CITY OF
Big Spring

CITY COUNCIL AGENDA

Tuesday, November 10, 2015

Notice is hereby given that the City Council of the City of Big Spring, Texas will meet in Regular Session on Tuesday, November 10, 2015, at 5:30 p.m. in the City Council Chambers located at 307 East 4th Street, Big Spring, Texas.

As a courtesy to those in attendance, please place your cell phone on "Silent" or "Vibrate."

Please, no talking during the meeting; take any conversations outside, so others can hear.

Thank You!

The City of Big Spring Council reserves the right to consider business out of the posted order, and at any time during the meeting, reserves the right to adjourn into executive session on any of the above posted agenda items which are not listed as executive session items and which qualify to be discussed in closed session under Chapter 551 or the Texas Government Code.

Open Session

1. Call to Order — McLellan

2. Invocation and Pledge of Allegiance to the United States Flag and to the Texas State Flag — McLellan

   "Honor the Texas flag; I pledge allegiance to thee, Texas, one State under God, one and indivisible."

Announcements and Public Hearings

Public Hearing Comments – The Council will take public input on public hearing items **prior** to any Action. Each member of the public should make remarks **from the podium** and **begin by stating his/her name**. Citizens will be limited to **three minutes**, unless waived by the Mayor for **all** speakers. No individual will be allowed to speak more than once, until every citizen wishing to comment has done so.

Announcement

3. Proclamation for "Veterans Day 2015 " — McLellan

Disposition of Minutes

4.	Approval of the Minutes of the Regular Meeting of October 27, 2015	5-8	Davis

Consent Items

5.	Acceptance of the McMahon-Wrinkle Airport Development Board Minutes for the Meeting of September 17, 2015	9-10	Little

Bids

6.	Award Bid for Broadcast Equipment for Rebroadcasting on Channel 17 and Authorizing the City Manager or His Designee to Execute Any Necessary Documents	11	Medina
7.	Permission to Purchase a Sanitation Truck and a Roll-Off Truck and Authorizing the City Manager or His Designee to Execute Any Necessary Documents	12	Medina
8.	Permission to Advertise for Bids for the Auditorium Sound System Improvements and Authorizing the Mayor or His Designee to Execute Any Necessary Documents	13	Wegman

Routine Business

9.	Vouchers for 10/29/15 $ 993,313.10 Vouchers for 11/05/15 $ 640,790.10		Harbour

New Business

10.	Presentation by Freese and Nichols, Inc. on the CIP Cost Analysis Report	14-91	Johnston
11.	Discussion of the CIP Cost Analysis Report and Any Necessary Action		Johnston
12.	First Reading of a Resolution Casting Vote(s) to Elect Directors for the Howard Country Appraisal District for the Years 2016 and 2017	92-95	Moore
13.	First Reading of a Resolution of the City Council of the City of Big Spring, Texas, Authorizing City Staff to Submit Invoices and Proof of Payment for Capital Equipment, Previously Purchased with City Funds, to JP Morgan Chase for Inclusion in the 2014-15 Lease Financing Package; Receive Reimbursement for the Capital Equipment Previously Purchased with City Funds; and Avoid Funding Fees Applicable to a Refund/Credit of the Remaining Lease Fund Balance	96	Moore

14.	First Reading of an Ordinance Amending Ordinance Number 044-2015 Which Adopted the Annual Budget for the Fiscal Year Beginning October 1, 2015 and Ending September 30, 2016 by Increasing the General Fund Budget for the Purpose of Purchasing an Animal Control Truck; Providing for Repeal of Ordinances in Conflict Herewith; Providing for Publication; and Providing an Effective Date	97-98	Moore
15.	Approval of an Agreement with American Fidelity Assurance Company for an Excess Stop Loss Policy and Authorizing the City Manager or His Designee to Execute Any Necessary Documents	99	Medina
16.	Authorization for the City Attorney to Negotiate an Agreement with CGG Land, Inc. to Conduct Geographical Operations (Seismic Survey) on City-Owned Property and Authorizing the City Manager or His Designee, to Execute Any Necessary Documents	100-103	Womack
17.	Approval of an Amendment with Big Star Oil & Gas, LLC to Correct Lease by Increasing Acreage by 4.75 Acres and Authorizing the Mayor or His Designee to Execute Any Necessary Documents		Edwards
18.	Approval of an Oil and Gas Lease with Big Star Oil & Gas, LLC for Approximately 5 Acres of City Owned Land and Authorizing the Mayor or His Designee to Execute Any Necessary Documents		Edwards
19.	Approval of the Minutes of the Regular Meeting of the Big Spring Economic Development Corporation Held on September 15, 2015	104-106	Edwards

City Manager's Report

20.	Community Interest Items or Events City of Big Spring Holiday -Veterans Day – November 11th Next City Council Meeting - December 8th Keep Big Spring Beautiful – E-Waste Collection November 13th – for Businesses with 10 or More - 2-4pm November 14th - 10-2pm	Darden

Council Input

21.	Input	McLellan

Executive Session - City Attorney's Report

22.	Adjourn into **Executive Session with the Executive Director of the Big Spring Economic Development Corporation** Under the Provisions of Title 5, Texas Government Code, Section 551.087 to Discuss or Deliberate Commercial or Financial Information	McLellan

Concerning Entities that the City Seeks to Have Locate, Stay or Expand in or Near the City and with Which the City and Big Spring Economic Development Corporation are Conducting Economic Development Negotiations; and Under Title 5, Texas Government Code, Section 551.072 to Deliberate the Purchase, Exchange, Lease or Value of Real Property **(Quarterly Update)**

23. Attorney's Update on Pending Claims and Litigation – Adjourn into Executive Session in Accordance with Texas Government Code Section 551.071(1)(A) to Consult with the City Attorney **(Quarterly Update)** — McLellan

24. Reconvene in Open Session and Take Any Necessary Action — McLellan

25. Adjourn — McLellan

I hereby certify that this agenda was posted on the official bulletin boards at the Big Spring City Hall Building, 310 Nolan Street, Big Spring, Texas. Given by order of the City Council and Posted on Friday, November 6, 2015 at 5:00 p.m. in accordance with Title 5, Texas Government Code, Chapter 551.

In addition, this agenda and supporting documents are posted on the City of Big Spring's website, **www.mybigspring.com** in accordance with legal requirements.

Lesa Gamble

Lesa Gamble, Assistant to the City Manager

THE MEETING FACILITY IS ACCESSIBLE TO DISABLED PERSONS. ANY DISABLED PERSON NEEDING SPECIAL ACCOMMODATIONS OR HEARING-IMPAIRED PERSONS WISHING TO HAVE AN INTERPRETER SHOULD CONTACT LESA GAMBLE AT 264-2401. REQUESTS FOR AN INTERPRETER SHOULD BE MADE AT LEAST 48 HOURS IN ADVANCE OF THE MEETING TIME.

Agenda Removal Notice - This public notice was removed from the official posting board at the Big Spring City Hall Building, 310 Nolan Street, Big Spring, Texas on

November _____, 2015 at _____a.m./p.m. By: _____

STATE OF TEXAS :
COUNTY OF HOWARD :
CITY OF BIG SPRING :

The City Council of the City of Big Spring, Texas, met in a regular meeting in the City Council Chambers located at 307 E. 4th, Big Spring, Texas, at 5:30 p.m., October 27, 2015, with the following members present:

LARRY MCLELLAN	Mayor
JUSTIN MYERS	Mayor Pro Tem
RAUL MARQUEZ	Councilmember
STEVE WAGGONER	Councilmember
RAUL BENAVIDES	Councilmember
JIM DEPAUW	Councilmember

(Councilmember Harbour was not present at this meeting.)

Same and constituting a quorum; and

TODD DARDEN	City Manager
KAYE EDWARDS	City Attorney
CHAD WILLIAMS	Police Chief
DON MOORE	Finance Director/ City Secretary
JIM LITTLE	Airpark Director
TIM GREEN	Municipal Court Judge
DEBBIE WEGMAN	Community Services Director

INVOCATION & PLEDGE OF ALLEGIANCE

Calvary Callender, First Church of the Nazarene, gave the invocation and Mayor McLellan led the Pledge of Allegiance to the American and Texas Flags.

ANNOUNCEMENT

PROCLAMATION DECLARING OCTOBER, 2015 AS "COMMUNITY PLANNING MONTH"

Mayor McLellan read a proclamation declaring October, 2015 as "Community Planning Month"

DISPOSITION OF MINUTES

APPROVAL OF THE MINUTES OF THE REGULAR MEETING OF OCTOBER 13, 2015

Motion was made by Councilmember Waggoner, seconded by Mayor Pro Tem Myers, with all members of the Council voting "aye" approving the above listed minutes.

CONSENT ITEMS

FINAL READING OF A RESOLUTION DECLARING THE OFFICIAL INTENT OF THE CITY TO BE REIMBURSED FOR CERTAIN CAPITAL EXPENDITURES FROM PROCEEDS OF A LEASE PURCHASE AGREEMENT

FINAL READING OF A RESOLUTION DESIGNATING NOMINEES FOR THE POSITION OF DIRECTOR ON THE HOWARD COUNTY JOINT TAX APPRAISAL DISTRICT BOARD OF DIRECTORS FOR THE YEAR 2016 AND 2017

Motion was made by Councilmember DePauw, seconded by Councilmember Waggoner, with all members of the Council voting "aye" approving the second and final reading of the above listed resolutions.

BIDS

REQUEST PERMISSION TO ADVERTISE FOR BIDS FOR THE DEMOLITION OF SUB-STANDARD HOUSING

Motion was made by Councilmember DePauw, seconded by Mayor Pro Tem Myers, with all members of the Council voting "aye" approving staff to advertise for bids for the demolition of sub-standard housing.

AWARD BID FOR SCADA IMPROVEMENT PROJECT UPGRADES AND AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO EXECUTE ANY NECESSARY DOCUMENTS

Motion was made by Councilmember Marquez, seconded by Councilmember Waggoner, with all members of the Council voting "aye" awarding the bid for SCADA Improvement Project Upgrades to Trac-n-trol, Inc. in the amount of $264,720.00.

AWARD BID FOR FINANCIAL ADVISOR TO SAMCO AND AUTHORIZE THE CITY MANAGER TO NEGOTIATE AND EXECUTE ANY NECESSARY DOCUMENTS

Motion was made by Councilmember DePauw, seconded by Councilmember Waggoner, with all members of the Council voting "aye" awarding the bid for Financial Advisor to SAMCO.

ROUTINE BUSINESS

Councilmember Marquez reviewed the vouchers in the amount of $819,927.09 (10/15/15) and $1,192,243.85 (10/22/15). Motion was made by Councilmember

Marquez, seconded by Mayor Pro Tem Myers, with all members of the Council voting "aye" approving the above listed vouchers.

NEW BUSINESS

PRESENTATION BY CGG LAND, INC. TO CONDUCT A SEISMIC SURVEY IN THE CITY OF BIG SPRING AND ANY ACTION IN CONNECTION TO SAME.

John Gordon, Jr. with CGG Land, Inc. explained the process of a seismic survey they will be doing in the Big Spring/Howard County area. No action was taken.

