# UPDATE OF TRAFFIC FEE COMPONENT OF THE DEVELOPMENT FEE PROGRAM

CITY OF BANNING

RIVERSIDE COUNTY, CALIFORNIA

LSA

May 2019

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CITY OF BANNING

RIVERSIDE COUNTY, CALIFORNIA

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Project No. COB1101A

LSA

May 2019

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## APPENDIX

# 1.0 INTRODUCTION

The City of Banning (City) is located in the San Gorgonio Pass Area of Riverside County. The City shares its boundaries with the City of Beaumont, and unincorporated areas of Riverside County. Based on the 2016 Census, Banning's population was estimated at 31,026 and employment at 7,930. The Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) forecasts the 2040 population for the City as 37,600 and employment at 14,200. The population is forecast to grow at 0.88 percent per annum while employment is forecast to grow at 3.29 percent per annum. Increased population and employment in the City will lead to increased demand for transportation infrastructure and will affect existing infrastructure. Without addition of roadway capacity, it is likely that transportation facilities will not maintain satisfactory traffic operations resulting in additional congestion and delay. To maintain satisfactory traffic operations as population and development increases, improvements are planned for construction and expansion of the backbone transportation infrastructure. Implementation of planned improvements will be required to adequately serve current and future development anticipated through 2035.

The City's current Development Impact Fee Program (DIF) does not include physical improvements required at intersections to maintain acceptable level of service (LOS) according to the City's General Plan policy in the General Plan Build-out conditions. The current fee program only addresses proposed traffic control upgrade (signalization) at several locations in the City. Specifically, this DIF update addresses improvements included in the following documents:

- Revised Butterfield Specific Plan Traffic Impact Analysis, LSA Associates, Inc., September, 2016.
- Banning General Plan Amendment, Redesignation of Highland Home Road at Interstate 10 from an Interchange to an Overcrossing, LSA Associates, Inc., September, 2012.
- Banning General Plan Amendment, Change in Level of Service Policy, LSA Associates, Inc., September, 2012.
- Memorandum – Traffic Analysis for Removal of the Highland Home Road Connection to Highland Springs Avenue at Brookside Avenue, LSA Associates, Inc., October, 2011. (Addendum to Butterfield Specific Plan Traffic Impact Analysis).
- Butterfield Specific Plan Traffic Impact Analysis, LSA Associates, Inc., December, 2010.
- City of Banning General Plan Update Traffic Study, Kunzman Associates, March, 2005.

Some of the analysis intersections included in the Fee Program are included in two or more of the above listed documents. For those intersections, documents which include the latest updates and/or amendments to those intersections have been considered.

# 2.0 DEFINITION OF IMPACT FEES

With the passage of Proposition 13, local governments have been left with less money to pay for infrastructure improvements. Before the passage of Proposition 13, cities and counties often constructed needed infrastructure or charged subsidized impact fees that paid for a portion of the

infrastructure made necessary by the project. However, with the passage of Proposition 13, cities and counties are often unable to afford the improvements required by development projects. Therefore, cities and counties are instituting development impact fees to fund infrastructure needed to support development. If a local government has the power to approve or deny a project, then it also has the power to subject the development to conditions that mitigate deterioration of infrastructure operations due to the development.

A development impact fee is an exaction, outside of a tax or special assessment, imposed by a local governmental agency on new development as a precondition in the development application process. These fees have the sole purpose of defraying all or a portion of the cost of public facilities directly related to the development project (Government Code § 66000(b)). The legal requirements for enactment of a development impact fee program are set forth in Government Code §§ 66000–66025 (also referred to as the "Mitigation Fee Act"), many of which were adopted as part of AB 1600 and thus are often referred to as "AB 1600 requirements."

A development impact fee is not a tax or special assessment. By definition, the fee is voluntary and must be reasonably and proportionally related to the cost of the service provided by the local agency. If a development impact fee does not relate to the impact created by development or exceeds the reasonable cost of providing the public service, the fee can be challenged, rescinded or set for a voter approval (2/3rd approval necessary).

## 2.1 Nexus Requirement Summary

Pursuant to the Mitigation Fee Act, in addition to the findings supporting the adoption of impact fees identified in the impact fee ordinance, each implementing resolution shall include the following:

1. Identify the purpose of the fee by identifying the estimated types and quantities of development projects subject to the fee, and the public facility category to be funded by the fees.
2. Identify the use of the fee by identifying the specified public facilities to be funded by the fees.
3. Determine how there is a reasonable relationship between the city's use of the fee and the types of development projects on which the fee is to be imposed by demonstrating how the development projects will benefit from the specified public facilities to be funded by the fees.
4. Determine how there is a reasonable relationship between the need for the specified public facilities and the types of development projects on which the fee is to be imposed, by demonstrating how the development projects create a demand for the construction of the specified public facilities to be funded by the fees.
5. Determine how there is a reasonable relationship between the amount of the fee and the cost of the specified public facility attributable to the development projects on which the fee is to be imposed. This shall include two elements:
    a. A quantification of the estimated reasonable cost of providing the specified public facility, which may include the estimated costs of land acquisition, design, construction, construction administration, general administration (including establishment and enforcement) of the fee program, and contingencies; and

b. An identification of the method by which the city quantifies the proportionate responsibility of each development project for the cost of the specified public facilities, which may be satisfied by establishing a formula that reasonably quantifies the proportionate responsibility of various types of development projects using standardized units of measurement. (Ord. 2463 § 1, 6-4-02. 1990 Code § 8-9103)

In addition, a city cannot require new development to pay for existing deficiencies.

The purpose of this report is to identify improvements subject to the development impact fee, identify the costs of improvements, and establish a fee per unit of development to be used to implement roadway improvements necessary to support future development. This report will demonstrate that all fee components comply with the Mitigation Fee Act. The assumptions, methodologies, facility standards, costs, and cost allocation factors that were used to establish the nexus between the fees and the development on which the fees will be levied are summarized in subsequent sections of this report.

**2.1.1: Purpose of the Fee.** The purpose of the proposed DIF update is to fund fair-share costs associated with improvements identified in the documents listed in Section 1 at build-out of the City's General Plan and to allocate those costs to development within the City. The Western Riverside Council of Governments (WRCOG) has prepared a Nexus Study and developed a Transportation Uniform Mitigation Fee (TUMF) to provide funding for improvements to freeway interchanges, railroad grade separations, and regional arterial highways on the Nexus Study Network. The City of Banning has adopted and is required to implement a compliant development mitigation program for the Nexus Study Network. The Nexus Study and TUMF are discussed in greater detail later in this document. Additionally, the City of Banning DIF (Signalization) has a traffic signal fee component which includes costs for new signals at several intersections Citywide. This analysis combines the existing DIF (signalization) with the current analysis to create a combined DIF program. The DIF update will be assessed to defray costs of transportation improvements at intersections that are not included in the TUMF, but would require improvements due to background growth and new development within the City. This fee does not include frontage improvements and/or street segments within the City, which will be the responsibility of individual development projects. The fees will be applicable to all development within the City.

**2.1.2: Use of the Fee.** This analysis evaluates 36 intersections. Under General Plan Buildout conditions, 35 intersections were anticipated to operate at unsatisfactory levels of service. Of the 35 deficient intersections, full or partial improvements for some intersections are identified in the TUMF. The proposed DIF update would fund improvements at intersections analyzed as part of the documents listed in Section 1 for which improvements are not included in the TUMF.

**2.1.3: Determination of a Reasonable Relationship between the Need for the Public Facility and the Type of Development Project on which the Fee is Imposed.** As new development occurs, there will be an increase in demand for transportation facilities. The fees will be used to construct transportation improvements resulting in better traffic operations, to meet transportation demand from new development.

The fee calculations are based on the improvements listed in the documents listed in Section 1 that are not part of the TUMF. Improvements that are part of the TUMF are not included because development projects are required to pay the TUMF. Inclusion of those intersections already included in the TUMF would result in charging the projects twice for the same improvements.

**2.1.4: Determination of a Reasonable Relationship between the Need for the Specified Public Facilities and the Types of Development Projects on which the Fee is to be Imposed, by Demonstrating How the Development Projects Create a Demand for the Construction of the Specified Public Facilities to be Funded by the Fees.** New residential and non-residential development will attract and create new residents and employees, thereby increasing the traffic in Banning and adjacent jurisdictions, thus requiring additional traffic improvements. The required traffic improvements were previously identified in the documents listed in Section 1 as circulation improvements specifically for new development. The traffic fees collected from new development within the City will be equal to the portion of the traffic improvements attributable to new development within the City (identified as a proportion of new to total future traffic). Residential and non-residential development will be responsible for their fair-share portions of the total cost based on the proportion of traffic and the estimated traffic generation rates of the individual land uses.

# 3.0 FEE METHODOLOGY

There are several methodologies used to determine impact fees for new development. The choice of the methodology depends on the type of facility for which an impact fee is being calculated as well as the availability of documentation and research conducted in support of the fee. For transportation improvements, the plan-based fee methodology is the most appropriate methodology since the need for transportation-related improvements depends specifically on the projected number of trips that must be accommodated.

## 3.1 Plan-Based Fee Methodology

The plan-based fee methodology is used for facilities that must be designed based on multiple considerations, including, but not limited to, future traffic and infrastructure demand projections, geographic location of anticipated growth, and potential development constraints. For example, the need for transportation-related improvements depends specifically on the projected number of trips that must be accommodated. The City must first analyze existing facilities, geographic constraints, and current and required levels of service in order to identify future facility needs. This information is analyzed in conjunction with a projection of the amount and location of future development in order to determine the adequacy of existing facilities and the demand for new improvements. The following methodology was used to calculate fees under the plan-based fee methodology:

1. *Determine the future development, by land use category and location, anticipated within the region through General Plan Buildout.* This data was taken from the City of Banning General Plan Land Use Element. Trips attributed to any new development were based on daily trip rates from the Institute of Traffic Engineers (ITE) *Trip Generation,* 10th Edition.
2. *Estimate improvements attributable to new development.* Improvements to intersections needed to serve the current and future regional growth were identified. Then, the portions of improvements

for which only future growth will be responsible were identified. The cost of improvements required to correct existing deficiencies was removed from the fee calculation.

3. *Subtract facilities that are funded through other revenue sources.* Improvements covered by the TUMF, and the DIF (signalization) were removed from the list of improvements and not subject to the fee assessment. Additionally improvements that have been implemented since the time the documents listed in Section 1 were prepared have also been eliminated.
4. *Estimate costs of improvements not included in other funding programs.* Improvement costs were estimated using planning level cost estimates from the San Bernardino County Transportation Authority (SBCTA) Congestion Management Plan (CMP) and by applying an inflation factor to these costs using the California Department of Transportation's (Caltrans) Price Index for Selected Highway Construction Items dated September 4, 2018, for signal improvements and lane additions.
5. *Calculate the portion of those costs attributed to new development within the City.* This includes cost estimates for physical improvements, cost of right-of-way, utility and drainage relocation and property takes (if feasible).
6. *Identify the trips generated by new development within the City that will be used to allocate facility costs on a fair-share basis to each future land use category.* Trips used to allocate facility costs were based on the gross daily trips generated by new development. To eliminate double counting of trips between residential and non-residential uses the same trip adjustment rates were used that are included in the DIF (signalization). The trip adjustment rates are included in Appendix A.
7. *Divide the cost attributable to new development based on trips generated to identify a per unit/thousand square feet fee.* To determine the cost per unit/thousand square feet (TSF) for each land use category, the total cost of improvements was divided by the total net new trips to derive a total cost per trip. This cost per trip was then multiplied by the number of trips generated by one unit/TSF of each land use category to determine the per unit/TSF fee for that respective land use.

# 4.0 IMPACT FEE CALCULATION

This section discusses the analysis of future land use, required improvements, and costs for improvements used to calculate the impact fee.

## 4.1 Identification of Study Area

As stated previously, this fee program addresses improvements included in the documents listed in Section 1. Table A lists the intersection by document source. All tables are attached at the end of this report. The study area intersections include:

1. Highland Springs Avenue/16th Street-Cougar Way;
2. Highland Springs Avenue/F Street;
3. Highland Springs Avenue/Oak Valley Parkway-B Street;

4. Highland Springs Avenue/Starlight Avenue -A Street;
5. Highland Springs Avenue/Wilson Street;
6. Highland Springs Avenue/Ramsey Street;
7. Highland Springs Avenue/I-10 Westbound Ramps;
8. Highland Springs Avenue/I-10 Eastbound Ramps;
9. Highland Springs Avenue/Sun Lakes Boulevard;
10. Highland Springs Avenue/Potrero Boulevard;
11. C Street-Apex Avenue/Wilson Street;
12. Highland Home Road/Beaumont Road-G St;
13. Highland Home Road/F Street;
14. Highland Home Road/D Street;
15. Highland Home Road/Wilson Street;
16. Highland Home Road/Ramsey Street;
17. Highland Home Road/Sun Lakes Boulevard–Westward Avenue;
18. Sunset Avenue/Wilson Street;
19. Sunset Avenue/Ramsey Street;
20. Sunset Avenue/I-10 Westbound Ramps;
21. Sunset Avenue/I-10 Eastbound Ramps;
22. Sunset Avenue/Lincoln Street;
23. Sunset Avenue/Westward Avenue;
24. Sunrise Avenue/Wilson Street;
25. 16th St/Wilson Street;
26. 8th St/Wilson Street;

27. 8th St/Ramsey Street;
28. 8th St/I-10 Westbound Ramps;
29. 8th St/I-10 Eastbound Ramps;
30. 8th Street/Lincoln Street;
31. 4th St/Wilson Street;
32. San Gorgonio Avenue/Wilson Street;
33. Hargrave Street/Ramsey Street;
34. Hargrave Street/I-10 Westbound Ramps;
35. Hargrave Street/I-10 Eastbound Ramps; and
36. Hargrave Street/Lincoln Street.

Figure 1 illustrates the location of the study area intersections. Figure 2 illustrates the City of Banning General Plan Circulation Element. All figures are attached at the end of this report.

### 4.2 Determination of future development, by land use category and location, anticipated within the City through General Plan Build-out.

The calculation of fair-share development contributions requires an estimate of projected growth for residential and non-residential development anticipated within the City by build-out of the General Plan. The City of Banning General Plan Land Use Element defines land use designations, provides statistics regarding vacant and developed land, and discusses strategies for the future development of the City. A description of each land use is given below:

- *Ranch Agricultural/ Residential:* Allows detached single-family homes on lots of at least ten acres. Also permitted are agricultural and ranching activities, animal keeping (both personal use and commercial), and animal-keeping or agricultural related commercial enterprises, such as feed stores, commercial stables and similar uses, and home occupations.
- *Ranch Agricultural/ Residential-Hillside:* Assigned to lands in the foothills. Portions of the site exceeding 25% slope as well as the ridgelines are to be preserved as open space, but density may be transferred to developable areas.
- *Rural Residential:* Allows detached single family homes on lots of at least one acre. Also permitted are agricultural and ranching activities, animal keeping (both personal use and commercial) and home occupations.

- *Rural Residential-Hillside:* Assigned to lands in the foothills. Portions of the site exceeding 25% slope as well as the ridgelines are to be preserved as open space, but density may be transferred to developable areas.
- *Very Low Density Residential:* Allows detached single-family homes at a density of up to 2 units per acre. Home occupations are permitted.
- *Low Density Residential:* Allows the development of attached and detached single family homes, in traditional subdivisions and planned communities. The clustering of condominiums and townhomes may be appropriate with the provision of common area amenities and open space, when a Specific Plan is prepared.
- *Medium Density Residential:* Allows the development of attached and detached single family homes, in traditional subdivisions and planned communities. Also allows condominiums and townhomes, garden apartments and duplexes, with the provision of common area amenities and open space. The clustering of condominiums and townhomes may be appropriate with the provision of common area amenities and open space.
- *High Density Residential:* Allows condominiums and townhomes, as well as apartments with the provision of common area amenities and open space. Duplex and multi-plex development is the most prevalent type of development in this designation. The clustering of condominiums and townhomes may be appropriate with the provision of common area amenities and open space.
- *Mobile Home Park:* The designation applies to existing mobile home parks or subdivisions within the City. Only mobile parks and subdivisions are permitted. Home occupations are permitted.
- *Downtown Commercial:* Small scale commercial retail and office uses, services, restaurants, entertainment retail are the primary uses in this designation. Auto related uses proposed are prohibited. All existing auto uses in existence as of the adoption of the General Plan will be permitted until such time as the use in a particular location ceases operation for a period of six months. Mixed Use, residential land uses in combination with commercial businesses, are also encouraged.
- *General Commercial:* Allows food and drug stores; home improvement; auto sales, leasing, service and repair; department and general retail outlets; merchandise leasing; neighborhood serving retail and services; restaurants; entertainment uses; gas stations; general offices (secondary to retail); mixed uses; and financial institutions.
- *Highway Serving Commercial:* Allows restaurants (fast food and sit down), hotels and motels, auto related retail, repair and services, including gas stations, convenience stores and similar uses serving the I-10 traveler.
- *Professional Office:* Allows professional offices and social services, financial institutions with only ancillary retail, and mixed uses.
- *Business Park:* Light industrial manufacturing and office/warehouse buildings are appropriate in this designation. Restaurants and retail uses ancillary to a primary use, and professional offices are also appropriate. Commercial development, such as large-scale retail (club stores, home improvement, etc.) and mixed-use project may also be permitted, subject to a conditional use permit.

- *Industrial:* Includes industrial parks and freestanding industrial users. Examples include light and medium intensity manufacturing operations, warehousing and distribution, mini-storage, and associated offices.
- *Airport Industrial:* Land uses must be focused on airport-related and transportation-related functions, including machining, manufacturing, warehousing, flight schools, restaurants and office uses. Aircraft maintenance, repair and catering services are also appropriate.
- *Industrial Mineral Resources:* Allows surface mining operations on lands designated by the City or the state as having significant potential for mineral resources. All the requirements of the State Department of Mining and Geology shall apply.
- *Public Facilities- Airport:* Land uses are specifically related to airport operations: administration offices, hangars, tiedowns, runways, restaurants and flight schools. Ancillary retail and service business relating to the airport are appropriate.
- *Public Facilities -Cemetery:* No description available.
- *Public Facilities- Schools:* Public and private schools at all levels, including colleges.
- *Public Facilities Hospital:* No description available.
- *Open Space-Parks:* Allows public and private parks and recreational facilities, including golf courses, tot lots, dog parks, neighborhood, community and regional parks, sports fields, and passive parks.

To determine the future development anticipated within the City at build-out of the General Plan, the City of Banning General Plan Land Use Element was used. The Land Use Summary tables were used to determine the type and total number of land use categories and are included in Appendix A. As shown in Appendix A, the General Plan build-out anticipates 20,543 total new residential units, 977.4 acres of commercial and industrial uses, 262.1 acres of public facilities, and 915 acres of open space parks.

The growth in land uses projected in the City's General Plan build-out conditions was converted into daily traffic estimates using trip rates from the *Institute of Transportation Engineers (ITE) Trip Generation 9th Edition*, consistent with the DIF (signalization). A trip adjustment factor was applied to account for pass-by trips based on the DIF (signalization) trip adjustment factors for residential and other non-residential (50% pass-by) land uses. For commercial land uses, an average of the trip adjustment factors from the DIF (signalization) was applied (30.5% pass-by).

Table B illustrates the daily trip generation attributable to new development by land use category consistent with the City of Banning General Plan Land Use Element. As shown in Table B, the total daily net new future development trips are 165,918.

## 4.3 Estimate Improvements Attributable to New Development.

Traffic volumes and levels of service for the General Plan build-out a.m. and p.m. peak hours at the study intersections were obtained from the data sources listed in Section 1. Improvements identified in the six documents mentioned in Section 1 were used to update the DIF. These improvements include

lane additions consistent with the General Plan roadway designations and possible signalization (or modification) to achieve a satisfactory LOS D condition.

The study area analyzed 36 intersections that could potentially be affected by the future new traffic anticipated at build-out of the General Plan. Table C shows the General Plan build-out without and with improvements levels of service. As shown in Table C, under General Plan build-out conditions, 35 intersections were anticipated to operate at unsatisfactory levels of service.

Improvements to intersections needed to serve the future development were identified and listed in Table D. As shown in Table D, the portions of improvements for which only future development will be responsible are identified in the DIF Program Improvements column. Figure 3 illustrates the corresponding General Plan build-out with improvements intersection geometrics.

## 4.4 Existing Deficiencies

There are three intersections included in the DIF update that operate at unsatisfactory conditions under existing conditions. These intersections are Highland Springs Avenue/Ramsey Street, Highland Springs Avenue/I-10 Westbound Ramps, and 8$^{th}$ Street/I-10 Eastbound Ramps. Based on the Mitigation Fee Act, the cost for improving existing deficiencies cannot be imposed on new development, therefore, improvements to mitigate these existing deficiencies are not included in the DIF update. It should be noted that improvements required at the Highland Springs Avenue/I-10 Westbound Ramps under existing conditions only include addition of an additional lane to the off-ramp. The cost of this improvement has not been included in the fee program. Under build-out condition a complete interchange reconstruction will be required and the cost associated with interchange reconstruction has been included in the fee calculation. Table D lists the improvements required to restore the existing conditions to satisfactory Levels of Service.

## 4.5 Current Programs and Funding Mechanisms

Funding for improvements to the transportation infrastructure comes from several sources, including the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) and the DIF (signalization).

The underlying purpose of the TUMF program is “the need to establish a comprehensive funding source to mitigate the cumulative regional transportation impacts of new development on regional arterial highways.” As new development occurs in western Riverside County, the cumulative transportation impacts of this new development are reflected in increased demand for transportation infrastructure leading to decreased levels of service, increased delay and increased congestion on regional transportation facilities, and an overall decline in regional mobility. Therefore, the need to invest in additional transportation infrastructure to meet the increased travel demand and to sustain pre-development traffic conditions to “keep traffic flowing” represents the fundamental premise of the TUMF program. Under the TUMF program, a network of both backbone roadways and freeway interchanges that connect to the backbone roadways are identified. Intersection improvements covered by the TUMF program are shown in Table D. TUMF improvements have not been included in the DIF update, as a mechanism for funding these improvements is already in place.

It should be noted that a typical roadway standard for TUMF network improvements assumes the following standard design characteristics that are generally consistent with the minimum statutory requirements for roadway capacity expansion in the region:

- 12-foot wide asphalt concrete roadway lanes;
- 14-foot painted median (or center left-turn lane); and
- 4-foot wide paved shoulder/bike lanes (on the roadway);

The roadway improvements in excess of the typical roadway standard (as described above) are not eligible for TUMF and have been included in the DIF update.

The City of Banning has developed individual impact fees for five infrastructure categories, which are combined together under one fee known as the Development Impact Fee. The five infrastructure categories are as follows:

- Traffic/Control;
- Fire/Emergency Services;
- Police;
- General Government; and
- Parks and Recreation.

The Traffic/Control Development Impact Fees were derived using a plan-based methodology, which incorporates planned capacity and signalization improvements for 2005 to 2025 time-period. The signalization of intersections included in the traffic control portion of the existing development fees are listed in Table D and have been included in the DIF update, as a comprehensive mechanism for funding all improvements.

Additionally, improvements that have already been implemented since the time the documents listed in Section 4.1 was prepared have not been included in the DIF update. Previously referenced Table D lists the improvements that have been completed.

## 4.6 Determination of Right-of-Way Requirements

To determine costs at each intersection, identification of right-of-way (ROW) required for improvements at each location needs to be determined. Determination of ROW will help determine the general land are that may be required for implementation of the proposed improvements, including cost of land, property take (if feasible) and relocation utilities and drainage. Identification of right-of-way required for intersection improvements were based on the following tasks:

### 4.6.1 Queuing Analysis Estimates

A queuing analysis was conducted at each study intersection to determine the approximate length that will be necessary for the recommended circulation improvements at the study intersections. This includes right-of-way requirements for left-turns, transitions for additional

through lanes, and right-turn lanes. The queuing analysis was conducted based on traffic analysis conducted for the City of Banning General Plan Circulation Element, the Butterfield Specific Plan TIA, updates to the City's General Plan and the updated Butterfield Specific Plan TIA. Table E provides a summary of the queuing analysis for all analysis intersections.

### 4.6.2 Right-Of-Way Acquisition Estimates

Upon completion of the queuing analysis, right-of-way acquisition estimates were calculated at each intersection, including the total right-of-way required (square feet) and if any takings of land/buildings may be necessary to construct any of the circulation improvements. This was prepared based on identification of improvements proposed at each study intersections, which was superimposed on existing aerial imagery. Conceptual intersection improvement drawings in AutoCAD were prepared for each analysis intersection and have been included in Appendix B. The conceptual drawings were used to determine the approximate ROW needed along with the determination of whether any property takes or utility relocation were necessary. Table D summarizes the findings for each intersection based on this analysis.

## 4.7 Estimation of Costs Attributed to New Development within the City

Improvement costs needed to serve the future growth in the General Plan Buildout Condition were estimated using the SBCTA Congestion Management Plan (CMP) Appendix G, Preliminary Construction Cost Estimates for Congestion Management Plan. This document has been included in Appendix C.

Since the CMP cost estimates were prepared in 2003, an inflation factor was applied to these costs using the Caltrans Price Index for Selected Highway Construction Items dated September 4, 2018. This document has been included in Appendix C.

Additionally, cost of land, property take (if any) and utility and drainage relocation were obtained from City staff. Determination of cost of ROW cost per square feet is included in Appendix B. At locations where the City recommended that property takes were not feasible, only the cost of improvements was considered. Additionally, ROW costs for improvements which required ROW under Caltrans jurisdictions were not included in the cost calculation. This is because City does not have the authority to implement any improvements within Caltrans ROW. For the 8$^{th}$ Street underpass widening, the cost for this improvement was obtained from WRCOG TUMF. This document has been included in Appendix C.

The total traffic improvement costs were developed by adding cost estimates of individual intersections for both physical improvements, land, property takes, utility and drainage relocation and signalization over the larger affected area. Based on discussion with City staff, cost of preparing planning and engineering documents have been included for some study intersections. For the I-10/Highland Springs Avenue interchange improvement project, a separate cost calculation has been prepared based on the understanding that the Highland Springs Road underpass needs to be widened. Detailed preliminary cost estimate for the interchange improvement is included in Appendix D.

Additionally, WRCOG TUMF has allocated $17.9 million for improvements to this interchange. Therefore, City of Banning and City of Beaumont has agreed to equally share the remainder of the cost for the interchange improvement. As such, the City's share of the interchange improvement cost has been included as part of this fee program.

The total improvement costs for the development impact fee program are listed in Appendix E. As shown in Appendix E, the total improvement costs attributable to new development are $108,399,245.

### 4.8 Identify the Trips Generated by New Development within the City that will be used to Allocate Facility Costs on a Fair-Share Basis to each Land Use Category

As stated earlier, new development within the City is forecast to generate 165,918 net new daily trips as shown in Table B. Therefore, the number of trips used for calculating the trip per unit/TSF fee is 165,918 net new daily trips.

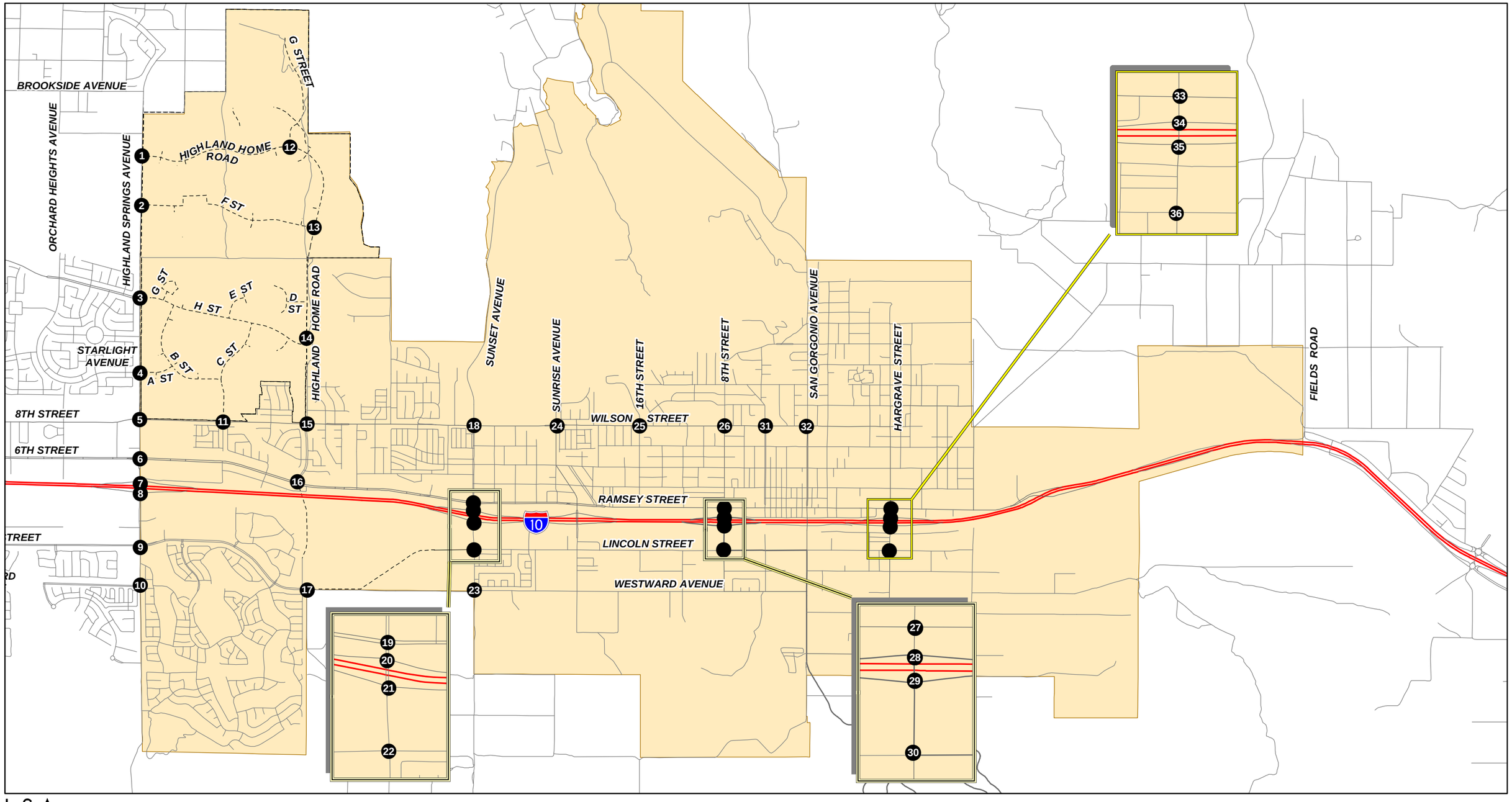
### 4.9 Divide the Cost Attributable to New Development Based on Trips Generated to Identify a Per Unit Fee

To determine the cost per unit/TSF for each land use category, the total cost of improvements ($108,399,245) was divided by the total net new trips (165,918) to derive a total cost per trip. The total cost per trip was then multiplied by a ratio of trips per land use to units/square footage to derive the cost per unit/TSF. Table F shows the cost per unit for each land use category. For land use categories that are not included in Table F, the City will require the development to pay its DIF fee at the rate of $653.33 per daily trip. The land use trip generation will be using rates from the *Institute of Transportation Engineers (ITE) Trip Generation 9$^{th}$ Edition* or other rates as approved by the City. Similar to the methodology used to develop total net new trips from the General Plan land use, a trip adjustment factor will be applied to account for pass-by trips based on the DIF (signalization) trip adjustment factors for such special non-residential (50% pass-by) land uses.

## FUTURE RECOMMENDATION

LSA recommends that the Fee Program be updated periodically to remove implemented improvements and re-calculate the fee based on the remaining development and revised cost estimates.

