

***Addendum for Traffic Study  
at the Southeast Corner of Sycamore Road and Tejon  
Highway, Arvin, California***

**May 1, 2019**

**Project No. 10-457**



**Submitted by:** *Matthew K. VoVilla* *5-1-19*  
**Matthew K. VoVilla, R.C.E. 43130** **Date**

***LAV//Pinnacle Engineering***  
12418 Rosedale Highway, Suite A  
Bakersfield, CA 93312  
(661) 869-0184

**Table of Contents**

**I. Introduction .....1**

**II. Purpose of Addendum.....1**

**III. Background.....1**

**IV. Modified Land Use Plan .....1**

**V. Trip Generation – Original Plan vs. Modified Plan .....2**

**VI. Traffic Analysis.....4**

**VII. Traffic Assignment.....4**

**VIII. Level of Service Calculations.....5**

**IX. Mitigation and Project’s Pro-Rata Share of Costs.....8**

**X. Project’s Pro-Rata Share of Mitigation .....8**

**XI. Conclusions and Recommendations .....8**

**List of Tables:**

Table 1: Project Trip Generation (Original).....3

Table 1A: Project Trip Generation (Grimmway Plan).....3

Table 5A: Intersection Level of Service (Grimmway Plan) .....6

Table 7A: Peak Hour Warrant Analysis (Grimmway Plan).....7

**Appendix “A” Exhibit and Figures:**

- Exhibit “A” – Proposed Land Use & Zoning (Original)
- Exhibit “B” – Proposed Land Use & Zoning (Grimmway Plan) dated 4-23-19
- Figure 3: Year 2015 Existing P.M. Peak Hour Volumes & Turning Movements
- Figure 6: Total Project Generated Traffic – Evening Peak Hour (All Land Uses)
- Figure 7: Year 2015 Existing P.M. Peak Hour Volumes & Turning Movements Plus Project Generated Traffic
- Figure 8: Year 2035 Projected P.M. Peak Hour Volumes & Turning Movements
- Figure 9: Year 2035 Projected P.M. Peak Hour Volumes & Turning Movements Plus Project Generated Traffic

## **I. Introduction**

This report is an addendum to the Traffic Impact Study prepared for a 62-acre mixed use development in the City of Arvin located at the southeast corner of Sycamore Avenue and Tejon Highway. The original Traffic Impact Study (TIS) for the Project was prepared as a component of the environmental document to satisfy the California Environmental Quality Act (CEQA). Since this report is considered an addendum to the original TIS, a thorough description of the Project, proposed land use and zoning, its surrounding vicinity, and existing street network in the City of Arvin are not repeated herein. This information can be obtained from the original TIS.

## **II. Purpose of Addendum**

A modification of the Project's proposed Land Use and Zoning (the Modified Plan), has been prepared to appease objection to the Project by an adjacent landowner. Although the Modified Plan is considered an environmentally less intense land use, an addendum to the TIS was recommended by the City Planning Department to quantify any change in both traffic impact and needed mitigation resulting from said Modified Plan.

## **III. Background**

Exhibit "A" herein shows the Land Use and Zoning proposed as part of the Original Project. It is noted that the Project's environmental document was circulated and ultimately found satisfactory by the City of Arvin's Planning Department. The City's Planning Department indicated support for the Project and prepared a resolution for the Arvin City Council to approve and adopt a Mitigated Negative Declaration for the Project, including an Amendment of the General Plan, and a Zone Change. Amid objections from an adjacent ag-industrial operation, the City's Planning Commission unanimously voted for approval of the Project on December 4, 2018. Due to continued objections from an adjacent landowner, the Project was "pulled" from the Agenda of the first of two scheduled City Council Hearings. Since that time, a compromise or modified land use plan (Modified Plan) has been prepared that appears to be satisfactory to the Project Owner and the adjacent property owner (who had submitted objections to the Project). As demonstrated herein, the Modified Plan has a less intense traffic impact impact than the Original Plan.

## **IV. Modified Land Use Plan**

The original land use plan, to include proposed amendments to the City's General Plan and proposed Zone Changes, is shown herein as Exhibit "B". The modified Plan is shown herein as Exhibit "B" dated 4-23-19.

To appease objections to the Project, the Modified Plan was prepared to remove any residential land use fronting Sycamore Road. The Modified Plan proposes only Industrial and Commercial Land fronting Sycamore Avenue.

**V. Trip Generation – Original Plan vs. Modified Plan**

The following Tables 1 and 1A provide Trip Generation Calculations for both the Original Plan and Modified Plan.



As indicated above, the Modified Plan results in a 56% decrease in Project-generated Average Daily Traffic; and 45% decrease in Project-generated evening peak hour traffic.

## **VI. Traffic Analysis**

The TIS for the Original Plan identified and recommended mitigation for a number of facilities in the City that would be needed by the year 2035, if anticipated growth was realized. As discussed in the original study, the Project's obligation for mitigation is warranted if Project-generated traffic causes a facility to fall below a Level of Service "C" either under present or anticipated future traffic conditions. In the case of this TIS, future traffic was estimated for the Year 2035. If a facility, under future traffic loads, degrades to a LOS of less than "C", and the addition of Project traffic doesn't degrade the LOS further, the Project then has no obligation to fund mitigation (above and beyond payment of the City's published traffic impact fee).

The TIS for the Original Project identified only one intersection where mitigation was needed as a result of traffic generated by the Project: the intersection of Franklin Street and Derby Street. All other identified mitigation by the original study was needed without the addition of Project traffic. These facilities were not degraded further by the addition of Project-generated traffic.

## **VII. Traffic Assignment**

As indicated in Section V the Modified Plan generates 45% less trips during the evening peak hour than the Original Plan. Given the decrease in trips, it is evident that no additional mitigation beyond that identified by the original TIS would be warranted by the Modified Plan. Again, it is noted that the original TIS only identified mitigation for the intersection of Franklin Street and Derby Street as the only obligation of the Project (again, referring to mitigation above and beyond payment of the City's Traffic Impact Fee). The original TIS identified installation of a traffic signal as appropriate mitigation for said intersection, with Project's funding obligation as a pro-rata share of the total cost. The Project's pro-rata share of the cost of said mitigation was computed in the original TIS as a ratio of Project-generated traffic to the total future traffic during the Year 2035.