PRESENTATION OF ANNUAL DELINQUENT TAX REPORT FOR JULY, 2014 THROUGH JUNE, 2015 AND ANY ACTION IN CONNECTION TO SAME

Drew Mouton with Mouton and Mouton presented the annual delinquent tax report to the Council. No action was taken.

PERMISSION TO NEGOTIATE AN AGREEMENT WITH KDC ASSOCIATES FOR PROFESSIONAL SERVICES FOR THE SPRING PROJECT AND AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO EXECUTE ANY NECESSARY DOCUMENTS

Motion was made by Councilmember DePauw, seconded by Councilmember Marquez, with all members of the Council voting "aye" approving to negotiate the above captioned agreement.

APPROVAL OF AGREEMENTS WITH WELLS FARGO FOR CD ACCOUNT, SAFEKEEPING AND ONLINE ACCESS AND AUTHORIZING THE CITY SECRETARY/FINANCE DIRECTOR TO EXECUTE ANY NECESSARY DOCUMENTS

Motion was made by Mayor Pro Tem Myers, seconded by Councilmember Waggoner, with all members of the Council voting "aye" approving the above captioned agreements.

APPROVAL OF A MOSS CREEK LAKE OPERATION AGREEMENT BETWEEN STEVE SALINAS AND THE CITY OF BIG SPRING AND AUTHORIZING THE CITY MANAGER TO EXECUTE ANY NECESSARY DOCUMENTS

Motion was made by Councilmember Waggoner, seconded by Councilmember Marquez, with all members of the Council voting "aye" approving the above captioned agreement.

APPROVAL OF A 90 DAY EXTENSION OF THE CURRENT MEET AND CONFER AGREEMENT WITH THE BIG SPRING PROFESSIONAL FIREFIGHTERS ASSOCIATION AND AUTHORIZING THE MAYOR OR HIS DESIGNEE TO EXECUTE ANY NECESSARY DOCUMENTS

Motion was made by Councilmember Benavides, seconded by Mayor Pro Tem Myers, with all members of the Council voting "aye" approving the above captioned agreement.

CITY MANAGER'S REPORT

Todd Darden announced that there would only be one council meeting on November 10, 2015 and December 8, 2015 due to the holidays.

COUNCIL INPUT

Mayor McLellan reported that the landscaping on Main Street has started and reminded citizens that the roll back election has been set for January 19, 2016.

Mayor Pro Tem Myers reported that the Comanche Trail Golf Course was looking better and thanked the staff for taking care of the issues.

Councilmember DePauw announced that there will be a fund raiser for Blantan Gusman at the Steer Football game on October 30, 2015.

ADJOURN

Mayor McLellan adjourned the meeting at 6:41 p.m.

CITY OF BIG SPRING, TEXAS

_____

Larry McLellan, Mayor

ATTEST:

_____

Tami L. Davis, Assistant City Secretary

City of Big Spring
Big Spring McMahon-Wrinkle Airport and Industrial Park
Development Board Meeting Minutes
September 17, 2015

The Big Spring Airport and Industrial Park Development Board met in Regular Session at 5:30 p.m., on Thursday, September 17, 2015 at the Airport Terminal conference room, 3200 Rickabaugh Drive, Big Spring, Texas. Phillip Welch called the meeting to order at 5:32 p.m. with the following members in attendance:

Phillip Welch, Chairman
Ned Crandall
Terry Hansen
Paschal Odom, Vice Chairman
Jane Armstrong

Also in attendance: Jim Little, Airport Director
Rodney Patridge, A&P Mechanic

Absent: Wayne Dawson
Terry Wegman Big Spring EDC
Willie Rangel

Item # 1
Call to Order
Phillip Welch called the meeting to order at 5:30 p.m.

Item # 2
Review and approve minutes from July 16, 2015 meeting
Motion to approve made by Jane Armstrong, seconded by Ned Crandall, with all members voting "aye" for acceptance of the minutes as written.

Item # 3
Big Spring Economic Development Corporation Update
Terry Wegman was unavailable for an update. Jim gave a brief update on the new rail activity that was discussed at the EDC Meeting this week. They are ready to approve contract for rail extension to Perimeter Rd. They are working with us and TxDOT to get changes made in designation of Revenue Producing vs. Aeronautical designation of some land which will also have to be approved by the FAA. Terry Hansen gave more detail on other activities stating that the EDC has been working with J.D. Rush and a Japanese company that will be utilizing the rail yard at the airpark and had a very productive meeting last week with City officials and company heads. Terry also mentioned the Desert Tanks situation and updated the board on other ongoing EDC activities. The board discussed the new industrial planning study for the airpark.

Item # 4
Rail Yard Development Activity
No other rail activity to report other than what was discussed in EDC Update.

Item # 5
T-Hangar Project, Status
Jim updated the board on construction progress. The contractors were not able to pour concrete as scheduled. The project is now set to be completed around early February.

Item # 6
Airport Director Update
Jim notified the board that there are now three openings, one for Administrative Assistant and two for airpark Maintenance staff. Jim also mentioned the passing of board member, Willie Rangel's wife Mary. The budget meetings were wrapped up and final approval will be on Tuesday the 22nd at City Council meeting. Most of the City officials will be heading to TML next week. Jim mentioned the mesquite tree removal efforts. The board reviewed the proposed hangar rates that are in the process of being updated. With the new construction of hangar space, prices need to be raised to more current rates. Motion is made by Paschal Odom that the board give the Director the authority to negotiate hangar rental rates. Motion is seconded by Jane Armstrong, with all members of the board voting "aye". Jim also mentioned the status of Desert Tanks and Trace Engines moving out. Jim discussed the incident last week when a suspicious plane flew in and had some follow up with the Border Patrol and Customs personnel. Also, the safety program was discussed and the board noted some of the issues that the airport faces with the safety protocols and lack of related incident training for our first responders.

Item # 7
Reliever Route/Airport Access Road
Jim briefly updated the board on the status of the two access road properties that the City is working toward acquiring.

Item # 8
Interstate 27
Terry Hansen gave some information on the ongoing activity and support needed to acquire the designation. Board discussed the issue.

Item #9
Leased Building Issues
Jim gave a brief update, including the fact that the John Crane roof has finally been repaired. He also mentioned the current process of getting some of the airports aeronautical property re-designated to revenue generating property. The board briefly discussed the "soon to be vacated", Senior Center property.

Item #10
Airport Safety Committee Report
Wayne Dawson was unavailable for an update.

Item # 11
Other Events and Activities
No other events or activities at this time.

Item # 12
Next Meeting Date
October 15, 2015

Adjournment: 7:00 p.m.

Phillip Welch

Approved by Phillip Welch, Chairman

10-22-15

Date

Big Spring
Texas

City of Big Spring
Memorandum

To: Honorable Mayor, City Council, City Manager

From: John Medina, Assistant City Manager

Date: November 6, 2015

Subject: Requesting permission to purchase broadcast equipment

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Honorable Mayor and Council,

On Wednesday, November 4, 2015 the City of Big Spring received a quote for the purchase of broadcast equipment. This equipment allows for rebroadcasting meetings online and upgrading various equipment for our public access channel use.

We are requesting permission to purchase the broadcast components from RushWorks.TV out of Flower Mound, TX, for $40,723.00. This purchase is $10,397 under budget. These items are paid for using Public, Educational, and Government (PEG) Access fees that can only be used for our public access channel equipment.

Big Spring
Texas

City of Big Spring
Memorandum

To: Honorable Mayor, City Council, City Manager

From: John Medina, Assistant City Manager

Date: November 6, 2015

Subject: Requesting permission to purchase a sanitation truck and a roll-off truck

---

Honorable Mayor and Council,

On Wednesday, November 4, 2015 the City of Big Spring received a bid through the Buy Board Purchasing Cooperative for one (1) sanitation truck and one (1) roll-off truck for the Sanitation Department. The budget for these items is $230,000.00 and $150,000.00 respectively.

We are requesting permission to purchase the sanitation truck from SEC out of Justin, TX, for $217,476.00, and the roll-off truck from Rush Truck Center out of Dallas TX, for $135,758.00. These combined purchases are $26,766 under budget.

CITY OF
Big Spring

COMMUNITY SERVICES
MEMORANDUM

TO: HONORABLE MAYOR AND CITY COUNCIL
MR. TODD DARDEN, CITY MANAGER

FROM: DEB BIE WEGMAN, COMMUNITY SERVICES DIRECTOR

SUBJECT: REQUEST FOR PERMISSION TO ADVERTISE FOR BIDS FOR THE SOUND SYSTEM IMPROVEMENTS WITHIN THE AUDITORIUM

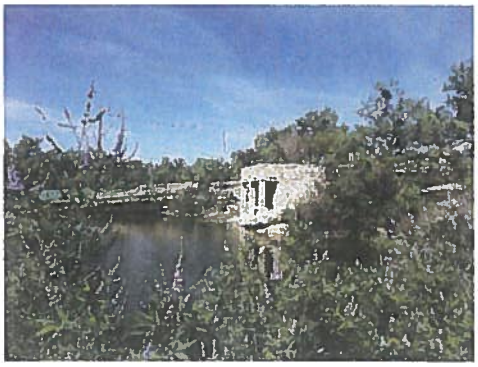
DATE: NOVEMBER 5, 2015

This is a request for permission to advertise for bids for the sound system improvements within the Municipal Auditorium as an approved budgeted expense.

Please contact me if you have any questions or concerns.

FREESE AND NICHOLS

Innovative approaches
Practical results
Outstanding service



CIP COST ANALYSIS

Prepared for:

Big Spring
Texas

October 26, 2015

Prepared by:

FREESE AND NICHOLS, INC.
2711 N. Haskell Avenue, Suite 3300
Dallas, Texas 75204
214-217-2200

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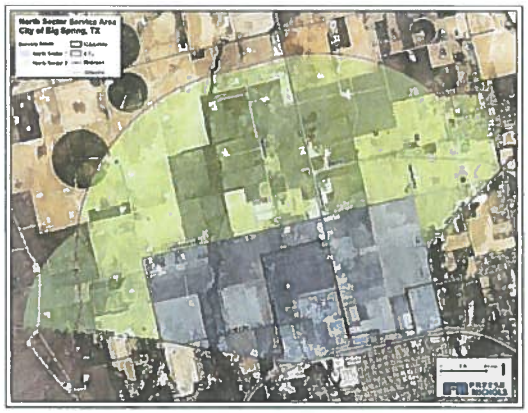
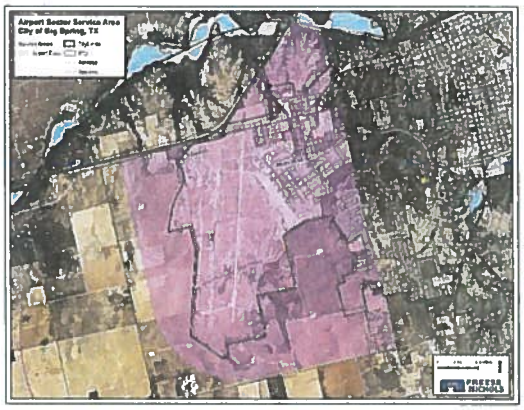
EXECUTIVE SUMMARY

The purpose of this study is to determine fair share costs of infrastructure needs to specific planning areas within Big Spring and to develop a methodology for application of such costs to either development or pro-rata agreements of new development to the city. As the city continues to grow, the City desires to define monetary costs of basic infrastructure for the purpose of allocating a proportionate share (proportionality) to specific development applications.



