr./Forest Park Dr. Open)**

Intersection	PM	
	Worst Movement Delay (average sec/veh)	LOS
Beeline Hwy/ Malibu Dr.	12.0 WBT	B
Longhorn Rd./ Forest Park Dr.	15.2 NWBL	C
Mc Lane Dr./ Rumsey Dr.	15.0 SBL	B

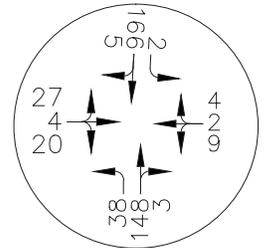
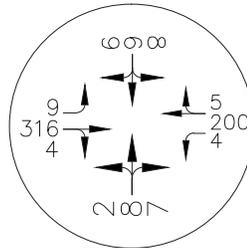
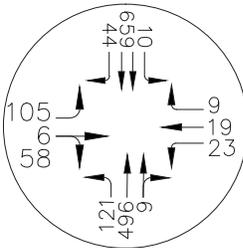
Source: Vistro Software using HCM 2010 Methodologies

**Figure 5** displays traffic volumes for all of the above traffic scenarios.

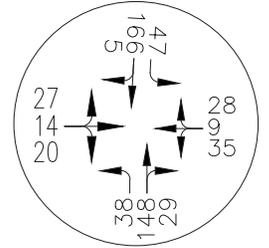
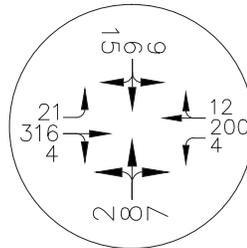
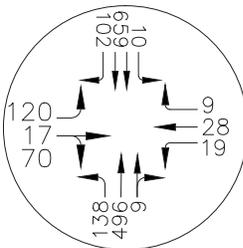


① PM PEAK HOUR      ② PM PEAK HOUR      ③ PM PEAK HOUR

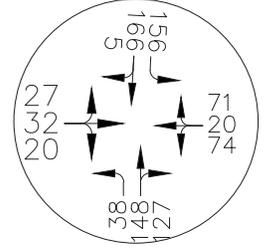
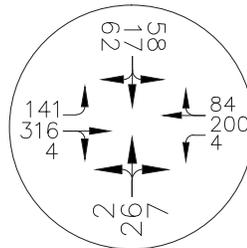
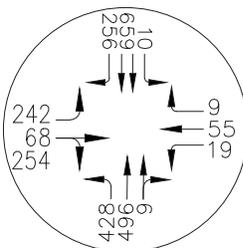
Existing



Existing with Rumsey



Existing with Project



**5-Year Background Traffic Condition**

Existing traffic counts were increased by 5% to account for the 5 years of growth in the future. A 5% increase in traffic may actually take longer than 5-years (see **Figure 6**). A traffic analysis was performed using HCM 2010 methodologies with the results presented in **Table 6**. Traffic at all study intersections operate at acceptable LOS levels.

**Table 6: 5-Year Traffic Operations Results**

Intersection	PM	
	Worst Movement Delay (average sec/veh)	LOS
Beeline Hwy/ Malibu Dr.	11.0 WBT	B
Longhorn Rd./ Forest Park Dr.	14.1 SBL	B
Mc Lane Dr./ Rumsey Dr.	12.6 SEBT	B

*Source: Vistro Software using HCM 2010 Methodologies*

**5-Year Traffic Condition (Background Plus Rumsey Dr. without Project Traffic)**

Background traffic was increased by 5% to account for traffic growth, including traffic redistributed to the roadway network due to the future construction of Rumsey Drive and Forest Park Drive. A traffic analysis was again performed using the same geometries as in past analyses. The results presented in **Table 7** show that after adding 5 years of growth and traffic due to the completion of Rumsey Dr., all intersections operate at acceptable levels.

**Table 7: 5-Year Plus Rumsey Dr. without Project Traffic Operations Results**

Intersection	PM	
	Worst Movement Delay (average sec/veh)	LOS
Beeline Hwy/ Malibu Dr.	11.8 EBR	B
Longhorn Rd./ Forest Park Dr.	14.7 SBL	B
Mc Lane Dr./ Rumsey Dr.	15.0 NWBL	C

*Source: Vistro Software using HCM 2010 Methodologies*

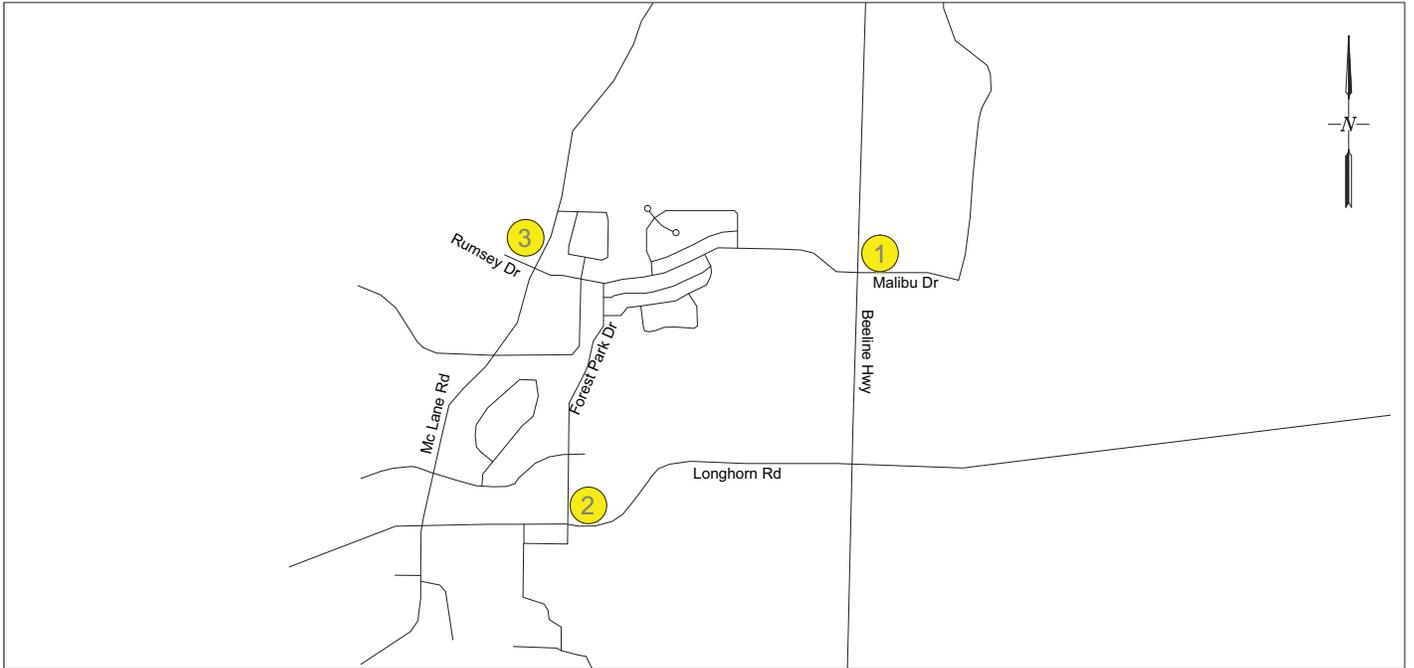
**5-Year Traffic Condition (Background Plus Project Traffic)**

Project traffic was added to 5 years of background traffic growth and a traffic analysis was again performed. The results presented in **Table 8** show that after adding 5 years of growth and 100% of the project build-out, all intersections operate at acceptable LOS levels.

**Table 8: 5-Year Plus Project Traffic Operations Results**

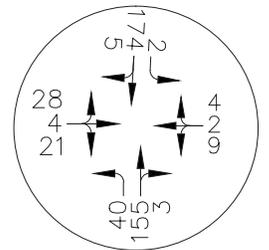
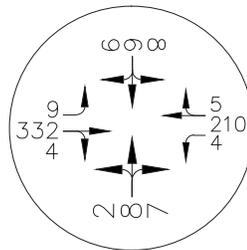
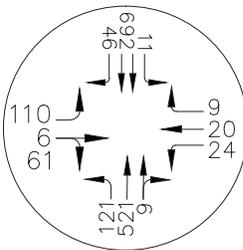
Intersection	PM	
	Worst Movement Delay (average sec/veh)	LOS
Beeline Hwy/ Malibu Dr.	11.7 WBT	B
Longhorn Rd./ Forest Park Dr.	16.1 SBL	C
Mc Lane Dr./ Rumsey Dr.	16.5 NWBL	C

*Source: Vistro Software using HCM 2010 Methodologies*

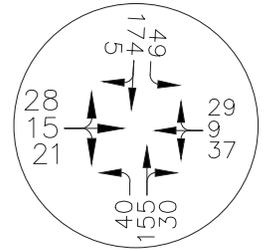
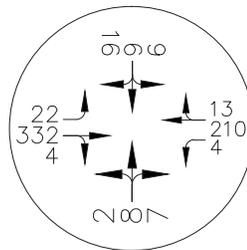
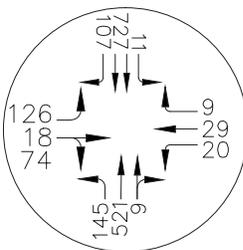


① PM PEAK HOUR      ② PM PEAK HOUR      ③ PM PEAK HOUR

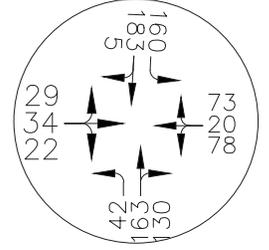
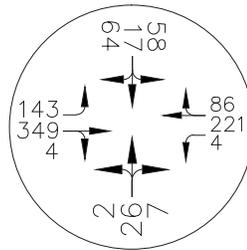
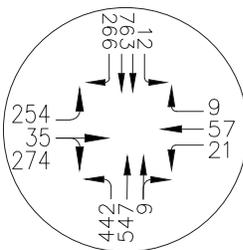
5-Year



5-Year with Rumsey



5-Year with Project



## ***Rumsey Dr. and Mc Lane Rd Intersection***

The Rumsey Drive/Mc Lane Road and the Longhorn Road/Forest Park Drive intersection will operate at LOS C at opening day and after adding 5% traffic growth to background traffic. Based on LOS values, these intersections don't require signalization or a roundabout until sometime in the future, and after the project is completely built out. **Table 9** shows the "fair share" values of traffic at each study intersection.

**Table 9: Mc Lane Rd and Rumsey Dr. Conditions**

Intersection	PM	
	Opening Day Fair Share	5% Growth Fair Share
Beeline Hwy/ Malibu Dr.	4%	3.5%
Longhorn Rd./ Forest Park Dr.	20%	18%
Mc Lane Dr./ Rumsey Dr.	13%	11%

*Source: Vistro Software using HCM 2010 Methodologies*

**Recommendations/Conclusions**

1. Under the existing conditions all study intersections operate at acceptable levels of service
2. The proposed project includes 151 houses spread out over 109 lots.
3. Parking will be above ground and all houses will have separate garages
4. The project will include adding approximately 1,438 new daily trips with 151 occurring during the PM peak hour.
5. Pedestrian elements, pavement width, and other roadside amenities should match those existing to the west of the project in the built-out areas of Rumsey Drive.
6. There is sufficient intersection capacity at the study intersections to accommodate project traffic. The traffic analysis shows that the Rumsey/Mc Lane and Longhorn/Forest Park intersections are estimated to operate at LOS C at full build-out of the project.
7. Progressive and compounding impacts to the state road system are part of the prevue of the State of Arizona.
8. Fair share estimations show that the at project build-out, with no background growth, the project traffic is responsible for approximately 13% of the project traffic at the Rumsey/Mc Lane intersection and 20% at the Longhorn/Forest Park intersection. At the Beeline Highway/Malibu intersection, the project traffic represents 4% of the traffic.
9. Fair share estimations show that the at project build-out, with 5% of background growth, the project traffic is responsible for approximately 11% of the project traffic at the Rumsey/Mc Lane intersection and 18% at the Longhorn/Forest Park intersection. At the Beeline Highway/Malibu intersection, the project traffic represents 3.5% of the traffic.

## *Appendices*

Traffic Capacity Analysis

Timber Ridge Development

Vistro File:

Scenario Base Scenario

Report File: C:\...\Base Scenario Report.pdf

5/14/2014

**Intersection Analysis Summary**

<b>ID</b>	<b>Intersection Name</b>	<b>Control Type</b>	<b>Method</b>	<b>Worst Mvmt</b>	<b>V/C</b>	<b>Delay (s/veh)</b>	<b>LOS</b>
1	Beeline hwy & Malibu	Signalized	HCM2010	WBT	0.273	10.9	B
3	Mc Lane Rd & Rumsey Dr	Two-way stop	HCM2010	SEBT	0.008	12.4	B
5	Longhorn Rd & Forest Park Dr	Two-way stop	HCM2010	SBL	0.019	13.7	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: Beeline hwy & Malibu**

Control Type: Signalized  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.9  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.273

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T			T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	470.00	100.00	100.00	230.00	100.00	360.00	100.00	100.00	100.00	470.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	121	496	9	10	659	44	105	6	58	23	19	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	121	496	9	10	659	44	105	6	58	23	19	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	124	2	3	165	11	26	2	15	6	5	2
Total Analysis Volume [veh/h]	121	496	9	10	659	44	105	6	58	23	19	9
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss									
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Lead / Lag	Lag	-	-									
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	12	40	0	10	46	0	10	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	11	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no										
Maximum Recall	no	no										
Pedestrian Recall	no	no										
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C	L	C	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	19	13	13	19	12	12	10	4	9	1	1
g / C, Green / Cycle	0.53	0.35	0.35	0.53	0.32	0.32	0.27	0.11	0.25	0.03	0.03
(v / s)_i Volume / Saturation Flow Rate	0.11	0.19	0.11	0.01	0.21	0.03	0.07	0.04	0.02	0.01	0.01
s, saturation flow rate [veh/h]	1145	1676	1663	1152	3192	1425	1597	1445	1506	1676	1425
c, Capacity [veh/h]	551	587	582	550	1019	455	547	163	421	57	48
d1, Uniform Delay [s]	9.73	9.39	8.62	8.52	10.56	8.64	10.12	14.89	11.73	17.07	16.98
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	0.76	0.33	0.01	0.70	0.09	0.17	1.53	0.05	3.44	1.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.22	0.54	0.33	0.02	0.65	0.10	0.19	0.39	0.05	0.34	0.19
d, Delay for Lane Group [s/veh]	9.93	10.15	8.95	8.53	11.25	8.73	10.29	16.42	11.78	20.50	18.83
Lane Group LOS	A	B	A	A	B	A	B	B	B	C	B
Critical Lane Group	yes	no	no	no	yes	no	no	yes	yes	no	no
50th-Percentile Queue Length [veh]	0.27	1.53	0.83	0.02	1.74	0.19	0.55	0.47	0.11	0.19	0.09
50th-Percentile Queue Length [ft]	6.87	38.13	20.86	0.52	43.51	4.78	13.66	11.83	2.86	4.63	2.16
95th-Percentile Queue Length [veh]	0.49	2.75	1.50	0.04	3.13	0.34	0.98	0.85	0.21	0.33	0.16
95th-Percentile Queue Length [ft]	12.37	68.64	37.55	0.94	78.32	8.60	24.59	21.30	5.15	8.33	3.90

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	9.93	9.71	8.95	8.53	11.25	8.73	10.29	16.42	16.42	11.78	20.50	18.83
Movement LOS	A	A	A	A	B	A	B	B	B	B	C	B
d_A, Approach Delay [s/veh]	9.74			11.06			12.61			16.28		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	10.87											
Intersection LOS	B											
Intersection V/C	0.273											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
#3: Mc Lane Rd & Rumsey Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.4  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.008

**Intersection Setup**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach												
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right									
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Base Volume Input [veh/h]	38	148	3	2	166	5	9	2	4	27	4	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	148	3	2	166	5	9	2	4	27	4	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	37	1	1	42	1	2	1	1	7	1	5
Total Analysis Volume [veh/h]	38	148	3	2	166	5	9	2	4	27	4	20
Presence of On-Street Parking	no		no									
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.05	0.01	0.02
d_M, Delay for Movement [s/veh]	7.63	0.00	0.00	7.52	0.00	0.00	12.04	12.07	9.17	12.13	12.39	9.61
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
50th-Percentile Queue Length [veh]	0.40	0.40	0.40	0.00	0.00	0.00	0.05	0.05	0.05	0.16	0.16	0.16
50th-Percentile Queue Length [ft]	10.02	10.02	10.02	0.10	0.00	0.00	1.17	1.17	1.17	3.95	3.95	3.95
95th-Percentile Queue Length [veh]	0.46	0.46	0.46	0.00	0.00	0.00	0.08	0.08	0.08	0.26	0.26	0.26
95th-Percentile Queue Length [ft]	11.61	11.61	11.61	0.11	0.00	0.00	1.96	1.96	1.96	6.52	6.52	6.52
d_A, Approach Delay [s/veh]	1.53			0.09			11.28			11.16		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	2.44											
Intersection LOS	B											

**Intersection Level Of Service Report  
#5: Longhorn Rd & Forest Park Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 13.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.019

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+			+			+r			+r		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	2	8	7	8	6	9	9	316	4	4	200	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	7	8	6	9	9	316	4	4	200	5
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	2	2	2	2	2	79	1	1	50	1
Total Analysis Volume [veh/h]	2	8	7	8	6	9	9	316	4	4	200	5
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.59	13.44	10.20	13.71	13.53	9.60	7.65	0.00	0.00	7.91	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
50th-Percentile Queue Length [veh]	0.06	0.06	0.06	0.08	0.08	0.08	0.69	0.69	0.00	0.01	0.00	0.00
50th-Percentile Queue Length [ft]	1.43	1.43	1.43	1.93	1.93	1.93	17.27	17.27	0.00	0.22	0.00	0.00
95th-Percentile Queue Length [veh]	0.10	0.10	0.10	0.13	0.13	0.13	0.93	0.93	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	2.52	2.52	2.52	3.37	3.37	3.37	23.24	23.24	0.00	0.24	0.00	0.00
d_A, Approach Delay [s/veh]	12.12			12.05			0.21			0.15		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.01											
Intersection LOS	B											

Timber Ridge Development

Vistro File:

Scenario Base Scenario

Report File: C:\...\Base Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	121	496	9	10	659	44	105	6	58	23	19	9	1559

ID	Intersection Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
		Left	Thru	Right										
3	Mc Lane Rd & Rumsey Dr	38	148	3	2	166	5	9	2	4	27	4	20	428

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	2	8	7	8	6	9	9	316	4	4	200	5	578

Timber Ridge Development

Vistro File:

Scenario Base Scenario

Report File: C:\...\Base Scenario Report.pdf

5/14/2014

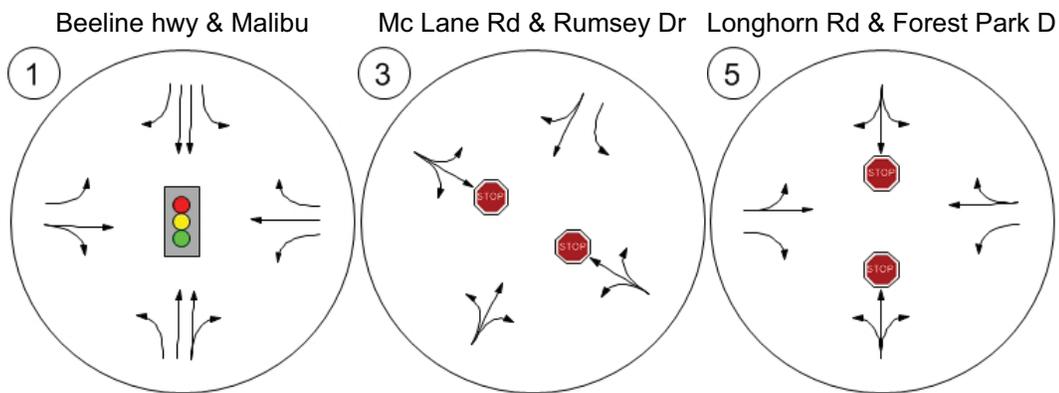
**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	Final Base	121	496	9	10	659	44	105	6	58	23	19	9	1559
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>121</b>	<b>496</b>	<b>9</b>	<b>10</b>	<b>659</b>	<b>44</b>	<b>105</b>	<b>6</b>	<b>58</b>	<b>23</b>	<b>19</b>	<b>9</b>	<b>1559</b>

ID	Intersection Name	Volume Type	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Mc Lane Rd & Rumsey Dr	Final Base	38	148	3	2	166	5	9	2	4	27	4	20	428
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>38</b>	<b>148</b>	<b>3</b>	<b>2</b>	<b>166</b>	<b>5</b>	<b>9</b>	<b>2</b>	<b>4</b>	<b>27</b>	<b>4</b>	<b>20</b>	<b>428</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	Final Base	2	8	7	8	6	9	9	316	4	4	200	5	578
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>6</b>	<b>9</b>	<b>9</b>	<b>316</b>	<b>4</b>	<b>4</b>	<b>200</b>	<b>5</b>	<b>578</b>

Report Figure 1: Lane Configuration and Traffic Control



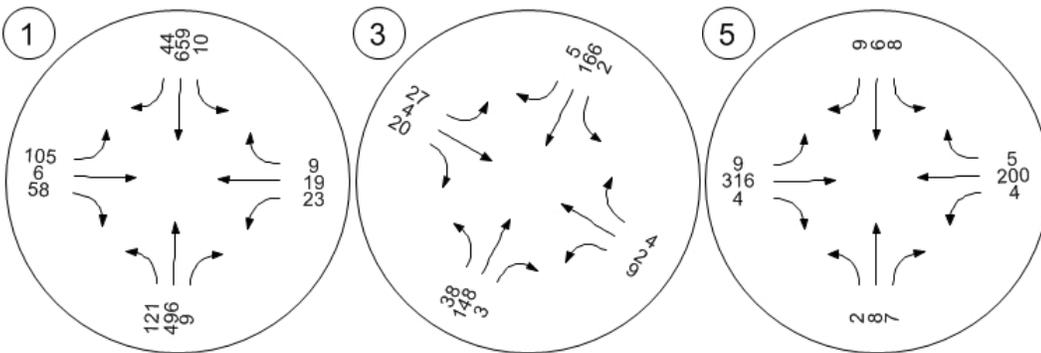
Report Figure 2a: Traffic Volume - Base Volume



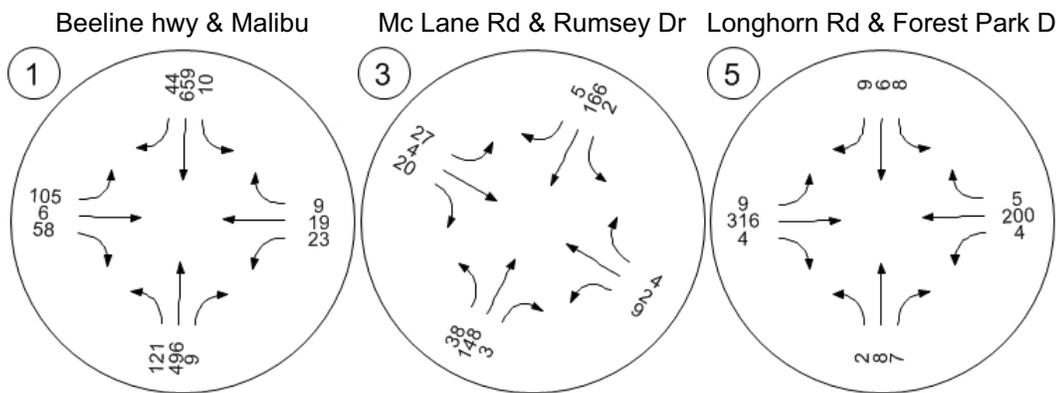
Beeline hwy & Malibu

Mc Lane Rd & Rumsey Dr

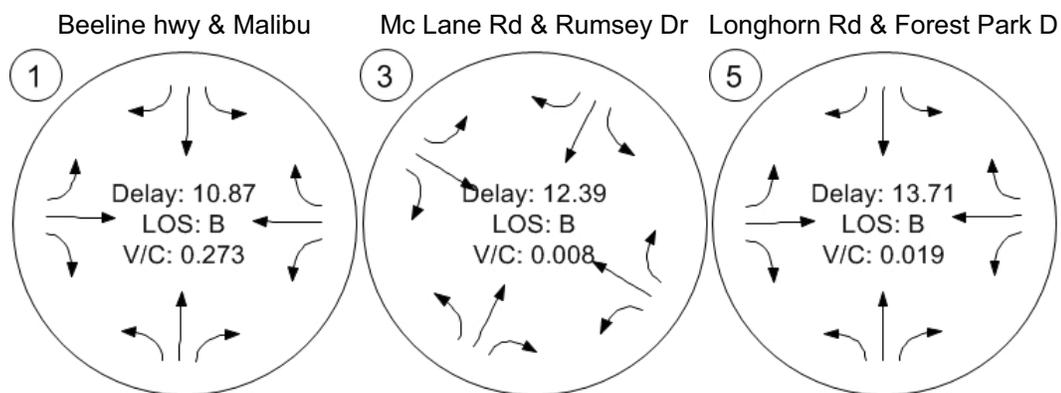
Longhorn Rd & Forest Park D



Report Figure 2e: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions



Timber Ridge Development

Vistro File:

Scenario 2: Existing + Road Rumsey

Report File: C:\...\Existing + Rumsey Scenario Report.pdf

5/14/2014

**Intersection Analysis Summary**

<b>ID</b>	<b>Intersection Name</b>	<b>Control Type</b>	<b>Method</b>	<b>Worst Mvmt</b>	<b>V/C</b>	<b>Delay (s/veh)</b>	<b>LOS</b>
1	Beeline hwy & Malibu	Signalized	HCM2010	EBR	0.346	14.1	B
3	Mc Lane Rd & Rumsey Dr	Two-way stop	HCM2010	NWBL	0.082	14.5	B
5	Longhorn Rd & Forest Park Dr	Two-way stop	HCM2010	SBL	0.022	14.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: Beeline hwy & Malibu**

Control Type: Signalized  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.346

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔			↔			↔			↔		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	470.00	100.00	100.00	230.00	100.00	360.00	200.00	100.00	100.00	470.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	138	496	9	10	659	102	120	17	70	19	28	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	496	9	10	659	102	120	17	70	19	28	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	124	2	3	165	26	30	4	18	5	7	2
Total Analysis Volume [veh/h]	138	496	9	10	659	102	120	17	70	19	28	9
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss									
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Lead / Lag	Lag	-	-									
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	12	40	0	10	46	0	10	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	11	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no										
Maximum Recall	no	no										
Pedestrian Recall	no	no										
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C	L	C	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	4	7	7	7	10	10	3	3	9	2	2
g / C, Green / Cycle	0.11	0.19	0.19	0.20	0.28	0.28	0.10	0.08	0.26	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.08	0.12	0.12	0.01	0.19	0.06	0.07	0.05	0.01	0.02	0.01
s, saturation flow rate [veh/h]	1774	1863	1849	1774	3547	1583	1774	1631	1727	1863	1583
c, Capacity [veh/h]	194	360	358	350	999	446	180	137	524	84	71
d1, Uniform Delay [s]	14.87	12.73	12.73	11.19	10.95	9.53	14.97	15.31	10.09	16.00	15.85
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.81	1.64	1.65	0.03	0.75	0.26	4.22	4.77	0.03	2.32	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.71	0.60	0.61	0.03	0.66	0.23	0.67	0.63	0.04	0.33	0.13
d, Delay for Lane Group [s/veh]	19.68	14.37	14.39	11.23	11.70	9.79	19.19	20.07	10.12	18.32	16.64
Lane Group LOS	B	B	B	B	B	A	B	C	B	B	B
Critical Lane Group	yes	no	no	no	yes	no	yes	no	no	yes	no
50th-Percentile Queue Length [veh]	1.10	1.35	1.35	0.05	1.71	0.47	0.94	0.72	0.08	0.23	0.07
50th-Percentile Queue Length [ft]	27.49	33.82	33.64	1.28	42.85	11.64	23.59	18.00	2.10	5.78	1.80
95th-Percentile Queue Length [veh]	1.98	2.44	2.42	0.09	3.09	0.84	1.70	1.30	0.15	0.42	0.13
95th-Percentile Queue Length [ft]	49.49	60.88	60.56	2.31	77.14	20.96	42.46	32.40	3.78	10.40	3.24

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	19.68	14.38	14.39	11.23	11.70	9.79	19.19	20.07	20.07	10.12	18.32	16.64
Movement LOS	B	B	B	B	B	A	B	C	C	B	B	B
d_A, Approach Delay [s/veh]	15.66			11.44			19.56			15.27		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.12											
Intersection LOS	B											
Intersection V/C	0.346											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
#3: Mc Lane Rd & Rumsey Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.082

