



City of Fredericksburg

CITY COUNCIL AND GILLESPIE COUNTY COMMISSIONERS COURT SPECIAL MEETING AGENDA FRIDAY, FEBRUARY 28, 2020 ~ 8:30 A.M. FIRE TRAINING ROOM ~ 126 W. MAIN STREET

Linda Langerhans, Mayor
Charlie Kiehne, Councilmember
Bobby Watson, Councilmember

Gary Neffendorf, Councilmember
Tom Musselman, Councilmember
Kent Myers, City Manager

The City of Fredericksburg City Council and Gillespie County Commissioners Court will meet in a special session on Friday, February 28, 2020, at 8:30 a.m. in the City Hall Fire Training Room, 126 W. 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 25, 2020 before 8:30 a.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. PUBLIC COMMENTS

The City Council welcomes citizen participation and comments at all City Council Regular Meetings. The City Council offers citizens the opportunity to address them by signing up to speak prior to the meeting and to limit comments to 3-minutes.

NOTE: The Texas Open Meetings Act permits a member of the public or a member of the governmental body to raise a subject that has not been included in the notice for the meeting. However, any discussion of the subject must be limited to a proposal to place the subject on the agenda for a future meeting and any response to a question posed to the City Council is limited to either a statement of specific information or a recitation of existing policy. TEX. Gov'T CODE § 551.042.

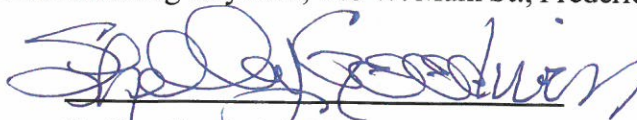
3. Present and Discuss the Establishment of a City/County Airport Zoning Board. (Agenda Packet Page 5-24)

4. Present and Discuss the Five-Year Fire/EMS Strategic Plan. (Agenda Packet Page 25-44)

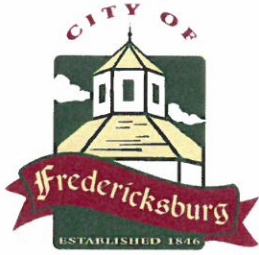
5. Present and Discuss the Traffic Impact Study. (Agenda Packet Page 45-106)

6. ADJOURN

This is to certify that I, Shelley Goodwin, posted this Agenda at 2:45 p.m. on February 20, 2020 at the entrance and on the bulletin board of the City of Fredericksburg City Hall, 126 W. Main St., Fredericksburg, Texas.



Shelley Goodwin, TRMC
City Secretary



Date: October 23, 2019

To: Mayor, County Judge, City Council and County Commissioners

From: Kent Myers, City Manager

Subject: February 28th Special Meeting

A special joint meeting of the City Council and County Commissioners is scheduled for this Friday, February 28th in the Fire Training Room at City Hall. We will serve breakfast starting at 8:00 a.m. with the meeting getting underway at 8:30 a.m. There are three items on the agenda for presentation and discussion at this meeting. This memo serves to summarize these items.

The first item scheduled on the agenda is a discussion on the creation of a Joint Airport Zoning Board. As presented in the attached background information, this Board is needed in order to update the Airport Zoning Ordinance. Information on this Zoning Board was previously presented to the County Commissioners last November. They have approved a process for creating this Board and updating the zoning regulations.

Following this presentation, the County Commissioners and City Council should each appoint two members to this Board. Then the four members appointed will elect the fifth member of the Board with this person serving as the Chair of the Board. It is also recommended that the County Airport Manager and the City Director of Development Services serve as ex-officio members of this Board. Later this year it is expected that this Board will have recommendations for the City Council to consider regarding height limits and other regulations that will improve the safety around the Airport.

The second item scheduled for next Friday's meeting is a presentation and discussion on the Fire/EMS 5-Year Strategic Plan. Over the past five years there have been numerous changes and improves in the delivery of both fire and EMS services in both the City and County. Over the next five years many more changes are expected as both our year-round population and number of visitors continues to increase.

The City of Fredericksburg

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

In anticipation of the continued growth and increase in the demand for services, last year the Fire Chief was requested to develop a five-year plan for providing fire/EMS services throughout the County. He organized a committee of key personnel to assist in developing this plan which will be presented at the meeting. This plan should help both the City and County get prepared for the changes that expected over the next five years.

The final item that is scheduled for presentation is the draft traffic impact study that the City's traffic consultant, Kimley Horn, has been developing for the City. This study includes an assessment of both short-term traffic improvements as well as long-term traffic improvements. Some of these improvements will require partnerships between the City, County and TXDOT in order to implement.

While no decisions are expected at Friday's meeting, it is hoped that we can get some indication on the highest priority improvements that we want to consider for funding. Following this discussion, the City Council will meet to finalize the traffic impact study and decide whether to move forward on any of these projects this year.

We look forward to the discussion at Friday's meeting. We appreciate the spirit of City/County cooperation that continues to exist in Gillespie County.



CITY COUNCIL MEMO

DATE: February 28, 2020

TO: Mayor, Judge, City Council and County Commissioners

FROM: Clinton Bailey, P.E., Assistant City Manager/Director of Public Works and Utilities

SUBJECT: Joint Airport Zoning Board

Summary:

This item is for the discussion of establishing a Joint Airport Zoning Board for the purpose of updating the airport zoning ordinance. This item will be presented by Tony Lombardi, Gillespie County Airport Manager.

Recommendation:

City and County staff recommend the establishment of a Joint Airport Zoning Board.

Background / Analysis:

During their regular meeting on Nov 25th, 2019 the Gillespie County Commissioners approved the process of updating the airport zoning ordinance via a Joint Airport Zoning Board.

The Airport Zoning Ordinance is established to regulate and restrict the heights of structures and objects of natural growth around the airport to enhance safety of aircraft in flight and objects on the ground.

The following are reasons the Airport Zoning Ordinance should be updated:

- The current Zoning ordinance was adopted in 1978 and is based on a 3800 foot long runway; the runway has since been extended to its current length of 5002 feet
- Recommendation of the 2005 Airport Master Plan
- To meet current TXDOT Aviation Requirements
- Required by specific Grant Assurances - "(20) Hazard Removal and Mitigation: It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards."

Composition of the Airport Zoning Board:

The Gillespie County-Fredericksburg joint **airport zoning board** shall be composed of five members, two to be appointed by the commissioners' court of Gillespie County, Texas, and two to be appointed by the city council of the City of Fredericksburg, Texas. The fifth member shall be elected by a majority of the members so appointed and said fifth member shall serve as chairman of the Gillespie County-Fredericksburg joint **airport zoning board**. It is recommended that there also be two ex-officio members of the Board, one County and one City official consisting of the Gillespie County Airport Manager and the City of Fredericksburg Director of Development Services.



Department Approval



City Manager Approval

LOCAL GOVERNMENT CODE
SUBTITLE C. REGULATORY AUTHORITY APPLYING TO MORE THAN ONE TYPE OF
LOCAL GOVERNMENT
CHAPTER 241. MUNICIPAL AND COUNTY ZONING AUTHORITY AROUND AIRPORTS
SUBCHAPTER A. GENERAL PROVISIONS

Sec. 241.001. SHORT TITLE. This chapter may be cited as the Airport Zoning Act.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.002. LEGISLATIVE FINDINGS. The legislature finds that:

(1) an airport hazard endangers the lives and property of users of the airport and of occupants of land in the vicinity of the airport;

(2) an airport hazard that is an obstruction reduces the size of the area available for the landing, taking off, and maneuvering of aircraft, tending to destroy or impair the utility of the airport and the public investment in the airport;

(3) the creation of an airport hazard is a public nuisance and an injury to the community served by the airport affected by the hazard;

(4) it is necessary in the interest of the public health, public safety, and general welfare to prevent the creation of an airport hazard;

(5) the creation of an airport hazard should be prevented, to the extent legally possible, by the exercise of the police power without compensation; and

(6) the prevention of the creation of an airport hazard and the elimination, the removal, the alteration, the mitigation, or the marking and lighting of an airport hazard are public purposes for which a political subdivision may raise and spend public funds and acquire land or interests in land.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.003. DEFINITIONS. In this chapter:

(1) "Airport" means an area of land or water, publicly or privately owned, designed and set aside for the landing and taking off of aircraft and used or to be used in the interest of the public for that purpose. The term includes an area with installations relating to flights, including installations, facilities, and bases of operations for tracking flights or acquiring data concerning flights.

(2) "Airport hazard" means a structure or object of natural growth that obstructs the air space required for the taking off, landing, and flight of aircraft or that interferes with visual, radar, radio, or other systems for tracking, acquiring data relating to, monitoring, or controlling aircraft.

(3) "Airport hazard area" means an area of land or water on which an airport hazard could exist.

(4) "Airport zoning regulation" means an airport hazard area zoning regulation and an airport compatible land use zoning regulation adopted under this chapter.

(5) "Centerline" means a line extending through the midpoint of each end of a runway.

(6) "Compatible land use" means a use of land adjacent to an airport that does not endanger the health, safety, or welfare of the owners, occupants, or users of the land because of levels of noise or vibrations or the risk of personal injury or property damage created by the operations of the airport, including the taking off and landing of aircraft.

(7) "Controlled compatible land use area" means an area of land located outside airport boundaries and within a rectangle bounded by lines located no farther than 1-1/2 statute miles from the centerline of an instrument or primary runway and lines located no farther than five statute miles from each end of the paved surface of an instrument or primary runway.

(8) "Instrument runway" means an existing or planned runway of at least 3,200 feet for which an instrument landing procedure published by a defense agency of the federal government or the Federal Aviation Administration exists or is planned.

(9) "Obstruction" means a structure, growth, or other object, including a mobile object, that exceeds a limiting height established by federal regulations or by an airport hazard area zoning regulation.

(10) "Political subdivision" means a municipality or county.

(11) "Primary runway" means an existing or planned

paved runway, as shown in the official airport layout plan (ALP) of the airport, of at least 3,200 feet on which a majority of the approaches to and departures from the airport occur.

(12) "Runway" means a defined area of an airport prepared for the landing and taking off of aircraft along its length.

(13) "Structure" means an object constructed or installed by one or more persons and includes a building, tower, smokestack, and overhead transmission line.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.004. AIRPORT USED IN INTEREST OF PUBLIC. For the purposes of this chapter, an airport is used in the interest of the public if:

(1) the owner of the airport, by contract, license, or otherwise, permits the airport to be used by the public to an extent that the airport fulfills an essential community purpose; or

(2) the airport is used by the state or an agency of the state or by the United States for national defense purposes or for any federal program relating to flight.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.005. ADOPTION OF REGULATION INCLUDES AMENDMENT OR OTHER CHANGE. A reference in this chapter to the adoption of an airport zoning regulation includes the amendment, repeal, or other change of a regulation. A reference to the adoption of an airport zoning regulation also includes the amendment of an airport zoning regulation existing on the date the law codified by this chapter took effect, which was September 5, 1947.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

SUBCHAPTER B. ADOPTION OF AIRPORT ZONING REGULATIONS

Sec. 241.011. AIRPORT HAZARD AREA ZONING REGULATIONS. (a) To prevent the creation of an airport hazard, a political subdivision in which an airport hazard area is located may adopt, administer, and enforce, under its police power, airport hazard area zoning regulations for the airport hazard area.

(b) The airport hazard area zoning regulations may divide an airport hazard area into zones and for each zone:

(1) specify the land uses permitted;

(2) regulate the type of structures; and

(3) restrict the height of structures and objects of natural growth to prevent the creation of an obstruction to flight operations or air navigation.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.012. AIRPORT COMPATIBLE LAND USE ZONING REGULATIONS. (a) A political subdivision may adopt, administer, and enforce, under its police power, airport compatible land use zoning regulations for the part of a controlled compatible land use area located within the political subdivision if the airport is:

(1) used in the interest of the public to the benefit of the political subdivision; or

(2) located within the political subdivision and owned or operated by a federal defense agency or by the state.

(b) The political subdivision by ordinance or resolution may implement, in connection with airport compatible land use zoning regulations, any federal law or rules controlling the use of land located adjacent to or in the immediate vicinity of the airport.

(c) The airport compatible land use zoning regulations must include a statement that the airport fulfills an essential community purpose.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.013. EXTRATERRITORIAL ZONING IN POLITICAL SUBDIVISIONS WITH POPULATION OF MORE THAN 45,000. (a) A political subdivision with a population of more than 45,000 in which an airport used in the interest of the public to the benefit of the political subdivision is located may adopt, administer, and enforce:

(1) airport hazard area zoning regulations applicable to an airport hazard area relating to the airport and located outside the political subdivision; and

(2) airport compatible land use zoning regulations applicable to a controlled compatible land use area relating to the airport and located outside the political subdivision.

(b) The political subdivision has the same power to adopt, administer, and enforce airport hazard area zoning regulations or airport compatible land use zoning regulations under this section

as that given a political subdivision by Sections 241.011 and 241.012.

(c) The airport hazard area zoning regulations or airport compatible land use zoning regulations must include a statement that the airport fulfills an essential community purpose. Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1991, 72nd Leg., ch. 98, Sec. 1, 2, eff. Aug. 26, 1991.

Sec. 241.014. JOINT AIRPORT ZONING BOARD. (a) A political subdivision to whose benefit an airport is used in the interest of the public or in which an airport owned or operated by a defense agency of the federal government or the state is located may create a joint airport zoning board with another political subdivision in which an airport hazard area or a controlled compatible land use area relating to the airport is located. The political subdivisions must act by resolution or ordinance in creating the joint board.

(b) The joint airport zoning board has the same power to adopt, administer, and enforce airport hazard area zoning regulations or airport compatible land use zoning regulations under this section as that given a political subdivision by Sections 241.011 and 241.012.

(c) The joint airport zoning board must consist of two members appointed by each of the political subdivisions creating the board and, in addition, a chairman elected by a majority of the appointed members.

(d) If an agency of the state owns and operates an airport located within an airport hazard area or controlled compatible land use area governed by a joint airport zoning board, the agency is entitled to have two members on the board.

(e) The joint airport zoning board for an airport that is owned or operated by a defense agency of the federal government and that is closed by the federal government may provide that zoning regulations adopted by the board continue in effect until the fourth anniversary of the date the airport is closed. Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1997, 75th Leg., ch. 352, Sec. 1, eff. May 27, 1997; Acts 1999, 76th Leg., ch. 1176, Sec. 1, eff. June 18, 1999.

Sec. 241.015. INCORPORATION OF AIRPORT ZONING REGULATION INTO COMPREHENSIVE ZONING ORDINANCE. A political subdivision may incorporate an airport zoning regulation in a comprehensive zoning ordinance and administer and enforce it in connection with the administration and enforcement of the comprehensive zoning ordinance if:

(1) the two zoning regulations apply, in whole or in part, to the same area; and

(2) the comprehensive zoning ordinance includes, among other matters, a regulation on the height of buildings. Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.016. AIRPORT ZONING COMMISSION. (a) Before an airport zoning regulation may be adopted, a political subdivision acting unilaterally under Section 241.013 must appoint an airport zoning commission. If the political subdivision has a planning commission or comprehensive zoning commission, that commission may be designated as the airport zoning commission.

(b) The commission shall recommend the boundaries of the zones to be established and the regulations for these zones.

(c) The commission shall make a preliminary report and hold public hearings on the report before submitting a final report.

(d) Before the 15th day before the date of a hearing under Subsection (c), notice of the hearing shall be published in an official newspaper or a newspaper of general circulation in each political subdivision in which the airport hazard area or controlled compatible land use area to be zoned is located.

(e) A joint airport zoning board created under Section 241.014 is not required to appoint a commission under this section. Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1995, 74th Leg., ch. 697, Sec. 1, eff. Sept. 1, 1995.

Sec. 241.017. PROCEDURAL LIMITATIONS APPLYING TO ADOPTION OF ZONING REGULATIONS. (a) The governing body of a political subdivision may not hold a public hearing or take other action concerning an airport zoning regulation until it receives the final report of the airport zoning commission.

(b) An airport zoning regulation may not be adopted except by action of the governing body of the political subdivision or a joint airport zoning board after the political subdivision or joint

airport zoning board holds a public hearing on the matter at which parties in interest and citizens have an opportunity to be heard.

(c) Before the 15th day before the date of a hearing under Subsection (b), notice of the hearing must be published in an official newspaper or a newspaper of general circulation in each political subdivision in which the area to be zoned is located. Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1995, 74th Leg., ch. 697, Sec. 2, eff. Sept. 1, 1995.

Sec. 241.018. REASONABLENESS OF AIRPORT ZONING REGULATIONS. (a) An airport zoning regulation must be reasonable and may impose a requirement or restriction only if the requirement or restriction is reasonably necessary to achieve the purposes of this chapter.

(b) In determining which airport zoning regulations to adopt, the governing body of a political subdivision or a joint airport zoning board shall consider, among other things:

(1) the character of the flying operations expected to be conducted at the airport;

(2) the nature of the terrain within the airport hazard area;

(3) the character of the neighborhood; and

(4) the current and possible uses of the property to be zoned.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.019. NONCONFORMING USES AND STRUCTURES. Except as provided by Section 241.035, airport zoning regulations may not require:

(1) changes in nonconforming land use existing on the date of the adoption of the regulations;

(2) the removal, lowering, or other change of a structure that does not conform to the regulations on the date of their adoption, including all phases or elements of a multiphase structure, regardless of whether actual construction has commenced, that received a determination of no hazard by the Federal Aviation Administration under 14 C.F.R., Part 77, before the regulations were adopted;

(3) the removal, lowering, or other change of an object of natural growth that does not conform to the regulations on the date of their adoption; or

(4) any other interference in the continuation of a use that does not conform to the regulations on the date of their adoption.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.020. PERMITS. (a) Airport zoning regulations may require that a permit be obtained before:

(1) a new structure is constructed;

(2) an existing structure is substantially changed or repaired;

(3) a new use is established; or

(4) an existing use is substantially changed.

(b) Airport zoning regulations must provide that a permit be obtained from the administrative agency authorized to administer and enforce the regulations before:

(1) a nonconforming structure may be replaced, rebuilt, or substantially changed or repaired; or

(2) a nonconforming object of natural growth may be replaced, substantially changed, allowed to grow higher, or replanted.

(c) A permit may not allow:

(1) the establishment of an airport hazard;

(2) a nonconforming use to be made;

(3) a nonconforming structure or object of natural growth to become higher than it was at the time of the adoption of the airport zoning regulations relating to the structure or object of natural growth or at the time of the application for the permit; or

(4) a nonconforming structure, object of natural growth, or use to become a greater hazard to air navigation than it was at the time of the adoption of the airport zoning regulations relating to the structure, object of natural growth, or use or at the time of the application for the permit.

(d) Except as provided by Subsection (c), an application for a permit shall be granted.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

SUBCHAPTER C. ADMINISTRATIVE AGENCY AND BOARD OF ADJUSTMENT

Sec. 241.031. ADMINISTRATIVE AGENCY. (a) Airport zoning regulations must provide for the administration and enforcement of the regulations by an administrative agency. The administrative agency may be:

- (1) an agency created by the regulations;
- (2) an existing official, board, or agency of the political subdivision adopting the regulations; or
- (3) an existing official, board, or other agency of a political subdivision that participated in the creation of a joint airport zoning board adopting the regulations, if satisfactory to that political subdivision.

(b) The administrative agency may not be the board of adjustment or include any member of the board.

(c) The administrative agency shall hear and decide all applications for permits under Section 241.020.

(d) The agency may not exercise any of the powers delegated to the board of adjustment.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.032. BOARD OF ADJUSTMENT. (a) Airport zoning regulations must provide for a board of adjustment.

(b) If a zoning board of appeals or adjustment exists, it may be designated as the board of adjustment under this chapter.

(c) If a zoning board of appeals or adjustment does not exist or is not designated as the board of adjustment under this chapter, a board of adjustment must be appointed. The board must consist of five members to be appointed for terms of two years. The appointing authority may remove a board member for cause on a written charge after a public hearing. A vacancy on the board shall be filled for the unexpired term.

(d) The concurring vote of four members of the board is necessary to:

(1) reverse an order, requirement, decision, or determination of the administrative agency;

(2) decide in favor of an applicant on a matter on which the board is required to pass under an airport zoning regulation; or

(3) make a variation in an airport zoning regulation.

(e) The board shall adopt rules in accordance with the ordinance or resolution that created it.

(f) Meetings of the board are held at the call of the chairman and at other times as determined by the board. The chairman or acting chairman may administer oaths and compel the attendance of witnesses. All hearings of the board shall be open to the public.

(g) The board shall keep minutes of its proceedings that indicate the vote of each member on each question or the fact that a member is absent or fails to vote. The board shall keep records of its examinations and other official actions. The minutes and records shall be filed immediately in the board's office and are public records.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.033. AUTHORITY OF BOARD. The board of adjustment shall:

(1) hear and decide an appeal, as provided by Section 241.036, from an order, requirement, decision, or determination made by the administrative agency in the enforcement of an airport zoning regulation;

(2) hear and decide special exceptions to the terms of an airport zoning regulation when the regulation requires the board to do so; and

(3) hear and decide specific variances under Section 241.034.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.034. VARIANCES. (a) A person who desires to erect or increase the height of a structure, permit the growth of an object of natural growth, or otherwise use property in violation of an airport zoning regulation, may apply to the board of adjustment for a variance from the regulation.

(b) The board shall allow a variance from an airport zoning regulation if:

(1) a literal application or enforcement of the regulation would result in practical difficulty or unnecessary hardship; and

(2) the granting of the relief would:

(A) result in substantial justice being done;

(B) not be contrary to the public interest; and
(C) be in accordance with the spirit of the regulation and this chapter.

