

## CITY OF FREDERICKSBURG

### **REGULAR PLANNING AND ZONING AGENDA WEDNESDAY, MARCH 4, 2020 ~ 5:30 P.M. LAW ENFORCEMENT CENTER ~ 1601 EAST MAIN STREET**

Janice Menking, Chair  
Jim Jarreau, Member  
Daryl Whitworth, Member  
Brenda Segner, Member  
Chris Kaiser, Member

Polly Rickert, Member  
Jill Tabor, Member  
Tim Dooley, Member  
Steve Thomas, Member

---

The Planning and Zoning Commission will meet in a regular session on March 4, 2020 at 5:30 p.m. at the Law Enforcement Center, 1601 East Main Street, Fredericksburg, Texas. This is an open meeting, open to the public, subject to the Open Meetings Law of the State of Texas, and as required by law, notice is hereby posted on February 28, 2020 before 5:00 p.m., providing time, place, date and agenda thereof. The meeting facility is wheelchair accessible and accessible parking spaces are provided. Requests for accommodations or interpretative services must be made to the City Secretary 48 hours prior to this meeting.

---

(Please turn off all pagers and phones, except emergency on-call personnel.)

- 1. CALL TO ORDER**
- 2. ROLL CALL**
- 3. APPROVAL OF MEETING MINUTES**  
February 2020 regular meeting minutes
- 4. PUBLIC COMMENTS**

The Planning and Zoning Commission (P&Z) welcomes public comments concerning items on this agenda. Each member of the public who desires to address the P&Z regarding an item on this agenda is required to sign up to speak, prior to the start of the meeting. All public comments shall be limited to discussion of items on this agenda, and shall be limited to 3-minutes in duration. At the discretion of the P&Z Chair, or upon an affirmative vote of the P&Z, the public comment time limit applicable to all speakers may be lengthened or shortened as required to allow the P&Z to complete its legislative agenda. Persons addressing the P&Z are prohibited from trading time with other speakers or reserving of time.

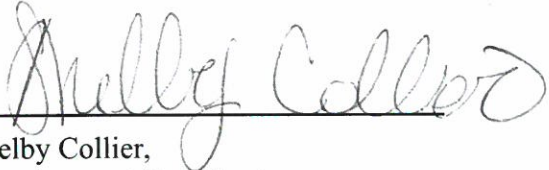
- 5. ACTION ITEMS**
  - A. Consider SP-2003-Request by Whitney Koch to consider a Parking Agreement for Off-Site or Remote Parking for a Restaurant located at 504 Granite Ave.
  - B. Action to Initiate a Zoning Change to C1.5 and Land Use Change to Commercial on property located at 525 Friendship Ln.

## 6. MISCELLANEOUS

A. Receive a Presentation on the Transportation Project Traffic Impact Study.

## 7. ADJOURN

This is to certify that I, Shelby Collier, posted this Agenda before 11:00 a.m. on February 28, 2020 on the entrance door and bulletin board at the City of Fredericksburg City Hall, 126 W. Main St., Fredericksburg, Texas.



Shelby Collier,  
Development Coordinator

**STATE OF TEXAS  
COUNTY OF GILLESPIE  
CITY OF FREDERICKSBURG**

**PLANNING & ZONING COMMISSION  
FEBRUARY 5, 2020  
5:30 P.M.**

On this the 5<sup>th</sup> day of February, 2020 the PLANNING AND ZONING COMMISSION convened in regular Session at the Law Enforcement Center with the following members present to constitute a quorum:

**PRESENT:**

JANICE MENKING  
JIM JARREAU  
JILL TABOR  
POLLY RICKERT  
BRENDA SEGNER  
TIM DOOLEY  
STEVE THOMAS  
CHRIS KAISER

**ABSENT:**

DARYL WHITWORTH

**ALSO PRESENT:**

BRIAN JORDAN – Director of Development Services  
DANIEL JONES – City Attorney  
SHELBY COLLIER – Development Coordinator

Janice Menking called the meeting to order at 5:30 P.M.

**MINUTES**

Jim Jarreau moved to approve the minutes of the January 2020 meeting and Polly Rickert seconded the motion. All voted in favor and the motion carried.

**PUBLIC HEARING**

**Consider (Z-2001) Request a Change in the Land Use Plan from Low Density Residential to Commercial and to change the Zoning from R1, Single Family Residential to C1.5, Medium Commercial on approximately 10 acres located at 521 Friendship Lane.**

Motion made to open the public hearing by Jim Jarreau seconded by Brenda Segner . All voted in favor and the motion passed.

Andy Bray with Mustard Design presented the application. He provided photos depicting examples of climbing walls and explained that in order to have an indoor sports and recreation facility a Conditional Use Permit is required in the C1.5 Zoning. His applicants request is for 3 items. A Land Use change, Zoning change as well as the Conditional Use Permit.

Councilman, Tom Musselman, spoke regarding his opposition to the Zoning change from R1 to C1.5. He believes that changing the zoning would institute a Commercial Zoning creep onto Friendship Ln. He went on to reference many Residential projects and subdivisions that have recently been approved by the Planning and Zoning and City Council in this area.

Motion made to close the public hearing by Tim Dooley seconded by Chris Kaiser. All voted in favor and the motion carried.

## **ACTION ITEM**

Janice Menking called agenda Item number 6A.

Brian Jordan, Director of Development, provided Staff recommendation.

He stated In order to accommodate the use proposed by the applicant, it is necessary to have the appropriate land use designation and zoning before they can even apply for the Conditional Use Permit for their project. In reviewing the current Land Use Plan and Zoning for the subject property, it and the adjoining property remain the only low density residential land use and R-1 zoned properties fronting on the south side of Friendship Lane. So, the question is whether or not these two tracts should remain residential or be considered for other purposes. We have talked often about the future of the Friendship Lane Corridor and whether or not we should consider alternatives to the mostly mixed residential zoning. And, we have now adopted a new C-1.5 Medium Commercial and MU-2, Mixed Use - Infill Zoning Districts as possible options for consideration. In reviewing the intent of both of these districts, one could certainly argue that this particular property would fall within either of these categories. Given the circumstances outlined above, it is Staff's opinion that the proposed change is a reasonable consideration. While we should never change the land use or zoning based on a specific type of use or development, the intent of the C-1.5 zoning category seems to fit the location being considered.

With regard to the proposed CUP for an Indoor Sports and Recreation Facility and a Limited Restaurant, the layout of the site and the sensitivity to the surrounding property represents a compatible development solution. In considering the Limited Restaurant, the Zoning Ordinance defines this use as Restaurants which typically involve the custom preparation of food in limited quantities and of a personal nature. Restaurants within this category are characterized by limited traffic, noise and parking that is similar in nature to an office use of a similar size, limited hours of operation typically not later than 10:00 pm, no drive-thru, and lighting which is shielded from and directed away from adjacent neighborhoods and is dimmed to a minimal level after hours. Said restaurants may include live entertainment with amplified sound as long as such activity is wholly enclosed within the main building and incidental alcohol beverage service. Lighted signs shall be turned off after business hours. No outdoor cooking shall be permitted.

Approval of the Land Use Plan change from Low Density Residential to Commercial, the zoning from R-1 Single Family Residential to C-1.5 Medium Commercial and the Conditional Use Permit for an Indoor Sports and Recreation Facility and a Limited Restaurant is recommended. If a favorable recommendation is proposed by the Commission, we would also recommend consideration be given to calling a public hearing to consider changing the adjoining property to the east as well.

Polly Rickert questioned if the zoning request was approved what should be done with the additional R1 zoned property to the East. Brian stated it was his opinion that the zoning should also be changed, he would recommend C1.5 or C1.

Tim Dooley stated he was not comfortable "cracking the egg" on the commercial zoning on Friendship Ln at this time.

Tim Dooley made motion to deny as presented. Motion died for a lack of second.

Motion made by Jim Jarreau to approve application Z-2001 as presented with the recommendation that Staff pursue C1.5 Zoning on the adjacent tract to the East. Seconded by Polly Rickert. Tim Dooley voted in opposition all others voted in favor and the motion carried.

## **PUBLIC HEARING**

### **Consider (Z-2002) Request for a Conditional Use Permit to operate an Indoor Sports and Recreation Facility and Limited Use Restaurant on property located at 521 Friendship Ln.**

Motion made to open the public hearing by Jim Jarreau. Seconded by Brenda Segner. All voted in favor and the motion carried.

No additional comments were made.

Motion to close public hearing made by Tim Dooley. Seconded by Chris Kaiser. All voted in favor and the motion carried.

## **ACTION ITEM**

Janice Menking called for Action Item number 6B.

No additional information was presented.

Tim Dooley asked if a 17,000 sq. ft building next to existing single story hotel would be appropriate. Andy Bray clarified that the hotel is 3 stories.

Jim Jarreau made a motion to recommend approval for application Z-2002 as presented by Staff. Seconded by Brenda Segner. Tim Dooley voted in opposition all others voted in favor and the motion passed.

## **MISCELLANEOUS**

Brian Jordan stated Staff scheduled a joint meeting with City Council and Historic Review Board on February 11<sup>th</sup> from 2:00 to 5:00 and he provided the packets for that meeting.

## **ADJOURN**

With nothing further to come before the Commission, Jim Jarreau moved to adjourn. Seconded by Polly Rickert. All voted in favor and the meeting was adjourned at 6:17 p.m.

**PASSED AND APPROVED this 4<sup>th</sup> day of March 2020.**

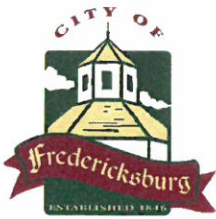
---

SHELBY COLLIER, Development Coordinator

---

JANICE MENKING, Chairman





## PLANNING & ZONING COMMISSION MEMO

---

**DATE:** March 4, 2020

**TO:** Planning and Zoning Commission

**FROM:** Brian Jordan, AICP

**SUBJECT:** Consider allowing an Off-site or remote parking arrangement for a proposed Restaurant at 504 Granite Avenue.

---

**Summary:** A Site Plan has been submitted to convert the property at 504 Granite Avenue into a restaurant. The Site Plan is going through the Development Review Process and is pending consideration and approval of their off-site or remote parking proposal. As part of their plan, a total of 11 parking spaces are required. They are proposing that 3 parking spaces be located on site and the remaining 8 spaces be located on the adjoining property (Herbert Auto Supply) to the south (see attached Site Plan).

**Recommendation:** Given the limited amount of space on site, staff does not object to the offsite parking proposal. The owners of Herbert Auto Supply recently added parking to their site that has not really been used for their customers. Since the agreement is for a period of 6 years, we would recommend that a condition of approval be that this plan would expire in six years.

---

**Background / Analysis:** Section 7.850 of the Zoning Ordinance provides that the Planning and Zoning Commission may approve (by Site Plan Review) location of a portion of the parking required for a use on another site. Off-site parking shall be located within 300' of the use which it serves. In determining whether to approve off-site parking, the Planning and Zoning shall consider all relevant factors, including the location of the use and the proposed off-site parking, existing and potential parking demand created by other uses in the vicinity, the characteristics of the use, including employee and customer parking demand, hours of operation and projected convenience and frequency of use of the off-site parking,

adequacy, convenience and safety of pedestrian access to off-site parking, and traffic patterns on adjacent streets, and proposed access to the off-site parking. The applicant has provided a response to each of these criteria. A similar parking agreement was recently approved for West End Pizza restaurant located at 207 E. San Antonio Street.

**Attachments:**

Parking Site Plan, General Site Plan, applicants response to parking criteria

---

---

**Department Approval**

OWNER INFORMATION:

ANGELA MANCINO  
504 GRANITE AVENUE  
FREDERICKSBURG, TEXAS 78624

LEGAL DESCRIPTION:

SOUTH SIDE BLK A LOT 1-PT & 2-PT

ZONING:

ZONED: M-1 LIGHT MANUFACTURING  
PROPOSED USE: RESTAURANT

MIN. ALLOWABLE LOT AREA: 5,000 SQ FT  
TOTAL LOT AREA: 8,755.56 SQ FT (0.21 ACRES)

SETBACKS:  
FRONT YARD: 10 FT  
STREET SIDE YARD: 10 FT  
INTERIOR SIDE YARD: 10 FT  
REAR SIDE YARD: 10 FT

MAX. ALLOWABLE BUILDING COVERAGE: 75% OF LOT AREA  
TOTAL PROPOSED BUILDING COVERAGE: 25% (2,165 SF)

MAX ALLOWABLE IMPERVIOUS COVERAGE: 85% OF LOT AREA  
PROPOSED IMPERVIOUS COVERAGE: 3,870 SQFT (44%)  
BUILDINGS - EXISTING: 2,165 SQFT  
DRIVE/PARKING/SIDEWALKS: 1,705 SQFT

LANDSCAPE AREA: 4,506 SQFT (51%)

MAXIMUM ALLOWABLE BUILDING HEIGHT: 3 STORIES - 38' - 0"  
MAXIMUM PROPOSED BUILDING HEIGHT: 1 STORY - EXISTING

REQUIRED PARKING SPACES:

RESTAURANT: 1 SPACE PER 4 SEATS  
RESIDENCE: 2 SPACES PER DWELLING UNIT

RESTAURANT  
TOTAL DINING AREA: 359 SQFT/15 OCC = 24 OCC  
24 OCC/4 SEATS PER SPACE = 6 SPACES  
COCKTAIL BAR

1 SPACE / 3 PERSONS SEATING CAPACITY  
9 SEATS/3 SEATS PER SPACE = 3 SPACES

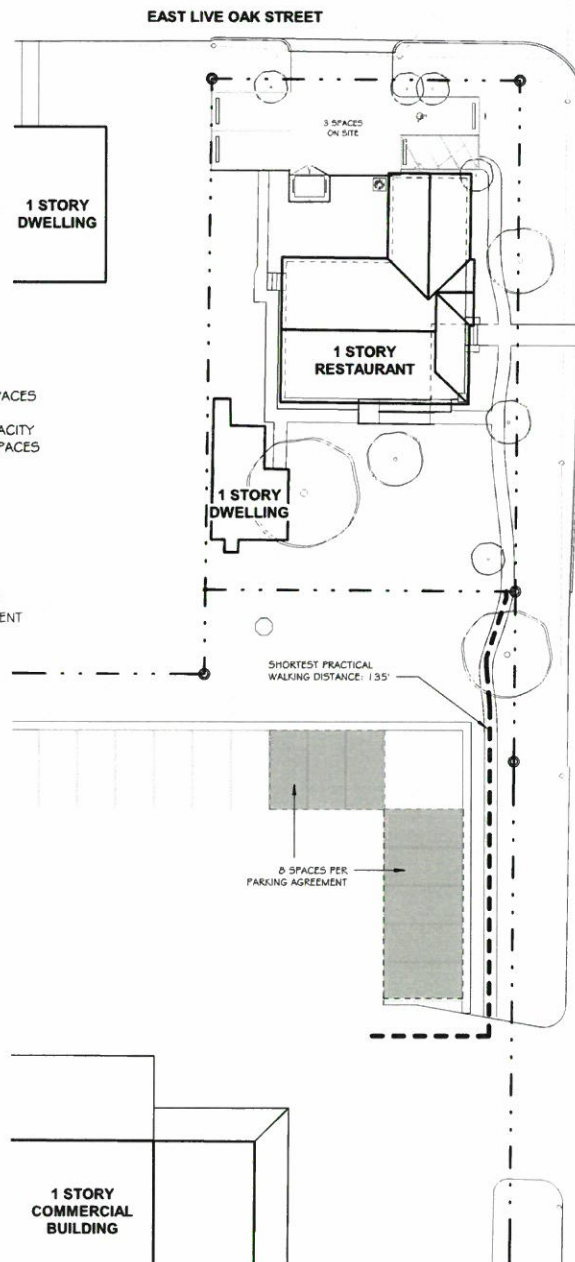
RESIDENCE: 2 SPACES PER DWELLING UNIT  
1 DWELLING UNIT x 2 = 2 SPACES

TOTAL SPACES REQUIRED: 11 SPACES  
TOTAL SPACES PROVIDED: 11 SPACES  
3 SPACES - ON SITE  
8 SPACES - PART OF REMOTE PARKING AGREEMENT