Again, given the decrease in Project-generated trips from the Modified Plan, it was assumed that there would be no additional mitigation required other than to the intersection of Franklin and Derby Street. To determine any obligation of the Project's for funding mitigation, (based on the Modified Plan), Project-generated trips were assigned to the intersection of Franklin Street and Derby Street in the same percentage as the Original TIS. Given the Modified Plan's decrease in overall trips from the Original Plan, the quantity of trips assigned to the intersection of Franklin Street and Derby Street was substantially less than the Original TIS. As discussed in the following sections, a decrease in Project-generated trips resulted in lesser mitigation, and a lesser pro-rata share of those costs assigned or obligated to the Project.

### VIII. Level of Service Calculations

Using Project-generated trips from the Modified Plan, new LOS calculations were prepared for the intersection of Franklin Street and Derby Street. As with the original TIS, the LOS calculations for the Modified Plan indicated that the addition of Project-generated traffic *did* cause degradation of the LOS at intersection of Franklin and Derby Street. As shown in the following Table 5A, the addition of Project-generated traffic to the intersection of Franklin Street and Derby Street caused the westbound left, right, and thru movements to degrade from an A to a D under Year 2035 conditions.

Potential mitigation for this intersection included changing the intersection from a two-way stop to a four-way stop, or installation of a traffic signal. However, a couple of points that are worth noting when considering mitigation for this intersection: 1) The east leg of the intersection is a private drive, although it was counted and modeled in the analysis as the east leg; and 2) Given the total estimated traffic during Year 2035, including Project-generated traffic, the intersection does not satisfy the Peak Hour Signal Warrant. The Peak Hour Signal Warrant provides thresholds of intersection traffic volume, above which, warrant installation of a traffic signal. Again, under the Modified Plan, these warrant threshold were not exceeded, meaning installation of a traffic signal may not be needed. However, given the findings and recommendation of the Original TIS, the resultant LOS with signalization as mitigation was nevertheless analyzed. In addition to the signal, an All-way stop was also analyzed as potential mitigation. As shown in Table 5A, installation of a traffic signal would improve the future LOS to an “A” overall. Changing the intersection control to an All-Way stop would also improve the future LOS to a “C”.

It is noted that the nexus study for the City of Arvin’s traffic impact fee indicates it is intended to generate funding for installation of several traffic signal, but does not indicate which intersection are to receive said improvements.

**TABLE 5A: Intersection Level of Service (LOS) - Revised Land Use & Zoning Plan (Grimmway Plan)**

Legend: U = Unsignalized

S = Signalized

1W = One Way Stop Control

4W = All Way Stop

| No. | Intersection               | Time Period   | Control | Northbound |      |       | Southbound |      |       | Eastbound |      |       | Westbound |      |       | Comp LOS | Highest Ave. Delay (sec/veh) | Peak Hour Warrant Met (Yes/No) |
|-----|----------------------------|---|---------|------------|------|-------|------------|------|-------|-----------|------|-------|-----------|------|-------|----------|------------------------------|--------------------------------|
|     |                            |   |         | Left       | Thru | Right | Left       | Thru | Right | Left      | Thru | Right | Left      | Thru | Right |          |                              |                                |
| 1)  | Franklin St. & Derby-Tejon | Year 2015 P.M. Existing   | 2W      | A          | A    | A     | A          | A    | A     | B         | B    | B     | A         | A    | A     | A        | 10.7                         | No                             |
|     |                            | Year 2015 P.M. with Project   | 2W      | A          | A    | A     | A          | A    | A     | B         | B    | B     | B         | B    | B     | B        | 15.0                         | No                             |
|     |                            | Year 2035 P.M. without Project  | 2W      | A          | A    | A     | A          | A    | A     | C         | C    | C     | A         | A    | A     | B        | 17.6                         | No                             |
|     |                            | Year 2035 P.M. with Project   | 2W      | A          | A    | A     | A          | A    | A     | C         | C    | C     | D         | D    | D     | D        | 32.8                         | No                             |
|     |                            | Year 2035 P.M. with Project - Mitigated to add Addt'd Thru & Turn Lanes | 2W      | A          | A    | A     | A          | A    | A     | C         | C    | B     | C         | C    | A     | C        | 22.6                         | No                             |
|     |                            | Year 2035 P.M. with Project - Mitigated to add 4W Stop, no signal       | 4W      | A          | C    | C     | C          | C    | A     | B         | B    | B     | B         | B    | B     | C        | 20.1                         | No                             |
|     |                            | Year 2035 P.M. with Project - Mitigated to add Signal                   | S       | A          | A    | A     | A          | A    | A     | D         | D    | D     | E         | E    | E     | A        | 9.4                          | No                             |

**Table 7A: Peak Hour Warrant Analysis - Revised Land Use and Zoning Plan (Grimmway Plan)**

| No. | Existing Non-Signalized Intersection | Year 2015 Existing PM Volumes (Figure 3) |                                   |                                   | Year 2015 Existing PM Volumes Plus Project (Figure 7) |                                   |                                   | Year 2035 PM Volumes (Figure 8)     |                                   |                             | Year 2035 PM Volumes Plus Project (Figure 9) |                                   |                                   |
|-----|--------------------------------------|--|-----------------------------------|-----------------------------------|---|-----------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-----------------------------|--|-----------------------------------|-----------------------------------|
|     |                                      | Highest Minor Approach Volume (vph)      | Total Major Approach Volume (vph) | Peak Hour Warrant Satisfied (Y/N) | Highest Minor Approach Volume (vph)                   | Total Major Approach Volume (vph) | Peak Hour Warrant Satisfied (Y/N) | Highest Minor Approach Volume (vph) | Total Major Approach Volume (vph) | Peak Hour Warrant Satisfied | Highest Minor Approach Volume (vph)          | Total Major Approach Volume (vph) | Peak Hour Warrant Satisfied (Y/N) |
| 1)  | Franklin St. & Derby-Tejon Hwy.      | 28                                       | 397                               | N                                 | 61  | 497                               | N                                 | 64                                  | 902                               | N                           | 97   | 1,002                             | N                                 |

## **IX. Mitigation and Project's Pro-Rata Share of Costs**

As discussed in the previous section, as a direct result of the addition of Project-generated traffic to Year 2035 estimated traffic, the intersection of Franklin Street and Derby Street will likely degrade to a LOS of less than "C". However, based on the Modified Plan, the peak hour traffic signal warrant is not satisfied. In addition mitigation of this intersection improves to a Level of Service of "C" and better if intersection control was "upgraded" to a 4-way stop. Again, above and beyond the Traffic Impact Fee, the only obligation for the Project would be a pro-rata share of the cost of upgrading the intersection to a four-way stop.