(c) The board may impose any reasonable conditions on the variance that it considers necessary to accomplish the purposes of this chapter.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.035. HAZARD MARKING AND LIGHTING. If the administrative agency or board of adjustment considers it reasonable in the circumstances and advisable to accomplish the purposes of this chapter, the agency or board may require in a permit or a variance granted under this chapter that the owner of a structure or object of natural growth allow the political subdivision, at its own expense, to install, operate, and maintain on the structure or object of natural growth any markers and lights necessary to indicate to flyers the presence of an airport hazard.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.036. APPEAL TO BOARD. (a) A decision of the administrative agency made in its administration of an airport zoning regulation may be appealed to the board of adjustment by:

(1) a person who is aggrieved by the decision;
(2) a taxpayer who is affected by the decision; or
(3) the governing body of a political subdivision or a joint airport zoning board that believes the decision is an improper application of the airport zoning regulation.

(b) The appellant must file with the board and the administrative agency a notice of appeal specifying the grounds for the appeal. The appeal must be filed within a reasonable time as determined by the rules of the board. On receiving the notice, the administrative agency shall immediately transmit to the board all the papers constituting the record of the action that is appealed.

(c) An appeal stays all proceedings in furtherance of the action that is appealed unless the administrative agency certifies in writing to the board facts supporting the agency's opinion that a stay would cause imminent peril to life or property. In that case, the proceedings may be stayed only by an order of the board, after notice to the administrative agency, if due cause is shown.

(d) The board shall set a reasonable time for the appeal hearing and shall give public notice of the hearing and due notice to the parties in interest. A party may appear at the appeal hearing in person or by agent or attorney. The board shall decide the appeal within a reasonable time.

(e) The board may reverse or affirm, in whole or in part, or modify the administrative agency's order, requirement, decision, or determination from which an appeal is taken and make the correct order, requirement, decision, or determination, and for that purpose the board has the same authority as the administrative agency.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

SUBCHAPTER D. JUDICIAL REVIEW AND OTHER REMEDIES

Sec. 241.041. JUDICIAL REVIEW OF BOARD DECISION. (a) A person who is aggrieved or a taxpayer who is affected by a decision of a board of adjustment, or the governing body of a political subdivision or a joint airport zoning board that believes a decision of a board of adjustment is illegal, may present to a court of record a verified petition stating that the decision of the board of adjustment is illegal in whole or in part and specifying the grounds of the illegality. The petition must be presented within 10 days after the date the decision is filed in the board's office.

(b) On the presentation of the petition, the court may grant a writ of certiorari directed to the board of adjustment to review the board's decision. Granting of the writ does not stay the proceedings on the decision under appeal, but on application and after notice to the board the court may grant a restraining order if due cause is shown.

(c) The board's return must be verified and must concisely state any pertinent and material facts that show the grounds of the decision that is appealed. The board is not required to return the original documents on which the board acted but may return certified or sworn copies of the documents or parts of the documents as provided by the writ.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.042. TRIAL BY COURT. (a) The court, in an appeal from a decision of a board of adjustment as provided by Section 241.041, shall try and determine the case de novo on the basis of

the facts adduced in the trial of the case in the court. The court shall independently rule on the facts and the law as in an ordinary civil suit.

(b) The court has exclusive jurisdiction to reverse or affirm, in whole or in part, or modify the decision that is appealed and, if necessary, may order further proceedings by the board.

(c) Costs may not be assessed against the board unless the court determines that the board acted with gross negligence, in bad faith, or with malice in making its decision.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.043. EFFECT OF HOLDING OF THE COURT. If the court holds that an airport zoning regulation, although generally reasonable, interferes with the use or enjoyment of a particular structure or parcel of land to such an extent that, or is so onerous in its application to a particular structure or parcel of land that, the application of the regulation constitutes a taking or deprivation of property in violation of the state or federal constitution, the holding does not affect the application of the regulation to any other structure or parcel of land.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.044. ADDITIONAL REMEDIES. (a) A political subdivision or joint airport zoning board adopting airport zoning regulations may bring an action in a court of competent jurisdiction to prevent, restrain, correct, or abate a violation of:

- (1) this chapter;
- (2) an airport zoning regulation adopted by the political subdivision or board; or
- (3) an order or ruling made in connection with the administration or enforcement of an airport zoning regulation adopted by the political subdivision or board.

(b) The court shall grant any relief, including an injunction which may be mandatory, as may be proper under all the facts and circumstances of the case to accomplish the purposes of this chapter and the regulations adopted and orders and rulings made under it.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

SUBCHAPTER 2. MISCELLANEOUS PROVISIONS

Sec. 241.901. CONFLICT OF AN AIRPORT HAZARD AREA ZONING REGULATION WITH ANOTHER REGULATION. (a) If an airport hazard area zoning regulation conflicts with any other regulation applicable to the same area, the more stringent limitation or requirement controls.

(b) Subsection (a) applies to any conflict with respect to the height of a structure or object of natural growth or any other matter.

(c) Subsection (a) applies to any regulation that conflicts with an airport hazard area zoning regulation whether the regulation was adopted by the political subdivision that adopted the airport zoning regulation or by another political subdivision.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.902. CONFLICT OF AN AIRPORT COMPATIBLE LAND USE ZONING REGULATION WITH ANOTHER REGULATION. (a) If an airport compatible land use zoning regulation conflicts with any other regulation applicable to the same area, the airport compatible land use zoning regulations.

(b) Subsection (a) applies to any conflict with respect to the use of land or any other matter.

(c) Subsection (a) applies to any regulation that conflicts with an airport compatible land use zoning regulation, whether the regulation was adopted by the political subdivision that adopted the airport compatible land use zoning regulation or by another political subdivision.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 241.903. ACQUISITION OF AIR RIGHTS OR OTHER PROPERTY. (a) A political subdivision may acquire from a person or other political subdivision an air right, aviation easement, or other estate or interest in property or in a nonconforming structure or use if:

- (1) the acquisition is necessary to accomplish the purposes of this chapter;
- (2) the property or nonconforming structure or use is located within the political subdivision, the political subdivision owns the airport, or the political subdivision is served by the airport; and

(3)(A) the political subdivision desires to remove, lower, or terminate the nonconforming structure or use;

(B) airport zoning regulations are not sufficient to provide necessary approach protection because of constitutional limitations; or

(C) the acquisition of a property right is more advisable than an airport zoning regulation in providing necessary approach protection.

(b) An acquisition under this section may be by purchase, grant, or condemnation in the manner provided by Subchapter B, Chapter 21, Property Code.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Checklist of Procedural and Legal Actions required for the Adoption of an Airport Zoning Ordinance

Note: The following procedures assume that a Joint Airport Zoning Board (JAZB) will be created. If more than 2 political subdivisions are involved, steps 1 and 2 are repeated as necessary and the number of persons comprising the JAZB will be increased.

IMPORTANT: Do not deviate from the numerical order of procedural steps and assure no step is taken before the preceding step is finished.

1. City Ordinance creating a JAZB and appointing city's representatives to that board.

Date passed: _____

2. County Order creating a JAZB and appointing county's representative to that board.

Date passed: _____

3. Oaths of office administered to members of the JAZB.

Date administered: _____

4. Election of 5th member of the JAZB who shall serve as chairperson of that board.

Date elected: _____

5. Oath of office administered to chairperson of the JAZB

Date administered: _____

6. JAZB sets date of public hearing.

Date procedural form is signed: _____

7. Notice of public hearing published in local newspaper(s).

Date published: _____

Note: The above step should be repeated for each political subdivision affected by the zoning.

8. Proof of publication collected for each newspaper.

Date notarized: _____

Note: The above step should be repeated for each political subdivision affected by the zoning.

9. Notice of public hearing posted in city hall.

Date posted: _____

Note: The above step should be repeated for each city participating the zoning.

10. Notice of public hearing posted in county courthouse.

Date posted: _____

Note: The above step should be repeated for each county participating the zoning.

11. Conduct public hearing.

Date of public hearing: _____

12. Adopt zoning ordinance.

Date adopted: _____

13. Attorney's certification.

Date certified: _____

14. Adopted ordinance filed with County Clerk.

Date filed: _____

Note: The above step should be repeated for each county participating in the zoning.

15. Copy of procedural forms and adopted ordinance provided to each political subdivision participating in the zoning process.

Date copies provided: _____

Note: The above step should be repeated for each political subdivision participating in the zoning.

The following numbered paragraphs correspond to the procedural steps described above and include a brief explanation:

- 1-2. Each political subdivision underlying the various areas to be zoned will appoint 2 members to a JAZB. These members should be carefully considered before appointment because they will be given the authority to represent their appointing authority in all matters having to do with the zoning and will comprise the board that will actually adopt the zoning regulations. The members may be any persons whosoever; however, it is recommended that they not be members of the agencies that appointed the JAZB and they cannot be a member of the board of adjustment for airport zoning.
3. The appointed JAZB members will be issued an oath of office. The wording of the oath is prescribed by State law and should be repeated verbatim.
4. The JAZB will meet and elect an additional member who will act as the chairperson of the JAZB. Like the appointed members of the JAZB, the chairperson may be any person whosoever with the above noted exceptions.
5. The elected chairperson will be issued an oath of office. Again, the oath is prescribed by State law and should be repeated verbatim. The chairperson's oath is slightly different than the members because one oath is prescribed for appointed positions (members) and a different one for elected positions (chairperson).
6. The JAZB will set a date for a public hearing. The public hearing should be at a place and time normally accessible by members of the general public.
7. Notices of the public hearing will be published in the newspapers where the affected cities and counties normally publish public notices. The publications must be at least 15 days before the public hearing. The first day is considered to be the day after the papers are published and circulated. It is not necessary to include the notice in every edition of the papers for 15 days, only one time more than 15 days before the public hearing.
8. A proof of publication form for each newspaper publication is collected. These should be signed by an authority of the newspaper and notarized. An actual clipping of the published notice from each paper should be attached to each proof of publication.
- 9-10. Notices of the public hearing will be posted in the city halls and county courthouses of the affected cities and counties at least 3 days before the public hearing. Posting of notices is not actually listed in the AZA but conforms to municipal law that requires 3-day public notice any time that a public body meets.
11. The public hearing will be conducted by the JAZB. Any members of the public wishing to speak should be allowed to speak and may make pertinent statements either for or against the proposed zoning.
12. After the public hearing, the JAZB considers the statements made at the public hearing plus any other requirements to adopt the zoning such, as the terms and conditions of various airport improvement grant contracts. It then decides whether to adopt or not adopt the regulations. If not adopted, the procedures end. If adopted, the JAZB will proceed to step number 13.

13. A copy of each procedural form and the adopted zoning regulations are provided to an attorney for review. This is normally the city or county attorney. The attorney reviews the actions taken up to this point and, if deemed to have been done correctly, signs a form certifying that each procedural step was accomplished in accordance with applicable laws, ordinances, rules, and/or regulations and the adopted zoning regulations are binding and enforceable. If the zoning is associated with the requirements of an airport improvement grant contract from the State, the attorney also certifies the zoning regulations fulfill the requirements of the appropriate sections of the Texas Administrative Code.

14. Copies of the adopted regulations are provided to the county clerks of each affected county in order that the zoning regulations may be entered into the county records. This is done so various properties underlying the zoned areas will be properly “flagged” as being under a zoning regulation when a deed search is done.

15. Copies of each procedural form and the adopted zoning regulations are provided to each political subdivision that participated in the zoning for their records. It is not necessary for each individual political subdivision that participated in the appointment of the JAZB to adopt or confirm the adopted zoning regulations, but if they desire to do so, it will not have any adverse effects on the zoning. The zoning regulations should carry the same legal weight whether adopted or confirmed by each individual political subdivision or not.

AN ORDER REGULATING AND RESTRICTING THE HEIGHT OF STRUCTURES AND OBJECTS OF NATURAL GROWTH, AND OTHERWISE REGULATING THE USE OF PROPERTY, IN THE VICINITY OF THE GILLESPIE COUNTY AIRPORT BY CREATING AIRPORT APPROACH ZONES, TRANSITION ZONES, HORIZONTAL ZONES AND CONICAL ZONES, AND ESTABLISHING THE BOUNDARIES THEREOF. PROVIDING FOR CHANGES IN THE RESTRICTIONS AND BOUNDARIES OF SUCH ZONES DEFINING CERTAIN TERMS USED HEREIN, REFERRING TO THE GILLESPIE COUNTY AIRPORT ZONING MAP WHICH IS INCORPORATED IN AND MADE A PART OF THIS ORDER, PROVIDING FOR ENFORCEMENT, ESTABLISHING A BOARD OF APPEALS AND IMPOSING PENALTIES.

This order is adopted pursuant to the authority conferred by Chapter 391, Acts of Regular Session, 50th Legislature, State of Texas, 1947, as Amended, and specifically by Article 46E-3, Revised Statutes of Texas.

It is hereby found that an airport hazard endangers the lives and property of users of Gillespie County Airport and of occupants of land in its vicinity, and also, if of the obstruction type, in effect reduces the size of the area available for the landing, taking-off and maneuvering of aircrafts, thus tending to destroy or impair the utility of Gillespie County Airport and the public investment therein. Accordingly, it is declared: (1) that the creation or establishment of an airport hazard is a public nuisance and injury to the region served by Gillespie County Airport; (2) that it is necessary in the interest of the public health, public safety and general welfare that the creation or establishment of airport hazards be prevented; and (3) that the prevention of these hazards should be accomplished, to the extent legally possible, by the exercise of the police power without compensation. It is further declared that both the prevention of the creation or establishment of airport hazards and the elimination, removal, alteration, mitigation, or marking and lighting of existing airport hazards are public purposes for which political subdivisions may raise and expend public funds and acquire land or interests in land.

BE IT ORDERED BY THE JOINT AIRPORT ZONING BOARD OF THE COUNTY OF GILLESPIE, TEXAS:

Section 1. Short Title. This order shall be known and may be cited as "Gillespie County Airport Zoning Order."

Section 2. Definitions. As used in this order, unless the context otherwise requires:

- (1) AIRPORT - means Gillespie County Airport.
- (2) AIRPORT ELEVATION - means the established elevation of the highest point on the usable landing area measured in feet from mean sea level.
- (3) AIRPORT HAZARD - means any structure, tree or use of land which obstructs the airspace required for or is otherwise hazardous to the flight of aircraft in landing or taking-off at the airport.
- (4) AIRPORT REFERENCE POINT - means the point established as the approximate geographic center of the airport landing area and so designated.
- (5) HEIGHT - For the purpose of determining the height limits in all zones set forth in this Order and shown on the zoning map, the datum shall be mean sea level elevation unless otherwise specified.

- (6) JOINT AIRPORT ZONING BOARD - means a board consisting of Five (5) members, two members appointed by the Gillespie County Commissioners' Court, and two (2) members appointed by the City Commissioners', City of Fredericksburg, Texas, the four (4) members so appointed shall elect a fifth member, the chairman.
- (7) LANDING AREA - means the surface area of the Airport used for the landing, take-off or taxiing of aircraft.
- (8) NONCONFORMING USE - means any structure, tree, or use of land which is lawfully in existence at the time the regulation is prescribed in the order or an amendment thereto becomes effective and does not then meet the requirements of said regulation.
- (9) PERSON - means an individual, firm, partnership, corporation, company, association, joint stock association, or body politic, and includes a trustee, receiver, assignee, administrator, executor, guardian, or other representative.
- (10) RUNWAY - A defined area on an airport prepared for landing and take-off of aircraft along its length.
- (11) STRUCTURE - means an object constructed or installed by man, including, but not limited to, buildings, towers, smokestacks, and overhead transmission lines.
- (12) TREE - means any object of natural growth.
- (13) NONPRECISION INSTRUMENT RUNWAY - A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment for which a straight-in nonprecision instrument approach procedure has been approved or planned, and for which no precision approach facilities are planned or indicated on an FAA planning document or military service's military airport planning document.
- (14) PRIMARY SURFACE - A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; but when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface of a runway will be that width prescribed in Part 77 of the Federal Aviation Regulations (FAR) for the most precise approach existing or planned for either end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

The width of a primary surface is:

- (A) For other than utility runways the width is:
 - (1) 500 feet for nonprecision instrument runways having visibility minimums greater than three-fourths statute mile.

Section 3. Zones. In order to carry out the provisions of this Order, there are hereby created and established certain zones which include all of the land lying beneath the Approach Surfaces, Transition Surfaces, Horizontal Surface and Conical Surface. Such areas are shown on Gillespie County Airport Zoning Map consisting of one (1) sheet prepared by The Texas Aeronautics Commission and dated August 1, 1978, which is attached to this Order and made a part hereof. The various zones are hereby established and defined as follows:

(1) APPROACH ZONES

- (a) Runway 14/32 Approach zone is established beneath the approach surface at each end of runway 14/32 on Gillespie County Airport for nonprecision instrument landings and take-offs. The approach zone shall have a width of 500 feet at a distance of 200 feet beyond each end of the runway, widening thereafter uniformly to a width of 3,500 feet at a horizontal distance of 10,200 feet beyond each end of the runway, its centerline being the continuation of the centerline of the runway.

- (2) TRANSITION ZONES - Transition zones are hereby established beneath the transition surface adjacent to each runway and approach surface as indicated on the zoning map. Transition surfaces, symmetrically located on either side of runways, have variable widths as shown on the zoning map. Transitional surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces.

- (3) HORIZONTAL ZONE - The area beneath a horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of 10,000 feet radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by lines tangent to those arcs.

- (4) CONICAL ZONE - The area beneath the conical surface extending outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

Section 4. Height Limitations. Except as otherwise provided in this order, no structure or tree shall be erected, altered, allowed to grow, or maintained in any zone created by this Order to a height in excess of the height limit herein established for such zone. Such height limitations are hereby established for each of the zones in question as follows:

(1) APPROACH ZONES

- (a) Runway 14/32 One (1) foot in height for each thirty-four (34) feet in horizontal distance beginning at a point 200 feet from and at the elevation of the end of the runway and extending to a point 10,200 feet from the end of the runway.

(2) TRANSITION ZONES

- (a) Runway 14/32 One (1) foot in height for each seven (7) feet in horizontal distance beginning at any point 250 feet normal to and at the elevation of the centerline of the runway extending 200 feet beyond each end thereof, extending to a height of 150 feet above the airport elevation or a height of 1,844 feet above mean sea level. In addition to the foregoing, there are established height limits of one (1) foot vertical height for each seven (7) feet horizontal distance measured from the edge of the approach zone and extending upward and outward to the points where they intersect the horizontal surfaces.

- (3) HORIZONTAL ZONE - That area beneath the horizontal surface which is located one hundred fifty (150) feet above the airport elevation, or a height of 1,844 feet above mean seal level.
- (4) CONICAL ZONE - That area beneath the conical surface which is one (1) foot in height for each twenty (20) feet of horizontal distance beginning at the periphery of the horizontal surface extending to a height of 350 feet above the airport elevation.
- (5) EXCEPTED HEIGHT LIMITATIONS - Nothing in this Order shall be construed as prohibiting the growth, construction or maintenance of any tree or structure to a height up to 20 feet above the surface of the land.

Where an area is covered by more than one (1) height limitation, the more restrictive limitations shall prevail.

Section 5. Use Restrictions. Notwithstanding any other provisions of this Order, no use may be made of land within any zone established by this Order in such a manner as to create electrical interference with radio communication between the Airport and aircraft, make it difficult for flyers to distinguish between airport lights and others, result in glare in the eyes of flyers using the Airport, impair visibility in the vicinity of the Airport or otherwise endanger the landing, taking-off, or maneuvering of aircraft.

Section 6. Nonconforming Uses. (a) Regulations not Retroactive. The regulations prescribed by this order shall not be construed to require the removal, lowering, or other changes or alteration of any structure or tree not conforming to the regulations as of the effective date of this Order, or otherwise interfere with the continuance of any nonconforming use. Nothing herein contained shall require any change in the construction, alteration, or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this Order, and is diligently prosecuted.

(b) Marking and Lighting. Notwithstanding the preceding provision of this Section, the owner of any nonconforming structure or tree is hereby required to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by the Gillespie County Commissioners' Court to indicate to the operators of aircraft in the vicinity of the Airport, the presence of such airport hazards. Such markers and lights shall be installed, operated, and maintained at the expense of Gillespie County.

Section 7. Permits. (a) Future Uses. No material change shall be made in the use of land and no structure or tree shall be erected, altered, planted, or otherwise established in any zone hereby created unless a permit therefore shall have been applied for and granted.

- (1) However, a permit for a tree or structure of less than 75 feet of vertical height above the ground shall not be required in the horizontal and conical zones or in any approach and transitional zones beyond a horizontal distance of 4,200 feet from each end of the runway except when such tree or structure, because of terrain, land, contour, or topographic features, would extend above the height limit prescribed for the respective zone.
- (2) Each application for a permit shall indicate the purpose for which the permit is desired with sufficient particulars to determine whether the resulting use, structure, or tree would conform to the regulations herein prescribed. If such determination is in the affirmative, the permit shall be granted.

Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction, alteration or growth of any structure or tree in excess of any of the height limits established by this Order except as set forth in Section 4., Par. (5).

(b) Existing Uses. No permit shall be granted that would allow the establishment or creation of an airport hazard or permit a nonconforming use, structure, or tree to be made or become higher, or become a greater hazard to air navigation, than it was on the effective date of this Order or any amendments thereto or than it is when the application for a permit is made. Except as indicated, all applications for such a permit shall be granted.

(c) Nonconforming Uses Abandoned or Destroyed. Whenever the Commissioners' Court determines that a nonconforming structure or tree has been abandoned or more than 80 percent torn down, physically deteriorated, or decayed, no permit shall be granted that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations.