ADA PARKING REQ.: 1 SPACE  
ADA PARKING PROVIDED: 1 SPACE

INTERIOR LANDSCAPE REQUIREMENTS:  
10 SQFT PER EACH INTERIOR PARKING SPACE (10 x 1 SPACES = 10 SQFT)  
1 SQFT OF LANDSCAPE PER EACH 100 SQFT PAVED AREA (1x583 = 583 SQFT)

INTERIOR LANDSCAPING REQUIRED: = 593 SF  
INTERIOR LANDSCAPING PROVIDED: = 3,113 SF

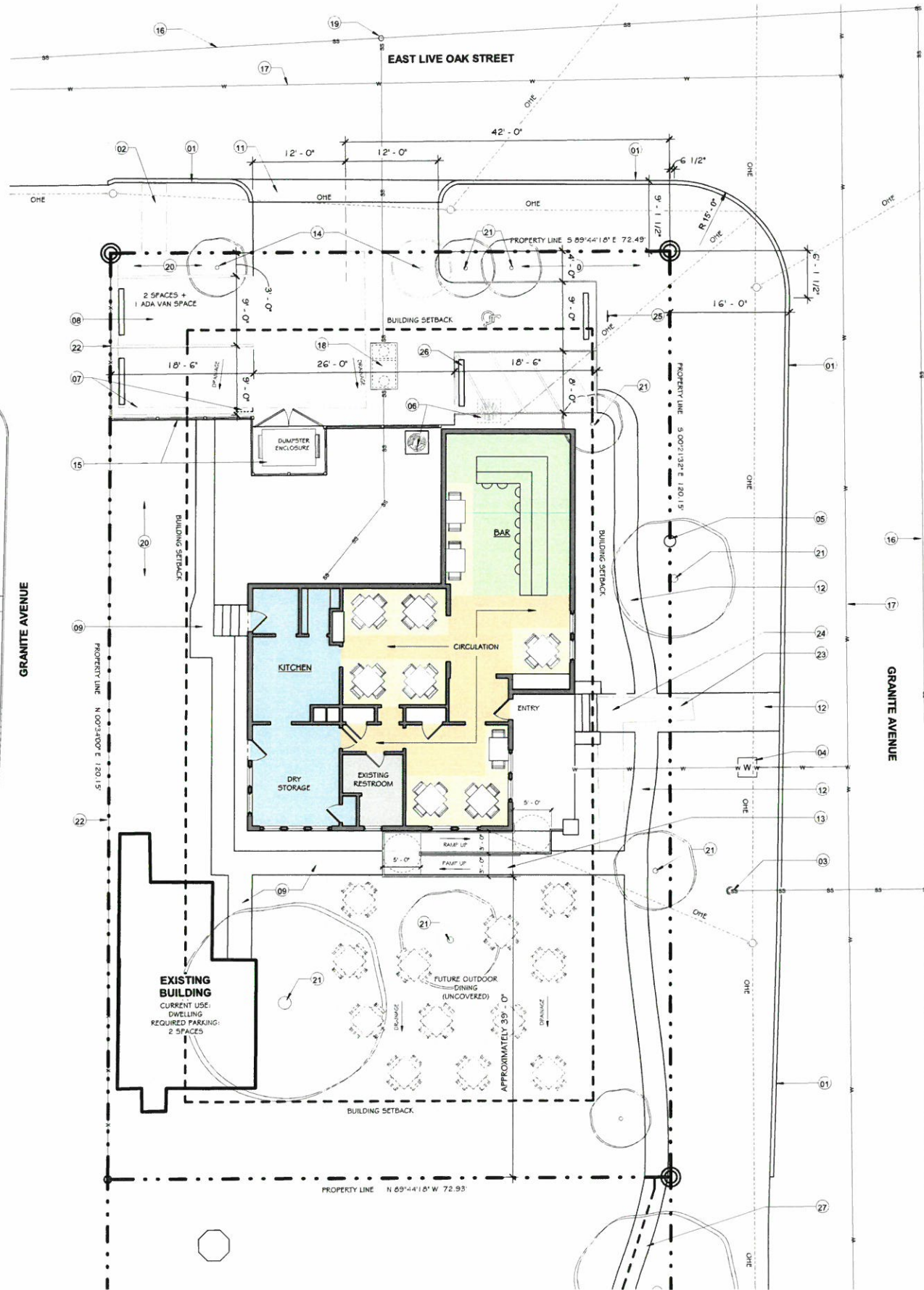


GRANITE AVENUE



02 PARKING AGREEMENT SITE PLAN

SCALE: 1" = 20'-0"



SITE PLAN NOTES

- CONTRACTOR IS TO PROTECT ALL EXISTING TREES PRIOR TO AND DURING CONSTRUCTION.
- EXISTING UNDERGROUND UTILITIES SHALL BE LOCATED AND MARKED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

SITE PLAN KEY NOTES

- NEW 6" CURB AND GUTTER, PER CITY OF FREDERICKSBURG STANDARDS, TO FOLLOW EXISTING ROAD PAVEMENT EDGE. ENGINEERING BY OWNER/OTHERS.
- REMOVE EXISTING SIDEWALK.
- EXISTING SANITARY CLEANOUT TO REMAIN.
- EXISTING WATER METER AND SERVICE TO BUILDING TO REMAIN.
- EXISTING GAS METER TO REMAIN.
- RELOCATE EXISTING HVAC CONDENSER.
- REMOVE EXISTING SINGLE STORY BUILDING, ASSOCIATED ELECTRICAL SERVICE, AND ELECTRICAL METER.
- DECOMPOSED GRANITE GRAVEL PARKING AREA COMPACTED SMOOTH, WITH LANDSCAPE TIMBERS SECURED WITH STEEL RODS INTO GRANITE GRAVEL AT EACH PARKING STALL.
- EXISTING SIDEWALK TO REMAIN.
- CONCRETE ENTRY DRIVE PER CITY OF FREDERICKSBURG STANDARDS, ENGINEERING BY OWNER/OTHERS.
- GRANITE GRAVEL WALKPATH WITH STEEL EDGING EACH SIDE, COMPACTED SMOOTH.
- PROPOSED CONCRETE ADA RAMP WITH GUARDRAIL RAILING TO MEET CURRENT BUILDING CODE AND ACCESSIBILITY STANDARDS. DESIGN AND ENGINEERING BY OWNER/OTHERS.
- REMOVE AND RELOCATE EXISTING CRAWL SPACE.
- PROPOSED FENCE AND SCREENED TRASH AREA WITH GATE.
- EXISTING 6" UNDERGROUND PUBLIC SANITARY SEWER LINE.
- EXISTING 6" UNDERGROUND PUBLIC WATER LINE.
- PROPOSED IN GROUND GREASE INTERCEPTOR WITH TRAFFIC RATED LID. SIZING AND ENGINEERING BY OWNER/OTHERS.
- PROPOSED 4" SANITARY SEWER TAP TO EXISTING LINE UNDER STREET. FINAL SIZING AND ENGINEERING BY OWNER/OTHERS.
- LANDSCAPE AREA.
- EXISTING TREE TO REMAIN.
- EXISTING WOOD FENCE TO REMAIN.
- REMOVE EXISTING SIDEWALK UP TO FRONT ENTRY STEPS.
- EXISTING ENTRY STAIRS, LANDING, AND RAILING TO REMAIN.
- ACCESSIBLE VAN PARKING SIGN.
- LANDSCAPE TIMBER TO PREVENT PARKING IN ACCESSIBLE AISLE, SECURE WITH STEEL RODS.
- EXTEND GRANITE GRAVEL WALKPATH WITH STEEL EDGING EACH SIDE, COMPACTED SMOOTH TO EDGE OF ADJACENT PARCEL ENTRY DRIVE FOR ACCESS TO SHARED PARKING LOT.

SITE PLAN LEGEND

- FOUND 1/2" STEEL ROD
- ELECTRIC METER
- WATER METER

ROOM LEGEND

- BAR
- CIRCULATION
- DINING
- KITCHEN
- RESTROOMS

© 2018 MUSTARD DESIGN  
**mustard**  
DESIGN  
209 S Llanos Street, Suite B  
Fredericksburg, Texas 78624  
830.997.7024

**504 GRANITE AVE.**  
504 GRANITE AVENUE  
FREDERICKSBURG, TX 78624

REVISIONS  
NO. DATE

|    |  |
|----|--|
| 1  |  |
| 2  |  |
| 3  |  |
| 4  |  |
| 5  |  |
| 6  |  |
| 7  |  |
| 8  |  |
| 9  |  |
| 10 |  |
| 11 |  |
| 12 |  |
| 13 |  |
| 14 |  |
| 15 |  |
| 16 |  |
| 17 |  |
| 18 |  |
| 19 |  |
| 20 |  |
| 21 |  |
| 22 |  |
| 23 |  |
| 24 |  |
| 25 |  |
| 26 |  |
| 27 |  |



SITE PLAN

Drawn By: WLK

Checked By: WLK

Approved By: WLK

Project No: 1948

Original Issue Date: 01.27.2020

**A-001**



# PARKING SPACE RENTAL AGREEMENT

I. **The Parties.** This agreement dated on the 22 day of January, 2020 by and between Herbort Auto with a mailing address of 516 Granite in the City of fredericksburg, State of TX (Hereinafter known as the 'Lessor') and Angela Mancino with a mailing address of 7117 N HWY16 in the City of Fredericksburg, State of TX (Hereinafter known as the 'Lessee') for a parking

space located at:

516 Granite Ave 8 Spaces for Parking

II. **Term.** The term of this agreement shall begin on the 15 day of March, 2020 and continue:

(Check One)

☐ - until the 05 day of March, 2026.

☒ - on a month to month basis. Termination may be made by either party with at least 30 days' written notice. All notices shall be sent to the parties' information in Section I.

III. **Rent.** The rental payment shall be due on the 10 of every month in the amount of \_\_\_\_\_ dollars (\$240.00). Payment shall be delivered to the Lessor by the Lessee in the following manner:  
By Hand or Mail

IV. **Subletting.** The Lessee is not allowed to sublease (sublet) the space without the direct written consent from the Lessor.



- V. **Current Registration & Insurance.** Lessee may only use the space for vehicles that are up-to-date with all State and local registration. In addition, all vehicles must maintain current with insurance that is legal under the State of registration.
- VI. **Maintenance.** Lessee is required to keep the vehicle in good repair and free of hazardous leaks of oils or liquids. No repairs of any type are allowed on the parking space and, if needed, must be towed to a location that allows such activities.
- VII. **Use of Space & Damage.** ~~The use of the space may only be for the parking of a vehicle that is owned/leased by the owner.~~ No storage of personal property may be allowed in the space. Lessor is not liable for any damage done to the vehicle or personal property taken from it. All liability to the vehicle and personal property will be responsibility of the Lessee.
- VIII. **Governing Law.** This agreement shall be governed under the laws in the State of Texas.

This agreement was signed on the 22 day of January, 2020.

Laurie H Crenwelge

Lessor's Signature

Laurie H Crenwelge

Lessor's Printed Name

Angela Mancino

Lessee's Signature

Angela Mancino

Lessee's Printed Name



January 27, 2020

**Mr. Brian Jordan, AICP**  
Director of Development  
City of Fredericksburg, Texas

[bjordan@fbgtx.org](mailto:bjordan@fbgtx.org)

**RE:** Site Plan for 504 Granite Avenue  
Remote Parking Criteria

Per Section 7.850 (Off Site or Remote Parking) of the City of Fredericksburg Codes and Ordinance, the Planning and Zoning Commission may approve (by the Site Plan Review) location of a portion of the parking required for a use on another site, pursuant to this section.

Off-site parking shall be located within 300 feet of the use which it serves, measured as the shortest practical walking distance from the nearest off-site parking space to the nearest entrance to the building or use which it serves.

In determining whether to approve off-site parking, the Planning & Zoning Commission shall consider all relevant factors, including:

**The location of the use and the proposed off-site parking.**

The remote parking requested is located 135'-0" from 504 Granite Avenue property. The parking requirement for the business located at 504 Granite Avenue is 11 total spaces, three (3) spaces, including the required van accessible space are provided on the 504 Granite Avenue property while eight (8) parking spaces are being utilized on the remote off-site property.

**Existing and potential parking demand created by other uses in the vicinity.**

Existing and potential parking demands by other uses in the vicinity are not anticipated to be impacted by this remote parking agreement.

**The characteristics of the use, including employee and customer parking demand, hours of operation and projected convenience and frequency of use of the off-site parking.**

Currently the parking spaces provided on the remote property are being utilized during different business hours than the anticipated restaurant use. The use of the remote parking spaces is intended for customers during the restaurant's evening business hours.

**Adequacy, convenience and safety of pedestrian access to off-site parking.**

The remote parking lot provides for the required spaces needed as well as additional space for other uses. The lot is located with direct visibility from the 504 Granite Avenue property and provides convenient access for pedestrians.

**Traffic patterns on adjacent streets, and proposed access to the off-site parking.**

No impact or changes to the traffic patterns are anticipated. Access to the off-site parking is on private property and directly accessible from the property at 504 Granite Avenue.

**The report and recommendation of the Director of Planning and Building and the Director of Public Works.**

Refer to report and recommendation by the Director of Planning.

**The Commission may require such guarantees as it deems necessary to ensure the continued availability and usability of any off-site parking.**

Attached are copies of the Parking Space Lease Agreement between the owners of the two properties.

**Handicapped parking spaces shall not be located in an off-site parking facility.**

The accessible parking requirements are being met on the 504 Granite Avenue property.

Please do not hesitate to contact me if you require any additional information.

Sincerely,

A handwritten signature in black ink that reads "Whitney Koch". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Whitney Koch, AIA, NCARB  
Principal  
Texas Registered Architect #24419



## PLANNING & ZONING COMMISSION MEMO

---

**DATE:** March 4, 2020

**TO:** Planning and Zoning Commission

**FROM:** Brian Jordan, AICP

**SUBJECT:** Consider initiating a Land Use Plan change from Low Density residential to Commercial and the rezoning from R-1 Single Family Residential to C-1.5 Medium Commercial on approximately 10 acres located at 525 Friendship Lane.