**Intersection Setup**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach												
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right									
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Base Volume Input [veh/h]	38	148	29	47	166	5	35	9	28	27	14	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	148	29	47	166	5	35	9	28	27	14	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	37	7	12	42	1	9	2	7	7	4	5
Total Analysis Volume [veh/h]	38	148	29	47	166	5	35	9	28	27	14	20
Presence of On-Street Parking	no		no									
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.03	0.00	0.00	0.08	0.02	0.03	0.06	0.03	0.02
d_M, Delay for Movement [s/veh]	7.63	0.00	0.00	7.66	0.00	0.00	14.52	14.21	10.12	14.43	14.23	10.05
Movement LOS	A	A	A	A	A	A	B	B	B	B	B	B
50th-Percentile Queue Length [veh]	0.46	0.46	0.46	0.10	0.00	0.00	0.26	0.26	0.26	0.22	0.22	0.22
50th-Percentile Queue Length [ft]	11.39	11.39	11.39	2.50	0.00	0.00	6.38	6.38	6.38	5.49	5.49	5.49
95th-Percentile Queue Length [veh]	0.54	0.54	0.54	0.10	0.00	0.00	0.46	0.46	0.46	0.40	0.40	0.40
95th-Percentile Queue Length [ft]	13.49	13.49	13.49	2.61	0.00	0.00	11.56	11.56	11.56	10.04	10.04	10.04
d_A, Approach Delay [s/veh]	1.35			1.65			12.77			12.95		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.17											
Intersection LOS	B											

**Intersection Level Of Service Report  
#5: Longhorn Rd & Forest Park Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.022

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+			+			+r			r+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	2	8	7	9	6	15	21	316	4	4	200	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	7	9	6	15	21	316	4	4	200	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	2	2	2	4	5	79	1	1	50	3
Total Analysis Volume [veh/h]	2	8	7	9	6	15	21	316	4	4	200	12
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.02	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.17	13.91	10.22	14.24	14.02	9.69	7.69	0.00	0.00	7.91	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
50th-Percentile Queue Length [veh]	0.06	0.06	0.06	0.10	0.10	0.10	0.72	0.72	0.00	0.01	0.00	0.00
50th-Percentile Queue Length [ft]	1.47	1.47	1.47	2.48	2.48	2.48	18.00	18.00	0.00	0.22	0.00	0.00
95th-Percentile Queue Length [veh]	0.10	0.10	0.10	0.17	0.17	0.17	0.98	0.98	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	2.62	2.62	2.62	4.31	4.31	4.31	24.56	24.56	0.00	0.24	0.00	0.00
d_A, Approach Delay [s/veh]	12.42			11.92			0.47			0.15		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.26											
Intersection LOS	B											

## Timber Ridge Development

Vistro File:

Scenario 2: Existing + Road Rumsey

Report File: C:\...\Existing + Rumsey Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	138	496	9	10	659	102	120	17	70	19	28	9	1677

ID	Intersection Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
		Left	Thru	Right										
3	Mc Lane Rd & Rumsey Dr	38	148	29	47	166	5	35	9	28	27	14	20	566

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	2	8	7	9	6	15	21	316	4	4	200	12	604

Timber Ridge Development

Vistro File:

Scenario 2: Existing + Road Rumsey

Report File: C:\...\Existing + Rumsey Scenario Report.pdf

5/14/2014

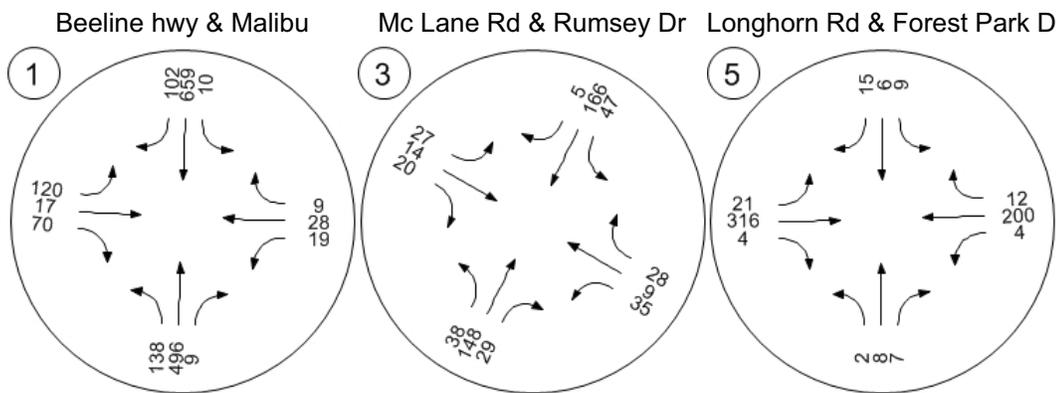
**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	Final Base	138	496	9	10	659	102	120	17	70	19	28	9	1677
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>138</b>	<b>496</b>	<b>9</b>	<b>10</b>	<b>659</b>	<b>102</b>	<b>120</b>	<b>17</b>	<b>70</b>	<b>19</b>	<b>28</b>	<b>9</b>	<b>1677</b>

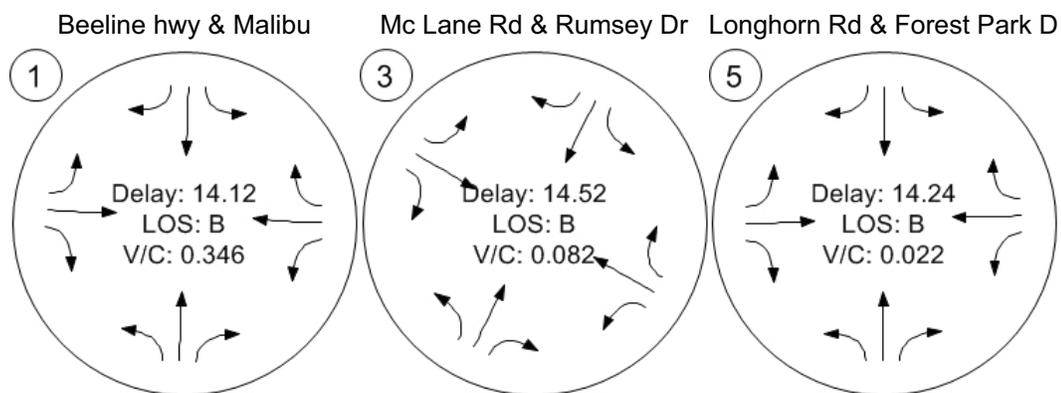
ID	Intersection Name	Volume Type	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Mc Lane Rd & Rumsey Dr	Final Base	38	148	29	47	166	5	35	9	28	27	14	20	566
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>38</b>	<b>148</b>	<b>29</b>	<b>47</b>	<b>166</b>	<b>5</b>	<b>35</b>	<b>9</b>	<b>28</b>	<b>27</b>	<b>14</b>	<b>20</b>	<b>566</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	Final Base	2	8	7	9	6	15	21	316	4	4	200	12	604
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2</b>	<b>8</b>	<b>7</b>	<b>9</b>	<b>6</b>	<b>15</b>	<b>21</b>	<b>316</b>	<b>4</b>	<b>4</b>	<b>200</b>	<b>12</b>	<b>604</b>

Report Figure 2e: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions



## Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 1: Existing + Project

Report File: C:\...\Existing + Proj Scenario Report.pdf

5/14/2014

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Beeline hwy & Malibu	Signalized	HCM2010	NBL	0.582	25.6	C
3	Mc Lane Rd & Rumsey Dr	Two-way stop	HCM2010	NWBL	0.308	28.5	D
5	Longhorn Rd & Forest Park Dr	Two-way stop	HCM2010	SBL	0.268	29.1	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: Beeline hwy & Malibu**

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.582

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	470.00	100.00	100.00	230.00	100.00	360.00	100.00	100.00	100.00	470.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	138	496	9	10	659	102	120	52	58	19	28	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	290	0	0	0	0	154	122	16	196	0	27	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	428	496	9	10	659	256	242	68	254	19	55	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	107	124	2	3	165	64	61	17	64	5	14	2
Total Analysis Volume [veh/h]	428	496	9	10	659	256	242	68	254	19	55	9
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss									
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Lead / Lag	Lag	-	-									
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	56	69	0	11	24	0	45	47	0	13	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	11	0	0	5	0	0	1	0	0	1	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no										
Maximum Recall	no	no										
Pedestrian Recall	no	no										
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C	L	C	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	41	26	26	41	25	25	24	19	24	14	14
g / C, Green / Cycle	0.56	0.36	0.36	0.56	0.34	0.34	0.33	0.25	0.33	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.39	0.29	0.01	0.01	0.21	0.18	0.17	0.22	0.02	0.03	0.01
s, saturation flow rate [veh/h]	1090	1676	1568	1122	3192	1425	1408	1472	1151	1676	1425
c, Capacity [veh/h]	528	606	567	456	1091	487	456	374	220	315	268
d1, Uniform Delay [s]	21.58	21.01	15.19	19.43	20.04	19.39	23.18	26.14	29.49	25.03	24.36
k, delay calibration	0.42	0.23	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.90	5.11	0.03	0.02	0.54	0.88	0.96	5.96	0.17	0.26	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.81	0.80	0.04	0.02	0.60	0.53	0.53	0.86	0.09	0.17	0.03
d, Delay for Lane Group [s/veh]	32.48	26.12	15.22	19.45	20.59	20.27	24.14	32.10	29.66	25.29	24.41
Lane Group LOS	C	C	B	B	C	C	C	C	C	C	C
Critical Lane Group	yes	no	no	no	yes	no	no	yes	yes	no	no
50th-Percentile Queue Length [veh]	5.15	7.72	0.24	0.06	4.45	3.40	3.19	5.70	0.22	0.80	0.13
50th-Percentile Queue Length [ft]	128.73	193.09	6.00	1.59	111.35	85.12	79.78	142.43	5.43	20.02	3.19
95th-Percentile Queue Length [veh]	8.87	12.28	0.43	0.11	7.92	6.13	5.74	9.61	0.39	1.44	0.23
95th-Percentile Queue Length [ft]	221.77	307.03	10.80	2.86	197.88	153.22	143.61	240.30	9.77	36.03	5.74

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	32.48	25.81	15.22	19.45	20.59	20.27	24.14	32.10	32.10	29.66	25.29	24.41
Movement LOS	C	C	B	B	C	C	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	28.77			20.49			28.69			26.20		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.61											
Intersection LOS	C											
Intersection V/C	0.582											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
#3: Mc Lane Rd & Rumsey Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 28.5  
 Level Of Service: D  
 Volume to Capacity (v/c): 0.308

**Intersection Setup**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach												
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right									
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Base Volume Input [veh/h]	38	148	29	47	166	5	35	9	28	27	14	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	98	109	0	0	39	11	43	0	18	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	148	127	156	166	5	74	20	71	27	32	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	37	32	39	42	1	19	5	18	7	8	5
Total Analysis Volume [veh/h]	38	148	127	156	166	5	74	20	71	27	32	20
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.12	0.00	0.00	0.31	0.07	0.09	0.12	0.12	0.02
d_M, Delay for Movement [s/veh]	7.63	0.00	0.00	8.18	0.00	0.00	28.49	26.29	17.85	25.11	23.17	13.40
Movement LOS	A	A	A	A	A	A	D	D	C	D	C	B
95th-Percentile Queue Length [veh]	0.85	0.85	0.85	0.41	0.00	0.00	2.37	2.37	2.37	1.04	1.04	1.04
95th-Percentile Queue Length [ft]	21.34	21.34	21.34	10.31	0.00	0.00	59.21	59.21	59.21	26.03	26.03	26.03
d_A, Approach Delay [s/veh]	0.93			3.90			23.64			21.36		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	8.09											
Intersection LOS	D											

**Intersection Level Of Service Report  
#5: Longhorn Rd & Forest Park Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 29.1  
 Level Of Service: D  
 Volume to Capacity (v/c): 0.268

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+			+			+r			r+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	2	8	7	9	6	15	21	316	4	4	200	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	0	49	11	47	120	0	0	0	0	72
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	26	7	58	17	62	141	316	4	4	200	84
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	7	2	15	4	16	35	79	1	1	50	21
Total Analysis Volume [veh/h]	2	26	7	58	17	62	141	316	4	4	200	84
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.11	0.01	0.27	0.07	0.08	0.11	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	24.84	22.32	11.97	29.12	27.06	17.01	8.17	0.00	0.00	7.91	0.00	0.00
Movement LOS	C	C	B	D	D	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.44	0.44	0.44	1.96	1.96	1.96	1.64	1.64	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	11.07	11.07	11.07	49.10	49.10	49.10	41.08	41.08	0.00	0.24	0.00	0.00
d_A, Approach Delay [s/veh]	20.39			23.39			2.50			0.11		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	5.54											
Intersection LOS	D											

## Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 1: Existing + Project

Report File: C:\...\Existing + Proj Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	428	496	9	10	659	256	242	68	254	19	55	9	2505

ID	Intersection Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
		Left	Thru	Right										
3	Mc Lane Rd & Rumsey Dr	38	148	127	156	166	5	74	20	71	27	32	20	884

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	2	26	7	58	17	62	141	316	4	4	200	84	921

Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 1: Existing + Project

Report File: C:\...\Existing + Proj Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	Final Base	138	496	9	10	659	102	120	52	58	19	28	9	1700
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	290	0	0	0	0	154	122	16	196	0	27	0	805
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>428</b>	<b>496</b>	<b>9</b>	<b>10</b>	<b>659</b>	<b>256</b>	<b>242</b>	<b>68</b>	<b>254</b>	<b>19</b>	<b>55</b>	<b>9</b>	<b>2505</b>

ID	Intersection Name	Volume Type	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Mc Lane Rd & Rumsey Dr	Final Base	38	148	29	47	166	5	35	9	28	27	14	20	566
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	98	109	0	0	39	11	43	0	18	0	318
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>38</b>	<b>148</b>	<b>127</b>	<b>156</b>	<b>166</b>	<b>5</b>	<b>74</b>	<b>20</b>	<b>71</b>	<b>27</b>	<b>32</b>	<b>20</b>	<b>884</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	Final Base	2	8	7	9	6	15	21	316	4	4	200	12	604
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	18	0	49	11	47	120	0	0	0	0	72	317
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2</b>	<b>26</b>	<b>7</b>	<b>58</b>	<b>17</b>	<b>62</b>	<b>141</b>	<b>316</b>	<b>4</b>	<b>4</b>	<b>200</b>	<b>84</b>	<b>921</b>

Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 1: Existing + Project

Report File: C:\...\Existing + Proj Scenario Report.pdf

5/14/2014

**Fair Share Volumes**

Intersection 1: Beeline hwy & Malibu													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	290	0	0	0	0	154	122	16	196	0	27	0	805
Total Volume	290	0	0	0	0	154	122	16	196	0	27	0	
Total Analysis Volume	428	496	9	10	659	256	242	68	254	19	55	9	

Intersection 3: Mc Lane Rd & Rumsey Dr													
Zone ID: Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total
	Left	Thru	Right										
12: Zone	0	0	99	109	0	0	39	11	43	0	18	0	319
Total Volume	0	0	99	109	0	0	39	11	43	0	18	0	
Total Analysis Volume	38	148	127	156	166	5	74	20	71	27	32	20	

Intersection 5: Longhorn Rd & Forest Park Dr													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	0	18	0	49	11	48	120	0	0	0	0	72	318
Total Volume	0	18	0	49	11	48	120	0	0	0	0	72	
Total Analysis Volume	2	26	7	58	17	62	141	316	4	4	200	84	

Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 1: Existing + Project

Report File: C:\...\Existing + Proj Scenario Report.pdf

5/14/2014

**Fair Share % of Total Analysis**

Intersection 1: Beeline hwy & Malibu													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	40.38%	0	0	0	0	37.56%	33.52%	19.05%	43.64%	0	32.93%	0	8.27%
Total	40.38%	0.00%	0.00%	0.00%	0.00%	37.56%	33.52%	19.05%	43.64%	0.00%	32.93%	0.00%	

Intersection 3: Mc Lane Rd & Rumsey Dr													
Zone ID: Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	0	0	43.8%	41.13%	0	0	34.78%	35.48%	37.72%	0	36%	0	25.89%
Total	0.00%	0.00%	43.80%	41.13%	0.00%	0.00%	34.78%	35.48%	37.72%	0.00%	36.00%	0.00%	

Intersection 5: Longhorn Rd & Forest Park Dr													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	0	40.91%	0	45.42%	39.29%	43.46%	46.15%	0	0	0	0	46.16%	28.38%
Total	0.00%	40.91%	0.00%	45.42%	39.29%	43.46%	46.15%	0.00%	0.00%	0.00%	0.00%	46.16%	

Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 1: Existing + Project

Report File: C:\...\Existing + Proj Scenario Report.pdf

5/14/2014

**Trip generation summary**

**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
12: Zone	Residential			1.000	1,438.000	63.00	37.00	906	532	1438	100.00
<b>Added Trips Total</b>								<b>906</b>	<b>532</b>	<b>1438</b>	<b>100.00</b>

## Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 1: Existing + Project

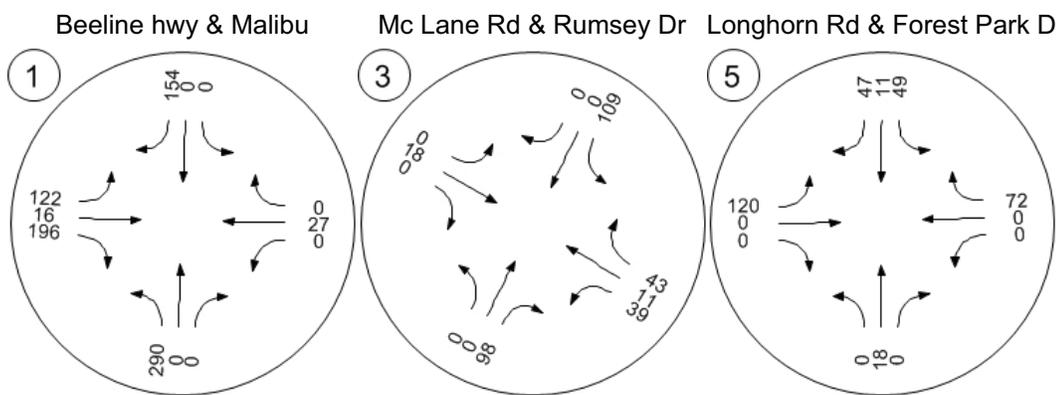
Report File: C:\...\Existing + Proj Scenario Report.pdf

5/14/2014

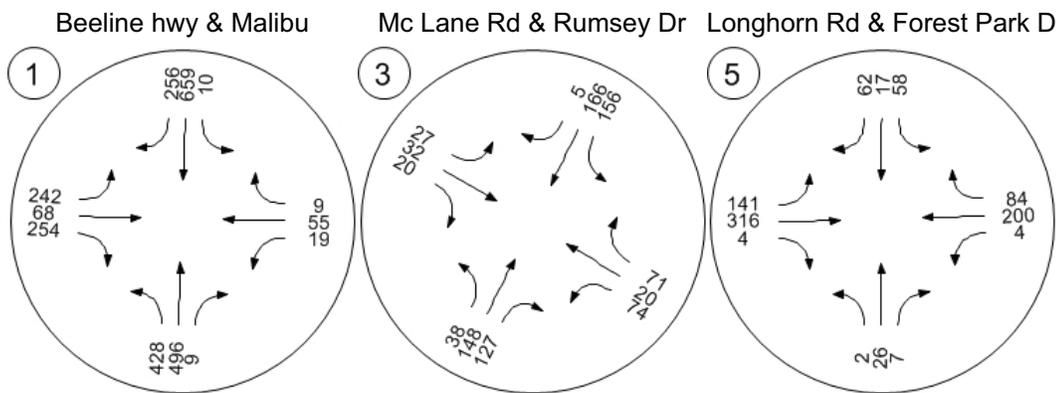
**Trip distribution summary**

Zone / Gate	Zone 12: Zone			
	To Zone:		From Zone:	
	Share %	Trips	Share %	Trips
13: Gate	2.00	18	2.00	11
14: Gate	12.00	109	8.00	43
15: Gate	12.00	109	8.00	43
16: Gate	12.00	109	8.00	43
17: Gate	2.00	18	2.00	11
18: Gate	17.00	154	23.00	122
19: Gate	3.00	27	3.00	16
20: Gate	20.00	181	21.00	112
21: Gate	20.00	181	25.00	133
<b>Total</b>	<b>100.00</b>	<b>906</b>	<b>100.00</b>	<b>534</b>

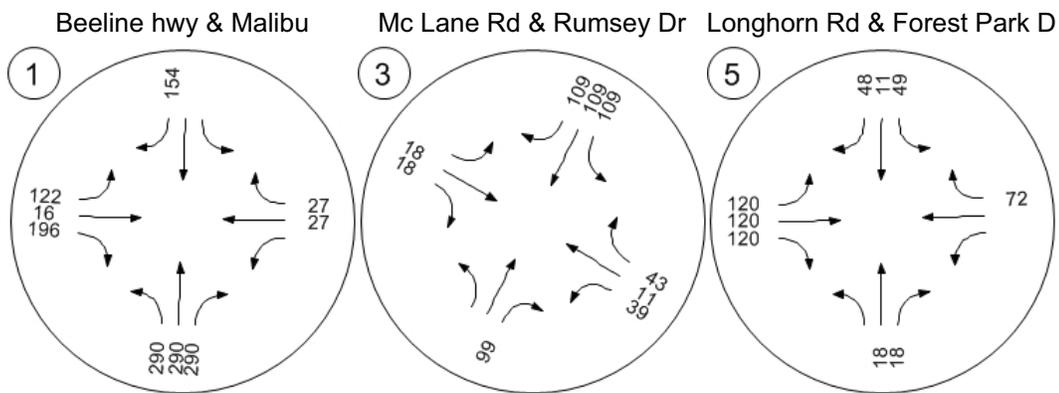
Report Figure 2c: Traffic Volume - Net New Site Trips



Report Figure 2e: Traffic Volume - Future Total Volume



Report Figure 4: Fair Share - Fair Share Volumes - Zone 12



Timber Ridge Development

Vistro File:

Scenario 3: 5yr Without Project

Report File: C:\...\5 Year Scenario Report.pdf

5/14/2014

**Intersection Analysis Summary**

<b>ID</b>	<b>Intersection Name</b>	<b>Control Type</b>	<b>Method</b>	<b>Worst Mvmt</b>	<b>V/C</b>	<b>Delay (s/veh)</b>	<b>LOS</b>
1	Beeline hwy & Malibu	Signalized	HCM2010	WBT	0.287	11.0	B
3	Mc Lane Rd & Rumsey Dr	Two-way stop	HCM2010	SEBT	0.008	12.6	B
5	Longhorn Rd & Forest Park Dr	Two-way stop	HCM2010	SBL	0.019	14.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: Beeline hwy & Malibu**

Control Type:	Signalized	Delay (sec / veh):	11.0
Analysis Method:	HCM2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.287

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	470.00	100.00	100.00	230.00	100.00	360.00	100.00	100.00	100.00	470.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	121	496	9	10	659	44	105	6	58	23	19	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	127	521	9	11	692	46	110	6	61	24	20	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	130	2	3	173	12	28	2	15	6	5	2
Total Analysis Volume [veh/h]	127	521	9	11	692	46	110	6	61	24	20	9
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss									
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Lead / Lag	Lag	-	-									
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	12	40	0	10	46	0	10	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	11	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no										
Maximum Recall	no	no										
Pedestrian Recall	no	no										
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C	L	C	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	20	13	13	20	12	12	10	4	9	1	1
g / C, Green / Cycle	0.53	0.36	0.36	0.53	0.33	0.33	0.27	0.11	0.25	0.03	0.03
(v / s)_i Volume / Saturation Flow Rate	0.11	0.20	0.12	0.01	0.22	0.03	0.07	0.05	0.02	0.01	0.01
s, saturation flow rate [veh/h]	1125	1676	1663	1132	3192	1425	1597	1444	1502	1676	1425
c, Capacity [veh/h]	544	601	597	543	1042	465	540	163	414	58	49
d1, Uniform Delay [s]	10.02	9.46	8.64	8.72	10.71	8.66	10.38	15.25	12.08	17.43	17.33
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.22	0.78	0.33	0.01	0.73	0.09	0.18	1.65	0.06	3.47	1.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.23	0.55	0.34	0.02	0.66	0.10	0.20	0.41	0.06	0.34	0.18
d, Delay for Lane Group [s/veh]	10.24	10.24	8.97	8.73	11.44	8.76	10.56	16.89	12.13	20.90	19.08
Lane Group LOS	B	B	A	A	B	A	B	B	B	C	B
Critical Lane Group	yes	no	no	no	yes	no	no	yes	yes	no	no
50th-Percentile Queue Length [veh]	0.30	1.64	0.89	0.02	1.89	0.20	0.60	0.51	0.12	0.20	0.09
50th-Percentile Queue Length [ft]	7.42	41.09	22.36	0.59	47.23	5.09	14.93	12.82	3.10	4.96	2.19
95th-Percentile Queue Length [veh]	0.53	2.96	1.61	0.04	3.40	0.37	1.07	0.92	0.22	0.36	0.16
95th-Percentile Queue Length [ft]	13.36	73.95	40.24	1.05	85.01	9.17	26.87	23.07	5.58	8.93	3.95

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	10.24	9.78	8.97	8.73	11.44	8.76	10.56	16.89	16.89	12.13	20.90	19.08
Movement LOS	B	A	A	A	B	A	B	B	B	B	C	B
d_A, Approach Delay [s/veh]	9.85			11.24			12.96			16.62		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	11.04											
Intersection LOS	B											
Intersection V/C	0.287											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
#3: Mc Lane Rd & Rumsey Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.6  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.008

**Intersection Setup**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach												
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right									
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Base Volume Input [veh/h]	38	148	3	2	166	5	9	2	4	27	4	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	155	3	2	174	5	9	2	4	28	4	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	39	1	1	44	1	2	1	1	7	1	5
Total Analysis Volume [veh/h]	40	155	3	2	174	5	9	2	4	28	4	21
Presence of On-Street Parking	no		no									
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.05	0.01	0.02
d_M, Delay for Movement [s/veh]	7.65	0.00	0.00	7.54	0.00	0.00	12.27	12.26	9.22	12.38	12.62	9.69
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
50th-Percentile Queue Length [veh]	0.42	0.42	0.42	0.00	0.00	0.00	0.05	0.05	0.05	0.17	0.17	0.17
50th-Percentile Queue Length [ft]	10.52	10.52	10.52	0.10	0.00	0.00	1.19	1.19	1.19	4.17	4.17	4.17
95th-Percentile Queue Length [veh]	0.49	0.49	0.49	0.00	0.00	0.00	0.08	0.08	0.08	0.28	0.28	0.28
95th-Percentile Queue Length [ft]	12.35	12.35	12.35	0.11	0.00	0.00	2.02	2.02	2.02	6.97	6.97	6.97
d_A, Approach Delay [s/veh]	1.55			0.08			11.46			11.34		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	2.45											
Intersection LOS	B											

**Intersection Level Of Service Report  
#5: Longhorn Rd & Forest Park Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.019

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+			+			+r			r+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	2	8	7	8	6	9	9	316	4	4	200	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	7	8	6	9	9	332	4	4	210	5
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	2	2	2	2	2	83	1	1	53	1
Total Analysis Volume [veh/h]	2	8	7	8	6	9	9	332	4	4	210	5
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.95	13.74	10.32	14.08	13.83	9.67	7.67	0.00	0.00	7.95	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
50th-Percentile Queue Length [veh]	0.06	0.06	0.06	0.08	0.08	0.08	0.73	0.73	0.00	0.01	0.00	0.00
50th-Percentile Queue Length [ft]	1.46	1.46	1.46	1.96	1.96	1.96	18.17	18.17	0.00	0.22	0.00	0.00
95th-Percentile Queue Length [veh]	0.10	0.10	0.10	0.14	0.14	0.14	1.00	1.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	2.60	2.60	2.60	3.49	3.49	3.49	25.03	25.03	0.00	0.25	0.00	0.00
d_A, Approach Delay [s/veh]	12.36			12.29			0.20			0.15		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.98											
Intersection LOS	B											

Timber Ridge Development

Vistro File:

Scenario 3: 5yr Without Project

Report File: C:\...\5 Year Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	127	521	9	11	692	46	110	6	61	24	20	9	1636

ID	Intersection Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
		Left	Thru	Right										
3	Mc Lane Rd & Rumsey Dr	40	155	3	2	174	5	9	2	4	28	4	21	447

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	2	8	7	8	6	9	9	332	4	4	210	5	604

Timber Ridge Development

Vistro File:

Scenario 3: 5yr Without Project

Report File: C:\...15 Year Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	Final Base	121	496	9	10	659	44	105	6	58	23	19	9	1559
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>127</b>	<b>521</b>	<b>9</b>	<b>11</b>	<b>692</b>	<b>46</b>	<b>110</b>	<b>6</b>	<b>61</b>	<b>24</b>	<b>20</b>	<b>9</b>	<b>1636</b>

ID	Intersection Name	Volume Type	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Mc Lane Rd & Rumsey Dr	Final Base	38	148	3	2	166	5	9	2	4	27	4	20	428
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>40</b>	<b>155</b>	<b>3</b>	<b>2</b>	<b>174</b>	<b>5</b>	<b>9</b>	<b>2</b>	<b>4</b>	<b>28</b>	<b>4</b>	<b>21</b>	<b>447</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	Final Base	2	8	7	8	6	9	9	316	4	4	200	5	578
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>6</b>	<b>9</b>	<b>9</b>	<b>332</b>	<b>4</b>	<b>4</b>	<b>210</b>	<b>5</b>	<b>604</b>

