INTERGOVERNMENTAL AGREEMENT
TOWN OF PRESCOTT VALLEY AND YAVAPAI COUNTY
RECONSTRUCTION SUNSET LANE (PRESCOTT EAST HIGHWAY TO PINE VIEW DRIVE)

THIS AGREEMENT, entered into this _____day of _____, 2016, by and between the TOWN OF PRESCOTT VALLEY, a municipal corporation of Arizona (hereafter the "Town"), and YAVAPAI COUNTY, a political subdivision of the State of Arizona (hereafter the "County"); and

WHEREAS, the Town and the County are collectively referred to as "Parties" in this Agreement, and

WHEREAS, Sunset Lane was dedicated as public right-of-way in the County in successive plats involving Lynx Lake Estates (1962), Prescott East (1966) and Castle Canyon Mesa (1972); and

WHEREAS, that portion of Sunset Lane in Lynx Lake Estates fell within the Town limits as part of its original incorporation on August 28, 1978; and

WHEREAS, that portion of Sunset Lane in Castle Canyon Mesa Unit 3 fell within the Town limits upon annexation by Ordinance No. 459 dated March 25, 1999; and

WHEREAS, the County and Town have since separately maintained their respective portions of Sunset Lane (the Town on the extreme east and west ends and the County in the center) as a 2-lane rural road with high traffic volumes during peak hours because of its connection to commercial areas in the Town; and

WHEREAS, the County and Town have identified the improvement of Sunset Lane between Prescott East Highway and Pine View Drive (as depicted on the attached Exhibit "A"). The County and Town will hire a consultant for the design of Sunset Lane and the ultimate construction, including widening to three lanes, construction of a storm drainage network and pedestrian improvements (hereinafter the "Project") as a means of improving regional traffic circulation and enhancing the safety of County (including Town) residents; and

WHEREAS, the County has completed a Design Concept Report which provides alternatives for the project; and

WHEREAS, A.R.S. §§ 11-951 and 11-952 authorize "public agencies" such as the County and the Town to enter into intergovernmental agreements whereby they may jointly exercise powers common to them; and

WHEREAS, A.R.S. §11-251 authorizes the County to lay out, maintain, control and manage public roads; and

WHEREAS, A.R.S. § 9-240(B)(3)(c) authorizes the Town to widen, extend, straighten, regulate, grade, clean or otherwise improve public roads; and

WHEREAS, in accordance with A.R.S. §§ 9-461.11(E) and 9-471(K) the Town has heretofore informally cooperated with the County in designing, constructing and maintaining portions of roadways located within the unincorporated area but surrounded by the Town or leading from the Town limits to important County or state highways; and

WHEREAS, the Town desires now to enter into this intergovernmental agreement with the County (hereinafter the "Agreement") which specifies their cooperative efforts to design, construct and maintain the Project;

NOW, THEREFORE, in consideration of the covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by each party to the other, it is hereby agreed as follows:

SECTION 1. Design Concept Report; The Parties hereby agree to and acknowledge the Design Concept Report is sufficient to program funding for the Project (and is attached as Exhibit "B"). The County shall be responsible for funding the costs associated with the rural base project, and the Town is responsible for all the costs associated with urbanization of the project.

SECTION 2. The County will:

1. Participate in the review of Statements of Qualifications, ranking, and interviews for procurement of engineering services by the Town.

2. Participate in Project design meetings, review Project documents, and provide review comments in completion of each design phase. At each stage of the design, (30%, 60%, 90%, and 100%), the County shall give its approval before continuing to the next stage.

3. Make available one half of the estimated design costs of $600,000 in the following fiscal years:
    a. $100,000 to begin design in FY 16/17
    b. $200,000 to finalize design in FY 17/18

4. Provide all funding for the actual construction costs of the categories listed in Exhibit "C" for the "Base Project". Costs for the "Base Project" are currently estimated to be $3.0 million dollars. Construction is estimated in FY18/19.

5. Contribute funding for one-half of the post-design services. The total amount for post-design services is currently estimated to be $300,000.

6. Contribute funding for one-half of the construction inspection services. The total amount for inspection services is currently estimated to be $300,000.

7. Contribute funding for one-half of the construction mobilization costs. The total amount for construction mobilization is currently estimated to be $175,000.

8. Reimburse the Town monthly for the County's agreed upon share of the actual costs associated with the items listed in Subsections 3, 4, 5, 6, and 7 of this Section 2.

9. Discontinue County maintenance of the County's portion of roadway from the eastern right-of-way of Prescott East Highway to the Town boundary at Starlight Drive.

SECTION 3. The Town will:

1. Award and administer contracts for design, post-design and construction of the Project.

2. Make available one half of the estimated design costs of $600,000 in the following fiscal years:

    a. $300,000 for design in FY 16/17

3. Provide all funding for the actual construction costs of the categories listed in Exhibit "C" for the "Urbanization". Costs for the "Urbanization" are currently estimated to be $3.0 million dollars. Construction is estimated in FY18/19.

4. Contribute funding for one-half of the post-design services. The total amount for post-design services is currently estimated to be $300,000.

5. Contribute funding for one-half of the construction inspection services. The total amount for inspection services is currently estimated to be $300,000.

6. Contribute funding for one-half of the construction mobilization costs. The total amount for construction mobilization is currently estimated to be $175,000.

7. Invoice the County monthly for the County's agreed upon share of the actual costs associated with the items listed in Subsections 3, 4, 5, 6 and 7 of Section 2.

8. Be responsible for ongoing maintenance of the County's portion of the Project (from the eastern right-of-way of Prescott East Highway to the Town boundary at Starlight Drive). Maintenance is defined as maintaining and repairing all items within the public right-of-way, including (but not limited to) asphaltic concrete pavement, pavement management, concrete flatwork, concrete structures, sidewalks, curb and gutter, storm drain, scuppers, retaining walls, drainage, striping, signage, installation of traffic control, utilities, guard rail and all other

roadway and traffic items not specifically described herein. Sunset Lane shall be maintained to a reasonably safe condition.

9. Be responsible for access right-of-way permitting from the eastern right-of-way boundary for Prescott East Highway to Pine View Drive.

SECTION 4 CHANGE ORDERS.

1. Any change orders during the project shall require approval by the County and the Town prior to moving forward with any work.

SECTION 5 NON APROPRIATION.

2. Non-Availability of Funds: Every obligation of the Parties under this Agreement, except the Town's ongoing obligation to maintain Sunset Lane between Prescott East Highway and Pine View Drive upon Project completion, is conditioned upon the availability of funds appropriated or allocated for the fulfillment of such obligations. If funds are not allocated and available for the continuance of this Agreement, this Agreement may be terminated by either Party at the end of the period for which the funds are available. No liability shall accrue to the Parties in the event this provision is exercised.

SECTION 6 NOTICES

Notices relating to this Intergovernmental Agreement shall be deemed to have been duly delivered upon personal delivery, or as of the second business day after mailing by United States mail, postage prepaid, addressed as follows:

Prescott Valley: Town of Prescott Valley
c/o City Manager
7501 E. Civic Circle
Prescott Valley, Arizona 86314

Yavapai County: Yavapai County
c/o County Administrator
1015 Fair Street
Prescott, Arizona 86301

SECTION 7 CONFLICT OF INTEREST. Pursuant to A.R.S. Section 38-511, either party may cancel this Agreement, without penalty or further obligation, if any person significantly involved in initiating, negotiating, securing, drafting or creating the Agreement on behalf of the County or the Town is, at any time while the Agreement or an extension of the Agreement is in effect, an employee or agent of any other party to the Agreement in any capacity or a consultant to any other party of the Agreement with respect to the subject matter of the Agreement.

SECTION 8 INDEMNIFY AND HOLD HARMLESS. The Town hereby agrees to indemnify and hold harmless the County, its departments and divisions, its

employees and agents, from any and all claims, liabilities, expenses or lawsuits as a result of the Town's participation pursuant to this Agreement, whether said claims, liabilities, expenses or lawsuits arise by the acts or omissions of the undersigned or its agents. The Town further releases and discharges the County, its departments and divisions, its agents and employees, and any and all persons legally responsible for the acts or omissions of the County, from any and all claims which the Town has or may have against the County, its agents or employees, arising out of or in any way connected with the Town's activities as set forth in this Agreement.

The County hereby agrees to indemnify and hold harmless the Town, its departments and divisions, its employees and agents, from any and all claims, liabilities, expenses or lawsuits as a result of County's participation pursuant to this Agreement, whether said claims, liabilities, expenses or lawsuits arise by the acts or omissions of the undersigned or its agents. The County further releases and discharges the Town, its departments and divisions, its agents and employees, and any and all persons legally responsible for the acts or omissions of the Town, from any and all claims which the County has or may have against the Town, its agents or employees, arising out of or in any way connected with County's activities as set forth in this Agreement.

SECTION 9 IMMIGRATION LAW COMPLIANCE. Both parties hereby warrant that they will at all times during the term of this Agreement comply with all federal immigration laws applicable to their employment of their employees, and with the requirements of A.R.S. §§ 23-214 and 41-4401 (together the "State and Federal Immigration Laws"). A breach of the foregoing warranty shall be deemed a material breach of the Agreement, and the parties shall have the right to terminate this Agreement for such a breach, in addition to any other applicable remedies. The parties retain the legal right to inspect the papers of each contractor, subcontractor or employee of either who performs work pursuant to this Agreement to verify performance of the foregoing warranty of compliance with the State and Federal Immigration Laws.

SECTION 10 WAIVER. No oral order, objection, claim, or notice by any party to the other shall affect or modify any of the terms or obligations contained in this Agreement, and none of the provisions of this Agreement shall be held to be waived or modified by reason of any act whatsoever, other than by a definitely agreed waiver or modification thereof in writing. No evidence of modification or waiver other than evidence of any such written notice, waiver, or modifications shall be introduced in any proceeding.

SECTION 11 WAIVER OF JURY TRIAL AND ATTORNEYS' FEES. The parties hereto expressly covenant and agree that in the event of a dispute arising from this Agreement, each of the parties hereto waives any right to a trial by jury. In the event of litigation, the parties hereby agree to submit to a trial before the Court. The parties hereto further expressly covenant and agree that in the event of litigation arising from this Agreement, neither party shall be entitled to an award of attorney's fees, either pursuant to the Contract, pursuant to A.R.S. § 12-341.01(A) and (B), or pursuant to any other state or federal statute, or state or federal court rule, or state or federal common law.

SECTION 12 RESULT OF NEGOTIATIONS. This Agreement is the result of negotiations by and between the parties. The Agreement has been reviewed by the County Attorney and by the Town Attorney. Therefore, any ambiguity in this agreement is not to be construed against either party.

SECTION 13 INSURANCE.

A. The County is self-insured through the Arizona Counties Insurance Pool (hereafter the "ACIP"), and through ACIP has sufficient coverage for the activities outlined in this Agreement, and shall hold the Town harmless and indemnify the Town from any and all liability which may result from the negligent acts or omissions of the County's employees or agents.

B. The Town is self-insured through the Arizona Municipal Risk Retention Pool (hereafter the "AMRRP"), and through AMRRP has sufficient coverage for the activities outlined in this Agreement, and shall hold the County harmless and indemnify the County from any and all liability which may result from the negligent acts or omissions of the Town's employees or agents.

SECTION 14 DESIGNATED REPRESENTATIVES. Both parties hereto agree that they will designate at all times at least one staff member to be a liaison of that agency in carrying out the provisions of this agreement, for purposes of notice, scheduling, etc. Initially, the designated staff persons are:

For the Town:

Norm Davis, P.E.
Public Works Director
Public Works Department
7501 E. Civic Circle
Phone: (928) 759-3070

For the County:

Byron Jaspers, P.E.
Public Works Director, County Engineer
1100 Commerce Drive
Prescott, AZ 86305
(928) 771-3183

SECTION 15 TERM OF AGREEMENT. This Agreement shall remain in full force for three years or until such time as that portion of Sunset Lane between Prescott East Highway and Starlight Drive is annexed into the Town (whichever is greater).

SECTION 16 ENTIRE AGREEMENT. This Agreement contains the entire agreement of the parties with respect to the subject matters hereof, and it may be amended, modified, or waived only by an instrument in writing signed by both parties.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized officials on the aforementioned date.

TOWN OF PRESCOTT VALLEY	**YAVAPAI COUNTY**
_____	_____
Harvey Skoog Mayor	Jack R. Smith Chairman of the Board, Yavapai County
ATTEST:	ATTEST:
_____	_____
Diane Russell Town Clerk	Kim Kapin, Clerk, County Board of Supervisors

Pursuant to A.R.S. Section 11-952(D), the foregoing agreement has been reviewed by the undersigned attorney for the Town of Prescott Valley, who has determined that the agreement is in proper form and is within the powers and authority granted under the laws of this State to the Town of Prescott Valley.

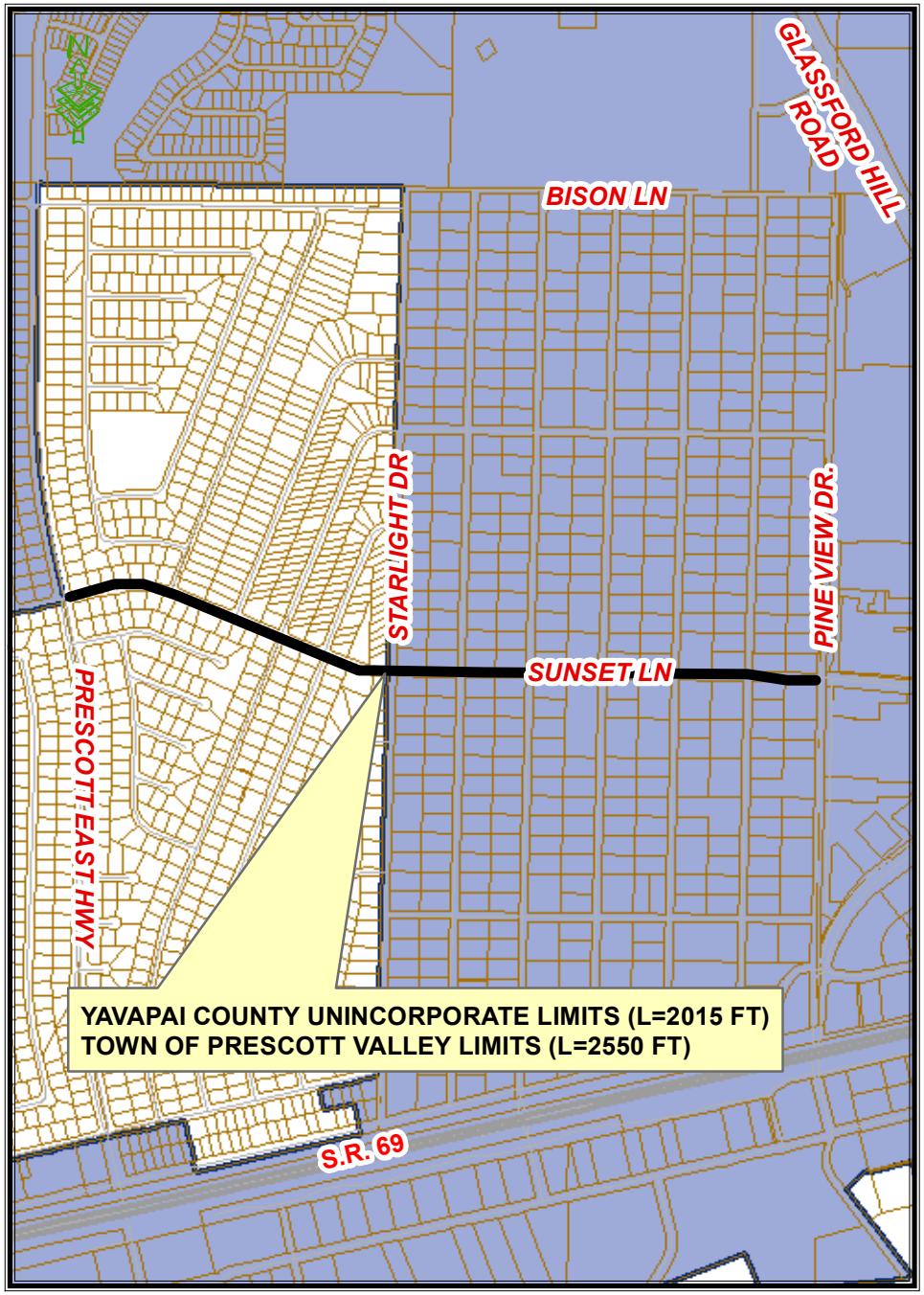
_____
Ivan Legler, Town Attorney

Pursuant to A.R.S. Section 11-952(D), the foregoing agreement has been reviewed by the undersigned attorney for Yavapai County, who has determined that the agreement is in proper form and is within the powers and authority granted under the laws of this State to Yavapai County.

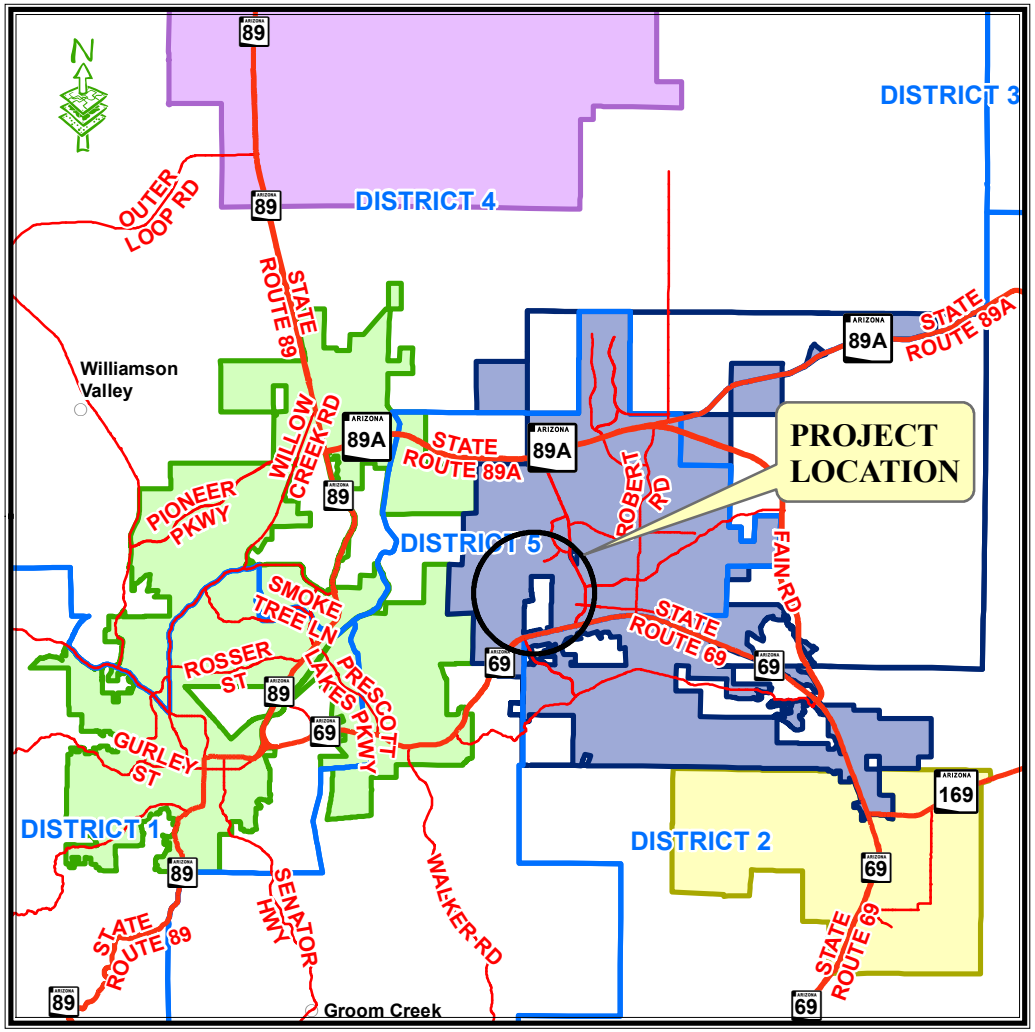
_____
Jack Fields, Deputy County Attorney

EXHIBIT “A”

Project Area Map



VICINITY MAP



AREA REGIONAL MAP

EXHIBIT A - SUNSET LANE IMPROVEMENT PROJECT

PROJECT LENGTH = 0.9 MILES

EXHIBIT “B”

Design Concept Report

Yavapai County Board of Supervisors
Rowle Simmons - District-1
Thomas Thurman - District-2
A.G. "Chip" Davis - District-3
Craig L. Brown, Chairman - District-4
Jack Smith – District-5

DRAFT as of 1/25/16

(NOT FOR CONSTRUCTION)

Sunset Lane
Design Concept Report

(Prescott East Highway to Pine View Dr)

A project in Yavapai County and
the Town of Prescott Valley, Arizona

Prepared By

Yavapai County Public Works Department
Byron Jaspers, P.E. – Public Works Director
1100 Commerce Dr. Prescott, AZ 86305
928-771-3183 (FAX 928-771-3167)

January 2016

Table of Contents

PROJECT BACKGROUND 1
PROJECT DESCRIPTION 3
DESIGN DATA AND ASSUMPTIONS 4
Off-Peak to On-Peak Adjustment Growth Factor 4
Trip Generation Data 4
Routing 5
DESIGN ALTERNATIVES 6
Design Alternative One: Two-Lane Road 6
Design Alternative Two: Two-Lane Road with Left-Turn Options 7
Design Alternative Three: Three-Lane Road 8
Design Alternative Four: Lowered Three-Lane Road 9
Decision Matrix 10
Impact on Surrounding Area 10
Level of Service 10
Pedestrian Access 11
Drainage 11
Maintenance 12
Cost 12
Matrix 13
RESULTS AND RECOMMENDATIONS 13
APPENDIX 14

PROJECT BACKGROUND

Sunset Lane is an east-west roadway connecting Prescott East Highway and Glassford Hill Road in the vicinity of Prescott Valley, Arizona.

Yavapai County Public Works has evaluated possible improvement alternatives for 4565 lineal feet of Sunset Lane between Prescott East Highway and Pine View Drive which are currently maintained by Yavapai County (County) and the Town of Prescott Valley (Town). The County's portion runs from Prescott East Highway to Starlight Drive and is approximately 2015 feet long. The Town's portion runs from Starlight Drive to Pine View Drive and is approximately 2550 feet long, see Figure 1.

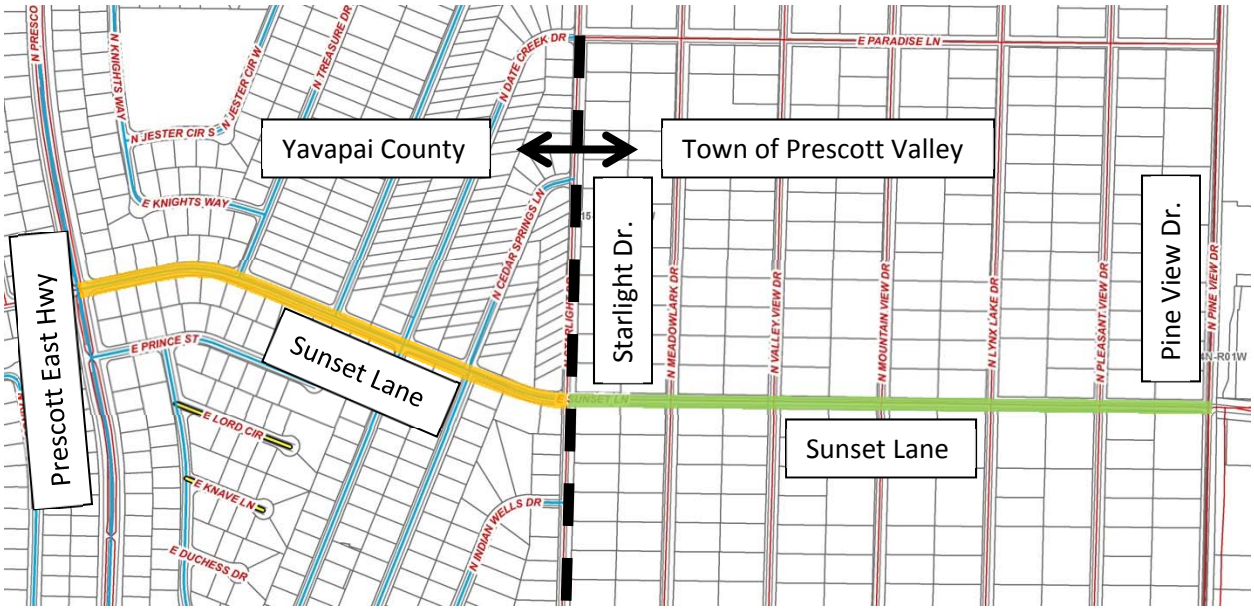


Figure 1. Sunset Lane Design Concept Area Project Limits

Due to growth of the Town's commercial and entertainment district, Sunset Lane has become a major collector street. Based on historical data collected by the Yavapai County Public Works department, the average daily traffic (ADT) on Sunset Lane, 0.29 miles east of Prescott East Highway, has increased from 3907 vehicles per day (recorded in 2012) to 4234 vehicles per day (recorded in 2015). This equates to a growth rate of 8.4% over 3 years or 2.7% per year. It is important to note that these numbers were taken during the school year. Average daily traffic values vary depending on what time of year the counts are taken. Peak traffic values obtained during the school year are slightly higher than values recorded when school is out. In addition to the approximately 300 cars per day increase at Prescott East Highway, a new traffic count location was added at Starlight Drive. The County found that the increase in ADT at Starlight Drive in comparison to Prescott East Highway intersection was approximately 1500 vehicles per

day. This trend continues as you get closer to the commercial district with ADT values of 8172 near Pine View Drive which equates to approximately 4000 more vehicles per day than the Prescott East Highway intersection. For a summary of the historical ADT values for Sunset Lane since 2012, please refer to the summary in Table 1 below. Note that the traffic counts increase further east on Sunset Lane with the highest counts recorded on Sunset Lane at Pine View Drive. The ADT is a measure used primarily in transportation planning and transportation engineering to identify roadway needs. The ADT is measured by the total traffic volume during a given period divided by the number of days in that time period, and expressed in vehicles per day (vpd).

LOCATION	DATE							
	3 APR 2012	9 JUL 2012	6 JAN 2014	6 MAY 2014	2 JUN 2014	15 APR 2015	9 JUN 2015	10 JUN 2015
PRESCOTT EAST HIGHWAY (EAST SIDE)	3907	3269	3528		3728	4234	3615	3692
STARLIGHT DRIVE (WEST SIDE)				5519		5755		
STARLIGHT DRIVE (EAST SIDE)							6424	6520
PINE VIEW DRIVE (WEST SIDE)							8014	8172

Table 1. Average Daily Traffic Value Summary Table for Sunset Lane (vpd)

As the ADT continues to grow, the County and the Town want to ensure that the level of service for this road is satisfactorily maintained. The Level of Service (LOS) is a qualitative measure used to relate the quality of traffic service. LOS is used to analyze roadways by categorizing traffic flow and assigning quality levels of traffic based on performance measure like speed, density, etc. on a scale of “A” through “F”. LOS “A” being the best rating of free-flow traffic to LOS “F” being the worst congested-conditions. Currently, Sunset Lane is a LOS “A”, but has the ability to fall to LOS F in future scenarios, at specific intersections, due to left turning movements. The criteria used to determine the level of service at each intersection can be seen in Table 2.

For a full description of the level of service at each intersection please refer to Exhibit 3 in the appendix. LOS and turning movements were identified in the traffic analysis and were used as part of the decision matrix for ranking the alternatives.

Control Delay per Vehicle (sec)	LOS
≤10	A
>10 and ≤15	B
>15 and ≤25	C
>25 and ≤35	D
>35 and ≤50	E
>50	F

Table 2. Criteria for Rating Level of Service on Sunset Lane (HCM Exhibit 17-2)

PROJECT DESCRIPTION

The LOS along with pedestrian safety is of main concern to the County and the Town. To ensure that the LOS does not decrease from existing and future growth, the County has modeled four design alternatives:

- The first alternative is a two-lane roadway with curb and gutter. This option includes an unpaved shoulder behind the curb. As a separate option within the Town, an alternative to add a 5-foot sidewalk on both sides of the roadway was included in the estimate.
- The second alternative is a two-lane roadway with left turn lanes at Prescott East Highway and Starlight Drive. This alternative also includes curb and gutter and an unpaved shoulder behind the curb. Similar to the previous alternative, a 5-foot sidewalk option was included in this estimate.
- The third alternative is a three lane roadway with curb, gutter, and 5-foot concrete sidewalk on both sides.
- The fourth alternative is a lowered three lane roadway with curb, gutter, and a 5-foot concrete sidewalk on both sides.

The intent of the design alternatives is to accommodate the increased traffic demands on Sunset Lane and to accommodate multimodal use as the average daily traffic steadily increases on this roadway. The typical roadway sections are shown in Exhibit 1.

A constraint identified while developing the design alternatives is that the existing right of way is 50 feet wide. The 50-foot right of way limits the pavement width to 34-feet when including construction of curb and gutter with sidewalk on both sides of the roadway. The 3-lane typical cross section width is 48 feet wide, leaving only 1 foot on each side of the road to match grades and handle drainage. The majority of the area adjacent to Sunset Lane is developed and several homes are fairly close to the existing road with structures (i.e. fences) in the right of way. The parcels next to the roadway are lower than the existing road with the exception of a few on the far west side of the project near Prescott East Highway. This is especially apparent on the south

side of Sunset Lane which is elevated higher than the north side of the road due to the natural terrain of the area draining from south to north. The south side of the road acts much like a dam due to its elevated state, trapping water on the south side of the roadway. There are only three places for the water to cross from the south side of Sunset Lane to the north side; these crossings occur midway between Treasure Drive and Pima Drive, at Starlight Drive, and at Pine View Drive.

A traffic model using the latest SYNCHRO software was established to evaluate the performance of the alternatives. The following data was used for the model:

DESIGN DATA AND ASSUMPTIONS

TYPE OF ROADWAY:	MAJOR COLLECTOR
RIGHT OF WAY WIDTH:	50 FT
DESIGN SPEED:	25 MPH
GROWTH RATE:	2.7%
OFF-PEAK ADJUSTMENT FACTOR:	13.5%
FUTURE SCENARIOS:	5, 10, 15, 20 YEAR
TURN LANES REQUIRED:	BASED ON 20 YEAR FUTURE VALUES
TYPICAL CROSS SECTION:	2 LANES (EXHIBIT 1)
	2 LANES WITH LEFT TURN LANES (EXHIBIT 1)
	3 LANES (EXHIBIT 1)

Traffic data was collected on 6/09/15 and 6/10/15 to populate the traffic model. Turning movement counts were conducted during the AM period (7:30AM to 8:30AM) and the PM period (3:30PM to 5:00PM). Tube counters were placed on the road to record approximate through movement traffic volumes to populate the model during these time periods.

Off-Peak to On-Peak Adjustment Growth Factor

Due to starting the traffic model after school was out in June of 2015, it was necessary to adjust the counts to a value that would be representative of during the school year, i.e. peak values. Utilizing past counts along Sunset Lane (June 2014 versus April 2015), it has been determined that peak counts are approximately 13.5% higher than during non-peak periods. Because of this, all counts that were taken by Yavapai County staff to input into the traffic model will be increased by the adjustment factor of 13.5%.

Trip Generation Data

Since school was not in session during the data collection period of this analysis, trip generation data was utilized to formulate assumed trips and routes. The additional trips were added into the AM peak condition in conjunction with the 13.5% increase to ADT values in order to better

simulate what would happen during the AM peak hour. In the area of Sunset Lane there are two schools which could generate traffic along and through the roadway. Data compiled from the ITE Trip Generation 7th Edition is shown below. Enrollment numbers were compiled from information available on both schools websites.

Name	Lake Valley
Land Use	Elementary School
LU #	520
Units	Student
# of Units	500
Factors	
Weekday	1.29
Enter %	50
AM Peak	0.42
Enter %	55
PM Peak Generator	0.28
Enter %	45
Trips	
Weekday	**645**
Inbound	*323*
Outbound	*323*
AM Peak	**210**
Inbound	*116*
Outbound	*95*
PM Peak Generator	**140**
Inbound	*63*
Outbound	*77*

Name	Franklin
Land Use	Elementary School
LU #	520
Units	Student
# of Units	500
Factors	
Weekday	1.29
Enter %	50
AM Peak	0.42
Enter %	55
PM Peak Generator	0.28
Enter %	45
Trips	
Weekday	**645**
Inbound	*323*
Outbound	*323*
AM Peak	**210**
Inbound	*116*
Outbound	*95*
PM Peak Generator	**140**
Inbound	*63*
Outbound	*77*

Table 3. ITE Trip Generation Information

Routing

The trips generated by the schools have been routed according to population in the area, other major roadways leading to the schools, and ease of access. It has been assumed that 25% of the trips generated by Lake Valley occur north of Sunset Lane and will have no impact on Sunset Lane. Of the trips generated to Franklin, it has been assumed that 70% utilize alternative routes that do not impact Sunset Lane. This is due to the proximity of the school to Highway 69 and the multiple alternative routes that could be utilized.

Based on these assumptions, during the AM peak, Lake Valley will generate 158 trips (87 inbound, 71 outbound) and Franklin will generate 64 trips (35 inbound, 29 outbound). These

trips have been assigned along Sunset Lane in the AM peak condition utilizing Starlight Drive as the main path of travel.

The results of the SYNCHRO traffic model are in the Appendix as Exhibit 3.

DESIGN ALTERNATIVES

Design Alternative One: Two-Lane Road

Design alternative one is a two-lane road. This cross section will have two 11 foot lanes with curb and gutter and a 4 foot unpaved shoulder behind the curb on both sides of the road. See Exhibit 1 for the typical cross section and Exhibit 2 sheets 5-9 for the plan views.

Design alternative one has the smallest impact to the adjacent parcels. The road width will be reduced from an average width of 26 feet in the County's portion and 24 feet in the Town's portion to a 22 foot overall pavement width. Reducing roadway width has proven to provide a traffic calming effect; this is beneficial as the 85th percentile speed is around 31 mph in a 25 mph zone. There will be curb and gutter with this alternative which will help driver comfort considering the reduction in paved roadway width. The unpaved shoulder behind the curb on both sides of the roadway is composed of compacted AB and decomposed granite material. As designed, the unpaved shoulders provide for multimodal use along the roadway. The curb and gutter will allow for some separation between vehicles and pedestrians.

