

# 2017 SCHERTZ ROADWAY IMPACT FEE

FINAL REPORT

February 2018





Innovative approaches  
Practical results  
Outstanding service

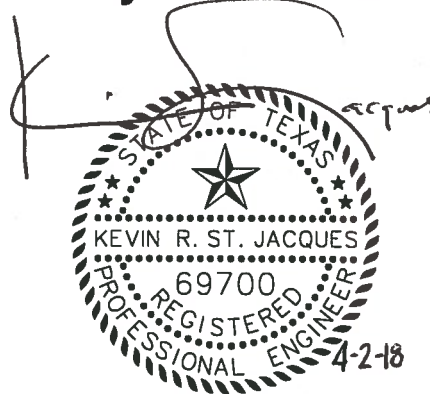
# SCHERTZ ROADWAY IMPACT FEE

## FINAL REPORT

Ordinance No. 18-M-13

Prepared for:

**City of Schertz**



FREESE AND NICHOLS, INC.  
TEXAS REGISTERED  
ENGINEERING FIRM  
F-2144

Prepared by:

**FREESE AND NICHOLS, INC.**  
2711 North Haskell Avenue, Suite 3300  
Dallas, Texas 75204

SRZ15256

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## EXECUTIVE SUMMARY

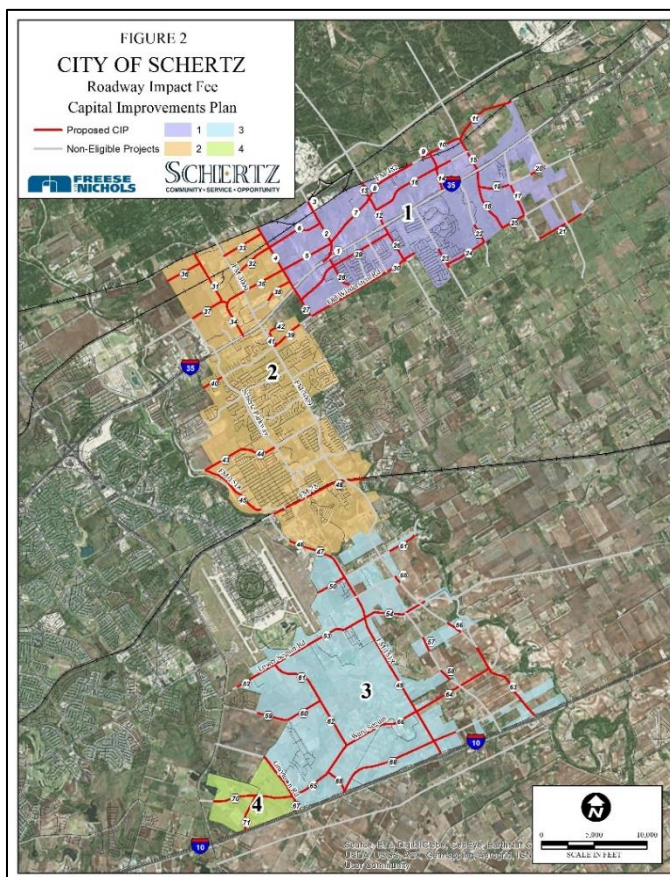
Shrinking funds available for city infrastructure improvements have prohibited many cities from upgrading infrastructure to meet increasing demands resulting from new growth. To alleviate this issue, many cities collect “impact fees” from new development to help fund roadway improvements necessitated by such development. These fees provide an objective method for new developments to pay their fair share for impact to the city’s infrastructure. The one-time, up-front charges provide a predictable cost for new development rather than “negotiated” developer exactions.

As codified in Chapter 395 of the Texas Local Government Codes, two rational nexus tests must be demonstrated in order to legally support impact fee programs. First, a reasonable connection between the need for additional capital facilities and the growth in demand generated by the new development must be defined. Second, a reasonable connection between the expenditure of the funds collected and the benefits to the new development must be shown.

The purpose of this report is to summarize the methodology used in the development and calculation of roadway impact fees for the City of Schertz. The methodology used herein satisfies the requirements of the Texas Local Government Code Section 395 for the establishment of impact fees.

### Service Areas

Four (4) roadway service areas were created within Schertz current city limits. Annexation in the ETJ was considered in the development of the zonal structure so that as service areas expand in the future, they still conform to legislative mandates in Chapter 395 so that no point is greater than a six-mile maximum to a zone boundary. This six-mile limit ensures that roadway improvements are in close proximity to the development paying the fees that it serves.



### ***Service Units***

Vehicle-miles of travel in the PM peak hour was determined to be the most effective service unit for calculating and assessing impact fees. Vehicle-miles establish a relationship between the intensity of land development and the demand on the roadway system through the use of published trip generation data and average trip length. The PM peak hour is used as the time period for assessment because typically the greatest demand for roadway capacity occurs during this hour. Additionally, roadways are sized to meet this demand and roadway capacity can more accurately be defined on an hourly basis.

The service units (vehicle-miles) for new development are a function of trip generation and the average trip length characteristics for specific land uses based on the best available data. The result of combining trip generation and trip length information is an equivalency table that establishes a service unit rate for various land uses.

### ***Existing Conditions***

An analysis of the existing roadway system revealed that the current roadway system provides 67,424 vehicle-miles of capacity. Existing demands placed on the system was determined to be 31,393 vehicle-miles. Evaluation of the existing roadway system found 1,121 vehicle-miles of deficiencies on the current roadway network (roadway segments at or above their capacity) with all deficiencies located on roadways identified in the CIP.

### ***Projected Growth***

Projected growth, expressed in terms of vehicle-miles over a 10-year planning period, was based on population and employment data that was prepared in the Land Use Assumptions for Impact Fees (2017-2027). Based on this growth, the projected vehicle-miles of demand generated in the 10-year period was calculated to be 43,408 vehicle-miles.

### ***Capital Improvements Plan***

All arterial and collector class facilities identified in the currently adopted Master Thoroughfare Plan not built to the ultimate standard were included in the impact fee capital improvements plan (CIP). The purpose for this is to enable consideration of credits for any arterial or collector class facility built by development within the rapidly growing community. The only exception is the FM 3009 extension which was excluded due to the high cost and undetermined scope and timing of the project. All projects identified are new projects, but recoupment projects are also eligible in future updates to the program.

Seventy-one (71) projects comprise the Impact Fee CIP (IFCIP) totaling \$229.0 million, providing 103,112 vehicle-miles of new net capacity, were identified for impact fee consideration of which \$80.4 million is attributable to new development over the 10-year planning period. A credit analysis conducted determined the debt service cost attributable to new growth at \$9.6 million for a total cost of \$90.0 million attributable to new development in the 10-year period.

### ***Cost per Service Unit Calculation***

The *base* cost per service unit was calculated based on the total cost attributable to new development and the projected 10-year demand. State legislation requires that a credit for the portion of ad-valorem tax revenues generated by improvements over the program period, or a credit equal to 50% of the total projected cost of implementing a roadway impact fee capital improvements program be given. Based on the credit analysis, the maximum allowable cost per service unit was calculated using the total cost of the impact fee program, less the credit.

The determination of fees due from new development is based upon the size of development, its associated service unit generation (equivalency table) and the cost per service unit derived or adopted for each service area.

|              | A                                        | B                                          | C                                                        | D = B / A                  | E = C / A                                              |
|--------------|------------------------------------------|--------------------------------------------|----------------------------------------------------------|----------------------------|--------------------------------------------------------|
| Service Area | Projected 10-Year Growth (Vehicle-Miles) | Total Cost Attributable to New Development | Total Cost Attributable to New Development (Less Credit) | Base Cost per Service Unit | Maximum Allowable Cost per Service Unit (After Credit) |
| 1            | 10,461                                   | \$25,209,290                               | \$17,234,800                                             | \$2,409.84                 | \$1,647.53                                             |
| 2            | 17,905                                   | \$37,424,954                               | \$23,775,903                                             | \$2,090.20                 | \$1,327.89                                             |
| 3            | 14,918                                   | \$26,953,502                               | \$15,581,511                                             | \$1,806.78                 | \$1,044.48                                             |
| 4            | 124                                      | \$391,223                                  | \$296,698                                                | \$3,155.02                 | \$2,392.72                                             |
| <b>Total</b> | 43,408                                   | \$89,978,969                               | \$56,888,912                                             | \$2,072.87                 | \$1,310.56                                             |

## 1.0 INTRODUCTION

Shrinking funds available for roadway improvements on city thoroughfares have prohibited many cities from upgrading infrastructure to meet increasing travel demands resulting from new growth. To alleviate this issue, many cities collect "impact fees" from new development to help fund roadway improvements necessitated by such development. What is unique and perhaps controversial about impact fees is that they often finance roadway improvements that are outside the development itself. However, when considering traffic implications created from a system standpoint, impact fees provide a means by which infrastructure may keep pace with such development.

Texas initially authorized the use of impact fees with the passage of Senate Bill 336 during the 1987 legislature. Now codified in Chapter 395 of the Texas Local Government Codes, the legislation authorizes cities to collect fees from new developments to finance new construction or expansion of capital improvements such as water treatment and distribution facilities, storm and wastewater facilities, and roadway facilities. The law stipulates that all fees collected from new development must not exceed the maximum amount calculated by the methodology described therein.

The law also mandates that impact fee systems be updated periodically to ensure that the appropriate cost per service unit is established. As new roadway improvements are completed, actual costs are inserted into the cost per service unit calculation to reflect a more accurate reading of service area costs as opposed to estimated costs that were established at the onset of the impact fee system. Additionally, new capital improvement projects can be added to the system.

## Impact Fee Quick Facts

**One-time charge** assessed to new development for a portion of costs related to a specific capital improvement program.

A **funding mechanism** for implementing infrastructure necessary to accommodate **new development**.

Facilitates "**growth paying for growth**".

Alleviates burden of new facilities on existing tax base (allows cities to recoup a portion of cost of providing improvements).

Provides a **systematic, structured** approach to assessment of fees.

Enables **upfront knowledge of fees** to be imposed to new development.

In September 2001, Chapter 395 was amended, which called for several technical and administrative changes including the following:

- Expansion of the permissible service area structure for roadway facilities from three to six miles;
- A credit for the portion of ad valorem tax revenues generated by improvements over the program period, or the credit equal to 50% of the total projected cost of implementing the capital improvements plan;
- A city's share of costs on the federal or Texas highway system, including matching funds and costs related to utility line relocation, the establishment of curbs and gutters, sidewalks, drainage appurtenances, and rights-of-way;
- Increase in the time period of update of impact fee land use assumptions and capital improvements plan from a three to five-year period;
- Changes in compliance requirements as they relate to annual reporting; and
- Consolidation of the land use assumptions and capital improvements plan hearings as well as a single public hearing for system updates.

The implementation of a roadway impact fee system complying with Chapter 395 offers several benefits including:

1. A systematic, structured approach to assessment of fees;
2. A clear, equitable distribution of costs associated with the impact of new development;
3. The ability to pool funds for project initiation within a service area;
4. Assurance that fees collected will be spent in the area where new development is occurring;
5. Up-front knowledge of fees to be imposed;
6. Credits for developer participation; and
7. Ability for developers to demonstrate that, pursuant to city guidelines, specific unit equivalencies may be different from those presented in the land use equivalency table.



Recognizing the need to provide safe and adequate facilities and desiring to have equitable funding of roadway improvements, the City of Schertz retained Freese and Nichols, Inc. to assist in the development of a roadway impact fee system.

## 1.1 METHODOLOGY

To develop roadway impact fees, a series of work tasks were undertaken. These tasks are described below.

1. Meetings were held with City Staff to discuss impact fee methodology, project criteria and eligibility, and cost eligibility for consideration in the study.
2. Roadway **service areas** were developed to ensure conformity with legislative mandate, including six-mile maximum zones and within city limits.
3. Vehicle-miles of travel (VMT) in the PM peak hour was identified as the **service unit** of measure for analyses and impact fee calculations.
4. A **roadway inventory** was conducted to document lane geometrics, roadway functional classification, and system capacity. Traffic volume count data were collected in May 2015 to determine roadway utilization, and if any capacity deficiencies exist within each impact fee service area. Traffic volume counts were conducted at 30 locations throughout the city.
5. Projected **10-year growth** was calculated for service areas based on land use assumptions (projections of population and employment growth) and translated into residential, office, commercial and industrial VMT using service unit equivalencies. Trip rate data was obtained from *Trip Generation, Ninth Edition* by the Institute of Transportation Engineers, and trip length statistics for Schertz were obtained from the travel demand model used in the 2017 Schertz Master Thoroughfare Plan Study. The Land Use Assumptions for Impact Fees report was publicly heard and approved by the Schertz City Council on November 28, 2017.
6. A **capital improvements plan (CIP)** to address projected growth was developed and separated by service area. The Capital Improvements Plan for Impact Fees report was publicly heard and approved by the Schertz City Council on November 28, 2017.
7. **Roadway costs** associated with construction, engineering, right-of-way, and project financing for capital improvement projects were prepared by Freese and Nichols. Costs for study updates are eligible for recovery and were included in the total project cost. Roadway cost data was compiled and tabulated by service area.
8. As defined in Chapter 395, a **credit analysis** was applied to determine the discount to be applied to the cost of the CIP in determining a cost per service unit for each service area in lieu of the 50% credit.
9. The cost of capacity supplied, cost attributable to new development and the **maximum cost per service unit** was calculated for each service area.
10. This report was prepared to document the procedures, findings, and conclusions of the study.

## 2.0 ROADWAY SERVICE AREAS

Impact fee legislation requires that service areas be defined for impact fees to ensure that facility improvements are located in proximity to the area that is generating the need. Chapter 395 requires that roadway service areas be limited to a six-mile maximum and be located within the current city limits. Roadway service areas are different from other impact fee service areas, which can include the city limits and Extra-Territorial Jurisdiction (ETJ). This is primarily because roadway systems are "open" to both local and regional use as opposed to a defined limit of service that is provided with water and wastewater systems. The result is that new development can only be assessed an impact fee based on the cost of necessary capital improvements within that service area.

A service area structure consisting of four (4) zones has been developed for Schertz and correlates with the current corporate boundaries, as depicted in **Figure 1**. Annexation in the ETJ was considered so that the service areas may be expanded in the future while still conforming to legislative mandate.

## 3.0 LAND USE ASSUMPTIONS

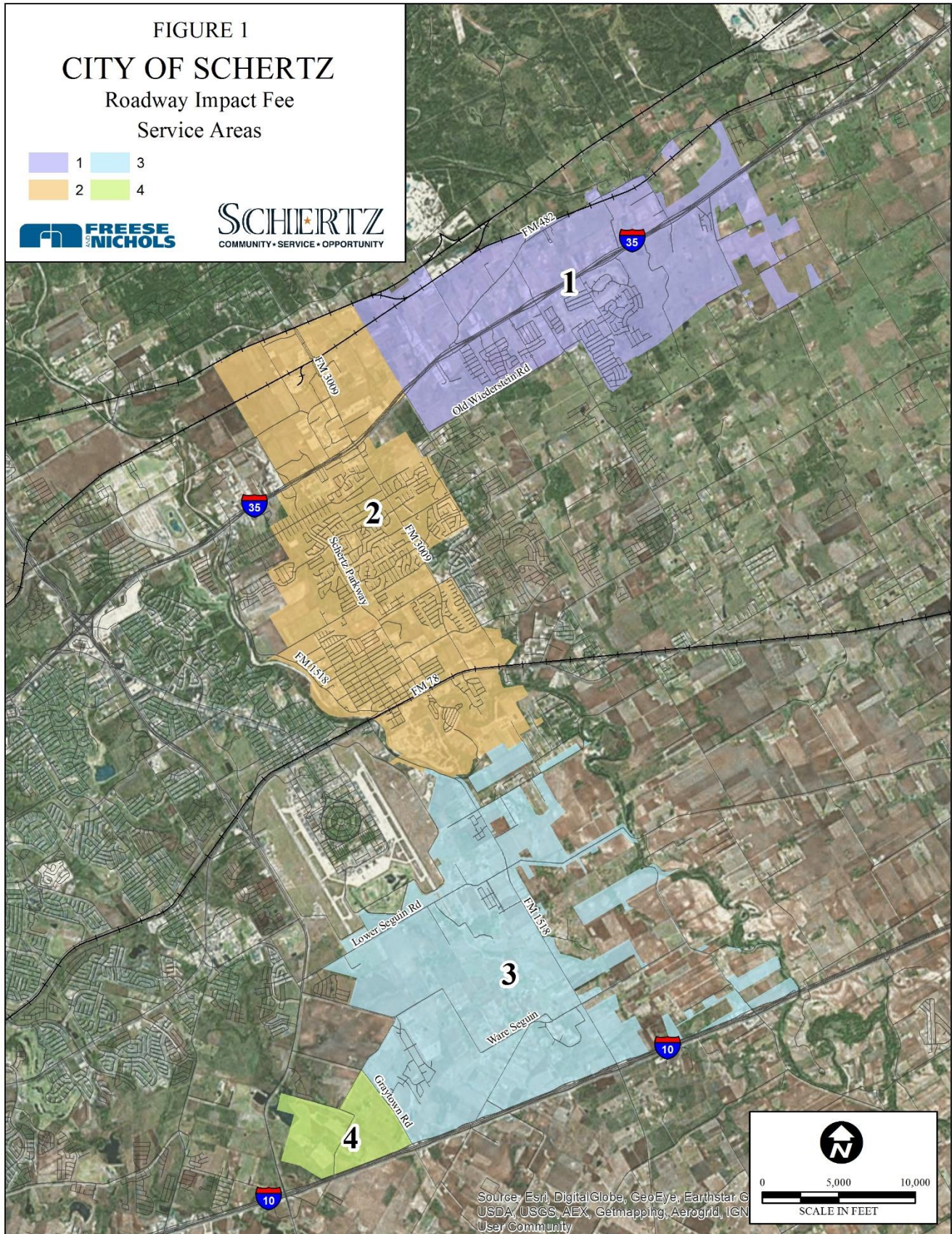
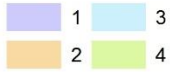
Population and land use assumptions are important elements in the analysis of roadway systems. To assist the City of Schertz in determining the need and timing of capital improvements to serve future development, a reasonable estimation of future growth is required. Growth and future development projections were formulated based on assumptions pertaining to the type, location, quantity, and timing of various future land uses within the community. These land use assumptions, which include population projections, will become the basis for the preparation of impact fee capital improvement plans for roadway facilities.

### 3.1 BASE YEAR DATA

Using the City's historical growth trends and data, the 2017 base year population estimate for the City of Schertz and future growth rate were derived. This "benchmark" information provides a starting basis of data for the ten-year growth assumptions. A full description of this analysis is provided in the 2017 Land Use Assumption Report located in **Appendix G**. For the purposes of documenting changes in population, land use, density, and intensity, the data format used as a basis to formulate the land use assumptions was principally population and employment.

# FIGURE 1 CITY OF SCHERTZ

Roadway Impact Fee  
Service Areas



### 3.1.1 Growth Summary

A compound annual growth rate (CAGR) allows for a general assessment of growth, considering periodic increases and decreases in residential population growth coinciding with changing economic conditions of the planning period. One method of predicting future growth is looking at past growth. Schertz has experienced steady growth over the past decade. Past growth trends from the U.S. Census were examined in conjunction with single-family building permit data from the city and internal city projections. These sources indicated rates of growth between 2.6 and 4.1 percent for population. Based upon this data, analysis of 10-year forecasts, and City Staff input, a **3.5 percent compound annual growth rate** was determined to be an appropriate assumption for the 10-year study period. It is believed to account for periods of rapid and stable growth expected to occur in the future. This rate was recommended by the Schertz Capital Improvements Advisory Committee on May 13, 2015.

### 3.1.2 2017 Population

Using data provided by the Alamo Area Metropolitan Planning Organization (AAMPO), existing population estimates were developed at the Traffic Analysis Zone (TAZ) level, but some adjustments were needed to consider areas within the limits of the city. The U.S. Census Intercensal population data in conjunction with building permit data provided a base year population estimate of 40,339.

### 3.1.3 2017 Employment

Similar to the population breakdown, base employment data was calculated using TAZ data from AAMPO. An interpolation was calculated to derive the 2017 employment estimates. Also, because the TAZs do not follow city limits in some locations, adjustments were made based on existing land uses and percentage of each TAZ located within city limits. Employment for each TAZ was broken down into basic, service, and retail uses as defined within the AAMPO data. **Table 1** summarizes the base year employment.

**TABLE 1: SUMMARY OF BASE YEAR (2017) POPULATION AND EMPLOYMENT**

| 2017 Summary<br>Population & Employment |              |
|-----------------------------------------|--------------|
| Housing Units                           | 14,407       |
| Population                              | 40,339       |
| Total Employment                        | 11,201       |
| <i>Basic Employment</i>                 | <i>4,639</i> |
| <i>Retail Employment</i>                | <i>3,025</i> |
| <i>Service Employment</i>               | <i>3,537</i> |

Source: Freese and Nichols, Inc., AAMPO

## 3.2 TEN-YEAR PROJECTION

Projected growth has been characterized in two forms: population and employment. A series of assumptions were made to arrive at reasonable growth rates for population and employment. The following assumptions have been made as a basis from which ten-year projections could be initiated.

- Future land uses will occur based on similar trends of the past and consistent with the Future Land Use Plan Map,
- The city will be able to finance the necessary improvements to accommodate growth,
- School facilities will accommodate increases in population, and
- Densities will be as projected in the Sector Plans.

The ten-year projections are based upon the 3.5 percent growth rate discussed earlier and considers past trends of the city.

### 3.2.1 2027 Population

The city has experienced steady growth over the past decade. The city's 2000 population stood at just over 18,000 residents. By the end of the decade, Schertz's population neared 32,000 in 2010 and a current 2017 estimate of 40,339. Although population estimates from the ETJ cannot be taken into account when calculating land use assumptions, the growing population within the ETJ should be monitored as the city plans its future. Using a 3.5 percent compound annual growth rate, the projected 2027 population for the city is 56,902. Development details, such as The Crossvine Development and constraints from the Randolph Air Force Base, informed the distribution of the growth through the city in this 10-year timeframe as seen in **Table 2**.

**TABLE 2: CITY OF SCHERTZ PROJECTED POPULATION**

| Ten-Year Population Projection<br>City of Schertz, Texas |                    |                    |               |             |
|----------------------------------------------------------|--------------------|--------------------|---------------|-------------|
| Roadway<br>Service Areas                                 | 2017<br>Population | 2027<br>Population | Pop. Added    | Pct. Change |
| 1                                                        | 9,239              | 12,211             | 2,972         | 32%         |
| 2                                                        | 28,280             | 32,169             | 3,889         | 14%         |
| 3                                                        | 2,809              | 12,454             | 9,645         | 343%        |
| 4                                                        | 11                 | 68                 | 57            | 518%        |
| <b>City Total</b>                                        | <b>40,339</b>      | <b>56,902</b>      | <b>16,563</b> | <b>41%</b>  |

Source: Freese and Nichols, Inc.

### 3.2.2 2027 Employment

Employment projections for the year 2027 were based on data provided by AAMPO. For assumption purposes, an interpolation of the modeling year (2025 and 2040) numbers was calculated to derive the 2027 employment estimates per TAZ. **Table 3** shows the total employment for the base year, projected employment for 2027, the net growth, and percent change. The increase corresponds to an annual growth rate of 3.8 percent citywide, slightly higher than the population growth rate.

**TABLE 3: CITY OF SCHERTZ PROJECTED EMPLOYMENT**

| Ten-Year Employment Projection<br>City of Schertz, Texas |                    |                    |              |             |
|----------------------------------------------------------|--------------------|--------------------|--------------|-------------|
| Roadway<br>Service Areas                                 | 2017<br>Employment | 2027<br>Employment | Emp. Added   | Pct. Change |
| 1                                                        | 2,206              | 3,812              | 1,606        | 73%         |
| 2                                                        | 8,587              | 11,304             | 2,717        | 32%         |
| 3                                                        | 408                | 1,111              | 703          | 172%        |
| 4                                                        | 0                  | 20                 | 20           | --          |
| <b>City Total</b>                                        | <b>11,201</b>      | <b>16,247</b>      | <b>5,046</b> | <b>45%</b>  |

Source: Freese and Nichols, Inc., AAMPO

## 3.3 SUMMARY

- The existing 2017 population for Schertz stands at approximately 40,339 persons, with an existing estimated employment of 11,201 jobs.
- An average annual growth rate of 3.5 percent was used to calculate the Schertz ten-year growth projections. This growth rate is based upon the State Water Board Projections, the Parks Plan, City forecasts, historical U.S. Census data, as well as Building Permit information received from the City.
- Ten-year (2027) population is forecasted to be 56,902 persons, with an employment of 16,247 jobs.

**TABLE 4: LAND USE ASSUMPTIONS 2017-2027 SUMMARY**

|                       | 2017          | 2027          | Total Increase | Annual Growth Rate |
|-----------------------|---------------|---------------|----------------|--------------------|
| <b>Population</b>     |               |               |                |                    |
| <b>Schertz Total</b>  | <b>40,339</b> | <b>56,902</b> | <b>16,563</b>  | <b>3.5%</b>        |
| Service Area 1        | 9,239         | 12,211        | 2,972          | 2.8%               |
| Service Area 2        | 28,280        | 32,169        | 3,889          | 1.3%               |
| Service Area 3        | 2,809         | 12,454        | 9,645          | 16.1%              |
| Service Area 4        | 11            | 68            | 57             | 20.0%              |
| <b>Dwelling Units</b> |               |               |                |                    |
| <b>Schertz Total</b>  | <b>14,407</b> | <b>20,322</b> | <b>5,915</b>   | <b>3.5%</b>        |
| Service Area 1        | 3,300         | 4,361         | 1,061          | 2.8%               |
| Service Area 2        | 10,100        | 11,489        | 1,389          | 1.3%               |
| Service Area 3        | 1,003         | 4,448         | 3,445          | 16.1%              |
| Service Area 4        | 4             | 24            | 20             | 20.0%              |
| <b>Employment</b>     |               |               |                |                    |
| <b>Schertz Total</b>  | <b>11,201</b> | <b>16,247</b> | <b>5,046</b>   | <b>3.8%</b>        |
| Service Area 1        | 2,206         | 3,812         | 1,606          | 5.6%               |
| Basic                 | 1,120         | 1,814         | 694            | 4.9%               |
| Retail                | 468           | 785           | 317            | 5.3%               |
| Service               | 618           | 1,213         | 595            | 7.0%               |
| Service Area 2        | 8,587         | 11,304        | 2,717          | 2.8%               |
| Basic                 | 3,287         | 5,038         | 1,751          | 4.4%               |
| Retail                | 2,449         | 2,996         | 547            | 2.0%               |
| Service               | 2,851         | 3,270         | 419            | 1.4%               |
| Service Area 3        | 408           | 1,111         | 703            | 10.5%              |
| Basic                 | 232           | 597           | 365            | 9.9%               |
| Retail                | 108           | 340           | 232            | 12.2%              |
| Service               | 68            | 174           | 106            | 9.9%               |
| Service Area 4        | 0             | 20            | 20             | -                  |
| Basic                 | 0             | 0             | 0              | -                  |
| Retail                | 0             | 0             | 0              | -                  |
| Service               | 0             | 20            | 20             | -                  |

## 4.0 ROADWAY IMPACT FEE SERVICE UNITS

Service units establish a relationship between roadway projects and demand placed on the street system by development, as well as, the ability to calculate and assess impact fees for specific development proposals. As defined in Chapter 395, "Service unit means a standardized measure of consumption, use, generation, or discharge attributable to an individual unit of development in accordance with generally accepted engineering or planning standards for a particular category of capital improvements or facility expansions."

To determine the roadway impact fee for a particular development, the service unit must accurately identify the impact that the development will have on the major roadway system (i.e., arterial and collector roads) serving the development. This impact is a combination of the number of new trips generated by the development, the particular peaking characteristics of the land-use(s) within the development, and the length of each new trip on the transportation system.

The service unit must also reflect the capacity, which is provided by the roadway system, and the demand placed on the system during the time in which peak, or design, conditions are present on the system. Transportation facilities are designed and constructed to accommodate volumes expected to occur during the peak hours (design hours). These volumes typically occur during the peak hours as motorists travel to and from work.

The vehicle-mile during the PM peak hour serves as the service unit for impact fees in Schertz. This service unit establishes a more precise measure of capacity, utilization and intensity of land development through the use of published trip generation data. It also recognizes legislative requirements with regards to trip length. This service unit has been tested and validated since the inception of impact fee legislation in 1989.

### 4.1 SERVICE UNITS

Service units create a link between supply (roadway projects) and demand (development). Both can be expressed as a combination of the number of vehicles traveling during the peak hour and the distance traveled by these vehicles in miles.

#### 4.1.1 Service Unit Supply

For roadway capital project improvements, the number of service units provided during the peak hour is simply the product of the capacity of the roadway in one hour and the length of the product. For example:

Given a four-lane divided roadway project with a 600 vehicle per hour per lane capacity and a length of two miles, the number of service units provided is:

$$600 \text{ vehicles per hour per lane} \times 4 \text{ lanes} \times 2 \text{ miles} = 4,800 \text{ vehicles-miles}$$

#### 4.1.2 Service Unit Demand

The demand placed on the system can be expressed in a similar manner. For example, a development generating 100 vehicle trips in the PM peak hour with an average trip length of two miles would generate:

$$100 \text{ vehicle-trips} \times 2 \text{ miles/trip} = 200 \text{ vehicle-miles}$$

Similarly, demand placed on the existing roadway network is calculated in the same manner with a known traffic volume (peak hour roadway counts collected in 2015) on a street and a given segment length.

### 4.2 SERVICE UNITS FOR NEW DEVELOPMENT

An important objective in the development of the impact fee system is the development of a specific service unit equivalency for individual developments. The vehicle-miles generated by a new development are a function of the trip generation and average trip length characteristics of that development. The following describes the process used to develop the vehicle-equivalency table, which relates land use types and sizes to the resulting vehicle-miles of demand created by that development.

#### 4.2.1 Trip Generation

Trip generation information for the PM peak hour was based on data published in the Ninth Edition of *Trip Generation* by the Institute of Transportation Engineers (ITE). *Trip Generation* is a reference publication that contains travel characteristics of over 100 land uses across the nation and is based on empirical data gathered from over 3,200 studies that were reported to the Institute by public agencies, developers and consulting firms.

### ***Pass-by and Diverted Trips Adjustments***

The actual "traffic impact" of a specific site for impact fee purposes is based on the amount of traffic added to the street system. To accurately estimate new trips generated by a new development, adjustments must be made to trip generation rates and equations to account for pass-by and diverted trips. The added traffic is adjusted so that each development is assigned only for a portion of trips associated with that particular development, reducing the possibility of over-counting by counting only primary trips generated.

Pass-by trips are those trips that are already on a particular route for a different purpose and simply stop at a particular development on that route. For example, a stop at a convenience store on the way home from the office is a pass-by trip for the convenience store. A pass-by trip does not create an additional burden on the street system and therefore should not be counted in the assessment of impact fees of a convenience store.

A diverted trip is a similar situation, except that a diversion is made from the regular route to make an interim stop. On a system-wide basis, this trip places a slightly additional burden on the street system but in many cases, this burden is minimal.

Trip generation rates were reduced by the percentages presented in **Table 5** in an effort to isolate the primary trip purpose. Adjustments were based on studies conducted by ITE and other published studies.

The resulting recommended trip rates are illustrated as part of the Land Use/Vehicle-Mile Equivalency Table illustrated later in this chapter. Rates were developed in lieu of equations to simplify the assessment of impact fees by the City and likewise, the estimation of impact fees by persons who may be required to pay an impact fee in conjunction with a development project.

**TABLE 5: TRIP REDUCTION ESTIMATES (PM PEAK HOUR)**

| ITE Land Use                            | ITE Code | Dev. Unit         | Ave. Trip Rate | Pass By Rate | Diverted Trips | Ave. Trip Rate w/ Deductions |
|-----------------------------------------|----------|-------------------|----------------|--------------|----------------|------------------------------|
| <b>Residential</b>                      |          |                   |                |              |                |                              |
| Single-family detached housing          | 210      | DU                | 1.00           | 0%           | 0%             | 1.00                         |
| Apartment                               | 220      | DU                | 0.62           | 0%           | 0%             | 0.62                         |
| Continuing Care Retirement Community    | 255      | DU                | 0.16           | 0%           | 0%             | 0.16                         |
| Others Not Specified                    |          | DU                | 1.00           | 0%           | 0%             | 1.00                         |
| <b>Office</b>                           |          |                   |                |              |                |                              |
| General Office Building                 | 710      | 1000 sq. ft.      | 1.49           | 0%           | 0%             | 1.49                         |
| Medical / Dental Office                 | 720      | 1000 sq. ft.      | 3.57           | 0%           | 0%             | 3.57                         |
| <b>Retail / Commercial</b>              |          |                   |                |              |                |                              |
| Hotel                                   | 310      | Rooms             | 0.60           | 0%           | 0%             | 0.60                         |
| All Suites Hotel                        | 311      | Rooms             | 0.40           | 0%           | 0%             | 0.40                         |
| Motel                                   | 320      | Rooms             | 0.47           | 0%           | 0%             | 0.47                         |
| Movie Theater with Matinee              | 444      | Screens           | 20.22          | 15%          | 0%             | 17.19                        |
| Building Materials and Lumber store     | 812      | 1000 sq. ft.      | 4.49           | 25%          | 0%             | 3.37                         |
| Free standing Discount Superstore       | 813      | 1000 sq. ft.      | 4.35           | 28%          | 0%             | 3.13                         |
| Hardware/Paint Store                    | 816      | 1000 sq. ft.      | 4.84           | 26%          | 28%            | 2.23                         |
| Garden Center                           | 817      | 1000 sq. ft.      | 6.94           | 0%           | 0%             | 6.94                         |
| Nursery (Wholesale)                     | 818      | 1000 sq. ft.      | 5.17           | 25%          | 0%             | 3.88                         |
| Shopping Center                         | 820      | 1000 sq. ft.      | 3.71           | 34%          | 26%            | 1.48                         |
| Automobile Sales                        | 841      | 1000 sq. ft.      | 2.62           | 40%          | 0%             | 1.57                         |
| Auto Parts Sales                        | 843      | 1000 sq. ft.      | 5.98           | 43%          | 13%            | 2.63                         |
| Tire Store                              | 848      | 1000 sq. ft.      | 4.15           | 28%          | 10%            | 2.57                         |
| Tire Superstore                         | 849      | 1000 sq. ft.      | 2.11           | 28%          | 10%            | 1.31                         |
| Supermarket                             | 850      | 1000 sq. ft.      | 9.48           | 36%          | 38%            | 2.48                         |
| Convenience Market with Gasoline Pumps  | 853      | Fueling Positions | 19.07          | 63%          | 26%            | 2.10                         |
| Discount Club                           | 857      | 1000 sq. ft.      | 4.18           | 0%           | 0%             | 4.18                         |
| Home Improvement Superstore             | 862      | 1000 sq. ft.      | 2.33           | 48%          | 24%            | 0.65                         |
| Electronic Superstore                   | 863      | 1000 sq. ft.      | 4.50           | 40%          | 33%            | 1.22                         |
| Toy Superstore                          | 864      | 1000 sq. ft.      | 4.99           | 0%           | 0%             | 4.99                         |
| Apparel Store                           | 876      | 1000 sq. ft.      | 3.83           | 0%           | 0%             | 3.83                         |
| Arts and Crafts Store                   | 879      | 1000 sq. ft.      | 6.21           | 0%           | 0%             | 6.21                         |
| Pharmacy with Drive Thru                | 881      | 1000 sq. ft.      | 9.91           | 49%          | 13%            | 3.77                         |
| Furniture Store                         | 890      | 1000 sq. ft.      | 0.45           | 53%          | 31%            | 0.07                         |
| Bank with Drive Thru                    | 912      | 1000 sq. ft.      | 24.30          | 47%          | 26%            | 6.64                         |
| Restaurant                              | 932      | 1000 sq. ft.      | 9.85           | 43%          | 26%            | 3.11                         |
| Fast food with Drive Thru               | 934      | 1000 sq. ft.      | 32.65          | 50%          | 23%            | 8.72                         |
| Quick Lubrication Vehicle Stop          | 941      | Serving Positions | 5.19           | 55%          | 0%             | 2.34                         |
| Automotive Care Center                  | 942      | 1000 sq. ft.      | 3.11           | 0%           | 0%             | 3.11                         |
| Others Not Specified                    |          | 1000 sq. ft.      | 3.71           | 34%          | 26%            | 1.48                         |
| <b>Light Industrial</b>                 |          |                   |                |              |                |                              |
| General Light Industrial                | 110      | 1000 sq. ft.      | 0.97           | 0%           | 0%             | 0.97                         |
| Manufacturing                           | 140      | 1000 sq. ft.      | 0.73           | 0%           | 0%             | 0.73                         |
| Warehouse                               | 150      | 1000 sq. ft.      | 0.32           | 0%           | 0%             | 0.32                         |
| Mini Warehouse (Self Storage)           | 151      | 1000 sq. ft.      | 0.26           | 0%           | 0%             | 0.26                         |
| High-Cube Warehouse/Distribution Center | 152      | 1000 sq. ft.      | 0.12           | 0%           | 0%             | 0.12                         |
| Utilities                               | 170      | 1000 sq. ft.      | 0.76           | 0%           | 0%             | 0.76                         |
| Others Not Specified                    |          | 1000 sq. ft.      | 0.97           | 0%           | 0%             | 0.97                         |
| <b>Institutional</b>                    |          |                   |                |              |                |                              |
| Private School (K-12)                   | 536      | Students          | 0.17           | 0%           | 0%             | 0.17                         |
| Jr. / Community College                 | 540      | Students          | 0.12           | 0%           | 0%             | 0.12                         |
| Church                                  | 560      | 1000 sq. ft.      | 0.55           | 0%           | 0%             | 0.55                         |
| Day Care Center                         | 565      | Students          | 0.81           | 0%           | 0%             | 0.81                         |
| Others Not Specified                    |          | 1000 sq. ft.      | 0.55           | 0%           | 0%             | 0.55                         |

With approval by the City Engineer, a local study may also be conducted by an Applicant to confirm rates in *Trip Generation* or to change rates reflecting local conditions. In such cases, a minimum of three similar sites should be counted. Selected sites should be isolated in nature with driveways that specifically serve the development and not other land uses. The results should be plotted on the scatter diagram of the selected land use contained in *Trip Generation* for comparison purposes. It is recommended that no change be approved unless the results show a variation of at least fifteen percent across the range of the sample size surveyed.

### ***Trip Length***

Trip lengths (in miles) are used in conjunction with site trip generation to estimate vehicle-miles of travel. Trip length data was based on information generated by modeling developed in the 2017 Schertz Master Thoroughfare Plan (MTP) and travel survey information. Travel characteristics were used to determine average trip lengths for common land use types.

**Table 6** summarizes the average trip lengths compiled from the forecast model. These trip lengths represent the average distance that a vehicle will travel between an origin and destination of which either the origin or destination contains the land-use category identified below. A localization adjustment was made to these to net out the portion of trip length on the federal highway system since the impact fee system does not include federal facilities in the Chapter 395 legislation. This localization adjustment was determined using the 2017 MTP model data. Data compiled by the 2017 MTP model represents the best available information on trip lengths for this area.

### ***Origin and Destination Adjustments***

The assessment of an individual development's impact fee is based on the premise that each vehicle-trip has an origin and a destination and that the development end should pay for one-half of the cost necessary to complete each trip. To prevent the potential of double charging, trip lengths were divided by two to reflect half of the vehicle trip associated with development. **Table 6** illustrates the adjusted trip length.

Finally, as the service area structure was based on a six-mile boundary, those land uses that exhibited trip lengths greater than six miles would be truncated to this threshold.

**TABLE 6: TRIP LENGTHS AND ADJUSTMENTS**

| ITE Land Use                            | ITE Code | Dev. Unit         | Model Trip Length | Localized Trip Length | Ave. Trip Length |
|-----------------------------------------|----------|-------------------|-------------------|-----------------------|------------------|
| <b>Residential</b>                      |          |                   |                   |                       |                  |
| Single-family detached housing          | 210      | DU                | 14.03             | 6.73                  | 3.37             |
| Apartment                               | 220      | DU                | 14.03             | 6.73                  | 3.37             |
| Continuing Care Retirement Community    | 255      | DU                | 14.03             | 6.73                  | 3.37             |
| Others Not Specified                    |          | DU                | 14.03             | 6.73                  | 3.37             |
| <b>Office</b>                           |          |                   |                   |                       |                  |
| General Office Building                 | 710      | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| Medical / Dental Office                 | 720      | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| <b>Retail / Commercial</b>              |          |                   |                   |                       |                  |
| Hotel                                   | 310      | Rooms             | 13.31             | 6.39                  | 3.19             |
| All Suites Hotel                        | 311      | Rooms             | 13.31             | 6.39                  | 3.19             |
| Motel                                   | 320      | Rooms             | 13.31             | 6.39                  | 3.19             |
| Movie Theater with Matinee              | 444      | Screens           | 12.76             | 6.12                  | 3.06             |
| Building Materials and Lumber store     | 812      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Free standing Discount Superstore       | 813      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Hardware/Paint Store                    | 816      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Garden Center                           | 817      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Nursery (Wholesale)                     | 818      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Shopping Center                         | 820      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Automobile Sales                        | 841      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Auto Parts Sales                        | 843      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Tire Store                              | 848      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Tire Superstore                         | 849      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Supermarket                             | 850      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Convenience Market with Gasoline Pumps  | 853      | Fueling Positions | 12.76             | 6.12                  | 3.06             |
| Discount Club                           | 857      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Home Improvement Superstore             | 862      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Electronic Superstore                   | 863      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Toy Superstore                          | 864      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Apparel Store                           | 876      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Arts and Crafts Store                   | 879      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Pharmacy with Drive Thru                | 881      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Furniture Store                         | 890      | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| Bank with Drive Thru                    | 912      | 1000 sq. ft.      | 12.76             | 6.12                  | 3.06             |
| Restaurant                              | 932      | 1000 sq. ft.      | 12.76             | 6.12                  | 3.06             |
| Fast food with Drive Thru               | 934      | 1000 sq. ft.      | 12.76             | 6.12                  | 3.06             |
| Quick Lubrication Vehicle Stop          | 941      | Serving Positions | 12.76             | 6.12                  | 3.06             |
| Automotive Care Center                  | 942      | 1000 sq. ft.      | 12.76             | 6.12                  | 3.06             |
| Others Not Specified                    |          | 1000 sq. ft.      | 11.88             | 5.70                  | 2.85             |
| <b>Light Industrial</b>                 |          |                   |                   |                       |                  |
| General Light Industrial                | 110      | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| Manufacturing                           | 140      | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| Warehouse                               | 150      | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| Mini Warehouse (Self Storage)           | 151      | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| High-Cube Warehouse/Distribution Center | 152      | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| Utilities                               | 170      | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| Others Not Specified                    |          | 1000 sq. ft.      | 15.91             | 7.64                  | 3.82             |
| <b>Institutional</b>                    |          |                   |                   |                       |                  |
| Private School (K-12)                   | 536      | Students          | 9.23              | 4.43                  | 2.22             |
| Jr. / Community College                 | 540      | Students          | 22.34             | 10.72                 | 5.36             |
| Church                                  | 560      | 1000 sq. ft.      | 13.81             | 6.63                  | 3.31             |
| Day Care Center                         | 565      | Students          | 4.18              | 2.01                  | 1.00             |
| Others Not Specified                    |          | 1000 sq. ft.      | 13.81             | 6.63                  | 3.31             |

### ***Service Unit Equivalency Table***

The result of combining the trip generation and trip length information is an equivalency table which establishes the service unit rate for various land uses. These service unit rates are based on an appropriate development unit for each land use. For example, a dwelling unit is the basis for residential uses, while 1,000 gross square feet of floor area is the basis for office, commercial, and industrial uses. Other less common land uses use appropriate independent variables.

Separate rates have been established for specific land uses within the broader categories of residential, commercial, industrial, and institutional to reflect the differences between land uses within the categories. However, even with these specific land use types, information is not available for every conceivable land use; so engineering judgement must be used when needed. The equivalency table is illustrated in **Table 7**.

**TABLE 7: LAND USE VEHICLE-MILE EQUIVALENCY**

| <b>ITE Land Use</b>                     | <b>ITE Code</b> | <b>Dev. Unit</b>  | <b>Ave. Trip Rate w/ Deductions</b> | <b>Ave. Trip Length</b> | <b>Veh-Mi Per Dev Unit</b> |
|-----------------------------------------|-----------------|-------------------|-------------------------------------|-------------------------|----------------------------|
| <b>Residential</b>                      |                 |                   |                                     |                         |                            |
| Single-family detached housing          | 210             | DU                | 1.00                                | 3.37                    | <b>3.37</b>                |
| Apartment                               | 220             | DU                | 0.62                                | 3.37                    | <b>2.09</b>                |
| Continuing Care Retirement Community    | 255             | DU                | 0.16                                | 3.37                    | <b>0.54</b>                |
| Others Not Specified                    |                 | DU                | 1.00                                | 3.37                    | <b>3.37</b>                |
| <b>Office</b>                           |                 |                   |                                     |                         |                            |
| General Office Building                 | 710             | 1000 sq. ft.      | 1.49                                | 3.82                    | <b>5.69</b>                |
| Medical / Dental Office                 | 720             | 1000 sq. ft.      | 3.57                                | 3.82                    | <b>13.64</b>               |
| <b>Retail / Commercial</b>              |                 |                   |                                     |                         |                            |
| Hotel                                   | 310             | Rooms             | 0.60                                | 3.19                    | <b>1.91</b>                |
| All Suites Hotel                        | 311             | Rooms             | 0.40                                | 3.19                    | <b>1.28</b>                |
| Motel                                   | 320             | Rooms             | 0.47                                | 3.19                    | <b>1.50</b>                |
| Movie Theater with Matinee              | 444             | Screens           | 17.19                               | 3.06                    | <b>52.60</b>               |
| Building Materials and Lumber store     | 812             | 1000 sq. ft.      | 3.37                                | 2.85                    | <b>9.60</b>                |
| Free standing Discount Superstore       | 813             | 1000 sq. ft.      | 3.13                                | 2.85                    | <b>8.92</b>                |
| Hardware/Paint Store                    | 816             | 1000 sq. ft.      | 2.23                                | 2.85                    | <b>6.36</b>                |
| Garden Center                           | 817             | 1000 sq. ft.      | 6.94                                | 2.85                    | <b>19.78</b>               |
| Nursery (Wholesale)                     | 818             | 1000 sq. ft.      | 3.88                                | 2.85                    | <b>11.06</b>               |
| Shopping Center                         | 820             | 1000 sq. ft.      | 1.48                                | 2.85                    | <b>4.23</b>                |
| Automobile Sales                        | 841             | 1000 sq. ft.      | 1.57                                | 2.85                    | <b>4.47</b>                |
| Auto Parts Sales                        | 843             | 1000 sq. ft.      | 2.63                                | 2.85                    | <b>7.50</b>                |
| Tire Store                              | 848             | 1000 sq. ft.      | 2.57                                | 2.85                    | <b>7.32</b>                |
| Tire Superstore                         | 849             | 1000 sq. ft.      | 1.31                                | 2.85                    | <b>3.73</b>                |
| Supermarket                             | 850             | 1000 sq. ft.      | 2.48                                | 2.85                    | <b>7.07</b>                |
| Convenience Market with Gasoline Pumps  | 853             | Fueling Positions | 2.10                                | 3.06                    | <b>6.43</b>                |
| Discount Club                           | 857             | 1000 sq. ft.      | 4.18                                | 2.85                    | <b>11.91</b>               |
| Home Improvement Superstore             | 862             | 1000 sq. ft.      | 0.65                                | 2.85                    | <b>1.85</b>                |
| Electronic Superstore                   | 863             | 1000 sq. ft.      | 1.22                                | 2.85                    | <b>3.48</b>                |
| Toy Superstore                          | 864             | 1000 sq. ft.      | 4.99                                | 2.85                    | <b>14.22</b>               |
| Apparel Store                           | 876             | 1000 sq. ft.      | 3.83                                | 2.85                    | <b>10.92</b>               |
| Arts and Crafts Store                   | 879             | 1000 sq. ft.      | 6.21                                | 2.85                    | <b>17.70</b>               |
| Pharmacy with Drive Thru                | 881             | 1000 sq. ft.      | 3.77                                | 2.85                    | <b>10.74</b>               |
| Furniture Store                         | 890             | 1000 sq. ft.      | 0.07                                | 2.85                    | <b>0.20</b>                |
| Bank with Drive Thru                    | 912             | 1000 sq. ft.      | 6.64                                | 3.06                    | <b>20.32</b>               |
| Restaurant                              | 932             | 1000 sq. ft.      | 3.11                                | 3.06                    | <b>9.52</b>                |
| Fast food with Drive Thru               | 934             | 1000 sq. ft.      | 8.72                                | 3.06                    | <b>26.68</b>               |
| Quick Lubrication Vehicle Stop          | 941             | Serving Positions | 2.34                                | 3.06                    | <b>7.16</b>                |
| Automotive Care Center                  | 942             | 1000 sq. ft.      | 3.11                                | 3.06                    | <b>9.52</b>                |
| Others Not Specified                    |                 | 1000 sq. ft.      | 1.48                                | 2.85                    | <b>4.23</b>                |
| <b>Light Industrial</b>                 |                 |                   |                                     |                         |                            |
| General Light Industrial                | 110             | 1000 sq. ft.      | 0.97                                | 3.82                    | <b>3.70</b>                |
| Manufacturing                           | 140             | 1000 sq. ft.      | 0.73                                | 3.82                    | <b>2.79</b>                |
| Warehouse                               | 150             | 1000 sq. ft.      | 0.32                                | 3.82                    | <b>1.22</b>                |
| Mini Warehouse (Self Storage)           | 151             | 1000 sq. ft.      | 0.26                                | 3.82                    | <b>0.99</b>                |
| High-Cube Warehouse/Distribution Center | 152             | 1000 sq. ft.      | 0.12                                | 3.82                    | <b>0.46</b>                |
| Utilities                               | 170             | 1000 sq. ft.      | 0.76                                | 3.82                    | <b>2.90</b>                |
| Others Not Specified                    |                 | 1000 sq. ft.      | 0.97                                | 3.82                    | <b>3.70</b>                |
| <b>Institutional</b>                    |                 |                   |                                     |                         |                            |
| Private School (K-12)                   | 536             | Students          | 0.17                                | 2.22                    | <b>0.38</b>                |
| Jr. / Community College                 | 540             | Students          | 0.12                                | 5.36                    | <b>0.64</b>                |
| Church                                  | 560             | 1000 sq. ft.      | 0.55                                | 3.31                    | <b>1.82</b>                |
| Day Care Center                         | 565             | Students          | 0.81                                | 1.00                    | <b>0.81</b>                |
| Others Not Specified                    |                 | 1000 sq. ft.      | 0.55                                | 3.31                    | <b>1.82</b>                |

## 5.0 EXISTING CONDITIONS ANALYSIS

An inventory of major roadways that are designated as arterial and/or collector facilities on the Master Thoroughfare Plan was conducted to determine: 1) capacity provided by the existing roadway system, 2) the demand currently placed on the system, and 3) the potential existence of deficiencies on the system. Any deficiencies found to occur will be carried over in the impact fee calculations (netting out capacity made available by the CIP). Data for the inventory was obtained from the Master Thoroughfare Plan, field reconnaissance, and peak hour traffic volume count data.

The roadways were divided into segments based on changes in lane configuration, major intersections, city limits or area development that may influence roadway characteristics. For the assessment of individual segments, lane capacities were assigned to each segment based on roadway functional class defined by the Master Thoroughfare Plan and type of existing cross-section, as listed in **Table 8**. Roadway hourly volume capacities are based on general carrying capacity values and reflect level-of-service (LOS) “D” operation based upon generally accepted capacities as defined in AAMPO planning references, which has been identified as the minimum acceptable traffic operational condition by cities.

**TABLE 8: ROADWAY FACILITY VEHICLE-MILE LANE CAPACITIES**

| Roadway Facility Functional Classification                                                                                                                     | Designation | Hourly Vehicle-mile Capacity per Lane Mile of Roadway Facility |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------|
| Divided Arterial*                                                                                                                                              | DA          | 675                                                            |
| Divided Collector*                                                                                                                                             | DC          | 550                                                            |
| Undivided Arterial                                                                                                                                             | UA          | 625                                                            |
| Undivided Collector                                                                                                                                            | UC          | 500                                                            |
| *Facilities with a two-way left turn lane (TWLTL) treated as a divided facility and marked with a Special Arterial (SA) or Special Collector (SC) designation. |             |                                                                |

### 5.1 EXISTING VOLUMES

Existing directional PM peak hour volumes were obtained from automated traffic counts conducted in May 2015. Automated traffic counts at 30 separate locations were collected on major roadways throughout the city. In an effort to minimize the total number of counts, data was collected at locations where traffic volumes would typify link volumes on the major segments within the immediate area. For segments not counted, existing volumes were used or estimates were developed based on data from adjoining roadway counts.

This data was compiled for roadway segments throughout the city and entered into the database for use in calculations. A summary of volumes by roadway segment is included in the **Appendix B** as part of the existing capital improvements database.