Signal Warrants Report For Intersection #3: Mc Lane Rd & Rumsey Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	SE, NW
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	NE	SW	SE	NW
1	181	198	15	53
2	174	190	14	51
3	170	186	14	50
4	145	158	12	42
5	138	150	11	40
6	123	135	10	36
7	114	125	9	33
8	109	119	9	32
9	87	95	7	25
10	81	89	7	24
11	81	89	7	24
12	78	85	6	23
13	71	77	6	21
14	65	71	5	19
15	65	71	5	19
16	63	69	5	19
17	36	40	3	11
18	20	22	2	6
19	18	20	2	5
20	7	8	1	2
21	5	6	0	2
22	5	6	0	2
23	4	4	0	1
24	4	4	0	1

**Warrant Analysis by Hour**

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3 Condition B
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		
1	3	379	2	68	No	No	No	No	No	No	No	No	No	No
2	3	364	2	65	No	No	No	No	No	No	No	No	No	No
3	3	356	2	64	No	No	No	No	No	No	No	No	No	No
4	3	303	2	54	No	No	No	No	No	No	No	No	No	No
5	3	288	2	51	No	No	No	No	No	No	No	No	No	No
6	3	258	2	46	No	No	No	No	No	No	No	No	No	No
7	3	239	2	42	No	No	No	No	No	No	No	No	No	No
8	3	228	2	41	No	No	No	No	No	No	No	No	No	No
9	3	182	2	32	No	No	No	No	No	No	No	No	No	No
10	3	170	2	31	No	No	No	No	No	No	No	No	No	No
11	3	170	2	31	No	No	No	No	No	No	No	No	No	No
12	3	163	2	29	No	No	No	No	No	No	No	No	No	No
13	3	148	2	27	No	No	No	No	No	No	No	No	No	No
14	3	136	2	24	No	No	No	No	No	No	No	No	No	No
15	3	136	2	24	No	No	No	No	No	No	No	No	No	No
16	3	132	2	24	No	No	No	No	No	No	No	No	No	No
17	3	76	2	14	No	No	No	No	No	No	No	No	No	No
18	3	42	2	8	No	No	No	No	No	No	No	No	No	No
19	3	38	2	7	No	No	No	No	No	No	No	No	No	No
20	3	15	2	3	No	No	No	No	No	No	No	No	No	No
21	3	11	2	2	No	No	No	No	No	No	No	No	No	No
22	3	11	2	2	No	No	No	No	No	No	No	No	No	No
23	3	8	2	1	No	No	No	No	No	No	No	No	No	No
24	3	8	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

**Warrant 3 Condition A**

Orientation	SE	NW
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.5	11.3
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:10
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	15	53
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	447	447
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #5: Longhorn Rd &amp; Forest Park Dr

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	219	345	23	17
2	210	331	22	16
3	206	324	22	16
4	175	276	18	14
5	166	262	17	13
6	149	235	16	12
7	138	217	14	11
8	131	207	14	10
9	105	166	11	8
10	99	155	10	8
11	99	155	10	8
12	94	148	10	7
13	85	135	9	7
14	79	124	8	6
15	79	124	8	6
16	77	121	8	6
17	44	69	5	3
18	24	38	3	2
19	22	35	2	2
20	9	14	1	1
21	7	10	1	1
22	7	10	1	1
23	4	7	0	0
24	4	7	0	0

**Warrant Analysis by Hour**

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3 Condition B
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		
1	4	564	2	40	No	No	No	No	No	No	No	No	No	No
2	4	541	2	38	No	No	No	No	No	No	No	No	No	No
3	4	530	2	38	No	No	No	No	No	No	No	No	No	No
4	4	451	2	32	No	No	No	No	No	No	No	No	No	No
5	4	428	2	30	No	No	No	No	No	No	No	No	No	No
6	4	384	2	28	No	No	No	No	No	No	No	No	No	No
7	4	355	2	25	No	No	No	No	No	No	No	No	No	No
8	4	338	2	24	No	No	No	No	No	No	No	No	No	No
9	4	271	2	19	No	No	No	No	No	No	No	No	No	No
10	4	254	2	18	No	No	No	No	No	No	No	No	No	No
11	4	254	2	18	No	No	No	No	No	No	No	No	No	No
12	4	242	2	17	No	No	No	No	No	No	No	No	No	No
13	4	220	2	16	No	No	No	No	No	No	No	No	No	No
14	4	203	2	14	No	No	No	No	No	No	No	No	No	No
15	4	203	2	14	No	No	No	No	No	No	No	No	No	No
16	4	198	2	14	No	No	No	No	No	No	No	No	No	No
17	4	113	2	8	No	No	No	No	No	No	No	No	No	No
18	4	62	2	5	No	No	No	No	No	No	No	No	No	No
19	4	57	2	4	No	No	No	No	No	No	No	No	No	No
20	4	23	2	2	No	No	No	No	No	No	No	No	No	No
21	4	17	2	2	No	No	No	No	No	No	No	No	No	No
22	4	17	2	2	No	No	No	No	No	No	No	No	No	No
23	4	11	2	0	No	No	No	No	No	No	No	No	No	No
24	4	11	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

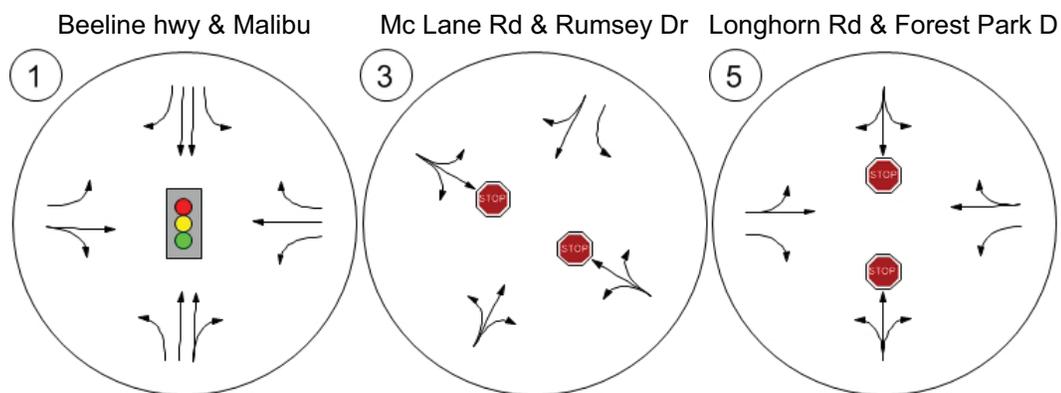
**Warrant 3 Condition A**

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.3	12.4
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04	0:03
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	23	17
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	604	604
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

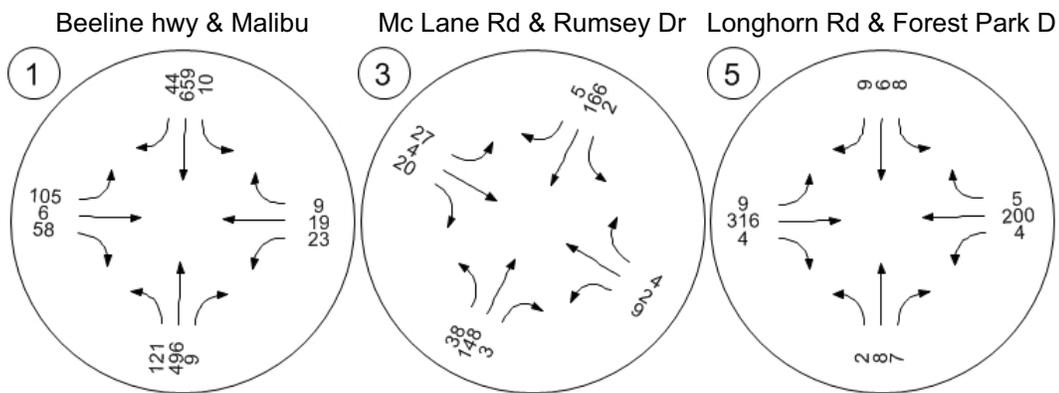
Report Figure 0: Study Intersections



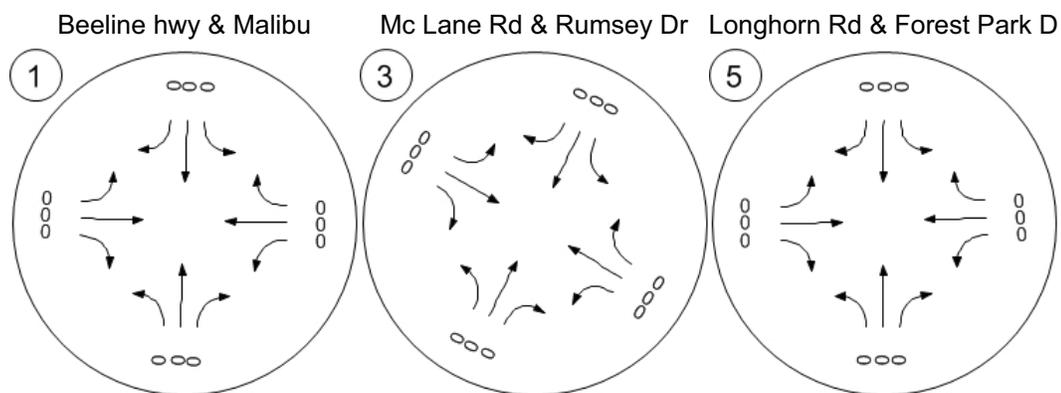
Report Figure 1: Lane Configuration and Traffic Control



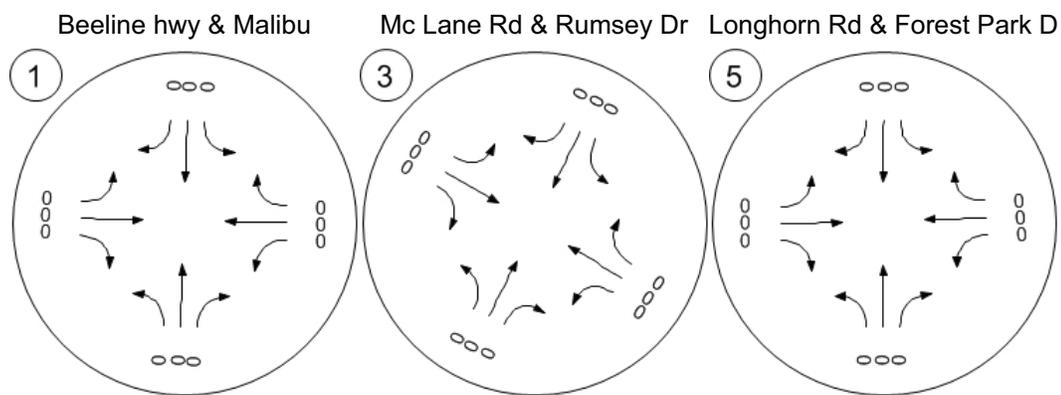
Report Figure 2a: Traffic Volume - Base Volume



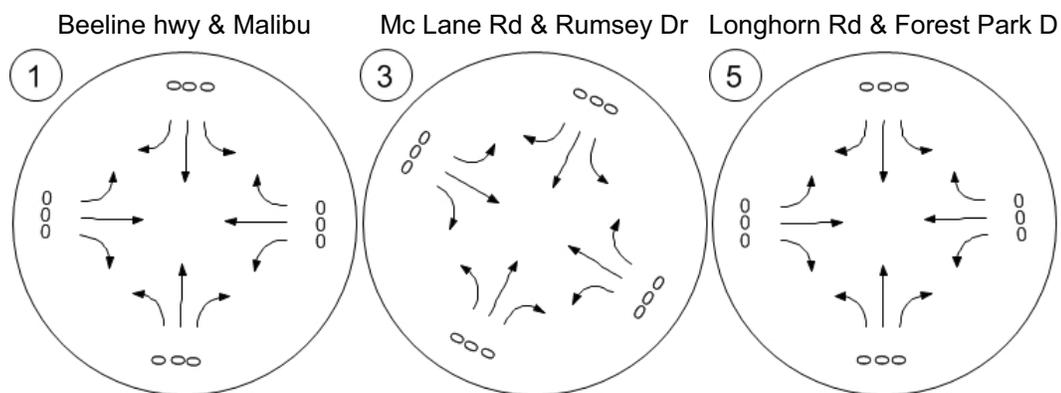
Report Figure 2b: Traffic Volume - In-Process Volume



Report Figure 2c: Traffic Volume - Net New Site Trips



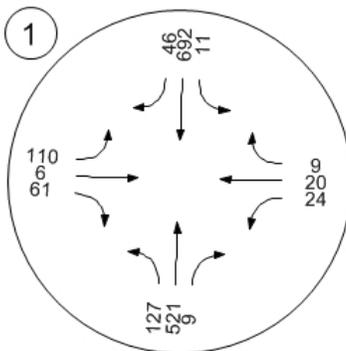
Report Figure 2d: Traffic Volume - Other Volume



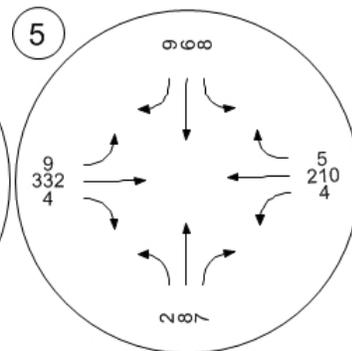
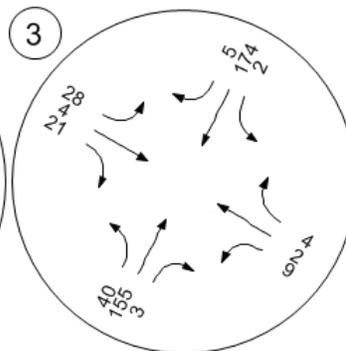
Report Figure 2e: Traffic Volume - Future Total Volume



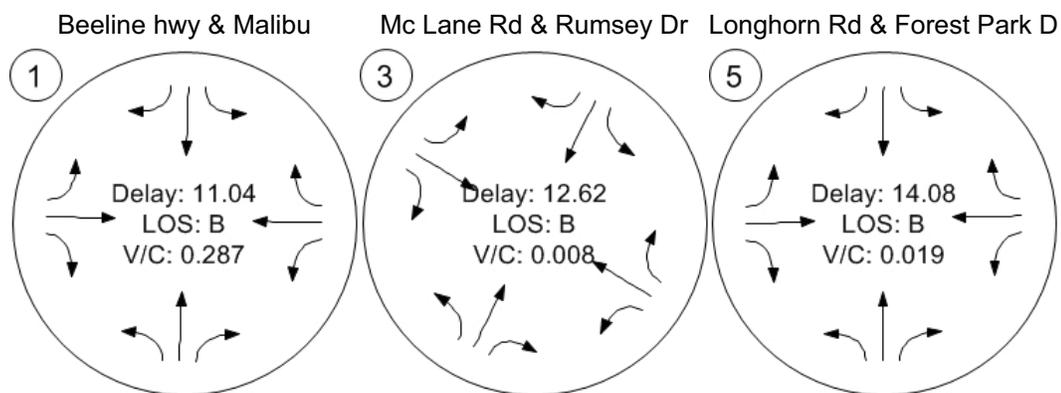
Beeline hwy & Malibu



Mc Lane Rd & Rumsey Dr Longhorn Rd & Forest Park D



Report Figure 3: Traffic Conditions



Timber Ridge Development

Vistro File:

Scenario 4: 5yr Without Project + Road Rumsey

Report File: C:\...5 Year + Rumsey Scenario Report.pdf

5/14/2014

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Beeline hwy & Malibu	Signalized	HCM2010	EBR	0.317	11.8	B
3	Mc Lane Rd & Rumsey Dr	Two-way stop	HCM2010	NWBL	0.091	15.0	C
5	Longhorn Rd & Forest Park Dr	Two-way stop	HCM2010	SBL	0.023	14.7	B
7	New Intersection	Two-way stop	HCM2010	NBL	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: Beeline hwy & Malibu**

Control Type: Signalized  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.8  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.317

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	470.00	100.00	100.00	230.00	100.00	360.00	300.00	100.00	100.00	470.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	138	496	9	10	692	102	120	17	70	19	28	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	145	521	9	11	727	107	126	18	74	20	29	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	130	2	3	182	27	32	5	19	5	7	2
Total Analysis Volume [veh/h]	145	521	9	11	727	107	126	18	74	20	29	9
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss									
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Lead / Lag	Lag	-	-									
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	12	40	0	10	46	0	10	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	11	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no										
Maximum Recall	no	no										
Pedestrian Recall	no	no										
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C	L	C	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	21	14	14	21	13	13	10	3	9	2	2
g / C, Green / Cycle	0.54	0.37	0.37	0.54	0.33	0.33	0.26	0.08	0.25	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.13	0.20	0.12	0.01	0.23	0.08	0.08	0.06	0.01	0.02	0.01
s, saturation flow rate [veh/h]	1109	1676	1663	1127	3192	1425	1597	1468	1547	1676	1425
c, Capacity [veh/h]	543	613	608	548	1063	475	514	120	453	73	62
d1, Uniform Delay [s]	10.22	9.52	8.58	8.71	10.88	9.08	10.74	16.99	11.57	17.59	17.40
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.26	0.78	0.29	0.01	0.79	0.24	0.25	9.78	0.04	3.51	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.27	0.55	0.31	0.02	0.68	0.23	0.25	0.77	0.04	0.40	0.15
d, Delay for Lane Group [s/veh]	10.48	10.30	8.88	8.72	11.66	9.32	10.98	26.77	11.61	21.10	18.47
Lane Group LOS	B	B	A	A	B	A	B	C	B	C	B
Critical Lane Group	yes	no	no	no	yes	no	no	yes	yes	no	no
50th-Percentile Queue Length [veh]	0.35	1.73	0.86	0.02	2.05	0.51	0.72	0.99	0.11	0.28	0.08
50th-Percentile Queue Length [ft]	8.65	43.23	21.55	0.59	51.36	12.69	18.11	24.74	2.68	7.06	2.08
95th-Percentile Queue Length [veh]	0.62	3.11	1.55	0.04	3.70	0.91	1.30	1.78	0.19	0.51	0.15
95th-Percentile Queue Length [ft]	15.57	77.82	38.79	1.06	92.45	22.85	32.60	44.54	4.82	12.71	3.75

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	10.48	9.80	8.88	8.72	11.66	9.32	10.98	26.77	26.77	11.61	21.10	18.47
Movement LOS	B	A	A	A	B	A	B	C	C	B	C	B
d_A, Approach Delay [s/veh]	9.94			11.33			17.65			17.42		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	11.77											
Intersection LOS	B											
Intersection V/C	0.317											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
#3: Mc Lane Rd & Rumsey Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 15.0  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.091

**Intersection Setup**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach												
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right									
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Base Volume Input [veh/h]	38	148	29	47	166	5	35	9	28	27	14	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	155	30	49	174	5	37	9	29	28	15	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	39	8	12	44	1	9	2	7	7	4	5
Total Analysis Volume [veh/h]	40	155	30	49	174	5	37	9	29	28	15	21
Presence of On-Street Parking	no		no									
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.04	0.00	0.00	0.09	0.02	0.03	0.07	0.04	0.02
d_M, Delay for Movement [s/veh]	7.65	0.00	0.00	7.69	0.00	0.00	15.04	14.63	10.30	14.92	14.66	10.22
Movement LOS	A	A	A	A	A	A	C	B	B	B	B	B
50th-Percentile Queue Length [veh]	0.48	0.48	0.48	0.10	0.00	0.00	0.27	0.27	0.27	0.24	0.24	0.24
50th-Percentile Queue Length [ft]	11.96	11.96	11.96	2.62	0.00	0.00	6.85	6.85	6.85	5.92	5.92	5.92
95th-Percentile Queue Length [veh]	0.57	0.57	0.57	0.11	0.00	0.00	0.51	0.51	0.51	0.44	0.44	0.44
95th-Percentile Queue Length [ft]	14.35	14.35	14.35	2.74	0.00	0.00	12.64	12.64	12.64	11.01	11.01	11.01
d_A, Approach Delay [s/veh]	1.36			1.65			13.16			13.32		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.26											
Intersection LOS	C											

**Intersection Level Of Service Report  
#5: Longhorn Rd & Forest Park Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.023

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			+			+r			r+		
Lane Configuration	+			+			+r			r+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	2	8	7	9	6	15	21	316	4	4	200	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	7	9	6	16	22	332	4	4	210	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	2	2	2	4	6	83	1	1	53	3
Total Analysis Volume [veh/h]	2	8	7	9	6	16	22	332	4	4	210	13
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.02	0.01	0.02	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.63	14.29	10.34	14.69	14.39	9.78	7.72	0.00	0.00	7.95	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
50th-Percentile Queue Length [veh]	0.06	0.06	0.06	0.10	0.10	0.10	0.76	0.76	0.00	0.01	0.00	0.00
50th-Percentile Queue Length [ft]	1.50	1.50	1.50	2.60	2.60	2.60	18.98	18.98	0.00	0.22	0.00	0.00
95th-Percentile Queue Length [veh]	0.11	0.11	0.11	0.18	0.18	0.18	1.06	1.06	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	2.72	2.72	2.72	4.57	4.57	4.57	26.54	26.54	0.00	0.25	0.00	0.00
d_A, Approach Delay [s/veh]	12.70			12.10			0.47			0.14		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.25											
Intersection LOS	B											

**Intersection Level Of Service Report  
#7: New Intersection**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.000

**Intersection Setup**

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		yes		yes	

**Volumes**

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.52	8.32	0.00	0.00	7.22	0.00
Movement LOS	A	A	A	A	A	A
50th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
50th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.42		0.00		3.61	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

Timber Ridge Development

Vistro File:

Scenario 4: 5yr Without Project + Road Rumsey

Report File: C:\...\5 Year + Rumsey Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	145	521	9	11	727	107	126	18	74	20	29	9	1796

ID	Intersection Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
		Left	Thru	Right										
3	Mc Lane Rd & Rumsey Dr	40	155	30	49	174	5	37	9	29	28	15	21	592

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	2	8	7	9	6	16	22	332	4	4	210	13	633

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
7	New Intersection	0	0	0	0	0	0	0

Timber Ridge Development

Vistro File:

Scenario 4: 5yr Without Project + Road Rumsey

Report File: C:\...15 Year + Rumsey Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	Final Base	138	496	9	10	692	102	120	17	70	19	28	9	1710
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>145</b>	<b>521</b>	<b>9</b>	<b>11</b>	<b>727</b>	<b>107</b>	<b>126</b>	<b>18</b>	<b>74</b>	<b>20</b>	<b>29</b>	<b>9</b>	<b>1796</b>

ID	Intersection Name	Volume Type	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Mc Lane Rd & Rumsey Dr	Final Base	38	148	29	47	166	5	35	9	28	27	14	20	566
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>40</b>	<b>155</b>	<b>30</b>	<b>49</b>	<b>174</b>	<b>5</b>	<b>37</b>	<b>9</b>	<b>29</b>	<b>28</b>	<b>15</b>	<b>21</b>	<b>592</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	Final Base	2	8	7	9	6	15	21	316	4	4	200	12	604
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2</b>	<b>8</b>	<b>7</b>	<b>9</b>	<b>6</b>	<b>16</b>	<b>22</b>	<b>332</b>	<b>4</b>	<b>4</b>	<b>210</b>	<b>13</b>	<b>633</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
7	New Intersection	Final Base	0	0	0	0	0	0	0
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Signal Warrants Report For Intersection #3: Mc Lane Rd &amp; Rumsey Dr

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	SE, NW
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	NE	SW	SE	NW
1	228	225	75	64
2	219	216	72	61
3	214	212	71	60
4	182	180	60	51
5	173	171	57	49
6	155	153	51	44
7	144	142	47	40
8	137	135	45	38
9	109	108	36	31
10	103	101	34	29
11	103	101	34	29
12	98	97	32	28
13	89	88	29	25
14	82	81	27	23
15	82	81	27	23
16	80	79	26	22
17	46	45	15	13
18	25	25	8	7
19	23	23	8	6
20	9	9	3	3
21	7	7	2	2
22	7	7	2	2
23	5	5	2	1
24	5	5	2	1

**Warrant Analysis by Hour**

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3 Condition B
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		
1	3	453	2	139	No	No	No	No	No	No	No	No	No	No
2	3	435	2	133	No	No	No	No	No	No	No	No	No	No
3	3	426	2	131	No	No	No	No	No	No	No	No	No	No
4	3	362	2	111	No	No	No	No	No	No	No	No	No	No
5	3	344	2	106	No	No	No	No	No	No	No	No	No	No
6	3	308	2	95	No	No	No	No	No	No	No	No	No	No
7	3	286	2	87	No	No	No	No	No	No	No	No	No	No
8	3	272	2	83	No	No	No	No	No	No	No	No	No	No
9	3	217	2	67	No	No	No	No	No	No	No	No	No	No
10	3	204	2	63	No	No	No	No	No	No	No	No	No	No
11	3	204	2	63	No	No	No	No	No	No	No	No	No	No
12	3	195	2	60	No	No	No	No	No	No	No	No	No	No
13	3	177	2	54	No	No	No	No	No	No	No	No	No	No
14	3	163	2	50	No	No	No	No	No	No	No	No	No	No
15	3	163	2	50	No	No	No	No	No	No	No	No	No	No
16	3	159	2	48	No	No	No	No	No	No	No	No	No	No
17	3	91	2	28	No	No	No	No	No	No	No	No	No	No
18	3	50	2	15	No	No	No	No	No	No	No	No	No	No
19	3	46	2	14	No	No	No	No	No	No	No	No	No	No
20	3	18	2	6	No	No	No	No	No	No	No	No	No	No
21	3	14	2	4	No	No	No	No	No	No	No	No	No	No
22	3	14	2	4	No	No	No	No	No	No	No	No	No	No
23	3	10	2	3	No	No	No	No	No	No	No	No	No	No
24	3	10	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

**Warrant 3 Condition A**

Orientation	SE	NW
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.2	13.3
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:16	0:14
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	75	64
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	592	592
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

Signal Warrants Report For Intersection #5: Longhorn Rd & Forest Park Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	227	358	31	17
2	218	344	30	16
3	213	337	29	16
4	182	286	25	14
5	173	272	24	13
6	154	243	21	12
7	143	226	20	11
8	136	215	19	10
9	109	172	15	8
10	102	161	14	8
11	102	161	14	8
12	98	154	13	7
13	89	140	12	7
14	82	129	11	6
15	82	129	11	6
16	79	125	11	6
17	45	72	6	3
18	25	39	3	2
19	23	36	3	2
20	9	14	1	1
21	7	11	1	1
22	7	11	1	1
23	5	7	1	0
24	5	7	1	0

**Warrant Analysis by Hour**

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3 Condition B
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		
1	4	585	2	48	No	No	No	No	No	No	No	No	No	No
2	4	562	2	46	No	No	No	No	No	No	No	No	No	No
3	4	550	2	45	No	No	No	No	No	No	No	No	No	No
4	4	468	2	39	No	No	No	No	No	No	No	No	No	No
5	4	445	2	37	No	No	No	No	No	No	No	No	No	No
6	4	397	2	33	No	No	No	No	No	No	No	No	No	No
7	4	369	2	31	No	No	No	No	No	No	No	No	No	No
8	4	351	2	29	No	No	No	No	No	No	No	No	No	No
9	4	281	2	23	No	No	No	No	No	No	No	No	No	No
10	4	263	2	22	No	No	No	No	No	No	No	No	No	No
11	4	263	2	22	No	No	No	No	No	No	No	No	No	No
12	4	252	2	20	No	No	No	No	No	No	No	No	No	No
13	4	229	2	19	No	No	No	No	No	No	No	No	No	No
14	4	211	2	17	No	No	No	No	No	No	No	No	No	No
15	4	211	2	17	No	No	No	No	No	No	No	No	No	No
16	4	204	2	17	No	No	No	No	No	No	No	No	No	No
17	4	117	2	9	No	No	No	No	No	No	No	No	No	No
18	4	64	2	5	No	No	No	No	No	No	No	No	No	No
19	4	59	2	5	No	No	No	No	No	No	No	No	No	No
20	4	23	2	2	No	No	No	No	No	No	No	No	No	No
21	4	18	2	2	No	No	No	No	No	No	No	No	No	No
22	4	18	2	2	No	No	No	No	No	No	No	No	No	No
23	4	12	2	1	No	No	No	No	No	No	No	No	No	No
24	4	12	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

**Warrant 3 Condition A**

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.1	12.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06	0:03
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	31	17
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	633	633
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

Signal Warrants Report For Intersection #7: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

**Warrant Analysis by Hour**

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3 Condition B
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		
1	2	0	1	0	No	No	No	No	No	No	No	No	No	No
2	2	0	1	0	No	No	No	No	No	No	No	No	No	No
3	2	0	1	0	No	No	No	No	No	No	No	No	No	No
4	2	0	1	0	No	No	No	No	No	No	No	No	No	No
5	2	0	1	0	No	No	No	No	No	No	No	No	No	No
6	2	0	1	0	No	No	No	No	No	No	No	No	No	No
7	2	0	1	0	No	No	No	No	No	No	No	No	No	No
8	2	0	1	0	No	No	No	No	No	No	No	No	No	No
9	2	0	1	0	No	No	No	No	No	No	No	No	No	No
10	2	0	1	0	No	No	No	No	No	No	No	No	No	No
11	2	0	1	0	No	No	No	No	No	No	No	No	No	No
12	2	0	1	0	No	No	No	No	No	No	No	No	No	No
13	2	0	1	0	No	No	No	No	No	No	No	No	No	No
14	2	0	1	0	No	No	No	No	No	No	No	No	No	No
15	2	0	1	0	No	No	No	No	No	No	No	No	No	No
16	2	0	1	0	No	No	No	No	No	No	No	No	No	No
17	2	0	1	0	No	No	No	No	No	No	No	No	No	No
18	2	0	1	0	No	No	No	No	No	No	No	No	No	No
19	2	0	1	0	No	No	No	No	No	No	No	No	No	No
20	2	0	1	0	No	No	No	No	No	No	No	No	No	No
21	2	0	1	0	No	No	No	No	No	No	No	No	No	No
22	2	0	1	0	No	No	No	No	No	No	No	No	No	No
23	2	0	1	0	No	No	No	No	No	No	No	No	No	No
24	2	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