(d) Variances. Any person desiring to erect or increase the height of any structure, or permit the growth of any tree, or use his property, not in accordance with the regulations prescribed in this Order, may apply to the Board of Adjustment for a variance from such regulations. Such variances shall be allowed where it is duly found that a literal application or enforcement of the regulations would result in practical difficulty or unnecessary hardship and the relief granted would not be contrary to the public interest but will do substantial justice and be in accordance with the spirit of this Order.

(3) Hazard Marking and Lighting. Any permit or variance granted may, if such action is deemed advisable to effectuate the purpose of this Order and be reasonable in the circumstances, be so conditioned as to require the owner of the structure or tree in question to permit the Gillespie County at its own expense to install, operate, and maintain thereon such markers and lights as may be necessary to indicate to flyers the presence of an airport hazard.

Section 8. Enforcement. It shall be the duty of the Gillespie County Commissioners' Court to administer and enforce the regulations prescribed herein. Applications for permits and variances shall be made to the Gillespie County Judge upon a form furnished by him. Applications, required by this Order to be submitted to the Commissioners' Court, shall be promptly considered and granted or denied. Applications for action by the Board of Adjustment shall be forthwith transmitted by the Gillespie County Judge.

Section 9. Board of Adjustment. (a) There is hereby created a Board of Adjustment to have and exercise the following powers: (1) to hear and decide appeals from any order, requirement, decision, or determination made by the Commissioners' Court in the enforcement of this Order; (2) to hear and decide special exceptions to the terms of this Order upon which such Board of Adjustment under such regulations may be required to pass (3) to hear and decide specific variances.

(b) The Board of Adjustment shall consist of five members appointed by the Gillespie County Commissioners' Court and each shall serve for a term of two (2) years and removable for cause by the appointment authority upon written charges, after a public hearing.

(c) The Board of Adjustment shall adopt rules for its governance and procedure in harmony with the provisions of this Order. Meetings of the Board of Adjustment shall be held at the call of the Chairman and at such times as the Board of Adjustment may determine. The Chairman, or in his absence, the acting chairman, may administer oaths and compel the attendance of witnesses. All hearings of the Board of

Adjustment shall be public. The Board of Adjustment shall keep minutes of its proceedings showing the vote of each member upon each question, or, if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official actions, all of which shall immediately be filed in the office of the Gillespie County Clerk and shall be a public record.

(d) The Board of Adjustment shall make written findings of fact and conclusions of law giving the facts upon which it acted and its legal conclusions from such facts in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of this Order.

(e) The concurring vote of four (4) members of the Board of Adjustment shall be sufficient to reverse any order, requirement, decision, or determination of the Commissioners' Court or to decide in favor of the application on any matter upon which it is required to pass under this Order, or to effect any variation in this Order.

Section 10. Appeals. (a) Any person aggrieved, or any taxpayer affected, by any decision of the Gillespie County Judge made in his administration of this Order, if of the opinion that a decision of the Commissioners' Court is an improper application of this regulations, may appeal to the Board of Adjustment.

(b) All appeals hereunder must be taken within a reasonable time as provided by the rules of the Board of Adjustment, by filing with the Commissioners' Court a notice of appeal specifying the grounds thereof. The Gillespie County Judge shall forthwith transmit to the Board of Adjustment all the papers constituting the record upon which the action appealed from was taken.

(c) An appeal shall stay all proceedings in furtherance of the action appealed from, unless the Commissioners' Court certifies to the Board of Adjustment, after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay would, in his opinion, cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the Board of Adjustment on notice to the agency from which the appeal is taken and on due cause shown.

(d) The Board of Adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing any party may appear in person or by agent or by attorney.

(e) The Board of Adjustment may in conformity with the provisions of this Order, reverse or affirm, in whole or in part, or modify the order, requirement, decision or determination appealed from and may make such order, requirement, decision or determination, as may be appropriate under the circumstances.

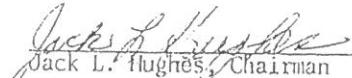
Section 11. Judicial Review. Any person aggrieved, or any taxpayer affected, by any decision of the Board of Adjustment, may appeal to the Court of Record as provided in Section 11 Chapter 391 of the Public Laws of Texas Specifically Article 46e-11, Revised Statutes of Texas.

Section 12. Penalties. Each violation of this Order or of any regulation order, or ruling promulgated hereunder shall constitute a misdemeanor and be punishable by a fine of not more than \$200.00 and each day a violation continues to exist shall constitute a separate offense.

Section 13. Conflicting Regulations. Where there exists a conflict between any of the regulations or limitations prescribed in this Order and any other regulations applicable to the same area, whether the conflict be with respect to the height of structures or trees, the use of land, or any other matter, the more stringent limitation or requirement shall govern and prevail.

Section 14. Severability. If any of the provisions of this Order or the application thereof to any person or circumstances is held invalid such invalidity shall not affect other provisions or applications of the Order which can be given effect without the invalid provision or application, and to this end the provisions of this Order are declared to be severable.

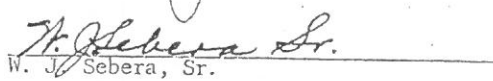
Section 15. Effective Date. WHEREAS, the immediate operation of the provisions of this Order is necessary for the preservation of the public health, public safety, and general welfare, an EMERGENCY is hereby declared to exist, and this Order shall be in full force and effect from and after its passage by the Airport Zoning Board and publication and posting as required by law. Adopted by the Gillespie County-Fredericksburg Joint Airport Zoning Board this 23rd day of March, 1979.

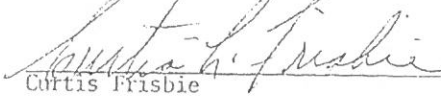

Jack L. Hughes, Chairman


Marylin Jander

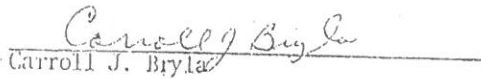
X

Keith Keller


W. J. Sebera, Sr.


Curtis Frisbie

I swear and affirm I witnessed the signature of Keith Keller by placing an X above his name.

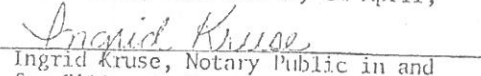

Carroll J. Bryla

THE STATE OF TEXAS
COUNTY OF GILLESPIE

I
I

BEFORE ME, the Undersigned Authority on this day personally appeared Carroll J. Bryla, known to me to be the person who witnessed the above signature, and duly sworn by me, stated under oath that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office, this 2nd day of April, 1979, A.D.


Ingrid Kruse, Notary Public in and
for Gillespie County, Texas

Fredericksburg Fire EMS

5 Year Plan
December, 2019

1

Origin

- Directed by the City Manager
- Evaluation of current capabilities and future needs
- Final product to serve as a roadmap into the future for the next 5 years

2

Key Points

- Fredericksburg Fire EMS provides EMS Service to the Whole of Gillespie County and not just the City of Fredericksburg
- Fredericksburg Fire EMS provides Fire Mutual Aid Service to the Whole of Gillespie County and other jurisdictions and not just the City of Fredericksburg
- Multi-Agency Plan: Notable Participants
 - Fredericksburg Fire EMS
 - Development Services
 - Public Works/Engineering
 - All Gillespie County Fire Departments
 - Gillespie County Economic Commission
 - Gillespie County Tax Assessor

3

Process

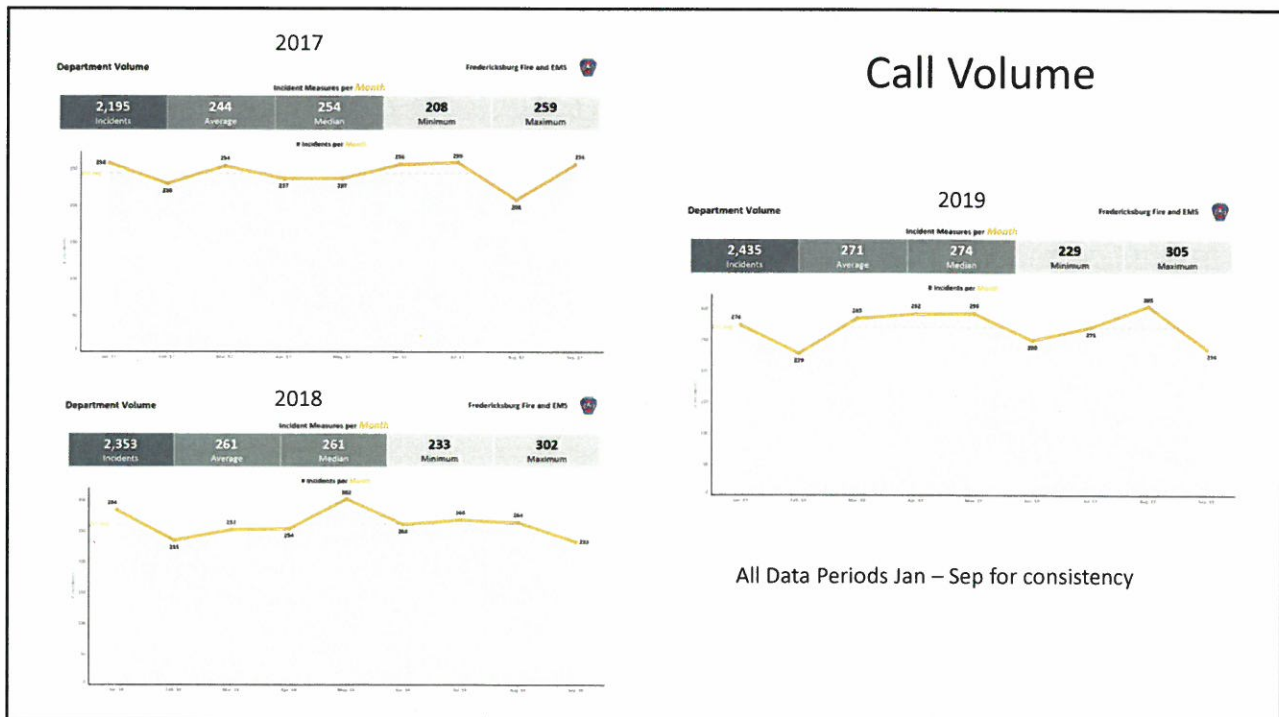
- Formed Committee/Working Group
- Identify Customers and Partners
- Conduct SWOT (Strength, Weaknesses, Opportunities, Risks) study
- Interview Key Department Heads and Subject Matter Experts
- Create a working Draft
- Finalize Document
- Present Results to Department Heads, City Manager and City Council

4

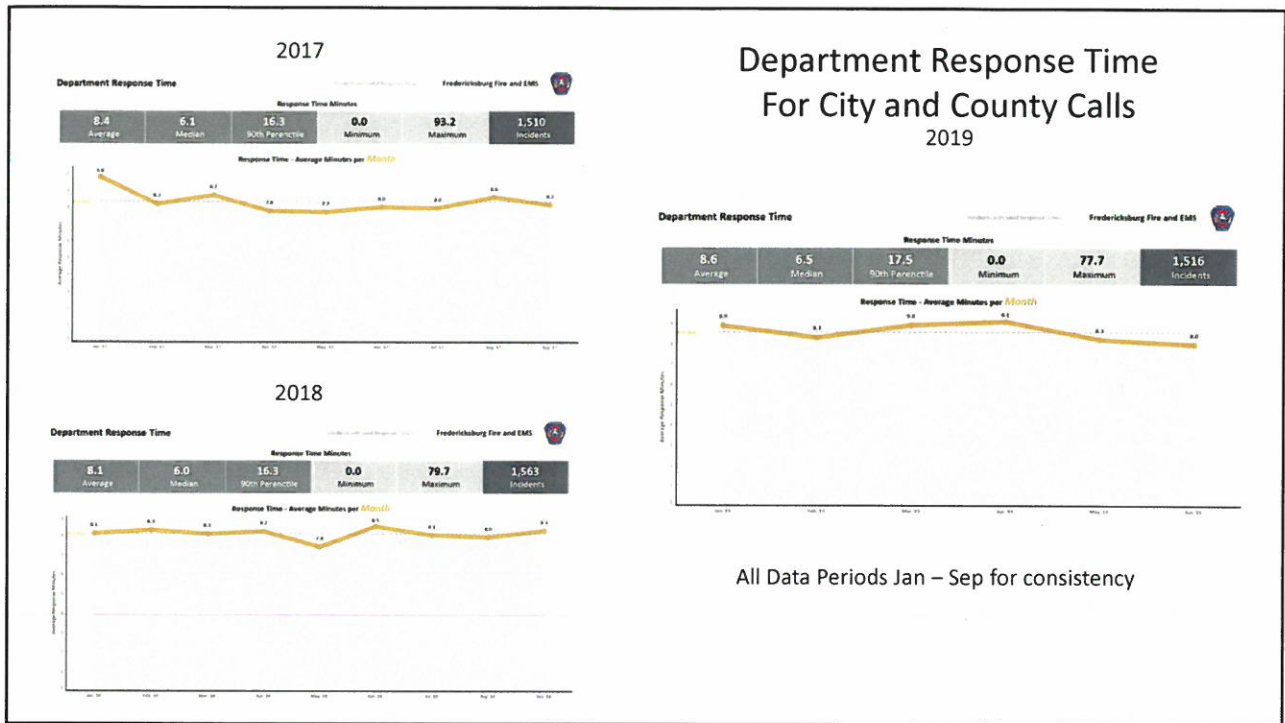
Data Driven Process

- Conclusions Must Be Supported by Data
 - No shooting from the hip. Conclusions must be supportable.
 - Needed to know as much a possible about the exact nature, time, location, and type of calls
 - Needed to know as much as possible about the known, projected and possible growth areas
 - Needed to know what our county partners believe to the greatest needs, risks and opportunities going forward
 - Data Drawn from Resource Management System (RMS)
 - RMS Uses Data Automatically entered by Dispatch System and manually entered by crews

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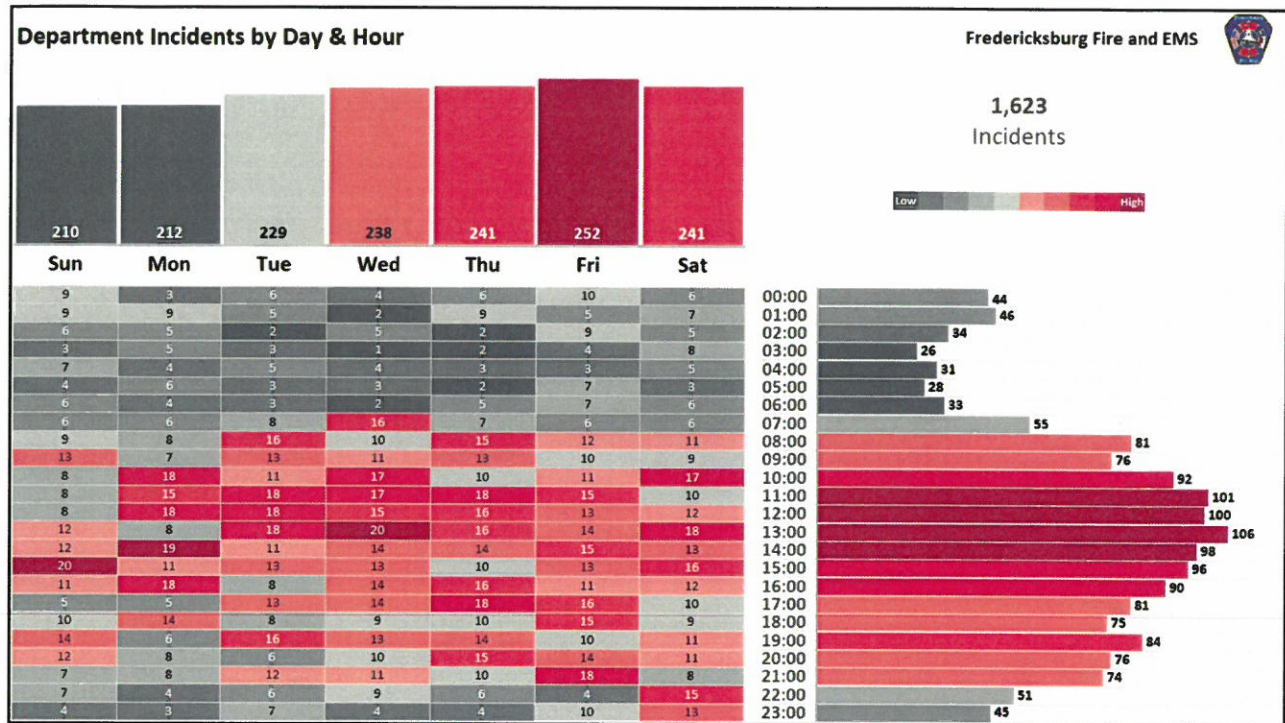


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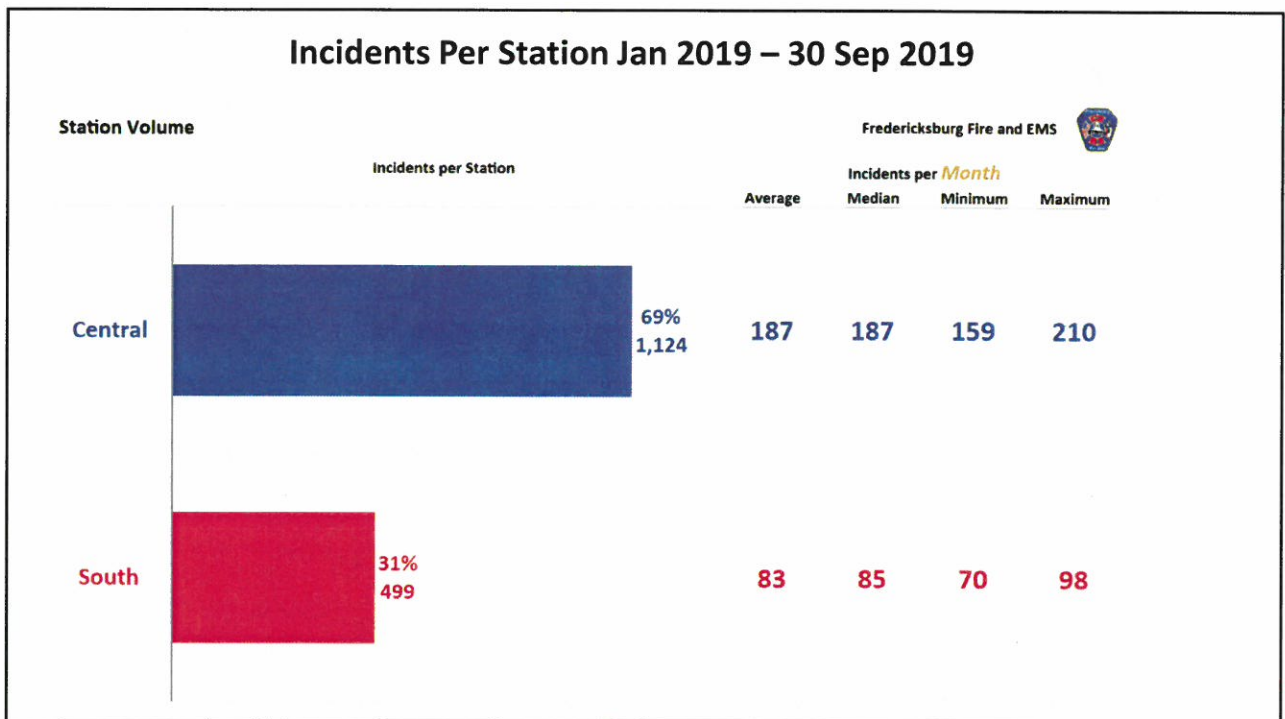
Conclusions

- This study identified the following Strategic Initiatives
 - Strategic Initiative # 1 Upgrade Communication System
 - Strategic Initiative # 2 Improve response times to City and County
 - Strategic Initiative # 3 Implement an Existing Apparatus Replacement Plan
 - Strategic Initiative # 4 Training and qualification of Staff and Volunteers