## **5.2 VEHICLE-MILES OF EXISTING CAPACITY SUPPLY**

An analysis of the total capacity for each service area was performed. For each roadway segment, the existing vehicle-miles of capacity supplied were calculated using the following:

$$\text{Vehicle-Miles of Capacity} = \text{Link capacity per peak hour per lane} \times \text{No. of Lanes} \times \text{Length of segment (miles)}$$

A summary of the current capacity available on the roadway system by service area is detailed below.

## **5.3 VEHICLE-MILES OF EXISTING DEMAND**

The level of current usage in terms of vehicle-miles was calculated for each roadway segment. The vehicle-miles of existing demand were calculated by the following equation:

$$\text{Vehicle-Miles of Demand} = \text{PM peak hour volume} \times \text{Length of segment (miles)}$$

The total vehicle-miles of demand by service area is also listed below.

## **5.4 VEHICLE-MILES OF EXISTING EXCESS CAPACITY AND DEFICIENCIES**

For each roadway segment, the existing vehicle-miles of excess capacity and/or deficiencies were calculated and are listed in **Table 9**. Each direction was evaluated to determine if vehicle demands exceeded the available capacity. If demand exceeded capacity in one or both directions, the deficiency is deducted from the supply associated with the impact fee capital improvement plan. A summary of peak hour excess capacity and deficiencies is also shown in the table. Any deficiencies identified under current operations will be carried over to the impact fee calculation. A detailed listing of existing excess capacity and deficiencies by roadway segment is also located in the **Appendix B**.

**TABLE 9. PEAK HOUR VEHICLE-MILES OF EXISTING CAPACITY, DEMAND, EXCESS CAPACITY AND DEFICIENCIES**

| Service Area | Capacity | Demand | Excess Capacity | Existing Deficiencies |
|--------------|----------|--------|-----------------|-----------------------|
| 1            | 12,708   | 2,938  | 10,047          | 277                   |
| 2            | 37,321   | 20,846 | 16,690          | 215                   |
| 3            | 15,917   | 7,479  | 9,067           | 629                   |
| 4            | 1,478    | 130    | 1,348           | 0                     |
| <b>Total</b> | 67,424   | 31,393 | 37,151          | 1,121                 |

## 6.0 PROJECTED CONDITIONS ANALYSIS

Chapter 395 requires a description of all capital improvements or facility expansions and their costs necessitated by and attributable to new development within the service area. This section describes the projected growth, vehicle-miles of new demand, capital improvements program, vehicle-miles of new capacity supplied, and costs of the roadway improvements.

### 6.1 PROJECTED GROWTH

The projected growth for the roadway service area is represented by the increase in the number of new vehicle-miles of demand generated over the 10-year planning period. The basis for the calculation of new demand is the population and employment projections that were prepared as part of the Schertz Land Use Assumptions (LUA) Report for Impact Fees dated October 2017 by Freese and Nichols with a growth rate approved by the Schertz CIAC on May 13, 2015. Estimates of population and employment were prepared for the years 2017 and 2027.

Population data was provided in terms of the number of dwelling units and persons. Employment data was broken into three classes of employees that include basic, retail and service, comprising a variety of employment groupings. Basic employment generally encompasses the industrial and manufacturing uses; retail employment includes commercial and retail uses; and service employment generally encompasses government and office uses. A summary of the projected growth is summarized in **Table 4**.

#### 6.1.1 Projected Vehicle-Miles of New Demand

Projected vehicle-miles of demand were calculated based on the net growth expected to occur over the 10-year planning period, and on the associated service unit generation for each of the population and employment data components (basic, service and retail). Separate calculations were performed for each

data component and were then aggregated for each service area. Vehicle-miles of demand for population growth were based on dwelling units (residential). Vehicle-miles of demand for employment were based on the number of employees, and then converted to square footage of building space using estimates of square footage per employee for industrial, office and retail uses.

The 10-year projected vehicle-miles of demand by service area are summarized in **Table 10**. The **Appendix C** details the derivation of the projected demand calculations.

**TABLE 10. 10-YEAR PROJECTED SERVICE UNITS OF DEMAND**

| Service Area | Projected 10-Year Growth<br>(Vehicle-Miles) |
|--------------|---------------------------------------------|
| 1            | 10,461                                      |
| 2            | 17,905                                      |
| 3            | 14,918                                      |
| 4            | 124                                         |
| <b>Total</b> | <b>43,408</b>                               |

## 6.2 CAPITAL IMPROVEMENTS PLAN

The impact fee CIP is aimed at facilitating long-term growth in Schertz. The City has identified the City-funded transportation projects needed to accommodate the projected growth within the City. The CIP for Roadway Impact Fees can be made up of:

- Recently completed projects with excess capacity available to serve new growth;
- Projects currently under construction; and
- Remaining projects needed to complete the City's Master Thoroughfare Plan.

All arterial and collector facilities in the currently adopted Master Thoroughfare Plan not to the ultimate build-out were included in the impact fee CIP to provide flexibility in the development of the community due to currently rapid rates of development. The only exception is the FM 3009 extension which was excluded due to the high cost and undetermined scope and timing of the project. No completed (recoupment) projects were included in this initial study.

### 6.2.1 Eligible Projects

Legislative mandate stipulates that the impact fee CIP contain only those roadways which are included on the City's official Master Thoroughfare Plan that are classified as *arterial* or *collector* status facilities. Impact fee legislation also allows for the recoupment of costs for previously constructed facilities and

projects currently under construction; however, after consideration, none of the projects were included for recoupment. All of these projects conform to the Master Thoroughfare Plan requirements and will consider only the costs incurred by the City for facility implementation.

### 6.2.2 Eligible Costs

In general, those costs associated with the design, right-of-way acquisition, and construction and financing of all items necessary to implement the roadway projects identified in the capital improvements plan are eligible. These estimates are based on the ultimate roadway section identified by functional classification in the 2017 Master Thoroughfare Plan Report with an excerpt of these assumed sections in the **Appendix F**. It is important to note that upon completion of the capital improvements identified in the CIP, the city must recalculate the impact fee using the *actual* costs and make refunds if the actual cost is less than the impact fee paid by greater than 10 percent. To prevent this situation, conservative (low) estimates of project cost are considered.

Chapter 395.012 identifies roadway costs eligible for impact fee recovery. The law states that:

“An impact fee may be imposed only to pay the cost of constructing capital improvements for facility expansions, including and limited to the construction contract price, surveying and engineering fees, land acquisition costs, including land purchases, court awards and costs, attorney fees, and expert witness fees; and fees actually paid or contracted to be paid to an independent qualified engineer or financial consultant preparing or updating the capital improvements plan who is not an employee of the political subdivision.”

“Projected interest charges and other finance costs may be included in determining the amount of impact fees only if the impact fees are used for the payment of principal and interest on bonds, notes, or other obligations issued by or on behalf of the political subdivision to finance the capital improvements or facility expansions identified in the capital improvements plan and are not used to reimburse bond funds expended for facilities that are not identified in the capital improvements plan.”

The following details the individual cost components of the impact fee CIP.

Construction: Construction costs include those costs which are normally associated with construction, including: paving, dirt work (including sub-grade preparation, embankment fill and excavation), clearing and grubbing, retaining walls or other slope protection measures, and

general drainage items which are necessary in order to build the roadway and allow the roadway to fulfill its vehicle carrying capability. Individual items may include; bridges, culverts, inlets and storm sewers, junction boxes, manholes, curbs and/or gutters, and channel linings and other erosion protection appurtenances. Other items included in cost estimates may include: sidewalks, traffic control devices at select locations (initial cost only), ancillary adjustments to existing utilities, and minimal sodding/landscaping.

Engineering: These are the costs associated with the design and surveying necessary to construct the roadway. Because the law specifically references fees, it has generally been understood that in-house City design and surveying cannot be included. Only those services that are contracted out can be included and it may be necessary to use outside design and surveying firms to perform the work. For planned projects, a percentage based on typical engineering contracts was used to estimate these fees.

Right-of-Way: Any land acquisition cost estimated to be necessary to construct a roadway can be included in the cost estimate. For planning purposes, only the additional amount of land needed to bring a roadway right-of-way to thoroughfare standard was considered. For example, if a 120' right-of-way for an arterial road was needed and 80' of right-of-way currently existed, only 40' would be considered in the acquisition cost.

The cost for right-of-way may vary based on location of project and was based on data from the most current County Appraisal District data.

Debt Service: Predicted interest charges and finance costs may be included in determining the amount of impact fees only if the impact fees are used for the payment of principle and interest on bonds, notes, or other obligations issued by the city to finance capital improvements identified in the impact fee capital improvements plans. They cannot be used to reimburse bond funds for other facilities. This cost was determined through a credit analysis found in **Appendix I**.

Previous Assessments: The cost for any previous assessments collected by the City on projects identified on the impact fee CIP must be removed from program consideration. As this is a new impact fee program, there are no previous assessments to consider in the initial calculation.

Study Updates: The fees paid or contracted to be paid to an independent qualified engineer or financial consultant preparing or updating the capital improvements plan who is not an employee of the political subdivision can be included in the impact fees.

Only the cost necessitated by new development is considered for impact fee calculations. For example, if only 60% of the capacity provided by the impact fee CIP is needed over the ten-year window, then only 60% of the cost associated with those facilities will be considered. This can be seen in Service Area 1 as another example, where net capacity supplied by the CIP is 42,189 vehicle-miles (**Table 12**) while the projected demand is 10,461 vehicle-miles (**Table 10**). Therefore, only the portion of cost attributed to the projected demand, 24.8 percent, is considered in the impact fee cost per service unit calculation in the next phase of the study's Impact Fee Report. This calculation is shown for each service area in **Table 13**.

### 6.2.3 Impact Fee CIP

The proposed CIP consists of 71 project segments over the four service areas and entail the buildout of the full Master Thoroughfare Plan network, as seen in **Figure 2**. By including the full network, there is flexibility in the impact fee program funds to adapt to development needs and ensure credit is given to developers building thoroughfare roadways.

Project costs were developed based on unit cost estimates compiled by Freese and Nichols. Individual project costs were developed for engineering, right-of-way, and construction, as found in the **Appendix E**. Each roadway segment uses the Master Thoroughfare Plan's defined functional classification to determine the ultimate roadway standard for each link. Additionally, impact fee study update costs were attributed to the project costs. For recently completed projects, actual costs must be input to meet legislative mandates, but no completed projects were included in this initial impact fee program. The cost for the Impact Fee CIP (IFCIP) program totals \$229.0 million, excluding debt service. Debt service costs attributable to new development will be included in the cost per service unit calculation analysis as defined in the credit analysis. **Figure 2** and **Table 11** illustrate and list the capital improvement projects and their associated total cost for the impact fee program.

FIGURE 2  
CITY OF SCHERTZ  
Roadway Impact Fee  
Capital Improvements Plan

- Proposed CIP      1      3  
— Non-Eligible Projects      2      4

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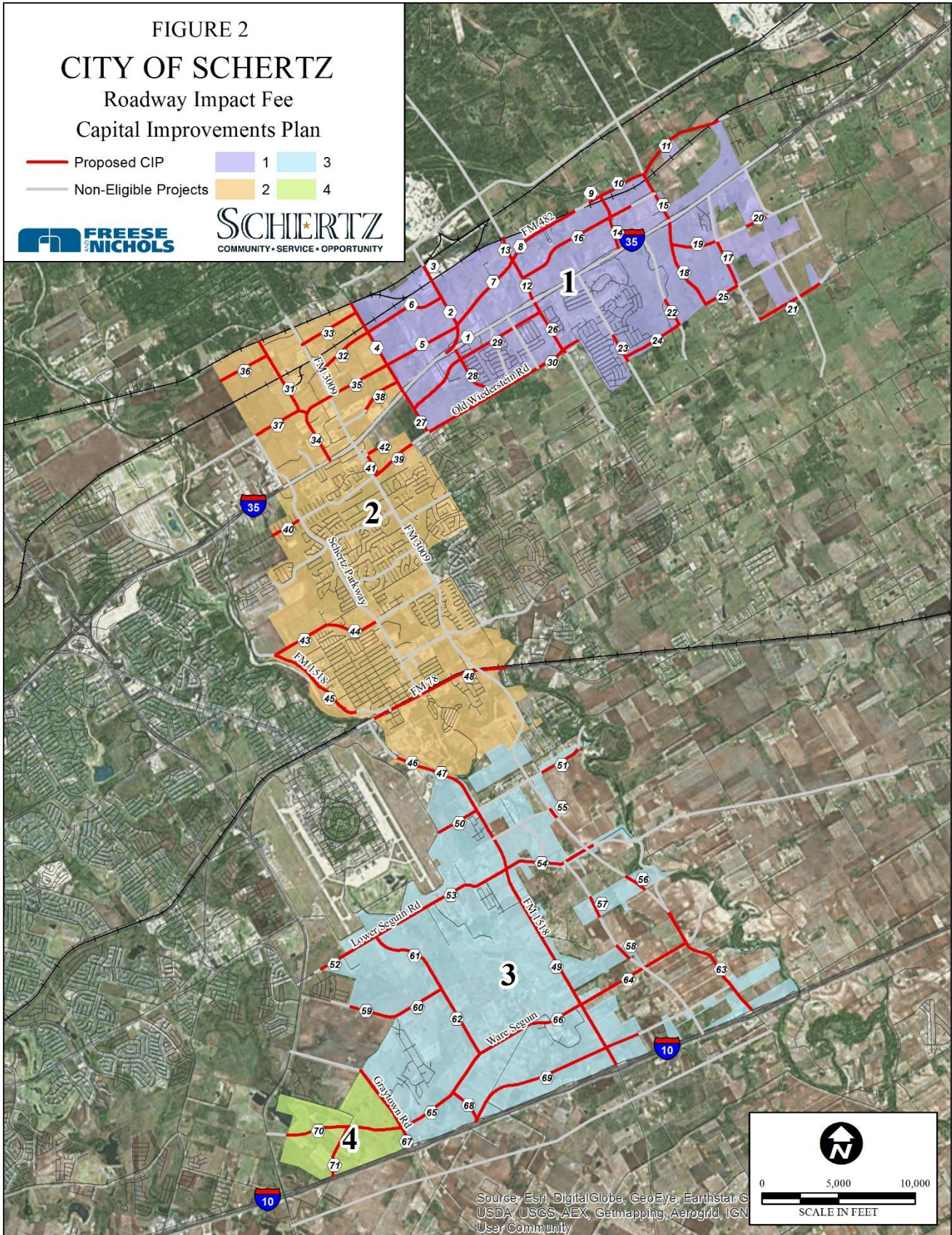


**TABLE 11: IMPACT FEE CIP LISTING**

| Serv Area             | Project No. | Roadway                  | From                    | To                    | Project Status | Length (mi)  | No. of Lanes | Type Rdwy | Thoroughfare Plan Description | Pct. in Serv. Area | Total Project Cost     |
|-----------------------|-------------|--------------------------|-------------------------|-----------------------|----------------|--------------|--------------|-----------|-------------------------------|--------------------|------------------------|
| 1                     | 1           | FM 2252                  | IH 35                   | FM 482                | New            | 0.32         | 4            | DA        | Principal Arterial            | 100%               | \$1,566,800            |
| 1                     | 2           | FM 2252                  | FM 482                  | Railroad Tracks       | New            | 0.64         | 4            | DA        | Secondary Arterial            | 100%               | \$3,146,000            |
| 1/X                   | 3           | FM 2252                  | Railroad Tracks         | N City Limits         | New            | 0.22         | 4            | DA        | Secondary Arterial            | 50%                | \$509,850              |
| 1/2                   | 4           | N/S Connector (1)        | IH 35                   | Railroad Tracks       | New            | 1.25         | 4            | DA        | Secondary Arterial            | 50%                | \$3,202,650            |
| 1                     | 5           | E/W Connector (1)        | N/S Connector (1)       | FM 2252               | New            | 0.99         | 4            | DA        | Secondary Arterial            | 100%               | \$5,513,000            |
| 1                     | 6           | E/W Connector (2)        | N/S Connector (1)       | FM 2252               | New            | 0.99         | 2            | UC        | Commercial Collector B        | 100%               | \$4,269,000            |
| 1                     | 7           | FM 482                   | FM 2252                 | Hubertus Rd           | New            | 1.05         | 4            | DA        | Principal Arterial            | 100%               | \$5,456,100            |
| 1                     | 8           | FM 482                   | Hubertus Rd             | Railroad Tracks       | New            | 1.00         | 4            | DA        | Principal Arterial            | 100%               | \$5,147,800            |
| 1                     | 9           | FM 482                   | 800' W of Friesenhahn   | Friesenhahn Ln        | New            | 0.15         | 4            | DA        | Principal Arterial            | 100%               | \$754,100              |
| 1/X                   | 10          | FM 482                   | Friesenhahn Ln          | Schwab Rd             | New            | 0.59         | 4            | DA        | Principal Arterial            | 50%                | \$1,530,000            |
| 1                     | 11          | FM 482                   | Schwab Rd               | E City Limits         | New            | 1.20         | 4            | DA        | Principal Arterial            | 100%               | \$6,205,500            |
| 1                     | 12          | Hubertus Rd              | IH 35                   | FM 482                | New            | 0.57         | 4            | DA        | Principal Arterial            | 100%               | \$2,855,700            |
| 1                     | 13          | Hubertus Rd              | FM 482                  | N City Limits         | New            | 0.30         | 4            | DA        | Principal Arterial            | 100%               | \$1,572,300            |
| 1                     | 14          | Friesenhahn Ln           | IH 35                   | FM 482                | New            | 0.72         | 3            | SC        | Commercial Collector A        | 100%               | \$1,343,600            |
| 1                     | 15          | Schwab Rd                | IH 35                   | FM 482                | New            | 0.63         | 6            | DA        | Principal Arterial            | 100%               | \$4,374,700            |
| 1                     | 16          | E/W Connector (3)        | Hubertus Rd             | David Lack Blvd       | New            | 1.59         | 3            | SC        | Commercial Collector A        | 100%               | \$6,110,000            |
| 1                     | 17          | Eckhardt Rd              | Froboese Ln             | Green Valley Rd       | New            | 1.11         | 2            | UC        | Residential Collector         | 100%               | \$3,727,100            |
| 1                     | 18          | Schwab Rd                | IH 35                   | S City Limits         | New            | 1.14         | 4            | DA        | Secondary Arterial            | 100%               | \$5,680,700            |
| 1                     | 19          | Froboese Ln              | Schwab Rd               | Eckhardt Rd           | New            | 0.57         | 2            | UC        | Residential Collector         | 100%               | \$2,030,400            |
| 1                     | 20          | Froboese Ln              | 2200' E of Eckhardt     | E City Limits         | New            | 0.26         | 2            | UC        | Residential Collector         | 100%               | \$890,000              |
| 1                     | 21          | Green Valley Rd          | W City Limits           | E City Limits         | New            | 0.87         | 4            | DA        | Secondary Arterial            | 100%               | \$4,199,500            |
| 1                     | 22          | Homestead Pkwy           | End Ex Homestead Pkwy   | S City Limits         | New            | 0.33         | 2            | UC        | Residential Collector         | 100%               | \$1,178,500            |
| 1                     | 23          | Country Club Blvd        | Scenic Links            | S City Limits         | New            | 0.35         | 2            | UC        | Residential Collector         | 100%               | \$1,257,100            |
| 1                     | 24          | E/W Connector (4)        | Country Club Blvd       | Homestead Pkwy        | New            | 0.77         | 2            | UC        | Residential Collector         | 100%               | \$2,671,200            |
| 1                     | 25          | E/W Connector (4)        | Schwab Rd               | Eckhardt Rd           | New            | 0.45         | 2            | UC        | Residential Collector         | 100%               | \$1,602,000            |
| 1                     | 26          | FM 1103                  | IH 35                   | Old Wiederstein Rd    | New            | 0.70         | 4            | DA        | Principal Arterial            | 100%               | \$2,000,000            |
| 1                     | 27          | N/S Connector (1)        | IH 35                   | Old Wiederstein Rd    | New            | 0.55         | 4            | DA        | Secondary Arterial            | 100%               | \$2,667,000            |
| 1                     | 28          | N/S Connector (2)        | IH 35                   | Old Wiederstein Rd    | New            | 0.73         | 4            | DA        | Secondary Arterial            | 100%               | \$3,635,700            |
| 1                     | 29          | E/W Connector (5)        | N/S Connector (1)       | FM 1103               | New            | 2.00         | 2            | UC        | Residential Collector         | 100%               | \$7,097,200            |
| 1/X                   | 30          | Old Wiederstein Rd       | N/S Connector (1)       | Cherry Tree Dr        | New            | 2.17         | 4            | DA        | Secondary Arterial            | 50%                | <del>\$5,143,600</del> |
| <b>Sub-total SA 1</b> |             |                          |                         |                       |                | <b>24.22</b> |              |           |                               |                    | <b>\$97,337,100</b>    |
| 2                     | 31          | Doerr Ln                 | N City Limits           | Lookout Rd            | New            | 0.91         | 3            | SC        | Commercial Collector A        | 100%               | \$3,249,900            |
| 2/1                   | 4           | N/S Connector (1)        | IH 35                   | Railroad Tracks       | New            | 1.25         | 4            | DA        | Secondary Arterial            | 50%                | \$3,130,900            |
| 2                     | 32          | E/W Connector (2)        | FM 3009                 | N/S Connector (1)     | New            | 0.81         | 2            | UC        | Commercial Collector B        | 100%               | \$3,386,200            |
| 2                     | 33          | E/W Connector (6)        | FM 3009                 | N/S Connector (1)     | New            | 0.81         | 2            | UC        | Commercial Collector B        | 100%               | \$3,386,100            |
| 2                     | 34          | Mid-Cities Pkwy          | IH 35                   | FM 3009               | New            | 0.98         | 3            | SC        | Commercial Collector A        | 100%               | \$3,293,700            |
| 2                     | 35          | E/W Connector (1)        | FM 3009                 | N/S Connector (1)     | New            | 0.81         | 4            | DA        | Secondary Arterial            | 100%               | \$4,190,900            |
| 2                     | 36          | E/W Connector (7)        | W City Limits           | Doerr Ln              | New            | 0.65         | 3            | SC        | Commercial Collector A        | 100%               | \$2,231,100            |
| 2                     | 37          | Lookout Rd               | Tri-County Pkwy         | Schertz Pkwy          | New            | 0.74         | 3            | SC        | Commercial Collector A        | 100%               | \$2,743,600            |
| 2                     | 38          | Four Oaks Ln             | End of Ex .Four Oaks Ln | N/S Connector (1)     | New            | 0.54         | 3            | SC        | Commercial Collector A        | 100%               | \$1,977,300            |
| 2                     | 39          | Wiederstein Rd           | E City Limits           | FM 3009               | New            | 0.64         | 4            | DA        | Secondary Arterial            | 100%               | \$3,079,800            |
| 2                     | 40          | Wiederstein Rd           | Schertz Pkwy            | W City Limits         | New            | 0.41         | 2            | UC        | Residential Collector         | 100%               | \$1,294,700            |
| 2                     | 41          | Baptist Health Dr        | Ripps-Kreusler          | Wiederstein Rd        | New            | 0.27         | 3            | SC        | Commercial Collector A        | 100%               | \$992,900              |
| 2                     | 42          | Ripps-Kreusler           | Baptist Health Dr       | End of Ripps Kreusler | New            | 0.22         | 3            | SC        | Commercial Collector A        | 100%               | \$803,900              |
| 2                     | 43          | Maske Rd                 | FM 1518                 | Oak St                | New            | 0.54         | 3            | SC        | Commercial Collector A        | 100%               | \$1,827,600            |
| 2                     | 44          | Maske Rd Realignment     | Oak St                  | Schertz Pkwy          | New            | 0.88         | 2            | UC        | Residential Collector         | 100%               | \$3,645,200            |
| 2                     | 45          | FM 1518/Main St          | Maske Rd                | Oak St                | New            | 1.30         | 3            | SA        | Secondary Arterial            | 100%               | \$4,494,500            |
| 2                     | 46          | FM 1518                  | N City Limits           | SA 3 Limit            | New            | 0.36         | 6            | DA        | Principal Arterial            | 100%               | \$436,300              |
| 2/3                   | 47          | FM 1518                  | SA 3 Limit              | Schertz Pkwy Ext.     | New            | 0.39         | 6            | DA        | Principal Arterial            | 50%                | \$222,650              |
| 2                     | 48          | FM 78/John Peterson Blvd | W City Limits           | E City Limits         | New            | 1.81         | 6            | DA        | Principal Arterial            | 100%               | <del>\$2,683,780</del> |
| <b>Sub-total SA 2</b> |             |                          |                         |                       |                | <b>14.34</b> |              |           |                               |                    | <b>\$47,071,030</b>    |

**TABLE 11: IMPACT FEE CIP LISTING (CONTINUED)**

| Serv Area             | Project No. | Roadway               | From              | To                    | Project Status | Length (mi)  | No. of Lanes | Type Rdwy | Thoroughfare Plan Description | Pct. in Serv. Area | Total Project Cost   |
|-----------------------|-------------|-----------------------|-------------------|-----------------------|----------------|--------------|--------------|-----------|-------------------------------|--------------------|----------------------|
| 3/2                   | 47          | FM 1518               | SA 2 Limit        | Schertz Pkwy Ext.     | New            | 0.39         | 6            | DA        | Principal Arterial            | 50%                | \$222,650            |
| 3                     | 49          | FM 1518               | Schertz Pkwy Ext. | IH 10                 | New            | 4.09         | 6            | DA        | Principal Arterial            | 100%               | \$5,165,000          |
| 3                     | 50          | Schaefer Rd           | W City Limits     | FM 1518               | New            | 0.48         | 2            | UC        | Residential Collector         | 100%               | \$1,536,700          |
| 3/X                   | 51          | RAF - Burnette        | Schaefer Rd       | E City Limits         | New            | 0.55         | 4            | DA        | Secondary Arterial            | 50%                | \$1,279,500          |
| 3/X                   | 52          | Lower Seguin Rd       | W City Limits     | E of Bates Dr         | New            | 0.35         | 3            | SA        | Secondary Rural Arterial      | 50%                | \$686,450            |
| 3                     | 53          | Lower Seguin Rd       | E of Bates Dr     | W of Canopy Bend      | New            | 1.76         | 3            | SA        | Secondary Rural Arterial      | 100%               | \$6,998,900          |
| 3                     | 54          | Lower Seguin Rd       | W of Canopy Bend  | E City Limits         | New            | 1.72         | 4            | DA        | Secondary Arterial            | 100%               | \$7,860,400          |
| 3                     | 55          | N/S Connector (3)     | N City Limits     | S City Limits         | New            | 0.15         | 4            | DA        | Principal Arterial            | 100%               | \$764,000            |
| 3                     | 56          | N/S Connector (3)     | N City Limits     | S City Limits         | New            | 0.27         | 4            | DA        | Principal Arterial            | 100%               | \$1,380,400          |
| 3                     | 57          | N/S Connector (4)     | N City Limits     | S City Limits         | New            | 0.26         | 2            | UC        | Residential Collector         | 100%               | \$894,600            |
| 3                     | 58          | N/S Connector (4)     | N City Limits     | S City Limits         | New            | 0.21         | 2            | UC        | Residential Collector         | 100%               | \$725,000            |
| 3/X                   | 59          | W Ware Seguin Rd      | W City Limits     | Boeing Dr             | New            | 0.57         | 2            | UC        | Residential Collector         | 50%                | \$900,550            |
| 3                     | 60          | W Ware Seguin Rd      | Boeing Dr         | N/S Connector (5)     | New            | 0.67         | 2            | UC        | Residential Collector         | 100%               | \$2,236,900          |
| 3                     | 61          | N/S Connector (5)     | Lower Seguin Rd   | W Ware Seguin Rd      | New            | 1.10         | 2            | UC        | Residential Collector         | 100%               | \$3,780,500          |
| 3                     | 62          | N/S Connector (5)     | W Ware Seguin Rd  | E Ware Seguin Rd      | New            | 0.93         | 2            | UC        | Residential Collector         | 100%               | \$3,227,400          |
| 3                     | 63          | Trainer Hale Rd (N/S) | Weir Rd           | IH 10                 | New            | 1.66         | 4            | DA        | Principal Arterial            | 100%               | \$8,020,500          |
| 3                     | 64          | Trainer Hale Rd (E/W) | FM 1518           | Trainer Hale Rd (N/S) | New            | 1.51         | 4            | DA        | Secondary Arterial            | 100%               | \$7,710,300          |
| 3                     | 65          | Ware Seguin Rd        | Graytown Rd       | N/S Connector (5)     | New            | 1.35         | 3            | SA        | Secondary Rural Arterial      | 100%               | \$4,736,300          |
| 3                     | 66          | E Ware Seguin Rd      | N/S Connector (5) | FM 1518               | New            | 1.41         | 3            | SA        | Secondary Rural Arterial      | 100%               | \$4,739,900          |
| 3/4                   | 67          | Graytown Rd           | Boeing Dr         | IH 10                 | New            | 1.11         | 3            | SA        | Secondary Rural Arterial      | 50%                | \$2,000,600          |
| 3                     | 68          | N/S Connector (6)     | Ware Seguin Rd    | IH 10                 | New            | 0.47         | 3            | SC        | Commercial Collector A        | 100%               | \$1,712,600          |
| 3                     | 69          | E/W Connector (8)     | IH 10             | E City Limits         | New            | 2.33         | 3            | SC        | Commercial Collector A        | 100%               | \$8,482,300          |
| <b>Sub-total SA 3</b> |             |                       |                   |                       |                | <b>23.33</b> |              |           |                               |                    | <b>\$75,061,450</b>  |
| 4/3                   | 67          | Graytown Rd           | Boeing Dr         | IH 10                 | New            | 1.11         | 3            | SA        | Secondary Rural Arterial      | 50%                | \$2,000,600          |
| 4                     | 70          | Binz-Engleman Rd      | W City Limits     | Graytown Rd           | New            | 1.30         | 3            | SA        | Secondary Rural Arterial      | 100%               | \$4,667,000          |
| 4                     | 71          | Scenic Lake Dr        | Binz-Engleman Rd  | IH 10                 | New            | 0.77         | 3            | SC        | Commercial Collector A        | 100%               | \$2,777,400          |
| <b>Sub-total SA 4</b> |             |                       |                   |                       |                | <b>3.19</b>  |              |           |                               |                    | <b>\$9,445,000</b>   |
| <b>Totals:</b>        |             |                       |                   |                       |                | <b>65.08</b> |              |           |                               |                    | <b>\$228,914,580</b> |

|                |                                |               |
|----------------|--------------------------------|---------------|
| <b>Totals:</b> | Engineering Cost               | \$14,149,150  |
|                | Right-of-Way Cost              | \$10,633,600  |
|                | Construction Cost              | \$204,131,830 |
|                |                                |               |
|                | TOTAL NET COST                 | \$228,914,580 |
|                | Future Impact Fee Update Cost* | \$100,000     |
|                |                                |               |
|                | TOTAL IMPLEMENTATION COST      | \$229,014,580 |

**Notes:**

DA- Divided arterial

SA- Special arterial (with two way left turn lane)

SC- Special collector (with two way left turn lane)

UC- Undivided collector

Recoup- Recoupment Project

New - New Project

\* Cost for (2) 5 year updates

\*/X indicates roadway half in/half out of City Limits

\*/\* indicates roadway split between two service areas

## 6.2.4 Projected Vehicle-Miles Capacity Available for New Growth

The vehicle-miles of new capacity supply were calculated similar to the vehicle-miles of existing capacity supplied. The equation used was:

$$\text{Vehicle-Miles of New Capacity} = \text{Link capacity per peak hour per lane} \times \text{No. of Lanes} \times \text{Length of segment (miles)}$$

Vehicle-miles of new supply provided by the CIP are listed in **Table 12**. While projects listed in the CIP have not been built, the existing utilization on CIP roadways and system deficiencies on the current network (by service area) have been removed from the total supply to properly account for new “net” capacity available for consumption by new growth. **Table 12**, Column E, depicts net availability of supply by the CIP. **Appendix D** details capacity calculations provided by the CIP program.

**TABLE 12: CAPACITY AND NET CAPACITY PROVIDED BY THE PROPOSED CIP**

|              | A                                 | B                                             | C = A – B                | D                                      | E = C – D                             |
|--------------|-----------------------------------|-----------------------------------------------|--------------------------|----------------------------------------|---------------------------------------|
| Service Area | Capacity Supplied by CIP (veh-mi) | Existing Utilization on CIP Roadways (veh-mi) | Excess Capacity (veh-mi) | Current Network Deficiencies* (veh-mi) | Net Capacity Supplied by CIP (veh-mi) |
| 1            | 45,213                            | 2,747                                         | 42,466                   | 0                                      | 42,466                                |
| 2            | 25,210                            | 6,998                                         | 18,212                   | 0                                      | 18,212                                |
| 3            | 46,511                            | 7,305                                         | 39,206                   | 0                                      | 39,206                                |
| 4            | 3,359                             | 130                                           | 3,229                    | 0                                      | 3,229                                 |
| <b>Total</b> | 120,292                           | 17,181                                        | 103,113                  | 0                                      | 103,113                               |

\*All current network deficiencies (Table 9) are located on CIP roadways and therefore accounted for in Column B, Existing Utilization, of this table.

As part of this initial program assessment, the current network deficiencies listed in **Table 9** (calculated in **Appendix B**) are all located on CIP roadways. Future updates may find deficiencies on other system facilities which are not captured as part of the CIP analysis. These system deficiencies are deducted from the total capacity supplied by the CIP based on the premise that improvements from the CIP program (full network implementation) will alleviate issues that currently exist due to a limited network.

A comparison of net capacity provided by the proposed CIP relative to 10-year needs is listed below in **Table 13**. An analysis reveals an adequately matched overall impact fee CIP program to address growth attributable to new development.

**TABLE 13: PROJECTED DEMAND AND NET CAPACITY  
PROVIDED BY THE PROPOSED CIP**

|              | A                                           | B                                              | B / A<br>(Max 100%)                                  |
|--------------|---------------------------------------------|------------------------------------------------|------------------------------------------------------|
| Service Area | Net Capacity<br>Supplied by CIP<br>(veh-mi) | Projected 10-Year<br>Growth<br>(Vehicle-Miles) | Pcnt. Of CIP<br>Attributable to New<br>Dev. (10-Yr.) |
| 1            | 42,466                                      | 10,461                                         | 24.6                                                 |
| 2            | 18,212                                      | 17,905                                         | 98.3                                                 |
| 3            | 39,206                                      | 14,918                                         | 38.1                                                 |
| 4            | 3,229                                       | 124                                            | 3.8                                                  |
| <b>Total</b> | <b>103,113</b>                              | <b>43,408</b>                                  | <b>42.1</b>                                          |

#### 6.2.5 Cost of Roadway Improvements

The total IFCIP cost, including study update costs, and cost of net capacity supplied to implement the roadway improvements plan projects by service area is shown in **Table 14**. If traffic exists on proposed CIP project roadways or there are any deficiencies present on the current network in each respective service area (existing utilization), the total system cost is adjusted to reflect the net capacity being made available by the impact fee program. In other words, only the unused portion of the CIP and its associated costs are considered eligible. A detailed listing by project segment in each service area can be found in **Appendix F**. **Appendix H** details system costs by service area.

**TABLE 14: SUMMARY OF ROADWAY IMPROVEMENTS PLAN COST ANALYSIS**

| Service Area | Total Cost of<br>Proposed IFCIP Projects<br>(Including Impact Fee<br>Update Cost) | Cost to Meet Existing<br>Utilization on<br>CIP Roadways | Cost of Net Capacity<br>Supplied by CIP |
|--------------|-----------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------|
| 1            | \$97,374,686                                                                      | \$5,917,209                                             | \$91,457,477                            |
| 2            | \$47,091,987                                                                      | \$13,072,601                                            | \$34,019,386                            |
| 3            | \$75,100,115                                                                      | \$11,795,549                                            | \$63,304,566                            |
| 4            | \$9,447,792                                                                       | \$365,723                                               | \$9,082,070                             |
| <b>Total</b> | <b>\$229,014,580</b>                                                              | <b>\$31,151,082</b>                                     | <b>\$197,863,498</b>                    |

## 7.0 CALCULATION OF IMPACT FEES

This chapter discusses the calculation of the cost per service unit and the calculation of roadway impact fees. The roadway impact fee will vary by the particular land use, service area, and size of the development. Examples are included to better illustrate the method by which the roadway impact fees are calculated.

### 7.1 COST PER SERVICE UNIT

The cost per service unit is calculated by dividing the cost of the CIP necessitated and attributable to new demand (net cost) by the projected service units of growth over the 10-year planning period.

#### 7.1.1 Cost Attributable to New Development

Generally, the cost per service unit varies by service area because of; the net capacity being provided by the proposed projects, variations in cost of CIP and, the number of service units necessitated by new growth in each impact fee service area. Where net capacity supplied is greater than demand, the cost per service unit is simply the cost of the net capacity divided by the number of service units provided. In this case, only the portion of the CIP necessitated by new development is used in the calculation. If net capacity supplied is *less* than projected new demand, then the cost per service unit is calculated by dividing the total cost of net supply by the portion of new demand attributable and necessary by development. The result is generally a decrease in the cost per service unit, because such cost is spread over the larger number of service units of growth. This is shown in **Table 15** in Columns A-C calculating the cost attributable to new development through the percent of CIP capacity attributable calculated in **Table 13**.

The debt service costs for the portion of CIP costs was determined in the credit analysis study performed by Eddie Peacock, PLLC. Based on 3 bond series over the 10-year period with 3% interest rates, the cost of debt service attributable to new development is shown in **Table 15** with a detailed breakdown in **Appendix I**. The resultant total cost of the impact fee program attributable to new development in the 10-year period is calculated by summing this debt service cost with the aforementioned cost attributable from the CIP cost.

**TABLE 15: ROADWAY IMPROVEMENTS PLAN COST ATTRIBUTABLE TO NEW DEVELOPMENT**

|              | A                                               | B                                                       | C = A x B                                | D                                            | E = C + D                                  |
|--------------|-------------------------------------------------|---------------------------------------------------------|------------------------------------------|----------------------------------------------|--------------------------------------------|
| Service Area | Cost of Net Capacity Supplied by CIP (Table 14) | Pcnt. Of CIP Attributable to New Development (Table 13) | CIP Cost Attributable to New Development | Debt Service Attributable to New Development | Total Cost Attributable to New Development |
| 1            | \$91,457,477                                    | 24.6                                                    | \$22,529,530                             | \$2,679,760                                  | \$25,209,290                               |
| 2            | \$34,019,386                                    | 98.3                                                    | \$33,446,663                             | \$3,978,291                                  | \$37,424,954                               |
| 3            | \$63,304,566                                    | 38.1                                                    | \$24,088,331                             | \$2,865,171                                  | \$26,953,502                               |
| 4            | \$9,082,070                                     | 3.8                                                     | \$349,635                                | \$41,588                                     | \$391,223                                  |
| <b>Total</b> | <b>\$197,863,498</b>                            | <b>42.1</b>                                             | <b>\$80,414,159</b>                      | <b>\$9,564,810</b>                           | <b>\$89,978,969</b>                        |

### 7.1.2 Credit Analysis

Per Chapter 395, the cost of the CIP must be credited for ad-valorem tax generated through new development either through a credit analysis or a flat 50% credit. The City of Schertz opted to perform the credit analysis in lieu of the 50% credit with Eddie Peacock, PLLC performing the calculation. The resulting CIP credit is listed in **Table 16** and detailed further in **Appendix I**.

**TABLE 16: COST PER SERVICE UNIT SUMMARY**

| Service Area | Total Cost Attributable to New Development | CIP Credit          | Total Cost Attributable to New Development (Less Credit) |
|--------------|--------------------------------------------|---------------------|----------------------------------------------------------|
| 1            | \$25,209,290                               | \$7,974,490         | \$17,234,800                                             |
| 2            | \$37,424,954                               | \$13,649,051        | \$23,775,903                                             |
| 3            | \$26,953,502                               | \$11,371,991        | \$15,581,511                                             |
| 4            | \$391,223                                  | \$94,525            | \$296,698                                                |
| <b>Total</b> | <b>\$89,978,969</b>                        | <b>\$33,090,057</b> | <b>\$56,888,912</b>                                      |

### 7.1.3 Maximum Cost per Service Unit Calculation

**Table 17** lists the results of the cost per service unit calculation by service area. The base cost per service unit reflects the true burden to the City for the implementation of the roadway capital improvements program. As per state law, a credit for the portion of ad-valorem tax revenues generated by improvements over the program period must be given. Based on the credit analysis the maximum collection rate after credit reflects the maximum amount per service unit that can be charged to be in compliance with the state statute. **Appendix H** details the maximum fee per service unit calculation for each service area.

**TABLE 17: COST PER SERVICE UNIT SUMMARY**

|              | A                                        | B                                          | C                                                        | D = B / A                  | E = C / A                                              |
|--------------|------------------------------------------|--------------------------------------------|----------------------------------------------------------|----------------------------|--------------------------------------------------------|
| Service Area | Projected 10-Year Growth (Vehicle-Miles) | Total Cost Attributable to New Development | Total Cost Attributable to New Development (Less Credit) | Base Cost per Service Unit | Maximum Allowable Cost per Service Unit (After Credit) |
| 1            | 10,461                                   | \$25,209,290                               | \$17,234,800                                             | \$2,409.84                 | \$1,647.53                                             |
| 2            | 17,905                                   | \$37,424,954                               | \$23,775,903                                             | \$2,090.20                 | \$1,327.89                                             |
| 3            | 14,918                                   | \$26,953,502                               | \$15,581,511                                             | \$1,806.78                 | \$1,044.48                                             |
| 4            | 124                                      | \$391,223                                  | \$296,698                                                | \$3,155.02                 | \$2,392.72                                             |
| <b>Total</b> | 43,408                                   | \$89,978,969                               | \$56,888,912                                             | \$2,072.87                 | \$1,310.56                                             |

## 7.2 CALCULATION OF ROADWAY IMPACT FEES

The calculation of roadway impact fees for new development involves a two-step process. *Step One* is the calculation of the total number of service units that will be generated by the development. *Step Two* is the calculation of the impact fee due by the new development.

*Step 1:* Determine number of service units (vehicle-miles) generated by the development using the equivalency table.

$$\begin{array}{ccccc} \text{No. of Development} & \times & \text{Vehicle-miles} & = & \text{Development's} \\ \text{Units} & & \text{per development unit} & & \text{Vehicle-miles} \end{array}$$

*Step 2:* Calculate the impact fee based on the fee per service unit for the service area where the development is located.

$$\begin{array}{ccccc} \text{Development's} & \times & \text{Fee per} & = & \text{Impact Fee due} \\ \text{Vehicle-miles} & & \text{vehicle-mile} & & \text{from Development} \end{array}$$

*Examples: The following fees would be assessed to new developments in Schertz in Service Area 1 if the cost per service unit were \$1,647.00*

Single-Family Dwelling

1 dwelling unit x 3.37 vehicle-miles/dwelling unit = 3.37 vehicle-miles

3.37 vehicle-miles x \$1,647.00/vehicle-mile = \$5,550.39

10,000 square foot (s.f.) Office Building

10 (1,000 s.f. units) x 5.69 vehicle-miles/1,000 s.f. units = 56.90 vehicle-miles

56.90 vehicle-miles x \$1,647.00/vehicle-mile = \$93,714.30

20,000 s.f. Retail Center

20 (1,000 s.f. units) x 4.23 vehicle-miles/1,000 s.f. units = 84.60 vehicle-miles

84.60 vehicle-miles x \$1,647.00/vehicle-mile = \$139,336.20

100,000 s.f. Warehouse

100 (1,000 s.f. units) x 1.22 vehicle-miles/1,000 s.f. units = 122.00 vehicle-miles

122.00 vehicle-miles x \$1,647.00/vehicle-mile = \$200,934.00

## **APPENDICES**

**Appendix A:**  
**Roadway Impact Fee Definitions**

## ROADWAY IMPACT FEE DEFINITIONS

**Average Trip Length** - the average actual travel distance between two points. The average trip length by specific land use varies.

**Diverted Trip** - similar to pass-by trip, but a diversion is made from the regular route to make an interim stop.

**Impact Fee** - a charge or assessment imposed by a city against new development to generate revenue for funding or recouping roadway improvements necessitated and attributable to new development.

**Maximum Fee Per Service Unit** - the highest impact fee that may be collected by the City per vehicle-mile of supply. Calculated by dividing the costs of the capital improvements by the total number of vehicle-miles of demand expected in the 10-year planning period.

**Pass-by Trip** - a trip made as an intermediate stop on the way from an origin to a primary trip destination. For example, a stop at a convenience store on the way to office from home.

**PM Peak Hour** - the hour when the highest volume of traffic typically occurs. Data collection revealed the peak hour of travel to be between 5:00 and 6:00 pm.

**PM Peak Hour Traffic Counts** - the number of vehicles passing a certain point during the peak hours of travel. Traffic counts are conducted during the PM peak hour because the greatest demand for roadway capacity occurs during this hour.

**Primary Trip** - a trip made for the specific purpose of visiting a destination; for example, from home to office.

**Roadway Demand** - the demand placed on the roadway network as a result of development. Determined by multiplying the trip generation of a specific land use by the average trip length.

**Roadway Supply (or Capacity)** - the number of service units provided by a segment of roadway over a period of time. Determined by multiplying the lane capacity by the roadway length.

**Service Area** - the area within the city boundaries to be served by capital improvements. Criteria for developing the service area structure include: 1) restricted to six-mile limit by legislation (to ensure proximity of roadway improvements to development), 2) conforms to census or forecast model boundaries, 3) projects on CIP as boundaries, 4) effort to match roadway supply with projected demand, and 5) city limit boundaries.

**Service Unit** - a measure of use or generation attributable to new development for roadway improvements. Also used to measure supply provided by existing and proposed roadway improvements.

**Trip** - a single, one-direction vehicle movement from an origin to a destination.

**Trip Generation** - the total trip ends for a land use over a given period of time or the total of all trips entering and exiting a site during that designated time. Used in the development of 10-year traffic demand projections and the equivalency table. Based primarily on data prepared by the Institute of Transportation Engineers (ITE).

**Vehicle** - for impact fee purposes, any motorized appurtenance that carries passengers and/or goods on the roadway system during peak periods of travel.

**Vehicle-mile** - a unit used to express both supply and demand provided by, and placed on, the roadway system. A combination of a number of vehicles traveling during a given time period and the distance which those vehicles travel in miles

**Appendix B:**  
**Existing Conditions Analysis**

## DEFINITIONS

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LANES                              | The total number of lanes in both directions available for travel.                                                                                                                                                                                                                                                                                                                                            |
| TYPE                               | The type of roadway (used in determining capacity):<br><br>DA = divided arterial<br>UA = undivided arterial<br>DC = divided collector<br>UC = undivided collector<br>SC = special collector (roadway with continuous left turn)<br>SA = special arterial (roadway with continuous left turn)                                                                                                                  |
| PK-HR VOLUME                       | The existing volume of cars on the roadway segment traveling during the afternoon (P.M.) peak hour of travel. A and B indicate the two directions of travel. Direction A is a northbound or eastbound and direction B is southbound or westbound. If only one half of the roadway is located within the service area (see % in service area), the opposing direction will have no volume in the service area. |
| % IN SERVICE AREA                  | If the roadway is located on the boundary of the service area (with the city limits running along the centerline of the roadway), then half of the roadway is inventoried in the service area and the other half is not. This value is either 50% or 100%.                                                                                                                                                    |
| VEH-MI SUPPLY TOTAL                | The number of total service units (vehicle-miles) supplied within the service area, based on the length and established capacity of the roadway type.                                                                                                                                                                                                                                                         |
| VEH-MI TOTAL DEMAND PK-HR          | The total service unit (vehicle-mile) demand created by existing traffic on the roadway segment in the afternoon peak hour.                                                                                                                                                                                                                                                                                   |
| EXCESS CAPACITY PK-HR VEH-MI       | The number of service units supplied but unused by existing traffic in the afternoon peak hour.                                                                                                                                                                                                                                                                                                               |
| EXISTING DEFICIENCIES PK-HR VEH-MI | The number of service units of demand in excess of the service units supplied.                                                                                                                                                                                                                                                                                                                                |

NOTE: Excess capacity and existing deficiencies are calculated separately for each direction. It is possible to have excess capacity in one direction and an existing deficiency in the other. When both directions have excess capacity or deficiencies, the total for both directions are presented.