# Figures




LSA

City of Banning

Intersections_05-11-17

0 1,500 3,000

FEET

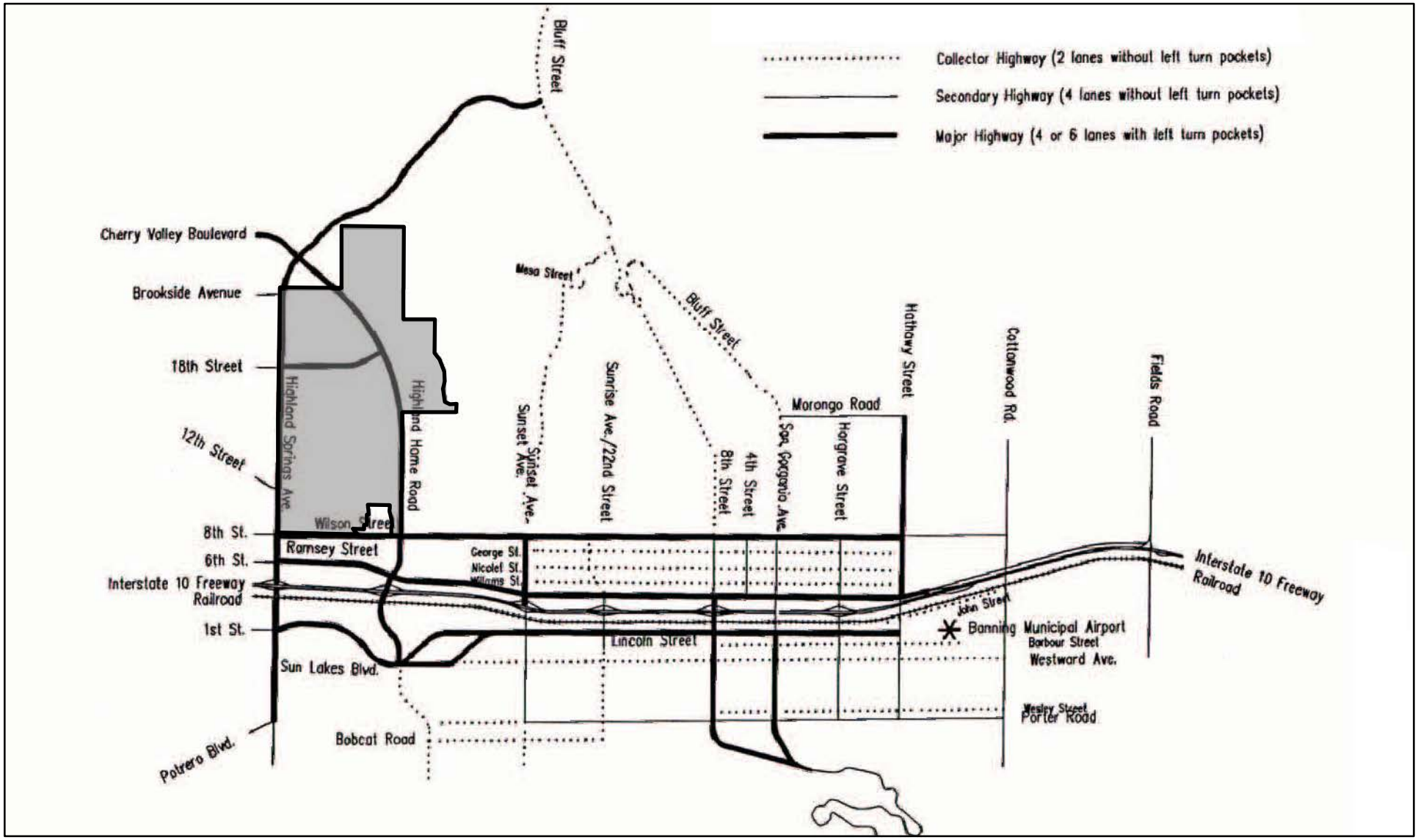
SOURCE: ESRI Streetmap, 2013

I:\COB1101A\Reports\Traffic\fig1_StudyAreaIntersections.mxd (5/18/2017)

FIGURE 1

*Update of Traffic Fee Component of the Development Fee Program*

Study Area Intersections




LSA

FIGURE 2

N

0 3,000 6,000

FEET

SOURCE: City of Banning General Plan (2005)

*Update of Traffic Fee Component of the Development Fee Program*

City of Banning General Plan Circulation Element

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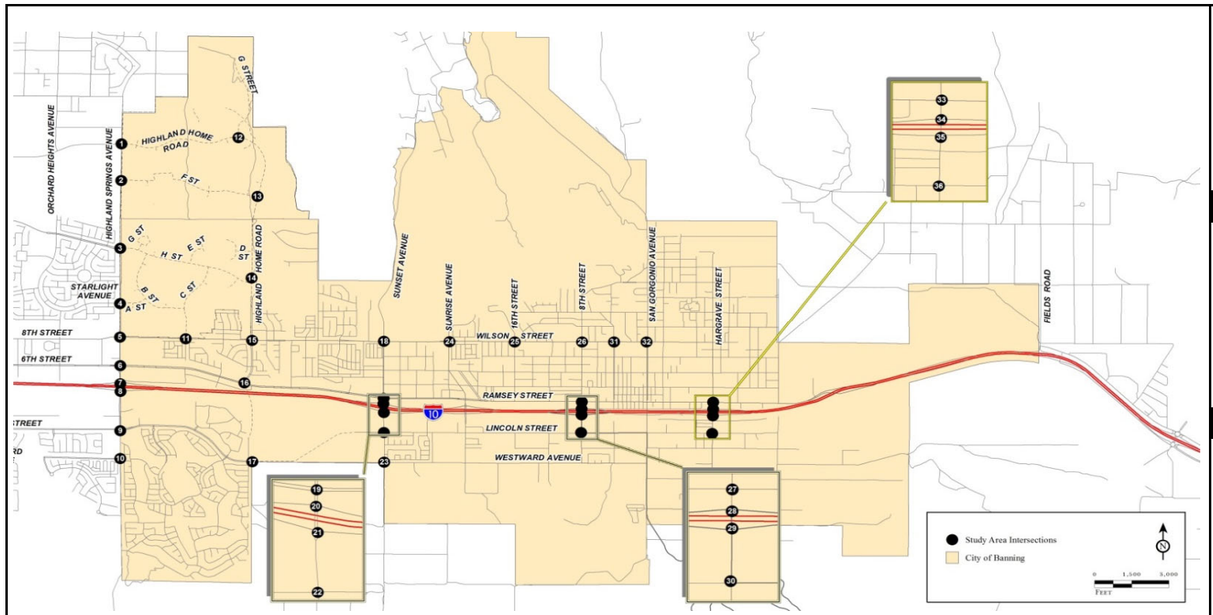


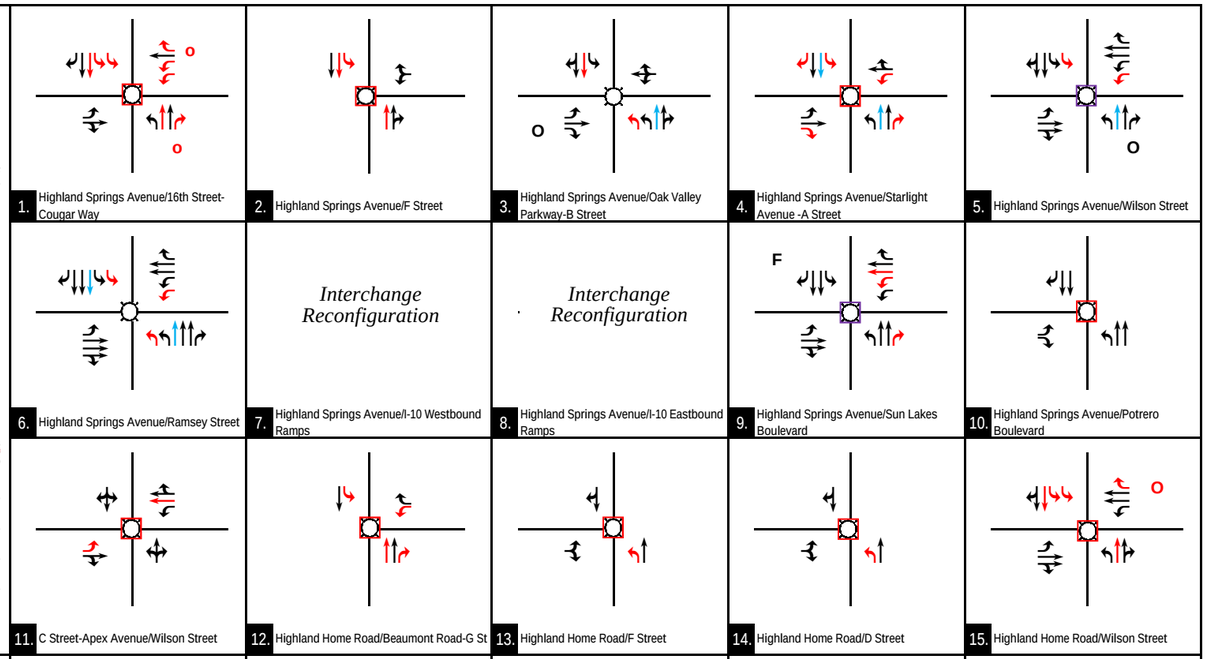


LSA

Legend
- Signal
- Stop Sign
- d De-facto Right Turn
- O Right turn overlap phasing
- F Free right turn
- Development Impact Fee Program Improvements
- TUMF Improvements
- Completed Improvements

FIGURE 3

*Update of Traffic Fee Component of the Development Fee Program*

General Plan Buildout With Improvements Intersection Geometrics and Stop Control

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# Tables

**Table A - Intersection Location by Document Source**

| Intersection | Source | | | |
|---|---|---|---|---|
| | City of Banning General Plan Update | Butterfield Specific Plan TIA | Banning General Plan Amendment | Updated Butterfield Specific Plan TIA |
| 1 . Highland Springs Avenue/16th Street-Cougar Way | | | | X |
| 2 . Highland Springs Avenue/F Street | | | | X |
| 3 . Highland Springs Avenue/Oak Valley Parkway-B Street | | | | X |
| 4 . Highland Springs Avenue/Starlight Avenue -A Street | | | | X |
| 5 . Highland Springs Avenue/Wilson Street | | | | X |
| 6 . Highland Springs Avenue/Ramsey Street | | | X | |
| 7 . Highland Springs Avenue/I-10 Westbound Ramps | | | X | |
| 8 . Highland Springs Avenue/I-10 Eastbound Ramps | | | X | |
| 9 . Highland Springs Avenue/Sun Lakes Boulevard | | | X | |
| 10 . Highland Springs Avenue/Potrero Boulevard | | X | | |
| 11 . C Street-Apex Avenue/Wilson Street | | | | X |
| 12 . Highland Home Road/Beaumont Road-G St | | | | X |
| 13 . Highland Home Road/F Street | | | | X |
| 14 . Highland Home Road/D Street | | | | X |
| 15 . Highland Home Road/Wilson Street | | | X | |
| 16 . Highland Home Road/Ramsey Street | | | X | |
| 17 . Highland Home Road/Sun Lakes Boulevard–Westward Avenue | | | X | |
| 18 . Sunset Avenue/Wilson Street | | | X | |
| 19 . Sunset Avenue/Ramsey Street | | | X | |
| 20 . Sunset Avenue/I-10 Westbound Ramps | | | X | |
| 21 . Sunset Avenue/I-10 Eastbound Ramps | | | X | |
| 22 . Sunset Avenue/Lincoln Street | | | X | |
| 23 . Sunset Avenue/Westward Avenue | | | X | |
| 24 . Sunrise Avenue/Wilson Street | | X | | |
| 25 . 16th St/Wilson Street | | X | | |
| 26 . 8th St/Wilson Street | | X | | |
| 27 . 8th St/Ramsey Street | | X | | |
| 28 . 8th St/I-10 Westbound Ramps | | X | | |
| 29 . 8th St/I-10 Eastbound Ramps | | X | | |
| 30 . 8th Street/Lincoln Street | X | | | |
| 31 . 4th St/Wilson Street | | X | | |
| 32 . San Gorgonio Avenue/Wilson Street | | X | | |
| 33 . Hargrave Street/Ramsey Street | X | | | |
| 34 . Hargrave Street/I-10 Westbound Ramps | X | | | |
| 35 . Hargrave Street/I-10 Eastbound Ramps | X | | | |
| 36 . Hargrave Street/Lincoln Street | X | | | |

## Table B - Daily Trip Generation Attributable to New Development

| Land Use | New Future Units | Daily Rates | Gross Daily Trips | Trip Adjustment Factor[19] | Daily Net Trips |
|---|---|---|---|---|---|
| **Ranch/Agriculture (1 DU/10 AC)** | | | | | |
| Single-Family Residential[3] | 143 DU[1] | *9.44* | 1,350 | 50% | 675 |
| **Ranch/Agriculture - Hillside (1 DU/10 AC)** | | | | | |
| Single-Family Residential[3] | 231 DU[1] | *9.44* | 2,181 | 50% | 1,091 |
| **Rural Residential (0-1 DU/10 AC)** | | | | | |
| Single-Family Residential[3] | 2013 DU[1] | *9.44* | 19,003 | 50% | 9,502 |
| **Rural Residential - Hillside (0-1 DU/10 AC)** | | | | | |
| Single-Family Residential[3] | 432 DU[1] | *9.44* | 4,078 | 50% | 2,039 |
| **Very Low Density Residential (0-2 DU/AC)** | | | | | |
| Single-Family Residential[3] | 3173 DU[1] | *9.44* | 29,953 | 50% | 14,977 |
| **Low Density Residential (0-5 DU/AC)** | | | | | |
| Single-Family Residential[3] | 8040 DU[1] | *9.44* | 75,898 | 50% | 37,949 |
| **Medium Density Residential (0-10 DU/AC)** | | | | | |
| Condominium[4] | 3312 DU[1] | *7.32* | 24,244 | 50% | 12,122 |
| **High Density Residential (11-18 DU/AC)** | | | | | |
| Apartment[4] | 3010 DU[1] | *7.32* | 22,033 | 50% | 11,017 |
| **Mobile Home Park** | | | | | |
| Mobile-Home Park[5] | 189 DU[1] | *5.00* | 945 | 50% | 473 |
| **General Commercial** | | | | | |
| Shopping Center[6] | 2415.9 TSF[2] | *37.75* | 91,201 | 30.50% | 27,816 |
| **Highway Serving Commercial** | | | | | |
| Shopping Center[6] | 70.0 TSF[2] | *37.75* | 2,641 | 30.50% | 806 |
| **Downtown Commercial** | | | | | |
| Shopping Center[6] | 108.3 TSF[2] | *37.75* | 4,088 | 30.50% | 1,247 |
| **Professional Office** | | | | | |
| General Office[7] | 178.2 TSF[2] | *9.74* | 1,736 | 50% | 868 |
| **Business Park** | | | | | |
| Business Park[8] | 3181.0 TSF[2] | *12.44* | 39,571 | 50% | 19,786 |
| **Industrial** | | | | | |
| General Light Industrial[9] | 2984.9 TSF[2] | *4.96* | 14,805 | 50% | 7,403 |
| **Airport Industrial** | | | | | |
| Manufacturing[10] | 1025.5 TSF[2] | *3.93* | 4,030 | 50% | 2,015 |
| **Industrial-Mineral Resources** | | | | | |
| Warehousing[11] | 301.5 TSF[2] | *1.74* | 525 | 50% | 263 |

## Table B - Daily Trip Generation Attributable to New Development

| Land Use | New Future Units | Daily Rates | Gross Daily Trips | Trip Adjustment Factor[19] | Daily Net Trips |
|---|---|---|---|---|---|
| **Public Facilities** Airport[12] | 11 Employees | *14.94* | 164 | 50% | 82 |
| **Public Facilities** Cemetery[13] | 2.5 Acres | *6.02* | 15 | 50% | 8 |
| **Public Facilities** Government Office Complex[14] | 380.0 TSF[2] | *33.98* | 12,912 | 50% | 6,456 |
| **Public Facilities** Hospital[15] | 3.0 TSF[2] | *10.72* | 32 | 50% | 16 |
| **Public Facilities** School[16] | 917.0 TSF[2] | *19.52* | 17,900 | 50% | 8,950 |
| **Open Space** Park[17] | 915.0 Acres | *0.78* | 714 | 50% | 357 |
| **Total Daily Net New Future Trips** | | | | | **165,918** |

Notes:

[1] DU = Dwelling Units

[2] TSF = Thousand Square Feet

[3] Trip generation based on rates for Land Use 210 - "Single-Family Detached Housing" from ITE *Trip Generation* (10th Edition).

[4] Trip generation based on rates for Land Use 220 - "Multifamily Housing (Low Rise)" from ITE *Trip Generation* (10th Edition).

[5] Trip generation based on rates for Land Use 240 - "Mobile Home Park" from ITE *Trip Generation* (10th Edition).

[6] Trip generation based on the average rate for Land Use 820 - "Shopping Center" from the ITE Trip Generation (10th Edition).

[7] Trip generation based on rates for Land Use 710 - "General Office Building" from ITE *Trip Generation* (10th Edition).

[8] Trip generation based on rates for Land Use 770 - "Business Park" from ITE *Trip Generation* (10th Edition).

[9] Trip generation based on rates for Land Use 110 - "General Light Industrial" from ITE *Trip Generation* (10th Edition).

[10] Trip generation based on rates for Land Use 140 - "Manufacturing" from ITE *Trip Generation* (10th Edition).

[11] Trip generation based on rates for Land Use 150 - "Warehousing" from ITE *Trip Generation* (10th Edition).

[12] Trip generation based on rates for Land Use 022 - "General Aviation Airport" from ITE *Trip Generation* (10th Edition).

[13] Trip generation based on rates for Land Use 566 - "Cemetery" from ITE *Trip Generation* (10th Edition).

[14] Trip generation based on rates for Land Use 733 - "Government Office Complex" from ITE *Trip Generation* (10th Edition).

[15] Trip generation based on rates for Land Use 610 - "Hospital" from ITE *Trip Generation* (10th Edition).

[16] Trip generation based on rates for Land Use 520 - "Elementary School" from ITE *Trip Generation* (10th Edition).

[17] Trip generation based on rates for Land Use 411 - "Public Park" from ITE *Trip Generation* (10th Edition).

[18] Trip Adjustment Factors based on rates from previous traffic fee program. For Shopping Center, the average of the previous adjustment factors was used.

## Table C - General Plan Buildout Intersection Levels of Service

| Intersection | Without Improvements | | | | | | With Improvements | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A.M. Peak Hour | | | P.M. Peak Hour | | | | | | P.M. Peak Hour | | |
| | V/C | Delay | LOS | V/C | Delay | LOS | V/C | Delay | LOS | V/C | Delay | LOS |
| 1 . Highland Springs Avenue/16th Street-Cougar Way | - | 50.9 | F | - | >100 | F | - | 28.1 | C | - | 40.0 | D |
| 2 . Highland Springs Avenue/F Street | - | >100 | F | - | >100 | F | 0.50 | 22.2 | C | 0.83 | 17.8 | B |
| 3 . Highland Springs Avenue/Oak Valley Parkway-B Street | 0.70 | 57.4 | F | 1.20 | 74.1 | F | 0.70 | 29.9 | C | 0.76 | 30.2 | C |
| 4 . Highland Springs Avenue/Starlight Avenue -A Street | - | >100 | F | - | >100 | F | 0.96 | 47.2 | D | 0.98 | 52.5 | D |
| 5 . Highland Springs Avenue/Wilson Street | 1.17 | 96.8 | F | 1.66 | >100 | F | 0.85 | 35.3 | D | 0.99 | 52.0 | D |
| 6 . Highland Springs Avenue/Ramsey Street | 1.27 | >100 | F | 1.86 | >100 | F | 0.77 | 28.5 | C | 0.93 | 38.9 | D |
| 7 . Highland Springs Avenue/I-10 Westbound Ramps | 1.34 | >100 | F | 1.33 | >100 | F | 0.93 | 38.0 | D | 0.89 | 16.7 | B |
| 8 . Highland Springs Avenue/I-10 Eastbound Ramps | 1.47 | >100 | F | 1.55 | >100 | F | 0.75 | 30.8 | C | 0.78 | 22.6 | C |
| 9 . Highland Springs Avenue/Sun Lakes Boulevard | 0.74 | 32.3 | C | 1.27 | >100 | F | 0.75 | 29.4 | C | 0.95 | 45.2 | D |
| 10 . Highland Springs Avenue/Potrero Boulevard | - | >100 | F | - | >100 | F | 0.45 | 21.9 | C | 0.56 | 18.8 | B |
| 11 . C Street-Apex Avenue/Wilson Street | - | >100 | F | - | >100 | F | 0.66 | 25.5 | C | 0.96 | 44.9 | D |
| 12 . Highland Home Road/Beaumont Road-G St | - | >100 | F | - | >100 | F | 0.69 | 31.2 | C | 0.89 | 36.7 | D |
| 13 . Highland Home Road/F Street | - | 29.7 | C | - | 32.3 | C | - | 29.7 | C | - | 32.3 | D |
| 14 . Highland Home Road/D Street | - | >100 | F | - | >100 | F | 0.81 | 10.8 | B | 0.90 | 12.4 | B |
| 15 . Highland Home Road/Wilson Street | - | >100 | F | - | >100 | F | 0.70 | 25.5 | C | 0.83 | 33.6 | C |
| 16 . Highland Home Road/Ramsey Street | - | >100 | F | - | >100 | F | - | 24.3 | C | - | 39.9 | D |
| 17 . Highland Home Road/Sun Lakes Boulevard–Westward Avenue | - | 14.4 | B | - | >100 | F | - | 31.0 | C | - | 44.0 | D |
| 18 . Sunset Avenue/Wilson Street | - | >100 | F | - | >100 | F | 0.66 | 29.7 | C | 0.97 | 49.7 | D |
| 19 . Sunset Avenue/Ramsey Street | - | >100 | F | - | >100 | F | - | 35.4 | D | - | 45.5 | D |
| 20 . Sunset Avenue/I-10 Westbound Ramps | - | >100 | F | - | >100 | F | - | 50.4 | D | - | 28.5 | C |
| 21 . Sunset Avenue/I-10 Eastbound Ramps | - | >100 | F | - | >100 | F | - | 40.5 | D | - | 43.1 | D |
| 22 . Sunset Avenue/Lincoln Street | - | >100 | F | - | >100 | F | - | 31.0 | C | - | 39.5 | D |
| 23 . Sunset Avenue/Westward Avenue | - | 12.6 | B | - | 0.9 | B | - | 12.6 | B | - | 0.9 | B |
| 24 . Sunrise Avenue/Wilson Street | - | >100 | F | - | >100 | F | 0.40 | 11.1 | B | 0.79 | 20.3 | C |
| 25 . 16th St/Wilson Street | - | 22.8 | C | - | >100 | F | 0.29 | 6.4 | A | 0.55 | 10.1 | B |
| 26 . 8th St/Wilson Street | - | 22.8 | C | - | >100 | F | 0.58 | 23.0 | C | 0.91 | 34.2 | C |
| 27 . 8th St/Ramsey Street | 1.02 | >100 | F | 1.27 | >100 | F | 0.75 | 35.7 | D | 0.85 | 42.8 | D |
| 28 . 8th St/I-10 Westbound Ramps | - | >100 | F | - | >100 | F | 0.85 | 35.1 | D | 0.86 | 27.8 | C |
| 29 . 8th St/I-10 Eastbound Ramps | - | >100 | F | - | >100 | F | 0.61 | 21.1 | C | 0.70 | 19.3 | B |
| 30 . 8th Street/Lincoln Street | - | >100 | F | - | >100 | F | 0.77 | 40.7 | D | 0.95 | 49.7 | D |
| 31 . 4th St/Wilson Street | 1.36 | >100 | F | 2.40 | >100 | F | 0.69 | 18.6 | B | 0.95 | 25.7 | C |
| 32 . San Gorgonio Avenue/Wilson Street | 1.48 | >100 | F | 2.57 | >100 | F | 0.76 | 41.4 | D | 0.94 | 40.4 | D |
| 33 . Hargrave Street/Ramsey Street | - | 25.8 | C | - | >100 | F | - | 24.6 | C | - | 48.7 | D |
| 34 . Hargrave Street/I-10 Westbound Ramps | - | >100 | F | - | >100 | F | 0.54 | 14.9 | B | 1.47 | 174.7 | F |
| 35 . Hargrave Street/I-10 Eastbound Ramps | - | >100 | F | - | >100 | F | 0.63 | 32.7 | C | 1.05 | 148.7 | F |
| 36 . Hargrave Street/Lincoln Street | - | >100 | F | - | >100 | F | 0.46 | 29.4 | C | 0.90 | 52.1 | D |

Notes:

Delay = Average control delay in seconds (For TWSC intersections, reported delay is for worst-case approach).

LOS = Level of Service

**Table D - Right-of-Way Determination for Study Area Intersections**

| | Intersection | Improvements Needed to Mitigate Existing Deficiencies | General Plan Buildout Circulation Improvements | Completed Improvements | TUMF Program Improvements | TUMF Program Funds | Signalization Covered Through Existing Development Fee Program (Traffic Control)[1] | DIF Program Improvements | Land (Square Feet) | Buildings (Type/Location) | Real Property Valuation - Land | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Est. $ psf | Est Cost | Considerations | Value of Considerations | Total Est Cost |
| 1 | Highland Springs Avenue/16th Street-Cougar Way | | Install a traffic signal. NBT, NBR with overlap, 2 SBL, SBT, 2 WBL, WBR with overlap. | | | TUMF has $0 on Highland Springs Ave. from Cherry Valley Blvd to Oak Valley Parkway. | | Install a traffic signal. NBT, NBR with overlap,SBT, 2 SBL, 2 WBL, WBR with overlap. These improvements are included as project design features from the Butterfield Specific Plan dated September 2016. | 90,330 | - | | | | | |
| 2 | Highland Springs Avenue/F Street | | Install a traffic signal. NBT, SBT, SBL. | | | TUMF has $0 on Highland Springs Ave. from Cherry Valley Blvd to Oak Valley Parkway. | | Install a traffic signal. NBT,SBT, SBL. These improvements are included as project design features from the Butterfield Specific Plan dated September 2016. | 56,000 | - | - | | | | |
| 3 | Highland Springs Avenue/Oak Valley Parkway-B Street | | Add 2nd NBL, NBT, SBT. | | NBT | TUMF has $5,128,000 for improvements (2 future lane) on Highland Springs Ave. from Oak Valley Parkway to 8th St. | | Add 2nd NBL, SBT. The SBT is included as a project design feature from the Butterfield Specific Plan Amendment dated September 2016. | 75,000 | - | 6.4 | $ 24,960 | | 0.00 | **$24,960.00** |
| 4 | Highland Springs Avenue/Starlight Avenue -A Street | | Install a traffic signal. Add NBT, NBR, SBL, SBT, SBR, EBR, WBL. | | NBT, SBT | TUMF has $5,128,000 for improvements (2 future lane) on Highland Springs Ave. from Oak Valley Parkway to 8th St. | | Install a traffic signal. Add NBR, SBL, SBR, EBR, WBL. The SBL is included as a project design feature from the Butterfield Specific Plan Amendment dated September 2016. | 68,000 | - | 6.4 | $ 111,360 | | | **$111,360.00** |
| 5 | Highland Springs Avenue/Wilson Street | | Install a traffic signal. Add NBT, 2nd SBL, 2nd WBL. | Install a traffic signal. | NBT, SBT | TUMF has $5,128,000 for improvements (2 future lane) on Highland Springs Ave. from Oak Valley Parkway to 8th St. TUMF has $2,661,000 for improvements (2 future lanes) on Highland Springs Ave. from 8th St. to Sun Lakes Blvd. | | Add 2nd SBL, 2nd WBL. | 48,000 | - | 6.4 | $ 49,920 | Relocation of stormdrain inlets | 50,000.00 | **$99,920.00** |
| 6 | Highland Springs Avenue/Ramsey Street | Optimize & coordinate with Highland Springs Ave./I-10 EB & WB Ramps. | Add 2nd NBL, NBT, 2nd SBL, SBT, 2nd WBL. | | NBT,SBT | TUMF has $2,661,000 for improvements on Highland Springs Ave. from 8th St. to Sun Lakes Blvd. | | Add 2nd NBL, 2nd SBL, 2nd WBL. | 7,200 | 42,708; Taking of 5,000 sf building and additional land will be required | 6.4 | $ 273,331.20 | Building take not feasible | | |
| 7 | Highland Springs Avenue/I-10 Westbound Ramps | Reconfigure Interchange | - | | | TUMF has $17,897,000 for improvements on Highland Springs at I-10 Interchange. TUMF has $2,661,000 for improvements on Highland Springs Ave. from 8th St. to Sun Lakes Blvd. | | | - | - | | | | | |
| 8 | Highland Springs Avenue/I-10 Eastbound Ramps | | | | | | | | | - | | | | | |
| 9 | Highland Springs Avenue/Sun Lakes Boulevard | | Install a traffic signal. Add NBR, 2nd SBL, 2 WBL, Re-stripe WBL to WBT. | Install a traffic signal. | | TUMF has $2,661,000 for improvements on Highland Springs Ave. from 8th St. to Sun Lakes Blvd.TUMF has $0 for improvements on Sun Lakes Blvd. from Highland Springs Ave. to Highland Home Rd. | | Add NBR, 2nd SBL, 2 WBL, Re-stripe WBL to WBT. | 15,000 | - | 6.4 | $ 176,640.00 | Added value due to improved golf course property($25K), utility relocation ($35K), inlet relocation ($15K) | 75,000.00 | **$251,640.00** |
| 10 | Highland Springs Avenue/Potrero Boulevard | | Install a traffic signal. | | | | | Install a traffic signal. | - | - | | | | | |
| 11 | C Street-Apex Avenue/Wilson Street | | Install a traffic signal. Add EBL, WBT. | | | TUMF has $0 for improvements on Wilson St. from Highland Springs Ave. to Highland Home Rd. | | Install a traffic signal. Add EBL, WBT. | 51,000 | - | 6.4 | $ 24,960.00 | | | **$24,960.00** |
| 12 | Highland Home Road/Beaumont Road-G St | | Install a traffic signal. Add NBT, NBR, SBL, WBL. | | | | | Install a traffic signal. Add NBT, NBR, SBL, WBL. | 190,240 | - | 6.4 | $ 128,640.00 | | | **$128,640.00** |
| 13 | Highland Home Road/F Street | | Install a traffic signal. Add NBL. | | | | | Install a traffic signal. Add NBL. The NBL is included as a project design feature from the Butterfield Specific Plan Amendment dated September 2016. | 192,820 | - | | | | | |
| 14 | Highland Home Road/D Street | | Install a traffic signal. Add NBL. | | | | | Install a traffic signal. Add NBL. | 147,880 | - | 6.4 | $ 24,960.00 | | | **$24,960.00** |
| 15 | Highland Home Road/Wilson Street | | Install a traffic signal. Add NBT, 2 SBL, SBT, WBR with overlap. | | | | Install a traffic signal. | Install a traffic signal. Add NBT, 2 SBL, SBT, WBR with overlap. | 46,500 | - | 6.4 | $ 180,480.00 | Takings occur on empty land and city right of way. Removal and undergounding of storm drain system ($300K), utility relocations on S/E corner ($15K) | 315,000.00 | **$495,480.00** |
| 16 | Highland Home Road/Ramsey Street | | Install a traffic signal, overlap to WBR, Re stripe EBL | | | | Install a traffic signal. | Install a traffic signal with overlap to WBR. Re-stripe EBL | - | - | | XXXX | - | | |
| 17 | Highland Home Road/Sun Lakes Boulevard–Westward Avenue | | Install a traffic signal. Add NBL, SBL, EBT, WBT. | EBT | WBT | TUMF has $13,971,000 for improvements (4 future lanes) on Sun Lakes Blvd. from Highland Home Rd. to Sunset Ave. | Install a traffic signal. | Install a traffic signal. Add NBL, SBL | 95,500 | East Leg/SE Quad-Removal of vacated SFR. | 6.4 | **$ 57,600.00** | Relocation of Utility poles ($800K), inlets ($30K), utilities ($35K) | 860,000.00 | **$917,600.00** |
| 18 | Sunset Avenue/Wilson Street | | Install a traffic signal. Add 2 NBL, Re-stripe NBR-NBT,NBR, SBL, SBT, SBR with overlap, EBL, EBT,WBL, WBT, WBR with overlap | 1 NBL, SBL, SBT, EBL,WBL | | TUMF has $0 for improvements on Wilson St. from Highland Home Rd. to 8th St. | Install a traffic signal. | Install a traffic signal. Add 2nd NBL, Re-stripe NBR-NBT, NBR,SBL, SBR with overlap, add 2nd EBL, 2nd EBT,WBR with overlap, WBT | 76,000 | | 6.4 | $ 387,840.00 | Mobilehome park improvements ($75K), Pole relocations ($450K), Utility relocations ($45K) | 570,000.00 | **$957,840.00** |

**Table D - Right-of-Way Determination for Study Area Intersections**

| | Intersection | Improvements Needed to Mitigate Existing Deficiencies | General Plan Buildout Circulation Improvements | Completed Improvements | TUMF Program Improvements | TUMF Program Funds | Signalization Covered Through Existing Development Fee Program (Traffic Control)[1] | DIF Program Improvements | Land (Square Feet) | Buildings (Type/Location) | Real Property Valuation - Land | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Est. $ psf | Est Cost | Considerations | Value of Considerations | Total Est Cost |
| 19 . | Sunset Avenue/Ramsey Street | | Add 2nd NBL, NBR, SBR with Overlap, EBR with Overlap, 2nd WBL. | | | TUMF has $0 on Sunset from Ramsey to Lincoln. | | Add 2nd NBL, NBR, SBR with Overlap, EBR with Overlap, 2nd WBL. | 15,700 | Taking of a 3,000 sf building may be required on NE corner of intersection.??? | 6.4 | $ 97,920.00 | Property Improvements ($150K), El. Pole relocation ($75K), utility relocation ($45K), not including cost of building. | 270,000.00 | **$367,920.00** |
| 20 . | Sunset Avenue/I-10 Westbound Ramps | | Add free SBR. | | | | | Add free SBR. | 1,660 | - | 6.4 | **$ 23,040.00** | Utility relocations ($60K) | 60,000.00 | **$83,040.00** |
| 21 . | Sunset Avenue/I-10 Eastbound Ramps | | Add 2 EBL. | | | | | Add 2 EBL. | 27,000 | - | 6.4 | **$ 49,920.00** | Utility relocations ($45K) | 45,000.00 | **$94,920.00** |
| 22 . | Sunset Avenue/Lincoln Street | | Install a traffic signal. Add NBL, NBT, SBL, SBT, 2 EBL, 2 EBT, WBL, WBT, WBR. | 2 EBT | | TUMF has $13,971,000 for improvements (4 future lanes) on Sun Lakes Blvd. from Highland Home Rd. to Sunset Ave. | Install a traffic signal. | Install a traffic signal. Add NBL, NBT, SBT, SBL, 2 EBL, WBL, WBT, WBR. | 142,000 | South Leg/SW Quad-Realignment of Existing Channel | 6.4 | $ 563,840.00 | El. Pole relocation ($800K); utility relocation ($10K) | 810,000.00 | **$1,373,840.00** |
| 23 . | Sunset Avenue/Westward Avenue | | | | | | | | - | - | | | | | |
| 24 . | Sunrise Avenue/Wilson Street | | Install a traffic signal. Add EBTL, convert WBR to WBTR. | WBTR | | | | Install a traffic signal, add EBTL | 16,500 | - | | | | | |
| 25 . | 16th St/Wilson Street | | Install a traffic signal. | | | | | Install a traffic signal. | 20000** | - | | | | | |
| 26 . | 8th St/Wilson Street | | Install a traffic signal. Add NBL, SBL, WBR. | | | TUMF has $0 for improvements on Wilson St. Highland Home to 8th St. | Install a traffic signal. | Install a traffic signal. Add NBL, SBL, WBR. | - | - | 6.4 | $ 55,680.00 | Exclude Building take. | | **$55,680.00** |
| 27 . | 8th St/Ramsey Street | | Add NBL, Re-stripe EBR-EBT, EBR, WBL. | | | TUMF has $0 for improvements on 8th St. from Wilson St. to Ramsey St. | | Add NBL, Re-stripe EBR-EBT, EBR, WBL. | 2,000 | - | 6.4 | $ 72,960.00 | Utility relocations ($20K), Private improvements ($20K) | 40,000.00 | **$112,960.00** |
| 28 . | 8th St/I-10 Westbound Ramps | | Install a traffic signal. Add NBL, NBT, SBR, WBTR. | | | TUMF has $0 for improvements on 8th St. from Wilson St. to I-10. | | Install a traffic signal. Add NBL, NBT, SBR, WBTR. | - | - | 6.4 | $ 263,040.00 | Utility relocation ($35K) | 35,000.00 | **$298,040.00** |
| 29 . | 8th St/I-10 Eastbound Ramps | Install a traffic signal. | Add NBT, NBR, SBL, EBL, Free EBR. | | | TUMF has $0 for improvements on 8th St. from Wilson St. to I-10. | | Add SBL, NBT, NBR, EBL, Free EBR. | 7,000 | - | 6.4 | **$ 215,040.00** | Utility relocation ($10K), Exclude cost of Caltrans ROW | 10,000.00 | **$225,040.00** |
| 30 . | 8th Street/Lincoln Street | | Install a traffic signal. Add NBL, 2 SBL, SBT, 2 EBL, EBT, WBL, WBT. | | | TUMF has $0 for improvements on Lincoln St. from Sunset Ave. to SR-243. | Install a traffic signal. | Install a traffic signal. Add NBL, 2 SBL, SBT, 2 EBL, EBT, WBL, WBT. | 90,000 | - | 6.4 | $ 455,040.00 | El. Pole relocation ($600K); utility relocation ($50K) | 650,000.00 | **$1,105,040.00** |
| 31 . | 4th St/Wilson Street | | Install a traffic signal. | | | | | Install a traffic signal. | - | - | | | | | |
| 32 . | San Gorgonio Avenue/Wilson Street | | Install a traffic signal. Add EBL, EBT, WBTL. | | | | Install a traffic signal. | Install a traffic signal. Add EBL, EBT, WBTL. | 13,500 | West Leg/SW Quad-12 SFR & 2 City of Banning Community Services Buildings may need to be removed to add EBT, EBL, WBTL | 6.4 | $ 240,000.00 | Add'l land, Building take not feasible. | | |
| 33 . | Hargrave Street/Ramsey Street | | Add NBL, NBT, overlap to NBR, SBL, SBT, SBR, EBL, EBT, WBL, WBT. | | | | | Add NBL, NBT, NBR to NBR with Overlap, SBL, SBT, SBR, EBL, EBT, WBL, WBT. | 22,700 | South Leg/SW Quad-Remove Gas Station, South Leg-SE Quad-Remove Gas Station/Fast-Food Restaurant | 6.4 | $ 518,400.00 | El. Pole Relocation ($450K); utility relocation ($45K), exclude cost of ROW for SE and SW quadrants. | 495,000.00 | **$1,013,400.00** |
| 34 . | Hargrave Street/I-10 Westbound Ramps | | Install a traffic signal. Add NBL, NBT, Free SBR, WBL, free WBR. | | | | | Install a traffic signal. Add NBL, NBT, Free SBR, WBL, Free WBR. | 7,700 | - | 6.4 | $ 230,400.00 | Utility relocation ($15K), Exclude cost of Caltrans ROW | 15,000.00 | **$245,400.00** |
| 35 . | Hargrave Street/I-10 Eastbound Ramps | | Install a traffic signal. Add NBT, NBR, SBL, EBL, Free EBR. | | | | | Install a traffic signal. Add NBT, NBR, SBL, EBL, Free EBR. | 12,000 | - | 6.4 | $ 311,040.00 | Utility relocation ($10K), Exclude cost of Caltrans ROW | 10,000.00 | **$321,040.00** |
| 36 . | Hargrave Street/Lincoln Street | | Install a traffic signal. Add NBL, NBT, 2 SBL, SBT, SBR with overlap, EBL, EBT, EBR, WBL, WBT, Free WBR. | | | | Install a traffic signal. | Install a traffic signal. Add NBL, NBT, 2 SBL, SBT, SBR with overlap, EBL, EBT, EBR, WBL, WBT, Free WBR. | 29,970 | South Leg/SE Quad-Removal of 5 SFR, north leg/NW Quad-Removal of 2 SFR, north leg/NE Quad-Removal of 2 SFR, East leg/North East Quad-Removal of 1 Warehouse building, East Leg/South East Quad-Removal of 4 warehouse buildings7 1 SFR | 6.4 | $ 551,040.00 | El. Pole relocation ($650K), utility relocation ($15K) | 665,000.00 | **$1,216,040.00** |

[1] Existing Development Fee Program traffic signals and proposed improvements have been combined into a single DIF program.
Note: NBL = Northbound Left-turn lane, NBT = Northbound Through Lane, NBTR= Northbound Through-Right, NBR = Northbound Right-turn Lane, etc.