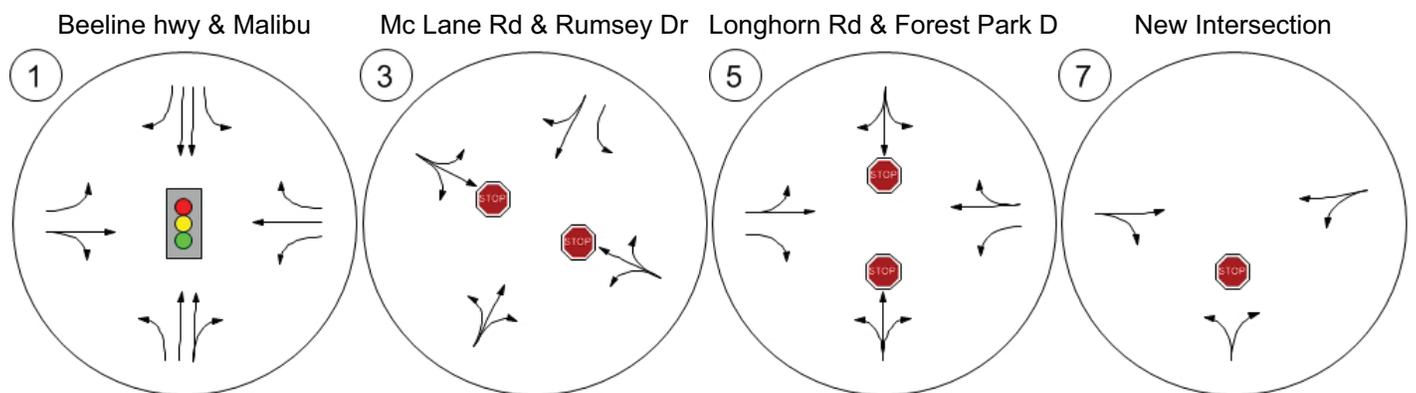
**Warrant 3 Condition A**

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	0
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>

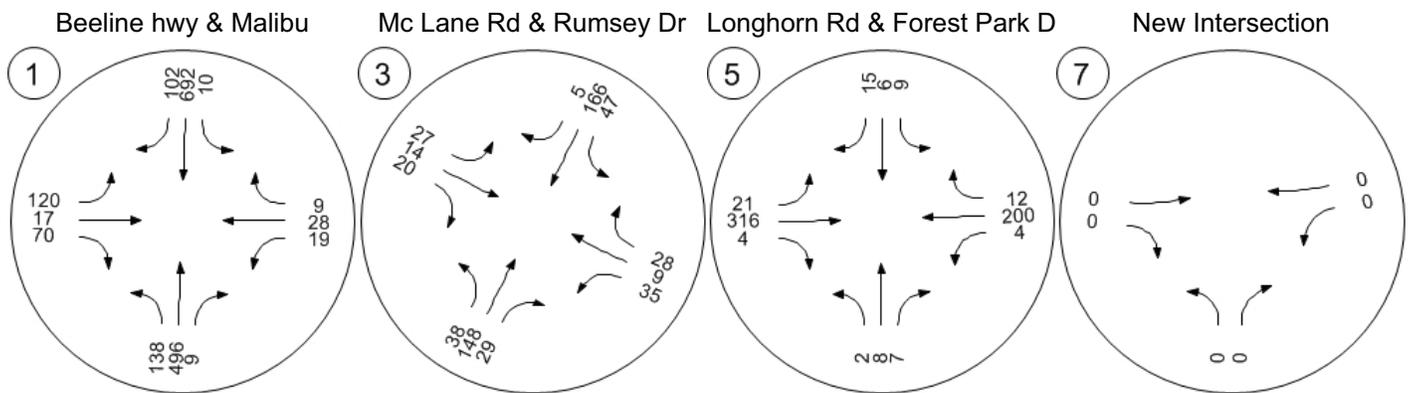
Report Figure 0: Study Intersections



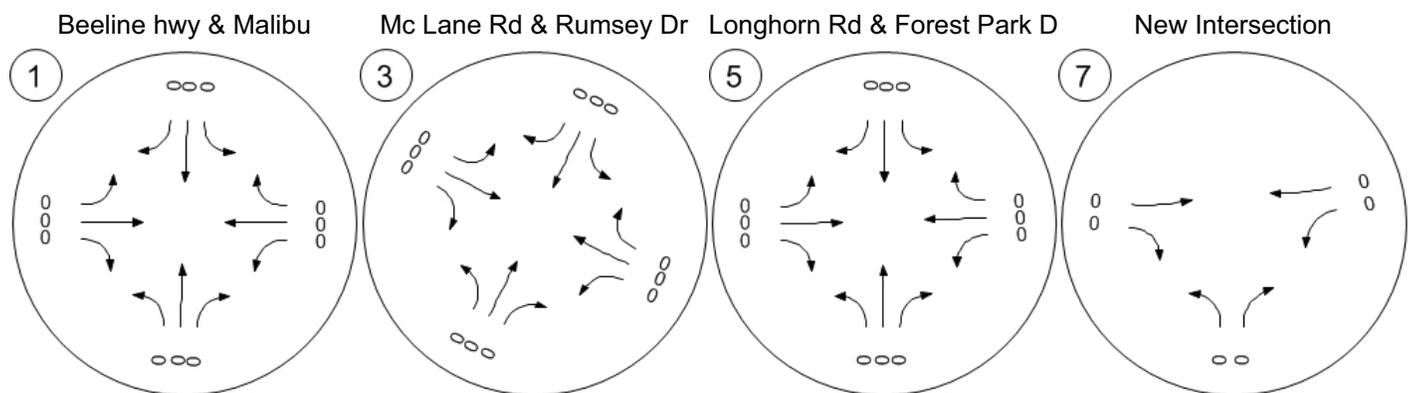
Report Figure 1: Lane Configuration and Traffic Control



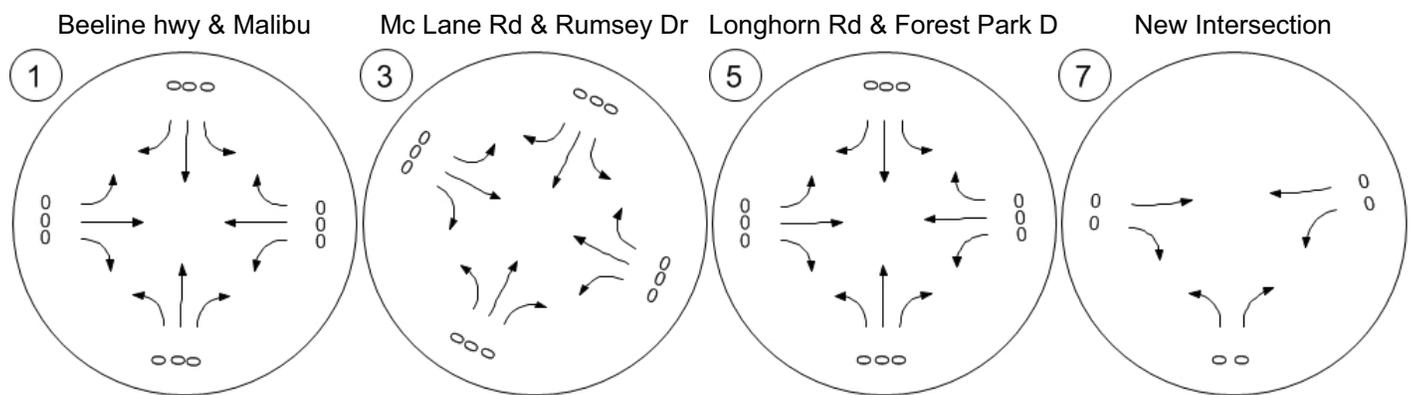
Report Figure 2a: Traffic Volume - Base Volume



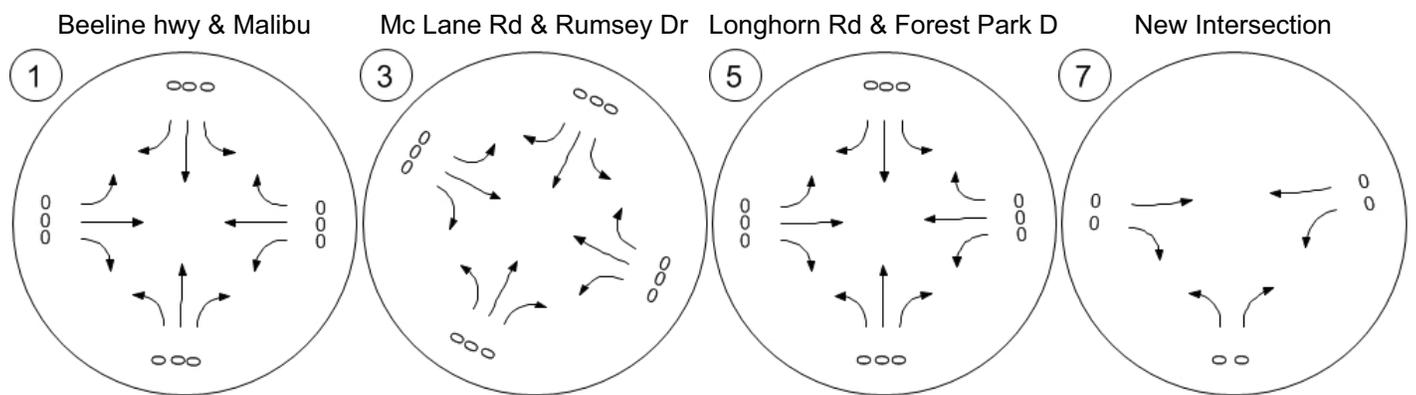
Report Figure 2b: Traffic Volume - In-Process Volume



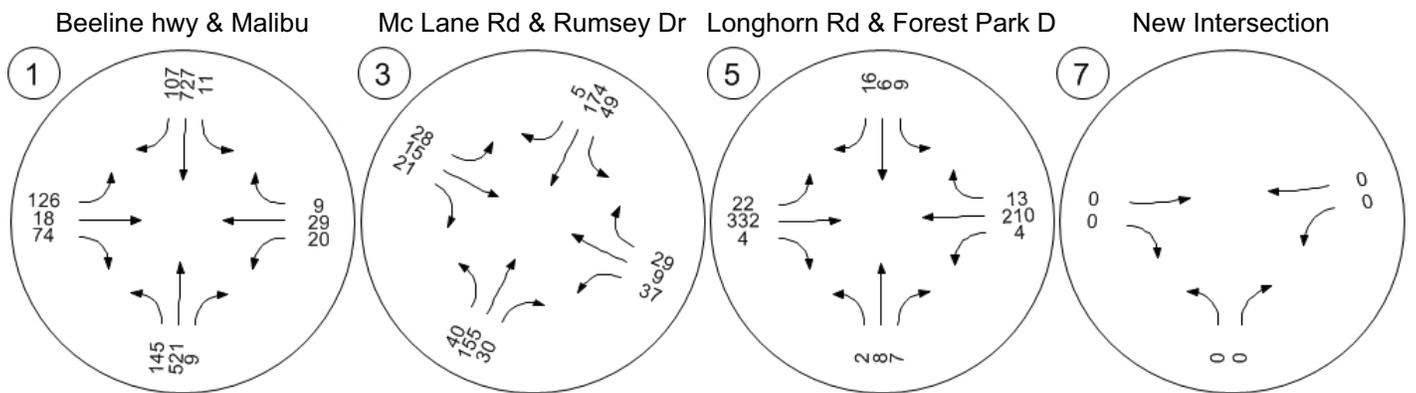
Report Figure 2c: Traffic Volume - Net New Site Trips



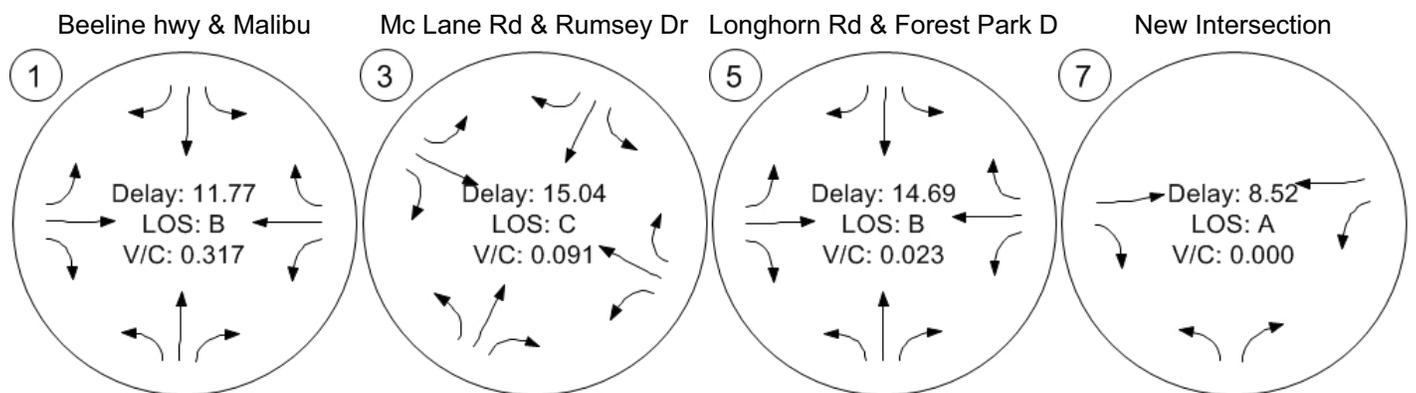
Report Figure 2d: Traffic Volume - Other Volume



Report Figure 2e: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions



Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb  
Report File: C:\...\5 Year + Proj Scenario Report.pdf

Scenario 5: 5yr With Project  
5/14/2014

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Beeline hwy & Malibu	Signalized	HCM2010	WBT	0.318	11.7	B
3	Mc Lane Rd & Rumsey Dr	Two-way stop	HCM2010	NWBL	0.117	16.5	C
5	Longhorn Rd & Forest Park Dr	Two-way stop	HCM2010	SBL	0.040	16.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: Beeline hwy & Malibu**

Control Type: Signalized  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.318

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	470.00	100.00	100.00	230.00	100.00	360.00	100.00	100.00	100.00	470.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	145	521	9	11	727	107	126	18	74	20	29	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	0	0	0	0	16	13	2	21	0	3	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	182	547	9	12	763	128	145	21	99	21	33	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	137	2	3	191	32	36	5	25	5	8	2
Total Analysis Volume [veh/h]	182	547	9	12	763	128	145	21	99	21	33	9
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss									
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Lead / Lag	Lag	-	-									
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	40	0	12	40	0	10	46	0	10	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	11	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no										
Maximum Recall	no	no										
Pedestrian Recall	no	no										
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C	L	C	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	21	14	14	21	13	13	10	5	10	2	2
g / C, Green / Cycle	0.54	0.37	0.37	0.54	0.33	0.33	0.26	0.13	0.26	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.15	0.20	0.10	0.01	0.22	0.08	0.08	0.07	0.01	0.02	0.01
s, saturation flow rate [veh/h]	1220	1863	1847	1236	3547	1583	1774	1626	1621	1863	1583
c, Capacity [veh/h]	587	682	676	582	1170	522	552	208	409	89	75
d1, Uniform Delay [s]	10.58	9.87	8.79	8.97	11.25	9.61	10.90	16.15	13.28	18.17	17.95
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.30	0.68	0.22	0.01	0.62	0.24	0.25	2.51	0.05	2.57	0.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.31	0.54	0.27	0.02	0.65	0.25	0.26	0.58	0.05	0.37	0.12
d, Delay for Lane Group [s/veh]	10.87	10.55	9.01	8.99	11.87	9.85	11.15	18.67	13.33	20.74	18.64
Lane Group LOS	B	B	A	A	B	A	B	B	B	C	B
Critical Lane Group	yes	no	no	no	yes	no	no	yes	yes	no	no
50th-Percentile Queue Length [veh]	0.48	1.99	0.87	0.03	2.26	0.65	0.87	1.01	0.12	0.32	0.08
50th-Percentile Queue Length [ft]	12.03	49.84	21.82	0.70	56.52	16.35	21.73	25.19	2.94	7.91	2.07
95th-Percentile Queue Length [veh]	0.87	3.59	1.57	0.05	4.07	1.18	1.56	1.81	0.21	0.57	0.15
95th-Percentile Queue Length [ft]	21.66	89.71	39.27	1.26	101.73	29.42	39.11	45.34	5.29	14.24	3.73

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	10.87	10.05	9.01	8.99	11.87	9.85	11.15	18.67	18.67	13.33	20.74	18.64
Movement LOS	B	B	A	A	B	A	B	B	B	B	C	B
d_A, Approach Delay [s/veh]	10.24			11.55			14.55			17.97		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	11.67											
Intersection LOS	B											
Intersection V/C	0.318											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
#3: Mc Lane Rd & Rumsey Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 16.5  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.117

**Intersection Setup**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach												
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right									
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Base Volume Input [veh/h]	40	155	30	49	174	5	37	9	29	28	15	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	10	11	0	0	4	1	4	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	163	42	62	183	5	43	10	34	29	18	22
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	41	11	16	46	1	11	3	9	7	5	6
Total Analysis Volume [veh/h]	42	163	42	62	183	5	43	10	34	29	18	22
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.05	0.00	0.00	0.12	0.03	0.04	0.08	0.05	0.03
d_M, Delay for Movement [s/veh]	7.68	0.00	0.00	7.76	0.00	0.00	16.51	15.85	10.87	16.25	15.82	10.62
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh]	0.65	0.65	0.65	0.14	0.00	0.00	0.66	0.66	0.66	0.53	0.53	0.53
95th-Percentile Queue Length [ft]	16.19	16.19	16.19	3.56	0.00	0.00	16.52	16.52	16.52	13.29	13.29	13.29
d_A, Approach Delay [s/veh]	1.31			1.92			14.23			14.34		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.64											
Intersection LOS	C											

**Intersection Level Of Service Report  
#5: Longhorn Rd & Forest Park Dr**

Control Type: Two-way stop  
 Analysis Method: HCM2010  
 Analysis Period: 15 minutes

Delay (sec / veh): 16.1  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.040

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+			+			+r			r+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	2	8	7	9	6	16	22	332	4	4	210	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	5	1	4	12	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	10	7	14	7	21	35	349	4	4	221	22
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	2	4	2	5	9	87	1	1	55	6
Total Analysis Volume [veh/h]	2	10	7	14	7	21	35	349	4	4	221	22
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.03	0.01	0.04	0.02	0.03	0.03	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.90	15.34	10.56	16.05	15.56	10.14	7.79	0.00	0.00	8.00	0.00	0.00
Movement LOS	C	C	B	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.14	0.14	0.14	0.28	0.28	0.28	1.21	1.21	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	3.41	3.41	3.41	6.98	6.98	6.98	30.35	30.35	0.00	0.25	0.00	0.00
d_A, Approach Delay [s/veh]	13.64			13.02			0.70			0.13		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.60											
Intersection LOS	C											

## Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 5: 5yr With Project

Report File: C:\...\5 Year + Proj Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	182	547	9	12	763	128	145	21	99	21	33	9	1969

ID	Intersection Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
		Left	Thru	Right										
3	Mc Lane Rd & Rumsey Dr	42	163	42	62	183	5	43	10	34	29	18	22	653

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	2	10	7	14	7	21	35	349	4	4	221	22	696

Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 5: 5yr With Project

Report File: C:\...\5 Year + Proj Scenario Report.pdf

5/14/2014

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Beeline hwy & Malibu	Final Base	145	521	9	11	727	107	126	18	74	20	29	9	1796
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	30	0	0	0	0	16	13	2	21	0	3	0	85
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>182</b>	<b>547</b>	<b>9</b>	<b>12</b>	<b>763</b>	<b>128</b>	<b>145</b>	<b>21</b>	<b>99</b>	<b>21</b>	<b>33</b>	<b>9</b>	<b>1969</b>

ID	Intersection Name	Volume Type	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Mc Lane Rd & Rumsey Dr	Final Base	40	155	30	49	174	5	37	9	29	28	15	21	592
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	10	11	0	0	4	1	4	0	2	0	32
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>42</b>	<b>163</b>	<b>42</b>	<b>62</b>	<b>183</b>	<b>5</b>	<b>43</b>	<b>10</b>	<b>34</b>	<b>29</b>	<b>18</b>	<b>22</b>	<b>653</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Longhorn Rd & Forest Park Dr	Final Base	2	8	7	9	6	16	22	332	4	4	210	13	633
		Growth Rate	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	2	0	5	1	4	12	0	0	0	0	8	32
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2</b>	<b>10</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>21</b>	<b>35</b>	<b>349</b>	<b>4</b>	<b>4</b>	<b>221</b>	<b>22</b>	<b>696</b>

Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 5: 5yr With Project

Report File: C:\...\5 Year + Proj Scenario Report.pdf

5/14/2014

**Fair Share Volumes**

Intersection 1: Beeline hwy & Malibu													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	30	0	0	0	0	16	13	2	21	0	3	0	85
Total Volume	30	0	0	0	0	16	13	2	21	0	3	0	
Total Analysis Volume	182	547	9	12	763	128	145	21	99	21	33	9	

Intersection 3: Mc Lane Rd & Rumsey Dr													
Zone ID: Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total
	Left	Thru	Right										
12: Zone	0	0	10	11	0	0	4	1	4	0	2	0	32
Total Volume	0	0	10	11	0	0	4	1	4	0	2	0	
Total Analysis Volume	42	163	42	62	183	5	43	10	34	29	18	22	

Intersection 5: Longhorn Rd & Forest Park Dr													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	0	2	0	5	1	4	13	0	0	0	0	8	33
Total Volume	0	2	0	5	1	4	13	0	0	0	0	8	
Total Analysis Volume	2	10	7	14	7	21	35	349	4	4	221	22	

Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 5: 5yr With Project

Report File: C:\...\5 Year + Proj Scenario Report.pdf

5/14/2014

**Fair Share % of Total Analysis**

Intersection 1: Beeline hwy & Malibu													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	14.22%	0	0	0	0	11.11%	8.23%	8.7%	17.7%	0	8.33%	0	3.47%
Total	14.22%	0.00%	0.00%	0.00%	0.00%	11.11%	8.23%	8.70%	17.70%	0.00%	8.33%	0.00%	

Intersection 3: Mc Lane Rd & Rumsey Dr													
Zone ID: Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	0	0	20.04%	15.07%	0	0	7.73%	9.09%	10.53%	0	10%	0	11.10%
Total	0.00%	0.00%	20.04%	15.07%	0.00%	0.00%	7.73%	9.09%	10.53%	0.00%	10.00%	0.00%	

Intersection 5: Longhorn Rd & Forest Park Dr													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12: Zone	0	16.67%	0	25%	12.5%	15.75%	26.75%	0	0	0	0	26.35%	17.68%
Total	0.00%	16.67%	0.00%	25.00%	12.50%	15.75%	26.75%	0.00%	0.00%	0.00%	0.00%	26.35%	

Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 5: 5yr With Project

Report File: C:\...\5 Year + Proj Scenario Report.pdf

5/14/2014

**Trip generation summary**

**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
12: Zone	Residential			1.000	151.000	63.00	37.00	95	56	151	100.00
<b>Added Trips Total</b>								<b>95</b>	<b>56</b>	<b>151</b>	<b>100.00</b>

## Timber Ridge Development

Vistro File: C:\...\Base Scenario Payson Az.vistropdb

Scenario 5: 5yr With Project

Report File: C:\...\5 Year + Proj Scenario Report.pdf

5/14/2014

**Trip distribution summary**

Zone / Gate	Zone 12: Zone			
	To Zone:		From Zone:	
	Share %	Trips	Share %	Trips
13: Gate	2.00	2	2.00	1
14: Gate	12.00	11	8.00	4
15: Gate	12.00	11	8.00	4
16: Gate	12.00	11	8.00	4
17: Gate	2.00	2	2.00	1
18: Gate	17.00	16	23.00	13
19: Gate	3.00	3	3.00	2
20: Gate	20.00	19	21.00	12
21: Gate	20.00	19	25.00	14
<b>Total</b>	<b>100.00</b>	<b>94</b>	<b>100.00</b>	<b>55</b>

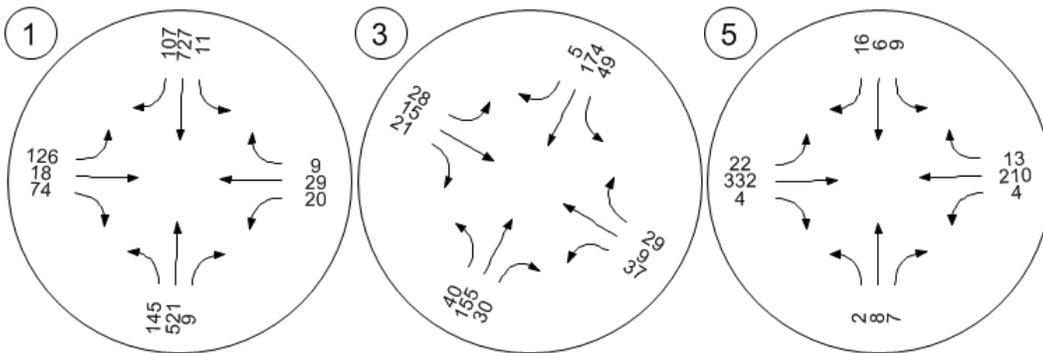
Report Figure 2a: Traffic Volume - Base Volume



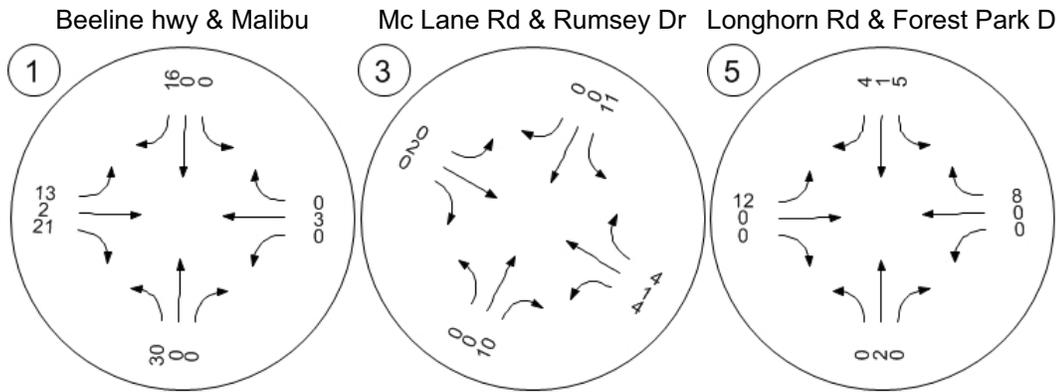
Beeline hwy & Malibu

Mc Lane Rd & Rumsey Dr

Longhorn Rd & Forest Park D



Report Figure 2c: Traffic Volume - Net New Site Trips



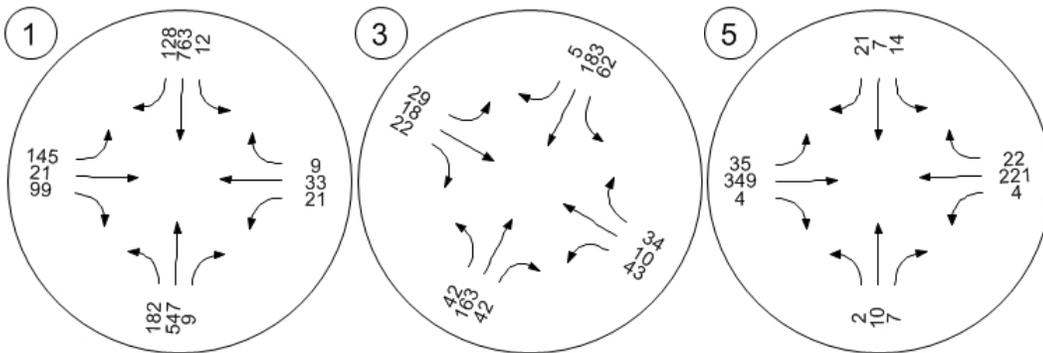
Report Figure 2e: Traffic Volume - Future Total Volume



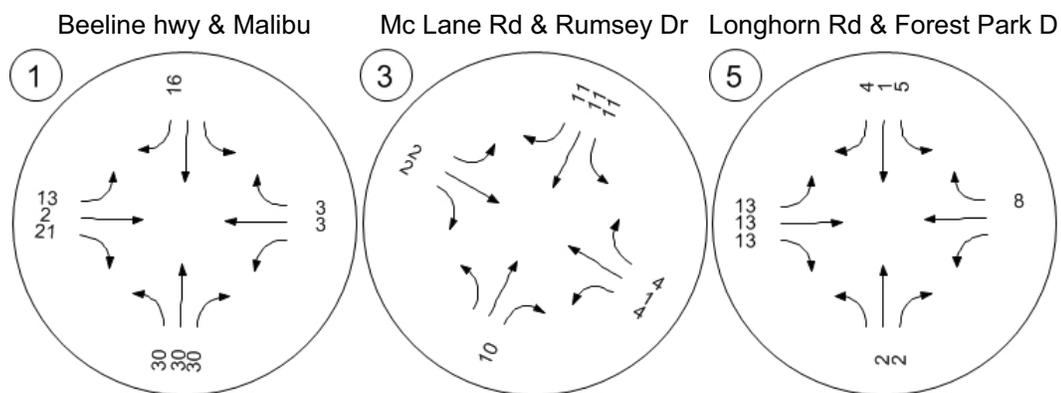
Beeline hwy & Malibu

Mc Lane Rd & Rumsey Dr

Longhorn Rd & Forest Park D



Report Figure 4: Fair Share - Fair Share Volumes - Zone 12



# **Appendix B - Drainage Report**

**Preliminary  
Drainage Report  
for  
Timber Ridge P.A.D.**



*Prepared by Otak, Inc.  
51 W. Third St., Suite 201  
Tempe, AZ 85281  
(480) 557-6670*

*May 2014*

*Otak Project No. 17060A*

*Thomas Green, P.E.*

---

## TABLE OF CONTENTS

1 - Introduction

2 - Mapping and Survey Information

3 - Hydrologic Analysis

*A - Watershed Map*

*B - Existing Condition Site Map*

*C - Clean Water Act Provisions*

*D - Developed Condition Site Map*

*E - Hydrologic Modeling Calculations*

4 - Hydraulics

5 - Results and Recommendations

### **Appendix**

*FEMA - Flood Insurance Rate Map*

*Rational Method Calculations*

*Culvert Calculations*

## 1 - Introduction

The purpose of the report is to evaluate the existing drainage conditions and proposed development within the Town of Payson for the Timber Ridge Project Area (Site). The site is a vacant lot located in the Town of Payson, straddling the Rumsey Ridge Drive alignment, just west of AZ Highway 87, in the Northeast Quarter of Section 4, Township 10 North, Range 11 East.