**Schertz Roadway Impact Fee Study**  
**Existing Capital Improvements Analysis**

| Serv<br>Area     | Roadway                | From                       | To                     | A              |                 | B    |  | C                |                       | D                |      |      | A x B x C                 |                           | A x D                        |                         |
|------------------|------------------------|----------------------------|------------------------|----------------|-----------------|------|--|------------------|-----------------------|------------------|------|------|---------------------------|---------------------------|------------------------------|-------------------------|
|                  |                        |                            |                        | Length<br>(mi) | No. of<br>Lanes | Type |  | Lane<br>Capacity | Pct. in<br>Serv. Area | Peak Hour Volume |      |      | VTM Supply<br>Pk Hr Total | VTM Demand<br>Pk Hr Total | Total VMT<br>Excess Capacity | Total VMT<br>Deficiency |
| 1                | FM 2252                | IH 35                      | Railroad Tracks        | 0.87           | 2               | UA   |  | 625              | 100%                  | 73               | 250  | 323  | 1084                      | 280                       | 804                          | 0                       |
| 1/X              | FM 2252                | Railroad Tracks            | N City Limits          | 0.22           | 2               | UA   |  | 625              | 50%                   | 0                | 250  | 250  | 138                       | 55                        | 83                           | 0                       |
| 1                | FM 482                 | FM 2252                    | Hubertus Rd            | 1.05           | 2               | UA   |  | 625              | 100%                  | 46               | 52   | 98   | 1315                      | 103                       | 1212                         | 0                       |
| 1                | FM 482                 | Hubertus Rd                | Railroad Tracks        | 1.00           | 2               | UA   |  | 625              | 100%                  | 46               | 52   | 98   | 1252                      | 98                        | 1154                         | 0                       |
| 1                | FM 482                 | Railroad Tracks            | Friesenhahn Ln         | 0.18           | 2               | UA   |  | 625              | 100%                  | 46               | 52   | 98   | 222                       | 17                        | 204                          | 0                       |
| 1/X              | FM 482                 | Friesenhahn Ln             | E City Limits          | 0.59           | 2               | UA   |  | 625              | 50%                   | 46               | 0    | 46   | 369                       | 27                        | 342                          | 0                       |
| 1                | Hubertus Rd            | IH 35                      | FM 482                 | 0.57           | 2               | UA   |  | 625              | 100%                  | 30               | 57   | 87   | 708                       | 49                        | 659                          | 0                       |
| 1                | Friesenhahn Ln         | IH 35                      | FM 482                 | 0.72           | 2               | UC   |  | 500              | 100%                  | 50               | 50   | 100  | 717                       | 72                        | 645                          | 0                       |
| 1                | Schwab Rd              | IH 35                      | Railroad Tracks        | 0.53           | 3               | SA   |  | 675              | 100%                  | 120              | 315  | 435  | 721                       | 232                       | 489                          | 0                       |
| 1                | Eckhardt Rd            | IH 35                      | S City Limits          | 1.17           | 2               | UA   |  | 625              | 100%                  | 19               | 11   | 30   | 1466                      | 35                        | 1431                         | 0                       |
| 1                | Schwab Rd              | IH 35                      | End of Schwab Rd       | 0.36           | 2               | UA   |  | 625              | 100%                  | 3                | 2    | 5    | 454                       | 2                         | 452                          | 0                       |
| 1                | Country Club Blvd      | IH 35                      | Northcliffe Golf Club  | 0.46           | 2               | DC   |  | 550              | 100%                  | 50               | 50   | 100  | 507                       | 46                        | 461                          | 0                       |
| 1                | Country Club Blvd      | Northcliffe Golf Club      | End of Ex Country Club | 0.39           | 2               | DC   |  | 550              | 100%                  | 50               | 50   | 100  | 434                       | 39                        | 395                          | 0                       |
| 1                | FM 1103                | IH 35                      | Old Wiederstein Rd     | 0.70           | 2               | UA   |  | 625              | 100%                  | 590              | 1020 | 1610 | 877                       | 1129                      | 25                           | 277                     |
| 1                | Belmont Pkwy           | IH 35                      | Old Wiederstein Rd     | 0.74           | 2               | UC   |  | 500              | 100%                  | 20               | 20   | 40   | 739                       | 30                        | 710                          | 0                       |
| 1/X              | Old Wiederstein Rd     | Cibolo Valley Dr           | Cherry Tree Dr         | 2.17           | 2               | UA   |  | 625              | 50%                   | 0                | 177  | 177  | 1356                      | 384                       | 972                          | 0                       |
| 1/X              | Wiederstein Rd         | IH 35                      | Old Wiederstein Rd     | 0.56           | 2               | UA   |  | 625              | 50%                   | 607              | 0    | 607  | 348                       | 338                       | 10                           | 0                       |
| <b>Sub-Total</b> |                        |                            |                        | <b>12.29</b>   |                 |      |  |                  |                       |                  |      |      | <b>12,708</b>             | <b>2,938</b>              | <b>10,047</b>                | <b>277</b>              |
| 2                | FM 3009                | N City Limits              | IH 35                  | 1.62           | 4               | DA   |  | 675              | 100%                  | 1010             | 900  | 1910 | 4368                      | 3090                      | 1278                         | 0                       |
| 2                | Doerr Ln               | Bell N Dr                  | Lookout Rd             | 0.91           | 2               | UC   |  | 500              | 100%                  | 50               | 50   | 100  | 913                       | 91                        | 822                          | 0                       |
| 2                | Lookout Rd             | Doerr Ln                   | Schertz Pkwy           | 0.62           | 2               | UC   |  | 500              | 100%                  | 133              | 219  | 352  | 623                       | 219                       | 404                          | 0                       |
| 2                | Four Oaks Ln           | FM 3009                    | End of Four Oaks Ln    | 0.33           | 2               | UC   |  | 500              | 100%                  | 20               | 20   | 40   | 328                       | 13                        | 315                          | 0                       |
| 2/X              | Schertz Pkwy           | Lookout Rd                 | N of IH 35             | 0.51           | 2               | UA   |  | 625              | 50%                   | 50               | 0    | 50   | 321                       | 26                        | 295                          | 0                       |
| 2                | Schertz Pkwy           | N of IH 35                 | IH 35                  | 0.23           | 2               | UA   |  | 625              | 100%                  | 50               | 50   | 100  | 290                       | 23                        | 267                          | 0                       |
| 2                | Schertz Pkwy           | IH 35                      | FM 78/John Peterson Bl | 3.14           | 4               | DA   |  | 675              | 100%                  | 712              | 753  | 1465 | 8471                      | 4596                      | 3875                         | 0                       |
| 2                | FM 3009                | IH 35                      | S of Woodland Oaks Dr  | 1.53           | 5               | SA   |  | 675              | 100%                  | 869              | 980  | 1849 | 4129                      | 2828                      | 1301                         | 0                       |
| 2/X              | FM 3009                | S of Woodland Oaks Dr      | Live Oak Rd            | 0.47           | 5               | SA   |  | 675              | 50%                   | 0                | 980  | 980  | 640                       | 465                       | 175                          | 0                       |
| 2                | FM 3009                | Live Oak Rd                | FM 78/John Peterson Bl | 1.16           | 5               | SA   |  | 675              | 100%                  | 869              | 980  | 1849 | 3124                      | 2140                      | 985                          | 0                       |
| 2                | Wiederstein Rd         | FM 3009                    | W City Limits          | 1.45           | 2               | UC   |  | 500              | 100%                  | 100              | 100  | 200  | 1449                      | 290                       | 1159                         | 0                       |
| 2                | Savannah Dr            | Schertz Pkwy               | W City Limits          | 0.90           | 2               | UC   |  | 500              | 100%                  | 50               | 50   | 100  | 905                       | 90                        | 814                          | 0                       |
| 2                | Live Oak Rd            | Schertz Pkwy               | FM 3009                | 0.86           | 2               | UC   |  | 500              | 100%                  | 100              | 100  | 200  | 858                       | 172                       | 686                          | 0                       |
| 2                | Maske Rd               | FM 1518                    | Schertz Pkwy           | 1.23           | 2               | UC   |  | 500              | 100%                  | 97               | 105  | 202  | 1225                      | 247                       | 978                          | 0                       |
| 2                | Borgfield Rd           | FM 3009                    | E City Limits          | 0.43           | 4               | UC   |  | 500              | 100%                  | 509              | 423  | 932  | 859                       | 400                       | 459                          | 0                       |
| 2                | FM 1518/Main St        | Maske Rd                   | Oak St                 | 1.30           | 2               | UA   |  | 625              | 100%                  | 397              | 351  | 748  | 1623                      | 971                       | 652                          | 0                       |
| 2                | FM 1518/Main St        | Oak St                     | Aviation Blvd          | 0.24           | 4               | UA   |  | 625              | 100%                  | 351              | 397  | 748  | 600                       | 179                       | 420                          | 0                       |
| 2                | FM 1518/Main St        | Aviation Blvd              | FM 78/John Peterson Bl | 0.29           | 2               | UA   |  | 625              | 100%                  | 351              | 397  | 748  | 366                       | 219                       | 147                          | 0                       |
| 2                | FM 1518                | N City Limits              | SA 3 Limit             | 0.36           | 2               | UA   |  | 625              | 100%                  | 755              | 508  | 1263 | 452                       | 457                       | 42                           | 47                      |
| 2/3              | FM 1518                | SA 3 Limit                 | Schertz Pkwy Ext.      | 0.39           | 2               | UA   |  | 625              | 50%                   | 755              | 0    | 755  | 245                       | 296                       | 0                            | 51                      |
| 2                | Aviation Blvd          | W City Limits              | FM 1518                | 0.53           | 2               | UA   |  | 625              | 100%                  | 613              | 438  | 1051 | 659                       | 554                       | 105                          | 0                       |
| 2                | FM 78/John Peterson Bl | Cibolo Creek               | Schertz Pkwy           | 0.67           | 5               | SA   |  | 675              | 100%                  | 1525             | 1096 | 2621 | 1809                      | 1756                      | 170                          | 117                     |
| 2                | FM 78/John Peterson Bl | Schertz Pkwy               | E City Limits          | 1.14           | 5               | SA   |  | 675              | 100%                  | 998              | 520  | 1518 | 3065                      | 1723                      | 1342                         | 0                       |
| <b>Sub-Total</b> |                        |                            |                        | <b>20.31</b>   |                 |      |  |                  |                       |                  |      |      | <b>37,321</b>             | <b>20,846</b>             | <b>16,690</b>                | <b>215</b>              |
| 3/2              | FM 1518                | SA 2 Limit                 | Schertz Pkwy Ext.      | 0.39           | 2               | UA   |  | 625              | 50%                   | 0                | 508  | 508  | 245                       | 199                       | 46                           | 0                       |
| 3                | FM 1518                | Schertz Pkwy Ext.          | Lower Seguin Rd        | 1.31           | 2               | UA   |  | 625              | 100%                  | 755              | 508  | 1263 | 1638                      | 1655                      | 153                          | 170                     |
| 3                | FM 1518                | Lower Seguin Rd            | Trainer Hale Rd        | 1.93           | 2               | UA   |  | 625              | 100%                  | 790              | 538  | 1328 | 2417                      | 2568                      | 168                          | 319                     |
| 3                | FM 1518                | Trainer Hale Rd            | IH 10                  | 0.85           | 2               | UA   |  | 625              | 100%                  | 790              | 538  | 1328 | 1057                      | 1123                      | 74                           | 139                     |
| 3                | Schaefer Rd            | W End of Schaefer          | E of FM 1518           | 0.48           | 2               | UC   |  | 500              | 100%                  | 100              | 100  | 200  | 478                       | 96                        | 383                          | 0                       |
| 3/X              | Schaefer Rd            | E of FM 1518               | E City Limits          | 0.55           | 2               | UC   |  | 500              | 50%                   | 100              | 0    | 100  | 277                       | 55                        | 222                          | 0                       |
| 3/X              | Schaefer Rd            | W City Limits              | RAF - Burnette         | 0.14           | 2               | UC   |  | 500              | 50%                   | 100              | 0    | 100  | 69                        | 14                        | 55                           | 0                       |
| 3/X              | RAF - Burnette         | Schaefer Rd                | E City Limits          | 0.56           | 2               | UC   |  | 500              | 50%                   | 50               | 0    | 50   | 278                       | 28                        | 250                          | 0                       |
| 3/X              | Lower Seguin Rd        | W City Limits              | E of Tates Dr          | 0.35           | 2               | UC   |  | 500              | 50%                   | 304              | 0    | 304  | 175                       | 107                       | 69                           | 0                       |
| 3/X              | Lower Seguin Rd        | E of Tates Dr              | FM 1518                | 2.27           | 2               | UC   |  | 500              | 50%                   | 304              | 188  | 492  | 2272                      | 1118                      | 1154                         | 0                       |
| 3                | Lower Seguin Rd        | FM 1518                    | E City Limits          | 1.78           | 2               | UC   |  | 500              | 100%                  | 37               | 16   | 53   | 1783                      | 94                        | 1688                         | 0                       |
| 3                | Ware Seguin Rd         | Boeing Dr                  | E-S Bend in Ware Segui | 0.71           | 2               | UA   |  | 625              | 100%                  | 19               | 20   | 39   | 884                       | 28                        | 857                          | 0                       |
| 3                | Ware Seguin Rd         | E-S Bend in Ware Seguin Rd | E-S Bend in Ware Segui | 0.92           | 2               | UC   |  | 500              | 100%                  | 20               | 19   | 39   | 916                       | 36                        | 881                          | 0                       |
| 3                | Ware Seguin Rd         | S-E Bend in Ware Seguin Rd | FM 1518                | 1.41           | 2               | UC   |  | 500              | 100%                  | 20               | 19   | 39   | 1412                      | 55                        | 1357                         | 0                       |
| 3/4              | Graytown Rd            | Boeing Dr                  | IH 10                  | 1.11           | 2               | UA   |  | 625              | 50%                   | 238              | 0    | 238  | 697                       | 265                       | 431                          | 0                       |
| 3                | Pfeil Rd               | Ware Seguin Rd             | IH 10                  | 1.32           | 2               | UC   |  | 500              | 100%                  | 22               | 8    | 30   | 1319                      | 40                        | 1279                         | 0                       |
| <b>Sub-Total</b> |                        |                            |                        | <b>16.08</b>   |                 |      |  |                  |                       |                  |      |      | <b>15,917</b>             | <b>7,479</b>              | <b>9,067</b>                 | <b>629</b>              |
| 4/3              | Graytown Rd            | Boeing Dr                  | IH 10                  | 1.11           | 2               | UA   |  | 625              | 50%                   | 0                | 89   | 89   | 697                       | 99                        | 597                          | 0                       |
| 4                | Scenic Lake Dr         | Boeing Dr                  | IH 10                  | 0.78           | 2               | UC   |  | 500              | 100%                  | 20               | 20   | 40   | 781                       | 31                        | 750                          | 0                       |
| <b>Sub-Total</b> |                        |                            |                        | <b>1.90</b>    |                 |      |  |                  |                       |                  |      |      | <b>1,478</b>              | <b>130</b>                | <b>1,348</b>                 | <b>0</b>                |
| <b>Total</b>     |                        |                            |                        | <b>50.57</b>   |                 |      |  |                  |                       |                  |      |      | <b>67,424</b>             | <b>31,393</b>             | <b>37,151</b>                | <b>1,121</b>            |

**Notes:**

DA- Divided arterial  
 UA- Undivided arterial  
 SA- Special arterial with dual-left turn lane  
 DC- Divided collector  
 UC- Undivided collector

Direction A = Northbound or Eastbound  
 Direction B = Southbound or Westbound  
 \*X indicates roadway half in/half out of City Limits

**Appendix C:**  
**Projected 10-Year Growth**  
**(Vehicle-Miles of New Demand)**

**Vehicle-Mile Trip Generation by Service Area, Schertz Impact Fee**  
Based on September 2017 Land Use Assumptions by FNI

*Estimated Residential Growth Vehicle-Mile Trip Generation*

| Service Area | Added Dwelling Units | Vehicle-Miles per DU | Total Vehicle-Miles |
|--------------|----------------------|----------------------|---------------------|
| 1            | 1,061                | 3.37                 | 3,576               |
| 2            | 1,389                | 3.37                 | 4,681               |
| 3            | 3,445                | 3.37                 | 11,610              |
| 4            | 20                   | 3.37                 | 67                  |

**SU Equivalency**

|                   |      |
|-------------------|------|
| Residential DU    | 3.37 |
| Basic Employ SF   | 3.70 |
| Service Employ SF | 5.69 |
| Retail Employ SF  | 4.23 |

*Estimated Basic Employment Growth Vehicle-Mile Generation (1,500 SF/employee)*

| Service Area | Added Employees | Square Feet per emp. | Total Square Feet | Vehicle-Miles Per 1000/SF | Total Vehicle-Miles |
|--------------|-----------------|----------------------|-------------------|---------------------------|---------------------|
| 1            | 694             | 1,500                | 1,041,000         | 3.70                      | 3,852               |
| 2            | 1,751           | 1,500                | 2,626,500         | 3.70                      | 9,718               |
| 3            | 365             | 1,500                | 547,500           | 3.70                      | 2,026               |
| 4            | 0               | 1,500                | 0                 | 3.70                      | 0                   |

*Estimated Service Employment Growth Vehicle-Mile Generation (500 SF/employee)*

| Service Area | Added Employees | Square Feet per emp. | Total Square Feet | Vehicle-Miles Per 1000/SF | Total Vehicle-Miles |
|--------------|-----------------|----------------------|-------------------|---------------------------|---------------------|
| 1            | 595             | 500                  | 297,500           | 5.69                      | 1,693               |
| 2            | 419             | 500                  | 209,500           | 5.69                      | 1,192               |
| 3            | 106             | 500                  | 53,000            | 5.69                      | 302                 |
| 4            | 20              | 500                  | 10,000            | 5.69                      | 57                  |

*Estimated Retail Employment Growth Vehicle-Mile Generation (1,000 SF/employee)*

| Service Area | Added Employees | Square Feet per emp. | Total Square Feet | Vehicle-Miles Per 1000/SF | Total Vehicle-Miles |
|--------------|-----------------|----------------------|-------------------|---------------------------|---------------------|
| 1            | 317             | 1,000                | 317,000           | 4.23                      | 1,341               |
| 2            | 547             | 1,000                | 547,000           | 4.23                      | 2,314               |
| 3            | 232             | 1,000                | 232,000           | 4.23                      | 981                 |
| 4            | 0               | 1,000                | 0                 | 4.23                      | 0                   |

**Vehicle-mile Generation Summary**

| Service Area | Residential Growth Vehicle-Miles | Basic Growth Vehicle-Miles | Service Growth Vehicle-Miles | Retail Growth Vehicle-Miles | Total Growth Vehicle-Miles |
|--------------|----------------------------------|----------------------------|------------------------------|-----------------------------|----------------------------|
| 1            | 3,576                            | 3,852                      | 1,693                        | 1,341                       | <b>10,461</b>              |
| 2            | 4,681                            | 9,718                      | 1,192                        | 2,314                       | <b>17,905</b>              |
| 3            | 11,610                           | 2,026                      | 302                          | 981                         | <b>14,918</b>              |
| 4            | 67                               | 0                          | 57                           | 0                           | <b>124</b>                 |
| Totals       | 19,934                           | 15,596                     | 3,243                        | 4,636                       | <b>43,408</b>              |

**Appendix D:**  
**Roadway Capital Improvements Plan**

### Definitions

|                                 |                                                                                                                                                                                                                                                                                                            |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LANES                           | The total number of lanes in both directions available for travel.                                                                                                                                                                                                                                         |
| TYPE                            | <p>The type of roadway (used in determining capacity):</p> <p>DA = divided arterial<br/>UA = undivided arterial<br/>SA = special arterial (arterial with continuous left turn)<br/>DC = divided collector<br/>UC = undivided collector<br/>SC = special collector (arterial with continuous left turn)</p> |
| PK-HR VOLUME                    | The existing volumes of cars on the roadway segment traveling during the afternoon (P.M.) peak hour of travel.                                                                                                                                                                                             |
| % IN SERVICE AREA               | If the roadway is located on the boundary of the service area (with the city limits running along the centerline of the roadway), then half of the roadway is inventoried in the service area and the other half is not. This value is either 50% or 100%.                                                 |
| VEH-MI SUPPLY<br>PK-HR TOTAL    | The number of total service units (vehicle-miles) supplied within the service area, based on the length and established capacity of the roadway type.                                                                                                                                                      |
| VEH-MI TOTAL<br>DEMAND PK-HR    | The total service unit (vehicle-mile) demand created by existing traffic on the roadway segment in the afternoon peak hour.                                                                                                                                                                                |
| EXCESS CAPACITY<br>PK-HR VEH-MI | The number of service units supplied but unused by existing traffic in the afternoon peak hour.                                                                                                                                                                                                            |
| CIP VEH-MI<br>DEFICIENCY        | The number of service units used by existing traffic in excess of the available service units supplied by the roadway in the afternoon peak hour.                                                                                                                                                          |

| Serv Area      | Project No. | Roadway             | From                    | To                  | Project Status | Length (mi) | No. of Lanes | Type | Thoroughfare Plan Description | Pct. In Serv. Area | Peak Hour Volume* A | B    | Total | VMT Supply Pk Hr Total | VMT Demand Pk Hr Total | Excess VMT Capacity | QP VMT Deficiency |
|----------------|-------------|---------------------|-------------------------|---------------------|----------------|-------------|--------------|------|-------------------------------|--------------------|---------------------|------|-------|------------------------|------------------------|---------------------|-------------------|
| 1              | 1           | FM 2252             | IH 35                   | FM 482              | New            | 0.32        | 4            | DA   | Principal Arterial            | 100%               | 73                  | 250  | 323   | 853                    | 102                    | 751                 | 0                 |
| 1              | 2           | FM 2252             | FM 482                  | Railroad Tracks     | New            | 0.64        | 4            | DA   | Secondary Arterial            | 100%               | 73                  | 250  | 323   | 1726                   | 206                    | 1519                | 0                 |
| 1/X            | 3           | FM 2252             | Railroad Tracks         | N City Limits       | New            | 0.22        | 4            | DA   | Secondary Arterial            | 50%                | 0                   | 250  | 250   | 299                    | 55                     | 244                 | 0                 |
| 1/2            | 4           | N/S Connector (1)   | IH 35                   | Railroad Tracks     | New            | 1.25        | 4            | DA   | Secondary Arterial            | 50%                | 0                   | 0    | 0     | 1691                   | 0                      | 1691                | 0                 |
| 1              | 5           | E/W Connector (1)   | N/S Connector (1)       | FM 2252             | New            | 0.99        | 4            | DA   | Secondary Arterial            | 100%               | 0                   | 0    | 0     | 2668                   | 0                      | 2668                | 0                 |
| 1              | 6           | E/W Connector (2)   | N/S Connector (1)       | FM 2252             | New            | 0.99        | 2            | UC   | Commercial Collector B        | 100%               | 0                   | 0    | 0     | 988                    | 0                      | 988                 | 0                 |
| 1              | 7           | FM 482              | FM 2252                 | Hubertus Rd         | New            | 1.05        | 4            | DA   | Principal Arterial            | 100%               | 46                  | 52   | 98    | 2841                   | 103                    | 2738                | 0                 |
| 1              | 8           | FM 482              | Hubertus Rd             | Railroad Tracks     | New            | 1.00        | 4            | DA   | Principal Arterial            | 100%               | 46                  | 52   | 98    | 2705                   | 98                     | 2607                | 0                 |
| 1              | 9           | FM 482              | 800' W of Friesenhahn   | Friesenhahn Ln      | New            | 0.15        | 4            | DA   | Principal Arterial            | 100%               | 46                  | 52   | 98    | 405                    | 15                     | 390                 | 0                 |
| 1/X            | 10          | FM 482              | Friesenhahn Ln          | Schwab Rd           | New            | 0.59        | 4            | DA   | Principal Arterial            | 50%                | 46                  | 0    | 46    | 797                    | 27                     | 769                 | 0                 |
| 1              | 11          | FM 482              | Schwab Rd               | E City Limits       | New            | 1.20        | 4            | DA   | Principal Arterial            | 100%               | 46                  | 52   | 98    | 3240                   | 118                    | 3122                | 0                 |
| 1              | 12          | Hubertus Rd         | IH 35                   | FM 482              | New            | 0.57        | 4            | DA   | Principal Arterial            | 100%               | 30                  | 57   | 87    | 1529                   | 49                     | 1480                | 0                 |
| 1              | 13          | Hubertus Rd         | FM 482                  | N City Limits       | New            | 0.30        | 4            | DA   | Principal Arterial            | 100%               | 0                   | 0    | 0     | 821                    | 0                      | 821                 | 0                 |
| 1              | 14          | Friesenhahn Ln      | IH 35                   | FM 482              | New            | 0.72        | 3            | SC   | Commercial Collector A        | 100%               | 50                  | 50   | 100   | 789                    | 72                     | 717                 | 0                 |
| 1              | 15          | Schwab Rd           | IH 35                   | FM 482              | New            | 0.63        | 6            | DA   | Principal Arterial            | 100%               | 120                 | 315  | 435   | 2548                   | 274                    | 2274                | 0                 |
| 1              | 16          | E/W Connector (3)   | Hubertus Rd             | David Lack Blvd     | New            | 1.59        | 3            | SC   | Commercial Collector A        | 100%               | 0                   | 0    | 0     | 1754                   | 0                      | 1754                | 0                 |
| 1              | 17          | Eckhardt Rd         | Froboese Ln             | Green Valley Rd     | New            | 1.11        | 2            | UC   | Residential Collector         | 100%               | 19                  | 11   | 30    | 1110                   | 33                     | 1077                | 0                 |
| 1              | 18          | Schwab Rd           | IH 35                   | S City Limits       | New            | 1.14        | 4            | DA   | Secondary Arterial            | 100%               | 0                   | 0    | 0     | 3078                   | 0                      | 3078                | 0                 |
| 1              | 19          | Froboese Ln         | Schwab Rd               | Eckhardt Rd         | New            | 0.57        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 573                    | 0                      | 573                 | 0                 |
| 1              | 20          | Froboese Ln         | 2200' E of Eckhardt     | E City Limits       | New            | 0.26        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 260                    | 0                      | 260                 | 0                 |
| 1              | 21          | Green Valley Rd     | W City Limits           | E City Limits       | New            | 0.87        | 4            | DA   | Secondary Arterial            | 100%               | 10                  | 10   | 20    | 2352                   | 17                     | 2335                | 0                 |
| 1              | 22          | Homestead Pkwy      | End Ex Homestead Pkwy   | S City Limits       | New            | 0.33        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 326                    | 0                      | 326                 | 0                 |
| 1              | 23          | Country Club Blvd   | Scenic Links            | S City Limits       | New            | 0.35        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 350                    | 0                      | 350                 | 0                 |
| 1              | 24          | E/W Connector (4)   | Country Club Blvd       | Homestead Pkwy      | New            | 0.77        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 770                    | 0                      | 770                 | 0                 |
| 1              | 25          | E/W Connector (4)   | Schwab Rd               | Eckhardt Rd         | New            | 0.45        | 2            | UC   | Residential Collector         | 100%               | 10                  | 10   | 20    | 451                    | 9                      | 442                 | 0                 |
| 1              | 26          | FM 1103             | IH 35                   | Old Wriedenstein Rd | New            | 0.70        | 4            | DA   | Principal Arterial            | 100%               | 590                 | 1020 | 1610  | 1894                   | 1129                   | 764                 | 0                 |
| 1              | 27          | N/S Connector (1)   | IH 35                   | Old Wriedenstein Rd | New            | 0.55        | 4            | DA   | Secondary Arterial            | 100%               | 50                  | 50   | 100   | 1485                   | 55                     | 1430                | 0                 |
| 1              | 28          | N/S Connector (2)   | IH 35                   | Old Wriedenstein Rd | New            | 0.73        | 4            | DA   | Secondary Arterial            | 100%               | 0                   | 0    | 0     | 1983                   | 0                      | 1983                | 0                 |
| 1              | 29          | E/W Connector (5)   | N/S Connector (1)       | FM 1103             | New            | 2.00        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 1998                   | 0                      | 1998                | 0                 |
| 1/X            | 30          | Old Wriedenstein Rd | N/S Connector (1)       | Cherry Tree Dr      | New            | 2.17        | 4            | DA   | Secondary Arterial            | 50%                | 0                   | 177  | 177   | 2930                   | 384                    | 2545                | 0                 |
| Sub-total SA 1 |             |                     |                         |                     |                | 24.22       |              |      |                               |                    | 0                   | 177  | 177   | 45213                  | 2747                   | 42466               | 0                 |
| 2              | 31          | Doerr Ln            | N City Limits           | Lookout Rd          | New            | 0.91        | 3            | SC   | Commercial Collector A        | 100%               | 50                  | 50   | 100   | 1004                   | 91                     | 913                 | 0                 |
| 2/1            | 4           | N/S Connector (1)   | IH 35                   | Railroad Tracks     | New            | 1.25        | 4            | DA   | Secondary Arterial            | 50%                | 0                   | 0    | 0     | 1691                   | 0                      | 1691                | 0                 |
| 2              | 32          | E/W Connector (2)   | FM 3009                 | N/S Connector (1)   | New            | 0.81        | 2            | UC   | Commercial Collector B        | 100%               | 0                   | 0    | 0     | 810                    | 0                      | 810                 | 0                 |
| 2              | 33          | E/W Connector (6)   | FM 3009                 | N/S Connector (1)   | New            | 0.81        | 2            | UC   | Commercial Collector B        | 100%               | 0                   | 0    | 0     | 810                    | 0                      | 810                 | 0                 |
| 2              | 34          | Mid-Cities Pkwy     | IH 35                   | FM 3009             | New            | 0.98        | 3            | SC   | Commercial Collector A        | 100%               | 0                   | 0    | 0     | 1082                   | 0                      | 1082                | 0                 |
| 2              | 35          | E/W Connector (1)   | FM 3009                 | N/S Connector (1)   | New            | 0.81        | 4            | DA   | Secondary Arterial            | 100%               | 0                   | 0    | 0     | 2200                   | 0                      | 2200                | 0                 |
| 2              | 36          | E/W Connector (7)   | W City Limits           | Doerr Ln            | New            | 0.65        | 3            | SC   | Commercial Collector A        | 100%               | 0                   | 0    | 0     | 717                    | 0                      | 717                 | 0                 |
| 2              | 37          | Lookout Rd          | Tri-County Pkwy         | Schertz Pkwy        | New            | 0.74        | 3            | SC   | Commercial Collector A        | 100%               | 133                 | 219  | 352   | 815                    | 261                    | 554                 | 0                 |
| 2              | 38          | Four Oaks Ln        | End of Ex. Four Oaks Ln | N/S Connector (1)   | New            | 0.54        | 3            | SC   | Commercial Collector A        | 100%               | 0                   | 0    | 0     | 598                    | 0                      | 598                 | 0                 |

| Serv Area      | Project No. | Roadway                  | From              | To                    | Project Status | Length (mi) | No. of Lanes | Type | Thoroughfare Plan Description | Pct. in Serv. Area | Peak Hour Volume* A | B    | Total | VMT Supply Pk-Hr Total | VMT Demand Pk-Hr Total | Excess VMT Capacity | QP VMT Deficiency |
|----------------|-------------|--------------------------|-------------------|-----------------------|----------------|-------------|--------------|------|-------------------------------|--------------------|---------------------|------|-------|------------------------|------------------------|---------------------|-------------------|
| 2              | 39          | Wiederstein Rd           | E City Limits     | FM 3009               | New            | 0.64        | 4            | DA   | Secondary Arterial            | 100%               | 0                   | 0    | 0     | 1737                   | 0                      | 1737                | 0                 |
| 2              | 40          | Wiederstein Rd           | Schertz Pkwy      | W City Limits         | New            | 0.41        | 2            | UC   | Residential Collector         | 100%               | 100                 | 100  | 200   | 406                    | 81                     | 325                 | 0                 |
| 2              | 41          | Baptist Health Dr        | Ripps-Kreusler    | Wiederstein Rd        | New            | 0.27        | 3            | SC   | Commercial Collector A        | 100%               | 0                   | 0    | 0     | 302                    | 0                      | 302                 | 0                 |
| 2              | 42          | Ripps-Kreusler           | Baptist Health Dr | End of Ripps Kreusler | New            | 0.22        | 3            | SC   | Commercial Collector A        | 100%               | 0                   | 0    | 0     | 245                    | 0                      | 245                 | 0                 |
| 2              | 43          | Maske Rd                 | FM 1518           | Oak St                | New            | 0.54        | 3            | SC   | Commercial Collector A        | 100%               | 97                  | 105  | 202   | 595                    | 109                    | 486                 | 0                 |
| 2              | 44          | Maske Rd Realignment     | Oak St            | Schertz Pkwy          | New            | 0.88        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 875                    | 0                      | 875                 | 0                 |
| 2              | 45          | FM 1518/Main St          | Maske Rd          | Oak St                | New            | 1.30        | 3            | SA   | Secondary Arterial            | 100%               | 397                 | 351  | 748   | 1753                   | 971                    | 782                 | 0                 |
| 2              | 46          | FM 1518                  | N City Limits     | SA 3 Limit            | New            | 0.36        | 6            | DA   | Principal Arterial            | 100%               | 755                 | 508  | 1263  | 1465                   | 457                    | 1008                | 0                 |
| 2/3            | 47          | FM 1518                  | SA 3 Limit        | Schertz Pkwy Ext.     | New            | 0.39        | 6            | DA   | Principal Arterial            | 50%                | 755                 | 0    | 755   | 793                    | 296                    | 497                 | 0                 |
| 2              | 48          | FM 78/John Peterson Blvd | W City Limits     | E City Limits         | New            | 1.81        | 6            | DA   | Principal Arterial            | 100%               | 1525                | 1096 | 2621  | 7311                   | 4732                   | 2580                | 0                 |
| Sub-total SA 2 |             |                          |                   |                       |                | 14.34       |              |      |                               |                    |                     |      |       | 25210                  | 6998                   | 18211               | 0                 |
| 3/2            | 47          | FM 1518                  | SA 2 Limit        | Schertz Pkwy Ext.     | New            | 0.39        | 6            | DA   | Principal Arterial            | 50%                | 0                   | 508  | 508   | 793                    | 199                    | 594                 | 0                 |
| 3              | 49          | FM 1518                  | Schertz Pkwy Ext. | IH 10                 | New            | 4.09        | 6            | DA   | Principal Arterial            | 100%               | 755                 | 508  | 1263  | 16565                  | 5166                   | 11399               | 0                 |
| 3              | 50          | Schaefer Rd              | W City Limits     | FM 1518               | New            | 0.48        | 2            | UC   | Residential Collector         | 100%               | 100                 | 100  | 200   | 478                    | 96                     | 383                 | 0                 |
| 3/X            | 51          | RAF - Burnette           | Schaefer Rd       | E City Limits         | New            | 0.55        | 4            | DA   | Secondary Arterial            | 50%                | 0                   | 50   | 50    | 736                    | 27                     | 709                 | 0                 |
| 3/X            | 52          | Lower Seguin Rd          | W City Limits     | E of Tates Dr         | New            | 0.35        | 3            | SA   | Secondary Rural Arterial      | 50%                | 304                 | 0    | 304   | 237                    | 107                    | 130                 | 0                 |
| 3              | 53          | Lower Seguin Rd          | E of Tates Dr     | W of Canopy Bend      | New            | 1.76        | 3            | SA   | Secondary Rural Arterial      | 100%               | 304                 | 188  | 492   | 2376                   | 866                    | 1510                | 0                 |
| 3              | 54          | Lower Seguin Rd          | W of Canopy Bend  | E City Limits         | New            | 1.72        | 4            | DA   | Secondary Arterial            | 100%               | 37                  | 16   | 53    | 4644                   | 91                     | 4553                | 0                 |
| 3              | 55          | N/S Connector (3)        | N City Limits     | S City Limits         | New            | 0.15        | 4            | DA   | Principal Arterial            | 100%               | 0                   | 0    | 0     | 395                    | 0                      | 395                 | 0                 |
| 3              | 56          | N/S Connector (3)        | N City Limits     | S City Limits         | New            | 0.27        | 4            | DA   | Principal Arterial            | 100%               | 0                   | 0    | 0     | 716                    | 0                      | 716                 | 0                 |
| 3              | 57          | N/S Connector (4)        | N City Limits     | S City Limits         | New            | 0.26        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 256                    | 0                      | 256                 | 0                 |
| 3              | 58          | N/S Connector (4)        | N City Limits     | S City Limits         | New            | 0.21        | 2            | UC   | Residential Collector         | 100%               | 0                   | 0    | 0     | 211                    | 0                      | 211                 | 0                 |
| 3/X            | 59          | W Ware Seguin Rd         | W City Limits     | Boeing Dr             | New            | 0.57        | 2            | UC   | Residential Collector         | 50%                | 0                   | 20   | 20    | 283                    | 11                     | 272                 | 0                 |
| 3              | 60          | W Ware Seguin Rd         | Boeing Dr         | N/S Connector (5)     | New            | 0.67        | 2            | UC   | Residential Collector         | 100%               | 19                  | 20   | 39    | 669                    | 26                     | 642                 | 0                 |
| 3              | 61          | N/S Connector (5)        | Lower Seguin Rd   | W Ware Seguin Rd      | New            | 1.10        | 2            | UC   | Residential Collector         | 100%               | 20                  | 19   | 39    | 1104                   | 43                     | 1061                | 0                 |
| 3              | 62          | N/S Connector (5)        | W Ware Seguin Rd  | E Ware Seguin Rd      | New            | 0.93        | 2            | UC   | Residential Collector         | 100%               | 20                  | 19   | 39    | 932                    | 36                     | 895                 | 0                 |
| 3              | 63          | Trainer Hale Rd (N/S)    | Weir Rd           | IH 10                 | New            | 1.66        | 4            | DA   | Principal Arterial            | 100%               | 50                  | 50   | 100   | 4480                   | 166                    | 4314                | 0                 |
| 3              | 64          | Trainer Hale Rd (E/W)    | FM 1518           | Trainer Hale Rd (N/S) | New            | 1.51        | 4            | DA   | Secondary Arterial            | 100%               | 50                  | 50   | 100   | 4070                   | 151                    | 3920                | 0                 |
| 3              | 65          | Ware Seguin Rd           | Graytown Rd       | N/S Connector (5)     | New            | 1.35        | 3            | SA   | Secondary Rural Arterial      | 100%               | 0                   | 0    | 0     | 1828                   | 0                      | 1828                | 0                 |
| 3              | 66          | E Ware Seguin Rd         | N/S Connector (5) | FM 1518               | New            | 1.41        | 3            | SA   | Secondary Rural Arterial      | 100%               | 20                  | 19   | 39    | 1910                   | 55                     | 1855                | 0                 |
| 3/4            | 67          | Graytown Rd              | Boeing Dr         | IH 10                 | New            | 1.11        | 3            | SA   | Secondary Rural Arterial      | 50%                | 238                 | 0    | 238   | 752                    | 265                    | 487                 | 0                 |
| 3              | 68          | N/S Connector (6)        | Ware Seguin Rd    | IH 10                 | New            | 0.47        | 3            | SC   | Commercial Collector A        | 100%               | 0                   | 0    | 0     | 512                    | 0                      | 512                 | 0                 |
| 3              | 69          | E/W Connector (8)        | IH 10             | E City Limits         | New            | 2.33        | 3            | SC   | Commercial Collector A        | 100%               | 0                   | 0    | 0     | 2563                   | 0                      | 2563                | 0                 |
| Sub-total SA 3 |             |                          |                   |                       |                | 23.33       |              |      |                               |                    |                     |      |       | 46511                  | 7305                   | 39206               | 0                 |
| 4/3            | 67          | Graytown Rd              | Boeing Dr         | IH 10                 | New            | 1.11        | 3            | SA   | Secondary Rural Arterial      | 50%                | 0                   | 89   | 89    | 752                    | 99                     | 653                 | 0                 |
| 4              | 70          | Binz-Engleman Rd         | W City Limits     | Graytown Rd           | New            | 1.30        | 3            | SA   | Secondary Rural Arterial      | 100%               | 0                   | 0    | 0     | 1760                   | 0                      | 1760                | 0                 |
| 4              | 71          | Scenic Lake Dr           | Binz-Engleman Rd  | IH 10                 | New            | 0.77        | 3            | SC   | Commercial Collector A        | 100%               | 20                  | 20   | 40    | 847                    | 31                     | 816                 | 0                 |
| Sub-total SA 4 |             |                          |                   |                       |                | 3.19        |              |      |                               |                    |                     |      |       | 3359                   | 130                    | 3229                | 0                 |
| Totals:        |             |                          |                   |                       |                | 65.08       |              |      |                               |                    |                     |      |       | 120,292                | 17,181                 | 103,112             | 0                 |

**Appendix E:**  
**Roadway Improvement Plan Cost Analysis**

| Serv Area      | Project No. | Roadway            | From                    | To                 | Project Status | Length (mi) | No. of Lanes | Type Rdwy | Thoroughfare Plan Description | Pct. in Serv. Area | Roadway Project Costs |             |              | Total Project Cost |
|----------------|-------------|--------------------|-------------------------|--------------------|----------------|-------------|--------------|-----------|-------------------------------|--------------------|-----------------------|-------------|--------------|--------------------|
|                |             |                    |                         |                    |                |             |              |           |                               |                    | Engineering           | ROW         | Construction |                    |
| 1              | 1           | FM 2252            | IH 35                   | FM 482             | New            | 0.32        | 4            | DA        | Principal Arterial            | 100%               | \$100,000             | \$38,000    | \$1,428,800  | \$1,566,800        |
| 1              | 2           | FM 2252            | FM 482                  | Railroad Tracks    | New            | 0.64        | 4            | DA        | Secondary Arterial            | 100%               | \$205,800             | \$0         | \$2,940,200  | \$3,146,000        |
| 1/X            | 3           | FM 2252            | Railroad Tracks         | N City Limits      | New            | 0.22        | 4            | DA        | Secondary Arterial            | 50%                | \$33,350              | \$0         | \$476,500    | \$509,850          |
| 1/2            | 4           | N/S Connector (1)  | IH 35                   | Railroad Tracks    | New            | 1.25        | 4            | DA        | Secondary Arterial            | 50%                | \$194,950             | \$222,750   | \$2,784,950  | \$3,202,650        |
| 1              | 5           | E/W Connector (1)  | N/S Connector (1)       | FM 2252            | New            | 0.99        | 4            | DA        | Secondary Arterial            | 100%               | \$337,600             | \$352,800   | \$4,822,600  | \$5,513,000        |
| 1              | 6           | E/W Connector (2)  | N/S Connector (1)       | FM 2252            | New            | 0.99        | 2            | UC        | Commercial Collector B        | 100%               | \$261,300             | \$274,400   | \$3,733,300  | \$4,269,000        |
| 1              | 7           | FM 482             | Hubertus Rd             | Hubertus Rd        | New            | 1.05        | 4            | DA        | Principal Arterial            | 100%               | \$343,300             | \$207,900   | \$4,904,900  | \$5,456,100        |
| 1              | 8           | FM 482             | Hubertus Rd             | Railroad Tracks    | New            | 1.00        | 4            | DA        | Principal Arterial            | 100%               | \$323,800             | \$198,000   | \$4,626,000  | \$5,147,800        |
| 1              | 9           | FM 482             | 800' W of Friesenhahn   | Friesenhahn Ln     | New            | 0.15        | 4            | DA        | Principal Arterial            | 100%               | \$47,400              | \$30,000    | \$676,700    | \$754,100          |
| 1/X            | 10          | FM 482             | Friesenhahn Ln          | Schwab Rd          | New            | 0.59        | 4            | DA        | Principal Arterial            | 50%                | \$96,250              | \$58,400    | \$1,375,350  | \$1,530,000        |
| 1              | 11          | FM 482             | Schwab Rd               | E City Limits      | New            | 1.20        | 4            | DA        | Principal Arterial            | 100%               | \$390,400             | \$237,600   | \$5,577,500  | \$6,205,500        |
| 1              | 12          | Hubertus Rd        | IH 35                   | FM 482             | New            | 0.57        | 4            | DA        | Principal Arterial            | 100%               | \$178,000             | \$135,400   | \$2,542,300  | \$2,855,700        |
| 1              | 13          | Hubertus Rd        | FM 482                  | N City Limits      | New            | 0.30        | 4            | DA        | Principal Arterial            | 100%               | \$93,500              | \$142,600   | \$1,336,200  | \$1,572,300        |
| 1              | 14          | Friesenhahn Ln     | IH 35                   | FM 482             | New            | 0.72        | 3            | SC        | Commercial Collector A        | 100%               | \$85,400              | \$38,000    | \$1,220,200  | \$1,343,600        |
| 1              | 15          | Schwab Rd          | IH 35                   | FM 482             | New            | 0.63        | 6            | DA        | Principal Arterial            | 100%               | \$268,200             | \$274,400   | \$3,832,100  | \$4,374,700        |
| 1              | 16          | E/W Connector (3)  | Hubertus Rd             | David Lack Blvd    | New            | 1.59        | 3            | SC        | Commercial Collector A        | 100%               | \$370,900             | \$440,700   | \$5,298,400  | \$6,110,000        |
| 1              | 17          | Eckhardt Rd        | Frobese Ln              | Green Valley Rd    | New            | 1.11        | 2            | UC        | Residential Collector         | 100%               | \$238,100             | \$87,900    | \$3,401,100  | \$3,727,100        |
| 1              | 18          | Schwab Rd          | IH 35                   | S City Limits      | New            | 1.14        | 4            | DA        | Secondary Arterial            | 100%               | \$345,100             | \$406,300   | \$4,929,300  | \$5,680,700        |
| 1              | 19          | Frobese Ln         | Schwab Rd               | Eckhardt Rd        | New            | 0.57        | 2            | UC        | Residential Collector         | 100%               | \$122,500             | \$158,000   | \$1,749,900  | \$2,030,400        |
| 1              | 20          | Frobese Ln         | 2200' E of Eckhardt     | E City Limits      | New            | 0.26        | 2            | UC        | Residential Collector         | 100%               | \$56,200              | \$31,100    | \$802,700    | \$890,000          |
| 1              | 21          | Green Valley Rd    | W City Limits           | E City Limits      | New            | 0.87        | 4            | DA        | Secondary Arterial            | 100%               | \$263,500             | \$172,300   | \$3,763,700  | \$4,199,500        |
| 1              | 22          | Homestead Pkwy     | End Ex Homestead Pkwy   | S City Limits      | New            | 0.33        | 2            | UC        | Residential Collector         | 100%               | \$71,100              | \$91,500    | \$1,015,900  | \$1,178,500        |
| 1              | 23          | Country Club Blvd  | Scenic Links            | S City Limits      | New            | 0.35        | 2            | UC        | Residential Collector         | 100%               | \$75,900              | \$97,000    | \$1,084,200  | \$1,257,100        |
| 1              | 24          | E/W Connector (4)  | Country Club Blvd       | Homestead Pkwy     | New            | 0.77        | 2            | UC        | Residential Collector         | 100%               | \$160,800             | \$213,800   | \$2,296,600  | \$2,671,200        |
| 1              | 25          | E/W Connector (4)  | Schwab Rd               | Eckhardt Rd        | New            | 0.45        | 2            | UC        | Residential Collector         | 100%               | \$96,600              | \$124,700   | \$1,380,700  | \$1,602,000        |
| 1              | 26          | FM 1103            | IH 35                   | Old Wiederstein Rd | New            | 0.70        | 4            | DA        | Principal Arterial            | 100%               | \$0                   | \$0         | \$2,000,000  | \$2,000,000        |
| 1              | 27          | N/S Connector (1)  | IH 35                   | Old Wiederstein Rd | New            | 0.55        | 4            | DA        | Secondary Arterial            | 100%               | \$174,500             | \$0         | \$2,492,500  | \$2,667,000        |
| 1              | 28          | N/S Connector (2)  | IH 35                   | Old Wiederstein Rd | New            | 0.73        | 4            | DA        | Secondary Arterial            | 100%               | \$220,800             | \$260,200   | \$3,154,700  | \$3,635,700        |
| 1              | 29          | E/W Connector (5)  | N/S Connector (1)       | FM 1103            | New            | 2.00        | 2            | UC        | Residential Collector         | 100%               | \$428,100             | \$554,000   | \$6,115,100  | \$7,097,200        |
| 1/X            | 30          | Old Wiederstein Rd | N/S Connector (1)       | Cherry Tree Dr     | New            | 2.17        | 4            | DA        | Secondary Arterial            | 50%                | \$328,050             | \$128,900   | \$4,686,650  | \$5,143,600        |
| Sub-total SA 1 |             |                    |                         |                    |                |             |              |           |                               |                    | \$5,911,400           | \$4,976,650 | \$86,449,050 | \$97,337,100       |
| 2              | 31          | Doerr Ln           | N City Limits           | Lookout Rd         | New            | 0.91        | 3            | SC        | Commercial Collector A        | 100%               | \$212,600             | \$0         | \$3,037,300  | \$3,249,900        |
| 2/1            | 4           | N/S Connector (1)  | IH 35                   | Railroad Tracks    | New            | 1.25        | 4            | DA        | Secondary Arterial            | 50%                | \$190,250             | \$222,750   | \$2,717,900  | \$3,130,900        |
| 2              | 32          | E/W Connector (2)  | FM 3009                 | N/S Connector (1)  | New            | 0.81        | 2            | UC        | Commercial Collector B        | 100%               | \$206,800             | \$224,500   | \$2,954,900  | \$3,386,200        |
| 2              | 33          | E/W Connector (6)  | FM 3009                 | N/S Connector (1)  | New            | 0.81        | 2            | UC        | Commercial Collector B        | 100%               | \$206,800             | \$224,500   | \$2,954,900  | \$3,386,100        |
| 2              | 34          | Mid-Cities Pkwy    | IH 35                   | FM 3009            | New            | 0.98        | 3            | SC        | Commercial Collector A        | 100%               | \$215,500             | \$0         | \$3,078,200  | \$3,293,700        |
| 2              | 35          | E/W Connector (1)  | FM 3009                 | N/S Connector (1)  | New            | 0.81        | 4            | DA        | Secondary Arterial            | 100%               | \$255,300             | \$288,700   | \$3,646,900  | \$4,190,900        |
| 2              | 36          | E/W Connector (7)  | W City Limits           | Doerr Ln           | New            | 0.65        | 3            | SC        | Commercial Collector A        | 100%               | \$134,200             | \$180,200   | \$1,916,700  | \$2,231,100        |
| 2              | 37          | Lookout Rd         | Tri-County Pkwy         | Schertz Pkwy       | New            | 0.74        | 3            | SC        | Commercial Collector A        | 100%               | \$179,500             | \$0         | \$2,564,100  | \$2,743,600        |
| 2              | 38          | Four Oaks Ln       | End of Ex. Four Oaks Ln | N/S Connector (1)  | New            | 0.54        | 3            | SC        | Commercial Collector A        | 100%               | \$119,600             | \$149,700   | \$1,708,000  | \$1,977,300        |

| Serv Area      | Project No. | Roadway                  | From              | To                    | Project Status | Length (mi) | No. of Lanes | Type Rdwy | Thoroughfare Plan Description | Pct in Serv. Area | Roadway Project Costs |              | Total Project Cost |
|----------------|-------------|--------------------------|-------------------|-----------------------|----------------|-------------|--------------|-----------|-------------------------------|-------------------|-----------------------|--------------|--------------------|
|                |             |                          |                   |                       |                |             |              |           |                               |                   | Engineering           | Construction |                    |
| 2              | 39          | Wiederstein Rd           | E City Limits     | FM 3009               | New            | 0.64        | 4            | DA        | Secondary Arterial            | 100%              | \$186,600             | \$228,100    | \$3,079,800        |
| 2              | 40          | Wiederstein Rd           | Schertz Pkwy      | W City Limits         | New            | 0.41        | 2            | UC        | Residential Collector         | 100%              | \$84,700              | \$0          | \$1,294,700        |
| 2              | 41          | Baptist Health Dr        | Ripps-Kreusler    | Wiederstein Rd        | New            | 0.27        | 3            | SC        | Commercial Collector A        | 100%              | \$60,100              | \$74,800     | \$992,900          |
| 2              | 42          | Ripps-Kreusler           | Baptist Health Dr | End of Ripps Kreusler | New            | 0.22        | 3            | SC        | Commercial Collector A        | 100%              | \$48,600              | \$61,000     | \$803,900          |
| 2              | 43          | Maske Rd                 | FM 1518           | Oak St                | New            | 0.54        | 3            | SC        | Commercial Collector A        | 100%              | \$119,600             | \$0          | \$1,827,600        |
| 2              | 44          | Maske Rd Realignment     | Oak St            | Schertz Pkwy          | New            | 0.88        | 2            | UC        | Residential Collector         | 100%              | \$222,500             | \$243,900    | \$3,645,200        |
| 2              | 45          | FM 1518/Main St          | Maske Rd          | Oak St                | New            | 1.30        | 3            | SA        | Secondary Arterial            | 100%              | \$294,000             | \$0          | \$4,494,500        |
| 2              | 46          | FM 1518                  | N City Limits     | SA 3 Limit            | New            | 0.36        | 6            | DA        | Principal Arterial            | 100%              | \$27,400              | \$17,100     | \$436,300          |
| 2/3            | 47          | FM 1518                  | SA 3 Limit        | Schertz Pkwy Ext.     | New            | 0.39        | 6            | DA        | Principal Arterial            | 50%               | \$13,950              | \$9,250      | \$222,650          |
| 2              | 48          | FM 78/John Peterson Blvd | W City Limits     | E City Limits         | New            | 1.81        | 6            | DA        | Principal Arterial            | 100%              | \$175,600             | \$0          | \$2,683,780        |
| Sub-total SA 2 |             |                          |                   |                       |                | 14.34       |              |           |                               |                   | \$2,953,600           | \$1,924,500  | \$47,071,030       |
| 3/2            | 47          | FM 1518                  | SA 2 Limit        | Schertz Pkwy Ext.     | New            | 0.39        | 6            | DA        | Principal Arterial            | 50%               | \$13,950              | \$9,250      | \$222,650          |
| 3              | 49          | FM 1518                  | Schertz Pkwy Ext. | IH 10                 | New            | 4.09        | 6            | DA        | Principal Arterial            | 100%              | \$327,300             | \$162,000    | \$5,165,000        |
| 3              | 50          | Schaefer Rd              | W City Limits     | FM 1518               | New            | 0.48        | 2            | UC        | Residential Collector         | 100%              | \$99,300              | \$19,000     | \$1,536,700        |
| 3/X            | 51          | RAF - Burnette           | Schaefer Rd       | E City Limits         | New            | 0.55        | 4            | DA        | Secondary Arterial            | 50%               | \$80,150              | \$54,450     | \$1,279,500        |
| 3/X            | 52          | Lower Seguin Rd          | W City Limits     | E of Tates Dr         | New            | 0.35        | 3            | SA        | Secondary Rural Arterial      | 50%               | \$44,450              | \$6,950      | \$686,450          |
| 3              | 53          | Lower Seguin Rd          | E of Tates Dr     | W of Canopy Bend      | New            | 1.76        | 3            | SA        | Secondary Rural Arterial      | 100%              | \$453,300             | \$69,700     | \$6,998,900        |
| 3              | 54          | Lower Seguin Rd          | W of Canopy Bend  | E City Limits         | New            | 1.72        | 4            | DA        | Secondary Arterial            | 100%              | \$500,900             | \$204,300    | \$7,860,400        |
| 3              | 55          | N/S Connector (3)        | N City Limits     | S City Limits         | New            | 0.15        | 4            | DA        | Principal Arterial            | 100%              | \$45,300              | \$71,300     | \$764,000          |
| 3              | 56          | N/S Connector (3)        | N City Limits     | S City Limits         | New            | 0.27        | 4            | DA        | Principal Arterial            | 100%              | \$81,900              | \$128,300    | \$1,380,400        |
| 3              | 57          | N/S Connector (4)        | N City Limits     | S City Limits         | New            | 0.26        | 2            | UC        | Residential Collector         | 100%              | \$53,800              | \$72,100     | \$894,600          |
| 3              | 58          | N/S Connector (4)        | N City Limits     | S City Limits         | New            | 0.21        | 2            | UC        | Residential Collector         | 100%              | \$43,600              | \$58,200     | \$725,000          |
| 3/X            | 59          | W Ware Seguin Rd         | W City Limits     | Boeing Dr             | New            | 0.57        | 2            | UC        | Residential Collector         | 50%               | \$58,900              | \$0          | \$900,550          |
| 3              | 60          | W Ware Seguin Rd         | Boeing Dr         | N/S Connector (5)     | New            | 0.67        | 2            | UC        | Residential Collector         | 100%              | \$146,300             | \$0          | \$2,236,900        |
| 3              | 61          | N/S Connector (5)        | Lower Seguin Rd   | W Ware Seguin Rd      | New            | 1.10        | 2            | UC        | Residential Collector         | 100%              | \$227,400             | \$304,900    | \$3,780,500        |
| 3              | 62          | N/S Connector (5)        | W Ware Seguin Rd  | E Ware Seguin Rd      | New            | 0.93        | 2            | UC        | Residential Collector         | 100%              | \$208,700             | \$36,800     | \$3,227,400        |
| 3              | 63          | Trainer Hale Rd (N/S)    | Weir Rd           | IH 10                 | New            | 1.66        | 4            | DA        | Principal Arterial            | 100%              | \$498,900             | \$394,400    | \$8,020,500        |
| 3              | 64          | Trainer Hale Rd (E/W)    | FM 1518           | Trainer Hale Rd (N/S) | New            | 1.51        | 4            | DA        | Secondary Arterial            | 100%              | \$500,500             | \$7,150,000  | \$7,710,300        |
| 3              | 65          | Ware Seguin Rd           | Graytown Rd       | N/S Connector (5)     | New            | 1.35        | 3            | SA        | Secondary Rural Arterial      | 100%              | \$278,400             | \$481,100    | \$4,736,300        |
| 3              | 66          | E Ware Seguin Rd         | N/S Connector (5) | FM 1518               | New            | 1.41        | 3            | SA        | Secondary Rural Arterial      | 100%              | \$299,100             | \$167,500    | \$4,739,900        |
| 3/4            | 67          | Graytown Rd              | Boeing Dr         | IH 10                 | New            | 1.11        | 3            | SA        | Secondary Rural Arterial      | 50%               | \$126,550             | \$65,950     | \$2,000,600        |
| 3              | 68          | N/S Connector (6)        | Ware Seguin Rd    | IH 10                 | New            | 0.47        | 3            | SC        | Commercial Collector A        | 100%              | \$103,500             | \$130,300    | \$1,712,600        |
| 3              | 69          | E/W Connector (6)        | IH 10             | E City Limits         | New            | 2.33        | 3            | SC        | Commercial Collector A        | 100%              | \$512,700             | \$245,900    | \$8,482,300        |
| Sub-total SA 3 |             |                          |                   |                       |                | 23.33       |              |           |                               |                   | \$4,704,900           | \$3,142,200  | \$75,061,450       |
| 4/3            | 67          | Graytown Rd              | Boeing Dr         | IH 10                 | New            | 1.11        | 3            | SA        | Secondary Rural Arterial      | 50%               | \$126,550             | \$65,950     | \$2,000,600        |
| 4              | 70          | Binz-Engleman Rd         | W City Limits     | Graytown Rd           | New            | 1.30        | 3            | SA        | Secondary Rural Arterial      | 100%              | \$275,000             | \$463,300    | \$3,928,700        |
| 4              | 71          | Scenic Lake Dr           | Binz-Engleman Rd  | IH 10                 | New            | 0.77        | 3            | SC        | Commercial Collector A        | 100%              | \$177,700             | \$61,000     | \$2,777,400        |
| Sub-total SA 4 |             |                          |                   |                       |                | 3.19        |              |           |                               |                   | \$579,250             | \$590,250    | \$9,445,000        |
| Totals:        |             |                          |                   |                       |                | 65.08       |              |           |                               |                   | \$14,149,150          | \$10,633,600 | \$228,914,580      |

**Appendix F:**  
**Roadway Project Cost Estimates**

## **Master Thoroughfare Plan Roadway Sections**

## Freeways, Limited Access

The freeway is typically uninterrupted with grade separations at intersections and ramped entries and exits to and from the crossroads as on I-35. However, limited access freeways may also be interrupted for signalized arterial roadway crossings. Freeways typically operate at free flow speeds over 55 mph and have two or more lanes in each travel direction. Freeways are typically barrier or median separated, or in the example of the managed lanes under design for I-35, can be grade separated from the rest of the corridor where ROW is constrained. The managed lanes element is intended to help maintain a free-flow speed, even during times of peak congestion on adjacent facilities. Freeways, especially controlled access, are typically paralleled by service roads that serve as the interface between the freeway and the adjacent community's arterial and collector street network.