---

**Summary:** The City Council recently approved a Land Use Plan change from Low Density Residential to Commercial and a zoning change on property located at 521 Friendship Lane from R-1, Single Family Residential to C-1.5, Medium Commercial. In addition, a Conditional Use Permit on the same property was approved for an Indoor Sports and Recreation Facility and a Limited Restaurant. During the discussion of this request, it was recommended by the Planning and Zoning Commission, and confirmed by the City Council, to initiate a rezoning request on the adjacent property located at 525 Friendship Lane.

**Recommendation:** Take action to initiate a Land Use change from Low-Density Residential to Commercial and a zoning change from R-1, Single Family Residential to C-1.5 Medium Commercial on property located at 525 Friendship Lane.

---

**Background / Analysis:** Section 5.220 of the Zoning Ordinance provides that the Planning and Zoning Commission may initiate a rezoning request.

**Attachments:**

Land Use Plan and Zoning Map of the subject area.

The City of Fredericksburg

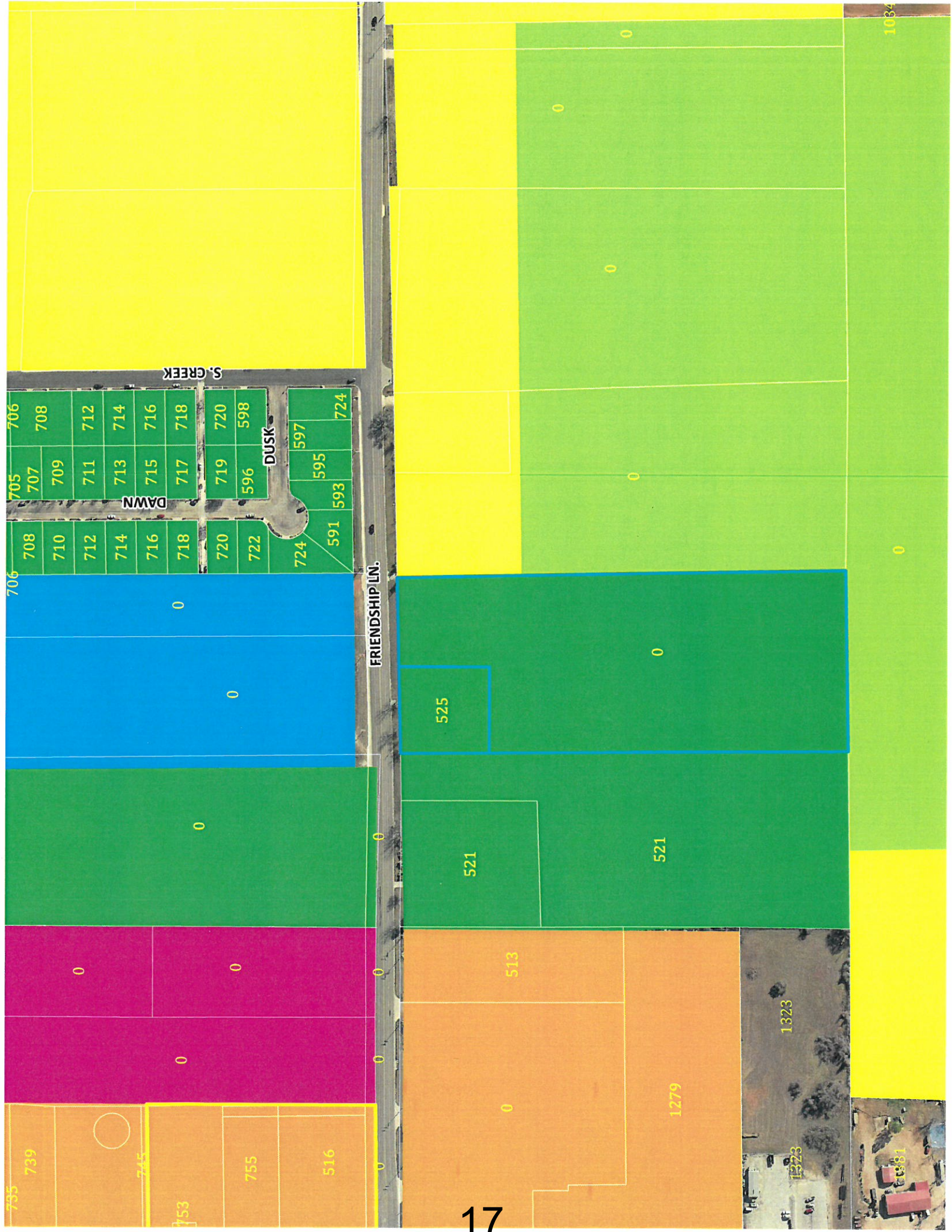
---

---

**Department Approval**

**The City of Fredericksburg**

126 W. Main St. • Fredericksburg, Texas 78624-3708 • (830) 997-7521 • Fax (830) 997-1861



735

739

745

753

755

516

0

0

0

0

0

0

0

0

0

525

521

513

0

1279

521

0

0

0

0

0

0

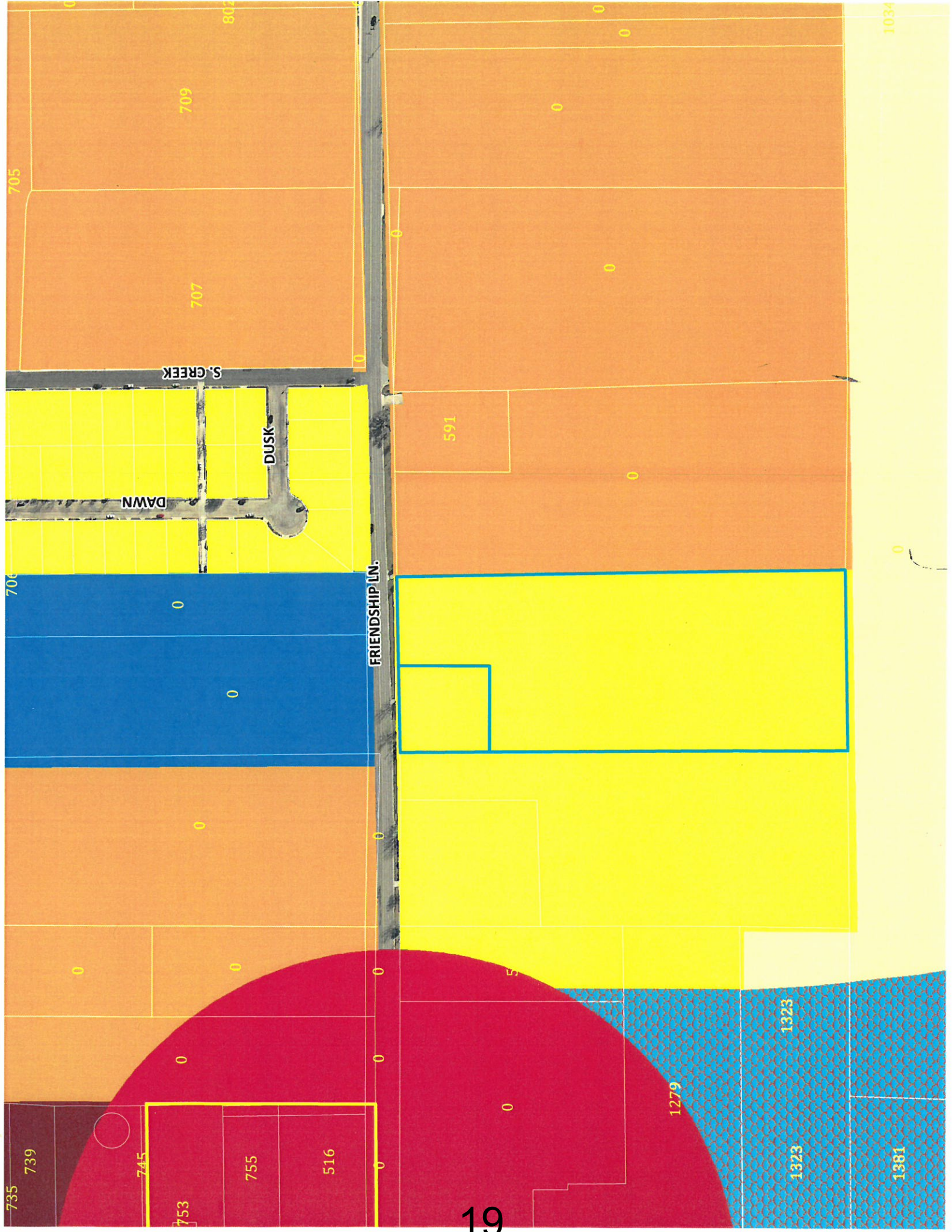
1032

1323

1323

1381









## PLANNING & ZONING COMMISSION MEMO

---

**DATE:** March 4, 2020  
**TO:** Planning and Zoning Commission  
**FROM:** Garret Bonn, P.E., CFM – Assistant City Engineer  
**SUBJECT:** Transportation Project Traffic Impact Study

---

**Summary:** Receive Transportation Project Traffic Impact Study.

**Recommendation:** Discuss and consider providing feedback on the transportation projects included in the Traffic Impact Study.

---

**Background / Analysis:** In November of 2019, the City initiated a Traffic Impact Study (TIS) to be performed by Kimley-Horn. The TIS focuses on the evaluation of high priority new connection projects originally identified in the City's Transportation Master Plan as well as operational & safety improvements at various intersections throughout the City. An open house was held on January 28<sup>th</sup> to obtain feedback from local residents on these potential transportation solutions. The public input process also included an online survey, comment cards, and other opportunities for feedback from January 28<sup>th</sup> through February 14<sup>th</sup>. City staff will present the results of the Kimley Horn study and the community feedback along with the preliminary recommendations included in the attached draft report.

**Attachments:**

Draft TIS Report (excludes appendices)

The City of Fredericksburg

126 W. Main St. • Fredericksburg, Texas 78624-3708 • (830) 997-7521 • Fax (830) 997-1861

---

**Department Approval**

---

**City Manager Approval**

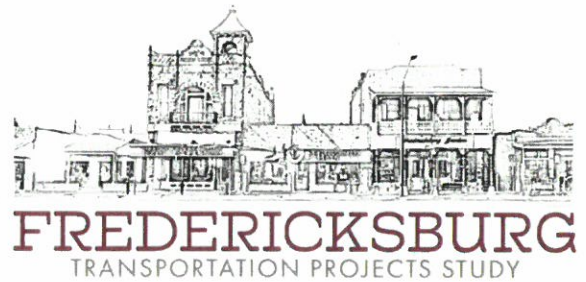
---

**City Attorney Approval**

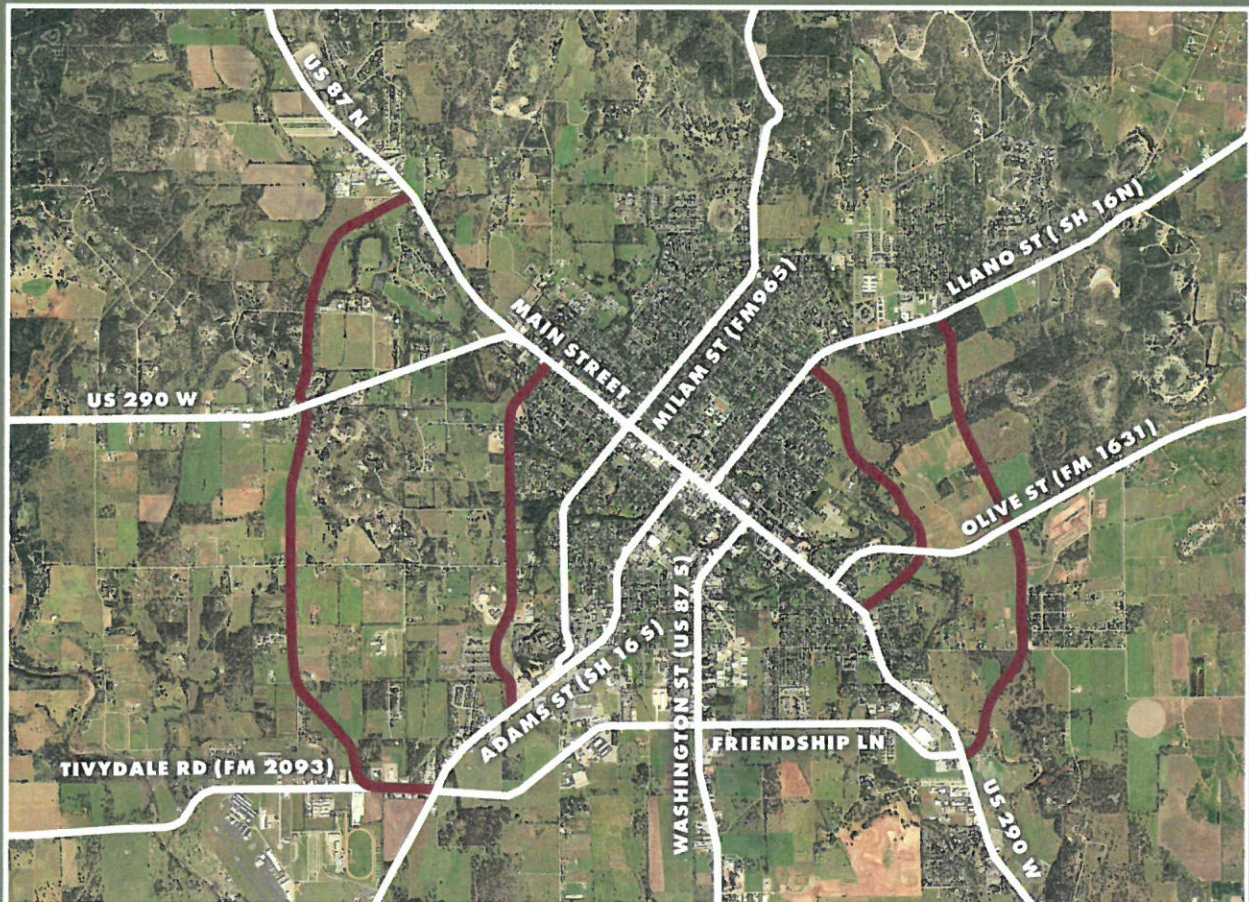
**The City of Fredericksburg**

126 W. Main St. • Fredericksburg, Texas 78624-3708 • (830) 997-7521 • Fax (830) 997-1861

**DRAFT**



# FREDERICKSBURG PROJECTS TRAFFIC IMPACT STUDY (TIS)



## Table of Contents

|                                                  |     |
|--------------------------------------------------|-----|
| Executive Summary .....                          | iv  |
| Summary of Results and Benefits .....            | v   |
| Medium Term Solutions .....                      | v   |
| Mulberry Extension .....                         | vi  |
| Frederick Extension .....                        | vi  |
| Post Oak Extension .....                         | vi  |
| Inner Loop Extension .....                       | vi  |
| Short Term Solutions .....                       | vi  |
| Lane Assignment and Signal Improvements .....    | vi  |
| Safety Improvements .....                        | vii |
| Signal Timing Improvements .....                 | vii |
| Preliminary Recommendations .....                | vii |
| State of the City .....                          | 1   |
| Medium Term Improvements – New Connections ..... | 4   |
| (1) Post Oak Extension .....                     | 5   |
| Alignment & Redistribution Assumptions .....     | 5   |
| Cost Considerations .....                        | 6   |
| Extension Improvements .....                     | 6   |
| (2) Mulberry Extension .....                     | 7   |
| Alignment & Redistribution Assumptions .....     | 7   |
| Cost Considerations .....                        | 8   |
| Extension Improvements .....                     | 8   |
| (3) Frederick Extension .....                    | 9   |
| Alignment & Redistribution Assumptions .....     | 9   |
| Cost Considerations .....                        | 10  |
| Extension Improvements .....                     | 10  |
| (4) Inner Loop Extension .....                   | 11  |
| Alignment & Redistribution Assumptions .....     | 11  |
| Cost Considerations .....                        | 12  |