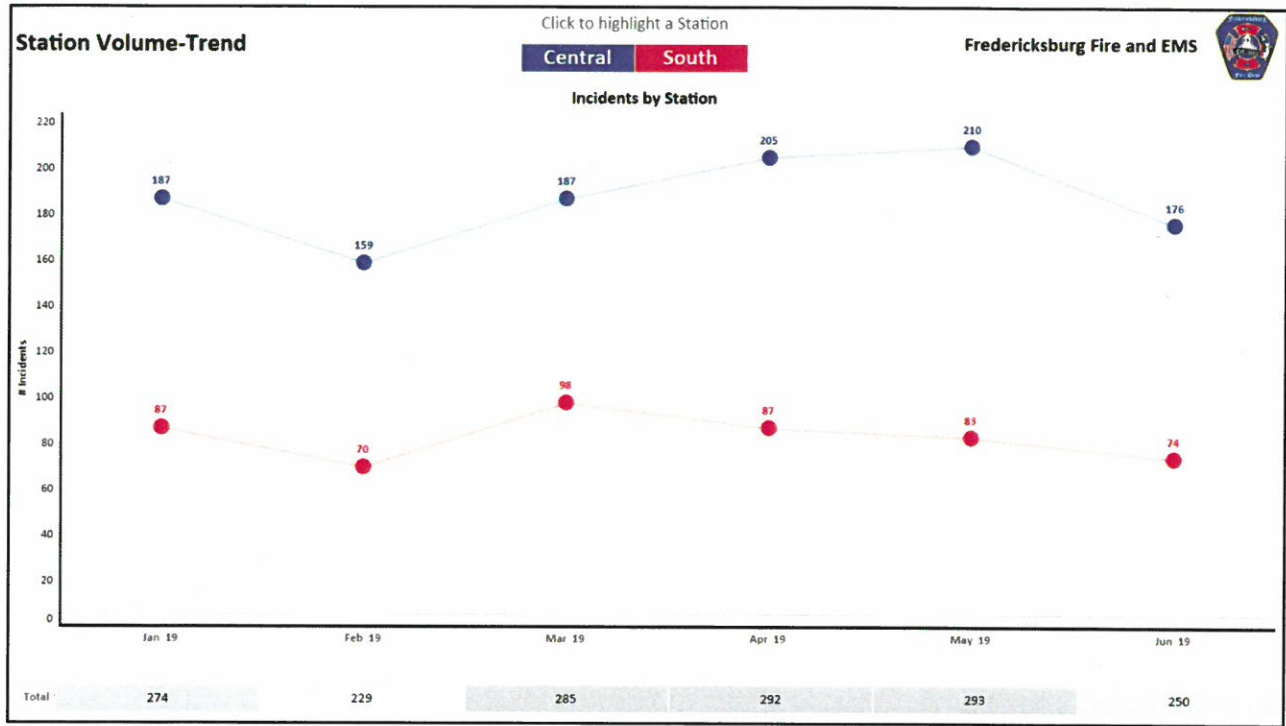
10



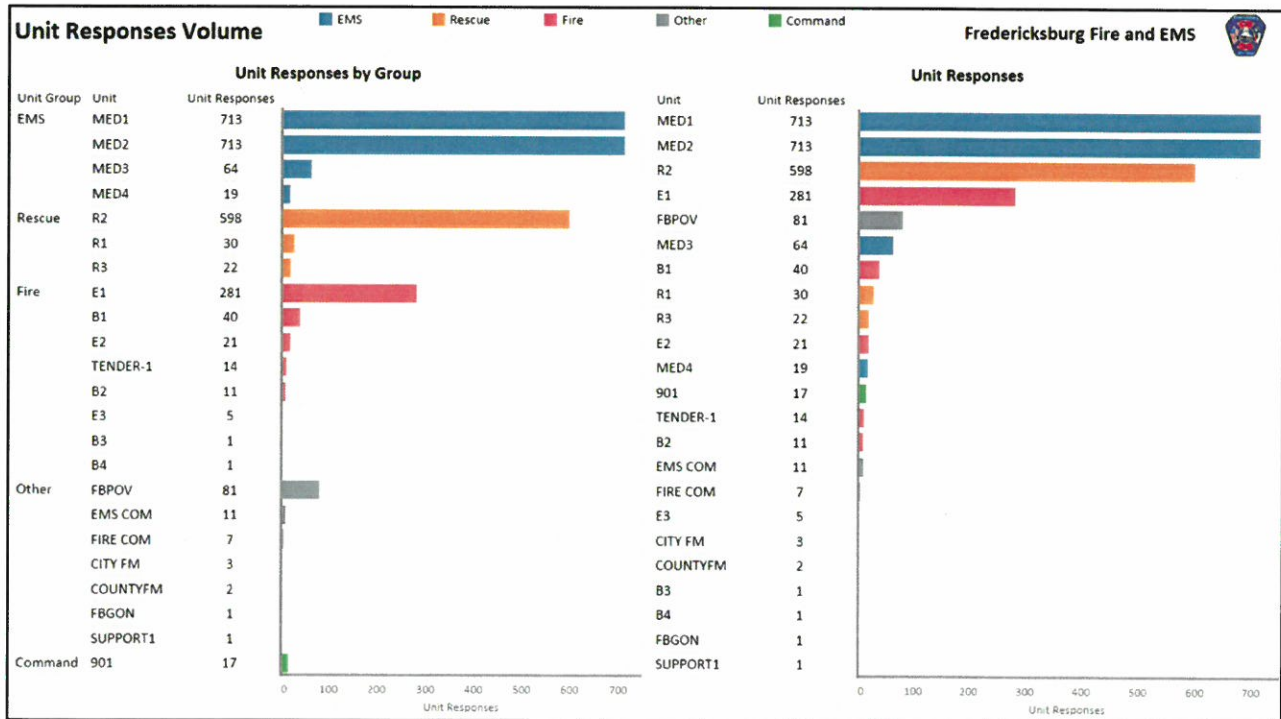
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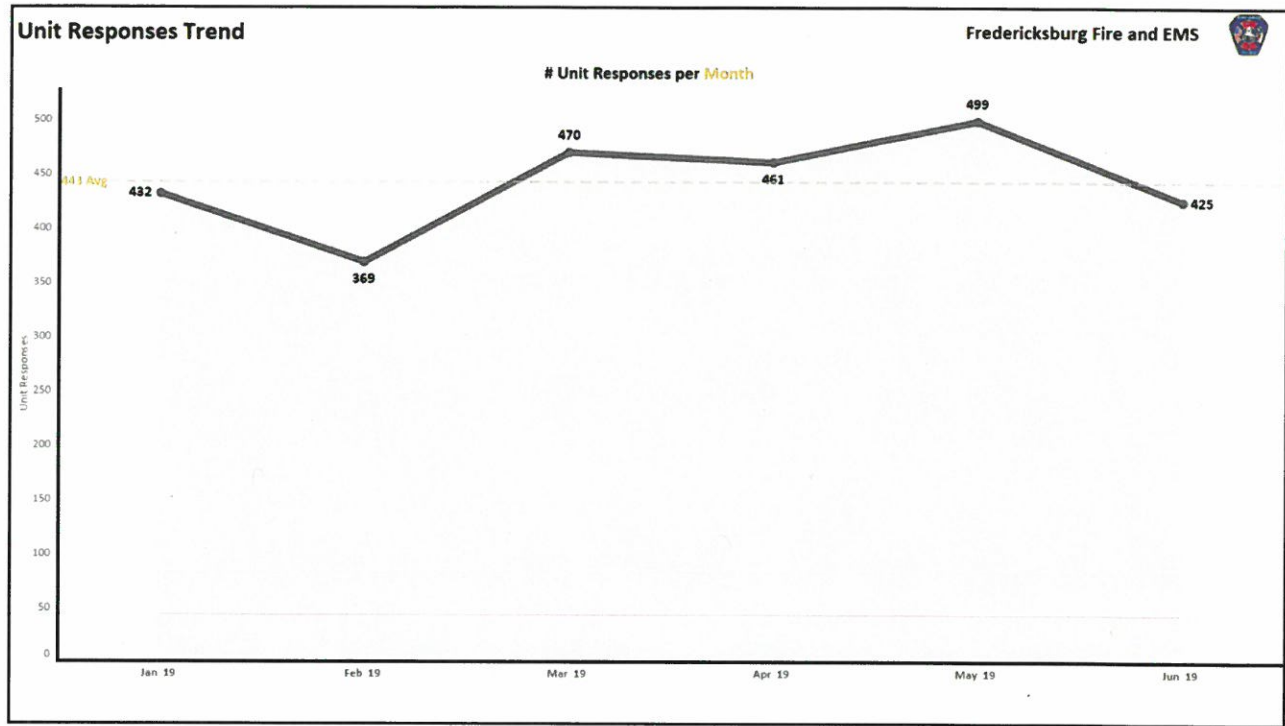
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13



14



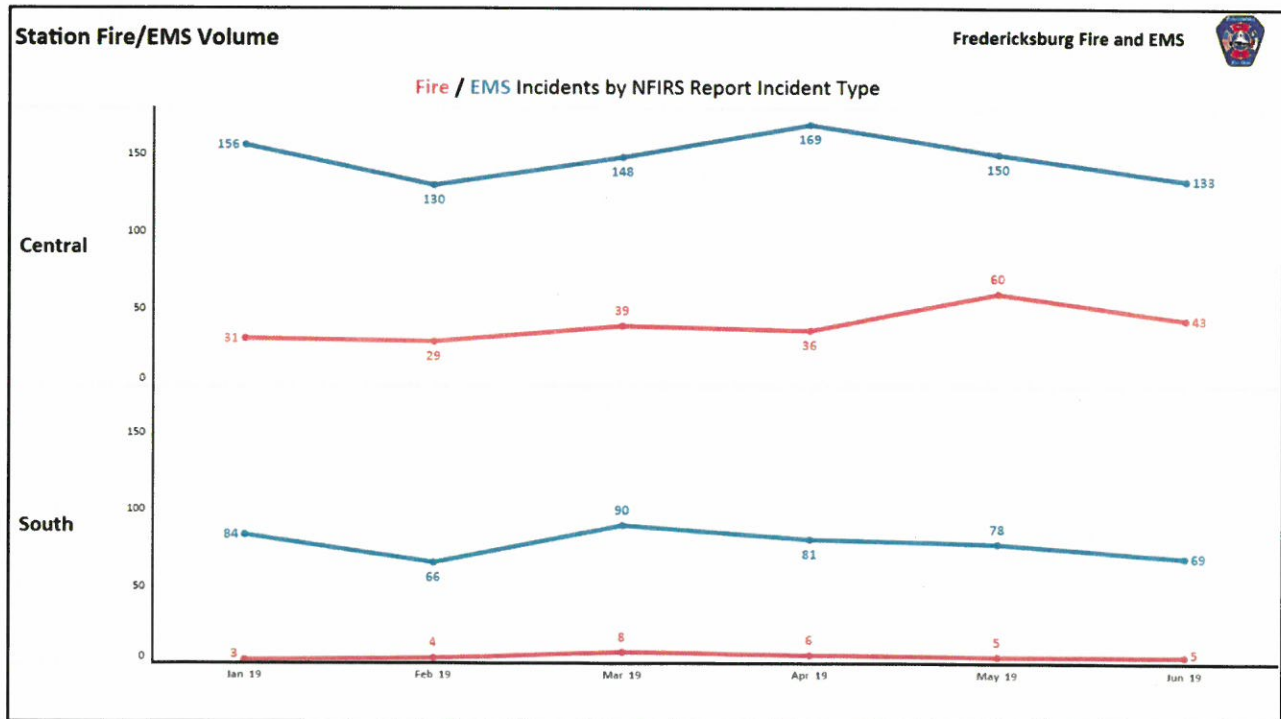
15

Mutual Aid					Fredericksburg Fire and EMS 				
Mutual Aid Category & Type: Count					Mutual Aid by Category & Type: % of Total Incidents				
Type	None	Aid Received	Aid Given	Total	Type	None	Aid Received	Aid Given	Total
None	1,420			1,420	None	87.5%			87.5%
Automatic		104	52	156	Automatic		6.4%	3.2%	9.6%
Mutual		19	27	46	Mutual		1.2%	1.7%	2.8%
Other			1	1	Other			0.1%	0.1%
Total	1,420	123	80	1,623	Total	87.5%	7.6%	4.9%	100.0%

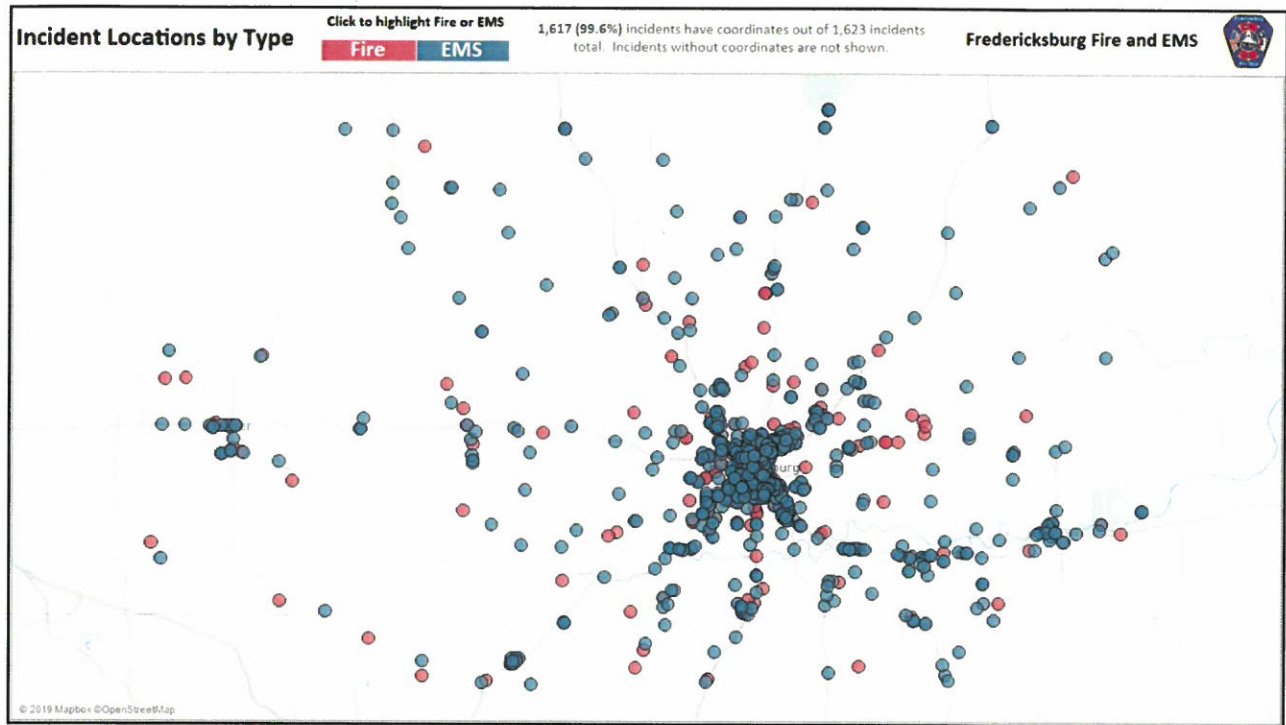
16

Mutual Aid - Agency					Fredericksburg Fire and EMS				
Mutual Aid Category & Agency: Count					Mutual Aid Category & Agency: % of Total Incidents				
Department	None	Aid Received	Aid Given	Total	Department	None	Aid Received	Aid Given	Total
None	1,420			1,420	None	87.5%			87.5%
Stonewall VFD		58	18	76	Stonewall VFD		3.6%	1.1%	4.7%
Willow City Volunteer Fire & Rescue		29	19	48	Willow City Volunteer Fire & Rescue		1.8%	1.2%	3.0%
Harper VFD		7	30	37	Harper VFD		0.4%	1.8%	2.3%
Unknown		14		14	Unknown		0.9%		0.9%
Doss VFD		7	6	13	Doss VFD		0.4%	0.4%	0.8%
Kerrville Fire Department		5	1	6	Kerrville Fire Department		0.3%	0.1%	0.4%
Tierra Linda VFD		3		3	Tierra Linda VFD		0.2%		0.2%
Comfort VFD			2	2	Comfort VFD			0.1%	0.1%
Mason VFD			2	2	Mason VFD			0.1%	0.1%
Blanco VFD			1	1	Blanco VFD			0.1%	0.1%
Regional Response			1	1	Regional Response			0.1%	0.1%
Total	1,420	123	80	1,623	Total	87.5%	7.6%	4.9%	100.0%

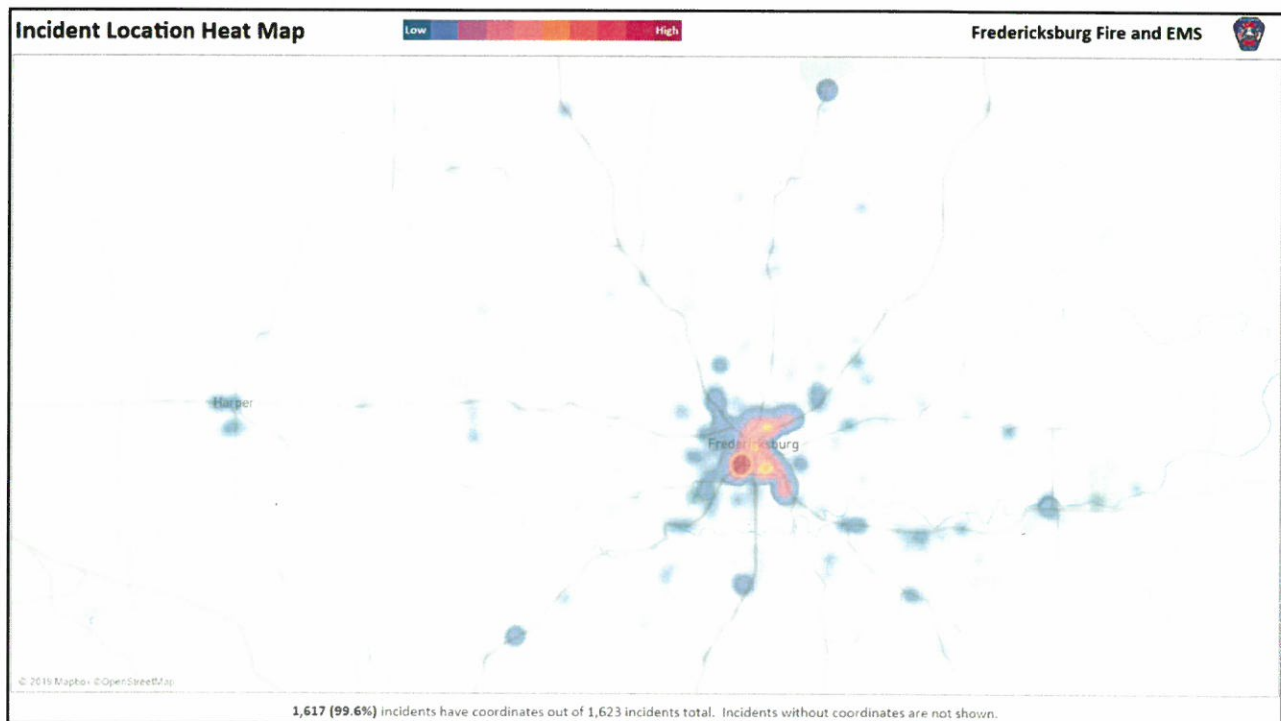
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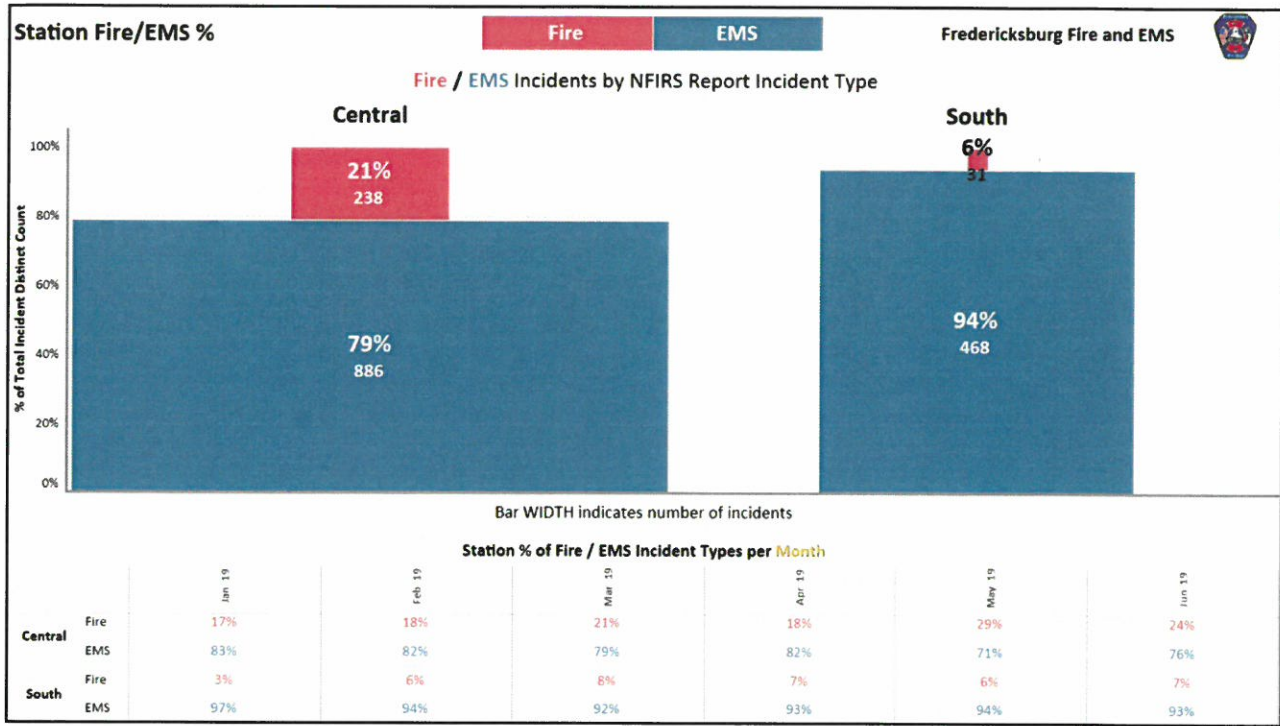
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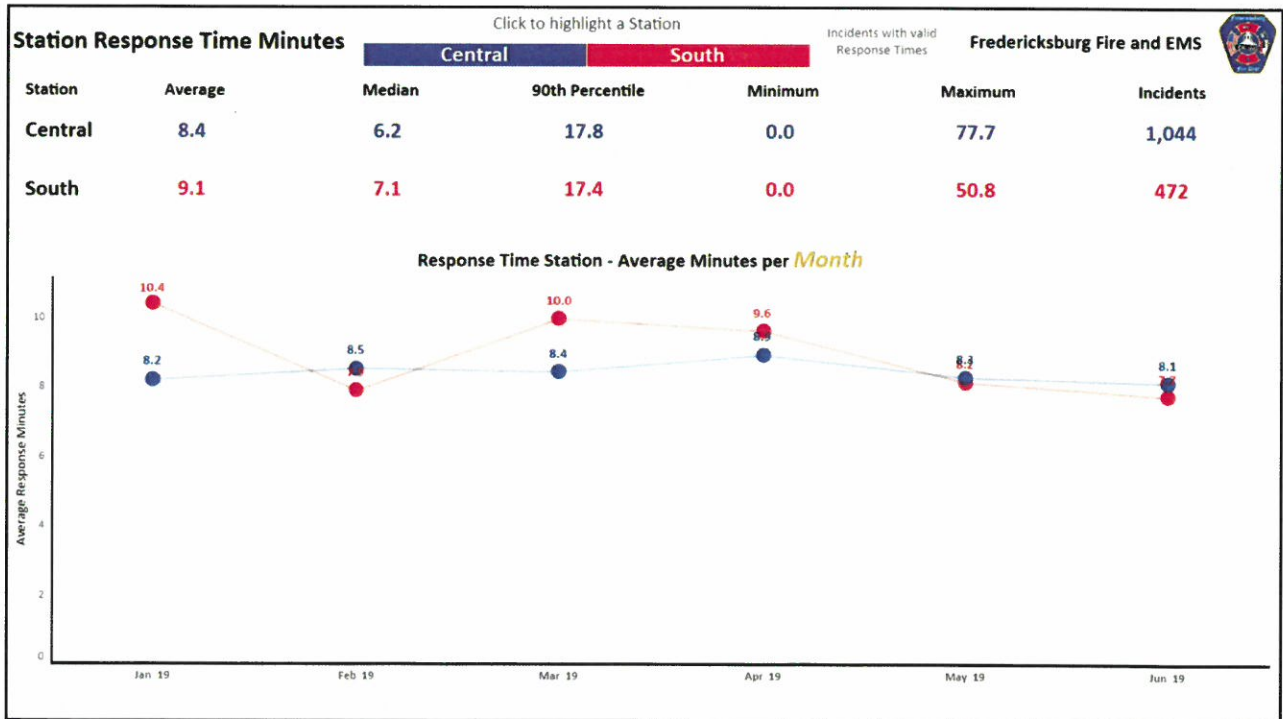
19