## **X. Project's Pro-Rata Share of Mitigation:**

The Project's pro-rata share of mitigation discussed in the previous section is the ration of Project-generated peak hour traffic (at the intersection of Franklin Street and Derby Street) to the total Year 2035 peak hour traffic at said intersection. The ratio is shown as follows:

$$\text{Project's Pro-Rata Share} = 15\%$$

## **XI. Conclusions and Recommendations**

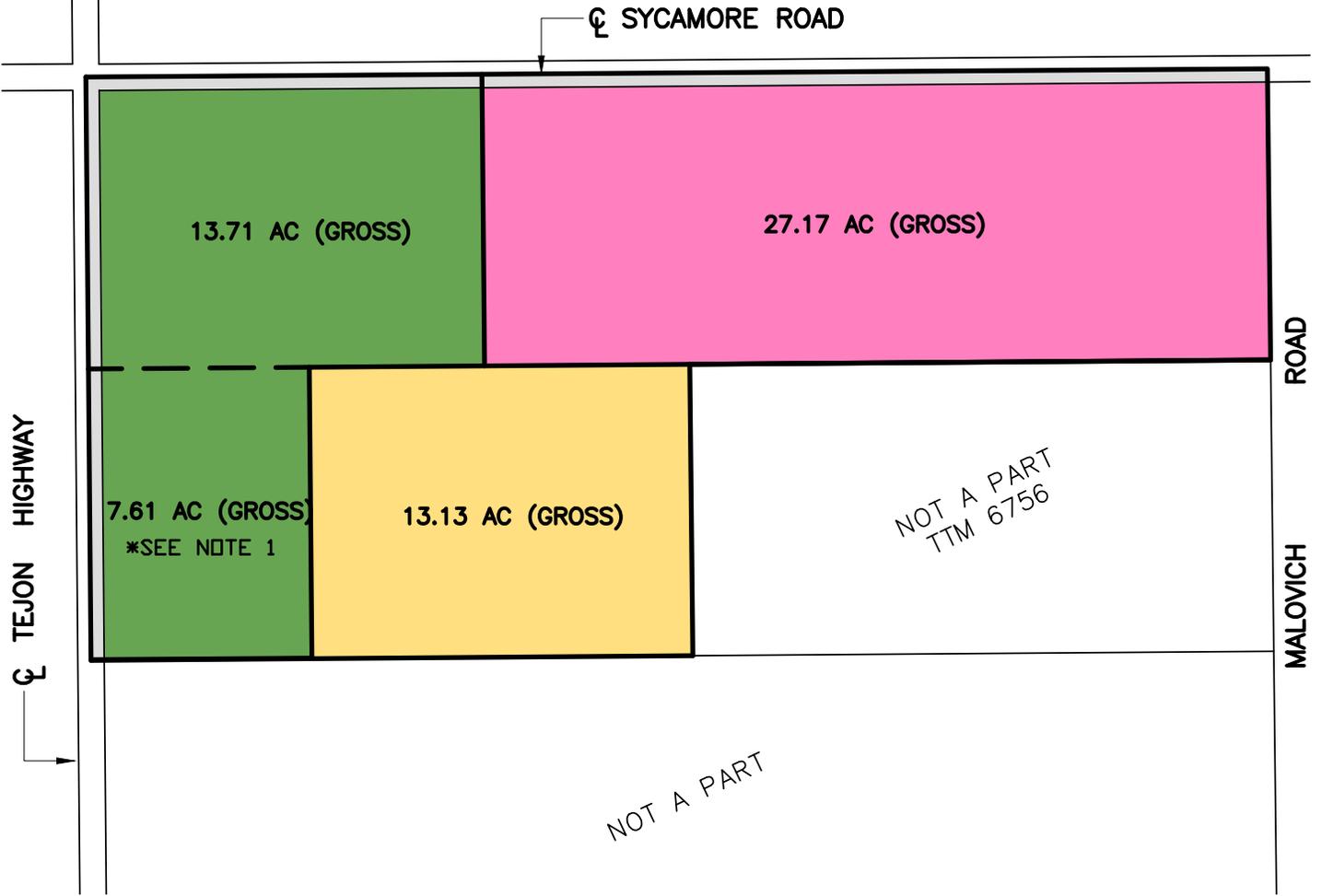
The original traffic study, and moreover this addendum have indicated that traffic from the Project can be successfully mitigated to be less-than-significant.

The Modified Plan, from which this addendum is based, produces roughly one-half of the peak hour trips than that of the Original Plan.

Although this addendum identified mitigation for the Franklin and Derby as an all-way stop, the City may not want this modification, in part because the east leg of the intersection is a private drive.

Finally it is noted that the Project will be obligated to pay the City's Traffic Impact Fee, which is already intended to mitigate normal growth in the City. Additionally, it is likely the Project will be required to improve the half-width of both Sycamore Avenue and Tejon Highway. Sycamore Road is badly degraded: pavement has "alligator cracking", potholing, differential settlement, and needs complete reconstruction.