## Table E - General Plan Buildout Queuing Analysis

| Intersection | 95th Percentile Queue Lengths (feet) | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A.M. Peak Hour | | | | | | | | | | | | P.M. Peak Hour | | | | | | | | | | | |
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| 1 . Highland Springs Avenue/16th Street-Cougar Way | 25 | 125 | 75 | 100 | 150 | 25 | 25 | 75 | 75 | 150 | 100 | 225 | 25 | 200 | 475 | 250 | 150 | 50 | 225 | 225 | 225 | 225 | 150 | 450 |
| 2 . Highland Springs Avenue/F Street | - | 175 | 175 | 50 | 200 | - | - | - | - | 225 | - | 225 | - | 275 | 275 | 125 | 100 | - | - | - | - | 350 | - | 350 |
| 3 . Highland Springs Avenue/Oak Valley Parkway-B Street | 150 | 175 | 175 | 25 | 325 | 325 | - | 75 | 350 | 400 | 400 | 400 | 275 | 350 | 350 | 50 | 300 | 300 | 100 | 225 | 450 | 375 | 375 | 375 |
| 4 . Highland Springs Avenue/Starlight Avenue -A Street | 200 | 225 | 75 | 25 | 550 | 200 | 75 | 50 | 375 | 275 | 175 | 175 | 225 | 700 | 125 | 75 | 550 | 150 | 375 | 150 | 225 | 225 | 250 | 250 |
| 5 . Highland Springs Avenue/Wilson Street | 100 | 425 | 300 | 200 | 800 | 150 | 100 | 300 | 300 | 500 | 175 | 150 | 50 | 1,050 | 425 | 450 | 500 | 125 | 325 | 750 | 750 | 300 | 375 | 450 |
| 6 . Highland Springs Avenue/Ramsey Street | 10 | 425 | 525 | 150 | 825 | 75 | 125 | 175 | 600 | 350 | 100 | 125 | 375 | 775 | 875 | 300 | 600 | 150 | 325 | 575 | 750 | 425 | 375 | 350 |
| 7 . Highland Springs Avenue/I-10 Westbound Ramps | 37 | 425 | - | - | 1,125 | - | - | - | - | 825 | - | 450 | 475 | 800 | - | - | 1,025 | - | - | - | - | 500 | - | 775 |
| 8 . Highland Springs Avenue/I-10 Eastbound Ramps | - | 825 | 600 | 375 | 525 | - | 550 | - | 700 | - | - | - | - | 1,000 | 400 | 350 | 600 | - | 625 | - | 850 | - | - | - |
| 9 . Highland Springs Avenue/Sun Lakes Boulevard | 200 | 550 | 50 | 300 | 300 | - | 150 | 125 | 125 | 50 | 200 | - | 350 | 750 | 425 | 625 | 575 | - | 150 | 975 | 975 | 200 | 475 | - |
| 10 . Highland Springs Avenue/Potrero Boulevard | 150 | 425 | - | - | 325 | 125 | 350 | - | 75 | - | - | - | 225 | 325 | - | - | 475 | 350 | 350 | - | 200 | - | - | - |
| 11 . C Street-Apex Avenue/Wilson Street | - | - | - | 250 | - | 250 | 75 | 275 | 275 | - | 325 | 325 | - | - | - | 350 | - | 350 | 150 | 1,125 | 1,125 | - | 350 | 350 |
| 12 . Highland Home Road/Beaumont Road-G St | - | 150 | 75 | 50 | 325 | - | - | - | - | 175 | - | 375 | - | 350 | 150 | 525 | 275 | - | - | - | - | 150 | - | 325 |
| 13 . Highland Home Road/F Street | 125 | 125 | - | - | 675 | 675 | 275 | - | 275 | - | - | - | 200 | 525 | - | - | 700 | 700 | 275 | - | 275 | - | - | - |
| 14 . Highland Home Road/D Street | - | 125 | - | - | 500 | 500 | 175 | - | 175 | - | - | - | 25 | 750 | - | - | 325 | 325 | 150 | - | 150 | - | - | - |
| 15 . Highland Home Road/Wilson Street | 125 | 225 | 225 | 450 | 525 | 525 | 225 | 275 | 275 | 150 | 550 | 175 | 325 | 725 | 725 | 550 | 500 | 500 | 175 | 775 | 775 | 75 | 500 | 925 |
| 16 . Highland Home Road/Ramsey Street | - | - | - | 650 | 125 | 125 | 25 | 425 | - | - | 250 | 100 | - | - | - | 975 | - | 100 | 525 | 525 | 525 | 25 | 850 | 750 |
| 17 . Highland Home Road/Sun Lakes Boulevard–Westward Avenue | 225 | 50 | 50 | 75 | 200 | 200 | 50 | 225 | 25 | 25 | 375 | 25 | 475 | 50 | 50 | 100 | 250 | 250 | 250 | 1,125 | 125 | 125 | 1,925 | 50 |
| 18 . Sunset Avenue/Wilson Street | 100 | 175 | 50 | 175 | 475 | 150 | 125 | 400 | 225 | 75 | 275 | 275 | 225 | 550 | 50 | 350 | 375 | 375 | 250 | 475 | 125 | 200 | 1,075 | 1,075 |
| 19 . Sunset Avenue/Ramsey Street | 325 | 250 | 150 | 175 | 725 | 75 | 75 | 275 | 550 | 150 | 200 | 200 | 350 | 900 | 200 | 275 | 650 | 225 | 300 | 725 | 425 | 575 | 725 | 725 |
| 20 . Sunset Avenue/I-10 Westbound Ramps | 800 | 300 | - | - | 775 | - | - | - | - | 825 | 825 | 825 | 475 | 1,025 | - | - | 525 | - | - | - | - | 625 | 625 | 625 |
| 21 . Sunset Avenue/I-10 Eastbound Ramps | - | 900 | 900 | 600 | 200 | - | 275 | 275 | 675 | - | - | - | - | 1,100 | 1,100 | 350 | 400 | - | 725 | 725 | 1,200 | - | - | - |
| 22 . Sunset Avenue/Lincoln Street | 75 | 300 | 300 | 175 | 275 | 275 | 300 | 125 | 125 | 25 | 100 | 150 | 350 | 325 | 325 | 300 | 650 | 675 | 375 | 575 | 575 | 100 | 750 | 275 |
| 23 . Sunset Avenue/Westward Avenue | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 24 . Sunrise Avenue/Wilson Street | 75 | 75 | 75 | 100 | 100 | 100 | 150 | 150 | 150 | - | 50 | 50 | 325 | 325 | 325 | 75 | 75 | 75 | 350 | 350 | 350 | 50 | 400 | 400 |
| 25 . 16th St/Wilson Street | 75 | - | 75 | - | - | - | - | 75 | 75 | 50 | 25 | - | 175 | - | 175 | - | - | - | - | 200 | 200 | 25 | 250 | - |
| 26 . 8th St/Wilson Street | 100 | 50 | 50 | 125 | 175 | 175 | - | 300 | 25 | 25 | 125 | 25 | 275 | 225 | 225 | 175 | 200 | 200 | 50 | 500 | - | 25 | 675 | 50 |
| 27 . 8th St/Ramsey Street | 50 | 100 | 400 | 50 | 250 | 250 | - | 100 | 125 | 300 | 50 | 50 | 250 | 175 | 525 | 25 | 175 | 175 | 75 | 300 | 325 | 275 | 200 | 200 |
| 28 . 8th St/I-10 Westbound Ramps | 600 | 75 | - | - | 150 | 625 | - | - | - | 50 | - | 50 | 650 | 200 | - | - | 150 | 50 | - | - | - | 125 | - | 125 |
| 29 . 8th St/I-10 Eastbound Ramps | - | 300 | - | 125 | 25 | - | 275 | 275 | - | - | - | - | - | 450 | - | 100 | 75 | - | 275 | 275 | - | - | - | - |
| 30 . 8th Street/Lincoln Street | 25 | 500 | 500 | 500 | 175 | 175 | 75 | 175 | 175 | 25 | 50 | 750 | 175 | 700 | 700 | 575 | 425 | 425 | 550 | 525 | 525 | 75 | 1,025 | 675 |
| 31 . 4th St/Wilson Street | 25 | 25 | - | 275 | 275 | 275 | 400 | 400 | 400 | 175 | 175 | 175 | 150 | 150 | 100 | 175 | 175 | 175 | 550 | 550 | 550 | 900 | 900 | 900 |
| 32 . San Gorgonio Avenue/Wilson Street | 25 | 50 | 50 | 375 | 375 | 375 | 50 | 425 | 425 | 200 | 200 | 200 | 150 | 150 | 100 | 175 | 175 | 175 | 550 | 550 | 550 | 850 | 850 | 850 |
| 33 . Hargrave Street/Ramsey Street | 125 | 375 | 350 | 25 | 575 | 25 | 50 | 100 | 75 | 450 | 100 | 25 | 1,025 | 1,250 | 425 | 50 | 925 | 50 | 75 | 200 | 150 | 1,175 | 200 | 75 |
| 34 . Hargrave Street/I-10 Westbound Ramps | 525 | 225 | - | - | 525 | - | - | - | - | 150 | - | - | 2,750 | 900 | - | - | 1,150 | - | - | - | - | 2,825 | - | - |
| 35 . Hargrave Street/I-10 Eastbound Ramps | - | 450 | 150 | 425 | 250 | - | 600 | 600 | - | - | - | - | - | 1,725 | 675 | 250 | 1,525 | 1,525 | 1,625 | 1,625 | - | - | - | - |
| 36 . Hargrave Street/Lincoln Street | 25 | 125 | 125 | 575 | 125 | 50 | 150 | 175 | 75 | - | 75 | - | 275 | 125 | 125 | 450 | 100 | 1,525 | 675 | 275 | 100 | 75 | 200 | - |

Notes:
The 95th-percentile queue is defined to be the queue length that has only a 5-percent probability of being exceeded during the analysis time period.
Queue lengths assume a vehicle length of 25 feet.

## Table F - Cost per Unit/ Thousand Square Feet Attributable to New Development

| Land Use | Trips | New Future Units | Cost ($) / Unit/Thousand Square Feet |
|---|---|---|---|
| **Ranch/Agriculture (1 DU/10 AC)**<br>Single-Family Residential[3] | 675 | 143.0 DU[1] | **$3,410.05** |
| **Ranch/Agriculture - Hillside (1 DU/10 AC)**<br>Single-Family Residential[3] | 1,091 | 231.0 DU[1] | **$3,411.98** |
| **Rural Residential (0-1 DU/10 AC)**<br>Single-Family Residential[3] | 9,502 | 2013.0 DU[1] | **$3,410.08** |
| **Rural Residential - Hillside (0-1 DU/10 AC)**<br>Single-Family Residential[3] | 2,039 | 432.0 DU[1] | **$3,409.78** |
| **Very Low Density Residential (0-2 DU/AC)**<br>Single-Family Residential[3] | 14,977 | 3173.0 DU[1] | **$3,409.95** |
| **Low Density Residential (0-5 DU/AC)**<br>Single-Family Residential[3] | 37,949 | 8040.0 DU[1] | **$3,409.87** |
| **Medium Density Residential (0-10 DU/AC)**<br>Condominium[4] | 12,122 | 3312.0 DU[1] | **$2,644.10** |
| **High Density Residential (11-18 DU/AC)**<br>Apartment[5] | 11,017 | 3010.0 DU[1] | **$2,644.17** |
| **Mobile Home Park**<br>Mobile-Home Park[6] | 473 | 189.0 DU[1] | **$1,807.98** |
| **General Commercial**<br>Shopping Center[7] | 27,816 | 2415.9 TSF[2] | **$8,317.72** |
| **Highway Serving Commercial**<br>Shopping Center[7] | 806 | 70.0 TSF[2] | **$8,323.33** |
| **Downtown Commercial**<br>Shopping Center[7] | 1,247 | 108.3 TSF[2] | **$8,319.00** |
| **Professional Office**<br>General Office[8] | 868 | 178.2 TSF[2] | **$3,518.23** |
| **Business Park**<br>Business Park[9] | 19,786 | 3181.0 TSF[2] | **$4,493.57** |
| **Industrial**<br>General Light Industrial[10] | 7,403 | 2984.9 TSF[2] | **$1,791.69** |
| **Airport Industrial**<br>Manufacturing[11] | 2,015 | 1025.5 TSF[2] | **$1,419.54** |
| **Industrial-Mineral Resources**<br>Warehousing[12] | 263 | 301.5 TSF[2] | **$630.09** |

Notes:

[1] DU = Dwelling Units

[2] TSF = Thousand Square Feet

# Appendix A
# City of Banning General Plan Land Use Summary Tables

# Chapter III.

# COMMUNITY DEVELOPMENT

# City of Banning, CA
# General Plan Map

**Map Prepared on: March 16, 2006**

R. 1W R. 1E R. 1E R. 2E

San Bernardino County
Riverside County

T. 2S
T. 3S

Scale
1:24,000
0 2,000 4,000 6,000
Feet

## LEGEND

- Banning City Limits
- Banning Sphere of Influence
- Banning Planning Areas
- County Line
- Township/Range Lines
- Section Line
- Major Roads
- Minor Roads
- Railroads
- Ranch/Agriculture (10 ac min.)
- Ranch/Agriculture - Hillside (10 ac min.)
- Rural Residential (0-1 du/ac)
- Rural Residential - Hillside (0-1 du/ac)
- Very Low Density Residential (0-2 du/ac)
- Low Density Residential (0-5 du/ac)
- Medium Density Residential (0-10 du/ac)
- High Density Residential (11-18 du/ac)
- Mobile Home Parks
- General Commercial
- Downtown Commercial
- Highway Serving Commercial
- Professional Office
- Business Park
- Industrial
- Airport Industrial
- Industrial Mineral Resources
- Public Facilities
- Public Facilities - RR/Interstate
- Open Space - Resources
- Open Space - Parks
- Open Space - Public
- Open Space - Hillside Preservation
- Specific Plan Areas

**Riverside County Vicinity Map**

NOTE:
1. This map represents the best available information and is intended for general planning purposes only.
2. The data shown on this map was collected and re-compiled from the following sources:
   - City of Banning, California
   - City of Beaumont, California
   - County of Riverside
   - Morongo Band of Mission Indians
   - Southern California Association of Governments
   - Thomas Bros. Maps

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**Banning General Plan**
**General Plan Land Use Map**

**Exhibit**
**III-2**

**Table III-1**
**General Plan Buildout Summary**

| | City Limits | | | Sphere of Influence | | | Planning Area | | | Grand Total Acres |
|---|---|---|---|---|---|---|---|---|---|---|
| **Land Use Designation** | **Acres Dev.** | **Acres Vacant** | **Acres Total** | **Acres Dev.** | **Acres Vacant** | **Acres Total** | **Acres Dev.** | **Acres Vacant** | **Acres Total** | |
| Ranch/Agriculture (1 du/10 ac.) | | 77.7 | 77.7 | 74.0 | 724.7 | 798.7 | 29.6 | 631.6 | 661.2 | 1,537.5 |
| Ranch/Agriculture - Hillside (1 du/10 ac.) | 121.8 | 351.5 | 473.3 | 16.7 | 1,536.4 | 1,553.1 | 18.7 | 421.1 | 439.8 | 2,466.2 |
| Rural Residential (0-1 du/ac.) | 124.5 | 471.4 | 595.9 | 8.6 | 902.0 | 910.6 | 199.5 | 639.9 | 839.4 | 2,345.9 |
| Rural Residential – Hillside (0-1 du/ac.) | | 56.2 | 56.2 | | 78.5 | 78.5 | | 269.3 | 269.3 | 404.0 |
| Very Low Density Residential (0-2 du/ac.) | 230.3 | 1,916.6 | 2,146.9 | 21.6 | 198.8 | 220.4 | | | | 2,367.3 |
| Low Density Residential (0-5 du/ac.) | 1,299.9 | 1,847.5 | 3,147.4 | 0.2 | 166.8 | 167.0 | 2.4 | 129.7 | 132.1 | 3,446.6 |
| Medium Density Residential (0-10 du/ac.) | 656.1 | 362.6 | 1,018.7 | | 49.4 | 49.4 | 0.2 | 29.5 | 29.7 | 1,097.9 |
| High Density Residential (11-18 du/ac.) | 156.5 | 213.4 | 369.9 | 0.1 | 9.5 | 9.6 | | | | 379.5 |
| Mobile Home Park | 116.4 | 14.0 | 130.4 | | | | | | | 130.4 |
| General Commercial | 203.8 | 252.1 | 455.9 | | | | | | | 455.9 |
| Highway Serving Commercial | 103.0 | 7.3 | 110.3 | | | | | | | 110.3 |
| Downtown Commercial | 86.0 | 11.3 | 97.3 | | | | | | | 97.3 |
| Professional Office | 23.0 | 18.6 | 41.6 | | | | | | | 41.6 |
| Business Park | 91.6 | 292.1 | 383.7 | | | | | | | 383.7 |
| Industrial | 146.7 | 274.1 | 420.8 | | | | | | | 420.8 |
| Airport Industrial | 41.6 | 94.2 | 135.8 | | | | | | | 135.8 |
| Industrial-Mineral Resources | 188.5 | 27.7 | 216.2 | | | | | | | 216.2 |
| Open Space - Hillside Preservation | | | | | | | 0.2 | 647.1 | 647.3 | 647.3 |
| Open Space - Park | 246.6 | 877.5 | 1,224.1 | 0.0 | 21.7 | 21.7 | 29.8 | 15.8 | 45.6 | 1,291.4 |
| Open Space - Resources | 122.7 | 2,658.3 | 2,781.0 | 25.0 | 1,599.4 | 1,624.4 | 1.2 | 230.0 | 231.2 | 4,636.6 |
| Public Facilities - Airport | 72.3 | 72.1 | 144.4 | | | | | | | 144.4 |
| Public Facilities - Cemetery | 12.9 | 2.5 | 15.4 | | | | | | | 15.4 |
| Public Facilities - Fire Station | 3.5 | 0.1 | 3.6 | | 2.9 | 2.9 | | | | 6.4 |
| Public Facilities - Government | 24.3 | 39.7 | 64.0 | | | | | | | 64.0 |
| Public Facilities - Hospital | 10.6 | 0.3 | 10.8 | | | | | | | 10.8 |
| Public Facilities - RR/Interstate | 419.3 | 48.9 | 468.2 | | | | | | | 468.2 |
| Public Facilities - School | 137.9 | 95.7 | 233.6 | | | | | | | 233.6 |
| **Grand Total** | **4,739.9** | **10,083.3** | **14,823.2** | **146.2** | **5,290.0** | **5,436.2** | **281.7** | **3,013.9** | **3,295.0** | **23,555.0** |

## Existing Residential Development

Existing residential development in the City can be characterized geographically. Traditionally, larger lots, often including animal keeping, have been developed south of the Interstate 10/Railroad corridor. In recent years, the Sun Lakes Country Club project, located south of the Interstate and east of Highland Springs Avenue, was developed to include a golf course and a variety of lot sizes. Sun Lakes has developed at a greater density than had previously been experienced on the south side of the City.

On the north side of the Interstate, single family residential land uses have developed northerly of the Ramsey Street commercial corridor, in lot sizes ranging from 7,000 to 15,000 or more square feet. Multi-family residential development has occurred, both in apartments and in mobile

Lands available for residential development generally fall into two types: infill development on the north side of the City, and larger holdings, most of which will require coordinated development efforts, on the south side of the City. Table-2, below, provides information on vacant and developed residential lands in the City, the Sphere of Influence, and the planning area.

**Table III-2**
**Residential Buildout Statistical Summary**

| | City Limits | | | | Sphere of Influence | | | | Planning Area | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Designation** | **Acres Total** | **Exist. Units** | **Future Units** | **Total Units** | **Acres Total** | **Exist. Units** | **Future Units** | **Total Units** | **Acres Total** | **Exist. Units** | **Future Units** | **Total Units** | **Grand Total Units** | **Grand Total Acres** |
| Ranch/Agriculture (1 du/10 ac.) | 77.7 | | 8 | 8 | 798.7 | | 72 | 72 | 661.2 | | 63 | 63 | 143 | 1,537.6 |
| Ranch/Agriculture - Hillside (1 du/10 ac.) | 473.3 | | 35 | 35 | 1,553.1 | | 154 | 154 | 439.8 | | 42 | 42 | 231 | 2,466.2 |
| Rural Residential (0-1 du/ac.) | 595.9 | | 471 | 471 | 910.6 | | 902 | 902 | 839.4 | | 640 | 640 | 2,013 | 2,345.9 |
| Rural Residential – Hillside (0-1 du/ac.) | 56.2 | | 84 | 84 | 78.5 | | 79 | 79 | 269.3 | | 269 | 269 | 432 | 404.0 |
| Very Low Density Residential (0-2 du/ac.) | 2,146.9 | 8,227 | 2,875 | 11,102 | 220.4 | 352 | 298 | 650 | 0.0 | 204 | 0 | 204 | 11,956 | 2,367.3 |
| Low Density Residential (0-5 du/ac.) | 3,147.4 | | 6,928 | 6,928 | 167.0 | | 626 | 626 | 132.1 | | 486 | 486 | 8,040 | 3,446.5 |
| Medium Density Residential (0-10 du/ac.) | 1,018.7 | | 2,720 | 2,720 | 49.4 | | 371 | 371 | 29.7 | | 221 | 221 | 3,311 | 1,097.8 |
| High Density Residential (11-18 du/ac.) | 369.9 | 1,021 | 2,881 | 3,902 | 9.7 | | 129 | 129 | 0.0 | | 0 | 0 | 4,031 | 379.6 |
| Mobile Home Park | 130.4 | 1,156 | 189 | 1,345 | | | | | | | | | 1,345 | 130.4 |
| **Residential Total** | 8,016.4 | 10,404 | 16,191 | 26,595 | 3,787 | 352 | 2,630 | 2,982 | 2,372 | | 1,722 | 1,926 | 31,503 | 14,175 |

Note: Future units calculated at 75% of maximum density except in Ranch/Agriculture, Ranch/Agriculture-Hillside, Rural Residential and Rural Residential- Hillside.

Buildout Population

Based on the table above, the City's buildout population is estimated to total 67,697, the Sphere of Influence's will total 7,622, and the planning area's will total 4,907[1]. Total population at buildout for the entire General Plan area is therefore estimated to be 80,226.

**Neighborhood Identity**

Through the development of this General Plan, the variety and diversity of neighborhoods in the City has been clearly identified. These areas are bound together by tangible and intangible similarities, including age of housing, lifestyle and geographic isolation. The City wishes to support and enhance these neighborhoods, and preserve the quality of life they represent to their residents.

[1] Assumes 2003 populations of 25,600, 784, and 430 for the City, Sphere of Influence and planning area, respectively; and a household size of 2.6 persons. Does not include potential residential population in the Downtown Commercial land use designation.

## COMMERCIAL AND INDUSTRIAL LAND USES

The City's commercial development has traditionally been focused on the Ramsey Street corridor. In more recent times, commercial development has also occurred on the east side of Highland Springs Avenue. The General Plan does not change this development pattern, but does add to it, by providing additional commercial opportunities along the north side of Lincoln Street, between Sunset Avenue and 8th Street. The General Plan provides four land use designations appropriate for commercial development: General Commercial, Highway Serving Commercial, Downtown Commercial and Professional Office.

The General Commercial and Highway Serving Commercial designations allow the broadest range of commercial retail opportunities. The Highway Serving Commercial designation is geared more toward the Interstate 10 traveler, with a focus on restaurants, tourist uses, and auto service uses. The Professional Office designation is designed to provide space for professional and social service land uses, and providing a convenient and accessible location for businesses which do not generate sales tax. As discussed above, the Downtown Commercial designation is the City's specialty retail and mixed use area, and is envisioned to redevelop to encourage tourism, pedestrian access and a sense of community.

Commercial lands designated in the General Plan have the potential to generate 6,757,082 square feet of retail and office space in the City, as shown in Table III-3, below.

**Table III-3**
**Commercial and Industrial Buildout Statistical Summary**

| | City Limits | | | |
|---|---|---|---|---|
| **Designation** | **Acres Dev.** | **Acres Vacant** | **Acres Total** | **Total Potential S.F.[1]** |
| General Commercial | 203.8 | 252.1 | 455.9 | 4,368,981 |
| Highway Serving Commercial | 103.0 | 7.3 | 110.3 | 1,057,027 |
| Downtown Commercial[2] | 86.0 | 11.3 | 97.3 | 932,445 |
| Professional Office | 23.0 | 18.6 | 41.6 | 398,629 |
| **Subtotal Commercial** | **415.8** | **289.3** | **705.1** | **6,757,082** |
| Business Park | 91.6 | 292.1 | 383.7 | 4,178,493 |
| Industrial | 146.7 | 274.1 | 420.8 | 4,582,512 |
| Airport Industrial | 41.6 | 94.2 | 135.8 | 1,478,321 |
| Industrial-Mineral Resources | 188.5 | 27.7 | 216.2 | N/A |
| **Subtotal Industrial** | **468.4** | **688.1** | **1,156.5** | **10,239,326** |
| **Grand Total Commercial & Industrial** | **884.2** | **977.4** | **1,861.2** | **16,996,408** |

Industrial development in the City has traditionally occurred on the north side of Lincoln, and surrounding the City's airport. The area of industrially designated land has been reduced in this General Plan, particularly west of 8th Street on the north side of Lincoln. There are four land use categories which allow industrial development, including Business Park, Industrial, Industrial – Mineral Resources, and Airport Industrial. The Business Park designation allows a mix of commercial and light industrial land uses, and provides a transitional designation from

**Policy 10**
The Zoning Ordinance shall include principles, design standards and guidelines which encourage the development of high quality industrial projects.

**Policy 11**
Industrial campuses and master planned projects are encouraged.

**Policy 12**
The City shall coordinate with developers and the Railroad to secure railroad spurs.

**Policy 13**
The City shall adequately regulate sand and gravel operations to assure that their impacts to surrounding development is minimized.

**Program 13.A**
The City shall establish a formal relationship with the County Geologist or other qualified agency to monitor mineral resource operations under the State Mining and Reclamation Act (SMARA).
**Responsible Agency:** Planning Department, Riverside County Geologist
**Schedule:** 2005-2006

## PUBLIC FACILITIES LAND USES

Land uses for public facilities include such governmental functions as City offices and facilities and fire stations, and the airport. Others include schools, the hospital, and libraries. The land use plan identifies public facilities if they are currently owned by a public entity, or proposed for dedication to a public entity in a Specific Plan. In the future, as additional facilities are acquired, the General Plan land use map will be amended to reflect these acquisitions.

**Table III-4**
**Public Facilities Buildout Statistical Summary**

| | City Limits | | | Sphere of Influence | | | |
|---|---|---|---|---|---|---|---|
| **Designation** | **Acres Dev.** | **Acres Vacant** | **Acres Total** | **Acres Dev.** | **Acres Vacant** | **Acres Total** | **Grand Total Acres** |
| Public Facilities - Airport | 72.3 | 72.1 | 144.4 | | | | 144.4 |
| Public Facilities - Cemetery | 12.9 | 2.5 | 15.4 | | | | 15.4 |
| Public Facilities - Fire Station | 3.6 | 0.0 | 3.6 | 0.0 | 2.9 | 2.9 | 6.4 |
| Public Facilities - Government | 23.46 | 39.7 | 63.16 | | | | 63.16 |
| Public Facilities - Library | 0.84 | 0.00 | 0.84 | | | | 0.84 |
| Public Facilities - Hospital | 10.6 | 0.3 | 10.8 | | | | 10.8 |
| Public Facilities - Railroad/Interstate | 419.4 | 48.9 | 468.3 | | | | 468.3 |
| Public Facilities - School | 137.9 | 95.7 | 233.6 | | | | 233.6 |
| **Grand Total Public Facilities** | **681.0** | **259.2** | **940.2** | **0.0** | **2.9** | **2.9** | **943.1** |

Table III-4 identifies 940.2 acres within the City limits and about 2.9 acres within the City's sphere-of-influence for public facilities. No public facilities designations occur in the planning area. The largest area under this category is the Interstate 10/Railroad corridor.

**Table III-5**
**Open Space Buildout Statistical Summary**

| | City Limits | | | Sphere of Influence | | | Planning Area | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Designation | Acres Dev. | Acres Vacant | Acres Total | Acres Dev. | Acres Vacant | Acres Total | Acres Dev. | Acres Vacant | Acres Total | Grand Total Acres |
| Open Space - Hillside Preservation | | | | | | | 0.2 | 647.1 | 647.3 | 647.3 |
| Open Space - Park | 346.6 | 877.5 | 1,224.1 | 0.0 | 21.7 | 21.7 | 29.8 | 15.8 | 45.6 | 1,291.4 |
| Open Space - Resources | 122.7 | 2,658.3 | 2,781.0 | 25.0 | 1,599.4 | 1,624.4 | 1.2 | 230.0 | 231.2 | 4,636.6 |
| **Grand Total Open Space** | **469.3** | **3,535.8** | **4,005.1** | **25.0** | **1,621.1** | **1,646.1** | **31.2** | **892.9** | **924.1** | **6,575.3** |

As with the Public Facilities land use designations, lands designated under this category are those owned by private or public entities for that purpose. As additional lands are secured for Open Space, whether private or public, the General Plan land use map will require amendment to reflect these acquisitions. The continued expansion of Open Space lands will continue to provide the City's residents and visitors with valuable enhancements to quality of life. Please also refer to the Open Space and Conservation Element for policies and programs relating to these land uses.

## OPEN SPACE AND CONSERVATION GOALS, POLICIES AND PROGRAMS

### Goal
The conservation and management of open space areas to provide recreational opportunities and protect important resources in perpetuity.

### Policy 1
Lands preserved through conservation easements, acquired by private or public agencies, or dedicated for open space shall be designated for the appropriate Open Space land use category on the land use map as they are preserved.

### Program 1 A
Review development proposals adjacent to designated open space lands and assure that land uses are compatible, and buffers provided when necessary.
**Responsible Agency:** Planning Department, Public Works Department
**Schedule:** Ongoing

### Policy 2
The City shall proactively coordinate with private and public agencies so that lands available for conservation are dedicated appropriately to assure their management in perpetuity.

### Program 2.A
The City shall coordinate with land owners and private and public agencies to the greatest extent possible to assure that lands proposed for open space either through donation or purchase are conveyed to the appropriate management agency.
**Responsible Agency:** Planning Department, City Manager's Office, County of Riverside, State and Federal Agencies, Land Conservation Agencies
**Schedule:** Ongoing

# Appendix B
# Right-of-Way Determination Figures

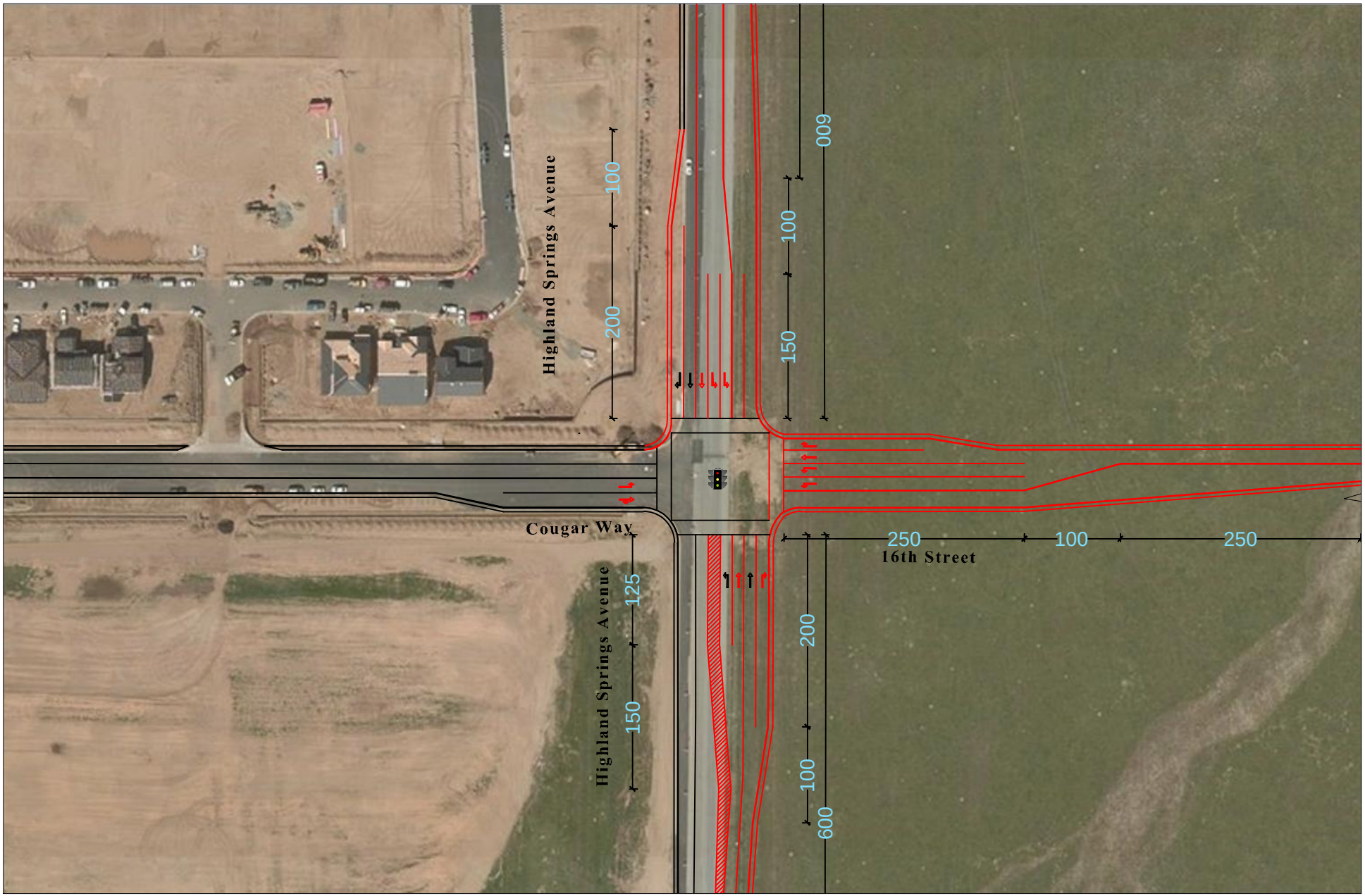
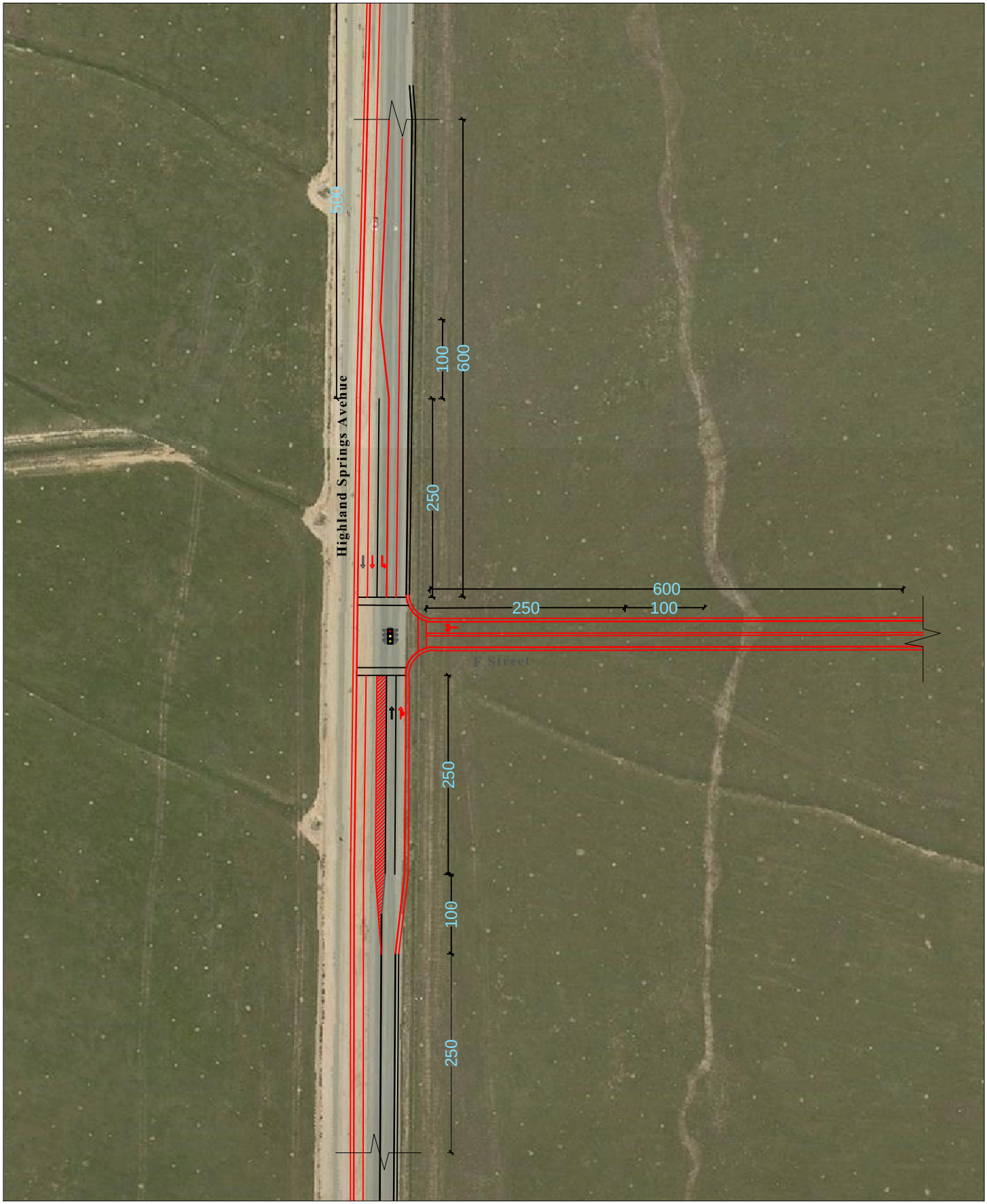