20



21



22

District Response Time Minutes

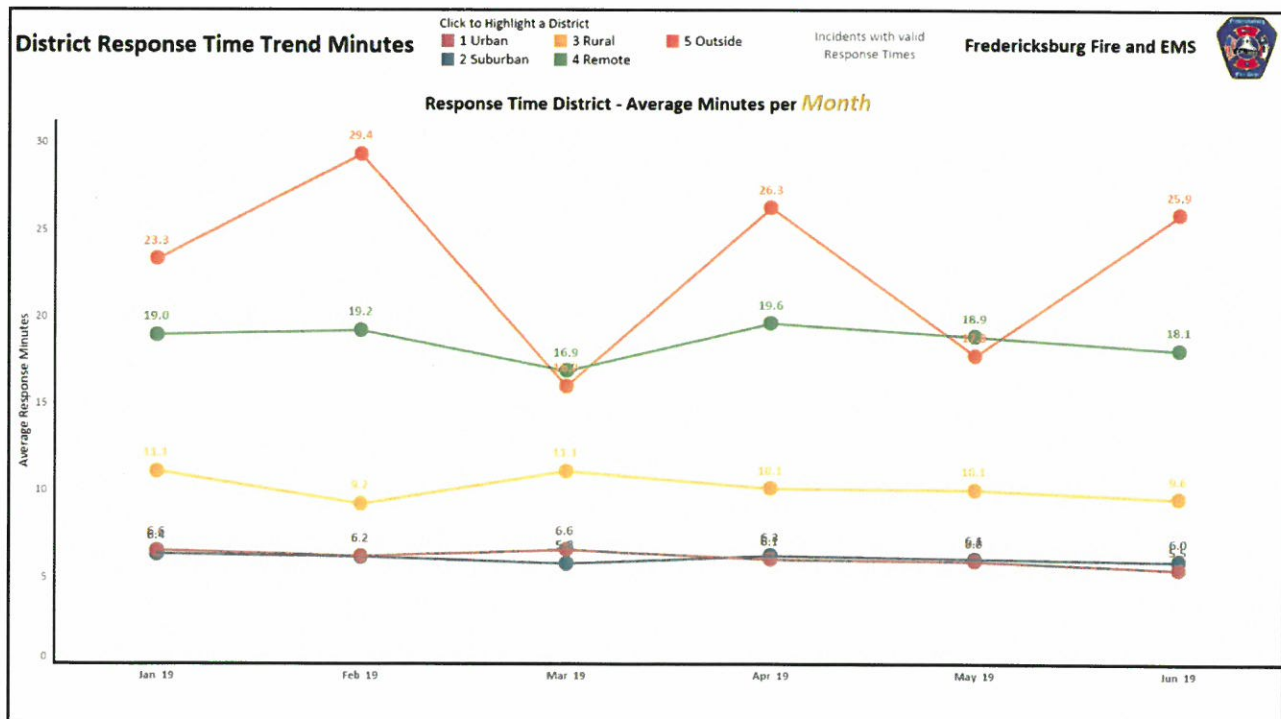
Click to Highlight a District
 1 Urban 2 Suburban 3 Rural 4 Remote 5 Outside

Incidents with valid Response Times

Fredericksburg Fire and EMS

District	Average	Median	90th Percentile	Minimum	Maximum	Incidents
1 Urban	6.2	5.4	9.9	0.0	77.7	1,023
2 Suburban	6.2	5.8	9.0	0.0	18.9	71
3 Rural	10.3	9.3	14.7	0.0	57.4	186
4 Remote	18.6	17.4	26.5	0.0	46.2	226
5 Outside	22.5	24.2	29.5	11.3	31.1	10

23



24

Response Zone Response Time Minutes

Incidents with valid Response Times

Fredericksburg Fire and EMS

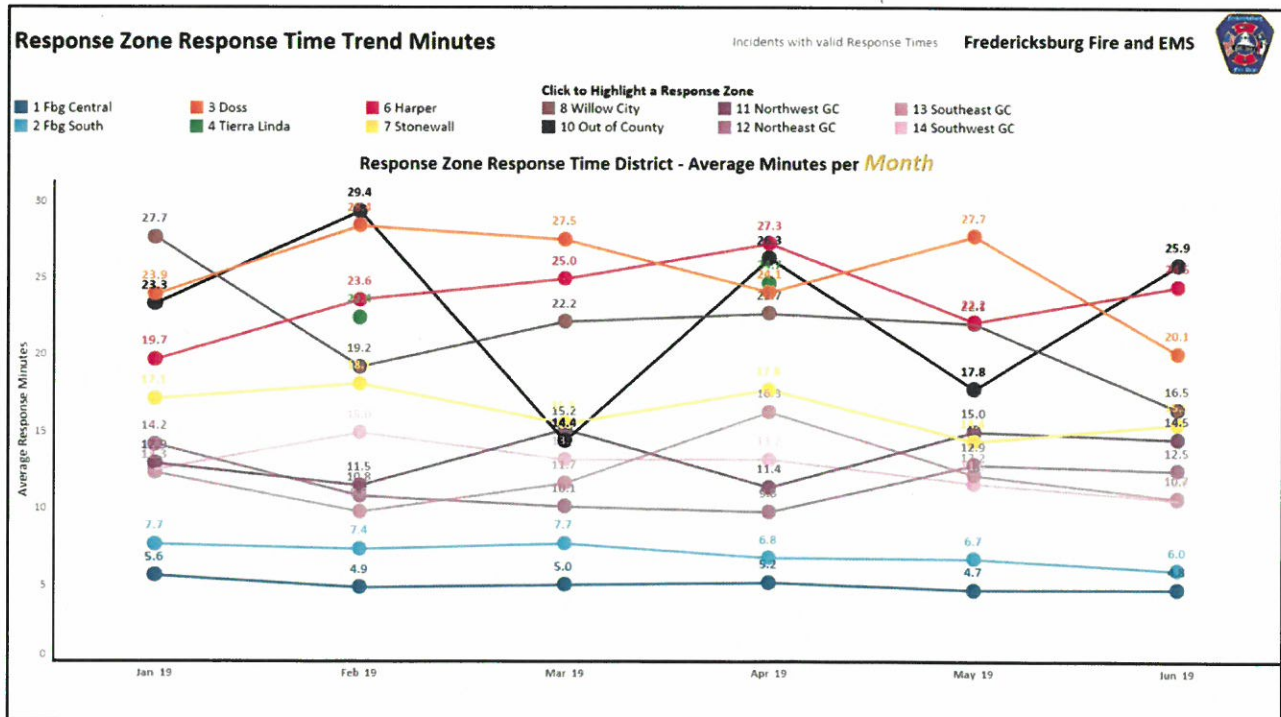
Click to Highlight a Response Zone

- 1 Fbg Central
- 2 Fbg South
- 3 Doss
- 4 Tierra Linda
- 6 Harper
- 7 Stonewall
- 8 Willow City
- 10 Out of County
- 11 Northwest GC
- 12 Northeast GC
- 13 Southeast GC
- 14 Southwest GC

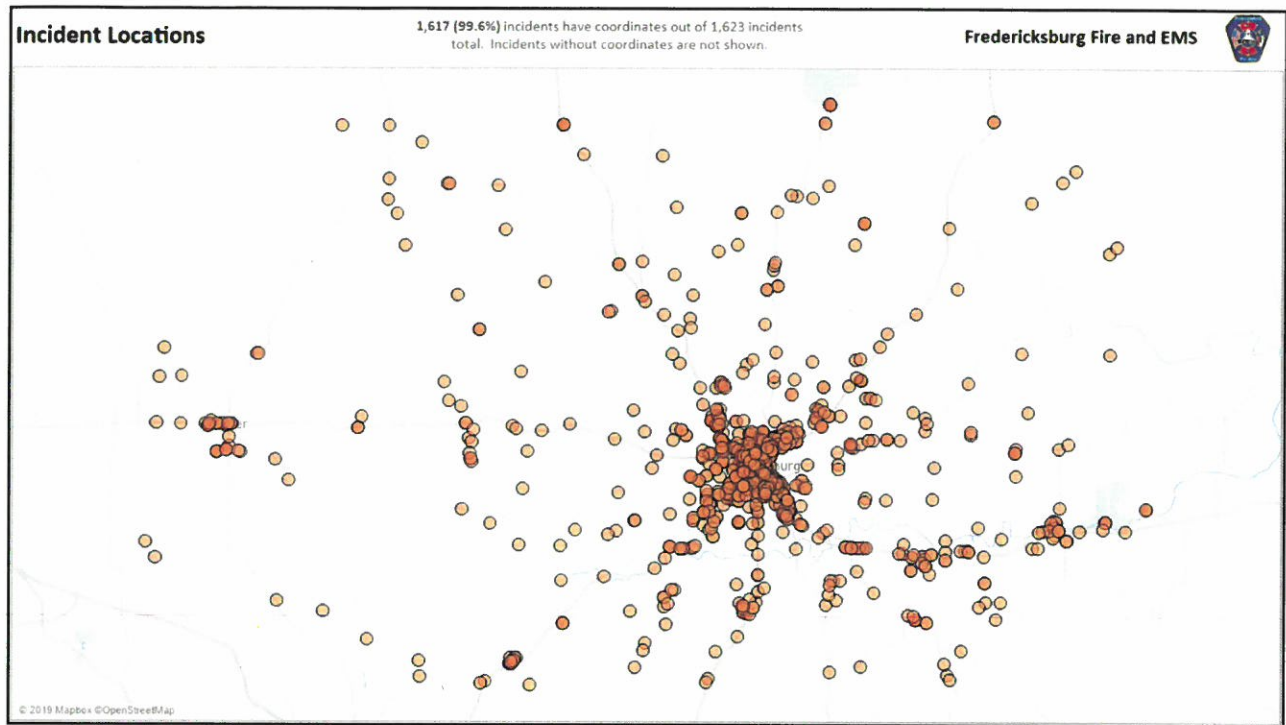
Response Zone Response Time Minutes

Response Zone	Average	Median	90th Perenctile	Minimum	Maximum	Incidents
1 Fbg Central	5.1	4.7	8.1	0.0	16.6	452
2 Fbg South	7.1	6.0	11.0	0.0	77.7	641
3 Doss	25.2	26.9	27.8	17.9	37.1	11
4 Tierra Linda	23.6	23.6	24.5	22.4	24.7	2
6 Harper	24.2	23.2	30.3	18.6	36.6	25
7 Stonewall	16.3	16.4	22.0	0.0	31.3	59
8 Willow City	22.6	22.3	27.4	12.1	28.8	13
10 Out of County	21.4	22.5	29.4	11.1	31.1	11
11 Northwest GC	13.6	12.0	24.0	2.9	57.4	119
12 Northeast GC	11.5	10.2	15.4	1.8	50.8	52
13 Southeast GC	12.3	10.3	17.9	0.0	46.2	80
14 Southwest GC	12.6	14.3	18.1	2.7	24.7	51

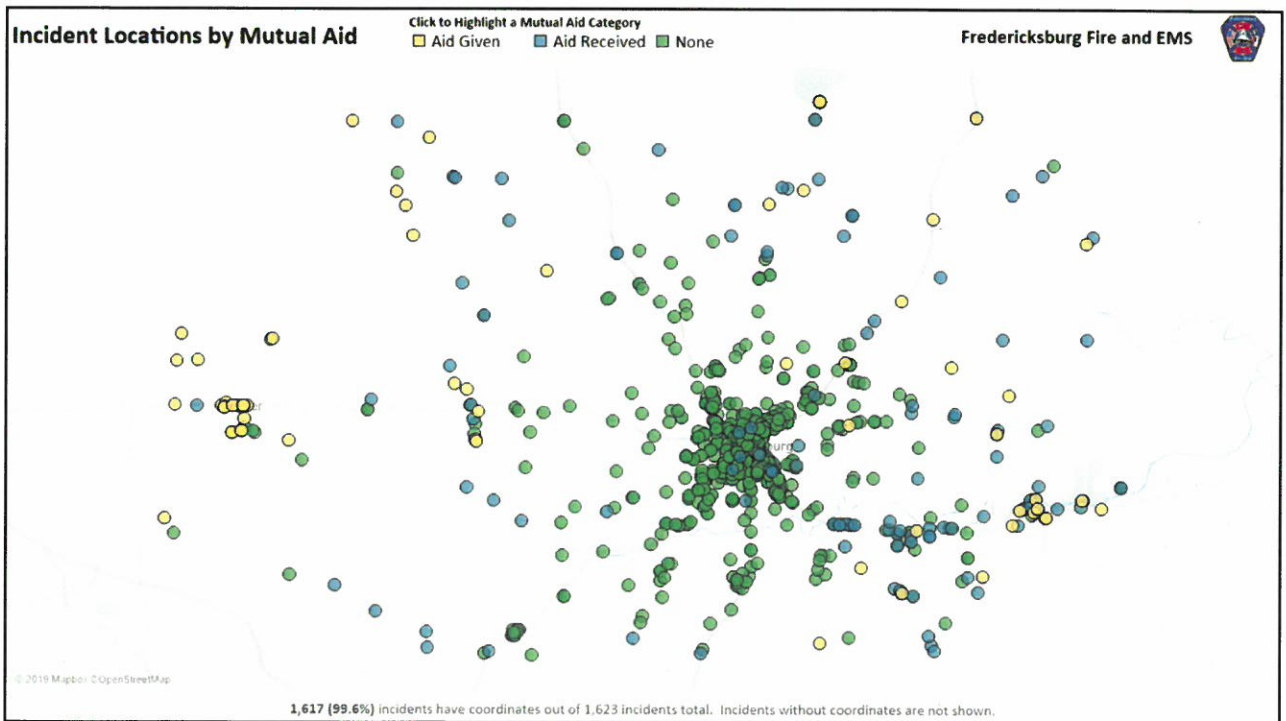
25



26



27



28

2019 Transfers

San Antonio	196
Austin	86
Local	61
Kerrville	31
Other	20
Total	396

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Incident List							Fredericksburg Fire and EMS						
Incident Dispatch	Station	Incident Number	Address	Manual Aid Description	Incident Type Category	Incident Type Code	Incident Type Description	Turnout Seconds - 1st Arriving Unit	Turnout Minutes - 1st Arriving Unit	Travel Seconds - 1st Arriving Unit	Travel Minutes - 1st Arriving Unit	Response Time - Seconds	Response Time - Minutes
01/01/2019 00:20:59	Central	1900001	124 W MAIN St	None	Rescue & Emergency Medical	3211	EMS Medical	596	9:53	0	0:00	0	0:00
01/01/2019 05:42:50	Central	1900002	112 W NIMITZ St	None	Rescue & Emergency Medical	3211	EMS Medical	225	3:75	194	3:23	419	6:98
01/01/2019 11:05:28	Central	1900003	1848 DINOSAUR RANCH Rd	Mutual aid received	Rescue & Emergency Medical	3211	EMS Medical	97	1:62	920	15:33	1,017	16:95
01/01/2019 11:32:44	Central	1900004	300 NORTHWEST Dr	None	Rescue & Emergency Medical	3211	EMS Medical	142	2:37	219	3:65	361	6:02
01/01/2019 13:28:07	South	1900006	707 S CREEK St	None	Rescue & Emergency Medical	3211	EMS Medical	57	0:55	140	2:33	197	3:28
01/01/2019 13:30:00	Central	1900005	504 E MAIN St	None	Rescue & Emergency Medical	3211	EMS Medical	120	2:00	120	2:00	120	2:00
01/01/2019 16:36:11	Central	1900007	1020 S STATE HIGHWAY 16	None	Rescue & Emergency Medical	3214	EMS Transfer	258	4:30	380	6:33	638	10:63
01/01/2019 18:25:14	Central	1900008	307 W COLLEGE St	None	Rescue & Emergency Medical	3213	Lift Assist	79	1:32	342	5:70	421	7:02
01/01/2019 19:03:42	Central	1900009	605 S COLUMBUS St	None	Rescue & Emergency Medical	3211	EMS Medical	91	1:52	125	2:08	216	3:60
01/01/2019 22:05:50	Central	1900010	619 S CREEK St	None	Rescue & Emergency Medical	3213	Lift Assist	112	1:87	241	4:02	353	5:88
01/01/2019 22:29:51	South	1900011	1020 S STATE HIGHWAY 16	None	Rescue & Emergency Medical	3214	EMS Transfer	182	3:03	175	2:92	357	5:95
01/02/2019 08:33:05	Central	1900012	1208 N LLANO St	None	Rescue & Emergency Medical	3211	EMS Medical	43	0:72	381	6:35	424	7:07
01/02/2019 09:50:41	South	1900013	25 NORTHVIEW Ln	None	Rescue & Emergency Medical	3211	EMS Medical	74	1:23	519	8:65	593	9:88
01/02/2019 10:53:33	Central	1900014	307 VICTOR ECKHARDT Rd	Automatic aid received	Fire	114	Chimney or flue fire, confined to chimney or fl.	160	2:67	160	2:67	160	2:67
01/02/2019 11:23:34	South	1900016	297 BILLIE Dr # 7	None	Rescue & Emergency Medical	3211	EMS Medical	103	1:72	144	2:40	247	4:12
01/02/2019 14:19:17	Central	1900017	329 CHASE OAKS Pl	None	Rescue & Emergency Medical	3212	EMS Trauma (Excluding MVA)	55	0:52	363	6:05	418	6:97
01/02/2019 15:43:00	South	1900018	300 MOELLERING Rd	None	Rescue & Emergency Medical	3211	EMS Medical	117	1:55	275	4:58	392	6:53
01/02/2019 17:57:58	Central	1900019	168 SUNILAND Dr	None	Rescue & Emergency Medical	3211	EMS Medical	100	1:67	372	6:20	472	7:87
01/02/2019 18:50:45	Central	1900020	388 NORTHWEST Dr	None	False Alarm and False Call	735	Alarm system sounded due to malfunction	0	0:00	229	3:82	229	3:82
01/03/2019 04:27:36	South	1900021	1020 S STATE HIGHWAY 16	None	Rescue & Emergency Medical	3214	EMS Transfer	425	7:08	176	2:93	601	10:02
01/03/2019 09:05:54	South	1900022	591 E HIGHWAY St # 34	None	Rescue & Emergency Medical	3211	EMS Medical	68	1:13	271	4:52	339	5:65
01/03/2019 09:40:43	Central	1900023	On E MAIN St at WASHINGTON St	None	Rescue & Emergency Medical	322	Vehicle accident with injuries	101	1:68	72	1:20	173	2:88
01/03/2019 10:15:55	South	1900024	805 E HIGHWAY St # 608	None	Rescue & Emergency Medical	3211	EMS Medical	100	1:67	241	4:02	341	5:68
01/03/2019 12:37:46	South	1900025	1020 S STATE HIGHWAY 16 # 209	None	Rescue & Emergency Medical	3214	EMS Transfer	678	11:30	221	3:68	899	14:98
01/03/2019 15:43:15	Central	1900026	1208 N LLANO St	None	Rescue & Emergency Medical	3211	EMS Medical	128	2:13	306	5:10	434	7:23
01/03/2019 17:53:24	Central	1900027	1020 S STATE HIGHWAY 16	None	Rescue & Emergency Medical	3214	EMS Transfer	1,168	19:47	245	4:08	1,413	23:55
01/03/2019 18:20:45	Central	1900028	711 E SAN ANTONIO St	None	Rescue & Emergency Medical	3211	EMS Medical	60	1:00	145	2:42	205	3:42
01/04/2019 00:03:34	South	1900029	147 NORTHVIEW Ln	None	Rescue & Emergency Medical	3211	EMS Medical	225	3:75	666	11:10	891	14:85
01/04/2019 08:07:33	South	1900030	100 OAK RIDGE Rd # 50	None	Rescue & Emergency Medical	3212	EMS Trauma (Excluding MVA)	116	1:53	815	13:58	931	15:52
01/04/2019 11:45:45	Central	1900031	1000 S STATE HIGHWAY 16 # 209	None	Rescue & Emergency Medical	3214	EMS Transfer	0	0:00	229	3:82	229	3:82

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Filters
Fredericksburg Fire and EMS 

Filters apply to all sheets in the workbook. Return to this sheet to change filter settings.