**APPENDIX “A”**  
**EXHIBITS AND FIGURES**



**LEGEND**

-  C-1 (COMMERCIAL)
-  R-2 (DETACHED HOMES)
-  R-2 (MULTI-FAMILY APARTMENTS)

**NOTES:**

1. NOTED PARCEL MAY BE CHANGED TO R-2 DEPENDING ON MARKET.
2. INDICATED ACREAGES INCLUDE ROADWAY HALF-WIDTHS.

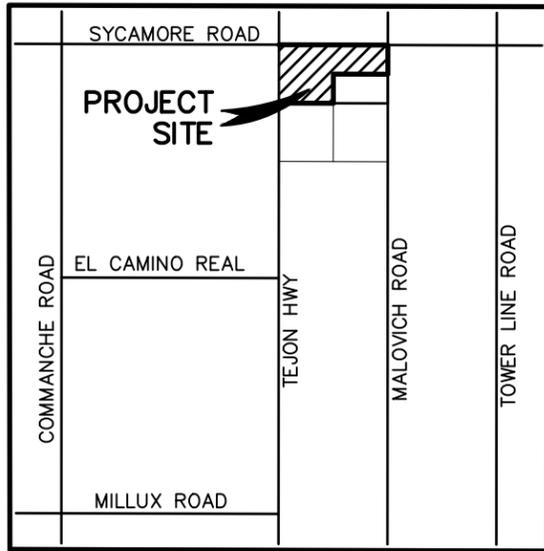


**LAV// Pinnacle Engineering**

ENGINEERING • PLANNING • SURVEYING

12418 Rosedale Hwy., Suite A, Bakersfield, CA 93312  
 Phone: (661) 869-0184 Fax: (661) 885-4155

ADDENDUM: EXHIBIT "A" - PROPOSED  
 LAND USE PLAN (ORIGINAL PROJECT)



VICINITY MAP  
NO SCALE

# EXHIBIT "B"

## ZONE CHANGE - MODIFIED ZONING

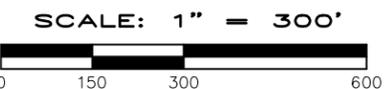
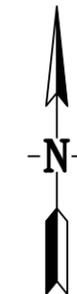
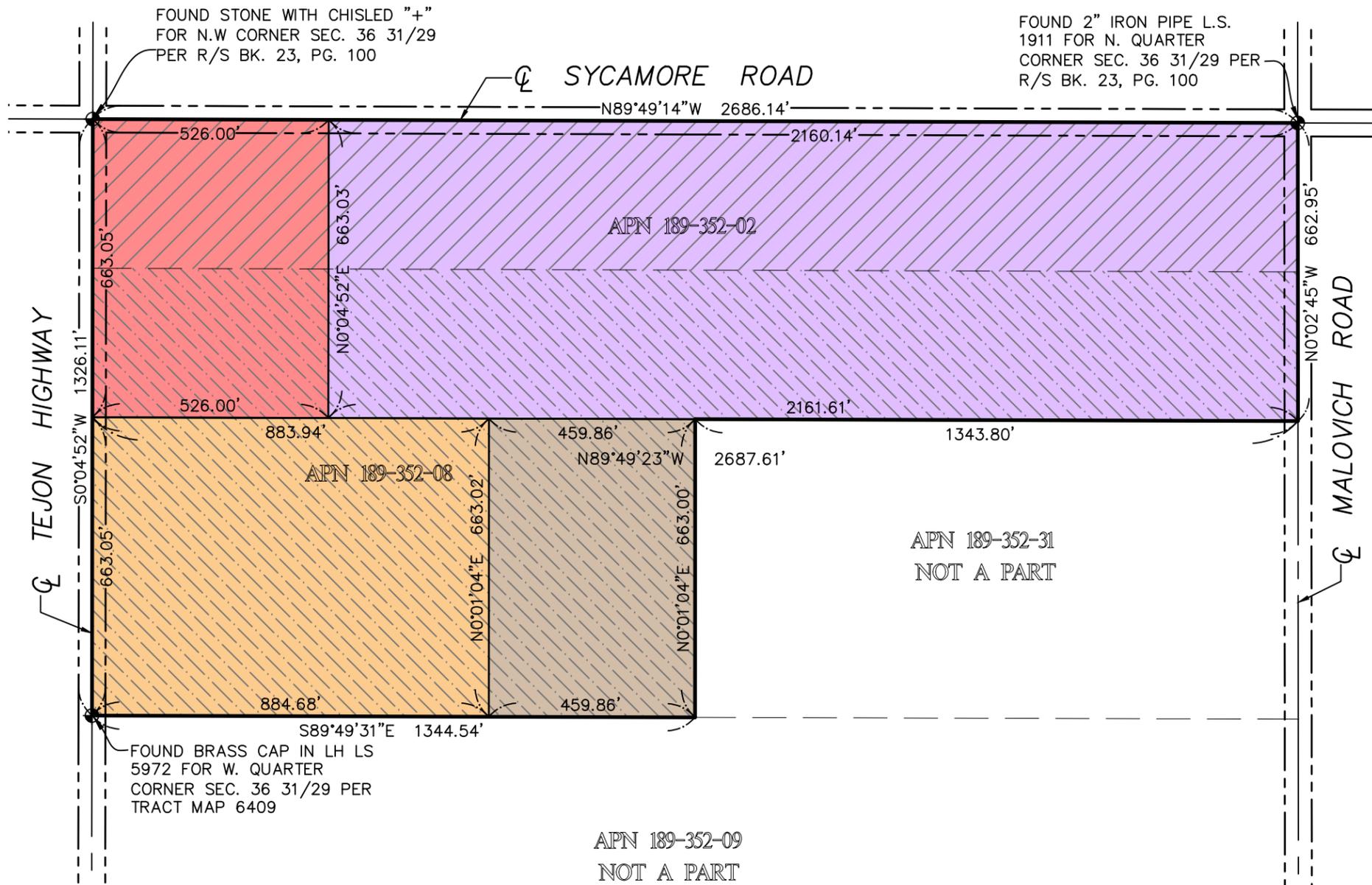
BEING A PORTION OF THE NORTH 1/2 OF THE NORTHWEST 1/4 OF SECTION 36, T.31S., R.29E., M.D.M., IN THE CITY OF ARVIN, COUNTY OF KERN, STATE OF CALIFORNIA

### BASIS OF BEARINGS

THE BEARING OF N 89°49'14" W SHOWN FOR THE CENTERLINE OF SYCAMORE ROAD PER THE RECORD OF SURVEY RECORDED IN BOOK 23 PAGE 100 IN THE KERN COUNTY RECORDER'S OFFICE WAS USED AS THE BASIS OF BEARING FOR THIS MAP.