Proportionality will be applied to two specific planning areas within the city and include;

- **North Sector**, bound by SH 350 to the east, IH-20 and SH 176 (Andrews Highway) to the south, and the City's extraterritorial jurisdiction (ETJ) to the west and north,
- **Airport Sector**, bound by IH-20 and Union Pacific Railroad on the north, airport property and Wasson Road to the east, and the future Reliever Route to the south and west.



Both sectors were the subject of specific sub-area planning during the City's 2015 comprehensive planning process. Infrastructure components considered included roadways, water and wastewater systems with costing and analysis based on approved City plans for the respective services.

In Big Spring, the analysis of proportional contributions will be based on system-wide impacts of proposed development on the infrastructure system. The methodological approach consists of a supply/demand analysis where a comparison of infrastructure capacity being provided by proposed development contributions is measured to demands placed on the infrastructure system by such development. The analysis of this capacity and demand includes the following components:

- Capital Improvements Plan (CIP)
- Service Unit Equivalency (SUE) to measure the impact by a development on City infrastructure

- Determination of CIP cost and cost per service unit

This methodological approach for the measurement and calculation of proportional contributions will be presented. This study will be used as a mechanism to ensure that new development contributes its proportional share of infrastructure improvements relative to the demand such development places on the system.

Roadway Calculation Approach

The unit cost to provide roadway service was calculated based on needs to achieve the Thoroughfare Plan standard, as outlined in the 2015 Comprehensive Plan and City's construction standards, within each specific planning area. Costs for improvements include; construction, engineering, right-of-way acquisition (additional to achieve standard) and debt service. The cost necessitated by future growth was based on future land use plans developed from previous planning efforts. A cost per service unit was calculated for each planning sector. Two scenarios were calculated; one considering full project costs and the other calculated with a 50% credit on the total CIP project cost. **Table ES-1** presents the cost per unit for each land use type.

Table ES-1 Roadway Cost Per Service Unit

Service Area	Total Project Cost of CIP	Projected Demand (veh-miles)	Cost Attributable to New Development	Cost per Service Unit w/ 50% Credit	Actual Cost per Service Unit (veh-mi)
NS1	$67,494,730	13,309	$17,085,237	$1,283	$2,566
NS2	$25,054,534	15,635	$12,276,283	$785	$1,570
APZ	$58,691,198	15,526	$21,011,975	$1,353	$2,706

For roadways, to derive cost of impact for specific land uses, a service unit equivalency table was developed and tailored to traffic characteristics for land uses under the general categories of residential, office, commercial, industrial and institutional uses. Service units generated by specific land use proposals would be multiplied by the cost per service unit to derive the cost of service required to address traffic generation of specific development proposals.

Water/Wastewater Calculation Approach

The water and wastewater cost per service unit was developed based on the average day water demand projections for each sector. A cost per unit was developed for residential developments and a cost per

acre was developed for non-residential development. The City requested the cost per service unit be calculated with a 50% credit and without a 50% credit. **Table ES-2** presents the cost per unit or acre for each land use type.

Table ES-2 Cost per Service Unit

Land Use	Cost Per Unit or Acre with 50% Credit	Cost Per Unit or Acre without 50% Credit	Service Unit
North Sector			
Agriculture	$0	$0	per Acre
Heavy Commercial	$25,841	$51,682	per Acre
High Density Residential	$3,876	$7,752	per Unit
Industrial	$25,841	$51,682	per Acre
Light Commercial	$16,151	$32,302	per Acre
Low Density Residential	$8,140	$16,280	per Unit
Medium Density Residential	$6,030	$12,060	per Unit
Parks and Open Space	$2,153	$4,306	per Acre
Public/Semi-Public	$10,767	$21,534	per Acre
Retail/Commercial	$10,767	$21,534	per Acre
Airport Sector			
Heavy Commercial	$14,764	$29,528	per Acre
Industrial	$14,764	$29,528	per Acre
Light Commercial	$9,843	$19,686	per Acre
Light Industrial	$9,843	$19,686	per Acre
Multi Family	$2,215	$4,430	per Unit
Public/Semi-Public	$6,152	$12,304	per Acre
Residential	$4,651	$9,302	per Unit

1.0 INTRODUCTION

The purpose of this study is to document the proportional impact of the infrastructure associated with new development in the Airport Sector and North Sector of the City. This information will be used as the basis for development or pro-rata agreements in the service areas analyzed.

For Big Spring, the analysis of proportional contributions will be based on system-wide impacts of proposed development on the infrastructure system. A methodology for the measurement and calculation of proportional contributions is presented. This study can be used as a mechanism to ensure that new development contributes its proportional share of infrastructure improvements relative to the demand such development places on the system.

A list of abbreviations used in the report is provided in **Table 1-1**.

Table 1-1 Abbreviations

Abbreviation	Full Nomenclature
CIP	Capital Improvements Plan
DU	Dwelling Units
ETJ	Extra-Territorial Jurisdiction
FNI	Freese and Nichols, Inc.
gpcd	Gallons per capita per day
gpm	Gallons per minute
GFA	Gross Floor Area
ITE	Institute of Transportation Engineers
LOS	Level-of-Service
MGD	Million Gallons per Day
sf	Square feet
TCEQ	Texas Commission on Environmental Quality
VMT	Vehicle-Miles Traveled

2.0 ROADWAY INFRASTRUCTURE

2.1 SYSTEM-WIDE TRAFFIC IMPLICATIONS OF NEW DEVELOPMENT

Traffic generation of new development can have far reaching implications on a city roadway system. Depending on the size of the development, added site traffic can affect upstream/downstream intersections, points of access on upstream/downstream linkages (mid-block access, driveways, local streets), and the carrying capacity of area roadways. Traffic impacts are simply not contained to the site and their adjacent roadway improvement but rather on a larger area of the roadway network. For example, a trip from home to work could not accurately be quantified as one-trip on a segment of road adjacent to a proposed development, but rather several miles over a combination of streets. Because of this, municipalities typically require traffic impact assessments with analyses of roadways and intersections that may extend up to several miles for both a present condition and a prediction of some horizon year after the opening of development.

2.2 ROADWAY SERVICE AREAS

In 2013, the City of Big Spring embarked on the development of a comprehensive plan for the city and adjacent area. As part of that planning process, two sub-area plans were prepared for the purpose of examining long-term implications of land use (Future Land Use Plan) and infrastructure (Master Thoroughfare Plan) needs to the city and surrounding area. These planning areas, the North Sector and Airport Sector, are used for this study and illustrated in **Figure 2-1** and **Figure 2-2**, respectively.

The North Sector consists of two service areas bounded by SH 174, IH-20, SH 350, CR 669, and the City's extraterrestrial jurisdiction (ETJ) limits. This sector is divided into two service areas along CR 21, Leatherwood Road, and Old Gail Road with the North Sector 1 service area located south of Leatherwood Road and North Sector 2 located north of Leatherwood Road.

The Airport Sector service area surrounds the airport and is bounded by the future Reliever Route, IH-20, and Wasson Road. This area encompasses the potential industrial development expected to occur surrounding the Big Spring McMahon-Wrinkle Airport.