FIGURE 1

*Banning Fee Program*
*Traffic Study*

Highland Springs Avenue & 16th St-Cougar Way




Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 2

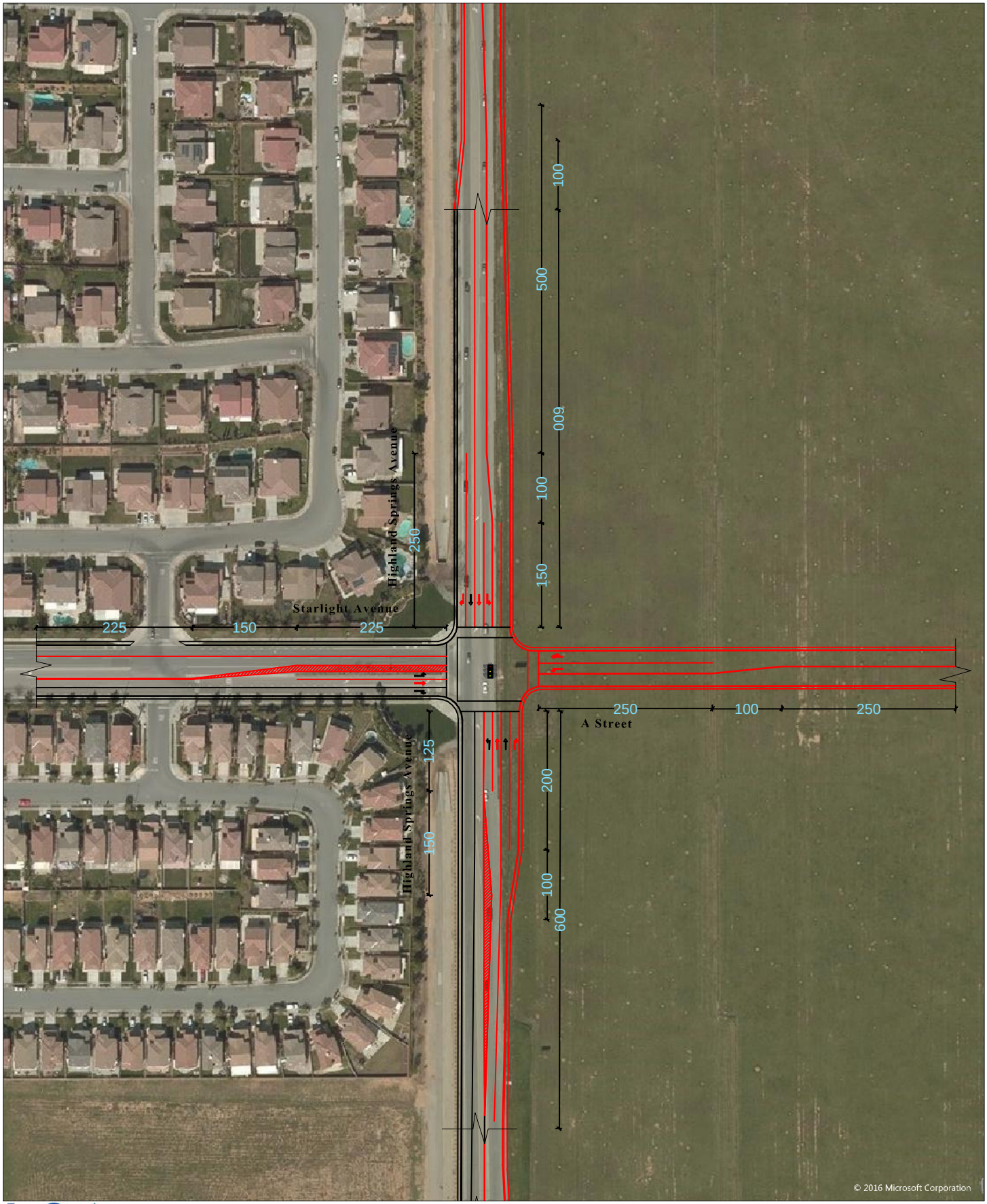
*Banning Fee Program*
*Traffic Study*

Highland Springs Avenue & F Street


FIGURE 3

*Banning Fee Program*
*Traffic Study*

Highland Springs Avenue & Oak Valley Parkway-B Street




LSA

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 4

*Banning Fee Program*
*Traffic Study*

Highland Springs Avenue & Starlight Avenue-A Street

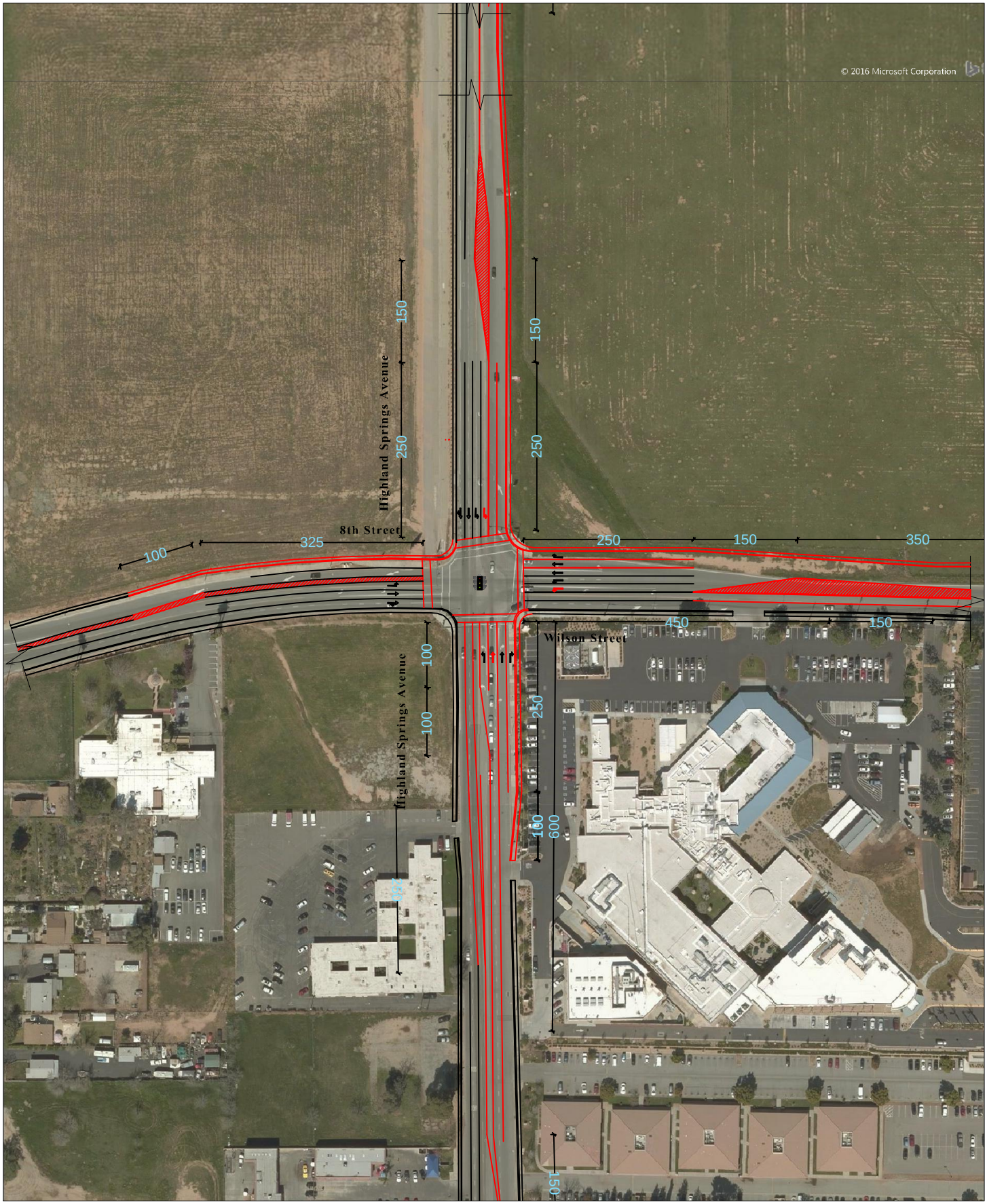



FIGURE 5

*Banning Fee Program*
*Traffic Study*

Highland Springs Avenue & Wilson Street

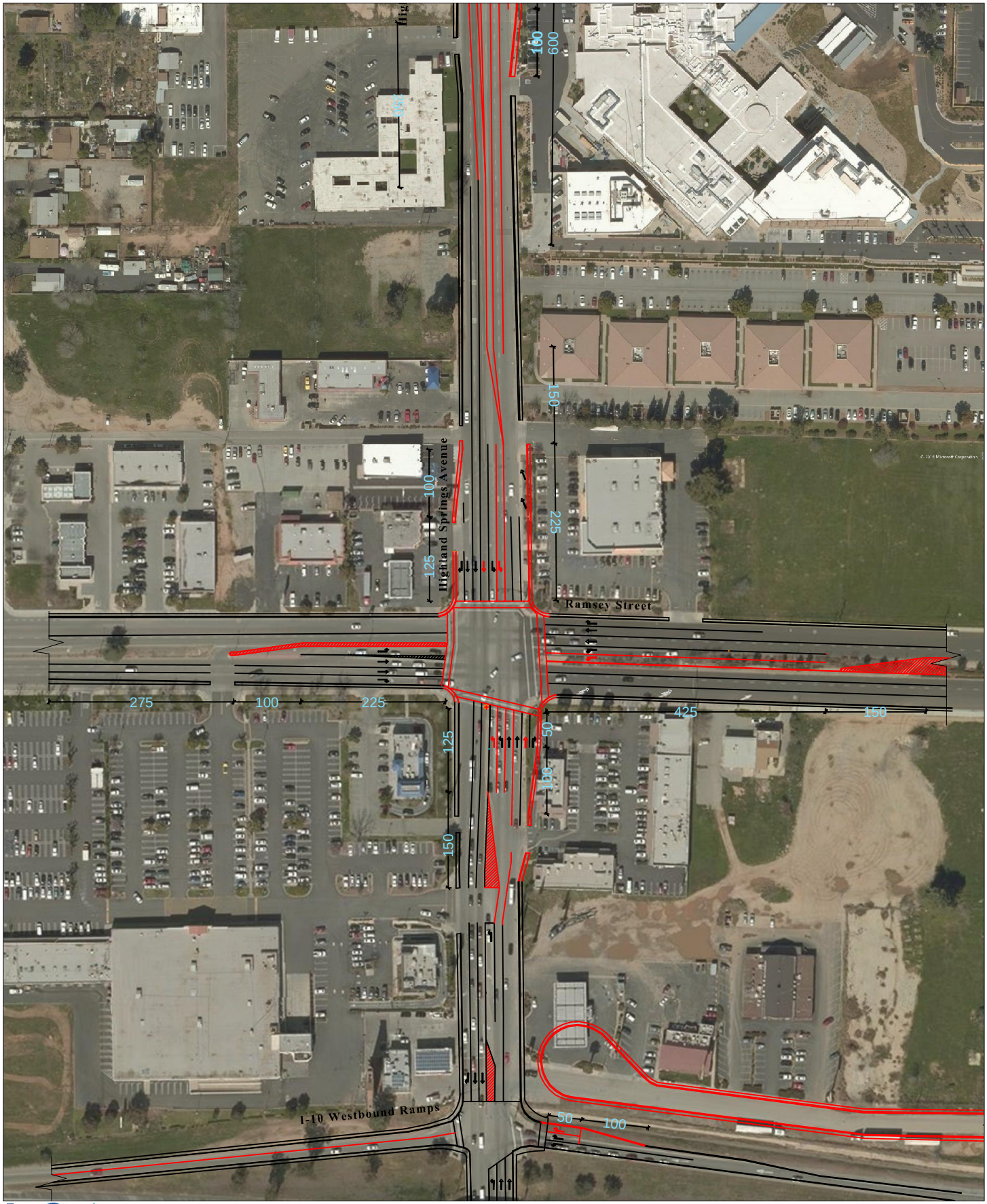



FIGURE 6

*Banning Fee Program*
*Traffic Study*

Highland Springs Avenue & Ramsay Street

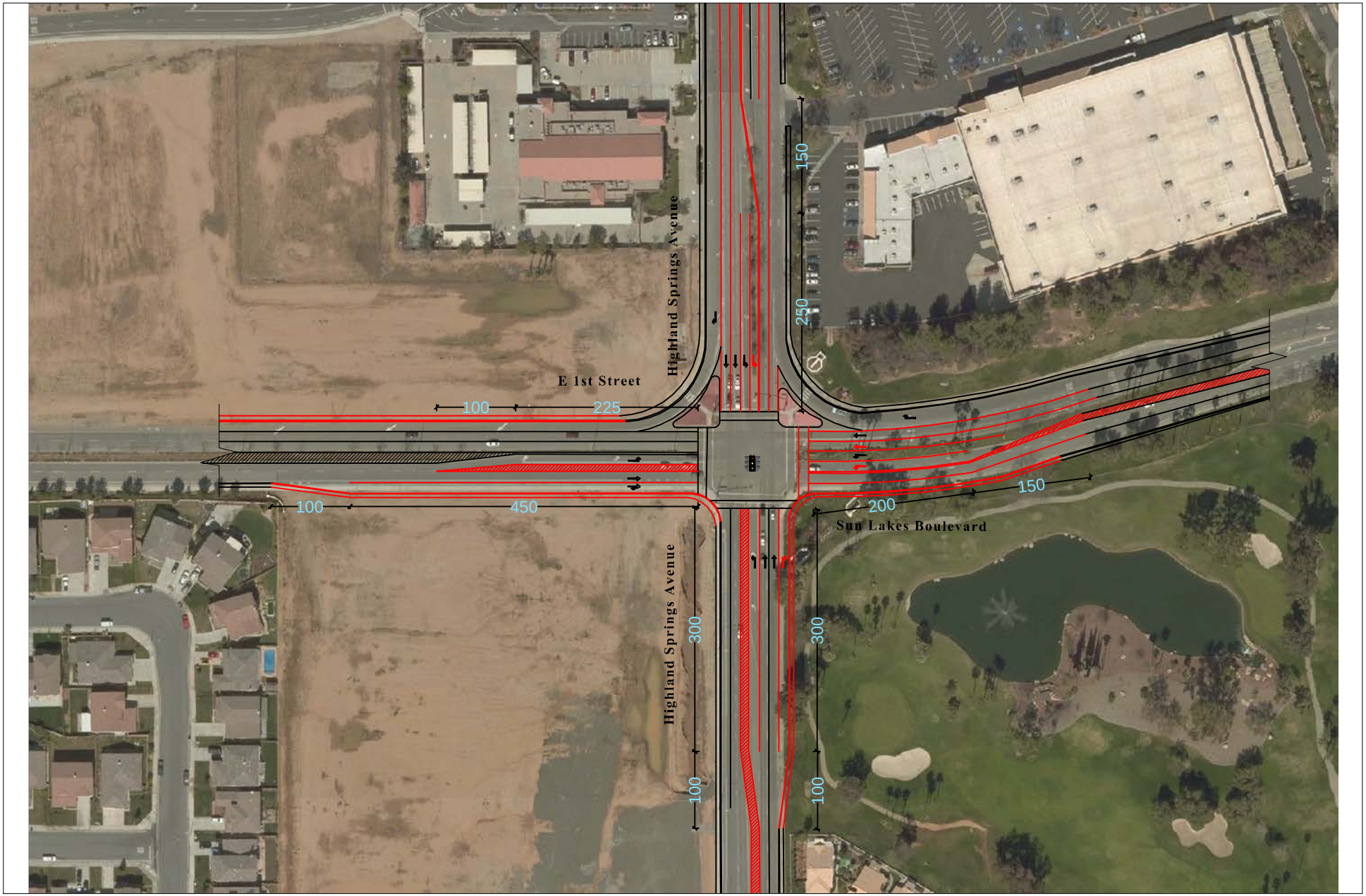



FIGURE 9

*Banning Fee Program*
*Traffic Study*

Highland Springs Avenue & Sun Lakes Boulevard

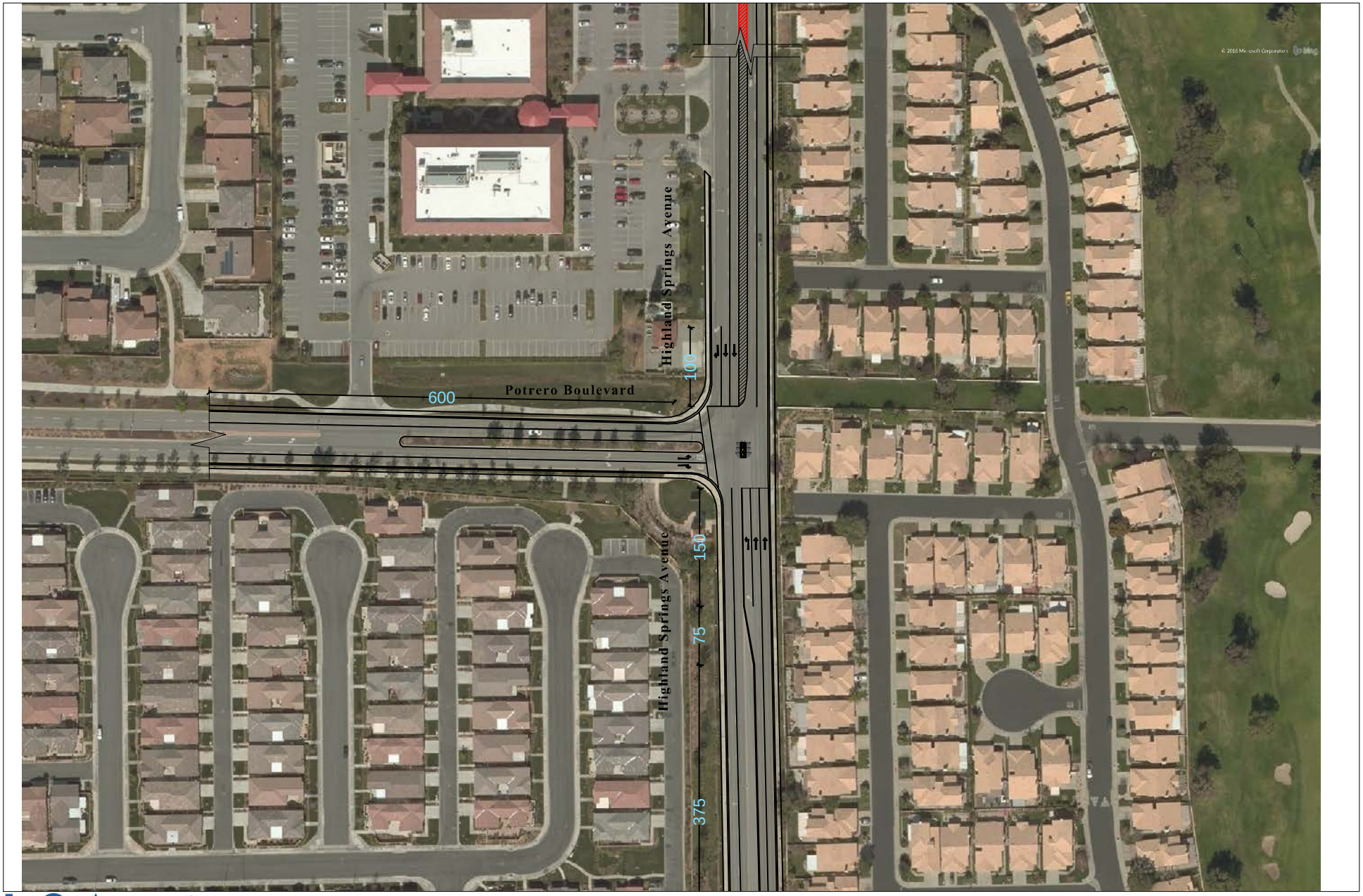



FIGURE 10

*Banning Fee Program*
*Traffic Study*

Highland Springs Avenue & Potrero Boulevard

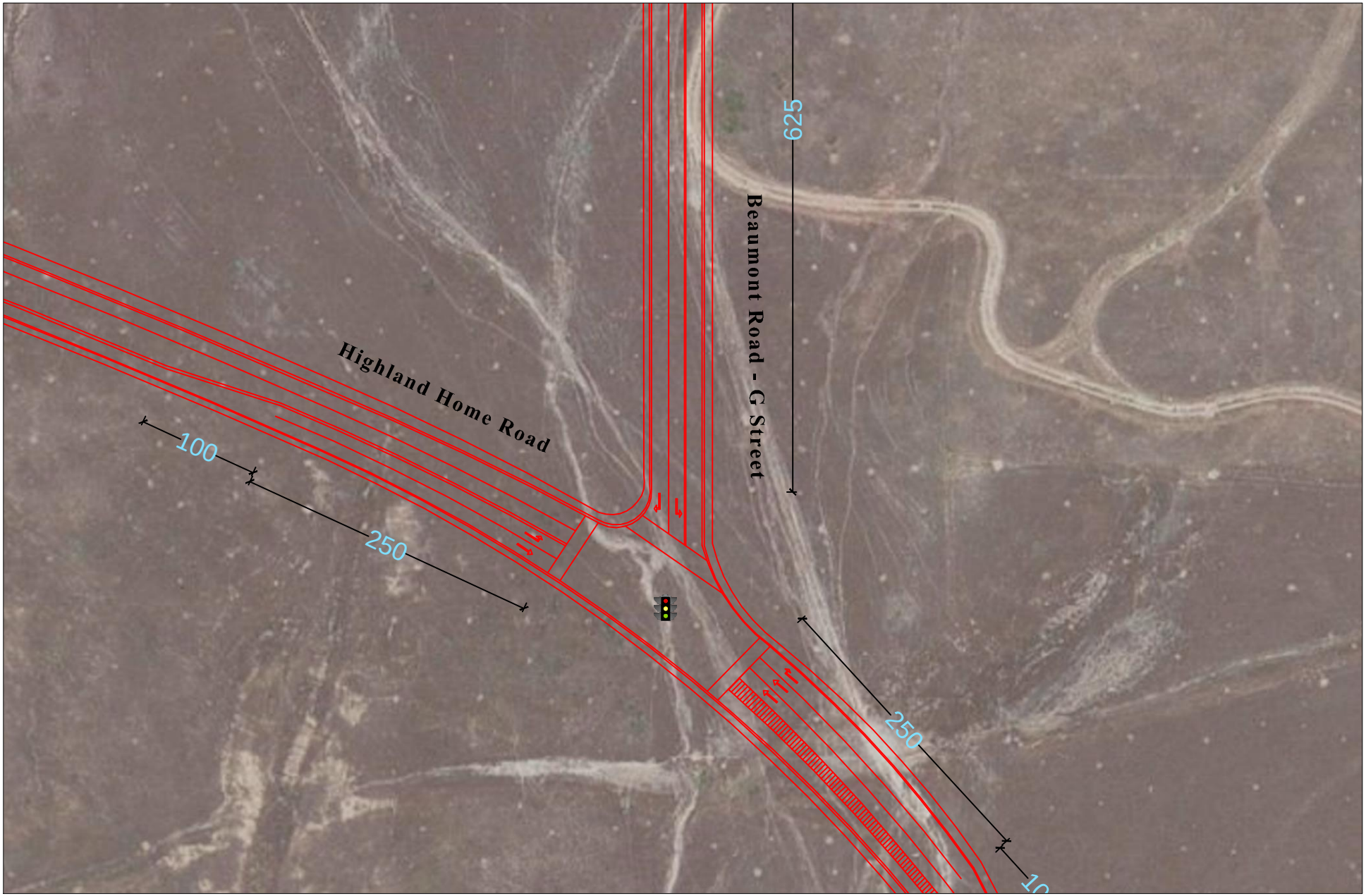

LSA

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 11

*Banning Fee Program*
*Traffic Study*

C Street-Apex Avenue & Wilson Street