The site is situated on hilly terrain composed largely of Gravelly Loam. A significant portion of this undeveloped site is heavily vegetated. The site receives some offsite runoff from the east and more significant flows from the south. A wash flowing from east to west bisects the southern half of the property. It combines offsite runoff from the south and onsite runoff from the northern half and outlets at the west property line, where these flows are then passed through a culvert. A ridge line, which essentially runs east to west, bisects the northern half of the property. The north side of the ridgeline drains largely as sheet flow to the north and west property lines. The other side of the ridgeline drains to the aforementioned wash located in the southern half of the property, and an overview of the proposed drainage scheme for the project.

## 2 - Mapping and Survey Information

In 2005, A&B Aerial Mapping Company provided 1foot interval contour mapping for the Site. In October 2013, a field survey was performed to verify the validity of the aerial topographic mapping and determine if any appreciable changes had occurred to the site. This survey determined the aerial mapping data to be valid. All field survey control was done using North American Datum of 1983 (NAD 83) State Plane Coordinates for horizontal control, and North American Vertical Datum of 1988 (NAVD 88) for vertical control.

## 3 - Hydrologic Analysis

The Hydrologic analysis performed in this report is based on the policies and methodologies set forth in Town of Payson Ordinance. Existing watershed and Developed Conditions Peak Runoff Flowrates were determined using the Rational Method, due to the size of the watershed basins. Please see the Drainage Appendix of this report for the Hydrologic Analysis reference and source material.

The C coefficients selected for the existing watershed analysis were based in part on the methodology described in Chapter 2 of the ADOT Hydrology Manual. Specifically the

existing onsite condition with respect to the Ponderosa Pine vegetation. Additionally, C coefficients for the remaining existing basin areas were based on weighting the coefficients provided by the Town of Payson Drainage Ordinance (Table 3.5) using areas estimated from aerial photographic analysis. Developed Condition C coefficients were determined in a similar fashion of area weighting coefficients using Table 3.5.

### *A - Watershed Map*

A map has been prepared of the entire watershed that contributes runoff to and from the site. The map is based on the aerial topography previously mentioned and on site visits. The watershed map shows the boundaries of all watersheds that affect the project site. Watershed concentration points define where runoff enters and leaves the site.

### *B - Existing Condition Site Map*

The existing condition site topographic map shows the existing site features and contours and identifies areas where the existing ground slope is greater than 15%. On a separate exhibit, the closest FEMA 100-year floodplain and floodway limits of record are shown.

### *C - Clean Water Act Provisions*

At this time, there are currently no jurisdictional limits of 'Waters of the United States' defined for the site. An analysis has been performed and an application made to the US Army Corps of Engineers which indicates an absence of jurisdictional waters from the site.

### *D - Developed Condition Site Map*

A developed condition site plan has been prepared including existing condition topography, proposed site grading, and street flow patterns.

### *E - Hydrologic Modeling Calculations*

The Rational Method was used to determine existing and developed conditions peak runoff flowrates, as specified by the Town of Payson Drainage Ordinance. No basin areas exceed 160 acres in size. Parameters used to determine the peak runoff flowrates were specified in the Town of Payson Drainage Ordinance and the latest ADOT Hydrology Design Manual. Resistance Coefficient  $K_b$  and Runoff Coefficient  $C$  were determined using area

averaging methods for each individual basin area. Tabulated results for the developed conditions are shown with calculations are in the Drainage Appendix.

## 4 - Hydraulics

The typical condition for the proposed development is for building pads to drain to streets or private drives which will convey the 10-Year storm between the tops of curbs to concentration points. These flows will then enter curb openings and discharge to drainage swales, channels and/or culverts and then be conveyed to retention/detention facilities. The 100-Year Storm flows shall not be conveyed over private lots within Timber Ridge. In some areas Open Spaces shall be used to convey flows from building pads directly to drainage swales and/or culverts to be routed to retention/detention facilities.

Proposed culvert sizes and locations are estimated to convey the minimum required 10-Year storm event under the roadway, according to the Town of Payson requirements. 100-Year Storm flows may overtop the roadway as allowed by Town of Payson. Culvert calculation estimates can be found in the Drainage Appendix.

More detailed engineering design of the site must be performed in order to perform more detailed design of detention and retention basins. Volumes required will be based on Town of Payson requirements to reduce peak flowrates for the 100, 10 and 2 Year Peak Storm Events to 75% at the outfall concentration points from the site. However, the Town Engineer may require additional points of compliance be analyzed to verify that no adverse impacts are caused by increased or decreased times of concentration.

## 5 - Results and Recommendations

Onsite runoff shall be conveyed to onsite retention/detention facilities via streets, scuppers, swales and culverts as shown. All facilities shall be sized such that all finished floor elevations shall be at least 14 inches above the low lot outfall elevations, and finished floors shall be at least 1 foot above adjacent flows resulting from the 100-Year Storm.

Offsite runoff entering the site from the southeast shall be conveyed through a combination of existing washes, and along engineered channels and culverts where required. An inline detention facility will be constructed at the far downstream end of the wash near the west property line. It will be sized to reduce the flowrate leaving the site at the ultimate outflow from the site to 75% of historic flows per the Town of Payson Drainage Ordinance. Due to the nature of the site, some onsite flows will combine with offsite flows in this wash as it crosses the site. Other areas of the site will be routed to pocket retention basins which will retain local onsite runoff as shown in the developed conditions site maps. As a result, there will be no adverse effects of runoff from the project on downstream offsite areas. Basins will drain within 36 hours without the use of drywells per the Town of Payson Drainage Ordinance.





## Appendix



TIMBER RIDGE PAD EXISTING CONDITIONS PEAK RUNOFF FLOWRATES

Concentration Point	BASIN	BASIN AREA [sq.ft.]	2 YEAR C coeff.	intensity,i	10 YEAR C coeff.	i	intensity,j	100 YEAR C coeff.	intensity,j	Tc [hours]	S [ft/mi]	L [mi]	Delta El. [feet]	Kb	Tc [minutes]	FLOWRATES [CFS]			Concentration Point
																2 YEAR	10 YEAR	100 YEAR	
8C	REX 01A	61062	1.40	0.2	4.75	0.2	4.75	6	8.5	0.09	528	0.076	40	0.2	5.2	1.3	1.7	2.4	CP 08C
	REX 02A	18179	0.42	0.2	4.75	0.2	4.75	6	8.5	0.07	622	0.053	33	0.2	4.1	0.4	0.5	0.7	
	REX 03A	82817	1.90	0.2	4.75	0.2	4.75	6	8.5	0.07	571	0.058	33	0.2	4.4	1.8	2.3	3.2	
	REX 04A	31645	0.73	0.2	4.75	0.2	4.75	6	8.5	0.05	608	0.031	19	0.2	3.2	0.7	0.9	1.2	
	REX 05A	111016	2.55	0.2	4.6	0.2	4.6	5.75	8	0.11	264	0.072	19	0.2	6.4	2.3	2.9	4.3	
	REX 06A	9534	0.22	0.2	4.75	0.2	4.75	6	8.5	0.04	528	0.019	10	0.2	2.6	0.2	0.3	0.4	
	REX 07A	6894	0.16	0.2	4.75	0.2	4.75	6	8.5	0.07	211	0.028	6	0.2	4.2	0.2	0.2	0.3	
	REX 08A	91906	2.11	0.2	4.65	0.2	4.65	5.85	8.25	0.09	456	0.077	35	0.2	5.51	2.0	2.5	3.6	
	REX 08B	69959	1.61	0.2	4.75	0.2	4.75	6	8.5	0.08	422	0.062	26	0.2	5.0	1.5	1.9	2.7	
	REX 08C	192021	4.41	0.23	4	0.23	4	5.25	0.23	0.13	193	0.155	30	0.1	7.5	4.1	5.3	9.0	
	REX 08D	487242	11.19	0.7	4.5	0.7	4.5	5.9	0.88	7.75	121	0.166	20	0.06	6.701	35.2	46.2	76.0	
	REX 08E	59826	1.37	0.2	4.6	0.2	4.6	5.9	0.2	8	328	0.078	25.5	0.2	6.2	1.3	1.6	2.3	
	REX 08F	900953	20.68	0.48	3.25	0.48	3.25	4.25	0.57	6	123	0.269	33	0.10	12.4	32.1	41.9	71.0	
	REX 08G	131211	3.01	0.85	4.75	0.85	4.75	6	0.95	8.5	135	0.163	22	0.02	3.5	12.2	15.4	24.0	
	REX 08H	30430	0.70	0.85	4.75	0.85	4.75	6	0.95	8.5	59	0.051	3	0.02	2.5	2.8	3.6	6	
	REX 08I	81070	1.86	0.7	4.75	0.7	4.75	6	0.88	8.5	55	0.055	3	0.02	2.7	6.2	7.8	14	
	REX 08J	193524	4.44	0.91	4.75	0.91	4.75	6	0.94	8.5	145	0.172	25	0.02	3.5	19.2	24.3	35	
	REX 08K	49461	1.14	0.2	4.75	0.2	4.75	6	0.2	8.5	399	0.074	29.5	0.2	5.6	1.1	1.4	1.9	
REX 08L	372929	8.56	0.2	4.75	0.2	4.75	6	0.2	8.5	388	0.157	61	0.1	5.7	8.1	10.3	14.6		
REX 08L	105527	2.42	0.2	4.75	0.2	4.75	6	0.2	8.5	251	0.161	40.5	0.1	6.6	2.3	2.9	4.1		
08	1865106	42.8	0.49	3.00	0.49	3.00	4	0.55	5.75	106	0.426	45	0.085	15.1	62.4	83.1	136		

TIMBER RIDGE PAD DEVELOPED CONDITIONS PEAK RUNOFF FLOWRATES

Basin	AREA		100 Year			10 Year			2 Year			BASIN	RUNOFF FLOWRATES [CFS]		
	[sq.ft.]	[AC]	i, in/hr	C coeff.	Q, [cfs]	i, in/hr	C coeff.	Q, [cfs]	i, in/hr	C coeff.	Q, [cfs]		100 Year	10 Year	2 Year
1	51836	1.19	8.5	0.75	8	6	0.6	4	4.75	0.6	0.6	8	4	3	
2	88427	2.03	8.5	0.69	12	6	0.55	7	4.75	0.55	0.55	12	7	5	
3	35284	0.81	8.5	0.69	5	6	0.55	3	4.75	0.55	0.55	5	3	2	
4	94961	2.18	8.5	0.75	14	6	0.6	8	4.75	0.6	0.6	14	8	6	
5	106286	2.44	8.5	0.75	16	6	0.6	9	4.75	0.6	0.6	16	9	7	
6	55757	1.28	8.5	0.5	5	6	0.4	3	4.75	0.4	0.4	5	3	2	
7	26136	0.60	8.5	0.75	4	6	0.6	2	4.75	0.6	0.6	4	2	2	
8	64469	1.48	8.5	0.75	9	6	0.6	5	4.75	0.6	0.6	9	5	4	
9	41818	0.96	8.5	0.75	6	6	0.6	3	4.75	0.6	0.6	6	3	3	
10	130244	2.99	8.5	0.75	19	6	0.6	11	4.75	0.6	0.6	19	11	9	
11	63162	1.45	8.5	0.2	2	6	0.2	2	4.75	0.2	0.2	2	2	1	
12	68825	1.58	8.5	0.5	7	6	0.4	4	4.75	0.4	0.4	7	4	3	
13	127195	2.92	8.5	0.75	19	6	0.6	11	4.75	0.6	0.6	19	11	8	
14	115870	2.66	8.5	0.2	5	6	0.2	3	4.75	0.2	0.2	5	3	3	
15	34412	0.79	8.5	0.2	1	6	0.2	1	4.75	0.2	0.2	1	1	1	
16	55757	1.28	8.5	0.75	8	6	0.6	5	4.75	0.6	0.6	8	5	4	
17	55757	1.28	8.5	0.5	5	6	0.4	3	4.75	0.4	0.4	5	3	2	

# Culvert Calculator Report

## CP 06

Solve For: Discharge

---

### Culvert Summary

Allowable HW Elevation	59.00 ft	Headwater Depth/Height	1.50
Computed Headwater Elev.	59.00 ft	Discharge	36.18 cfs
Inlet Control HW Elev.	58.45 ft	Tailwater Elevation	58.00 ft
Outlet Control HW Elev.	59.00 ft	Control Type	Outlet Control

---

### Grades

Upstream Invert	56.00 ft	Downstream Invert	55.00 ft
Length	70.00 ft	Constructed Slope	0.014286 ft/ft

---

### Hydraulic Profile

Profile	Pressure Profile	Depth, Downstream	3.00 ft
Slope Type	N/A	Normal Depth	1.14 ft
Flow Regime	N/A	Critical Depth	1.53 ft
Velocity Downstream	5.76 ft/s	Critical Slope	0.006246 ft/ft

---

### Section

Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	2		

---

### Outlet Control Properties

Outlet Control HW Elev.	59.00 ft	Upstream Velocity Head	0.52 ft
Ke	0.20	Entrance Loss	0.10 ft

---

### Inlet Control Properties

Inlet Control HW Elev.	58.45 ft	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	6.3 ft <sup>2</sup>
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

---

# Culvert Calculator Report

## CP 11

Solve For: Discharge

---

### Culvert Summary

Allowable HW Elevation	39.50 ft	Headwater Depth/Height	1.50
Computed Headwater Elev.	39.50 ft	Discharge	47.01 cfs
Inlet Control HW Elev.	39.50 ft	Tailwater Elevation	37.00 ft
Outlet Control HW Elev.	39.47 ft	Control Type	Inlet Control

---

### Grades

Upstream Invert	36.50 ft	Downstream Invert	35.50 ft
Length	50.00 ft	Constructed Slope	0.020000 ft/ft

---

### Hydraulic Profile

Profile	S2	Depth, Downstream	1.31 ft
Slope Type	Steep	Normal Depth	1.21 ft
Flow Regime	Supercritical	Critical Depth	1.72 ft
Velocity Downstream	10.76 ft/s	Critical Slope	0.008510 ft/ft

---

### Section

Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	2		

---

### Outlet Control Properties

Outlet Control HW Elev.	39.47 ft	Upstream Velocity Head	1.04 ft
Ke	0.20	Entrance Loss	0.21 ft

---

### Inlet Control Properties

Inlet Control HW Elev.	39.50 ft	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	6.3 ft <sup>2</sup>
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

# Culvert Calculator Report

## CP 12

Solve For: Discharge

---

### Culvert Summary

Allowable HW Elevation	46.50 ft	Headwater Depth/Height	1.50
Computed Headwater Elev.	46.50 ft	Discharge	47.01 cfs
Inlet Control HW Elev.	46.50 ft	Tailwater Elevation	44.00 ft
Outlet Control HW Elev.	46.47 ft	Control Type	Inlet Control

---

### Grades

Upstream Invert	43.50 ft	Downstream Invert	42.50 ft
Length	50.00 ft	Constructed Slope	0.020000 ft/ft

---

### Hydraulic Profile

Profile	S2	Depth, Downstream	1.31 ft
Slope Type	Steep	Normal Depth	1.21 ft
Flow Regime	Supercritical	Critical Depth	1.72 ft
Velocity Downstream	10.76 ft/s	Critical Slope	0.008510 ft/ft

---

### Section

Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	2		

---

### Outlet Control Properties

Outlet Control HW Elev.	46.47 ft	Upstream Velocity Head	1.04 ft
Ke	0.20	Entrance Loss	0.21 ft

---

### Inlet Control Properties

Inlet Control HW Elev.	46.50 ft	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	6.3 ft <sup>2</sup>
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

---

# Culvert Calculator Report

## CP 14

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	35.00 ft	Headwater Depth/Height	1.50
Computed Headwater Elev.	35.00 ft	Discharge	47.09 cfs
Inlet Control HW Elev.	35.00 ft	Tailwater Elevation	32.00 ft
Outlet Control HW Elev.	34.97 ft	Control Type	Inlet Control

Grades			
Upstream Invert	32.00 ft	Downstream Invert	30.00 ft
Length	80.00 ft	Constructed Slope	0.025000 ft/ft

Hydraulic Profile			
Profile	CompositeS1S2	Depth, Downstream	1.19 ft
Slope Type	Steep	Normal Depth	1.13 ft
Flow Regime	N/A	Critical Depth	1.72 ft
Velocity Downstream	12.05 ft/s	Critical Slope	0.008533 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	34.97 ft	Upstream Velocity Head	1.04 ft
Ke	0.20	Entrance Loss	0.21 ft

Inlet Control Properties			
Inlet Control HW Elev.	35.00 ft	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° bevels	Area Full	6.3 ft <sup>2</sup>
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

# Appendix C - Sewer Report

**Preliminary  
Sewer Report  
for  
Timber Ridge P.A.D.**



*Prepared by Otak, Inc.  
51 W. Third St., Suite 201  
Tempe, AZ 85281  
(480) 557-6670*

*May 2014*

*Otak Project No. 17060A*

Thomas Green, P.E.

---

## *TABLE OF CONTENTS*

1 - Introduction

2 – Hydraulic Analysis

3 - Results and Recommendations

## **Appendix**

Sewer Trunk Main Pipe Capacity Calculations  
Demand Calculations

## 1 — Introduction

The purpose of the report is to evaluate the sanitary sewer capacity needed for the proposed Timber Ridge Project Development (Site) within the Town of Payson. Upon completion, the Site will contain approximately 151 equivalent residential units (ERU). The Site is a vacant lot located in the Town of Payson, straddling the Rumsey Ridge Drive alignment, just west of AZ Highway 87, in the Northeast Quarter of Section 4, Township 10 North, Range 11 East. It is located within the Northern Gila County Sanitary District.

The proposed Site is situated on hilly terrain which may result in both minimal and moderately deep sewer line depths. The Site has adjacent sewer infrastructure to the east, west and south. The lowest, and most suitable connection point to the existing sewer system, is the line located in Forest Park Drive, to the southwest of the Site.

## 2 — Hydraulic Analysis

The sewer line capacity required for the Site was determined using the design guidelines set forth in the Arizona Administrative Code, or as provided by the Northern Gila County Sanitary District.

Average Occupancy Per ERU = 3

Average Demand Gal. Per Person Per Day = 100

Peak Dry Weather Peaking Factor (>400 People) = 2.74

Peak Wet Weather Peaking Factor = 110% of PDWF = 3.01

The average daily load of the proposed facilities is:

$151 \text{ ERU} \times 3 \text{ People per ERU} \times 100 \text{ Gal. Per Person Per Day} = 45,300 \text{ Gal./Day}$

The Peak Dry Weather load is:

$45,300 \text{ Gal./Day} \times 2.74 = 124,122 \text{ Gal./Day}$

The Wet Weather load is:

$45,300 \text{ Gal./Day} \times 3.01 = 136,353 \text{ Gal./Day}$   
 $= 94.7 \text{ GPM}$

## 3 — Results and Recommendations

Per the Arizona Administrative Code, all sewer lines shall be designed such that pipe velocities shall be a minimum of 2 feet per second and a maximum of 10 feet per second. The ratio of depth of flow to diameter of pipe shall not exceed 0.75. All lines will be sized to accommodate peak wet

weather flow conditions. Additionally, any sewer lines that cannot meet the minimum depth of cover due to site constraints, shall be constructed of Ductile Iron pipe.

The Northern Gila County Sanitary District requires all sanitary sewer lines be a minimum of 8-inches in diameter, which will additionally require that man hole spacing not exceed 500 feet. Furthermore, it is recommended that sewer line depths not exceed 20 feet.

The capacity of an 8-inch Diameter Pipe made of pvc with a slope of 0.33 percent, is 212 GPM. This capacity exceeds the load that results from peak flow conditions, with a resulting flow depth ratio of less than 0.5, well below the maximum allowed.

# Appendix

# Appendix D - Water Report

**Preliminary  
Water Report  
for  
Timber Ridge P.A.D.**



*Prepared by Otak, Inc.  
51 W. Third St., Suite 201  
Tempe, AZ 85281  
(480) 557-6670*

*May 2014*

*Otak Project No. 17060A*

Thomas Green, P.E.

---

## *TABLE OF CONTENTS*

1 - Introduction and Existing Conditions

2 - Proposed Conditions

3 - Hydraulics

4 - Recommendations

## **Appendix**

*Preliminary Water Exhibit*

## 1 — Introduction and Existing Conditions

The purpose of the report is to evaluate the existing potable water facilities within the Town of Payson as they relate to the Timber Ridge Project Area (Site), and to provide an analysis of the proposed improvements to the water system.

The site is a vacant lot located in the Town of Payson, straddling the Rumsey Ridge Drive alignment, just west of AZ Highway 87, in the Northeast Quarter of Section 4, Township 10 North, Range 11 East. An existing 12-inch water main passes east to west through the middle of the Site. There is an existing Air Relief Valve located on this line near the center of the Site, near a high point in the line. No other existing water lines are known to pass through the site. Existing fire hydrants to the south, east and west of the Site serve existing adjacent properties.

## 2 — Proposed Conditions

Timber Ridge is a proposed residential development, and will consist of 50 detached, single family residences, and 100 attached (townhome, duplex and quadplex) single family residences, located on a mix of public and private streets. The maximum distance between fire hydrants is proposed not to exceed 500 feet. The existing 12-inch water main that passes through the Site is proposed to remain in place. Proposed water lines shall be placed generally along the south and east sides of proposed roadways, behind the curb. On private streets, the water line will be placed within the Public Utility Easement.

## 3 — Hydraulics

All proposed home sites shall have finished floor elevations between 4,938 and 4,988. These elevations indicate that the entire Site shall be located in The Town of Payson's Pressure Zone 1. A water system modeling analysis shall be performed to verify that the Town mandated fire flow can be provided to the most remote hydrant located within the Timber Ridge Site, under peak day conditions.

## 4 — Recommendations

The proposed Timber Ridge Residential Development will be designed per Town of Payson Standards and Specifications. Fire hydrants will be placed to provide required coverage of all proposed home sites. Sprinkler systems will not be required to provide adequate fire protection. Proposed improvements to the Town's Water System will be located within the Public Right-of-Way on public streets, and within Public Utility Easements on private streets.

## **Appendix**

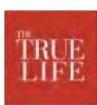
# **Appendix E - Timber Ridge Due Diligence Report**

# TIMBER RIDGE DEVELOPMENT

Payson, AZ

January 2014



 Prepared for:  
The True Life Companies  
2555 E Camelback Road, Suite 770  
Phoenix, AZ 85016

 Prepared by:  
Otak Inc.  
51 W Third Street, Suite 201  
Tempe, AZ 85281

**TABLE OF CONTENTS**

<b>1.0</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2.0</b>	<b>EXISTING SURVEY</b>	<b>2</b>
<b>3.0</b>	<b>EXISTING VEGETATION</b>	<b>7</b>
<b>4.0</b>	<b>HILLSIDE AND NATURAL FEATURES</b>	<b>9</b>
<b>5.0</b>	<b>EXISTING UTILITIES</b>	<b>11</b>
<b>6.0</b>	<b>EXISTING HYDROLOGY</b>	<b>16</b>
<b>7.0</b>	<b>PRELIMINARY SITE PLAN</b>	<b>18</b>
<b>8.0</b>	<b>PRELIMINARY ENGINEERING</b>	<b>21</b>
<b>9.0</b>	<b>COST ESTIMATE</b>	<b>35</b>

## 1.0 INTRODUCTION



The True Life Companies has retained Otak, Inc. assist in the due diligence phase of the their purchase of the Timber Ridge property. Specifically, Otak has reviewed the following items with the purpose of identifying any issue which may hinder future development of the property and achieve maximum profitability.

- Confirmation of existing survey information
- Analysis of existing trees and tree preservation
- Existing utilities servicing the site
- Existing utilities in close proximity of the site
- Existing Hydrology
- Preliminary Site Plan
- Preliminary Engineering
- Cost Estimate



In addition to the research listed above, Otak has prepared a Preliminary Site Plan and opinion of probable cost for the development of the property.

### BACKGROUND

Timber Ridge is located in the Town of Payson between the western and eastern terminus of West Rumsey Road, approximately one-quarter mile west of State Route 87. It is bordered by low-density housing on the north and northwest, multifamily housing to the west and southwest, industrial to the south, and commercial to the east. West Rumsey Road provides access from the east and the west and Forest Park Drive provides access from the south.



The property, approximately 26.8 acres in size, is currently zoned R1-10. The Payson Unified Development Code, adopted by Ordinance #466, February 22, 1996, and updated April 21, 2003, sets forth guidelines for an R1-10 zoning with a minimum lot area of ten-thousand square feet, (10,000 s.f.). However, the most recent Town of Payson General Plan dated April 21, 2003, shows the parcel as high- density residential, defined as 5.5 to 18 units per acre.



Based upon discussions with Planning, Zoning, and Public Works personnel, a Rezoning/Planned Area Development (P.A.D.) Overlay will be required to allow the increased density and innovative internal roadway sections. The Town Council provides final approval.

## 2.0 EXISTING SURVEY



In 2005, M&B Aerial Mapping developed a survey for the property. This survey consisted of major site features such as drainages, fence lines, “wildcat” roads, rock outcroppings, manholes, adjacent roads, topo, vegetation, and the property boundaries. Upon notice to proceed with the work, Otak, and our subconsultant Site Consultants, Inc. (SCI), collected mapping information from the County, Town of Payson, and the Title Report. The following maps were collected:

- Title for the property
- Subdivision map for the neighborhood to the north
- Plat for the Walmart
- Plat for the multifamily housing to the west
- Engineer drawings of the waterline bisecting the property
- Quarter section drawings of the sanitary sewer system



On October 14, 2013, SCI conducted a preliminary survey of the property to verify the accuracy of the M&B survey. This work included verification of the survey controls, property boundary, and location of all surface utilities. Additionally, SCI verified the vertical accuracy of the M&B topo through a series of spot elevations. Between December 12 and December 24, 2013, SCI updated the ALTA Survey.

### ***Findings and Recommendations***



The preliminary survey verified the topo, surface utilities, and topo were accurate. It also verified that the boundary shown on the M&B survey was accurate on all sides of the property except for the 18.12’ x 302.99’ sliver of land that extends to the east, south of the Walmart. There was a discrepancy between information in the Title Report, the Walmart Plat and other maps.



The ALTA Survey work identified some issues with Title Reports and property descriptions which are noted herein and on the ALTA Survey. Parcel 2 is part of the Payson Industrial Park subdivision to the south of the site, but the legal description does not make mention of this; or Payson Industrial Park is never included in the land described in Parcel 2. The same goes for the eastern portion of Parcel 2 that overlaps the physical location of the ADOT maintenance yard which is mainly south of the Walmart property. The oldest deed making reference to Parcel 2 is from 1995 when Parcels 1, 2 and 3 were deeded to Lane Properties by Nick Bunick and Anthony Brambilla. The descriptions in this deed match the current legal descriptions in the Title Report. It appears there should have been previous deeds that conveyed each of the parcels (1, 2 & 3) to the previous owners. There is also an issue along the south line of Timber Ridge Estates where the existing block wall and some property pins fall about a foot south of the record location of the property line. This is where Rumsey Drive Right-of-Way is shown extending into the site from the west. This may just end up being an encroachment into the right-of-way. There

does not appear to be any evidence that this right-of-way was ever dedicated. Finally, SCl was also not able to find a recorded deed for the east portion of the Rumsey Drive Right-of-Way going to Hwy 87. It was noted on the Minor Land Division that created the Walmart parcel (ROS #1728) that it was to have been created by Warranty Deed following completion of construction of the roadway improvements. The assessor's map has a reference to Fee # 2000-003273 but it is not showing up on the county's website records page.