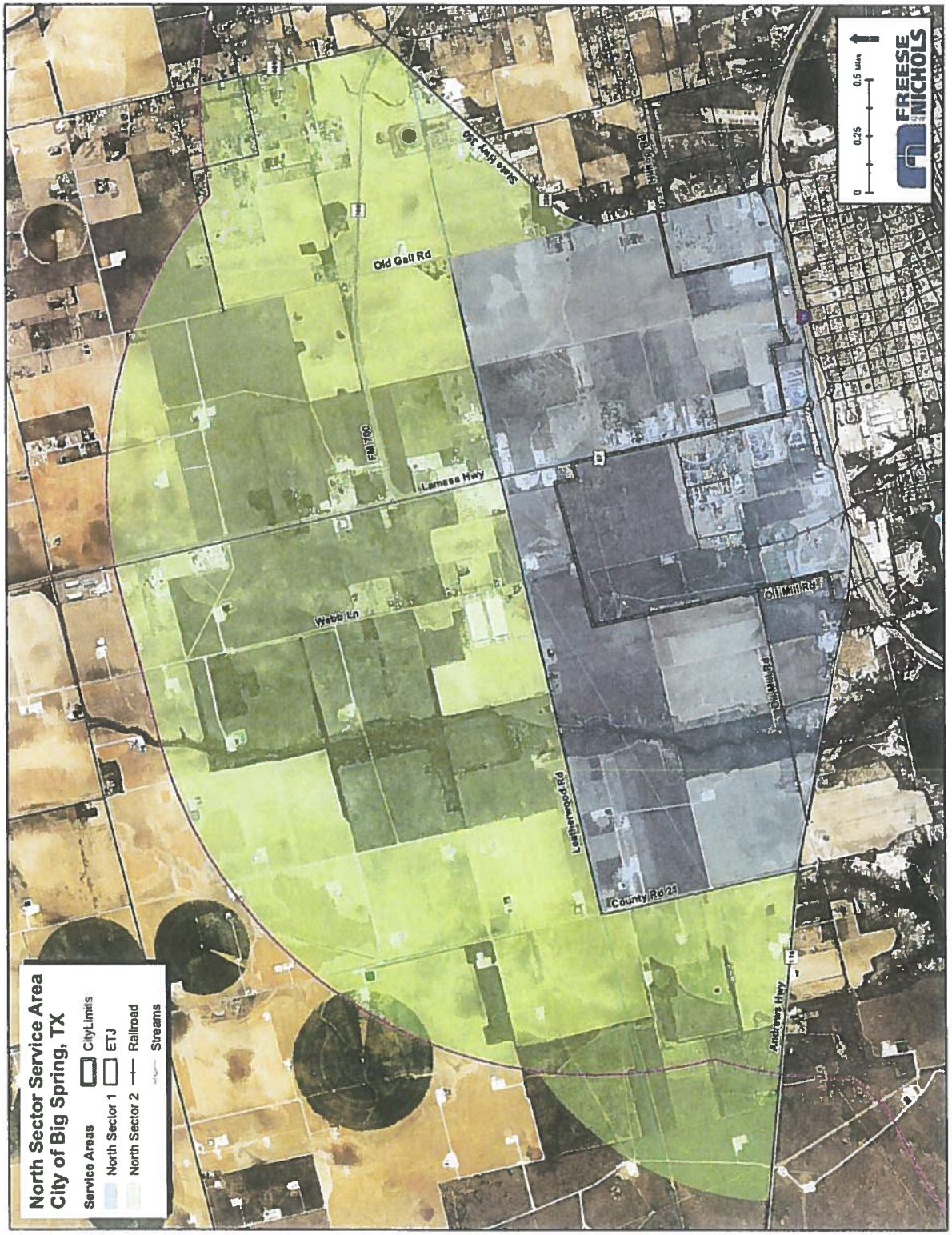


Figure 2-1 North Sector Service Areas

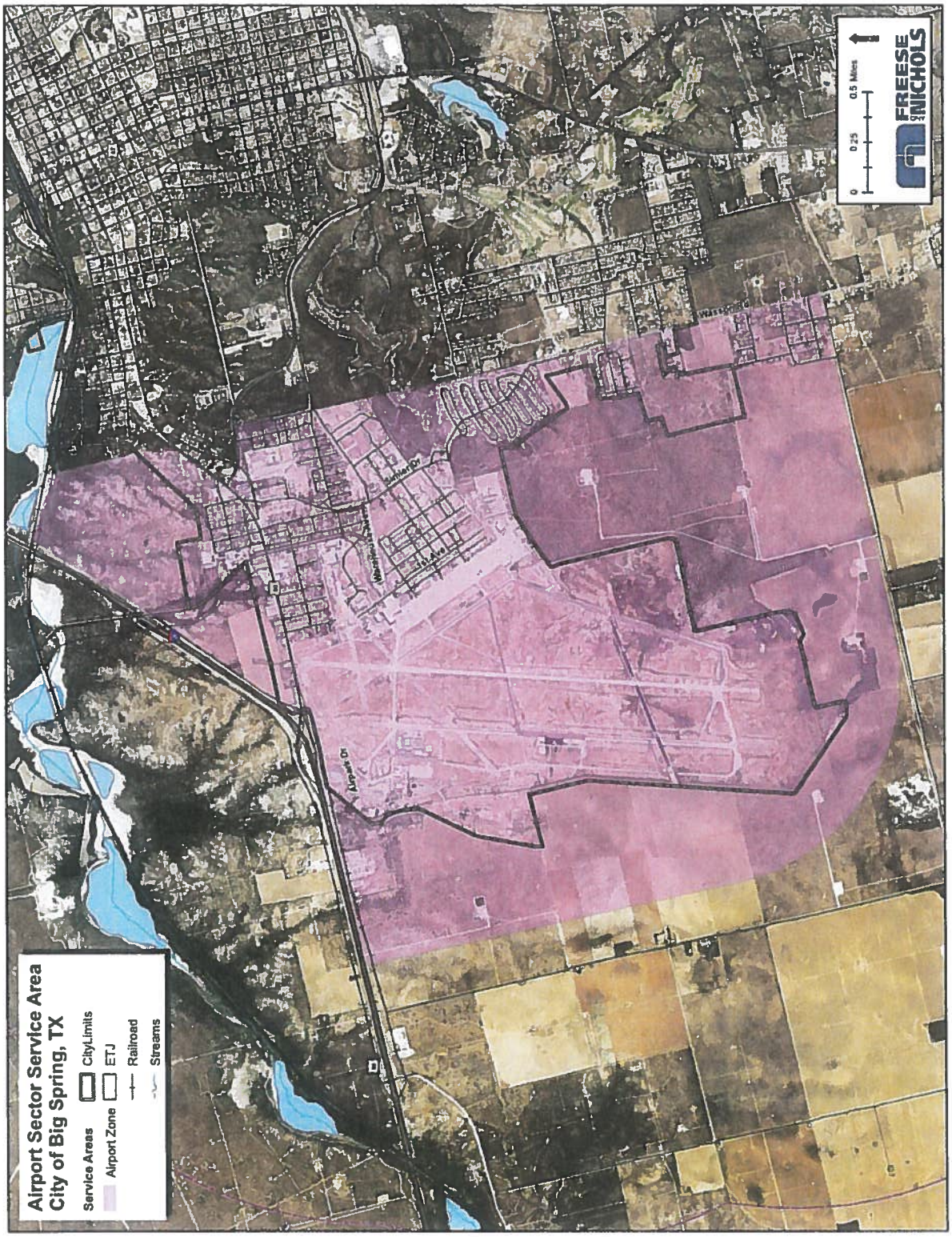


Figure 2-2 Airport Sector Service Area

2.3 ROADWAY SERVICE UNITS

Several elements are needed in the preparation of proportionality tools. For the ability to measure proportional contributions from new development, the capacities for various functional roadway types and a service unit equivalency of specific land uses are needed. To determine cost implications of proposed improvements, a capital improvements program (CIP), its associated cost to implement, and projected growth of the planning area are needed. All, however, require the definition of an appropriate service unit of measure, for use in the study.

2.3.1 Roadway Service Units

To determine the transportation impact for a particular development, a service unit accurately measuring the impact that the development will have on the transportation system serving the development must be identified. This impact is a combination of the number of new trips generated by the development, the particular peaking characteristics of the land-use(s) within the development, and the length of each new trip on the transportation system. The correct service unit must also reflect the supply, which is provided by the roadway system, and the demand placed on the system during the time in which peak, or design, conditions are present.

The vehicle-mile, during the PM peak hour, establishes the ability to relate the intensity of land development (demand) to the capacity of the roadway system. The PM peak hour is used because the greatest demand for roadway capacity occurs, roadways are sized to meet this demand, and roadway capacity is more accurately defined on an hourly basis.

Using the vehicle-mile, capacity of roadway improvements is determined by multiplying the length of the facility by its carrying capacity. For example, given a four lane divided roadway project with a capacity of 675 vehicle per hour per lane and a length of two miles, the number of service units provided is:

675 vehicles per hour per lane x 4 lanes x 2 miles = 5,400 vehicle-miles

Similarly, vehicle-miles of demand are determined by multiplying the trip generation of a specific development by an average trip length associated with such use. For example, a development generating 100 vehicle trips with an average trip length of four miles would generate:

100 vehicle-trips x 4 miles/trip = 400 vehicle-miles

Existing demand placed on the roadway network is calculated in the same manner with a known traffic volume (peak hour roadway tube counts) on a street and a given segment length.

2.3.2 Service Units for New Development

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

A. Trip Generation

Trip generation rates are used to determine the number of vehicles added to the roadway system as a result of new development. The trip generation rates were developed for the PM peak weekday period. The trip generation rates were established using the Institute of Transportation Engineers' *Trip Generation Manual, 9th Edition*.

Appropriate independent variables have been selected based on type of land use. The following development units are typically used:

- *Dwelling Units (DU)* – Total number of habitable dwellings within the development. This should not be mistaken as bedrooms. For example, a single-family residence is one dwelling unit, a 50-unit apartment complex is 50 dwelling units.
- *Gross Floor Area (GFA)* – Total square feet of building floor area bounded by the exterior boundary of outer building walls. Uncovered and outdoor patios are excluded from GFA. This metric is used for office, commercial, industrial, and other uses.
- *Acres* – The total number of acres included in the development.

Adjustments to the trip generation rates are necessary to reflect the differences between driveway volumes and the total amount of traffic added to the roadway system. The actual "traffic impact" of the new development is based only on the traffic added to the adjacent roadways. The actual traffic added to the adjacent roadways is determined by adjusting the driveway volumes to account for pass-by trips, diverted trips, and internal trips.

- *Pass-by trips* – are those trips attracted to a development from traffic that would otherwise pass-by the site on an adjacent roadway. For example, a stop at a convenience store on the way from the office to home is a pass-by trip for the convenience store. The trip does not create an additional burden on the street system and therefore should not be double-counted. The burden of this type should be assigned to the office and/or residence.
- *Diverted trips* – are those trips that are already on the roadway system and are diverted to the roadway system serving the new development. For example, a trip from home to work along US 87 would be a diverted trip if the travel path was changed to Leatherwood Road for the purposes of stopping at the cleaners. On a system-wide basis, this trip also does not add a significant additional burden to the street system so it is not considered in analyzing CIP costs.

A local study may also be conducted to confirm rates in Trip Generation or to change rates reflecting local conditions. In such cases, a minimum of three sites should be counted. Selected sites should be isolated in nature with driveways that specifically serve the development and no other land uses. The results should be plotted on the scatter diagram of the selected land use contained in Trip Generation for comparison purposes. It is recommended that no change be approved unless the results show a variation of at least fifteen percent across the range of sample sizes surveyed.

B. Trip Length

The assessment of an individual development's CIP cost is based on the premise that each vehicle-trip has an origin and a destination and that the development end should pay for one-half of the cost necessary to complete each trip. To prevent double charging, and to fairly attribute the demand placed on the system to each trip end location, the trip length was divided by two to reflect half of the vehicle trip to and from the development. The trip lengths are based on an analysis of the future roadway network which included a calculation of the average distances from the various land uses to their intended destinations. These trip lengths are truncated to the maximum to the limits of the service area. **Appendix B** details the full and adjusted trip lengths by land use for the derivation of service unit equivalencies by major land use types.

2.3.3 Land Use Equivalency

The result of combining the trip generation and trip length information is an equivalency table, which establishes the service unit rate for various land uses. These service unit rates are based on an appropriate development (independent variable) unit for each land use.

Separate rates have been established for specific land uses within the broader categories of residential, office, commercial, industrial and institutional to reflect the differences between land uses within those categories. However, even with these specific land use types, information is not available for every conceivable land use so limitations do exist.

Table 2-1 contains land use equivalencies to be used for determining development impacts to the roadway system in the study area.