Start Date 1/1/2019	Date Level ☐ Day ☐ Week ☒ Month ☐ Quarter ☐ Year	Mutual Aid ☒ Aid Given ☒ Aid Received ☒ None ☒ Unknown	Response Type ☒ Emergency Response ☒ EMS Standby ☒ Fire On Standby ☒ Non-Emergency Response ☒ Unknown Response Type filter applies only to these sheets: Department Response Time Station Response Time District Response Time District Response Time Trend Response Zone Response Time Response Zone Response Time Trend
End Date 9/26/2019	Shift ☒ A ☒ B ☒ C	Incident Reviewed ☒ 2019 or Later - Not Reviewed ☒ 2019 or Later - Reviewed ☒ Before 2019 - Not Reviewed ☒ Before 2019 - Reviewed	

2,404 Incidents Selected based on Filter Settings
 Date Range Selected: 1/1/2019 - 9/26/2019
 Report Date: November 21, 2019 09:46

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Notes
Fredericksburg Fire and EMS 

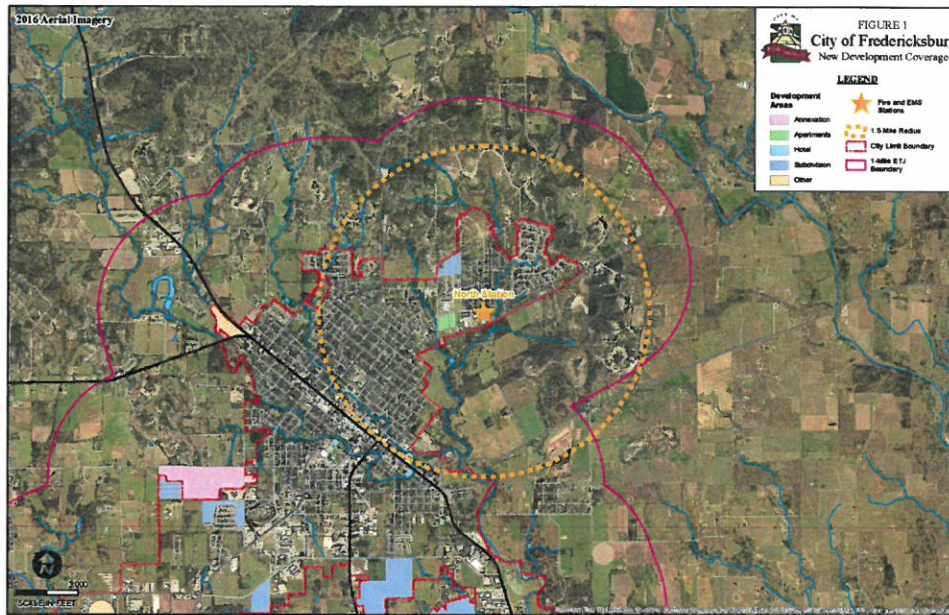
1.) Data Source: FireRMS
 2.) Date is refreshed daily.
 3.) Fire or EMS incident types are determined by the NFIRS incident code entered on the report. Rescue and Emergency Medical Service (EMS) Incidents (300 Series) incident types are classified as EMS incidents. All other incident type series are classified as Fire incidents.
 4.) An Incident is a unique call for service event. A Response is a unit reaction to an Incident. One Incident may generate one or many Responses.
 5.) Incident Response Time is the time in minutes from Incident Alarm to Incident Arrival. Measures using the Incident Response Time exclude incident records if either the Incident Alarm or Arrival times are missing or invalid.

Filter Values Selected: Incident Dates from 1/1/2019 to 6/30/2019 and the values below

Shift	Mutual Aid Category	Incident Reviewed	
A	539 Aid Given	80 2019 or Later - Not Reviewed	4
B	530 Aid Received	123 2019 or Later - Reviewed	1,619
C	554 None	1,420 Total	1,623
Total	1,623 Total	1,623	

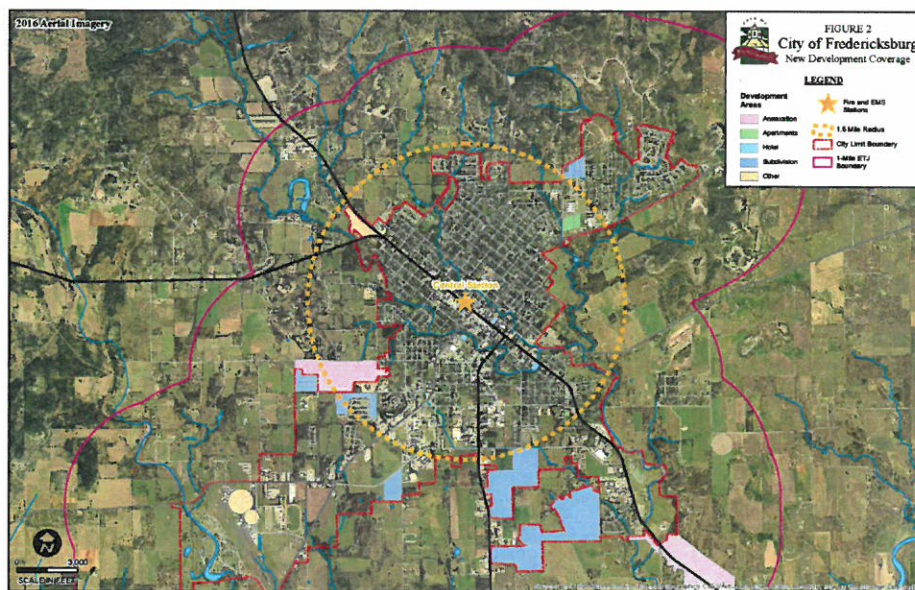
32

North Station Service Area



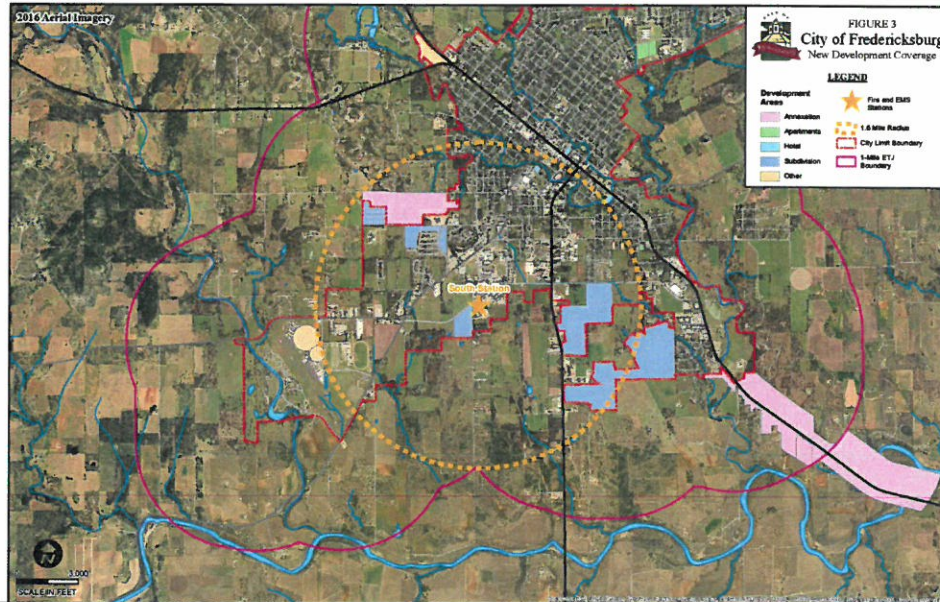
33

Central Station Service Area



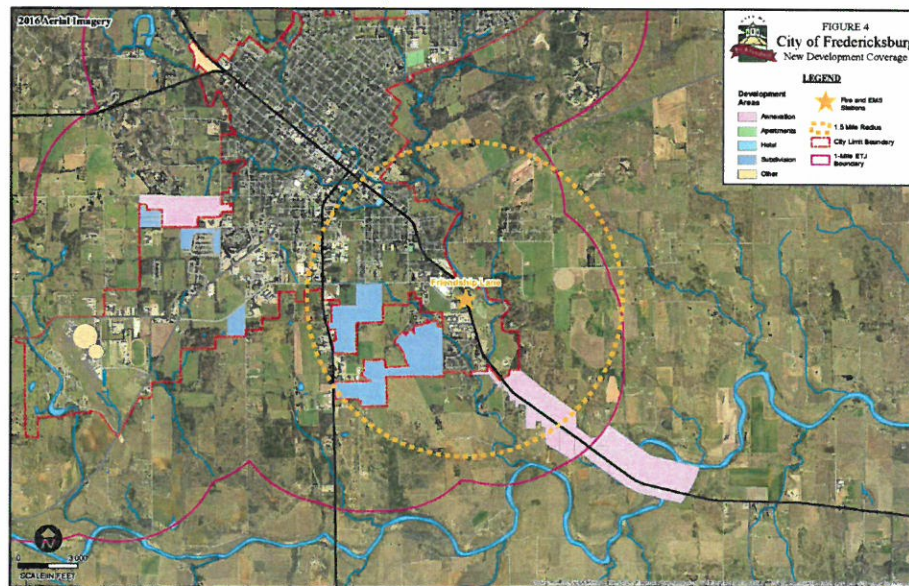
34

South Station Coverage Area



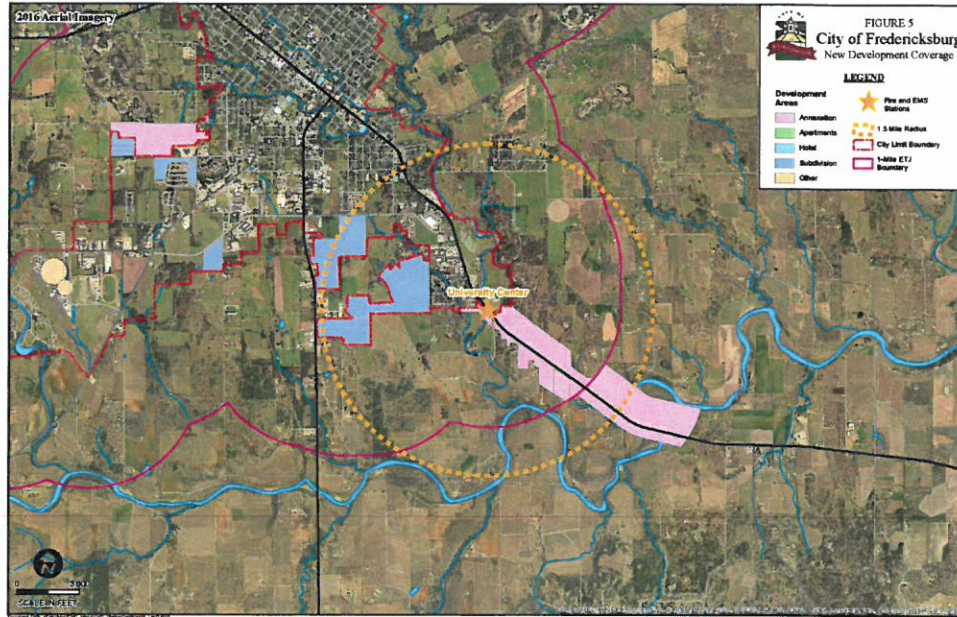
35

Possible Friendship Lane Station Service Area



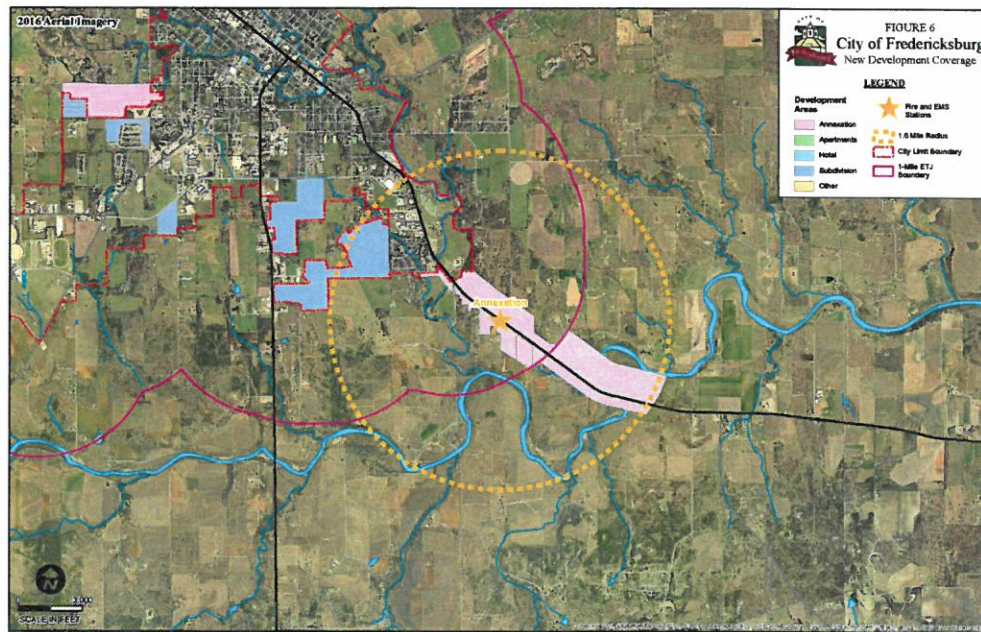
36

Possible New Station at University Center



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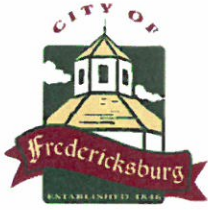
Possible New Station in Newly Annexed Area



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Questions?

Thank you for your time!



CITY COUNCIL MEMO

DATE: February 28, 2020

TO: Mayor, County Judge, City Council, & County Commissioners

FROM: Garret Bonn, P.E., CFM – Assistant City Engineer

SUBJECT: Transportation Project Traffic Impact Study

Summary:

Receive Transportation Project Traffic Impact Study presentation from Kimley-Horn

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 28th 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 28th through February 14th. Representatives from Kimley-Horn will be on hand to present the results of their study and the community feedback along with their preliminary recommendations (see attached).

Attachments:

Kimley-Horn Presentation & Draft TIS Report (excludes appendices)


Department Approval


City Manager Approval


City Attorney Approval



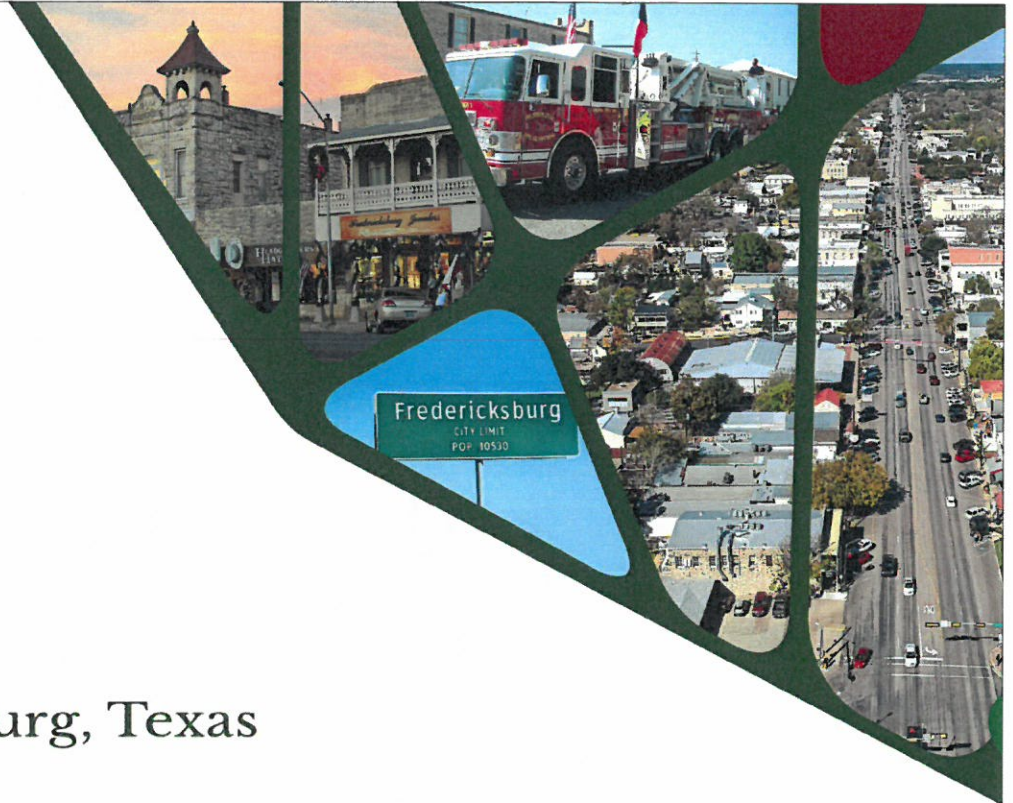
THE CITY OF

Fredericksburg, Texas

Transportation Projects Traffic Impact Study

February 28, 2020

Kimley»Horn



Study Overview



New Connections –
4 Potential Projects



Intersection Improvements –
30 intersections analyzed for
short-term enhancements



Safety Improvements –
6 locations with improvements

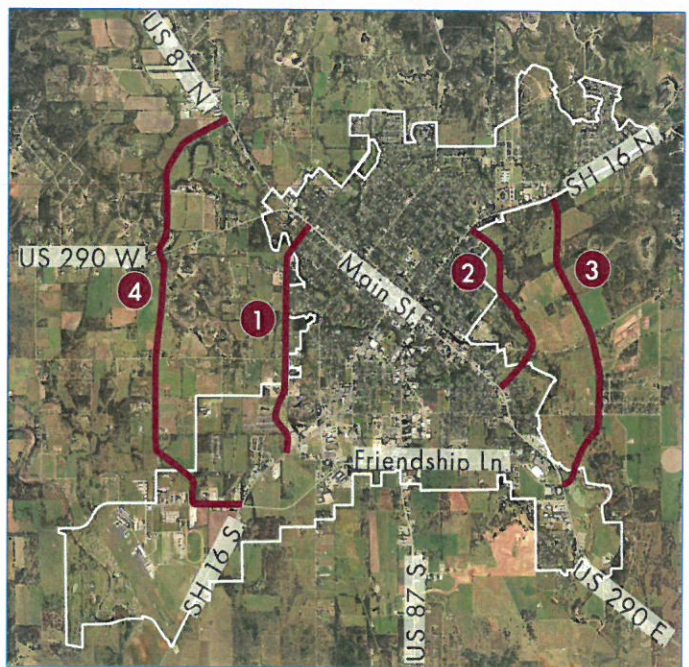


Over 300 people have given
feedback on recommendations



THE CITY OF
Fredericksburg, Texas

Four (4) Potential New Alignments:



Community Feedback

✓ Opportunities

- Open House January 28th
- Online & Paper Survey Jan. 24th – Feb. 14th
- Project Website and E-mail Address

✓ County Participation

- Around 60% outside City limits
- *Want this to be joint City/County/TxDOT effort*

✓ Project Support

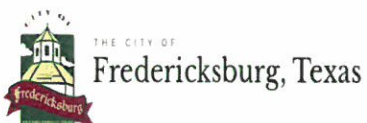
- All 4 connections over 60% positive
- Fairly equal support for projects



Fredericksburg, Texas

SHORT TERM PROJECTS

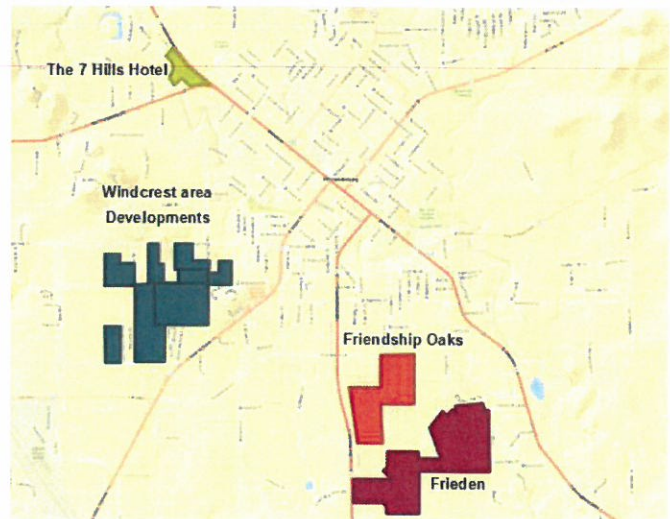
These projects address highly localized challenges through the use of striping, signal timing and signal light changes, and some new pavement.