|                                                                 |    |
|-----------------------------------------------------------------|----|
| Extension Improvements.....                                     | 12 |
| Benefit-Cost Analysis .....                                     | 13 |
| Short Term Improvements - Intersection Projects .....           | 14 |
| Short-Term Improvements: Main Street corridor Summary.....      | 14 |
| Short-Term Improvement (1) – Retime Existing Intersections..... | 15 |
| Short-Term Improvement (3) – Lane Reassignments.....            | 15 |
| Short-Term Improvement (2) – Signing and Striping .....         | 16 |
| Short-Term Improvement (4) – Safety-Specific Improvements ..... | 16 |
| Public Input .....                                              | 17 |
| Methods of Engagement .....                                     | 17 |
| Open House Summary.....                                         | 17 |
| Additional Comment Opportunities .....                          | 19 |
| Feedback on Medium-Term Projects .....                          | 19 |
| Feedback Ranking .....                                          | 20 |
| Feedback General Results .....                                  | 20 |
| Post Oak Extension.....                                         | 20 |
| Mulberry Extension .....                                        | 21 |
| Frederick Extension .....                                       | 21 |
| Inner Loop Extension .....                                      | 21 |
| Feedback on Short-Term Projects .....                           | 21 |
| Feedback Ranking .....                                          | 21 |
| Feedback General Results .....                                  | 22 |
| Public Comments Summary .....                                   | 24 |
| City Council and Comissioners Court Summary.....                | 24 |
| Recommendations .....                                           | 25 |
| Baseline .....                                                  | 25 |
| Budget 1: Budget is <\$10 Million .....                         | 25 |
| Budget 1 Primary Option: Construct Post Oak Extension.....      | 25 |
| Budget 1 Alternate: Construct Mulberry Extension.....           | 25 |
| Budget 2: Budget is \$10 Million - \$20 Million.....            | 25 |

|                                                                        |    |
|------------------------------------------------------------------------|----|
| Budget 2 Primary: Construct Post Oak and Mulberry Extensions .....     | 26 |
| Budget 2 Alternate: Construct Frederick Extension .....                | 26 |
| Budget 3: Budget is \$20 Million - \$30 Million .....                  | 26 |
| Budget 3 Primary: Construct Frederick and Post Oak Extensions .....    | 26 |
| Budget 3 Alternate: Construct Inner Loop and Mulberry Extensions ..... | 26 |
| Final Proposed Recommended Projects .....                              | 27 |

## Figures

|                                                                                            |    |
|--------------------------------------------------------------------------------------------|----|
| Figure 1: Four High-Priority Connection Options .....                                      | iv |
| Figure 2: Recommended Collector Road with 60 Foot ROW Section (subject to change) .....    | v  |
| Figure 3: Recommended Minor Arterial Road with 140 Foot ROW Section (subject to change) .. | v  |
| Figure 4: Planned Significant Developments .....                                           | 2  |
| Figure 5: Four High-Priority Alignment Options .....                                       | 4  |
| Figure 6: Post Oak Extension .....                                                         | 5  |
| Figure 7: Mulberry Extension .....                                                         | 7  |
| Figure 8: Frederick Extension .....                                                        | 9  |
| Figure 9: Inner Loop Extension .....                                                       | 11 |
| Figure 10: Intersection Vote Density .....                                                 | 23 |

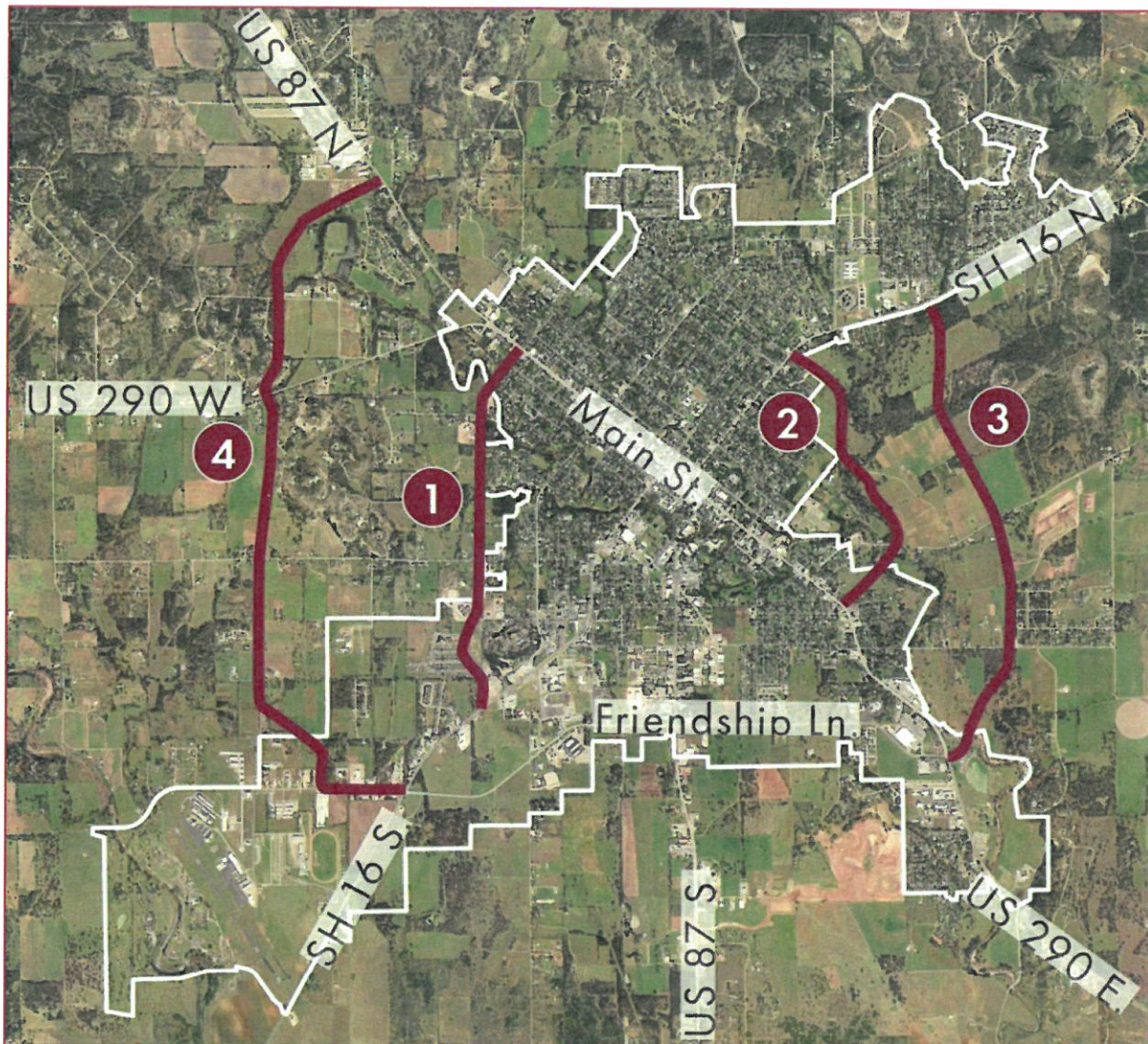
## Tables

|                                                              |    |
|--------------------------------------------------------------|----|
| Table 1: Benefit-Cost Ratios for Extension Projects .....    | v  |
| Table 2: Post Oak Extension Network MOE's .....              | 6  |
| Table 3: Mulberry Extension Network MOE's .....              | 8  |
| Table 4: Frederick Extension Network MOE's .....             | 10 |
| Table 5: Inner Loop Extension PM Network MOE's .....         | 12 |
| Table 6: Benefit-Cost Ratios .....                           | 13 |
| Table 7: Alignment Option Feedback Results .....             | 20 |
| Table 8: Intersections Which Received 5 or More Points ..... | 22 |

## EXECUTIVE SUMMARY

In November 2019, the City of Fredericksburg, Texas initiated a Traffic Impact Study (TIS) to be performed by Kimley-Horn. The purpose of the TIS is to determine ways to provide local congestion relief. The TIS covers two major components – 1) an evaluation of high-priority new connection projects, identified in **Figure 1** below as medium-term solutions, and 2) short-term operational and safety improvements at intersections in the City Limits. In Figure 1 below, the new connections are as follows:

1. Post Oak Extension (completes gap from Bowie St to Main St, widens Post Oak)
2. Mulberry Extension (connects Mulberry at Llano to Main at Eagle)
3. Frederick Rd Extension (SH 16 to US 290 E)
4. Inner Loop Extension (formerly Friendship Lane or Interim Relief Route from SH 16 to US 87 N)



**Figure 1: Four High-Priority Connection Options**

## SUMMARY OF RESULTS AND BENEFITS

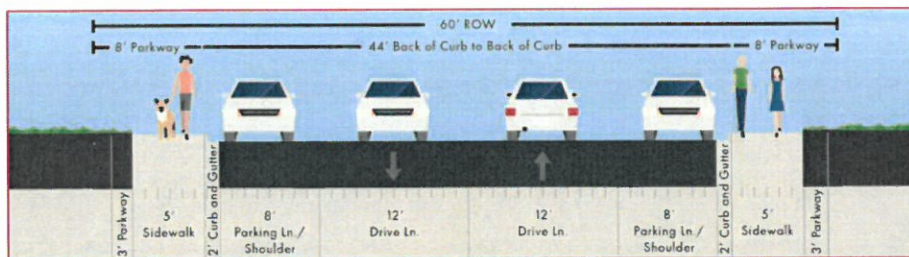
### MEDIUM TERM SOLUTIONS

In general, all four new connection options would see benefits in key travel measures of effectiveness, including travel time savings and amount of fuel consumed. Cost estimates for all projects include costs of construction, Right-of-Way (ROW) acquisition, new signals, widening at major intersections, and engineering costs. For comparison's sake, benefits for all projects were estimated using two factors over a 20-year period: (1) the daily reduction in travel delay multiplied by a person's value of time (i.e. how much a person values their time no longer spent in traffic), and (2) the amount of fuel cost savings. The benefit/cost ratio and cost estimate for each project is summarized in Table 1.

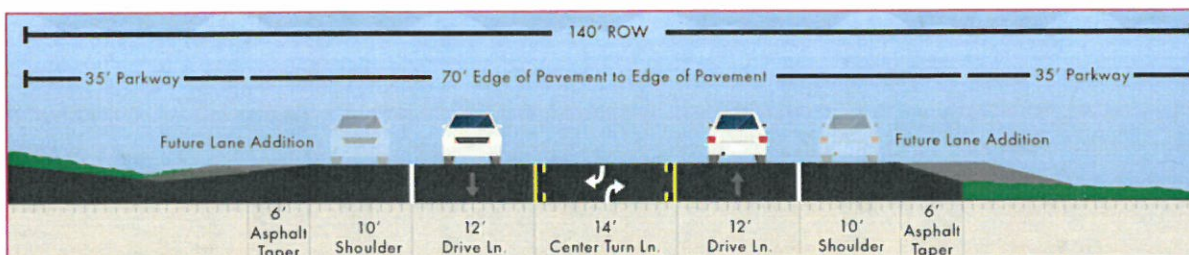
**Table 1: Benefit-Cost Ratios for Extension Projects**

| Measure                                        | Intersection plus Post Oak | Intersection plus Mulberry | Intersection plus Frederick | Intersection plus Inner Loop |
|------------------------------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| Cost                                           | \$7.2 Million              | \$7.9 Million              | \$17 Million                | \$21 Million                 |
| Benefit/Cost (B/C) ratio over a 20-year period | 3.9                        | 3.8                        | 1.8                         | 1.6                          |

Some of these new connections are identified on the 2017 Transportation Master Plan, while others are modifications of projects that appear in whole or in part in the 2017 Transportation Master Plan. The four new connection projects are classified as either collector streets or arterial streets, based on the ultimate anticipated function of each roadway. The following **Figure 2** and **Figure 3** illustrate the anticipated cross section for each roadway that was used as a basis for the project cost and ROW acquisition requirements. Post Oak Extension and Mulberry Extension are contemplated as collector roadways in Figure 2, while Frederick Rd and Inner Loop are contemplated as arterial roadways in Figure 3.



**Figure 2: Recommended Collector Road with 60 Foot ROW Section (subject to change)**



**Figure 3: Recommended Minor Arterial Road with 140 Foot ROW Section (subject to change)**

### Post Oak Extension

The Post Oak Extension would connect Main St to Adams St between Post Oak at Adams and Cherry at Main with a 44 ft wide roadway (face of curb to face of curb) within 60 ft of ROW. The projected average daily traffic on this road in 2040 is between 6,700-8,800 vehicles per day. It is assumed that this extension would relieve 10% of traffic turning between Adams and Main and 25% of traffic turning between Milam and Main as well as at between Milam at SH 16.

### Mulberry Extension

The Mulberry Extension would connect Main St to Llano St between Eagle at Main and Mulberry at Llano with a 44 ft wide roadway (face of curb to face of curb) within 60 ft of ROW. The projected average daily traffic on this road in 2040 is 6,700 vehicles per day. It is assumed that this extension would relieve 50% of traffic turning between Llano and Main; 25% of traffic turning left off Llano between Austin and Travis; and 25% of traffic turning right along Main between Lincoln and Olive.

### Frederick Extension

The Frederick Extension would connect Main St to Llano St between Friendship at US 290 and Frederick at Llano with a 70 ft wide roadway (face of curb to face of curb) within 140 ft of ROW. The projected average daily traffic on this road in 2040 is 6,000 vehicles per day. It is assumed that this extension would relieve 25% of traffic turning between Llano and Main; 15% of traffic turning left along Llano between Austin and Mulberry; and 15% of traffic turning right along Main between Lincoln and Goehmann.

### Inner Loop Extension

The Inner Loop Extension, previously known as the Friendship Extension or Interim Relief Route, is situated around the western edge of Fredericksburg and would connect SH 16 to US 290 and US 87 with a 70 ft wide roadway (face of curb to face of curb) within 140 ft of ROW to primarily redirect non-local traffic. The projected average daily traffic on this road in 2040 is 5,700 vehicles per day. It is assumed that this extension would reroute 20% of traffic traveling to downtown at Friendship and US 290; 20% of traffic heading west at the intersection of Washington and Main; and a portion of traffic turning at Adams and Main.