Table 2-1 Land Use Equivalency Table

LAND USE	ITE Land Use[1]	ITE Land Use Code	Development Unit	Ave. Trip Rate[2]	Pass By Rate[3]	Diverted Trips[4]	Ave. Trip Rate with Deductions	Trip Length	Ave. Trip Length	Total Service Units (Veh-Mi/Dev Unit)[6]
Residential	Single-family detached housing	210	DU	1.00	0	0	1.00	2.50	1.25	1.25
	Apartment	220	DU	0.62	0	0	0.62	2.50	1.25	0.78
	Residential Condominium / Townhouse	230	DU	0.52	0	0	0.52	2.50	1.25	0.65
	Senior Adult Housing - Detached	251	DU	0.27	0	0	0.27	2.50	1.25	0.34
	Continuing Care Retirement Community	255	DU	0.16	0	0	0.16	2.50	1.25	0.20
Office	General Office	710	1000 sq. ft.	1.49	0	0	1.49	2.42	1.21	1.80
	Corporate Headquarters Bldg	714	1000 sq. ft.	1.41	0	0	1.41	2.42	1.21	1.71
	Medical-Dental Office	720	1000 sq. ft.	3.46	0	0	3.46	2.42	1.21	4.19
	U.S. Post Office	732	1000 sq. ft.	11.22	0	0	11.22	2.42	1.21	13.58
	Research and Development Center	760	1000 sq. ft.	1.07	0	0	1.07	2.42	1.21	1.29
	Business Park	770	1000 sq. ft.	1.26	0	0	1.26	2.42	1.21	1.52
Commercial / Retail	Hotel	310	Rooms	0.60	0	0	0.60	2.42	1.21	0.73
	All Suites Hotel	311	Rooms	0.40	0	0	0.40	2.42	1.21	0.48
	Motel	320	Rooms	0.47	0	0	0.47	2.42	1.21	0.57
	Movie Theater with Matinee	444	Screens	20.22	0.15	0	17.19	2.42	1.21	20.80
	Building Materials and Lumber Store	812	1000 sq. ft.	4.49	0.25	0	3.37	2.42	1.21	4.07
	Free standing Discount Superstore	813	1000 sq. ft.	4.35	0.28	0	3.13	2.42	1.21	3.79
	Variety Store	814	1000 sq. ft.	6.82	0	0	6.82	2.42	1.21	8.25
	Hardware/Paint Store	816	1000 sq. ft.	4.84	0.26	0.28	2.23	2.42	1.21	2.69
	Garden Center	817	1000 sq. ft.	6.94	0	0	6.94	2.42	1.21	8.40
	Nursery (Wholesale)	818	1000 sq. ft.	5.17	0.25	0	3.88	2.42	1.21	4.69
	Shopping Center	820	1000 sq. ft.	6.35	0.45	0.23	2.03	2.42	1.21	2.46
	Automobile Sales	841	1000 sq. ft.	2.62	0.4	0	1.57	2.42	1.21	1.90
	Auto Parts Sales	843	1000 sq. ft.	5.98	0.43	0.13	2.63	2.42	1.21	3.18
	Tire Store	848	1000 sq. ft.	4.15	0.28	0.1	2.57	2.42	1.21	3.11
	Tire Superstore	849	1000 sq. ft.	2.11	0.28	0.1	1.31	2.42	1.21	1.58
	Super market	850	1000 sq. ft.	9.48	0.36	0.38	2.48	2.42	1.21	3.00
	Convenience Market with Gasoline Pumps	853	Fueling Positions	19.07	0.63	0.26	2.10	2.42	1.21	2.54
	Discount Club	857	1000 sq. ft.	4.18	0	0	4.18	2.42	1.21	5.06
	Home Improvement Superstore	862	1000 sq. ft.	2.33	0.48	0.24	0.65	2.42	1.21	0.79
	Electronic Superstore	863	1000 sq. ft.	4.50	0.4	0.33	1.22	2.42	1.21	1.47
	Toy Superstore	864	1000 sq. ft.	4.99	0	0	4.99	2.42	1.21	6.04
	Apparel Store	876	1000 sq. ft.	3.83	0	0	3.83	2.42	1.21	4.63
	Arts and Crafts Store	879	1000 sq. ft.	6.21	0	0	6.21	2.42	1.21	7.51
	Pharmacy with drive thru	881	1000 sq. ft.	9.91	0.49	0.13	3.77	2.42	1.21	4.56
	Furniture Store	890	1000 sq. ft.	0.45	0.53	0.31	0.07	2.42	1.21	0.09
	DVD/Video Rental Store	896	1000 sq. ft.	13.60	0.73	0	3.67	2.42	1.21	4.44
	Bank with Drive Thru	912	1000 sq. ft.	24.30	0.47	0.26	6.64	2.42	1.21	8.04
	Quality Restaurant	931	1000 sq. ft.	7.49	0.44	0.27	2.17	2.42	1.21	2.63
	Restaurant	932	1000 sq. ft.	9.85	0.43	0.26	3.11	2.42	1.21	3.76
	Fast food with drive thru	934	1000 sq. ft.	32.65	0.5	0.23	8.72	2.42	1.21	10.55
	Quick Lubrication Vehicle Stop	941	Serving Positions	5.19	0.55	0.00	2.34	2.42	1.21	2.83
	Automotive Care Center	942	1000 sq. ft.	3.11	0	0	3.11	2.42	1.21	3.76
	Gas/Service Station with Convenience Market	945	Fueling Positions	13.51	0.56	0.31	1.73	2.42	1.21	2.09
Light Industrial	General Light Industrial	110	1000 sq. ft.	0.97	0	0	0.97	2.85	1.43	1.38
	Industrial Park	130	1000 sq. ft.	0.85	0	0	0.85	2.85	1.43	1.21
	Manufacturing	140	1000 sq. ft.	0.73	0	0	0.73	2.85	1.43	1.04
	Mini Warehouse (Self Storage)	151	1000 sq. ft.	0.26	0	0	0.26	2.85	1.43	0.37
	Utilities	170	1000 sq. ft.	0.76	0	0	0.76	2.85	1.43	1.08
	Pipe Yard[6]	N/A	Acres	0.59	0	0	0.59	2.85	1.43	0.84

Notes:

[1] Source ITE Trip Generation Manual 9th Edition

[2] Average number of PM peak hour trips per development unit

[3] Source Trip Generation Handbook, 2nd Edition

[4] Source Trip Generation Handbook, 2nd Edition

[5] Calculated by multiplying the average trip length by the average trip rate w/ deductions

[6] Trip generation calculated using local data provided by the City of Big Spring

2.4 EXISTING CONDITIONS ANALYSIS

An inventory of the collector and arterial roadway facilities was conducted to determine capacity provided by the existing roadway system, the demand currently placed on the system, and the potential existence of deficiencies on the system. Data for the inventory was obtained from the Thoroughfare Plan included with the 2015 Comprehensive Plan, field reconnaissance, and peak hour traffic volume count data.

The roadways were divided into segments based on changes in lane configuration, major intersections, or area development that may influence roadway characteristics. For individual segment assessment, lane capacities were assigned to each segment based on roadway functional class and type of cross-section as shown in **Table 2-2**. Roadway hourly volume capacities are based on general carrying capacity values and reflect Level-of-Service (LOS) "C/D" operation, which is typically identified as the minimum acceptable traffic operational condition by cities. Level-of-Service (LOS) refers to the operational performance of the roadway system and is one of the basic design criterion used in thoroughfare planning. The design level-of-service determines the capacity for which the roadway is intended to operate using a rating system ranging from "A" to "F" with "A" providing free-flow conditions, and "F" heavy congestion and grid lock.

Table 2-2 Roadway Facility Vehicle-Mile Capacities

Roadway Facility	Roadway Type	Capacity LOS "C/D" Vehicles per hour per lane-mile of Roadway Facility
Divided Arterial	DA	675
Special Arterial*	SA	675
Undivided Collector	UC	500

Source: Hourly capacity for LOS "C/D" obtained from the Highway Capacity Manual and adjusted for local conditions.
**Roadway with a continuous left-turn lane.*

Arterials with a continuous dual left-turn lane are similar in nature to a divided arterial roadway. An hourly capacity of 675 vehicles per lane per hour was assigned to this type roadway section.

2.4.1 Existing Volumes

Existing directional PM peak hour volumes were obtained from automated traffic counts conducted in April 2015. Automated traffic counts at 10 separate locations were collected on major roadways throughout the city. In an effort to minimize the total number of counts, data was collected at locations where traffic volumes would typify link volumes on the major segments within the immediate area. For segments not counted, existing volumes were used or estimates were developed based on data from adjoining roadway counts.

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

2.4.2 Vehicle-Miles of Existing Capacity (Supply)

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

Vehicle-Miles of Capacity = Link capacity / peak hour / lane x No. of Lanes x Length of segment (miles)

For example: a 4-lane divided roadway that is 3 miles in length and has a capacity of 675 vehicles per hour per lane:

Vehicle-Miles of Capacity = 675 vehicles per hour per lane x 4 lanes x 3 miles = 8,100 veh-miles / hour.

A summary of existing capacity for the three service areas is illustrated in **Table 2-3**. It is important to note that the roadway capacity depicted in the table is system-wide for most major roadways and not restricted to those roadways proposed in the capital improvements plan. For a detailed listing of vehicle-miles of capacity by roadway segment, refer to **Appendix C**.

2.4.3 Vehicle-Miles of Existing Demand

The vehicle-miles of existing demand or the current usage of the facilities for each roadway segment was obtained using the equation below:

Vehicle-Miles of Demand = PM peak hour volume x Length of Roadway (miles)

For example: a 3-mile long roadway that carries a PM peak hour volume of 500 vehicles per hour:

Vehicle-Miles of Demand = 500 vehicles per hour x 3 miles = 1,500 vehicle-miles per hour.

A summary of the existing demand for the service areas is also illustrated in **Table 2-3**. A detailed listing by roadway segment and service area is provided in **Appendix C**.

Table 2-3 Existing Capacity and Demand

Service Area	Capacity (Supply) (Veh-Miles per Hour)	Demand (Veh-Miles per Hour)
NS1	15,872	2,203
NS2	14,478	2,055
APZ	2,038	215
Total	32,388	4,473

2.4.4 Vehicle-Miles of Existing Excess Capacity or Deficiencies

For each roadway segment, the existing vehicle-miles of excess capacity and/or deficiencies were calculated. Each direction was evaluated to determine if vehicle demands exceeded the available capacity. If demand exceeded capacity in one or both directions, the deficiency is deducted from the supply associated with the capital improvement plan. A summary of existing excess capacity and/or deficiencies for each service area is illustrated in **Table 2-4**. A complete detailed listing by roadway segment and service area is provided in **Appendix C**.

Table 2-4 Excess Capacity and Deficiencies

Service Area	Excess Capacity (Veh-Miles per Hour)	Deficiencies (Veh-Miles per Hour)
NS1	13,670	0
NS2	12,423	0
APZ	1,822	0
Total	27,914	0

2.5 PROJECTED CONDITIONS ANALYSIS

This chapter describes the projected growth, vehicle-miles of new demand, capital improvements program, vehicle-miles of new capacity supplied, and costs of the roadway improvements.

2.5.1 Land Use Assumptions

Population and land use are important elements in the analysis of water, wastewater, and roadway systems. To assist the City of Big Spring in determining the need and timing of capital improvements to serve future development, a reasonable estimation of future growth is required. Growth and development projections were formulated based on the full development of the area, or a build-out scenario of the various future land uses within the community. These land use assumptions, which include population and employment projections, will become the basis for the preparation of capital improvement plans for water, wastewater, and roadway facilities.

Population and employment projections were estimated using a build-out scenario of the future land use plan for each service area. **Figure 2-3** and **Figure 2-4** depict the future land uses in the North Sector and Airport Sector, respectively.