Assumptions for Study

- ✓ Assesses conditions for both weekday afternoon peak traffic and weekend peak traffic with tourism impacts (Saturday midday)
- ✓ Incorporates growth for 5 years to 2025, including planned projects and historical growth
- ✓ Evaluates all intersections with a traffic signal to see citywide impact of improvements

Anticipated Development by 2025



Signal Timing Adjustments

- ✓ Recent adjustments by TxDOT consultant on Main Street and SH 16
- ✓ Current system focuses on Main Street throughput
- ✓ Need to revise these as demand shifts:
 - Substantial developments in process affect this
- ✓ Challenges on Main Street:
 - Lack of space for new turn lanes
 - Time required to cross pedestrians
 - Turns conflicting with pedestrians
 - Large trucks and trailers



- ✓ Opportunity on Main Street:
 - With some signal changes, but even more so with some additional turn arrows / striping
 - Possible TxDOT support for improvements



THE CITY OF
Fredericksburg, Texas

Lane Assignments

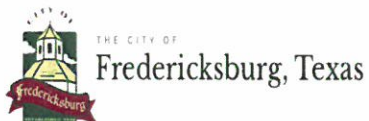
- ✓ Changing streets to one-way can have significant impact:
 - Washington north of Main
 - Creek Street east of Adams
- ✓ Re-assigning existing pavement space for turn lanes increases capacity
 - In tandem with turn arrows with protected left and right turns, even greater benefit

Main at Elk Left Turn Lane and Arrow

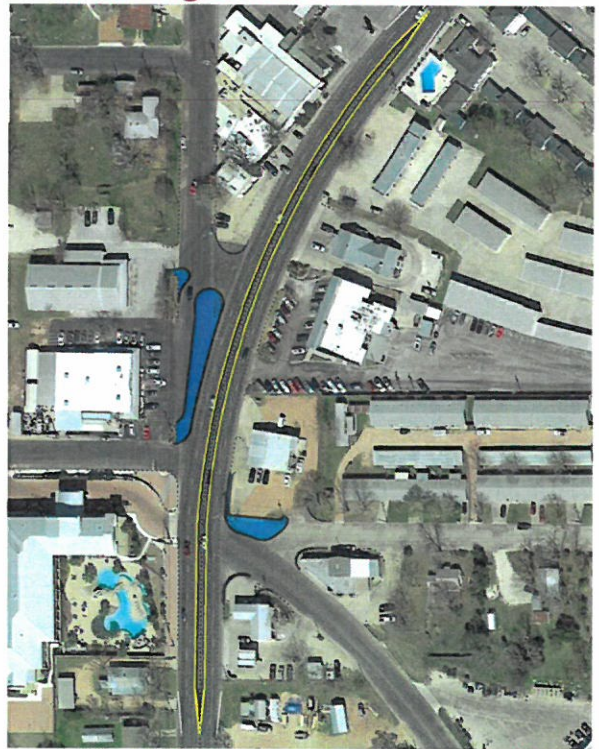


Safety Improvements

- ✓ At some locations, changing access and adding space for left turns can help improve safety, reduce conflicts:
 - Washington at Walnut
 - Adams at Windcrest
- ✓ Other locations can benefit from providing left turns
- ✓ Austin at Milam was evaluated for a Multi-Way Stop, which is warranted
- ✓ Drainage improvements and protections through use of edge lines with paint or curbs

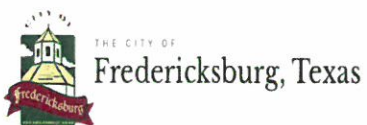
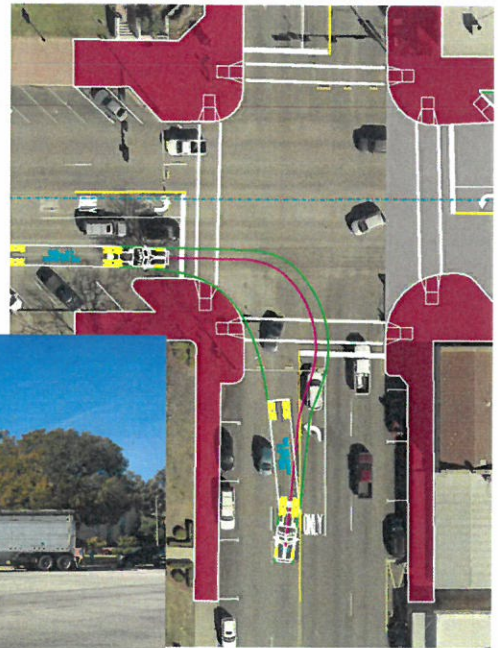


Washington at Walnut Access



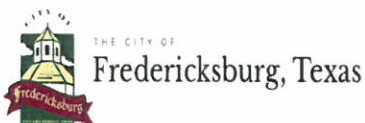
Safety Improvements

- ✓ Pulling back stop bars can help trucks turning off Main Street
- ✓ Adding double yellow centerlines, lane assignment markings and signs help clarify direction for drivers



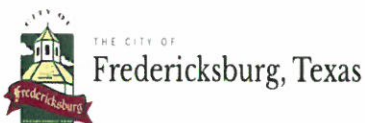
Short Term Summary

- ✓ Short term projects are lower cost with a high impact and should be pursued to help alleviate localized problems
- ✓ Short term projects address safety issues and operational issues in the local area
- ✓ Short term projects anticipate growth for next 5 years, including larger planned developments
- ✓ Short term projects alone will not solve the congestion problem long term
 - Completing individual short term projects will result in a highly localized benefit only, collectively have a greater impact
- ✓ Short term projects could be accomplished through TxDOT/City partnership



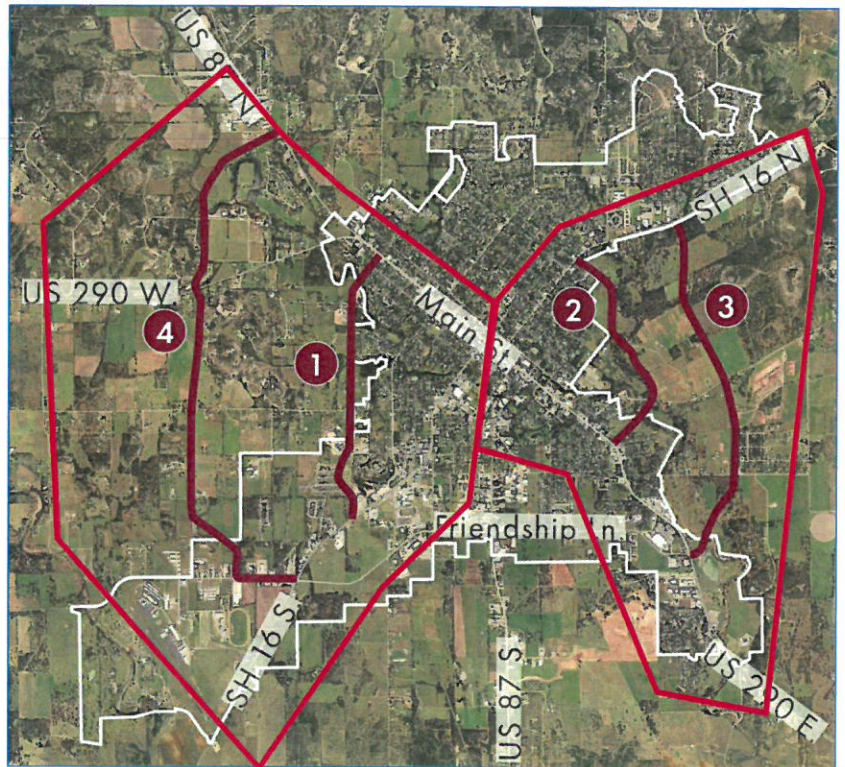
NEW CONNECTIONS “MEDIUM TO LONG TERM PROJECTS”

These projects include new connections to provide alternative routes of travel and additional capacity for movement around the local area.



Medium Term Projects Overview

- Congestion challenges are primarily due to lack of access between major roads in the **northeast** and **southwest** quadrants of the local area



THE CITY OF
Fredericksburg, Texas

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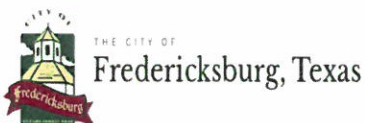
Kimley»Horn

What's Included?

- Roadway Construction cost
- Bridges over floodplains
- Right-of-Way Acquisition (where needed)
- Turn lanes at major intersections
- Engineering design costs
- New traffic signals at end points and major intersections

Mulberry Extension

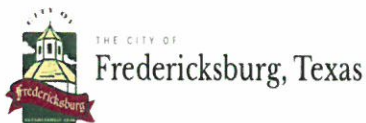
- ✓ Project Details
 - Length: 1.65 miles
 - Cost: \$7.9 Million
 - Anticipated Daily Traffic: 6,700 vehicles
- ✓ Anticipated Benefits
 - Relief on Main between Olive and Llano – reduced right turns
 - Relief on Llano between Main and Mulberry – reduced left turns
- ✓ Benefit / Cost Ratio: 3.8
- ✓ Anticipated Posted Speed: 30 mph



Kimley»Horn

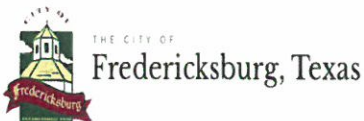
Frederick Extension

- ✓ Project Details
 - Length: 2.47 miles
 - Cost: \$17 Million
 - Anticipated Daily Traffic: 6,000 vehicles
- ✓ Anticipated Benefits
 - Similar benefit to Mulberry, but less attractive to destinations closer in
 - Additional relief at Main and Highway / Goehmann
- ✓ Benefit / Cost Ratio: 1.8
- ✓ Anticipated Posted Speed: 40 mph



Post Oak Extension

- ✓ Project Details
 - Length: 1.13 miles
 - Cost: \$7.2 Million
 - Anticipated Daily Traffic: 6,700 – 8,800 vehicles (*includes existing traffic*)
- ✓ Anticipated Benefits
 - Movement of people from Milam and SH 16 / Adams St to use Post Oak Rd
- ✓ Benefit / Cost Ratio: 3.9
- ✓ Anticipated Posted Speed: 30 mph



Inner Loop

✓ Project Details

- Length: 3.8 miles*
- Cost: \$21 Million
- Anticipated Daily Traffic: 5,700 vehicles

✓ Anticipated Benefits

- Through traffic on Main reduced to use this route (Friendship + Inner Loop)
- Some reductions on Washington and Adams headed into downtown

✓ Benefit / Cost Ratio: 1.6

✓ Anticipated Posted Speed: 40 mph

**Including Friendship Ln to US 290 = 6.7 miles*

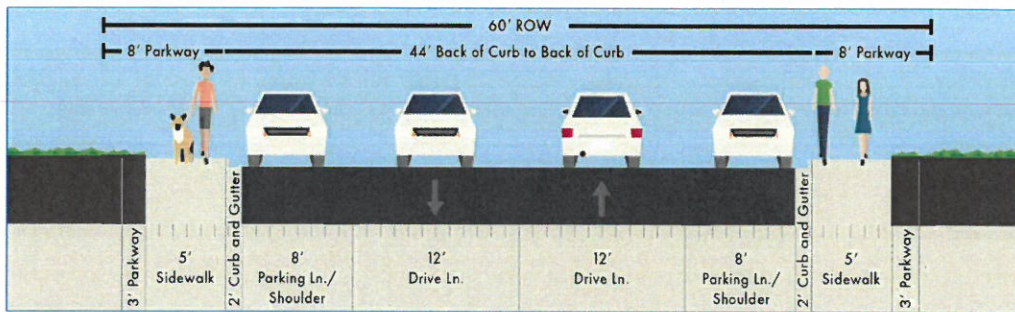


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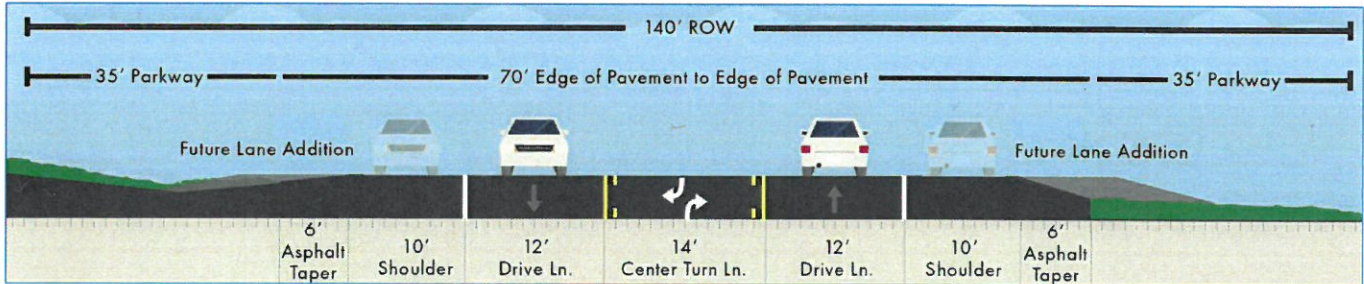
Roadway Sections

Collectors: Mulberry and Post Oak Extensions



**Number of Lanes
Adequate for 20
year anticipated
volumes (2040)**

Arterials: Frederick and Inner Loop Extensions



Note: Sidewalks in future by development.



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Medium Term Summary

- ✓ Medium term projects provide longer lasting congestion relief
- ✓ Project costs are calculated as “all-in” to cover all associated costs with getting a completed project
- ✓ Inner Loop and Frederick have excess capacity and are planned to serve future growth in northeast and southwest quadrants
- ✓ Medium term project benefit/cost ratios assume all intersection projects are completed – both are needed
- ✓ Medium term projects could be accomplished through funding partnerships

RECOMMENDED PROJECT PACKAGES



THE CITY OF
Fredericksburg, Texas

Recommendations – Short Term

✓ Short Term Projects

- Recommend completing all operational improvements
- Recommend completing safety improvements as feasible and in coordination with TxDOT
- Lower cost improvements (<\$20,000) may be incorporated as part of annual CIP
- Some striping and signal improvements may be completed as part of larger programs by other agencies



THE CITY OF
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Recommendations – Medium Term

✓ Budget-based approach (assumes intersection projects all completed):

1. <\$10 Million:

- Preferred: Post Oak Extension
- Alternate: Mulberry Extension

2. \$10 Million - \$20 Million:

- Preferred: Post Oak and Mulberry
- Alternative: Frederick Only

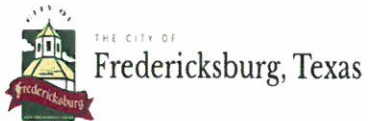
3. \$20 Million - \$30 Million:

- Preferred: Post Oak and Frederick
- Alternate: Inner Loop and Mulberry



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NEXT STEPS



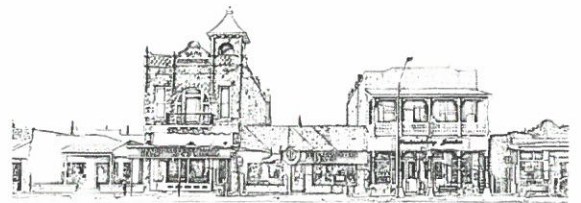
Next Steps

- ✓ Present and discuss preliminary findings at joining meeting of City and County (today – February 28th)
- ✓ Present final draft of report to City Council for discussion
- ✓ Further steps / decisions – next slide

Upcoming Decisions

- ✓ Projects to Pursue
 - Target Range for total cost?
 - Which projects now vs. later?
- ✓ Notes from previous slides
 - Short term projects are not a long term solution
 - Eventually will need arterials further from downtown
- ✓ Weighing technical benefit / cost with community feedback
- ✓ Coordination between agencies

DRAFT



FREDERICKSBURG
TRANSPORTATION PROJECTS STUDY

FREDERICKSBURG PROJECTS TRAFFIC IMPACT STUDY (TIS)

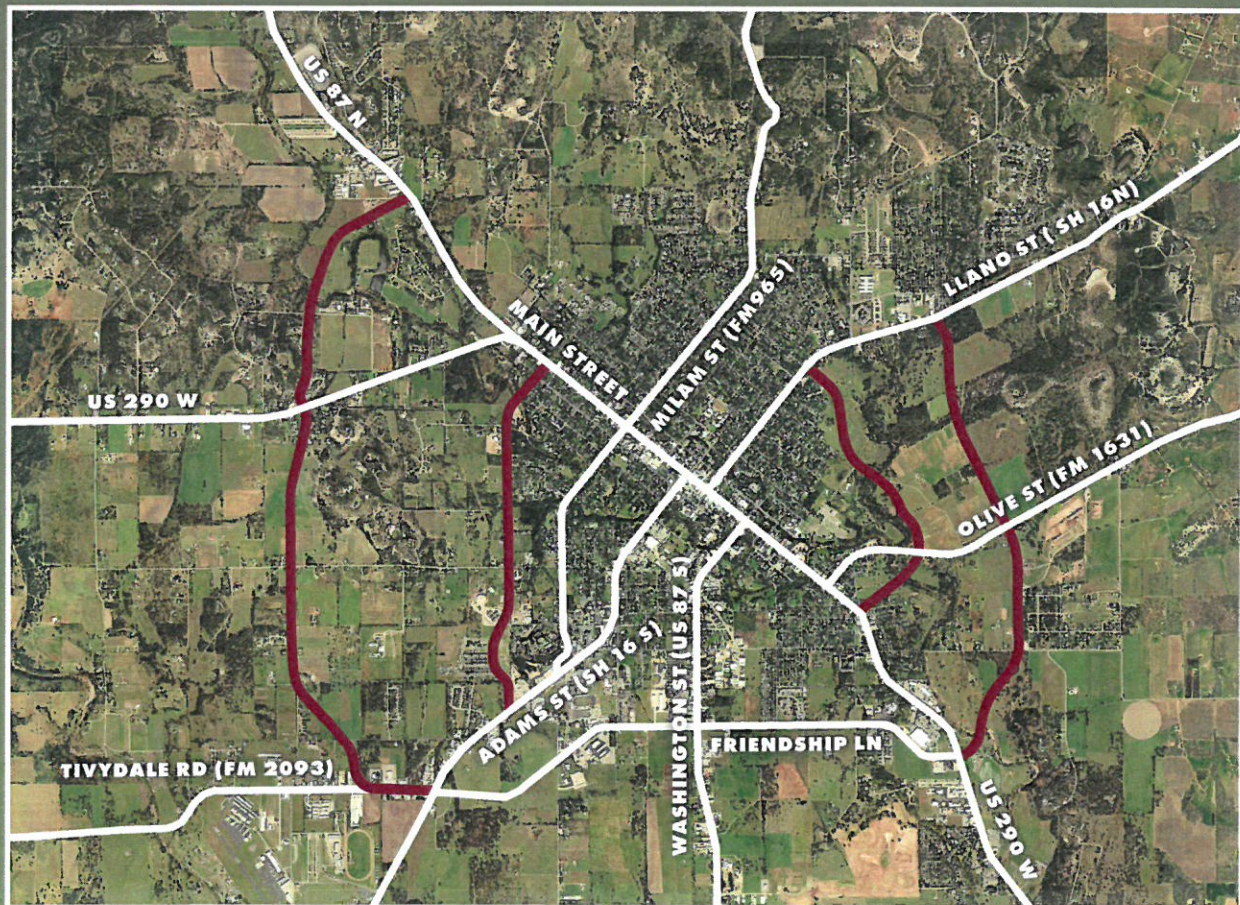


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EXECUTIVE SUMMARY

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)

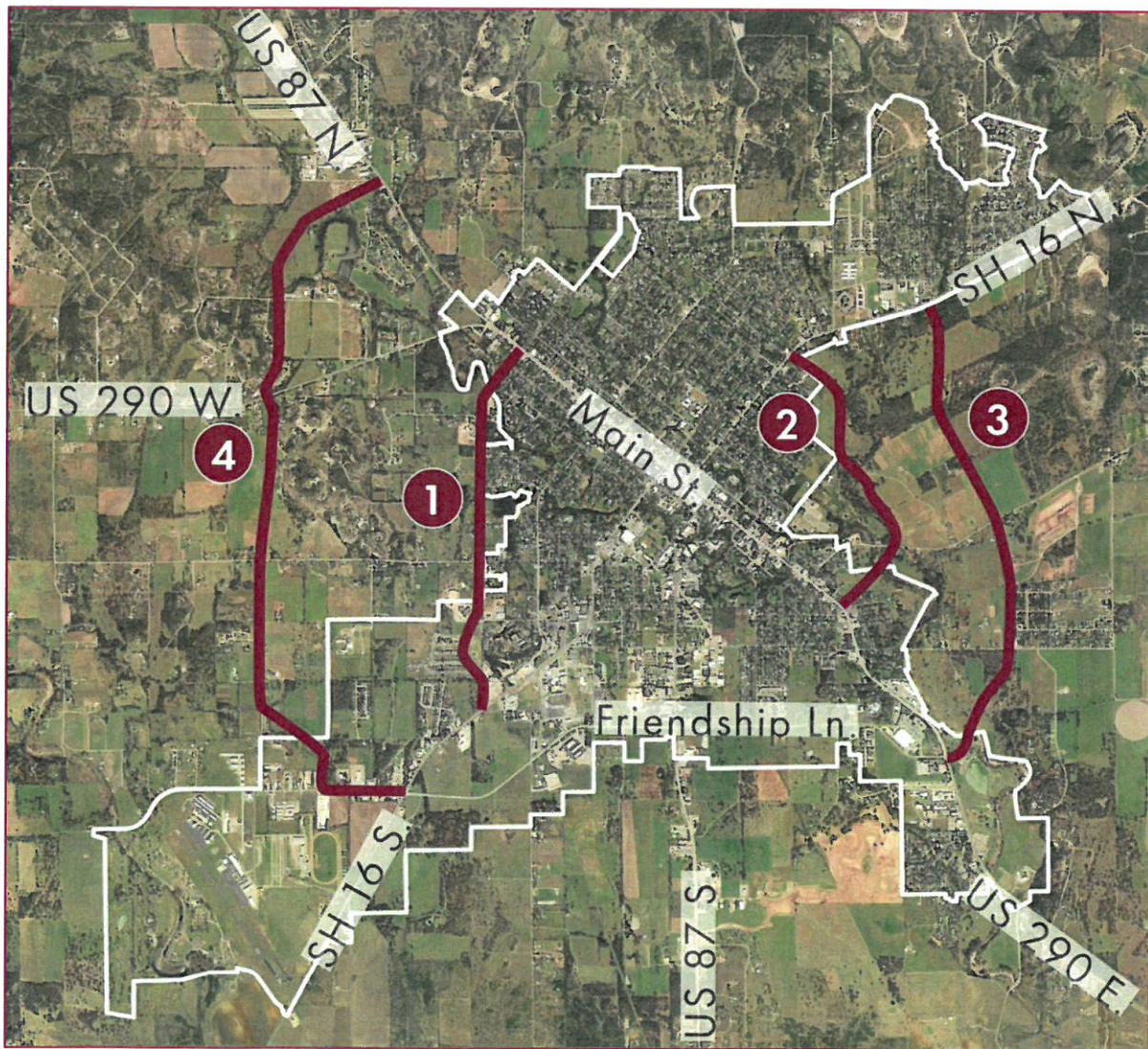


Figure 1: Four High-Priority Connection Options

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.