The preliminary survey and plan research also identified that no easement had been dedicated for the water line or gas line that passes through the property in the approximate location of the West Rumsey Drive alignment. The ALTA and the easements issues identified above will need to be corrected as part of the final plat should the property be developed.

A.L.T.A./ACSM Land Title Survey

A.L.T.A. / ACSM LAND TITLE SURVEY
BEING A PORTION OF THE NORTHEAST QUARTER OF SECTION 4, TOWNSHIP 10 NORTH, RANGE 10 EAST, OF THE GILA & SALT RIVER BASE & MERIDIAN, GILA COUNTY, ARIZONA

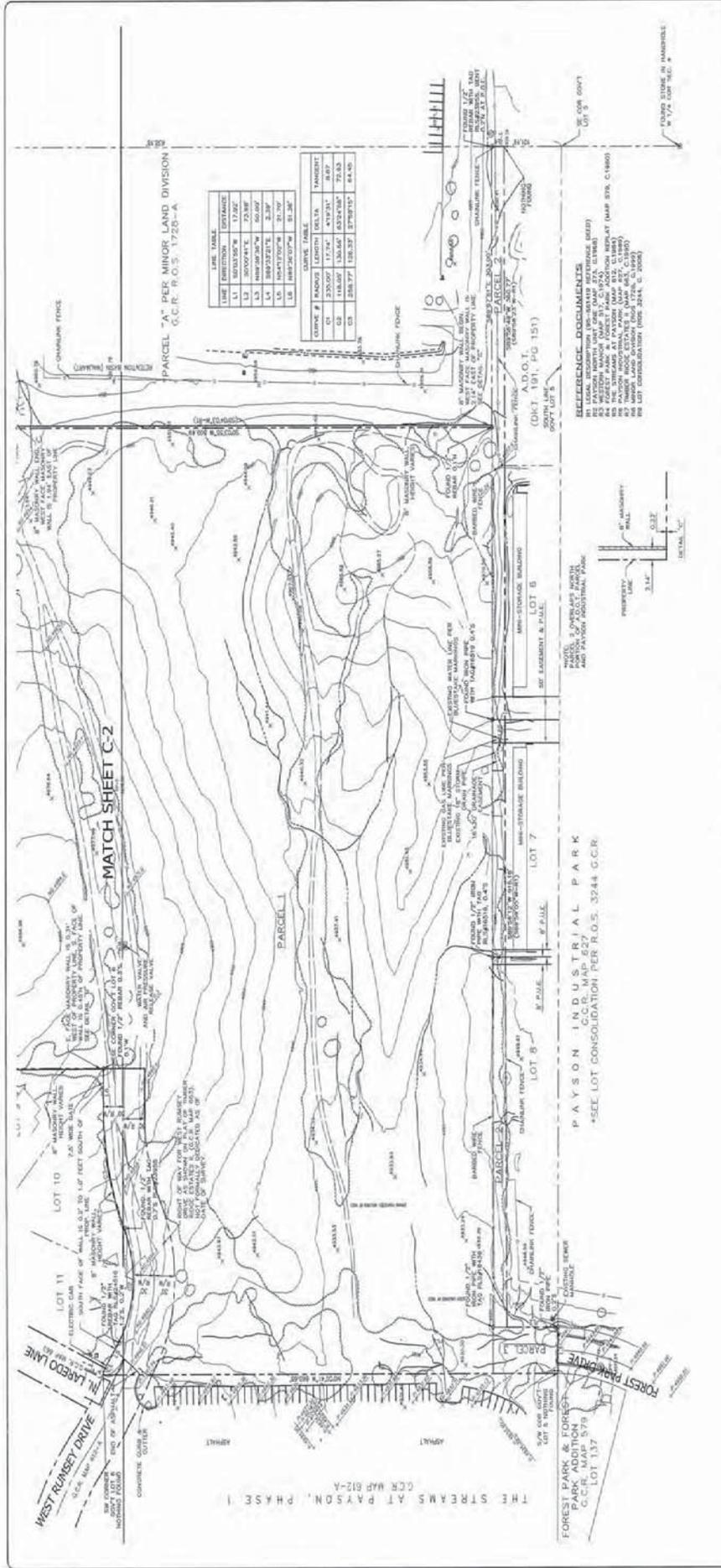


Table with 3 columns: Description, Value, and Unit. Includes items like Water Service, Right of Way Line, and various survey measurements.

Site Consultants, Inc. logo and contact information. Includes address: 113 South Woodford Drive, Tempe, Arizona 85281. Phone: (480) 944-2000. Fax: (480) 944-2047.



A.L.T.A./ACSM Title Land Survey



DATE	11/11/2024
BY	J. L. HARRIS
REV.	
REV.	
REV.	

ALTA / ACSM LAND TITLE SURVEY  
RUMSEY RIDGE PROPERTY  
PAYSON, ARIZONA

**Site Consultants, Inc.**  
ENGINEERS - SURVEYORS - CONSULTANTS  
113 SOUTH RIVINGTON DRIVE, TUCSON, ARIZONA 85724  
TEL: (520) 884-2800 FAX: (520) 884-2847

PROJECT NO. 24-001  
SHEET NO. 3  
DATE 11/11/2024

## 3.0 EXISTING VEGETATION



The Town of Payson has adopted a tree preservation plan as part of its Unified Development Code (UDC). The code states “It is imperative that the native vegetation in the Town be preserved to the greatest extent practicable and in the case of tree removal, efforts should be made to mitigate unnecessary loss of native vegetation.” The intent of the code is to preserve stands of mature trees defined as trees 6” inches in diameter or greater, measured 4 1/2 feet above the ground, and spaced no more than 20 feet apart.



On October 22, 2013, Otak, along with subconsultant Tree Pro, a local landscape, tree care and forest management company with over 15 years of experience in Payson, the Rim Country, and the White Mountains, conducted a site visit and inventory of the existing vegetation on the site. Approximately 21.18 acres of the 26.80 property is covered in woody vegetation (trees and shrubs). The remaining 5.62 acres is herbaceous material, primarily meadow grass and wildflowers.

### ***Findings and Recommendations***

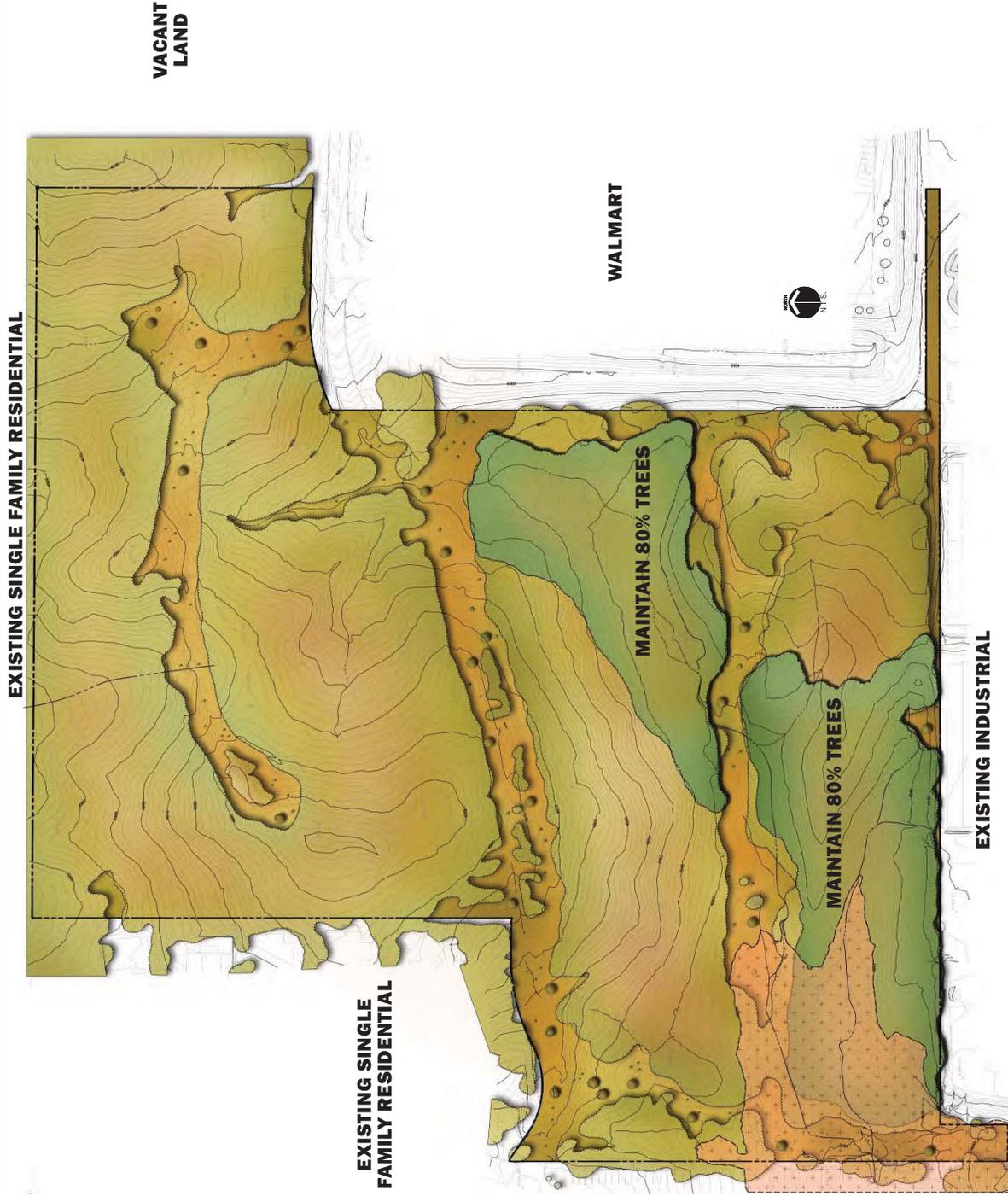
Of the 21.18 acres of woody vegetation, 5.1 acres consist of mature stands of healthy, native vegetation as defined by the UDC. These areas are comprised of Ponderosa Pines, Emerald Oak, Scrub Oak, and ground covers, with the native Ponderosa Pines being the dominant species. The remaining 16.08 acres consist primarily of Scrub Oak, Manzanita, and other medium to tall shrubs with clusters of mature Ponderosa Pine, individual specimen quality Alligator Juniper, Pinyon Pine, and other Junipers. Exhibit 4.1 - Hillside and Natural Features, illustrates the extents and types of vegetative cover and the images on Pages 4 and 6 show the overall character of each vegetative type.



To meet the Town’s UDC, it is recommended that no more that 20 percent of the mature stands of healthy native vegetation be removed from the site and that this removal should be limited to building envelopes. Where trees 6-inches in diameter, measured 4 1/2 feet above the ground are removed they should be replaced on site with at least one tree of 15-gallon size or larger of the same species. Additionally, the clusters of mature Ponderosa and specimen quality Alligator Juniper and Pinyon Pine within the other vegetation should be preserved. All diseased and dead trees, Scrub Oak, Manzanita, and other miscellaneous shrubs should be removed as they present a fire hazard. Exceptions would be if shrubs are providing soil stabilization on steep slopes.



### EXHIBIT 3.1 EXISTING VEGETATION



## 4.0 HILLSIDE AND NATURAL FEATURES



Several natural features of the project area, besides native vegetation, will impact how site development occurs. These include, steep slopes, rock outcroppings, and natural drainage areas. Delineation of the steep slope areas and rock outcroppings was developed through site visit documentation and computer modeling.

Payson's Ordinance on Land Usage, including the Unified Development Code, addresses each of these features. The Hillside Properties section of the Subdivision Chapter indicates that the intent of the Hillside Properties is to preserve steep slopes and the natural terrain of Payson. If over 50 percent of a tract or lot has 15 percent or greater slopes, several restrictions apply including:

- Preservation of vegetation on the slopes
- Building pads should be terraced to follow the contours
- Minimize the amount of grading
- Additional planting for erosion control
- Preservation of natural drainage ways
- Preservation of geological formations (rock outcroppings)
- Situate utilities to preserve hillside areas



Moderate to steep slopes are located throughout the project area. Exhibit 5.1 illustrates the location of three slope types, gradual - 0 percent to 15 percent, moderate - 15 percent to 20 percent and steep - greater than 20 percent. Overall approximately 25 percent of the property is situated on moderate to steep slopes with 4.33 acres of moderate slopes, and 2.24 acres of steep slopes.

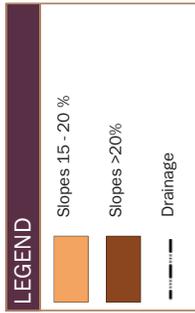


### **Findings and Recommendations**

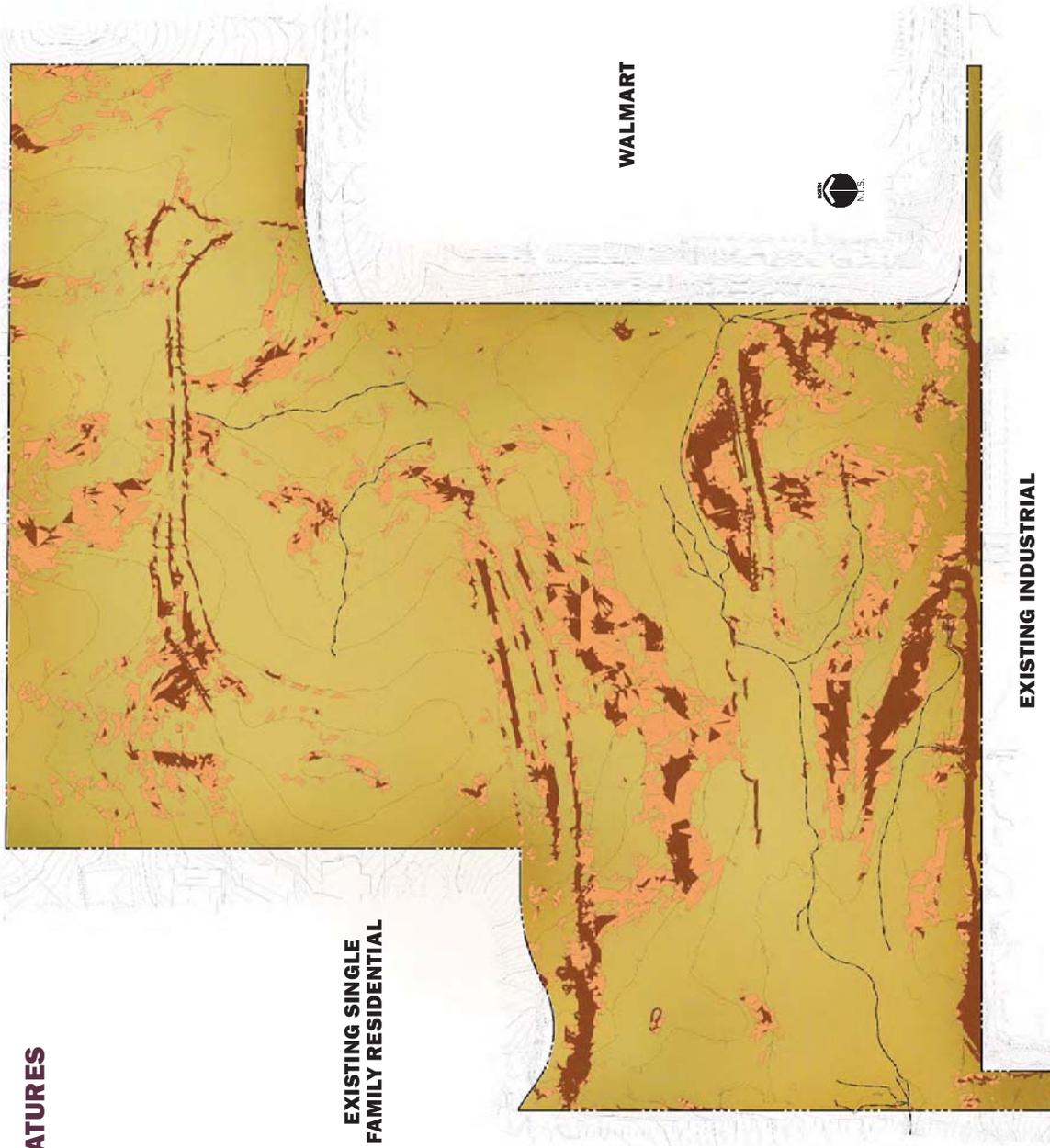
Depending on the way the project area is subdivided, a few lots may end up with more than 50 percent of the property located on steep slopes. In these instances, the Hillside Properties Section of the UDC would apply. However, relief from these requirements can be found through a PAD Overlay. This would require compensatory preservation areas be provided in other parts of the project area. However, it is recommended that slopes greater than 20 percent be preserved wherever feasible. Additionally, some of the rock outcroppings are unique features that lend character to the site. These areas are also shown on Exhibit 5.1. To the greatest extent possible it is recommended these features be preserved. Further investigation of the project area will be required to determine the precise location and extents of wash areas over which regulators may require protection (404 Washes). It is also recommended that some of these wash areas be preserved regardless of delineation, as they are also unique features that lend character to the site.



**EXHIBIT 4.1  
HILLSIDE AND NATURAL FEATURES**



EXISTING SINGLE FAMILY RESIDENTIAL



VACANT  
LAND

WALMART

EXISTING  
MULTIFAMILY  
RESIDENTIAL

EXISTING INDUSTRIAL

## 5.0 EXISTING UTILITIES



The utilities available in the immediate vicinity of the proposed property include Electricity, Propane Gas, Water, and Sanitary Sewer. Electricity is available at the property boundary. Propane Gas and Water pass through the middle of the property, sharing a common trench. Sanitary Sewer lines are located in adjacent West Rumsey Drive to the west and Forest Park Drive to the southwest in close proximity to the property boundary.

### ***Findings and Recommendations***

Electricity is provided to the property by APS. Staff at APS informed Otak that no additional costs will be paid for offsite transmission of electricity to the property. Standard fees will be charged by APS for development of the property. Based on conversations with APS, there is sufficient capacity to power the entire development.



Propane Gas may be provided to the property by Alliant Gas. Staff at Alliant Gas informed Otak that an existing 3-inch Propane Gas Line passes through the property along the previously planned alignment of West Rumsey Drive, in a common trench adjacent to the Water Line. Based on input from Alliant Gas, it is understood that this Gas Line has sufficient capacity for the entire development.



Water is provided to the property by the Town of Payson. The Payson Water Department informed Otak that an existing 12-inch Water Line passes through the property along the aforementioned West Rumsey Drive Alignment, within an easement. As mentioned in the Existing Survey Section of this report, no documentation of this easement has been found. This 12-inch Water Line has sufficient capacity for the entire development.

Sanitary Sewer is provided to the property by the Northern Gila County Sanitary District. Staff at the Sanitary District informed Otak that the property has been annexed into the District's Service Area (however, annexation fees have not yet been paid). An existing 8-inch Gravity Sewer Lines are situated to provide gravity sewer service to some or all of the property, depending on offsite capacity, within the District's downstream system. For a fee, the District will perform an analysis of their system to determine what improvements, if any, would need to be made to their offsite system in order to provide capacity to the development. The District has stated the fee to perform the analysis will be approximately \$3,500.00. If offsite improvements are required, additional costs would be incurred.

### ***Potential Utility Fees***

The following fees, fee schedules, deposits, etc. were provided to Otak by the Utilities. These fees are subject to change; however, Otak was not informed of any impending changes.

The cost to provide electricity to the property includes a non-refundable deposit of \$50,000.00. The remaining fees can be recovered through rebates that are paid to the Developer, on a per meter basis, once a home or apartment is occupied. These rebates are subject to a deadline. Once agreements are signed with APS, the Developer can only receive rebates within the first five years of that date. For a single family home, the fee is \$3,500.00 and for an apartment unit, the fee is \$1,000.00.

The cost to provide propane gas to the property through Alliant Gas is based on the following: Barring exceptional construction costs, Alliant Gas will provide Gas mains and related service connections in exchange for exclusive rights to provide Gas. If Alliant determines that the construction costs are prohibitively high, then a construction cost sharing agreement would be required. A \$30.00 connection fee will be charged per connection to the homeowner.

The cost to provide water to the property will vary with a number of variables including the number of water meters installed and their sizes. The attached Town of Payson "Exhibit D" 2013/2014 WATER DIVISION FEES AND CHARGES SCHEDULE provides greater detail. Example fees provided in the fee schedule include a \$350.00 connection fee per 3/4-inch meter and \$2,000.00 connection fee per 2-inch meter.

The cost to provide sanitary sewer to the property is composed of several separate fees due at different times. These are the Analysis Fee (see sanitary sewer description above) Annexation Fee, Collection Fee (west side), Inspection Fee, and the Connection Fee. If the previously mentioned analysis indicates that offsite improvements are required, there will also be an Impact Fee, that will vary depending on the cost of the improvements. The following is a fee breakdown:

Analysis: \$3,500.00 Flat Rate

Annexation: \$900.00 Per Acre

Collection: \$425.00 Flat Rate

Inspection: \$100.00 Per Sewer Tap Connection

Connection: \$4,300.00 Per Equivalent Residential Unit (E.R.U.)

The Analysis Annexation, Collection Fees, and, if required, the Impact Fee, are all due up front. Half of the Connection Fee is also due up front (\$2,150.00 per ERU.) The other half of the Connection Fee is due when a building permit for vertical construction is pulled. The Inspection Fee is paid when a new building is connected to the sewer system.

# TIMBER RIDGE DEVELOPMENT, PAYSON, AZ

Town of Payson, Arizona

## Exhibit "D"

### WATER DIVISION FEES AND CHARGES

Description	Fee
Service Establishment Fee	\$15.00

#### Security Deposit (Single unit facility)

5/8" x 3/4" meter, owner	\$50.00
5/8" x 3/4" meter, renter	\$100.00
3/4" x 3/4" meter, owner	\$100.00
3/4" x 3/4" meter, renter	\$200.00
1" meter, owner	\$100.00
1" meter, renter	\$200.00
1 1/2" meter, owner	\$200.00
1 1/2" meter, renter	\$400.00
2" meter, owner	\$400.00
2" meter, renter	\$800.00
3" meter, owner	\$3,000.00
3" meter, renter	\$3,000.00
4" meter, owner	\$5,000.00
4" meter, renter	\$5,000.00

#### Security Deposit (Multi unit facility) - 2X minimum monthly charge\*

##### Water Meter Connection Fee

5/8" x 3/4" meter	\$300.00** or \$800.00
3/4" x 3/4" meter	\$350.00** or \$850.00
1" meter	\$350.00** or \$1,000
1 1/2" meter	\$1,000.00** or \$2,000.00
2" meter	\$2,000.00** or \$3,000.00
3" meter	Actual cost + \$2,500.00
4" meter	Actual cost + \$2,500.00

\* Minimum monthly charge is the number of units served X the minimum monthly charge per meter type per unit.

\*\* For areas where a developer provided adequate water service fittings available to the lot for which the service is required.

##### Line Tapping Fee

2" Size on Size	\$100.00
4" Tap Size	\$350.00
6" Tap Size	\$500.00
8" Tap Size	\$750.00

Temporary-off Re-Connection Fee	\$150.00
Water Service Re-Instatement	\$20.00
Meter Re-Read Fee	\$15.00

Town of Payson, Arizona

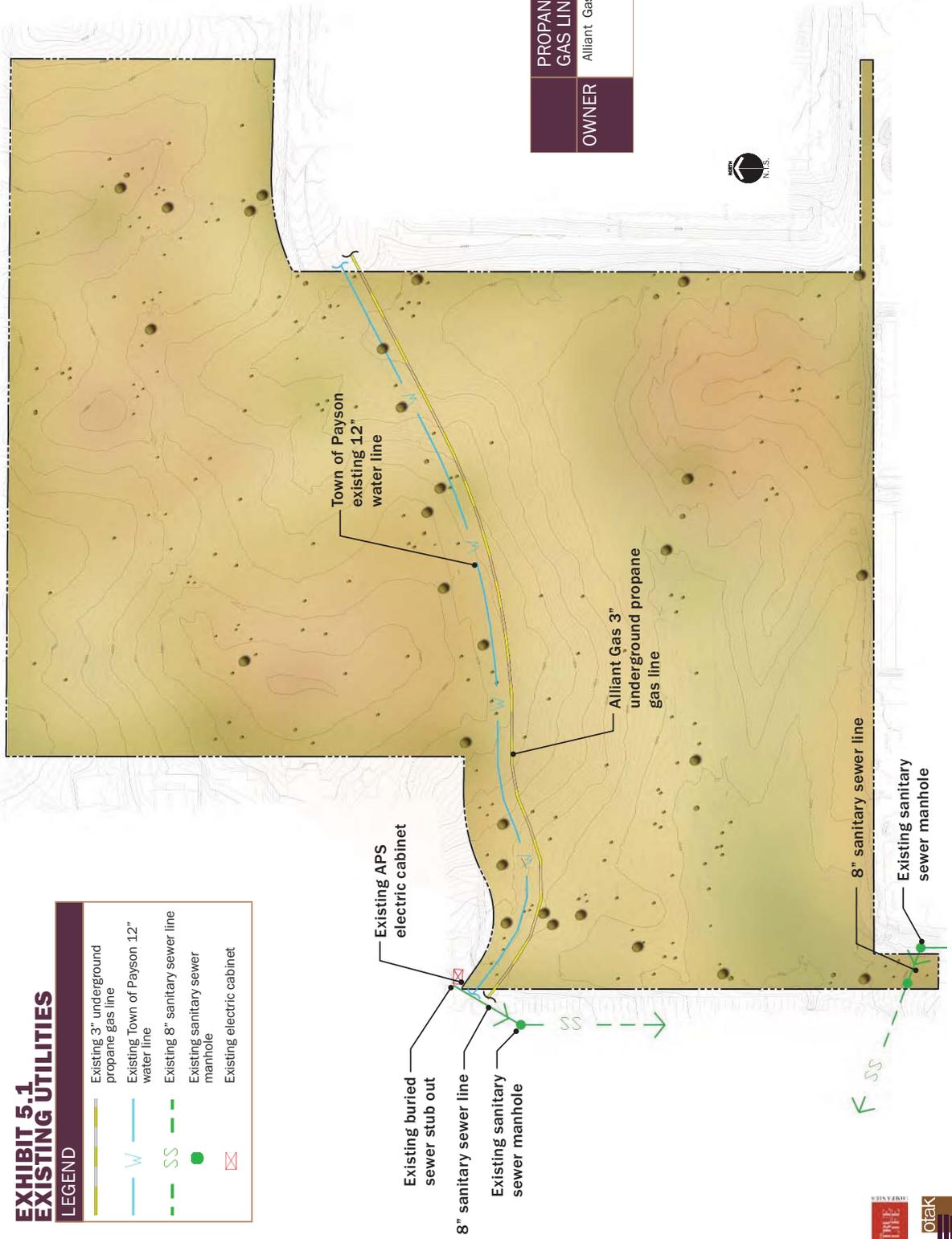
**Exhibit "D"**

**WATER DIVISION FEES AND CHARGES**

Meter Testing Fee	\$25.00 Field Test \$50.00 Shop Test
Bill Regeneration Fee	\$5.00
Late Fee	\$5.00
Turn Off Fee	\$15.00
Service Call	\$15.00 During regular business hours \$50.00 After hours
After Hours Re-Establishment of Service - Discontinuation for Non-Payment	\$50.00 + Payment of Delinquent Amounts + New Deposit
Illegal Turn On	\$200.00 + payment for Water Used
Damage to Town Property - Lockset	\$75.00
Damage to Town Property - Other	Actual Cost + \$100.00
Raise or Lower Service Fittings to Grade	Actual Cost + \$25.00
Relocation of Service Fittings and Meter	Actual Cost + \$100.00

**EXHIBIT 5.1  
EXISTING UTILITIES**

LEGEND	
	Existing 3" underground propane gas line
	Existing Town of Payson .12" water line
	Existing 8" sanitary sewer line
	Existing sanitary sewer manhole
	Existing electric cabinet



OWNER	PROpane GAS LINE	WATER LINE	SEWER LINE	ELECTRIC CABINET
Alliant Gas	Town of Payson	Northern Gila County Sanitary District	APS	

## 6.0 EXISTING HYDROLOGY



The property is situated on hilly terrain composed largely of Gravelly Loam. A significant portion of this undeveloped site is heavily vegetated as described in Section 3.0. The property receives some offsite runoff from the east and more significant flows from the south. A wash flowing from east to west bisects the southern half of the property. It combines offsite runoff from the south and onsite runoff from the northern half and outlets at the west property line, where these flows are then passed through a culvert.



A ridgeline, which essentially runs east to west, bisects the northern half of the property. The north side of the ridgeline drains largely as sheet flow to the north and west property lines. The other side of the ridgeline drains to the aforementioned wash located in the southern half of the property.