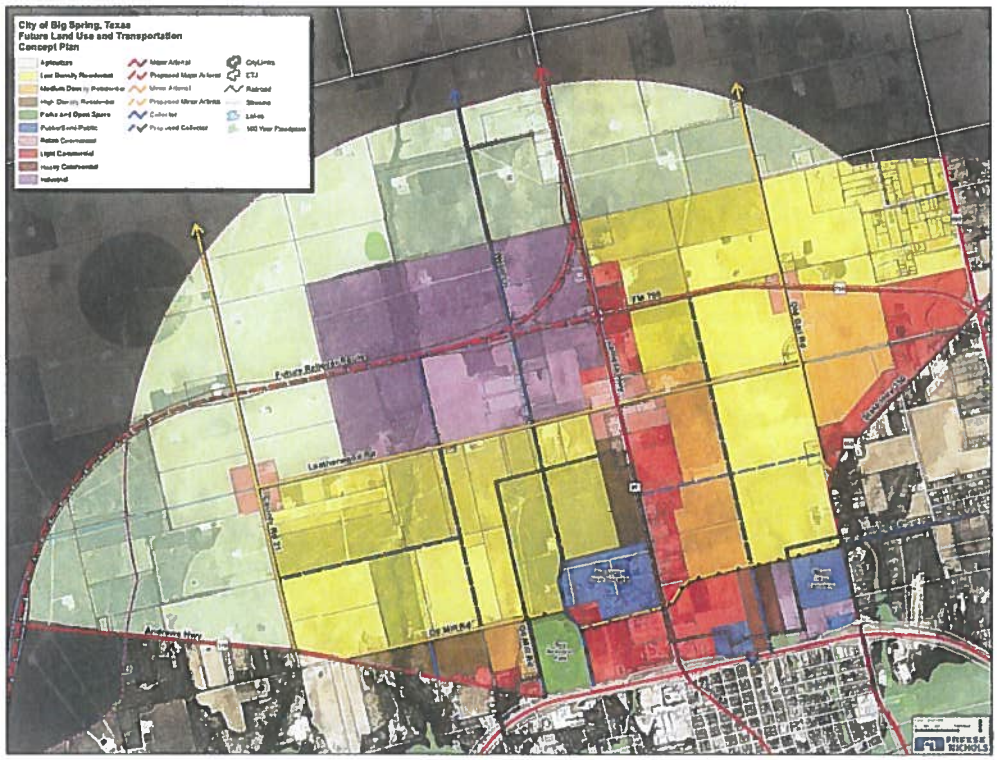


Figure 2-3 North Sector Future Land Use Plan

City Staff provided input regarding the intensity of development within each land use in order to calculate the future dwelling units and employment from the land use acreage. Dwelling units were then converted to population using data from the 2010 Census showing approximately 2.7 persons per household. Employment data was broken into three classes of employees that include basic, retail, and service, and comprise a variety of employment groupings. Basic employment generally encompasses the industrial and manufacturing uses; retail employment includes commercial and retail uses; and service employment generally encompasses government and office uses. A summary of the projected growth is summarized in **Table 2-5**.

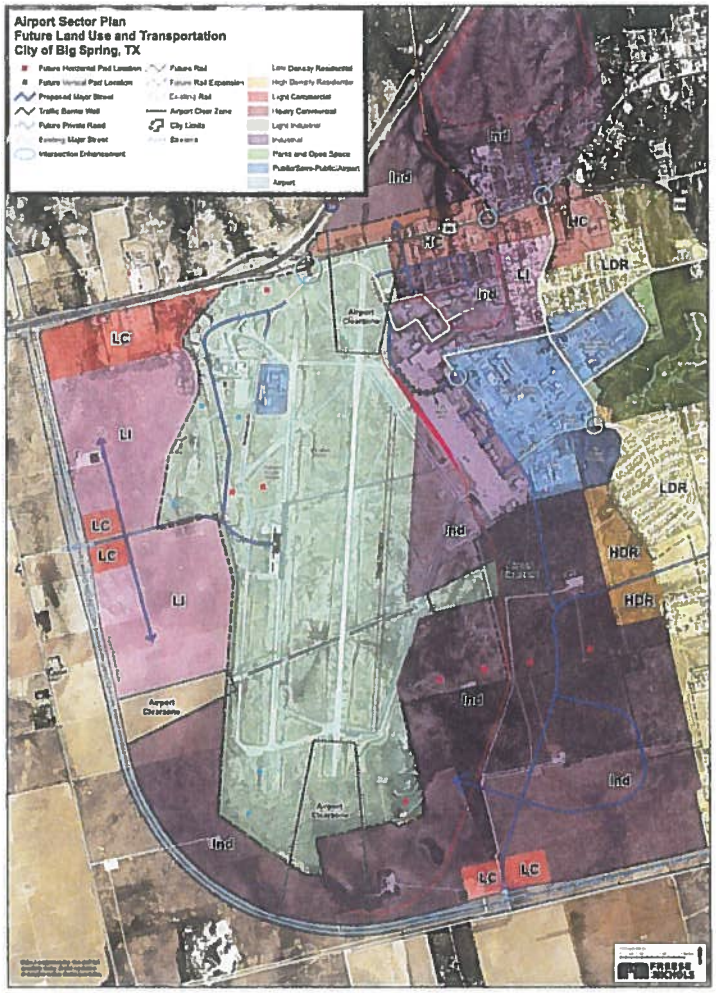


Figure 2-4 Airport Sector Future Land Use Plan

Table 2-5 Projected Growth Summary

Service Area	Added Dwelling Units	Added Population	Added Basic Employment	Added Service Employment	Added Retail Employment	Total Added Employment
North Sector 1	5,522	14,910	0	7,289	573	7,862
North Sector 2	4,700	12,691	3,990	3,412	1,718	9,120
Airport Zone	924	2,494	7,221	3,617	1,693	12,531
Total	11,146	30,095	11,211	14,318	3,984	29,513

2.5.2 Projected Vehicle-Miles of New Demand

Projected vehicle-miles of demand were calculated based on the net growth expected to occur over the build-out period and the service unit generation for each of the population and employment data components (basic, service and retail). Separate calculations were performed for each data component and were then aggregated for each service area. Vehicle-miles of demand for population growth were based on dwelling units (residential), and vehicle-miles of demand for employment were based on the number of employees and estimates of square footage per employee (industrial, office and retail uses).

Table 2-6 lists the build-out projected vehicle-miles of demand by service area for Big Spring. **Appendix D** details the derivation of the projected demand calculations.

Table 2-6 Projected Vehicle-Miles of Demand

Service Area	Projected Build-Out Growth (Vehicle-Miles)
North Sector 1	13,309
North Sector 2	15,635
Airport Zone	15,526
Total	44,470

2.5.3 Capital Improvements Plan (CIP)

The capital improvement program for the study area consists of all minor arterial and collector status roadways identified in the Big Spring Comprehensive Plan. The Thoroughfare Plan identified improvements necessary to accommodate projected growth to the build-out of the study area. Roadway facility types include:

- Major Arterial (4-lane divided roadway, 120' right-of-way)
- Minor Arterial (5-lane roadway with two-way left turn lane, 100' right-of-way)
- Collector (2-lane undivided roadway, 60' right-of-way)

Freeway facilities and major arterials were not included in the analysis as other entities would likely implement these improvements. **Figure 2-5** and **Figure 2-6** illustrate the roadway capital improvements projects used as part of this study. **Appendix E** details the project listing for roadway projects in the capital improvements plan.

A. Right-of-Way

Roadway projects were assumed to be built to Thoroughfare Plan standard. City Staff provided input on the amount of existing and needed right-of-way for the various roadway facilities in the study area.

Right-of-way needs included in the cost calculation were based on the difference between existing right-of-way and the width needed to meet thoroughfare plan standards.

B. Project Capital Cost

A unit cost approach (per linear foot) was used to derive project costs for the CIP. **Appendix F** details the unit costs assumed for roadways by facility type, right-of-way costs, and traffic signalization. The following details the individual cost components of the CIP.

Construction: Construction costs include those costs which are normally associated with construction, including: paving, dirt work (including sub-grade preparation, embankment fill and excavation), clearing and grubbing, retaining walls or other slope protection measures, and general drainage items which are necessary in order to build the roadway and allow the roadway to fulfill its vehicle carrying capability. Individual items may include; bridges, culverts, inlets and storm sewers, junction boxes, man holes, curbs and/or gutters, and channel linings and other erosion protection appurtenances. Other items included in the cost estimates included: sidewalks, traffic control devices including signage at select locations (initial cost only), and minimal sodding/landscaping.

Engineering: These are the costs associated with the design and surveying necessary to construct the roadway. For planned projects, a percentage based on typical engineering contracts was used to estimate these fees.

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

Debt Service: Predicted interest charges and finance costs were included.