### LEGEND

- PROJECT BOUNDARY
- EXISTING RIGHT OF WAY
- EXISTING MONUMENT AS DESCRIBED
- EXISTING A-1 ZONE
- EXISTING A-2 ZONE
- C-2 (GENERAL COMMERCIAL)  
8.01 ACRES
- M-2 (LIGHT MANUFACTURING)  
32.89 ACRES
- R-2 (TWO FAMILY DWELLING)  
13.46 ACRES
- R-4 (MULTIPLE FAMILY DWELLING)  
7.00 ACRES



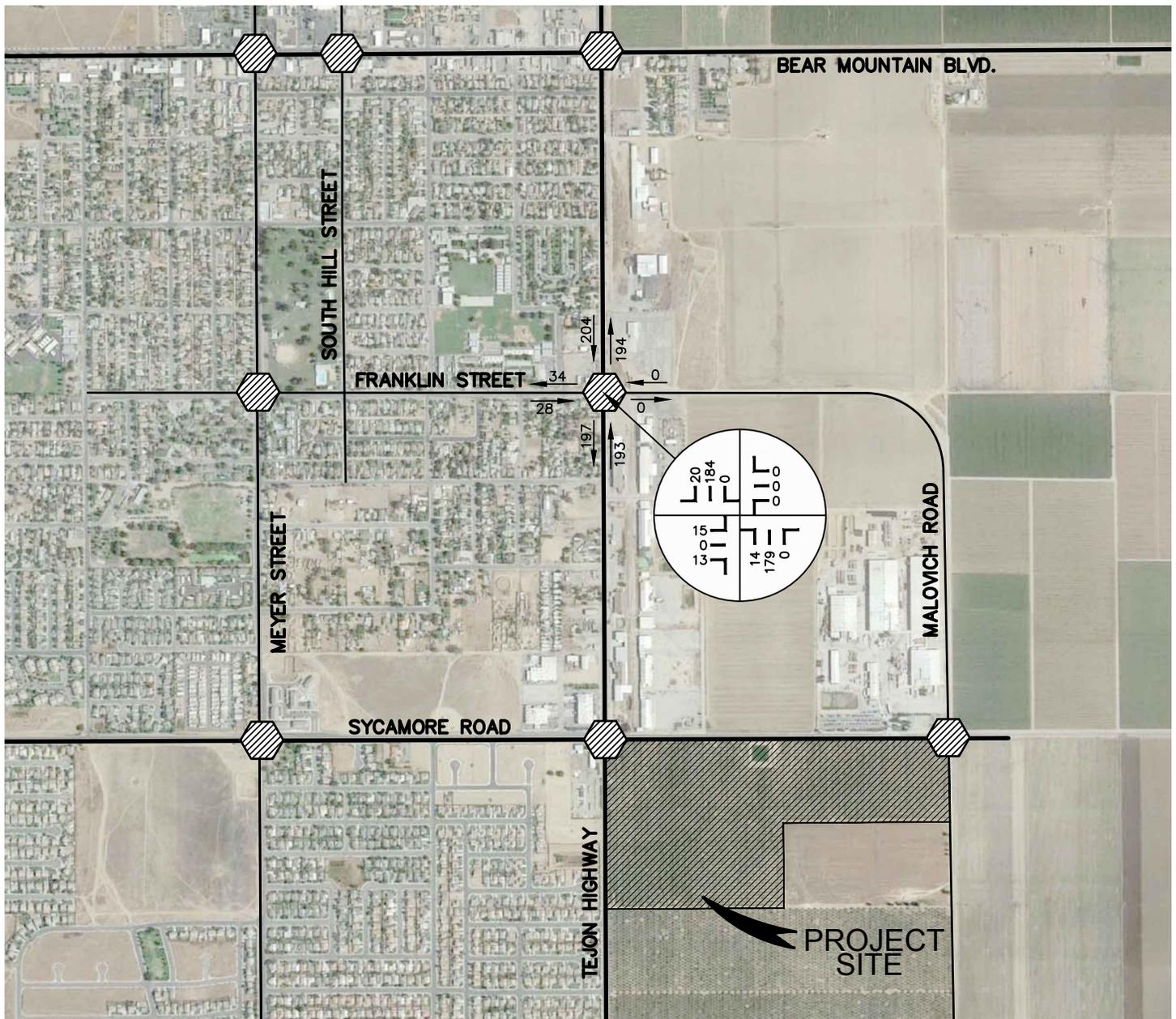
**LAV//Pinnacle Engineering**  
ENGINEERING • PLANNING • SURVEYING  
12418 Rosedale Hwy., Suite A, Bakersfield, CA 93312  
Phone: (661) 869-0184 Fax: (661) 885-4155

|                    |                        |      |
|--------------------|------------------------|------|
| MATTHEW K. NOVILLA | RCE 43130 EXP. 3/31/14 | DATE |
| REVISIONS          |                        |      |

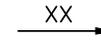
PROPOSED GPA & ZONE CHANGE  
NW 1/4 SEC. 36 T. 31 S. R. 29 E.  
TEJON HWY. & SYCAMORE RD.  
ARVIN, CALIFORNIA

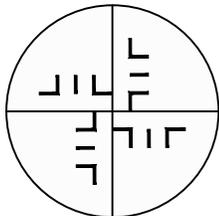
|             |         |
|-------------|---------|
| JOB NO.:    | 15-457  |
| DWG NO.:    | GPA-ZC  |
| DATE:       | 4/23/19 |
| DRAWN BY:   | DLS     |
| CHECKED BY: | MKV     |
| SHEET       | 1       |
| OF 2 SHEETS |         |