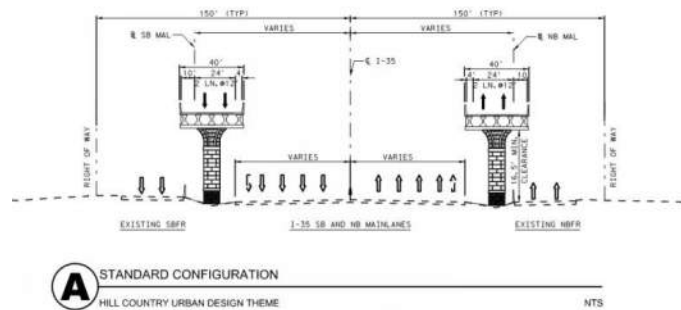


Figure 11. I-35 Managed lanes illustrative - View from Schertz Parkway. Source: I-35 EIS

## Principal Arterials

The recommended ROW for principal arterials ranges from 120 to 130 feet. The ROW is intended to accommodate higher volumes and levels of mobility, providing substantial regional access and statewide travel. A ROW of 120 feet allows for four travel lanes and associated spaces. Where six travel lanes are needed, a typical section of 130 feet can be used.

Urban principal arterial roadways provide the predominant passageways through the urbanized portions of the community and connect to the regional freeway network, typically providing for curb and gutter drainage. Intersections are provided at all arterial, collector and local roadways and as needed allowing for local land access directly to the facility. Intersections with arterial roadways are typically signalized and provisions made for one or more left turn lanes and occasionally right-turn lanes to facilitate the through movements along the arterial. Principal urban arterial roadways provide at least two travel lanes in each direction plus a center median area for separations of traffic. The median area may be used to provide channelized left-turn lanes, continuous left-turn lanes, and/or streetscape. Where traffic operational

analyses support the need for greater throughput capacity, a six-lane section may be considered — as is the case for the ultimate build out of FM 1518 south of FM 78.

Access management practices should be employed to minimize the impacts of property access (i.e., driveways) on the principal arterial facility. Sidewalks, five to ten feet in width, should be provided along either sides of the roadway, buffered from travel lanes. A divided median is key for this classification of roadway, and a median width minimum of 16 feet is included. A divided median of sufficient width allows area for dedicated left turn lanes at intersections and provides access management for fewer turning conflicts, and preservation of traffic flow. The median may be raised, or surfaced depending on the adjacent land use. Driveway access onto principal arterials should be limited by access management and spacing requirements, and parking along arterial roadways is generally prohibited. The illustrations below show typical sections for four and six travel lanes with surfaced medians.

- High degree of regional mobility, higher traffic volumes and operational speeds
- Access is carefully managed
- Curb and gutter section with underground stormwater utilities and drainage
- Examples include Roy Richard Drive (FM 3009), FM 78, FM 1103, and FM 1518 south of FM 78.

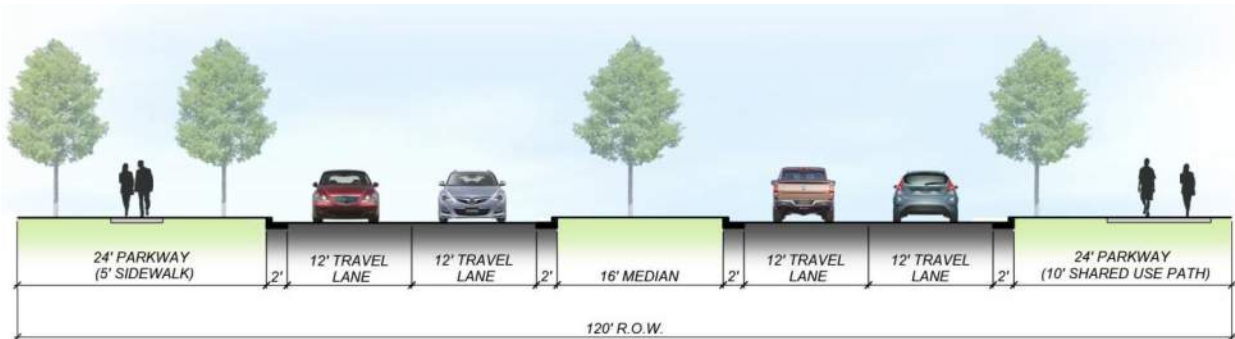


Figure 12. Four-Lane Principal Arterial Section

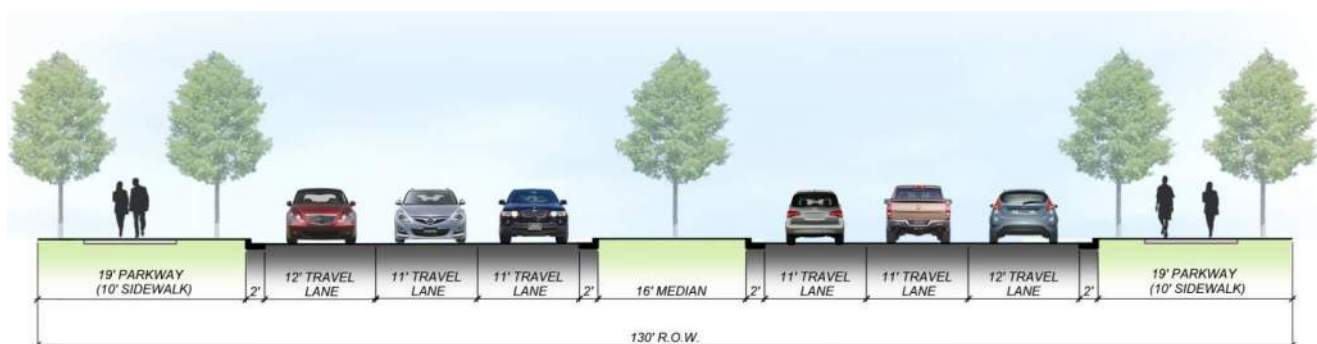


Figure 13. Six-Lane Principal Arterial Section

## Secondary Arterial

The ROW for a secondary arterial in Schertz is 90 feet wide. The arterial is intended to accommodate medium volumes and local mobility, and provide for connections to neighboring communities. Secondary arterial roadways are intended for local trips, so design speeds should also be notably lower than principal arterials. A ROW of 90 feet allows for four travel lanes, and space to buffer different travel modes. A divided median is also important for this classification of roadway, allowing some area for reduced width left turn lanes at minor intersections and provides access management for fewer turning conflicts. Additional ROW may be preferred at major intersections. Driveway access to Secondary Arterials should also be guided by access management and spacing requirements. Parking along secondary arterial roadways is generally prohibited, unless parallel parking bays are provided in addition to travel lanes, which may be desirable in a potential mixed-use transit oriented district north of I-35. Bicycle accommodation is intended to be provided on a shared-use path (or hike-and-bike path), buffered from the roadway.

- Cross-Town mobility
- Accommodates medium traffic volumes and operational speeds
- Managed Access
- Four-lane divided
- Curb and gutter drainage
- Examples include Lower Seguin Road east of FM 1518, Wiederstein/Old Wiederstein Road, and the east-west portion of Trainer Hale Road.

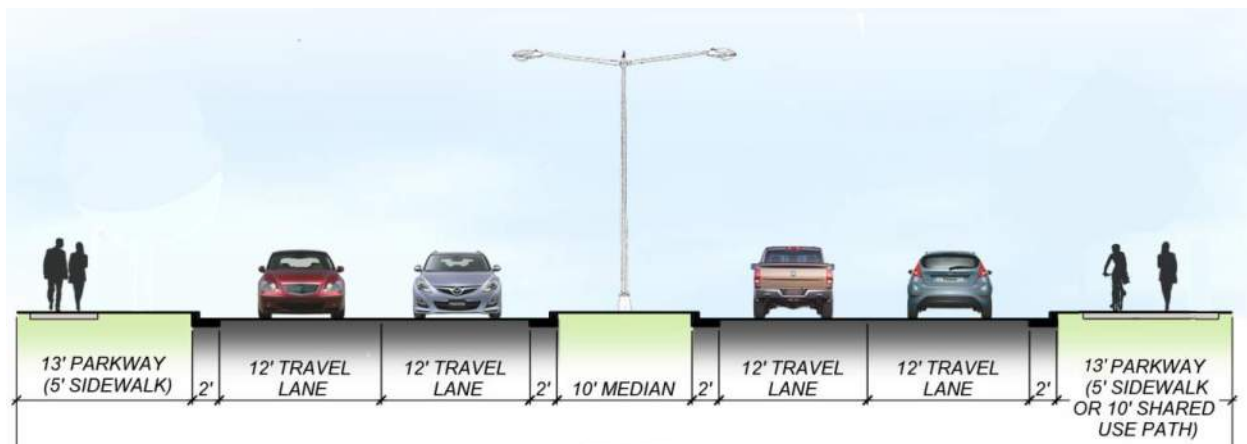


Figure 14. Secondary Arterial Section – Wiederstein Road

## Secondary Rural Arterial

Rural Secondary Arterial roadways carry traffic across significant segments of the city, connect principal arterials to collectors and accommodate moderate volumes at higher speeds. This section is intended for use where adjacent, planned land uses are lower intensity, and access points fewer than the urban section would provide. The recommended ROW for Secondary Rural Arterials is 90 feet and is intended to include a three-lane section, with two travel lanes and a surfaced median. Travel lanes should be 12 feet wide with 6- to 8-foot-wide shoulders to accommodate emergency parking, extended site lines, and bicycles. Wide areas at the edge of paved shoulders provide for stormwater drainage and buffer from the roadway from adjacent property. Where sidewalks are provided, they should be between the drainage channel and the edge of the ROW. Driveways should still be guided by access management principles. A two-way left-turn lane in the center of the section provides buffer distance from oncoming traffic and left turn opportunities without obstructing the through-movement. An adjacent 20-foot-wide trail easement allows for accommodating pedestrians and bicycles on a shared-use path (or hike-and-bike path) sufficiently buffered from the travel way, and opportunities for tree growth.

- Cross-town mobility
- Accommodates medium traffic volumes and higher operational speeds
- Access is managed
- Two-lane divided
- Open section drainage

Examples include Lower Seguin Road west of Hollering Vine and adjacent to Randolph AFB, and Ware Seguin Road west of FM 1518.

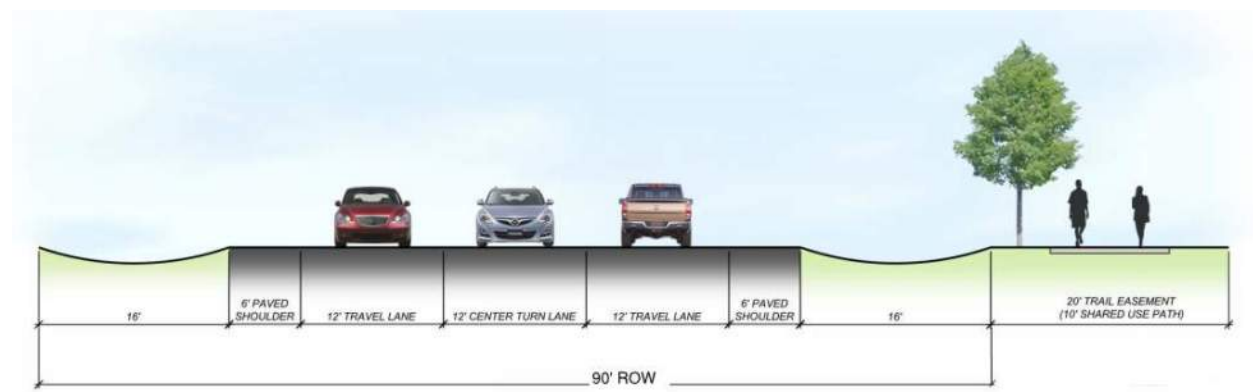


Figure 15. Secondary Rural Arterial Section – Ware Seguin Road.

## Collectors

Collector roadways serve to provide access to higher functional class facilities, access to residential areas, and provide access and circulation to commercial areas. They are designed for short trips, lower speeds, and connections between residential and commercial areas. They are differentiated from arterial streets by their length and degree of access to adjacent development where driveway access is seldom limited. The recommended ROW for Collector roadways is 70 feet wide. The pavement width of 40 feet is wide enough to provide different layouts of lane striping to accommodate adjacent uses – whether it is on street parking, or bike lanes, or a center-turn lane, the width is intended to be flexible over time as needs change. Three typical sections are provided: one residential section with on street bike lanes, one commercial section with a middle turn lane for frequent driveways and turn-movements, and one commercial section with on street parking.

- Collection and distribution of traffic
- Speeds and volumes dependent on adjacent land uses and neighborhoods served
- Access to development and neighborhoods
- Connectivity to arterial and residential collector streets

Typical Residential Collector – 70-foot ROW: 7-foot buffered bike lanes accommodate bicycles of all comfort levels. Examples include Ray Corbett Drive, Live Oak Road, Wiederstein Road west of FM 3009, Country Club Boulevard, Eckhardt Road, and segments of Ware Seguin Road.

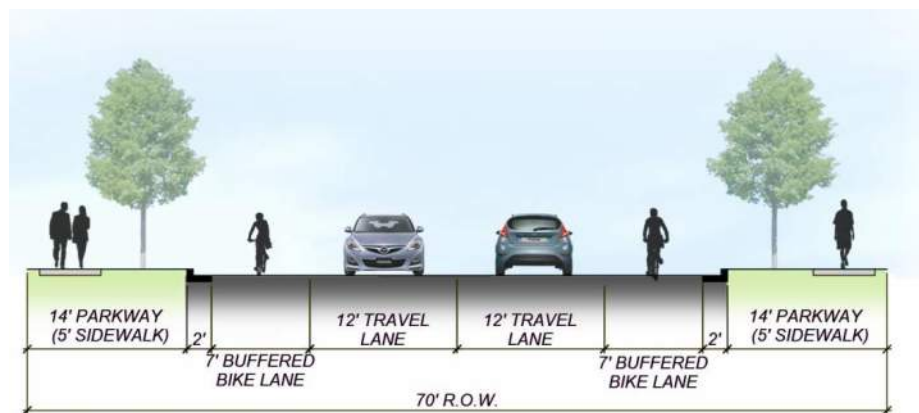


Figure 16. Residential Collector – Example: Savannah Drive

Typical Commercial Collectors – 70-foot ROW – applicable in Southern Schertz near I-10 and northern Schertz near I-35. The 12-foot-wide outside lanes can accommodate more experienced bicycles. A shared-use path on one side accommodates less experienced bicycles.

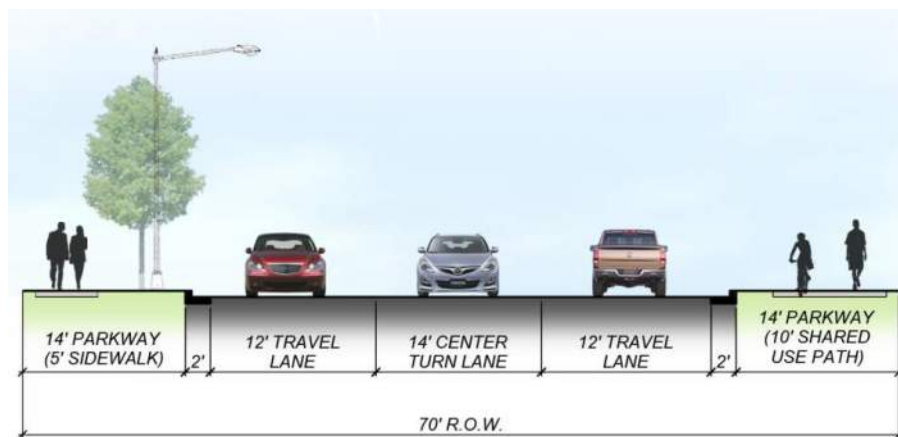


Figure 17. Commercial Collector - Example: Four Oaks Lane

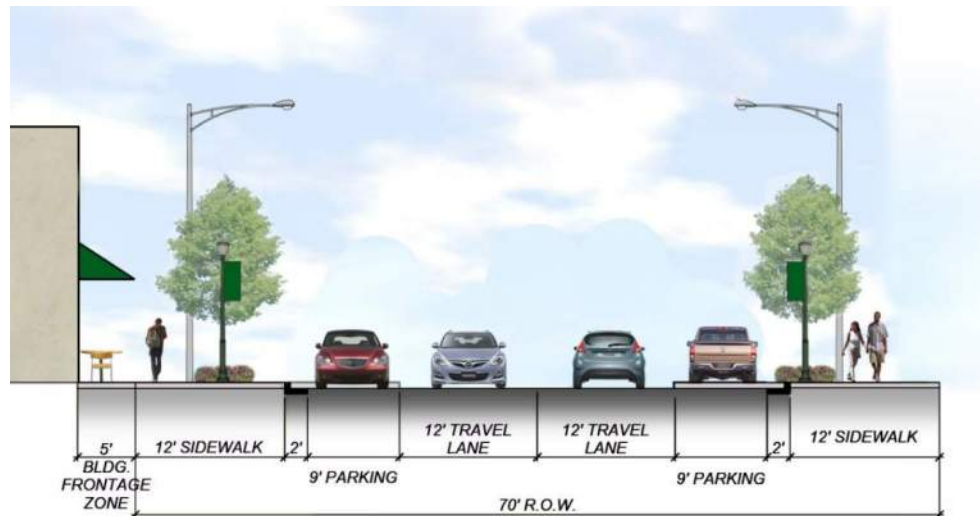


Figure 18. Commercial Collector (TOD) - Example: New Streets in TOD area

## Local Residential and Commercial/Industrial Streets

The primary function of local streets is to provide access to and from properties. Local streets feed to and from the collector street network, but occasionally may tie directly to arterial streets. The urban local residential street is described in the Schertz Unified Development Code as a 30-foot pavement width, with curb-and-gutter drainage and minimum 5-foot-wide sidewalks on each side of the street, buffered from the curb. Local residential streets have a 50-foot-wide ROW. Local commercial/industrial streets are described as 42 feet of pavement, with curb and gutter drainage, 5-foot sidewalks, and a 60-foot-wide ROW. Local streets are not illustrated on the MTP map, but are encouraged to be developed to increase connectivity, lessen block lengths, and encourage active and non-auto modes of travel for people on foot, pedestrians in wheelchairs, and people on bike.

## **Impact Fee CIP Project Cost Estimates**

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 2252  
IH-35 to FM 482

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 1,690                                        |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                |           |                |
|----------------------------------------|---------------------------------------------------|----------------|-----------|----------------|
| I. Paving Construction Cost Estimate   |                                                   |                |           |                |
| Item No.                               | Item Description                                  | Quantity       | Unit      | Item Cost      |
| 1                                      | Right of Way Preparation                          | 17             | STA       | \$ 51,000      |
| 2                                      | Unclassified Street Excavation                    | 4,200          | CY        | \$ 84,000      |
| 3                                      | 3" HMAC (Type "D")                                | 9,100          | SY        | \$ 163,800     |
| 4                                      | 10" Flex Base                                     | 11,300         | SY        | \$ 203,400     |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 11,300         | SY        | \$ 79,100      |
| 6                                      | TX-5 Geogrid                                      | 11,300         | SY        | \$ 11,300      |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 6,760          | LF        | \$ 169,000     |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,800          | SY        | \$ 140,000     |
| 9                                      | Block Sodding and Topsoil                         | 9,950          | SY        | \$ 49,750      |
| Paving Estimate Subtotal:              |                                                   |                |           | \$ 951,350     |
| II. Non-Paving Construction Components |                                                   |                |           |                |
| Item No.                               | Item Description                                  | Pct. Of Paving |           | Item Cost      |
| 10                                     | Pavement Markings & Signage                       | 2%             |           | \$ 19,100      |
| 11                                     | Traffic Control                                   | 5%             |           | \$ 47,600      |
| 12                                     | Erosion Control                                   | 3%             |           | \$ 28,600      |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%            |           | \$ 190,300     |
| Other Components Estimate Subtotal:    |                                                   |                |           | \$ 285,600     |
| III. Special Construction Components   |                                                   |                |           |                |
| Item No.                               | Item Description                                  | Notes          | Allowance | Item Cost      |
| 14                                     | Landscaping/Illumination                          | None           | \$ -      | \$ -           |
| 15                                     | Drainage Structures                               | None           | \$ -      | \$ -           |
| 16                                     | Bridge Structures                                 | None           | \$ -      | \$ -           |
| 17                                     | Traffic Signals                                   | None           | \$ -      | \$ -           |
| 18                                     | Other                                             | None           | \$ -      | \$ -           |
| Special Components Estimate Subtotal:  |                                                   |                |           | \$ -           |
| I, II, & III Construction Subtotal:    |                                                   |                |           | \$ 1,236,950   |
| Mobilization                           |                                                   |                |           | 5% \$ 61,900   |
| Contingency                            |                                                   |                |           | 10% \$ 129,900 |
| Construction Cost Estimate Total:      |                                                   |                |           | \$ 1,428,800   |

| Impact Fee Cost Estimate Summary        |                   |           |           |              |
|-----------------------------------------|-------------------|-----------|-----------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost |              |
| Construction                            |                   | -         | \$        | 1,428,800    |
| Engineering/Survey/Testing              |                   | 7%        | \$        | 100,000      |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 38,000 | \$ 38,000    |
| Impact Fee Project Cost Estimate Total: |                   |           |           | \$ 1,566,800 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

FM 2252

FM 482 to Railroad Tracks

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 3,379                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                      |            |                |              |
|----------------------------------------|---------------------------------------------------|----------------------|------------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                      |            |                |              |
| Item No.                               | Item Description                                  | Quantity             | Unit       | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 34                   | STA        | \$ 3,000.00    | \$ 102,000   |
| 2                                      | Unclassified Street Excavation                    | 8,300                | CY         | \$ 20.00       | \$ 166,000   |
| 3                                      | 3" HMAC (Type "D")                                | 18,100               | SY         | \$ 18.00       | \$ 325,800   |
| 4                                      | 10" Flex Base                                     | 22,600               | SY         | \$ 18.00       | \$ 406,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 22,600               | SY         | \$ 7.00        | \$ 158,200   |
| 6                                      | TX-5 Geogrid                                      | 22,600               | SY         | \$ 1.00        | \$ 22,600    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 13,520               | LF         | \$ 25.00       | \$ 338,000   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 5,600                | SY         | \$ 50.00       | \$ 280,000   |
| 9                                      | Block Sodding and Topsoil                         | 8,640                | SY         | \$ 5.00        | \$ 43,200    |
| Paving Estimate Subtotal:              |                                                   |                      |            |                | \$ 1,842,600 |
| II. Non-Paving Construction Components |                                                   |                      |            |                |              |
| Item No.                               | Item Description                                  |                      |            | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                      |            | 2%             | \$ 36,900    |
| 11                                     | Traffic Control                                   |                      |            | 5%             | \$ 92,200    |
| 12                                     | Erosion Control                                   |                      |            | 3%             | \$ 55,300    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                      |            | 20%            | \$ 368,600   |
| Other Components Estimate Subtotal:    |                                                   |                      |            |                | \$ 553,000   |
| III. Special Construction Components   |                                                   |                      |            |                |              |
| Item No.                               | Item Description                                  | Notes                | Allowance  |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None                 | \$ -       |                | \$ -         |
| 15                                     | Drainage Structures                               | None                 | \$ -       |                | \$ -         |
| 16                                     | Bridge Structures                                 | None                 | \$ -       |                | \$ -         |
| 17                                     | Traffic Signals                                   | None                 | \$ -       |                | \$ -         |
| 18                                     | Other                                             | At-grade RR crossing | \$ 150,000 |                | \$ 150,000   |
| Special Components Estimate Subtotal:  |                                                   |                      |            |                | \$ 150,000   |
| I, II, & III Construction Subtotal:    |                                                   |                      |            |                | \$ 2,545,600 |
| Mobilization                           |                                                   |                      |            | 5%             | \$ 127,300   |
| Contingency                            |                                                   |                      |            | 10%            | \$ 267,300   |
| Construction Cost Estimate Total:      |                                                   |                      |            |                | \$ 2,940,200 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 2,940,200 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 205,800   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ -         | \$ -         |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 3,146,000 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 2252

Railroad Tracks to N. City Limits

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 1,162                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

### Roadway Construction Cost Estimate:

#### I. Paving Construction Cost Estimate

| Item No.                  | Item Description                     | Quantity | Unit | Unit Cost   | Item Cost  |
|---------------------------|--------------------------------------|----------|------|-------------|------------|
| 1                         | Right of Way Preparation             | 12       | STA  | \$ 3,000.00 | \$ 36,000  |
| 2                         | Unclassified Street Excavation       | 2,900    | CY   | \$ 20.00    | \$ 58,000  |
| 3                         | 3" HMAC (Type "D")                   | 6,200    | SY   | \$ 18.00    | \$ 111,600 |
| 4                         | 10" Flex Base                        | 7,800    | SY   | \$ 18.00    | \$ 140,400 |
| 5                         | 6" Moisture Conditioned Subgrade     | 7,800    | SY   | \$ 7.00     | \$ 54,600  |
| 6                         | TX-5 Geogrid                         | 7,800    | SY   | \$ 1.00     | \$ 7,800   |
| 7                         | 6" Monolithic Concrete Curb & Gutter | 4,650    | LF   | \$ 25.00    | \$ 116,250 |
| 8                         | 4" Concrete Sidewalk and Ramps       | 1,900    | SY   | \$ 50.00    | \$ 95,000  |
| 9                         | Block Sodding and Topsoil            | 2,970    | SY   | \$ 5.00     | \$ 14,850  |
| Paving Estimate Subtotal: |                                      |          |      |             | \$ 634,500 |

#### II. Non-Paving Construction Components

| Item No.                            | Item Description                                  | Pct. Of Paving | Item Cost  |
|-------------------------------------|---------------------------------------------------|----------------|------------|
| 10                                  | Pavement Markings & Signage                       | 2%             | \$ 12,700  |
| 11                                  | Traffic Control                                   | 5%             | \$ 31,800  |
| 12                                  | Erosion Control                                   | 3%             | \$ 19,100  |
| 13                                  | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%            | \$ 126,900 |
| Other Components Estimate Subtotal: |                                                   |                | \$ 190,500 |

#### III. Special Construction Components

| Item No.                              | Item Description         | Notes | Allowance | Item Cost |
|---------------------------------------|--------------------------|-------|-----------|-----------|
| 14                                    | Landscaping/Illumination | None  | \$ -      | \$ -      |
| 15                                    | Drainage Structures      | None  | \$ -      | \$ -      |
| 16                                    | Bridge Structures        | None  | \$ -      | \$ -      |
| 17                                    | Traffic Signals          | None  | \$ -      | \$ -      |
| 18                                    | Other                    | None  | \$ -      | \$ -      |
| Special Components Estimate Subtotal: |                          |       |           | \$ -      |

I, II, & III Construction Subtotal: \$ 825,000

Mobilization 5% \$ 41,300

Contingency 10% \$ 86,700

Construction Cost Estimate Total: \$ 953,000

### Impact Fee Cost Estimate Summary

| Item Description                        | Notes                     | Allowance | Item Cost    |
|-----------------------------------------|---------------------------|-----------|--------------|
| Construction                            |                           | -         | \$ 953,000   |
| Engineering/Survey/Testing              |                           | 7%        | \$ 66,700    |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$ -         |
| Impact Fee Project Cost Estimate Total: |                           |           | \$ 1,019,700 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**N/S CONNECTOR (1)**

IH-35 to Railroad Tracks

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                                   | No. of Lanes: | 4 |
| Length (lf):                   | 6,600                                                |               |   |
| Right-of-Way Width (ft.):      | 90                                                   |               |   |
| Median Type:                   | Raised                                               |               |   |
| Pavement Width (Edge to Edge): | 48                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                      |           |                |              |
|----------------------------------------|---------------------------------------------------|----------------------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Quantity             | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 66                   | STA       | \$ 3,000.00    | \$ 198,000   |
| 2                                      | Unclassified Street Excavation                    | 16,200               | CY        | \$ 20.00       | \$ 324,000   |
| 3                                      | 3" HMAC (Type "D")                                | 35,200               | SY        | \$ 18.00       | \$ 633,600   |
| 4                                      | 10" Flex Base                                     | 44,000               | SY        | \$ 18.00       | \$ 792,000   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 44,000               | SY        | \$ 7.00        | \$ 308,000   |
| 6                                      | TX-5 Geogrid                                      | 44,000               | SY        | \$ 1.00        | \$ 44,000    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 26,400               | LF        | \$ 25.00       | \$ 660,000   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 11,000               | SY        | \$ 50.00       | \$ 550,000   |
| 9                                      | Block Sodding and Topsoil                         | 16,870               | SY        | \$ 5.00        | \$ 84,350    |
| Paving Estimate Subtotal:              |                                                   |                      |           |                | \$ 3,593,950 |
| II. Non-Paving Construction Components |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  |                      |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                      |           | 2%             | \$ 71,900    |
| 11                                     | Traffic Control                                   |                      |           | 5%             | \$ 179,700   |
| 12                                     | Erosion Control                                   |                      |           | 3%             | \$ 107,900   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                      |           | 20%            | \$ 718,800   |
| Other Components Estimate Subtotal:    |                                                   |                      |           |                | \$ 1,078,300 |
| III. Special Construction Components   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Notes                | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None                 | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None                 | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None                 | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None                 | \$        | -              | \$ -         |
| 18                                     | Other                                             | At-grade RR crossing | \$        | 150,000        | \$ 150,000   |
| Special Components Estimate Subtotal:  |                                                   |                      |           |                | \$ 150,000   |
| I, II, & III Construction Subtotal:    |                                                   |                      |           |                | \$ 4,822,250 |
| Mobilization                           |                                                   |                      |           | 5%             | \$ 241,200   |
| Contingency                            |                                                   |                      |           | 10%            | \$ 506,400   |
| Construction Cost Estimate Total:      |                                                   |                      |           |                | \$ 5,569,900 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 5,569,900 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 389,900   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 445,500 | \$ 445,500   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 6,405,300 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (1)**  
**N/S Connector (1) to FM 2252**

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                                   | No. of Lanes: | 4 |
| Length (lf):                   | 5,227                                                |               |   |
| Right-of-Way Width (ft.):      | 90                                                   |               |   |
| Median Type:                   | Raised                                               |               |   |
| Pavement Width (Edge to Edge): | 62                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                      |           |                |              |
|----------------------------------------|---------------------------------------------------|----------------------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Quantity             | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 53                   | STA       | \$ 3,000.00    | \$ 159,000   |
| 2                                      | Unclassified Street Excavation                    | 15,800               | CY        | \$ 20.00       | \$ 316,000   |
| 3                                      | 3" HMAC (Type "D")                                | 36,100               | SY        | \$ 18.00       | \$ 649,800   |
| 4                                      | 10" Flex Base                                     | 43,000               | SY        | \$ 18.00       | \$ 774,000   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 43,000               | SY        | \$ 7.00        | \$ 301,000   |
| 6                                      | TX-5 Geogrid                                      | 43,000               | SY        | \$ 1.00        | \$ 43,000    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 20,910               | LF        | \$ 25.00       | \$ 522,750   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 5,800                | SY        | \$ 50.00       | \$ 290,000   |
| 9                                      | Block Sodding and Topsoil                         | 8,130                | SY        | \$ 5.00        | \$ 40,650    |
| Paving Estimate Subtotal:              |                                                   |                      |           |                | \$ 3,096,200 |
| II. Non-Paving Construction Components |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  |                      |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                      |           | 2%             | \$ 62,000    |
| 11                                     | Traffic Control                                   |                      |           | 5%             | \$ 154,900   |
| 12                                     | Erosion Control                                   |                      |           | 3%             | \$ 92,900    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                      |           | 20%            | \$ 619,300   |
| Other Components Estimate Subtotal:    |                                                   |                      |           |                | \$ 929,100   |
| III. Special Construction Components   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Notes                | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None                 | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None                 | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None                 | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None                 | \$        | -              | \$ -         |
| 18                                     | Other                                             | At-grade RR crossing | \$        | 150,000        | \$ 150,000   |
| Special Components Estimate Subtotal:  |                                                   |                      |           |                | \$ 150,000   |
| I, II, & III Construction Subtotal:    |                                                   |                      |           |                | \$ 4,175,300 |
| Mobilization                           |                                                   |                      |           | 5%             | \$ 208,800   |
| Contingency                            |                                                   |                      |           | 10%            | \$ 438,500   |
| Construction Cost Estimate Total:      |                                                   |                      |           |                | \$ 4,822,600 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 4,822,600 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 337,600   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 352,800 | \$ 352,800   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 5,513,000 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (2)**  
**N/S Connector (1) to FM 2252**

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector B                               | No. of Lanes: | 2 |
| Length (lf):                   | 5,227                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 42                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street parking (9' + 9')                          |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 53       | STA       | \$ 3,000.00    | \$ 159,000   |
| 2                                      | Unclassified Street Excavation                    | 10,300   | CY        | \$ 20.00       | \$ 206,000   |
| 3                                      | 3" HMAC (Type "D")                                | 24,400   | SY        | \$ 18.00       | \$ 439,200   |
| 4                                      | 10" Flex Base                                     | 27,900   | SY        | \$ 18.00       | \$ 502,200   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 27,900   | SY        | \$ 7.00        | \$ 195,300   |
| 6                                      | TX-5 Geogrid                                      | 27,900   | SY        | \$ 1.00        | \$ 27,900    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 10,460   | LF        | \$ 25.00       | \$ 261,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 13,900   | SY        | \$ 50.00       | \$ 695,000   |
| 9                                      | Block Sodding and Topsoil                         | 0        | SY        | \$ 5.00        | \$ -         |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 2,486,100 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 49,800    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 124,400   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 74,600    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 497,300   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 746,100   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -         |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 3,232,200 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 161,700   |
| Contingency                            |                                                   |          |           | 10%            | \$ 339,400   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 3,733,300 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 3,733,300 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 261,300   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 274,400 | \$ 274,400   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 4,269,000 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 482

FM 2252 to Hubertus Rd

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 5,544                                        |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                   |           |                |              |
|----------------------------------------|---------------------------------------------------|-------------------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                   |           |                |              |
| Item No.                               | Item Description                                  | Quantity          | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 56                | STA       | \$ 3,000.00    | \$ 168,000   |
| 2                                      | Unclassified Street Excavation                    | 13,600            | CY        | \$ 20.00       | \$ 272,000   |
| 3                                      | 3" HMAC (Type "D")                                | 29,600            | SY        | \$ 18.00       | \$ 532,800   |
| 4                                      | 10" Flex Base                                     | 37,000            | SY        | \$ 18.00       | \$ 666,000   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 37,000            | SY        | \$ 7.00        | \$ 259,000   |
| 6                                      | TX-5 Geogrid                                      | 37,000            | SY        | \$ 1.00        | \$ 37,000    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 22,180            | LF        | \$ 25.00       | \$ 554,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 9,200             | SY        | \$ 50.00       | \$ 460,000   |
| 9                                      | Block Sodding and Topsoil                         | 32,650            | SY        | \$ 5.00        | \$ 163,250   |
| Paving Estimate Subtotal:              |                                                   |                   |           |                | \$ 3,112,550 |
| II. Non-Paving Construction Components |                                                   |                   |           |                |              |
| Item No.                               | Item Description                                  |                   |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                   |           | 2%             | \$ 62,300    |
| 11                                     | Traffic Control                                   |                   |           | 5%             | \$ 155,700   |
| 12                                     | Erosion Control                                   |                   |           | 3%             | \$ 93,400    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                   |           | 20%            | \$ 622,600   |
| Other Components Estimate Subtotal:    |                                                   |                   |           |                | \$ 934,000   |
| III. Special Construction Components   |                                                   |                   |           |                |              |
| Item No.                               | Item Description                                  | Notes             | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None              | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | 2 Minor Crossings | \$        | 200,000        | \$ 200,000   |
| 16                                     | Bridge Structures                                 | None              | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None              | \$        | -              | \$ -         |
| 18                                     | Other                                             | None              | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |                   |           |                | \$ 200,000   |
| I, II, & III Construction Subtotal:    |                                                   |                   |           |                | \$ 4,246,550 |
| Mobilization                           |                                                   |                   |           | 5%             | \$ 212,400   |
| Contingency                            |                                                   |                   |           | 10%            | \$ 445,900   |
| Construction Cost Estimate Total:      |                                                   |                   |           |                | \$ 4,904,900 |

| Impact Fee Cost Estimate Summary        |                           |            |              |              |
|-----------------------------------------|---------------------------|------------|--------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |              |
| Construction                            |                           | -          | \$ 4,904,900 |              |
| Engineering/Survey/Testing              |                           | 7%         | \$ 343,300   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 207,900 | \$ 207,900   |              |
| Impact Fee Project Cost Estimate Total: |                           |            |              | \$ 5,456,100 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 482

Hubertus Rd to Railroad Tracks

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 5,280                                        |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                      |           |                |              |
|----------------------------------------|---------------------------------------------------|----------------------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Quantity             | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 53                   | STA       | \$ 3,000.00    | \$ 159,000   |
| 2                                      | Unclassified Street Excavation                    | 13,000               | CY        | \$ 20.00       | \$ 260,000   |
| 3                                      | 3" HMAC (Type "D")                                | 28,200               | SY        | \$ 18.00       | \$ 507,600   |
| 4                                      | 10" Flex Base                                     | 35,200               | SY        | \$ 18.00       | \$ 633,600   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 35,200               | SY        | \$ 7.00        | \$ 246,400   |
| 6                                      | TX-5 Geogrid                                      | 35,200               | SY        | \$ 1.00        | \$ 35,200    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 21,120               | LF        | \$ 25.00       | \$ 528,000   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 8,800                | SY        | \$ 50.00       | \$ 440,000   |
| 9                                      | Block Sodding and Topsoil                         | 31,090               | SY        | \$ 5.00        | \$ 155,450   |
| Paving Estimate Subtotal:              |                                                   |                      |           |                | \$ 2,965,250 |
| II. Non-Paving Construction Components |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  |                      |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                      |           | 2%             | \$ 59,400    |
| 11                                     | Traffic Control                                   |                      |           | 5%             | \$ 148,300   |
| 12                                     | Erosion Control                                   |                      |           | 3%             | \$ 89,000    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                      |           | 20%            | \$ 593,100   |
| Other Components Estimate Subtotal:    |                                                   |                      |           |                | \$ 889,800   |
| III. Special Construction Components   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Notes                | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None                 | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None                 | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None                 | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None                 | \$        | -              | \$ -         |
| 18                                     | Other                                             | At-grade RR crossing | \$        | 150,000        | \$ 150,000   |
| Special Components Estimate Subtotal:  |                                                   |                      |           |                | \$ 150,000   |
| I, II, & III Construction Subtotal:    |                                                   |                      |           |                | \$ 4,005,050 |
| Mobilization                           |                                                   |                      |           | 5%             | \$ 200,300   |
| Contingency                            |                                                   |                      |           | 10%            | \$ 420,600   |
| Construction Cost Estimate Total:      |                                                   |                      |           |                | \$ 4,626,000 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 4,626,000 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 323,800   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 198,000 | \$ 198,000   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 5,147,800 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 482

800' West of Friesenhahn Ln. to Friesenhahn Ln.

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 800                                          |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 8        | STA       | \$ 3,000.00    | \$ 24,000  |
| 2                                      | Unclassified Street Excavation                    | 2,000    | CY        | \$ 20.00       | \$ 40,000  |
| 3                                      | 3" HMAC (Type "D")                                | 4,300    | SY        | \$ 18.00       | \$ 77,400  |
| 4                                      | 10" Flex Base                                     | 5,400    | SY        | \$ 18.00       | \$ 97,200  |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 5,400    | SY        | \$ 7.00        | \$ 37,800  |
| 6                                      | TX-5 Geogrid                                      | 5,400    | SY        | \$ 1.00        | \$ 5,400   |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 3,200    | LF        | \$ 25.00       | \$ 80,000  |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 1,300    | SY        | \$ 50.00       | \$ 65,000  |
| 9                                      | Block Sodding and Topsoil                         | 4,710    | SY        | \$ 5.00        | \$ 23,550  |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 450,350 |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 9,100   |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 22,600  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 13,600  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 90,100  |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 135,400 |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -       |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -       |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 585,750 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 29,300  |
| Contingency                            |                                                   |          |           | 10%            | \$ 61,600  |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 676,700 |

| Impact Fee Cost Estimate Summary        |                   |           |           |            |
|-----------------------------------------|-------------------|-----------|-----------|------------|
| Item Description                        | Notes             | Allowance | Item Cost |            |
| Construction                            |                   | -         | \$        | 676,700    |
| Engineering/Survey/Testing              |                   | 7%        | \$        | 47,400     |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 30,000 | \$ 30,000  |
| Impact Fee Project Cost Estimate Total: |                   |           |           | \$ 754,100 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 482

Friesenhahn Ln. to Schwab Rd.

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 3,115                                        |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                  |           |                |            |
|----------------------------------------|---------------------------------------------------|------------------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Quantity         | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 32               | STA       | \$ 3,000.00    | \$ 96,000  |
| 2                                      | Unclassified Street Excavation                    | 7,700            | CY        | \$ 20.00       | \$ 154,000 |
| 3                                      | 3" HMAC (Type "D")                                | 16,700           | SY        | \$ 18.00       | \$ 300,600 |
| 4                                      | 10" Flex Base                                     | 20,800           | SY        | \$ 18.00       | \$ 374,400 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 20,800           | SY        | \$ 7.00        | \$ 145,600 |
| 6                                      | TX-5 Geogrid                                      | 20,800           | SY        | \$ 1.00        | \$ 20,800  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 12,470           | LF        | \$ 25.00       | \$ 311,750 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 5,200            | SY        | \$ 50.00       | \$ 260,000 |
| 9                                      | Block Sodding and Topsoil                         | 18,350           | SY        | \$ 5.00        | \$ 91,750  |
| Paving Estimate Subtotal:              |                                                   |                  |           | \$             | 1,754,900  |
| II. Non-Paving Construction Components |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  |                  |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |                  |           | 2%             | \$ 35,100  |
| 11                                     | Traffic Control                                   |                  |           | 5%             | \$ 87,800  |
| 12                                     | Erosion Control                                   |                  |           | 3%             | \$ 52,700  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                  |           | 20%            | \$ 351,000 |
| Other Components Estimate Subtotal:    |                                                   |                  |           | \$             | 526,600    |
| III. Special Construction Components   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Notes            | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None             | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | 1 Minor Crossing | \$        | 100,000        | \$ 100,000 |
| 16                                     | Bridge Structures                                 | None             | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None             | \$        | -              | \$ -       |
| 18                                     | Other                                             | None             | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |                  |           | \$             | 100,000    |
| I, II, & III Construction Subtotal:    |                                                   |                  |           | \$             | 2,381,500  |
| Mobilization                           |                                                   |                  |           | 5%             | \$ 119,100 |
| Contingency                            |                                                   |                  |           | 10%            | \$ 250,100 |
| Construction Cost Estimate Total:      |                                                   |                  |           | \$             | 2,750,700  |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 2,750,700 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 192,500   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 116,800 | \$ 116,800   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 3,060,000 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 482

Schwab Rd. to E. City Limits

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 6,336                                        |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                   |            |                |
|----------------------------------------|---------------------------------------------------|-------------------|------------|----------------|
| I. Paving Construction Cost Estimate   |                                                   |                   |            |                |
| Item No.                               | Item Description                                  | Quantity          | Unit       | Item Cost      |
| 1                                      | Right of Way Preparation                          | 64                | STA        | \$ 192,000     |
| 2                                      | Unclassified Street Excavation                    | 15,500            | CY         | \$ 310,000     |
| 3                                      | 3" HMAC (Type "D")                                | 33,800            | SY         | \$ 608,400     |
| 4                                      | 10" Flex Base                                     | 42,300            | SY         | \$ 761,400     |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 42,300            | SY         | \$ 296,100     |
| 6                                      | TX-5 Geogrid                                      | 42,300            | SY         | \$ 42,300      |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 25,350            | LF         | \$ 633,750     |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 10,600            | SY         | \$ 530,000     |
| 9                                      | Block Sodding and Topsoil                         | 37,310            | SY         | \$ 186,550     |
| Paving Estimate Subtotal:              |                                                   |                   |            | \$ 3,560,500   |
| II. Non-Paving Construction Components |                                                   |                   |            |                |
| Item No.                               | Item Description                                  | Pct. Of Paving    | Item Cost  |                |
| 10                                     | Pavement Markings & Signage                       | 2%                | \$ 71,300  |                |
| 11                                     | Traffic Control                                   | 5%                | \$ 178,100 |                |
| 12                                     | Erosion Control                                   | 3%                | \$ 106,900 |                |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%               | \$ 712,100 |                |
| Other Components Estimate Subtotal:    |                                                   |                   |            | \$ 1,068,400   |
| III. Special Construction Components   |                                                   |                   |            |                |
| Item No.                               | Item Description                                  | Notes             | Allowance  | Item Cost      |
| 14                                     | Landscaping/Illumination                          | None              | \$ -       | \$ -           |
| 15                                     | Drainage Structures                               | 2 Minor Crossings | \$ 200,000 | \$ 200,000     |
| 16                                     | Bridge Structures                                 | None              | \$ -       | \$ -           |
| 17                                     | Traffic Signals                                   | None              | \$ -       | \$ -           |
| 18                                     | Other                                             | None              | \$ -       | \$ -           |
| Special Components Estimate Subtotal:  |                                                   |                   |            | \$ 200,000     |
| I, II, & III Construction Subtotal:    |                                                   |                   |            | \$ 4,828,900   |
| Mobilization                           |                                                   |                   |            | 5% \$ 241,500  |
| Contingency                            |                                                   |                   |            | 10% \$ 507,100 |
| Construction Cost Estimate Total:      |                                                   |                   |            | \$ 5,577,500   |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 5,577,500 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 390,400   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 237,600   | \$ 237,600   |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 6,205,500 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**HUBERTUS ROAD**

IH-35 to FM 482

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 3,010                                        |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 31       | STA       | \$ 3,000.00    | \$ 93,000    |
| 2                                      | Unclassified Street Excavation                    | 7,400    | CY        | \$ 20.00       | \$ 148,000   |
| 3                                      | 3" HMAC (Type "D")                                | 16,100   | SY        | \$ 18.00       | \$ 289,800   |
| 4                                      | 10" Flex Base                                     | 20,100   | SY        | \$ 18.00       | \$ 361,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 20,100   | SY        | \$ 7.00        | \$ 140,700   |
| 6                                      | TX-5 Geogrid                                      | 20,100   | SY        | \$ 1.00        | \$ 20,100    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 12,040   | LF        | \$ 25.00       | \$ 301,000   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 5,000    | SY        | \$ 50.00       | \$ 250,000   |
| 9                                      | Block Sodding and Topsoil                         | 17,720   | SY        | \$ 5.00        | \$ 88,600    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 1,693,000 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 33,900    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 84,700    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 50,800    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 338,600   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 508,000   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -         |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 2,201,000 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 110,100   |
| Contingency                            |                                                   |          |           | 10%            | \$ 231,200   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 2,542,300 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 2,542,300 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 178,000   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 135,400 | \$ 135,400   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 2,855,700 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### HUBERTUS ROAD FM 482 to N. City Limits

| Roadway Information:           |                                                      |                 |
|--------------------------------|------------------------------------------------------|-----------------|
| Functional Classification:     | Principal Arterial                                   | No. of Lanes: 4 |
| Length (lf):                   | 1,584                                                |                 |
| Right-of-Way Width (ft.):      | 120                                                  |                 |
| Median Type:                   | Raised                                               |                 |
| Pavement Width (Edge to Edge): | 48                                                   |                 |
| Description:                   | Construction of new roadway to thoroughfare standard |                 |
|                                | Shared-Use Path bicycle facility                     |                 |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 16       | STA       | \$ 3,000.00    | \$ 48,000    |
| 2                                      | Unclassified Street Excavation                    | 3,900    | CY        | \$ 20.00       | \$ 78,000    |
| 3                                      | 3" HMAC (Type "D")                                | 8,500    | SY        | \$ 18.00       | \$ 153,000   |
| 4                                      | 10" Flex Base                                     | 10,600   | SY        | \$ 18.00       | \$ 190,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 10,600   | SY        | \$ 7.00        | \$ 74,200    |
| 6                                      | TX-5 Geogrid                                      | 10,600   | SY        | \$ 1.00        | \$ 10,600    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 6,340    | LF        | \$ 25.00       | \$ 158,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,600    | SY        | \$ 50.00       | \$ 130,000   |
| 9                                      | Block Sodding and Topsoil                         | 9,330    | SY        | \$ 5.00        | \$ 46,650    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 889,750   |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 17,800    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 44,500    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 26,700    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 178,000   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 267,000   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 1,156,750 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 57,900    |
| Contingency                            |                                                   |          |           | 10%            | \$ 121,500   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 1,336,200 |

| Impact Fee Cost Estimate Summary        |                           |            |           |              |
|-----------------------------------------|---------------------------|------------|-----------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost |              |
| Construction                            |                           | -          | \$        | 1,336,200    |
| Engineering/Survey/Testing              |                           | 7%         | \$        | 93,500       |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 142,600 | \$        | 142,600      |
| Impact Fee Project Cost Estimate Total: |                           |            |           | \$ 1,572,300 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**FRIESENHAHN LANE**