LSA

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 12

*Banning Fee Program*
*Traffic Study*

Highland Home Road & Beaumont Road-G Street

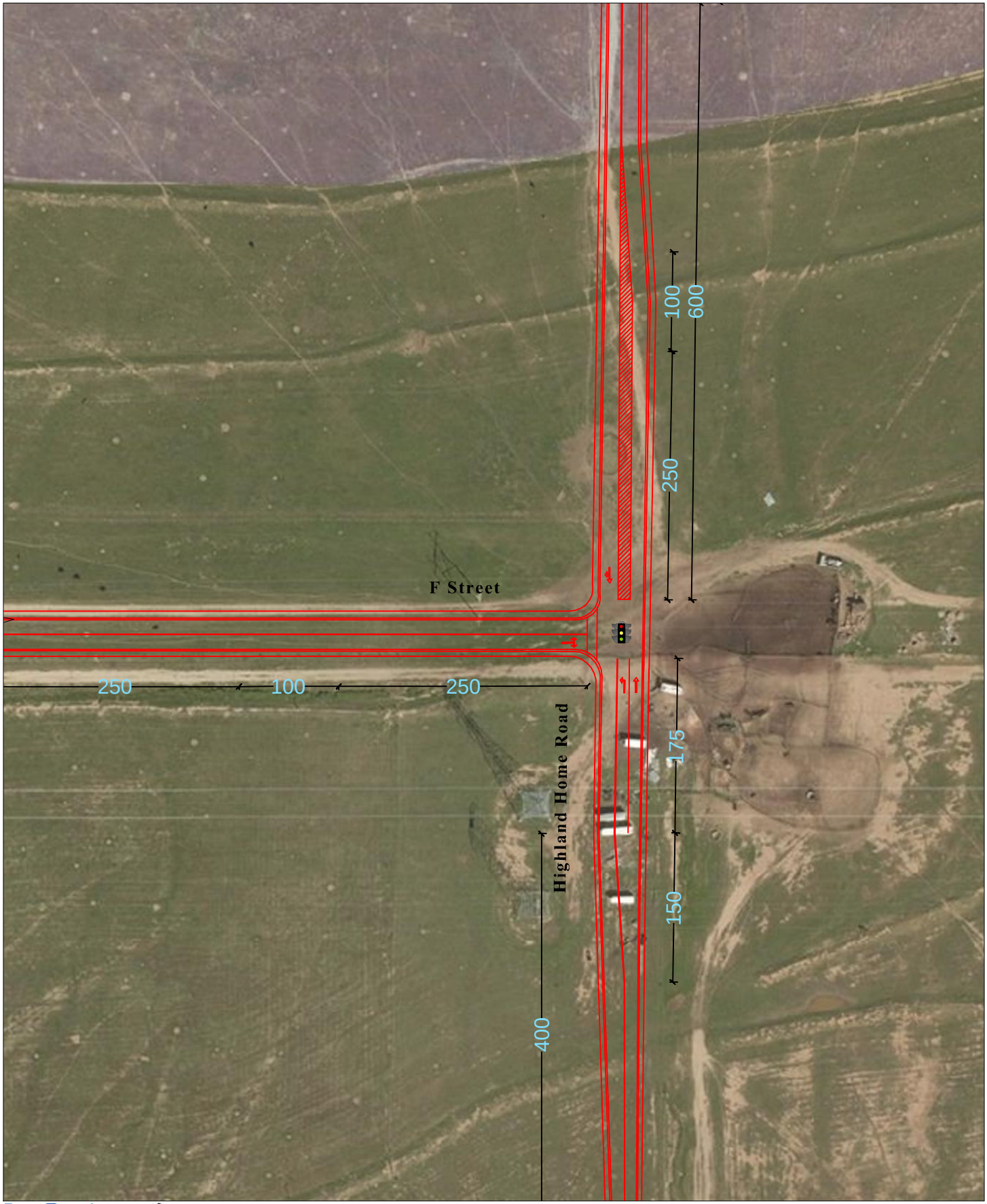



FIGURE 13

*Banning Fee Program*
*Traffic Study*

Highland Home Road & F Street


FIGURE 14

*Banning Fee Program*
*Traffic Study*

Highland Home Road & D Street

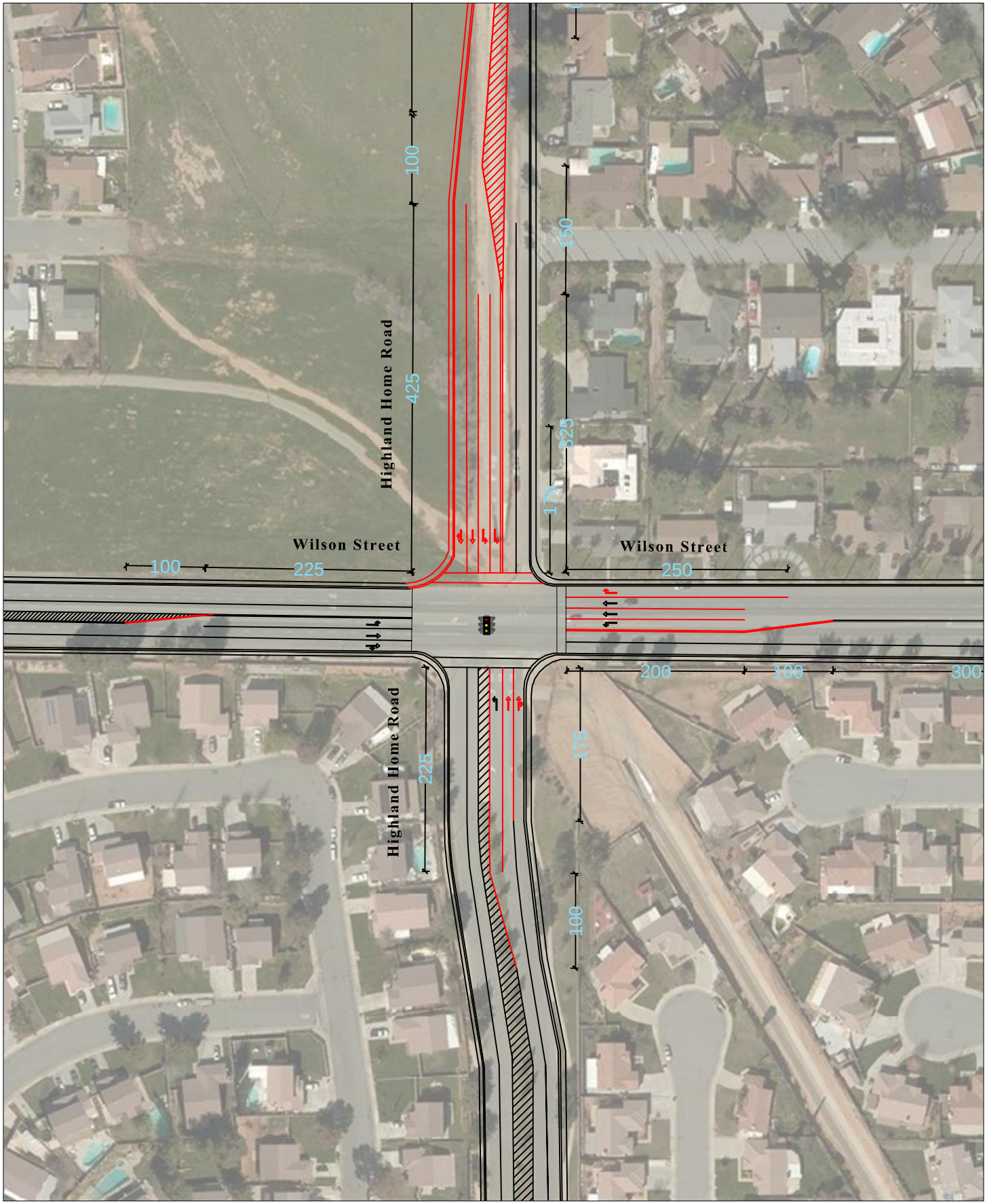



FIGURE 15

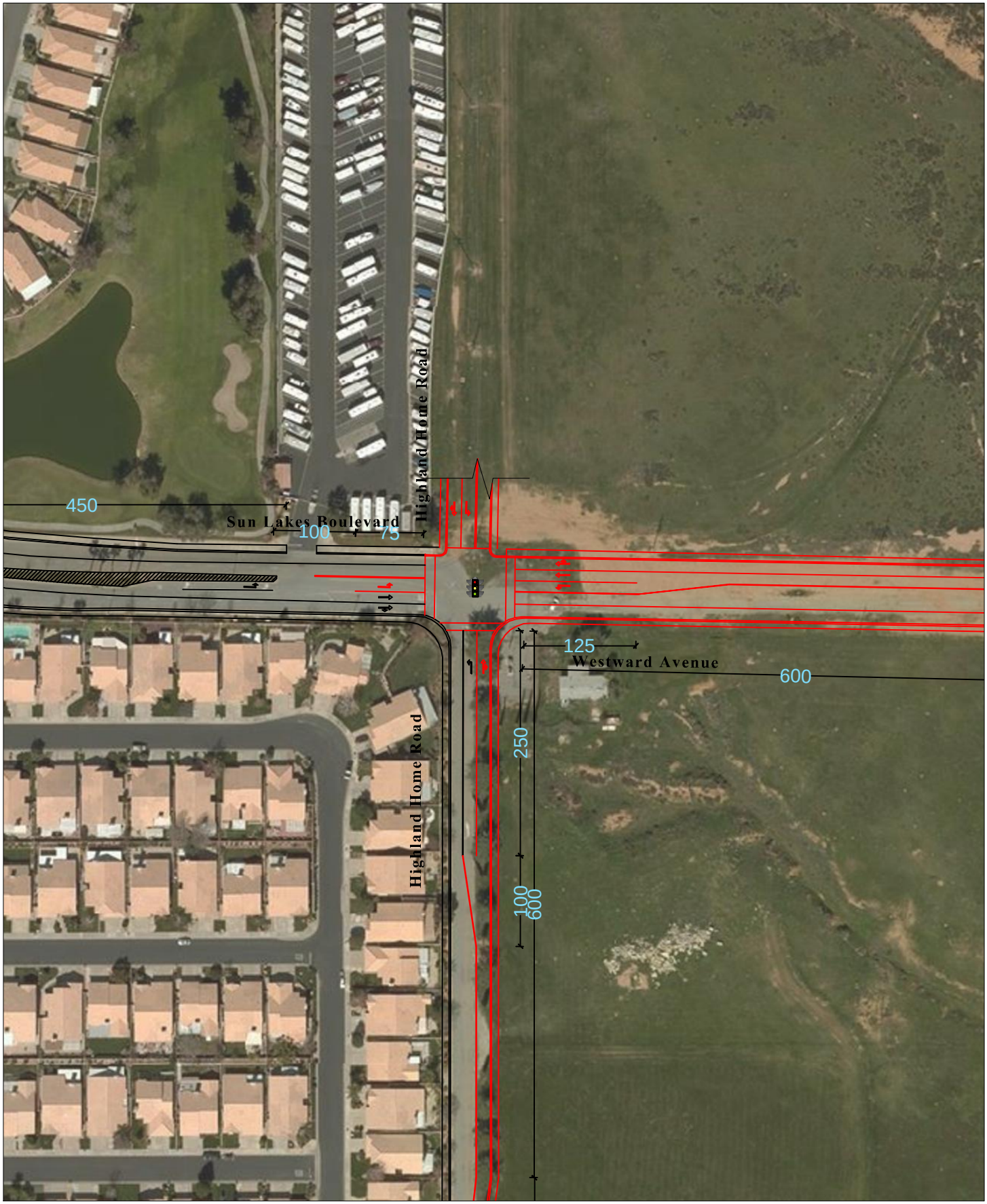
*Banning Fee Program*
*Traffic Study*

Highland Home Road & Wilson Street


FIGURE 16

*Banning Fee Program*
*Traffic Study*

Highland Home Road & Ramsey Street




LSA

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 17

*Banning Fee Program*
*Traffic Study*

Highland Home Road & Sun Lakes Boulevard- Westward Avenue

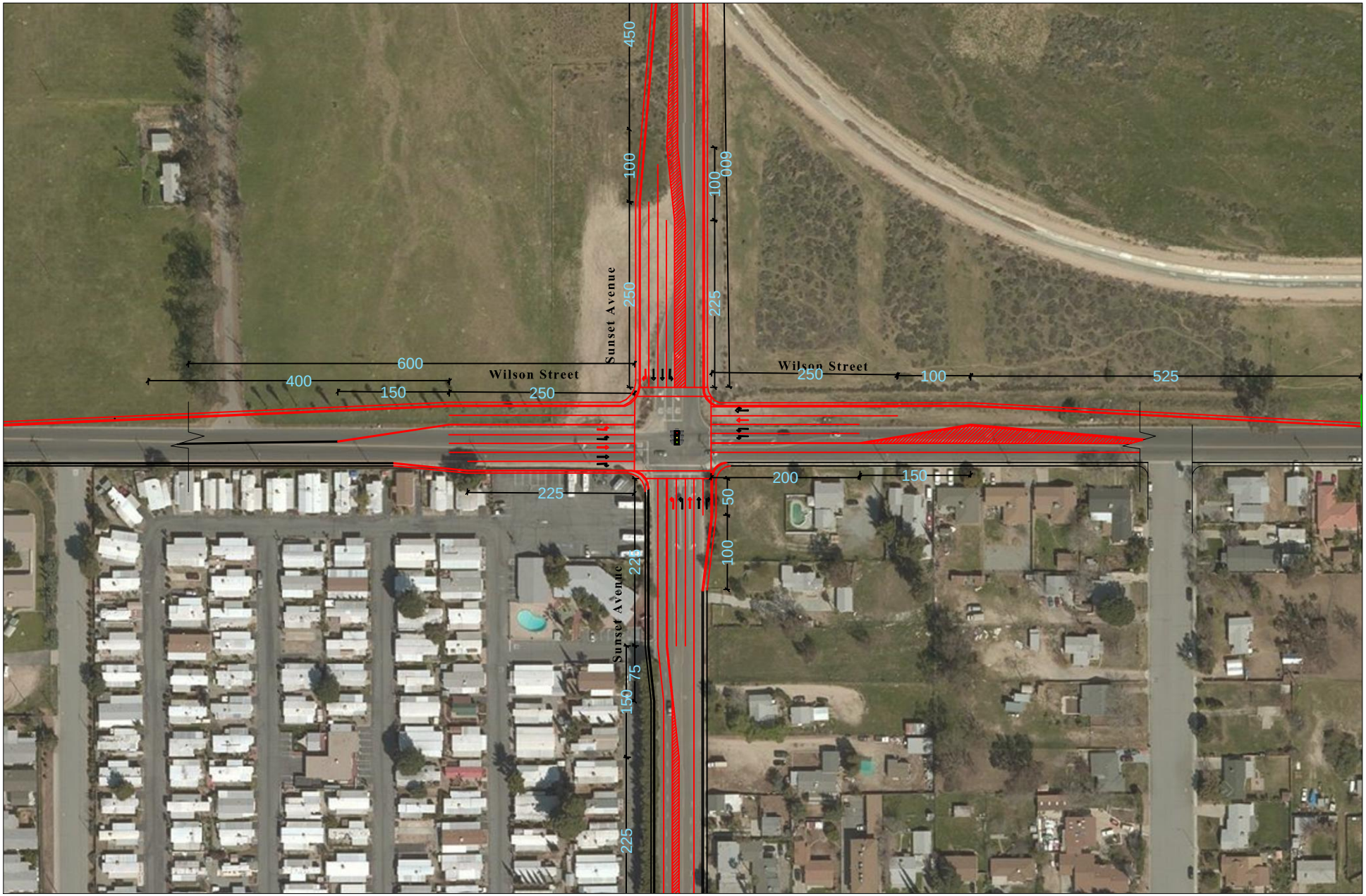



FIGURE 18

*Banning Fee Program*
*Traffic Study*

Sunset Avenue & Wilson Street

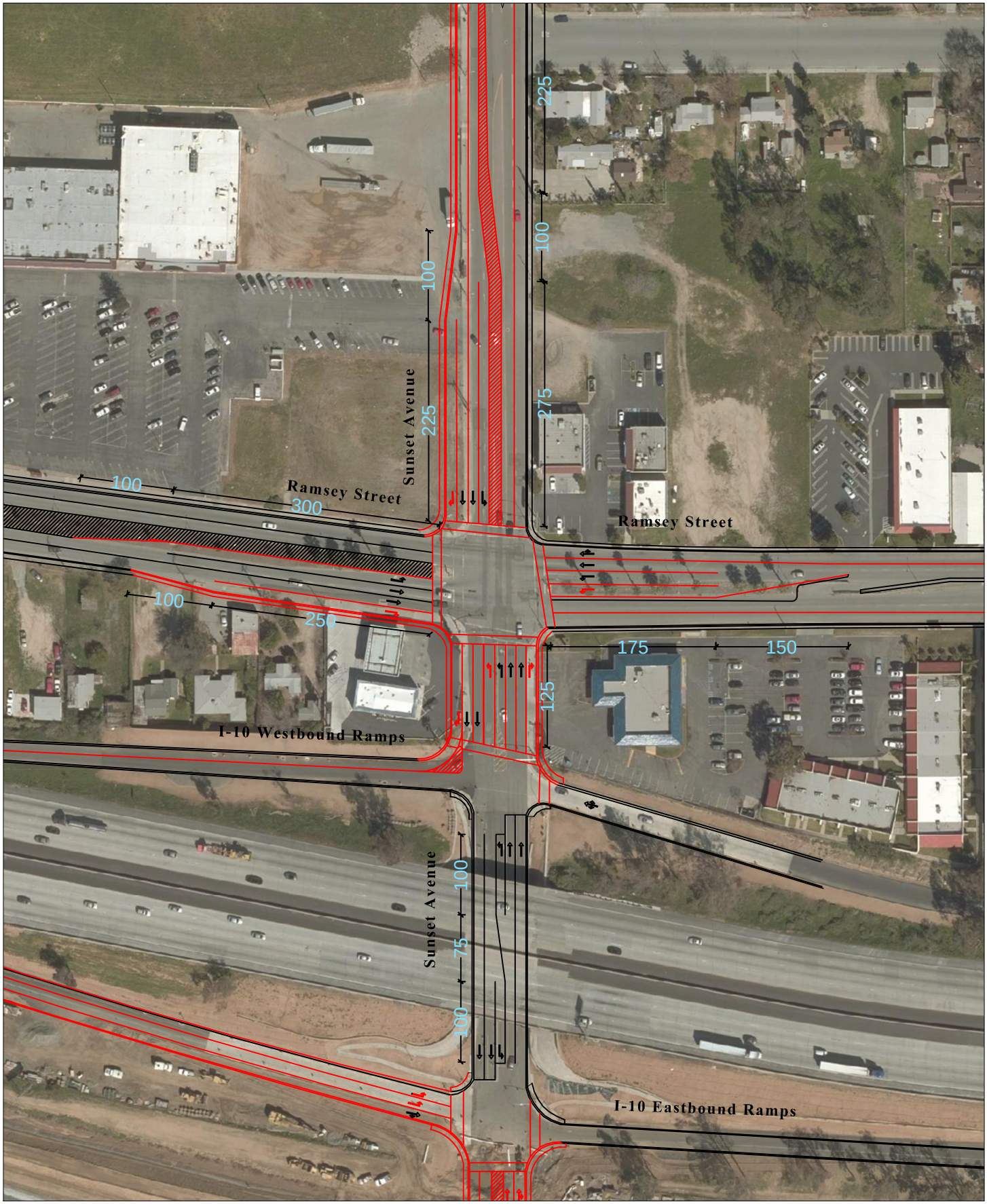



FIGURE 19

*Banning Fee Program*
*Traffic Study*

Sunset Avenue & Ramsey Street

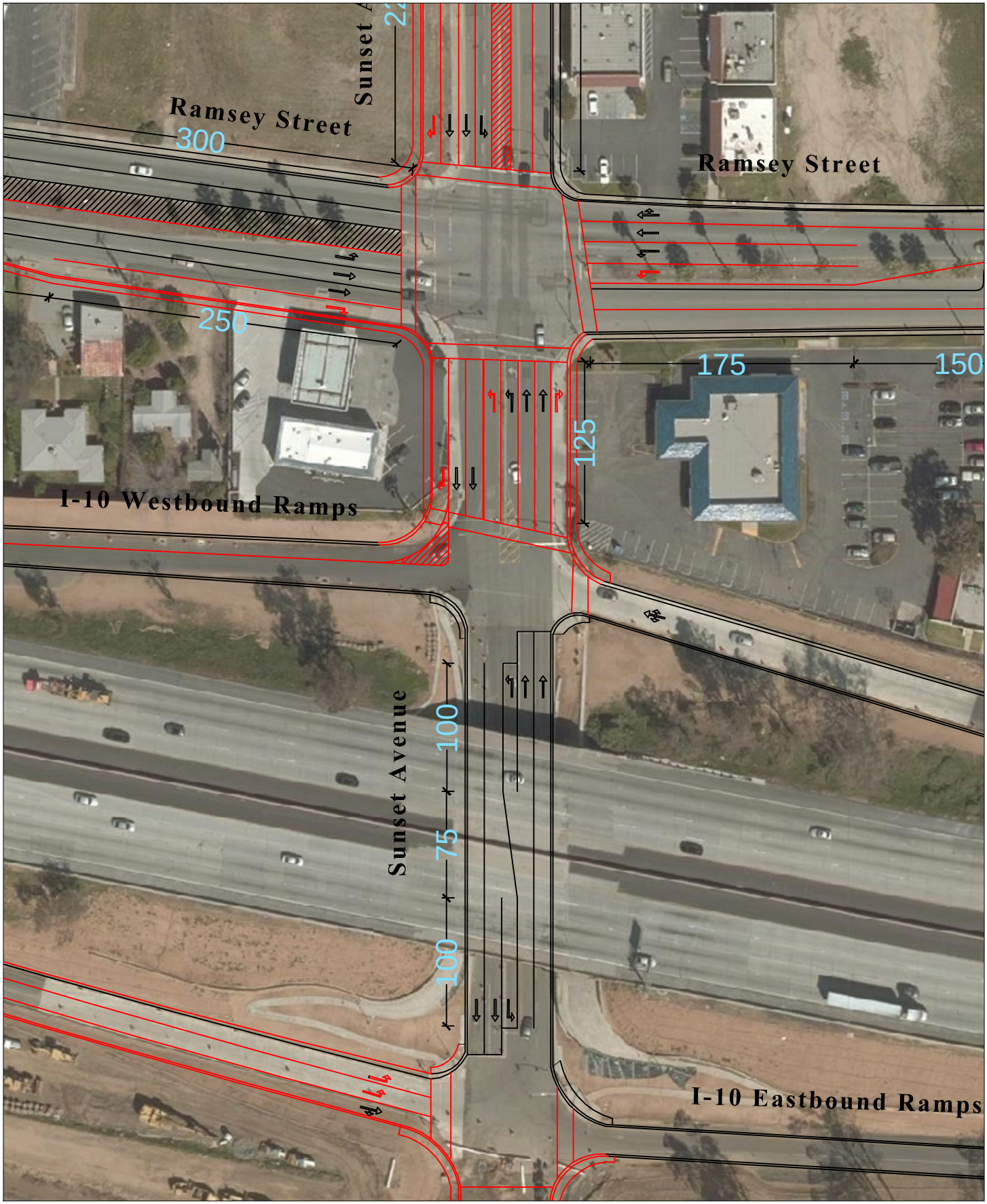



FIGURE 20

*Banning Fee Program*
*Traffic Study*

Sunset Avenue & I-10 Westbound Ramp

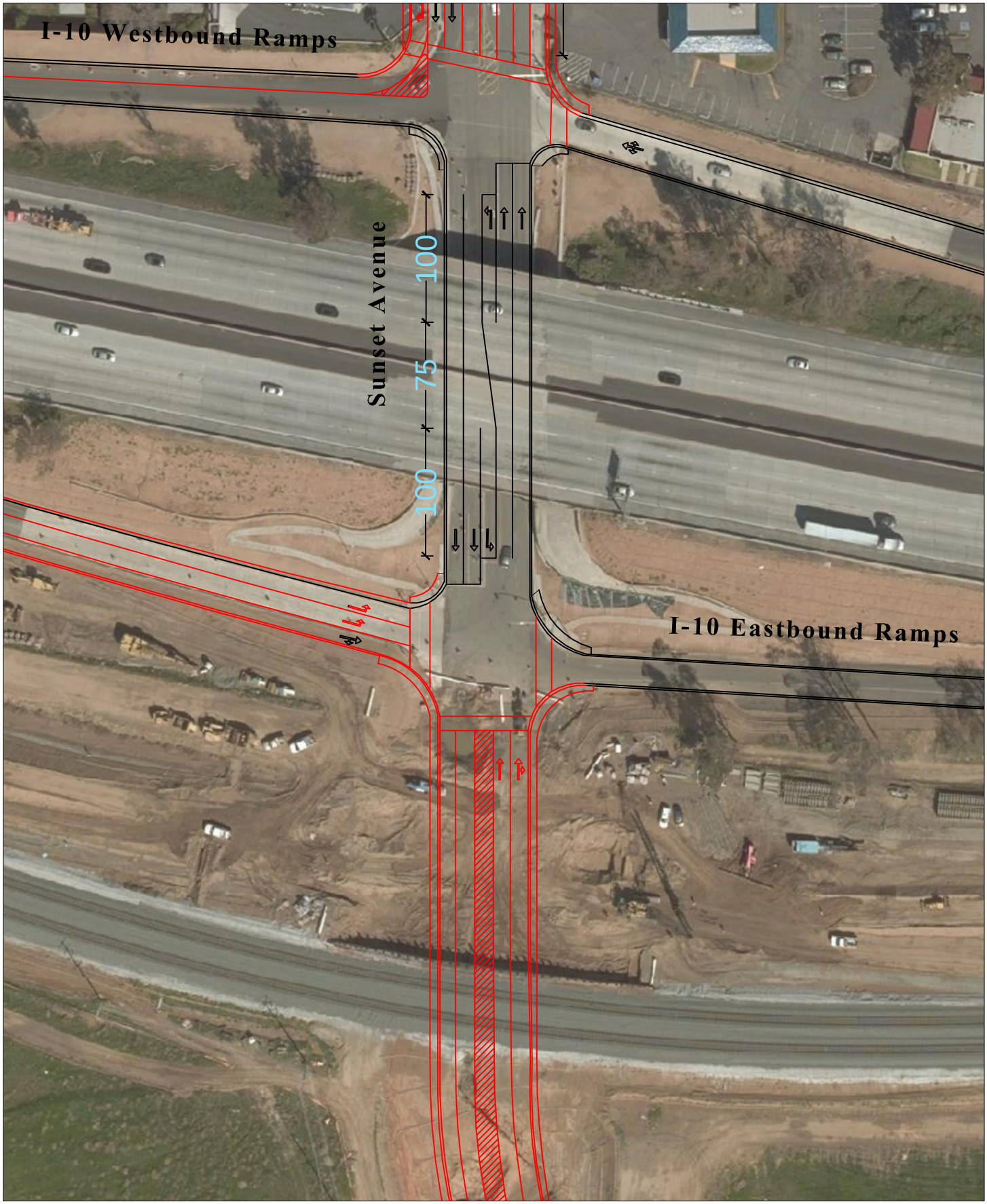
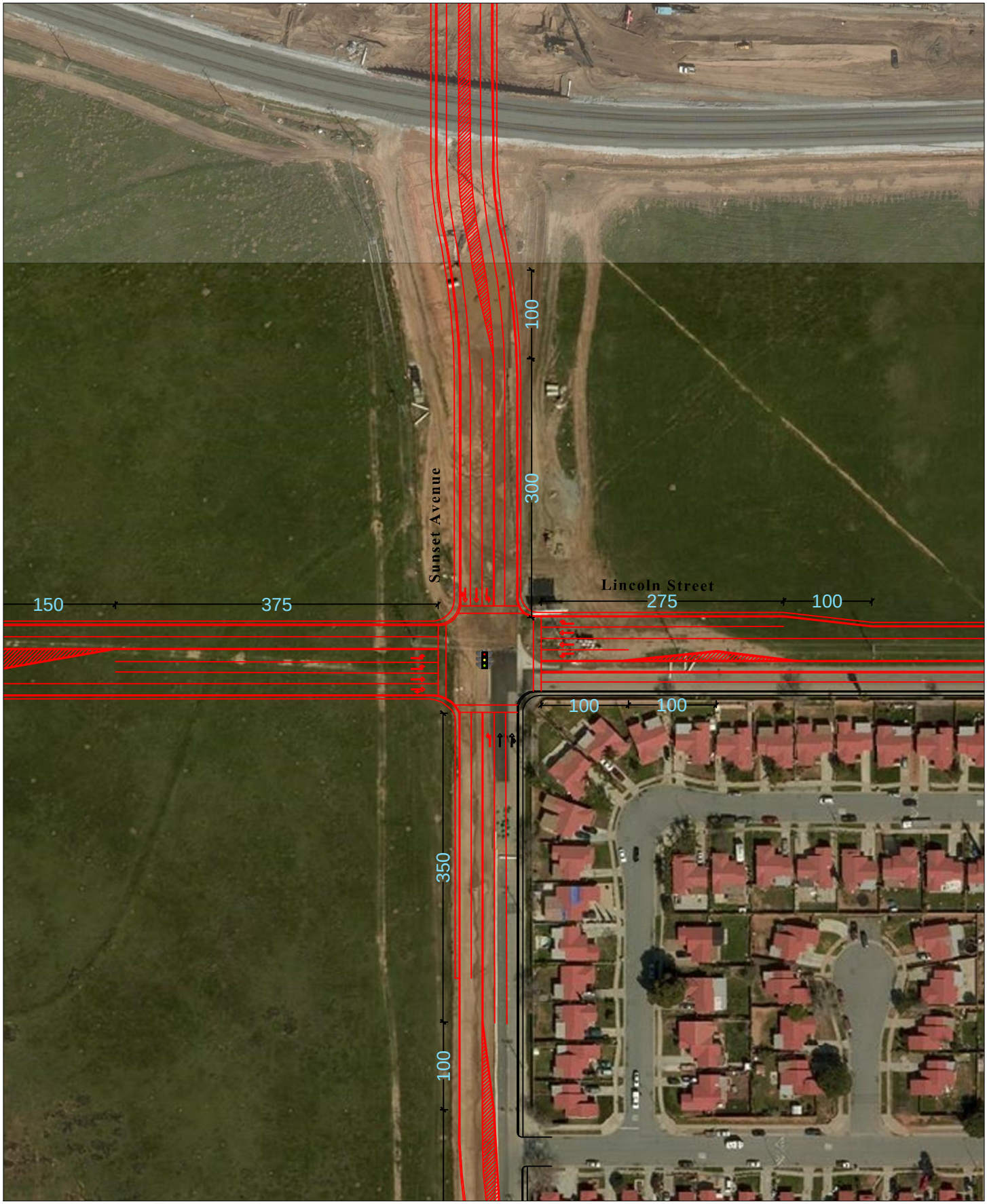