The Hydrology Exhibit 6.1 delineates existing drainage basin areas and shows their peak runoff flowrates for the 100, 10 and 2-Year Peak Storm Events. These estimated flowrates are based on data and methodology specified by the Town of Payson Ordinance and Development Code. There are no concentrated flows greater than 100 cfs within the property, except where flows concentrate at the ultimate outfall location marked on the Drainage Exhibit at Concentration Point 08. Peak flowrates leaving the site at this location shall be required by the Town of Payson to be reduced by 75 percent of the existing flowrates for the ultimate developed condition.

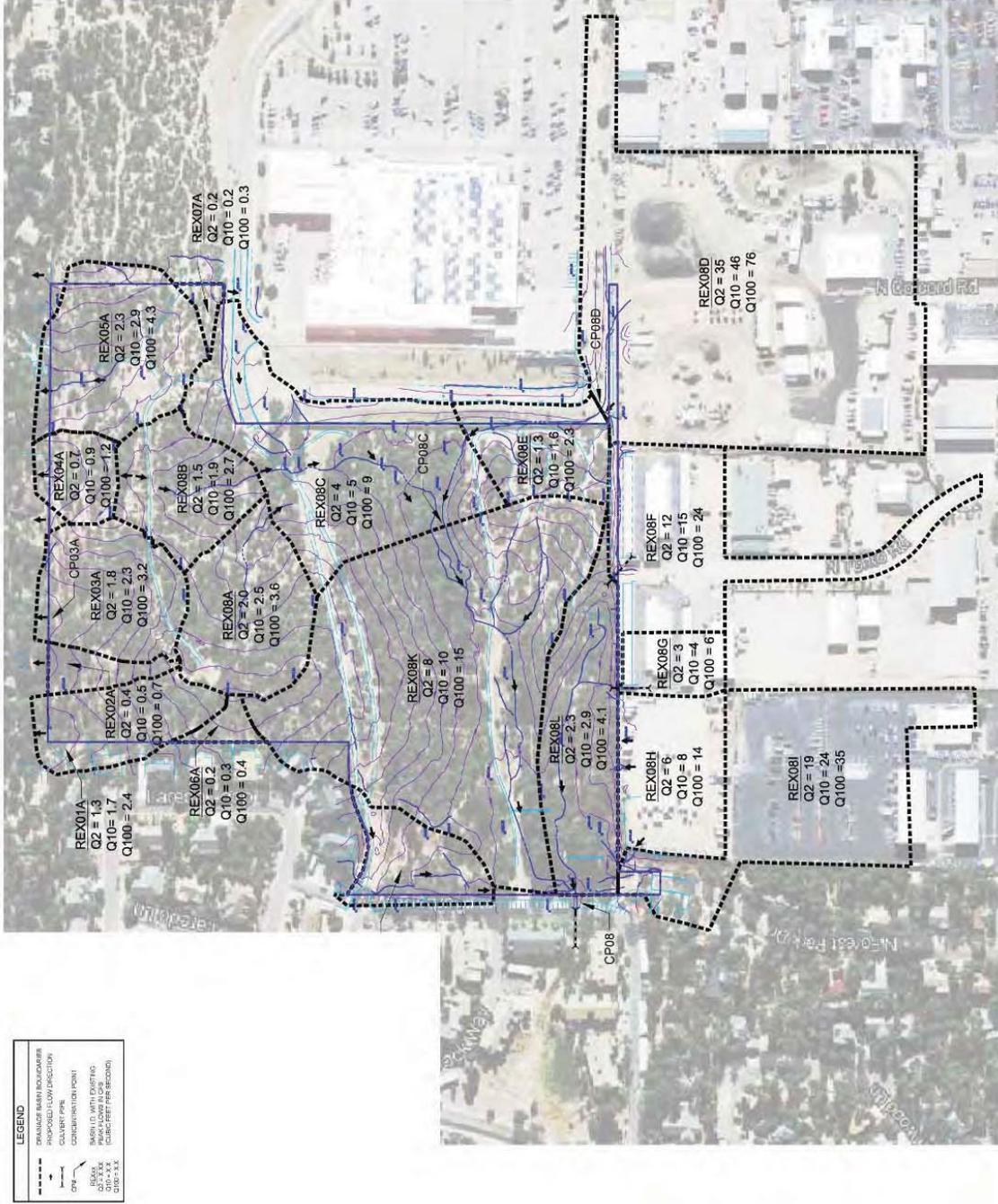


### ***Findings and Recommendations***

Existing Sanitary Sewer Lines at the southwest corner of the property have relatively shallow bury depths. These will require the flows related to the existing wash to be conveyed to the ultimate outfall at the west property line over a protective weir structure, through a culvert under the proposed onsite sanitary sewer, or a combination of the two; depending on the ultimate site design. This requirement should in no way inhibit development.



**EXHIBIT 6.1 - EXISTING HYDROLOGY**



EXISTING CONDITIONS - WATERSHED MAP

### 7.0 PRELIMINARY SITE PLAN

Otak has developed a Preliminary Site Plan for the development of the Timber Ridge Property. This Plan requires a Planned Area Development application and approval from the Town Council. Key elements of the Preliminary Site Plan include:

- A detached single family product that increases the density per the Town of Payson's adopted Land Use Plan
- A detached single family product on smaller lots per R3 zoning which are serviced by an alley so that there is no driveway access off of West Rumsey Drive
- An attached single family product per R3 zoning located on private drives for preservation of trees and other natural features
- West Rumsey Drive designed as a central spine road with parallel parking
- The West Rumsey Drive alignment follows the existing water and propane gas alignment and clearing in vegetation that exists on the site
- Connection to Forest Park Drive
- Preservation of approximately 80 percent of the existing dense stands of Ponderosa Pines in the southern half of the site
- Open space in the northern part of the site is oriented to facilitate utilities

The product types shown on the Preliminary Site Plan are diagrammatic and for illustrative purposes only. They are not meant to represent a final product and are based on the following:

- Single family: Andrada by Miramonte Homes, L.L.C.
- Duplex and Quadplex: Riverview by Miramonte Homes, L.L.C.

The Preliminary Site Plan develops the site with three (3) single family product types, one of which is attached and two of which are detached. The northern half of the site is developed with a single family detached product that respects the lower density of the adjacent properties north and west of the project. Lots would range in size from 4,000 to 10,000 sf with the majority ranging between 4,800 and 6,000 sf and having a minimum lot width of 40' and a minimum lot depth of 80'. The product type on these lots would be similar to R1-6.

The single family units along West Rumsey Drive will be detached units with access from a paved alley and located on smaller lots, creating a transition between the detached units to the north and the attached units to the south. Lot sizes would range from 3,200 to 4,000 sf with a minimum lot width of 40' and a minimum lot depth of 80'. The product type on these lots would be similar to R3.

The duplexes and quadplexes in the southern half of the site are arranged to maintain as much of the existing vegetation as possible. The duplexes and quadplexes would be placed on lots ranging in size from 2,420 to 3,200 sf with a minimum lot width of 30' and a minimum lot depth of 80' which matches the requirements of the Town of Payson for R3 Transitional Multifamily.

West Rumsey Drive and the loop road on the northern part of the property are planned as public streets with 60' rights-of-way with paved sections of 28' and 5-foot wide sidewalks on each side of the road. The private drives servicing the duplexes and quadplexes have no rights-of-way and have a paved section of 24' with 5-foot wide sidewalks on each side of the road. Forest Park Drive is also planned as a public street, with a paved section proposed to match existing Forest Park Drive improvements.

The roads providing access to the duplex and quadplex located in the southern half of the site are proposed to be private drives. These will consist of paved section of 24' with 5-foot wide sidewalks on each side of the roads. The private drives servicing the duplexes and quadplexes have 40' private access easement.

Current Zoning identifies this property as R1-10 which is 4.37 DU/ acre. Payson's General Plan Update Land Use Element identifies this property as high density, or 5.5 to 18 DU/acre. The Preliminary Site Plan achieves a total yield of 151 units, or 5.6 DU/acre. The Preliminary Site Plan balances the goals of the Zoning ordinance and the General Plan Update Land Use Element.

**EXHIBIT 7.1 - Preliminary Site Plan**

**SINGLE FAMILY DETACHED**

- (51) 4,000 - 10,000 SQ. FT. SINGLE FAMILY LOTS (R1-6 MODIFIED)
- (38) 3,200 - 4,000 SQ. FT. SINGLE FAMILY LOTS (R-3 MODIFIED)

**SINGLE FAMILY ATTACHED**

- (9) BUILDINGS AT 2 D.U. EACH = 18
- (11) BUILDINGS AT 4 D.U. EACH = 44

TOTAL: 151 YIELD

**LEGEND**

- PROPOSED PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED PRIVATE ACCESS EASEMENT
- PROPOSED PAVEMENT CENTERLINE
- EXISTING PROPERTY LINE
- EXISTING WASH
- HOUSING TYPE BOUNDARY

HOUSING TYPE AREAS	SQ. FT.	ACRES	D.U./ACRE
SINGLE FAMILY DETACHED (R1-6)	413,368	9.5	35%
SINGLE FAMILY DETACHED (R3)	243,216	5.5	21%
SINGLE FAMILY ATTACHED (R3)	510,583	11.7	44%
ALL HOUSING TYPES TOTAL	1,167,167	26.8	100% 5.6



**PRELIMINARY SITE PLAN**



### **8.0 Preliminary Engineering**

The purpose of the section is to evaluate the existing drainage conditions for the Timber Ridge Project Area (Site). The site is a vacant lot located in the Town of Payson, straddling the West Rumsey Drive alignment, just west of AZ Highway 87, in the Northeast Quarter of Section 4, Township 10 North, Range 11 East.

The site is situated on hilly terrain composed largely of Gravelly Loam. A significant portion of this undeveloped site is heavily vegetated. The site receives some offsite runoff from the east and more significant flows from the south. A wash flowing from east to west bisects the southern half of the property. It combines offsite runoff from the south and onsite runoff from the northern half and outlets at the west property line, where these flows are then passed through a culvert. A ridgeline, which essentially runs east to west, bisects the northern half of the property. The north side of the ridgeline drains largely as sheet flow to the north and west property lines. The other side of the ridgeline drains to the aforementioned wash located in the southern half of the property, and an overview of the proposed drainage scheme for the project.

#### ***Mapping and Survey Information***

As discussed in Section 2.0, A&B Aerial Mapping Company provided 1-foot interval contour mapping for the Site in 2005. In October 2013, a field survey was performed to verify the validity of the aerial topographic mapping and to determine if any appreciable changes had occurred to the site. This survey determined the aerial mapping data to be valid. All field survey control was done using North American Datum of 1983 (NAD 83) State Plane Coordinates for horizontal control, and North American Vertical Datum of 1988 (NAVD 88) for vertical control.

#### ***Hydrologic Analysis***

The Hydrologic Analysis performed in this report is based on the policies and methodologies set forth in the Town of Payson Ordinance. Existing watershed and Developed Conditions Peak Runoff Flowrates were determined using the Rational Method, due to the size of the watershed basins. Please see the Drainage Appendix of this report for the Hydrologic Analysis reference and source material.

The C coefficients selected for the existing watershed analysis were based in part on the methodology described in Chapter 2 of the ADOT Hydrology Manual. Specifically the existing onsite condition with respect to the Ponderosa Pine vegetation. Additionally, C coefficients for the remaining existing basin areas were based on weighting the coefficients provided by the Town of Payson Drainage Ordinance (Table 3.5) using areas estimated from aerial photographic analysis. Developed Condition C coefficients were determined in a similar fashion of area weighting coefficients using Table 3.5.

## ***Watershed Map***

A map has been prepared of the entire watershed that contributes runoff to and from the site. The map is based on the aerial topography previously mentioned and on site visits. The watershed map shows the boundaries of all watersheds that affect the project site. Watershed concentration points define where runoff enters and leaves the site.

## ***Existing Condition Site Map***

The Existing Condition Site Topographic Map shows the existing site features and contours and identifies areas where the existing ground slope is greater than 15 percent. On a separate exhibit, Appendix 4, the closest FEMA 100-year floodplain and floodway limits of record are shown.

## ***Clean Water Act Provisions***

At this time, there are currently no jurisdictional limits of 'Waters of the United States' defined for the site. Prior to submittal to the Town of Payson, an analysis must be performed and an application made to the US Army Corps of Engineers and the Arizona Department of Environmental Quality.

## ***Developed Condition Site Map***

The preliminary engineering analyzed the developed conditions for the Preliminary Site Plan, which has been prepared, including existing condition site topography, proposed site grading, and street flow patterns. The Preliminary Site Plan is shown in Section 7.0

## ***Hydrologic Modeling Calculations***

The Rational Method was used to determine existing and developed conditions peak runoff flowrates, as specified by the Town of Payson Drainage Ordinance. No basin areas exceed 160 acres in size. Parameters used to determine the peak runoff flowrates were specified in the Town of Payson Drainage Ordinance and the latest ADOT Hydrology Design Manual. Resistance Coefficient  $K_b$  and Runoff Coefficient  $C$  were determined using area averaging methods for each individual basin area. Tabulated results for the optional developed conditions are shown in the site maps and calculations are in the Drainage Appendix.

## ***Hydraulics***

The typical condition for the proposed development is for building pads to drain to streets or private drives which will convey the 10-Year storm between the tops of curbs to concentration points. These flows will then enter curb openings and discharge to drainage swales, channels and/or culverts and then be conveyed to

retention/detention facilities. The 100-Year Storm flows shall not be conveyed over private lots. In some areas Open Spaces shall be used to convey flows from building pads directly to drainage swales and/or culverts to be routed to retention/detention facilities.

Proposed culvert sizes and locations are estimated to convey the minimum required 10-Year Storm event under the roadway, according to the Town of Payson requirements. 100-Year Storm flows may overtop the roadway as allowed by Town of Payson. Culvert calculation estimates can be found in the Drainage Appendix. More detailed engineering design of the site must be performed in order to perform more detailed design of detention and retention basins. Volumes required will be based on Town of Payson requirements to reduce peak flowrates for the 100, 10 and 2-Year Peak Storm Events to 75 percent at the outfall concentration points from the site. However, the Town Engineer may require additional points of compliance be analyzed to verify that no adverse impacts are caused by increased or decreased times of concentration.

### ***Findings and Recommendations***

Onsite runoff shall be conveyed to onsite retention/detention facilities via streets, scuppers, swales and culverts as shown. All facilities shall be sized such that all finished floor elevations shall be at least 14-inches above the low lot outfall elevations, and finished floors shall be at least 1-foot above adjacent flows resulting from the 100-Year Storm.

Offsite runoff entering the site from the southeast shall be conveyed through a combination of existing washes, and along engineered channels and culverts where required. An inline detention facility will be constructed at the far downstream end of the wash near the west property line. It will be sized to reduce the flowrate leaving the site at the ultimate outflow from the site to 75 percent of historic flows per the Town of Payson Drainage Ordinance. Due to the nature of the site, some onsite flows will combine with offsite flows in this wash as it crosses the site. Other areas of the site will be routed to pocket retention basins which will retain local onsite runoff as shown in the developed conditions site maps. As a result, there will be no adverse effects of runoff from the project on downstream offsite areas. Basins will drain within 36 hours without the use of drywells per the Town of Payson Drainage Ordinance.

**Table 3.1: Rainfall Depth-Duration-Frequency Table for Point Precipitation**

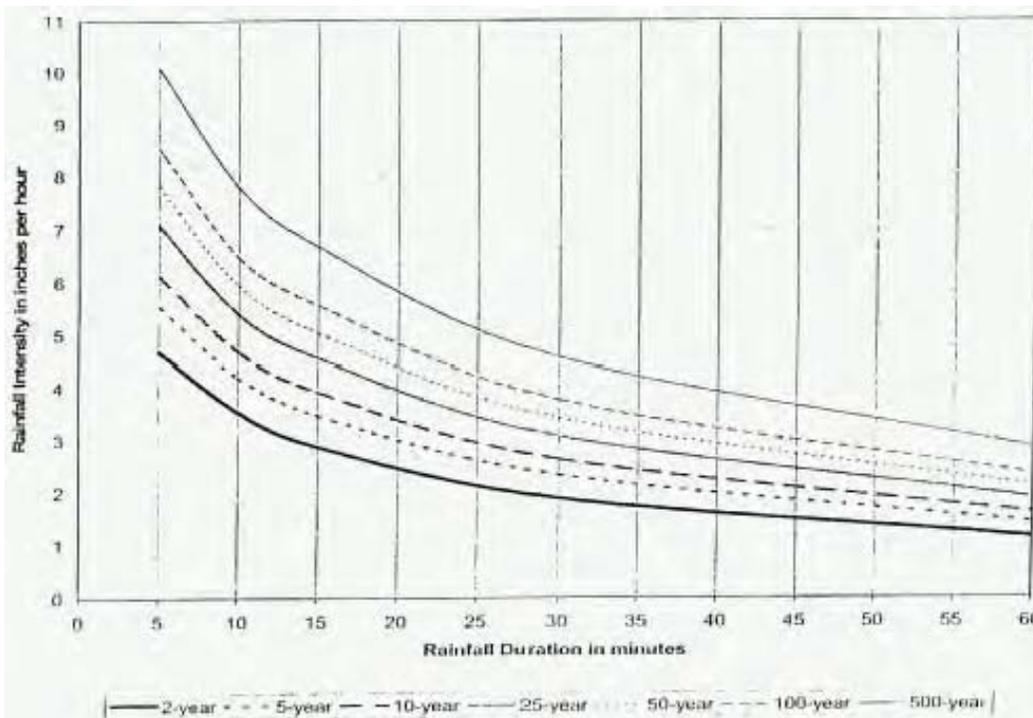
Town of Payson, AZ

Units: (in)

Duration (1)	Return Period						
	2-yr (2)	5-yr (3)	10-yr (4)	25-yr (5)	50-yr (6)	100-yr (7)	500-yr (8)
5 min.	0.39	0.46	0.51	0.59	0.65	0.71	0.84
10 min.	0.59	0.70	0.78	0.90	0.99	1.08	1.30
15 min.	0.72	0.87	0.98	1.14	1.26	1.39	1.67
30 min.	0.95	1.17	1.32	1.54	1.71	1.88	2.28
1 hr.	1.16	1.44	1.63	1.91	2.13	2.35	2.86
2 hr.	1.38	1.71	1.95	2.28	2.54	2.80	3.41
3 hr.	1.53	1.90	2.16	2.53	2.82	3.10	3.77
6 hr.	1.81	2.24	2.55	2.99	3.33	3.67	4.46
12 hr.	2.23	2.78	3.16	3.71	4.15	4.58	5.57
24 hr.	2.64	3.31	3.77	4.44	4.96	5.48	6.68

**Figure 3.1 Intensity-Duration-Frequency Graph**

Town of Payson, AZ



**Table 3.5: Developed Condition “C” Coefficients for Use with the Rational Method**

Land Uses	Return Period			
	2-10 Year	25 Year	50 Year	100 Year
Streets and Roads				
Paved Roads	0.75 - 0.85	0.83 - 0.94	0.90 - 0.95	0.94 - 0.95
Gravel Road - Ways and Shoulders	0.60 - 0.70	0.66 - 0.77	0.72 - 0.84	0.75 - 0.88
Industrial Areas				
Heavy	0.70 - 0.80	0.77 - 0.88	0.84 - 0.95	0.88 - 0.95
Light	0.60 - 0.70	0.66 - 0.77	0.72 - 0.84	0.75 - 0.88
Business Areas				
Commercial - Downtown	0.75 - 0.85	0.83 - 0.94	0.90 - 0.95	0.95
Residential Areas				
Lawns - Flat	0.10 - 0.25	0.11 - 0.28	0.12 - 0.30	0.13 - 0.31
Lawns - Steep	0.25 - 0.40	0.28 - 0.44	0.30 - 0.48	0.31 - 0.50
Very Low Density Residential	0.30 - 0.40	0.33 - 0.44	0.36 - 0.48	0.38 - 0.50
Low Density Residential	0.45 - 0.55	0.50 - 0.61	0.54 - 0.66	0.56 - 0.69
Medium Density Residential	0.50 - 0.60	0.55 - 0.66	0.60 - 0.72	0.63 - 0.75
Multi-Family Residential	0.60 - 0.70	0.66 - 0.77	0.72 - 0.84	0.75 - 0.88
Parks/Cemeteries	0.10 - 0.25	0.11 - 0.28	0.12 - 0.30	0.13 - 0.31
Playgrounds	0.40 - 0.50	0.44 - 0.55	0.48 - 0.60	0.50 - 0.63

Note: Values of C for the 25-, 50- and 100-year frequencies were derived using frequency adjustment factors of 1.10, 1.20, and 1.25, respectively, with an upper limit of 0.95 for C for the 2- through 10-year values.

(Res. 1637, passed 2-28-02)

**Developed Conditions Basin Runoff Flowrate Calculations**

PRELIMINARY SITE PLAN

Basin	AREA		100 Year			10 Year			2 Year		
	[sq.ft.]	[AC]	i, in/hr	C coeff.	Q, [cfs]	i, in/hr	C coeff.	Q, [cfs]	i, in/hr	C coeff.	Q, [cfs]
1	40523	0.93	8.5	0.69	5	6	0.55	3	4.75	0.55	2
2	62511	1.44	8.5	0.75	9	6	0.6	5	4.75	0.6	4
3	117711	2.70	8.5	0.75	17	6	0.6	10	4.75	0.6	8
4	13534	0.31	8.5	0.5	1	6	0.4	1	4.75	0.4	1
5	52020	1.19	8.5	0.75	8	6	0.6	4	4.75	0.6	3
6	94993	2.18	8.5	0.5	9	6	0.5	6.5	4.75	0.5	5.2
7	143812	3.30	8.5	0.75	21	6	0.6	12	4.75	0.6	9
8	85316	1.96	8.5	0.2	3	6	0.2	2	4.75	0.2	2
9	184115	4.23	8.5	0.5	18	6	0.4	10	4.75	0.4	8
10	46960	1.08	8.5	0.75	7	6	0.6	4	4.75	0.6	3
11	43284	0.99	8.5	0.2	2	6	0.2	1	4.75	0.2	1
12	11250	0.26	8.5	0.75	2	6	0.6	1	4.75	0.6	1
13	141087	3.24	8.5	0.75	21	6	0.6	12	4.75	0.6	9
14	115202	2.64	8.5	0.2	4	6	0.2	3	4.75	0.2	3
15	14339	0.33	8.5	0.2	1	6	0.2	0	4.75	0.2	0

Preliminary Engineering - Appendix 2

Existing Conditions Basin Runoff Flowrate Calculations

Concentration Point	BASIN	BASIN AREA [sq.ft.]	AREA [AC]	2 YEAR		10 YEAR		100 YEAR		Tc [hours]	S [ft/mi]	L [mi]	Delta El. [feet]	Kb	Tc [minutes]	FLOWRATES [CFS]			BASIN	
				C coeff.	intensity,i	C coeff.	intensity,i	C coeff.	intensity,i							2 YEAR	10 YEAR	100 YEAR		Concentration Point
8C	REX 01A	61062	1.40	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.09	528	0.076	40	0.2	5.2	1.3	1.7	2.4	01A
	REX 02A	18179	0.42	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.07	622	0.053	33	0.2	4.1	0.4	0.5	0.7	02A
	REX 03A	82817	1.90	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.07	571	0.058	33	0.2	4.4	1.8	2.3	3.2	03A
	REX 04A	31645	0.73	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.05	608	0.031	19	0.2	3.2	0.7	0.9	1.2	04A
	REX 05A	111016	2.55	0.2	4.6	0.2	4.6	0.2	4.6	8	0.11	264	0.072	19	0.2	6.4	2.3	2.9	4.3	05A
	REX 06A	9534	0.22	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.04	528	0.019	10	0.2	2.6	0.2	0.3	0.4	06A
	REX 07A	6894	0.16	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.07	211	0.028	6	0.2	4.2	0.2	0.2	0.3	07A
	REX 08A	91906	2.11	0.2	4.65	0.2	4.65	0.2	4.65	8.25	0.09	456	0.077	35	0.2	5.51	2.0	2.5	3.6	08A
	REX 08B	69959	1.61	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.08	422	0.062	26	0.2	5.0	1.5	1.9	2.7	08B
	REX 08C	192021	4.41	0.23	4	0.23	4	0.23	4	7.25	0.13	193	0.155	30	0.1	7.5	4.1	5.3	9.0	08C
	REX 08D	487242	11.19	0.7	4.5	0.7	4.5	0.7	4.5	7.75	0.11	121	0.166	20	0.06	6.701	35.2	46.2	76.0	08D
	REX 08E	59826	1.37	0.2	4.6	0.2	4.6	0.2	4.6	8	0.10	328	0.078	25.5	0.2	6.2	1.3	1.6	2.3	08E
	REX 08F	900953	20.68	0.48	3.25	0.48	3.25	0.48	3.25	6	0.21	123	0.269	33	0.10	12.4	32.1	41.9	71.0	08F
	REX 08G	131211	3.01	0.85	4.75	0.85	4.75	0.85	4.75	8.5	0.06	135	0.163	22	0.02	3.5	12.2	15.4	24.0	08G
	REX 08H	30430	0.70	0.85	4.75	0.85	4.75	0.85	4.75	8.5	0.04	59	0.051	3	0.02	2.5	2.8	3.6	6	08H
	REX 08I	81070	1.86	0.7	4.75	0.7	4.75	0.7	4.75	8.5	0.04	55	0.055	3	0.02	2.7	6.2	7.8	14	08I
REX 08J	193524	4.44	0.91	4.75	0.91	4.75	0.91	4.75	8.5	0.06	145	0.172	25	0.02	3.5	19.2	24.3	35	08J	
REX 08K	49461	1.14	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.09	399	0.074	29.5	0.2	5.6	1.1	1.4	1.9	08K	
REX 08L	372929	8.56	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.10	388	0.157	61	0.1	5.7	8.1	10.3	14.6	08L	
08	REX 08L	105527	2.42	0.2	4.75	0.2	4.75	0.2	4.75	8.5	0.11	251	0.161	40.5	0.1	6.6	2.3	2.9	4.1	08L
		1865106	42.8	0.49	3.00	0.49	3.00	0.49	3.00	5.75	0.25	106	0.426	45	0.085	15.1	62.4	83.1	136	CP 08

## Preliminary Engineering - Appendix 3

### Culvert Calculator Report Preliminary Site Plan :: CP 3

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	59.00 ft	Headwater Depth/Height	1.50
Computed Headwater Elev.	59.00 ft	Discharge	35.04 cfs
Inlet Control HW Elev.	58.36 ft	Tailwater Elevation	58.00 ft
Outlet Control HW Elev.	59.00 ft	Control Type	Outlet Control

Grades			
Upstream Invert	56.00 ft	Downstream Invert	55.00 ft
Length	70.00 ft	Constructed Slope	0.014286 ft/ft

Hydraulic Profile			
Profile	PressureProfile	Depth, Downstream	3.00 ft
Slope Type	N/A	Normal Depth	1.17 ft
Flow Regime	N/A	Critical Depth	1.51 ft
Velocity Downstream	5.58 ft/s	Critical Slope	0.007121 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	59.00 ft	Upstream Velocity Head	0.48 ft
Ke	0.20	Entrance Loss	0.10 ft

Inlet Control Properties			
Inlet Control HW Elev.	58.36 ft	Flow Control	N/A
Inlet Type	Groove end projecting	Area Full	6.3 ft <sup>2</sup>
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		

**Culvert Calculator Report  
Preliminary Site Plan :: CP 08**

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	48.00 ft	Headwater Depth/Height	2.50
Computed Headwater Elev.	48.00 ft	Discharge	81.32 cfs
Inlet Control HW Elev.	46.45 ft	Tailwater Elevation	46.00 ft
Outlet Control HW Elev.	48.00 ft	Control Type	Outlet Control

Grades			
Upstream Invert	43.00 ft	Downstream Invert	42.00 ft
Length	50.00 ft	Constructed Slope	0.020000 ft/ft

Hydraulic Profile			
Profile	PressureProfile	Depth, Downstream	4.00 ft
Slope Type	N/A	Normal Depth	1.33 ft
Flow Regime	N/A	Critical Depth	1.81 ft
Velocity Downstream	8.63 ft/s	Critical Slope	0.010722 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	HDPE (Smooth Interior)	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	48.00 ft	Upstream Velocity Head	1.16 ft
Ke	0.20	Entrance Loss	0.23 ft

Inlet Control Properties			
Inlet Control HW Elev.	46.45 ft	Flow Control	Submerged
Inlet Type	Beveled ring, 33.7° bevels	Area Full	9.4 ft²
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		



**Culvert Calculator Report  
Preliminary Site Plan :: CP 11**

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	42.50 ft	Headwater Depth/Height	3.00
Computed Headwater Elev.	42.50 ft	Discharge	88.59 cfs
Inlet Control HW Elev.	40.46 ft	Tailwater Elevation	40.00 ft
Outlet Control HW Elev.	42.50 ft	Control Type	Outlet Control

Grades			
Upstream Invert	36.50 ft	Downstream Invert	25.50 ft
Length	50.00 ft	Constructed Slope	0.220000 ft/ft

Hydraulic Profile			
Profile	PressureProfile	Depth, Downstream	14.50 ft
Slope Type	N/A	Normal Depth	0.72 ft
Flow Regime	N/A	Critical Depth	1.86 ft
Velocity Downstream	9.40 ft/s	Critical Slope	0.014752 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	42.50 ft	Upstream Velocity Head	1.37 ft
Ke	0.20	Entrance Loss	0.27 ft