IH-35 to FM 482

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector A                       | No. of Lanes: | 3 |
| Length (lf):                   | 1,690                                        |               |   |
| Right-of-Way Width (ft.):      | 70                                           |               |   |
| Median Type:                   | Two-Way Left Turn Lane                       |               |   |
| Pavement Width (Edge to Edge): | 38                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                      |            |                |              |
|----------------------------------------|---------------------------------------------------|----------------------|------------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                      |            |                |              |
| Item No.                               | Item Description                                  | Quantity             | Unit       | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 17                   | STA        | \$ 3,000.00    | \$ 51,000    |
| 2                                      | Unclassified Street Excavation                    | 3,100                | CY         | \$ 20.00       | \$ 62,000    |
| 3                                      | 3" HMAC (Type "D")                                | 7,200                | SY         | \$ 18.00       | \$ 129,600   |
| 4                                      | 10" Flex Base                                     | 8,300                | SY         | \$ 18.00       | \$ 149,400   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 8,300                | SY         | \$ 7.00        | \$ 58,100    |
| 6                                      | TX-5 Geogrid                                      | 8,300                | SY         | \$ 1.00        | \$ 8,300     |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 3,380                | LF         | \$ 25.00       | \$ 84,500    |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,800                | SY         | \$ 50.00       | \$ 140,000   |
| 9                                      | Block Sodding and Topsoil                         | 2,820                | SY         | \$ 5.00        | \$ 14,100    |
| Paving Estimate Subtotal:              |                                                   |                      |            |                | \$ 697,000   |
| II. Non-Paving Construction Components |                                                   |                      |            |                |              |
| Item No.                               | Item Description                                  |                      |            | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                      |            | 2%             | \$ 14,000    |
| 11                                     | Traffic Control                                   |                      |            | 5%             | \$ 34,900    |
| 12                                     | Erosion Control                                   |                      |            | 3%             | \$ 21,000    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                      |            | 20%            | \$ 139,400   |
| Other Components Estimate Subtotal:    |                                                   |                      |            |                | \$ 209,300   |
| III. Special Construction Components   |                                                   |                      |            |                |              |
| Item No.                               | Item Description                                  | Notes                | Allowance  |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None                 | \$ -       |                | \$ -         |
| 15                                     | Drainage Structures                               | None                 | \$ -       |                | \$ -         |
| 16                                     | Bridge Structures                                 | None                 | \$ -       |                | \$ -         |
| 17                                     | Traffic Signals                                   | None                 | \$ -       |                | \$ -         |
| 18                                     | Other                                             | At-grade RR crossing | \$ 150,000 |                | \$ 150,000   |
| Special Components Estimate Subtotal:  |                                                   |                      |            |                | \$ 150,000   |
| I, II, & III Construction Subtotal:    |                                                   |                      |            |                | \$ 1,056,300 |
| Mobilization                           |                                                   |                      |            | 5%             | \$ 52,900    |
| Contingency                            |                                                   |                      |            | 10%            | \$ 111,000   |
| Construction Cost Estimate Total:      |                                                   |                      |            |                | \$ 1,220,200 |

| Impact Fee Cost Estimate Summary        |                   |           |           |              |
|-----------------------------------------|-------------------|-----------|-----------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost |              |
| Construction                            |                   | -         | \$        | 1,220,200    |
| Engineering/Survey/Testing              |                   | 7%        | \$        | 85,400       |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 38,000 | \$ 38,000    |
| Impact Fee Project Cost Estimate Total: |                   |           |           | \$ 1,343,600 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### SCHWAB ROAD

IH-35 to FM 482

| Roadway Information:           |                                              |                 |
|--------------------------------|----------------------------------------------|-----------------|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: 6 |
| Length (lf):                   | 3,326                                        |                 |
| Right-of-Way Width (ft.):      | 200                                          |                 |
| Median Type:                   | Raised                                       |                 |
| Pavement Width (Edge to Edge): | 68                                           |                 |
| Description:                   | Widening of roadway to thoroughfare standard |                 |
|                                | Shared-Use Path bicycle facility             |                 |

| Roadway Construction Cost Estimate:    |                                                   |                      |           |                |              |
|----------------------------------------|---------------------------------------------------|----------------------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Quantity             | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 34                   | STA       | \$ 3,000.00    | \$ 102,000   |
| 2                                      | Unclassified Street Excavation                    | 10,900               | CY        | \$ 20.00       | \$ 218,000   |
| 3                                      | 3" HMAC (Type "D")                                | 25,200               | SY        | \$ 18.00       | \$ 453,600   |
| 4                                      | 10" Flex Base                                     | 29,600               | SY        | \$ 18.00       | \$ 532,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 29,600               | SY        | \$ 7.00        | \$ 207,200   |
| 6                                      | TX-5 Geogrid                                      | 29,600               | SY        | \$ 1.00        | \$ 29,600    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 13,310               | LF        | \$ 25.00       | \$ 332,750   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 5,500                | SY        | \$ 50.00       | \$ 275,000   |
| 9                                      | Block Sodding and Topsoil                         | 41,760               | SY        | \$ 5.00        | \$ 208,800   |
| Paving Estimate Subtotal:              |                                                   |                      |           |                | \$ 2,359,750 |
| II. Non-Paving Construction Components |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  |                      |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                      |           | 2%             | \$ 47,200    |
| 11                                     | Traffic Control                                   |                      |           | 5%             | \$ 118,000   |
| 12                                     | Erosion Control                                   |                      |           | 3%             | \$ 70,800    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                      |           | 20%            | \$ 472,000   |
| Other Components Estimate Subtotal:    |                                                   |                      |           |                | \$ 708,000   |
| III. Special Construction Components   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Notes                | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None                 | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | 1 Minor Crossing     | \$        | 100,000        | \$ 100,000   |
| 16                                     | Bridge Structures                                 | None                 | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None                 | \$        | -              | \$ -         |
| 18                                     | Other                                             | At-grade RR crossing | \$        | 150,000        | \$ 150,000   |
| Special Components Estimate Subtotal:  |                                                   |                      |           |                | \$ 250,000   |
| I, II, & III Construction Subtotal:    |                                                   |                      |           |                | \$ 3,317,750 |
| Mobilization                           |                                                   |                      |           | 5%             | \$ 165,900   |
| Contingency                            |                                                   |                      |           | 10%            | \$ 348,400   |
| Construction Cost Estimate Total:      |                                                   |                      |           |                | \$ 3,832,100 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 3,832,100 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 268,200   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 274,400 | \$ 274,400   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 4,374,700 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### E/W CONNECTOR (3)

Hubertus Rd. to David Lack Blvd.

| Roadway Information:           |                                                      |                 |
|--------------------------------|------------------------------------------------------|-----------------|
| Functional Classification:     | Commercial Collector A                               | No. of Lanes: 3 |
| Length (lf):                   | 8,395                                                |                 |
| Right-of-Way Width (ft.):      | 70                                                   |                 |
| Median Type:                   | Two-Way Left Turn Lane                               |                 |
| Pavement Width (Edge to Edge): | 38                                                   |                 |
| Description:                   | Construction of new roadway to thoroughfare standard |                 |
|                                | Shared-Use Path bicycle facility                     |                 |

| Roadway Construction Cost Estimate:    |                                                   |                  |           |             |              |
|----------------------------------------|---------------------------------------------------|------------------|-----------|-------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |           |             |              |
| Item No.                               | Item Description                                  | Quantity         | Unit      | Unit Cost   | Item Cost    |
| 1                                      | Right of Way Preparation                          | 84               | STA       | \$ 3,000.00 | \$ 252,000   |
| 2                                      | Unclassified Street Excavation                    | 15,100           | CY        | \$ 20.00    | \$ 302,000   |
| 3                                      | 3" HMAC (Type "D")                                | 35,500           | SY        | \$ 18.00    | \$ 639,000   |
| 4                                      | 10" Flex Base                                     | 41,100           | SY        | \$ 18.00    | \$ 739,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 41,100           | SY        | \$ 7.00     | \$ 287,700   |
| 6                                      | TX-5 Geogrid                                      | 41,100           | SY        | \$ 1.00     | \$ 41,100    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 16,800           | LF        | \$ 25.00    | \$ 420,000   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 14,000           | SY        | \$ 50.00    | \$ 700,000   |
| 9                                      | Block Sodding and Topsoil                         | 13,990           | SY        | \$ 5.00     | \$ 69,950    |
| Paving Estimate Subtotal:              |                                                   |                  |           |             | \$ 3,451,550 |
| II. Non-Paving Construction Components |                                                   |                  |           |             |              |
| Item No.                               | Item Description                                  | Pct. Of Paving   |           |             | Item Cost    |
| 10                                     | Pavement Markings & Signage                       | 2%               |           |             | \$ 69,100    |
| 11                                     | Traffic Control                                   | 5%               |           |             | \$ 172,600   |
| 12                                     | Erosion Control                                   | 3%               |           |             | \$ 103,600   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%              |           |             | \$ 690,400   |
| Other Components Estimate Subtotal:    |                                                   |                  |           |             | \$ 1,035,700 |
| III. Special Construction Components   |                                                   |                  |           |             |              |
| Item No.                               | Item Description                                  | Notes            | Allowance |             | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None             | \$        | -           | \$ -         |
| 15                                     | Drainage Structures                               | 1 Minor Crossing | \$        | 100,000     | \$ 100,000   |
| 16                                     | Bridge Structures                                 | None             | \$        | -           | \$ -         |
| 17                                     | Traffic Signals                                   | None             | \$        | -           | \$ -         |
| 18                                     | Other                                             | None             | \$        | -           | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |                  |           |             | \$ 100,000   |
| I, II, & III Construction Subtotal:    |                                                   |                  |           |             | \$ 4,587,250 |
| Mobilization                           |                                                   |                  |           | 5%          | \$ 229,400   |
| Contingency                            |                                                   |                  |           | 10%         | \$ 481,700   |
| Construction Cost Estimate Total:      |                                                   |                  |           |             | \$ 5,298,400 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 5,298,400 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 370,900   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 440,700 | \$ 440,700   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 6,110,000 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### ECKHARDT ROAD

Froboese Ln. to Green Valley Rd.

| Roadway Information:           |                                                |                 |
|--------------------------------|------------------------------------------------|-----------------|
| Functional Classification:     | Residential Collector                          | No. of Lanes: 2 |
| Length (lf):                   | 5,861                                          |                 |
| Right-of-Way Width (ft.):      | 70                                             |                 |
| Median Type:                   | None                                           |                 |
| Pavement Width (Edge to Edge): | 38                                             |                 |
| Description:                   | Widening of roadway to thoroughfare standard   |                 |
|                                | On-street bicycle facility (Pavement: 7' + 7') |                 |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 59       | STA       | \$ 3,000.00    | \$ 177,000 |
| 2                                      | Unclassified Street Excavation                    | 10,600   | CY        | \$ 20.00       | \$ 212,000 |
| 3                                      | 3" HMAC (Type "D")                                | 24,800   | SY        | \$ 18.00       | \$ 446,400 |
| 4                                      | 10" Flex Base                                     | 28,700   | SY        | \$ 18.00       | \$ 516,600 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 28,700   | SY        | \$ 7.00        | \$ 200,900 |
| 6                                      | TX-5 Geogrid                                      | 28,700   | SY        | \$ 1.00        | \$ 28,700  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 11,730   | LF        | \$ 25.00       | \$ 293,250 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 6,500    | SY        | \$ 50.00       | \$ 325,000 |
| 9                                      | Block Sodding and Topsoil                         | 13,020   | SY        | \$ 5.00        | \$ 65,100  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 2,264,950  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 45,300  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 113,300 |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 68,000  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 453,000 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 679,600    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 2,944,550  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 147,300 |
| Contingency                            |                                                   |          |           | 10%            | \$ 309,200 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 3,401,100  |

| Impact Fee Cost Estimate Summary        |                   |           |           |              |
|-----------------------------------------|-------------------|-----------|-----------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost |              |
| Construction                            |                   | -         | \$        | 3,401,100    |
| Engineering/Survey/Testing              |                   | 7%        | \$        | 238,100      |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$        | 87,900       |
| Impact Fee Project Cost Estimate Total: |                   |           |           | \$ 3,727,100 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**SCHWAB ROAD**  
 IH-35 to S. City Limits

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                                   | No. of Lanes: | 4 |
| Length (lf):                   | 6,019                                                |               |   |
| Right-of-Way Width (ft.):      | 90                                                   |               |   |
| Median Type:                   | Raised                                               |               |   |
| Pavement Width (Edge to Edge): | 48                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 61       | STA       | \$ 3,000.00    | \$ 183,000   |
| 2                                      | Unclassified Street Excavation                    | 14,800   | CY        | \$ 20.00       | \$ 296,000   |
| 3                                      | 3" HMAC (Type "D")                                | 32,200   | SY        | \$ 18.00       | \$ 579,600   |
| 4                                      | 10" Flex Base                                     | 40,200   | SY        | \$ 18.00       | \$ 723,600   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 40,200   | SY        | \$ 7.00        | \$ 281,400   |
| 6                                      | TX-5 Geogrid                                      | 40,200   | SY        | \$ 1.00        | \$ 40,200    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 24,080   | LF        | \$ 25.00       | \$ 602,000   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 10,000   | SY        | \$ 50.00       | \$ 500,000   |
| 9                                      | Block Sodding and Topsoil                         | 15,380   | SY        | \$ 5.00        | \$ 76,900    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 3,282,700 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 65,700    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 164,200   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 98,500    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 656,600   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 985,000   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -         |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 4,267,700 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 213,400   |
| Contingency                            |                                                   |          |           | 10%            | \$ 448,200   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 4,929,300 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 4,929,300 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 345,100   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 406,300 | \$ 406,300   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 5,680,700 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FROBOESE LANE  
Schwab Rd. to Eckhardt Rd.

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                                | No. of Lanes: | 2 |
| Length (lf):                   | 3,010                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 31       | STA       | \$ 3,000.00    | \$ 93,000    |
| 2                                      | Unclassified Street Excavation                    | 5,400    | CY        | \$ 20.00       | \$ 108,000   |
| 3                                      | 3" HMAC (Type "D")                                | 12,800   | SY        | \$ 18.00       | \$ 230,400   |
| 4                                      | 10" Flex Base                                     | 14,800   | SY        | \$ 18.00       | \$ 266,400   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 14,800   | SY        | \$ 7.00        | \$ 103,600   |
| 6                                      | TX-5 Geogrid                                      | 14,800   | SY        | \$ 1.00        | \$ 14,800    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 6,020    | LF        | \$ 25.00       | \$ 150,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 3,300    | SY        | \$ 50.00       | \$ 165,000   |
| 9                                      | Block Sodding and Topsoil                         | 6,690    | SY        | \$ 5.00        | \$ 33,450    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 1,165,150 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 23,400    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 58,300    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 35,000    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 233,100   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 349,800   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -         |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 1,514,950 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 75,800    |
| Contingency                            |                                                   |          |           | 10%            | \$ 159,100   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 1,749,900 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 1,749,900 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 122,500   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 158,000   | \$ 158,000   |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 2,030,400 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### FROBOESE LANE

E/W Break Pt. 1 to E/W Break Pt. 2

| Roadway Information:           |                                                |               |   |
|--------------------------------|------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                          | No. of Lanes: | 2 |
| Length (lf):                   | 1,380                                          |               |   |
| Right-of-Way Width (ft.):      | 70                                             |               |   |
| Median Type:                   | None                                           |               |   |
| Pavement Width (Edge to Edge): | 38                                             |               |   |
| Description:                   | Widening of roadway to thoroughfare standard   |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7') |               |   |

### Roadway Construction Cost Estimate:

#### I. Paving Construction Cost Estimate

| Item No.                  | Item Description                     | Quantity | Unit | Unit Cost   | Item Cost  |
|---------------------------|--------------------------------------|----------|------|-------------|------------|
| 1                         | Right of Way Preparation             | 14       | STA  | \$ 3,000.00 | \$ 42,000  |
| 2                         | Unclassified Street Excavation       | 2,500    | CY   | \$ 20.00    | \$ 50,000  |
| 3                         | 3" HMAC (Type "D")                   | 5,900    | SY   | \$ 18.00    | \$ 106,200 |
| 4                         | 10" Flex Base                        | 6,800    | SY   | \$ 18.00    | \$ 122,400 |
| 5                         | 6" Moisture Conditioned Subgrade     | 6,800    | SY   | \$ 7.00     | \$ 47,600  |
| 6                         | TX-5 Geogrid                         | 6,800    | SY   | \$ 1.00     | \$ 6,800   |
| 7                         | 6" Monolithic Concrete Curb & Gutter | 2,760    | LF   | \$ 25.00    | \$ 69,000  |
| 8                         | 4" Concrete Sidewalk and Ramps       | 1,500    | SY   | \$ 50.00    | \$ 75,000  |
| 9                         | Block Sodding and Topsoil            | 3,070    | SY   | \$ 5.00     | \$ 15,350  |
| Paving Estimate Subtotal: |                                      |          |      |             | \$ 534,350 |

#### II. Non-Paving Construction Components

| Item No.                            | Item Description                                  | Pct. Of Paving | Item Cost  |
|-------------------------------------|---------------------------------------------------|----------------|------------|
| 10                                  | Pavement Markings & Signage                       | 2%             | \$ 10,700  |
| 11                                  | Traffic Control                                   | 5%             | \$ 26,800  |
| 12                                  | Erosion Control                                   | 3%             | \$ 16,100  |
| 13                                  | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%            | \$ 106,900 |
| Other Components Estimate Subtotal: |                                                   |                | \$ 160,500 |

#### III. Special Construction Components

| Item No.                              | Item Description         | Notes | Allowance | Item Cost |
|---------------------------------------|--------------------------|-------|-----------|-----------|
| 14                                    | Landscaping/Illumination | None  | \$ -      | \$ -      |
| 15                                    | Drainage Structures      | None  | \$ -      | \$ -      |
| 16                                    | Bridge Structures        | None  | \$ -      | \$ -      |
| 17                                    | Traffic Signals          | None  | \$ -      | \$ -      |
| 18                                    | Other                    | None  | \$ -      | \$ -      |
| Special Components Estimate Subtotal: |                          |       |           | \$ -      |

I, II, & III Construction Subtotal: \$ 694,850

Mobilization 5% \$ 34,800

Contingency 10% \$ 73,000

Construction Cost Estimate Total: \$ 802,700

### Impact Fee Cost Estimate Summary

| Item Description                        | Notes                     | Allowance | Item Cost  |
|-----------------------------------------|---------------------------|-----------|------------|
| Construction                            |                           | -         | \$ 802,700 |
| Engineering/Survey/Testing              |                           | 7%        | \$ 56,200  |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 31,100 | \$ 31,100  |
| Impact Fee Project Cost Estimate Total: |                           |           | \$ 890,000 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**GREEN VALLEY ROAD**  
W. City Limits to E. City Limits

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 4,594                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |                |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|----------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |                |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost      |
| 1                                      | Right of Way Preparation                          | 46       | STA       | \$ 3,000.00    | \$ 138,000     |
| 2                                      | Unclassified Street Excavation                    | 11,300   | CY        | \$ 20.00       | \$ 226,000     |
| 3                                      | 3" HMAC (Type "D")                                | 24,500   | SY        | \$ 18.00       | \$ 441,000     |
| 4                                      | 10" Flex Base                                     | 30,700   | SY        | \$ 18.00       | \$ 552,600     |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 30,700   | SY        | \$ 7.00        | \$ 214,900     |
| 6                                      | TX-5 Geogrid                                      | 30,700   | SY        | \$ 1.00        | \$ 30,700      |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 18,380   | LF        | \$ 25.00       | \$ 459,500     |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 7,700    | SY        | \$ 50.00       | \$ 385,000     |
| 9                                      | Block Sodding and Topsoil                         | 11,740   | SY        | \$ 5.00        | \$ 58,700      |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 2,506,400   |
| II. Non-Paving Construction Components |                                                   |          |           |                |                |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost      |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 50,200      |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 125,400     |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 75,200      |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 501,300     |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 752,100     |
| III. Special Construction Components   |                                                   |          |           |                |                |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost      |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -           |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -           |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -           |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -           |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -           |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -           |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 3,258,500   |
| Mobilization                           |                                                   |          |           |                | 5% \$ 163,000  |
| Contingency                            |                                                   |          |           |                | 10% \$ 342,200 |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 3,763,700   |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 3,763,700 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 263,500   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 172,300 | \$ 172,300   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 4,199,500 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

#### HOMESTEAD PARKWAY

Existing Homestead Pkwy. to S. City Limits

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                                | No. of Lanes: | 2 |
| Length (lf):                   | 1,742                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 18       | STA       | \$ 3,000.00    | \$ 54,000    |
| 2                                      | Unclassified Street Excavation                    | 3,200    | CY        | \$ 20.00       | \$ 64,000    |
| 3                                      | 3" HMAC (Type "D")                                | 7,400    | SY        | \$ 18.00       | \$ 133,200   |
| 4                                      | 10" Flex Base                                     | 8,600    | SY        | \$ 18.00       | \$ 154,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 8,600    | SY        | \$ 7.00        | \$ 60,200    |
| 6                                      | TX-5 Geogrid                                      | 8,600    | SY        | \$ 1.00        | \$ 8,600     |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 3,490    | LF        | \$ 25.00       | \$ 87,250    |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 1,900    | SY        | \$ 50.00       | \$ 95,000    |
| 9                                      | Block Sodding and Topsoil                         | 3,870    | SY        | \$ 5.00        | \$ 19,350    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 676,400   |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 13,600    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 33,900    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 20,300    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 135,300   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 203,100   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 879,500   |
| Mobilization                           |                                                   |          |           | 5%             | \$ 44,000    |
| Contingency                            |                                                   |          |           | 10%            | \$ 92,400    |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 1,015,900 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 1,015,900 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 71,100    |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 91,500    | \$ 91,500    |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 1,178,500 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**COUNTRY CLUB BOULEVARD**

Scenic Links to S. City Limits

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                                | No. of Lanes: | 2 |
| Length (lf):                   | 1,848                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |                |             |              |
|----------------------------------------|---------------------------------------------------|----------|----------------|-------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |                |             |              |
| Item No.                               | Item Description                                  | Quantity | Unit           | Unit Cost   | Item Cost    |
| 1                                      | Right of Way Preparation                          | 19       | STA            | \$ 3,000.00 | \$ 57,000    |
| 2                                      | Unclassified Street Excavation                    | 3,400    | CY             | \$ 20.00    | \$ 68,000    |
| 3                                      | 3" HMAC (Type "D")                                | 7,900    | SY             | \$ 18.00    | \$ 142,200   |
| 4                                      | 10" Flex Base                                     | 9,100    | SY             | \$ 18.00    | \$ 163,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 9,100    | SY             | \$ 7.00     | \$ 63,700    |
| 6                                      | TX-5 Geogrid                                      | 9,100    | SY             | \$ 1.00     | \$ 9,100     |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 3,700    | LF             | \$ 25.00    | \$ 92,500    |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,100    | SY             | \$ 50.00    | \$ 105,000   |
| 9                                      | Block Sodding and Topsoil                         | 4,110    | SY             | \$ 5.00     | \$ 20,550    |
| Paving Estimate Subtotal:              |                                                   |          |                |             | \$ 721,850   |
| II. Non-Paving Construction Components |                                                   |          |                |             |              |
| Item No.                               | Item Description                                  |          | Pct. Of Paving |             | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          | 2%             | \$          | 14,500       |
| 11                                     | Traffic Control                                   |          | 5%             | \$          | 36,100       |
| 12                                     | Erosion Control                                   |          | 3%             | \$          | 21,700       |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          | 20%            | \$          | 144,400      |
| Other Components Estimate Subtotal:    |                                                   |          |                |             | \$ 216,700   |
| III. Special Construction Components   |                                                   |          |                |             |              |
| Item No.                               | Item Description                                  | Notes    | Allowance      |             | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -           | \$          | -            |
| 15                                     | Drainage Structures                               | None     | \$ -           | \$          | -            |
| 16                                     | Bridge Structures                                 | None     | \$ -           | \$          | -            |
| 17                                     | Traffic Signals                                   | None     | \$ -           | \$          | -            |
| 18                                     | Other                                             | None     | \$ -           | \$          | -            |
| Special Components Estimate Subtotal:  |                                                   |          |                |             | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |                | \$          | 938,550      |
| Mobilization                           |                                                   |          |                | 5%          | \$ 47,000    |
| Contingency                            |                                                   |          |                | 10%         | \$ 98,600    |
| Construction Cost Estimate Total:      |                                                   |          |                |             | \$ 1,084,200 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 1,084,200 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 75,900    |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 97,000    | \$ 97,000    |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 1,257,100 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

#### E/W CONNECTOR (4)

Country Club Blvd. to Homestead Pkwy.

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                                | No. of Lanes: | 2 |
| Length (lf):                   | 4,073                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 41       | STA       | \$ 3,000.00    | \$ 123,000   |
| 2                                      | Unclassified Street Excavation                    | 7,400    | CY        | \$ 20.00       | \$ 148,000   |
| 3                                      | 3" HMAC (Type "D")                                | 17,200   | SY        | \$ 18.00       | \$ 309,600   |
| 4                                      | 10" Flex Base                                     | 20,000   | SY        | \$ 18.00       | \$ 360,000   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 20,000   | SY        | \$ 7.00        | \$ 140,000   |
| 6                                      | TX-5 Geogrid                                      | 20,000   | SY        | \$ 1.00        | \$ 20,000    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 8,150    | LF        | \$ 25.00       | \$ 203,750   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 4,500    | SY        | \$ 50.00       | \$ 225,000   |
| 9                                      | Block Sodding and Topsoil                         | 9,050    | SY        | \$ 5.00        | \$ 45,250    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 1,529,350 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 30,600    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 76,500    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 45,900    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 305,900   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 458,900   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -         |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 1,988,250 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 99,500    |
| Contingency                            |                                                   |          |           | 10%            | \$ 208,800   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 2,296,600 |

| Impact Fee Cost Estimate Summary        |                   |           |           |              |
|-----------------------------------------|-------------------|-----------|-----------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost |              |
| Construction                            |                   | -         | \$        | 2,296,600    |
| Engineering/Survey/Testing              |                   | 7%        | \$        | 160,800      |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$        | 213,800      |
| Impact Fee Project Cost Estimate Total: |                   |           |           | \$ 2,671,200 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (4)**

Schwab Rd. to Eckhardt Rd.

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                                | No. of Lanes: | 2 |
| Length (lf):                   | 2,376                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 24       | STA       | \$ 3,000.00    | \$ 72,000    |
| 2                                      | Unclassified Street Excavation                    | 4,300    | CY        | \$ 20.00       | \$ 86,000    |
| 3                                      | 3" HMAC (Type "D")                                | 10,100   | SY        | \$ 18.00       | \$ 181,800   |
| 4                                      | 10" Flex Base                                     | 11,700   | SY        | \$ 18.00       | \$ 210,600   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 11,700   | SY        | \$ 7.00        | \$ 81,900    |
| 6                                      | TX-5 Geogrid                                      | 11,700   | SY        | \$ 1.00        | \$ 11,700    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 4,760    | LF        | \$ 25.00       | \$ 119,000   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,600    | SY        | \$ 50.00       | \$ 130,000   |
| 9                                      | Block Sodding and Topsoil                         | 5,280    | SY        | \$ 5.00        | \$ 26,400    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 919,400   |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 18,400    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 46,000    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 27,600    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 183,900   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 275,900   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -         |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 1,195,300    |
| Mobilization                           |                                                   |          |           | 5%             | \$ 59,800    |
| Contingency                            |                                                   |          |           | 10%            | \$ 125,600   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 1,380,700 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 1,380,700 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 96,600    |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 124,700 | \$ 124,700   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 1,602,000 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

FM 1103

IH-35 to Old Wiederstein Rd.

| Roadway Information:           |                                                                |               |   |
|--------------------------------|----------------------------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                                             | No. of Lanes: | 4 |
| Length (lf):                   | 3,696                                                          |               |   |
| Right-of-Way Width (ft.):      | 130                                                            |               |   |
| Median Type:                   | Raised                                                         |               |   |
| Pavement Width (Edge to Edge): | 48                                                             |               |   |
| Description:                   | Widening of roadway to thoroughfare standard funded through    |               |   |
|                                | City Go Bonds, TxDOT, and AAMPO. City contribution anticipated |               |   |
|                                | at \$2,000,000                                                 |               |   |

| Impact Fee Cost Estimate Summary               |                           |           |                     |
|------------------------------------------------|---------------------------|-----------|---------------------|
| Item Description                               | Notes                     | Allowance | Item Cost           |
| Construction                                   | City contribution         | -         | \$ 2,000,000        |
| Engineering/Survey/Testing                     |                           | 7%        | \$ -                |
| Right-of-Way Acquisition                       | Cost per sq. ft.: \$ 0.75 | \$ -      | \$ -                |
| <b>Impact Fee Project Cost Estimate Total:</b> |                           |           | <b>\$ 2,000,000</b> |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**N/S CONNECTOR (1)**  
 IH-35 to Old Wiederstein Rd.

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 2,904                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                  |            |                       |
|----------------------------------------|---------------------------------------------------|------------------|------------|-----------------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |            |                       |
| Item No.                               | Item Description                                  | Quantity         | Unit       | Item Cost             |
| 1                                      | Right of Way Preparation                          | 30               | STA        | \$ 3,000.00 \$ 90,000 |
| 2                                      | Unclassified Street Excavation                    | 7,100            | CY         | \$ 20.00 \$ 142,000   |
| 3                                      | 3" HMAC (Type "D")                                | 15,500           | SY         | \$ 18.00 \$ 279,000   |
| 4                                      | 10" Flex Base                                     | 19,400           | SY         | \$ 18.00 \$ 349,200   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 19,400           | SY         | \$ 7.00 \$ 135,800    |
| 6                                      | TX-5 Geogrid                                      | 19,400           | SY         | \$ 1.00 \$ 19,400     |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 11,620           | LF         | \$ 25.00 \$ 290,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 4,800            | SY         | \$ 50.00 \$ 240,000   |
| 9                                      | Block Sodding and Topsoil                         | 7,420            | SY         | \$ 5.00 \$ 37,100     |
| Paving Estimate Subtotal:              |                                                   |                  |            | \$ 1,583,000          |
| II. Non-Paving Construction Components |                                                   |                  |            |                       |
| Item No.                               | Item Description                                  | Pct. Of Paving   |            | Item Cost             |
| 10                                     | Pavement Markings & Signage                       | 2%               | \$         | 31,700                |
| 11                                     | Traffic Control                                   | 5%               | \$         | 79,200                |
| 12                                     | Erosion Control                                   | 3%               | \$         | 47,500                |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%              | \$         | 316,600               |
| Other Components Estimate Subtotal:    |                                                   |                  |            | \$ 475,000            |
| III. Special Construction Components   |                                                   |                  |            |                       |
| Item No.                               | Item Description                                  | Notes            | Allowance  | Item Cost             |
| 14                                     | Landscaping/Illumination                          | None             | \$ -       | \$ -                  |
| 15                                     | Drainage Structures                               | 1 Minor Crossing | \$ 100,000 | \$ 100,000            |
| 16                                     | Bridge Structures                                 | None             | \$ -       | \$ -                  |
| 17                                     | Traffic Signals                                   | None             | \$ -       | \$ -                  |
| 18                                     | Other                                             | None             | \$ -       | \$ -                  |
| Special Components Estimate Subtotal:  |                                                   |                  |            | \$ 100,000            |
| I, II, & III Construction Subtotal:    |                                                   |                  |            | \$ 2,158,000          |
| Mobilization                           |                                                   |                  |            | 5% \$ 107,900         |
| Contingency                            |                                                   |                  |            | 10% \$ 226,600        |
| Construction Cost Estimate Total:      |                                                   |                  |            | \$ 2,492,500          |

| Impact Fee Cost Estimate Summary        |                           |           |           |              |
|-----------------------------------------|---------------------------|-----------|-----------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost |              |
| Construction                            |                           | -         | \$        | 2,492,500    |
| Engineering/Survey/Testing              |                           | 7%        | \$        | 174,500      |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$        | -            |
| Impact Fee Project Cost Estimate Total: |                           |           |           | \$ 2,667,000 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**N/S CONNECTOR (2)**  
 IH-35 to Old Wiederstein Rd.

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                                   | No. of Lanes: | 4 |
| Length (lf):                   | 3,854                                                |               |   |
| Right-of-Way Width (ft.):      | 90                                                   |               |   |
| Median Type:                   | Raised                                               |               |   |
| Pavement Width (Edge to Edge): | 48                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 39       | STA       | \$ 3,000.00    | \$ 117,000 |
| 2                                      | Unclassified Street Excavation                    | 9,500    | CY        | \$ 20.00       | \$ 190,000 |
| 3                                      | 3" HMAC (Type "D")                                | 20,600   | SY        | \$ 18.00       | \$ 370,800 |
| 4                                      | 10" Flex Base                                     | 25,700   | SY        | \$ 18.00       | \$ 462,600 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 25,700   | SY        | \$ 7.00        | \$ 179,900 |
| 6                                      | TX-5 Geogrid                                      | 25,700   | SY        | \$ 1.00        | \$ 25,700  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 15,420   | LF        | \$ 25.00       | \$ 385,500 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 6,400    | SY        | \$ 50.00       | \$ 320,000 |
| 9                                      | Block Sodding and Topsoil                         | 9,850    | SY        | \$ 5.00        | \$ 49,250  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 2,100,750  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 42,100  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 105,100 |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 63,100  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 420,200 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 630,500    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 2,731,250  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 136,600 |
| Contingency                            |                                                   |          |           | 10%            | \$ 286,800 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 3,154,700  |

| Impact Fee Cost Estimate Summary        |                   |           |            |              |
|-----------------------------------------|-------------------|-----------|------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost  |              |
| Construction                            |                   | -         | \$         | 3,154,700    |
| Engineering/Survey/Testing              |                   | 7%        | \$         | 220,800      |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 260,200 | \$ 260,200   |
| Impact Fee Project Cost Estimate Total: |                   |           |            | \$ 3,635,700 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (5)**  
**N/S Connector (1) to FM 1103**

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                                | No. of Lanes: | 2 |
| Length (lf):                   | 10,552                                               |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 106      | STA       | \$ 3,000.00    | \$ 318,000   |
| 2                                      | Unclassified Street Excavation                    | 19,000   | CY        | \$ 20.00       | \$ 380,000   |
| 3                                      | 3" HMAC (Type "D")                                | 44,600   | SY        | \$ 18.00       | \$ 802,800   |
| 4                                      | 10" Flex Base                                     | 51,600   | SY        | \$ 18.00       | \$ 928,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 51,600   | SY        | \$ 7.00        | \$ 361,200   |
| 6                                      | TX-5 Geogrid                                      | 51,600   | SY        | \$ 1.00        | \$ 51,600    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 21,110   | LF        | \$ 25.00       | \$ 527,750   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 11,700   | SY        | \$ 50.00       | \$ 585,000   |
| 9                                      | Block Sodding and Topsoil                         | 23,450   | SY        | \$ 5.00        | \$ 117,250   |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 4,072,400 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 81,500    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 203,700   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 122,200   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 814,500   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 1,221,900 |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 5,294,300    |
| Mobilization                           |                                                   |          |           | 5%             | \$ 264,800   |
| Contingency                            |                                                   |          |           | 10%            | \$ 556,000   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 6,115,100 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 6,115,100 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 428,100   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 554,000 | \$ 554,000   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 7,097,200 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**OLD WIEDERSTEIN ROAD**  
N/S Connector (1) to Cherry Tree Dr.

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 11,458                                       |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 115      | STA       | \$ 3,000.00    | \$ 345,000   |
| 2                                      | Unclassified Street Excavation                    | 28,100   | CY        | \$ 20.00       | \$ 562,000   |
| 3                                      | 3" HMAC (Type "D")                                | 61,200   | SY        | \$ 18.00       | \$ 1,101,600 |
| 4                                      | 10" Flex Base                                     | 76,400   | SY        | \$ 18.00       | \$ 1,375,200 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 76,400   | SY        | \$ 7.00        | \$ 534,800   |
| 6                                      | TX-5 Geogrid                                      | 76,400   | SY        | \$ 1.00        | \$ 76,400    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 45,840   | LF        | \$ 25.00       | \$ 1,146,000 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 19,100   | SY        | \$ 50.00       | \$ 955,000   |
| 9                                      | Block Sodding and Topsoil                         | 29,280   | SY        | \$ 5.00        | \$ 146,400   |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 6,242,400 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 124,900   |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 312,200   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 187,300   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 1,248,500 |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 1,872,900 |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 8,115,300 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 405,800   |
| Contingency                            |                                                   |          |           | 10%            | \$ 852,200   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 9,373,300 |

| Impact Fee Cost Estimate Summary        |                           |            |               |
|-----------------------------------------|---------------------------|------------|---------------|
| Item Description                        | Notes                     | Allowance  | Item Cost     |
| Construction                            |                           | -          | \$ 9,373,300  |
| Engineering/Survey/Testing              |                           | 7%         | \$ 656,100    |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 257,800 | \$ 257,800    |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 10,287,200 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### DOERR LANE

N. City Limits to Lookout Rd.

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector A                       | No. of Lanes: | 3 |
| Length (lf):                   | 4,805                                        |               |   |
| Right-of-Way Width (ft.):      | 70                                           |               |   |
| Median Type:                   | Two-Way Left Turn Lane                       |               |   |
| Pavement Width (Edge to Edge): | 38                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                      |           |                |              |
|----------------------------------------|---------------------------------------------------|----------------------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Quantity             | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 49                   | STA       | \$ 3,000.00    | \$ 147,000   |
| 2                                      | Unclassified Street Excavation                    | 8,700                | CY        | \$ 20.00       | \$ 174,000   |
| 3                                      | 3" HMAC (Type "D")                                | 20,300               | SY        | \$ 18.00       | \$ 365,400   |
| 4                                      | 10" Flex Base                                     | 23,500               | SY        | \$ 18.00       | \$ 423,000   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 23,500               | SY        | \$ 4.00        | \$ 94,000    |
| 6                                      | TX-5 Geogrid                                      | 23,500               | SY        | \$ 1.00        | \$ 23,500    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 9,610                | LF        | \$ 25.00       | \$ 240,250   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 8,000                | SY        | \$ 50.00       | \$ 400,000   |
| 9                                      | Block Sodding and Topsoil                         | 8,010                | SY        | \$ 5.00        | \$ 40,050    |
| Paving Estimate Subtotal:              |                                                   |                      |           |                | \$ 1,907,200 |
| II. Non-Paving Construction Components |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  |                      |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                      |           | 2%             | \$ 38,200    |
| 11                                     | Traffic Control                                   |                      |           | 5%             | \$ 95,400    |
| 12                                     | Erosion Control                                   |                      |           | 3%             | \$ 57,300    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                      |           | 20%            | \$ 381,500   |
| Other Components Estimate Subtotal:    |                                                   |                      |           |                | \$ 572,400   |
| III. Special Construction Components   |                                                   |                      |           |                |              |
| Item No.                               | Item Description                                  | Notes                | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None                 | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None                 | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None                 | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None                 | \$        | -              | \$ -         |
| 18                                     | Other                                             | At-grade RR crossing | \$        | 150,000        | \$ 150,000   |
| Special Components Estimate Subtotal:  |                                                   |                      |           |                | \$ 150,000   |
| I, II, & III Construction Subtotal:    |                                                   |                      |           |                | \$ 2,629,600 |
| Mobilization                           |                                                   |                      |           | 5%             | \$ 131,500   |
| Contingency                            |                                                   |                      |           | 10%            | \$ 276,200   |
| Construction Cost Estimate Total:      |                                                   |                      |           |                | \$ 3,037,300 |

| Impact Fee Cost Estimate Summary        |                           |           |              |              |
|-----------------------------------------|---------------------------|-----------|--------------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost    |              |
| Construction                            |                           | -         | \$ 3,037,300 |              |
| Engineering/Survey/Testing              |                           | 7%        | \$ 212,600   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$ -         |              |
| Impact Fee Project Cost Estimate Total: |                           |           |              | \$ 3,249,900 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (2)**  
**FM 3009 to N/S Connector (1)**

| <b>Roadway Information:</b>    |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector B                               | No. of Lanes: | 2 |
| Length (lf):                   | 4,277                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 42                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street parking (9' + 9')                          |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 43       | STA       | \$ 3,000.00    | \$ 129,000 |
| 2                                      | Unclassified Street Excavation                    | 8,400    | CY        | \$ 20.00       | \$ 168,000 |
| 3                                      | 3" HMAC (Type "D")                                | 20,000   | SY        | \$ 18.00       | \$ 360,000 |
| 4                                      | 10" Flex Base                                     | 22,900   | SY        | \$ 18.00       | \$ 412,200 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 22,900   | SY        | \$ 4.00        | \$ 91,600  |
| 6                                      | TX-5 Geogrid                                      | 22,900   | SY        | \$ 1.00        | \$ 22,900  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 8,560    | LF        | \$ 25.00       | \$ 214,000 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 11,400   | SY        | \$ 50.00       | \$ 570,000 |
| 9                                      | Block Sodding and Topsoil                         | 0        | SY        | \$ 5.00        | \$ -       |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 1,967,700  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 39,400  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 98,400  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 59,100  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 393,600 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 590,500    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 2,558,200  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 128,000 |
| Contingency                            |                                                   |          |           | 10%            | \$ 268,700 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 2,954,900  |

| <b>Impact Fee Cost Estimate Summary</b>        |                           |            |                     |
|------------------------------------------------|---------------------------|------------|---------------------|
| Item Description                               | Notes                     | Allowance  | Item Cost           |
| Construction                                   |                           | -          | \$ 2,954,900        |
| Engineering/Survey/Testing                     |                           | 7%         | \$ 206,800          |
| Right-of-Way Acquisition                       | Cost per sq. ft.: \$ 0.75 | \$ 224,500 | \$ 224,500          |
| <b>Impact Fee Project Cost Estimate Total:</b> |                           |            | <b>\$ 3,386,200</b> |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (6)**  
**FM 3009 to N/S Connector (1)**

| <b>Roadway Information:</b>    |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector B                               | No. of Lanes: | 2 |
| Length (lf):                   | 4,277                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 42                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street parking (9' + 9')                          |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 43       | STA       | \$ 3,000.00    | \$ 129,000 |
| 2                                      | Unclassified Street Excavation                    | 8,400    | CY        | \$ 20.00       | \$ 168,000 |
| 3                                      | 3" HMAC (Type "D")                                | 20,000   | SY        | \$ 18.00       | \$ 360,000 |
| 4                                      | 10" Flex Base                                     | 22,900   | SY        | \$ 18.00       | \$ 412,200 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 22,900   | SY        | \$ 4.00        | \$ 91,600  |
| 6                                      | TX-5 Geogrid                                      | 22,900   | SY        | \$ 1.00        | \$ 22,900  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 8,560    | LF        | \$ 25.00       | \$ 214,000 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 11,400   | SY        | \$ 50.00       | \$ 570,000 |
| 9                                      | Block Sodding and Topsoil                         | 0        | SY        | \$ 5.00        | \$ -       |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 1,967,700  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 39,400  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 98,400  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 59,100  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 393,600 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 590,500    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 2,558,200  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 127,900 |
| Contingency                            |                                                   |          |           | 10%            | \$ 268,700 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 2,954,800  |

| <b>Impact Fee Cost Estimate Summary</b>        |                           |            |                     |
|------------------------------------------------|---------------------------|------------|---------------------|
| Item Description                               | Notes                     | Allowance  | Item Cost           |
| Construction                                   |                           | -          | \$ 2,954,800        |
| Engineering/Survey/Testing                     |                           | 7%         | \$ 206,800          |
| Right-of-Way Acquisition                       | Cost per sq. ft.: \$ 0.75 | \$ 224,500 | \$ 224,500          |
| <b>Impact Fee Project Cost Estimate Total:</b> |                           |            | <b>\$ 3,386,100</b> |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**MID-CITIES PARKWAY**

IH-35 to FM 3009

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector A                       | No. of Lanes: | 3 |
| Length (lf):                   | 5,174                                        |               |   |
| Right-of-Way Width (ft.):      | 70                                           |               |   |
| Median Type:                   | Two-Way Left Turn Lane                       |               |   |
| Pavement Width (Edge to Edge): | 38                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 52       | STA       | \$ 3,000.00    | \$ 156,000 |
| 2                                      | Unclassified Street Excavation                    | 9,300    | CY        | \$ 20.00       | \$ 186,000 |
| 3                                      | 3" HMAC (Type "D")                                | 21,900   | SY        | \$ 18.00       | \$ 394,200 |
| 4                                      | 10" Flex Base                                     | 25,300   | SY        | \$ 18.00       | \$ 455,400 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 25,300   | SY        | \$ 4.00        | \$ 101,200 |
| 6                                      | TX-5 Geogrid                                      | 25,300   | SY        | \$ 1.00        | \$ 25,300  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 10,350   | LF        | \$ 25.00       | \$ 258,750 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 8,600    | SY        | \$ 50.00       | \$ 430,000 |
| 9                                      | Block Sodding and Topsoil                         | 8,620    | SY        | \$ 5.00        | \$ 43,100  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 2,049,950  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 41,000  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 102,500 |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 61,500  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 410,000 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 615,000    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 2,664,950  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 133,300 |
| Contingency                            |                                                   |          |           | 10%            | \$ 279,900 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 3,078,200  |

| Impact Fee Cost Estimate Summary        |                           |           |           |              |
|-----------------------------------------|---------------------------|-----------|-----------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost |              |
| Construction                            |                           | -         | \$        | 3,078,200    |
| Engineering/Survey/Testing              |                           | 7%        | \$        | 215,500      |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$        | -            |
| Impact Fee Project Cost Estimate Total: |                           |           |           | \$ 3,293,700 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (1)**  
**FM 3009 to N/S Connector (1)**

| <b>Roadway Information:</b>    |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                                   | No. of Lanes: | 4 |
| Length (lf):                   | 4,277                                                |               |   |
| Right-of-Way Width (ft.):      | 90                                                   |               |   |
| Median Type:                   | Raised                                               |               |   |
| Pavement Width (Edge to Edge): | 62                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 43       | STA       | \$ 3,000.00    | \$ 129,000 |
| 2                                      | Unclassified Street Excavation                    | 12,900   | CY        | \$ 20.00       | \$ 258,000 |
| 3                                      | 3" HMAC (Type "D")                                | 29,500   | SY        | \$ 18.00       | \$ 531,000 |
| 4                                      | 10" Flex Base                                     | 35,200   | SY        | \$ 18.00       | \$ 633,600 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 35,200   | SY        | \$ 4.00        | \$ 140,800 |
| 6                                      | TX-5 Geogrid                                      | 35,200   | SY        | \$ 1.00        | \$ 35,200  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 17,110   | LF        | \$ 25.00       | \$ 427,750 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 4,800    | SY        | \$ 50.00       | \$ 240,000 |
| 9                                      | Block Sodding and Topsoil                         | 6,650    | SY        | \$ 5.00        | \$ 33,250  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 2,428,600  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 48,600  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 121,500 |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 72,900  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 485,800 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 728,800    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -       |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 3,157,400  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 157,900 |
| Contingency                            |                                                   |          |           | 10%            | \$ 331,600 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 3,646,900  |

| <b>Impact Fee Cost Estimate Summary</b>        |                           |            |                     |
|------------------------------------------------|---------------------------|------------|---------------------|
| Item Description                               | Notes                     | Allowance  | Item Cost           |
| Construction                                   |                           | -          | \$ 3,646,900        |
| Engineering/Survey/Testing                     |                           | 7%         | \$ 255,300          |
| Right-of-Way Acquisition                       | Cost per sq. ft.: \$ 0.75 | \$ 288,700 | \$ 288,700          |
| <b>Impact Fee Project Cost Estimate Total:</b> |                           |            | <b>\$ 4,190,900</b> |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (7)**

W. City Limits to Doerr Ln.

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector A                               | No. of Lanes: | 3 |
| Length (lf):                   | 3,432                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | Two-Way Left Turn Lane                               |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                |                                                      |               |   |
|                                |                                                      |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 35       | STA       | \$ 3,000.00    | \$ 105,000 |
| 2                                      | Unclassified Street Excavation                    | 6,200    | CY        | \$ 20.00       | \$ 124,000 |
| 3                                      | 3" HMAC (Type "D")                                | 14,500   | SY        | \$ 18.00       | \$ 261,000 |
| 4                                      | 10" Flex Base                                     | 16,800   | SY        | \$ 18.00       | \$ 302,400 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 16,800   | SY        | \$ 4.00        | \$ 67,200  |
| 6                                      | TX-5 Geogrid                                      | 16,800   | SY        | \$ 1.00        | \$ 16,800  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 6,870    | LF        | \$ 25.00       | \$ 171,750 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 3,800    | SY        | \$ 50.00       | \$ 190,000 |
| 9                                      | Block Sodding and Topsoil                         | 7,630    | SY        | \$ 5.00        | \$ 38,150  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 1,276,300  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 25,600  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 63,900  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 38,300  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 255,300 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 383,100    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 1,659,400  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 83,000  |
| Contingency                            |                                                   |          |           | 10%            | \$ 174,300 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 1,916,700  |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 1,916,700 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 134,200   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 180,200 | \$ 180,200   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 2,231,100 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### LOOKOUT ROAD

Tri-County Pkwy. to Schertz Pkwy.

| Roadway Information:           |                                              |                 |
|--------------------------------|----------------------------------------------|-----------------|
| Functional Classification:     | Commercial Collector A                       | No. of Lanes: 3 |
| Length (lf):                   | 3,907                                        |                 |
| Right-of-Way Width (ft.):      | 70                                           |                 |
| Median Type:                   | Two-Way Left Turn Lane                       |                 |
| Pavement Width (Edge to Edge): | 38                                           |                 |
| Description:                   | Widening of roadway to thoroughfare standard |                 |
|                                | Shared-Use Path bicycle facility             |                 |

| Roadway Construction Cost Estimate:    |                                                   |                   |           |                |              |
|----------------------------------------|---------------------------------------------------|-------------------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                   |           |                |              |
| Item No.                               | Item Description                                  | Quantity          | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 40                | STA       | \$ 3,000.00    | \$ 120,000   |
| 2                                      | Unclassified Street Excavation                    | 7,100             | CY        | \$ 20.00       | \$ 142,000   |
| 3                                      | 3" HMAC (Type "D")                                | 16,500            | SY        | \$ 18.00       | \$ 297,000   |
| 4                                      | 10" Flex Base                                     | 19,200            | SY        | \$ 18.00       | \$ 345,600   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 19,200            | SY        | \$ 4.00        | \$ 76,800    |
| 6                                      | TX-5 Geogrid                                      | 19,200            | SY        | \$ 1.00        | \$ 19,200    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 7,820             | LF        | \$ 25.00       | \$ 195,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 6,500             | SY        | \$ 50.00       | \$ 325,000   |
| 9                                      | Block Sodding and Topsoil                         | 6,510             | SY        | \$ 5.00        | \$ 32,550    |
| Paving Estimate Subtotal:              |                                                   |                   |           |                | \$ 1,553,650 |
| II. Non-Paving Construction Components |                                                   |                   |           |                |              |
| Item No.                               | Item Description                                  |                   |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                   |           | 2%             | \$ 31,100    |
| 11                                     | Traffic Control                                   |                   |           | 5%             | \$ 77,700    |
| 12                                     | Erosion Control                                   |                   |           | 3%             | \$ 46,700    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                   |           | 20%            | \$ 310,800   |
| Other Components Estimate Subtotal:    |                                                   |                   |           |                | \$ 466,300   |
| III. Special Construction Components   |                                                   |                   |           |                |              |
| Item No.                               | Item Description                                  | Notes             | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None              | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | 2 Minor Crossings | \$        | 200,000        | \$ 200,000   |
| 16                                     | Bridge Structures                                 | None              | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None              | \$        | -              | \$ -         |
| 18                                     | Other                                             | None              | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |                   |           |                | \$ 200,000   |
| I, II, & III Construction Subtotal:    |                                                   |                   |           |                | \$ 2,219,950 |
| Mobilization                           |                                                   |                   |           | 5%             | \$ 111,000   |
| Contingency                            |                                                   |                   |           | 10%            | \$ 233,100   |
| Construction Cost Estimate Total:      |                                                   |                   |           |                | \$ 2,564,100 |

| Impact Fee Cost Estimate Summary        |                           |           |              |              |
|-----------------------------------------|---------------------------|-----------|--------------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost    |              |
| Construction                            |                           | -         | \$ 2,564,100 |              |
| Engineering/Survey/Testing              |                           | 7%        | \$ 179,500   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$ -         |              |
| Impact Fee Project Cost Estimate Total: |                           |           |              | \$ 2,743,600 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### FOUR OAKS LANE

Existing Four Oaks Ln. to N/S Connector (1)

| Roadway Information:           |                                                      |                 |
|--------------------------------|------------------------------------------------------|-----------------|
| Functional Classification:     | Commercial Collector A                               | No. of Lanes: 3 |
| Length (lf):                   | 2,851                                                |                 |
| Right-of-Way Width (ft.):      | 70                                                   |                 |
| Median Type:                   | Two-Way Left Turn Lane                               |                 |
| Pavement Width (Edge to Edge): | 38                                                   |                 |
| Description:                   | Construction of new roadway to thoroughfare standard |                 |
|                                | Shared-Use Path bicycle facility                     |                 |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 29       | STA       | \$ 3,000.00    | \$ 87,000  |
| 2                                      | Unclassified Street Excavation                    | 5,200    | CY        | \$ 20.00       | \$ 104,000 |
| 3                                      | 3" HMAC (Type "D")                                | 12,100   | SY        | \$ 18.00       | \$ 217,800 |
| 4                                      | 10" Flex Base                                     | 14,000   | SY        | \$ 18.00       | \$ 252,000 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 14,000   | SY        | \$ 4.00        | \$ 56,000  |
| 6                                      | TX-5 Geogrid                                      | 14,000   | SY        | \$ 1.00        | \$ 14,000  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 5,710    | LF        | \$ 25.00       | \$ 142,750 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 4,800    | SY        | \$ 50.00       | \$ 240,000 |
| 9                                      | Block Sodding and Topsoil                         | 4,750    | SY        | \$ 5.00        | \$ 23,750  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 1,137,300  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 22,800  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 56,900  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 34,200  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 227,500 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 341,400    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 1,478,700  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 74,000  |
| Contingency                            |                                                   |          |           | 10%            | \$ 155,300 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 1,708,000  |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 1,708,000 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 119,600   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 149,700 | \$ 149,700   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 1,977,300 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**WIEDERSTEIN ROAD**

E. City Limits to FM 3009

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                                   | No. of Lanes: | 4 |
| Length (lf):                   | 3,379                                                |               |   |
| Right-of-Way Width (ft.):      | 90                                                   |               |   |
| Median Type:                   | Raised                                               |               |   |
| Pavement Width (Edge to Edge): | 48                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 34       | STA       | \$ 3,000.00    | \$ 102,000   |
| 2                                      | Unclassified Street Excavation                    | 8,300    | CY        | \$ 20.00       | \$ 166,000   |
| 3                                      | 3" HMAC (Type "D")                                | 18,100   | SY        | \$ 18.00       | \$ 325,800   |
| 4                                      | 10" Flex Base                                     | 22,600   | SY        | \$ 18.00       | \$ 406,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 22,600   | SY        | \$ 4.00        | \$ 90,400    |
| 6                                      | TX-5 Geogrid                                      | 22,600   | SY        | \$ 1.00        | \$ 22,600    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 13,520   | LF        | \$ 25.00       | \$ 338,000   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 5,600    | SY        | \$ 50.00       | \$ 280,000   |
| 9                                      | Block Sodding and Topsoil                         | 8,640    | SY        | \$ 5.00        | \$ 43,200    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 1,774,800 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 35,500    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 88,800    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 53,300    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 355,000   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 532,600   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 2,307,400 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 115,400   |
| Contingency                            |                                                   |          |           | 10%            | \$ 242,300   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 2,665,100 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 2,665,100 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 186,600   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 228,100 | \$ 228,100   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 3,079,800 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### WIEDERSTEIN ROAD

W. City Limits to Schertz Pkwy.

| Roadway Information:           |                                                    |                 |
|--------------------------------|----------------------------------------------------|-----------------|
| Functional Classification:     | Residential Collector                              | No. of Lanes: 2 |
| Length (lf):                   | 2,165                                              |                 |
| Right-of-Way Width (ft.):      | 70                                                 |                 |
| Median Type:                   | None                                               |                 |
| Pavement Width (Edge to Edge): | 38                                                 |                 |
| Description:                   | Reconstruction of roadway to thoroughfare standard |                 |
|                                | On-street bicycle facility (Pavement: 7' + 7')     |                 |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 22       | STA       | \$ 3,000.00    | \$ 66,000    |
| 2                                      | Unclassified Street Excavation                    | 3,900    | CY        | \$ 20.00       | \$ 78,000    |
| 3                                      | 3" HMAC (Type "D")                                | 9,200    | SY        | \$ 18.00       | \$ 165,600   |
| 4                                      | 10" Flex Base                                     | 10,600   | SY        | \$ 18.00       | \$ 190,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 10,600   | SY        | \$ 4.00        | \$ 42,400    |
| 6                                      | TX-5 Geogrid                                      | 10,600   | SY        | \$ 1.00        | \$ 10,600    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 4,330    | LF        | \$ 25.00       | \$ 108,250   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,400    | SY        | \$ 50.00       | \$ 120,000   |
| 9                                      | Block Sodding and Topsoil                         | 4,810    | SY        | \$ 5.00        | \$ 24,050    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 805,700   |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 16,200    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 40,300    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 24,200    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 161,200   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 241,900   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 1,047,600 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 52,400    |
| Contingency                            |                                                   |          |           | 10%            | \$ 110,000   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 1,210,000 |

| Impact Fee Cost Estimate Summary        |                           |           |              |              |
|-----------------------------------------|---------------------------|-----------|--------------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost    |              |
| Construction                            |                           | -         | \$ 1,210,000 |              |
| Engineering/Survey/Testing              |                           | 7%        | \$ 84,700    |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$ -         |              |
| Impact Fee Project Cost Estimate Total: |                           |           |              | \$ 1,294,700 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### BAPTIST HEALTH DRIVE Ripps-Kreusler to Wiederstein Rd.