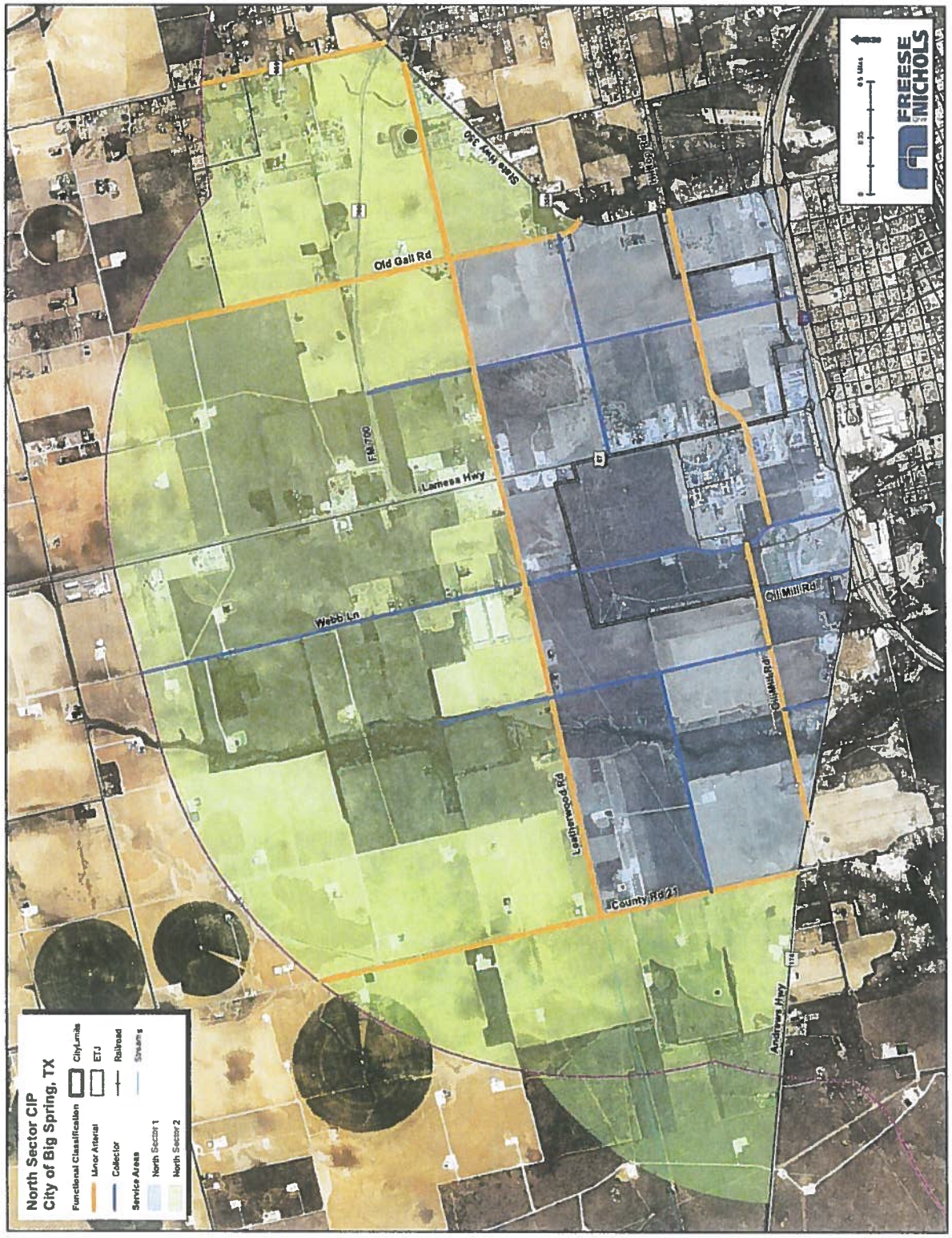


Figure 2-5 North Sector CIP Projects

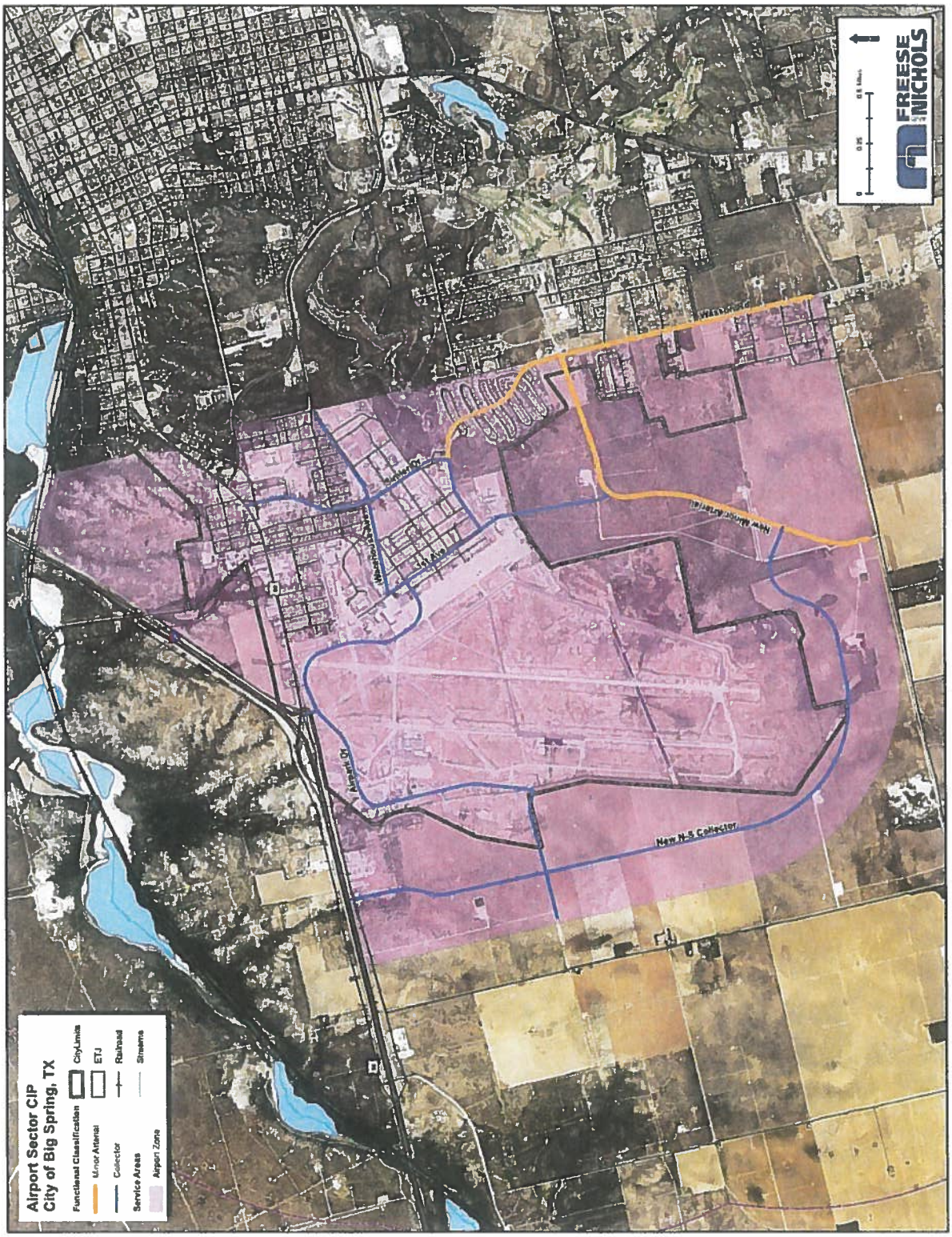


Figure 2-6 Airport Sector CIP Projects

2.5.4 Cost of CIP

Project costs included in the calculation included; construction, engineering, right-of-way, and debt service. Costs for engineering, right-of-way, and debt service were based on the following:

- Engineering/Survey/Quality Control – 12% of construction cost
- Right-of-Way – $43,560/acre ($1.00/square foot)
- Debt Service – 28% of total project cost (3.5% over 15 years)

Because some of the roads identified on the Thoroughfare Plan are on the state and county system, cost participation by the city was assumed as follows:

- Major Arterials – 0%
- Minor Arterials – 80%
- Collectors – 90%

The CIP consists of 35 project segments in the study area. The total cost of plan implementation is $151 million and reflects the cost burden to the City over the course of growth in the study area. **Table 2-7** details the cost components of the capital improvements plan.

Table 2-7 Capital Improvement Plan Implementation Cost

Roadway Project Costs	Total
Engineering, Survey and Quality Control	$12,466,353
Right-of-Way	$6,091,840
Construction	$103,886,275
Finance	$28,795,994
TOTAL IMPLEMENTATION COST	$151,240,462

The capital improvements program was also calculated by service area so that costs could be fairly allocated between zones. **Appendix G** lists the cost associated with the improvement program by service area. The capital improvements program will provide 58,115 vehicle-miles of capacity and is also detailed in **Appendix E**.

2.5.5 Vehicle-Miles Capacity Supplied by CIP

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

Vehicle-Miles of New Capacity Supplied = Link capacity per peak hour per lane x No. of lanes within Service Area x Length of segment (miles)

Vehicle-miles of new supply provided by the CIP are listed in **Table 2-8**. While the project has not been built, there are system deficiencies (by service area) that have been removed from the total supply to properly account for new "net" availability. **Table 2-8** depicts net availability of supply by the CIP. **Appendix E** details capacity calculations provided by the CIP program.

Table 2-8 Vehicle-Miles of New Capacity Supplied

Service Area	Vehicle-Miles of New Capacity Supplied	Vehicle-Miles of Existing Utilization	Vehicle-Miles of Deficiencies	Vehicle-Miles of Capacity Supplied
NS1	26,288	394	0	25,893
NS2	10,143	203	0	9,940
APZ	21,684	1,073	0	20,611
Total	58,115	1,671	0	56,444

2.6 COST PER SERVICE UNIT

The cost per service unit is calculated by dividing the cost of the CIP necessitated and attributable to new demand (net cost) by the projected service units of growth within the planning sectors, respectively.

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

Table 2-9 lists the results of the cost per service unit calculation by service area. The actual cost per service unit reflects the true burden to the City for the implementation of the roadway capital improvements program. Based on this analysis, the maximum collection rate reflects the maximum amount per service unit that can be charged. **Appendix H** details the maximum cost per service unit calculation for each service area.

Table 2-9 Cost Per Service Unit Summary

Service Area	Actual Cost Per Service Unit	Discounted (50%) Cost Per Service Unit
NS1	$2,566	$1,283
NS2	$1,570	$785
APZ	$2,706	$1,353
Average	$2,602	$1,301

3.0 WATER AND WASTEWATER INFRASTRUCTURE

3.1 WATER AND WASTEWATER LAND USE ASSUMPTIONS

Population and land use are important elements in the analysis of water and wastewater systems. Water demands and wastewater flows depend on the population served by the systems and determines the sizing and location of system infrastructure. A thorough analysis of historical data, along with land use, provides the basis for projecting future water demands and wastewater flows. Two service areas were identified for this project, the North Sector and the Airport Sector. Some areas in each sector are already developed. FNI used aerial imagery to determine the areas that already have service. The undeveloped areas and land use for the Airport Sector and the North Sector are presented on **Figures 3-1** and **3-2**, respectively.