**LEGEND:**

-  EXISTING ARTERIAL STREET
-  EXISTING COLLECTOR STREET
-  SEGMENT VOLUME – P.M. PEAK HOUR



P.M. INTERSECTION TURNING MOVEMENTS

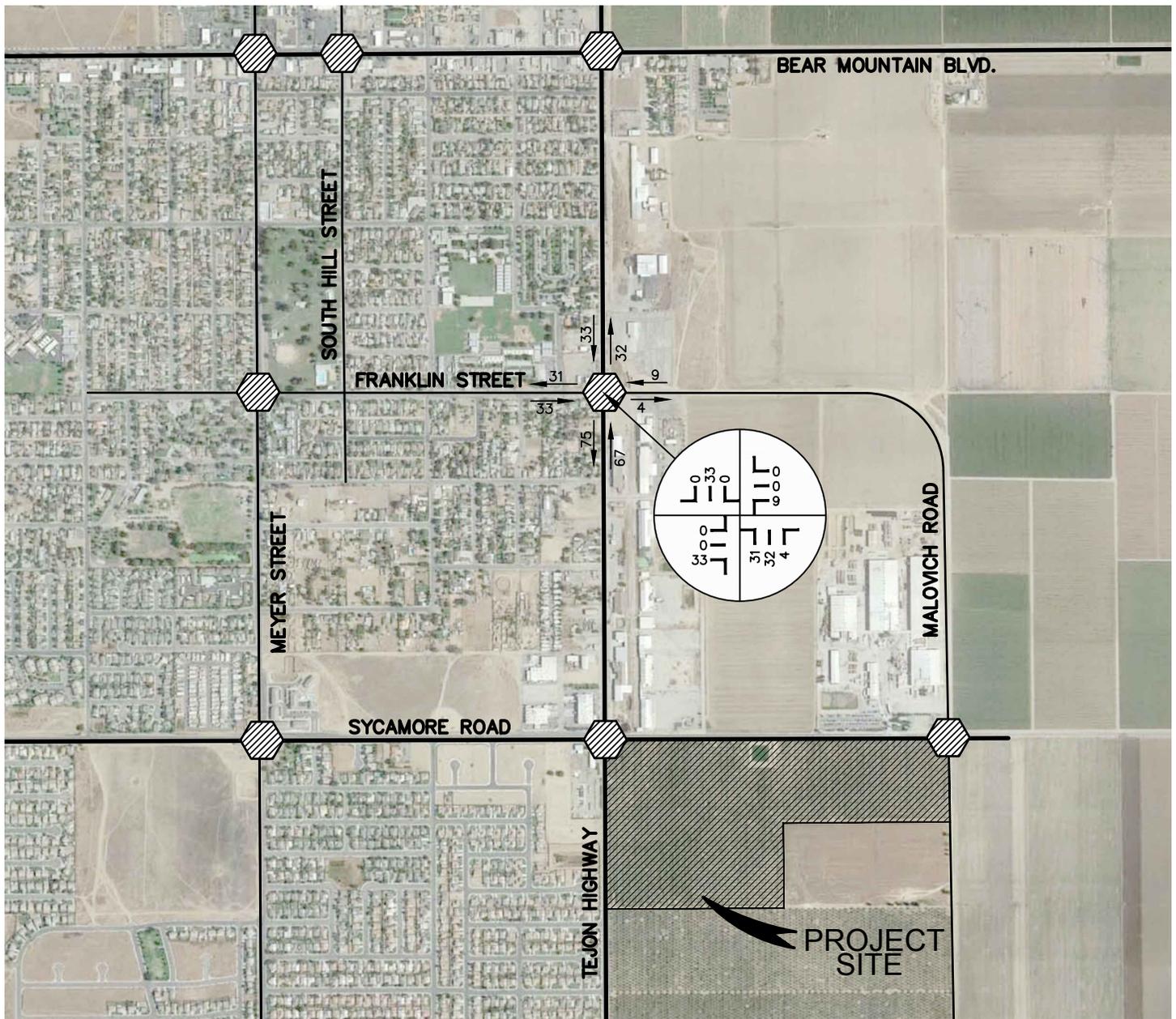


**LAV// Pinnacle Engineering**

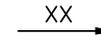
ENGINEERING • PLANNING • SURVEYING

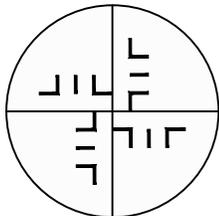
12418 Rosedale Hwy., Suite A, Bakersfield, CA 93312  
 Phone: (661) 869-0184 Fax: (661) 885-4155

ADDENDUM: FIGURE 3  
 YEAR 2015 P.M. PEAK HOUR VOLUMES  
 & TURNING MOVEMENTS  
 (MODIFIED LAND USES)