FIGURE 21

*Banning Fee Program*
*Traffic Study*

Sunset Avenue & I-10 Eastbound Ramp




LSA

N

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 22

*Banning Fee Program*
*Traffic Study*

Sunset Avenue & Lincoln Street

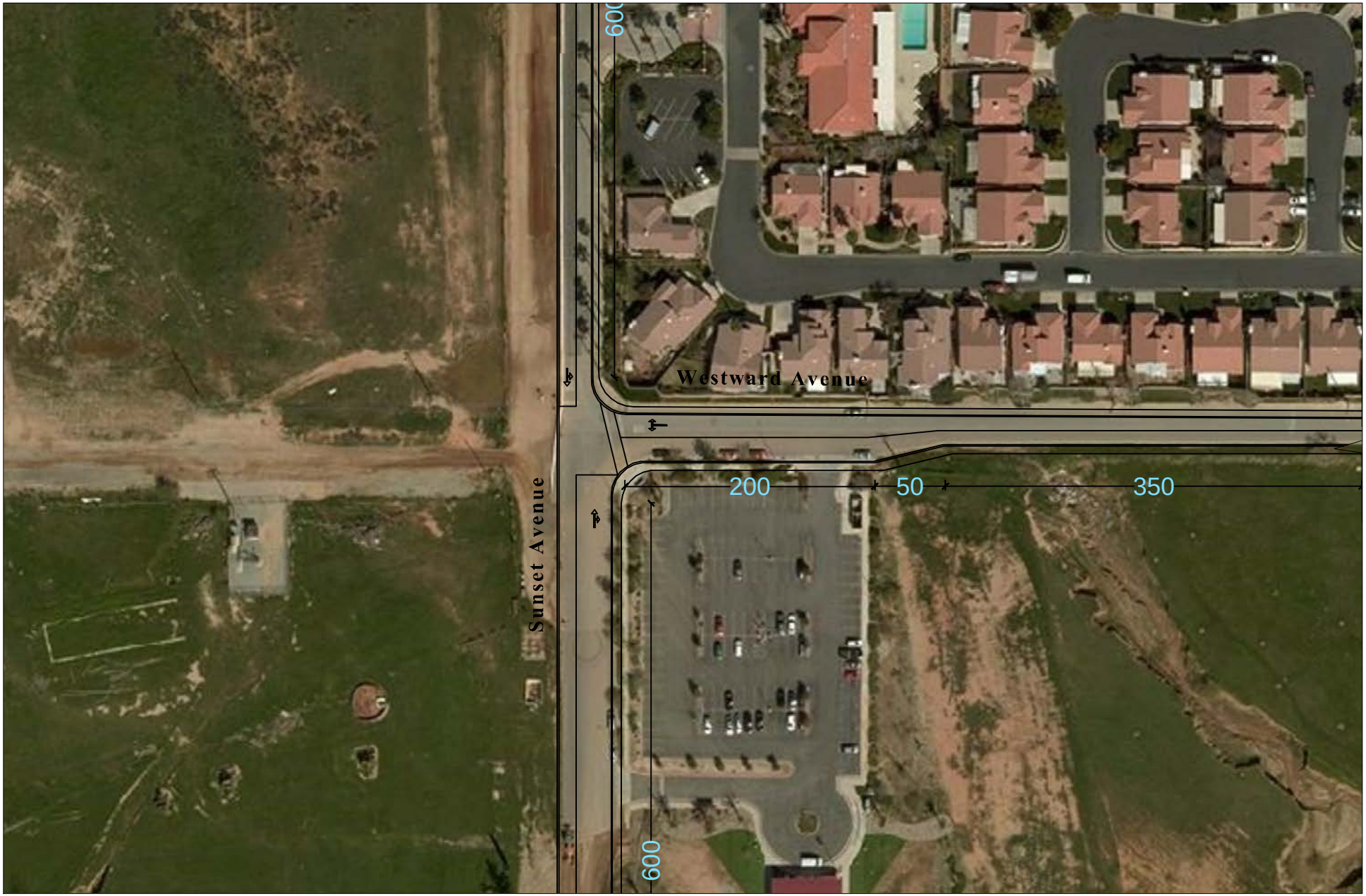



FIGURE 23

*Banning Fee Program*
*Traffic Study*

Sunset Avenue & Westward Avenue


FIGURE 24

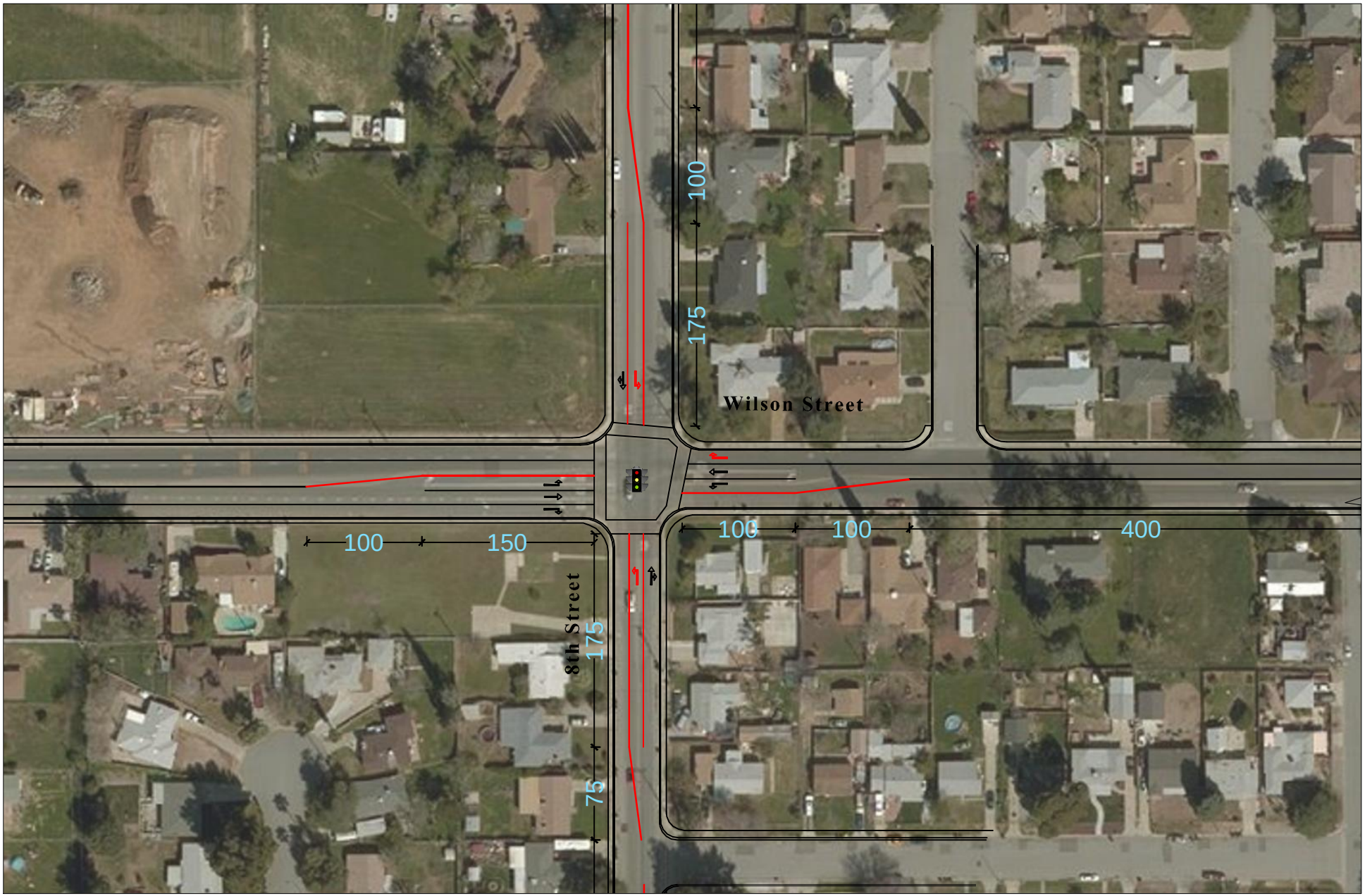
*Banning Fee Program*
*Traffic Study*

Sunrise Avenue & Wilson Street


FIGURE 25

*Banning Fee Program*
*Traffic Study*

16th Street & Wilson Street



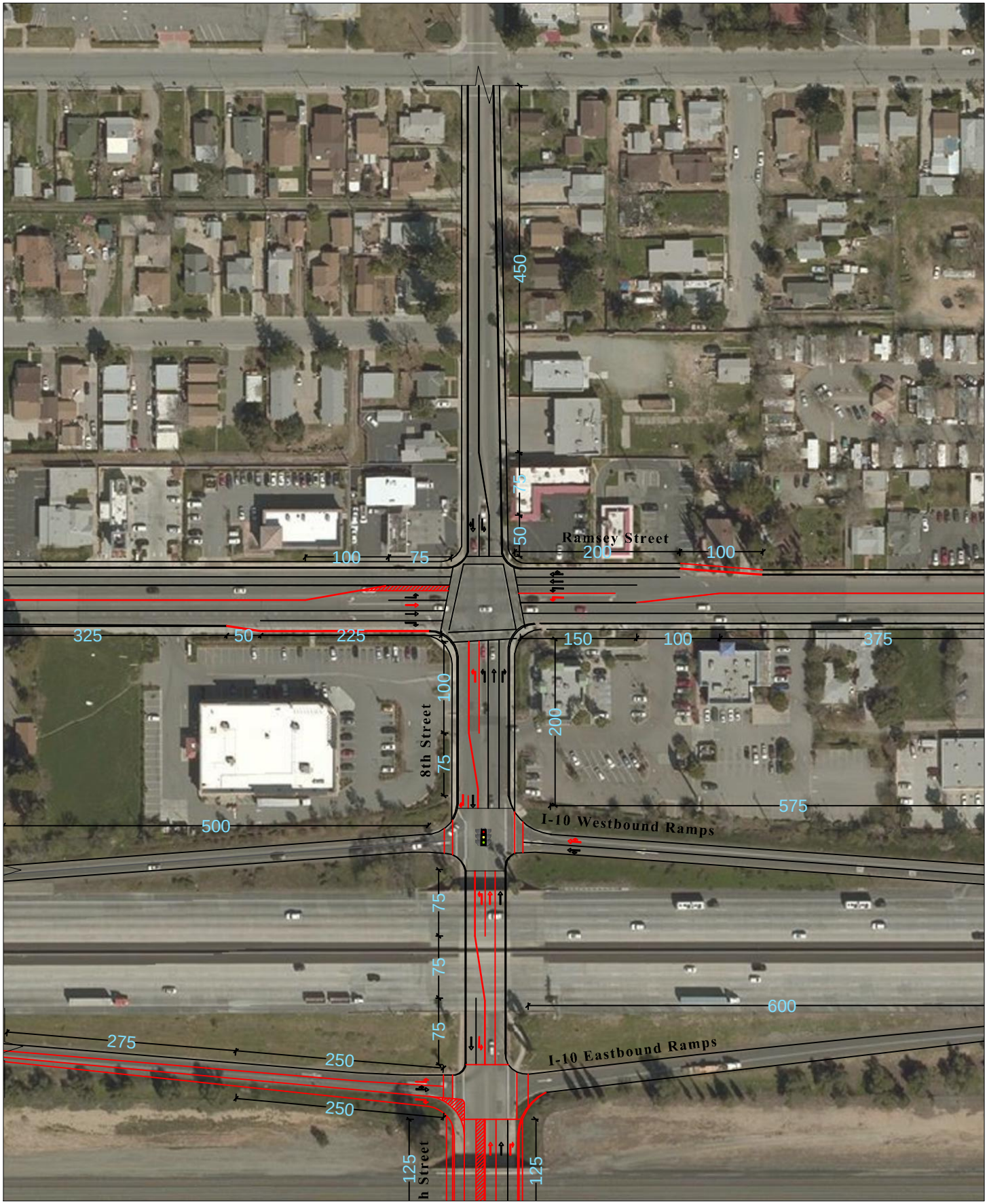

LSA

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 26

*Banning Fee Program*
*Traffic Study*

8th Street & Wilson Street




Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 27

*Banning Fee Program*
*Traffic Study*

8th Street & Ramsey Street

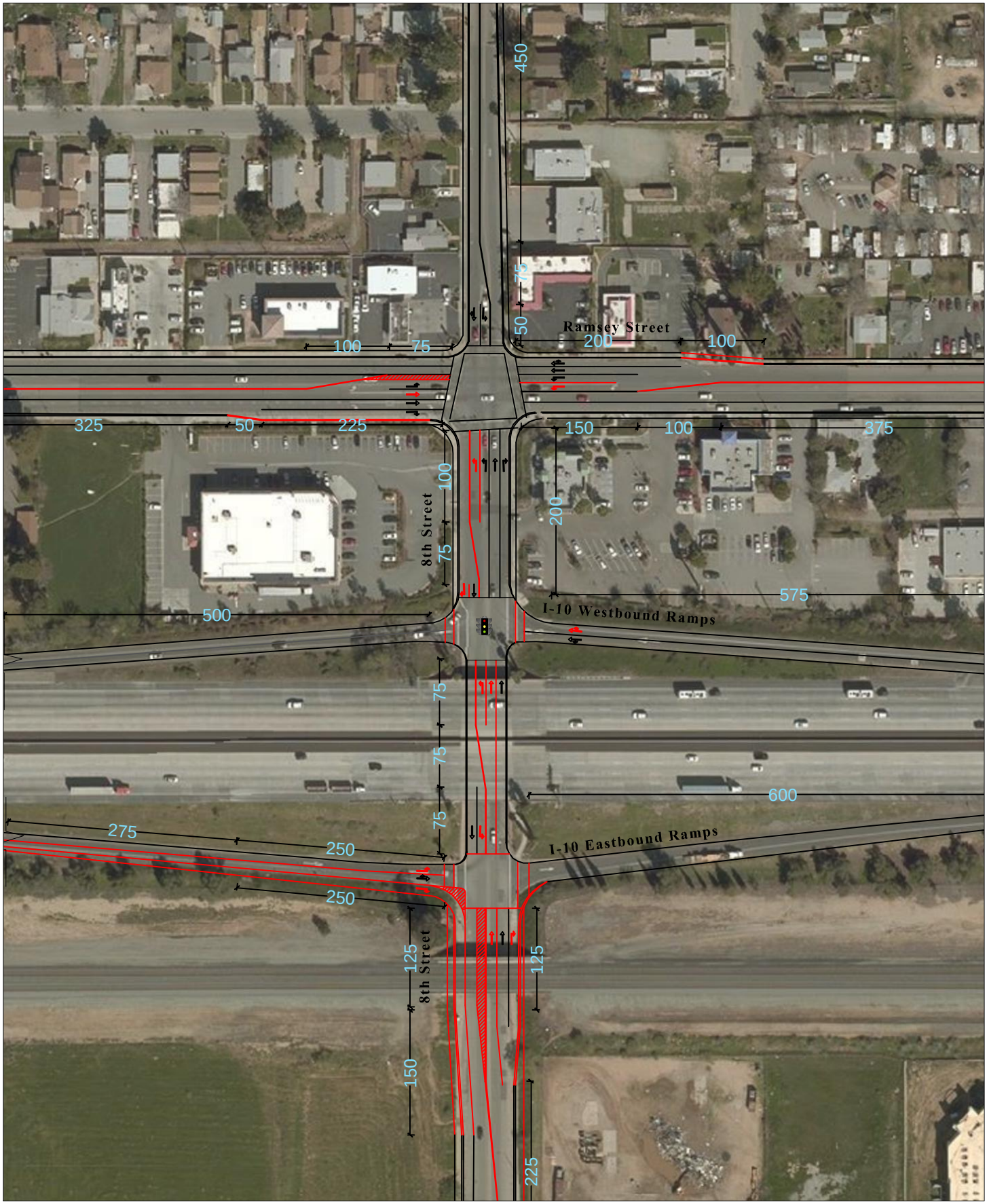



FIGURE 28

*Banning Fee Program*
*Traffic Study*

8th Street & I-10 Westbound Ramps

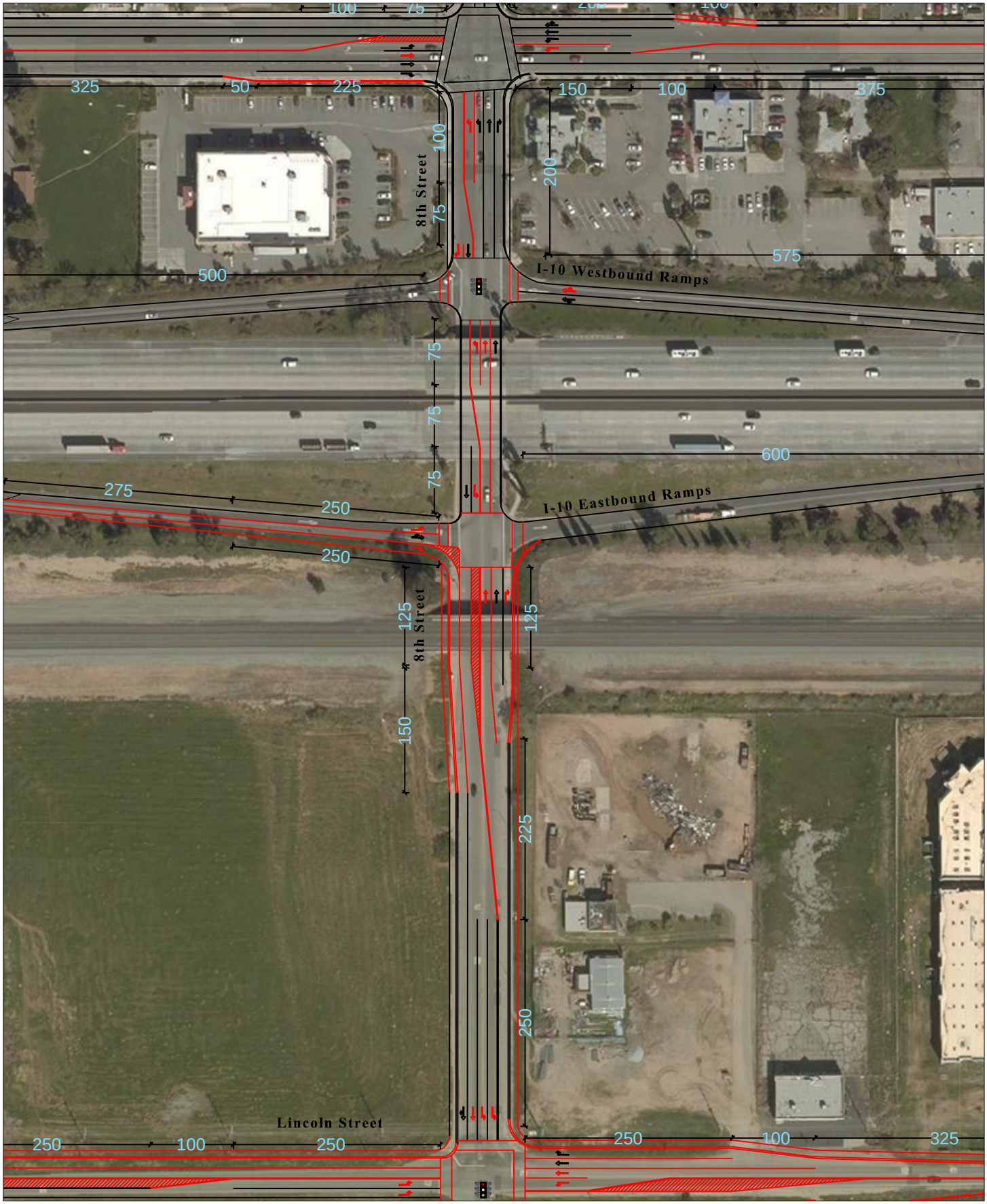



FIGURE 29

*Banning Fee Program*
*Traffic Study*

8th Street & I-10 Eastbound Ramps

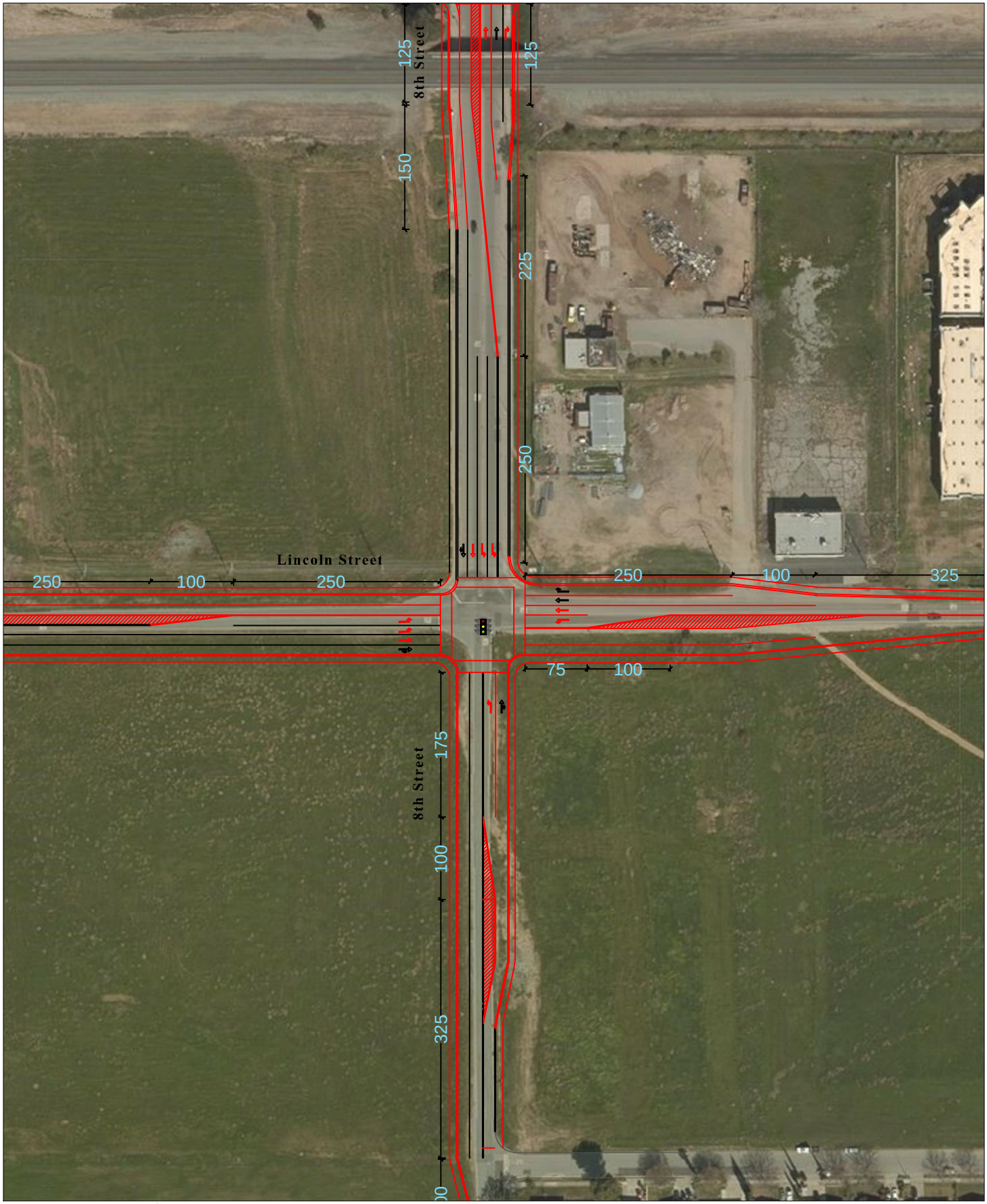



FIGURE 30

*Banning Fee Program*
*Traffic Study*

8th Street & Lincoln Street

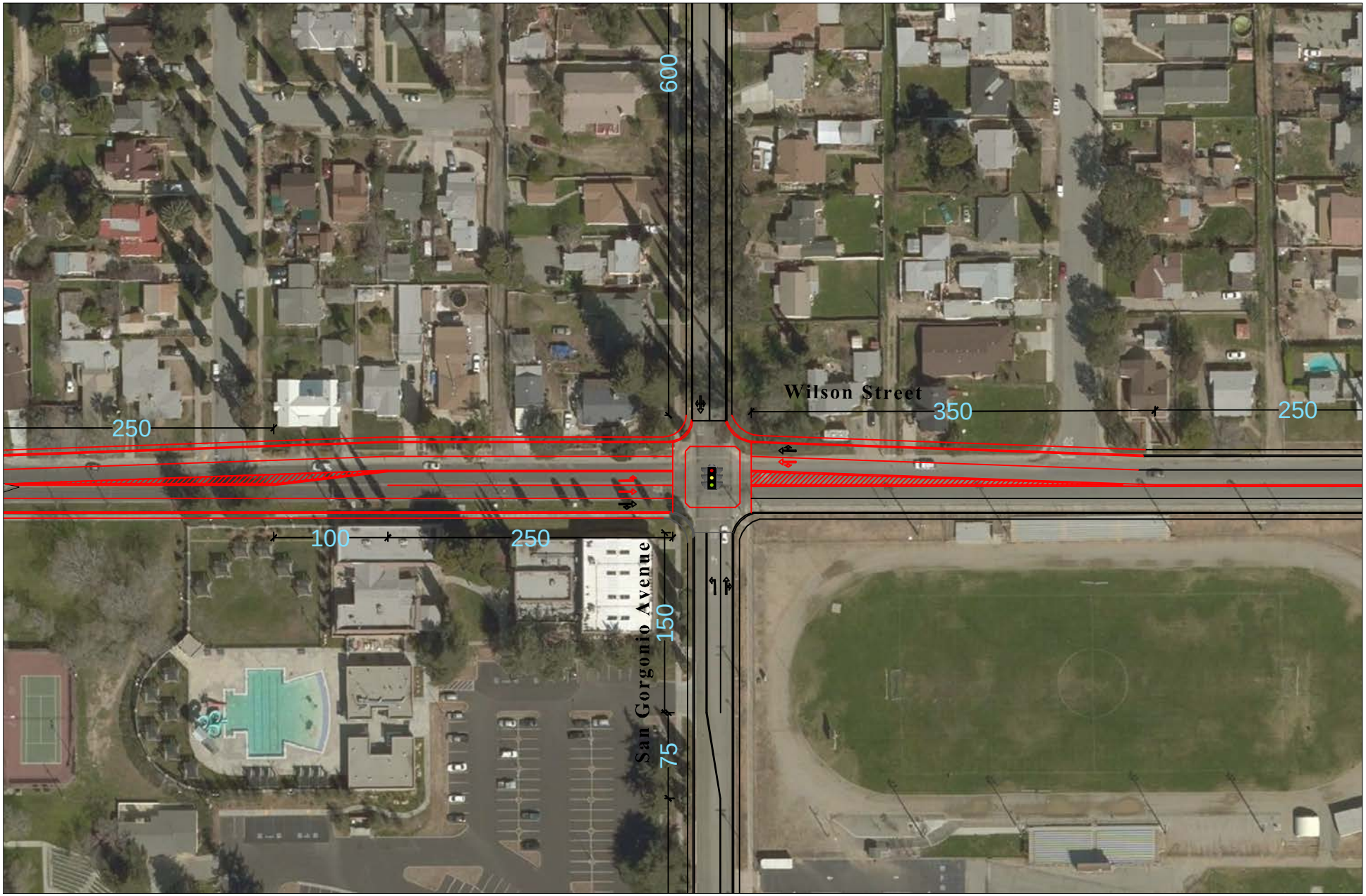

LSA

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 31

*Banning Fee Program*
*Traffic Study*

4th Street & Wilson Street




LSA

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 32

*Banning Fee Program*
*Traffic Study*

San GorgonioAvenue & Wilson Street

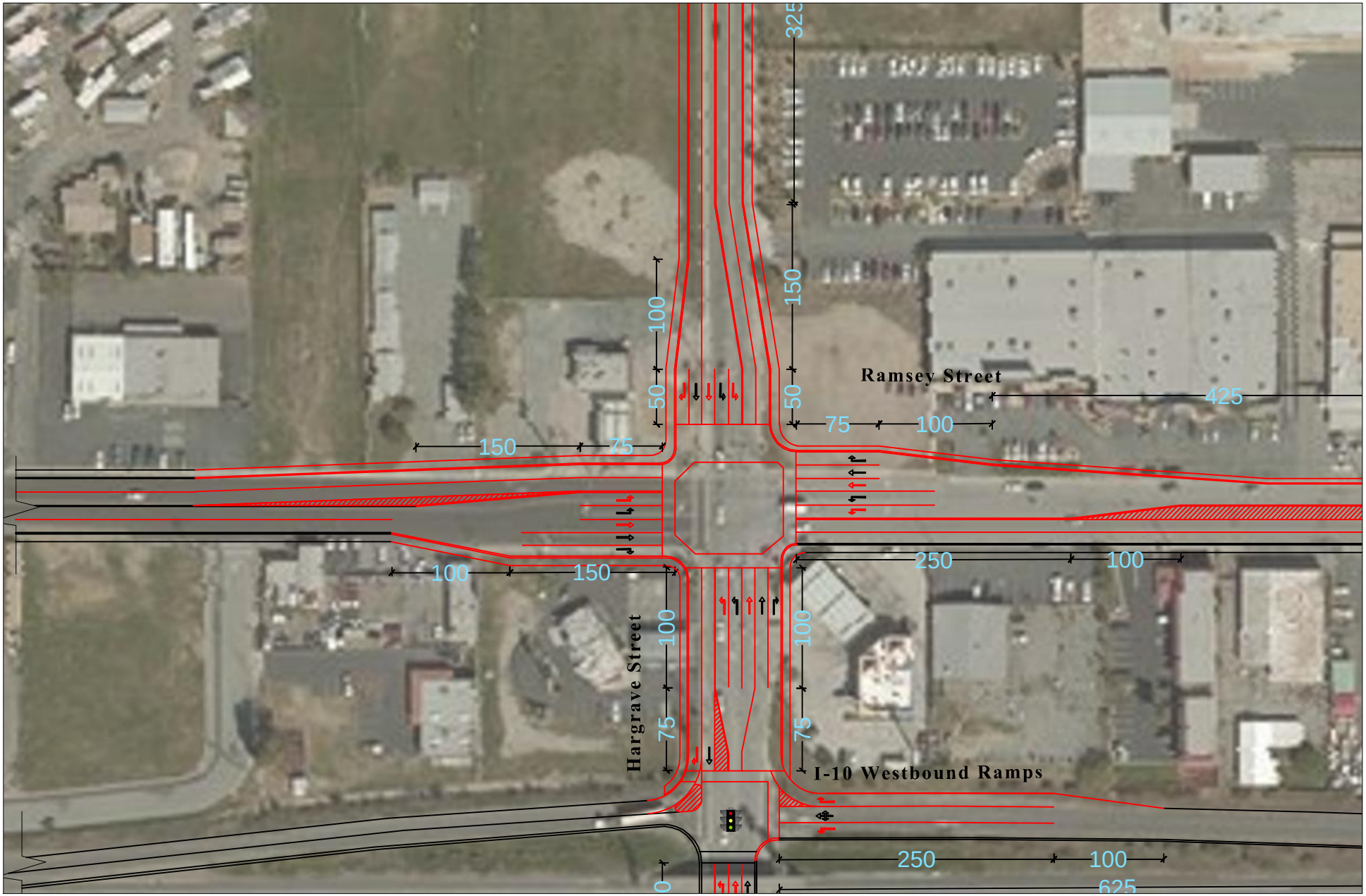
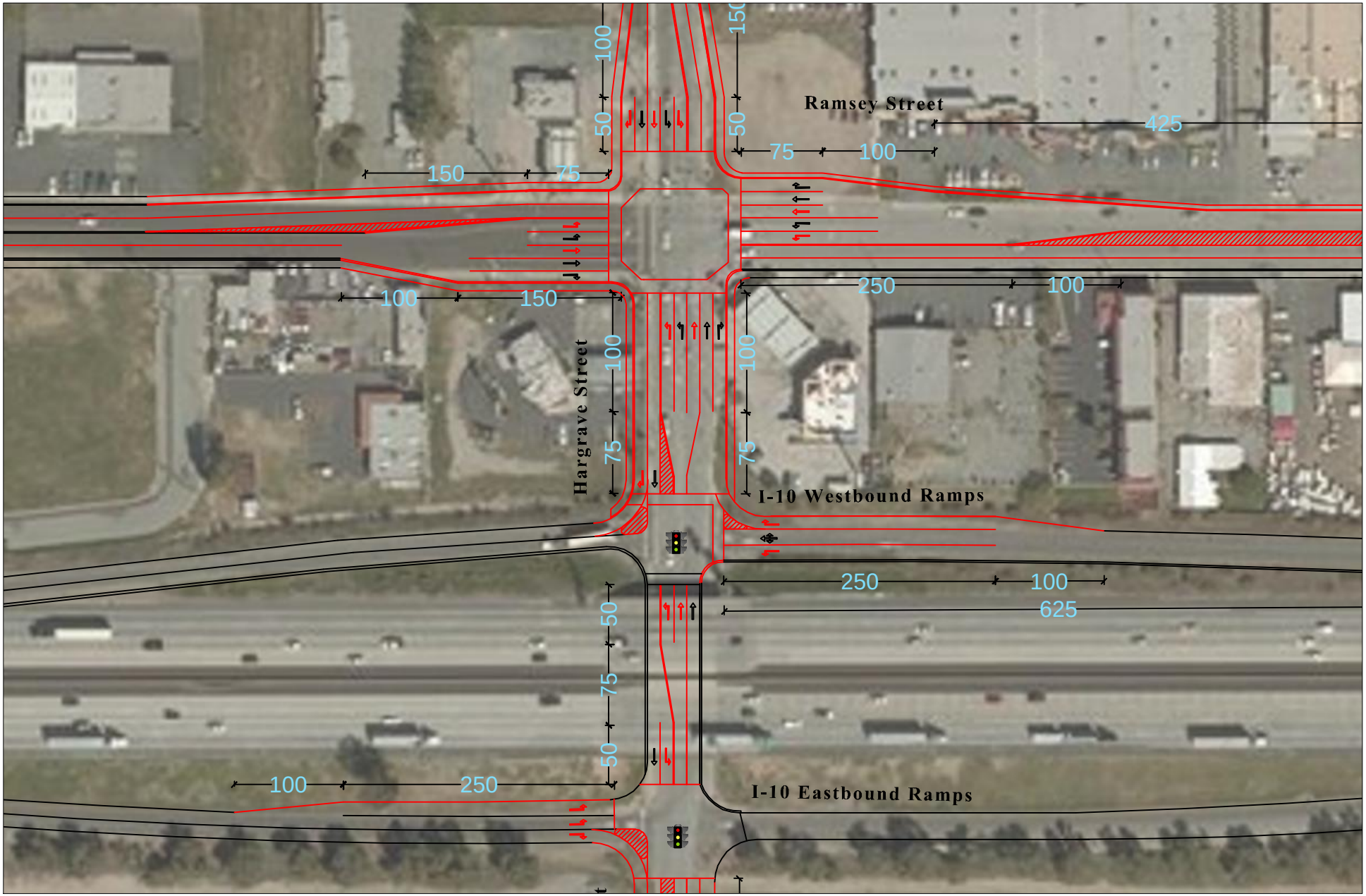



FIGURE 33

*Banning Fee Program*
*Traffic Study*

Hargrave Street & Ramsey Street




LSA

Proposed Signal
Existing Lane
Proposed Lane
Existing
Proposed

FIGURE 34

*Banning Fee Program*
*Traffic Study*

Hargrave Street & I-10 Westbound Ramps

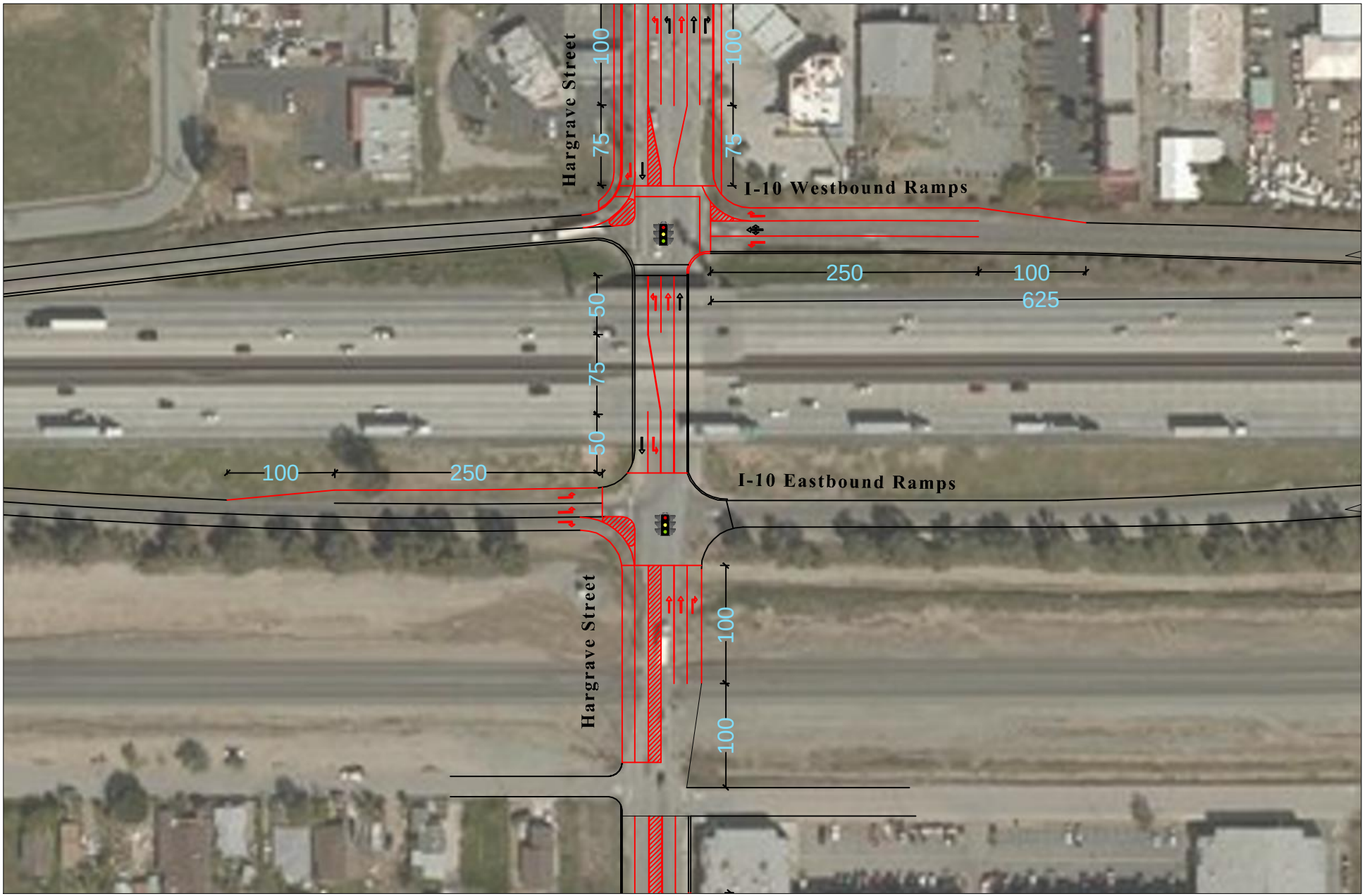



FIGURE 35

*Banning Fee Program*
*Traffic Study*

Hargrave Street & I-10 Eastbound Ramps

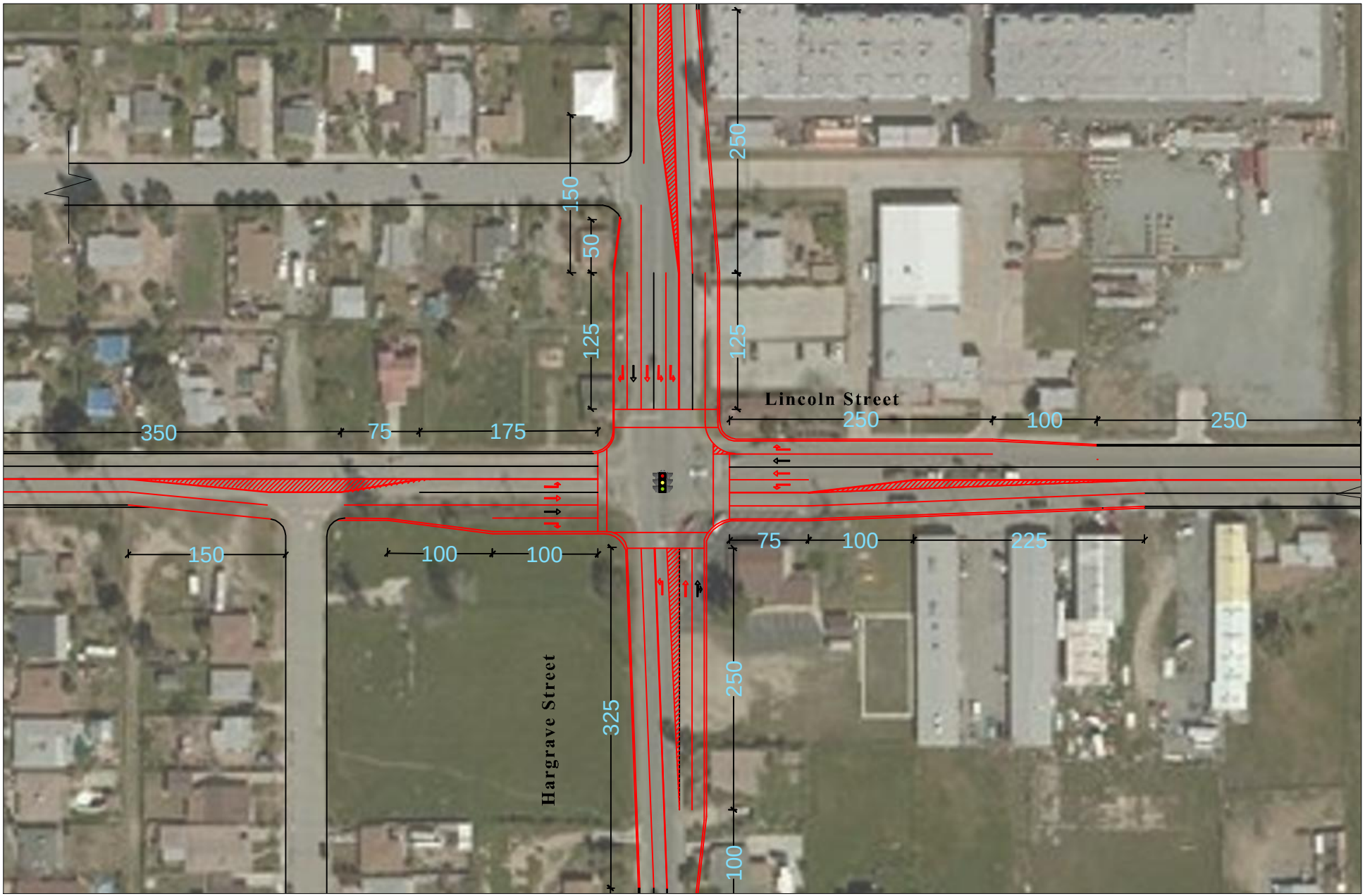



FIGURE 36

*Banning Fee Program*
*Traffic Study*

Hargrave Street & Lincoln Street

# Appendix C
# Cost Calculation References

# APPENDIX G

## PRELIMINARY CONSTRUCTION COST ESTIMATES FOR CONGESTION MANAGEMENT PLAN

# G-2PRELIMINARY CONSTRUCTION COST ESTIMATES
# FOR
# CONGESTION MANAGEMENT PLAN

| **Add One Lane Each Direction on Freeway** | |
|---|---|
| Asphalt Concrete Pavement | $2,300,000 Per Mile |
| Portland Cement Concrete Pavement | $2,800,000 Per Mile |
| **Includes:** Excavation<br>Paving Section<br>Barrier<br>Shoulder<br>Upgrade Drainage System<br>Traffic Control<br>Mobilization @10%<br>Design @11%<br>Construction Mgt. @12.5% | **Excludes:** Environmental Costs<br>Right of Way<br>Widening of Bridge Structures<br>Added Retaining Walls<br>Added Sound Walls |

| **Widen Existing UC Structures** | |
|---|---|
| Total Cost = | $160 Per Square Foot |
| **Includes:** Structure<br>Mobilization @10%<br>Design @11%<br>Construction Mgt. @12.5% | **Excludes:** Environmental Costs<br>Right of Way<br>Traffic Control<br>Ramp Modifications<br>Signal/Lighting Up Grades<br>Drainage Upgrades<br>Added Retaining Walls<br>Added Sound Walls |

| **Diamond Interchanges** | | | |
|---|---|---|---|
| $10,000,000 | EACH | NEW IC | Minimal Row/Environmental |
| $15,000,000 | EACH | NEW IC | Includes Row/Environmental |
| $20,000,000 | EACH | EXISTING | Minimal Row/Environmental |
| $25,000,000 | EACH | EXISTING | Includes Row/ Environmental |
| **Includes:** Structure<br>Retaining Walls<br>Soil Nail Walls<br>Drainage System<br>Ramps<br>Mobilization @ 10%<br>Design @ 11%<br>Construction Mgt. @ 12.5% | | **Excludes:** As listed | |

## Retaining Walls

| Height Feet | Structure Cost $/LF | Mobilization Design Constr. Mgt. $/LF | Total $/LF |
|---|---|---|---|
| 4 | $190 | $70 | $260 |
| 6 | $260 | $90 | $350 |
| 8 | $380 | $140 | $520 |
| 10 | $430 | $150 | $580 |
| 12 | $480 | $170 | $650 |
| 14 | $590 | $210 | $800 |
| 16 | $660 | $240 | $900 |

**Excludes:** Environmental Costs
Right of Way

## 12' High Sound Walls (Masonry Block on Footing)

| Structure Cost $/Mile | Mobilization Design Constr. Mgt. $/Mile | Total $/Mile |
|---|---|---|
| $800,000 | $300,000 | $1,100,000 |

## Widen Conventional Highway

| | |
|---|---|
| 1. Add one outside lane (Work includes earthwork, modify existing drainage system and construct AC shoulder section. | |
| Asphalt Concrete Pavement | $1,000,000/Mile |
| 2. Add one outside lane each direction (Work includes earthwork, modify existing drainage system and construct AC shoulder section) | |
| Asphalt Concrete Pavement | $2,000,000/Mile |
| With Median Concrete Barrier | $2,200,000/Mile |
| With Median Double Thrie Beam Barrier | $2,300,000/Mile |

## Local Interchange Improvements

| | |
|---|---|
| 1. New Interchange | |
| Urban Interchange | $10,000,000 to $17,000,000 |
| Partial – Cloverleaf Interchange (Work includes new OC structure, earthwork, signal) | $6,000,000 |
| Diamond Interchange (Work includes new OC structure, earthwork, signal) | $5,000,000 |

| **Local Interchange Improvements CONT…** | | |
|---|---|---|
| 2. | Reconstruct Existing Interchange | |
| | Realign and widen existing ramps (to 2 lanes) | $750,000/Each Ramp |
| | Construct Loop on – ramps<br>(Does not include realigning existing ramp) | $700,000/Each Ramp |
| | Upgrade existing Diamond IC to Partial – Cloverleaf | $6,000,000 |
| 3. | Improve Existing Interchange | |
| | Widen ramps (From one to two lanes) | $350,000/Each Ramp |
| | Widen existing OC structure | $110/Sq. Ft. |
| | Signalize ramp intersection | $90,000/Location |
| | Upgrade existing signal at ramp terminal | $75,000/Intersection |
| | Upgrade existing signal at ramp terminal<br>(Add lights only) | $25,000/Each |
| 4. | Ramp Metering System | $60,000/Each location |
| **Intersection Improvements** | | |
| 1. | Signalization of local intersection<br>(with some roadwork) | $250,000 |
| 2. | Upgrade existing intersection signalization | $75,000 |
| 3. | Upgrade existing Traffic Controller/Assembles | $40,000/Each |
| 4. | Install new signal | $90,000/location |
| 5. | Add signal heads | $25,000/Intersection |
| 6. | Construct left – turn lane (240’ long) | $50,000/Each Location |
| 7. | Street widening (12’ wide) (Pavement only) | $180,000/Mile |
| 8. | Curb and gutter (Type A2-8) | $15/LF |

| **Other Improvements** | | |
|---|---|---|
| 1. | Construct new OC structure<br>(Does not include roadway work) | $100/Sq. Ft. |
| 2. | Construct Retaining Walls (Type 1) | $285/LF (H=8')<br>$360/LF (H=10')<br>$460/LF (H=12')<br>$560/LF (H=14') |
| 3. | Construct Soundwall | $1,000,000/Mile (H=12') |
| 4. | Traffic Management Plan | 10% of total construction costs |

**NOTE:** This cost estimate does not include the following items:

1. R/W engineering, appraisal, acquisition and utilities relocation costs.
2. Minor items and supplemental work (10%).
3. Mobilization (10%).
4. Contingencies (25%).
5. Landscaping costs.

**General Note:** **When adding a through lane, the minimum distance is 600' approach and 600' departure to the next intersection.**

**California**
**Department of Transportation**

# Price Index for Selected Highway Construction Items
**Second Quarter Ending June 30, 2018**

## SUMMARY

| | |
|---|---|
| **Index this quarter** | **170.53** |
| Point change from last quarter | **18.15** |
| Percentage change from last quarter | **11.9%** |
| | |
| **Index last 12 months** | **146.60** |
| Point change from previous report | **1.50** |
| Percentage change from previous report | **1.0%** |

| | |
|---|---|
| | |
| Average number of bidders this quarter | **4.15** |
| | |
| Change in number of bidders from last quarter | **-0.77** |

Notes: Price indices are computed using the Fisher formula and base year 2007.

Prepared by: Office of Construction Contract Awards
Division of Engineering Services – Program/Project Management and Office Engineer
1727 30th Street, 2nd Floor (MS43)
Sacramento, California 95816
Date: 09/04/2018

California Department of Transportation

# Price Index for Selected Highway Construction Items

2nd Quarter Ending June 30, 2018

Prepared by Division of Engineering Services - Office Engineer

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**NOTE:** All information shown in the publication was assembled using the 2007 base year.

The California Price Index for Selected Highway Construction Items for the second quarter of 2018 stands at 170.53, up 18.15 points (11.92 percent) from the first quarter of 2018 index of 152.38. The index for the year-to-date (June 30, 2017 through June 30, 2018) is 146.60, up 1.5 points (1.0 percent) from the first quarter of 2018 year-to-date index of 145.10.

Cost decreases were recorded in Roadway Excavation and Portland Cement Concrete (Structure) in the second quarter.

Cost increases were recorded in Aggregate Base, Asphalt Concrete Pavement, Portland Cement Concrete (Pavement), Bar Reinforcing Steel, and Structural Steel in the second quarter.

The average number of bidders per project in the second quarter of 2018 was 4.15, as compared to 4.92 in the first quarter of 2018 and 4.34 in the corresponding quarter of 2017.

## Projects Bid Opened

**(2nd Quarter of 2018- 04/01/2018 to 06/30/2018)**

| Engineer's Estimate Range (by $) | | | Number of Projects | % of Projects | Total $ Value for Projects in this Engineer's Estimate Range | % of Total Cost |
|---|---|---|---|---|---|---|
| Up to 50,000 | | | 0 | 0.00% | $ - | 0.000% |
| 50,000 | to | 100,000 | 0 | 0.00% | $ - | 0.00% |
| 100,000 | to | 250,000 | 0 | 0.00% | $ - | 0.00% |
| 250,000 | to | 500,000 | 15 | 10.20% | $ 6,058,896.61 | 1.12% |
| 500,000 | to | 1,000,000 | 31 | 21.09% | $ 23,365,249.89 | 4.33% |
| 1,000,000 | to | 2,500,000 | 48 | 32.65% | $ 82,775,314.93 | 15.35% |
| 2,500,000 | to | 5,000,000 | 26 | 17.69% | $ 89,561,589.63 | 16.61% |
| 5,000,000 and above | | | 27 | 18.37% | $ 337,402,540.87 | 62.58% |
| **Total** | | | **147** | **100%** | **$ 539,163,591.93** | **100%** |

**Construction Item Costs Based on English Units**

(Average prices are calculated using all bidders' prices for the selected bid items for all contracts that bid opened that quarter.)

Roadway Excavation: $27.49 per cubic yard

The price decreased $2.71 from the average price of $30.20 per cubic yard last quarter. The bid prices ranged from $1.00 to $1,725 per cubic yard.