Since drainage will be a key component for any improvements that will occur for Sunset Lane, alternative one includes optional costs for curb and gutter with a storm drain network. In addition to the storm drain network, there is potential need to acquire additional drainage easements beyond the existing 50-foot right of way. Depending on the final drainage design and how water will be collected, drainage easements could be up to 7-feet in width (in the County) and 15-feet (in the Town) for alternative one. See the Decision Matrix section for more information on the necessity and planned use for these easements.

The existing road network along Sunset Lane provides numerous intersecting routes that can disperse vehicles to other parts of the network if delays from turning vehicles become excessive at intersections. Although dispersing traffic can improve the network if turn lanes do not exist, the traffic detours could generate higher volumes of traffic along residential streets that are utilized by non-local through traffic.

Alternative One will have minimal impact on improving current traffic conditions. However, this alternative provides improvement for multi-modal use, by separating the roadway with curb and gutter from the unpaved shoulder.

Design Alternative Two: Two-Lane Road with Left-Turn Options

Design Alternative Two is a two-lane road with 11 foot lanes and 11 foot left turn lanes at Prescott East Highway (west bound) and Starlight Drive (both east and west bound) intersections. The road width will be 22 feet and then widened at the above mentioned intersections to 33 feet. The road will have curb and gutter and a 4-foot unpaved shoulder on both sides of the road behind the curb. See Exhibit 1 in the appendix for the typical cross section and Exhibit 2 Sheets 10-14 for plan views.

The left turn lanes were designed using information gathered in a traffic study conducted by Yavapai County in the spring/summer of 2015 and the ADOT Traffic Engineering Guidelines and Processes, Section 400, dated June 2015. The design assumptions were the following:

Type of Widening:	Symmetrical Widening
Width of the added Lane:	11 FT
Posted Speed of existing Roadway:	25 MPH
Gap Length:	60 FT
Braking Distance:	80 FT
Queue Length Starlight Drive:	50 FT (2 Cars)
Queue Length Prescott E. Highway:	200 FT (8 Cars)

The information from the traffic study was then used to look at each intersection to determine whether a left turn lane was warranted. The study found that the majority of the intersections had minimal turning movements and did not impede traffic to the point that a left turn lane was necessary. However, the study did show that a left turn lane at the Prescott East Highway and Starlight Drive Intersections would benefit the road in the future and help maintain traffic flow. Supporting documentation for the traffic study is included in Exhibit 3 of the appendix.

Drainage for this option includes curb and gutter with a storm drain network. In addition to the storm drain, there will be a 7-foot wide drainage easement (in the County) and a 15-foot wide drainage easement (in the Town) for specific locations requiring it along the south side of Sunset Lane. The Decision Matrix drainage section contains more information on the necessity and planned use for this easement.

The additions of a left turn lane at Prescott East Hwy and Starlight Drive ensure that right turning and through movements are not impeded at the intersection and that queuing is provided for left turns independent of other movements. This should improve the level of service of this intersection. As stated above for alternative one, preservation of the two-lane section for the majority of Sunset Lane will provide the benefits of traffic calming and a multi-modal component to the corridor.

Alternative Two is a mixture of alternative one and three. The traffic study demonstrated that the majority of the connecting streets on Sunset Lane experience minor turning movements and that the Prescott East Highway and Starlight Drive Intersections are the only intersections that would warrant a left turn lane in the future 20-year scenario. It is the County's opinion that by adding a left turn lane at the intersections of Prescott East Highway and Starlight Drive optimizes both the impacts to surrounding properties and increases safety and level of service.

Design Alternative Three: Three-Lane Road

The cross section for design Alternative Three is a three-lane roadway consisting of two 12-foot lanes and a 10-foot continuous left turn lane. This cross section includes curb, gutter, and a 5-foot sidewalk on both sides. The existing road is elevated enough that the new sidewalk will be higher than the existing ground at the property line. A small retaining wall will need to be constructed under the back side of the sidewalk for support. The wall will vary in height and is dependent upon elevation difference with the existing ground. See Exhibit 1 sheet 2 for the typical cross section and Exhibit 2 sheets 15-19 for the plan views. The Town of Prescott Valley has standards for typical street sections and this alternative matches their collector street-minor typical section the best. The Prescott Valley collector standard includes 5-foot bike lanes next to the travel way and requires a 60-foot right of way. Since Sunset Lane only has a 50-foot right of way, the 5-foot bike lanes were deleted from Alternative 3 with the concurrence of the Town (refer to Exhibit 8). As mentioned previously, Sunset Lane is currently built up or is higher than the surrounding areas. This constraint along with the road width fitting into the existing right of way (the proposed road width is 48-foot and the existing right of way is 50-foot) results in a situation where a retaining wall will be required for the majority of the project. This retaining wall allows for the road not to be lowered (little to no impact on existing utilities), minimal change to existing drainage conditions (the road currently acts as a dam and a weir and lowering the road would result in more flooding downstream to the north), and the ability for the project to stay in existing right of way. Without a retaining wall to make up the elevation difference between the sidewalk and the private properties, more right of way would be required.

Alternative Three incorporates sidewalks throughout the length of the project and since the county does not maintain or construct sidewalks, an agreement would be proposed for the Town to maintain the sidewalk in the Town and County portion.

Drainage management for this alternative, like the others, includes curb and gutter with a storm drain network. Depending on the final drainage design and how water will be collected there could be up to approximately 10-feet in width (in the County) and 20-feet in width (in the Town) for drainage easements in Alternative Three.

A three-lane section provides different benefits from the other alternatives including separation of opposing traffic lanes and providing turning locations for all intersections and midblock turns which should eliminate left turn blockages along the corridor and reduce rear end collisions. Queue lengths along Sunset Lane for turning vehicles will be reduced and could accommodate larger events that may occur at schools in the area. The sidewalks provide a multimodal component for the length of the corridor and would connect to similar improvements east of Pine View Drive. Alternatives Three and Four provide the best level of service of the four options, however, a three-lane section may provide less traffic calming due to the wider cross section. The third lane increases the distance across the road that pedestrians, bicyclists and vehicles will have to cross at some of the minor intersections. Alternatives Three and Four are the most expensive and impact the surrounding area the most. There are several properties where fences will need to be relocated and/or raised to mate with the sidewalk and retaining wall. More extensive public outreach and coordination will be needed if this alternate is chosen.

Design Alternative Four: Lowered Three-Lane Road

The cross section for design Alternative Four is a three-lane roadway consisting of two 12-foot lanes and a 10-foot continuous left turn lane. This cross section includes curb, gutter, and a 5-foot sidewalk on both sides. For this alternative, the roadway will be lowered to closely match the existing grade and almost completely eliminate the need for retaining walls. This roadway cross-section and plan view mirrors those of Alternative Three and can be seen in Exhibit 1 sheet 2 and Exhibit 2 sheets 15-19 respectively. This cross section also follows a modified collector standard with the deletion of the bike lanes from the typical Prescott Valley collector standard.

To lower the roadway and eliminate the need for retaining walls, removal of the existing roadway structure is required. This removal may require significant effort for utility relocation and will have a dramatic impact on the existing drainage which may cause more flooding on the north side of the roadway. It is recommended that a very careful look at the drainage and current patterns be established. An extensive drainage report should be taken into consideration. A careful and planned drainage improvement will help in avoiding the potential for future flooding concerns. While lowering of the roadway minimizes the need for retaining walls, additional drainage accommodations will need to be made to direct flow into the storm drains.

Alternative Four also incorporates sidewalks throughout the length of the project and since the county does not maintain or construct sidewalks, an agreement would be proposed for the Town to maintain the sidewalk in the Town and County portion.

Drainage management for this alternative, like the others, includes curb and gutter with a storm drain network. Depending on the final drainage design and how water will be collected there could be up to approximately 5-feet in width (in the County) and 5-feet in width (in the Town) for drainage easements in Alternative Four.

Similar to Alternative Three, a three-lane section provides benefits such as separation of opposing traffic and providing turning locations for all intersection and midblock turns. This benefit would eliminate left turn blockages along the corridor and reduce rear end collisions. Queue lengths will likely be confined to the two-way left-turn lane which would accommodate larger events which may occur at schools in the area. Pedestrians, bicyclists, and vehicles will have increased crossing distances at some of the minor intersections. Existing property fences encountered along the length of the project may need to be relocated although will not need to be raised for this alternative. Similar to Alternative Three, this option will require extensive public outreach and coordination if it is chosen.

Decision Matrix

The following decision matrix will be used to rate the alternatives within this study. The decision matrix used the following categories to rate the alternatives:

- Impact on Surrounding Area
- Level of Service
- Pedestrian Access
- Drainage
- Maintenance
- Cost

Impact on Surrounding Area

This category depicts the impact the road width will have on the existing neighborhood. Alternative One has minimal impact to the surrounding area. Alternative Two will have moderate impact where the road is being widened to accommodate the left turn lanes and Alternatives Three and Four will have significant impacts.

Level of Service

Level of service, as described above, is a qualitative measure used to relate the quality of traffic service to the observed or future conditions. Refer to the project description section of this report for an explanation of level of service.

Currently, the corridor is functioning at a level of service “A” but there is good potential in future years that growth in the general area accessing this roadway may be at a higher rate than what normally would be seen with a linear growth rate. The alternatives provide a successively better level of service with higher costs reflecting better service levels as shown in Alternatives Three and Four which have the best overall service level.

Alternative One will provide the lowest improvement of level of service for Sunset Lane. Twenty years into the future the intersection at Prescott East Highway shows a drop to level of service E. This level of service drop is due to left turn movements which impede/stop traffic due to no left turn lane and increased vehicular volume. Starlight Drive maintains a level of service A throughout the SYNCHRO model runs, decreasing to level of service E only in the southbound approach at the 20-year mark.

Alternative Two provides a level of service increase to C at the 20 year mark for Prescott East Highway. Starlight Drive maintains the same level of service and still has a level of service E in the southbound approach. Advancing and opposing volumes are such that left turn lanes at Starlight Drive are still recommended due to high turns occurring at this intersection.

Alternatives Three and Four will provide a level of service very similar to Alternative Two at the identified intersections of Prescott East Highway and Starlight Drive. The continuous turn lane for the length of the roadway does provide an additional benefit by providing a turning area for driveway turning movements and all other intersections.

Pedestrian Access

Currently, there is poor pedestrian access along Sunset Lane. Pedestrians are forced to walk on narrow shoulders with minimal pedestrian-vehicle separation. All four alternatives address this issue. Options One and Two have separation with curb and gutter and a 4 foot unpaved shoulder behind the curb. This shoulder will be compacted and utilize decomposed granite or similar materials. Alternatives Three and Four will have separation with curb and gutter and a 5 foot sidewalk.

Drainage

All four alternatives include estimates for the addition of a storm drain network. The likelihood of needing to acquire additional drainage easements for Alternative One versus Alternatives Two, Three, and Four is greatly reduced.

The size of the drainage easements were based on the amount of existing right of way that can be utilized for drainage purposes as well as the current drainage issues on the road. Alternatives Three and Four have the least amount of existing right of way remaining that can be utilized for drainage purposes with Alternative Three requiring the largest easement. A drainage easement for all four options was deemed necessary after drainage issues were observed in a major storm event that occurred in July 2015. The County has video documentation of this event and is available upon request. During this event there was flooding and ponding all along Sunset Lane. There are only three places for the water to cross from the south side of Sunset Lane to the north side; these crossings occur midway between Treasure Drive and Pima Drive, at Starlight Drive, and at Pine View Drive. The area impacted most by the storm event was the east end of Sunset Lane within the Town of Prescott Valley limits. The intersection of Sunset Lane and Starlight Drive (which is also the Town and County Line) is where the drainage separates. The flow on the County side flows to the west into Prescott East Wash midway between Treasure Drive and Pima Drive. The flow on the Town's side goes to the east and ends up in a large channel between Pine View Drive and the Kohl's department store. Observation during the storm showed the heaviest flooding within the Town's portion of Sunset Lane, with flooding and ponding

primarily on the south side of the road. In general, Sunset Lane is elevated above the adjacent properties. The south side of the road acts much like a dam due to its elevated state, trapping water on the south side of the roadway. This requires the drainage easement for the Town's portion to be wider than on the County's side. The square foot cost to acquire a drainage easement is based on the current property values and is estimated to be around $1.00/ft^2. The information that was used for the property valuation cost estimate is located in Exhibit 7.

As mentioned it is suggested that a drainage study be conducted in conjunction with final design. Yavapai County Flood Control District has completed a master drainage study for a portion of the corridor done in 2011 by Dubroy Engineering. Utilizing this drainage study along with an in depth drainage study/plan will indicate proper storm drain sizing and routing of water into the storm drain network. It will also determine precise locations for storing water and with a storm drain system in place exactly where and how much of a drainage easement is necessary.

Maintenance

Currently, the county does not construct or maintain sidewalks. If sidewalks are part of the project the County would like to explore opportunities to develop an agreement between the County and the Town for the Town to be responsible for maintaining the sidewalks and handrails from Prescott East Highway to Pine View Drive. For Alternatives One and Two which have an unpaved shoulder instead of sidewalk, the county and the Town will be responsible for maintaining their respective portions.

Alternative Three includes retaining walls and handrails along the length of the project which must also be maintained. Alternative Four, by lowering the road, almost eliminates the need for maintenance of these elements in the future.

Cost

A major factor between all of the alternatives is cost. The addition of sidewalk and retaining walls to Alternative Three adds on roughly $450,000 and $1,900,000 respectively. Alternative Four eliminates a substantial amount of the cost of the retaining walls, but requires additional work of excavation, additional materials, and utility relocations. The cost estimate is located in Exhibit 5 of the appendix. Alternative One includes costs for sidewalk for the Town's portion as an additive alternate. Once an alternative has been selected it should be discussed as to whether or not the Town wants to incorporate sidewalk into their portion of the road. Sidewalk for the county portion will not be added without a maintenance agreement with the Town.

Matrix

Design Alternative	Impact on Surroundings	Level of Service	Pedestrian Access	Drainage	Maintenance	Cost	Total Score
One	**8**	**2**	**8**	**6**	**6**	**8**	**38**
Two	**6**	**8**	**8**	**6**	**6**	**6**	**40**
Three	**2**	**10**	**10**	**2**	**2**	**2**	**28**
Four	**4**	**10**	**10**	**2**	**4**	**4**	**34**

** Ranking = Least Desirable (+2), Less Desirable (+4), Neutral (+6), Desirable (+8), Most Desirable (+10)*

RESULTS AND RECOMMENDATIONS

Yavapai County Public Works staff recommends Alternative Two for the County portion of the roadway from Starlight Drive to Prescott East Highway. This Alternative is cost effective and improves the roadway for future traffic growth within the County portion of the corridor. Further discussions with the Town of Prescott Valley should be conducted to determine their preferred Alternate and whether a 5-foot sidewalk is added to the entire corridor.

To be added…..

APPENDIX

Exhibit 1 – Typical Roadway Sections

Exhibit 2 – Construction Plan Sheets

Exhibit 3 – Synchro Traffic Model Analysis

Exhibit 4 –Left Turn Lane Calculation Worksheet

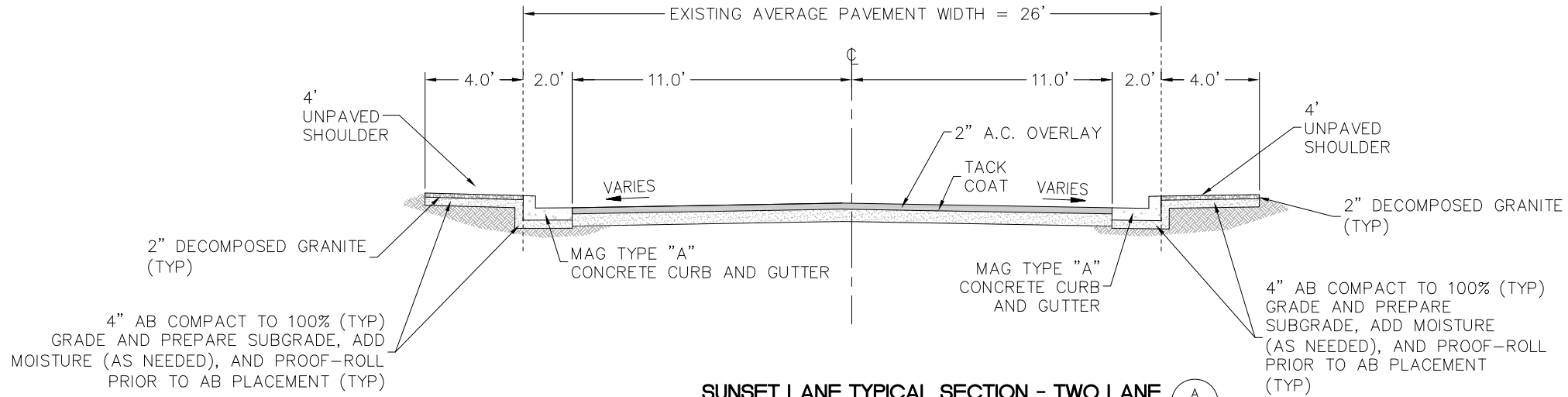
Exhibit 5 – Engineer's Estimates

Exhibit 6 – Geotechnical Report

Exhibit 7 – Property Value Comps

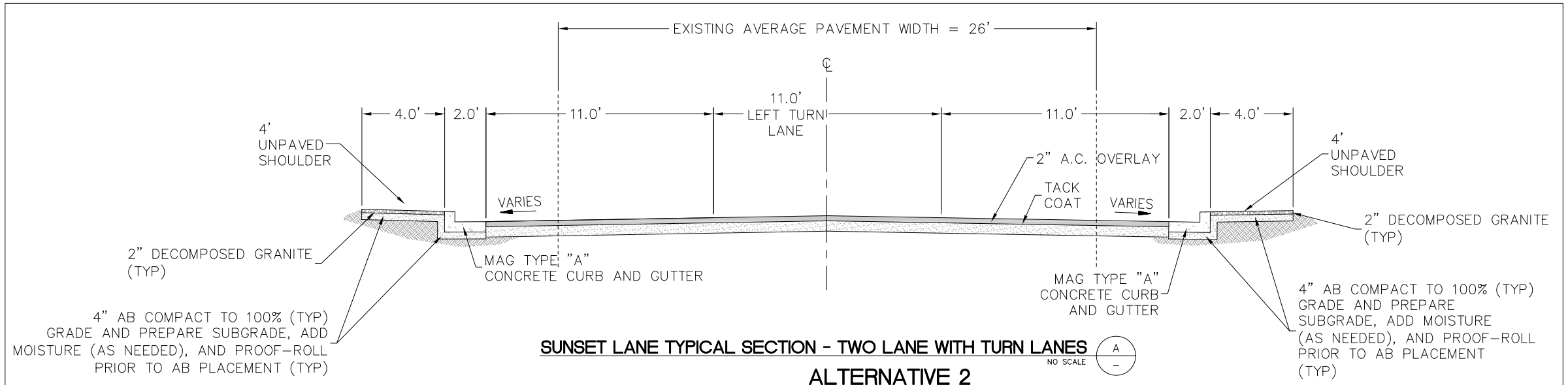
Exhibit 8 – Town of Prescott Valley Typical Street Sections

Exhibit 1 – Typical Roadway Sections



SUNSET LANE TYPICAL SECTION - TWO LANE (A / –)
NO SCALE

ALTERNATIVE 1



SUNSET LANE TYPICAL SECTION - TWO LANE WITH TURN LANES (A / –)
NO SCALE

ALTERNATIVE 2

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PROJECT NAME: SUNSET LANE WIDENING	PROJECT NUMBER: 14–20375
	DESIGN BY: RCS/RPM
	DRAWN BY: RCS
SHEET NAME: EXHIBIT 1 - TYPICAL CROSS SECTIONS	CHECKED BY: RPM/MW
	DATE: JAN 2016
	SHEET: 1 OF 2

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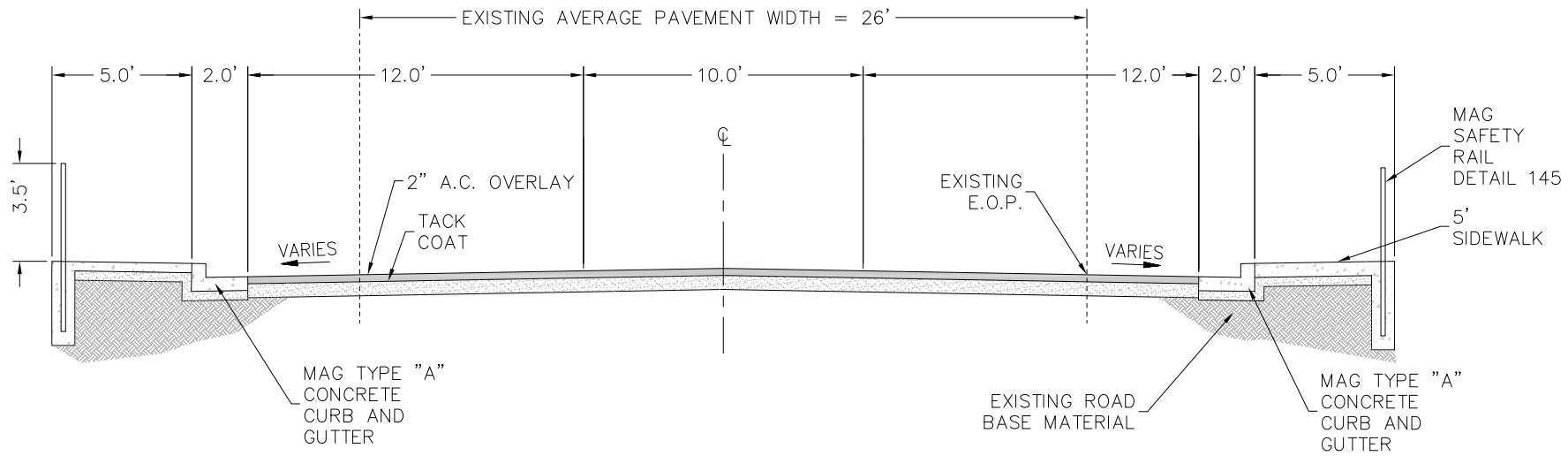
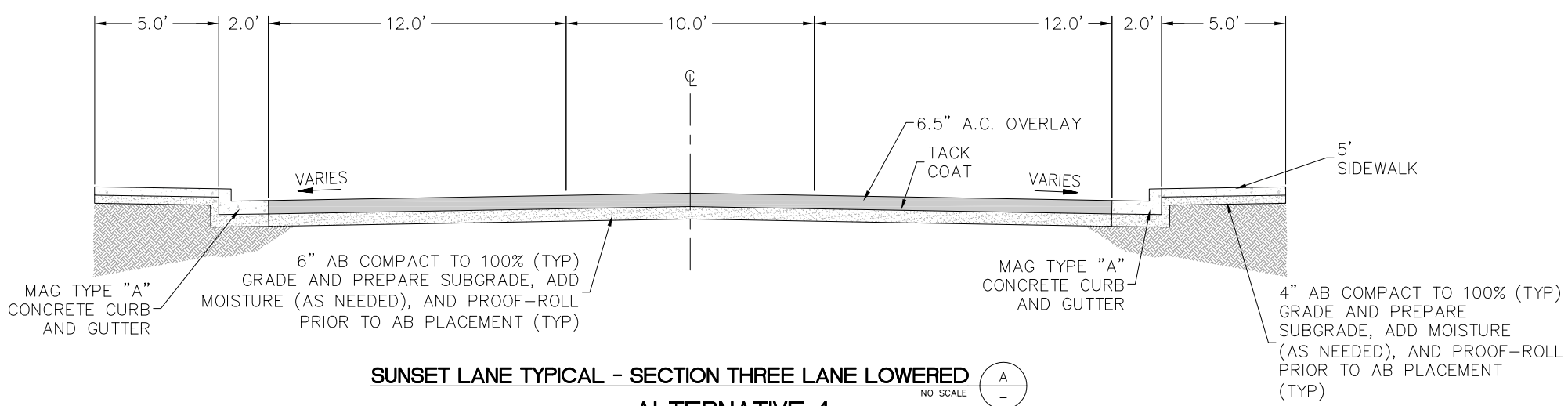


SUNSET LANE TYPICAL - SECTION THREE LANE (A / –)
NO SCALE

ALTERNATIVE 3



SUNSET LANE TYPICAL - SECTION THREE LANE LOWERED (A / –)
NO SCALE

ALTERNATIVE 4

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	CHECKED BY: RPM/MW
SHEET NAME: EXHIBIT 1 - TYPICAL CROSS SECTIONS	DATE: JAN 2016
	SHEET: 2 OF 2

PLOTTED: Jan 22, 2016-11:41am
FILE: F:\PW\Design-Construction_Projects\Sunset Lane Improvements -1420375\ACAD Files\03_DETAILS.dwg YAV-C3D-2015

Exhibit 2 – Construction Plan Sheets

SUNSET LANE
YAVAPAI COUNTY, ARIZONA
PROJ. # 14-20375

Sheet List Table	
Sheet Number	Sheet Title
01	COVER
02	NOTES AND VICINITY MAP
03	TYPICAL CROSS SECTIONS
04	2 LANE PLAN 0+00 – 10+00
05	2 LANE PLAN 10+00 – 20+27
06	2 LANE PLAN 20+27.00 – 30+53.00
07	2 LANE PLAN 30+53.00 – 40+79.00
08	2 LANE PLAN 40+79.00 – 45+23.28
09	LEFT TURN LANE PLAN 0+00 – 10+00
10	LEFT TURN LANE PLAN 10+00 – 20+27
11	LEFT TURN LANE PLAN 20+27.00 – 30+53.00
12	LEFT TURN LANE PLAN 30+53.00 – 40+79.00
13	LEFT TURN LANE PLAN 40+79.00 – 45+23.28
14	3 LANE PLAN 0+00 – 10+00
15	3 LANE PLAN 10+00 – 20+27
16	3 LANE PLAN 20+27.00 – 30+53.00
17	3 LANE PLAN 30+53.00 – 40+79.00
18	3 LANE PLAN 40+79.00 – 45+23.28

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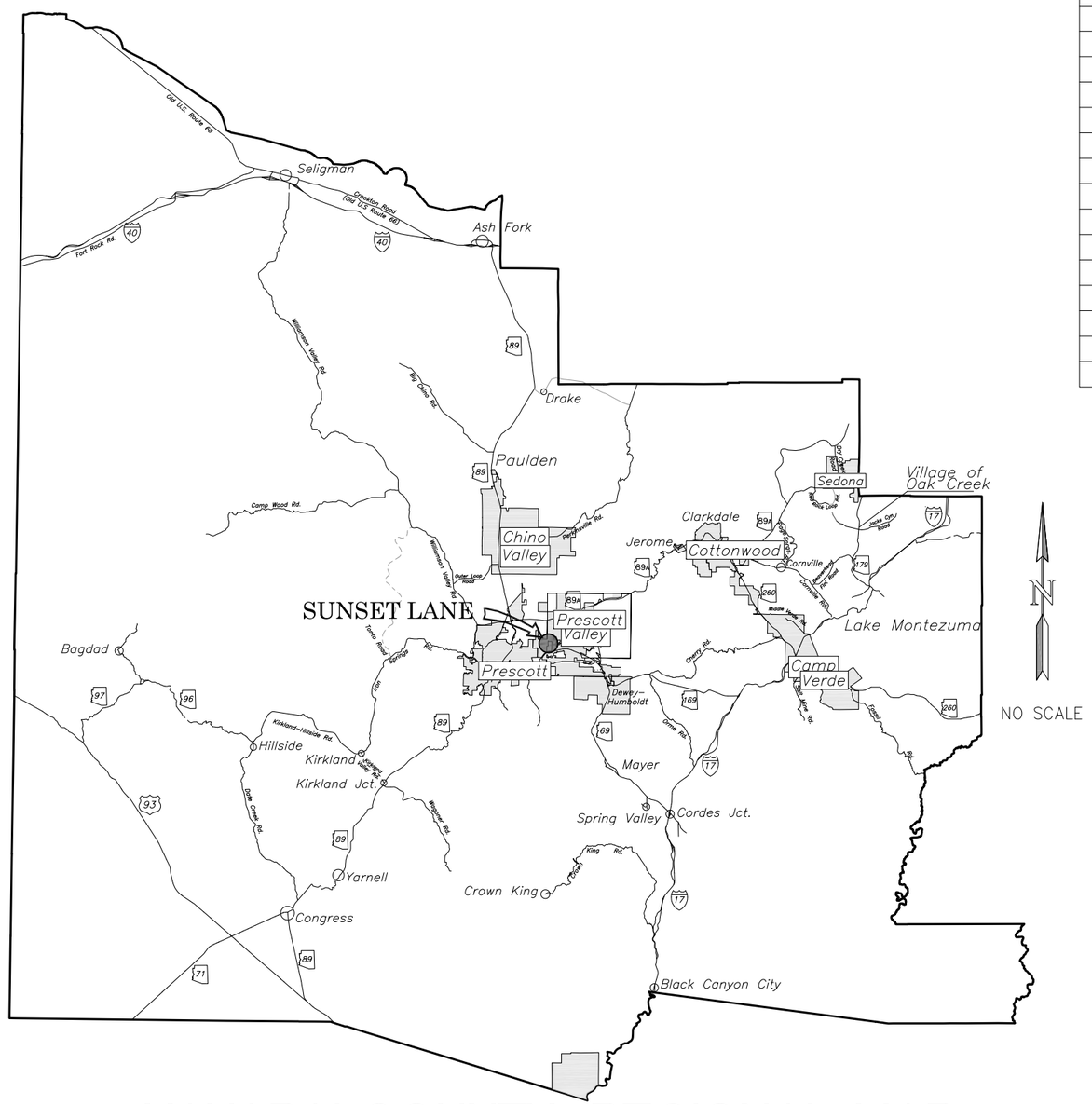

YAVAPAI COUNTY REGIONAL MAP

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14–20375
	DESIGN BY: KOB
	DRAWN BY: KOB
SHEET NAME: COVER	CHECKED BY: RPM
	DATE: JAN 2016
	SHEET: 01 OF 19

PLOTTED: Jan 21, 2016–11:12am

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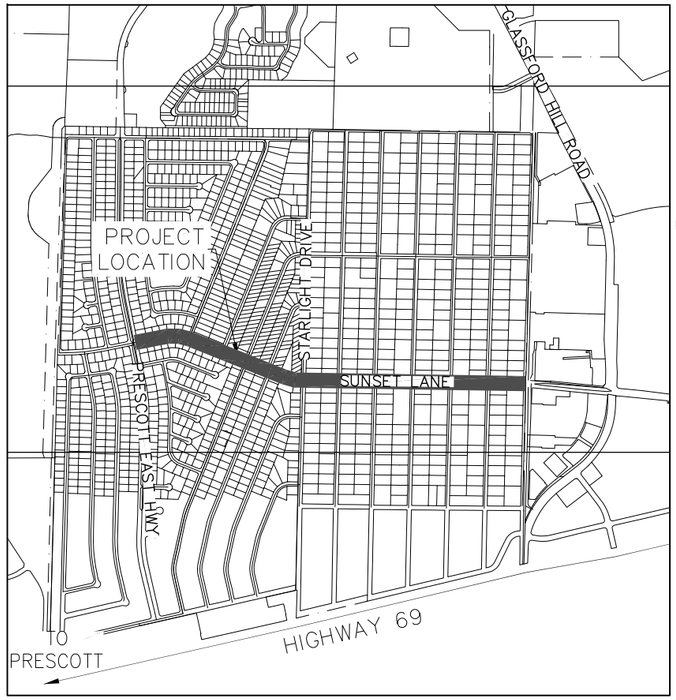

PROJECT VICINITY MAP

ESTIMATED QUANTITY NOTES

1. ALL QUANTITIES SHOWN ARE APPROXIMATE AND ARE FURNISHED SOLELY FOR THE CONTRACTOR'S CONVENIENCE. THEY DO NOT NECESSARILY CORRESPOND TO BID SCHEDULE ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING AND INTERPRETING THE COMPLETE CONTRACT DOCUMENTS AND SPECIFICATIONS PRIOR TO BIDDING.

ESTIMATED QUANTITIES

GENERAL NOTES

1. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL THOROUGHLY SATISFY HIMSELF AS TO THE ACTUAL CONDITIONS, REQUIREMENTS OF THE WORK AND EXCESS OR DEFICIENCY IN QUANTITIES, IF ANY. NO CLAIMS SHALL BE MADE AGAINST THE ENGINEER OR YAVAPAI COUNTY FOR ANY EXCESS OR DEFICIENCY THEREIN, ACTUAL OR RELATIVE. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPORT DISCREPANCIES, IF ANY, IN THE PLANS, AND OR FIELD CONDITIONS, IMMEDIATELY TO THE ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DISCREPANCIES NOT REPORTED AND RESOLVED.

2. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THESE PLANS.

3. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY USED DURING CONSTRUCTION UNLESS SPECIFICALLY ADDRESSED OTHERWISE. THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THAT HE WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

4. MAG AND ADOT STANDARD SPECIFICATIONS AND DETAILS (LATEST EDITION INCLUDING LATEST REVISION AND CURRENT SUPPLEMENTS THEREOF PER THE LOCAL JURISDICTION) ARE TO BE INCORPORATED INTO THESE PLANS IN THEIR ENTIRETY. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED IN THESE PLANS.

5. RESTORE PAINT STRIPING AS SHOWN PER EXISTING FIELD LOCATIONS AND LINE TYPE/COLOR. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING/LOCATING STRIPING PRIOR TO TRENCHING. STRIPING WIDTH SHALL MATCH EXISTING. INCLUDES ALL CENTERLINE, EDGE, STOP BARS, CROSS WALKS, SYMBOLS, ETC.

TEMPORARY EROSION CONTROL NOTES

1. TEMPORARY EROSION CONTROL SHALL BE ESTABLISHED BY THE CONTRACTOR AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL DESIGNATE A RESPONSIBLE PARTY WHO WILL ACT AS THE OPERATOR AND BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE EROSION CONTROL MEASURES.