**LEGEND:**

-  EXISTING ARTERIAL STREET
-  EXISTING COLLECTOR STREET
-  SEGMENT VOLUME – P.M. PEAK HOUR



P.M. INTERSECTION TURNING MOVEMENTS

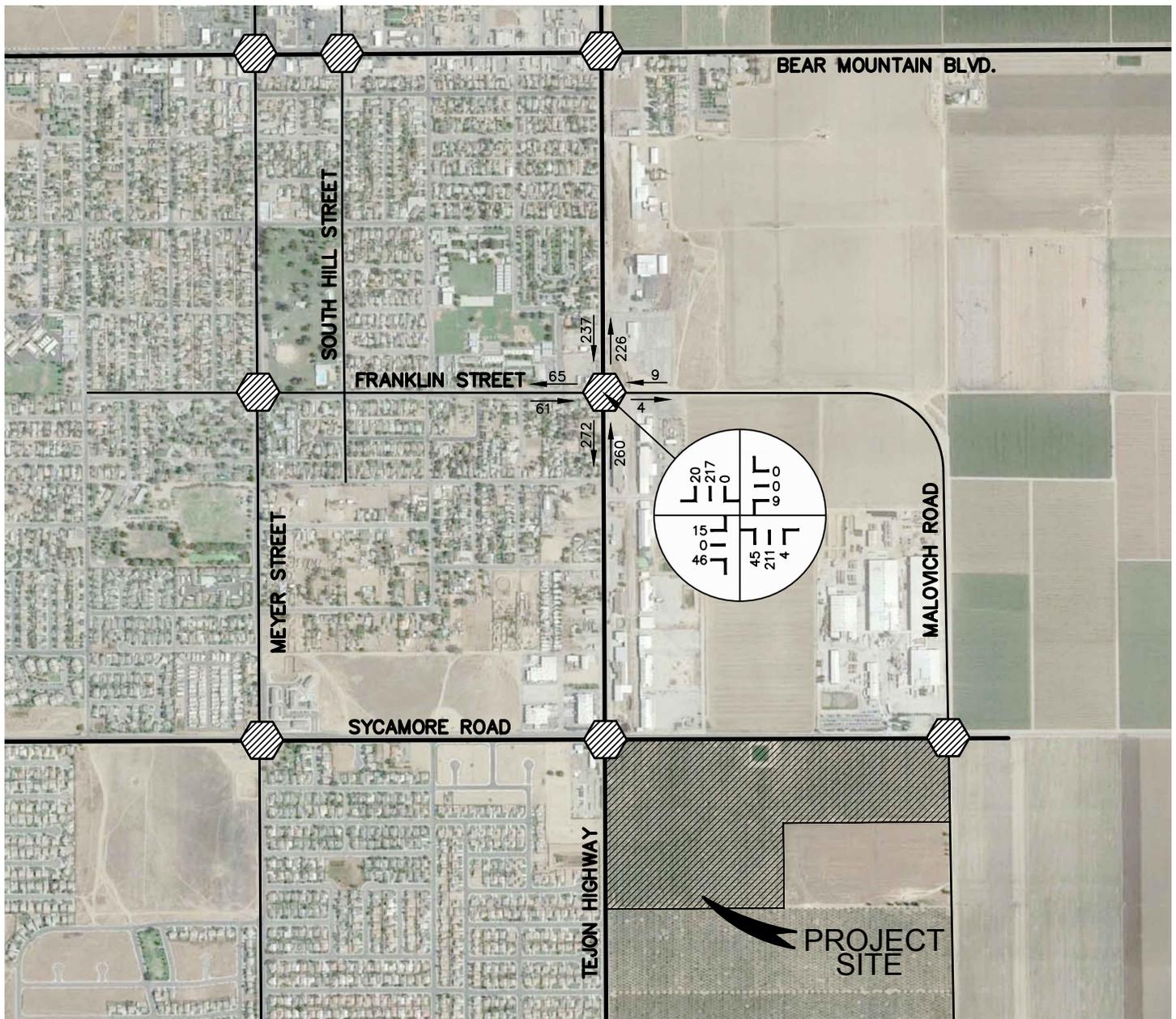


**LAV// Pinnacle Engineering**

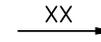
ENGINEERING • PLANNING • SURVEYING

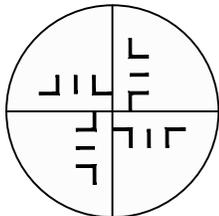
12418 Rosedale Hwy., Suite A, Bakersfield, CA 93312  
 Phone: (661) 869-0184 Fax: (661) 885-4155

**ADDENDUM: FIGURE 6  
 PROJECT GENERATED TRAFFIC -  
 EVENING PEAK HOUR  
 (MODIFIED LAND USES)**



**LEGEND:**

-  EXISTING ARTERIAL STREET
-  EXISTING COLLECTOR STREET
-  SEGMENT VOLUME – P.M. PEAK HOUR



P.M. INTERSECTION TURNING MOVEMENTS



**LAV// Pinnacle Engineering**

ENGINEERING • PLANNING • SURVEYING

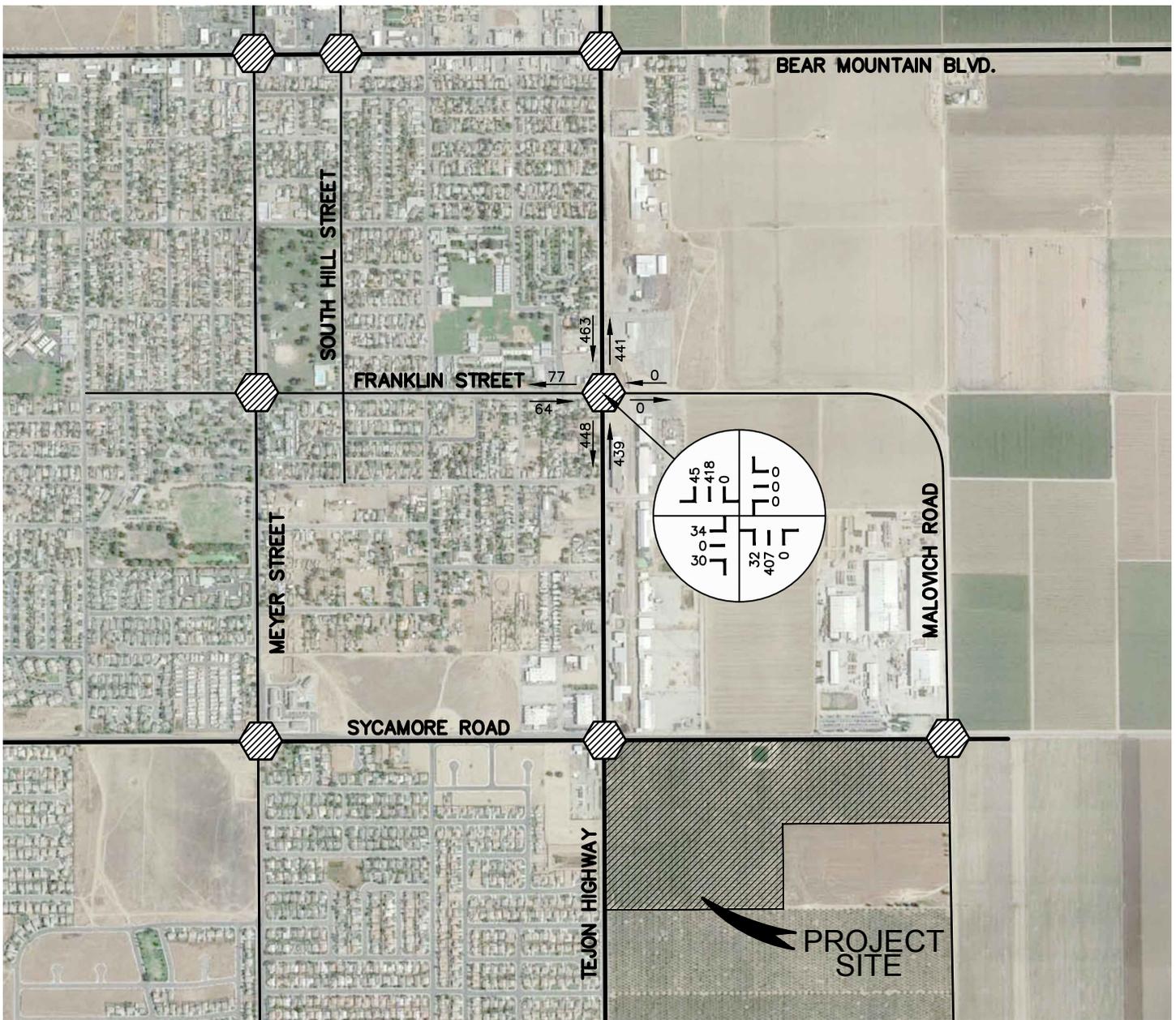
12418 Rosedale Hwy., Suite A, Bakersfield, CA 93312  
 Phone: (661) 869-0184 Fax: (661) 885-4155