Aggregate Base: $35.86 per ton

The price increased $5.16 from the average price of $30.70 per ton last quarter. The bid prices ranged from $13.49 to $1,891 per ton.

Asphalt Concrete Pavement: $120 per ton

The price increased $13.51 from the average price of $106.49 per ton last quarter. The bid prices ranged from $62.00 to $3,125 per ton.

Portland Cement Concrete (Pavement): $659.11 per cubic yard

The price increased $289.47 from the average price of $369.64 per cubic yard last quarter. The bid prices ranged from $440 to $1,800 per cubic yard.

Portland Cement Concrete (Structure): $685.30 per cubic yard

The price decreased $87.39 from the average price of $772.69 per cubic yard last quarter. The bid prices ranged from $355.89 to $12,000 per cubic yard.

Bar Reinforcing Steel: $1.54 per pound

The price decreased $1.07 from the average price of $2.61 per pound last quarter. The bid prices ranged from $1.05 to $34.00 per pound.

Structural Steel: $6.94 per pound

The price increased $5.72 from the average price of $1.22 per pound last quarter. The bid prices ranged from $1.00 to $5,000 per pound.

EXHIBIT A

**Price Index for Selected**
**Highway Construction Items**
**2007 = 100, Fisher formula**

| YEAR | INDEX |
|---|---|
| 1972 | 11.3 |
| 1973 | 11.4 |
| 1974 | 17.2 |
| 1975 | 17.2 |
| 1976 | 16.5 |
| 1977 | 19.8 |
| 1978 | 22.6 |
| 1979 | 29.3 |
| 1980 | 30.1 |
| 1981 | 34.4 |
| 1982 | 30.9 |
| 1983 | 31.0 |
| 1984 | 36.2 |
| 1985 | 36.0 |
| 1986 | 37.3 |
| 1987 | 39.7 |
| 1988 | 40.5 |
| 1989 | 43.9 |
| 1990 | 44.1 |
| 1991 | 40.4 |
| 1992 | 40.4 |
| 1993 | 42.2 |
| 1994 | 46.2 |
| 1995 | 45.0 |
| 1996 | 45.6 |
| 1997 | 47.6 |
| 1998 | 49.9 |
| 1999 | 52.9 |
| 2000 | 53.5 |
| 2001 | 58.7 |
| 2002 | 53.1 |
| 2003 | 56.6 |
| 2004 | 79.1 |
| 2005 | 98.1 |
| 2006 | 104.1 |
| **2007** | **100.0** |
| 2008 | 95.0 |
| 2009 | 78.4 |
| 2010 | 76.8 |
| 2011 | 84.0 |

EXHIBIT A

## Price Index for Selected Highway Construction Items 2007 = 100, Fisher formula

| YEAR | | | Quarterly Index | Last 12 Months' Index |
|---|---|---|---|---|
| 2012 | (1st Quarter) | ..... | 81.1 | 82.9 |
| 2012 | (2nd Quarter) | ..... | 84.6 | 81.3 |
| 2012 | (3rd Quarter) | ..... | 76.4 | 79.3 |
| **2012** | **(4th Quarter)** | **.....** | **82.8** | **79.2** |
| 2013 | (1st Quarter) | ..... | 117.9 | 80.7 |
| 2013 | (2nd Quarter) | ..... | 134.9 | 82.5 |
| 2013 | (3rd Quarter) | ..... | 81.6 | 85.7 |
| **2013** | **(4th Quarter)** | **.....** | **106.2** | **97.1** |
| 2014 | (1st Quarter) | ..... | 135.3 | 96.88 |
| 2014 | (2nd Quarter) | ..... | 109.11 | 104.56 |
| 2014 | (3rd Quarter) | ..... | 110.39 | 107.37 |
| **2014** | **(4th Quarter)** | **.....** | **120.17** | **108.32** |
| 2015 | (1st Quarter) | ..... | 138.22 | 107.88 |
| 2015 | (2nd Quarter) | ..... | 110.93 | 109.91 |
| 2015 | (3rd Quarter) | ..... | 117.91 | 119.69 |
| **2015** | **(4th Quarter)** | **.....** | **128.21** | **122.02** |
| 2016 | (1st Quarter) | ..... | 127.93 | 124.29 |
| 2016 | (2nd Quarter) | ..... | 130.75 | 128.71 |
| 2016 | (3rd Quarter) | ..... | 145.73 | 138.13 |
| **2016** | **(4th Quarter)** | **.....** | **144.73** | **140.75** |
| 2017 | (2nd Quarter) | ..... | 153.06 | 145.33 |
| 2017 | (2nd Quarter) | ..... | 166.59 | 148.09 |
| 2017 | (3rd Quarter) | ..... | 149.96 | 152 |
| **2017** | **(4th Quarter)** | **.....** | **140.87** | **145.08** |
| 2018 | (1st Quarter) | ..... | 152.38 | 145.10 |
| 2018 | (2nd Quarter) | ..... | 170.53 | 146.60 |

EXHIBIT B

**California Department of Transportation Average Highway Contract Prices** (English Units)

| | Roadway Excavation | Aggregate Base | Asphalt Concrete Pavement | PCC Pavement | PCC Structure | Bar Reinforcing Steel | Structural Steel |
|---|---|---|---|---|---|---|---|
| | $/CY | $/TON | $/TON | $/CY | $/CY | $/LB | $/LB |
| 1972 | 0.95 | 3.21 | 8.22 | 19.23 | 82.08 | 0.159 | 0.446 |
| 1973 | 0.75 | 3.14 | 9.02 | 19.24 | 93.60 | 0.169 | 0.635 |
| 1974 | 1.26 | 4.23 | 13.01 | 28.59 | 115.19 | 0.329 | 0.987 |
| 1975 | 1.19 | 4.70 | 14.24 | 30.63 | 132.10 | 0.239 | 0.838 |
| 1976 | 1.32 | 4.70 | 13.67 | 29.64 | 143.05 | 0.223 | 0.504 |
| 1977 | 1.76 | 5.44 | 15.15 | 35.17 | 150.03 | 0.239 | 1.228 |
| 1978 | 1.85 | 6.18 | 17.70 | 41.77 | 180.77 | 0.276 | 0.814 |
| 1979 | 2.36 | 7.49 | 22.40 | 52.39 | 234.24 | 0.383 | 1.960 |
| 1980 | 2.10 | 8.38 | 25.51 | 55.18 | 235.45 | 0.378 | 1.942 |
| 1981 | 3.14 | 8.63 | 28.53 | 59.45 | 226.84 | 0.386 | 2.091 |
| 1982 | 2.58 | 7.56 | 24.69 | 57.10 | 224.72 | 0.320 | 2.155 |
| 1983 | 2.10 | 9.20 | 27.57 | 52.04 | 225.84 | 0.335 | 2.155 |
| 1984 | 3.19 | 13.67 | 28.38 | 55.79 | 238.48 | 0.375 | 2.155 |
| 1985 | 2.77 | 11.55 | 30.15 | 64.13 | 232.39 | 0.413 | 2.288 |
| 1986 | 3.01 | 12.76 | 28.82 | 60.49 | 249.74 | 0.412 | 2.388 |
| 1987 | 2.97 | 17.57 | 27.54 | 70.62 | 280.40 | 0.418 | 2.546 |
| 1988 | 4.16 | 10.13 | 27.46 | 58.66 | 284.55 | 0.440 | 3.956 |
| 1989 | 4.19 | 10.62 | 29.43 | 73.78 | 303.49 | 0.483 | 3.103 |
| 1990 | 4.73 | 12.05 | 30.77 | 68.93 | 295.24 | 0.469 | 2.209 |
| 1991 | 3.08 | 10.07 | 33.43 | 62.64 | 295.21 | 0.431 | 2.284 |
| 1992 | 3.62 | 9.76 | 32.46 | 66.78 | 265.31 | 0.419 | 3.073 |
| 1993 | 4.53 | 9.89 | 35.41 | 66.76 | 243.79 | 0.464 | 2.706 |
| 1994 | 4.68 | 10.39 | 37.15 | 66.45 | 277.92 | 0.547 | 2.334 |
| 1995 | 4.10 | 10.18 | 35.29 | 63.85 | 298.80 | 0.499 | 2.266 |
| 1996 | 3.80 | 9.74 | 37.66 | 65.93 | 321.88 | 0.512 | 2.172 |
| 1997 | 5.25 | 10.29 | 36.07 | 78.48 | 308.54 | 0.496 | 2.337 |
| 1998 | 4.95 | 11.55 | 38.78 | 75.91 | 319.95 | 0.553 | 2.595 |
| 1999 | 6.55 | 12.86 | 40.14 | 77.95 | 321.22 | 0.521 | 3.215 |
| 2000 | 6.21 | 11.14 | 45.12 | 78.14 | 363.59 | 0.507 | 2.754 |
| 2001 | 5.83 | 14.58 | 43.89 | 75.74 | 425.17 | 0.612 | 3.906 |
| 2002 | 4.84 | 12.42 | 49.00 | 74.15 | 363.50 | 0.508 | 3.248 |
| 2003 | 5.05 | 15.05 | 48.35 | 109.96 | 362.75 | 0.600 | 1.710 |
| 2004 | 13.11 | 16.97 | 53.55 | 135.94 | 399.64 | 0.947 | 5.390 |
| 2005 | 14.13 | 20.61 | 75.72 | 171.22 | 567.31 | 0.968 | 2.666 |
| 2006 | 12.80 | 20.26 | 86.04 | 179.67 | 630.16 | 1.039 | 3.734 |
| 2007 | 10.84 | 20.54 | 85.48 | 204.69 | 566.25 | 0.935 | 6.966 |
| 2008 | 11.39 | 17.90 | 78.50 | 177.91 | 553.62 | 0.938 | 5.183 |
| 2009 | 9.37 | 14.91 | 80.38 | 125.41 | 484.78 | 0.593 | 4.492 |
| 1st Quarter 2010 | 26.70 | 21.79 | 85.51 | 116.22 | 609.73 | 0.775 | 3.999 |
| 2nd Quarter 2010 | 11.79 | 14.49 | 86.30 | 148.42 | 419.24 | 0.673 | 1.958 |
| 3rd Quarter 2010 | 5.49 | 16.61 | 75.00 | 131.73 | 434.65 | 0.669 | 8.227 |
| 4th Quarter 2010 | 7.67 | 12.81 | 76.54 | 112.71 | 547.98 | 0.788 | 1.826 |
| **Year 2010** | **7.94** | **14.20** | **80.25** | **122.82** | **483.64** | **0.716** | **2.149** |
| 1st Quarter 2011 | 11.37 | 11.79 | 84.60 | 150.76 | 431.25 | 0.870 | 7.212 |
| 2nd Quarter 2011 | 9.71 | 16.50 | 93.35 | 120.87 | 487.87 | 0.791 | 2.328 |
| 3rd Quarter 2011 | 11.56 | 15.34 | 97.53 | 143.76 | 421.50 | 0.891 | 7.255 |
| 4th Quarter 2011 | 13.51 | 14.49 | 81.33 | 147.29 | 335.31 | 0.900 | 2.023 |
| **Year 2011** | **11.82** | **14.12** | **87.11** | **135.40** | **427.76** | **0.830** | **2.102** |
| 1st Quarter 2012 | 8.34 | 16.43 | 99.70 | 117.18 | 506.31 | 0.878 | 2.858 |
| 2nd Quarter 2012 | 5.87 | 13.03 | 97.06 | 143.19 | 465.09 | 1.008 | 20.000 |
| 3rd Quarter 2012 | 7.39 | 13.77 | 72.92 | 138.70 | 454.53 | 0.907 | 1.895 |
| 4th Quarter 2012 | 12.73 | 17.77 | 94.41 | 153.24 | 458.51 | 0.952 | 2.586 |
| **Year 2012** | **8.24** | **14.66** | **89.36** | **132.52** | **461.23** | **0.927** | **2.497** |

EXHIBIT B

**California Department of Transportation Average Highway Contract Prices** (English Units)

| | Roadway Excavation | Aggregate Base | Asphalt Concrete Pavement | PCC Pavement | PCC Structure | Bar Reinforcing Steel | Structural Steel |
|---|---|---|---|---|---|---|---|
| | **$/CY** | **$/TON** | **$/TON** | **$/CY** | **$/CY** | **$/LB** | **$/LB** |
| 1st Quarter 2013 | 13.98 | 34.74 | 102.58 | 135.96 | 731.69 | 1.292 | 11.018 |
| 2nd Quarter 2013 | 20.54 | 24.91 | 97.14 | 470 | 704.67 | 1.456 | 5.263 |
| 3rd Quarter 2013 | 5.47 | 16.32 | 100.47 | 172.27 | 502.1 | 0.912 | 17.647 |
| 4th Quarter 2013 | 16.8 | 25.14 | 110.07 | 159.5 | 462.23 | 0.943 | 8 |
| **Year 2013** | **8.98** | **18.6** | **100.11** | **157.26** | **538.01** | **1.01** | **5.57** |
| 1st Quarter 2014 | 22.47 | 27.26 | 103.56 | 242.47 | 771.12 | 1.084 | 3.21 |
| 2nd Quarter 2014 | 15.797 | 21.58 | 89.358 | 188.39 | 538.387 | 1.049 | 7.998 |
| 3rd Quarter 2014 | 14.51 | 18.14 | 81.85 | 227.8 | 750.82 | 1.16 | 13.88 |
| 4th Quarter 2014 | 17.2 | 25.44 | 113.1 | 166.23 | 582.22 | 1.18 | 15.44 |
| **Year 2014** | **17.49** | **23.1** | **96.97** | **206.22** | **660.64** | **1.12** | **10.132** |
| 1st Quarter 2015 | 17.4 | 25.55 | 116.21 | 166.41 | 588.18 | 1.21 | 16.46 |
| 2nd Quarter 2015 | 14.2 | 21.6 | 106.85 | 170.56 | 579.43 | 1.16 | 14.77 |
| 3rd Quarter 2015 | 14.28 | 19.72 | 84.2 | 219.78 | 754.11 | 1.16 | 14.63 |
| 4th Quarter 2015 | 17.6 | 24.55 | 113.1 | 219.82 | 689.72 | 1.27 | 16.32 |
| **Year 2015** | **15.87** | **22.85** | **105.09** | **194.14** | **652.86** | **1.2** | **15.54** |
| 1st Quarter 2016 | 18.1 | 23.3 | 121 | 194 | 644 | 1.41 | 17.82 |
| 2nd Quarter 2016 | 19.3 | 22.4 | 119 | 202 | 648 | 1.74 | 19.33 |
| 3rd Quarter 2016 | 23.4 | 26.1 | 122.6 | 228 | 761 | 1.65 | 20.7 |
| 4th Quarter 2016 | 23.6 | 28.2 | 123.1 | 219.3 | 758.9 | 1.67 | 20.62 |
| **Year 2016** | **21.1** | **25** | **121.43** | **210.83** | **702.98** | **1.62** | **19.62** |
| 1st Quarter 2017 | 25.27 | 29.44 | 126.15 | 221.71 | 763.32 | 1.81 | 22.26 |
| 2nd Quarter 2017 | 26.4 | 29.44 | 103.4 | 640 | 1131.86 | 1.27 | 10.87 |
| 3rd Quarter 2017 | 29.04 | 30.46 | 100.84 | 336.72 | 678.1 | 1.04 | 3.9 |
| 4th Quarter 2017 | 20.94 | 34.91 | 87.35 | 545.98 | 993.48 | 1.01 | 1.44 |
| **Year 2017** | **25.41** | **31.06** | **104.44** | **436.10** | **891.69** | **1.28** | **9.62** |
| 1st Quarter 2018 | 30.20 | 30.70 | 106.49 | 369.64 | 772.69 | 1.11 | 3.93 |
| 2ndt Quarter 2018 | 27.49 | 35.86 | 120.00 | 659.11 | 685.30 | 1.54 | 6.94 |

**Real Property Asking Rates - Banning Area**

| Figures | APN | Acreage | Square Footage | Sales/Asking Pr | Sale Date | Gross PSF | Adjusted PSF | Consideration | Consideration Description |
|---|---|---|---|---|---|---|---|---|---|
| | 419-120-025 | 1.41 | 61,420 | 400,000 | 11/17/2010 | $ 6.51 | $ 6.51 | | |
| | 419-140-057 | 47.74 | 2,079,554 | 26,000,000 | 7/13/2011 | $ 1.25 | $ 1.25 | | |
| | 419-260-059, 057 | 14.64 | 637,719 | 6,150,000 | 6/19/2015 | $ 9.64 | $ 6.64 | $ (1,347,312) | Rough grading, utilities stubbed, and offsites complete |
| | 419-112-016, 019 | 10.27 | 139,392 | 697,000 | 11/2/2015 | $ 5.00 | $ 5.00 | | |
| | 404-140-002 | 9.3 | 406,979 | 2,395,000 | Currently on market | $ 5.88 | $ 5.88 | | |
| | 419-060-018 | 0.69 | 30,056 | 195,000 | Currently on market | $ 6.49 | $ 6.49 | | |
| | 537-090-008 | 2.42 | 105,472 | 675,000 | Currently on market | $ 6.40 | $ 6.40 | | |
| | | | | | | **Median PSF** | **$ 6.40** | | |
| 2/8/17, current listings provided by loopnet, past comps and current listings factored as median psf value for raw value estimate of land for traffic impacts, current listings were exclusive land and commercial listings within immediate 1-2 mile range | | | | | | | | | |

**EXHIBIT F-1**

**2016 TUMF Nexus Update - Arterial Highway Cost Assumptions:**

| Component Type | Cost Assumptions as published October 18, 2002 | Cost Assumption per 2009 Nexus Update October 5, 2009 | Cost Assumption per 2016 Nexus Update | Description |
|---|---|---|---|---|
| **Terrain 1** | $550,000 | $628,000 | **$692,000** | Construction cost per lane mile - level terrain |
| **Terrain 2** | $850,000 | $761,000 | **$878,000** | Construction cost per lane mile - rolling terrain |
| **Terrain 3** | $1,150,000 | $895,000 | **$1,064,000** | Construction cost per lane mile - mountainous terrain |
| **Landuse 1** | $900,000 | $1,682,000 | **$2,509,000** | ROW cost factor per lane mile - urban areas |
| **Landuse 2** | $420,000 | $803,000 | **$2,263,000** | ROW cost factor per lane mile - suburban areas |
| **Landuse 3** | $240,000 | $237,000 | **$287,000** | ROW cost factor per lane mile - rural areas |
| **Interchange 1** | n/a | $43,780,000 | **$50,032,000** | Complex new interchange/interchange modification cost |
| **Interchange 2** | $20,000,000 | $22,280,000 | **$25,558,000** | New interchange/interchange modification total cost |
| **Interchange 3** | $10,000,000 | $10,890,000 | **$12,343,000** | Major interchange improvement total cost |
| **Bridge 1** | $2,000 | $2,880 | **$3,180** | Bridge total cost per lane per linear foot |
| **RRXing 1** | $4,500,000 | $4,550,000 | **$6,376,000** | New Rail Grade Crossing per lane |
| **RRXing 2** | $2,250,000 | $2,120,000 | **$2,733,000** | Existing Rail Grade Crossing per lane |
| **Planning** | 10% | 10% | **10%** | Planning, preliminary engineering and environmental assessment costs based on construction cost only |
| **Engineering** | 25% | 25% | **25%** | Project study report, design, permitting and construction oversight costs based on construction cost only |
| **Contingency** | 10% | 10% | **10%** | Contingency costs based on total segment cost |
| **Administration** | | 3% | **4%** | TUMF program administration based on total TUMF eligible network cost |
| **MSHCP** | | 5% | **5%** | TUMF component of MSHCP based on total TUMF eligible construction cost |

# Appendix D
# Highland Springs Road Interchange Cost Estimate

# PROJECT

## Highland Springs Road Interchange Cost Estimate

**EA:** ***EA: PID:***

**PID:** **District-County-Route:**

**PM:**

**Type of Estimate :** PSR-PDS

**Program Code :**

**Project Limits :** I-10 Highland Springs Road New Interchange Construction

**Project Description:**

**Scope :**

**Alternative :** 1

### SUMMARY OF PROJECT COST ESTIMATE

| | Current Year Cost | Escalated Cost |
|---|---|---|
| **TOTAL ROADWAY COST** | $ 38,688,700 | $ 45,295,129 |
| **TOTAL STRUCTURES COST** | $ 14,443,000 | $ 16,909,267 |
| **SUBTOTAL CONSTRUCTION COST** | $ 53,131,700 | $ 62,204,396 |
| **TOTAL RIGHT OF WAY COST** | $ 2,000,000 | $ 2,100,000 |
| **TOTAL CAPITAL OUTLAY COSTS** | $ 55,132,000 | $ 64,305,000 |
| **PR/ED SUPPORT** | $ 7,500,000 | $ 7,500,000 |
| **PS&E SUPPORT** | $ 4,500,000 | $ 4,500,000 |
| **RIGHT OF WAY SUPPORT** | $ 500,000 | $ 500,000 |
| **CONSTRUCTION SUPPORT** | $ 8,500,000 | $ 8,500,000 |
| **TOTAL SUPPORT COST** | $ 21,000,000 | $ 21,000,000 |
| **TOTAL PROJECT COST** | $ 76,200,000 | $ 85,400,000 |

*If Project has been programmed enter* Programmed Amount

| | Month | / | Year |
|---|---|---|---|
| Date of Estimate (Month/Year) | 7 | / | 2018 |
| Estimated Construction Start (Month/Year) | 1 | / | 2023 |
| Number of Working Days = | 400 | | |
| Estimated Mid-Point of Construction (Month/Year) | 5 | / | 2024 |
| Estimated Construction End (Month/Year) | 8 | / | 2025 |
| Number of Plant Establishment Days | 131 | | |

***Estimated Project Schedule***

| | |
|---|---|
| *PID Approval* | xx/xx/xxxx |
| *PA/ED Approval* | xx/xx/xxxx |
| *PS&E* | xx/xx/xxxx |
| *RTL* | xx/xx/xxxx |
| *Begin Construction* | xx/xx/xxxx |

Reviewed by District O.E. or Cost Estimate Certifier

| | **xx/xx/xxxx** | (xxx) xxx-xxxx |
|---|---|---|
| **Office Engineer / Cost Estimate Certifier** | **Date** | **Phone** |

Approved by Project Manager

| | **xx/xx/xxxx** | (xxx) xxx-xxxx |
|---|---|---|
| **Project Manager** | **Date** | **Phone** |

# I. ROADWAY ITEMS SUMMARY

| | Section | | Cost |
|---|---|---|---|
| 1 | **Earthwork** | $ | 1,155,000 |
| 2 | **Pavement Structural Section** | $ | 10,458,900 |
| 3 | **Drainage** | $ | 2,500,000 |
| 4 | **Specialty Items** | $ | 500,000 |
| 5 | **Environmental** | $ | 1,000,000 |
| 6 | **Traffic Items** | $ | 2,350,000 |
| 7 | **Detours** | $ | 3,865,000 |
| 8 | **Minor Items** | $ | 1,309,800 |
| 9 | **Roadway Mobilization** | $ | 2,313,900 |
| 10 | **Supplemental Work** | $ | 925,600 |
| 11 | **State Furnished** | $ | 925,600.00 |
| 12 | **Time-Related Overhead** | $ | 3,647,100.00 |
| 13 | **Roadway Contingency** | $ | 7,737,800.00 |
| | **TOTAL ROADWAY ITEMS** | **$** | **38,688,700** |

**Estimate Prepared By :** Frank Hoffmann, PE | 7/18/2018 | 619-744-0124

Name and Title | Date | Phone

**Estimate Reviewed By :**

Name and Title | Date | Phone

**By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.**

EA: PID:

## SECTION 1: EARTHWORK

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 150860 | Remove Base and Surfacing | CY | 5,000 | x | 28.00 | = | $ | 140,000 |
| 160102 | Clearing & Grubbing | LS | 1 | x | 150,000.00 | = | $ | 150,000 |
| 190101 | Roadway Excavation | LS | 1 | x | 850,000.00 | = | $ | 850,000 |
| 198050 | Embankment | CY | 500 | x | 30.00 | = | $ | 15,000 |

**TOTAL EARTHWORK SECTION ITEMS $ 1,155,000**

## SECTION 2: PAVEMENT STRUCTURAL SECTION

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 390137 | Rubberized Hot Mix Asphalt | TON | 38,074 | x | 120.00 | = | $ | 4,568,880 |
| 260203 | Class II Aggregate Base | CY | 28,555 | x | 40.00 | = | $ | 1,142,200 |
| 731510 | Minor Concrete (Curb, Gutter, Sidewalk, Driveway) | CY | 1,711 | x | 410.00 | = | $ | 701,510 |
| 394073 | Place Hot Mix Asphalt Dike (Type A) | LF | 6,000 | x | 1.70 | = | $ | 10,200 |
| 153103 | Cold Plane AC Pavement | SY | 1,000 | x | 2.00 | = | $ | 2,000 |
| 832001 | Metal Beam Guard Railing | LF | 1,000 | x | 33.00 | = | $ | 33,000 |
| 150771 | Remove Asphalt Concrete Dike | LF | 6,000 | x | 2.00 | = | $ | 12,000 |
| | Remove Concrete Barrier | LF | 5,400 | x | 30 | = | $ | 162,000 |
| 153140 | Remove Concrete Sidewalk | SY | 670 | x | 9.00 | = | $ | 6,033 |
| 153215 | Remove Concrete (Curb & Gutter) | LF | 2,200 | x | 5.00 | = | $ | 11,000 |
| 153142 | Remove Concrete Island | CY | 0 | x | 40.00 | = | $ | - |
| 839701 | Concrete Barrier (Type 60) | LF | 5,400 | x | 150.00 | = | $ | 810,000 |
| 510060 | Structural Concrete, Retaining Wall (Type 1) | SF | 30,000 | x | 100.00 | = | $ | 3,000,000 |

**TOTAL PAVEMENT STRUCTURAL SECTION ITEMS $ 10,458,900**

EA: PID:

## SECTION 3: DRAINAGE

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 650000 | Roadway Drainage | LS | 1 | x | 1,500,000.00 | = | $ | 1,500,000 |
| 650001 | Permanent Treatment BMPs | LS | 1 | x | 1,000,000.00 | = | $ | 1,000,000 |

| | | |
|---|---|---|
| **TOTAL DRAINAGE ITEMS** | **$** | **2,500,000** |

## SECTION 4: SPECIALTY ITEMS

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 074023 | Temporary Construction Site BMPs | LS | 1 | x | 500,000 | = | $ | 500,000 |

| | | |
|---|---|---|
| **TOTAL SPECIALTY ITEMS** | **$** | **500,000** |

EA: PID:

## SECTION 5: ENVIRONMENTAL

### 5A - ENVIRONMENTAL MITIGATION

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost | |
|---|---|---|---|---|---|---|---|---|---|
| | Biological Mitigation | LS | | x | | = | $ | - | |
| 130670 | Temporary Reinforced Silt Fence | LF | | x | | = | $ | - | |
| 141000 | Temporary Fence (Type ESA) | LF | | x | | = | $ | - | |
| | | | | | | *Subtotal Environmental Mitigation* | | | *$* - |

### 5B - LANDSCAPE AND IRRIGATION

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost | |
|---|---|---|---|---|---|---|---|---|---|
| 20XXXX | Highway Planting | LS | 1 | x | 1,000,000.00 | = | $ | 1,000,000 | |
| 20XXXX | Irrigation System | LS | | x | | = | $ | - | |
| 204099 | Plant Establishment Work | LS | | x | | = | $ | - | |
| 204101 | Extend Plant Establishment Work | LS | | x | | = | $ | - | |
| 20XXXX | Follow-up Landscape Project | LS | | x | | = | $ | - | |
| 150685 | Remove Irrigation Facility | LS | | x | | = | $ | - | |
| 20XXXX | Maintain Existing (Irrigation or Planted Areas) | LS | | x | | = | $ | - | |
| 206400 | Check and Test Existing Irrigation Facilities | LS | | x | | = | $ | - | |
| 21011X | Imported Topsoil (X) | CY/TON | | x | | = | $ | - | |
| 20XXXX | Rock Blanket, Rock Mulch, DG, Gravel Mulch | SQFT/SQYD | | x | | = | $ | - | |
| 200122 | Weed Germination | SQYD | | x | | = | $ | - | |
| 208304 | Water Meter | EA | | x | | = | $ | - | |
| 2087XX | XX" Conduit (Use for Irrigation x-overs) | LF | | x | | = | $ | - | |
| 20890X | Extend X" Conduit (Use for Extension of Irrigation x-overs) | LF | | x | | = | $ | - | |
| | | | | | | *Subtotal Landscape and Irrigation* | | | *$* *1,000,000* |

### 5C - EROSION CONTROL

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost | |
|---|---|---|---|---|---|---|---|---|---|
| 210010 | Move In/Move Out (Erosion Control) | EA | | x | | = | $ | - | |
| 210350 | Fiber Rolls | LF | | x | | = | $ | - | |
| 210360 | Compost Sock | LF | | x | | = | $ | - | |
| 2102XX | Rolled Erosion Control Product (X) | SQFT | | x | | = | $ | - | |
| 21025X | Bonded Fiber Matrix | SQFT/ACRE | | x | | = | $ | - | |
| 210300 | Hydromulch | SQFT | | x | | = | $ | - | |
| 210420 | Straw | SQFT | | x | | = | $ | - | |
| 210430 | Hydroseed | SQFT | | x | | = | $ | - | |
| 210600 | Compost | SQFT | | x | | = | $ | - | |
| 210630 | Incorporate Materials | SQFT | | x | | = | $ | - | |
| | | | | | | *Subtotal Erosion Control* | | | *$* - |

### 5D - NPDES

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost | |
|---|---|---|---|---|---|---|---|---|---|
| 130300 | Prepare SWPPP | LS | | x | | = | $ | - | |
| 130200 | Prepare WPCP | LS | | x | | = | $ | - | |
| 130100 | Job Site Management | LS | | x | | = | $ | - | |
| 130330 | Storm Water Annual Report | EA | | x | | = | $ | - | |
| 130310 | Rain Event Action Plan (REAP) | EA | | x | | = | $ | - | |
| 130320 | Storm Water Sampling and Analysis Day | EA | | x | | = | $ | - | |
| 130520 | Temporary Hydraulic Mulch | SQYD | | x | | = | $ | - | |
| 130550 | Temporary Hydroseed | SQYD | | x | | = | $ | - | |
| 130505 | Move-In/Move-Out (Temporary Erosion Control) | EA | | x | | = | $ | - | |
| 130640 | Temporary Fiber Roll | LF | | x | | = | $ | - | |
| 130900 | Temporary Concrete Washout | LS | | x | | = | $ | - | |
| 130710 | Temporary Construction Entrance | EA | | x | | = | $ | - | |
| 130610 | Temporary Check Dam | LF | | x | | = | $ | - | |
| 130620 | Temporary Drainage Inlet Protection | EA | | x | | = | $ | - | |
| 130730 | Street Sweeping | LS | | x | | = | $ | - | |
| | | | | | | | *Subtotal NPDES* | | *$* - |

| | | | |
|---|---|---|---|
| | **TOTAL ENVIRONMENTAL** | **$** | **1,000,000** |

### Supplemental Work for NPDES

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 066595 | Water Pollution Control Maintenance Sharing* | LS | | x | | = | $ | - | |
| 066596 | Additional Water Pollution Control** | LS | | x | | = | $ | - | |
| 066597 | Storm Water Sampling and Analysis*** | LS | | x | | = | $ | - | |
| XXXXXX | Some Item | LS | | x | | = | $ | - | |
| | | | | | | *Subtotal Supplemental Work for NDPS* | | | *$* - |

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

EA: PID:

## SECTION 6: TRAFFIC ITEMS

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 560200 | Signage and Striping | LS | 1 | x | 250,000.00 | = | $ | 250,000 |
| 560551 | Lighting & Sign Illumination | LS | 1 | x | 500,000.00 | = | $ | 500,000 |
| 860251 | Signals & Lighting | LS | 3 | x | 300,000.00 | = | $ | 900,000 |
| 861100 | Ramp Metering System | EA | 4 | x | 100,000.00 | = | $ | 400,000 |
| | Transportation Management Plan | LS | 1 | x | 300,000.00 | | $ | 300,000 |

*Subtotal Traffic Electrical* *$ 2,350,000*

*Subtotal Stage Construction and Traffic Handling* *$ -*

**TOTAL TRAFFIC ITEMS** **$ 2,350,000**

EA: PID:

## SECTION 7: DETOURS

Includes constructing, maintaining, and removal

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 190101 | Roadway Excavation | CY | 13,000 | x | 20.00 | = | $ | 260,000 |
| 19801X | Imported Borrow | CY/TON | | x | | = | $ | - |
| 390132 | Hot Mix Asphalt (Type A) | TON | 10,700 | x | 100.00 | = | $ | 1,070,000 |
| 26020X | Class 2 Aggregate Base | TON/CY | 8,025 | x | 40.00 | = | $ | 321,000 |
| 250401 | Class 4 Aggregate Subbase | CY | | x | | = | $ | - |
| 130620 | Temporary Drainage Inlet Protection | EA | 20 | x | 300.00 | = | $ | 6,000 |
| 129000 | Temporary Railing (Type K) | LF | 35,200 | x | 40.00 | = | $ | 1,408,000 |
| 128601 | Temporary Signal System | LS | 2 | x | 50,000.00 | = | $ | 100,000 |
| 120149 | Temporary Pavement Marking (Paint) | SQFT | 30,000 | x | 5.00 | = | $ | 150,000 |
| 80010X | Temporary Fence (Type X) | LF | 10,000 | x | 5.00 | = | $ | 50,000 |
| XXXXXX | Some Item | LS | 1 | x | 500,000.00 | = | $ | 500,000 |

**TOTAL DETOURS** **$ 3,865,000**

SUBTOTAL SECTIONS 1 through 7 $ 21,828,900

## SECTION 8: MINOR ITEMS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **8A - Americans with Disabilities Act Items** | | | | | | | |
| | ADA Items | | | 1.0% | $ | 218,289 | |
| **8B - Bike Path Items** | | | | | | | |
| | Bike Path Items | | | 1.0% | $ | 218,289 | |
| **8C - Other Minor Items** | | | | | | | |
| | Other Minor Items | | | 4.0% | $ | 873,156 | |
| | Total of Section 1-7 | $ | 21,828,900 | x 6.0% | = $ | 1,309,734 | |

**TOTAL MINOR ITEMS** **$ 1,309,800**

## SECTIONS 9: MOBILIZATION

| Item code | | | | | | | |
|---|---|---|---|---|---|---|---|
| 999990 | Total Section 1-8 | $ | 23,138,700 | x 10% | = $ | 2,313,870 | |

**TOTAL MOBILIZATION** **$ 2,313,900**

## SECTION 10: SUPPLEMENTAL WORK

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 066670 | Payment Adjustments For Price Index Fluctuations | LS | | x | | = | $ | - |
| 066094 | Value Analysis | LS | | x | | = | $ | - |
| 066070 | Maintain Traffic | LS | | x | | = | $ | - |
| 066919 | Dispute Resolution Board | LS | | x | | = | $ | - |
| 066921 | Dispute Resolution Advisor | LS | | x | | = | $ | - |
| 066015 | Federal Trainee Program | LS | | x | | = | $ | - |
| 066610 | Partnering | LS | | x | | = | $ | - |
| 066204 | Remove Rock and Debris | LS | | x | | = | $ | - |
| 066222 | Locate Existing Crossover | LS | | x | | = | $ | - |
| XXXXXX | Some Item | Unit | | x | | = | $ | - |

*Cost of **NPDES** Supplemental Work specified in Section 5D* = $ -

Total Section 1-8 $ 23,138,700 4% = $ 925,548

**TOTAL SUPPLEMENTAL WORK** **$ 925,600**

## SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

| Item code | | Unit | Quantity | | Unit Price ($) | | Cost |
|---|---|---|---|---|---|---|---|
| 066105 | Resident Engineers Office | LS | | x | | = | $0 |
| 066063 | Traffic Management Plan - Public Information | LS | | x | | = | $0 |
| 066901 | Water Expenses | LS | | x | | = | $0 |
| 8609XX | Traffic Monitoring Station (X) | LS | | x | | = | $0 |
| 066841 | Traffic Controller Assembly | LS | | x | | = | $0 |
| 066840 | Traffic Signal Controller Assembly | LS | | x | | = | $0 |
| 066062 | COZEEP Contract | LS | | x | | = | $0 |
| 066838 | Reflective Numbers and Edge Sealer | LS | | x | | = | $0 |
| 066065 | Tow Truck Service Patrol | LS | | x | | = | $0 |
| 066916 | Annual Construction General Permit Fee | LS | | x | | = | $0 |
| XXXXXX | Some Item | Unit | | x | | = | $0 |
| | Total Section 1-8 | | $ 23,138,700 | | 4% | = | $ 925,548 |

**TOTAL STATE FURNISHED $925,600**

## SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization $36,470,700 (used to calculate TRO)

Total Construction Cost (excluding TRO and Contingency) $41,746,800 (used to check if project is greater than $5 million excluding contingency)

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = **10%**

| Item code | | Unit | Quantity | | Unit Price ($) | | Cost |
|---|---|---|---|---|---|---|---|
| 070018 | Time-Related Overhead | WD | 400 | X | $9,118 | = | $3,647,100 |

**TOTAL TIME-RELATED OVERHEAD $3,647,100**

Note: If the building portion of the project is greater than 50% of the total project cost, then TRO is not included.