2. THE OPERATOR SHALL MAINTAIN BEST MANAGEMENT PRACTICES (BMP) TO ELIMINATE THE POTENTIAL FOR DISCHARGES OF POLLUTANTS INTO STORM WATER EXITING THE SITE, INCLUDING THE DESIGNATION OF APPROPRIATE LOCATIONS, CONTROL AREAS FOR, BUT NOT LIMITED TO, EQUIPMENT MAINTENANCE AND REPAIR, RECEPTACLES FOR COLLECTION OF WASTE, EQUIPMENT WASH DOWN, THE STORAGE OF CHEMICALS, PAINTS, AND OTHER POTENTIALLY TOXIC MATERIALS, AND SANITARY FACILITIES.

3. THE CONTRACTOR SHALL MAINTAIN SUFFICIENT WATER SPRINKLING TO PREVENT DUST. DUST MITIGATION SHALL BE ACCOMPLISHED WITH A CONTINUOUS WATERING SCHEDULE DURING CONSTRUCTION OPERATIONS WHICH CREATE AIR BORN DUST ISSUES.

4. ALL TRUCKS HAULING MATERIAL INTO OR OUT OF THE CONSTRUCTION SITE SHALL BE TARPED.

UTILITY COMPANY NOTES

THE FOLLOWING LISTING OF COMPANIES REPRESENT UTILITIES THAT MAY EXIST IN THE AREA. SOME UTILITIES ARE SHOWN ON THESE PLANS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE OF ALL UTILITIES IN THE AREA AND NOTIFY BLUE STAKE AT LEAST 48 HOURS PRIOR TO INITIATING ANY CONSTRUCTION AT THE SITE. THE CONTRACTOR SHALL CALL (800) 782-5348 OR 811. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN ADVANCE OF EXCAVATING OR TRENCHING. THE ENGINEER WILL NOT GUARANTEE ANY ELEVATIONS OR LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.

LIST OF ABBREVIATIONS

ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION
AB	AGGREGATE BASE
AC	ASPHALTIC CONCRETE
AR-ACFC	ASPHALT RUBBER ASPHALTIC CONCRETE FRICTION COURSE
C	CENTER
CMP	CORRUGATED METAL PIPE
COP	CITY OF PRESCOTT
DWY	DRIVEWAY
EA	EACH
EOP	EDGE OF PAVEMENT
EP	END PRODUCT (ASPHALT REFERENCE)
EX	EXISTING
EXTN	EXTENSION
GAL	GALLON
HDPE	HIGH-DENSITY POLYETHYLENE PIPE
HZ	HORIZONTAL
L	LEFT
LF	LINEAR FEET
LS	LUMP SUM
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
MAX	MAXIMUM
MH	MANHOLE
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NO	NUMBER
NPI	NON-PAY ITEM
PVMNT	PAVEMENT
R	RIGHT
RCB	REINFORCED CONCRETE BOX
ROW	RIGHT OF WAY
SD	STANDARD DETAIL (OR STANDARD DRAWING)
SHT	SHEET
SPEC	SPECIFICATION
STA	STATION
SY	SQUARE YARD
TN	TON
TYP	TYPICAL (GENERALLY REPEATED WITHOUT ADDITIONAL LABELING)
W/	WITH
YC	YAVAPAI COUNTY

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	DESIGN BY: KOB
	DRAWN BY: KOB
	CHECKED BY: RPM
SHEET NAME: NOTES AND VICINITY MAP	DATE: JAN 2016
	SHEET: 02 OF 19

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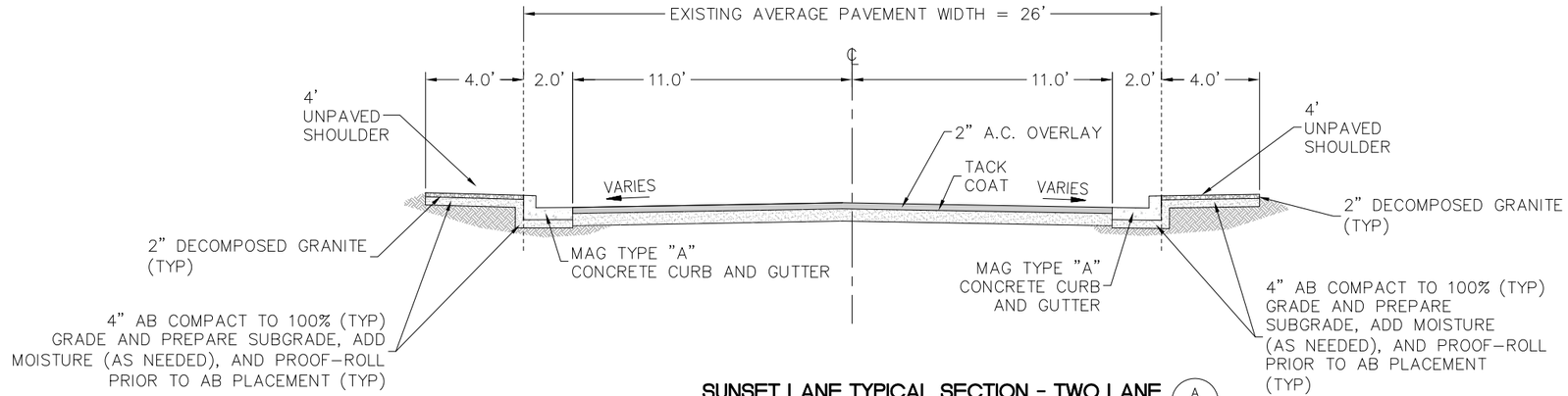
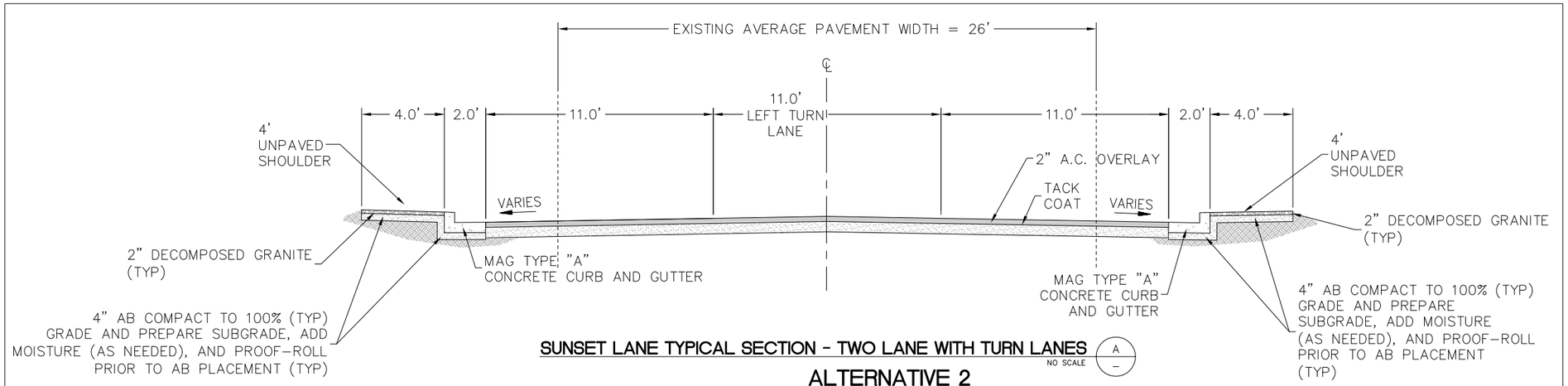


SUNSET LANE TYPICAL SECTION - TWO LANE (A / –)
NO SCALE

ALTERNATIVE 1



SUNSET LANE TYPICAL SECTION - TWO LANE WITH TURN LANES (A / –)
NO SCALE

ALTERNATIVE 2

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	DESIGN BY: RCS/RPM
	DRAWN BY: RCS
SHEET NAME: TYPICAL CROSS SECTIONS	CHECKED BY: RPM/MW
	DATE: JAN 2016
	SHEET: 03 OF 19

PLOTTED: Jan 21, 2016-2:56pm
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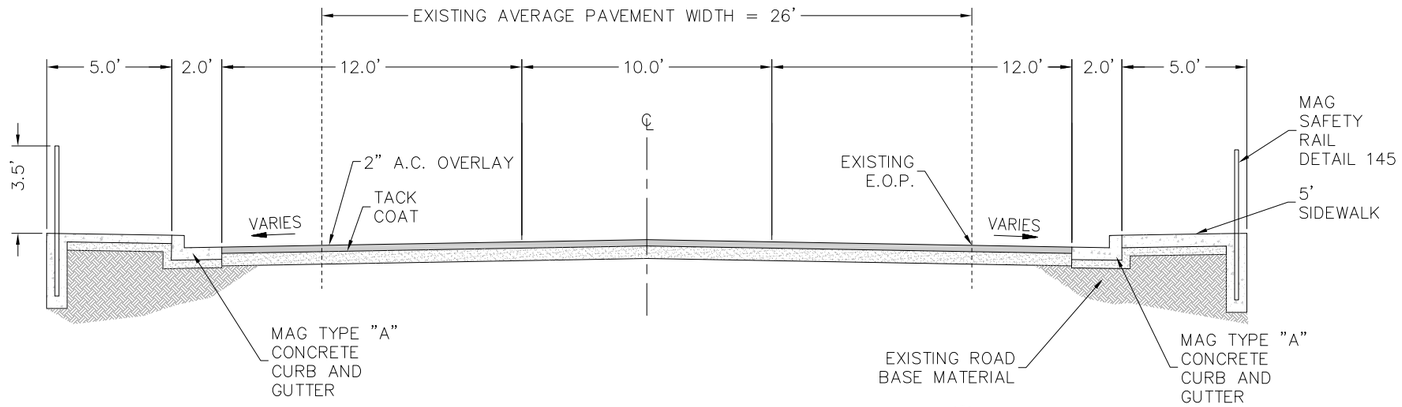
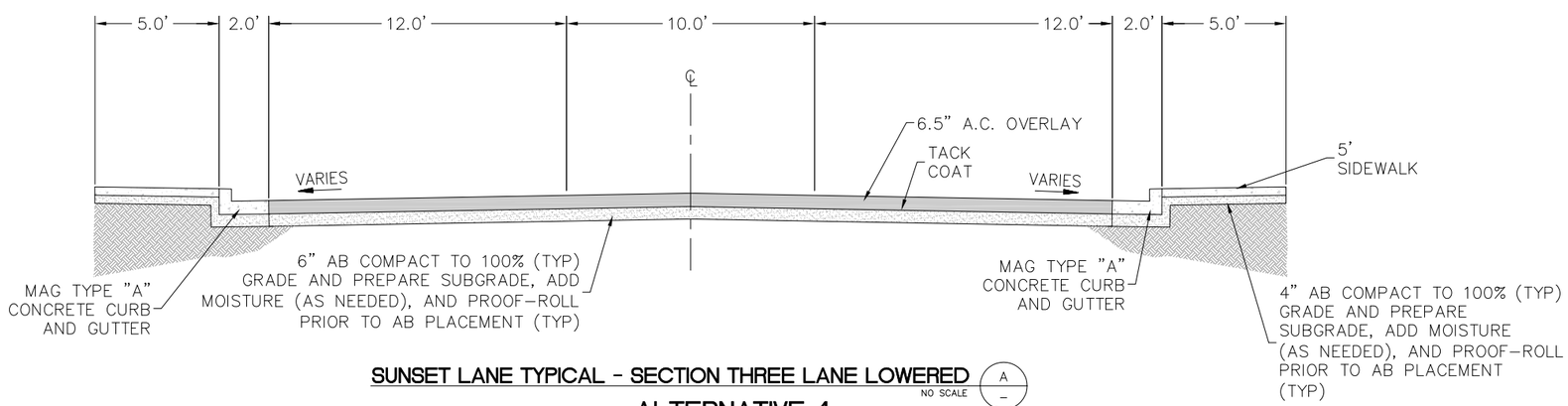


SUNSET LANE TYPICAL - SECTION THREE LANE (A / –)
NO SCALE

ALTERNATIVE 3



SUNSET LANE TYPICAL - SECTION THREE LANE LOWERED (A / –)
NO SCALE

ALTERNATIVE 4

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14-20375
	DESIGN BY: RCS/RPM
	DRAWN BY: RCS
	CHECKED BY: RPM/MW
SHEET NAME: TYPICAL CROSS SECTIONS	DATE: JAN 2016
	SHEET: 4 OF 19

PLOTTED: Jan 21, 2016-2:59pm
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LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
- EXISTING CENTERLINE BASED ON SURVEY AND PLATS
- 2 LANE DRAINAGE EASEMENT
- 2-FT CURB/GUTTER AND 4-FT UNPAVED SHOULDER

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 1420375
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
	CHECKED BY: RPM
SHEET NAME: TWO LANES	DATE: JAN 2016
	SHEET: 05 OF 19

PLOTTED: Jan 22, 2016-11:03am

FILE: F:\PW\Design-Construction_Projects\Sunset Lane Improvements -1420375\ACAD Files\04-05_PLANS - 2lane.dwg YAV-C3D-2015

LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
- EXISTING CENTERLINE BASED ON SURVEY AND PLATS
- 2 LANE DRAINAGE EASEMENT
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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: #######
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
SHEET NAME: TWO LANES	CHECKED BY: RPM
	DATE: JAN 2016
	SHEET: 06 OF 19

PLOTTED: Jan 22, 2016-11:06am
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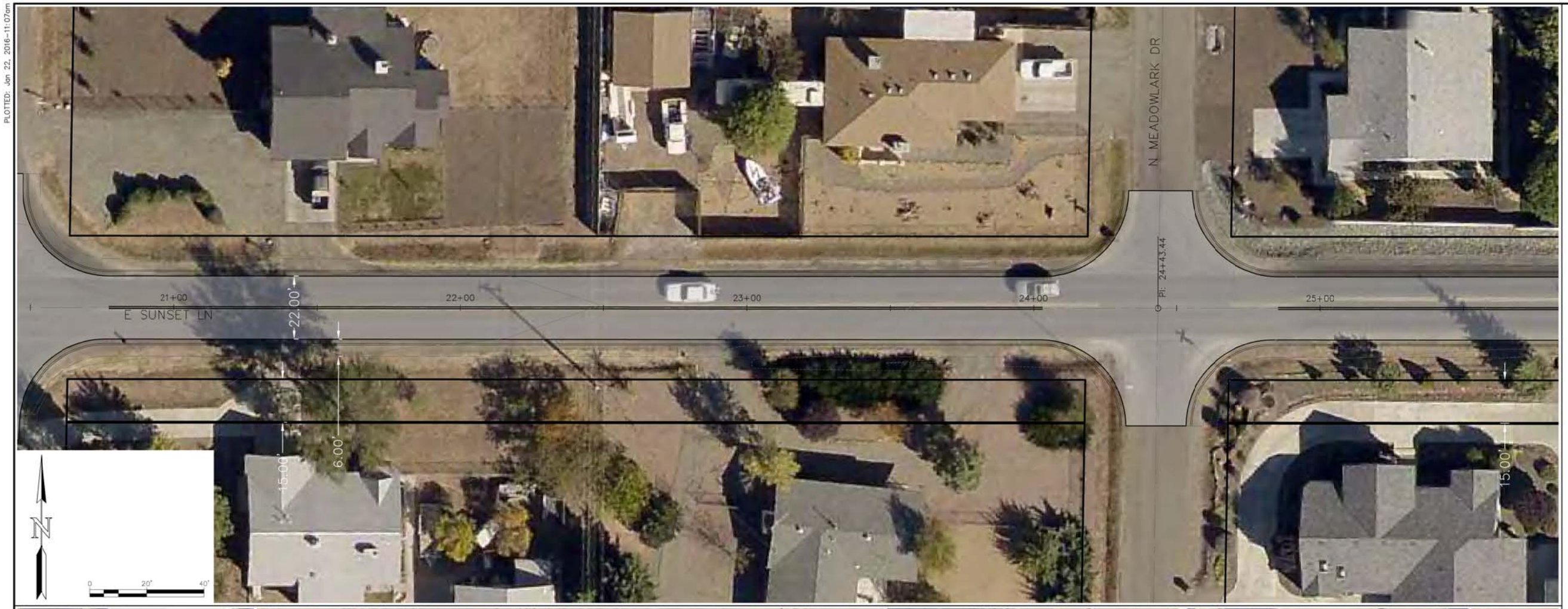

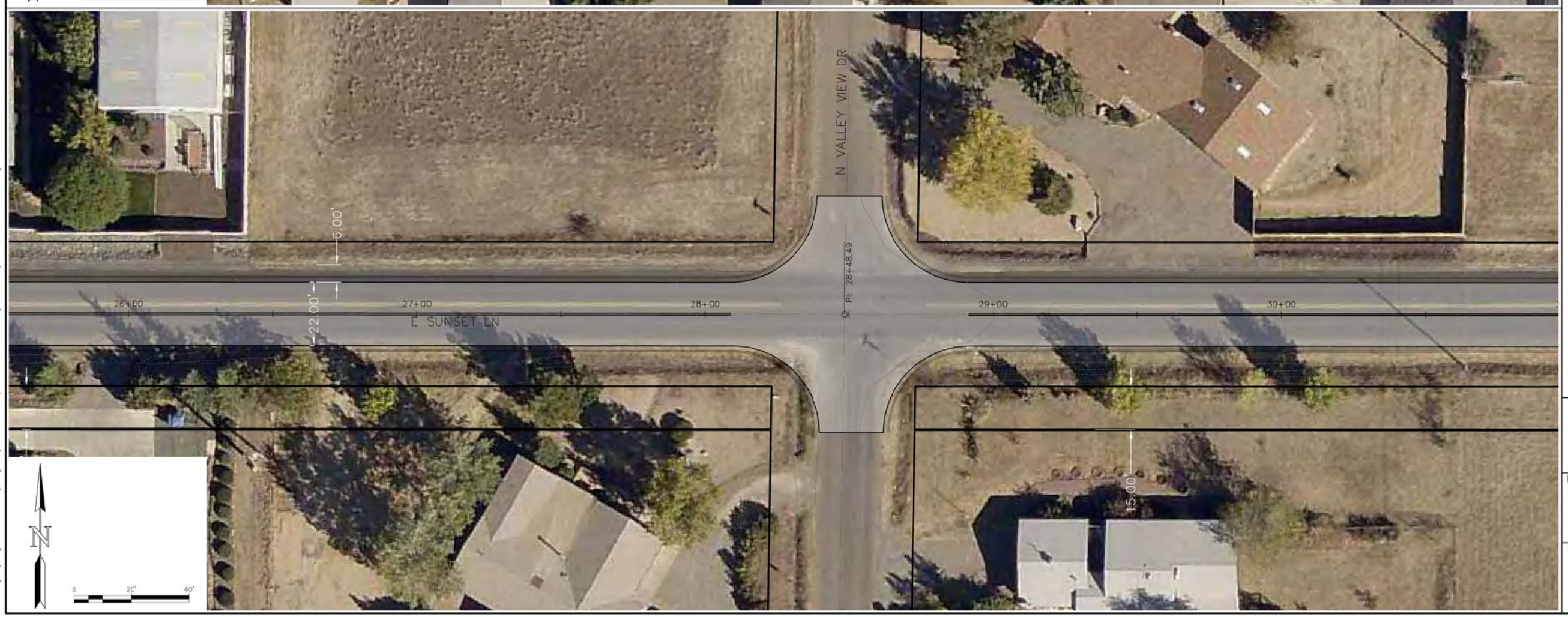

LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
- EXISTING CENTERLINE BASED ON SURVEY AND PLATS
- 2 LANE DRAINAGE EASEMENT
- 2-FT CURB/GUTTER AND 4-FT UNPAVED SHOULDER

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: #######
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
	CHECKED BY: RPM
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	SHEET: 07 OF 19

PLOTTED: Jan 22, 2016-11:07am
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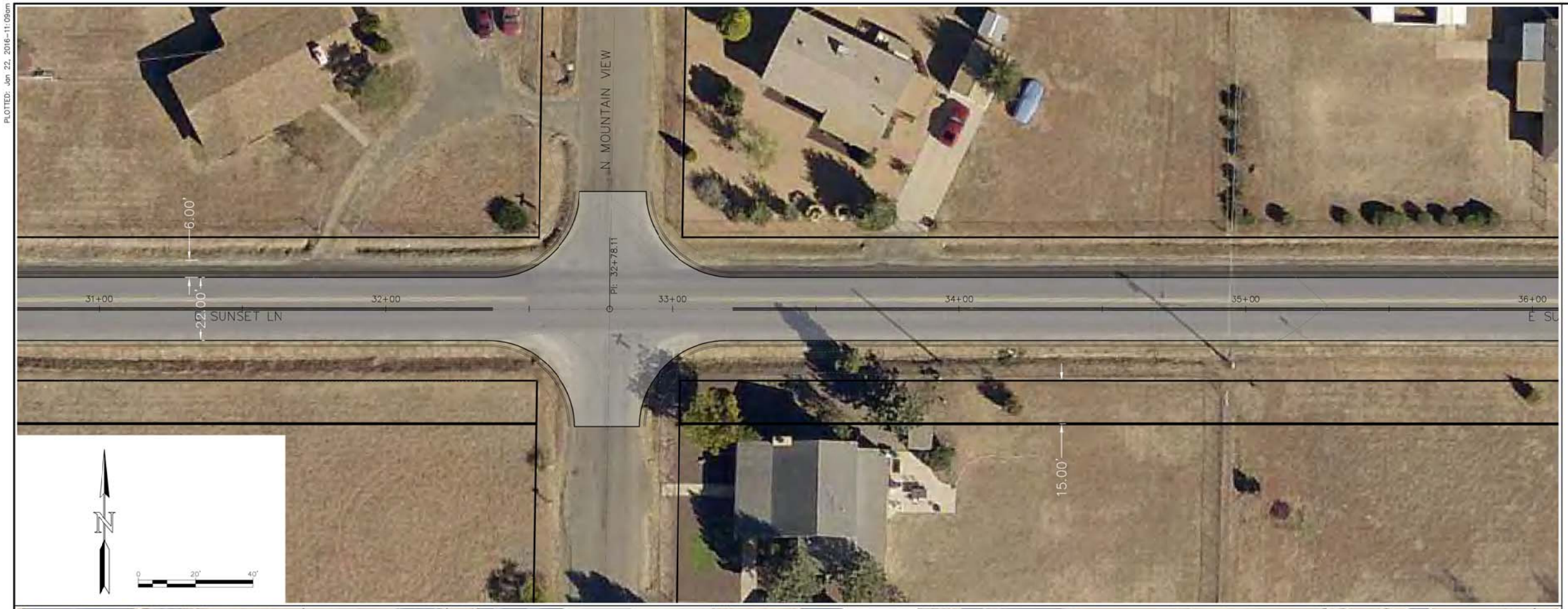

LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
- EXISTING CENTERLINE BASED ON SURVEY AND PLATS
- 2 LANE DRAINAGE EASEMENT
- 2-FT CURB/GUTTER AND 4-FT UNPAVED SHOULDER

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: #######
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
	CHECKED BY: RPM
SHEET NAME: TWO LANES	DATE: JAN 2016
	SHEET: 08 OF 19

PLOTTED: Jan 22, 2016-11:09am

FILE: F:\PW\Design-Construction_Projects\Sunset Lane Improvements -14203375\ACAD Files\04-05_PLANS - 2lane.dwg YAV-C3D-2015

LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
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- 2 LANE DRAINAGE EASEMENT
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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: #######
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
SHEET NAME: TWO LANES	CHECKED BY: RPM
	DATE: JAN 2016
	SHEET: 09 OF 19

PLOTTED: Jan 22, 2016-11:10am
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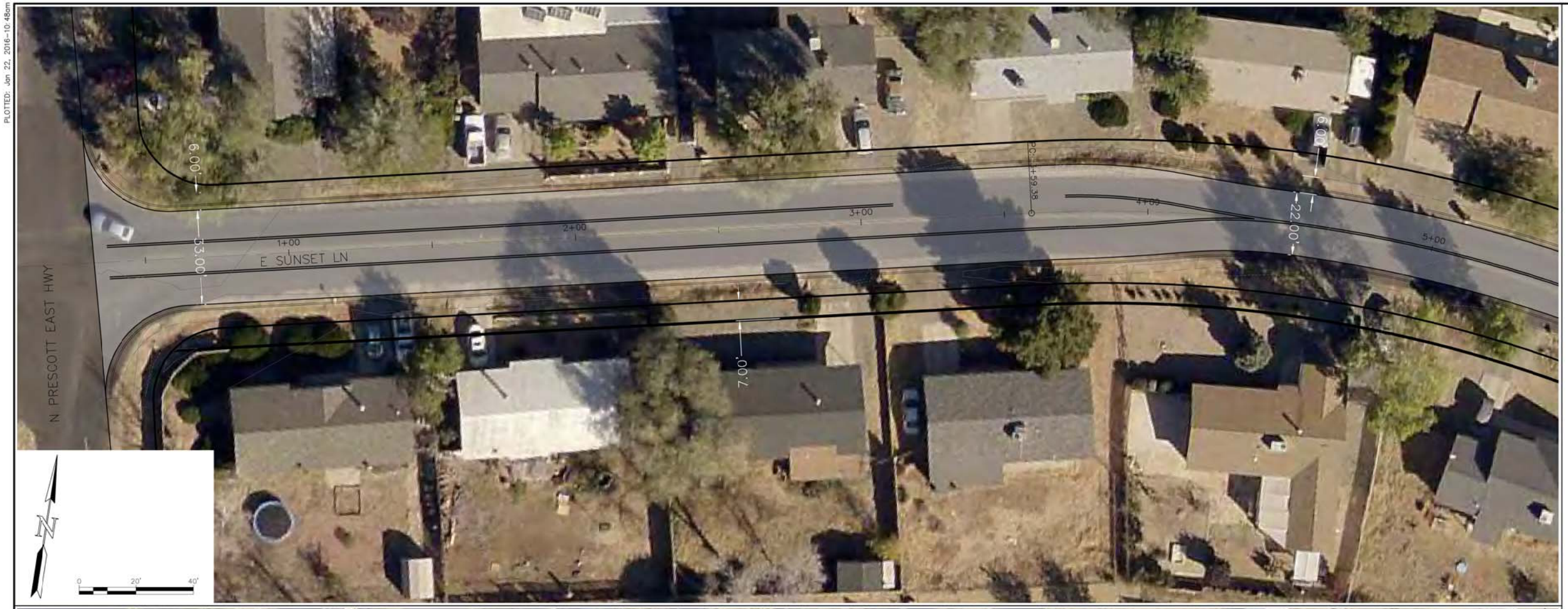

LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
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- 2 LANE DRAINAGE EASEMENT
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- 4-FT UNPAVED SHOULDER

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14-20375
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
	CHECKED BY: RPM
SHEET NAME: TWO LANES W/ LEFT TURN LANE	DATE: JAN 2016
	SHEET: 10 OF 19

PLOTTED: Jan 22, 2016-10:48am
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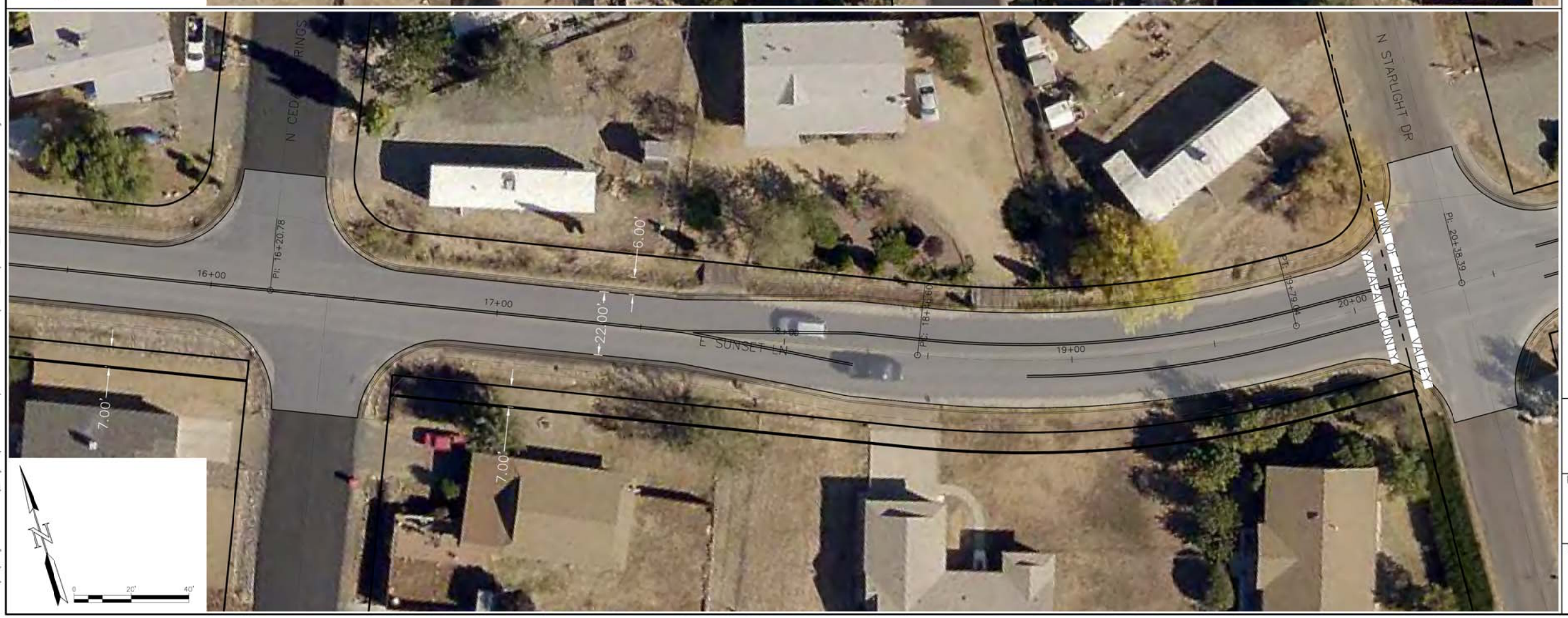

LEGEND

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14-20375
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
SHEET NAME: TWO LANES W/ LEFT TURN LANE	CHECKED BY: RPM
	DATE: JAN 2016
	SHEET: 11 OF 19

PLOTTED: Jan 22, 2016-10:49am
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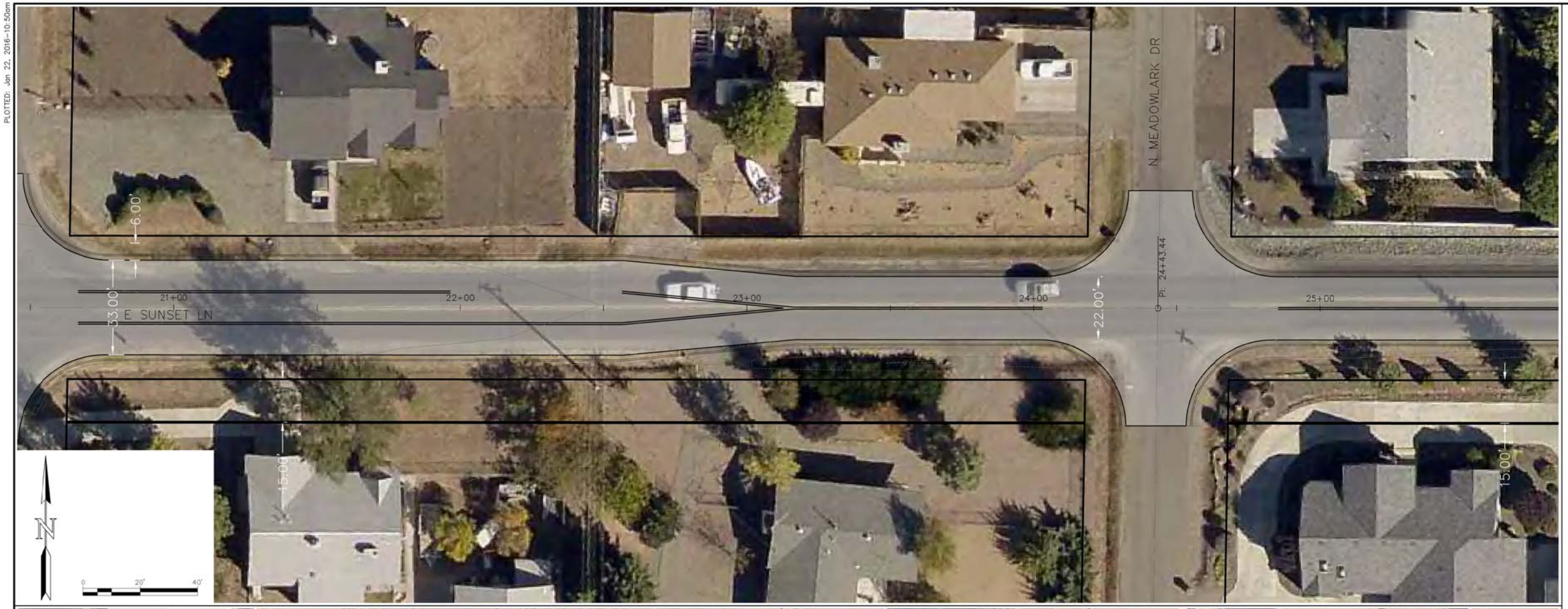