## SHORT TERM SOLUTIONS

Short-term relief options were considered by analyzing the twenty-six (26) signalized intersections in the City of Fredericksburg, as well as some additional intersections identified for safety issues, for a total of twenty-eight (28) studied intersections. Of these intersections, twenty-three (23) were found to have viable improvement options. The benefit of implementing these options is significant, and the impact of these projects (benefit and cost) is included in the benefit/cost ratio of each of the four new connection projects.

### Lane Assignment and Signal Improvements

Many intersections can benefit from reassigning lanes to improve operations. Some lane reassignments involve “swapping” lanes – for example, changing a through-left lane and right turn only lane approach to instead be a left turn only and through-right lane approach. Some lane reassignments involve adding new lanes by better utilizing the existing road space with new paint for traffic. Some lane reassignments



involve adding new lanes by adding new pavement surface. At Washington at Main and Creek at Adams, a recommendation from the 2017 Transportation Master Plan has been reiterated to make Washington one-way northbound on the north side of Main and Creek Street one-way eastbound east of Adams. Some lane reassignments require upgrading existing signal heads, primarily for left turns, such as at Elk and Main on the southbound approach, to include left turn or right turn arrow indications.

### Safety Improvements

Safety-specific improvements have been made for seven locations in Fredericksburg, including five signalized intersections which have also been analyzed for operational improvements. These seven intersections were selected based on crash history and include (1) US 290 at US 87 ("the Y"), (2) Main at Olive, (3) Main at Highway, (4) Main at Llano, (5) Washington at Walnut, (6) Llano at Travis, and (7) Milam at Austin. Safety improvements include restriping, adding new pedestrian or left turn signal heads, installing new signs, access management and drainage improvements. Additionally, many stop bars at minor streets intersecting with Main Street are suggested to be moved further back from the intersections to provide room for large trucks turning right that conflict with left turns

### Signal Timing Improvements

Several intersection timing changes have been suggested to reduce overall delay at signalized intersections. It is recommended that signal timings at all signalized intersections are updated every 2-3 years in the future to respond to local demands.

## PRELIMINARY RECOMMENDATIONS

Based on the analysis performed, the intersections package and any of the four new connection options would improve conditions in Fredericksburg and the surrounding local area. The short-term projects would have a significant benefit to local traffic at a relatively low cost and could be implemented within the next 1-3 years. Each of the four new connection options offer different benefits to local traffic, though there are significant variations in costs and benefits between each project. Any recommendations made regarding the four new connection projects is reliant on the anticipated budget for these projects.

**FINAL RECOMMENDATION TO BE FILLED IN AT A LATER DATE**

## STATE OF THE CITY

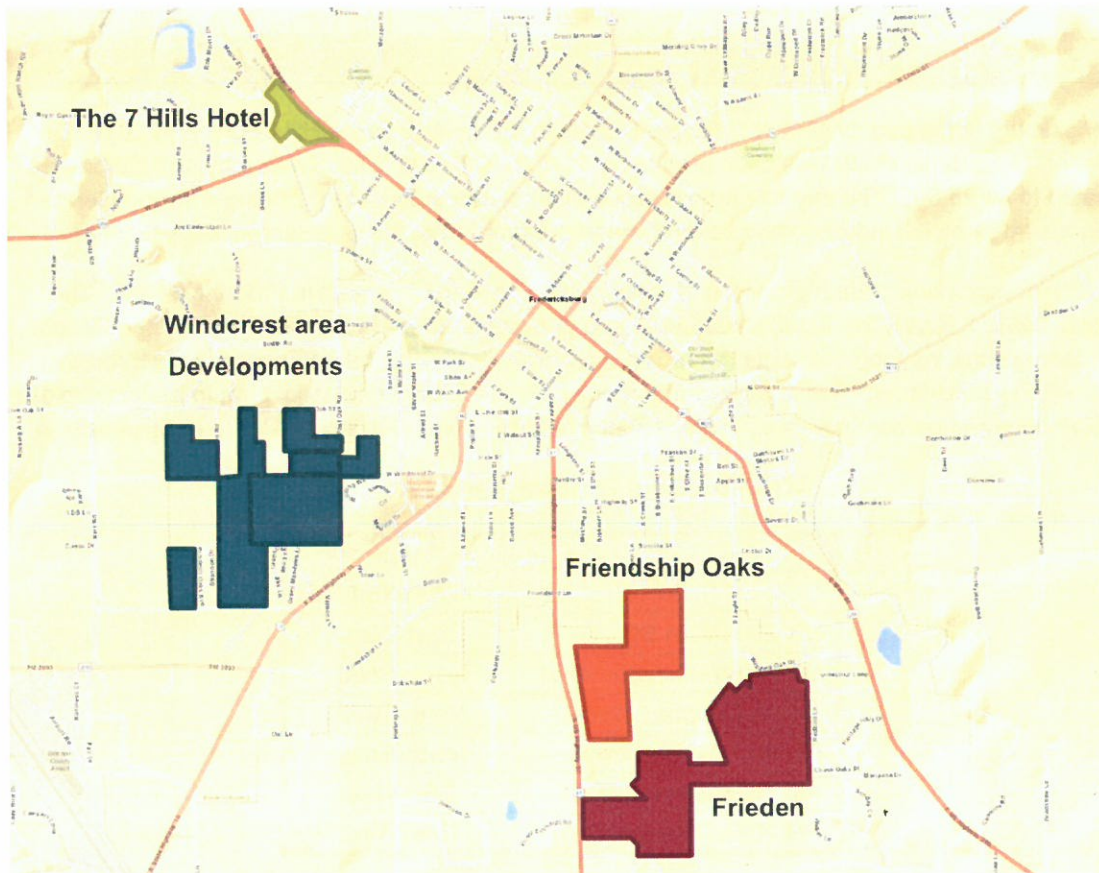
Fredericksburg is the county seat of Gillespie County in the central Texas Hill Country. In 2017, the population of Fredericksburg was estimated to be 11,400, while the Gillespie County population was estimated to be 26,600. The city has many unique cultural characteristics including a strong German heritage, a large peach industry, and several wineries which make it a popular tourist destination.

Two US highways, one state highway, and three major FM roads intersect in Fredericksburg. The following **Table 2** shows the 6 major roadways and primary direction in the City and County. Despite all these connections, no loop connects the regional roadways. All regional traffic must pass through downtown Fredericksburg. Traffic on regional roads in Fredericksburg is estimating to be growing at a rate of about three percent per year. Traffic count information from 2019 is available in **Appendix A**.

**Table 2: Major Roadways and Direction**

| Highway Name           | Primary Direction |
|------------------------|-------------------|
| US 290 (Main St)       | East-West         |
| US 87 (Washington Ave) | North-South       |
| SH 16 (Adams / Llano)  | North-South       |
| FM 965 (Milam Street)  | North-South       |
| FM 1631 (Olive Street) | East-West         |
| FM 2093 (Tivydale Rd)  | East-West         |

Four significant developments are underway in Fredericksburg and are anticipated to either be completed or to have some intermediate stages completed within the next five years by 2025. These developments are the 7 Hills Hotel, the Windcrest area development, the Frieden development, and the Friendship Oaks development. These 4 developments are shown in **Figure 4**.



**Figure 4: Planned Significant Developments**

The 7 Hills Hotel is planned to be constructed near the intersection of US 290 and US 87 ("The Y") and is expected to generate as many as 920 trips during the weekday afternoon (or "PM") peak hour. It will include a hotel, several restaurants, some small residential developments, and offices. It is anticipated to be developed by 2020. The 7 Hills Hotel is estimated to have significant impacts at intersections along Main Street and along Washington Street, especially the intersections of US 290 at US 87 ("The Y") and Main at Milam.

The Windcrest area housing development is planned to be constructed near Windcrest Road west of SH 16 and is expected to generate as many as 860 trips during the PM peak hour. It will be a single-family and multi-family site with some commercial development. It is anticipated to be developed by 2023. The Windcrest area development is estimated to have significant impacts at intersections along Adams Street (SH 16), Milam Street, and Main Street, especially the intersection of SH 16 at Live Oak.

The Frieden development is planned to be constructed between Washington Street and US 290 East south of Winding Oak Drive and west of Heritage Hills, and it is expected to generate as many as 2,100 trips during the PM peak hour. It will be a single-family and multi-family site with significant commercial development. It is anticipated to be developed in five stages, with the final stage completing in 2023. The Frieden development is estimated to have significant impacts at intersections along Main Street and Washington Street, especially the intersections of Main at Washington, Washington at Highway,



Washington at Friendship, and US 290 at Friendship. New signals are also anticipated to be installed as part of the project at US 87 and Victor Eckhardt Rd and at US 290 E and Mariposa Dr.

The Friendship Oaks development is planned to be constructed near the southeast corner of Friendship Lane and Washington Street, slightly northwest of the Frieden development, and it is expected to generate as many as 480 trips in the PM peak hour. It will be a primarily single-family development with annual stages of development completing in 2026. The Friendship Oaks development is estimated to have significant impacts at intersections along Main Street and Washington Street, especially the intersections of Main at Lincoln, Main at Washington, Washington at Highway, and Washington at Friendship.

The analysis conducted in this TIS primarily focuses on traffic conditions in future year 2025, including any traffic effects induced by the developments mentioned above. However, all alignment options analyzed in this study have been evaluated for a horizon year of 2040 to ensure roadway sizing will be adequate. Traffic has been grown at a rate of 3% compounded annually based on historical count data in the area to evaluate both the 2025 and 2040 study years, in addition to the four described larger point sources of development.

## MEDIUM TERM IMPROVEMENTS – NEW CONNECTIONS

In 2017, the Fredericksburg Transportation Master Plan identified four (4) high-priority connections for improving local traffic. These connections were the Mulberry Extension and the Frederick Extension in the northeast, and the Post Oak Extension and the Inner Loop Extension in the southwest. Alignments currently shown are subject to change and were chosen to maximize use of existing ROW and minimize property disturbances. These four high-priority connections are shown in **Figure 5** (also shown as **Figure 1** in the Executive Summary).



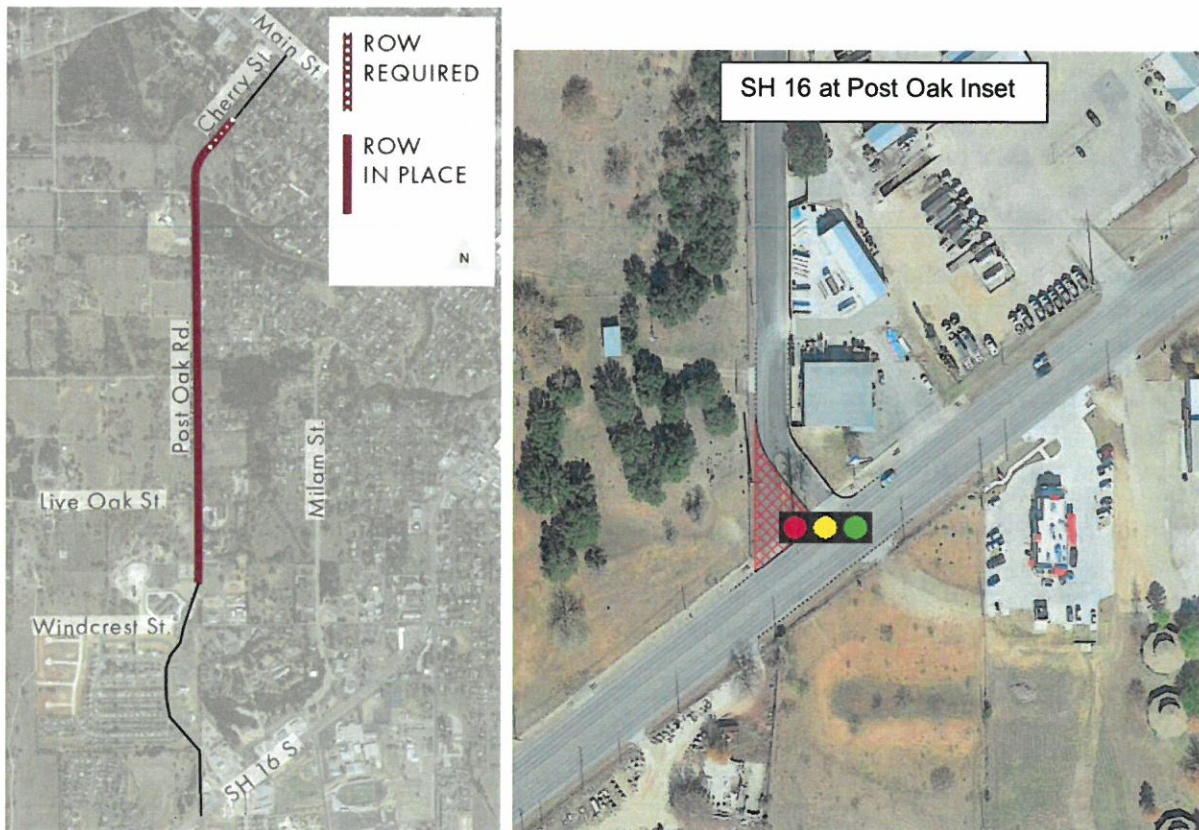
**Figure 5: Four High-Priority Alignment Options**

This study evaluates these four (4) projects based on the benefit each connection provides for the overall transportation system and some critical intersections. Implementation of any of these projects is expected to occur within 5-10 years to provide medium-term relief.

Baseline conditions assume that intersection projects identified later in this study are completed in all four new connection scenarios. In addition to updated cost estimates and performance analysis, each new connection project is compared using benefit / cost analysis. This analysis quantifies the economic impact of improvements based on delay savings and fuel savings, comparing the benefit to overall project cost to develop a metric for Return on Investment (ROI). This analysis helps create a more equal comparison of projects. Detailed cost information for all four alignments can be found in **Appendix B**. It should be noted that costs may change slightly when final alignments are set, and detailed design is completed, should these projects move forward to design and construction. A contingency is included in the costs to be conservative, and is shown in Appendix B.

## (1) POST OAK EXTENSION

The Post Oak extension project would connect Main Street to SH 16 South by extending first from Creek to Bowie, then from Live Oak to Windcrest. Widening or reconstruction is needed in other portions of the project between US 290 and SH 16. The projected average daily traffic on this road in 2040 is between 6,700-8,800 vehicles per day (which includes existing traffic of 1,700 to 3,800 vehicles per day, a projected increase of 5,000 vehicles per day). The extents of this proposed extension / widening are shown in **Figure 6**.



**Figure 6: Post Oak Extension**

### ALIGNMENT & REDISTRIBUTION ASSUMPTIONS

The alignment for this connection will primarily follow existing Post Oak Rd, with the only new alignment connecting Post Oak Rd to Cherry Street across Baron's Creek between Bowie St and Creek St.

For this extension, the following redistribution assumptions were evaluated in the analysis presented:

1. Traffic turning between Adams and Main will be relieved by 10%
2. Traffic turning between Milam and Main will be relieved by 25%
3. Traffic turning between Milam and SH 16 will be relieved by 25%

## COST CONSIDERATIONS

The total cost for this extension is anticipated to be **\$7.2 Million**. The following costs were considered for this extension, anticipated to be built as shown in **Figure 2** in the Executive Summary.