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector A                               | No. of Lanes: | 3 |
| Length (lf):                   | 1,426                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | TWLTL                                                |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 15       | STA       | \$ 3,000.00    | \$ 45,000  |
| 2                                      | Unclassified Street Excavation                    | 2,600    | CY        | \$ 20.00       | \$ 52,000  |
| 3                                      | 3" HMAC (Type "D")                                | 6,100    | SY        | \$ 18.00       | \$ 109,800 |
| 4                                      | 10" Flex Base                                     | 7,000    | SY        | \$ 18.00       | \$ 126,000 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 7,000    | SY        | \$ 4.00        | \$ 28,000  |
| 6                                      | TX-5 Geogrid                                      | 7,000    | SY        | \$ 1.00        | \$ 7,000   |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 2,860    | LF        | \$ 25.00       | \$ 71,500  |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,400    | SY        | \$ 50.00       | \$ 120,000 |
| 9                                      | Block Sodding and Topsoil                         | 2,380    | SY        | \$ 5.00        | \$ 11,900  |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 571,200 |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 11,500  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 28,600  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 17,200  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 114,300 |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 171,600 |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -       |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 742,800 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 37,200  |
| Contingency                            |                                                   |          |           | 10%            | \$ 78,000  |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 858,000 |

| Impact Fee Cost Estimate Summary        |                   |           |            |            |
|-----------------------------------------|-------------------|-----------|------------|------------|
| Item Description                        | Notes             | Allowance | Item Cost  |            |
| Construction                            |                   | -         | \$ 858,000 |            |
| Engineering/Survey/Testing              |                   | 7%        | \$ 60,100  |            |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 74,800  | \$ 74,800  |
| Impact Fee Project Cost Estimate Total: |                   |           |            | \$ 992,900 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### RIPPS-KREUSLER

Baptist Health Dr. to End of Alignment

| Roadway Information:           |                                                      |                 |
|--------------------------------|------------------------------------------------------|-----------------|
| Functional Classification:     | Commercial Collector A                               | No. of Lanes: 3 |
| Length (lf):                   | 1,162                                                |                 |
| Right-of-Way Width (ft.):      | 70                                                   |                 |
| Median Type:                   | TWLTL                                                |                 |
| Pavement Width (Edge to Edge): | 38                                                   |                 |
| Description:                   | Construction of new roadway to thoroughfare standard |                 |
|                                | Shared-Use Path bicycle facility                     |                 |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 12       | STA       | \$ 3,000.00    | \$ 36,000  |
| 2                                      | Unclassified Street Excavation                    | 2,100    | CY        | \$ 20.00       | \$ 42,000  |
| 3                                      | 3" HMAC (Type "D")                                | 5,000    | SY        | \$ 18.00       | \$ 90,000  |
| 4                                      | 10" Flex Base                                     | 5,700    | SY        | \$ 18.00       | \$ 102,600 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 5,700    | SY        | \$ 4.00        | \$ 22,800  |
| 6                                      | TX-5 Geogrid                                      | 5,700    | SY        | \$ 1.00        | \$ 5,700   |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 2,330    | LF        | \$ 25.00       | \$ 58,250  |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 1,900    | SY        | \$ 50.00       | \$ 95,000  |
| 9                                      | Block Sodding and Topsoil                         | 1,940    | SY        | \$ 5.00        | \$ 9,700   |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 462,050    |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 9,300   |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 23,200  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 13,900  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 92,500  |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 138,900    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 600,950    |
| Mobilization                           |                                                   |          |           | 5%             | \$ 30,100  |
| Contingency                            |                                                   |          |           | 10%            | \$ 63,200  |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 694,300    |

| Impact Fee Cost Estimate Summary        |                           |           |            |
|-----------------------------------------|---------------------------|-----------|------------|
| Item Description                        | Notes                     | Allowance | Item Cost  |
| Construction                            |                           | -         | \$ 694,300 |
| Engineering/Survey/Testing              |                           | 7%        | \$ 48,600  |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 61,000 | \$ 61,000  |
| Impact Fee Project Cost Estimate Total: |                           |           | \$ 803,900 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

MASKE ROAD  
FM 1518 to Oak St.

| Roadway Information:           |                                              |                 |
|--------------------------------|----------------------------------------------|-----------------|
| Functional Classification:     | Commercial Collector A                       | No. of Lanes: 3 |
| Length (lf):                   | 2,851                                        |                 |
| Right-of-Way Width (ft.):      | 70                                           |                 |
| Median Type:                   | Two-Way Left Turn Lane                       |                 |
| Pavement Width (Edge to Edge): | 38                                           |                 |
| Description:                   | Widening of roadway to thoroughfare standard |                 |
|                                | Shared-Use Path bicycle facility             |                 |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 29       | STA       | \$ 3,000.00    | \$ 87,000  |
| 2                                      | Unclassified Street Excavation                    | 5,200    | CY        | \$ 20.00       | \$ 104,000 |
| 3                                      | 3" HMAC (Type "D")                                | 12,100   | SY        | \$ 18.00       | \$ 217,800 |
| 4                                      | 10" Flex Base                                     | 14,000   | SY        | \$ 18.00       | \$ 252,000 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 14,000   | SY        | \$ 4.00        | \$ 56,000  |
| 6                                      | TX-5 Geogrid                                      | 14,000   | SY        | \$ 1.00        | \$ 14,000  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 5,710    | LF        | \$ 25.00       | \$ 142,750 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 4,800    | SY        | \$ 50.00       | \$ 240,000 |
| 9                                      | Block Sodding and Topsoil                         | 4,750    | SY        | \$ 5.00        | \$ 23,750  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 1,137,300  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 22,800  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 56,900  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 34,200  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 227,500 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 341,400    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 1,478,700  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 74,000  |
| Contingency                            |                                                   |          |           | 10%            | \$ 155,300 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 1,708,000  |

| Impact Fee Cost Estimate Summary        |                           |           |              |              |
|-----------------------------------------|---------------------------|-----------|--------------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost    |              |
| Construction                            |                           | -         | \$ 1,708,000 |              |
| Engineering/Survey/Testing              |                           | 7%        | \$ 119,600   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$ -         |              |
| Impact Fee Project Cost Estimate Total: |                           |           |              | \$ 1,827,600 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### MASKE ROAD

Oak St. to Schertz Pkwy.

| Roadway Information:           |                                                      |                 |
|--------------------------------|------------------------------------------------------|-----------------|
| Functional Classification:     | Residential Collector                                | No. of Lanes: 2 |
| Length (lf):                   | 4,646                                                |                 |
| Right-of-Way Width (ft.):      | 70                                                   |                 |
| Median Type:                   | None                                                 |                 |
| Pavement Width (Edge to Edge): | 38                                                   |                 |
| Description:                   | Construction of new roadway to thoroughfare standard |                 |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |                 |

| Roadway Construction Cost Estimate:    |                                                   |                  |           |                |            |
|----------------------------------------|---------------------------------------------------|------------------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Quantity         | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 47               | STA       | \$ 3,000.00    | \$ 141,000 |
| 2                                      | Unclassified Street Excavation                    | 8,400            | CY        | \$ 20.00       | \$ 168,000 |
| 3                                      | 3" HMAC (Type "D")                                | 19,700           | SY        | \$ 18.00       | \$ 354,600 |
| 4                                      | 10" Flex Base                                     | 22,800           | SY        | \$ 18.00       | \$ 410,400 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 22,800           | SY        | \$ 4.00        | \$ 91,200  |
| 6                                      | TX-5 Geogrid                                      | 22,800           | SY        | \$ 1.00        | \$ 22,800  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 9,300            | LF        | \$ 25.00       | \$ 232,500 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 5,200            | SY        | \$ 50.00       | \$ 260,000 |
| 9                                      | Block Sodding and Topsoil                         | 10,330           | SY        | \$ 5.00        | \$ 51,650  |
| Paving Estimate Subtotal:              |                                                   |                  |           | \$             | 1,732,150  |
| II. Non-Paving Construction Components |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  |                  |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |                  |           | 2%             | \$ 34,700  |
| 11                                     | Traffic Control                                   |                  |           | 5%             | \$ 86,700  |
| 12                                     | Erosion Control                                   |                  |           | 3%             | \$ 52,000  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                  |           | 20%            | \$ 346,500 |
| Other Components Estimate Subtotal:    |                                                   |                  |           | \$             | 519,900    |
| III. Special Construction Components   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Notes            | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None             | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | 1 Major Crossing | \$        | 500,000        | \$ 500,000 |
| 16                                     | Bridge Structures                                 | None             | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None             | \$        | -              | \$ -       |
| 18                                     | Other                                             | None             | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |                  |           | \$             | 500,000    |
| I, II, & III Construction Subtotal:    |                                                   |                  |           | \$             | 2,752,050  |
| Mobilization                           |                                                   |                  |           | 5%             | \$ 137,700 |
| Contingency                            |                                                   |                  |           | 10%            | \$ 289,000 |
| Construction Cost Estimate Total:      |                                                   |                  |           | \$             | 3,178,800  |

| Impact Fee Cost Estimate Summary        |                           |            |           |              |
|-----------------------------------------|---------------------------|------------|-----------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost |              |
| Construction                            |                           | -          | \$        | 3,178,800    |
| Engineering/Survey/Testing              |                           | 7%         | \$        | 222,500      |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 243,900 | \$        | 243,900      |
| Impact Fee Project Cost Estimate Total: |                           |            |           | \$ 3,645,200 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 1518

Maske Rd. to Oak St.

| Roadway Information:           |                                                               |                 |
|--------------------------------|---------------------------------------------------------------|-----------------|
| Functional Classification:     | Secondary Arterial                                            | No. of Lanes: 3 |
| Length (lf):                   | 6,864                                                         |                 |
| Right-of-Way Width (ft.):      | 70                                                            |                 |
| Median Type:                   | Two-Way Left Turn Lane                                        |                 |
| Pavement Width (Edge to Edge): | 38                                                            |                 |
| Description:                   | Widening of roadway to thoroughfare standard; special section |                 |
|                                | Shared-Use Path bicycle facility                              |                 |

| Roadway Construction Cost Estimate:    |                                                   |                  |           |             |              |
|----------------------------------------|---------------------------------------------------|------------------|-----------|-------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |           |             |              |
| Item No.                               | Item Description                                  | Quantity         | Unit      | Unit Cost   | Item Cost    |
| 1                                      | Right of Way Preparation                          | 69               | STA       | \$ 3,000.00 | \$ 207,000   |
| 2                                      | Unclassified Street Excavation                    | 12,400           | CY        | \$ 20.00    | \$ 248,000   |
| 3                                      | 3" HMAC (Type "D")                                | 29,000           | SY        | \$ 18.00    | \$ 522,000   |
| 4                                      | 10" Flex Base                                     | 33,600           | SY        | \$ 18.00    | \$ 604,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 33,600           | SY        | \$ 4.00     | \$ 134,400   |
| 6                                      | TX-5 Geogrid                                      | 33,600           | SY        | \$ 1.00     | \$ 33,600    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 13,730           | LF        | \$ 25.00    | \$ 343,250   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 11,400           | SY        | \$ 50.00    | \$ 570,000   |
| 9                                      | Block Sodding and Topsoil                         | 11,440           | SY        | \$ 5.00     | \$ 57,200    |
| Paving Estimate Subtotal:              |                                                   |                  |           |             | \$ 2,720,250 |
| II. Non-Paving Construction Components |                                                   |                  |           |             |              |
| Item No.                               | Item Description                                  | Pct. Of Paving   |           |             | Item Cost    |
| 10                                     | Pavement Markings & Signage                       | 2%               |           |             | \$ 54,500    |
| 11                                     | Traffic Control                                   | 5%               |           |             | \$ 136,100   |
| 12                                     | Erosion Control                                   | 3%               |           |             | \$ 81,700    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%              |           |             | \$ 544,100   |
| Other Components Estimate Subtotal:    |                                                   |                  |           |             | \$ 816,400   |
| III. Special Construction Components   |                                                   |                  |           |             |              |
| Item No.                               | Item Description                                  | Notes            | Allowance |             | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None             | \$        | -           | \$ -         |
| 15                                     | Drainage Structures                               | 1 Minor Crossing | \$        | 100,000     | \$ 100,000   |
| 16                                     | Bridge Structures                                 | None             | \$        | -           | \$ -         |
| 17                                     | Traffic Signals                                   | None             | \$        | -           | \$ -         |
| 18                                     | Other                                             | None             | \$        | -           | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |                  |           |             | \$ 100,000   |
| I, II, & III Construction Subtotal:    |                                                   |                  |           |             | \$ 3,636,650 |
| Mobilization                           |                                                   |                  |           | 5%          | \$ 181,900   |
| Contingency                            |                                                   |                  |           | 10%         | \$ 381,900   |
| Construction Cost Estimate Total:      |                                                   |                  |           |             | \$ 4,200,500 |

| Impact Fee Cost Estimate Summary        |                           |           |              |              |
|-----------------------------------------|---------------------------|-----------|--------------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost    |              |
| Construction                            |                           | -         | \$ 4,200,500 |              |
| Engineering/Survey/Testing              |                           | 7%        | \$ 294,000   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$ -         |              |
| Impact Fee Project Cost Estimate Total: |                           |           |              | \$ 4,494,500 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 1518

N. City Limits to Service Area 3 Limit

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 6 |
| Length (lf):                   | 1,901                                        |               |   |
| Right-of-Way Width (ft.):      | 130                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 68                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                  |           |                |            |
|----------------------------------------|---------------------------------------------------|------------------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Quantity         | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 20               | STA       | \$ 3,000.00    | \$ 60,000  |
| 2                                      | Unclassified Street Excavation                    | 6,200            | CY        | \$ 20.00       | \$ 124,000 |
| 3                                      | 3" HMAC (Type "D")                                | 14,400           | SY        | \$ 18.00       | \$ 259,200 |
| 4                                      | 10" Flex Base                                     | 16,900           | SY        | \$ 18.00       | \$ 304,200 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 16,900           | SY        | \$ 4.00        | \$ 67,600  |
| 6                                      | TX-5 Geogrid                                      | 16,900           | SY        | \$ 1.00        | \$ 16,900  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 7,610            | LF        | \$ 25.00       | \$ 190,250 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 3,200            | SY        | \$ 50.00       | \$ 160,000 |
| 9                                      | Block Sodding and Topsoil                         | 9,080            | SY        | \$ 5.00        | \$ 45,400  |
| Paving Estimate Subtotal:              |                                                   |                  |           | \$             | 1,227,550  |
| II. Non-Paving Construction Components |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  |                  |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |                  |           | 2%             | \$ 24,600  |
| 11                                     | Traffic Control                                   |                  |           | 5%             | \$ 61,400  |
| 12                                     | Erosion Control                                   |                  |           | 3%             | \$ 36,900  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                  |           | 20%            | \$ 245,600 |
| Other Components Estimate Subtotal:    |                                                   |                  |           | \$             | 368,500    |
| III. Special Construction Components   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Notes            | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None             | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | 1 Minor Crossing | \$        | 100,000        | \$ 100,000 |
| 16                                     | Bridge Structures                                 | None             | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None             | \$        | -              | \$ -       |
| 18                                     | Other                                             | None             | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |                  |           | \$             | 100,000    |
| I, II, & III Construction Subtotal:    |                                                   |                  |           | \$             | 1,696,050  |
| Mobilization                           |                                                   |                  |           | 5%             | \$ 84,900  |
| Contingency                            |                                                   |                  |           | 10%            | \$ 178,100 |
| Construction Cost Estimate Total:      |                                                   |                  |           | \$             | 1,959,100  |

| Impact Fee Cost Estimate Summary        |                           |           |           |            |
|-----------------------------------------|---------------------------|-----------|-----------|------------|
| Item Description                        | Notes                     | Allowance | Item Cost |            |
| Construction                            | City Contribution (TxDOT) | 20%       | \$        | 391,800    |
| Engineering/Survey/Testing              |                           | 7%        | \$        | 27,400     |
| Right-of-Way Acquisition                | Cost per sq. ft.:         | \$ 0.75   | \$ 17,100 | \$ 17,100  |
| Impact Fee Project Cost Estimate Total: |                           |           |           | \$ 436,300 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### FM 1518

#### Service Area 3 Limit to Schertz Pkwy. Extension

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 6 |
| Length (lf):                   | 2,059                                        |               |   |
| Right-of-Way Width (ft.):      | 130                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 68                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 21       | STA       | \$ 3,000.00    | \$ 63,000  |
| 2                                      | Unclassified Street Excavation                    | 6,800    | CY        | \$ 20.00       | \$ 136,000 |
| 3                                      | 3" HMAC (Type "D")                                | 15,600   | SY        | \$ 18.00       | \$ 280,800 |
| 4                                      | 10" Flex Base                                     | 18,400   | SY        | \$ 18.00       | \$ 331,200 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 18,400   | SY        | \$ 4.00        | \$ 73,600  |
| 6                                      | TX-5 Geogrid                                      | 18,400   | SY        | \$ 1.00        | \$ 18,400  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 8,240    | LF        | \$ 25.00       | \$ 206,000 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 3,400    | SY        | \$ 50.00       | \$ 170,000 |
| 9                                      | Block Sodding and Topsoil                         | 9,840    | SY        | \$ 5.00        | \$ 49,200  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 1,328,200  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 26,600  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 66,500  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 39,900  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 265,700 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 398,700    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 1,726,900  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 86,400  |
| Contingency                            |                                                   |          |           | 10%            | \$ 181,400 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 1,994,700  |

| Impact Fee Cost Estimate Summary        |                           |           |           |            |
|-----------------------------------------|---------------------------|-----------|-----------|------------|
| Item Description                        | Notes                     | Allowance | Item Cost |            |
| Construction                            | City Contribution (TxDOT) | 20%       | \$        | 398,900    |
| Engineering/Survey/Testing              |                           | 7%        | \$        | 27,900     |
| Right-of-Way Acquisition                | Cost per sq. ft.:         | \$ 0.75   | \$ 18,500 | \$ 18,500  |
| Impact Fee Project Cost Estimate Total: |                           |           |           | \$ 445,300 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**FM 78/JOHN PETERSON BOULEVARD**

W. City Limits to E. City Limits

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 6 |
| Length (lf):                   | 9,557                                        |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 68                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                          |           |                |               |
|----------------------------------------|---------------------------------------------------|--------------------------|-----------|----------------|---------------|
| I. Paving Construction Cost Estimate   |                                                   |                          |           |                |               |
| Item No.                               | Item Description                                  | Quantity                 | Unit      | Unit Cost      | Item Cost     |
| 1                                      | Right of Way Preparation                          | 96                       | STA       | \$ 3,000.00    | \$ 288,000    |
| 2                                      | Unclassified Street Excavation                    | 31,200                   | CY        | \$ 20.00       | \$ 624,000    |
| 3                                      | 3" HMAC (Type "D")                                | 72,300                   | SY        | \$ 18.00       | \$ 1,301,400  |
| 4                                      | 10" Flex Base                                     | 85,000                   | SY        | \$ 18.00       | \$ 1,530,000  |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 85,000                   | SY        | \$ 4.00        | \$ 340,000    |
| 6                                      | TX-5 Geogrid                                      | 85,000                   | SY        | \$ 1.00        | \$ 85,000     |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 38,230                   | LF        | \$ 25.00       | \$ 955,750    |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 15,900                   | SY        | \$ 50.00       | \$ 795,000    |
| 9                                      | Block Sodding and Topsoil                         | 35,040                   | SY        | \$ 5.00        | \$ 175,200    |
| Paving Estimate Subtotal:              |                                                   |                          |           |                | \$ 6,094,350  |
| II. Non-Paving Construction Components |                                                   |                          |           |                |               |
| Item No.                               | Item Description                                  |                          |           | Pct. Of Paving | Item Cost     |
| 10                                     | Pavement Markings & Signage                       |                          |           | 2%             | \$ 121,900    |
| 11                                     | Traffic Control                                   |                          |           | 5%             | \$ 304,800    |
| 12                                     | Erosion Control                                   |                          |           | 3%             | \$ 182,900    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                          |           | 20%            | \$ 1,218,900  |
| Other Components Estimate Subtotal:    |                                                   |                          |           |                | \$ 1,828,500  |
| III. Special Construction Components   |                                                   |                          |           |                |               |
| Item No.                               | Item Description                                  | Notes                    | Allowance |                | Item Cost     |
| 14                                     | Landscaping/Illumination                          | None                     | \$        | -              | \$ -          |
| 15                                     | Drainage Structures                               | 1 Minor Crossing         | \$        | 100,000        | \$ 100,000    |
| 16                                     | Bridge Structures                                 | 1/2 Bridge on Either End | \$        | 2,835,000      | \$ 2,835,000  |
| 17                                     | Traffic Signals                                   | None                     | \$        | -              | \$ -          |
| 18                                     | Other                                             | None                     | \$        | -              | \$ -          |
| Special Components Estimate Subtotal:  |                                                   |                          |           |                | \$ 2,935,000  |
| I, II, & III Construction Subtotal:    |                                                   |                          |           |                | \$ 10,857,850 |
| Mobilization                           |                                                   |                          |           | 5%             | \$ 542,900    |
| Contingency                            |                                                   |                          |           | 10%            | \$ 1,140,100  |
| Construction Cost Estimate Total:      |                                                   |                          |           |                | \$ 12,540,900 |

| Impact Fee Cost Estimate Summary        |                           |           |           |              |
|-----------------------------------------|---------------------------|-----------|-----------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost |              |
| Construction                            | City Contribution (TxDOT) | 20%       | \$        | 2,508,180    |
| Engineering/Survey/Testing              |                           | 7%        | \$        | 175,600      |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$        | -            |
| Impact Fee Project Cost Estimate Total: |                           |           |           | \$ 2,683,780 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

FM 1518

Schertz Pkwy. Extension to IH-10

| Roadway Information:           |                                              |                 |
|--------------------------------|----------------------------------------------|-----------------|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: 6 |
| Length (lf):                   | 21,595                                       |                 |
| Right-of-Way Width (ft.):      | 130                                          |                 |
| Median Type:                   | Raised                                       |                 |
| Pavement Width (Edge to Edge): | 68                                           |                 |
| Description:                   | Widening of roadway to thoroughfare standard |                 |
|                                | Shared-Use Path bicycle facility             |                 |

| Roadway Construction Cost Estimate:    |                                                   |                   |              |                        |
|----------------------------------------|---------------------------------------------------|-------------------|--------------|------------------------|
| I. Paving Construction Cost Estimate   |                                                   |                   |              |                        |
| Item No.                               | Item Description                                  | Quantity          | Unit         | Item Cost              |
| 1                                      | Right of Way Preparation                          | 216               | STA          | \$ 3,000.00 \$ 648,000 |
| 2                                      | Unclassified Street Excavation                    | 70,400            | CY           | \$ 20.00 \$ 1,408,000  |
| 3                                      | 3" HMAC (Type "D")                                | 163,200           | SY           | \$ 18.00 \$ 2,937,600  |
| 4                                      | 10" Flex Base                                     | 192,000           | SY           | \$ 18.00 \$ 3,456,000  |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 192,000           | SY           | \$ 4.00 \$ 768,000     |
| 6                                      | TX-5 Geogrid                                      | 192,000           | SY           | \$ 1.00 \$ 192,000     |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 86,390            | LF           | \$ 25.00 \$ 2,159,750  |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 36,000            | SY           | \$ 50.00 \$ 1,800,000  |
| 9                                      | Block Sodding and Topsoil                         | 103,180           | SY           | \$ 5.00 \$ 515,900     |
| Paving Estimate Subtotal:              |                                                   |                   |              | \$ 13,885,250          |
| II. Non-Paving Construction Components |                                                   |                   |              |                        |
| Item No.                               | Item Description                                  | Pct. Of Paving    | Item Cost    |                        |
| 10                                     | Pavement Markings & Signage                       | 2%                | \$ 277,800   |                        |
| 11                                     | Traffic Control                                   | 5%                | \$ 694,300   |                        |
| 12                                     | Erosion Control                                   | 3%                | \$ 416,600   |                        |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%               | \$ 2,777,100 |                        |
| Other Components Estimate Subtotal:    |                                                   |                   |              | \$ 4,165,800           |
| III. Special Construction Components   |                                                   |                   |              |                        |
| Item No.                               | Item Description                                  | Notes             | Allowance    | Item Cost              |
| 14                                     | Landscaping/Illumination                          | None              | \$ -         | \$ -                   |
| 15                                     | Drainage Structures                               | 3 Minor Crossings | \$ 300,000   | \$ 300,000             |
| 16                                     | Bridge Structures                                 | 1 Bridge          | \$ 1,890,000 | \$ 1,890,000           |
| 17                                     | Traffic Signals                                   | None              | \$ -         | \$ -                   |
| 18                                     | Other                                             | None              | \$ -         | \$ -                   |
| Special Components Estimate Subtotal:  |                                                   |                   |              | \$ 2,190,000           |
| I, II, & III Construction Subtotal:    |                                                   |                   |              | \$ 20,241,050          |
| Mobilization                           |                                                   |                   |              | 5% \$ 1,012,100        |
| Contingency                            |                                                   |                   |              | 10% \$ 2,125,400       |
| Construction Cost Estimate Total:      |                                                   |                   |              | \$ 23,378,600          |

| Impact Fee Cost Estimate Summary        |                           |            |              |              |
|-----------------------------------------|---------------------------|------------|--------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |              |
| Construction                            | City Contribution (TxDOT) | 20%        | \$ 4,675,700 |              |
| Engineering/Survey/Testing              |                           | 7%         | \$ 327,300   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 162,000 | \$ 162,000   |              |
| Impact Fee Project Cost Estimate Total: |                           |            |              | \$ 5,165,000 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### SCHAEFER ROAD

W. City Limits to FM 1518

| Roadway Information:           |                                                |               |   |
|--------------------------------|------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                          | No. of Lanes: | 2 |
| Length (lf):                   | 2,534                                          |               |   |
| Right-of-Way Width (ft.):      | 70                                             |               |   |
| Median Type:                   | None                                           |               |   |
| Pavement Width (Edge to Edge): | 38                                             |               |   |
| Description:                   | Widening of roadway to thoroughfare standard   |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7') |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 26       | STA       | \$ 3,000.00    | \$ 78,000  |
| 2                                      | Unclassified Street Excavation                    | 4,600    | CY        | \$ 20.00       | \$ 92,000  |
| 3                                      | 3" HMAC (Type "D")                                | 10,800   | SY        | \$ 18.00       | \$ 194,400 |
| 4                                      | 10" Flex Base                                     | 12,400   | SY        | \$ 18.00       | \$ 223,200 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 12,400   | SY        | \$ 4.00        | \$ 49,600  |
| 6                                      | TX-5 Geogrid                                      | 12,400   | SY        | \$ 1.00        | \$ 12,400  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 5,070    | LF        | \$ 25.00       | \$ 126,750 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,800    | SY        | \$ 50.00       | \$ 140,000 |
| 9                                      | Block Sodding and Topsoil                         | 5,630    | SY        | \$ 5.00        | \$ 28,150  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 944,500    |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 18,900  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 47,300  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 28,400  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 188,900 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 283,500    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 1,228,000  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 61,400  |
| Contingency                            |                                                   |          |           | 10%            | \$ 129,000 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 1,418,400  |

| Impact Fee Cost Estimate Summary        |                   |           |           |              |
|-----------------------------------------|-------------------|-----------|-----------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost |              |
| Construction                            |                   | -         | \$        | 1,418,400    |
| Engineering/Survey/Testing              |                   | 7%        | \$        | 99,300       |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 19,000 | \$ 19,000    |
| Impact Fee Project Cost Estimate Total: |                   |           |           | \$ 1,536,700 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### RAF-BURNETTE

Schaefer Rd. to E. City Limits

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 2,904                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 30       | STA       | \$ 3,000.00    | \$ 90,000    |
| 2                                      | Unclassified Street Excavation                    | 7,100    | CY        | \$ 20.00       | \$ 142,000   |
| 3                                      | 3" HMAC (Type "D")                                | 15,500   | SY        | \$ 18.00       | \$ 279,000   |
| 4                                      | 10" Flex Base                                     | 19,400   | SY        | \$ 18.00       | \$ 349,200   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 19,400   | SY        | \$ 4.00        | \$ 77,600    |
| 6                                      | TX-5 Geogrid                                      | 19,400   | SY        | \$ 1.00        | \$ 19,400    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 11,620   | LF        | \$ 25.00       | \$ 290,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 4,800    | SY        | \$ 50.00       | \$ 240,000   |
| 9                                      | Block Sodding and Topsoil                         | 7,420    | SY        | \$ 5.00        | \$ 37,100    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 1,524,800 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 30,500    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 76,300    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 45,800    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 305,000   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 457,600   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 1,982,400 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 99,200    |
| Contingency                            |                                                   |          |           | 10%            | \$ 208,200   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 2,289,800 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 2,289,800 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 160,300   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 108,900   | \$ 108,900   |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 2,559,000 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**LOWER SEGUIN ROAD**  
W. City Limits to E. of Bates Dr.

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Rural Arterial                     | No. of Lanes: | 3 |
| Length (lf):                   | 1,848                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Two-Way Left Turn Lane                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 19       | STA       | \$ 3,000.00    | \$ 57,000    |
| 2                                      | Unclassified Street Excavation                    | 4,100    | CY        | \$ 20.00       | \$ 82,000    |
| 3                                      | 3" HMAC (Type "D")                                | 9,900    | SY        | \$ 18.00       | \$ 178,200   |
| 4                                      | 10" Flex Base                                     | 11,100   | SY        | \$ 18.00       | \$ 199,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 11,100   | SY        | \$ 4.00        | \$ 44,400    |
| 6                                      | TX-5 Geogrid                                      | 11,100   | SY        | \$ 1.00        | \$ 11,100    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 3,700    | LF        | \$ 25.00       | \$ 92,500    |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 3,100    | SY        | \$ 50.00       | \$ 155,000   |
| 9                                      | Block Sodding and Topsoil                         | 5,130    | SY        | \$ 5.00        | \$ 25,650    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 845,650   |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 17,000    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 42,300    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 25,400    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 169,200   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 253,900   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 1,099,550 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 55,000    |
| Contingency                            |                                                   |          |           | 10%            | \$ 115,500   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 1,270,100 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 1,270,100 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 88,900    |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 13,900    | \$ 13,900    |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 1,372,900 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### LOWER SEGUIN ROAD

E. of Bates Dr. to W. of Canopy Bend/Aranda Ln.

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Rural Arterial                     | No. of Lanes: | 3 |
| Length (lf):                   | 9,293                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Two-Way Left Turn Lane                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 93       | STA       | \$ 3,000.00    | \$ 279,000   |
| 2                                      | Unclassified Street Excavation                    | 20,500   | CY        | \$ 20.00       | \$ 410,000   |
| 3                                      | 3" HMAC (Type "D")                                | 49,600   | SY        | \$ 18.00       | \$ 892,800   |
| 4                                      | 10" Flex Base                                     | 51,700   | SY        | \$ 18.00       | \$ 930,600   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 51,700   | SY        | \$ 4.00        | \$ 206,800   |
| 6                                      | TX-5 Geogrid                                      | 51,700   | SY        | \$ 1.00        | \$ 51,700    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 0        | LF        | \$ 25.00       | \$ -         |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 10,300   | SY        | \$ 50.00       | \$ 515,000   |
| 9                                      | Block Sodding and Topsoil                         | 33,040   | SY        | \$ 5.00        | \$ 165,200   |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 3,451,100 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 69,100    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 172,600   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 103,600   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 690,300   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 1,035,600 |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | 1 Bridge | \$        | 1,120,000      | \$ 1,120,000 |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ 1,120,000 |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 5,606,700 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 280,400   |
| Contingency                            |                                                   |          |           | 10%            | \$ 588,800   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 6,475,900 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 6,475,900 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 453,300   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 69,700    | \$ 69,700    |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 6,998,900 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

#### LOWER SEGUIN ROAD

W. of Canopy Bend/Aranda Ln. to E. City Limits

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 9,082                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 91       | STA       | \$ 3,000.00    | \$ 273,000   |
| 2                                      | Unclassified Street Excavation                    | 22,300   | CY        | \$ 20.00       | \$ 446,000   |
| 3                                      | 3" HMAC (Type "D")                                | 48,500   | SY        | \$ 18.00       | \$ 873,000   |
| 4                                      | 10" Flex Base                                     | 60,600   | SY        | \$ 18.00       | \$ 1,090,800 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 60,600   | SY        | \$ 4.00        | \$ 242,400   |
| 6                                      | TX-5 Geogrid                                      | 60,600   | SY        | \$ 1.00        | \$ 60,600    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 36,330   | LF        | \$ 25.00       | \$ 908,250   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 15,100   | SY        | \$ 50.00       | \$ 755,000   |
| 9                                      | Block Sodding and Topsoil                         | 23,210   | SY        | \$ 5.00        | \$ 116,050   |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 4,765,100    |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 95,400    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 238,300   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 143,000   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 953,100   |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 1,429,800    |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -            |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 6,194,900    |
| Mobilization                           |                                                   |          |           | 5%             | \$ 309,800   |
| Contingency                            |                                                   |          |           | 10%            | \$ 650,500   |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 7,155,200    |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 7,155,200 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 500,900   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 204,300 | \$ 204,300   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 7,860,400 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### N/S Connector (3)

N. City Limits to S. City Limits

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                                   | No. of Lanes: | 4 |
| Length (lf):                   | 792                                                  |               |   |
| Right-of-Way Width (ft.):      | 120                                                  |               |   |
| Median Type:                   | Raised                                               |               |   |
| Pavement Width (Edge to Edge): | 48                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 8        | STA       | \$ 3,000.00    | \$ 24,000  |
| 2                                      | Unclassified Street Excavation                    | 2,000    | CY        | \$ 20.00       | \$ 40,000  |
| 3                                      | 3" HMAC (Type "D")                                | 4,300    | SY        | \$ 18.00       | \$ 77,400  |
| 4                                      | 10" Flex Base                                     | 5,300    | SY        | \$ 18.00       | \$ 95,400  |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 5,300    | SY        | \$ 4.00        | \$ 21,200  |
| 6                                      | TX-5 Geogrid                                      | 5,300    | SY        | \$ 1.00        | \$ 5,300   |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 3,170    | LF        | \$ 25.00       | \$ 79,250  |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 1,300    | SY        | \$ 50.00       | \$ 65,000  |
| 9                                      | Block Sodding and Topsoil                         | 4,660    | SY        | \$ 5.00        | \$ 23,300  |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 430,850 |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 8,700   |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 21,600  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 13,000  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 86,200  |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 129,500 |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -       |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 560,350 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 28,100  |
| Contingency                            |                                                   |          |           | 10%            | \$ 58,900  |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 647,400 |

| Impact Fee Cost Estimate Summary        |                   |           |            |            |
|-----------------------------------------|-------------------|-----------|------------|------------|
| Item Description                        | Notes             | Allowance | Item Cost  |            |
| Construction                            |                   | -         | \$ 647,400 |            |
| Engineering/Survey/Testing              |                   | 7%        | \$ 45,300  |            |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 71,300  | \$ 71,300  |
| Impact Fee Project Cost Estimate Total: |                   |           |            | \$ 764,000 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### N/S Connector (3)

N. City Limits to S. City Limits

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                                   | No. of Lanes: | 4 |
| Length (lf):                   | 1,426                                                |               |   |
| Right-of-Way Width (ft.):      | 120                                                  |               |   |
| Median Type:                   | Raised                                               |               |   |
| Pavement Width (Edge to Edge): | 48                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 15       | STA       | \$ 3,000.00    | \$ 45,000    |
| 2                                      | Unclassified Street Excavation                    | 3,500    | CY        | \$ 20.00       | \$ 70,000    |
| 3                                      | 3" HMAC (Type "D")                                | 7,700    | SY        | \$ 18.00       | \$ 138,600   |
| 4                                      | 10" Flex Base                                     | 9,600    | SY        | \$ 18.00       | \$ 172,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 9,600    | SY        | \$ 4.00        | \$ 38,400    |
| 6                                      | TX-5 Geogrid                                      | 9,600    | SY        | \$ 1.00        | \$ 9,600     |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 5,710    | LF        | \$ 25.00       | \$ 142,750   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 2,400    | SY        | \$ 50.00       | \$ 120,000   |
| 9                                      | Block Sodding and Topsoil                         | 8,400    | SY        | \$ 5.00        | \$ 42,000    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 779,150   |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 15,600    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 39,000    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 23,400    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 155,900   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 233,900   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 1,013,050 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 50,700    |
| Contingency                            |                                                   |          |           | 10%            | \$ 106,400   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 1,170,200 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 1,170,200 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 81,900    |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 128,300   | \$ 128,300   |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 1,380,400 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

#### N/S Connector (4)

N. City Limits to S. City Limits

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                                | No. of Lanes: | 2 |
| Length (lf):                   | 1,373                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | None                                                 |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 14       | STA       | \$ 3,000.00    | \$ 42,000  |
| 2                                      | Unclassified Street Excavation                    | 2,500    | CY        | \$ 20.00       | \$ 50,000  |
| 3                                      | 3" HMAC (Type "D")                                | 5,800    | SY        | \$ 18.00       | \$ 104,400 |
| 4                                      | 10" Flex Base                                     | 6,800    | SY        | \$ 18.00       | \$ 122,400 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 6,800    | SY        | \$ 4.00        | \$ 27,200  |
| 6                                      | TX-5 Geogrid                                      | 6,800    | SY        | \$ 1.00        | \$ 6,800   |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 2,750    | LF        | \$ 25.00       | \$ 68,750  |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 1,500    | SY        | \$ 50.00       | \$ 75,000  |
| 9                                      | Block Sodding and Topsoil                         | 3,050    | SY        | \$ 5.00        | \$ 15,250  |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 511,800 |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 10,300  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 25,600  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 15,400  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 102,400 |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 153,700 |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -       |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 665,500 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 33,300  |
| Contingency                            |                                                   |          |           | 10%            | \$ 69,900  |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 768,700 |

| Impact Fee Cost Estimate Summary        |                   |           |            |            |
|-----------------------------------------|-------------------|-----------|------------|------------|
| Item Description                        | Notes             | Allowance | Item Cost  |            |
| Construction                            |                   | -         | \$ 768,700 |            |
| Engineering/Survey/Testing              |                   | 7%        | \$ 53,800  |            |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 72,100  | \$ 72,100  |
| Impact Fee Project Cost Estimate Total: |                   |           |            | \$ 894,600 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

#### N/S Connector (4)

N. City Limits to S. City Limits

| Roadway Information:           |                                                      |                 |
|--------------------------------|------------------------------------------------------|-----------------|
| Functional Classification:     | Residential Collector                                | No. of Lanes: 2 |
| Length (lf):                   | 1,109                                                |                 |
| Right-of-Way Width (ft.):      | 70                                                   |                 |
| Median Type:                   | None                                                 |                 |
| Pavement Width (Edge to Edge): | 38                                                   |                 |
| Description:                   | Construction of new roadway to thoroughfare standard |                 |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |                 |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 12       | STA       | \$ 3,000.00    | \$ 36,000  |
| 2                                      | Unclassified Street Excavation                    | 2,000    | CY        | \$ 20.00       | \$ 40,000  |
| 3                                      | 3" HMAC (Type "D")                                | 4,700    | SY        | \$ 18.00       | \$ 84,600  |
| 4                                      | 10" Flex Base                                     | 5,500    | SY        | \$ 18.00       | \$ 99,000  |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 5,500    | SY        | \$ 4.00        | \$ 22,000  |
| 6                                      | TX-5 Geogrid                                      | 5,500    | SY        | \$ 1.00        | \$ 5,500   |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 2,220    | LF        | \$ 25.00       | \$ 55,500  |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 1,200    | SY        | \$ 50.00       | \$ 60,000  |
| 9                                      | Block Sodding and Topsoil                         | 2,460    | SY        | \$ 5.00        | \$ 12,300  |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 414,900 |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 8,300   |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 20,800  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 12,500  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 83,000  |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 124,600 |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -       |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 539,500 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 27,000  |
| Contingency                            |                                                   |          |           | 10%            | \$ 56,700  |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 623,200 |

| Impact Fee Cost Estimate Summary        |                           |           |            |            |
|-----------------------------------------|---------------------------|-----------|------------|------------|
| Item Description                        | Notes                     | Allowance | Item Cost  |            |
| Construction                            |                           | -         | \$ 623,200 |            |
| Engineering/Survey/Testing              |                           | 7%        | \$ 43,600  |            |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 58,200 | \$ 58,200  |            |
| Impact Fee Project Cost Estimate Total: |                           |           |            | \$ 725,000 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**WEST WARE SEGUIN ROAD**

W. City Limits to Boeing Dr.

| Roadway Information:           |                                                    |               |   |
|--------------------------------|----------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                              | No. of Lanes: | 2 |
| Length (lf):                   | 3,010                                              |               |   |
| Right-of-Way Width (ft.):      | 70                                                 |               |   |
| Median Type:                   | None                                               |               |   |
| Pavement Width (Edge to Edge): | 38                                                 |               |   |
| Description:                   | Reconstruction of roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 31       | STA       | \$ 3,000.00    | \$ 93,000  |
| 2                                      | Unclassified Street Excavation                    | 5,400    | CY        | \$ 20.00       | \$ 108,000 |
| 3                                      | 3" HMAC (Type "D")                                | 12,800   | SY        | \$ 18.00       | \$ 230,400 |
| 4                                      | 10" Flex Base                                     | 14,800   | SY        | \$ 18.00       | \$ 266,400 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 14,800   | SY        | \$ 4.00        | \$ 59,200  |
| 6                                      | TX-5 Geogrid                                      | 14,800   | SY        | \$ 1.00        | \$ 14,800  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 6,020    | LF        | \$ 25.00       | \$ 150,500 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 3,300    | SY        | \$ 50.00       | \$ 165,000 |
| 9                                      | Block Sodding and Topsoil                         | 6,690    | SY        | \$ 5.00        | \$ 33,450  |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 1,120,750  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 22,500  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 56,100  |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 33,700  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 224,200 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 336,500    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 1,457,250  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 72,900  |
| Contingency                            |                                                   |          |           | 10%            | \$ 153,100 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 1,683,300  |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 1,683,300 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 117,800   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ -         | \$ -         |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 1,801,100 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**WEST WARE SEGUIN ROAD**

Boeing Dr. to N/S Connector (5)

| Roadway Information:           |                                                    |               |   |
|--------------------------------|----------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                              | No. of Lanes: | 2 |
| Length (lf):                   | 3,538                                              |               |   |
| Right-of-Way Width (ft.):      | 70                                                 |               |   |
| Median Type:                   | None                                               |               |   |
| Pavement Width (Edge to Edge): | 38                                                 |               |   |
| Description:                   | Reconstruction of roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                  |           |                |            |
|----------------------------------------|---------------------------------------------------|------------------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Quantity         | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 36               | STA       | \$ 3,000.00    | \$ 108,000 |
| 2                                      | Unclassified Street Excavation                    | 6,400            | CY        | \$ 20.00       | \$ 128,000 |
| 3                                      | 3" HMAC (Type "D")                                | 15,000           | SY        | \$ 18.00       | \$ 270,000 |
| 4                                      | 10" Flex Base                                     | 17,300           | SY        | \$ 18.00       | \$ 311,400 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 17,300           | SY        | \$ 4.00        | \$ 69,200  |
| 6                                      | TX-5 Geogrid                                      | 17,300           | SY        | \$ 1.00        | \$ 17,300  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 7,080            | LF        | \$ 25.00       | \$ 177,000 |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 3,900            | SY        | \$ 50.00       | \$ 195,000 |
| 9                                      | Block Sodding and Topsoil                         | 7,860            | SY        | \$ 5.00        | \$ 39,300  |
| Paving Estimate Subtotal:              |                                                   |                  |           | \$             | 1,315,200  |
| II. Non-Paving Construction Components |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  |                  |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |                  |           | 2%             | \$ 26,400  |
| 11                                     | Traffic Control                                   |                  |           | 5%             | \$ 65,800  |
| 12                                     | Erosion Control                                   |                  |           | 3%             | \$ 39,500  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                  |           | 20%            | \$ 263,100 |
| Other Components Estimate Subtotal:    |                                                   |                  |           | \$             | 394,800    |
| III. Special Construction Components   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Notes            | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None             | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | 1 Minor Crossing | \$        | 100,000        | \$ 100,000 |
| 16                                     | Bridge Structures                                 | None             | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None             | \$        | -              | \$ -       |
| 18                                     | Other                                             | None             | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |                  |           | \$             | 100,000    |
| I, II, & III Construction Subtotal:    |                                                   |                  |           | \$             | 1,810,000  |
| Mobilization                           |                                                   |                  |           | 5%             | \$ 90,500  |
| Contingency                            |                                                   |                  |           | 10%            | \$ 190,100 |
| Construction Cost Estimate Total:      |                                                   |                  |           | \$             | 2,090,600  |

| Impact Fee Cost Estimate Summary        |                           |           |              |              |
|-----------------------------------------|---------------------------|-----------|--------------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost    |              |
| Construction                            |                           | -         | \$ 2,090,600 |              |
| Engineering/Survey/Testing              |                           | 7%        | \$ 146,300   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ -      | \$ -         |              |
| Impact Fee Project Cost Estimate Total: |                           |           |              | \$ 2,236,900 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### N/S CONNECTOR (5)

Lower Seguin Rd. to W. Ware Seguin Rd.

| Roadway Information:           |                                                      |                 |
|--------------------------------|------------------------------------------------------|-----------------|
| Functional Classification:     | Residential Collector                                | No. of Lanes: 2 |
| Length (lf):                   | 5,808                                                |                 |
| Right-of-Way Width (ft.):      | 70                                                   |                 |
| Median Type:                   | None                                                 |                 |
| Pavement Width (Edge to Edge): | 38                                                   |                 |
| Description:                   | Construction of new roadway to thoroughfare standard |                 |
|                                | On-street bicycle facility (Pavement: 7' + 7')       |                 |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 59       | STA       | \$ 3,000.00    | \$ 177,000   |
| 2                                      | Unclassified Street Excavation                    | 10,500   | CY        | \$ 20.00       | \$ 210,000   |
| 3                                      | 3" HMAC (Type "D")                                | 24,600   | SY        | \$ 18.00       | \$ 442,800   |
| 4                                      | 10" Flex Base                                     | 28,400   | SY        | \$ 18.00       | \$ 511,200   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 28,400   | SY        | \$ 4.00        | \$ 113,600   |
| 6                                      | TX-5 Geogrid                                      | 28,400   | SY        | \$ 1.00        | \$ 28,400    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 11,620   | LF        | \$ 25.00       | \$ 290,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 6,500    | SY        | \$ 50.00       | \$ 325,000   |
| 9                                      | Block Sodding and Topsoil                         | 12,910   | SY        | \$ 5.00        | \$ 64,550    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 2,163,050 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 43,300    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 108,200   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 64,900    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 432,700   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 649,100   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      | \$ -           | -            |
| 15                                     | Drainage Structures                               | None     | \$ -      | \$ -           | -            |
| 16                                     | Bridge Structures                                 | None     | \$ -      | \$ -           | -            |
| 17                                     | Traffic Signals                                   | None     | \$ -      | \$ -           | -            |
| 18                                     | Other                                             | None     | \$ -      | \$ -           | -            |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 2,812,150 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 140,700   |
| Contingency                            |                                                   |          |           | 10%            | \$ 295,300   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 3,248,200 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 3,248,200 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 227,400   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 304,900 | \$ 304,900   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 3,780,500 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**N/S CONNECTOR (5)**

W. Ware Seguin Rd. to E. Ware Seguin Rd.

| Roadway Information:           |                                                    |               |   |
|--------------------------------|----------------------------------------------------|---------------|---|
| Functional Classification:     | Residential Collector                              | No. of Lanes: | 2 |
| Length (lf):                   | 4,910                                              |               |   |
| Right-of-Way Width (ft.):      | 70                                                 |               |   |
| Median Type:                   | None                                               |               |   |
| Pavement Width (Edge to Edge): | 38                                                 |               |   |
| Description:                   | Reconstruction of roadway to thoroughfare standard |               |   |
|                                | On-street bicycle facility (Pavement: 7' + 7')     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                   |            |                |              |
|----------------------------------------|---------------------------------------------------|-------------------|------------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                   |            |                |              |
| Item No.                               | Item Description                                  | Quantity          | Unit       | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 50                | STA        | \$ 3,000.00    | \$ 150,000   |
| 2                                      | Unclassified Street Excavation                    | 8,900             | CY         | \$ 20.00       | \$ 178,000   |
| 3                                      | 3" HMAC (Type "D")                                | 20,800            | SY         | \$ 18.00       | \$ 374,400   |
| 4                                      | 10" Flex Base                                     | 24,100            | SY         | \$ 18.00       | \$ 433,800   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 24,100            | SY         | \$ 4.00        | \$ 96,400    |
| 6                                      | TX-5 Geogrid                                      | 24,100            | SY         | \$ 1.00        | \$ 24,100    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 9,830             | LF         | \$ 25.00       | \$ 245,750   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 5,500             | SY         | \$ 50.00       | \$ 275,000   |
| 9                                      | Block Sodding and Topsoil                         | 10,910            | SY         | \$ 5.00        | \$ 54,550    |
| Paving Estimate Subtotal:              |                                                   |                   |            |                | \$ 1,832,000 |
| II. Non-Paving Construction Components |                                                   |                   |            |                |              |
| Item No.                               | Item Description                                  |                   |            | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                   |            | 2%             | \$ 36,700    |
| 11                                     | Traffic Control                                   |                   |            | 5%             | \$ 91,600    |
| 12                                     | Erosion Control                                   |                   |            | 3%             | \$ 55,000    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                   |            | 20%            | \$ 366,400   |
| Other Components Estimate Subtotal:    |                                                   |                   |            |                | \$ 549,700   |
| III. Special Construction Components   |                                                   |                   |            |                |              |
| Item No.                               | Item Description                                  | Notes             | Allowance  |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None              | \$ -       |                | \$ -         |
| 15                                     | Drainage Structures                               | 2 Minor Crossings | \$ 200,000 |                | \$ 200,000   |
| 16                                     | Bridge Structures                                 | None              | \$ -       |                | \$ -         |
| 17                                     | Traffic Signals                                   | None              | \$ -       |                | \$ -         |
| 18                                     | Other                                             | None              | \$ -       |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |                   |            |                | \$ 200,000   |
| I, II, & III Construction Subtotal:    |                                                   |                   |            |                | \$ 2,581,700 |
| Mobilization                           |                                                   |                   |            | 5%             | \$ 129,100   |
| Contingency                            |                                                   |                   |            | 10%            | \$ 271,100   |
| Construction Cost Estimate Total:      |                                                   |                   |            |                | \$ 2,981,900 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 2,981,900 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 208,700   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 36,800    | \$ 36,800    |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 3,227,400 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**TRAINER HALE ROAD (N/S)**