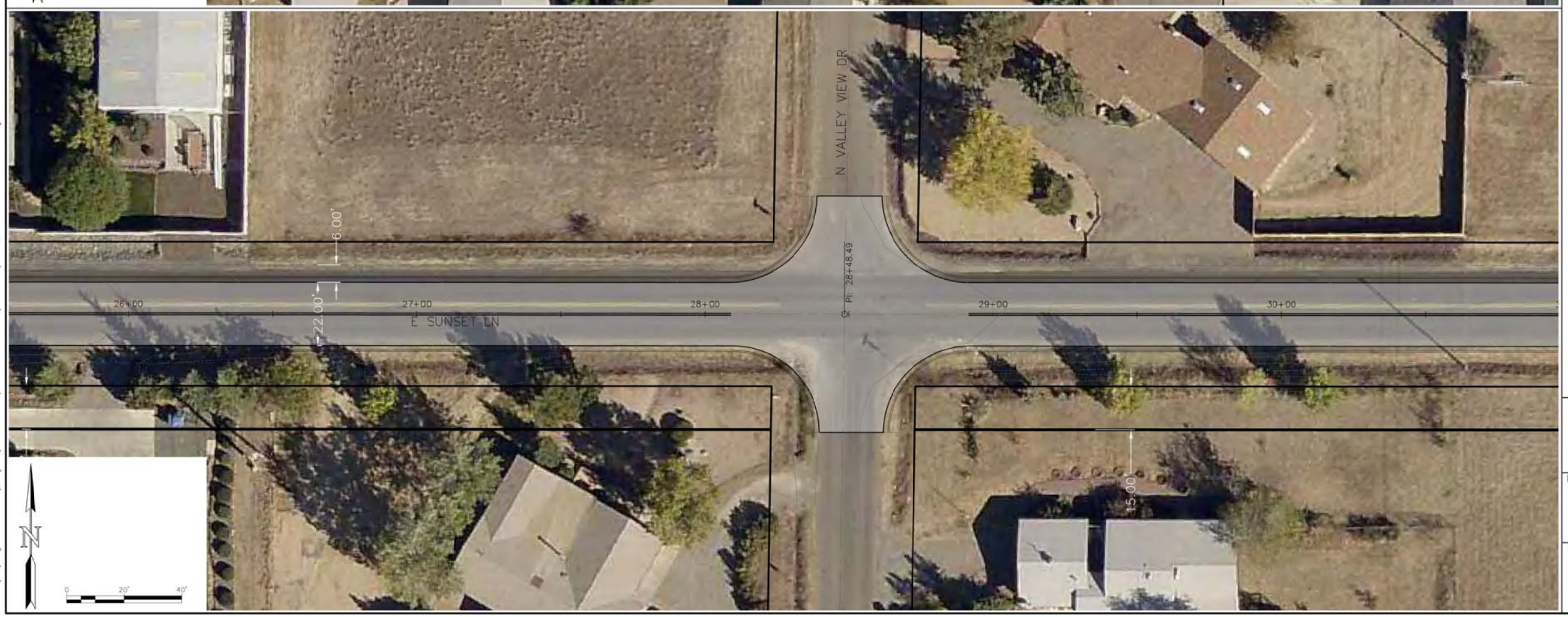

LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
- EXISTING CENTERLINE BASED ON SURVEY AND PLATS
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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14-20375
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
SHEET NAME: TWO LANES W/ LEFT TURN LANE	CHECKED BY: RPM
	DATE: JAN 2016
	SHEET: 12 OF 19

PLOTTED: Jan 22, 2016-10:50am
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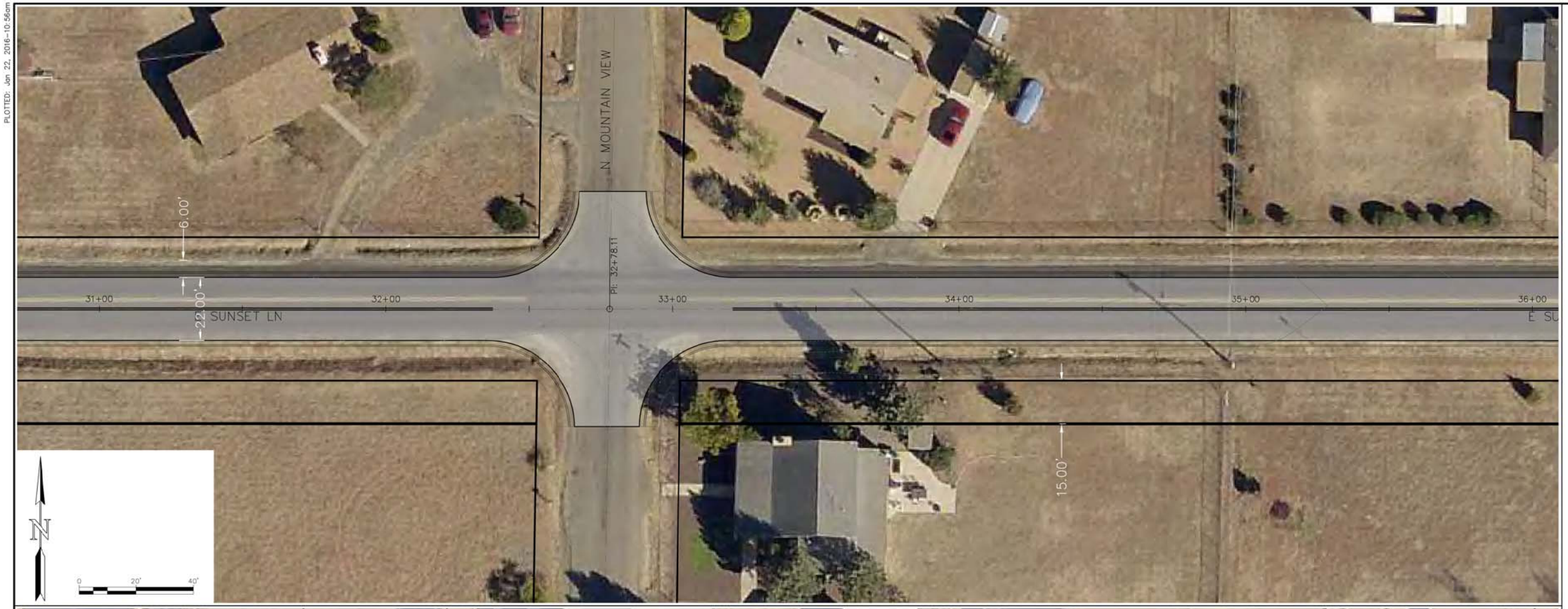

LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
- EXISTING CENTERLINE BASED ON SURVEY AND PLATS
- 2 LANE DRAINAGE EASEMENT
- 2-FT CURB/GUTTER 4-FT UNPAVED SHOULDER

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14-20375
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
	CHECKED BY: RPM
SHEET NAME: TWO LANES W/ LEFT TURN LANE	DATE: JAN 2016
	SHEET: 13 OF 19

PLOTTED: Jan 22, 2016-10:56am
FILE: F:\PW\Design-Construction_Projects\Sunset Lane Improvements -14203751\ACAD Files\04-05_PLANS - 2loneAndLeftTurns.dwg YAV-C3D-2015

LEGEND

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	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
	CHECKED BY: RPM
SHEET NAME: TWO LANES W/ LEFT TURN LANE	DATE: JAN 2016
	SHEET: 14 OF 19

PLOTTED: Jan 22, 2016-10:58am
FILE: F:\PW\Design-Construction_Projects\Sunset Lane Improvements -1420375\ACAD Files\04-05_PLANS - 2laneAndLeftTurns.dwg YAV-C3D-2015

LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
- EXISTING CENTERLINE BASED ON SURVEY AND PLATS
- 3 LANE DRAINAGE EASEMENT
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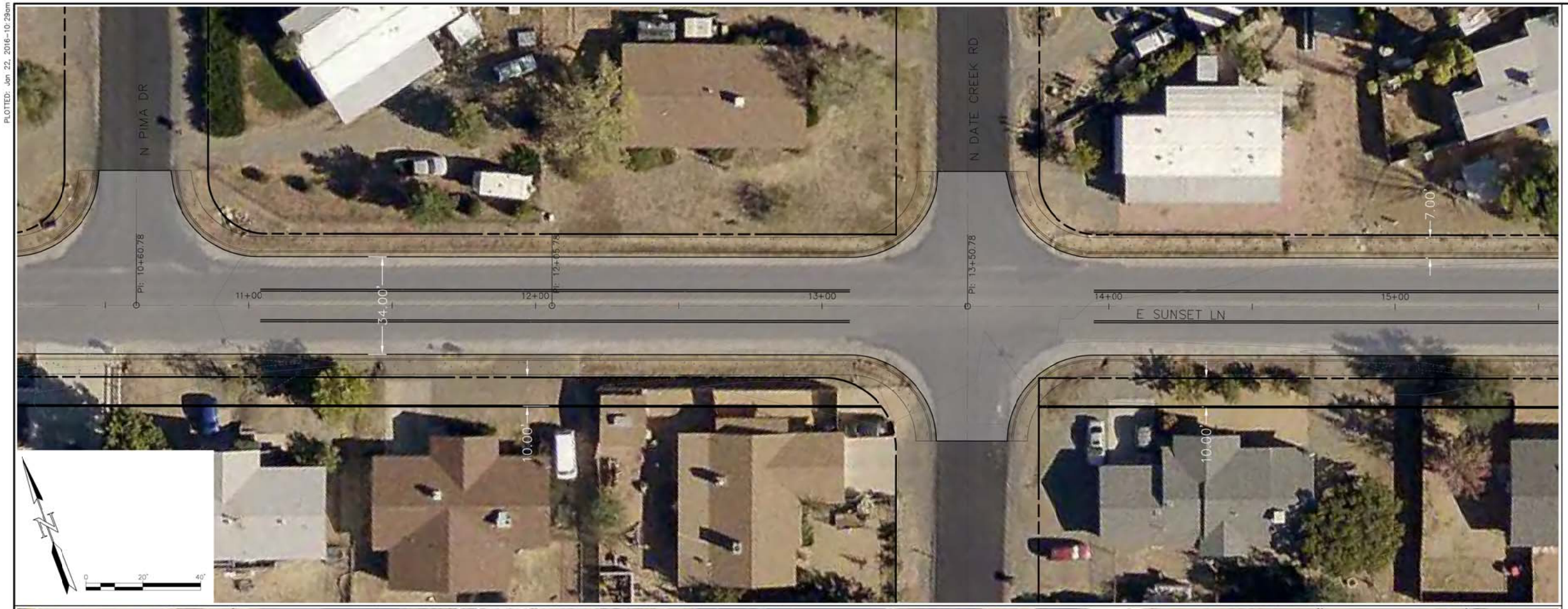
PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14-20375
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
	CHECKED BY: RPM
SHEET NAME: THREE LANES	DATE: JAN 2016
	SHEET: 15 OF 19

PLOTTED: Jan 22, 2016-10:27am
FILE: F:\PW\Design-Construction_Projects\Sunset Lane Improvements -1420375\ACAD Files\04-05_PLANS - 3LANE.dwg YAV-C3D-2015



LEGEND

- EXISTING ROW LINE BASED ON SURVEY AND PLATS
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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14-20375
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
	CHECKED BY: RPM
SHEET NAME: THREE LANES	DATE: JAN 2016
	SHEET: 16 OF 19

PLOTTED: Jan 22, 2016-10:29am
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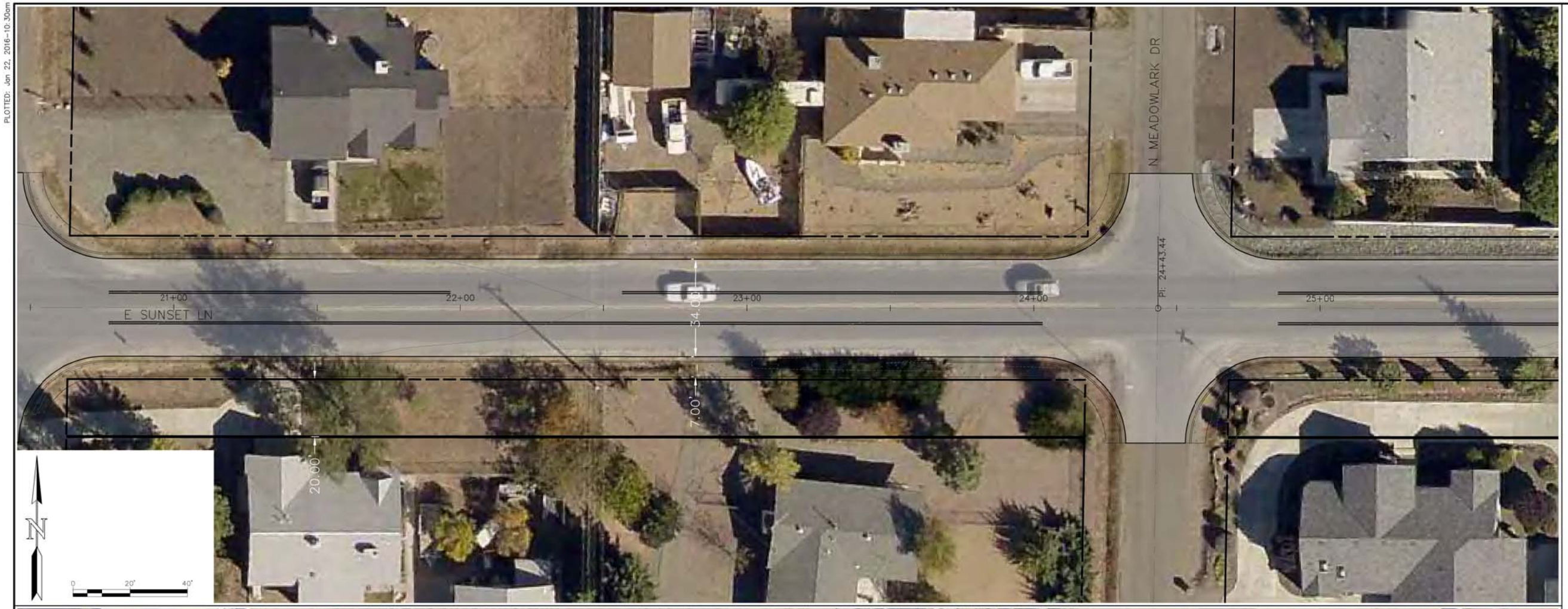

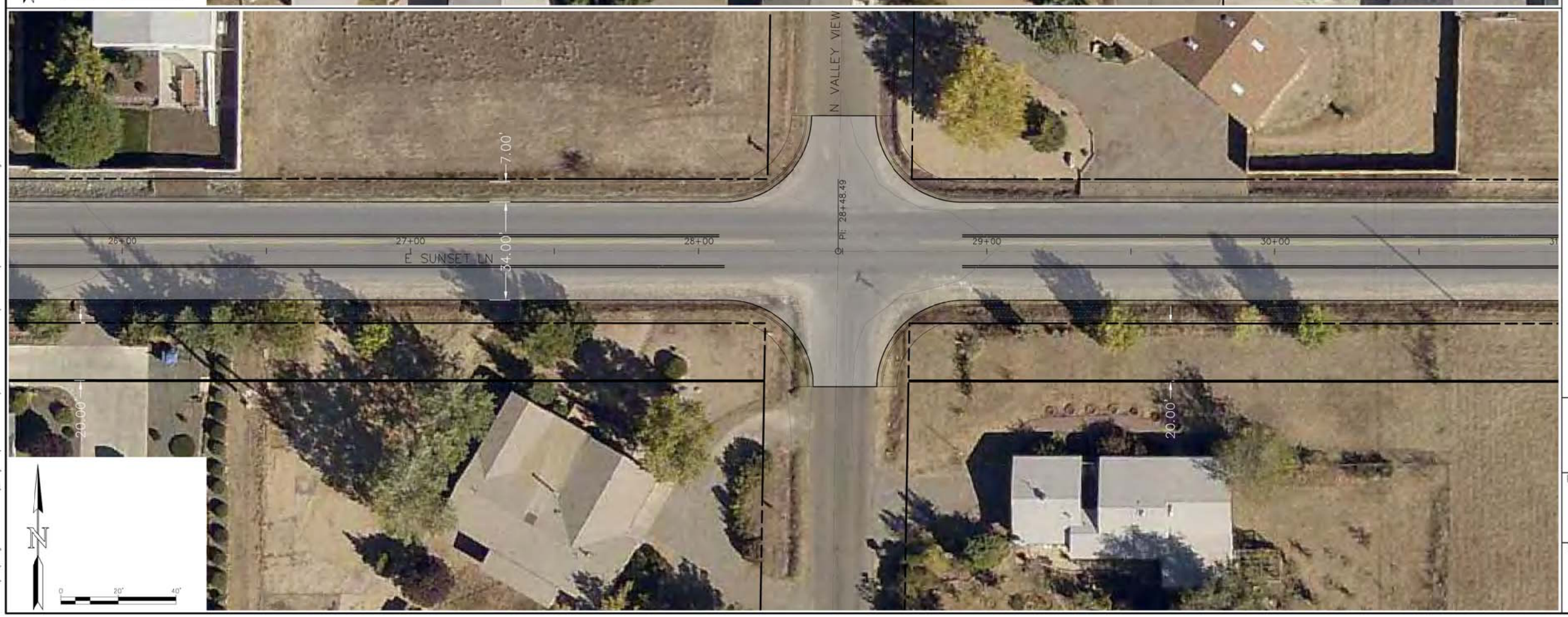

LEGEND

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PROJECT NAME: SUNSET LANE DESIGN ALTERNATIVES	PROJECT NUMBER: 14-20375
	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
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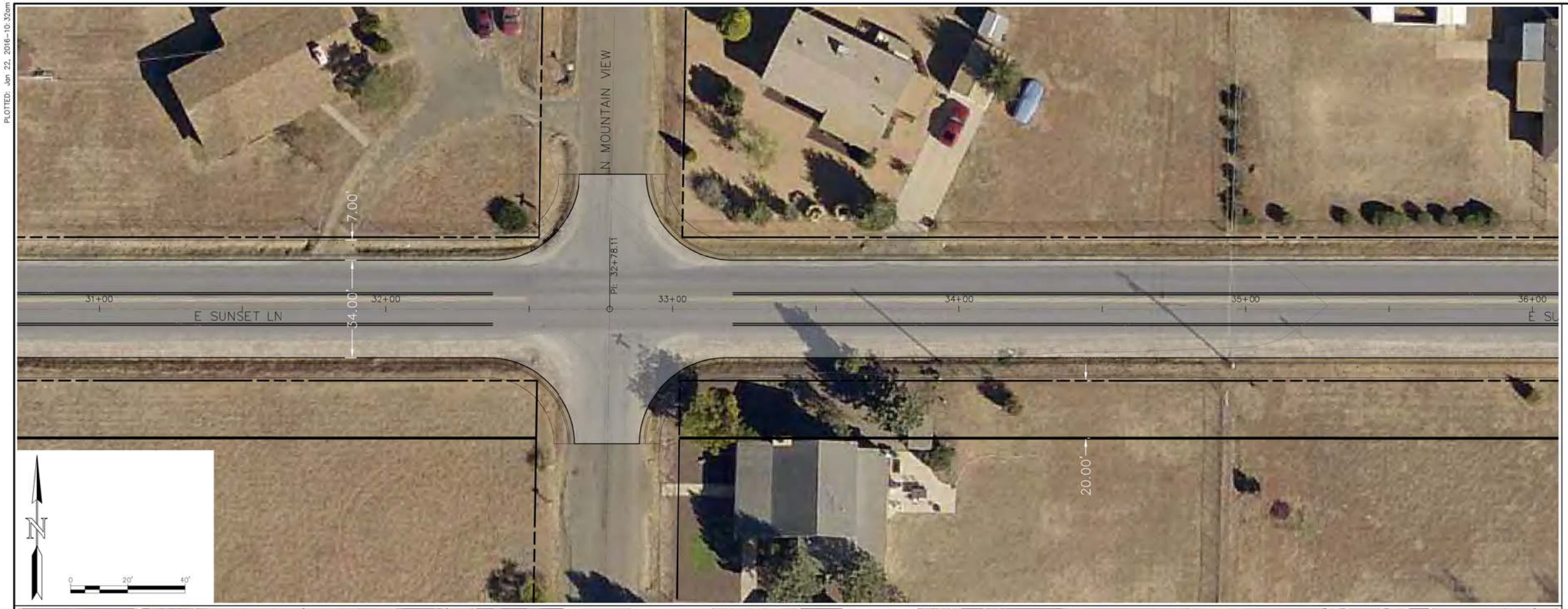

LEGEND

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	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
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SHEET NAME: THREE LANES	DATE: JAN 2016
	SHEET: 18 OF 19

PLOTTED: Jan 22, 2016-10:32am
FILE: F:\PW\Design-Construction_Projects\Sunset Lane Improvements -14203751\ACAD Files\04-05_PLANS - 3LANE.dwg YAV-C30-2015

LEGEND

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	DESIGN BY: KOB/RPM
	DRAWN BY: KOB
SHEET NAME: THREE LANES	CHECKED BY: RPM
	DATE: JAN 2016
	SHEET: 19 OF 19

PLOTTED: Jan 22, 2016-10:34am
FILE: F:\PW\Design-Construction_Projects\Sunset Lane Improvements -1420375\ACAD Files\04-05_PLANS - 3LANE.dwg YAV-C3D-2015

Exhibit 3 – Synchro Traffic Model Analysis

Existing AM Volumes		Prescott East Hwy	Treasure Dr	Pima Dr	Date Creek	Cedar Springs	Starlight Dr	Meadowlark	Valley View	Mountain View	Lynx Lake	Pleasant View	Pine View
Eastbound	EBL	1	10	5	1	1	2	1	3	2	0	2	1
	EBT	43	128	161	170	191	198	267	274	286	294	310	326
	EBR	7	0	0	0	0	2	0	2	2	3	0	1
Westbound	WBL	113	0	0	15	5	21	2	8	6	7	2	6
	WBT	32	121	124	125	143	145	175	178	190	195	201	203
	WBR	1	16	6	5	5	14	5	5	6	5	3	174
Northbound	NBL	6	0	0	2	1	1	0	3	1	2	1	0
	NBT	38	0	0	6	0	30	2	2	0	0	0	0
	NBR	87	0	0	15	9	44	5	11	1	9	8	14
Southbound	SBL	8	37	10	8	2	26	8	6	10	9	10	22
	SBT	53	0	0	2	0	34	3	6	0	5	2	0
	SBR	0	24	12	2	0	6	5	0	0	3	5	3

Existing PM Volumes		Prescott East Hwy	Treasure Dr	Pima Dr	Date Creek	Cedar Springs	Starlight Dr	Meadowlark	Valley View	Mountain View	Lynx Lake	Pleasant View	Pine View
Eastbound	EBL	2	20	14	5	6	6	2	0	1	2	5	0
	EBT	49	142	168	168	187	211	288	304	361	377	396	414
	EBR	10	0	0	2	1	0	1	0	2	0	1	3
Westbound	WBL	103	0	0	25	20	54	8	5	6	8	6	8
	WBT	75	182	244	251	277	288	371	378	390	401	414	432
	WBR	16	70	12	6	7	33	12	8	8	9	16	15
Northbound	NBL	15	0	0	2	1	7	1	10	0	1	2	2
	NBT	32	0	0	5	5	2	5	6	2	3	1	1
	NBR	106	0	0	19	22	28	7	57	17	17	15	3
Southbound	SBL	8	40	7	6	7	52	9	3	1	8	7	15
	SBT	30	0	0	0	0	5	0	2	2	3	3	0
	SBR	0	12	7	2	2	8	3	3	0	2	1	1

PM +5 Years Volume		Prescott East Hwy	Treasure Dr	Pima Dr	Date Creek	Cedar Springs	Starlight Dr	Meadowlark	Valley View	Mountain View	Lynx Lake	Pleasant View	Pine View
Eastbound	EBL	2	20	14	5	6	6	2	0	1	2	5	0
	EBT	49	158	184	184	203	227	304	320	377	393	412	430
	EBR	10	0	0	2	1	0	1	0	2	0	1	3
Westbound	WBL	153	0	0	25	20	54	8	5	6	8	6	8
	WBT	75	244	306	313	339	350	440	440	452	463	476	494
	WBR	28	70	12	6	7	33	12	8	8	9	16	15
Northbound	NBL	15	0	0	2	1	7	1	10	0	1	2	2
	NBT	36	0	0	5	5	2	5	6	2	3	1	1
	NBR	121	0	0	19	22	28	7	57	17	17	15	3
Southbound	SBL	9	40	7	6	7	52	9	3	1	8	7	15
	SBT	34	0	0	0	0	5	0	2	2	3	3	0
	SBR	0	12	7	2	2	8	3	3	0	2	1	1

PM +10 Years Volume		Prescott East Hwy	Treasure Dr	Pima Dr	Date Creek	Cedar Springs	Starlight Dr	Meadowlark	Valley View	Mountain View	Lynx Lake	Pleasant View	Pine View
Eastbound	EBL	2	20	14	5	6	6	2	0	1	2	5	0
	EBT	49	177	203	203	222	246	323	339	396	411	431	449
	EBR	10	0	0	2	1	0	1	0	2	0	1	3
Westbound	WBL	209	0	0	25	20	54	8	5	6	8	6	8
	WBT	75	314	377	384	410	421	504	511	523	533	547	565
	WBR	42	70	12	6	7	33	12	8	8	9	16	15
Northbound	NBL	15	0	0	2	1	7	1	10	0	1	2	2
	NBT	41	0	0	5	5	2	5	6	2	3	1	1
	NBR	138	0	0	19	22	28	7	57	17	17	15	3
Southbound	SBL	10	40	7	6	7	52	9	3	1	8	7	15
	SBT	39	0	0	0	0	5	0	2	2	3	3	0
	SBR	0	12	7	2	2	8	3	3	0	2	1	1

PM +15 Years Volume		Prescott East Hwy	Treasure Dr	Pima Dr	Date Creek	Cedar Springs	Starlight Dr	Meadowlark	Valley View	Mountain View	Lynx Lake	Pleasant View	Pine View
Eastbound	EBL	2	20	14	5	6	6	2	0	1	2	5	0
	EBT	49	198	224	224	243	267	344	360	417	433	452	470
	EBR	10	0	0	2	1	0	1	0	2	0	1	3
Westbound	WBL	274	0	0	25	20	54	8	5	6	8	6	8
	WBT	75	395	458	464	490	502	585	592	604	614	628	646
	WBR	59	70	12	6	7	33	12	8	8	9	16	15
Northbound	NBL	15	0	0	2	1	7	1	10	0	1	2	2
	NBT	47	0	0	5	5	2	5	6	2	3	1	1
	NBR	157	0	0	19	22	28	7	57	17	17	15	3
Southbound	SBL	12	40	7	6	7	52	9	3	1	8	7	15
	SBT	44	0	0	0	0	5	0	2	2	3	3	0
	SBR	0	12	7	2	2	8	3	3	0	2	1	1

PM +20 Years Volume		Prescott East Hwy	Treasure Dr	Pima Dr	Date Creek	Cedar Springs	Starlight Dr	Meadowlark	Valley View	Mountain View	Lynx Lake	Pleasant View	Pine View
Eastbound	EBL	2	20	14	5	6	6	2	0	1	2	5	0
	EBT	49	222	248	248	267	291	368	384	441	457	476	494
	EBR	10	0	0	2	1	0	1	0	2	0	1	3
Westbound	WBL	348	0	0	25	20	54	8	5	6	8	6	8
	WBT	75	488	550	557	583	594	677	684	696	707	720	738
	WBR	77	70	12	6	7	33	12	8	8	9	16	15
Northbound	NBL	15	0	0	2	1	7	1	10	0	1	2	2
	NBT	54	0	0	5	5	2	5	6	2	3	1	1
	NBR	180	0	0	19	22	28	7	57	17	17	15	3
Southbound	SBL	14	40	7	6	7	52	9	3	1	8	7	15
	SBT	50	0	0	0	0	5	0	2	2	3	3	0
	SBR	0	12	7	2	2	8	3	3	0	2	1	1

PM +25 Years Volume		Prescott East Hwy	Treasure Dr	Pima Dr	Date Creek	Cedar Springs	Starlight Dr	Meadowlark	Valley View	Mountain View	Lynx Lake	Pleasant View	Pine View
Eastbound	EBL	2	20	14	5	6	6	2	0	1	2	5	0
	EBT	49	249	275	275	295	319	396	412	468	484	504	522
	EBR	10	0	0	2	1	0	1	0	2	0	1	3
Westbound	WBL	348	0	0	25	20	54	8	5	6	8	6	8
	WBT	75	593	593	662	688	700	783	789	802	812	826	844
	WBR	77	70	12	6	7	33	12	8	8	9	16	15
Northbound	NBL	15	0	0	2	1	7	1	10	0	1	2	2
	NBT	62	0	0	5	5	2	5	6	2	3	1	1
	NBR	205	0	0	19	22	28	7	57	17	17	15	3
Southbound	SBL	15	40	7	6	7	52	9	3	1	8	7	15
	SBT	57	0	0	0	0	5	0	2	2	3	3	0
	SBR	0	12	7	2	2	8	3	3	0	2	1	1

LOS Density Modeling - Standard Growth

	Prescott East Hwy				Treasure Dr				Pima Dr				Date Creek				Cedar Springs				Starlight Dr				Meadowlark				Valley View				Mountain View				Lynx Lake				Pleasant View				Pine View		
	Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS	
AM	145	890.345	A		136	950.588	A		129	1003.26	A		144	896.667	A		152	848.421	A		180	713.333	A		181	709.282	A		191	671.099	A		200	640	A		207	617.681	A		206	620.777	A	
	138	936.522	A		165	780	A		171	751.93	A		193	663.938	A		202	633.465	A		268	472.537	B		280	451.429	B		291	433.608	B		297	424.444	B		312	403.077	B		328	382.439	B	
PM	194	660.412	A		251	505.896	A		255	497.647	A		280	451.429	B		303	415.644	B		375	332	B		391	317.596	B		390	318.462	B		404	306.733	B		417	296.547	B		435	283.448	C	
	163	789.816	A		182	705.275	A		175	734.286	A		193	663.938	A		216	591.111	A		291	433.608	B		304	414.211	B		364	342.637	B		379	328.285	B		402	308.358	B		418	295.789	B	
5 Years	256	495.625	A		313	401.725	B		317	396.404	B		342	365.965	B		365	341.644	B		444	277.297	C		453	271.391	C		452	272.035	C		466	263.262	C		479	255.574	C		497	245.594	C	
	179	717.43	A		198	646.667	A		191	671.099	A		209	611.579	A		232	548.966	A		307	409.967	B		320	392.5	B		380	327.368	B		395	314.177	B		418	295.789	B		434	284.147	C	
10 Years	326	384.908	B		384	323.75	B		388	320.206	B		413	299.613	B		436	282.752	C		508	239.843	C		524	231.908	C		523	232.39	C		536	226.269	C		550	220	C		568	212.394	C	
	197	650.051	A		217	588.295	A		210	608.571	A		228	558.947	A		251	505.896	A		326	384.908	B		339	369.381	B		399	310.827	B		414	298.841	B		436	282.752	C		453	271.391	C	
15 Years	407	304.324	B		465	263.871	C		468	262.051	C		493	247.748	C		517	235.319	C		589	204.109	C		605	198.182	D		604	198.543	D		617	193.938	D		631	189.192	D		649	183.39	D	
	218	585.505	A		238	534.622	A		231	551.429	A		249	510.12	A		272	465.294	B		347	360.403	B		360	346.667	B		420	294.286	B		435	283.448	C		458	268.21	C		474	258.481	C	
20 Years	500	244	C		557	216.984	C		561	215.294	C		586	205.256	C		609	196.749	D		681	173.833	D		697	169.383	D		696	169.655	D		710	165.915	D		723	162.573	D		741	158.138	D	
	243	523.21	A		262	483.817	A		255	497.647	A		273	463.516	B		296	425.946	B		371	335.795	B		384	323.75	B		444	277.297	C		459	267.582	C		482	253.859	C		498	245.06	C	

Highway Capacity Manual
LOS Based on Density for Basic Freeway Segment

LOS	Density (pc/mi)	Spacing (ft)
A	< 11	> 480
B	11 to 18	293.33 to 480
C	18 to 26	203.08 to 293.33
D	26 to 35	150.86 to 203.08
E	35 to 45	117.33 to 150.86
F	> 45	< 117.33

Intersection Legend

Intersection A	Volume	Spacing	LOS	Intersection B
	WB Volume	WB Spacing	WB LOS	
	EB Volume	EB Spacing	EB LOS	

LOS A	- Free Flow Operation
LOS B	- Reasonably free flow - Effects of minor disruptions easily absorbed
LOS C	- Speeds at or near free flow - Queues may form behind any significant blockage
LOS D	- Speeds decline slightly with increasing flows - Minor incidents create queuing
LOS E	- Operation near or at capacity - Operations extremely volatile - Any disruption causes queuing
LOS F	- Breakdown in flow - Demand exceeds capacity

Notes:

1) Spacing calculations assume traffic at 25 mph

2) Total travel distance of 132,000 feet in one hour

3) Conservative car length of 20 feet assumed

4) Spacing calculated as:

$$\frac{\text{Travel distance} - \text{Total of car lengths}}{\text{Segment volume}}$$

5) Assumes free-flow traffic similar to freeway segment

6) Assumes even spacing in calculations

7) Turning movements are not considered in this analysis

8) Standard scenario assumes 2.7% growth for entering traffic at each end of Sunset Lane for entire length of analysis period.