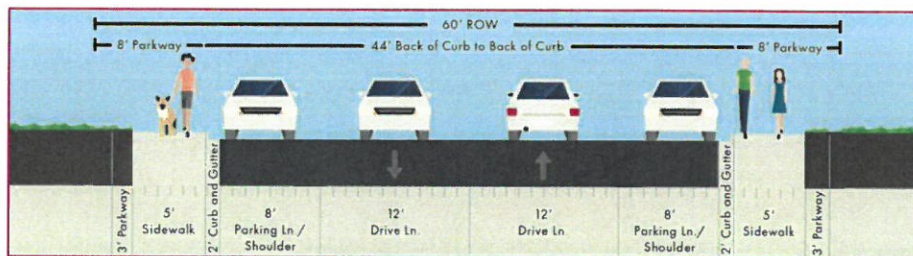


Figure 2: Recommended Collector Road with 60 Foot ROW Section (subject to change)

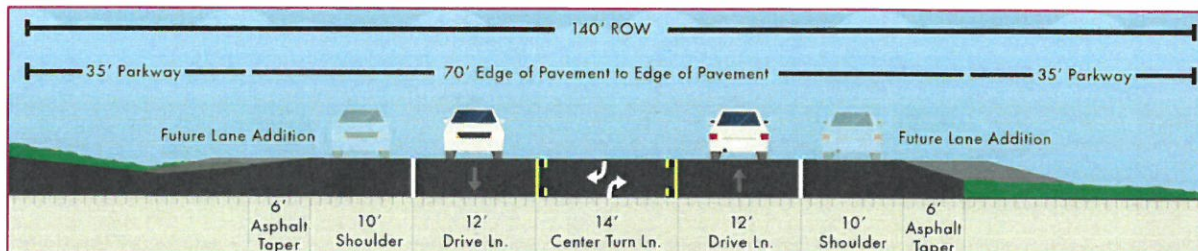


Figure 3: Recommended Minor Arterial Road with 140 Foot ROW Section (subject to change)



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**.

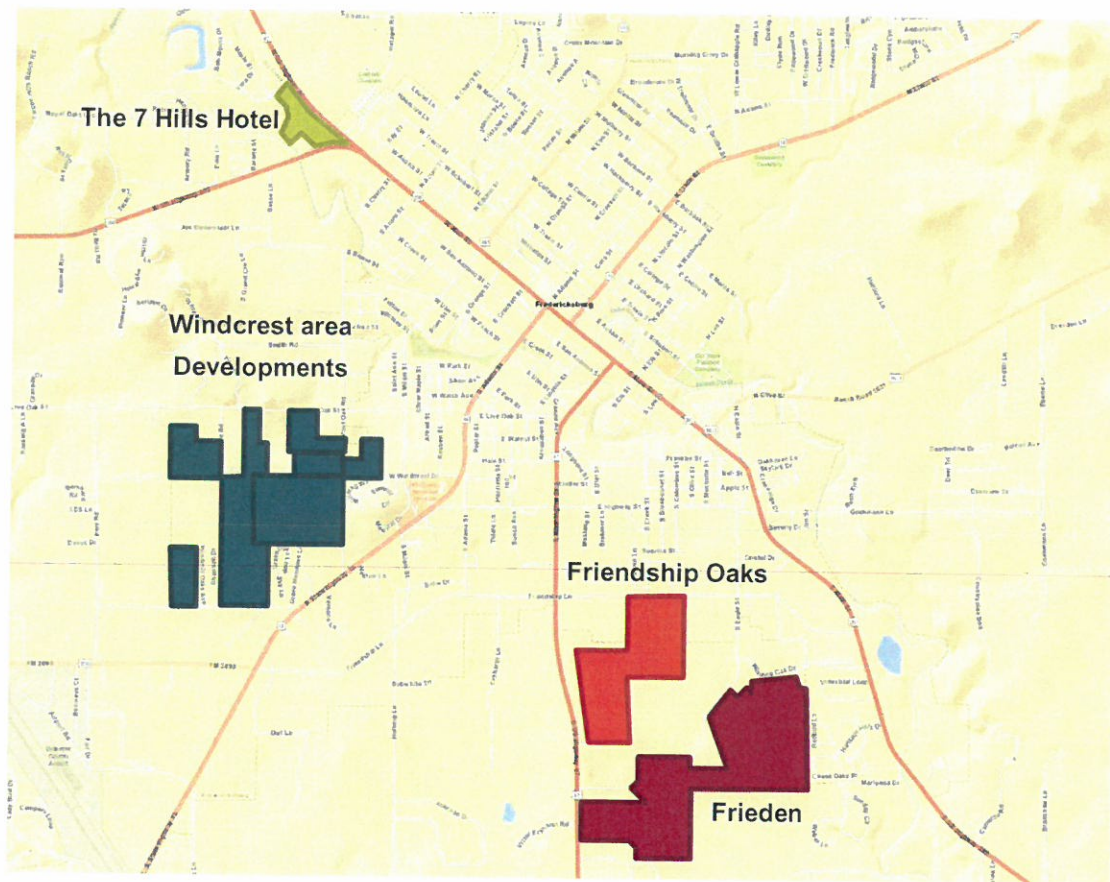


Figure 4: Planned Significant Developments

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).

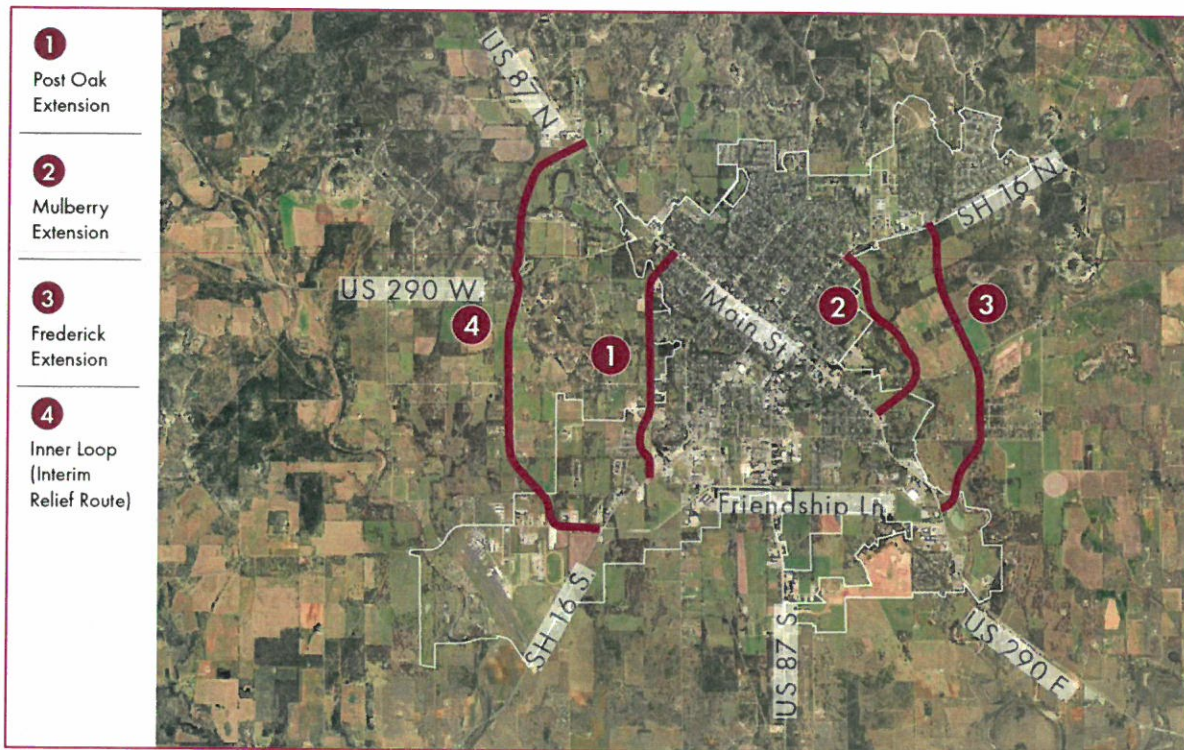


Figure 5: Four High-Priority Alignment Options

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**.

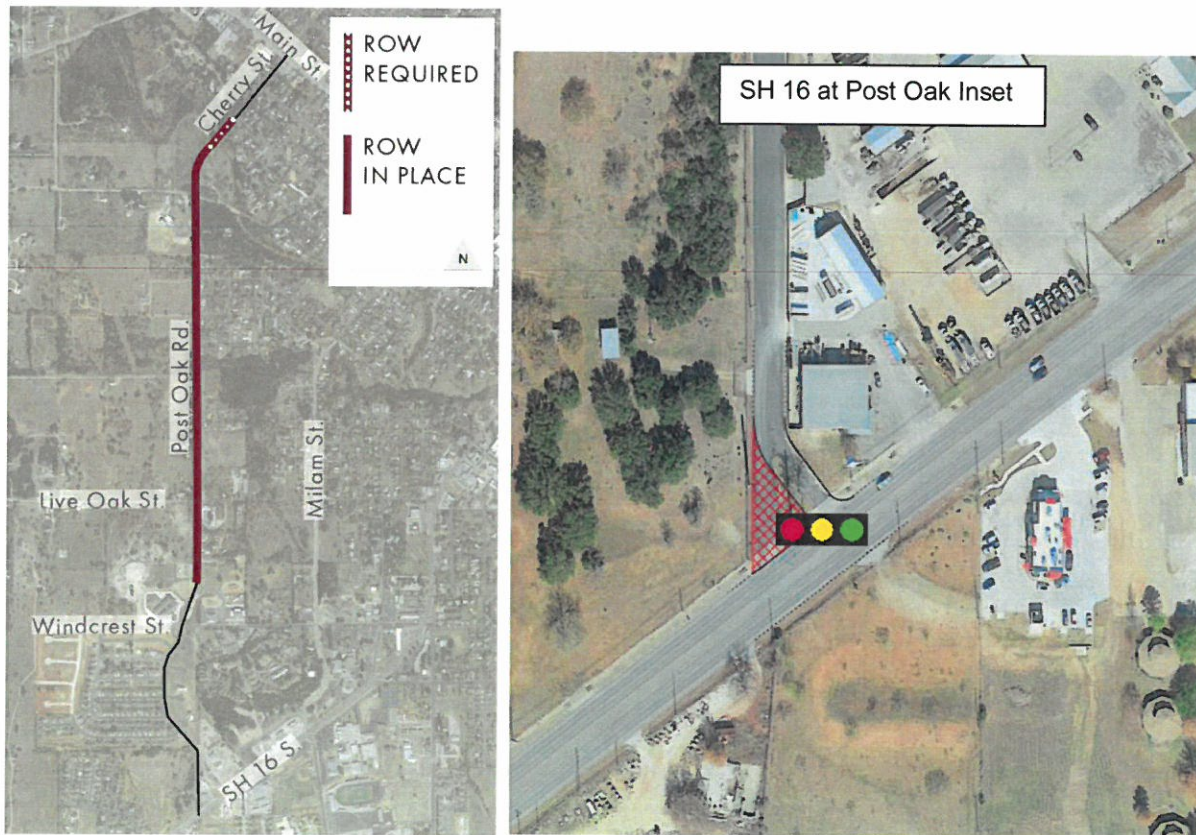


Figure 6: Post Oak Extension

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.

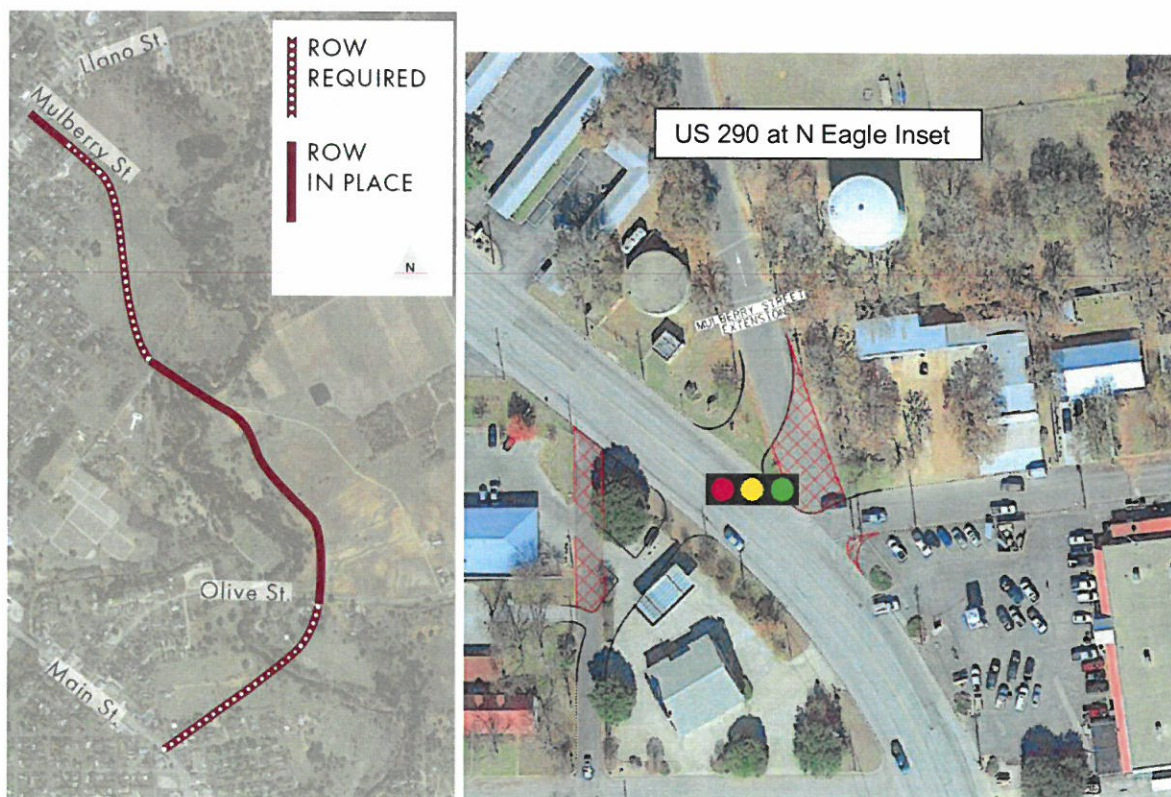


Figure 7: Mulberry Extension

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.

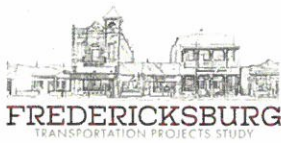
At a network level, the Inner Loop extension would decrease travel delay by 79 hours during the PM peak hour and by 122 hours during the weekend peak hour. Travelers would have to make fewer stops at intersections during the peak hours. Overall speed on the network would increase by 2 to 3 mph. **Table 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 Milam
- Main at Adams
- Main at Llano
- Main at Lincoln
- Main at Washington
- Main at Elk
- Main at Olive
- Llano at Travis
- SH 16 at Windcrest
- SH 16 at Highway
- 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 TxDOT's 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
- Main at Washington
- Main at Elk
- Main at Olive
- US 290 at Highway
- US 290 at Friendship
- Llano at Austin
- Llano at Travis
- Adams at San Antonio
- Adams at Creek
- Adams at Live Oak
- SH 16 at Windcrest
- SH 16 at Highway
- SH 16 at Milam
- 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 Llano
- Washington at Walnut
- Main at Milam
- Main at Lincoln
- Main at Orange
- Milam at Austin

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")
- SH 16 at Windcrest
- Milam at Austin
- US 290 at Highway
- Washington at Walnut

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 28th
 - 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 24th through February 14th
- 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 28th, 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 1st would receive four points, a project ranked 2nd would receive three points, a project ranked 3rd would receive two points, and a project ranked 4th 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

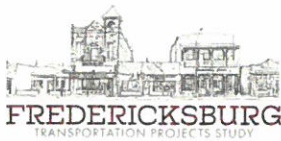
Alignment	Open House			Online and Paper Survey		
	Total Votes	Total Up-Votes	Percent Up-Votes	Most Common Rank	2 nd Most Common Rank	Overall Score
Post Oak	72	44	61%	4 th	1 st	148
Mulberry	48	36	75%	3 rd	2 nd	157
Frederick	42	34	81%	2 nd	3 rd	178
Inner Loop	85	59	69%	1 st	4 th	176

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 4th 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 1st 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 3rd and 2nd 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 2nd and 3rd 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 1st overall, though its second most common ranking was 4th 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 1st would receive three points, a project ranked 2nd would receive two points, and a project ranked 3rd 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

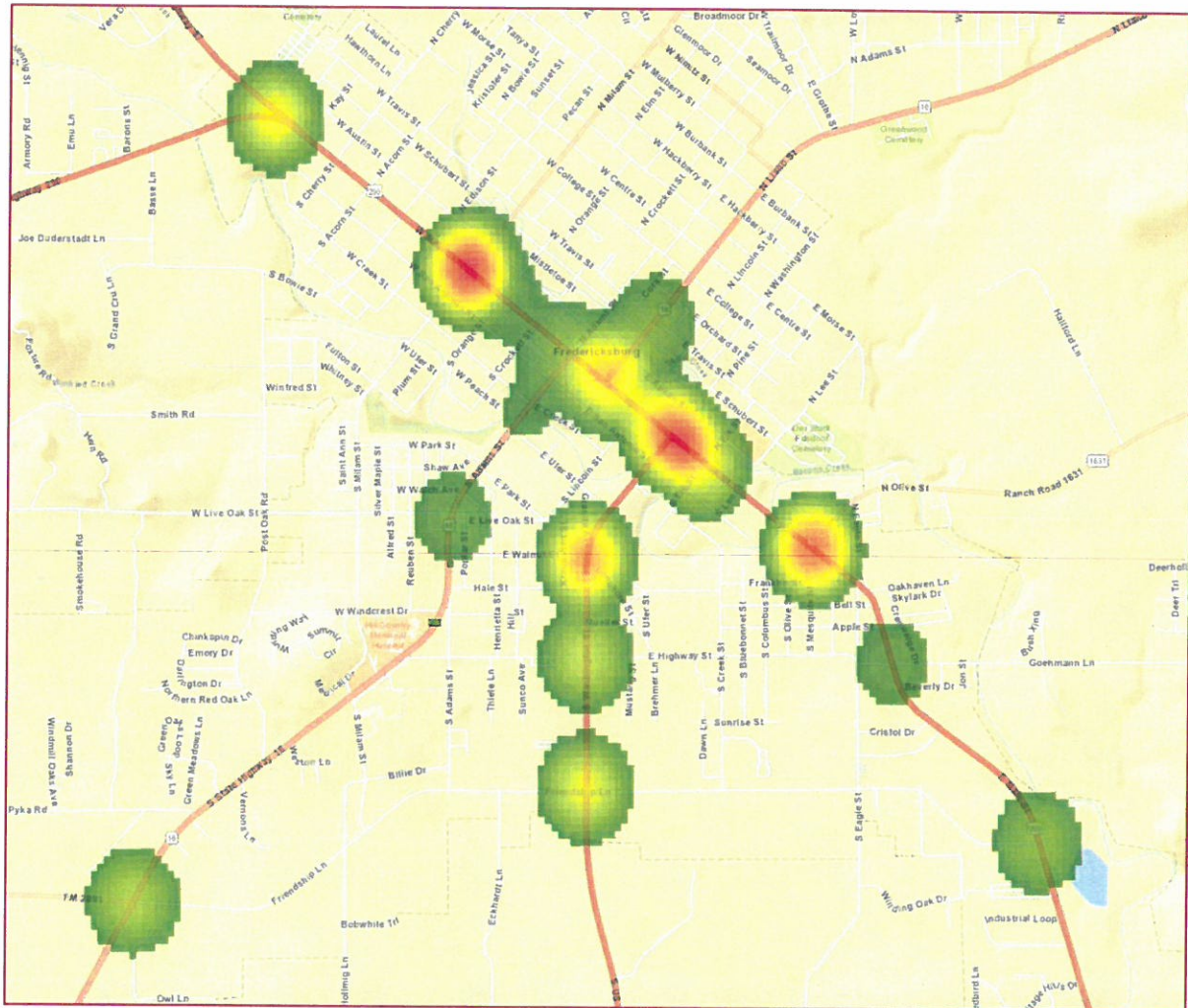
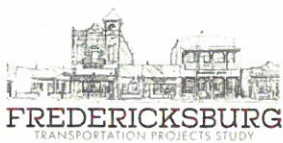


Figure 10: Intersection Vote Density

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

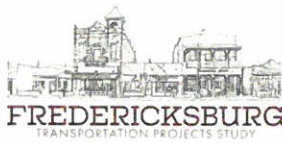


In total, an estimated 250-300 people attended the open house event, an estimated 130 open house attendees interacted with the boards presented at the open house, 4 open house attendees left comment cards at the open house, and 71 people participated in either the paper survey or the online survey. A 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 COMISSIONERS 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

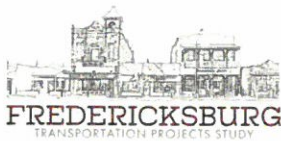
BUDGET 1 ALTERNATE: CONSTRUCT MULBERRY EXTENSION

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