1. **Signals:** New signals will likely be constructed at Main St and at SH 16 South. The cost of a new signal is roughly \$400,000 each, so if both are needed, total cost is \$800,000.
2. **Right-of-way:** Much of the ROW needed for this extension is already owned by the city. Some new right-of-way will need to be acquired for this extension project. The cost was calculated based on Gillespie Central Appraisal District land values and based on the footprint of this project ROW. This ROW is expected to cost \$47,521.
3. **Utilities:** Utility adjustments are given an allowance in the total project, cost, but utility relocations and new utility lines under the roadway are not included in the projected cost.
4. This overall cost is different from the 2017 TMP cost due to complete roadway reconstruction, the addition of three signals, the addition of two bridges, and updated unit prices.

## EXTENSION IMPROVEMENTS

Implementing the Post Oak extension would provide additional relief to local traffic in addition to the smaller intersection improvement projects planned.

At a network level, the Post Oak extension would decrease travel delay by 77 hours during the PM peak hour and by 109 hours during the weekend peak hour. Travelers would have to make fewer stops at intersections during the peak hours. Overall speed on the network would increase by 2 to 3 mph. Table 3 below shows these improvements in network-level Measures of Effectiveness (MOE's).

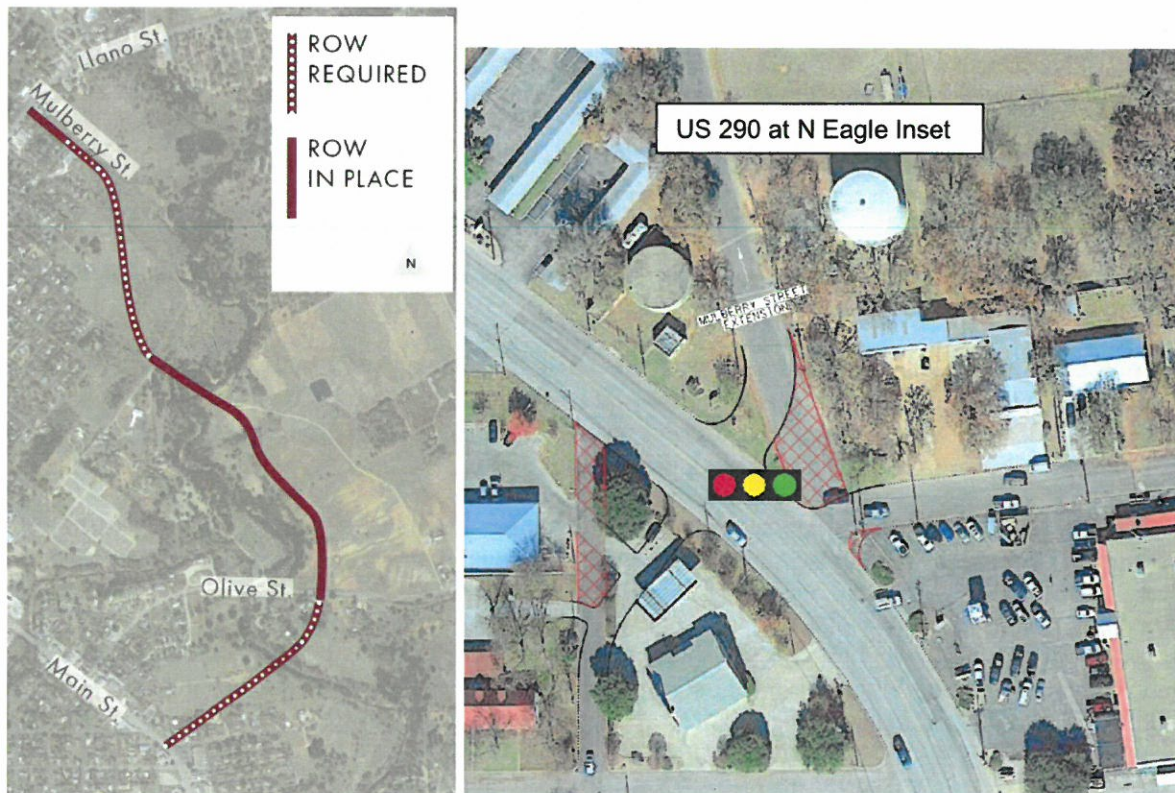
At an intersection level, the Post Oak extension would benefit Main at Milam and Washington at Highway. The extension would likely necessitate a signal at Cherry at Main St and at Post Oak at Adams, and signals would greatly reduce the overall delay for these intersections. Information about corridor-level and intersection-level improvements can be found in Appendix C.

**Table 3: Post Oak Extension Network MOE's**

| Measure             | PM Peak                   |                              | Weekend Peak              |                              |
|---------------------|---------------------------|------------------------------|---------------------------|------------------------------|
|                     | Intersection Improvements | Intersections plus Extension | Intersection Improvements | Intersections plus Extension |
| Travel Delay (hr)   | 383                       | 306                          | 432                       | 323                          |
| Average Speed (mph) | 23                        | 25                           | 22                        | 25                           |

## (2) MULBERRY EXTENSION

The Mulberry extension project is an updated version of the earlier Morse extension project from the 2017 TMP, with alignment revised to minimize residential street disruption with new traffic but still utilize existing City ROW. The extension would connect Main Street to Llano Street by extending from Mulberry Street to US 290 (at intersection with N Eagle St). The projected average daily traffic on this road in 2020 is 6,700 vehicles per day. The extents of this proposed extension are shown in **Figure 7**, but the alignment is not set for this project.



**Figure 7: Mulberry Extension**

### ALIGNMENT & REDISTRIBUTION ASSUMPTIONS

The alignment for this connection will follow existing Mulberry Street and then connect to ROW previously acquired by the City for the Morse Street connection, but not to Morse Street. From the intersection with Olive Street, the alignment will continue until intersecting with N Eagle Street and then terminate at US 290 E.

For this extension, the following redistribution assumptions were evaluated in the analysis presented:

1. Traffic turning between Llano and Main will be relieved by 50%
2. Traffic turning left off Llano between Austin and Travis will be relieved by 25%
3. Traffic turning right along Main between Lincoln and Olive will be relieved by 25%

## COST CONSIDERATIONS

The total cost for this extension is anticipated to be **\$7.9 Million**. The following costs were considered for this extension, anticipated to be built as shown in **Figure 2** in the Executive Summary.

1. Signals: New signals may be constructed at Llano St, RR 1631, and US 290 near Eagle St. The cost of a new signal is roughly \$400,000, so if all 3 are needed, total cost is \$1.2 Million.
2. Right-of-way: New right-of-way will need to be acquired for the portion of this project not on the 2017 TMP, which was previously acquired by the City. The cost was calculated based on Gillespie Central Appraisal District land values and based on the footprint of this project ROW. The expected cost of new ROW to acquire is \$593,836.
3. Utilities: Utility adjustments are given an allowance in the total project cost, but utility relocations and new utility lines under the roadway are not included in the projected cost.
4. This overall cost is different from the 2017 TMP cost due to an additional 5,000' of roadway and ROW acquisition, one additional bridge, and updated unit prices.

## EXTENSION IMPROVEMENTS

Implementing the Mulberry extension would provide additional relief to Fredericksburg roads in addition to the smaller intersection improvement projects planned.

At a network level, the Mulberry extension would decrease travel delay by 77 hours during the PM peak hour and by 127 hours during the weekend peak hour. Travelers would have to make fewer stops at intersections during the peak hours. Overall speed on the network would increase by 2 to 3 mph. **Table 4** below shows these improvements in network level MOE's.

At a corridor level, the Mulberry extension would improve the performance of Llano St and Main St. Speeds would generally remain the same, but travel delay would decrease on these two corridors.

At an intersection level, the Mulberry extension would greatly benefit Main at Llano and Washington at Highway. The extension would likely necessitate a signal at N Eagle St and Main St, at Mulberry St and Llano St and at Mulberry St and Olive St. Information about corridor-level and intersection-level improvements can be found in Appendix C.

**Table 4: Mulberry Extension Network MOE's**

| Measure             | PM                        |                              | Weekend                   |                              |
|---------------------|---------------------------|------------------------------|---------------------------|------------------------------|
|                     | Intersection Improvements | Intersections plus Extension | Intersection Improvements | Intersections plus Extension |
| Travel Delay (hr)   | 383                       | 306                          | 432                       | 305                          |
| Average Speed (mph) | 23                        | 25                           | 22                        | 25                           |

### (3) FREDERICK EXTENSION

The Frederick extension project would connect Main Street to Llano Street by extending first from RR 1631 to US 290 East, then from SH 16 (Llano) to RR 1631. The projected average daily traffic on this road in 2040 is 6,000 vehicles per day, excluding any future use by new developments in this area beyond the scope of this study. The extents of this proposed extension are shown in **Figure 8**.



**Figure 8: Frederick Extension**

#### ALIGNMENT & REDISTRIBUTION ASSUMPTIONS

The alignment of this roadway follows the 2017 TMP alignment and utilizes some existing Right-of-Way dedicated by plat in the mid-1980's near SH 16.

For this extension, the following redistribution assumptions were evaluated in the analysis presented:

1. Traffic turning between Llano and Main will be relieved by 25%
2. Traffic turning left along Llano between Austin and Mulberry will be relieved by 15%
3. Traffic turning right along Main between Lincoln and Goehmann will be relieved by 15%
4. As a result of redistributions, it is anticipated that the daily traffic on Frederick Extension in 2040 would be 6,000 vehicles per day. This ADT should be accommodated on an interim 3-lane section, with future expansion to a 5-lane section in the future, at least 20 years out.

## COST CONSIDERATIONS

The total cost for this extension is anticipated to be **\$17 Million**. The following costs were considered for this extension, anticipated to be built as shown in **Figure 3** in the Executive Summary.

1. **Signals:** A new signal may be constructed at SH 16, RR 1631, and US 290. The cost of a new signal is roughly \$400,000 each; however, the signal at US 290 is already operational and would only need one new pole and associated required equipment, which would cost \$150,000. If all 3 are needed, total cost is \$950,000.
2. **Right-of-way:** New right-of-way will need to be acquired for this extension project. The cost was calculated based on Gillespie Central Appraisal District land values and based on the footprint of this project ROW. This ROW is expected to cost \$1,708,390.
3. **Utilities:** Utility adjustments are given an allowance in the total project, cost, but utility relocations and new utility lines under the roadway are not included in the projected cost.
4. **Intersections:** Additional cost was put in for flaring out streets at major intersections.
5. This overall cost is different from the 2017 TMP cost due to reduced bridge size, change in ROW acquisition pricing, eliminating sidewalks, adding three signals, and updated unit prices.

## EXTENSION IMPROVEMENTS

Implementing the Frederick extension would provide additional relief to Fredericksburg roads in addition to the smaller intersection improvement projects planned, though not as much relief as the Mulberry extension project.

At a network level, the Frederick extension would decrease travel delay by 73 hours during the PM peak hour and by 126 hours during the weekend peak hour. Travelers would have to make fewer stops at intersections during the peak hours. Overall speed on the network would increase by 2 to 3 mph. **Table 5** below shows these improvements in network level MOE's.

At a corridor level, the Frederick extension would improve the performance of Llano St and Main St. Speeds would increase during the weekend peak, and travel delay would decrease on these two corridors.

At an intersection level, the Frederick extension would greatly benefit Main at Llano. Information about corridor-level and intersection-level improvements can be found in Appendix C.

**Table 5: Frederick Extension Network MOE's**

| Measure             | PM                        |                              | Weekend                   |                              |
|---------------------|---------------------------|------------------------------|---------------------------|------------------------------|
|                     | Intersection Improvements | Intersections plus Extension | Intersection Improvements | Intersections plus Extension |
| Travel Delay (hr)   | 383                       | 310                          | 432                       | 306                          |
| Average Speed (mph) | 23                        | 25                           | 22                        | 25                           |

#### (4) INNER LOOP EXTENSION

The Inner Loop Extension, previously known as the Friendship Extension or Interim Relief Route, is situated around the western edge of Fredericksburg and would connect SH 16 South to US 290 W and US 87 N to primarily redirect non-local traffic. The projected average daily traffic on this road in 2040 is 5,700 vehicles per day, excluding any future use by new developments in this area beyond the scope of this study. The extents of this proposed extension are shown in **Figure 9**.



**Figure 9: Inner Loop Extension**

#### ALIGNMENT & REDISTRIBUTION ASSUMPTIONS

The alignment of this extension follows that of a 2015 study commissioned by the City.

For this extension, the following redistribution assumptions were evaluated in the analysis presented:

1. Traffic traveling downtown at Friendship and US 290 will be relieved by 20%
2. Traffic heading west at the intersection of Washington and Main will be relieved by 20%
3. Traffic heading west at the intersection of Adams and Main will be relieved by 5-20%
4. As a result of redistributions, it is anticipated that the daily traffic on Friendship extension in 2040 would be 5,700 vehicles per day. This ADT should be accommodated on an interim 3-lane section, with future expansion to a 5-lane section in the future, at least 20 years out.

## COST CONSIDERATIONS

The total cost for this extension is anticipated to be **\$21 Million**. The following costs were considered for this extension, anticipated to be built as shown in **Figure 3** in the Executive Summary.

1. Signals: A new signal will likely be constructed at FM 2093, Live Oak, US 290 W, and US 87 N. The cost of a new signal is \$400,000, so if all 4 are needed the total is \$1.6 Million.
2. Right-of-way: New right-of-way will need to be acquired for this extension project. The cost was calculated based on Gillespie Central Appraisal District land values and based on the footprint of this project ROW. This ROW is expected to cost \$2,437,781.
3. Utilities: Utility adjustments are given an allowance in the total project, cost, but utility relocations and new utility lines under the roadway are not included in the projected cost.
4. Intersections: Additional cost was put in for flaring out streets at major intersections.
5. This overall cost is different from the 2017 TMP cost due to a shorter alignment, eliminating three bridges, change in ROW acquisition pricing, eliminating sidewalk, adding four signals, and updated unit prices.

## EXTENSION IMPROVEMENTS

Implementing the Inner Loop extension would provide additional relief to local traffic by shifting regional traffic, in addition to the smaller intersection improvement projects planned.

At a network level, the Inner Loop extension would decrease travel delay by 79 hours during the PM peak hour and by 122 hours during the weekend peak hour. Travelers would have to make fewer stops at intersections during the peak hours. Overall speed on the network would increase by 2 to 3 mph. **Table 6** below shows these improvements in network level MOE's.

At a corridor level, the Inner Loop extension would improve the performance of Adams St and Main St. Speeds would increase during the weekend peak, and total travel time would decrease on these two corridors.

At an intersection level, the Inner Loop extension would benefit Milam at Main, Adams at Main, Llano at Main, and Washington at Main. Information about corridor-level and intersection-level improvements can be found in Appendix C.