LOS Density Modeling - Accelerated Growth

	Prescott East Hwy				Treasure Dr				Pima Dr				Date Creek				Cedar Springs				Starlight Dr				Meadowlark				Valley View				Mountain View				Lynx Lake				Pleasant View				Pine View		
	Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS		Volume	Spacing	LOS	
AM	145	890.345	A		136	950.588	A		129	1003.26	A		144	896.667	A		152	848.421	A		180	713.333	A		181	709.282	A		191	671.099	A		200	640	A		207	617.681	A		206	620.777	A		138	936.522	A		165	780	A		171	751.93	A		193	663.938	A		202	633.465	A		268	472.537	B		280	451.429	B		291	433.608	B		297	424.444	B		312	403.077	B		328	382.439	B	
PM	194	660.412	A		251	505.896	A		255	497.647	A		280	451.429	B		303	415.644	B		375	332	B		391	317.596	B		390	318.462	B		404	306.733	B		417	296.547	B		435	283.448	C		163	789.816	A		182	705.275	A		175	734.286	A		193	663.938	A		216	591.111	A		291	433.608	B		304	414.211	B		364	342.637	B		379	328.285	B		402	308.358	B		418	295.789	B	
5 Years	326	384.908	B		384	323.75	B		388	320.206	B		413	299.613	B		436	282.752	C		508	239.843	C		524	231.908	C		523	232.39	C		536	226.269	C		550	220	C		568	212.394	C		197	650.051	A		217	588.295	A		210	608.571	A		228	558.947	A		251	505.896	A		326	384.908	B		339	369.381	B		399	310.827	B		414	298.841	B		436	282.752	C		453	271.391	C	
10 Years	407	304.324	B		465	263.871	C		468	262.051	C		493	247.748	C		517	235.319	C		589	204.109	C		605	198.182	D		604	198.543	D		617	193.938	D		631	189.192	D		649	183.39	D		218	585.505	A		238	534.622	A		231	551.429	A		249	510.12	A		272	465.294	B		347	360.403	B		360	346.667	B		420	294.286	B		435	283.448	C		458	268.21	C		474	258.481	C	
15 Years	500	244	C		557	216.984	C		561	215.294	C		586	205.256	C		609	196.749	D		681	173.833	D		697	169.383	D		696	169.655	D		710	165.915	D		723	162.573	D		741	158.138	D		243	523.21	A		262	483.817	A		255	497.647	A		273	463.516	B		296	425.946	B		371	335.795	B		384	323.75	B		444	277.297	C		459	267.582	C		482	253.859	C		498	245.06	C	
20 Years	605	198.182	D		600	200	D		666	178.198	D		691	171.027	D		715	164.615	D		787	147.726	E		802	144.589	E		802	144.589	E		815	141.963	E		829	139.228	E		847	135.844	E		269	470.706	B		289	436.747	B		282	448.085	B		300	420	B		324	387.407	B		399	310.827	B		412	300.388	B		472	259.661	C		486	251.605	C		509	239.332	C		526	230.951	C	

Highway Capacity Manual
LOS Based on Density for Basic Freeway Segment

LOS	Density (pc/mi)	Spacing (ft)
A	< 11	> 480
B	11 to 18	293.33 to 480
C	18 to 26	203.08 to 293.33
D	26 to 35	150.86 to 203.08
E	35 to 45	117.33 to 150.86
F	> 45	< 117.33

Intersection Legend

Intersection A	Volume	Spacing	LOS	Intersection B
	WB Volume	WB Spacing	WB LOS	
	EB Volume	EB Spacing	EB LOS	

LOS A	- Free Flow Operation
LOS B	- Reasonably free flow - Effects of minor disruptions easily absorbed
LOS C	- Speeds at or near free flow - Queues may form behind any significant blockage
LOS D	- Speeds decline slightly with increasing flows - Minor incidents create queuing
LOS E	- Operation near or at capacity - Operations extremely volatile - Any disruption causes queuing
LOS F	- Breakdown in flow - Demand exceeds capacity

Notes:

1) Spacing calculations assume traffic at 25 mph

2) Total travel distance of 132,000 feet in one hour

3) Conservative car length of 20 feet assumed

4) Spacing calculated as:

$$\frac{\text{Travel distance} - \text{Total of car lengths}}{\text{Segment volume}}$$

5) Assumes free-flow traffic similar to freeway segment

6) Assumes even spacing in calculations

7) Turning movements are not considered in this analysis

8) Accelerated scenario assumes 5.4% growth for first 5 years and then 2.7% growth for entering traffic on each end of Sunset Lane

Prescott East Highway

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***6.1***	***A***	***7.2***	***A***	***8.2***	***A***	***9.8***	***A***	***13.2***	***A***	***23.4***	***B***
NB	0.4	A	0.8	A	0.7	A	0.6	A	0.6	A	0.5	A
EB	10.6	B	10.7	B	10.9	B	11.2	B	11.5	B	11.9	B
WB	11.7	B	12.2	B	13.6	B	16.2	C	21.8	C	39	E
SB	1	A	1.7	A	1.7	A	1.6	A	1.7	A	1.8	A
Turn Lanes Only												
Intersection	***5.8***	***A***	***6.6***	***A***	***7.2***	***A***	***8***	***A***	***9.3***	***A***	***11.9***	***A***
NB	0.4	A	0.8	A	0.7	A	0.6	A	0.6	A	0.5	A
EB Left EB Thru/Right	10.6	B	10.7	B	10.9	B	11.2	B	11.5	B	11.9	B
EB Approach	10.6	B	10.7	B	10.9	B	11.2	B	11.5	B	11.9	B
WB Left	11.3	B	11.3	B	12.3	B	13.7	B	16.4	C	22.2	C
WB Thru/Right	10.3	B	10.6	B	10.7	B	10.8	B	11	B	11.4	B
WB Approach	11.1	B	11	B	11.6	B	12.7	B	14.7	B	18.9	C
SB	1	A	1.7	A	1.7	A	1.6	A	1.7	A	1.8	A

Treasure Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***2.1***	***A***	***1.7***	***A***	***1.5***	***A***	***1.4***	***A***	***1.3***	***A***	***1.3***	***A***
EB	0.6	A	1.1	A	1.1	A	1	A	1	A	0.9	A
WB	0	A	0	A	0	A	0	A	0	A	0	A
SB	10.2	B	11.5	B	12.3	B	13.4	B	14.9	B	17.1	C
Turn Lanes Only												
Intersection	***2.1***	***A***	***1.6***	***A***	***1.5***	***A***	***1.4***	***A***	***1.3***	***A***	***1.2***	***A***
EB Left	7.5	A	7.8	A	8	A	8.2	A	8.5	A	8.8	A
EB Approach	0.6	A	1	A	0.9	A	0.8	A	0.8	A	0.7	A
WB Approach	0	A	0	A	0	A	0	A	0	A	0	A
SB	10.2	B	11.5	B	12.3	B	13.4	B	14.9	B	17.1	C
TWLTL												
Intersection	***2***	***A***	***1.5***	***A***	***1.3***	***A***	***1.2***	***A***	***1.1***	***A***	***1***	***A***
EB Left	7.5	A	7.8	A	8	A	8.2	A	8.5	A	8.8	A
EB Approach	0.6	A	1	A	0.9	A	0.8	A	0.8	A	0.7	A
WB Approach	0	A	0	A	0	A	0	A	0	A	0	A
SB	9.7	A	10.3	B	10.7	B	11.3	B	12	B	12.9	B

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
TWLTL in westbound direction would not be dedicated which would benefit southbound left turns

Pima Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.8***	***A***	***0.6***	***A***	***0.6***	***A***	***0.5***	***A***	***0.5***	***A***	***0.5***	***A***
EB	0.2	A	0.7	A	0.7	A	0.6	A	0.6	A	0.6	A
SB	9.8	A	10.9	B	11.5	B	12.4	B	13.5	B	15	B
Turn Lanes Only												
Intersection	***0.8***	***A***	***0.6***	***A***	***0.5***	***A***	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***
EB Left	7.5	A	7.8	A	8	A	8.2	A	8.5	A	8.8	A
EB Approach	0.2	A	0.6	A	0.6	A	0.5	A	0.5	A	0.5	A
WB Approach	0	A	0	A	0	A	0	A	0	A	0	A
SB	9.8	A	10.9	B	11.5	B	12.4	B	13.5	B	15	B
TWLTL												
Intersection	***0.8***	***A***	***0.6***	***A***	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***
EB Left	7.5	A	7.8	A	8	A	8.2	A	8.5	A	8.8	A
EB Approach	0.2	A	0.6	A	0.6	A	0.5	A	0.5	A	0.5	A
WB Approach	0	A	0	A	0	A	0	A	0	A	0	A
SB	9.4	A	10.1	B	10.5	B	11	B	11.7	B	12.5	B

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
TWLTL in westbound direction would not be dedicated which would benefit southbound left turns

Date Creek Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***1.5***	***A***	***1.4***	***A***	***1.3***	***A***	***1.2***	***A***	***1.2***	***A***	***1.2***	***A***
NB	10.5	B	10.9	B	11.4	B	12.1	B	13	B	14.2	B
EB	0	A	0.3	A	0.3	A	0.2	A	0.2	A	0.2	A
WB	0.9	A	0.9	A	0.8	A	0.7	A	0.7	A	0.7	A
SB	11.7	B	13.7	B	15	C	17	C	19.6	C	23.5	C
Turn Lanes Only												
Intersection	***1.5***	***A***	***1.3***	***A***	***1.2***	***A***	***1.1***	***A***	***1***	***A***	***0.9***	***A***
NB	10.5	B	10.9	B	11.4	B	12.1	B	12.9	B	14.2	B
EB Left	7.5	A	7.9	A	8.1	A	8.4	A	8.7	A	9.1	A
EB Approach	0	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.7	A	7.8	A	7.8	A	7.9	A	8	A
WB Approach	0.8	A	0.7	A	0.6	A	0.5	A	0.4	A	0.3	A
SB	11.7	B	13.6	B	15	C	16.9	C	19.6	C	23.4	C
TWLTL												
Intersection	***1.4***	***A***	***1.2***	***A***	***1.1***	***A***	***1***	***A***	***0.9***	***A***	***0.8***	***A***
NB	10	A	10.2	A	10.4	B	10.8	B	11.2	B	11.7	B
EB Left	7.5	A	7.9	A	8.1	A	8.4	A	8.7	A	9.1	A
EB Approach	0	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.7	A	7.8	A	7.8	A	7.9	A	8	A
WB Approach	0.8	A	0.7	A	0.6	A	0.5	A	0.4	A	0.3	A
SB	10.4	B	11.3	B	11.9	B	12.7	B	13.7	B	15	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Cedar Springs Ln

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.5***	***A***	***1.2***	***A***	***1.1***	***A***	***1.1***	***A***	***1***	***A***	***1***	***A***
NB	9.6	A	10.4	B	10.7	A	11.1	B	11.6	B	12.3	B
EB	0	A	0.3	A	0.3	A	0.3	A	0.3	A	0.3	A
WB	0.3	A	0.7	A	0.6	A	0.5	A	0.5	A	0.5	A
SB	11.4	B	13.5	B	14.6	B	16.2	C	18.4	C	21.4	C
Turn Lanes Only												
Intersection	***0.4***	***A***	***1.2***	***A***	***1***	***A***	***0.9***	***A***	***0.9***	***A***	***0.8***	***A***
NB	9.6	A	10.4	B	10.7	B	11.1	B	11.6	B	12.3	B
EB Left	7.5	A	7.9	A	8.1	A	8.3	A	8.5	A	8.8	A
EB Approach	0	A	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.7	A	7.7	A	7.8	A	7.8	A	7.9	A
WB Approach	0.2	A	0.5	A	0.4	A	0.4	A	0.3	A	0.3	A
SB	11.4	B	13.5	A	14.6	B	16.2	C	18.4	C	21.4	C
TWLTL												
Intersection	***0.4***	***A***	***1.1***	***A***	***1***	***A***	***0.9***	***A***	***0.8***	***A***	***0.7***	***A***
NB	9.4	A	9.9	A	10.1	B	10.3	B	10.6	B	10.9	B
EB Left	7.5	A	7.9	A	8.1	A	8.3	A	8.5	A	8.8	A
EB Approach	0	A	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.7	A	7.7	A	7.8	A	7.8	A	7.9	A
WB Approach	0.2	A	0.5	A	0.4	A	0.4	A	0.3	A	0.3	A
SB	10.2	B	11.1	B	11.6	B	12.3	B	13.1	B	14.2	B

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Starlight Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***3.6***	***A***	***3***	***A***	***2.9***	***A***	***2.9***	***A***	***3***	***C***	***3.2***	***C***
NB	11.3	B	11.4	B	12	B	12.6	B	13.6	B	14.9	B
EB	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB	0.7	A	1.1	A	1	A	0.8	A	0.7	A	0.6	A
SB	13.4	B	18.2	C	20.5	C	24	C	29.2	D	37.9	E
Turn Lanes Only												
Intersection	***3.5***	***A***	***3***	***A***	***2.9***	***A***	***2.9***	***A***	***2.9***	***A***	***3.1***	***B***
NB	11.3	B	11.4	B	11.9	B	12.6	B	13.5	B	14.7	B
EB Left	7.6	A	8	A	8.2	A	8.4	A	8.7	A	9	A
EB Approach	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.8	A	7.9	A	7.9	A	8	A	8	A
WB Approach	0.6	A	1.1	A	1	A	0.8	A	0.7	A	0.6	A
SB	13.4	B	18	C	20.3	C	23.6	C	28.6	D	36.5	E

TWLTL												
Intersection	***3.2***	***A***	***2.5***	***A***	***2.3***	***A***	***2.2***	***A***	***2***	***A***	***2***	***B***
NB	10.5	B	10.4	A	10.7	B	11	B	11.4	B	11.9	B
EB Left	7.6	A	8	A	8.2	A	8.4	A	8.7	A	9	A
EB Approach	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.8	A	7.9	A	7.9	A	8	A	8	A
WB Approach	0.6	A	1.1	A	1	A	0.8	A	0.7	A	0.6	A
SB	11.4	B	13.2	B	14	B	15	C	16.4	C	18.2	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Meadowlark Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.6***	***A***	***0.7***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***
NB	10.6	B	12.7	B	13.4	B	14.2	B	15.4	C	17	C
EB	0	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
WB	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	11.8	B	15.5	B	17.1	C	19	C	21.7	C	25.5	D
Turn Lanes Only												
Intersection	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***
NB	10.6	B	12.7	B	13.4	B	14.2	B	15.4	C	17	C
EB Left	7.6	A	8.2	A	8.4	A	8.6	A	8.9	A	9.2	A
EB Approach	0	A	0.1	A	0.1	A	0	A	0	A	0	A
WB Left	7.8	A	7.9	A	8	A	8	A	8.1	A	8.1	A
WB Approach	0.1	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11.8	B	15.4	C	17.1	C	18.9	C	21.7	C	25.5	D

TWLTL												
Intersection	***0.5***	***A***	***0.5***	***A***	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***
NB	10.2	B	11	B	11.3	B	11.7	B	12.1	B	12.7	B
EB Left	7.6	A	8.2	A	8.4	A	8.6	A	8.9	A	9.2	A
EB Approach	0	A	0.1	A	0.1	A	0	A	0	A	0	A
WB Left	7.8	A	7.9	A	8	A	8	A	8.1	A	8.1	A
WB Approach	0.1	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	10.4	B	11.9	B	12.5	B	13.2	B	14.1	B	15.3	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Valley View Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.9***	***A***	***1.4***	***A***	***1.3***	***A***	***1.3***	***A***	***1.3***	***A***	***1.3***	***A***
NB	10.9	B	12.5	B	13.1	B	13.8	B	14.9	B	16.3	C
EB	0.1	A	0	A	0	A	0	A	0	A	0	A
WB	0.4	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	13.2	B	15.2	C	16.5	C	18.2	C	20.6	C	23.9	C
Turn Lanes Only												
Intersection	***0.9***	***A***	***1.4***	***A***	***1.3***	***A***	***1.3***	***A***	***1.2***	***A***	***1.2***	***A***
NB	10.9	B	12.5	B	13	B	13.8	B	14.8	B	16.3	C
EB Left	7.6	A	0	A	0	A	0	A	0	A	0	A
EB Approach	0.1	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	7.9	A	8	A	8	A	8.1	A	8.2	A
WB Approach	0.3	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	13.2	B	15.2	C	16.5	C	18.2	C	20.6	C	23.9	C

TWLTL												
Intersection	***0.8***	***A***	***1.2***	***A***	***1.1***	***A***	***1.1***	***A***	***1***	***A***	***0.9***	***A***
NB	10.3	B	11.3	B	11.5	B	11.9	B	12.3	B	12.8	B
EB Left	7.6	A	0	A	0	A	0	A	0	A	0	A
EB Approach	0.1	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	7.9	A	8	A	8	A	8.1	A	8.2	A
WB Approach	0.3	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11.1	B	11.9	B	12.4	B	13.1	B	14	B	15.1	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Mountain View Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***
NB	11.5	B	11.4	B	11.6	B	12	B	12.4	B	13	B
EB	0.1	A	0	A	0	A	0	A	0	A	0	A
WB	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	13.2	B	17.6	C	19.3	C	21.4	C	24.4	C	28.4	D
Turn Lanes Only												
Intersection	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.3***	***A***	***0.3***	***A***
NB	11.5	B	11.4	B	11.6	B	12	B	12.4	B	13	B
EB Left	7.7	A	8.2	A	8.4	A	8.6	A	8.9	A	9.3	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	8.1	A	8.2	A	8.2	A	8.3	A	8.4	A
WB Approach	0.3	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	13.2	B	17.6	C	19.3	C	21.4	C	24.4	C	28.4	D

TWLTL												
Intersection	***0.4***	***A***	***0.4***	***A***	***0.3***	***A***	***0.3***	***A***	***0.3***	***A***	***0.3***	***A***
NB	10.4	B	10.9	B	11.1	B	11.3	B	11.5	B	11.8	B
EB Left	7.7	A	8.2	A	8.4	A	8.6	A	8.9	A	9.3	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	8.1	A	8.2	A	8.2	A	8.3	A	8.4	A
WB Approach	0.3	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11	B	12.6	B	13.1	B	13.7	B	14.6	B	15.6	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Lynx Lake Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.8***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***
NB	10.7	B	12.2	B	12.7	B	13.2	B	14	B	15	B
EB	0	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
WB	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	13	B	18.4	C	20.3	C	22.9	C	26.5	D	31.6	D
Turn Lanes Only												
Intersection	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.6***	***A***	***0.6***	***A***	***0.7***	***A***
NB	10.7	B	12.2	B	12.7	B	13.2	B	14	B	15	B
EB Left	0	A	8.2	A	8.4	A	8.7	A	8.9	A	9.3	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	8.2	A	8.2	A	8.3	A	8.3	A	8.4	A
WB Approach	0.3	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	13	B	18.4	C	20.3	C	22.9	C	26.5	D	31.6	D

TWLTL												
Intersection	***0.7***	***A***	***0.6***	***A***	***0.5***	***A***	***0.5***	***A***	***0.5***	***A***	***0.4***	***A***
NB	10.2	B	11.2	B	11.4	B	11.7	B	12	B	12.4	B
EB Left	0	A	8.2	A	8.4	A	8.7	A	8.9	A	9.3	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	8.2	A	8.2	A	8.3	A	8.3	A	8.4	A
WB Approach	0.3	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11	B	12.8	B	13.4	B	14.1	B	15	C	16.2	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Pleasant View Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.6***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***
NB	10.5	B	12.4	B	12.8	B	13.4	B	14.2	B	15.2	C
EB	0.1	A	0.1	A	0.1	A	0.2	A	0.2	A	0.2	A
WB	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	12.6	B	19.6	C	21.7	C	24.5	C	28.4	D	33.8	D
Turn Lanes Only												
Intersection	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***
NB	10.5	B	12.3	B	12.8	B	13.4	B	14.1	B	15.2	C
EB Left	7.7	A	8.3	A	8.5	A	8.7	A	9	A	9.4	A
EB Approach	0	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
WB Left	8	A	8.2	A	8.3	A	8.3	A	8.4	A	8.5	A
WB Approach	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	12.6	B	19.5	C	21.6	C	24.5	C	28.4	D	33.8	D

TWLTL												
Intersection	***0.6***	***A***	***0.5***	***A***	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***
NB	10.3	B	11.3	B	11.5	B	11.8	B	12.1	B	12.5	B
EB Left	7.7	A	8.3	A	8.5	A	8.7	A	9	A	9.4	A
EB Approach	0	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
WB Left	8	A	8.2	A	8.3	A	8.3	A	8.4	A	8.5	A
WB Approach	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	10.8	B	13.1	B	13.7	B	14.4	B	15.4	C	16.6	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Pine View Dr

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***1***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.7***	***B***
NB	10.3	B	15.5	C	16.6	C	18.1	C	20.1	C	22.7	C
EB	0	A	0	A	0	A	0	A	0	A	0	A
WB	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	14.2	B	20.8	C	23.2	C	26.5	D	31.2	D	37.8	E
Turn Lanes Only												
Intersection	***0.9***	***A***	***0.5***	***A***	***0.5***	***A***	***0.5***	***A***	***0.6***	***A***	***0.6***	***A***
NB	10.3	B	15.4	C	16.5	C	18	C	19.9	C	22.6	C
EB Left	7.7	A	0	A	0	A	0	A	0	A	0	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	8	A	8.3	A	8.3	A	8.4	A	8.5	A	8.5	A
WB Approach	0.2	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	14.2	B	20.8	C	23.2	C	26.5	D	31.1	D	37.7	E

TWLTL												
Intersection	***0.8***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.3***	***A***	***0.3***	***A***
NB	10.3	B	12.1	B	12.4	B	12.9	B	13.4	B	14.1	B
EB Left	7.7	A	0	A	0	A	0	A	0	A	0	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	8	A	8.3	A	8.3	A	8.4	A	8.5	A	8.5	A
WB Approach	0.2	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11.4	B	13.3	B	14	B	14.8	B	15.8	A	17.2	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Fry's Driveway

Standard Growth Rate
2.7% yearly growth at each end of Sunset Lane for through volume

	AM With School		PM Background		PM +5 Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.1***	***A***	***0.8***	***A***	***0.8***	***A***	***0.8***	***A***	***0.8***	***A***	***0.8***	***A***
NB	10.5	B	15.7	C	16.8	C	18.3	C	20.4	C	23.3	C
EB	0	A	0	A	0	A	0	A	0	A	0	A
WB	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
Turn Lanes Only												
Intersection	***0.1***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***
NB	10.5	B	15.7	C	16.8	C	18.3	C	20.4	C	23.3	C
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	8.1	A	8.3	A	8.4	A	8.4	A	8.5	A	8.6	A
WB Approach	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A

TWLTL												
Intersection	***0.1***	***A***	***0.6***	***A***	***0.6***	***A***	***0.5***	***A***	***0.5***	***A***	***0.5***	***A***
NB	10.5	B	12.2	B	12.6	B	13	B	13.6	B	14.3	B
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	8.1	A	8.3	A	8.4	A	8.4	A	8.5	A	8.6	A
WB Approach	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Prescott East Highway

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***6.1***	***A***	***7.2***	***A***	***9.8***	***A***	***13.2***	***A***	***23.4***	***B***	***60.1***	***C***
NB	0.4	A	0.8	A	0.6	A	0.6	A	0.5	A	0.5	A
EB	10.6	B	10.7	B	11.2	B	11.5	B	11.9	B	12.4	B
WB	11.7	B	12.2	B	16.2	C	21.8	C	39	E	99.5	F
SB	1	A	1.7	A	1.6	A	1.7	A	1.8	A	1.7	A
Turn Lanes Only												
Intersection	***5.8***	***A***	***6.6***	***A***	***8***	***A***	***9.3***	***A***	***11.9***	***A***	***19.6***	***B***
NB	0.4	A	0.8	A	0.6	A	0.6	A	0.5	A	0.5	A
EB Left EB Thru/Right	10.6	B	10.7	B	11.2	B	11.5	B	11.9	B	12.4	B
EB Approach	10.6	B	10.7	B	11.2	B	11.5	B	11.9	B	12.4	B
WB Left	11.3	B	11.3	B	13.7	B	16.4	C	22.2	C	39.2	E
WB Thru/Right	10.3	B	10.6	B	10.8	B	11	B	11.4	B	11.7	B
WB Approach	11.1	B	11	B	12.7	B	14.7	B	18.9	C	31.3	D
SB	1	A	1.7	A	1.6	A	1.7	A	1.8	A	1.7	A

Treasure Dr

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***2.1***	***A***	***1.7***	***A***	***1.4***	***A***	***1.3***	***A***	***1.3***	***A***	***1.3***	***A***
EB	0.6	A	1.1	A	1	A	1	A	0.9	A	0.9	A
WB	0	A	0	A	0	A	0	A	0	A	0	A
SB	10.2	B	11.5	B	13.4	B	14.9	B	17.1	C	20.3	C
Turn Lanes Only												
Intersection	***2.1***	***A***	***1.6***	***A***	***1.4***	***A***	***1.3***	***A***	***1.2***	***A***	***1.2***	***A***
EB Left	7.5	A	7.8	A	8.2	A	8.5	A	8.8	A	9.2	A
EB Approach	0.6	A	1	A	0.8	A	0.8	A	0.7	A	0.7	A
WB Approach	0	A	0	A	0	A	0	A	0	A	0	A
SB	10.2	B	11.5	B	13.4	B	14.9	B	17.1	C	20.3	C
TWLTL												
Intersection	***2***	***A***	***1.5***	***A***	***1.2***	***A***	***1.1***	***A***	***1***	***A***	***0.9***	***A***
EB Left	7.5	A	7.8	A	8.2	A	8.5	A	8.8	A	9.2	A
EB Approach	0.6	A	1	A	0.8	A	0.8	A	0.7	A	0.7	A
WB Approach	0	A	0	A	0	A	0	A	0	A	0	A
SB	9.7	A	10.3	B	11.3	B	12	B	12.9	B	14.1	B

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
TWLTL in westbound direction would not be dedicated which would benefit southbound left turns

Pima Dr

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.8***	***A***	***0.6***	***A***	***0.5***	***A***	***0.5***	***A***	***0.5***	***A***	***0.4***	***A***
EB	0.2	A	0.7	A	0.6	A	0.6	A	0.6	A	0.6	A
SB	9.8	A	10.9	B	12.4	B	13.5	B	15	B	16	C
Turn Lanes Only												
Intersection	***0.8***	***A***	***0.6***	***A***	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***
EB Left	7.5	A	7.8	A	8.2	A	8.5	A	8.8	A	8.9	A
EB Approach	0.2	A	0.6	A	0.5	A	0.5	A	0.5	A	0.4	A
WB Approach	0	A	0	A	0	A	0	A	0	A	0	A
SB	9.8	A	10.9	B	12.4	B	13.5	B	15	B	16	C
TWLTL												
Intersection	***0.8***	***A***	***0.6***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.3***	***A***
EB Left	7.5	A	7.8	A	8.2	A	8.5	A	8.8	A	8.9	A
EB Approach	0.2	A	0.6	A	0.5	A	0.5	A	0.5	A	0.4	A
WB Approach	0	A	0	A	0	A	0	A	0	A	0	A
SB	9.4	A	10.1	B	11	B	11.7	B	12.5	B	13	B

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
TWLTL in westbound direction would not be dedicated which would benefit southbound left turns

Date Creek Dr

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***1.5***	***A***	***1.4***	***A***	***1.2***	***A***	***1.2***	***A***	***1.2***	***A***	***1.2***	***B***
NB	10.5	B	10.9	B	12.1	B	13	B	14.2	B	16	C
EB	0	A	0.3	A	0.2	A	0.2	A	0.2	A	0.3	A
WB	0.9	A	0.9	A	0.7	A	0.7	A	0.7	A	0.7	A
SB	11.7	B	13.7	B	17	C	19.6	C	23.5	C	29.3	D
Turn Lanes Only												
Intersection	***1.5***	***A***	***1.3***	***A***	***1.1***	***A***	***1***	***A***	***0.9***	***A***	***0.9***	***A***
NB	10.5	B	10.9	B	12.1	B	12.9	B	14.2	B	16	C
EB Left	7.5	A	7.9	A	8.4	A	8.7	A	9.1	A	9.5	A
EB Approach	0	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.7	A	7.8	A	7.9	A	8	A	8	A
WB Approach	0.8	A	0.7	A	0.5	A	0.4	A	0.3	A	0.3	A
SB	11.7	B	13.6	B	16.9	C	19.6	C	23.4	C	29.3	D

TWLTL												
Intersection	***1.4***	***A***	***1.2***	***A***	***1***	***A***	***0.9***	***A***	***0.8***	***A***	***0.7***	***A***
NB	10	A	10.2	A	10.8	B	11.2	B	11.7	B	12.4	B
EB Left	7.5	A	7.9	A	8.4	A	8.7	A	9.1	A	9.5	A
EB Approach	0	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.7	A	7.8	A	7.9	A	8	A	8	A
WB Approach	0.8	A	0.7	A	0.5	A	0.4	A	0.3	A	0.3	A
SB	10.4	B	11.3	B	12.7	B	13.7	B	15	C	16.9	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Cedar Springs Ln

	AM With School		PM Background		PM +5Years		PM +10 Years		Accelerated Growth Rate 5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.5***	***A***	***1.2***	***A***	***1.1***	***A***	***1***	***A***	***1***	***A***	***1***	***B***
NB	9.6	A	10.4	B	11.1	B	11.6	B	12.3	B	13.3	B
EB	0	A	0.3	A	0.3	A	0.3	A	0.3	A	0.3	A
WB	0.3	A	0.7	A	0.5	A	0.5	A	0.5	A	0.5	A
SB	11.4	B	13.5	B	16.2	C	18.4	C	21.4	C	25.8	D
Turn Lanes Only												
Intersection	***0.4***	***A***	***1.2***	***A***	***0.9***	***A***	***0.9***	***A***	***0.8***	***A***	***0.8***	***A***
NB	9.6	A	10.4	B	11.1	B	11.6	B	12.3	B	13.3	B
EB Left	7.5	A	7.9	A	8.3	A	8.5	A	8.8	A	9.2	A
EB Approach	0	A	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.7	A	7.8	A	7.8	A	7.9	A	8	A
WB Approach	0.2	A	0.5	A	0.4	A	0.3	A	0.3	A	0.2	A
SB	11.4	B	13.5	A	16.2	C	18.4	C	21.4	C	25.8	D

TWLTL												
Intersection	***0.4***	***A***	***1.1***	***A***	***0.9***	***A***	***0.8***	***A***	***0.7***	***A***	***0.6***	***A***
NB	9.4	A	9.9	A	10.3	B	10.6	B	10.9	B	11.4	B
EB Left	7.5	A	7.9	A	8.3	A	8.5	A	8.8	A	9.2	A
EB Approach	0	A	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.7	A	7.8	A	7.8	A	7.9	A	8	A
WB Approach	0.2	A	0.5	A	0.4	A	0.3	A	0.3	A	0.2	A
SB	10.2	B	11.1	B	12.3	B	13.1	B	14.2	B	15.6	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Starlight Dr

	AM With School		PM Background		PM +5Years		PM +10 Years		Accelerated Growth Rate 5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***3.6***	***A***	***3***	***A***	***2.9***	***A***	***3***	***C***	***3.2***	***C***	***3.9***	***D***
NB	11.3	B	11.4	B	12.6	B	13.6	B	14.9	B	16.9	C
EB	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB	0.7	A	1.1	A	0.8	A	0.7	A	0.6	A	0.6	A
SB	13.4	B	18.2	C	24	C	29.2	D	37.9	E	54.4	F
Turn Lanes Only												
Intersection	***3.5***	***A***	***3***	***A***	***2.9***	***A***	***2.9***	***A***	***3.1***	***B***	***3.7***	***B***
NB	11.3	B	11.4	B	12.6	B	13.5	B	14.7	B	16.5	C
EB Left	7.6	A	8	A	8.4	A	8.7	A	9	A	9.4	A
EB Approach	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.8	A	7.9	A	8	A	8	A	8.1	A
WB Approach	0.6	A	1.1	A	0.8	A	0.7	A	0.6	A	0.6	A
SB	13.4	B	18	C	23.6	C	28.6	D	36.5	E	52	F

TWLTL												
Intersection	***3.2***	***A***	***2.5***	***A***	***2.2***	***A***	***2***	***A***	***2***	***B***	***1.9***	***B***
NB	10.5	B	10.4	A	11	B	11.4	B	11.9	B	12.6	B
EB Left	7.6	A	8	A	8.4	A	8.7	A	9	A	9.4	A
EB Approach	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
WB Left	7.7	A	7.8	A	7.9	A	8	A	8	A	8.1	A
WB Approach	0.6	A	1.1	A	0.8	A	0.7	A	0.6	A	0.6	A
SB	11.4	B	13.2	B	15	C	16.4	C	18.2	C	20.7	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Meadowlark Dr

	AM With School		PM Background		PM +5Years		PM +10 Years		Accelerated Growth Rate 5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.6***	***A***	***0.7***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.7***	***B***
NB	10.6	B	12.7	B	14.2	B	15.4	C	17	C	19.2	C
EB	0	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
WB	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	11.8	B	15.5	B	19	C	21.7	C	25.5	D	31.3	D
Turn Lanes Only												
Intersection	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***
NB	10.6	B	12.7	B	14.2	B	15.4	C	17	C	19.2	C
EB Left	7.6	A	8.2	A	8.6	A	8.9	A	9.2	A	9.6	A
EB Approach	0	A	0.1	A	0	A	0	A	0	A	0	A
WB Left	7.8	A	7.9	A	8	A	8.1	A	8.1	A	8.2	A
WB Approach	0.1	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11.8	B	15.4	C	18.9	C	21.7	C	25.5	D	31.2	D

TWLTL												
Intersection	***0.5***	***A***	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***
NB	10.2	B	11	B	11.7	B	12.1	B	12.7	B	13.4	B
EB Left	7.6	A	8.2	A	8.6	A	8.9	A	9.2	A	9.6	A
EB Approach	0	A	0.1	A	0	A	0	A	0	A	0	A
WB Left	7.8	A	7.9	A	8	A	8.1	A	8.1	A	8.2	A
WB Approach	0.1	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	10.4	B	11.9	B	13.2	B	14.1	B	15.3	C	16.9	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Valley View Dr

	AM With School		PM Background		PM +5Years		PM +10 Years		Accelerated Growth Rate 5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.9***	***A***	***1.4***	***A***	***1.3***	***A***	***1.3***	***A***	***1.3***	***A***	***1.3***	***B***
NB	10.9	B	12.5	B	13.8	B	14.9	B	16.3	C	18.5	C
EB	0.1	A	0	A	0	A	0	A	0	A	0	A
WB	0.4	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	13.2	B	15.2	C	18.2	C	20.6	C	23.9	C	28.7	D
Turn Lanes Only												
Intersection	***0.9***	***A***	***1.4***	***A***	***1.3***	***A***	***1.2***	***A***	***1.2***	***A***	***1.2***	***A***
NB	10.9	B	12.5	B	13.8	B	14.8	B	16.3	C	18.5	C
EB Left	7.6	A	0	A	0	A	0	A	0	A	0	A
EB Approach	0.1	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	7.9	A	8	A	8.1	A	8.2	A	8.3	A
WB Approach	0.3	A	0.1	A	0.1	A	0.1	A	0.1	A	0	A
SB	13.2	B	15.2	C	18.2	C	20.6	C	23.9	C	28.7	D