Weir Rd. to IH-10

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Principal Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 8,765                                        |               |   |
| Right-of-Way Width (ft.):      | 120                                          |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 88       | STA       | \$ 3,000.00    | \$ 264,000   |
| 2                                      | Unclassified Street Excavation                    | 21,500   | CY        | \$ 20.00       | \$ 430,000   |
| 3                                      | 3" HMAC (Type "D")                                | 46,800   | SY        | \$ 18.00       | \$ 842,400   |
| 4                                      | 10" Flex Base                                     | 58,500   | SY        | \$ 18.00       | \$ 1,053,000 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 58,500   | SY        | \$ 4.00        | \$ 234,000   |
| 6                                      | TX-5 Geogrid                                      | 58,500   | SY        | \$ 1.00        | \$ 58,500    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 35,060   | LF        | \$ 25.00       | \$ 876,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 14,600   | SY        | \$ 50.00       | \$ 730,000   |
| 9                                      | Block Sodding and Topsoil                         | 51,610   | SY        | \$ 5.00        | \$ 258,050   |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 4,746,450    |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 95,000    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 237,400   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 142,400   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 949,300   |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 1,424,100    |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -            |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 6,170,550    |
| Mobilization                           |                                                   |          |           | 5%             | \$ 308,600   |
| Contingency                            |                                                   |          |           | 10%            | \$ 648,000   |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 7,127,200    |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 7,127,200 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 498,900   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 394,400 | \$ 394,400   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 8,020,500 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**TRAINER HALE ROAD (E/W)**  
 FM 1518 to Trainer Hale Rd. (N/S)

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Arterial                           | No. of Lanes: | 4 |
| Length (lf):                   | 7,973                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Raised                                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 80       | STA       | \$ 3,000.00    | \$ 240,000   |
| 2                                      | Unclassified Street Excavation                    | 19,500   | CY        | \$ 20.00       | \$ 390,000   |
| 3                                      | 3" HMAC (Type "D")                                | 42,600   | SY        | \$ 18.00       | \$ 766,800   |
| 4                                      | 10" Flex Base                                     | 53,200   | SY        | \$ 18.00       | \$ 957,600   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 53,200   | SY        | \$ 4.00        | \$ 212,800   |
| 6                                      | TX-5 Geogrid                                      | 53,200   | SY        | \$ 1.00        | \$ 53,200    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 31,900   | LF        | \$ 25.00       | \$ 797,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 13,300   | SY        | \$ 50.00       | \$ 665,000   |
| 9                                      | Block Sodding and Topsoil                         | 20,370   | SY        | \$ 5.00        | \$ 101,850   |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 4,184,750 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 83,700    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 209,300   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 125,600   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 837,000   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 1,255,600 |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | 1 Bridge | \$        | 750,000        | \$ 750,000   |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ 750,000   |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 6,190,350 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 309,600   |
| Contingency                            |                                                   |          |           | 10%            | \$ 650,000   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 7,150,000 |

| Impact Fee Cost Estimate Summary        |                   |           |              |              |
|-----------------------------------------|-------------------|-----------|--------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost    |              |
| Construction                            |                   | -         | \$ 7,150,000 |              |
| Engineering/Survey/Testing              |                   | 7%        | \$ 500,500   |              |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 59,800    | \$ 59,800    |
| Impact Fee Project Cost Estimate Total: |                   |           |              | \$ 7,710,300 |

# City of Schertz

## Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

### WARE SEGUIN ROAD

Graytown Rd. to N/S Connector (5)

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Rural Arterial                             | No. of Lanes: | 3 |
| Length (lf):                   | 7,128                                                |               |   |
| Right-of-Way Width (ft.):      | 90                                                   |               |   |
| Median Type:                   | Two-Way Left Turn Lane                               |               |   |
| Pavement Width (Edge to Edge): | 48                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |            |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 72       | STA       | \$ 3,000.00    | \$ 216,000 |
| 2                                      | Unclassified Street Excavation                    | 15,700   | CY        | \$ 20.00       | \$ 314,000 |
| 3                                      | 3" HMAC (Type "D")                                | 38,100   | SY        | \$ 18.00       | \$ 685,800 |
| 4                                      | 10" Flex Base                                     | 39,600   | SY        | \$ 18.00       | \$ 712,800 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 39,600   | SY        | \$ 4.00        | \$ 158,400 |
| 6                                      | TX-5 Geogrid                                      | 39,600   | SY        | \$ 1.00        | \$ 39,600  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 0        | LF        | \$ 25.00       | \$ -       |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 7,900    | SY        | \$ 50.00       | \$ 395,000 |
| 9                                      | Block Sodding and Topsoil                         | 25,340   | SY        | \$ 5.00        | \$ 126,700 |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 2,648,300  |
| II. Non-Paving Construction Components |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 53,000  |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 132,500 |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 79,500  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 529,700 |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 794,700    |
| III. Special Construction Components   |                                                   |          |           |                |            |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -       |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -       |
| 18                                     | Other                                             | None     | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -          |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 3,443,000  |
| Mobilization                           |                                                   |          |           | 5%             | \$ 172,200 |
| Contingency                            |                                                   |          |           | 10%            | \$ 361,600 |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 3,976,800  |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 3,976,800 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 278,400   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 481,100 | \$ 481,100   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 4,736,300 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**EAST WARE SEGUIN ROAD**

N/S Connector (5) to FM 1518

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Rural Arterial                     | No. of Lanes: | 3 |
| Length (lf):                   | 7,445                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | Two-Way Left Turn Lane                       |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                  |           |                |            |
|----------------------------------------|---------------------------------------------------|------------------|-----------|----------------|------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Quantity         | Unit      | Unit Cost      | Item Cost  |
| 1                                      | Right of Way Preparation                          | 75               | STA       | \$ 3,000.00    | \$ 225,000 |
| 2                                      | Unclassified Street Excavation                    | 16,400           | CY        | \$ 20.00       | \$ 328,000 |
| 3                                      | 3" HMAC (Type "D")                                | 39,800           | SY        | \$ 18.00       | \$ 716,400 |
| 4                                      | 10" Flex Base                                     | 41,400           | SY        | \$ 18.00       | \$ 745,200 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 41,400           | SY        | \$ 4.00        | \$ 165,600 |
| 6                                      | TX-5 Geogrid                                      | 41,400           | SY        | \$ 1.00        | \$ 41,400  |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 0                | LF        | \$ 25.00       | \$ -       |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 8,300            | SY        | \$ 50.00       | \$ 415,000 |
| 9                                      | Block Sodding and Topsoil                         | 26,470           | SY        | \$ 5.00        | \$ 132,350 |
| Paving Estimate Subtotal:              |                                                   |                  |           | \$             | 2,768,950  |
| II. Non-Paving Construction Components |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  |                  |           | Pct. Of Paving | Item Cost  |
| 10                                     | Pavement Markings & Signage                       |                  |           | 2%             | \$ 55,400  |
| 11                                     | Traffic Control                                   |                  |           | 5%             | \$ 138,500 |
| 12                                     | Erosion Control                                   |                  |           | 3%             | \$ 83,100  |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                  |           | 20%            | \$ 553,800 |
| Other Components Estimate Subtotal:    |                                                   |                  |           | \$             | 830,800    |
| III. Special Construction Components   |                                                   |                  |           |                |            |
| Item No.                               | Item Description                                  | Notes            | Allowance |                | Item Cost  |
| 14                                     | Landscaping/Illumination                          | None             | \$        | -              | \$ -       |
| 15                                     | Drainage Structures                               | 1 Minor Crossing | \$        | 100,000        | \$ 100,000 |
| 16                                     | Bridge Structures                                 | None             | \$        | -              | \$ -       |
| 17                                     | Traffic Signals                                   | None             | \$        | -              | \$ -       |
| 18                                     | Other                                             | None             | \$        | -              | \$ -       |
| Special Components Estimate Subtotal:  |                                                   |                  |           | \$             | 100,000    |
| I, II, & III Construction Subtotal:    |                                                   |                  |           | \$             | 3,699,750  |
| Mobilization                           |                                                   |                  |           | 5%             | \$ 185,000 |
| Contingency                            |                                                   |                  |           | 10%            | \$ 388,500 |
| Construction Cost Estimate Total:      |                                                   |                  |           | \$             | 4,273,300  |

| Impact Fee Cost Estimate Summary        |                   |           |            |              |
|-----------------------------------------|-------------------|-----------|------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost  |              |
| Construction                            |                   | -         | \$         | 4,273,300    |
| Engineering/Survey/Testing              |                   | 7%        | \$         | 299,100      |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 167,500 | \$ 167,500   |
| Impact Fee Project Cost Estimate Total: |                   |           |            | \$ 4,739,900 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**GRAYTOWN ROAD**

Boeing Dr. to IH-10

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Rural Arterial                     | No. of Lanes: | 3 |
| Length (lf):                   | 5,861                                        |               |   |
| Right-of-Way Width (ft.):      | 90                                           |               |   |
| Median Type:                   | TWLTL                                        |               |   |
| Pavement Width (Edge to Edge): | 48                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                   |            |                        |
|----------------------------------------|---------------------------------------------------|-------------------|------------|------------------------|
| I. Paving Construction Cost Estimate   |                                                   |                   |            |                        |
| Item No.                               | Item Description                                  | Quantity          | Unit       | Item Cost              |
| 1                                      | Right of Way Preparation                          | 59                | STA        | \$ 3,000.00 \$ 177,000 |
| 2                                      | Unclassified Street Excavation                    | 12,900            | CY         | \$ 20.00 \$ 258,000    |
| 3                                      | 3" HMAC (Type "D")                                | 31,300            | SY         | \$ 18.00 \$ 563,400    |
| 4                                      | 10" Flex Base                                     | 32,600            | SY         | \$ 18.00 \$ 586,800    |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 32,600            | SY         | \$ 4.00 \$ 130,400     |
| 6                                      | TX-5 Geogrid                                      | 32,600            | SY         | \$ 1.00 \$ 32,600      |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 0                 | LF         | \$ 25.00 \$ -          |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 6,500             | SY         | \$ 50.00 \$ 325,000    |
| 9                                      | Block Sodding and Topsoil                         | 20,840            | SY         | \$ 5.00 \$ 104,200     |
| Paving Estimate Subtotal:              |                                                   |                   |            | \$ 2,177,400           |
| II. Non-Paving Construction Components |                                                   |                   |            |                        |
| Item No.                               | Item Description                                  | Pct. Of Paving    |            | Item Cost              |
| 10                                     | Pavement Markings & Signage                       | 2%                | \$         | 43,600                 |
| 11                                     | Traffic Control                                   | 5%                | \$         | 108,900                |
| 12                                     | Erosion Control                                   | 3%                | \$         | 65,400                 |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) | 20%               | \$         | 435,500                |
| Other Components Estimate Subtotal:    |                                                   |                   |            | \$ 653,400             |
| III. Special Construction Components   |                                                   |                   |            |                        |
| Item No.                               | Item Description                                  | Notes             | Allowance  | Item Cost              |
| 14                                     | Landscaping/Illumination                          | None              | \$ -       | \$ -                   |
| 15                                     | Drainage Structures                               | 3 Minor Crossings | \$ 300,000 | \$ 300,000             |
| 16                                     | Bridge Structures                                 | None              | \$ -       | \$ -                   |
| 17                                     | Traffic Signals                                   | None              | \$ -       | \$ -                   |
| 18                                     | Other                                             | None              | \$ -       | \$ -                   |
| Special Components Estimate Subtotal:  |                                                   |                   |            | \$ 300,000             |
| I, II, & III Construction Subtotal:    |                                                   |                   |            | \$ 3,130,800           |
| Mobilization                           |                                                   |                   |            | 5% \$ 156,600          |
| Contingency                            |                                                   |                   |            | 10% \$ 328,800         |
| Construction Cost Estimate Total:      |                                                   |                   |            | \$ 3,616,200           |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 3,616,200 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 253,100   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 131,900 | \$ 131,900   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 4,001,200 |

## City of Schertz

### Impact Fee Engineer's Opinion of Probable Construction Cost Estimate

#### N/S CONNECTOR (6)

Ware Seguin Rd. to IH-10

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector A                               | No. of Lanes: | 3 |
| Length (lf):                   | 2,482                                                |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | TWLTL                                                |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 25       | STA       | \$ 3,000.00    | \$ 75,000    |
| 2                                      | Unclassified Street Excavation                    | 4,500    | CY        | \$ 20.00       | \$ 90,000    |
| 3                                      | 3" HMAC (Type "D")                                | 10,500   | SY        | \$ 18.00       | \$ 189,000   |
| 4                                      | 10" Flex Base                                     | 12,200   | SY        | \$ 18.00       | \$ 219,600   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 12,200   | SY        | \$ 4.00        | \$ 48,800    |
| 6                                      | TX-5 Geogrid                                      | 12,200   | SY        | \$ 1.00        | \$ 12,200    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 4,970    | LF        | \$ 25.00       | \$ 124,250   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 4,100    | SY        | \$ 50.00       | \$ 205,000   |
| 9                                      | Block Sodding and Topsoil                         | 4,140    | SY        | \$ 5.00        | \$ 20,700    |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 984,550   |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 19,700    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 49,300    |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 29,600    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 197,000   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 295,600   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 1,280,150 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 64,100    |
| Contingency                            |                                                   |          |           | 10%            | \$ 134,500   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 1,478,800 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 1,478,800 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 103,500   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 130,300 | \$ 130,300   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 1,712,600 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**E/W CONNECTOR (8)**

IH 10 to E. City Limits

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector A                               | No. of Lanes: | 3 |
| Length (lf):                   | 12,302                                               |               |   |
| Right-of-Way Width (ft.):      | 70                                                   |               |   |
| Median Type:                   | TWLTL                                                |               |   |
| Pavement Width (Edge to Edge): | 38                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 124      | STA       | \$ 3,000.00    | \$ 372,000   |
| 2                                      | Unclassified Street Excavation                    | 22,100   | CY        | \$ 20.00       | \$ 442,000   |
| 3                                      | 3" HMAC (Type "D")                                | 52,000   | SY        | \$ 18.00       | \$ 936,000   |
| 4                                      | 10" Flex Base                                     | 60,200   | SY        | \$ 18.00       | \$ 1,083,600 |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 60,200   | SY        | \$ 4.00        | \$ 240,800   |
| 6                                      | TX-5 Geogrid                                      | 60,200   | SY        | \$ 1.00        | \$ 60,200    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 24,610   | LF        | \$ 25.00       | \$ 615,250   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 20,500   | SY        | \$ 50.00       | \$ 1,025,000 |
| 9                                      | Block Sodding and Topsoil                         | 20,500   | SY        | \$ 5.00        | \$ 102,500   |
| Paving Estimate Subtotal:              |                                                   |          |           | \$             | 4,877,350    |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 97,600    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 243,900   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 146,400   |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 975,500   |
| Other Components Estimate Subtotal:    |                                                   |          |           | \$             | 1,463,400    |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$        | -              | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$        | -              | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$        | -              | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$        | -              | \$ -         |
| 18                                     | Other                                             | None     | \$        | -              | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           | \$             | -            |
| I, II, & III Construction Subtotal:    |                                                   |          |           | \$             | 6,340,750    |
| Mobilization                           |                                                   |          |           | 5%             | \$ 317,100   |
| Contingency                            |                                                   |          |           | 10%            | \$ 665,800   |
| Construction Cost Estimate Total:      |                                                   |          |           | \$             | 7,323,700    |

| Impact Fee Cost Estimate Summary        |                   |           |            |              |
|-----------------------------------------|-------------------|-----------|------------|--------------|
| Item Description                        | Notes             | Allowance | Item Cost  |              |
| Construction                            |                   | -         | \$         | 7,323,700    |
| Engineering/Survey/Testing              |                   | 7%        | \$         | 512,700      |
| Right-of-Way Acquisition                | Cost per sq. ft.: | \$ 0.75   | \$ 645,900 | \$ 645,900   |
| Impact Fee Project Cost Estimate Total: |                   |           |            | \$ 8,482,300 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**BINZ-ENGLEMAN ROAD**

W. City Limits to Graytown Rd.

| Roadway Information:           |                                                      |               |   |
|--------------------------------|------------------------------------------------------|---------------|---|
| Functional Classification:     | Secondary Rural Arterial                             | No. of Lanes: | 3 |
| Length (lf):                   | 6,864                                                |               |   |
| Right-of-Way Width (ft.):      | 90                                                   |               |   |
| Median Type:                   | Two-Way Left Turn Lane                               |               |   |
| Pavement Width (Edge to Edge): | 48                                                   |               |   |
| Description:                   | Construction of new roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility                     |               |   |

| Roadway Construction Cost Estimate:    |                                                   |          |           |                |              |
|----------------------------------------|---------------------------------------------------|----------|-----------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Quantity | Unit      | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 69       | STA       | \$ 3,000.00    | \$ 207,000   |
| 2                                      | Unclassified Street Excavation                    | 18,400   | CY        | \$ 20.00       | \$ 368,000   |
| 3                                      | 3" HMAC (Type "D")                                | 36,700   | SY        | \$ 18.00       | \$ 660,600   |
| 4                                      | 10" Flex Base                                     | 38,200   | SY        | \$ 18.00       | \$ 687,600   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 38,200   | SY        | \$ 4.00        | \$ 152,800   |
| 6                                      | TX-5 Geogrid                                      | 38,200   | SY        | \$ 1.00        | \$ 38,200    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 0        | LF        | \$ 25.00       | \$ -         |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 7,600    | SY        | \$ 50.00       | \$ 380,000   |
| 9                                      | Block Sodding and Topsoil                         | 24,410   | SY        | \$ 5.00        | \$ 122,050   |
| Paving Estimate Subtotal:              |                                                   |          |           |                | \$ 2,616,250 |
| II. Non-Paving Construction Components |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  |          |           | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |          |           | 2%             | \$ 52,400    |
| 11                                     | Traffic Control                                   |          |           | 5%             | \$ 130,900   |
| 12                                     | Erosion Control                                   |          |           | 3%             | \$ 78,500    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |          |           | 20%            | \$ 523,300   |
| Other Components Estimate Subtotal:    |                                                   |          |           |                | \$ 785,100   |
| III. Special Construction Components   |                                                   |          |           |                |              |
| Item No.                               | Item Description                                  | Notes    | Allowance |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None     | \$ -      |                | \$ -         |
| 15                                     | Drainage Structures                               | None     | \$ -      |                | \$ -         |
| 16                                     | Bridge Structures                                 | None     | \$ -      |                | \$ -         |
| 17                                     | Traffic Signals                                   | None     | \$ -      |                | \$ -         |
| 18                                     | Other                                             | None     | \$ -      |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |          |           |                | \$ -         |
| I, II, & III Construction Subtotal:    |                                                   |          |           |                | \$ 3,401,350 |
| Mobilization                           |                                                   |          |           | 5%             | \$ 170,100   |
| Contingency                            |                                                   |          |           | 10%            | \$ 357,200   |
| Construction Cost Estimate Total:      |                                                   |          |           |                | \$ 3,928,700 |

| Impact Fee Cost Estimate Summary        |                           |            |              |
|-----------------------------------------|---------------------------|------------|--------------|
| Item Description                        | Notes                     | Allowance  | Item Cost    |
| Construction                            |                           | -          | \$ 3,928,700 |
| Engineering/Survey/Testing              |                           | 7%         | \$ 275,000   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 463,300 | \$ 463,300   |
| Impact Fee Project Cost Estimate Total: |                           |            | \$ 4,667,000 |

**City of Schertz**  
**Impact Fee Engineer's Opinion of Probable Construction Cost Estimate**

**SCENIC LAKE DRIVE**  
 Binz-Engleman Rd. to IH-10

| Roadway Information:           |                                              |               |   |
|--------------------------------|----------------------------------------------|---------------|---|
| Functional Classification:     | Commercial Collector A                       | No. of Lanes: | 3 |
| Length (lf):                   | 4,066                                        |               |   |
| Right-of-Way Width (ft.):      | 70                                           |               |   |
| Median Type:                   | Two-Way Left Turn Lane                       |               |   |
| Pavement Width (Edge to Edge): | 38                                           |               |   |
| Description:                   | Widening of roadway to thoroughfare standard |               |   |
|                                | Shared-Use Path bicycle facility             |               |   |

| Roadway Construction Cost Estimate:    |                                                   |                  |            |                |              |
|----------------------------------------|---------------------------------------------------|------------------|------------|----------------|--------------|
| I. Paving Construction Cost Estimate   |                                                   |                  |            |                |              |
| Item No.                               | Item Description                                  | Quantity         | Unit       | Unit Cost      | Item Cost    |
| 1                                      | Right of Way Preparation                          | 41               | STA        | \$ 3,000.00    | \$ 123,000   |
| 2                                      | Unclassified Street Excavation                    | 7,300            | CY         | \$ 20.00       | \$ 146,000   |
| 3                                      | 3" HMAC (Type "D")                                | 17,200           | SY         | \$ 18.00       | \$ 309,600   |
| 4                                      | 10" Flex Base                                     | 19,900           | SY         | \$ 18.00       | \$ 358,200   |
| 5                                      | 6" Moisture Conditioned Subgrade                  | 19,900           | SY         | \$ 4.00        | \$ 79,600    |
| 6                                      | TX-5 Geogrid                                      | 19,900           | SY         | \$ 1.00        | \$ 19,900    |
| 7                                      | 6" Monolithic Concrete Curb & Gutter              | 8,140            | LF         | \$ 25.00       | \$ 203,500   |
| 8                                      | 4" Concrete Sidewalk and Ramps                    | 6,800            | SY         | \$ 50.00       | \$ 340,000   |
| 9                                      | Block Sodding and Topsoil                         | 6,780            | SY         | \$ 5.00        | \$ 33,900    |
| Paving Estimate Subtotal:              |                                                   |                  |            |                | \$ 1,613,700 |
| II. Non-Paving Construction Components |                                                   |                  |            |                |              |
| Item No.                               | Item Description                                  |                  |            | Pct. Of Paving | Item Cost    |
| 10                                     | Pavement Markings & Signage                       |                  |            | 2%             | \$ 32,300    |
| 11                                     | Traffic Control                                   |                  |            | 5%             | \$ 80,700    |
| 12                                     | Erosion Control                                   |                  |            | 3%             | \$ 48,500    |
| 13                                     | Drainage Improvements (RCP, Inlets, MH, Outfalls) |                  |            | 20%            | \$ 322,800   |
| Other Components Estimate Subtotal:    |                                                   |                  |            |                | \$ 484,300   |
| III. Special Construction Components   |                                                   |                  |            |                |              |
| Item No.                               | Item Description                                  | Notes            | Allowance  |                | Item Cost    |
| 14                                     | Landscaping/Illumination                          | None             | \$ -       |                | \$ -         |
| 15                                     | Drainage Structures                               | 1 Minor Crossing | \$ 100,000 |                | \$ 100,000   |
| 16                                     | Bridge Structures                                 | None             | \$ -       |                | \$ -         |
| 17                                     | Traffic Signals                                   | None             | \$ -       |                | \$ -         |
| 18                                     | Other                                             | None             | \$ -       |                | \$ -         |
| Special Components Estimate Subtotal:  |                                                   |                  |            |                | \$ 100,000   |
| I, II, & III Construction Subtotal:    |                                                   |                  |            |                | \$ 2,198,000 |
| Mobilization                           |                                                   |                  |            | 5%             | \$ 109,900   |
| Contingency                            |                                                   |                  |            | 10%            | \$ 230,800   |
| Construction Cost Estimate Total:      |                                                   |                  |            |                | \$ 2,538,700 |

| Impact Fee Cost Estimate Summary        |                           |           |              |
|-----------------------------------------|---------------------------|-----------|--------------|
| Item Description                        | Notes                     | Allowance | Item Cost    |
| Construction                            |                           | -         | \$ 2,538,700 |
| Engineering/Survey/Testing              |                           | 7%        | \$ 177,700   |
| Right-of-Way Acquisition                | Cost per sq. ft.: \$ 0.75 | \$ 61,000 | \$ 61,000    |
| Impact Fee Project Cost Estimate Total: |                           |           | \$ 2,777,400 |

**Appendix G:**  
**Land Use Assumptions Report**

# **SCHERTZ ROADWAY IMPACT FEE**

## **LAND USE ASSUMPTIONS**

### **FINAL REPORT**

Prepared for:

**City of Schertz**



October 2017

Prepared by:

**FREESE AND NICHOLS, INC.**  
2711 North Haskell Avenue, Suite 3300  
Dallas, Texas 75204

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## 1.0 PURPOSE

Chapter 395 of the Texas Local Government Code prescribes the process by which cities in Texas must formulate impact fees. An initial step in the impact fee development process is the establishment of land use assumptions which address growth and development for a ten-year planning period (TLGC Section 395.001(5)) for the years 2017-2027. These land use assumptions, which also include population and employment projections, will become the basis for the preparation of capital improvement plans for roadway facilities.

Statutory requirements mandate that impact fees be updated (at least) every five years. This report, in conjunction with the roadway capital improvements plan, form the initial key components of an impact fee program.

To assist the City of Schertz in determining the need and timing of capital improvements to serve future development, a reasonable estimation of future growth is required. The purpose of this report is to formulate growth and development projections based upon assumptions pertaining to the type, location, quantity and timing of various future land uses within the community and to establish and document the methodology used for preparing the growth and land use assumptions.

### 1.1 LAND USE ASSUMPTIONS REPORT ELEMENTS

This report contains the following components:

- **Methodology** - Explanation of the general methodology used to prepare the land use assumptions.
- **Data Collection Zones and Service Area** - Explanation of data collection zones (traffic analysis zones), and division of the city into impact fee service areas for roadway facilities.
- **Historical Data** – Information on historic population trends for Schertz and Guadalupe, Bexar, and Comal Counties.
- **Base Year Data** - Information on population, employment, and land use for Schertz as of 2015 for each roadway service area.
- **Ten-Year Growth Assumptions** - Population and employment growth assumptions for ten years by impact fee service area.
- **Summary** - Brief synopsis of the land use assumptions report.

## 2.0 METHODOLOGY

Based upon the growth assumptions and the capital improvements needed to support growth, it is possible to develop an impact fee structure which fairly allocates improvement costs to growth areas in relationship to their impact upon the entire infrastructure system. The data in this report has been formulated using reasonable and generally accepted planning principles for the preparation of impact fee systems in Texas.

These land use assumptions and future growth projections take into consideration several factors influencing development patterns, including the following:

- The character, type, density, and quantity of existing development
- Anticipated future land use (City's Future Land Use Plan Map);
- Availability of land for future expansion;
- Current and historical growth trends of population and development within the city;
- Location and configuration of vacant land;
- Growth of employment per the Alamo Area Metropolitan Planning Organization (AAMPO);
- Known or anticipated development projects within the city, as identified by City Staff.

A series of work tasks were undertaken in the development of this report and are described below:

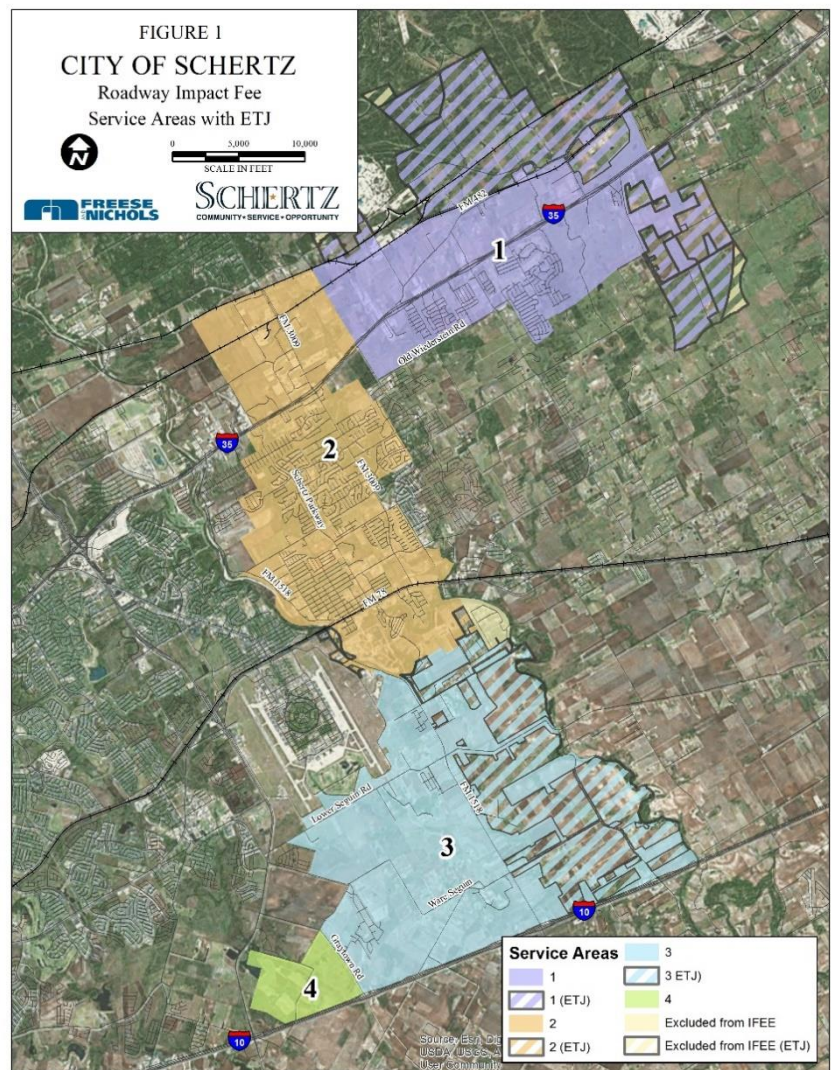
1. A kick-off meeting was held to describe the general methodological approach in the study.
2. Current data of population and housing was collected from the city and other acceptable sources to serve as a basis for future growth.
3. A base year (2017) estimate was developed using city building permit data, U.S. Census and periodic population, household occupancy and household size data, and employment data from AAMPO.
4. A growth rate was determined based upon an analysis of data from recent building permit data, Texas Development Water Board, past growth trends and anticipated development to occur over the next ten-year planning period. A compound annual growth rate of 3.5% is recommended for the planning period.
5. A ten-year projection (2027) was prepared using the recommended growth rate, Staff input, and consideration of the future allocation of population and employment in the AAMPO regional traffic forecast model. Finally, adjustments were then made to consider known or anticipated development activity within the ten-year planning period.

6. Base and ten-year demographics were prepared for the various roadway service areas which, in turn, correlate with the current municipal limits of Schertz.

### 3.0 ROADWAY SERVICE AREAS

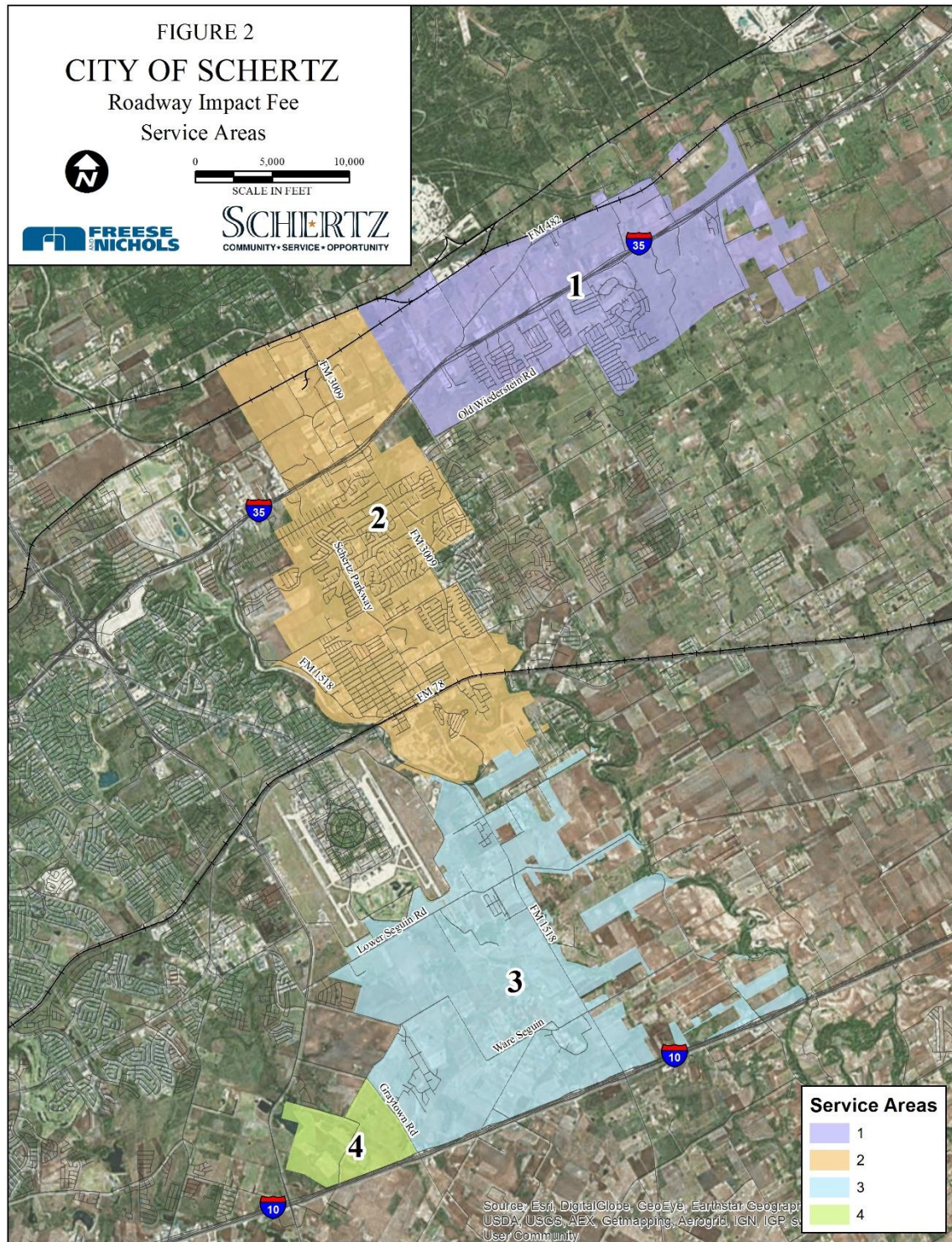
Service areas are required by State Law to define the area served by the Roadway Impact program. Chapter 395 requires that service areas be defined to ensure that facility improvements are located in proximity to the area that is generating needs. Roadway service areas are different from water/wastewater impact fee service areas in that roadway service areas can consider only current city limits but not the extra-territorial jurisdiction (ETJ) while water/wastewater service areas can include both the city limits and ETJ. This is primarily because roadway networks are "open" systems to both local and regional use as opposed to a defined limit of service that is provided within water and wastewater systems. The result is that new development can only be assessed an impact fee based on the cost of necessary capital improvements within that service area.

Chapter 395 stipulates that roadway service areas be limited to a six-mile maximum dimension, but must be limited to within the current city limits. Although the roadway service areas only recognize current municipal limits, an analysis including the ETJ was conducted in order to consider long-term coverage of the ultimate corporate boundaries relative to the six-mile maximum for the impact fee program. **Figure 1** illustrates the roadway impact fee service areas within the ETJ.



### 3.1 ROADWAY SERVICE AREAS

Figure 2 illustrates the derived service area structure for roadway facilities. These service areas conform to the current city limits of Schertz.



## 3.2 DATA FORMAT

The existing database, as well as the future projections, was formulated according to the following format and categories:

**Service Area** Correlates to the roadway service areas identified on the attached map. The city limits serve as the roadway service area boundary.

**Housing Units (2017)** All living units including single-family, duplex, multi-family and group quarters existing at the middle of 2017. The number of existing housing units has been estimated for the base year (2017) population estimate.

**Housing Units (2027)** Projected housing units by service zone for the year 2027 (ten-year growth projections).

**Population (2017)** Existing estimated population for the base year (2017).

**Population (2027)** Projected population by service zone for the year 2027 (ten-year growth projection).

**Employment (2017-27)** Employment data is aggregated to three employment sectors and include Basic, Retail and Service, as provided by AAMPO. These service sectors serve as the basis for nonresidential trip generation. The following details which types of businesses fall within each of the three sectors.

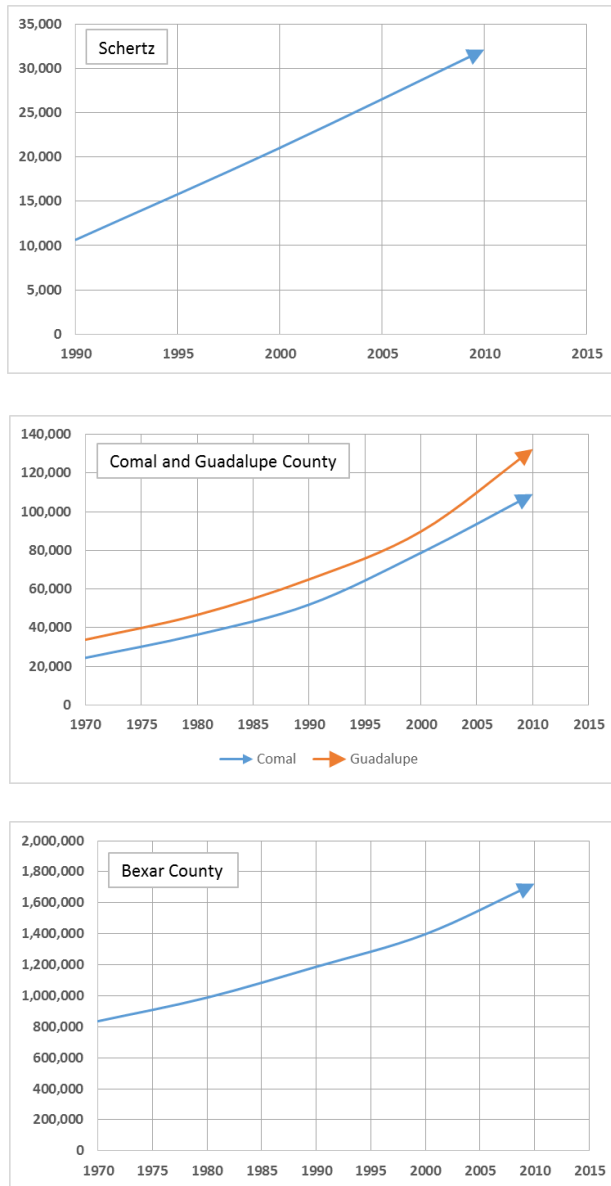
Service -- Land use activities which provide personal and professional services such as financial, insurance, government, and other professional and administrative offices.

Retail -- Land use activities which provide for the retail sale of goods that primarily serve households and whose location choice is oriented toward the household sector such as grocery stores, restaurants, etc.

Basic -- Land use activities that produce goods and services such as those that are exported outside the local economy; manufacturing, construction, transportation, wholesale trade, warehousing and other industrial uses.

AAMPO prepares employment estimates at the Traffic Analysis Zone (TAZ) level, but some adjustments were needed to consider areas within the limits of the city.

**Figure 3: Historic Population Growth; City of Schertz, Comal County and Guadalupe County, and Bexar County**



## 4.0 HISTORICAL DATA

Schertz is located approximately 16 miles northeast of downtown San Antonio and lies in Guadalupe, Bexar, and Comal Counties. Over the past several years, the Alamo Area region has experienced steady population and employment growth.

**Figure 3** depicts the historic population growth for the City of Schertz and Comal, Guadalupe, and Bexar Counties. Comal and Guadalupe Counties have maintained steady growth over the last 40 years with compound annual growth rates (CAGR) around 3.5 percent. Meanwhile, Bexar County, which encompasses the City of San Antonio has maintained a slower growth rate of 1.8 percent.

The City of Schertz's population statistics begin in 1990. Between 1990 and 2010, population growth was steady with a CAGR between 3.5 and 4.5 percent. All indicators suggest that the city and regional population growth will continue in the near future.

## 5.0 BASE YEAR DATA

This section provides information and documents the data used to derive the 2017 base year population estimate for the City of Schertz.

### 5.1 POPULATION GROWTH

One method of predicting future growth is looking at past growth. Schertz has experienced steady growth over the past decade. Past growth trends from the U.S. Census were examined in conjunction with single family building permit data from the city (**Figure 4**).

The city estimates a 2016 population estimate of 39,453 residents in Schertz using the U.S. Census Intercensal population data of previous years.

### 5.2 POPULATION GROWTH RATE

A compound annual growth rate (CAGR) allows for a general assessment of growth, considering periodic increases and decreases in residential population growth coinciding with changing economic conditions. Various sources were used to derive past growth rates (**Table 1**). These sources indicated rates of growth between 2.6 and 4.1 percent. Based upon this data, analysis

**Figure 4: Schertz Population Growth Trends**

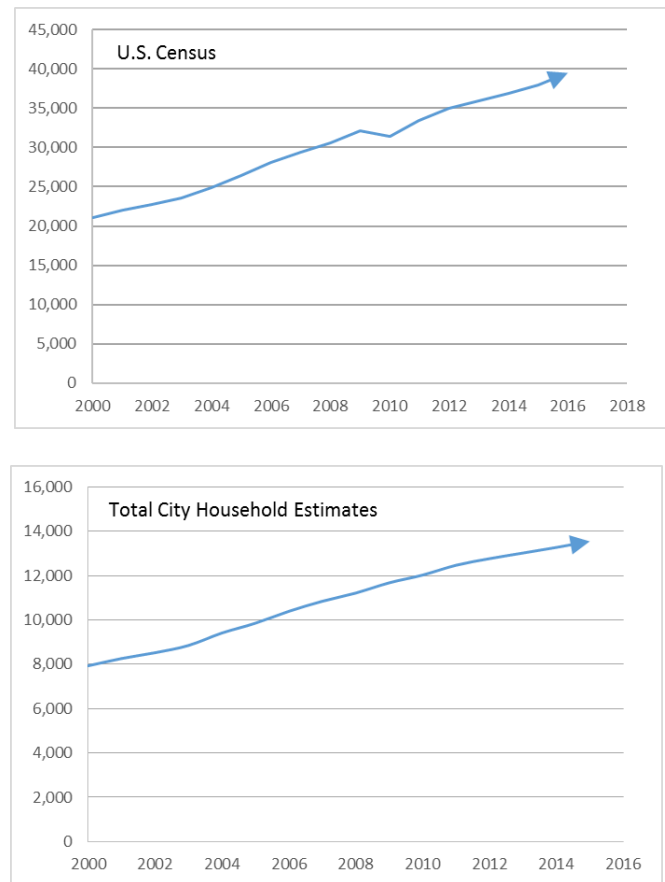


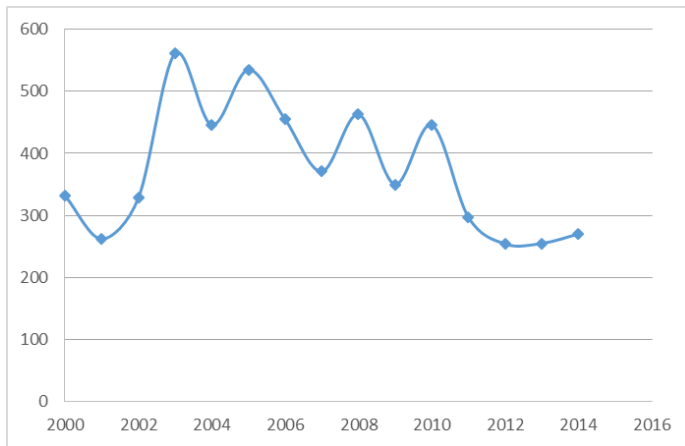
**Table 1: Growth Rates**

| Source                          | Growth      |
|---------------------------------|-------------|
| Building Permit (5-Year)        | 2.6%        |
| Building Permit (10-Year)       | 3.5%        |
| U.S. Census (5-Year)*           | 3.4%        |
| U.S. Census (10-Year)**         | 3.5%        |
| City Projections (Low)          | 2.6%        |
| City Projections (Mid)          | 3.4%        |
| City Projections (High)         | 4.1%        |
| <b>Future Growth Projection</b> | <b>3.5%</b> |

\*CAGR Based on 2011-2016 Intercensal Data

\*\*CAGR Based on 2006-2016 Intercensal Data

**Figure 5: Historic New Building Permits**



Source: City of Schertz Building Permits

**Table 2. Regional Growth Comparison**

| Year | TWDB   | Parks Plan | City Projections |
|------|--------|------------|------------------|
| 2020 | 43,083 | 44,505     | 45,000           |
| 2030 | 57,899 | 57,330     | 60,000           |
| 2040 | 69,106 | 70,155     | 67,500           |
| 2050 | 80,370 | -          | 75,000           |

of 10-year forecasts, and City Staff input, a 3.5 percent compound annual growth rate was determined to be an appropriate assumption for the 10-year study period. It is believed to account for periods of rapid and stable growth expected to occur in the future. This rate was recommended by the Schertz Capital Improvements Advisory Committee on May 13, 2015.

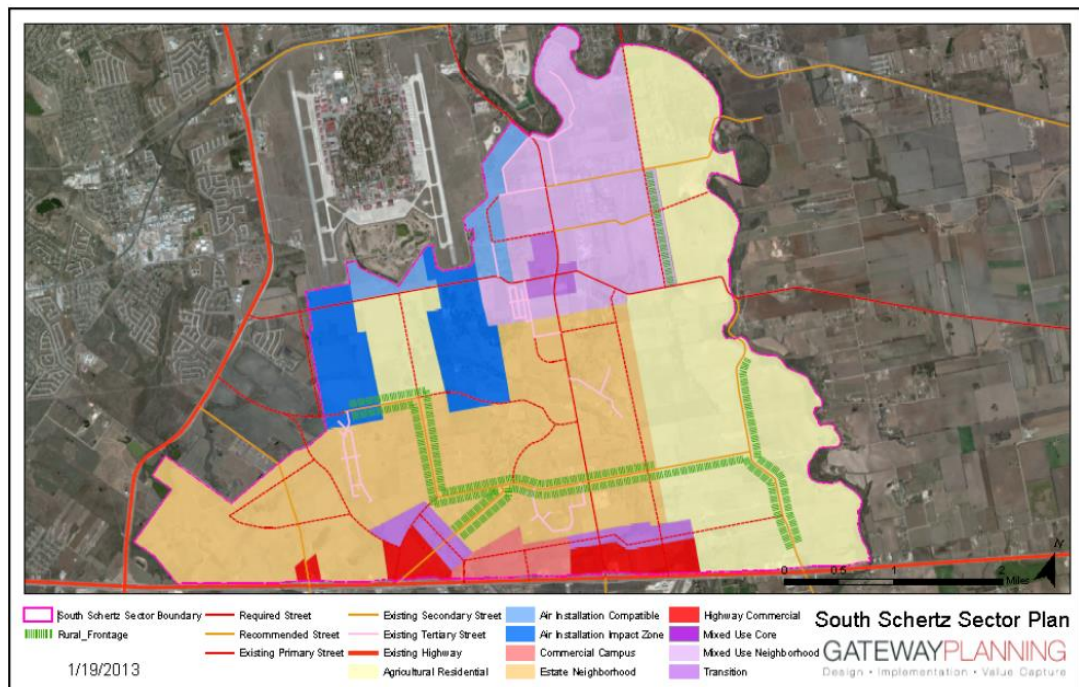
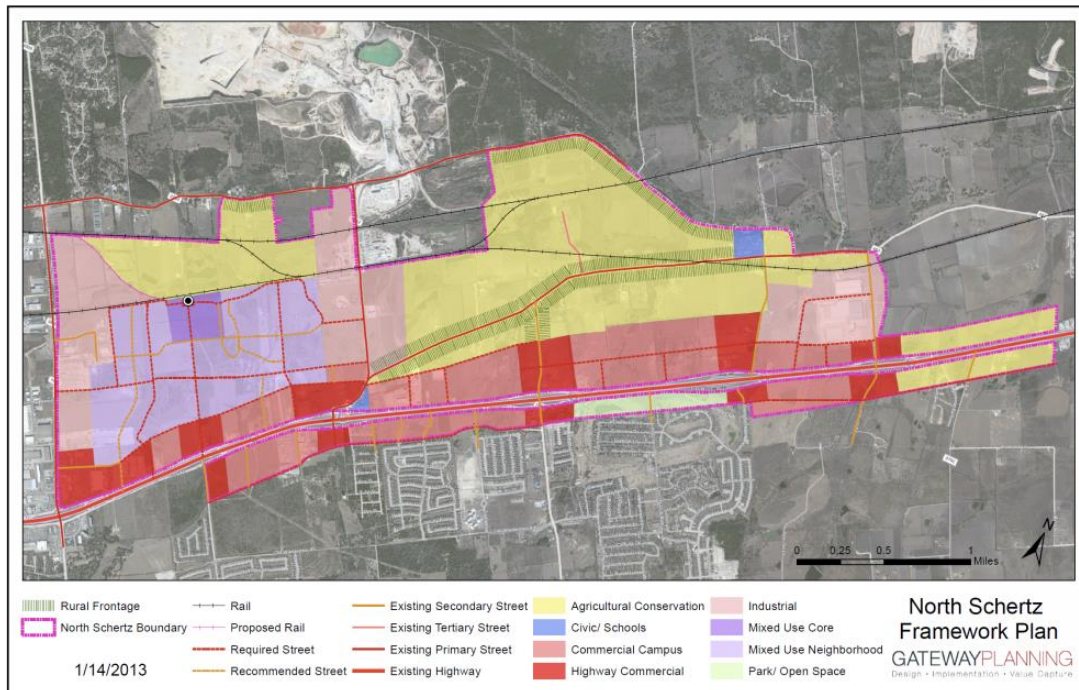
### 5.3 ADDITIONAL GROWTH INDICATORS

Residential building permit data is also an indicator of recent growth trends. Cumulative single family residential building permits issued since 2000 are shown in **Figure 5**. Annual single family residential building permits are shown to the left, depicting the overall trend in annual permits. Although building permits issued decreased after 2003, the issuance has remained steady over the last few years. From 2011 to 2016, the trend shows a rate that will maintain permit issuance and growth in the future.

Local population projections shown in **Table 2** indicate that growth will continue in Schertz in the future. These population projections from the Texas Water Development Board (TWDB), City of Schertz Parks Plan and City of Schertz Population Projections indicate robust growth is likely and will continue for the next 35 years.

## 5.4 EXISTING LAND USE

In any evaluation and projection of future land use patterns, a documentation of existing conditions is essential. Analysis of existing land use patterns was prepared based on Schertz's 2013 Sector Plan and 2002 Comprehensive Plan, which includes current city limits and the ETJ. This also serves to document the present physical condition of the city with regard to any infrastructure deficiencies that may exist.