Inlet Control Properties			
Inlet Control HW Elev.	40.46 ft	Flow Control	Submerged
Inlet Type	Groove end projecting	Area Full	9.4 ft <sup>2</sup>
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		



**Culvert Calculator Report  
Preliminary Site Plan :: CP 14**

Solve For: Discharge

**Culvert Summary**

Allowable HW Elevation	39.50 ft	Headwater Depth/Height	4.00
Computed Headwater Elev.	39.50 ft	Discharge	72.20 cfs
Inlet Control HW Elev.	37.05 ft	Tailwater Elevation	35.00 ft
Outlet Control HW Elev.	39.50 ft	Control Type	Outlet Control

**Grades**

Upstream Invert	31.50 ft	Downstream Invert	30.00 ft
Length	80.00 ft	Constructed Slope	0.018750 ft/ft

**Hydraulic Profile**

Profile	PressureProfile	Depth, Downstream	5.00 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	1.93 ft
Velocity Downstream	11.49 ft/s	Critical Slope	0.022278 ft/ft

**Section**

Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	2		

**Outlet Control Properties**

Outlet Control HW Elev.	39.50 ft	Upstream Velocity Head	2.05 ft
Ke	0.20	Entrance Loss	0.41 ft

**Inlet Control Properties**

Inlet Control HW Elev.	37.05 ft	Flow Control	Submerged
Inlet Type	Groove end projecting	Area Full	6.3 ft <sup>2</sup>
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		



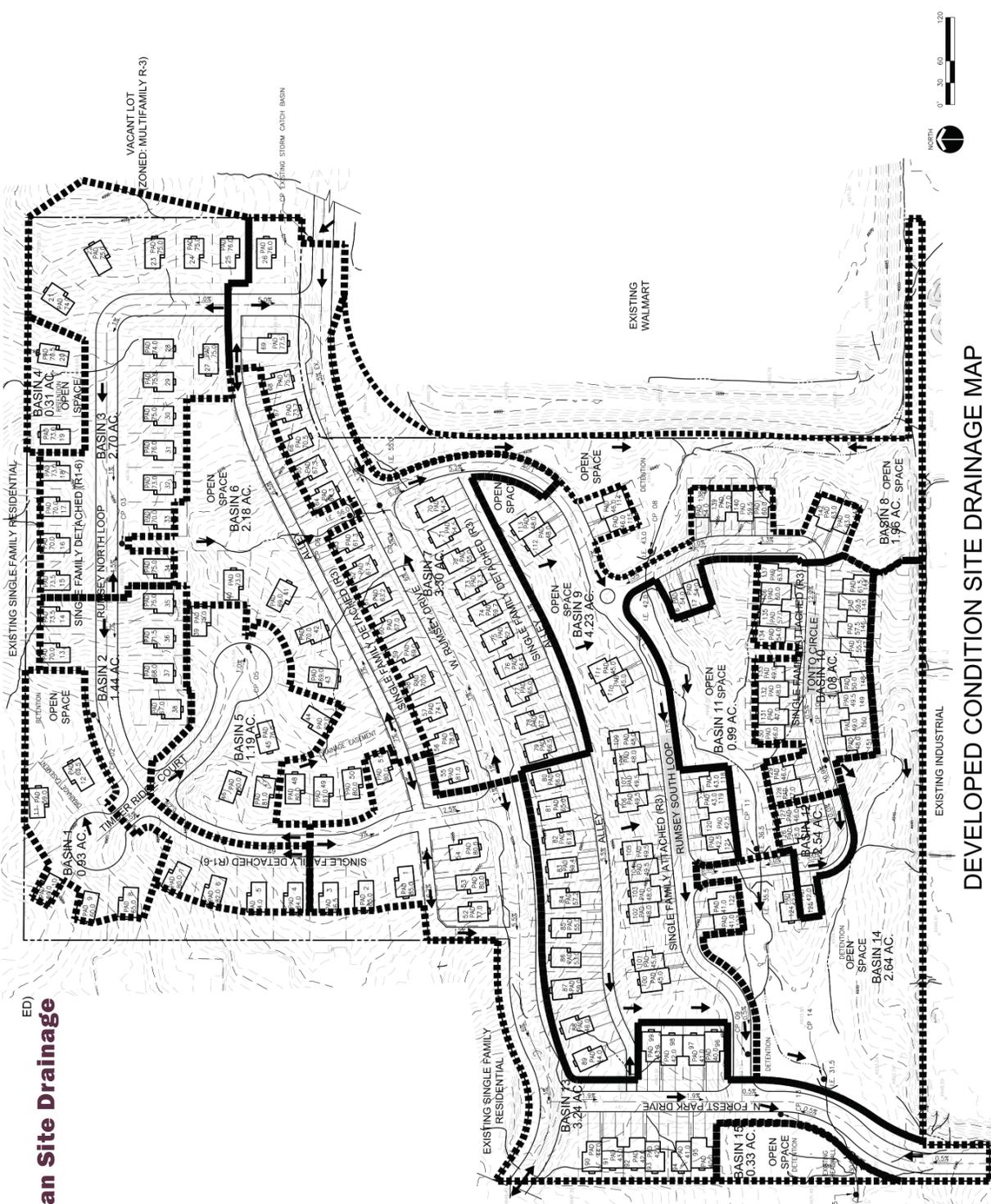
**ED)**  
**EXHIBIT 8.1 - Preliminary Site Plan Site Drainage Map**

SINGLE FAMILY DETACHED  
 (51) 4,000 - 10,000 SQ. FT. SINGLE FAMILY LOTS (R1-6 MODIFIED)  
 (38) 3,200 - 4,000 SQ. FT. SINGLE FAMILY LOTS (R-3 MODIFIED)  
 SINGLE FAMILY ATTACHED  
 (9) BUILDINGS AT 2 D.U. EACH = 18  
 (11) BUILDINGS AT 4 D.U. EACH = 44  
 TOTAL: 151 YIELD

**LEGEND**

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED PRIVATE ACCESS EASEMENT
- PROPOSED PAVEMENT CENTERLINE
- EXISTING PROPERTY LINE
- EXISTING WASH
- HEADWALL
- PROPOSED SLOPE

NOTE: PAD  
 ELEVATIONS ARE  
 FOR GARAGES



**DEVELOPED CONDITION SITE DRAINAGE MAP**

**EXHIBIT 8.3 - Preliminary Site Plan Proposed Utility Map**

ED)

**SINGLE FAMILY DETACHED**

(51) 4,000 - 10,000 SQ. FT. SINGLE FAMILY LOTS (R1-6 MODIFIED)

(38) 3,200 - 4,000 SQ. FT. SINGLE FAMILY LOTS (R-3 MODIFIED)

**SINGLE FAMILY ATTACHED**

(9) BUILDINGS AT 2 D.U. EACH = 18

(11) BUILDINGS AT 4 D.U. EACH = 44

TOTAL: 151 YIELD

**LEGEND**

- PROPOSED PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED PRIVATE ACCESS EASEMENT
- PROPOSED PAVEMENT CENTERLINE
- EXISTING PROPERTY LINE
- PROPOSED SEWER LINE
- PROPOSED MANHOLE
- PROPOSED WATER LINE
- PROPOSED UNDERGROUND WATER VALVE



**PRELIMINARY SITE PLAN - UTILITIES**

May 21, 2014

Sheila DeSchaff  
Zoning Administrator  
Community Development Department  
Town of Payson  
303 N. Beeline Highway  
Payson, AZ 85541

Re: ***Citizens' Participation Report for Timber Ridge PAD — Otak Project No. 17060A***

Dear Sheila:

The purpose of this Citizens' Participation Report is to inform the Town of Payson that as part of the PAD application for the 26.8 acre parcel, Otak, Inc. and True Life Companies conducted a Community Outreach on Monday, May 19, 2014 at 5:00 p.m. at the Town of Payson Public Library.

A list of addresses was provided to the Applicant by the Town of Payson, which reflects the residents, property owners and interested parties most likely to feel impacted by the proposed project. That list is attached.

Mailers were sent out to these addresses on the April 29, 2014. The copy of the content of these mailers is also attached. This mailer indicated that the site plan would be made available at the Town of Payson City Hall following submittal. Additionally, the mailer invited them to attend a Community Outreach Meeting that was held at the aforementioned time and date (May 19, 2014 from 5 to 6 p.m.) at the Payson Public Library.

At least 51 members of the Community were in attendance. A copy of the meeting Sign-in Sheet is attached.

Brad Bielenberg of Otak presented an overview of the project and the rezoning process. The project consists of The Timber Ridge Planned Area Development which is a proposed 150 home site, single family residential development located on 26.8 acres in the Town of Payson, Arizona.

After the presentation, Mr. Bielenberg invited the participants to ask questions and express concerns about the project. The following is a brief synopsis of the questions and concerns mentioned by the participants, along with the developer's responses. This inclusion of issues is not to be represented as a comprehensive list of all things discussed at the meeting. The supplied responses are "to the best of the facilitator's knowledge", and not intended to represent absolute fact or endorsement by the Town of Payson or any other entity, including Otak, Inc.

The citizen participants raised the following issues and concerns during the meeting and are enumerated below with the responses immediately following the comments.

1. **Community Member expressed concern for the Forest Park Dr. extension through the proposed development. Cited concerns for the safety of children walking to school. Would like a traffic light at the intersection of Forest Park Dr. & W. Longhorn Rd.** An alternative solution to completing Forest Park Drive would be to restrict access to pedestrians, bicycles, and emergency vehicles only. At this time, the design intent is to provide the local street as shown on the Site Plan in order to meet the needs of the larger community.
2. **Community Member asked whether or not Zoning Hearing signage be posted around the Property?** All appropriate measures have been taken regarding the Zoning Procedures of the Town of Payson.
3. **Community Member expressed concern for the proposed Forest Park Dr.'s extension effect on traffic circulation.** In addition to the standard requirements of the PAD Application, the Town of Payson required that a Traffic Study be performed. A Traffic Study has been provided which analyzes effects of Forest Park Drive's extension, which is included in the PAD Application.
4. **Community Member expressed concern for the degradation of the granite hillside North of Rumsey Drive directly opposite of Walmart.** A Soils Report is currently being performed by a Geotechnical Engineer. Hillside degradation potential and recommendations on preventing it will be addressed prior to the issuance of construction permits, as required by the Town of Payson.
5. **Community Member inquired as to where drainage from the Property would go?** Drainage from the Property will follow historic/established drainage patterns. Runoff generated by peak storm events shall be reduced to 75 percent of existing estimates of runoff flowrates.
6. **Community Member inquired as to whether or not the Property immediately to the North of Walmart was a part of the planned development. Said Member also inquired as to the nature of buffers between the proposed development and the existing communities surrounding the Property.** The Property immediately north of Walmart is not a part of this PAD Application. This PAD Application provides landscape buffers and building setbacks per the existing ordinances that apply to the site under the existing zoning.

7. **Community Member inquired as to whether or not the existing wall to the North of Rumsey Drive on the Western end of the Property will be affected.** This Property line wall shall be protected in place, and shall remain.
8. **Community Member expressed concern for the name of the development, does not like the name "Timber Ridge," finds it too similar to the name of an existing development.** The Community Member's concern for the name of the Property is respectfully and duly noted for the record.
9. **Community Member inquired about the Property developer's intentions for fire mitigation during construction.** All applicable codes and safety standards shall be complied with during construction. Appropriate measures will be taken.
10. **Community Member inquired about mitigation plans for drainage on the Western side of the Property.** Drainage from the Property to the west will follow historic/established drainage patterns. Runoff generated by peak storm events shall be reduced to 75 percent of existing estimates of runoff flowrates.
11. **Community Member expressed concern regarding Rumsey Ridge as a thoroughfare, specifically the impact to the N. McLane Rd. & Rumsey Dr. intersection.** The impact to the N. McLane Road and Rumsey Drive intersection has been analyzed as part of the Traffic Study that was required by the Town, in addition to the usual PAD Application requirements. All appropriate measures shall be taken, as recommended in the Traffic Study, to mitigate any adverse impacts to traffic conditions created by the proposed improvements.
12. **Community Member inquired as to the pricing for the proposed "entry-level" product as contemplated for the Project.** Pricing data will be provided as soon as it is available.
13. **Community Member inquired as to the timeline of the development. Said Member also inquired as to the nature of the development-phasing plan.** The timeline of the development will initially be determined by the appropriate constraints of the planning and permitting process. The nature of the development-phasing plan is to allow for the orderly and efficient completion of the development, mitigate the need for stockpiling large quantities of earthen fill material, and ensure that an appropriate number of new homes put up for sale on a schedule that is sensitive to the Payson home market conditions.
14. **Community Member inquired about the "open space" on the southwestern**

- portion of the Property. Said Member expressed that she would like to see it remain untouched.** A significant portion of the open space on the southwestern portion of the Property is to be left ungraded, with the intention of preserving three quarters of the existing stand of trees located there. Hazardous trees shall be removed and efforts will be made to 'fire-wise' the site.
15. **Community Member inquired as to whether or not the developer would seek an increase in density if the currently proposed General Plan is approved.** The current developer is making an effort to complete the project approval process prior to the scheduled General Plan election date so that the site can be developed at this current lower density.
  16. **Community Member inquired as to the size of the buffer along the north end of the Property.** Homes along the north end of the Property shall be set back a minimum of 18 feet from the Property Boundary, in conformance to existing zoning requirements.
  17. **Community Member inquired as to whether or not the developer has more meeting scheduled with the Town.** The Developer shall be continuing Zoning Commission and Town Council Meetings, as appropriate in the PAD Application process, which are open to the public and shall be held according to the schedules provided by the Town.
  18. **Community Member inquired as to whether or not the developer would be using single or multiple contractors. Said member also questioned whether or not the proposed development would affect property values in the area.** It is likely that multiple contractors will be used on the project. The proposed development is intended to be well-suited to its surroundings, and should not adversely impact property values.
  19. **Community Member expressed his agreement with the Town's proposed General Plan.** The Community Member's opinion of agreement with the proposed General Plan, is respectfully and duly noted for the record.

The goal of this Community Outreach effort was not to attempt to produce total agreement on the PAD Application, but to be responsible partners in the community and to incorporate community feedback in the planning process for the PAD.

Affected citizens have been informed of the substance of the Timber Ridge Planned Area Development proposed by the Application.

Community members, the general public were provided a forum to discuss the PAD Application

with the Developer and share their concerns, issues, and problems with the proposed development prior to any public hearings.

The meeting concluded at approximately 6:00 p.m.

Please feel free to contact me with any questions or comments you may have regarding our Community Outreach efforts or this report.

Sincerely,

Otak, Incorporated

Thomas Green, PE  
Project Engineer

TG: rp

TIMBER RIDGE PAYSON AZ

SIGN UP SHEET FOR MORE INFORMATION

<u>NAME</u>	<u>EMAIL</u>
Brad Bielenberg	brad.bielenberg@otak.com
CAROL DAUG WELPNER	bmw 9940 @ Yahoo.com
ED VOS	V05ED@NPGCABLE.COM
Karen Bailey	Kaybee #1@hotmail.com
JOHN SWENSON	jsvenson@airmail.net
ALEXIS BECHMAN	abechman@payson.com
DALE E. LAYCOCK	dale.laycock.az@gmail.com
Ila Tenney	iktenney@gmail.com
LD JONES	Lmcs.Jones@Graftonns.net
Phil WARWICK	N/A
PAUL BATES	ERA PAULIE BATES@hotmail.com
Eric BAILEY	ERIC_BAILEY#1@hotmail.com
Keith & Leah Froening	leahandkeith@yahoo
ARLIN & Sue CHESTER	<del>chistc</del> ba12@yahoo.com
Glenn & Ruth Marble	R.Marble@gmail
Dwight & Phyllis Church	churchandphyllis@southwest.net
Shery & Terrene Wayne	atlast03@npgcable.com
Frank Schreck	Schreckcf@g.com
Frank + Kathy La Spisa	Katdy la spisa@yahoo.com
William HANDY	
Louis Bossert	hi.bossert@gmail.com
louisbossert@hotmail.com	

NAME	EMAIL
Ruth + Tim Fleming	leftyouth1955@gmail.com
JACK THEIN	JACKTHEIN@HOTMAIL.COM
Becky Waer	bekywaer@gmail.com
JANICE ARVIDSON	janies66@gmail.com
Junie Crabb	IDRATHERBE@THERIVER.COM
Joe + Kelly Dunette	
DAVID ROAGAN	dproagans971@hotmail.com
Loren + Linda Jost	ljost602@yahoo.com
Tom + Tricia Newitt	tomnewitt1@hotmail.com
Henry Locke	hclarklocke@yahoo.com
Robert Hershberger	robmondeshershberger@contemporarylink.net
Gregg Haganman	
CLARK JONES	Payson P + Z Comm.
HELEN PASLAY	mhpaslay@gmx.com
Vail Holdman & Kim Holdman	<del>kv.holdman@yahoo.com</del> kv.holdman@yahoo.com
Michael Paslay	mhpaslay@gmx.com
Michael Lemon	mikelemon@npgcable.com
Linda Lemon	lindalemon@npgcable.com
DEBBIE LOWERY	lowery44@yahoo.com
Myrna Burdick	opomom@mchsi.com

RETAIL TRUST III,/ OR CURRENT OCCUPANT 300 N BEELINE (INSIDE WALMART) HWY PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 325 N MCLANE RD PAYSON AZ 85541	GALLA RONALD W & ALICE L, 508 W LAREDO LOOP PAYSON AZ 85541
FLIEDBROOK PROPERTIES, / OR CURRENT OCCUPANT PAYSON AZ 85541	GIBSON MARK W & LINDA L, 405 N LAREDO LN PAYSON AZ 85541	SCHMITZ JEFFRY & PAMELA EDYTHE,/OR CURRENT OCCUPANT 507 W LAREDO LOOP PAYSON AZ 85541
HANDY WILLIAM & KAREN, 502 W LAREDO LN PAYSON AZ 85541	CREIGHTON TREVOR S & SHELLI L,/OR CURRENT OCCUPANT 400 N LAREDO LN PAYSON AZ 85541	RUMSEY COMPANY/OR CURRENT OCCUPANT 400 N BEELINE HWY PAYSON AZ 85541
FOREST HILLS LLC,/OR CURRENT OCCUPANT 333F N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 333A N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 333G N MCLANE RD PAYSON AZ 85541
FOREST HILLS LLC,/OR CURRENT OCCUPANT 333D N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 337E N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 337H N MCLANE RD PAYSON AZ 85541
FOREST HILLS LLC,/OR CURRENT OCCUPANT 337G N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 337F N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 329E N MCLANE RD PAYSON AZ 85541
FOREST HILLS LLC,/OR CURRENT OCCUPANT 329F N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 329B N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 329C N MCLANE RD PAYSON AZ 85541
FOREST HILLS LLC,/OR CURRENT OCCUPANT 333H N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 333B N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 333C N MCLANE RD PAYSON AZ 85541
FOREST HILLS LLC,/OR CURRENT OCCUPANT 333E N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 329A N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 329D N MCLANE RD PAYSON AZ 85541
FOREST HILLS LLC,/OR CURRENT OCCUPANT 337D N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 337C N MCLANE RD PAYSON AZ 85541	FOREST HILLS LLC,/OR CURRENT OCCUPANT 337B N MCLANE RD PAYSON AZ 85541

FOREST HILLS LLC,/OR CURRENT OCCUPANT 337A N MCLANE RD PAYSON AZ 85541	RETAIL TRUST III,/OR CURRENT OCCUPANT PAYSON AZ 85541	STATE OF ARIZONA/OR CURRENT OCCUPANT 200 W LONGHORN RD PAYSON AZ 85541
LOWERY ROBERT J & DEBBIE L,/OR CURRENT OCCUPANT 201 N FOREST PARK DR PAYSON AZ 85541	HAGAMAN GLENN J & BETTY R TRUSTEES, HAGAMAN FAMILY TRUST/OR CURRENT OCCUPANT 205 N FOREST PARK DR PAYSON AZ 85541	MCCLURE GREGORY W & MELINDA L,/OR CURRENT OCCUPANT 210 N FOREST PARK DR PAYSON AZ 85541
LOWERY ROBERT J & DEBBIE L,/OR CURRENT OCCUPANT 201 N FOREST PARK DR PAYSON AZ 85541	MEYERS WILLIAM K & PATSY,/OR CURRENT OCCUPANT 133 N PARKWOOD LN PAYSON AZ 85541	RENO / MEXO LLC, 201 N TONTO ST PAYSON AZ 85541
RANDALL & ROGERS INVESTMENTS LLC,/OR CURRENT OCCUPANT 200 N TONTO ST PAYSON AZ 85541	FIELDBROOK PAYSON PARTNERS LLC, PAYSON AZ 85541	RANDALL & ROGERS INVESTMENTS LLC, PAYSON AZ 85541
PJ RENTAL PROPERTIES LLC, 208 N TONTO ST PAYSON AZ 85541	ARIZONA PUBLIC SERVICE/OR CURRENT OCCUPANT PAYSON AZ 85541	PAYSON AZ 85541
JONES LARRY D, 506 N SPUR DR PAYSON AZ 85541	CURTIS TONI J,/OR CURRENT OCCUPANT 515 N COLCORD RD PAYSON AZ 85541	BAGGIORE JAMES,/OR CURRENT OCCUPANT 201 W EVERGREEN CIR PAYSON AZ 85541
COULTER LOUISE, 518 N COLCORD RD PAYSON AZ 85541	GLISSENDORF RICHARD E JR PER REP, GLISSENDORF RICHARD E SR ESTATE/OR CURRENT OCCUPANT 516 N COLCORD RD PAYSON AZ 85541	GLISSENDORF STEPHEN E PAYSON AZ 85541
HEWITT THOMAS E & PATRICIA F TRUSTEES, HEWITT TRUST 507 N SPUR DR PAYSON AZ 85541	RANDALL KYLE REESE & MICHELLE TRUSTEES, RANDALL TRUST/OR CURRENT OCCUPANT 507 N DOUBLE TREE CIR PAYSON AZ 85541	HAUG ANDREW AND HAUG MELANIE,/OR CURRENT OCCUPANT 506 N DOUBLE TREE CIR PAYSON AZ 85541
BARCELLO DONALD R,/OR CURRENT OCCUPANT 516 W LAREDO LOOP PAYSON AZ 85541		
RETAIL TRUST III,/ OR CURRENT OCCUPANT PO BOX 8050BENTONVILLE, AR 72712	FOREST HILLS LLC,/OR CURRENT OCCUPANT 9393 N 90TH ST #207 SCOTTSDALE AZ 85258	WERNER DOUGLAS J & BARBARA M TRUSTEES, WERNER TRUST 404 N LAREDO LANE PAYSON AZ 85541

HOUSTON WILLIAM & CORALEE  
RUTH,  
402 N LAREDO LN  
PAYSON AZ 85541

GRIFFIN JEANNINE C,  
504 W LAREDO LOOP  
PAYSON AZ 85541

WAYNE GREGORY J & LYNNE L  
TRSTE/TRST,  
506 W LAREDO LOOP  
PAYSON AZ 85541

GALLA RONALD W & ALICE L,  
3135 E ENROSE CR  
MESA AZ 85213

MITCHELL SELDEN & GRACE AMBER,  
509 W LAREDO LOOP  
PAYSON AZ 85541

ARVIDSON JANICE D,  
407 N LAREDO LN  
PAYSON AZ 85541

FIELDBROOK PROPERTIES, / OR  
CURRENT OCCUPANT  
25 MAUCHLY #327  
IRVINA CA 92618

GIBSON MARK W & LINDA L,  
409 N LAREDO LN  
PAYSON AZ 85541

SCHMITZ JEFFRY & PAMELA  
EDYTHE,/OR CURRENT OCCUPANT  
911 FAIRWOOD DR  
ANCHORAGE AK 99518

HANDY WILLIAM & KAREN,  
504 LAREDO LANE  
PAYSON AZ 85541

CREIGHTON TREVOR S & SHELLI L,/OR  
CURRENT OCCUPANT  
226 N PARKWOOD RD  
PAYSON AZ 85541

RUMSEY COMPANY/OR CURRENT  
OCCUPANT  
PO BOX 6235  
PEORIA AZ 85385

HANDY WILLIAM AND, WATERS  
KAREN  
401 N LAREDO LN  
PAYSON AZ 85541

RETAIL TRUST III,/OR CURRENT  
OCCUPANT  
PO BOX 8050  
BENTONVILLE AR 72712

STATE OF ARIZONA/OR CURRENT  
OCCUPANT  
205 S 17TH AVE  
PHOENIX AZ 85007

LOWERY ROBERT J & DEBBIE L,/OR  
CURRENT OCCUPANT  
PO BOX 1030  
PAYSON AZ 85547

HAGAMAN GLENN J & BETTY R  
TRUSTEES, HAGAMAN FAMILY  
TRUST/OR CURRENT OCCUPANT  
2006 SIERRA VISTA DR  
TEMPE AZ 85282

MCCLURE GREGORY W & MELINDA  
L,/OR CURRENT OCCUPANT  
210 N FOREST PARK DR  
PAYSON AZ 85541

LOWERY ROBERT J & DEBBIE L,/OR  
CURRENT OCCUPANT  
PO BOX 1030  
PAYSON AZ 85547

MEYERS WILLIAM K & PATSY,/OR  
CURRENT OCCUPANT  
4486 E CLOUDBURST CT  
GILBERT AZ 85297

RENO / MEXO LLC,  
2360 E HUNTINGTON DR  
FLAGSTAFF AZ 86004

RANDALL & ROGERS INVESTMENTS  
LLC,/OR CURRENT OCCUPANT  
200 N TONTO ST  
PAYSON AZ 85541

FIELDBROOK PAYSON PARTNERS LLC,  
25 MAUCHLY STE 327  
IRVINE CA 92618

RANDALL & ROGERS INVESTMENTS  
LLC,  
1900 E HWY 260  
PAYSON AZ 85541

PJ RENTAL PROPERTIES LLC,  
PO BOX 1945  
PAYSON AZ 85547

ARIZONA PUBLIC SERVICE/OR  
CURRENT OCCUPANT

SCHRECK CHARLES & CATHERINE  
TRUSTEES, SCHRECK REVOC LIVING  
TRUST  
510 W LAREDO LOOP  
PAYSON AZ 85541

LASPISA KATHERINE M & FRANK,  
512 W LAREDO LOOP  
PAYSON AZ 85541

WARWICK PHILIP L & BARBARA J  
TRSTE/TRST,  
514 W LAREDO LOOP  
PAYSON AZ 85541

JOHNSON ROGER WAYNE & PATRICIA  
ANN,  
518 W LAREDO LOOP  
PAYSON AZ 85541

WAER BECKY L,  
515 W LAREDO LOOP  
PAYSON AZ 85541

JONES LARRY D,  
PO BOX 1067  
PAYSON AZ 85547

PATTERSON KAREN M TRUSTEE,  
PATTERSON REVOCABLE TRUST  
504 N SPUR DR  
PAYSON AZ 85541

DIESTLER JOE B & NELLY A  
TRUSTEES, DIESTLER FAMILY TRUST  
505 SPUR DR  
PAYSON AZ 85541

HOLLINGSWORTH TRUDY B,  
504 N DOUBLETREE DR  
PAYSON AZ 85541

BRADFORD RICHARD A & BARBARA E  
TRUSTEES, BRADFORD TRUST  
505 N DOUBLETREE DR  
PAYSON AZ 85541

RANDALL KYLE REESE & MICHELLE  
TRUSTEES, RANDALL TRUST  
509 N DOUBLETREE CIRCLE  
PAYSON AZ 85541

CURTIS TONI J,/OR CURRENT  
OCCUPANT  
267 MONTGOMERY AVE  
VERSAILLES ky 40383

BAGGIORE JAMES,/OR CURRENT  
OCCUPANT  
10612 W MULBERRY  
AVONDALE AZ 85323

COULTER LOUISE,  
518 N COLCORD RD  
PAYSON AZ 85541

GLISSENDORF RICHARD E JR PER REP,  
GLISSENDORF RICHARD E SR  
ESTATE/OR CURRENT OCCUPANT  
1735 E LA VIEVE LN  
TEMPE AZ 85284

GLISSENDORF STEPHEN E  
1001 W GOLD NUGGET  
PAYSON AZ 85541

HOLDMAN KIMBERLY & VAIL,  
512 COLCORD RD  
PAYSON AZ 85541

LOCKE HENRY,  
508 N COLCORD  
PAYSON AZ 85541

PASLAY MICHAEL W & HELEN B,  
510 N COLCORD ROAD  
PAYSON AZ 85541

HEWITT THOMAS E & PATRICIA F  
TRUSTEES, HEWITT TRUST  
507 N SPUR DR  
PAYSON AZ 85541

RANDALL KYLE REESE & MICHELLE  
TRUSTEES, RANDALL TRUST/OR  
CURRENT OCCUPANT  
PO BOX 2790  
PAYSON AZ 85547

HAUG ANDREW AND HAUG  
MELANIE,/OR CURRENT OCCUPANT  
3104 UPSHUR AVE APT D  
29 PALMS CA 92277

BARCELLO DONALD R,/OR CURRENT  
OCCUPANT  
5002 E POINSETTIA DR  
SCOTTSDALE AZ 85254

ZABORAC SHELLY K,  
409 N LAREDO LN  
PAYSON AZ 85541