TWLTL												
Intersection	***0.8***	***A***	***1.2***	***A***	***1.1***	***A***	***1***	***A***	***0.9***	***A***	***0.9***	***A***
NB	10.3	B	11.3	B	11.9	B	12.3	B	12.8	B	13.5	B
EB Left	7.6	A	0	A	0	A	0	A	0	A	0	A
EB Approach	0.1	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	7.9	A	8	A	8.1	A	8.2	A	8.3	A
WB Approach	0.3	A	0.1	A	0.1	A	0.1	A	0.1	A	0	A
SB	11.1	B	11.9	B	13.1	B	14	B	15.1	C	16.5	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Mountain View Dr

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***B***
NB	11.5	B	11.4	B	12	B	12.4	B	13	B	13.8	B
EB	0.1	A	0	A	0	A	0	A	0	A	0	A
WB	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	13.2	B	17.6	C	21.4	C	24.4	C	28.4	D	34.1	D
Turn Lanes Only												
Intersection	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.3***	***A***	***0.3***	***A***	***0.3***	***A***
NB	11.5	B	11.4	B	12	B	12.4	B	13	B	13.8	B
EB Left	7.7	A	8.2	A	8.6	A	8.9	A	9.3	A	9.7	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	8.1	A	8.2	A	8.3	A	8.4	A	8.4	A
WB Approach	0.3	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	13.2	B	17.6	C	21.4	C	24.4	C	28.4	D	34.1	D

TWLTL												
Intersection	***0.4***	***A***	***0.4***	***A***	***0.3***	***A***	***0.3***	***A***	***0.3***	***A***	***0.3***	***A***
NB	10.4	B	10.9	B	11.3	B	11.5	B	11.8	B	12.2	B
EB Left	7.7	A	8.2	A	8.6	A	8.9	A	9.3	A	9.7	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	8.1	A	8.2	A	8.3	A	8.4	A	8.4	A
WB Approach	0.3	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11	B	12.6	B	13.7	B	14.6	B	15.6	C	16.9	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Lynx Lake Dr

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.8***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.8***	***B***
NB	10.7	B	12.2	B	13.2	B	14	B	15	B	16.3	C
EB	0	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
WB	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	13	B	18.4	C	22.9	C	26.5	D	31.6	D	39.1	E
Turn Lanes Only												
Intersection	***0.7***	***A***	***0.7***	***A***	***0.6***	***A***	***0.6***	***A***	***0.7***	***A***	***0.7***	***A***
NB	10.7	B	12.2	B	13.2	B	14	B	15	B	16.3	C
EB Left	0	A	8.2	A	8.7	A	8.9	A	9.3	A	9.8	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	8.2	A	8.3	A	8.3	A	8.4	A	8.5	A
WB Approach	0.3	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	13	B	18.4	C	22.9	C	26.5	D	31.6	D	39.1	E

TWLTL												
Intersection	***0.7***	***A***	***0.6***	***A***	***0.5***	***A***	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***
NB	10.2	B	11.2	B	11.7	B	12	B	12.4	B	12.9	B
EB Left	0	A	8.2	A	8.7	A	8.9	A	9.3	A	9.8	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	7.9	A	8.2	A	8.3	A	8.3	A	8.4	A	8.5	A
WB Approach	0.3	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11	B	12.8	B	14.1	B	15	C	16.2	C	17.9	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Pleasant View Dr

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.6***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***B***
NB	10.5	B	12.4	B	13.4	B	14.2	B	15.2	C	16.7	C
EB	0.1	A	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A
WB	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
SB	12.6	B	19.6	C	24.5	C	28.4	D	33.8	D	42.1	E
Turn Lanes Only												
Intersection	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***
NB	10.5	B	12.3	B	13.4	B	14.1	B	15.2	C	16.6	C
EB Left	7.7	A	8.3	A	8.7	A	9	A	9.4	A	9.9	A
EB Approach	0	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
WB Left	8	A	8.2	A	8.3	A	8.4	A	8.5	A	8.6	A
WB Approach	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	12.6	B	19.5	C	24.5	C	28.4	D	33.8	D	42.1	E

TWLTL												
Intersection	***0.6***	***A***	***0.5***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***	***0.4***	***A***
NB	10.3	B	11.3	B	11.8	B	12.1	B	12.5	B	13	B
EB Left	7.7	A	8.3	A	8.7	A	9	A	9.4	A	9.9	A
EB Approach	0	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
WB Left	8	A	8.2	A	8.3	A	8.4	A	8.5	A	8.6	A
WB Approach	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	10.8	B	13.1	B	14.4	B	15.4	C	16.6	C	18.2	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Pine View Dr

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***1***	***A***	***0.6***	***A***	***0.6***	***A***	***0.6***	***A***	***0.7***	***B***	***0.8***	***B***
NB	10.3	B	15.5	C	18.1	C	20.1	C	22.7	C	26.6	D
EB	0	A	0	A	0	A	0	A	0	A	0	A
WB	0.3	A	0.2	A	0.2	A	0.2	A	0.2	A	0.3	A
SB	14.2	B	20.8	C	26.5	D	31.2	D	37.8	E	48.1	E
Turn Lanes Only												
Intersection	***0.9***	***A***	***0.5***	***A***	***0.5***	***A***	***0.6***	***A***	***0.6***	***A***	***0.7***	***B***
NB	10.3	B	15.4	C	18	C	19.9	C	22.6	C	26.4	D
EB Left	7.7	A	0	A	0	A	0	A	0	A	0	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	8	A	8.3	A	8.4	A	8.5	A	8.5	A	8.6	A
WB Approach	0.2	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	14.2	B	20.8	C	26.5	D	31.1	D	37.7	E	48	E

TWLTL												
Intersection	***0.8***	***A***	***0.4***	***A***	***0.4***	***A***	***0.3***	***A***	***0.3***	***A***	***0.3***	***B***
NB	10.3	B	12.1	B	12.9	B	13.4	B	14.1	B	15	C
EB Left	7.7	A	0	A	0	A	0	A	0	A	0	A
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	8	A	8.3	A	8.4	A	8.5	A	8.5	A	8.6	A
WB Approach	0.2	A	0.2	A	0.1	A	0.1	A	0.1	A	0.1	A
SB	11.4	B	13.3	B	14.8	B	15.8	A	17.2	C	19	C

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

Fry's Driveway

Accelerated Growth Rate
5.4% yearly growth for first 5 years, 2.7% growth rate for rest of analysis period

	AM With School		PM Background		PM +5Years		PM +10 Years		PM +15 Years		PM +20 Years	
No Turn Lanes												
Intersection	***0.1***	***A***	***0.8***	***A***	***0.8***	***A***	***0.8***	***A***	***0.8***	***A***	***0.9***	***B***
NB	10.5	B	15.7	C	18.3	C	20.4	C	23.3	C	27.6	D
EB	0	A	0	A	0	A	0	A	0	A	0	A
WB	0.1	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
Turn Lanes Only												
Intersection	***0.1***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.7***	***A***	***0.8***	***A***
NB	10.5	B	15.7	C	18.3	C	20.4	C	23.3	C	27.6	D
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	8.1	A	8.3	A	8.4	A	8.5	A	8.6	A	8.7	A
WB Approach	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A

TWLTL												
Intersection	***0.1***	***A***	***0.6***	***A***	***0.5***	***A***	***0.5***	***A***	***0.5***	***A***	***0.5***	***A***
NB	10.5	B	12.2	B	13	B	13.6	B	14.3	B	15.2	C
EB Approach	0	A	0	A	0	A	0	A	0	A	0	A
WB Left	8.1	A	8.3	A	8.4	A	8.5	A	8.6	A	8.7	A
WB Approach	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A

Note: TWLTL assumes that third lane is not a dedicated turn lane at intersection
For safety, TWLTL in eastbound and westbound direction should be dedicated turn lanes

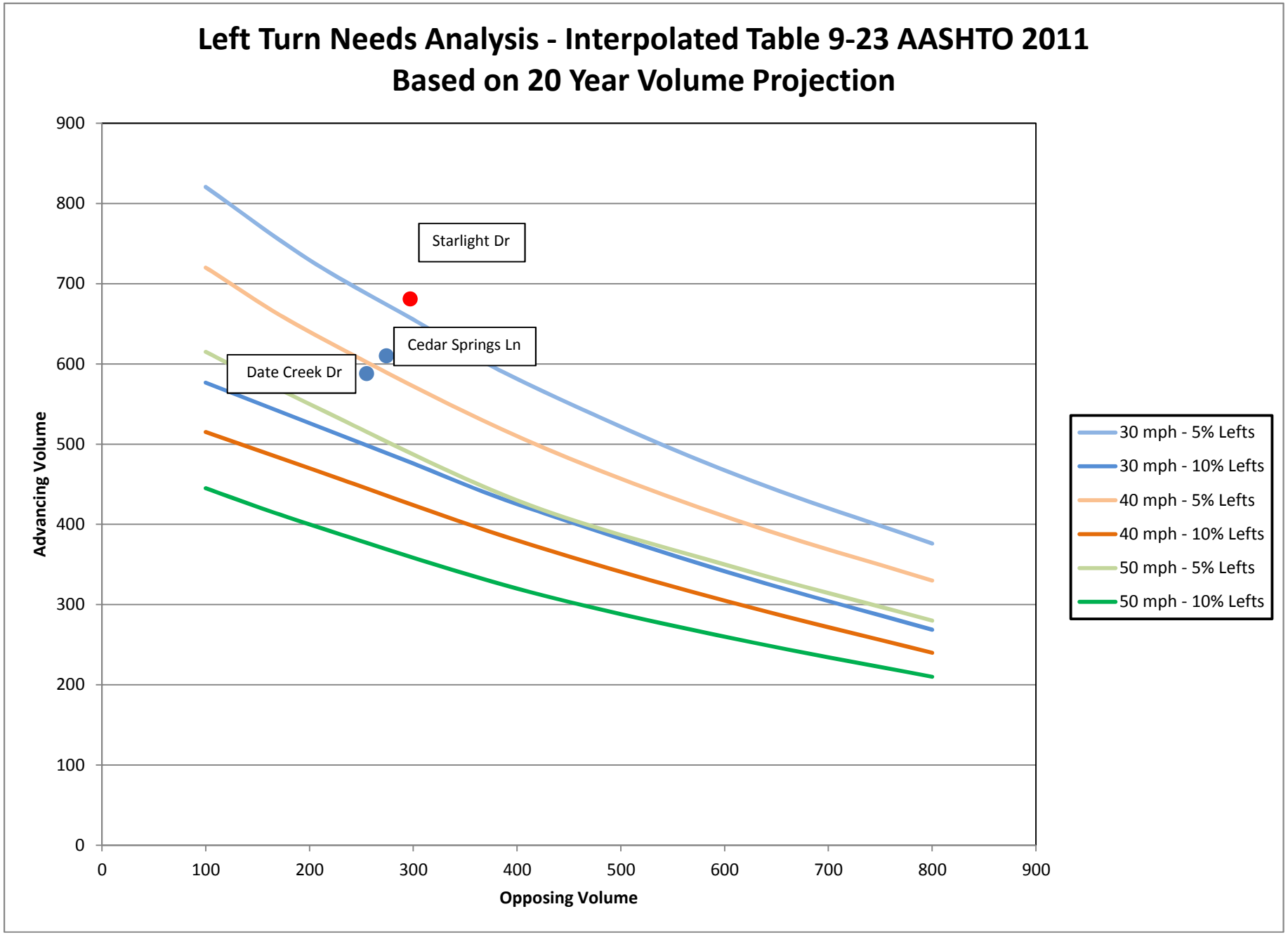
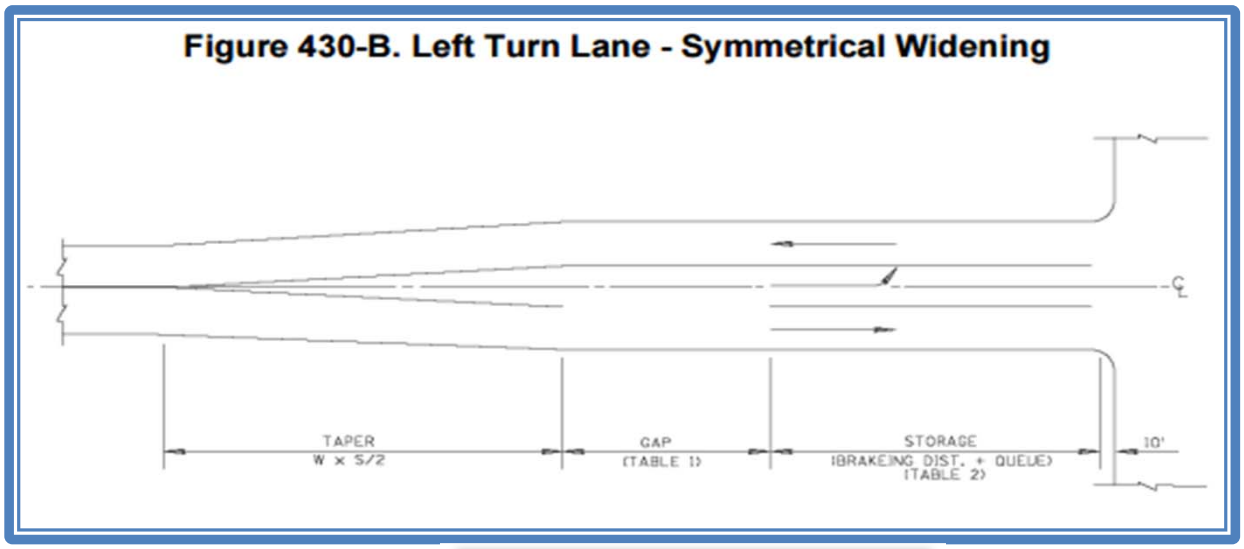

Left Turn Needs Analysis - Interpolated Table 9-23 AASHTO 2011
Based on 20 Year Volume Projection
Starlight Dr
Cedar Springs Ln
Date Creek Dr
Advancing Volume
Opposing Volume
0
100
200
300
400
500
600
700
800
900
30 mph - 5% Lefts
30 mph - 10% Lefts
40 mph - 5% Lefts
40 mph - 10% Lefts
50 mph - 5% Lefts
50 mph - 10% Lefts

Exhibit 4 –Left Turn Lane Calculation Worksheet

EXHIBIT 4 - PRESCOTT EAST HIGHWAY LEFT TURN LANE

ADOT Traffic Engineering Guidelines and Processes
June 2015
Section 400 - Pavement Markings

Figure 430-B. Left Turn Lane Symmetrical Widening



Taper Length

S=	25	mph
W=	11	ft
T=	57.3	ft

80 ft*

$T = \frac{S \times W}{2}$ For Speeds ≥ 45 mph

$T = \frac{S^2 \times W}{60 * 2}$ For Speeds < 45 mph

Where:
T = Length of Taper (ft)
W = Width of Added Lane (ft)
S = Speed (mph)

Gap Length

G=	60	ft

From Table 430-1 Left Turn Lane Gap Lengths

Storage Length

# CARS=	8	cars in queue
L=	280	ft

From Table 430-2 Braking Distance

LEFT TURN LANE LENGTH

TOTAL= 397.3 ft 420 ft*

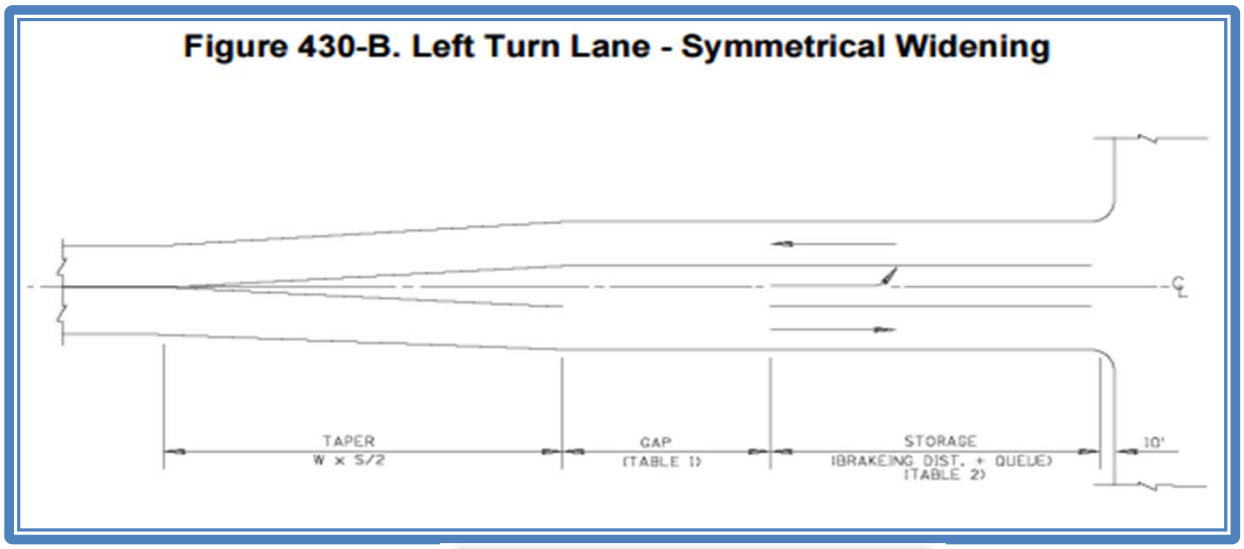
PRESCOTT EAST HIGHWAY

*A taper length of 80-ft was used instead of 57-ft to fit better with the geometry of the road

EXHIBIT 4 - STARLIGHT DRIVE LEFT TURN LANE

ADOT Traffic Engineering Guidelines and Processes
June 2015
Section 400 - Pavement Markings

Figure 430-B. Left Turn Lane Symmetrical Widening



Taper Length

S=	25	mph
W=	11	ft
T=	57.3	ft

$T = \frac{S \times W}{2}$ For Speeds ≥ 45 mph

$T = \frac{S^2 \times W}{60 * 2}$ For Speeds < 45 mph

Where:
T = Length of Taper (ft)
W = Width of Added Lane (ft)
S = Speed (mph)

Gap Length

G=	60	ft

From Table 430-1 Left Turn Lane Gap Lengths

Storage Length

# CARS=	2	cars in queue
L=	130	ft

From Table 430-2 Braking Distance

LEFT TURN LANE LENGTH

TOTAL= 247.3 ft

STARLIGHT DRIVE

Exhibit 5 – Engineer's Estimates

SUNSET LANE SUMMARY OF ESTIMATED COSTS FOR VARIOUS IMPROVEMENT ALTERNATIVES

	BASE COST	ALTERNATES	TOTAL
2 LANE (COUNTY)	Includes items such as asphalt, aggregate base course, milling, striping, traffic control, mobilization etc.	Includes curb and gutter, valley gutters, concrete driveway ramps, storm drain/manholes/catch basins	BASE COST + ALTERNATES
	$526,861	$649,840	**$1,176,701**
2 LANE (TOWN)	Includes items such as asphalt, aggregate base course, milling, striping, traffic control, mobilization etc.	Includes curb and gutter, sidewalk, valley gutters, concrete driveway ramps, storm drain/manholes/catch basins	BASE COST + ALTERNATES
	$689,012	$1,069,287	**$1,758,299**
	$1,215,872	**$1,719,127**	**$2,934,999**
2 LANE WITH TURN LANES (COUNTY)	Includes items such as asphalt, aggregate base course, milling, striping, traffic control, mobilization etc.	Includes curb and gutter, valley gutters, concrete driveway ramps, storm drain/manholes/catch basins	BASE COST + ALTERNATES
	$579,320	$649,840	**$1,229,160**
2 LANE WITH TURN LANES (TOWN)	Includes items such as asphalt, aggregate base course, milling, widening, striping, traffic control, mobilization etc.	Includes curb and gutter, sidewalk, valley gutters, concrete driveway ramps, storm drain/manholes/catch basins	BASE COST + ALTERNATES
	$725,439	$1,069,287	**$1,794,726**
	$1,304,759	**$1,719,127**	**$3,023,887**
3 LANE (COUNTY)	Includes items such as asphalt, aggregate base course, milling, striping, traffic control, mobilization etc.	Includes curb and gutter, sidewalk, retaining walls, handrails, valley gutters, concrete driveway ramps, storm drain/manholes/catch basins	BASE COST + ALTERNATES
	$965,759	$1,699,325	**$2,665,084**
3 LANE (TOWN)	Includes items such as asphalt, aggregate base course, milling, widening, striping, traffic control, mobilization etc.	Includes curb and gutter, sidewalk, retaining walls, handrails, valley gutters, concrete driveway ramps, storm drain/manholes/catch basins	BASE COST + ALTERNATES
	$1,275,288	$2,188,477	**$3,463,765**
	$2,241,047	**$3,887,802**	**$6,128,849**
3 LANE LOWERED (COUNTY)	Includes items such as asphalt, aggregate base course, milling, striping, traffic control, mobilization etc.	Includes curb and gutter, sidewalk, retaining walls, handrails, valley gutters, concrete driveway ramps, storm drain/manholes/catch basins	BASE COST + ALTERNATES
	$1,259,962	$1,055,530	**$2,315,492**
3 LANE LOWERED (TOWN)	Includes items such as asphalt, aggregate base course, milling, widening, striping, traffic control, mobilization etc.	Includes curb and gutter, sidewalk, retaining walls, handrails, valley gutters, concrete driveway ramps, storm drain/manholes/catch basins	BASE COST + ALTERNATES
	$1,646,929	$1,228,340	**$2,875,269**
	$2,906,891	**$2,283,870**	**$5,190,761**

Sunset Lane Widening (Yavapai County Portion)
Alternate 1: Two Lanes

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
AC MAG 321 2.5" (OVERLAY)	895	TON	$ 110.00	$ 98,491
SURFACE PROFILE MILL	6,283	SY	$ 3.00	$ 18,850
AGGREGATE BASE COURSE FOR CURB/GUTTER AND UNPAVED SHOULDER	549	TON	$ 40.00	$ 21,962
BASE PREPARATION/EXCAVATION	2,711	SY	$ 8.00	$ 21,691
TACK COAT (0.10 gal/sy)	628	GAL	$ 3.50	$ 2,199
DECOMPOSED GRANITE	174	TON	$ 15.00	$ 2,603
48" CULVERT EXTENSION	10	LF	$ 80.00	$ 800
CONCRETE DRAINAGE STRUCTURE	2	EA	$ 8,000.00	$ 16,000
STRIPING, YELLOW	8056	LF (4" equiv)	$ 0.15	$ 1,208
STRIPING, WHITE	8056	LF (4" equiv)	$ 0.15	$ 1,208
THERMOPLASTIC STRIPING	500	LF (4" equiv)	$ 2.00	$ 1,000
PAVEMENT MATCHING ROADWAY	7	EA	$ 2,000	$ 14,000
PAVEMENT MATCHING DRIVEWAYS	35	EA	$ 650	$ 22,750
DRAINAGE EASEMENT	14,098	SF	$ 1.00	$ 14,098
FINAL DESIGN SERVICES	1	LS	$ 107,000	$ 107,000
QUALITY CONTROL	1	LS	$ 15,000	$ 15,000
CONSTRUCTION STAKING	1	LS	$ 18,000	$ 18,000
TRAFFIC CONTROL	1	LS	$ 61,000	$ 61,000
MOBILIZATION	1	LS	$ 44,000	$ 44,000
FORCE ACCOUNT	1	LS	$ 45,000	$ 45,000
			Sub Total	**$ 526,861**

MAG TYPE "A" CURB AND GUTTER	4067	LF	$ 20.00	$ 81,340
MAG 240 VALLEY GUTTERS	3450	SF	$ 15.00	$ 51,750
CONCRETE DRIVEWAY RAMPS MAG 250	35	EA	$ 2,000.00	$ 70,000
STORM DRAIN	2014	LF	$ 150.00	$ 302,100
STORM DRAIN AB PATCH	544	TON	$ 40.00	$ 21,751
STORM DRAIN 4" AC PATCH	408	TON	$ 110.00	$ 44,899
STORM DRAIN MANHOLE	4	EA	$ 5,500.00	$ 22,000
MAG 531 CATCH BASIN	14	EA	$ 4,000.00	$ 56,000
			Sub Total	**$ 649,840**
			TOTAL	**$ 1,176,701**

Other assumptions/details:

DENSITY AC	152	LB/FT^3
DENSITY AB	135	LB/FT^3
DENSITY DG	128	LB/FT^3
LENGTH OF SUNSET LN (COUNTY PORTION)	2014	FT
LENGTH OF CURB	4067	FT
SUNSET LN AVERAGE WIDTH	26	FT
SUNSET LN UNPAVED SHOULDER WIDTH	4	FT
SUNSET LN CURB & GUTTER WIDTH	2	FT
AB DEPTH UNDER CURB/GUTTER AND SHOULDER	4	IN
UNPAVED SHOULDER DECOMPOSED GRANITE DEPTH	2	IN
AC OVERLAY AREA	56550	FT^2
APPROXIMATE AREA OF CONCRETE VALLEY GUTTER	575	FT^2

Sunset Lane Widening (Town of Prescott Valley Portion)
Alternate 1: Two Lanes

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
AC MAG 321 2" (OVERLAY)	993	TON	$ 110.00	$ 109,196
SURFACE PROFILE MILL	8,708	SY	$ 3.00	$ 26,123
AGGREGATE BASE COURSE FOR CURB/GUTTER AND UNPAVED SHOULDER	697	TON	$ 40.00	$ 27,864
BASE PREPARATION/EXCAVATION	3,440	SY	$ 8.00	$ 27,520
TACK COAT (0.10 gal/sy)	871	GAL	$ 3.50	$ 3,048
DECOMPOSED GRANITE	220	TON	$ 15.00	$ 3,302
STRIPING, YELLOW	10212	LF (4" equiv)	$ 0.15	$ 1,532
STRIPING, WHITE	10212	LF (4" equiv)	$ 0.15	$ 1,532
THERMOPLASTIC STRIPING	500	LF (4" equiv)	$ 2.00	$ 1,000
PAVEMENT MATCHING ROADWAY	15	EA	$ 2,000	$ 30,000
PAVEMENT MATCHING DRIVEWAYS	24	EA	$ 650	$ 15,600
DRAINAGE EASEMENT	38,295	SF	$ 1.00	$ 38,295
FINAL DESIGN SERVICES	1	LS	$ 160,000	$ 160,000
QUALITY CONTROL	1	LS	$ 18,000	$ 18,000
CONSTRUCTION STAKING	1	LS	$ 24,000	$ 24,000
TRAFFIC CONTROL	1	LS	$ 90,000	$ 90,000
MOBILIZATION	1	LS	$ 57,000	$ 57,000
FORCE ACCOUNT	1	LS	$ 55,000	$ 55,000
			Sub Total	**$ 689,012**

MAG TYPE "A" CURB AND GUTTER	5160	LF	$ 20.00	$ 103,200
MAG 240 VALLEY GUTTERS	8050	SF	$ 15.00	$ 120,750
CONCRETE DRIVEWAY RAMPS MAG 250	24	EA	$ 2,000.00	$ 48,000
STORM DRAIN	2553	LF	$ 150.00	$ 382,950
STORM DRAIN AB PATCH	689	TON	$ 40.00	$ 27,572
STORM DRAIN 4" AC PATCH	517	TON	$ 110.00	$ 56,915
STORM DRAIN MANHOLE	5	EA	$ 5,500.00	$ 27,500
SIDEWALK	20640	SF	$ 10.00	$ 206,400
CATCH BASIN	24	EA	$ 4,000.00	$ 96,000
			Sub Total	**$ 1,069,287**
			TOTAL	**$ 1,758,299**

Other assumptions/details:

DENSITY AC	152	LB/FT^3
DENSITY AB	135	LB/FT^3
DENSITY DG	128	LB/FT^3
LENGTH OF SUNSET LN (TOWN PORTION)	2553	FT
LENGTH OF CURB	5160	FT
SUNSET LN AVERAGE WIDTH	24	FT
SUNSET LN UNPAVED SHOULDER WIDTH	4	FT
SUNSET LN CURB & GUTTER WIDTH	2	FT
AB DEPTH UNDER CURB/GUTTER AND SHOULDER	4	IN
UNPAVED SHOULDER DECOMPOSED GRANITE DEPTH	2	IN
AC OVERLAY AREA	78370	FT^2
APPROXIMATE AREA OF CONCRETE VALLEY GUTTER	575	FT^2

Sunset Lane Widening (Yavapai County Portion)
Alternate 2: Two Lanes with Left Turn Lanes

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
AC MAG 321 2.5" (OVERLAY)	944	TON	$ 110.00	$ 103,803
AC MAG 321 6.5" (WIDENING)	173	TON	$ 110.00	$ 19,064
SURFACE PROFILE MILL	6,622	SY	$ 3.00	$ 19,867
AGGREGATE BASE COURSE (AC WIDENING, CURB/GUTTER AND UNPAVED SHOULDER)	550	TON	$ 40.00	$ 22,004
BASE PREPARATION/EXCAVATION	3,179	SY	$ 8.00	$ 25,433
TACK COAT (0.10 gal/sy)	709	GAL	$ 3.50	$ 2,482
DECOMPOSED GRANITE	174	TON	$ 15.00	$ 2,603
48" CULVERT EXTENSION	10	LF	$ 80.00	$ 800
CONCRETE DRAINAGE STRUCTURE	2	EA	$ 8,000.00	$ 16,000
STRIPING, YELLOW	8056	LF (4" equiv)	$ 0.15	$ 1,208
STRIPING, WHITE	8056	LF (4" equiv)	$ 0.15	$ 1,208
THERMOPLASTIC STRIPING	500	LF (4" equiv)	$ 2.00	$ 1,000
PAVEMENT MATCHING ROADWAY	7	EA	$ 2,000	$ 14,000
PAVEMENT MATCHING DRIVEWAYS	35	EA	$ 650	$ 22,750
DRAINAGE EASEMENT	14,098	SF	$ 1.00	$ 14,098
FINAL DESIGN SERVICES	1	LS	$ 112,000	$ 112,000
QUALITY CONTROL	1	LS	$ 16,000	$ 16,000
CONSTRUCTION STAKING	1	LS	$ 22,000	$ 22,000
TRAFFIC CONTROL	1	LS	$ 63,000	$ 63,000
MOBILIZATION	1	LS	$ 52,000	$ 52,000
FORCE ACCOUNT	1	LS	$ 48,000	$ 48,000
			Sub Total	**$ 579,320**

MAG TYPE "A" CURB AND GUTTER	4067	LF	$ 20.00	$ 81,340
MAG 240 VALLEY GUTTERS	3450	SF	$ 15.00	$ 51,750
CONCRETE DRIVEWAY RAMPS MAG 250	35	EA	$ 2,000.00	$ 70,000
STORM DRAIN	2014	LF	$ 150.00	$ 302,100
STORM DRAIN AB PATCH	544	TON	$ 40.00	$ 21,751
STORM DRAIN 4" AC PATCH	408	TON	$ 110.00	$ 44,899
STORM DRAIN MANHOLE	4	EA	$ 5,500.00	$ 22,000
MAG 531 CATCH BASIN	14	EA	$ 4,000.00	$ 56,000
			Sub Total	**$ 649,840**

TOTAL	**$ 1,229,160**

Other assumptions/details:

DENSITY AC	152	LB/FT^3
DENSITY AB	135	LB/FT^3
DENSITY DG	128	LB/FT^3
LENGTH OF SUNSET LN (COUNTY PORTION)	2014	FT
LENGTH OF CURB	4067	FT
SUNSET LN AVERAGE WIDTH	26	FT
SUNSET LN UNPAVED SHOULDER WIDTH	4	FT
SUNSET LN CURB & GUTTER WIDTH	2	FT
AB DEPTH (AC WIDENING)	6	IN
AB DEPTH (CURB/GUTTER AND UNPAVED SHOULDER)	4	IN
UNPAVED SHOULDER DECOMPOSED GRANITE DEPTH	2	IN
AC OVERLAY AREA	59600	FT^2
AC WIDENING AREA	4210	FT^2

Sunset Lane Widening (Town of Prescott Valley Portion)
Alternate 2: Two Lanes with Left Turn Lanes

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
AC MAG 321 2" (OVERLAY)	985	TON	$ 110.00	$ 108,401
AC MAG 321 6.5" (WIDENING)	148	TON	$ 110.00	$ 16,257
SURFACE PROFILE MILL	8,644	SY	$ 3.00	$ 25,933
AGGREGATE BASE COURSE (AC WIDENING, CURB/GUTTER AND UNPAVED SHOULDER)	818	TON	$ 40.00	$ 32,711
BASE PREPARATION/EXCAVATION	3,839	SY	$ 8.00	$ 30,711
TACK COAT (0.10 gal/sy)	904	GAL	$ 3.50	$ 3,165
DECOMPOSED GRANITE	220	TON	$ 15.00	$ 3,302
STRIPING, YELLOW	10212	LF (4" equiv)	$ 0.15	$ 1,532
STRIPING, WHITE	10212	LF (4" equiv)	$ 0.15	$ 1,532
THERMOPLASTIC STRIPING	500	LF (4" equiv)	$ 2.00	$ 1,000
PAVEMENT MATCHING ROADWAY	15	EA	$ 2,000	$ 30,000
PAVEMENT MATCHING DRIVEWAYS	24	EA	$ 650	$ 15,600
DRAINAGE EASEMENT	38,295	SF	$ 1.00	$ 38,295
FINAL DESIGN SERVICES	1	LS	$ 163,000	$ 163,000
QUALITY CONTROL	1	LS	$ 18,000	$ 18,000
CONSTRUCTION STAKING	1	LS	$ 24,000	$ 24,000
TRAFFIC CONTROL	1	LS	$ 92,000	$ 92,000
MOBILIZATION	1	LS	$ 60,000	$ 60,000
FORCE ACCOUNT	1	LS	$ 60,000	$ 60,000
			Sub Total	**$ 725,439**

MAG TYPE "A" CURB AND GUTTER	5160	LF	$ 20.00	$ 103,200
MAG 240 VALLEY GUTTERS	8050	SF	$ 15.00	$ 120,750
CONCRETE DRIVEWAY RAMPS MAG 250	24	EA	$ 2,000.00	$ 48,000
STORM DRAIN	2553	LF	$ 150.00	$ 382,950
STORM DRAIN MANHOLE	5	EA	$ 5,500.00	$ 27,500
STORM DRAIN AB PATCH	689	TON	$ 40.00	$ 27,572
STORM DRAIN 4" AC PATCH	517	TON	$ 110.00	$ 56,915
SIDEWALK	20640	SF	$ 10.00	$ 206,400
CATCH BASIN	24	EA	$ 4,000.00	$ 96,000
			Sub Total	**$ 1,069,287**
			TOTAL	**$ 1,794,726**