**ADDENDUM: FIGURE 7  
 YEAR 2015 P.M. PEAK HOUR VOLUMES &  
 TURNING MOVEMENTS PLUS PROJECT  
 GENERATED TRAFFIC (MODIFIED LAND USES)**

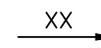
JOB No.: 10-457

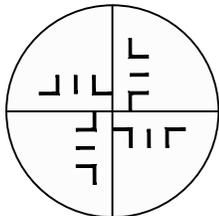
DWG No.: TIS EXHIBIT

DATE: 5/1/2019



**LEGEND:**

-  EXISTING ARTERIAL STREET
-  EXISTING COLLECTOR STREET
-  SEGMENT VOLUME – P.M. PEAK HOUR



P.M. INTERSECTION TURNING MOVEMENTS

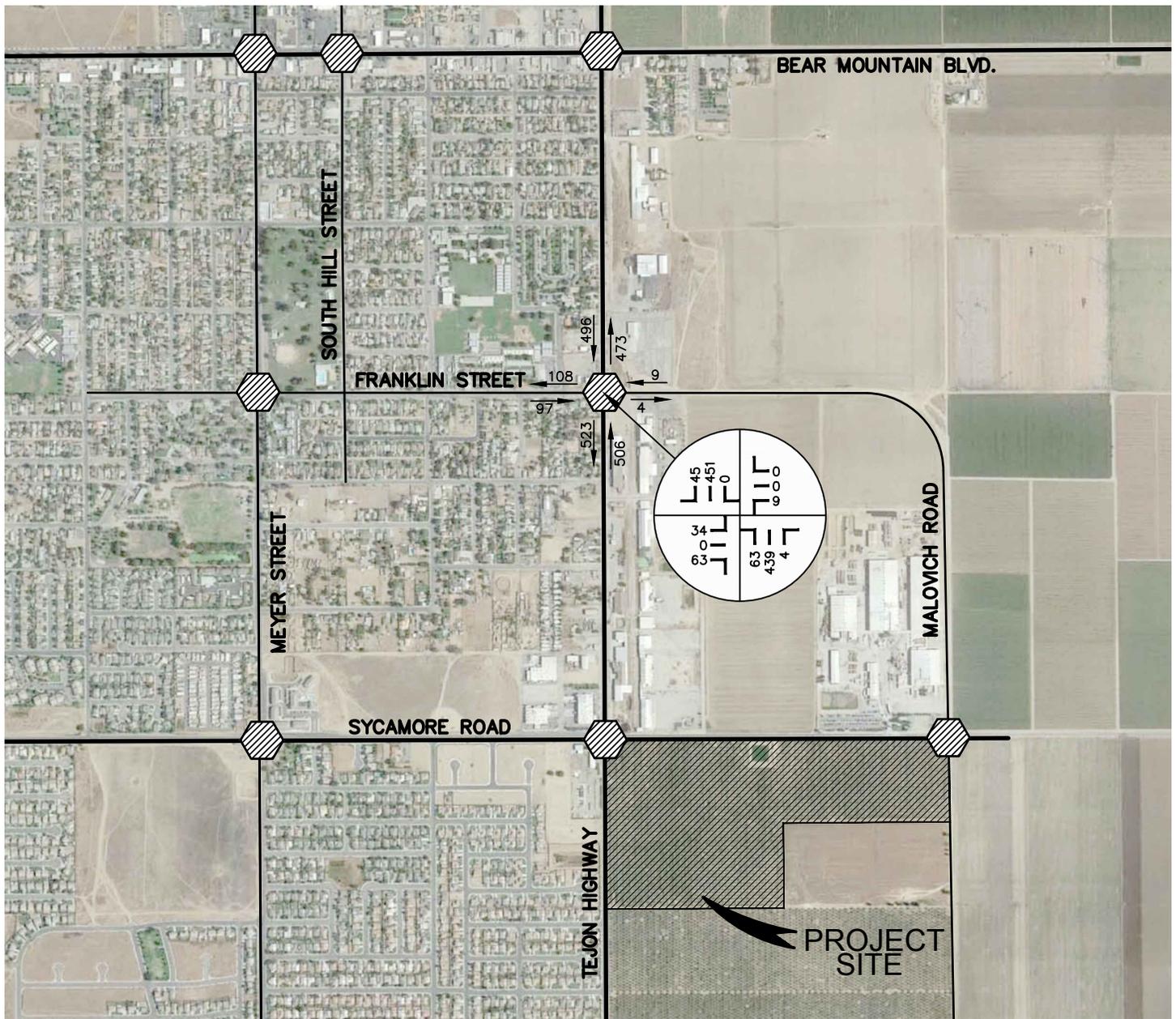


**LAV// Pinnacle Engineering**

ENGINEERING • PLANNING • SURVEYING

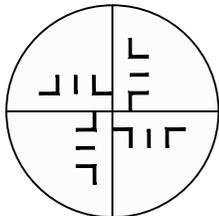
12418 Rosedale Hwy., Suite A, Bakersfield, CA 93312  
 Phone: (661) 869-0184 Fax: (661) 885-4155

ADDENDUM: FIGURE 8  
 YEAR 2035 P.M. PEAK HOUR VOLUMES  
 & TURNING MOVEMENTS  
 (MODIFIED LAND USES)



**LEGEND:**

- EXISTING ARTERIAL STREET
- EXISTING COLLECTOR STREET
- SEGMENT VOLUME - P.M. PEAK HOUR



P.M. INTERSECTION TURNING MOVEMENTS



**LAV// Pinnacle Engineering**

ENGINEERING • PLANNING • SURVEYING

12418 Rosedale Hwy., Suite A, Bakersfield, CA 93312  
 Phone: (661) 869-0184 Fax: (661) 885-4155

**ADDENDUM: FIGURE 9  
 YEAR 2035 P.M. PEAK HOUR VOLUMES &  
 TURNING MOVEMENTS PLUS PROJECT  
 GENERATED TRAFFIC (MODIFIED LAND USES)**

JOB No.: 10-457

DWG No.: TIS EXHIBIT

DATE: 5/1/2019