**Table 6: Inner Loop Extension PM Network MOE's**

| Measure             | PM                        |                              | Weekend                   |                              |
|---------------------|---------------------------|------------------------------|---------------------------|------------------------------|
|                     | Intersection Improvements | Intersections plus Extension | Intersection Improvements | Intersections plus Extension |
| Travel Delay (hr)   | 383                       | 304                          | 432                       | 310                          |
| Average Speed (mph) | 23                        | 25                           | 22                        | 25                           |

## BENEFIT-COST ANALYSIS

A benefit-cost (B/C) analysis allows for projects to be compared by the amount of benefit the project provides for every dollar spent. A higher B/C ratio means a higher return on investment (ROI). The process of generating benefit-cost values for the four new connection projects is outlined below.

Costs considered for each of these new connection projects were capital costs. Construction costs were calculated by quantities. Mobilization, drainage, utility, and other related costs were calculated as a percentage of construction costs. Additional capital improvement project costs like engineering, surveying, and geotechnical work and contingency costs were also calculated as a percentage of construction costs. A detailed breakdown of all costs is shown in Appendix B.

Benefits considered for each of these extension projects were operational improvements converted into a monetary benefit over a 20-year period. The two operational improvements considered were decreases in travel delay and decreases in fuel consumed.

Travel delay is modeled as hours of delay during the peak hour and was calculated at a corridor level and at a city-wide level, though only city-wide level delays were used for the benefit-cost analysis. Annual travel delay costs were calculated using methods similar to those used by the Texas Transportation Institute. Daily non-peak hour delay is estimated to be roughly equal to peak hour delay (i.e. double the peak hour for one day), and each hour of delay is estimated to cost \$20 in economic losses. These daily delays were then multiplied by 365 days and by 20 years resulting in 20-year delay costs.

Fuel consumed is modeled as gallons of fuel during the peak hour and was calculated at a corridor level and at a city-wide level, though only city-wide level delays were used for the benefit-cost analysis. Gas was estimated at an average cost of \$3.00 per gallon over the next 20 years. Daily non-peak hour fuel consumption is estimated to be the same amount as peak hour consumption. The daily cost of fuel consumed was then multiplied by 365 days and by 20 years resulting in 20-year fuel costs.

Benefit-cost ratios for each proposed project are shown below, a result of dividing the total benefit over 20 years by the total project costs.

**Table 7: Benefit-Cost Ratios**

| Measure                                        | Intersection plus Post Oak | Intersection plus Mulberry | Intersection plus Frederick | Intersection plus Inner Loop |
|------------------------------------------------|----------------------------|----------------------------|-----------------------------|------------------------------|
| Cost                                           | \$7.2 Million              | \$7.9 Million              | \$17 Million                | \$21 Million                 |
| Benefit/Cost (B/C) ratio over a 20-year period | 3.9                        | 3.8                        | 1.8                         | 1.6                          |

## SHORT TERM IMPROVEMENTS - INTERSECTION PROJECTS

While the alignment options presented in the previous section provide medium-term relief, options were sought for more immediate short-term relief. Traffic operations issues were observed and forecasted in the study area for the year 2025 to reflect short-term conditions, without building of new or widened routes. A citywide Synchro™ model was developed to analyze improvements in 2025, including all twenty-six (26) current intersections with a traffic signal and the four (4) locations without a signal that were analyzed for operations with potential new connections for a total of thirty (30) intersections. Twenty-three (23) intersections were found to have viable improvement options. These twenty-three intersections are listed below.

- |                              |                          |                           |
|------------------------------|--------------------------|---------------------------|
| 1. US 290 at US 87 ("The Y") | 9. Main at Olive         | 17. SH 16 at Windcrest    |
| 2. Main at Milam             | 10. US 290 at Highway    | 18. SH 16 at Highway      |
| 3. Main at Orange            | 11. US 290 at Friendship | 19. SH 16 at Milam        |
| 4. Main at Adams             | 12. Llano at Austin      | 20. SH 16 at Friendship   |
| 5. Main at Llano             | 13. Llano at Travis      | 21. Washington at Highway |
| 6. Main at Lincoln           | 14. Adams at San Antonio | 22. Washington at Walnut  |
| 7. Main at Washington        | 15. Adams at Creek       | 23. Milam at Austin       |
| 8. Main at Elk               | 16. Adams at Live Oak    |                           |

The short-term operational and safety improvements identified at these twenty-three intersections and the associated planning-level costs are presented in this section. A list of detailed improvements for each intersection can be found in Appendix D. The planning-level cost to perform the improvements to all twenty-three intersections is **\$720,000**. This cost includes striping and lane assignment changes, signal timing changes, and various safety improvements and major construction costs as well as "soft costs" such as engineering, inspection, and testing. A detailed cost breakdown for all intersection projects can be found in Appendix E.

### SHORT-TERM IMPROVEMENTS: MAIN STREET CORRIDOR SUMMARY

Intersections studied along Main Street and US 290 include:

- |                             |                      |                        |
|-----------------------------|----------------------|------------------------|
| • US 290 at US 87 ("The Y") | • Main at Llano      | • Main at Olive        |
| • Main at Milam             | • Main at Lincoln    | • US 290 at Highway    |
| • Main at Orange            | • Main at Washington | • US 290 at Friendship |
| • Main at Adams             | • Main at Elk        |                        |

The Main Street corridor experiences much of the congestion in Fredericksburg, exacerbated by tourist traffic and truck traffic. Relief efforts which decrease congestion along Main Street can provide large benefits to the overall network. The three primary improvements suggested for the Main Street corridor include signal retiming, stop bar relocation, and the creation of new turn lanes.

Signal timing improvements primarily include providing more time to side streets or allowing permissive-protective left turn maneuvers for side streets. Optimizing signal timing in this way provides better traffic flow overall at intersections along Main Street. Stop bar relocation is intended to provide more room along side streets for trucks and other large vehicles to complete right turns. Side street stop bars may be relocated as far as 30 feet back from their current locations to provide room for truck maneuvers. Using



existing pavement space to create left or right turn lanes will help queueing issues and allow for more efficient flow along Main Street.

## SHORT-TERM IMPROVEMENT (1) – RETIME EXISTING INTERSECTIONS

Intersections recommended for re-timing to account for new demand by 2025:

- |                             |                      |                         |
|-----------------------------|----------------------|-------------------------|
| • US 290 at US 87 ("The Y") | • Main at Lincoln    | • Llano at Travis       |
| • Main at Milam             | • Main at Washington | • SH 16 at Windcrest    |
| • Main at Adams             | • Main at Elk        | • SH 16 at Highway      |
| • Main at Llano             | • Main at Olive      | • Washington at Highway |

Intersection retiming can improve operations at intersections by better optimizing traffic flow through the intersection. Retiming suggestions vary on a location-by-location basis, but some general trends include providing more time to minor streets to prevent backup and changing left turn operations to permissive-protective or providing protected left turn arrows at select locations.

The planning-level cost to retime these specific intersections is roughly **\$30,000**. A general recommendation, not specific to any location, is to coordinate with TxDOT for regular re-timing of signalized intersections in the City to reflect current demands. It is suggested to re-time signals at least once every three years to keep up with the pace of active development.

During this study, coordination with TxDOTs consultant, Iteris, occurred to understand recent signal timing studies and changes in Fredericksburg, predominantly along US 290 and SH 16. There are ongoing efforts to upgrade signals in the City to have communication links for signal timing progression as well as implementation of demand responsive timing plans to improve traffic flow at intersections. These improvements were not reflected in this study for either the baseline "do nothing" scenario or the improved condition in 2025, as these improvements are not yet defined.

## SHORT-TERM IMPROVEMENT (2) – LANE REASSIGNMENTS

Intersections where lane reassignments are recommended include:

- |                      |                        |                         |
|----------------------|------------------------|-------------------------|
| • Main at Adams      | • US 290 at Friendship | • Adams at Live Oak     |
| • Main at Washington | • Llano at Austin      | • SH 16 at Windcrest    |
| • Main at Elk        | • Llano at Travis      | • SH 16 at Highway      |
| • Main at Olive      | • Adams at San Antonio | • SH 16 at Milam        |
| • US 290 at Highway  | • Adams at Creek       | • Washington at Highway |

Lane reassignments involve changing the lane layout of an intersection without changing the pavement width. This can be achieved either by changing the assignments of the existing lane layout or by narrowing existing lanes to accommodate a new lane in the same pavement space. This is typically done to add a left turn lane to one or more approaches at an intersection, though sometimes it involves adding a right turn lane. It should be noted that due to existing street flow drainage design, this restriping may push outside lanes into areas where some anticipated design year water ponding will occur near the curb. However, the required minimum space for through lanes is not affected by restriping as these revisions do not affect pavement width. At the intersections of Main at Washington and Adams at Creek, one approach was eliminated to provide for a one-way movement and improved traffic optimization.

The planning-level cost to reassign these intersections, including any signal head changes needed as a result of the change, is roughly **\$230,000**.

### SHORT-TERM IMPROVEMENT (3) – SIGNING AND STRIPING

Intersections recommended for new striping and signs include:

- US 290 at US 87 ("The Y")
- Main at Milam
- Main at Orange
- Main at Llano
- Main at Lincoln
- Milam at Austin
- Washington at Walnut

Striping improvements involve applying pavement markings to better denote existing traffic conditions, such as striping a yellow centerline to separate travel directions or striping dashed-line "puppy tracks" to clearly denote turning movement paths. These improvements do not change the status quo of a roadway but rather make the status quo clearer to understand. These are relatively quick and cheap improvements to help both safety and operations.

The planning-level cost to restripe these intersections is roughly **\$60,000**.

### SHORT-TERM IMPROVEMENT (4) – SAFETY-SPECIFIC IMPROVEMENTS

Intersections where safety improvements are recommended include:

- US 290 at US 87 ("The Y")
- US 290 at Highway
- SH 16 at Windcrest
- Washington at Walnut
- Milam at Austin

Safety improvements focus more on eliminating potential dangers of an intersection than making its operations more efficient. Most safety improvements involve major construction efforts, such as constructing new medians, reconstructing the layout of an intersection, or reconstructing drainage structures at the intersection.

At the intersection of US 290 at US 87 (The "Y"), safety improvements involve restriping the intersection to guide the turning movement from eastbound US 290 to northbound US 87, the installation of medians to more clearly assign all traffic movements, and the installation of a pedestrian hybrid beacon to allow for the safer crossing of pedestrians in place of the existing traffic signal arm on US 87 N westbound from US 290, which is in dark mode unless activated by a pedestrian, generally resulting in better yield behavior.

At the intersection of US 290 and Highway, safety improvements include installing a pork chop median in the Whataburger driveway to make the driveway operate as was initially intended through permitting.

At the intersection of SH 16 and Windcrest, safety improvements include reconstructing the northeastern portion of the intersection where Windcrest intersects Adams to reduce the short-distance intersection conflicts in the area.

At the intersection of Washington and Walnut, safety improvements include installing a median between Washington and Granite to reduce vehicular conflicts, providing a center turn lane or raised median through the curve area on Washington, and generally consolidating or reorienting some access to reduce conflict points.

At the intersection of Milam at Austin, safety improvements include converting the intersection to an all-way stop, installing stop signs with flashing beacons or edge-lit LED signs on the Milam Street approaches, and adding high-visibility pedestrian crosswalks with sawtooth curb at corners to guide turning movements.

The planning-level cost to complete all five of these safety improvements is roughly **\$400,000**.

## PUBLIC INPUT

The public in the City of Fredericksburg and Gillespie County was encouraged to provide feedback through various forms. The following section documents the multiple opportunities for public feedback and the general concerns that citizens have about the proposed projects.

### METHODS OF ENGAGEMENT

The general public was provided several opportunities to provide feedback. Some of these opportunities are listed below.

- Open House presentation on January 28<sup>th</sup>
  - Three interactive activities on boards
  - Two maps to leave open comments
  - Comment cards
  - Paper and online survey
  - Comments made directly to city staff and consultant staff
- Online survey that was open from January 24<sup>th</sup> through February 14<sup>th</sup>
- Emails to project email address
- In-person visits to city staff

Information about all these feedback opportunities were publicized through various forms of media, including newspaper, radio, business cards, and portable message boards. All of this information, including all information presented at the open house, was also available on a city website.

### OPEN HOUSE SUMMARY

An open house was hosted on January 28<sup>th</sup>, 2020 from 5 PM to 8 PM to receive public feedback. The open house was advertised in the Fredericksburg Standard newspaper, on the local radio, on the city website, on business cards distributed throughout the city, and on portable message boards installed at heavily trafficked roadways on the edges of the city. In total, more than 180 individuals signed in at the open house, though several did not sign in from observations at the check-in station. The actual total was estimated to be 250-300 attendees.



The open house presented four potential alignment options which, if constructed, would each relieve local traffic congestion by providing new connections between major roads in the area. Additionally, possible improvement options for all twenty-six signalized (26) intersections in town and two intersections with observed safety issues were presented.



There were several activities available at the open house to ask questions and provide feedback. Open house attendees were encouraged to provide the following information on the presentation boards:

1. Where the attendee lives (to help calibrate feedback received)
2. The attendee's top 3 intersection projects
3. Three up- or down-votes for the four alignment options



Comment boards were also available for attendees to write a comment on a sticky note and place it on a map of the potential improvement options. Comment cards were available throughout the open house for people to record any comments they were not able to make while participating with the boards. City staff and consultant staff were available throughout the night for comments.



Of the attendees who participated in the "Where Do You Live?" board at the open house, roughly 60% resided somewhere outside the city limits and the remaining attendees resided within the city.

At the end of the open house, attendees had the opportunity to participate in a survey. During the open house, four attendees completed comment cards, thirty-eight attendees completed paper surveys, and three attendees completed online surveys. Several more comments were received on large format aerial layouts in the center of the room.

## ADDITIONAL COMMENT OPPORTUNITIES

After the open house, the public had over two weeks to provide comments on the information presented through online surveys, paper surveys located in City Hall, emails to the project email address, and meetings with city staff. In this time, an additional thirty-three (32) online surveys were completed, and one additional paper survey was turned in at City Hall. Comment opportunities were closed on February 14, 2020 to begin processing results.

## FEEDBACK ON MEDIUM-TERM PROJECTS

There were two major opportunities for feedback on the alignment options: 1) the open house board where attendees could up- or down-vote options, and 2) the survey where respondents could rank their preferred alignments.

## FEEDBACK RANKING

Feedback from both the open house boards and the survey was ranked at an individual response level to create aggregate comparisons between options.

Feedback from the open house boards was evaluated under three major criteria – total number of votes per alignment, total number of up-votes per alignment, and percentage of up-votes per alignment. Feedback from the surveys was provided a score: a project ranked 1<sup>st</sup> would receive four points, a project ranked 2<sup>nd</sup> would receive three points, a project ranked 3<sup>rd</sup> would receive two points, and a project ranked 4<sup>th</sup> would receive one point. With a total of 55 survey responses which ranked the projects, the lowest possible overall score is 55, and the highest possible overall score is 220.

## FEEDBACK GENERAL RESULTS

The general results of the alignment feedback are shown below in **Table 8**. A more detailed discussion of the results for each alignment is below.