Other assumptions/details:

DENSITY AC	152	LB/FT^3
DENSITY AB	135	LB/FT^3
DENSITY DG	128	LB/FT^3
LENGTH OF SUNSET LN (TOWN PORTION)	2553	FT
LENGTH OF CURB	5160	FT
SUNSET LN AVERAGE WIDTH	24	FT
SUNSET LN UNPAVED SHOULDER WIDTH	4	FT
SUNSET LN CURB & GUTTER WIDTH	2	FT
AB DEPTH (AC WIDENING)	6	IN
AB DEPTH (CURB/GUTTER AND UNPAVED SHOULDER)	4	IN
UNPAVED SHOULDER DECOMPOSED GRANITE DEPTH	2	IN
AC OVERLAY AREA	77800	FT^2
AC WIDENING AREA	3590	FT^2

Sunset Lane Widening (Yavapai County Portion)
Alternate 3: Three Lanes

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
AC MAG 321 2.5" (OVERLAY)	1,029	TON	$ 110.00	$ 113,226
AC MAG 321 6.5" (WIDENING)	720	TON	$ 110.00	$ 79,155
SURFACE PROFILE MILL	7,223	SY	$ 3.00	$ 21,670
AGGREGATE BASE COURSE WIDENING (AC WIDENING, CURB/GUTTER AND SIDEWALK)	1,229	TON	$ 40.00	$ 49,176
WIDENING BASE PREPARATION/EXCAVATION	5,100	SY	$ 8.00	$ 40,800
TACK COAT (0.10 gal/sy)	917	GAL	$ 3.50	$ 3,208
48" CULVERT EXTENSION	10	LF	$ 80.00	$ 800
CONCRETE DRAINAGE STRUCTURE	2	EA	$ 8,000.00	$ 16,000
STRIPING, YELLOW	16112	LF (4" equiv)	$ 0.15	$ 2,417
STRIPING, WHITE	16112	LF (4" equiv)	$ 0.15	$ 2,417
THERMOPLASTIC STRIPING	500	LF (4" equiv)	$ 2.00	$ 1,000
PAVEMENT MATCHING ROADWAY	7	EA	$ 2,000	$ 14,000
PAVEMENT MATCHING DRIVEWAYS	35	EA	$ 650	$ 22,750
DRAINAGE EASEMENT	20,140	SF	$ 1.00	$ 20,140
QUALITY CONTROL	1	LS	$ 25,000	$ 25,000
CONSTRUCTION STAKING	1	LS	$ 30,000	$ 30,000
FINAL DESIGN SERVICES	1	LS	$ 242,000	$ 242,000
TRAFFIC CONTROL	1	LS	$ 137,000	$ 137,000
MOBILIZATION	1	LS	$ 75,000	$ 75,000
FORCE ACCOUNT	1	LS	$ 70,000	$ 70,000
			Sub Total	**$ 965,759**

MAG TYPE "A" CURB AND GUTTER	4060	LF	$ 20.00	$ 81,200
MAG 240 VALLEY GUTTERS	3450	SF	$ 15.00	$ 51,750
CONCRETE DRIVEWAY RAMPS MAG 250	35	EA	$ 2,000.00	$ 70,000
STORM DRAIN	2014	LF	$ 150.00	$ 302,100
STORM DRAIN AB PATCH	544	TON	$ 40.00	$ 21,751
STORM DRAIN 4" AC PATCH	408	TON	$ 110.00	$ 44,899
STORM DRAIN MANHOLE	4	EA	$ 5,500.00	$ 22,000
SIDEWALK	20300	SF	$ 10.00	$ 203,000
RETAINING WALL	11206	SF	$ 55.00	$ 616,330
HANDRAIL	3543	LF	$ 65.00	$ 230,295
MAG 531 CATCH BASIN	14	EA	$ 4,000.00	$ 56,000
			Sub Total	**$ 1,699,325**
			TOTAL	**$ 2,665,084**

Other assumptions/details:

DENSITY AC	152	LB/FT^3
DENSITY AB	135	LB/FT^3
DENSITY DG	128	LB/FT^3
LENGTH OF SUNSET LN (COUNTY PORTION)	2014	FT
LENGTH OF CURB	4060	FT
SUNSET LN AVERAGE WIDTH	26	FT
SUNSET LN SIDEWALK WIDTH	5	FT
SUNSET LN CURB & GUTTER WIDTH	2	FT
AB DEPTH (AC WIDENING, CURB/GUTTER)	6	IN
AB DEPTH (SIDEWALK)	4	IN
AC OVERLAY AREA	65010	FT^2
AC WIDENING AREA	17480	FT^2

Sunset Lane Widening (Town of Prescott Valley Portion)
Alternate 3: Three Lanes

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
AC MAG 321 2" (OVERLAY)	1,050	TON	$ 110.00	$ 115,452
AC MAG 321 6.5" (WIDENING)	1,196	TON	$ 110.00	$ 131,548
SURFACE PROFILE MILL	9,207	SY	$ 3.00	$ 27,620
AGGREGATE BASE COURSE WIDENING (AC WIDENING, CURB/GUTTER AND SIDEWALK)	1,792	TON	$ 40.00	$ 71,663
WIDENING BASE PREPARATION/EXCAVATION	7,233	SY	$ 8.00	$ 57,867
TACK COAT (0.10 gal/sy)	1,243	GAL	$ 3.50	$ 4,352
STRIPING, YELLOW	20424	LF (4" equiv)	$ 0.15	$ 3,064
STRIPING, WHITE	20424	LF (4" equiv)	$ 0.15	$ 3,064
THERMOPLASTIC STRIPING	500	LF (4" equiv)	$ 2.00	$ 1,000
PAVEMENT MATCHING ROADWAY	15	EA	$ 2,000	$ 30,000
PAVEMENT MATCHING DRIVEWAYS	24	EA	$ 650	$ 15,600
DRAINAGE EASEMENT	51,060	SF	$ 1.00	$ 51,060
QUALITY CONTROL	1	LS	$ 30,000	$ 30,000
CONSTRUCTION STAKING	1	LS	$ 40,000	$ 40,000
FINAL DESIGN SERVICES	1	LS	$ 315,000	$ 315,000
TRAFFIC CONTROL	1	LS	$ 178,000	$ 178,000
MOBILIZATION	1	LS	$ 100,000	$ 100,000
FORCE ACCOUNT	1	LS	$ 100,000	$ 100,000
			Sub Total	**$ 1,275,288**
MAG TYPE "A" CURB AND GUTTER	5150	LF	$ 20.00	$ 103,000
MAG 240 VALLEY GUTTERS	8050	SF	$ 15.00	$ 120,750
CONCRETE DRIVEWAY RAMPS MAG 250	24	EA	$ 2,000.00	$ 48,000
STORM DRAIN	2553	LF	$ 150.00	$ 382,950
STORM DRAIN AB PATCH	689	TON	$ 40.00	$ 27,572
STORM DRAIN 4" AC PATCH	517	TON	$ 110.00	$ 56,915
STORM DRAIN MANHOLE	5	EA	$ 5,500.00	$ 27,500
SIDEWALK	25750	SF	$ 10.00	$ 257,500
RETAINING WALL	14149	SF	$ 55.00	$ 778,195
HANDRAIL	4463	LF	$ 65.00	$ 290,095
CATCH BASIN	24	EA	$ 4,000.00	$ 96,000
			Sub Total	**$ 2,188,477**
			TOTAL	**$ 3,463,765**

Other assumptions/details:

DENSITY AC	152	LB/FT^3
DENSITY AB	135	LB/FT^3
DENSITY DG	128	LB/FT^3
LENGTH OF SUNSET LN (TOWN PORTION)	2553	FT
LENGTH OF CURB	5150	FT
SUNSET LN AVERAGE WIDTH	24	FT
SUNSET LN SIDEWALK WIDTH	5	FT
SUNSET LN CURB & GUTTER WIDTH	2	FT
AB DEPTH (AC WIDENING, CURB/GUTTER)	6	IN
AB DEPTH (SIDEWALK)	4	IN
AC OVERLAY AREA	82860	FT^2
AC WIDENING AREA	29050	FT^2

Sunset Lane Widening (Yavapai County Portion)
Alternate 4: Three Lanes With Lowered Road

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
AC MAG 321 6.5" (OVERLAY)	3,396	TON	$ 110.00	$ 373,542
AGGREGATE BASE COURSE (AC, CURB/GUTTER, SIDEWALK)	3,515	TON	$ 40.00	$ 140,594
BASE PREPARATION	12,323	SY	$ 1.50	$ 18,485
EXCAVATION AND HAUL	5,735	CY	$ 16.00	$ 91,760
SURFACE MILLING 6" AC	7,223	SY	$ 3.00	$ 21,670
TACK COAT (0.10 gal/sy)	917	GAL	$ 3.50	$ 3,208
48" CULVERT EXTENSION	10	LF	$ 80.00	$ 800
CONCRETE DRAINAGE STRUCTURE	2	EA	$ 8,000.00	$ 16,000
STRIPING, YELLOW	16112	LF (4" equiv)	$ 0.15	$ 2,417
STRIPING, WHITE	16112	LF (4" equiv)	$ 0.15	$ 2,417
THERMOPLASTIC STRIPING	500	LF (4" equiv)	$ 2.00	$ 1,000
PAVEMENT MATCHING ROADWAY	7	EA	$ 2,000	$ 14,000
PAVEMENT MATCHING DRIVEWAYS	35	EA	$ 1,000	$ 35,000
DRAINAGE EASEMENT	10,070	SF	$ 1.00	$ 10,070
QUALITY CONTROL	1	LS	$ 25,000	$ 25,000
CONSTRUCTION STAKING	1	LS	$ 30,000	$ 30,000
FINAL DESIGN SERVICES	1	LS	$ 210,000	$ 210,000
TRAFFIC CONTROL	1	LS	$ 119,000	$ 119,000
MOBILIZATION	1	LS	$ 75,000	$ 75,000
FORCE ACCOUNT	1	LS	$ 70,000	$ 70,000
			Sub Total	**$ 1,259,962**

MAG TYPE "A" CURB AND GUTTER	4060	LF	$ 20.00	$ 81,200
MAG 240 VALLEY GUTTERS	3450	SF	$ 15.00	$ 51,750
CONCRETE DRIVEWAY RAMPS MAG 250	35	EA	$ 2,000.00	$ 70,000
STORM DRAIN	2014	LF	$ 150.00	$ 302,100
STORM DRAIN MANHOLE	4	EA	$ 5,500.00	$ 22,000
CONCRETE SCUPPERS	6	EA	$ 3,500.00	$ 21,000
SIDEWALK	20300	SF	$ 10.00	$ 203,000
RETAINING WALL	1330	SF	$ 55.00	$ 73,150
HANDRAIL	550	LF	$ 65.00	$ 35,750
GUARDRAIL	550	LF	$ 22.00	$ 12,100
GUARDRAIL END TREATMENT	4	EA	$ 2,200.00	$ 8,800
UTILITY RELOCATION	1	LS	$ 132,680	$ 132,680
MAG 531 CATCH BASIN	14	EA	$ 3,000.00	$ 42,000
			Sub Total	**$ 1,055,530**
			TOTAL	**$ 2,315,492**

Other assumptions/details:

DENSITY AC	152	LB/FT^3
DENSITY AB	135	LB/FT^3
DENSITY DG	128	LB/FT^3
LENGTH OF SUNSET LN (COUNTY PORTION)	2014	FT
LENGTH OF CURB	4060	FT
SUNSET LN AVERAGE WIDTH	26	FT
SUNSET LN SIDEWALK WIDTH	5	FT
SUNSET LN CURB & GUTTER WIDTH	2	FT
AB DEPTH (AC, CURB/GUTTER)	6	IN
AB DEPTH (SIDEWALK)	4	IN
AC OVERLAY AREA	65010	FT^2
AC WIDENING AREA	17480	FT^2

Sunset Lane Widening (Town of Prescott Valley Portion)
Alternate 4: Three Lanes With Lowered Road

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
AC MAG 321 6.5" (OVERLAY)	4,607	TON	$ 110.00	$ 506,766
AGGREGATE BASE COURSE (AC, CURB/GUTTER, SIDEWALK)	4,704	TON	$ 40.00	$ 188,159
BASE PREPARATION	16,440	SY	$ 1.50	$ 24,660
EXCAVATION AND HAUL	8,905	CY	$ 16.00	$ 142,480
SURFACE MILLING 6" AC	9,207	SY	$ 3.00	$ 27,620
TACK COAT (0.10 gal/sy)	1,243	GAL	$ 3.50	$ 4,352
STRIPING, YELLOW	20424	LF (4" equiv)	$ 0.15	$ 3,064
STRIPING, WHITE	20424	LF (4" equiv)	$ 0.15	$ 3,064
THERMOPLASTIC STRIPING	500	LF (4" equiv)	$ 2.00	$ 1,000
PAVEMENT MATCHING ROADWAY	15	EA	$ 2,000	$ 30,000
PAVEMENT MATCHING DRIVEWAYS	24	EA	$ 1,000	$ 24,000
DRAINAGE EASEMENT	12,765	SF	$ 1.00	$ 12,765
QUALITY CONTROL	1	LS	$ 30,000	$ 30,000
CONSTRUCTION STAKING	1	LS	$ 40,000	$ 40,000
FINAL DESIGN SERVICES	1	LS	$ 261,000	$ 261,000
TRAFFIC CONTROL	1	LS	$ 148,000	$ 148,000
MOBILIZATION	1	LS	$ 100,000	$ 100,000
FORCE ACCOUNT	1	LS	$ 100,000	$ 100,000
			Sub Total	**$ 1,646,929**

MAG TYPE "A" CURB AND GUTTER	5150	LF	$ 20.00	$ 103,000
MAG 240 VALLEY GUTTERS	8050	SF	$ 15.00	$ 120,750
CONCRETE DRIVEWAY RAMPS MAG 250	24	EA	$ 2,000.00	$ 48,000
STORM DRAIN	2553	LF	$ 150.00	$ 382,950
STORM DRAIN MANHOLE	5	EA	$ 5,500.00	$ 27,500
CONCRETE SCUPPERS	12	EA	$ 3,500.00	$ 42,000
SIDEWALK	25750	SF	$ 10.00	$ 257,500
UTILITY RELOCATION	1	EA	$ 174,640	$ 174,640
CATCH BASIN	24	EA	$ 3,000.00	$ 72,000
			Sub Total	**$ 1,228,340**
			TOTAL	**$ 2,875,269**

Other assumptions/details:

DENSITY AC	152	LB/FT^3
DENSITY AB	135	LB/FT^3
DENSITY DG	128	LB/FT^3
LENGTH OF SUNSET LN (TOWN PORTION)	2553	FT
LENGTH OF CURB	5150	FT
SUNSET LN AVERAGE WIDTH	24	FT
SUNSET LN SIDEWALK WIDTH	5	FT
SUNSET LN CURB & GUTTER WIDTH	2	FT
AB DEPTH (AC WIDENING, CURB/GUTTER)	6	IN
AB DEPTH (SIDEWALK)	4	IN

Exhibit 6 – Geotechnical Report

ENGINEERING & TESTING CONSULTANTS INC.

January 26, 2015

Mr. Roger McCormick, P.E.
Yavapai County Public Works Dept.
1100 Commerce Drive
Prescott, AZ 86305

SUBJECT: SOIL SURVEY AND PAVEMENT THICKNESS DESIGN FOR SUNSET LANE, PRESCOTT VALLEY, AZ

Dear Mr. McCormick:

Engineering & Testing Consultants, Inc. (ETC) has completed the geotechnical engineering services authorized for the proposed roadway improvements of Sunset Lane, between Prescott East Highway and N. Pine View Drive.

The purpose of this exploration is to determine the existing pavement structure and subsurface soil conditions, at the locations indicated, which provide a basis for the conclusions and recommendations for pavement thickness design and soil design factors. A Boring Location Map is presented as Figure 1.

This report discusses the general site conditions, laboratory test results, and provides pavement structure recommendations and suggested construction procedures and design parameters. These services were provided following accepted soil mechanics and engineering practices. We make no other warranty, either implied or expressed. If soil conditions are encountered during construction that differ significantly from those presented herein, this firm should be notified for evaluation.

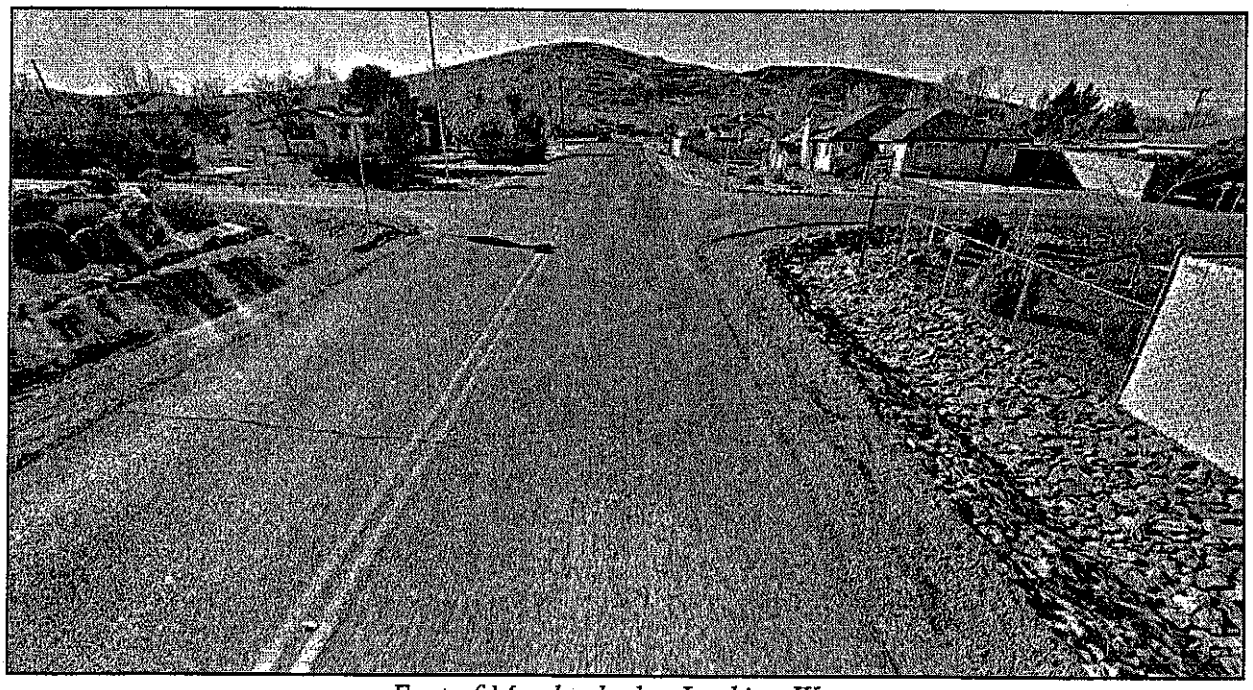
PROJECT INFORMATION AND SITE CONDITIONS

The proposed project includes roadway improvements to Sunset Lane, from Prescott East Highway to approximately Pine View Drive.

ETC has performed five (5) exploratory test borings along the roadway alignment. The borings were extended to depths of 4 to 4.5 feet below the existing pavement surface elevation.

The test borings were drilled with our truck mounted Mobile B-47 Drilling Rig equipped with a 4 inch diameter continuous flight auger and 4.5 inch diameter cutter head with carbide tipped fingerbit inserts. The borings were backfilled with the auger cuttings and patched with a compacted asphaltic concrete cold mix.

Topography along Sunset Lane is relatively flat with only mild grades. The pavement surface appears to be in fair condition. Some mild fatigue and transverse cracking was observed, with increase distress cracking noted west of Starlight. A chip seal has been applied to the surface, which appears to be relatively recent.



East of Meadowlark – Looking West

SUBSURFACE CONDITIONS

Borings B-1 and B-2 were drilled within the west, Yavapai County portion of the road. These two borings encountered 4 & 4.5 inches of asphaltic concrete (AC), respectively. The eastern boring B-1 encountered approximately 17 inches of base course material (AB), with larger gravels in the bottom 8 inches. Boring B-2 encountered approximately 5.5 inches of base course material. The

underlying 8 inches also contained larger gravels, but also contained high plasticity clayey soil, which may be contaminated AB.

Subgrade soils within the west borings B-1 and B-2 consist of high plasticity, sandy clay (Unified Soil Classification CH).

Borings B-3, B-4, & B-5 were performed in the remaining Prescott Valley portion of the road, east of Starlight Drive. These borings encountered approximately 6.5 inches of AC underlain by 10.5 to 11.5 inches of AB. Subgrade soils consist of moderate and high plasticity, sandy clay (CH & CL).

A more detailed description of the existing pavement structure and subgrade soil conditions encountered at each boring location is included in the boring logs attached in Appendix A. A description of the existing pavement structure encountered is also included below in Table 1. A Boring Location Map is attached as Figure 1.

LABORATORY TESTING

Atterberg limits, gradation, and moisture content laboratory testing was performed for representative soil samples collected during the field operation. A summary of the existing pavement structure encountered, and laboratory test results are presented below in Table 1. Laboratory testing was performed in accordance with applicable ASTM standards.

TABLE 1
SUMMARY OF PAVEMENT STRUCTURE AND LABORATORY TEST RESULTS

Boring	AC / AB (inches)	Depth (feet)	Liquid Limit (%)	Plasticity Index	Moisture Content (%)	Fines Content (%)	Gravel Content (%)	USCS
B-1/3/5	---	ABC[1]	---	Non-plastic	4.5	10	45	GP-GM
B-1	4 / 17	---	---	---	---	---	---	---
B-2	4.5 / 5.5+	1.5 – 3	50	25	17.2	53	7	CH
B-3	6.5 / 10.5	1.5 – 3	38	19	12.3	61	3	CL
B-4	6.5 / 11.5	ABC	23	5	5.3	11	32	GP-GC-GM
		1.5 – 3	53	30	24.2	67	2	CH
B-5	6.5 / 11.5	1.5 – 3	31	15	15.2	57	7	CL

[1]Note: Samples of base course material were combined for testing.

As shown in Table 1, the ABC samples tested were found to be in general conformance with YAG specifications. Subgrade soils consist of moderate and high plasticity, sandy clay, which is typical within this area of Prescott Valley.

RECOMMENDATIONS

Traffic volume data has been provided to us. We have assumed a directional split of 60/40 for design lane. We have assumed traffic composition that included approximately 69 percent automobiles and approximately 25 percent light trucks, with 4 percent medium trucks, 0.8 percent busses, and 0.6 percent larger multi-axle trucks. Using this data, we have determined a 20-year average ADT value of 3,990 vehicles per day (vpd) for design lane.

Using the above traffic information, ETC has calculated an 18 kip equivalent single axle load (ESAL) of 1.06×10^6 for design.

For a subgrade design value, we have utilized a subgrade modulus, M_r, of 7,800 pounds per square inch (psi) for the high plasticity clay.

The recommended pavement sections, discussed herein, were determined using design methods outlined in the Asphalt Institute's "Thickness Design-Asphalt Pavements of Highways and Streets," (MS-1) 9th ed., and other selected design parameters from ADOT Materials, "Preliminary Engineering and Design Manual," 1992 which are based upon AASHTO design guidelines.

Using the above data, ETC has determined the structurally equivalent pavement sections presented in Table 2 for this section of Sunset Lane. In Table 2 we are showing pavement sections with asphaltic concrete thicknesses that are consistent with the thicknesses encountered by the test borings for ease of comparison.

TABLE 2
PAVEMENT STRUCTURAL SECTIONS

Description	Alternate	Asphaltic Concrete Thickness (inches)	Aggregate Base Thickness (inches)
Sunset Lane	1	4	14
	2	4.5	12
	3	6.5	6

As discussed herein, the existing pavement structure east of Starlight Drive includes 6.5 inches of asphaltic concrete. In addition, the existing pavement structure encountered in this section of the roadway is adequate when compared to the pavement structure determined in Table 2. Roadway maintenance should include at minimum, sealing of new cracks on a yearly basis, which is very important due to the poor clay subgrade soil conditions. Crack fill/seal applications should be applied during late fall, early spring when the pavement has experienced significant thermal contraction yet daytime temperatures are warm enough to allow for proper application of crack fill/seal material.

West of Starlight Drive, borings B-1 & B-2, only encountered 4 to 4.5 inches of asphaltic concrete. In addition, the depth of adequate ABC was found to be lacking in boring B-2. For this section of Sunset, we are recommending a paver-laid overlay.

Mill and Overlay

In order to meet the 20 year design sections discussed above, ETC recommends that Sunset Lane, west of Starlight Drive, be improved with milling and placement of an overly. ETC recommends a minimum overlay thickness of **2 inches**.

Milling should be performed to help remove surface defects, shallow ruts, and to provide a better surface for overlay installation. The milling operation shall take into consideration any quarter crown within the road. If the surface grade is assumed to be constant between centerline and edge, the milling operation may remove an excessive amount of pavement.

After milling, exposed cracks should be cleaned and filled. Proper crack filling will help extend the life of the paver-laid surface, and can delay reflection cracking.

Prior to placement of the overlay, the milled surface should be clean and free of any debris or loose material. A tack coat should be applied at the exposed surface to ensure a proper bond between the existing and the new asphaltic concrete.

The milling operation should include full depth patching of potholes, large cracks, and any areas with severe fatigue cracking.

Shoulders

We understand that pavement improvements may include the installation of widened shoulders. The above full depth pavement sections are recommended if the new shoulders may be converted to travel lanes in the future.

If the new shoulders will not be utilized as future travel lanes, a thinner pavement section may be utilized. We do not want to impede the subsurface drainage of the base course layer below the existing pavement out to the adjacent bar ditches. Therefore, we recommend that the bottom elevation of the base course on the new shoulders, adjacent to the existing pavement, be extended to a minimum depth of 18 inches, or to the bottom of the existing AB layer, and sloped to drain.

The shoulder surface may then paved with a minimum of 3 inches of asphaltic concrete. For a reduced life span, an asphaltic concrete thickness of to 2 to 2.5 inches may also be considered. However, given the unknown traffic loads the shoulders would accommodate, we cannot reasonably estimate the reduced life span that should be anticipated for a thinner wearing surface.

Patching

For patching of the existing pavement, patches should extend at least 2 feet beyond the observed surface distress, to include adjacent cracking that has not yet appeared at the surface. Patches should be further extended if the bottom edges of the exposed pavement reveal additional severe distress. The edges of the patch should be defined with a partial depth saw cut, and the pavement removed from the inside out, to help create a rough edge for pavement adherence, and a clean joint at the surface.

The edges of the existing pavement should be brushed clean and tacked. Hot mix asphaltic concrete should be used for patches, and raking should be minimized to help prevent segregation. An over-fill of approximately 25% is recommended prior to compaction to prevent creating a dish at the surface, and allow the middle of the patch to be somewhat higher, up to ¼ inch.

Crack Filling

Crack filling is recommended to be performed on a yearly basis, which is very important due to the poor quality, moisture sensitive clay subgrade soils encountered throughout Sunset Lane. Crack filling will help to keep water and incompressible materials (dirt, sand, debris, etc.) from infiltrating the pavement structure.

Crack fill/seal applications should be applied during late fall, early spring when the pavement has experienced significant thermal contraction yet daytime temperatures are warm enough to allow for proper application of crack fill/seal material.

Cracks should be cleaned with compressed air to remove loose material, dust and debris immediately prior to crack fill application, which will help ensure adequate adhesion. Crack sealant should be installed utilizing a melter with a heated wand. Application shall be performed

in accordance with the manufacturer's recommendations. Proper crack filling will help extend the life of the pavement and can delay reflection cracking of the overlay.

EARTHWORK

In any areas where full depth patching is performed, the subgrade must be stripped of all debris or unstable soils and such material shall be removed. The ground should be widened or benched as necessary to accommodate compaction equipment and provide a relatively level surface for fill placement.

The exposed ground surface shall be scarified, moisture conditioned and compacted to a minimum depth of 8 inches prior to fill placement. The materials testing firm shall be contacted to observe that the ground surface has been adequately prepared prior to placement of aggregate base or subgrade fill.

All fill required to bring the roadway areas up to subgrade elevation should be placed in horizontal lifts not exceeding 8 inches compacted thickness. Granular soils should be compacted to a minimum relative density of 95% maximum dry density at –2% to +2% of optimum moisture content, ASTM D698. The moisture content for high plasticity clay subgrade soils shall adjusted to a range of -4% to optimum.

LIMITATIONS

The recommendations in this report were prepared in accordance with accepted professional engineering principles and soil mechanics practices. We make no other warranty, either implied or expressed. If during subsequent planning and construction, conditions are different than as indicated, this firm should be notified for evaluation.

This report is not a bidding document. Any contractor reviewing this report must draw his own conclusions regarding site conditions and specific construction techniques to be used on this project. ETC has not reviewed building or grading plans for the proposed construction.

Engineering & Testing Consultants, Inc. is pleased to provide these services and we are available to discuss the results of this evaluation at your convenience.

Sincerely,

ENGINEERING & TESTING CONSULTANTS, INC.

Registered Professional Engineer (Civil) CERTIFICATE NO. 37900 MICHAEL PHILIP WILSON Date Signed 1-26-15 ARIZONA, U.S.A.

Registered Professional Engineer (Civil) CERTIFICATE NO. 26853 RICHARD G. KELLEY Date Signed 1/26/15 ARIZONA, U.S.A.

Expires: 09/30/2017

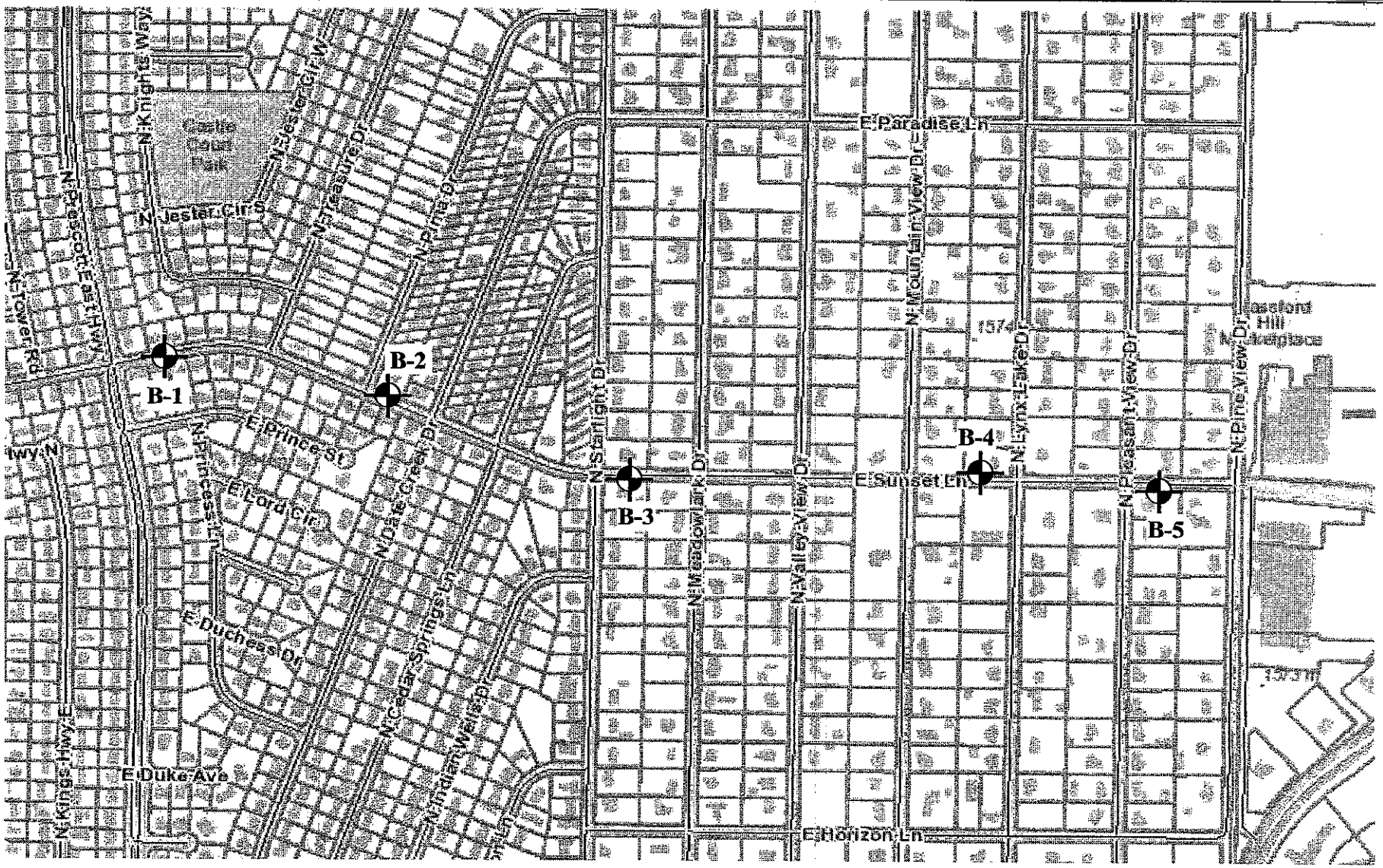
Michael P. Wilson, P.E.
Project Engineer

Reviewed by: Richard G. Kelley, P.E.
Project Manager

Expires: 03/31/2017

Attachment: Figure 1 and Appendix A

cc: ETC File No. 8592



Legend

Approximate Boring Location

N

Engineering & Testing Consultants, Inc. •Subsurface Drilling •Geotechnical •Environmental Support	**FIGURE 1** **BORING LOCATION MAP**	ETC
Drawn by: others Date: 12/15/14 Project No: ETC 8592 Page No:	Sunset Lane – Prescott Valley, AZ	

APPENDIX A

FIELD EXPLORATION

GENERAL NOTES

DESCRIPTIVE SOIL CLASSIFICATION:

Soil Classification is based on the Unified Soil Classification System and ASTM Designations D-2487 and D-2488. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; they are described as: boulders, cobbles, gravel or sand. Fine grained soils have less than 50% of their dry weight retained on a #200 sieve; they are described as: Clays, if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse grained soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their consistency. Example: Lean clay with sand, trace gravel, stiff (CL); silty sand, trace gravel, medium dense (SM).