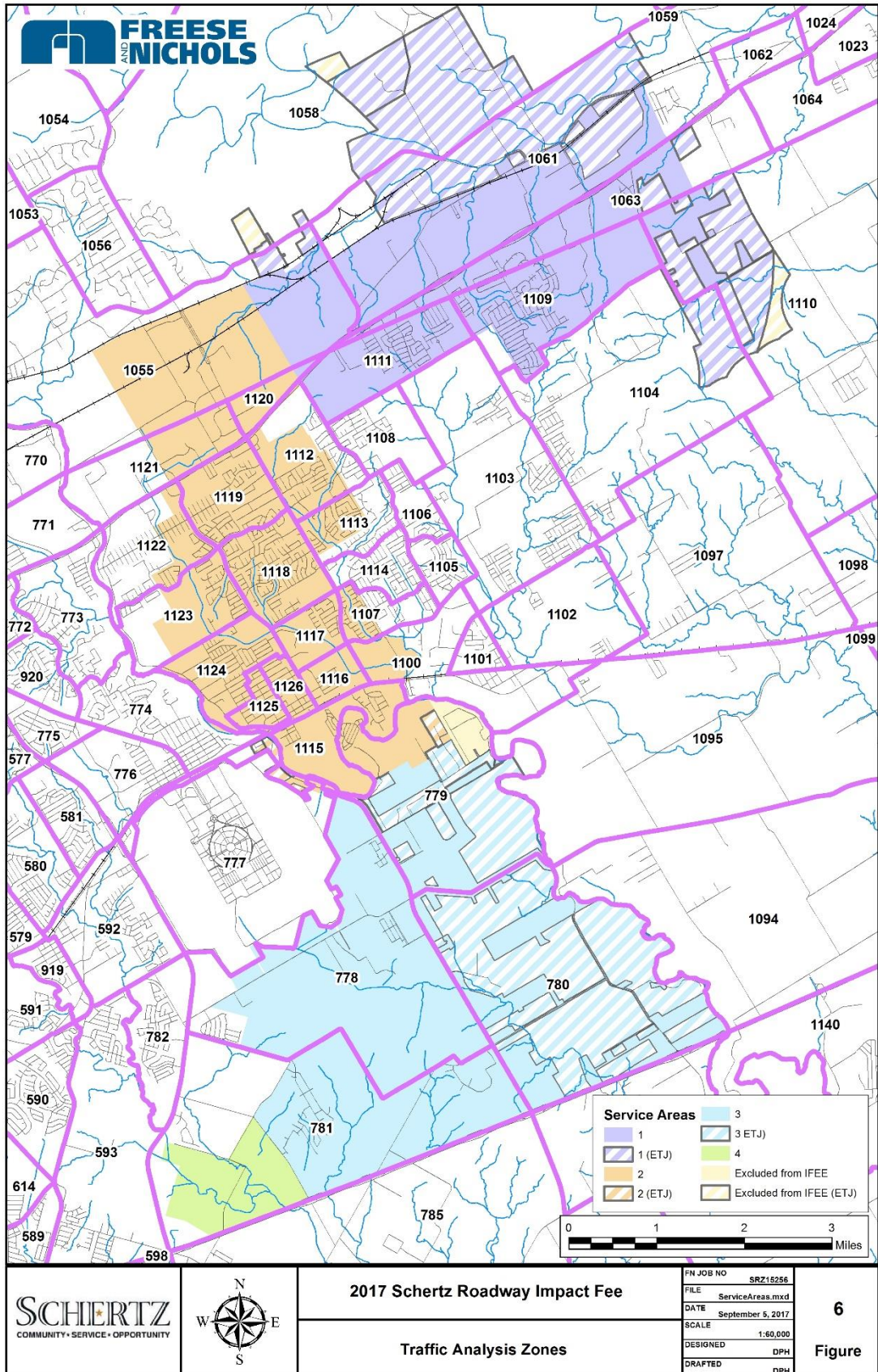


## 5.5 2017 EMPLOYMENT

2017 base employment was calculated using data from AAMPO. This information provided a breakout of employment by Traffic Analysis Zone (TAZ) for 2010. **Figure 6** shows the location of the TAZs in each service area. For assumption purposes, these numbers were grown uniformly with specific adjustments made to TAZs to match estimates provided by the city. It is important to note that the TAZs do not follow city limits in some locations, so adjustments were made based on the locations of existing land uses and upon the percentage of each TAZ located within city limits. AAMPO employment data was categorized as basic, retail, and service (see page 6 for a description of the employment categories). Using this data, the total employment could be found for basic, retail and service businesses in each service area (SA). **Table 3** details 2017 employment within Schertz's city limits for each TAZ.

**Table 3. 2017 Employment by Service Area**

| SA           | TAZ          | 2017         |              |              |               |
|--------------|--------------|--------------|--------------|--------------|---------------|
|              |              | Basic        | Retail       | Service      | Total         |
| 1            | 1055         | 359          | 29           | 109          | 497           |
|              | 1061         | 573          | 88           | 277          | 938           |
|              | 1063         | 75           | 40           | 119          | 234           |
|              | 1120         | 62           | 149          | 26           | 237           |
|              | 1111         | 49           | 101          | 66           | 216           |
|              | 1109         | 0            | 61           | 21           | 82            |
|              | 1110         | 2            | 0            | 0            | 2             |
|              | <b>Total</b> | <b>1,120</b> | <b>468</b>   | <b>618</b>   | <b>2,206</b>  |
| 2            | 1055         | 728          | 60           | 132          | 920           |
|              | 1121         | 1,266        | 256          | 490          | 2,012         |
|              | 1120         | 249          | 597          | 102          | 948           |
|              | 1122         | 18           | 65           | 10           | 93            |
|              | 1119         | 187          | 575          | 270          | 1,032         |
|              | 1112         | 4            | 211          | 123          | 338           |
|              | 1113         | 2            | 4            | 50           | 56            |
|              | 1118         | 29           | 226          | 249          | 504           |
|              | 1123         | 11           | 0            | 26           | 37            |
|              | 1124         | 343          | 62           | 171          | 576           |
|              | 1117         | 19           | 51           | 682          | 752           |
|              | 1107         | 0            | 8            | 30           | 38            |
|              | 1125         | 22           | 4            | 97           | 123           |
|              | 1126         | 22           | 50           | 186          | 258           |
|              | 1116         | 83           | 55           | 61           | 199           |
|              | 1100         | 138          | 33           | 54           | 225           |
|              | 1115         | 166          | 190          | 118          | 474           |
|              | 779          | 0            | 2            | 0            | 2             |
|              | <b>Total</b> | <b>3,287</b> | <b>2,449</b> | <b>2,851</b> | <b>8,587</b>  |
| 3            | 779          | 26           | 38           | 6            | 70            |
|              | 778          | 9            | 0            | 32           | 41            |
|              | 780          | 144          | 30           | 0            | 174           |
|              | 781          | 53           | 40           | 30           | 123           |
|              | <b>Total</b> | <b>232</b>   | <b>108</b>   | <b>68</b>    | <b>408</b>    |
| 4            | 781          | 0            | 0            | 0            | 0             |
|              | <b>Total</b> | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>      |
| <b>Total</b> |              | <b>4,639</b> | <b>3,025</b> | <b>3,537</b> | <b>11,201</b> |



## 6.0 TEN-YEAR GROWTH ASSUMPTIONS

Projected growth has been characterized in two forms: population and employment. A series of assumptions were made to arrive at reasonable growth rates for population and employment. The following assumptions have been made as a basis from which ten-year projections could be initiated.

- Future land uses will occur based on similar trends of the past and consistent with the Future Land Use Plan Map,
- The city will be able to finance the necessary improvements to accommodate growth,
- School facilities will accommodate increases in population, and
- Densities will be as projected in the Sector Plans.

The ten-year projections are based upon the 3.5 percent growth rate discussed earlier and considers past trends of the city. This rate corresponds with the historical average growth rate and the amount of growth expected over the next ten years. **Table 4** details the ten-year population projection.

**Table 4. Year 2017 and 2027 Service Area Population and Dwelling Units**

| Service Area | 2017           |            | 2027           |            |
|--------------|----------------|------------|----------------|------------|
|              | Dwelling Units | Population | Dwelling Units | Population |
| 1            | 3,300          | 9,239      | 4,361          | 12,211     |
| 2            | 10,100         | 28,280     | 11,489         | 32,169     |
| 3            | 1,003          | 2,809      | 4,448          | 12,454     |
| 4            | 4              | 11         | 24             | 68         |
|              | 14,407         | 40,339     | 20,322         | 56,902     |

## 6.1 POPULATION 2027

The city has experienced steady growth over the past decade. The city's 2000 population stood at just over 18,000 residents. By the end of the decade, Schertz's population neared 32,000 in 2010 and a current 2017 estimate of 40,339. Although population estimates from the ETJ cannot be taken into account when calculating land use assumptions, the growing population within the ETJ should be monitored as the city plans its future. Using a 3.5 percent compound annual growth rate, the projected 2027 population for the city is 56,902 (Figure 7).



**Figure 7: Ten-Year Population Growth Projection**

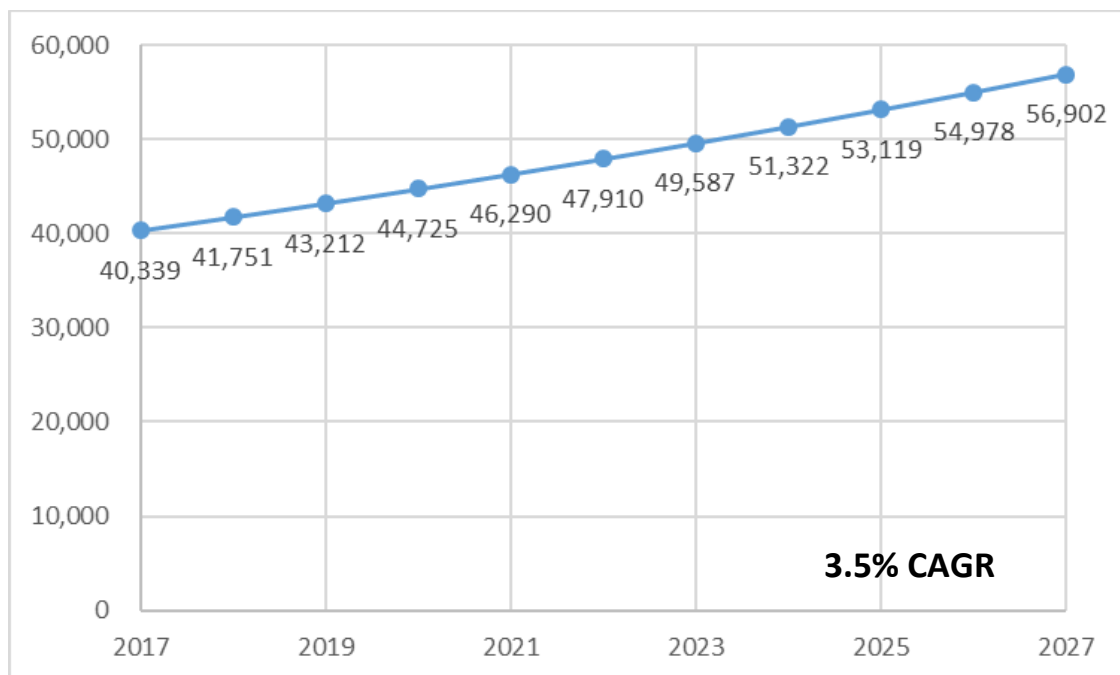
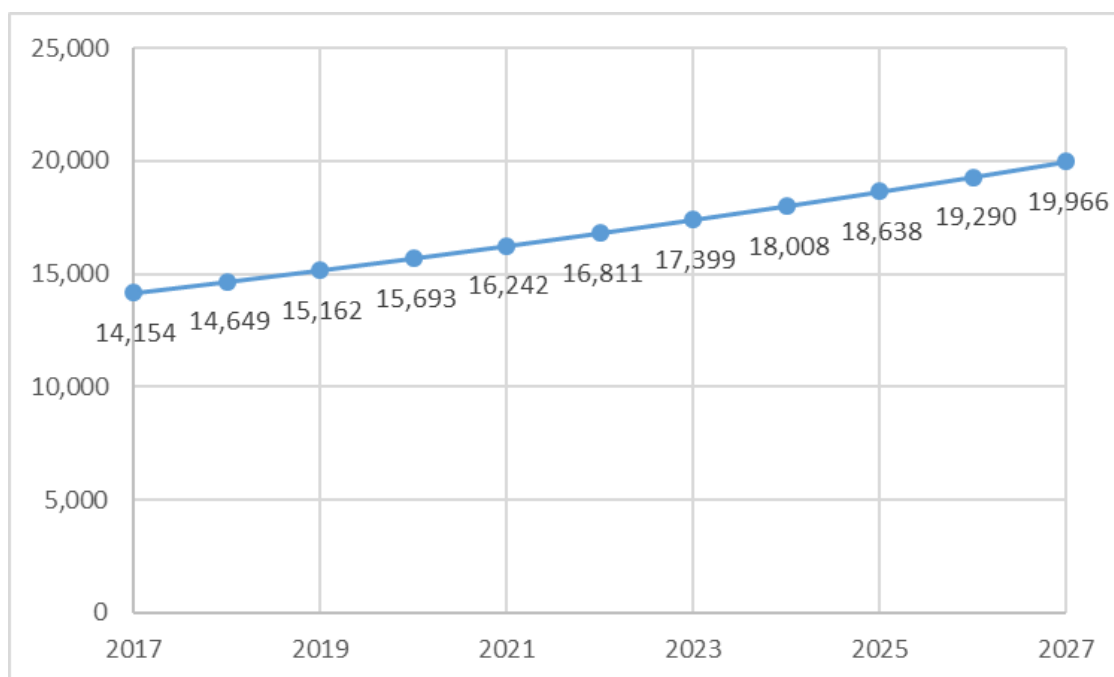


**Table 5: Projected Dwelling Unit Estimations**

| Year | Dwelling Units | New Building Permits |
|------|----------------|----------------------|
| 2017 | 14,154         | -                    |
| 2018 | 14,649         | 495                  |
| 2019 | 15,162         | 513                  |
| 2020 | 15,693         | 531                  |
| 2021 | 16,242         | 549                  |
| 2022 | 16,811         | 568                  |
| 2023 | 17,399         | 588                  |
| 2024 | 18,008         | 609                  |
| 2025 | 18,638         | 630                  |
| 2026 | 19,290         | 652                  |
| 2027 | 19,966         | 675                  |

**Avg. No. of Annual Permits: 581**

Building permit calculations were derived using the U.S. Census information of 2.85 persons per household and base year population estimate. Between 2004 and 2014, the city issued an average of 377 building permits a year with the highest number of permits, 535, being issued in 2005 and the lowest number of permits, 254, issued in 2012. The city may average 581 new dwelling units a year over the next ten-year period (**Table 5** and **Figure 8**). This average number is reflective of the type of construction which would likely occur based upon population projections and are accounting for both single-family and multi-family construction.

**Figure 8: Projected Dwelling Unit Estimations**

An additional factor affecting overall population growth within Schertz is the construction of The Crossvine, a planned development in the southern sector of Schertz east of FM 1518. The master plan for this area includes between 2,300 and 2,400 single-family homes.

### **The Crossvine Development**



The City has been reviewing its Comprehensive Plan and Future Land Use Plan in the area to the west of the Crossvine. This area is south of Randolph Air Force Base and is impacted by restrictions based on the Air Impact Compatible Use Zones (AICUZ) as outlined in the Joint Base San Antonio (JBSA) Randolph Joint Land Use Study (JLUS). The recently updated JBSA Randolph JLUS recommends significantly reduced residential densities for this area. Additionally, a lack of sewer capacity and concerns about allowing septic systems on half acre lots will likely reduce densities in this area from what is designated on the Future Land Use Plan. As sewer capacity is provided to the area to the east of FM 1518 pressure for corresponding increases in densities will likely continue to be experienced. Continuing residential development pressure in the northern part of Schertz, along IH-35 as well as pressure along IH-35 from New Braunfels in the north will impact the distribution of development, resulting in population and employment growth, around the City.

## 6.2 EMPLOYMENT 2027

Employment data for the year 2027 was based upon data provided by AAMPO and the City of Schertz. Data from AAMPO in the years 2025 and 2040 was used to interpolate the projected year 2027. The data was then adjusted to match growth rate and allocation expectations by the City. The 2027 employment by TAZ as listed in **Table 6**.

It is important to note that TAZs do not follow city limits. City Staff input was received to verify employment assumptions in each TAZ regarding known or anticipated development to occur, projections of future land use needs and employee projections within each TAZ located within city limits. The employment numbers in **Table 6** show the derived employment of each TAZ within Schertz's municipal boundary. Over 5,000 jobs are forecasted to be added to the city over the ten-year planning period and represents an increase of 45 percent. This increase corresponds to an annual growth rate of 3.8 percent.

**Table 6. 2025 Employment by Service Area**

| SA           | TAZ          | 2027         |              |              |               |
|--------------|--------------|--------------|--------------|--------------|---------------|
|              |              | Basic        | Retail       | Service      | Total         |
| 1            | 1055         | 800          | 63           | 244          | 1,107         |
|              | 1061         | 740          | 105          | 560          | 1,405         |
|              | 1063         | 149          | 73           | 245          | 467           |
|              | 1120         | 53           | 103          | 49           | 205           |
|              | 1111         | 41           | 332          | 28           | 401           |
|              | 1109         | 0            | 58           | 38           | 96            |
|              | 1110         | 31           | 51           | 49           | 131           |
|              | <b>Total</b> | <b>1,814</b> | <b>785</b>   | <b>1,213</b> | <b>3,812</b>  |
| 2            | 1055         | 1,623        | 229          | 647          | 2,499         |
|              | 1121         | 1,432        | 288          | 493          | 2,213         |
|              | 1120         | 212          | 413          | 197          | 822           |
|              | 1122         | 80           | 29           | 4            | 113           |
|              | 1119         | 530          | 647          | 191          | 1,368         |
|              | 1112         | 45           | 237          | 205          | 487           |
|              | 1113         | 7            | 10           | 54           | 71            |
|              | 1118         | 39           | 451          | 271          | 761           |
|              | 1123         | 281          | 0            | 28           | 309           |
|              | 1124         | 266          | 56           | 156          | 478           |
|              | 1117         | 17           | 211          | 494          | 722           |
|              | 1107         | 0            | 57           | 24           | 81            |
|              | 1125         | 55           | 37           | 95           | 187           |
|              | 1126         | 53           | 74           | 147          | 274           |
|              | 1116         | 94           | 50           | 79           | 223           |
|              | 1100         | 123          | 32           | 51           | 206           |
|              | 1115         | 150          | 139          | 124          | 413           |
|              | 779          | 31           | 36           | 10           | 77            |
|              | <b>Total</b> | <b>5,038</b> | <b>2,996</b> | <b>3,270</b> | <b>11,304</b> |
| 3            | 779          | 72           | 83           | 24           | 179           |
|              | 778          | 29           | 0            | 26           | 55            |
|              | 780          | 394          | 121          | 42           | 557           |
|              | 781          | 102          | 136          | 82           | 320           |
|              | <b>Total</b> | <b>597</b>   | <b>340</b>   | <b>174</b>   | <b>1,111</b>  |
| 4            | 781          | 0            | 0            | 20           | 20            |
|              | <b>Total</b> | <b>0</b>     | <b>0</b>     | <b>20</b>    | <b>20</b>     |
| <b>Total</b> |              | <b>7,449</b> | <b>4,121</b> | <b>4,677</b> | <b>16,247</b> |

## 7.0 SUMMARY

- The existing 2017 population for Schertz stands at approximately 40,339 persons, with an existing estimated employment of 11,201 jobs.
- An average annual growth rate of 3.5 percent was used to calculate the Schertz ten-year growth projections. This growth rate is based upon the State Water Board Projections, the Parks Plan, City forecasts, historical U.S. Census data, as well as Building Permit information received from the City.
- Ten-year (2027) population growth is forecasted to be 56,902 persons, with an employment of 16,247 jobs.

**Table 7. Land Use Assumptions 2017-2027 Summary**

|                       | 2017          | 2027          | Total Increase | Annual Growth Rate |
|-----------------------|---------------|---------------|----------------|--------------------|
| <b>Population</b>     |               |               |                |                    |
| <b>Schertz Total</b>  | <b>40,339</b> | <b>56,902</b> | <b>16,563</b>  | <b>3.5%</b>        |
| Service Area 1        | 9,239         | 12,211        | 2,972          | 2.8%               |
| Service Area 2        | 28,280        | 32,169        | 3,889          | 1.3%               |
| Service Area 3        | 2,809         | 12,454        | 9,645          | 16.1%              |
| Service Area 4        | 11            | 68            | 57             | 20.0%              |
| <b>Dwelling Units</b> |               |               |                |                    |
| <b>Schertz Total</b>  | <b>14,407</b> | <b>20,322</b> | <b>5,915</b>   | <b>3.5%</b>        |
| Service Area 1        | 3,300         | 4,361         | 1,061          | 2.8%               |
| Service Area 2        | 10,100        | 11,489        | 1,389          | 1.3%               |
| Service Area 3        | 1,003         | 4,448         | 3,445          | 16.1%              |
| Service Area 4        | 4             | 24            | 20             | 20.0%              |
| <b>Employment</b>     |               |               |                |                    |
| <b>Schertz Total</b>  | <b>11,201</b> | <b>16,247</b> | <b>5,046</b>   | <b>3.8%</b>        |
| Service Area 1        | 2,206         | 3,812         | 1,606          | 5.6%               |
| Basic                 | 1,120         | 1,814         | 694            | 4.9%               |
| Retail                | 468           | 785           | 317            | 5.3%               |
| Service               | 618           | 1,213         | 595            | 7.0%               |
| Service Area 2        | 8,587         | 11,304        | 2,717          | 2.8%               |
| Basic                 | 3,287         | 5,038         | 1,751          | 4.4%               |
| Retail                | 2,449         | 2,996         | 547            | 2.0%               |
| Service               | 2,851         | 3,270         | 419            | 1.4%               |
| Service Area 3        | 408           | 1,111         | 703            | 10.5%              |
| Basic                 | 232           | 597           | 365            | 9.9%               |
| Retail                | 108           | 340           | 232            | 12.2%              |
| Service               | 68            | 174           | 106            | 9.9%               |
| Service Area 4        | 0             | 20            | 20             | -                  |
| Basic                 | 0             | 0             | 0              | -                  |
| Retail                | 0             | 0             | 0              | -                  |
| Service               | 0             | 20            | 20             | -                  |



**Appendix H:**  
**Roadway Service Area Analysis Summary**

Schertz Roadway Impact Fee Study

Service Area Analysis Summary

|               | 1                                 | 2                             | 3                              | 4                                     | 5                         | 6                             | 7                                 | 8                                 | 9                                             | 10                                    | 11                            | 12                             | 13                                      | 14                                  |
|---------------|-----------------------------------|-------------------------------|--------------------------------|---------------------------------------|---------------------------|-------------------------------|-----------------------------------|-----------------------------------|-----------------------------------------------|---------------------------------------|-------------------------------|--------------------------------|-----------------------------------------|-------------------------------------|
| Service Area  | Capacity Supplied by CIP (veh-mi) | Existing Utilization (veh-mi) | Existing Deficiencies (veh-mi) | Net Capacity Supplied by CIP (veh-mi) | Total Project Cost of CIP | Cost of Net Capacity Supplied | Cost to Meet Existing Utilization | Projected 10yr Demand (veh-miles) | Pont. of CIP Attributable to New Dev. (10-yr) | Debt Service Attributable to New Dev. | Cost Attributable to New Dev. | CIP Credit per Credit Analysis | Maximum Cost per Service Unit w/ Credit | Base Cost per Service Unit (veh-mi) |
| 1             | 45,213                            | 2,747                         | 0                              | 42,466                                | \$97,374,686              | \$91,457,477                  | \$5,917,209                       | 10,461                            | 24.6                                          | \$2,679,760                           | \$25,209,290                  | \$7,974,490                    | \$1,647.53                              | \$2,409.84                          |
| 2             | 25,210                            | 6,998                         | 0                              | 18,211                                | \$47,091,987              | \$34,019,366                  | \$13,072,601                      | 17,905                            | 98.3                                          | \$3,978,291                           | \$37,424,954                  | \$13,649,051                   | \$1,327.89                              | \$2,090.20                          |
| 3             | 46,511                            | 7,305                         | 0                              | 39,206                                | \$75,100,115              | \$63,304,566                  | \$11,795,549                      | 14,918                            | 38.1                                          | \$2,865,171                           | \$26,953,502                  | \$11,371,991                   | \$1,044.48                              | \$1,806.78                          |
| 4             | 3,359                             | 130                           | 0                              | 3,229                                 | \$9,447,792               | \$9,082,070                   | \$365,723                         | 124                               | 3.8                                           | \$41,588                              | \$391,223                     | \$94,525                       | \$2,392.72                              | \$3,155.02                          |
| <b>Totals</b> | <b>120,292</b>                    | <b>17,181</b>                 | <b>0</b>                       | <b>103,112</b>                        | <b>229,014,580</b>        | <b>197,863,498</b>            | <b>31,151,082</b>                 | <b>43,408</b>                     | <b>42.1</b>                                   | <b>\$9,564,810</b>                    | <b>\$89,978,969</b>           | <b>\$33,090,057</b>            | <b>\$1,310.56</b>                       | <b>\$2,072.87</b>                   |

- TOTAL VEH/MI OF CAPACITY SUPPLIED BY CIP (TVMCAP)
- TOTAL VEH/MI OF EXISTING DEMAND (VMEXT)
- TOTAL VEH/MI OF EXISTING DEFICIENCIES (VMDEF)
- NET AMOUNT OF ROADWAY CAPACITY SUPPLIED (NVMCAP) =  

$$NVMCAP = TVMCAP - VMEXT - VMDEF$$
- TOTAL COST OF CIP WITHIN STUDY AREA (TVMCOST)
- COST OF NET CAPACITY SUPPLIED (NCVMCAP) =  

$$NCVMCAP = (NVMCAP / TVMCAP) * TVMCOST$$
- COST TO MEET EXISTING NEEDS AND USAGE (EXCOST) =  

$$EXCOST = TVMCOST - NCVMCAP$$
- TOTAL VEH/MI OF NEW DEMAND OVER TEN YEARS (TNEWDEM)

- PERCENT OF CIP ATTRIBUTABLE TO NEW DEVELOPMENT (NPCNT) =  

$$\text{IF } TNEWDEM > NVMCAP, NPCNT = 100\%$$

$$\text{IF } TNEWDEM < NVMCAP, NPCNT = (TNEWDEM / NVMCAP) * 100$$
- DEBT SERVICE ATTRIBUTABLE TO NEW DEVELOPMENT (DSDM)
- COST OF CIP ATTRIBUTABLE TO NEW DEVELOPMENT (NCVDEM) =  

$$NCVDEM = (TNEWDEM / NVMCAP) * NVMCAP + DSDM$$
- CP CREDIT PER CREDIT ANALYSIS (CCRED)
- COST PER SERVICE UNIT = (MAXFEE)  

$$MAXFEE = (NCVDEM - CCRED) / TNEWDEM$$
- BASE COST PER SERVICE UNIT (BASE FEE)  

$$BASE FEE = NCVDEM / TNEWDEM$$

**Appendix I:**  
**Debt Service and Credit Analysis**

CITY OF SCHERTZ  
SCHEDULE OF PROJECTED DEBT ISSUANCE AND NET INTEREST COST [1]  
ROADWAY AREA 1 IMPACT FEE CAPITAL IMPROVEMENTS PLAN  
FOR THE TEN YEAR PERIOD 2018 TO 2027

| YEAR                 | YEAR | DEBT ISSUE | TOTAL CIP INTEREST EXPENSE<br>TEN YEAR PERIOD 2018-2027 |                              | GROWTH<br>RELATED |
|----------------------|------|------------|---------------------------------------------------------|------------------------------|-------------------|
|                      |      |            | INTEREST<br>SERIES                                      | INTEREST TOTAL<br>ALL SERIES |                   |
|                      |      |            |                                                         |                              | 100.00%           |
| 1                    | 2018 | 7,509,843  | 225,295                                                 | 225,295                      | 225,295           |
| 2                    | 2019 | -          | 216,911                                                 | 216,911                      | 216,911           |
| 3                    | 2020 | -          | 208,275                                                 | 208,275                      | 208,275           |
| 4                    | 2021 | 7,509,843  | 424,675                                                 | 424,675                      | 424,675           |
| 5                    | 2022 | -          | 407,128                                                 | 407,128                      | 407,128           |
| 6                    | 2023 | -          | 389,055                                                 | 389,055                      | 389,055           |
| 7                    | 2024 | 7,509,843  | 595,736                                                 | 595,736                      | 595,736           |
| 8                    | 2025 | -          | 568,178                                                 | 568,178                      | 568,178           |
| 9                    | 2026 | -          | 539,793                                                 | 539,793                      | 539,793           |
| 10                   | 2027 | -          | 510,556                                                 | 510,556                      | 510,556           |
|                      |      | 22,529,530 | 4,085,603                                               | 4,085,603                    | 4,085,603         |
|                      |      |            |                                                         |                              |                   |
|                      |      | AVG BAL    | INTEREST REVENUE<br>TEN YEAR PERIOD 2018-2027           |                              | GROWTH<br>RELATED |
|                      |      |            |                                                         |                              |                   |
| 1                    | 2018 | 7,509,843  | 30,039                                                  | 30,039                       | 30,039            |
| 2                    | 2019 | 6,758,859  | 54,071                                                  | 54,071                       | 54,071            |
| 3                    | 2020 | 6,007,875  | 72,094                                                  | 72,094                       | 72,094            |
| 4                    | 2021 | 5,256,890  | 84,110                                                  | 84,110                       | 84,110            |
| 5                    | 2022 | 4,505,906  | 90,118                                                  | 90,118                       | 90,118            |
| 6                    | 2023 | 3,754,922  | 90,118                                                  | 90,118                       | 90,118            |
| 7                    | 2024 | 3,003,937  | 84,110                                                  | 84,110                       | 84,110            |
| 8                    | 2025 | 2,252,953  | 72,094                                                  | 72,094                       | 72,094            |
| 9                    | 2026 | 1,501,969  | 54,071                                                  | 54,071                       | 54,071            |
| 10                   | 2027 | 750,984    | 30,039                                                  | 30,039                       | 30,039            |
|                      |      |            | 660,866                                                 | 660,866                      | 660,866           |
| 1                    |      |            | 660,866                                                 | 660,866                      | 660,866           |
| 4                    |      |            | 504,661                                                 | 504,661                      | 504,661           |
| 7                    |      |            | 240,315                                                 | 240,315                      | 240,315           |
|                      |      |            | 1,405,843                                               | 1,405,843                    | 1,405,843         |
| NET INTEREST EXPENSE |      |            | \$                                                      | 2,679,760                    | \$ 2,679,760      |

[1] Assumptions: 1) Total Area 1 CIP cost is financed by 3 bond series, 2) interest rate on bond series is 3%, 3) bond proceeds are fully expended equally over the 10 year period, and 4) the investment rate of return is capped at 4% at the end of the 10 year period, assuming 0.4% annual growth rate.

CITY OF SCHERTZ  
SCHEDULE OF PROJECTED DEBT ISSUANCE AND NET INTEREST COST [1]  
ROADWAY AREA 2 IMPACT FEE CAPITAL IMPROVEMENTS PLAN  
FOR THE TEN YEAR PERIOD 2018 TO 2027

| YEAR                 | YEAR | DEBT ISSUE | TOTAL CIP INTEREST EXPENSE<br>TEN YEAR PERIOD 2018-2027 |                              | GROWTH<br>RELATED |
|----------------------|------|------------|---------------------------------------------------------|------------------------------|-------------------|
|                      |      |            | INTEREST<br>SERIES                                      | INTEREST TOTAL<br>ALL SERIES |                   |
|                      |      |            |                                                         |                              | 100.00%           |
| 1                    | 2018 | 11,148,888 | 334,467                                                 | 334,467                      | 334,467           |
| 2                    | 2019 | -          | 322,019                                                 | 322,019                      | 322,019           |
| 3                    | 2020 | -          | 309,198                                                 | 309,198                      | 309,198           |
| 4                    | 2021 | 11,148,888 | 630,460                                                 | 630,460                      | 630,460           |
| 5                    | 2022 | -          | 604,411                                                 | 604,411                      | 604,411           |
| 6                    | 2023 | -          | 577,580                                                 | 577,580                      | 577,580           |
| 7                    | 2024 | 11,148,888 | 884,411                                                 | 884,411                      | 884,411           |
| 8                    | 2025 | -          | 843,499                                                 | 843,499                      | 843,499           |
| 9                    | 2026 | -          | 801,360                                                 | 801,360                      | 801,360           |
| 10                   | 2027 | -          | 757,957                                                 | 757,957                      | 757,957           |
|                      |      | 33,446,663 | 6,065,363                                               | 6,065,363                    | 6,065,363         |
|                      |      |            |                                                         |                              |                   |
|                      |      | AVG BAL    | INTEREST REVENUE<br>TEN YEAR PERIOD 2018-2027           |                              | GROWTH<br>RELATED |
|                      |      |            |                                                         |                              |                   |
| 1                    | 2018 | 11,148,888 | 44,596                                                  | 44,596                       | 44,596            |
| 2                    | 2019 | 10,033,999 | 80,272                                                  | 80,272                       | 80,272            |
| 3                    | 2020 | 8,919,110  | 107,029                                                 | 107,029                      | 107,029           |
| 4                    | 2021 | 7,804,221  | 124,868                                                 | 124,868                      | 124,868           |
| 5                    | 2022 | 6,689,333  | 133,787                                                 | 133,787                      | 133,787           |
| 6                    | 2023 | 5,574,444  | 133,787                                                 | 133,787                      | 133,787           |
| 7                    | 2024 | 4,459,555  | 124,868                                                 | 124,868                      | 124,868           |
| 8                    | 2025 | 3,344,666  | 107,029                                                 | 107,029                      | 107,029           |
| 9                    | 2026 | 2,229,778  | 80,272                                                  | 80,272                       | 80,272            |
| 10                   | 2027 | 1,114,889  | 44,596                                                  | 44,596                       | 44,596            |
|                      |      |            | 981,102                                                 | 981,102                      | 981,102           |
| 1                    |      |            | 981,102                                                 | 981,102                      | 981,102           |
| 4                    |      |            | 749,205                                                 | 749,205                      | 749,205           |
| 7                    |      |            | 356,764                                                 | 356,764                      | 356,764           |
|                      |      |            | 2,087,072                                               | 2,087,072                    | 2,087,072         |
| NET INTEREST EXPENSE |      |            | \$                                                      | 3,978,291                    | \$ 3,978,291      |

[1] Assumptions: 1) Total Area 2 CIP cost is financed by 3 bond series, 2) interest rate on bond series is 3%, 3) bond proceeds are fully expended equally over the 10 year period, and 4) the investment rate of return is capped at 4% at the end of the 10 year period, assuming 0.4% annual growth rate.

CITY OF SCHERTZ  
SCHEDULE OF PROJECTED DEBT ISSUANCE AND NET INTEREST COST [1]  
ROADWAY AREA 3 IMPACT FEE CAPITAL IMPROVEMENTS PLAN  
FOR THE TEN YEAR PERIOD 2018 TO 2027

| YEAR                 | YEAR | DEBT ISSUE | TOTAL CIP INTEREST EXPENSE<br>TEN YEAR PERIOD 2018-2027 |                              | GROWTH<br>RELATED |
|----------------------|------|------------|---------------------------------------------------------|------------------------------|-------------------|
|                      |      |            | INTEREST<br>SERIES                                      | INTEREST TOTAL<br>ALL SERIES |                   |
|                      |      |            |                                                         |                              | 100.00%           |
| 1                    | 2018 | 8,029,444  | 240,883                                                 | 240,883                      | 240,883           |
| 2                    | 2019 | -          | 231,919                                                 | 231,919                      | 231,919           |
| 3                    | 2020 | -          | 222,685                                                 | 222,685                      | 222,685           |
| 4                    | 2021 | 8,029,444  | 454,058                                                 | 454,058                      | 454,058           |
| 5                    | 2022 | -          | 435,297                                                 | 435,297                      | 435,297           |
| 6                    | 2023 | -          | 415,974                                                 | 415,974                      | 415,974           |
| 7                    | 2024 | 8,029,444  | 636,954                                                 | 636,954                      | 636,954           |
| 8                    | 2025 | -          | 607,489                                                 | 607,489                      | 607,489           |
| 9                    | 2026 | -          | 577,141                                                 | 577,141                      | 577,141           |
| 10                   | 2027 | -          | 545,881                                                 | 545,881                      | 545,881           |
|                      |      | 24,088,331 | 4,368,282                                               | 4,368,282                    | 4,368,282         |
|                      |      |            |                                                         |                              |                   |
|                      |      | AVG BAL    | INTEREST REVENUE<br>TEN YEAR PERIOD 2018-2027           |                              | GROWTH<br>RELATED |
|                      |      |            |                                                         |                              |                   |
| 1                    | 2018 | 8,029,444  | 32,118                                                  | 32,118                       | 32,118            |
| 2                    | 2019 | 7,226,499  | 57,812                                                  | 57,812                       | 57,812            |
| 3                    | 2020 | 6,423,555  | 77,083                                                  | 77,083                       | 77,083            |
| 4                    | 2021 | 5,620,611  | 89,930                                                  | 89,930                       | 89,930            |
| 5                    | 2022 | 4,817,666  | 96,353                                                  | 96,353                       | 96,353            |
| 6                    | 2023 | 4,014,722  | 96,353                                                  | 96,353                       | 96,353            |
| 7                    | 2024 | 3,211,777  | 89,930                                                  | 89,930                       | 89,930            |
| 8                    | 2025 | 2,408,833  | 77,083                                                  | 77,083                       | 77,083            |
| 9                    | 2026 | 1,605,889  | 57,812                                                  | 57,812                       | 57,812            |
| 10                   | 2027 | 802,944    | 32,118                                                  | 32,118                       | 32,118            |
|                      |      |            | 706,591                                                 | 706,591                      | 706,591           |
| 1                    |      |            | 706,591                                                 | 706,591                      | 706,591           |
| 4                    |      |            | 539,579                                                 | 539,579                      | 539,579           |
| 7                    |      |            | 256,942                                                 | 256,942                      | 256,942           |
|                      |      |            | 1,503,112                                               | 1,503,112                    | 1,503,112         |
| NET INTEREST EXPENSE |      |            | \$                                                      | 2,865,171                    | \$ 2,865,171      |

[1] Assumptions: 1) Total Area 3 CIP cost is financed by 3 bond series, 2) interest rate on bond series is 3%, 3) bond proceeds are fully expended equally over the 10 year period, and 4) the investment rate of return is capped at 4% at the end of the 10 year period, assuming 0.4% annual growth rate.

CITY OF SCHERTZ  
SCHEDULE OF PROJECTED DEBT ISSUANCE AND NET INTEREST COST [1]  
ROADWAY AREA 4 IMPACT FEE CAPITAL IMPROVEMENTS PLAN  
FOR THE TEN YEAR PERIOD 2018 TO 2027

| YEAR                 | YEAR | DEBT ISSUE | TOTAL CIP INTEREST EXPENSE<br>TEN YEAR PERIOD 2018-2027 |                              | GROWTH<br>RELATED<br>100.00% |
|----------------------|------|------------|---------------------------------------------------------|------------------------------|------------------------------|
|                      |      |            | INTEREST<br>SERIES                                      | INTEREST TOTAL<br>ALL SERIES |                              |
| 1                    | 2018 | 116,545    | 3,496                                                   | 3,496                        | 3,496                        |
| 2                    | 2019 | -          | 3,366                                                   | 3,366                        | 3,366                        |
| 3                    | 2020 | -          | 3,232                                                   | 3,232                        | 3,232                        |
| 4                    | 2021 | 116,545    | 6,591                                                   | 6,591                        | 6,591                        |
| 5                    | 2022 | -          | 6,318                                                   | 6,318                        | 6,318                        |
| 6                    | 2023 | -          | 6,038                                                   | 6,038                        | 6,038                        |
| 7                    | 2024 | 116,545    | 9,245                                                   | 9,245                        | 9,245                        |
| 8                    | 2025 | -          | 8,818                                                   | 8,818                        | 8,818                        |
| 9                    | 2026 | -          | 8,377                                                   | 8,377                        | 8,377                        |
| 10                   | 2027 | -          | 7,923                                                   | 7,923                        | 7,923                        |
|                      |      | 349,635    | 63,405                                                  | 63,405                       | 63,405                       |
|                      |      |            |                                                         |                              |                              |
|                      |      | AVG BAL    | INTEREST REVENUE<br>TEN YEAR PERIOD 2018-2027           |                              | GROWTH<br>RELATED            |
|                      |      |            |                                                         |                              |                              |
| 1                    | 2018 | 116,545    | 466                                                     | 466                          | 466                          |
| 2                    | 2019 | 104,891    | 839                                                     | 839                          | 839                          |
| 3                    | 2020 | 93,236     | 1,119                                                   | 1,119                        | 1,119                        |
| 4                    | 2021 | 81,582     | 1,305                                                   | 1,305                        | 1,305                        |
| 5                    | 2022 | 69,927     | 1,399                                                   | 1,399                        | 1,399                        |
| 6                    | 2023 | 58,273     | 1,399                                                   | 1,399                        | 1,399                        |
| 7                    | 2024 | 46,618     | 1,305                                                   | 1,305                        | 1,305                        |
| 8                    | 2025 | 34,964     | 1,119                                                   | 1,119                        | 1,119                        |
| 9                    | 2026 | 23,309     | 839                                                     | 839                          | 839                          |
| 10                   | 2027 | 11,655     | 466                                                     | 466                          | 466                          |
|                      |      |            | 10,256                                                  | 10,256                       | 10,256                       |
| 1                    |      |            | 10,256                                                  | 10,256                       | 10,256                       |
| 4                    |      |            | 7,832                                                   | 7,832                        | 7,832                        |
| 7                    |      |            | 3,729                                                   | 3,729                        | 3,729                        |
|                      |      |            | 21,817                                                  | 21,817                       | 21,817                       |
| NET INTEREST EXPENSE |      |            | \$                                                      | 41,588                       | \$ 41,588                    |

[1] Assumptions: 1) Total Area 4 CIP cost is financed by 3 bond series, 2) interest rate on bond series is 3%, 3) bond proceeds are fully expended equally over the 10 year period, and 4) the investment rate of return is capped at 4% at the end of the 10 year period, assuming 0.4% annual growth rate.

**City of Schertz, Texas**  
**2017 Roadway Impact Fee Update**  
**Plan for Awarding the Roadway Impact Fee Credit**

Texas Local Government Code Section 395 "Financing Capital Improvements Required by New Development in Municipalities, Counties, and Certain Other Local Governments" requires the Capital Improvements Plan (CIP) to contain specific enumeration of a plan for awarding the impact fee credit.

Section 395.014, Texas Local Government Code states:

"... (a) The political subdivision shall use qualified professionals to prepare the capital improvements plan and to calculate the impact fee. The capital improvements plan must contain specific enumeration of the following items:

(7) A plan for awarding:

(A) a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the capital improvements plan; or

(B) In the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan...."

City of Schertz street CIP improvements are funded from long term debt. The portion of ad valorem tax generated by the new service units during the program period is estimated to equal the interest and sinking (I&S) tax levy to fund ten years of debt service payments for the long term debt that are issued to fund the growth related street CIP projects.

To estimate the growth related street CIP debt service amount, the FY17-18 annual budgeted I&S tax levy is adjusted proportionately for voter approved street CIP projects. The figures used in this calculation are as follows:

| <b>Annual Amount of Ad Valorem Tax Generated by New Development Used for the Payment of Debt</b> |                                                                                                             |              |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| 1                                                                                                | Total voter approved tax supported debt obligations [1]                                                     | \$68,375,000 |
| 2                                                                                                | Voter approved amount for streets, sidewalks & drainage [1]                                                 | \$27,000,000 |
| 3                                                                                                | Percentage of voter approved debt allocated for streets, sidewalks & drainage (Line 2 / Line 1)             | 39.49%       |
| 4                                                                                                | 2018 I&S Fund tax levy                                                                                      | 6,030,353    |
| 5                                                                                                | Annual Amount of Ad Valorem Tax Generated by New Development Used for the Payment of Debt (Line 3 X Line 4) | \$2,381,273  |
| [1] Source: City of Schertz 2014-15 Debt Information Summary                                     |                                                                                                             |              |

The maximum impact fee is expressed in dollars per vehicle-mile. The RWIF credit per vehicle -mile is calculated by dividing the annual portion of estimated property tax by the current total vehicle-mile of demand:

| <b>Roadway Impact Fee Credit Per Vehicle-Mile (Veh-Mi)</b> |                                                                                           |             |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------|
| 1                                                          | Annual Amount of Ad Valorem Tax Generated by New Development Used for the Payment of Debt | \$2,381,273 |
| 2                                                          | Current Veh-Mi of Demand                                                                  | 17,181      |
| 3                                                          | RWIF Credit per Veh-Mi (Line 1 / Line 2)                                                  | \$138.60    |

The \$138.60 credit per vehicle mile is multiplied times the ten-year cumulative total of vehicle miles of demand by service area to equal the CIP credit by service area.

**City of Schertz, Texas**  
**2017 Roadway Impact Fee Update**  
**Plan for Awarding the Roadway Impact Fee Credit**

The cumulative total vehicle-miles by service area are derived from the total projected ten year demand of vehicle miles by service area applied equally over the ten-year period.

| Service Area 1                                    |                             |        |            |
|---------------------------------------------------|-----------------------------|--------|------------|
| Ten Year Cumulative Total of Veh-Mi of New Demand |                             |        |            |
| Yr                                                |                             | Annual | Cumulative |
| 1                                                 | Vehicle Miles of New Demand | 1,046  | 1,046      |
| 2                                                 | Vehicle Miles of New Demand | 1,046  | 2,092      |
| 3                                                 | Vehicle Miles of New Demand | 1,046  | 3,138      |
| 4                                                 | Vehicle Miles of New Demand | 1,046  | 4,184      |
| 5                                                 | Vehicle Miles of New Demand | 1,046  | 5,231      |
| 6                                                 | Vehicle Miles of New Demand | 1,046  | 6,277      |
| 7                                                 | Vehicle Miles of New Demand | 1,046  | 7,323      |
| 8                                                 | Vehicle Miles of New Demand | 1,046  | 8,369      |
| 9                                                 | Vehicle Miles of New Demand | 1,046  | 9,415      |
| 10                                                | Vehicle Miles of New Demand | 1,046  | 10,461     |
|                                                   | TOTAL                       | 10,461 | 57,536     |

| Service Area 2                                    |                             |        |            |
|---------------------------------------------------|-----------------------------|--------|------------|
| Ten Year Cumulative Total of Veh-Mi of New Demand |                             |        |            |
| Yr                                                |                             | Annual | Cumulative |
| 1                                                 | Vehicle Miles of New Demand | 1,791  | 1,791      |
| 2                                                 | Vehicle Miles of New Demand | 1,791  | 3,581      |
| 3                                                 | Vehicle Miles of New Demand | 1,791  | 5,372      |
| 4                                                 | Vehicle Miles of New Demand | 1,791  | 7,162      |
| 5                                                 | Vehicle Miles of New Demand | 1,791  | 8,953      |
| 6                                                 | Vehicle Miles of New Demand | 1,791  | 10,743     |
| 7                                                 | Vehicle Miles of New Demand | 1,791  | 12,534     |
| 8                                                 | Vehicle Miles of New Demand | 1,791  | 14,324     |
| 9                                                 | Vehicle Miles of New Demand | 1,791  | 16,115     |
| 10                                                | Vehicle Miles of New Demand | 1,791  | 17,905     |
|                                                   | TOTAL                       | 17,905 | 98,478     |

| Service Area 3                                    |                             |        |            |
|---------------------------------------------------|-----------------------------|--------|------------|
| Ten Year Cumulative Total of Veh-Mi of New Demand |                             |        |            |
| Yr                                                |                             | Annual | Cumulative |
| 1                                                 | Vehicle Miles of New Demand | 1,492  | 1,492      |
| 2                                                 | Vehicle Miles of New Demand | 1,492  | 2,984      |
| 3                                                 | Vehicle Miles of New Demand | 1,492  | 4,475      |
| 4                                                 | Vehicle Miles of New Demand | 1,492  | 5,967      |
| 5                                                 | Vehicle Miles of New Demand | 1,492  | 7,459      |
| 6                                                 | Vehicle Miles of New Demand | 1,492  | 8,951      |
| 7                                                 | Vehicle Miles of New Demand | 1,492  | 10,443     |
| 8                                                 | Vehicle Miles of New Demand | 1,492  | 11,934     |
| 9                                                 | Vehicle Miles of New Demand | 1,492  | 13,426     |
| 10                                                | Vehicle Miles of New Demand | 1,492  | 14,918     |
|                                                   | TOTAL                       | 14,918 | 82,049     |

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| Service Area 4                                    |                             |        |            |
|---------------------------------------------------|-----------------------------|--------|------------|
| Ten Year Cumulative Total of Veh-Mi of New Demand |                             |        |            |
| Yr                                                |                             | Annual | Cumulative |
| 1                                                 | Vehicle Miles of New Demand | 12     | 12         |
| 2                                                 | Vehicle Miles of New Demand | 12     | 25         |
| 3                                                 | Vehicle Miles of New Demand | 12     | 37         |
| 4                                                 | Vehicle Miles of New Demand | 12     | 50         |
| 5                                                 | Vehicle Miles of New Demand | 12     | 62         |
| 6                                                 | Vehicle Miles of New Demand | 12     | 74         |
| 7                                                 | Vehicle Miles of New Demand | 12     | 87         |
| 8                                                 | Vehicle Miles of New Demand | 12     | 99         |
| 9                                                 | Vehicle Miles of New Demand | 12     | 112        |
| 10                                                | Vehicle Miles of New Demand | 12     | 124        |
|                                                   | TOTAL                       | 124    | 682        |

The \$138.60 credit per vehicle mile is multiplied times the ten year cumulative total of vehicle miles of demand by service area to equal the CIP credit by service area:

| City of Schertz 2017 Roadway Impact Fee Study Update                              |                |             |                  |          |              |
|-----------------------------------------------------------------------------------|----------------|-------------|------------------|----------|--------------|
| New Roadway Vehicle-Miles and Credit per Service Area - 10 Year Impact Fee Period |                |             |                  |          |              |
|                                                                                   | Projected 10yr | Annual      | 10 YR Cumulative | \$ PER   | CIP Credit   |
| Service                                                                           | Demand         | Demand      | Demand           | VEH-MI   | by           |
| Area                                                                              | (veh-miles)    | (veh-miles) | Total            | CREDIT   | Service Area |
| <b>1</b>                                                                          | 10,461         | 1,046       | 57,536           | \$138.60 | \$7,974,490  |
| <b>2</b>                                                                          | 17,905         | 1,791       | 98,478           | \$138.60 | \$13,649,051 |
| <b>3</b>                                                                          | 14,918         | 1,492       | 82,049           | \$138.60 | \$11,371,991 |
| <b>4</b>                                                                          | 124            | 12          | 682              | \$138.60 | \$94,525     |
| <b>Totals</b>                                                                     | 43,408         | 4,341       | 238,745          | \$138.60 | \$33,090,057 |

Calculation of the maximum impact fee after the credit by service area (column I) is illustrated in the following table:

| City of Schertz 2017 Impact Fee Study Update                               |                                   |                           |                         |                      |                            |                             |                                                   |                         |                                 |
|----------------------------------------------------------------------------|-----------------------------------|---------------------------|-------------------------|----------------------|----------------------------|-----------------------------|---------------------------------------------------|-------------------------|---------------------------------|
| Calculation of the Maximum Impact Fee After the the Credit by Service Area |                                   |                           |                         |                      |                            |                             |                                                   |                         |                                 |
|                                                                            | (A)                               | (B)                       | (C)                     | (D)                  | (E)                        | (F)                         | (G)                                               | (H)                     | (I)                             |
| Service Area                                                               | Projected 10yr Demand (veh-miles) | Annual Demand (veh-miles) | Cumulative Demand Total | \$ PER VEH-MI CREDIT | CIP Credit by Service Area | Cost Attributable to Growth | (F) - (E) Cost Attributable to Growth Less Credit | Base Maximum Impact Fee | Maximum Impact Fee after Credit |
| 1                                                                          | 10,461                            | 1,046                     | 57,536                  | \$138.60             | \$7,974,490                | 25,209,290                  | \$17,234,800                                      | \$2,409.84              | \$1,647.53                      |
| 2                                                                          | 17,905                            | 1,791                     | 98,478                  | \$138.60             | \$13,649,051               | 37,424,954                  | \$23,775,903                                      | \$2,090.20              | \$1,327.89                      |
| 3                                                                          | 14,918                            | 1,492                     | 82,049                  | \$138.60             | \$11,371,991               | 26,953,502                  | \$15,581,511                                      | \$1,806.78              | \$1,044.48                      |
| 4                                                                          | 124                               | 12                        | 682                     | \$138.60             | \$94,525                   | 391,223                     | \$296,698                                         | \$3,155.02              | \$2,392.72                      |
| <b>Totals</b>                                                              | 43,408                            | 4,341                     | 238,745                 | \$138.60             | \$33,090,057               | 89,978,969                  | \$56,888,912                                      | \$2,072.87              | \$1,310.56                      |

The CIP credit by service area (column E) is subtracted from the cost attributable to growth by service area (column F) to result in the cost attributable to growth less credit by service area (column G).

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The maximum impact fee per vehicle-mile after the credit per service area (column I) is calculated by dividing the cost attributable to growth less credit (column G) divided by the projected 10 year demand (Column A).

A comparison to the base maximum impact fee and 50% reduction follows:

| City of Schertz 2017 Roadway Impact Fee Study Update<br>Comparison of the Base Maximum Impact Fee to the 50% Maximum Impact Fee and Maximum Impact fee after the Credit by Service Area |                                    |                                                |                                                                            |                                                |                                         |                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------|
| Service Area                                                                                                                                                                            | (A)<br><br>Base Maximum Impact Fee | (B)<br><br>Fee per Service Unit @ 50% Discount | (C)<br><br>50% Alternative Maximum Fee per Single Family Dwelling Unit [1] | (D)<br><br>Maximum Impact Fee after the Credit | (E)<br><br>% of Base Maximum Impact Fee | (F)<br><br>After the Credit Maximum Fee per Single Family Dwelling Unit [1] |
| 1                                                                                                                                                                                       | \$2,409.84                         | \$1,204.92                                     | \$4,060.58                                                                 | \$1,647.53                                     | 68.37%                                  | \$5,552.18                                                                  |
| 2                                                                                                                                                                                       | \$2,090.20                         | \$1,045.10                                     | \$3,521.99                                                                 | \$1,327.89                                     | 63.53%                                  | \$4,474.99                                                                  |
| 3                                                                                                                                                                                       | \$1,806.78                         | \$903.39                                       | \$3,044.42                                                                 | \$1,044.48                                     | 57.81%                                  | \$3,519.90                                                                  |
| 4                                                                                                                                                                                       | \$3,155.02                         | \$1,577.51                                     | \$5,316.21                                                                 | \$2,392.72                                     | 75.84%                                  | \$8,063.47                                                                  |

[1] Based on service unit equivalency of 3.37 veh-miles per development unit.