**Table 8: Alignment Option Feedback Results**

| Alignment  | Open House  |                |                  | Online and Paper Survey |                                  |               |
|------------|-------------|----------------|------------------|-------------------------|----------------------------------|---------------|
|            | Total Votes | Total Up-Votes | Percent Up-Votes | Most Common Rank        | 2 <sup>nd</sup> Most Common Rank | Overall Score |
| Post Oak   | 72          | 44             | 61%              | 4 <sup>th</sup>         | 1 <sup>st</sup>                  | 148           |
| Mulberry   | 48          | 36             | 75%              | 3 <sup>rd</sup>         | 2 <sup>nd</sup>                  | 157           |
| Frederick  | 42          | 34             | 81%              | 2 <sup>nd</sup>         | 3 <sup>rd</sup>                  | 178           |
| Inner Loop | 85          | 59             | 69%              | 1 <sup>st</sup>         | 4 <sup>th</sup>                  | 176           |

Overall, there was not a clear “winner” for the public-preferred alignment. Many of the options had conflicting results, and the rankings were relatively equal.

In general, it appears that “outer” extensions (Frederick and Inner Loop) were preferred over “inner” extensions (Post Oak and Mulberry). Additionally, it appears that eastern extensions (Mulberry and Frederick) received more positive responses than western extensions (Post Oak and Inner Loop). The residential demographics of respondents may be a factor in why the survey and open house results are this way.

## POST OAK EXTENSION

The Post Oak Extension received a relatively high number of total votes from the open house board, but it had the overall lowest percentage of up-votes. The extension was most commonly ranked 4<sup>th</sup> out of the four alignment options and has the lowest overall score. However, the second most common rank the public gave the Post Oak Extension was 1<sup>st</sup> overall. The score generated from survey responses was the lowest of the four options.



Positive public comments about the Post Oak Extension mention its value relative to its cost and its benefits for city residents. Negative public comments about the Post Oak Extension mention its neighborhood impacts.

---

### **MULBERRY EXTENSION**

The Mulberry Extension received a relatively low number of total votes from the open house board, but it had the second-highest overall percentage of up-votes. The extension was most commonly ranked 3<sup>rd</sup> and 2<sup>nd</sup> overall. The score generated from survey responses was roughly in the middle of the lowest score and the two highest scores.

Positive public comments about the Mulberry Extension mention its relatively low cost. Negative public comments about the Mulberry Extension mention its neighborhood impacts.

---

### **FREDERICK EXTENSION**

The Frederick Extension received the lowest overall number of total votes from the open house board and the lowest number of up-votes, but it had the highest percentage of up-votes out of the four alignment options. The extension was most commonly ranked 2<sup>nd</sup> and 3<sup>rd</sup> overall. The score generated from survey responses was the highest out of the four alignment options.

Positive public comments about the Frederick Extension mention its effects on truck traffic. Negative public comments about the Frederick Extension mention its increased tax burden and land acquisition.

---

### **INNER LOOP EXTENSION**

The Inner Loop Extension received the highest overall number of total votes from the open house board and the highest number of up-votes, but it received the second-lowest percentage of up-votes. The extension was most commonly ranked 1<sup>st</sup> overall, though its second most common ranking was 4<sup>th</sup> overall. The score generated from survey responses second highest out of the four alignment options.

Positive public comments about the Inner Loop Extension mention relief for Main Street and its advantages compared to the proposed TxDOT Relief Route. Negative public comments about the Inner Loop Extension mention its increased tax burden and land acquisition.

### **FEEDBACK ON SHORT-TERM PROJECTS**

There were two major opportunities for feedback on the intersection options: 1) the open house board where attendees could rank their three most preferred projects, and 2) the survey where respondents could list their three top choice intersections.

---

### **FEEDBACK RANKING**

Feedback from both the open house boards and the survey was ranked together at an individual response level to create aggregate comparisons between options.

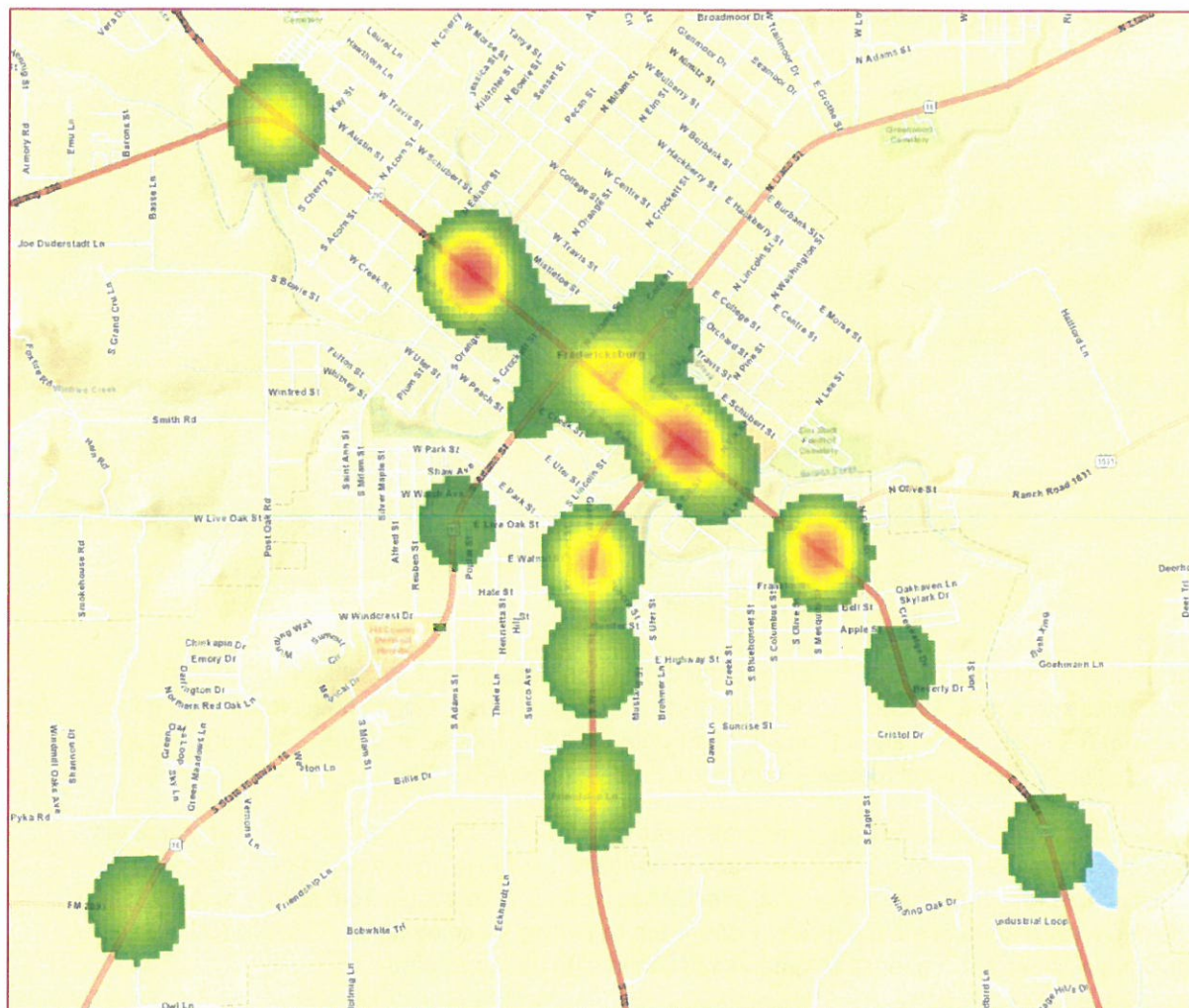
Feedback from the open house boards was provided a score: a project ranked 1<sup>st</sup> would receive three points, a project ranked 2<sup>nd</sup> would receive two points, and a project ranked 3<sup>rd</sup> would receive one point. Feedback from the surveys was averaged at two points per intersection voted.

## FEEDBACK GENERAL RESULTS

The general results of the intersection feedback are shown below in **Table 9**. A map displaying the frequency of votes at each intersection is shown in **Figure 10**.

**Table 9: Intersections Which Received 10 or More Points**

| Intersection                 | Score |
|------------------------------|-------|
| Main at Milam                | 66    |
| Main at Washington           | 65    |
| Main at Olive                | 60    |
| Washington at Walnut/Granite | 52    |
| US 290 at US 87              | 45    |
| Main at Llano                | 38    |
| Main at Elk                  | 33    |
| Washington at Friendship     | 30    |
| Washington at Highway        | 25    |
| SH 16 at Friendship          | 17    |
| Main at Adams                | 16    |
| US 290 at Friendship         | 13    |
| Llano at Travis              | 11    |
| US 290 at Highway            | 10    |



**Figure 10: Intersection Vote Density**

Intersections along Main Street and intersections along Washington Street received the most frequent votes. Intersections along Adams Street received relatively few votes.

From comments provided at the open house and in the survey, some of the primary concerns the public expressed with these intersections are that they are dangerous, it can be difficult to make left turns, and that they are confusing. Some of the primary benefits the public saw with these intersections are that they are cheap, they are short term, and they can improve safety.

## PUBLIC COMMENTS SUMMARY



In total, an estimated 250-300 people attended the open house event, an estimated 130 open house attendees interacted with the boards presented at the open house, 4 open house attendees left comment cards at the open house, and 71 people participated in either the paper survey or the online survey. A compilation of public input materials can be found in Appendix F.

Several helpful public comments were made both in favor of and in opposition to all four alignment options. Some public comments were made in opposition to the intersection projects, but most respondents responded favorably to all intersection options. Five quotes from survey responses are included above to illustrate the diversity of opinion regarding these projects. As future planning and design decisions are made, all comments will continue to be considered.

## CITY COUNCIL AND COMMISSIONERS COURT SUMMARY

**TO BE FILLED IN AT A LATER DATE**

## RECOMMENDATIONS

Any recommendations presented for this traffic impact study depend on the budget available for projects. No budget has yet been established for the intersection projects presented in the Fredericksburg TIS. As a result, several recommendations will be presented within varying possible future budget ranges. For each possible budget range, two recommendations will be presented, a primary and alternate option.

### BASELINE

The baseline cost for all twenty-three intersection projects is **\$720,000**. The remainder of the recommendations presented in the Fredericksburg TIS assume that all of the intersection projects will be completed prior to any extensions. The budgets reflected in this section assume that the baseline cost of \$720,000 is included and that all short-term intersection projects will be completed.

### BUDGET 1: BUDGET IS <\$10 MILLION

With a city budget of less than \$10 million, the only two alignment options within the budget are the two “inner” extensions – the Post Oak Extension and the Mulberry Extension. Thus, the two recommended options involve either constructing one or the other.

#### BUDGET 1 PRIMARY OPTION: CONSTRUCT POST OAK EXTENSION

The Post Oak Extension costs just over \$7 million, which is the minimum budget necessary for any of the alignment options to be constructed and is expected to see benefits valued 3.9 times higher than the cost over 20 years. The money spent on this option would contribute to traffic relief along Milam Street and at two major intersections along Main Street. It cannot be estimated what the local versus regional makeup of redistributed traffic will be, but it is anticipated that some redistributed traffic will be regional. This option would help alleviate issues closer to the city center in the southwest region of Fredericksburg.

Total budget: \$7,920,000

#### BUDGET 1 ALTERNATE: CONSTRUCT MULBERRY EXTENSION

The Mulberry Extension costs close to \$8 million and is expected to see benefits valued 3.8 times higher than the cost over 20 years. The money spent on this option would contribute to traffic relief along Main Street between Llano and Eagle, and along Llano Street between Main and Mulberry. It cannot be estimated what the local versus regional makeup of redistributed traffic will be, but it is anticipated that some redistributed traffic will be regional. This option would help alleviate issues closer to the city center in the northeast region of Fredericksburg.

Total budget: \$8,620,000

### BUDGET 2: BUDGET IS \$10 MILLION - \$20 MILLION

With a city budget between \$10 million and \$20 million, two major possibilities exist: either both “inner” extensions (Post Oak and Mulberry) are constructed, or one “outer” extension within the budget (Frederick) is constructed.

---

#### **BUDGET 2 PRIMARY: CONSTRUCT POST OAK AND MULBERRY EXTENSIONS**

The combination of the Post Oak Extension and the Mulberry Extension costs just over \$15 million. Each extension would see benefits valued more than 3.8 times higher than the cost over 20 years. The money spent on this option would contribute to traffic relief along Main Street, Llano Street, and Milam Street near the Fredericksburg city center. It cannot be estimated what the local versus regional makeup of redistributed traffic will be, but it is anticipated that some redistributed traffic will be regional. This option would help alleviate issues closer to the city center in both the southwest and northeast quadrants of the city.

Total budget required: \$15,820,000

---

#### **BUDGET 2 ALTERNATE: CONSTRUCT FREDERICK EXTENSION**

The Frederick Extension costs about \$17 million and is expected to see benefits valued 1.8 times higher than the cost over 20 years. The money spent on this option would contribute to traffic relief along Main Street between Llano and Friendship, and along Llano Street between Main and Frederick. It cannot be estimated what the local versus regional makeup of redistributed traffic will be, but it is anticipated that some redistributed traffic will be regional, including truck traffic. It should be noted that Frederick cannot be signed as a truck route and cannot carry permit loads. This option would help alleviate issues starting further from the city center in the northeast region of Fredericksburg.

Total budget required: \$17,720,000

#### **BUDGET 3: BUDGET IS \$20 MILLION - \$30 MILLION**

With a city budget between \$20 million and \$30 million, two major possibilities exist: either the western "outer" extension and the eastern "inner" extension (Inner Loop and Mulberry) are constructed, or the eastern "outer" extension and the western "inner" extension (Frederick and Post Oak) are constructed.

---

#### **BUDGET 3 PRIMARY: CONSTRUCT FREDERICK AND POST OAK EXTENSIONS**

The combination of the Frederick Extension and the Post Oak Extension costs just over \$24 million. The Frederick Extension and Post Oak Extension would see benefits 1.8 times and 3.9 times higher than the cost over 20 years, respectively. The money spent on this option would contribute to traffic relief along western Main Street, northern Llano Street, and southern Milam Street. It cannot be estimated what the local versus regional makeup of redistributed traffic will be, but it is anticipated that some redistributed traffic will be regional, including truck traffic. This option would help alleviate issues closer to the city center in southwest region and issues starting further from the city center in the northeast region of the city.

Total budget: \$24,920,000

---

#### **BUDGET 3 ALTERNATE: CONSTRUCT INNER LOOP AND MULBERRY EXTENSIONS**

The combination of the Inner Loop Extension and the Mulberry Extension costs nearly \$28 million. The Inner Loop Extension and Mulberry Extension would see benefits 1.6 times and 3.8 times higher than the cost over 20 years, respectively. The money spent on this option would contribute to traffic relief along



Main Street and Llano Street near the Fredericksburg city center and along major state highway intersections (Main at Washington, US 290 at Friendship, etc.). It cannot be estimated what the local versus regional makeup of redistributed traffic will be, but it is anticipated that some redistributed traffic will be regional, including truck traffic. It should be noted that Inner Loop cannot be signed as a truck route and cannot carry permit loads. This option would help alleviate issues closer to the city center in northeast region and issues starting further from the city center in the western region of the city.

Total budget: \$28,620,000

## FINAL PROPOSED RECOMMENDED PROJECTS

**TO BE FILLED IN AT A LATER DATE**