CONSISTENCY OF FINE-GRAINED SOILS:

N-Blows/ft.	Consistency
0-2	Very Soft
3-4	Soft
5-8	Medium
9-16	Stiff
17-32	Very Stiff
33+	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS:

N-Blows/ft.	Relative Density
0-3	Very Loose
4-9	Loose
10-29	Medium Dense
30-49	Dense
50+	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL:

Description Term(s) (of Components Also Present in Sampling)	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY:

Major Component of Sampling	Size Range
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES:

Description Term(s) (of Components Also Present in Sampling)	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

UNIFIED SOIL CLASSIFICATION SYSTEM*

				Soil Classification	
				Group Symbol	Group Name [B]
COARSE-GRAINED SOILS More than 50 % retained on No. 200 sieve	Gravels More than 50 % of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5 % fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]	GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]	GP	Poorly graded gravel [F]
		Gravels with Fines More than 12 % fines [C]	Fines classify as ML or MH	GM	Silty gravel [F,G,H]
			Fines classify as CL or CH	GC	Clayey gravel [F,G,H]
	Sands 50 % or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5 % fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]	SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]	SP	Poorly graded sand [I]
		Sands with Fines More than 12 % fines [D]	Fines classify as ML or MH	SM	Silty sand [G,H,I]
			Fines classify as CL or CH	SC	Clayey sand [G,H,I]
FINE-GRAINED SOILS 50 % or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	inorganic	PI > 7 and plots on or above "A" line [J]	CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K,L,M]
		organic	$\frac{\text{Liquid limit – oven dried}}{\text{Liquid limit – not dried}} < 0.75$	OL	Organic clay [K,L,M,N] Organic silt [K,L,M,O]
	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line	CH	Fat clay [K,L,M]
			PI plots below "A" line	MH	Elastic silt [K,L,M]
		organic	$\frac{\text{Liquid limit – oven dried}}{\text{Liquid limit – not dried}} < 0.75$	OH	Organic clay [K,L,M,P] Organic silt [K,L,M,Q]
HIGHLY ORGANIC SOILS		Primarily organic matter, dark in color, and organic odor		PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12 % fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

[D] Sands with 5 to 12 % fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15 % sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15 % gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29 % plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30 % plus No. 200, predominantly sand, add "sandy" to group name.

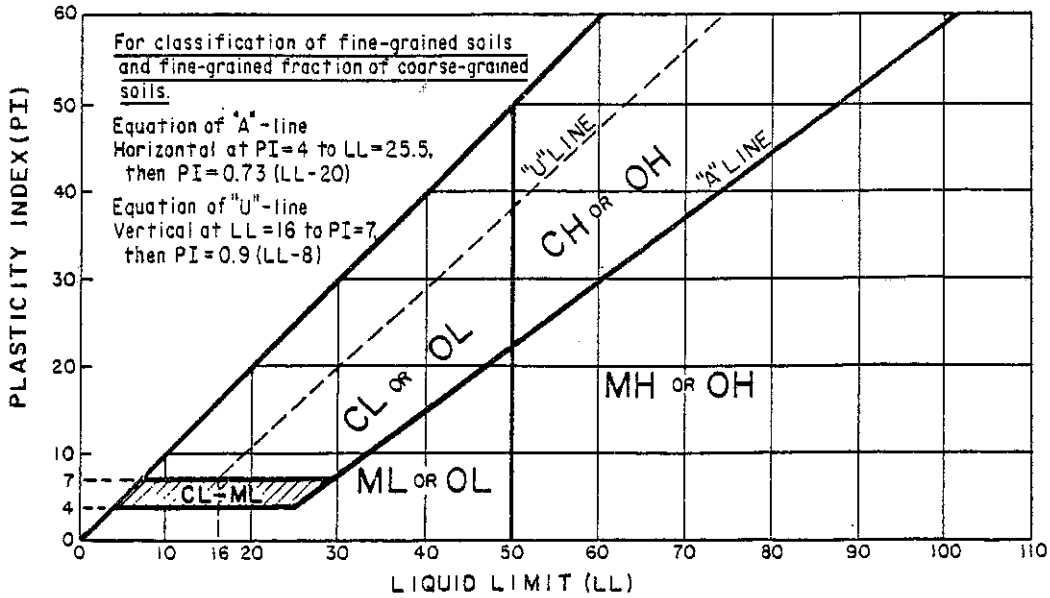
[M] If soil contains ≥ 30 % plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



* ASTM 1996

LOG OF BORING NO. B-1

ENGINEERING & TESTING CONSULTANTS, INC.

PROJECT: Sunset Lane
CLIENT: Yavapai County
LOCATION: See Boring Location Map
DRILLER: ETC
DRILLING METHOD: Continuous Flight Auger

PROJECT NO.: 8592
DATE: 12-15-2014
ELEVATION: ---
LOGGED BY: MPW

DEPTH (feet)	Description	GROUP SYMBOL	SOIL TYPE	SAMPLERS	TEST RESULTS (Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨; 10 20 30 40 50)	Remarks
	4" ASPHALTIC CONCRETE	AC				Eastbound Lane - East of Prescott East Highway
	17" BASE COURSE MATERIAL	AB				
1						
	Larger gravels					
2	SANDY CLAY, brown to reddish-brown, high plasticity, moist, Stiff	CH				
3						
	CLAYEY SAND WITH GRAVEL, light reddish brown, damp, Medium Dense	SC				
4						
	Boring terminated at 4.5 feet depth.					
5						
6						
7						

This information pertains only to this boring and should not be interpreted as being indicative of the site.

LOG OF BORING NO. B-2

ENGINEERING & TESTING CONSULTANTS, INC.

PROJECT: Sunset Lane
PROJECT NO.: 8592
CLIENT: Yavapai County
DATE: 12-15-2014
LOCATION: See Boring Location Map
ELEVATION: ---
DRILLER: ETC
LOGGED BY: MPW
DRILLING METHOD: Continuous Flight Auger

DEPTH (feet)	Description	GROUP SYMBOL	SOIL TYPE	SAMPLERS	TEST RESULTS (Plastic Limit — Liquid Limit; Water Content ●; Penetration ▨; 10 20 30 40 50)	Remarks
	4.5" ASPHALTIC CONCRETE	AC				Westbound Lane - East of Pima Drive
	5.5" BASE COURSE MATERIAL	AB				
1						
	CLAY & SAND WITH Large Gravel, reddish-brown, high plasticity, Medium Dense	SC				May be AB contaminated with clay
	SANDY CLAY, light reddish-brown, moist, Medium Stiff to Stiff	CH				
2						
3						
	CLAYEY SAND WITH GRAVEL, light brown, damp-moist, Medium Dense	SC				
4						
	Boring terminated at 4.5 feet depth.					
5						
6						
7						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING NO. B-3

ENGINEERING & TESTING CONSULTANTS, INC.

PROJECT: Sunset Lane **PROJECT NO.:** 8592
CLIENT: Yavapai County **DATE:** 12-15-2014
LOCATION: See Boring Location Map **ELEVATION:** ---
DRILLER: ETC **LOGGED BY:** MPW
DRILLING METHOD: Continuous Flight Auger

DEPTH (feet)	Description	GROUP SYMBOL	SOIL TYPE	SAMPLERS	TEST RESULTS (Plastic Limit — Liquid Limit; Water Content ●; Penetration ▨; 10 20 30 40 50)	Remarks
	6.5" ASPHALTIC CONCRETE	AC				Eastbound Lane - East of Starlight Drive
	10.5" BASE COURSE MATERIAL	AB				
1						
	SANDY CLAY, reddish-brown, medium plasticity, some gravel, damp-moist, Stiff	CL				
2						
3						
4						
	CLAYEY SAND WITH GRAVEL, light brown, damp, Medium Dense	SC				
	Boring terminated at 4.5 feet depth.					
5						
6						
7						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING NO. B-4

ENGINEERING & TESTING CONSULTANTS, INC.

PROJECT: Sunset Lane
PROJECT NO.: 8592
CLIENT: Yavapai County
DATE: 12-15-2014
LOCATION: See Boring Location Map
ELEVATION: ---
DRILLER: ETC
LOGGED BY: MPW
DRILLING METHOD: Continuous Flight Auger

DEPTH (feet)	Description	GROUP SYMBOL	SOIL TYPE	SAMPLERS	TEST RESULTS (Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨; 10 20 30 40 50)	Remarks
	6.5" ASPHALTIC CONCRETE	AC				Westbound Lane - West of Mountain View
	11.5" BASE COURSE MATERIAL	AB				
1						
	SANDY CLAY, brown to dark brown, moist, high plasticity, Medium Stiff to Stiff	CH				
2						
3						
4						
	Boring terminated at 4 feet depth.					
5						
6						
7						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING NO. B-5

ENGINEERING & TESTING CONSULTANTS, INC.

PROJECT: Sunset Lane
PROJECT NO.: 8592
CLIENT: Yavapai County
DATE: 12-15-2014
LOCATION: See Boring Location Map
ELEVATION: ---
DRILLER: ETC
LOGGED BY: MPW
DRILLING METHOD: Continuous Flight Auger

DEPTH (feet)	Description	GROUP SYMBOL	SOIL TYPE	SAMPLERS	TEST RESULTS (Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨; 10 20 30 40 50)	Remarks
	6.5" ASPHALTIC CONCRETE	AC				Eastbound Lane - East of Pleasant View
	11.5" BASE COURSE MATERIAL	AB				
1						
	SANDY CLAY, dark brown, moist, Medium Stiff to Stiff	CL				
2						
3						
	CLAYEY SAND WITH GRAVEL, brown, moist, high plasticity, Medium Dense	SC				
4						
	Boring terminated at 4.5 feet depth.					
5						
6						
7						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

KEY TO SYMBOLS

Symbol Description

Strata symbols

Asphaltic Concrete

Aggregate base material

High plasticity clay

Clayey sand

Low plasticity clay

Soil Samplers

Bulk sample taken from 4 in. auger

Notes:

1. Exploratory borings were drilled on 12-15-2014 using a 4-inch diameter continuous flight power auger.
2. No free water was observed at the time of drilling.
3. Boring locations were estimated from existing site features.
4. These logs are subject to the limitations, conclusions, and recommendations in this report.
5. Results of tests conducted on samples recovered are reported on the logs.

Exhibit 7 – Property Value Comps

YAVAPAI COUNTY PUBLIC WORKS DEPARTMENT
Office of the Public Works Director
Engineering Division

MEMORANDUM

DATE: July 1, 2015

TO: Kelli Berman

FROM: Linda Hippe, Right of Way Specialist

RE: Sunsent Lane vacant land comps

Assessor's Info based on Full Cash Value:

3421 N. Treasure, Prescott East 3 =	$0.66 sq. ft.
6285 E. Prince St., Castle Canyon Mesa 1 =	$1.21 sq. ft.
6267 E. Prince St., Castle Canyon Mesa 1 =	$1.06 sq. ft.
Average Value =	$0.98 sq. ft.

SOLD:

6321 E. Sunset, Castle Canyon Mesa 1 =	$1.14 sq. ft.

Active Listings:

6289 E. Lord Circle, Castle Canyon Mesa 1 =	$1.82 sq. ft.
6290 E. Lord Circle, Castle Canyon Mesa 1 =	$2.11 sq. ft.

Yavapai County Print Parcel

Parcel ID	**Check Digit**
103-27-092	9
Owner	
SANCHEZ RAFAEL	
Owner's Mailing Address	
3730 N STARLIGHT PRESCOTT VALLEY, AZ 86314	
Secondary Owner	
N/A	
Recorded Date	
1/31/2006 12:00:00 AM	
Last Transfer Doc Docket	**Last Transfer Doc Page**
4359	900
Physical Address	**Incorporated Area**
3421 N Treasure Dr	N/A

Assessor Acres	**Subdivision**	**Subdivision Type**
0.25 10,890 SF	Prescott East Unit 3	M
School District	**Fire District**	**County Zoning Violation**
Humboldt Unified SD #22	Central Yavapai FD	No Zoning Violation

Improvements (0)

No Improvements found.

Assessment

Starting with the 2015 tax year, the Limited Property Value is the only value considered for taxation purposes, the Full Cash Value is no longer used for taxation.

2016 Assessed Limited Value	**2015 Assessed Limited Value**
$1,141	$1,159
2016 Limited Value	**2015 Limited Value**
$7,607 0.69	$7,245 0.66
2016 Full Cash Value	**2015 Full Cash Value**
$9,200 0.84	$9,400 0.83
2016 Net Assessment Ratio	**2015 Net Assessment Ratio**
15	16
2016 Legal Class	**2015 Legal Class**
Vacant or Other	Vacant or Other

Taxes

Tax Area Code	**2014 Taxes Billed**
2290	$146

Recorded Documents & Sales (3)

Date	Book/Page	Type	Cost
2/2/2006	3972735	Warranty Deed	$42,000
1/31/2006	4359/900	Warranty Deed	$42,000
1/31/2006	4359/900	Warranty Deed	$42,000

Disclaimer: Map and parcel information is believed to be accurate but accuracy is not guaranteed. No portion of the information should be considered to be, or used as, a legal document. The information is provided subject to the express condition that the user knowingly waives any and all claims for damages against Yavapai County that may arise from the use of this data.

FULL CASH
AVERAGE
0.98

Yavapai County Print Parcel

Parcel ID	Check Digit
103-03-132	2

Owner
MESHO LEON & JEANNETTE JT

Owner's Mailing Address
6267 E PRINCE ST
PRESCOTT VALLEY, AZ 863142935

Secondary Owner
N/A

Recorded Date
12/31/1990 12:00:00 AM

Last Transfer Doc Docket	Last Transfer Doc Page
2319	136

Physical Address	Incorporated Area
6285 E Prince St	N/A

Assessor Acres	Subdivision	Subdivision Type
0.2 8712 sf	Castle Canyon Mesa Unit 1	M

School District	Fire District	County Zoning Violation
Humboldt Unified SD #22	Central Yavapai FD	No Zoning Violation

Improvements (0)
No Improvements found.

Assessment
Starting with the 2015 tax year, the Limited Property Value is the only value considered for taxation purposes, the Full Cash Value is no longer used for taxation.

2016 Assessed Limited Value	2015 Assessed Limited Value
$1,670	$1,697
2016 Limited Value	**2015 Limited Value**
$11,135 1.27	$10,605 1.21
2016 Full Cash Value	**2015 Full Cash Value**
$13,400 1.53	$13,700 1.57
2016 Net Assessment Ratio	**2015 Net Assessment Ratio**
15	16
2016 Legal Class	**2015 Legal Class**
Vacant or Other	Vacant or Other

Taxes

Tax Area Code	2014 Taxes Billed
2290	$214

Recorded Documents & Sales (1)

Date	Book/Page	Type	Cost
12/31/1990	2319/136	Joint Tenants	$5,000

Disclaimer: Map and parcel information is believed to be accurate but accuracy is not guaranteed. No portion of the information should be considered to be, or used as, a legal document. The information is provided subject to the express condition that the user knowingly waives any and all claims for damages against Yavapai County that may arise from the use of this data.

Yavapai County Print Parcel

Parcel ID	Check Digit
103-03-133	5

Owner
MESHO LEON & JEANNETTE JT

Owner's Mailing Address
6267 E PRINCE ST
PRESCOTT VALLEY, AZ 863142935

Secondary Owner
N/A

Recorded Date
9/26/1990 12:00:00 AM

Last Transfer Doc Docket	Last Transfer Doc Page
2291	446

Physical Address	Incorporated Area
6267 E Prince St	N/A

Assessor Acres	Subdivision	Subdivision Type
0.28 12,197 #	Castle Canyon Mesa Unit 1	M

School District	Fire District	County Zoning Violation
Humboldt Unified SD #22	Central Yavapai FD	No Zoning Violation

Improvements (1)

Type: Mobile Home Yard Improvements
Floor area: 1
Effective/constructed: 2014

Assessment

Starting with the 2015 tax year, the Limited Property Value is the only value considered for taxation purposes, the Full Cash Value is no longer used for taxation.

2016		2015	
2016 Assessed Limited Value		**2015 Assessed Limited Value**	
$1,362		$1,298	
2016 Limited Value		**2015 Limited Value**	
$13,625	1.11	$12,976	1.06
2016 Full Cash Value		**2015 Full Cash Value**	
$14,907	1.22	$14,746	1.20
2016 Net Assessment Ratio		**2015 Net Assessment Ratio**	
10		10	
2016 Legal Class		**2015 Legal Class**	
Residential Other		Residential Other	

Taxes

Tax Area Code	2014 Taxes Billed
2290	$194

Recorded Documents & Sales (1)

Date	Book/Page	Type	Cost
9/26/1990	2291/446	Joint Tenants	$6,000

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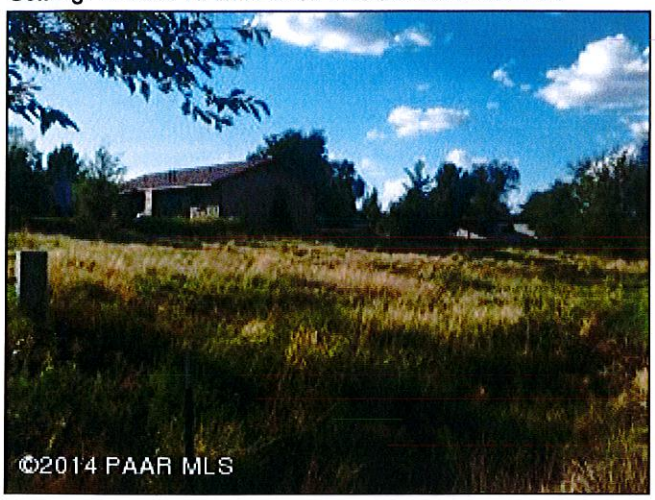
1.22 #

980622 Closed Vacant Land PRIVATE AGENT ONLY REPORT **6321 E Sunset, Prescott Valley, AZ 86314 Lot #: 106 $10,000**

List: James R. Michener 928-308-4700 james.michener@bloomtreeprescott.com OF BLOOMTREE REALTY 928-443-8800 **Firm:** 5358.000 **Agt:** 7628

Selling: RANDY HAMMAN of: BLOOMTREE REALTY **Firm:** 5358.000



County:	Yavapai	**Lot #:**	106	**Township:**	
Area:	230 - Canyon Mesa/Victorian Estates/Prescott East	**Listing Type:**	Exclusive Right to Sell	**City/Township:**	Prescott Valley
Incorp Area:	No	**Rent/Lease:**	No	**Range:**	
Subdivision:	Castle Canyon Mesa Unit #1	**Zoning:**	R1-10	**Tax Parcel:**	103-03-106
Phase:		**Aprx Acres:**	0.2	**Neighborhood:**	N/A
Lot Size:		**Price/Acre**	77,500	**Land Type:**	Residential
		Section:			

Legal: CASTLE CANYON MESA UNIT #1 LOT 106

REO/Short Sale:	Not Applicable	**Taxes:**	193	**Owner Name:**	Spiker Gary D
Auction:		**Tax Year:**	2013	**Owner Phone:**	
HOA Y/N:	No	**Assessments $:**		**Mfg/Mobile:**	Yes
HOA Type:		**Asmts Freq:**		**Builder Name:**	
HOA Dues $:	/	**Mfg/Mobile:**	Yes		

Utilities Installed: None
Utilities Available: City Water; Electricity; Telephone; Underground
Topo/Location: Views
Views: Bradshaw Mountain; City; Mingus Mountain; Mountains

Buildings: None
Lot Improvements: None
Road Access/Maint: Access-County; Maint-County
Showing Instructions: Sign on Property
Subdivision Features: None
Pets/Animals: Domestics

Building Restriction: SB or MFG Homes
Fencing: None
Site/Soil Evaluation: None
Possession: At Recordation
Records Avail: Other - See Remarks
Terms & Conditions: Cash; Cash to New Loan
Possession: At Recordation

Directions: HWY 69, NORTH ON PRESCOTT EAST HIGHWAY, RIGHT ON SUNSET LANE TO LOT ON RIGHT.

Remarks: EASY TO ACCESS LOT WITH GREAT CENTRALIZED LOCATION, VIEWS OF GLASSFORD HILL, AND TREES, SUITABLE FOR A SITE-BUILT OR MANUFACTURED HOME. ENGINEERING REPORT HAS BEEN PERFORMED ON LOT. Bring us an offer!

Realtor Only: Please call with any questions. Bring all offers, this is a very motivated seller.

Listing Date:	08/08/2014	**Under Contract Date:**	04/16/2015	**Listing Price:**	$15,500
Status Change Date:	05/04/2015	**Sold Date:**	05/01/2015	**Cumulative DOM:**	446
Original List Price:	$13,500	**Sold Price:**	$10,000	**Agent Days On Market:**	251
		Sold Price/Acres:	50,000	**Compensation:**	5%
		Possession:	At Recordation	**Variable Commission:**	Yes
		How Sold:	Cash	**Concessions:**	No

Information is deemed to be reliable, but is not guaranteed. © 2015 MLS and FBS. Prepared by Linda K. Hippe, PLLC, GRI on Tuesday, June 30, 2015 4:37 PM. The information on this sheet has been made available by the MLS and may not be the listing of the provider.

8712 ф #1.14 ф

Yavapai County Print Parcel

Parcel ID	Check Digit
103-03-106	7

Owner
RISING SPRING LLC

Owner's Mailing Address
562 E JUNIPER DR
PRESCOTT, AZ 863035467

Secondary Owner
N/A

Recorded Date
3/31/2015 12:00:00 AM

Last Transfer Doc Docket	Last Transfer Doc Page
N/A	N/A

Physical Address	Incorporated Area
6321 E Sunset Ln	N/A

Assessor Acres	Subdivision	Subdivision Type
0.2 8712 #	Castle Canyon Mesa Unit 1	M

School District	Fire District	County Zoning Violation
Humboldt Unified SD #22	Central Yavapai FD	No Zoning Violation

Improvements (0)

No Improvements found.

Assessment

Starting with the 2015 tax year, the Limited Property Value is the only value considered for taxation purposes, the Full Cash Value is no longer used for taxation.

2016 Assessed Limited Value	2015 Assessed Limited Value
$1,521	$1,546
2016 Limited Value	**2015 Limited Value**
$10,143 1.16	$9,660 1.10
2016 Full Cash Value	**2015 Full Cash Value**
$12,300	$12,500
2016 Net Assessment Ratio 1.41	**2015 Net Assessment Ratio** 1.43
15	16
2016 Legal Class	**2015 Legal Class**
Vacant or Other	Vacant or Other

Taxes

Tax Area Code	2014 Taxes Billed
2290	$194

Recorded Documents & Sales (4)

Date	Book/Page	Type	Cost
4/27/2015	2015-0018872	Warranty Deed	$10,000 1.14
3/31/2015	2015-0013949	Quit Claim	$0
3/3/2015	2015-0009229	Other	$0
2/26/2013	4940/205	Warranty Deed	$13,500

Disclaimer: Map and parcel information is believed to be accurate but accuracy is not guaranteed. No portion of the information should be considered to be, or used as, a legal document. The information is provided subject to the express condition that the user knowingly waives any and all claims for damages against Yavapai County that may arise from the use of this data.

986354 Active Vacant Land PRIVATE AGENT ONLY REPORT **6289 E Lord Circle, Prescott Valley, AZ 86314Lot #: 144 $17,500**

List: BRENT MONTIERTH 928-533-3640 brentmontierth@gmail.com OF FAR WEST REALTY 928-772-9400 **Co-list:** Brendon Montierth 928-848-3837 bcmontierth@gmail.com **Firm:** 5320.000 **Agt:** 4694

County:	Yavapai	**Lot #:**	144	**Township:**	
Area:	230 - Canyon Mesa/Victorian Estates/Prescott East	**Listing Type:**	Exclusive Right to Sell	**City/Township:**	Prescott Valley
Incorp Area:	No	**Rent/Lease:**	No	**Range:**	
Subdivision:	Castle Canyon Mesa Unit #1	**Zoning:**	R1-10	**Tax Parcel:**	103-03-144
Phase:		**Aprx Acres:**	0.22	**Neighborhood:**	N/A
Lot Size:		**Price/Acre**	79,545	**Land Type:**	Residential
		Section:			

Legal: CASTLE CANYON MESA UNIT #1 LOT 144

REO/Short Sale:	Not Applicable	**Taxes:**	194	**Owner Name:**	Reynolds Steven R
Auction:		**Tax Year:**	2014	**Owner Phone:**	
HOA Y/N:	No	**Assessments $:**		**Mfg/Mobile:**	Yes
HOA Type:		**Asmts Freq:**		**Builder Name:**	
HOA Dues $:	/	**Mfg/Mobile:**	Yes		

Utilities Installed: None
Utilities Available: City Water; Electricity; Telephone; Underground
Topo/Location: Level
Views: Mountains; Other - See Remarks

Buildings: None
Lot Improvements: None
Road Access/Maint: Access-County; Access-Dirt; Maint-County
Showing Instructions: Sign on Property
Subdivision Features: None
Pets/Animals: Domestics

Building Restriction: SB or MFG Homes
Fencing: None
Site/Soil Evaluation: None
Possession:
Records Avail: None
Terms & Conditions: Cash; Cash to New Loan
Possession:

Directions: HWY 69, NORTH ON PRESCOTT EAST HWY, RIGHT ON PRINCE ST, RIGHT ON PRINCESS LN, LEFT ON LORD CIR TO SIGN ON RIGHT.

Remarks: .22 ACRE VACANT LOT SUITABLE FOR SITE-BIULT OR MANUFACTURED HOME IN THE AREA OF CASTLE CANYON MESA W/VIEWS OF GLASSFORD HILL. LOCATED CLOSE TO SHOPPING, ENTERTAINMENT, HOSPITAL & MEDICAL FACILITIES.

Realtor Only:

Listing Date:	05/04/2015	**Sold Price/Acres:**	0	**Listing Price:**	$17,500
Status Change Date:	05/04/2015			**Cumulative DOM:**	57
Original List Price:	$17,500			**Agent Days On Market:**	57
				Compensation:	5.0%
				Variable Commission:	No

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9583 ft $1.82 ft

986355 Active Vacant Land PRIVATE AGENT ONLY REPORT **6290 E Lord Circle, Prescott Valley, AZ 86314Lot #: 136** **$17,500**

List: BRENT MONTIERTH 928-533-3640 brentmontierth@gmail.com OF FAR WEST REALTY 928-772-9400 **Co-list:** Brendon Montierth 928-848-3837 bcmontierth@gmail.com **Firm:** 5320.000 **Agt:** 4694

County:	Yavapai	**Lot #:**	136	**Township:**	
Area:	230 - Canyon Mesa/Victorian Estates/Prescott East	**Listing Type:**	Exclusive Right to Sell	**City/Township:**	Prescott Valley
Incorp Area:	No	**Rent/Lease:**	No	**Range:**	
Subdivision:	Castle Canyon Mesa Unit #1	**Zoning:**	R1-10	**Tax Parcel:**	103-03-136
Phase:		**Aprx Acres:**	0.19	**Neighborhood:**	N/A
Lot Size:		**Price/Acre**	92,105	**Land Type:**	Residential
		Section:			

Legal: CASTLE CANYON MESA UNIT #1 LOT 136

REO/Short Sale:	Not Applicable	**Taxes:**	194	**Owner Name:**	Reynolds Steven R
Auction:		**Tax Year:**	2014	**Owner Phone:**	
HOA Y/N:	No	**Assessments $:**		**Mfg/Mobile:**	Yes
HOA Type:		**Asmts Freq:**		**Builder Name:**	
HOA Dues $:	/	**Mfg/Mobile:**	Yes		

Utilities Installed: None
Utilities Available: City Water; Electricity; Telephone; Underground
Topo/Location: Level
Views: Mountains; Other - See Remarks

Buildings: None
Lot Improvements: None
Road Access/Maint: Access-County; Access-Dirt; Maint-County
Showing Instructions: Sign on Property
Subdivision Features: None
Pets/Animals: Domestics

Building Restriction: SB or MFG Homes
Fencing: None
Site/Soil Evaluation: None
Possession:
Records Avail: None
Terms & Conditions: Cash; Cash to New Loan
Possession:

Directions: HWY 69, NORTH ON PRESCOTT EAST HWY, RIGHT ON PRINCE ST, RIGHT ON PRINCESS LN, LEFT ON LORD CIR TO SIGN ON LEFT.

Remarks: .19 ACRE VACANT LOT SUITABLE FOR SITE-BIULT OR MANUFACTURED HOME IN THE AREA OF CASTLE CANYON MESA W/VIEWS OF GLASSFORD HILL. LOCATED CLOSE TO SHOPPING, ENTERTAINMENT, HOSPITAL & MEDICAL FACILITIES.

Realtor Only:

Listing Date:	05/04/2015	**Sold Price/Acres:**	0	**Listing Price:**	$17,500
Status Change Date:	05/04/2015			**Cumulative DOM:**	57
Original List Price:	$17,500			**Agent Days On Market:**	57
				Compensation:	5.0%
				Variable Commission:	No

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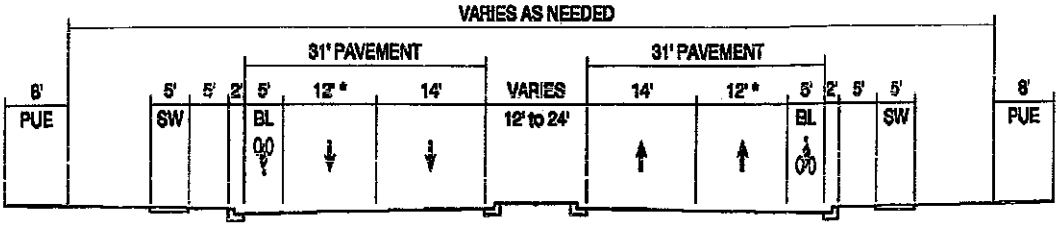
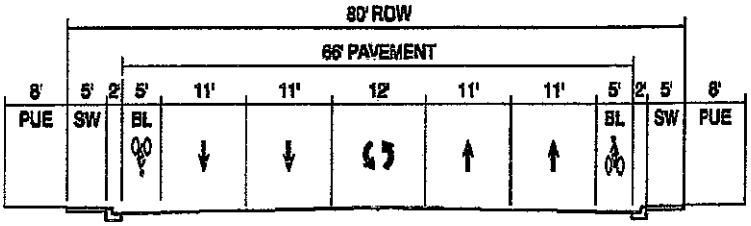
8276 # #2.11 #

Exhibit 8 – Town of Prescott Valley Typical Street Sections

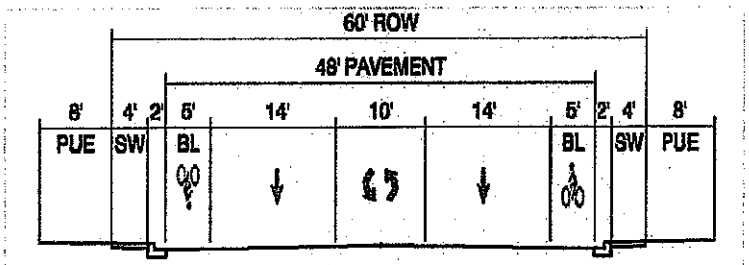


ARTERIAL STREET - MAJOR

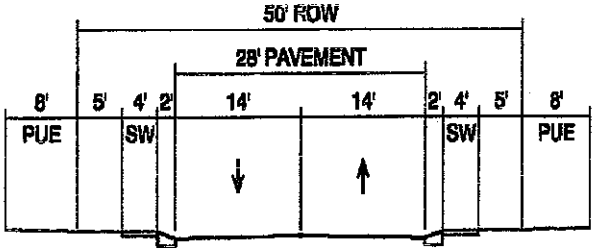
* Additional 12' lanes as needed



ARTERIAL STREET - MINOR



COLLECTOR STREET - MINOR



LOCAL STREET

Typical Street Sections

Exhibit CIR-10

EXHIBIT “C”

Cost Category Obligations

EXHIBIT "C" - COST CATEGORY OBLIGATIONS
SUNSET LANE IMPROVEMENTS PRESCOTT EAST HWY TO PINE VIEW DR.

BASE PROJECT COSTS (COUNTY)

AC MAG 321 6.5"
AGGREGATE BASE COURSE 6" (BASE PROJECT)
BASE PREPARATION
EXCAVATION AND HAUL
SURFACE MILLING 6" AC
REMOVALS
TACK COAT (0.10 gal/sy)
STRIPING, YELLOW
STRIPING, WHITE
THERMOPLASTIC STRIPING
PREFORMED PAVEMENT MARKINGS
SIGNAGE
PAVEMENT MATCHING ROADWAY
PAVEMENT MATCHING DRIVEWAYS
GUARDRAIL (BASE PROJECT)
GUARDRAIL END TREATMENT
QUALITY ASSURANCE
CONSTRUCTION STAKING
TRAFFIC CONTROL

URBANIZATION COSTS (TOWN OF PRESCOTT VALLEY)

MAG TYPE "A" CURB AND GUTTER
MAG 240 VALLEY GUTTERS
CONCRETE DRIVEWAY RAMPS MAG 250-2
CONCRETE HEADWALL
CATCH BASIN
STORM DRAIN SYSTEM
STORM DRAIN MANHOLE
CULVERT EXTENSIONS
CONCRETE SCUPPERS
RIPRAP
DRAINAGE/SIDEWALK EASEMENTS
SIDEWALK
RETAINING WALL
8" WATERLINE
FIRE HYDRANTS
VERTICAL REALIGNMENTS
AIR RELEASE VALVES
DEADMAN JOINT RESTRAINTS
WATER VALVES
HANDRAIL
OTHER UTILITY RELOCATION/ADJUSTMENTS

SHARED 50/50 SPLIT COSTS

DESIGN SERVICES
POST-DESIGN SERVICES
CONSTRUCTION INSPECTION SERVICES
MOBILIZATION