## SECTION 13: ROADWAY CONTINGENCY

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

| | | | | | | |
|---|---|---|---|---|---|---|
| Total Section 1-12 | $ | 30,950,900 | x | **25%** | = | $7,737,725 |

**TOTAL CONTINGENCY $7,737,800**

EA: PID:

# II. STRUCTURE ITEMS

**Bridge 1**

| | | | | | |
|---|---|---|---|---|---|
| DATE OF ESTIMATE | 00/00/00 | | 00/00/00 | | 00/00/00 |
| Bridge Name | Remove Existing | | Shoring | | xxxxxxxxxxxxxxxxxx |
| Bridge Number | 57-XXX | | 57-XXX | | 57-XXX |
| Structure Type | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx |
| Width (Feet) [out to out] | 140 LF | | 200 LF | | 0 LF |
| Total Bridge Length (Feet) | 160 LF | | 25 LF | | 0 LF |
| Total Area (Square Feet) | 22400 SQFT | | 5000 SQFT | | 0 SQFT |
| Structure Depth (Feet) | 0 LF | | 0 LF | | 0 LF |
| Footing Type (pile or spread) | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx |
| Cost Per Square Foot | $50 | | $200 | | $0 |
| **COST OF EACH** | **$1,120,000** | | **$1,000,000** | | **$0** |

| | | | | | |
|---|---|---|---|---|---|
| DATE OF ESTIMATE | 00/00/00 | | 00/00/00 | | 00/00/00 |
| Name | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx |
| Bridge Number | 57-XXX | | 57-XXX | | 57-XXX |
| Structure Type | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx |
| Width (Feet) [out to out] | 185 LF | | 0 LF | | 0 LF |
| Total Length (Feet) | 180 LF | | 0 LF | | 0 LF |
| Total Area (Square Feet) | 33300 SQFT | | 0 SQFT | | 0 SQFT |
| Structure Depth (Feet) | 0 LF | | 0 LF | | 0 LF |
| Footing Type (pile or spread) | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx | | xxxxxxxxxxxxxxxxxx |
| Cost Per Square Foot | $300 | | $0 | | $0 |
| **COST OF EACH** | **$9,990,000** | | **$0** | | **$0** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | $0.00 | $0.00 | | $0.00 | $0.00 |
| 1 | 0 | | 1 | 0 | | 1 | 0 |

| | |
|---|---|
| **TOTAL COST OF BRIDGES** | **$11,110,000** |
| **TOTAL COST OF BUILDINGS** | **$0** |

| | | |
|---|---|---|
| Structures Mobilization Percentage | 10% | **$1,111,000** |

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

| | | |
|---|---|---|
| Structures Contingency Percentage | 20% | **$2,222,000** |

| | |
|---|---|
| **TOTAL COST OF STRUCTURES** | **$14,443,000** |

Estimate Prepared By: _____ _____

XXXXXXXXXXXXXXXX ------ Division of Structures Date

EA: PID:

# III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

| | | | | | |
|---|---|---|---|---|---|
| A) | A1) | Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees | $ | 1,000,000 |
| | A2) | SB-1210 | $ | 0 |
| B) | | Acquisition of Offsite Mitigation | $ | 0 |
| C) | C1) | Utility Relocation (State Share) | $ | 0 |
| | C2) | Potholing (Design Phase) | $ | 0 |
| D) | | Railroad Acquisition | $ | 0 |
| E) | | Clearance / Demolition | $ | 0 |
| F) | | Relocation Assistance (RAP and/or Last Resort Housing Costs) | $ | 0 |
| G) | | Title and Escrow | $ | 0 |
| H) | | Environmental Review | $ | |
| I) | | Condemnation Settlements 0% | $ | 0 |
| J) | | Design Appreciation Factor 0% | $ | 0 |
| K) | | Utility Relocation (Construction Cost) | $ | 1,000,000 |

| | | |
|---|---|---|
| L) | **TOTAL RIGHT OF WAY ESTIMATE** | **$2,000,000** |
| M) | **TOTAL R/W ESTIMATE: Escalated** | **$2,100,000** |
| N) | **RIGHT OF WAY SUPPORT** | |

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] Phone

Note: Items G & H applied to items A + B

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

EA: PID:

# IV. SUPPORT COST ESTIMATE SUMMARY

Note: Use PRSM project data.

| Total by FY | | Escalated Support Cost for Estimate To Completion (ETC) | | | | |
|---|---|---|---|---|---|---|
| | | PA&ED | PS&E | RW | CON | Total $ |
| < 2010 | Expended | | | | | |
| | ETC | | | | | |
| 2011 | Expended | | | | | |
| | ETC | | | | | |
| 2012 | Expended | | | | | |
| | ETC | | | | | |
| 2013 | Expended | | | | | |
| | ETC | | | | | |
| 2014 | Expended | | | | | |
| | ETC | | | | | |
| 2015 | Expended | | | | | |
| | ETC | | | | | |
| 2016 | Expended | | | | | |
| | ETC | | | | | |
| 2017 | Expended | | | | | |
| | ETC | | | | | |
| 2018 | Expended | | | | | |
| | ETC | | | | | |
| 2019 | Expended | | | | | $2,500,000 |
| | ETC | $2,500,000 | | | | |
| 2020 | Expended | | | | | $2,500,000 |
| | ETC | $2,500,000 | | | | |
| 2021 | Expended | | | | | $5,250,000 |
| | ETC | $2,500,000 | $2,500,000 | $250,000 | | |
| 2022 | Expended | | | | | $2,250,000 |
| | ETC | | $2,000,000 | $250,000 | | |
| 2023 | Expended | | | | | $3,000,000 |
| | ETC | | | | $3,000,000 | |
| 2024 | Expended | | | | | $3,000,000 |
| | ETC | | | | $3,000,000 | |
| 2025 > | Expended | | | | | $2,500,000 |
| | ETC | | | | $2,500,000 | |
| EAC (Expended + ETC) | | $7,500,000 | $4,500,000 | $500,000 | $8,500,000 | $21,000,000 |
| Approved Budget (PRSM) | | | | | | |
| Difference (Budget - EAC) | | -$7,500,000 | -$4,500,000 | -$500,000 | -$8,500,000 | -$21,000,000 |
| Support Ratio (EAC / Cap Cost) | | 13.6% | 8.2% | 0.9% | 15.4% | 38.1% |

| | |
|---|---|
| **Total Capital Cost:** | **$55,132,000** |
| **Total Capital Outlay Support Cost:** | **$21,000,000** |
| **Overall Percent Support Cost:** | **38.09%** |

PRSM workplan hours/costs verified against approved MWA:

Office Chief - Date

Approved by:

Project Control - Date

# Appendix E
# Improvement Cost Calculation Worksheets

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **1** **Highland Springs Avenue/16th Street-Cougar Way**

Improvements: Install a traffic signal. NBT, NBR with overlap,SBT, 2 SBL, 2 WBL, WBR with overlap. These improvements are included as project design features from the Butterfield Specific Plan dated

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBT | 0.44 mile | $180,000/mile | $ | 79,200 |
| Curb and Gutter | NBT | 600 LF | $15/LF | $ | 9,000 |
| Construct right turn lane | NBR with overlap | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | NBR | 600 LF | $15/LF | $ | 9,000 |
| Construct left turn lane | SBL | 2 | $50,000/lane | $ | 100,000 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | SBR | 300 LF | $15/LF | $ | 4,500 |
| Construct right turn lane | WBR with overlap | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | WBR | 600 LF | $15/LF | $ | 9,000 |
| Construct left turn lane | WBL | 2 | $50,000/lane | $ | 100,000 |
| Roadway widening | WBL | 0.22 mile | $180,000/mile | $ | 39,600 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Subtotal | | | | $ | 606,100 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 60,610 |
| Mobilization | | | 10% | $ | 60,610 |
| Contingencies | | | 25% | $ | 151,530 |
| Intersection Subtotal | | | | $ | 1,128,850 |
| Right-of-Way | | 90,330 | $6.4/square feet | $ | 578,100 |
| Total | | | | $ | 1,706,950 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **2** **Highland Springs Avenue/F Street**

Improvements: Install a traffic signal. NBT,SBT, SBL. These improvements are included as project design features from the Butterfield Specific Plan dated September 2016.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBT | 350 LF | $15/LF | $ | 5,300 |
| Roadway widening | SBT | 0.33 mile | $180,000/mile | $ | 59,400 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Curb and Gutter | SBT | 1200 | $15/LF | $ | 18,000 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Subtotal | | | | $ | 360,100 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 36,010 |
| Mobilization | | | 10% | $ | 36,010 |
| Contingencies | | | 25% | $ | 90,030 |
| Intersection Subtotal | | | | $ | 772,150 |
| Right-of-Way | | 56,000 | $6.4/square feet | $ | 358,400 |
| Total | | | | $ | 1,130,550 |

Int: **3** **Highland Springs Avenue/Oak Valley Parkway-B Street**

Improvements: Add 2nd NBL, SBT. The SBT is included as a project design feature from the Butterfield Specific Plan Amendment dated September 2016.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Curb and Gutter | NBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | NBT | 0.16 mile | $180,000/mile | $ | 28,800 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Upgrade existing signal | | -- | $75,000/each | $ | 75,000 |
| Subtotal | | | | $ | 408,200 |
| Minor Items/Supplemental Work | | | 10% | $ | 40,820 |
| Mobilization | | | 10% | $ | 40,820 |
| Contingencies | | | 25% | $ | 102,050 |
| Intersection Subtotal | | | | $ | 666,890 |
| Right-of-Way | | 75,000 | $6.4/square feet | $ | 480,000 |
| Total | | | | $ | 1,146,890 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **4** **Highland Springs Avenue/Starlight Avenue -A Street**

Improvements: Install a traffic signal. Add NBR, SBL, SBR, EBR, WBL. The SBL is included as a project design feature from the Butterfield Specific Plan Amendment dated September 2016.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Curb and Gutter | NBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | NBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct right turn lane | NBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBR | 300 LF | $15/LF | $ | 4,500 |
| Roadway widening | NBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | SBR | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct right turn lane | EBR | 1 | $50,000/lane | $ | 50,000 |
| Subtotal | | | | $ | 557,500 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 55,750 |
| Mobilization | | | 10% | $ | 55,750 |
| Contingencies | | | 25% | $ | 139,380 |
| Intersection Subtotal | | | | $ | 1,058,380 |
| Right-of-Way | | 68,000 | $6.4/square feet | $ | 435,200 |
| Total | | | | $ | 1,493,580 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **5** **Highland Springs Avenue/Wilson Street**
Improvements: Add 2nd SBL, 2nd WBL.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Roadway widening | NBT | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | NBR | 350 LF | $15/LF | $ | 5,300 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | SBR | 250 LF | $15/LF | $ | 3,800 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBL | 0.22 mile | $180,000/mile | $ | 39,600 |
| Curb and Gutter | WBR | 600 LF | $15/LF | $ | 9,000 |
| Subtotal | | | | $ | 175,700 |
| Minor Items/Supplemental Work | | | 10% | $ | 17,570 |
| Mobilization | | | 10% | $ | 17,570 |
| Contingencies | | | 25% | $ | 43,930 |
| Intersection Subtotal | | | | $ | 254,770 |
| Right-of-Way | | 48,000 | $6.4/square feet | $ | 307,200 |
| Total | | | | $ | 561,970 |

Int: **6** **Highland Springs Avenue/Ramsey Street**
Improvements: Add 2nd NBL, 2nd SBL, 2nd WBL.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Curb and Gutter | NBR | 250 LF | $15/LF | $ | 3,800 |
| Roadway widening | NBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | SBR | 250 LF | $15/LF | $ | 3,800 |
| Roadway widening | SBT | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Upgrade existing signal | | -- | $75,000/each | $ | 75,000 |
| Subtotal | | | | $ | 279,400 |
| Minor Items/Supplemental Work | | | 10% | $ | 27,940 |
| Mobilization | | | 10% | $ | 27,940 |
| Contingencies | | | 25% | $ | 69,850 |
| Engineering and Planning | | | 10% | $ | 27,940 |
| Intersection Subtotal | | | | $ | 433,070 |
| Right-of-Way | | 7,200 | $6.4/square feet | $ | 46,100 |
| Total | | | | $ | 479,170 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **9** **Highland Springs Avenue/Sun Lakes Boulevard**
Improvements: Add NBR, 2nd SBL, 2 WBL, Re-stripe WBL to WBT.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct right turn lane | NBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBR | 400 LF | $15/LF | $ | 6,000 |
| Roadway widening | NBT | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Construct left turn lane | WBL | 2 | $50,000/lane | $ | 100,000 |
| Curb and Gutter | EBT | 350 LF | $15/LF | $ | 5,300 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Curb and Gutter | WBT | 500 LF | $15/LF | $ | 7,500 |
| Subtotal | | | | $ | 247,600 |
| Minor Items/Supplemental Work | | | 10% | $ | 24,760 |
| Mobilization | | | 10% | $ | 24,760 |
| Contingencies | | | 25% | $ | 61,900 |
| Engineering and Planning | | | 10% | $ | 24,760 |
| Intersection Subtotal | | | | $ | 383,780 |
| Right-of-Way | | 15,000 | $6.4/square feet | $ | 96,000 |
| Property Value | | | | $ | 75,000 |
| Total | | | | $ | 554,780 |

Int: **10** **Highland Springs Avenue/Potrero Boulevard**
Improvements: Install a traffic signal.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Total | | | | $ | 250,000 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **11** **C Street-Apex Avenue/Wilson Street**
Improvements: Install a traffic signal. Add EBL, WBT.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | WBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | EBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | EBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | SBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | NBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Subtotal | | | | $ | 324,200 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 32,420 |
| Mobilization | | | 10% | $ | 32,420 |
| Contingencies | | | 25% | $ | 81,050 |
| Intersection Subtotal | | | | $ | 720,090 |
| Right-of-Way | | 51,000 | $6.4/square feet | $ | 326,400 |
| Total | | | | $ | 1,046,490 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **12** **Highland Home Road/Beaumont Road-G St**
Improvements: Install a traffic signal. Add NBT, NBR, SBL, WBL.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 2 | $50,000/lane | $ | 100,000 |
| Curb and Gutter | NBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | NBT | 0.44 mile | $180,000/mile | $ | 79,200 |
| Construct right turn lane | NBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBR | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | NBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | SBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBL | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct right turn lane | WBR | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBR | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Subtotal | | | | $ | 661,000 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 66,100 |
| Mobilization | | | 10% | $ | 66,100 |
| Contingencies | | | 25% | $ | 165,250 |
| Intersection Subtotal | | | | $ | 1,208,450 |
| Right-of-Way | | 190,240 | $6.4/square feet | $ | 1,217,500 |
| Total | | | | $ | 2,425,950 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **13** **Highland Home Road/F Street**

Improvements: Install a traffic signal. Add NBL. The NBL is included as a project design feature from the Butterfield Sp

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | NBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | SBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBL | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Subtotal | | | | $ | 442,600 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 44,260 |
| Mobilization | | | 10% | $ | 44,260 |
| Contingencies | | | 25% | $ | 110,650 |
| Intersection Subtotal | | | | $ | 891,770 |
| Right-of-Way | | 192,820 | $6.4/square feet | $ | 1,234,000 |
| Total | | | | $ | 2,125,770 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **14** **Highland Home Road/D Street**
Improvements: Install a traffic signal. Add NBL.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | NBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | SBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBL | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Subtotal | | | | $ | 442,600 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 44,260 |
| Mobilization | | | 10% | $ | 44,260 |
| Contingencies | | | 25% | $ | 110,650 |
| Intersection Subtotal | | | | $ | 891,770 |
| Right-of-Way | | 147,880 | $6.4/square feet | $ | 946,400 |
| Total | | | | $ | 1,838,170 |

Int: **15** **Highland Home Road/Wilson Street**
Improvements: Install a traffic signal. Add NBT, 2 SBL, SBT, WBR with overlap.

| | | | | | |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | SBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | SBL | 2 | $50,000/lane | $ | 100,000 |
| Roadway widening | SBL | 0.22 mile | $180,000/mile | $ | 39,600 |
| Subtotal | | | | $ | 338,200 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 33,820 |
| Mobilization | | | 10% | $ | 33,820 |
| Contingencies | | | 25% | $ | 84,550 |
| Intersection Subtotal | | | | $ | 740,390 |
| Right-of-Way | | 46,500 | $6.4/square feet | $ | 297,600 |
| Utility Relocation and Storm Drain | | | | $ | 315,000 |
| Total | | | | $ | 1,352,990 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **16** **Highland Home Road/Ramsey Street**
Improvements: Install a traffic signal with overlap to WBR. Re-stripe EBL

| | | | | | |
|---|---|---|---|---|---|
| Construct right turn lane | WBR | 1 | $50,000/lane | $ | 50,000 |
| Subtotal | | | | $ | 50,000 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 5,000 |
| Mobilization | | | 10% | $ | 5,000 |
| Contingencies | | | 25% | $ | 12,500 |
| Intersection Subtotal | | | | $ | 322,500 |
| Property Value | | | | $ | 15,000 |
| Total | | | | $ | 337,500 |

Int: **17** **Highland Home Road/Sun Lakes Boulevard–Westward Avenue**
Improvements: Install a traffic signal. Add NBL, SBL

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | NBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | EBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | EBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Roadway widening | EBT | 0.33 mile | $180,000/mile | $ | 59,400 |
| Curb and Gutter | WBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | WBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Subtotal | | | | $ | 313,800 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 31,380 |
| Mobilization | | | 10% | $ | 31,380 |
| Contingencies | | | 25% | $ | 78,450 |
| Intersection Subtotal | | | | $ | 705,010 |
| Right-of-Way | | 95,500 | $6.4/square feet | $ | 611,200 |
| Utilites | | | | $ | 865,000 |
| Total | | | | $ | 2,181,210 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **18** **Sunset Avenue/Wilson Street**

Improvements: Install a traffic signal. Add 2nd NBL, Re-stripe NBR-NBT, NBR,SBL, SBR with overlap, add 2nd EBL, 2nd EBT,WBR with overlap, WBT

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Curb and Gutter | NBR | 150 LF | $15/LF | $ | 2,300 |
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct right turn lane | SBR with overlap | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBR with overlap | 0.11 mile | $180,000/mile | $ | 19,800 |
| Curb and Gutter | SBR with overlap | 600 LF | $15/LF | $ | 9,000 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBR | 325 LF | $15/LF | $ | 4,900 |
| Roadway widening | EBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Roadway widening | EBT | 0.33 mile | $180,000/mile | $ | 59,400 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct right turn lane | WBR with overlap | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBR with overlap | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBR with overlap | 0.05 mile | $180,000/mile | $ | 9,000 |
| Subtotal | | | | $ | 491,200 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 49,120 |
| Mobilization | | | 10% | $ | 49,120 |
| Contingencies | | | 25% | $ | 122,800 |
| Intersection Subtotal | | | | $ | 962,240 |
| Right-of-Way | | 76,000 | $6.4/square feet | $ | 486,400 |
| Property Value | | | | $ | 570,000 |
| Total | | | | $ | 2,018,640 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **19** **Sunset Avenue/Ramsey Street**
Improvements: Add 2nd NBL, NBR, SBR with Overlap, EBR with Overlap, 2nd WBL.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.02 mile | $180,000/mile | $ | 3,600 |
| Construct right turn lane | NBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBR | 125 LF | $15/LF | $ | 1,900 |
| Roadway widening | NBR | 0.02 mile | $180,000/mile | $ | 3,600 |
| Construct right turn lane | SBR | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | SBR | 325 LF | $15/LF | $ | 4,900 |
| Construct right turn lane | EBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBR | 350 LF | $15/LF | $ | 5,300 |
| Roadway widening | EBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Upgrade existing signal | | -- | $75,000/each | $ | 75,000 |
| Subtotal | | | | $ | 371,300 |
| Minor Items/Supplemental Work | | | 10% | $ | 37,130 |
| Mobilization | | | 10% | $ | 37,130 |
| Contingencies | | | 25% | $ | 92,830 |
| Engineering and Planning | | | 10% | $ | 37,130 |
| Intersection Subtotal | | | | $ | 575,520 |
| Right-of-Way | | 15,700 | $6.4/square feet | $ | 100,500 |
| Property and Utilities | | | | $ | 270,000 |
| Total | | | | $ | 946,020 |

Int: **20** **Sunset Avenue/I-10 Westbound Ramps**
Improvements: Add free SBR.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct right turn lane | SBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBR | 125 LF | $15/LF | $ | 1,900 |
| Roadway widening | SBR | 0.03 mile | $180,000/mile | $ | 5,400 |
| Subtotal | | | | $ | 57,300 |
| Minor Items/Supplemental Work | | | 10% | $ | 5,730 |
| Mobilization | | | 10% | $ | 5,730 |
| Contingencies | | | 25% | $ | 14,330 |
| Engineering and Planning | | | 10% | $ | 5,730 |
| Intersection Subtotal | | | | $ | 88,820 |
| Right-of-Way | | 1,660 | $6.4/square feet | $ | 10,600 |
| Utilities | | | | $ | 60,000 |
| Total | | | | $ | 159,420 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **21** **Sunset Avenue/I-10 Eastbound Ramps**
Improvements: Add 2 EBL.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct left turn lane | EBL | 2 | $50,000/lane | $ | 100,000 |
| Curb and Gutter | EBL | 400 LF | $15/LF | $ | 6,000 |
| Roadway widening | EBL | 0.15 Mile | $180,000/mile | $ | 27,000 |
| Upgrade existing signal | | -- | $75,000/each | $ | 75,000 |
| Subtotal | | | | $ | 208,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 20,800 |
| Mobilization | | | 10% | $ | 20,800 |
| Contingencies | | | 25% | $ | 52,000 |
| Engineering and Planning | | | 10% | $ | 20,800 |
| Intersection Subtotal | | | | $ | 322,400 |
| Right-of-Way | | 27,000 | $6.4/square feet | $ | 172,800 |
| Utilities | | | | $ | 45,000 |
| Total | | | | $ | 540,200 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **22** **Sunset Avenue/Lincoln Street**
Improvements: Install a traffic signal. Add NBL, NBT, SBT, SBL, 2 EBL, WBL, WBT, WBR.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | NBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | SBT | 0.33 mile | $180,000/mile | $ | 59,400 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBR | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | WBT | 0.33 mile | $180,000/mile | $ | 59,400 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 3,400 |
| Roadway widening | EBT | 0.22 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | EBL | 2 | $50,000/lane | $ | 100,000 |
| Roadway widening | EBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Subtotal | | | | $ | 671,600 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 67,160 |
| Mobilization | | | 10% | $ | 67,160 |
| Contingencies | | | 25% | $ | 167,900 |
| Intersection Subtotal | | | | $ | 1,223,820 |
| Right-of-Way | | 142,000 | $6.4/square feet | $ | 908,800 |
| Utilities | | | | $ | 810,000 |
| Total | | | | $ | 2,942,620 |

Int: **24** **Sunrise Avenue/Wilson Street**
Improvements: Install a traffic signal, add EBTL

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.22 mile | $180,000/mile | $ | 19,800 |
| Subtotal | | | | $ | 78,800 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 7,880 |
| Mobilization | | | 10% | $ | 7,880 |
| Contingencies | | | 25% | $ | 19,700 |
| Intersection Subtotal | | | | $ | 364,260 |
| Right-of-Way | | 16,500 | $6.4/square feet | $ | 105,600 |
| Total | | | | $ | 469,860 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **25** **16th St/Wilson Street**
Improvements: Install a traffic signal.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | NBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | SBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Subtotal | | | | $ | 157,600 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 15,760 |
| Mobilization | | | 10% | $ | 15,760 |
| Contingencies | | | 25% | $ | 39,400 |
| Intersection Subtotal | | | | $ | 478,520 |
| Right-of-Way | | 20,000 | $6.4/square feet | $ | 128,000 |
| Total | | | | $ | 606,520 |

Int: **26** **8th St/Wilson Street**
Improvements: Install a traffic signal. Add NBL, SBL, WBR.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Construct right turn lane | WBR | 1 | $50,000/lane | $ | 50,000 |
| Subtotal | | | | $ | 150,000 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 15,000 |
| Mobilization | | | 10% | $ | 15,000 |
| Contingencies | | | 25% | $ | 37,500 |
| Engineering and Planning | | | 10% | $ | 15,000 |
| Intersection Subtotal | | | | $ | 482,500 |
| Right-of-Way | | 20,000 | $6.4/square feet | $ | 128,000 |
| Total | | | | $ | 610,500 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **27** **8th St/Ramsey Street**
Improvements: Add NBL, Re-stripe EBR-EBT, EBR, WBL.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBL | 0.02 miles | $180,000/mile | $ | 3,600 |
| Curb and Gutter | WBT | 100 LF | $15/LF | $ | 1,500 |
| Roadway widening | EBR | 0.03 miles | $180,000/mile | $ | 5,400 |
| Curb and Gutter | EBR | 275 LF | $15/LF | $ | 4,100 |
| Subtotal | | | | $ | 114,600 |
| Minor Items/Supplemental Work | | | 10% | $ | 11,460 |
| Mobilization | | | 10% | $ | 11,460 |
| Contingencies | | | 25% | $ | 28,650 |
| Engineering and Planning | | | 10% | $ | 11,460 |
| Intersection Subtotal | | | | $ | 177,630 |
| Right-of-Way | | 2,000 | $6.4/square feet | $ | 12,800 |
| Utilities & Private Improvements | | | | $ | 40,000 |
| Total | | | | $ | 230,430 |

Int: **28** **8th St/I-10 Westbound Ramps**
Improvements: Install a traffic signal. Add NBL, NBT, SBR, WBTR.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Construct right turn lane | SBR | 1 | $50,000/lane | $ | 50,000 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Subtotal | | | | $ | 200,000 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 20,000 |
| Mobilization | | | 10% | $ | 20,000 |
| Contingencies | | | 25% | $ | 50,000 |
| Engineering and Planning | | | 10% | $ | 20,000 |
| Intersection Subtotal | | | | $ | 560,000 |
| Utilities | | | | $ | 35,000 |
| Total | | | | $ | 595,000 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **29** **8th St/I-10 Eastbound Ramps**
Improvements: Add SBL, NBT, NBR, EBL, Free EBR.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct right turn lane | NBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBR | 300 LF | $15/LF | $ | 4,500 |
| Roadway widening | NBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Construct left turn lane | EBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | EBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct right turn lane | EBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBR | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | SBT | 300 LF | $15/LF | $ | 9,000 |
| Railroad Underpass Widening | 1 lane | 1,000 LF | $2,880/lane/LF | $ | 360,000 |
| Upgrade existing signal | | -- | $75,000/each | $ | 75,000 |
| Subtotal | | | | $ | 765,100 |
| Minor Items/Supplemental Work | | | 10% | $ | 76,510 |
| Mobilization | | | 10% | $ | 76,510 |
| Contingencies | | | 25% | $ | 191,280 |
| Engineering and Planning | | | 10% | $ | 76,510 |
| Intersection Subtotal | | | | $ | 1,185,910 |
| Right-of-Way | | 7,000 | $6.4/square feet | $ | 44,800 |
| Utilities | | | | $ | 10,000 |
| Total | | | | $ | 1,240,710 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **30** **8th Street/Lincoln Street**
Improvements: Install a traffic signal. Add NBL, 2 SBL, SBT, 2 EBL, EBT, WBL, WBT.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | NBT | 900 LF | $15/LF | $ | 13,500 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBT | 0.11 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | SBL | 2 | $50,000/lane | $ | 100,000 |
| Roadway widening | SBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | EBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | EBL | 2 | $50,000/lane | $ | 100,000 |
| Roadway widening | EBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 1200 LF | $15/LF | $ | 18,000 |
| Roadway widening | WBT | 0.22 mile | $180,000/mile | $ | 39,600 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Subtotal | | | | $ | 675,900 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 67,590 |
| Mobilization | | | 10% | $ | 67,590 |
| Contingencies | | | 25% | $ | 168,980 |
| Intersection Subtotal | | | | $ | 1,230,060 |
| Right-of-Way | | 90,000 | $6.4/square feet | $ | 576,000 |
| Utilities | | | | $ | 650,000 |
| Total | | | | $ | 2,456,060 |

Int: **31** **4th St/Wilson Street**
Improvements: Install a traffic signal.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Total | | | | $ | 250,000 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **32** **San Gorgonio Avenue/Wilson Street**
Improvements: Install a traffic signal. Add EBL, EBT, WBTL.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBT | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | EBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | EBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 950 LF | $15/LF | $ | 14,300 |
| Roadway widening | WBT | 0.16 mile | $180,000/mile | $ | 28,800 |
| Subtotal | | | | $ | 230,900 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 23,090 |
| Mobilization | | | 10% | $ | 23,090 |
| Contingencies | | | 25% | $ | 57,730 |
| Engineering and Planning | | | 10% | $ | 23,090 |
| Intersection Subtotal | | | | $ | 607,900 |
| Right-of-Way | | 13,500 | $6.4/square feet | $ | 86,400 |
| Total | | | | $ | 694,300 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **33** **Hargrave Street/Ramsey Street**
Improvements: Add NBL, NBT, NBR to NBR with Overlap, SBL, SBT, SBR, EBL, EBT, WBL, WBT.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBT | 0.16 mile | $180,000/mile | $ | 28,800 |
| Curb and Gutter | NBT | 775 LF | $15/LF | $ | 11,600 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | NBL | 175 LF | $15/LF | $ | 2,600 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBT | 0.16 mile | $180,000/mile | $ | 28,800 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct right turn lane | SBR | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Curb and Gutter | SBR | 600 LF | $15/LF | $ | 9,000 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBR | 250 LF | $15/LF | $ | 3,800 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | EBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | EBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBT | 225 LF | $15/LF | $ | 3,400 |
| Curb and Gutter | WBR | 600 LF | $15/LF | $ | 9,000 |
| Roadway widening | WBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | WBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Subtotal | | | | $ | 631,600 |
| Minor Items/Supplemental Work | | | 10% | $ | 63,160 |
| Mobilization | | | 10% | $ | 63,160 |
| Contingencies | | | 25% | $ | 157,900 |
| Engineering and Planning | | | 10% | $ | 63,160 |
| Intersection Subtotal | | | | $ | 978,980 |
| Right-of-Way | | 22,700 | $6.4/square feet | $ | 145,300 |
| Utilities | | | | $ | 495,000 |
| Total | | | | $ | 1,619,280 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **34** **Hargrave Street/I-10 Westbound Ramps**
Improvements: Install a traffic signal. Add NBL, NBT, Free SBR, WBL, Free WBR.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Construct right turn lane | SBR | 1 | $50,000/lane | $ | 50,000 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Construct right turn lane | WBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBR | 350 LF | $15/LF | $ | 5,300 |
| Roadway widening | WBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Subtotal | | | | $ | 264,300 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 26,430 |
| Mobilization | | | 10% | $ | 26,430 |
| Contingencies | | | 25% | $ | 66,080 |
| Engineering and Planning | | | 10% | $ | 26,430 |
| Intersection Subtotal | | | | $ | 659,670 |
| Right-of-Way | | 7,700 | $6.4/square feet | $ | 49,300 |
| Utilities | | | | $ | 15,000 |
| Total | | | | $ | 723,970 |

Int: **35** **Hargrave Street/I-10 Eastbound Ramps**
Improvements: Install a traffic signal. Add NBT, NBR, SBL, EBL, Free EBR.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBT | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct right turn lane | NBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | NBR | 200 LF | $15/LF | $ | 3,000 |
| Roadway widening | NBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | SBL | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | SBT | 200 LF | $15/LF | $ | 3,000 |
| Roadway widening | SBT | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | EBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | EBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct right turn lane | EBR | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBL | 350 LF | $15/LF | $ | 5,300 |
| Subtotal | | | | $ | 297,300 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 29,730 |
| Mobilization | | | 10% | $ | 29,730 |
| Contingencies | | | 25% | $ | 74,330 |
| Engineering and Planning | | | 10% | $ | 29,730 |
| Intersection Subtotal | | | | $ | 710,820 |
| Right-of-Way | | 12,000 | $6.4/square feet | $ | 76,800 |
| Utilities | | | | $ | 10,000 |
| Total | | | | $ | 797,620 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

Int: **36** **Hargrave Street/Lincoln Street**

Improvements: Install a traffic signal. Add NBL, NBT, 2 SBL, SBT, SBR with overlap, EBL, EBT, EBR, WBL, WBT, Free WBR.

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Construct through lane | NBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBT | 0.16 mile | $180,000/mile | $ | 28,800 |
| Curb and Gutter | NBT | 700 LF | $15/LF | $ | 10,500 |
| Construct left turn lane | NBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | NBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | SBT | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBT | 0.16 mile | $180,000/mile | $ | 28,800 |
| Construct left turn lane | SBL | 2 | $50,000/lane | $ | 100,000 |
| Roadway widening | SBL | 0.11 mile | $180,000/mile | $ | 19,800 |
| Construct right turn lane | SBR | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | SBR | 0.03 mile | $180,000/mile | $ | 5,400 |
| Curb and Gutter | SBR | 175 LF | $15/LF | $ | 2,600 |
| Construct through lane | EBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | EBR | 350 LF | $15/LF | $ | 5,300 |
| Roadway widening | EBT | 0.11 mile | $180,000/mile | $ | 19,800 |
| Roadway widening | EBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | EBL | 1 | $50,000/lane | $ | 50,000 |
| Roadway widening | EBL | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct through lane | WBT | 1 | $50,000/lane | $ | 50,000 |
| Curb and Gutter | WBR | 350 LF | $15/LF | $ | 5,300 |
| Roadway widening | WBR | 0.05 mile | $180,000/mile | $ | 9,000 |
| Construct left turn lane | WBL | 1 | $50,000/lane | $ | 50,000 |
| Subtotal | | | | $ | 662,300 |
| Install new traffic signal | | -- | $250,000/each | $ | 250,000 |
| Minor Items/Supplemental Work | | | 10% | $ | 66,230 |
| Mobilization | | | 10% | $ | 66,230 |
| Contingencies | | | 25% | $ | 165,580 |
| Engineering and Planning | | | 10% | $ | 66,230 |
| Intersection Subtotal | | | | $ | 1,276,570 |
| Right-of-Way | | 29,970 | $6.4/square feet | $ | 191,800 |
| Utilities | | | | $ | 665,000 |
| Total | | | | $ | 2,133,370 |

# Appendix E - General Plan Build-Out Intersection Improvement Cost Estimates

**I-10/Highland Springs Avenue Interchange**

| Items | Lane | Units | Unit Cost | | Total Cost |
|---|---|---|---|---|---|
| Total Cost | - | - | - | $ | 85,400,000 |
| WRCOG TUMF Share | | | | $ | (17,897,000) |
| City of Beaumont Share | | | | $ | (33,751,500) |
| Total | | | | $ | 33,751,500 |

| | | |
|---|---|---|
| INTERSECTION IMPROVEMENT COSTS | $ | 22,563,490 |
| INTERSECTION IMPROVEMENT INFLATION COSTS | $ | 36,286,955 |
| RIGHT-OF-WAY COSTS | $ | 10,158,000 |
| PROPERTY AND UTILITY COSTS | $ | 5,639,300 |
| i-10/HIGHLAND SPRINGS AVENUE INTERCHANGE COSTS | $ | 33,751,500 |
| **TOTAL INTERSECTION IMPROVEMENT COSTS** | **$** | **108,399,245** |