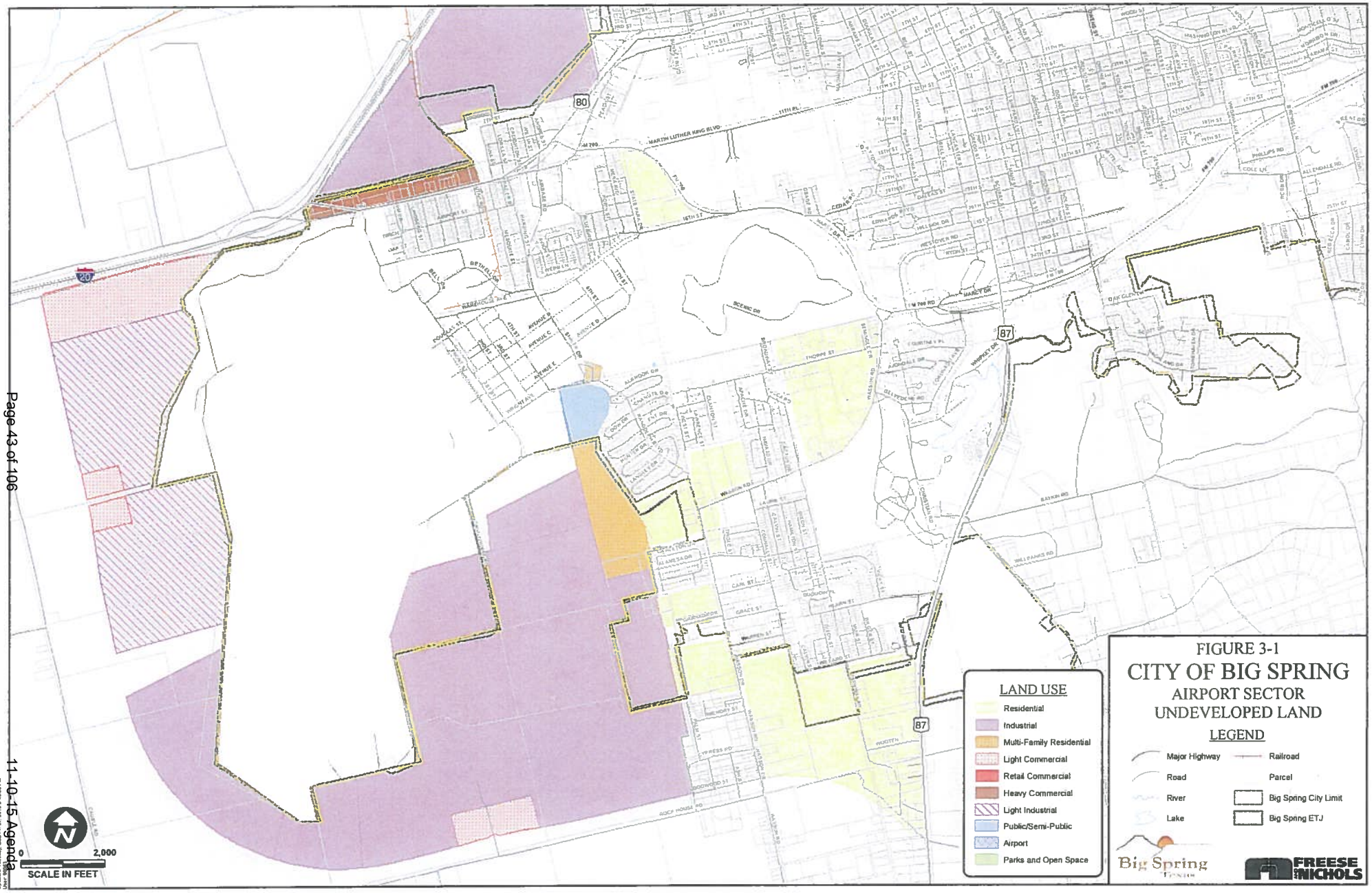


FIGURE 3-1
CITY OF BIG SPRING
AIRPORT SECTOR
UNDEVELOPED LAND

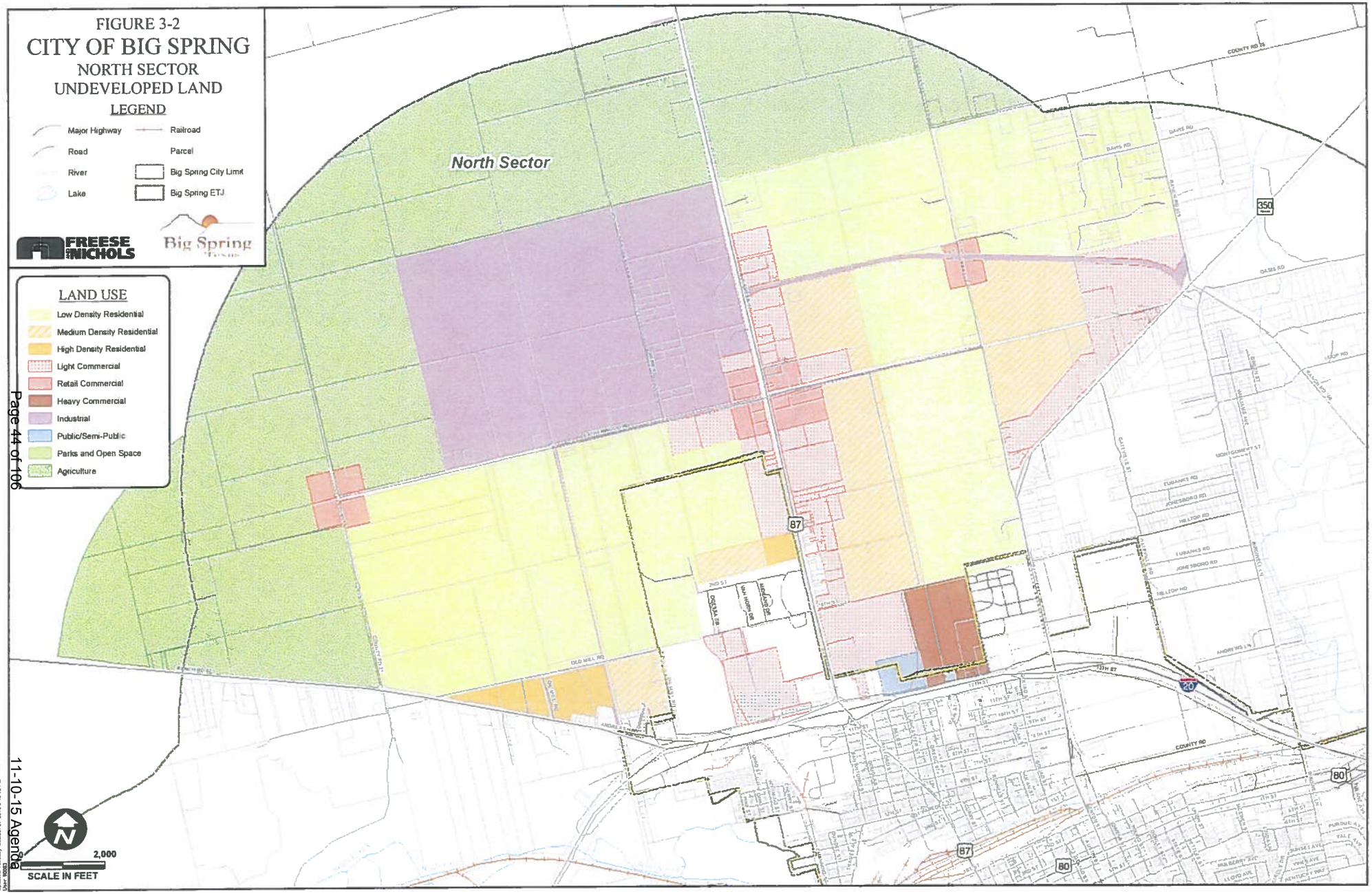


FIGURE 3-2
CITY OF BIG SPRING
NORTH SECTOR
UNDEVELOPED LAND
LEGEND
Major Highway
Railroad
Road
Parcel
River
Big Spring City Limit
Lake
Big Spring ETJ
FREESE AND NICHOLS
Big Spring
LAND USE
Low Density Residential
Medium Density Residential
High Density Residential
Light Commercial
Retail Commercial
Heavy Commercial
Industrial
Public/Semi-Public
Parks and Open Space
Agriculture
North Sector
COUNTY RD 25
DAVIS RD
350
87
20
80
OLD MILL RD
COUNTY RD
2,000
SCALE IN FEET

3.2 WATER DEMAND AND WASTEWATER LOAD PROJECTIONS

The land use data, historical water demands, and historical wastewater flows were used to develop future water demands and wastewater flows. These projections were the basis for determining the location and magnitude of the CIP projects. **Table 3-1** and **3-2** show historical water demands and wastewater flows, respectively. The historical demands along with experience with similar cities served as a guide for developing the design criteria for each land use type. The design criteria for projected water demand and wastewater flow calculations for each sector are shown in **Table 3-3** and **3-4**, respectively. **Table 3-5** presents the projected water demands, and **Table 3-6** presents the projected wastewater flows for the North Sector and Airport Sector.

Table 3-1 Historical Water Demands

Year	Population(1)	Annual Water Use (acre-feet)(1)	Average Day Demand (MGD)	Average Day Demand (gpcd)
2004	25,516	6,270	5.60	219
2005	25,536	6,428	5.74	225
2006	25,671	6,863	6.13	239
2007	26,122	6,283	5.61	215
2008	26,646	6,982	6.23	234
2009	27,110	7,572	6.76	249
2010	27,275	7,369	6.58	241
Average	-	**6,824**	**6.09**	**232**
Maximum	-	**7,572**	**6.76**	**249**

(1) Data from Colorado River Municipal Water District

Table 3-2 Historical Wastewater Flows

Year	Population[1]	Average Annual Daily Flow (MGD)	Average Annual Daily Flow (gpcd)
2004	25,516	2.18	86
2005	25,536	2.04	80
2006	25,671	2.20	86
2007	26,122	2.78	106
2008	26,646	2.64	99
2009	27,110	2.63[2]	97
Average	-	**2.37**	**92**
Maximum	-	**2.78**	**106**

(1) Data from Colorado River Municipal Water District
(2) 2009 data is through April

Table 3-3 Water System Design Criteria

Land Use	Density (dwelling units/acre)	People per Unit	Non-Residential Water Use (gallons per acre per day)	Residential Water Use (gpcd)	Maximum Day to Average Day Peaking Factor	Peak Hour to Maximum Day Peaking Factor
Agriculture	-	-	-	-	2.00	1.75
Heavy Commercial	-	-	1,200	-	2.00	1.75
Light Commercial	-	-	800	-	2.00	1.75
High Density Residential	12	1.8	-	100	2.00	1.75
Industrial	-	-	1,200	-	2.00	1.75
Light Industrial	-	-	800	-	2.00	1.75
Multi Family	12	1.8	-	100	2.00	1.75
Low Density Residential	3	2.7	-	140	2.00	1.75
Medium Density Residential	5	2.0	-	140	2.00	1.75
Residential	3	2.7	-	140	2.00	1.75
Parks and Open Space	-	-	100	-	2.00	1.75
Public/Semi-Public	-	-	500	-	2.00	1.75
Retail/Commercial	-	-	500	-	2.00	1.75

Table 3-4 Wastewater Design Criteria

Land Use	Density (dwelling units/acre)	People per Unit	Non-Residential Wastewater Return Rate	Residential Wastewater Return Rate	Non-Residential Wastewater Flow (gallons per acre per day)	Residential Wastewater Flow (gpcd)	Wet Weather Peaking Factor
Agriculture	-	-	50%	-	-	-	4.0
Heavy Commercial	-	-	50%	-	600	-	4.0
Light Commercial	-	-	50%	-	400	-	4.0
High Density Residential	12	1.8	-	50%	-	50	4.0
Industrial	-	-	50%	-	600	-	4.0
Light Industrial	-	-	50%	-	400	-	4.0
Multi Family	12	1.8	-	50%	-	50	4.0
Low Density Residential	3	2.7	-	50%	-	70	4.0
Medium Density Residential	5	2.0	-	50%	-	70	4.0
Residential	3	2.7	-	50%	-	70	4.0
Parks and Open Space	-	-	50%	-	50	-	4.0
Public/Semi-Public	-	-	50%	-	250	-	4.0
Retail/Commercial	-	-	50%	-	250	-	4.0

Table 3-5 Projected Water Demands by Sector

Land Use	Acres	Population	Average Day Water Demand (MGD)	Maximum Day Water Demand (MGD)	Peak Hour Water Demand (MGD)
Northern Sector					
Agriculture	2,599	-	0.00	0.00	0.00
Heavy Commercial	106	-	0.10	0.20	0.36
High Density Residential	75	1,623	0.16	0.32	0.57
Industrial	915	-	1.10	2.19	3.84
Light Commercial	629	-	0.44	0.88	1.55
Low Density Residential	2,160	17,500	2.45	4.90	8.57
Medium Density Residential	521	5,180	0.73	1.45	2.54
Parks and Open Space	70	-	0.01	0.01	0.02
Public/Semi-Public	189	-	0.01	0.02	0.04
Retail/Commercial	116	-	0.06	0.12	0.20
Total	**7,379**	**24,303**	**5.06**	**10.11**	**17.69**
Airport Sector					
Heavy Commercial	49	-	0.06	0.12	0.20
Industrial	1,771	-	2.12	4.25	7.44
Light Commercial	167	-	0.13	0.27	0.47
Light Industrial	464	-	0.37	0.74	1.30
Multi Family	79	1,706	0.17	0.34	0.60
Public/Semi-Public	31	-	0.02	0.03	0.05
Residential	631	5,113	0.72	1.43	2.51
Total	**3,191**	**6,819**	**3.59**	**7.18**	**12.56**

Table 3-6 Projected Wastewater Flows by Sector

Land Use	Acres	Population	Average Annual Daily Flow (MGD)	Peak Wet Weather Flow (MGD)
Northern Sector				
Agriculture	2,599	-	0.00	0.00
Heavy Commercial	106	-	0.05	0.20
High Density Residential	75	2,164	0.11	0.43
Industrial	915	-	0.55	2.19
Light Commercial	629	-	0.22	0.88
Low Density Residential	2,160	17,500	1.22	4.90
Medium Density Residential	521	5,180	0.36	1.45
Parks and Open Space	70	-	0.00	0.01
Public/Semi-Public	189	-	0.01	0.02
Retail/Commercial	116	-	0.03	0.12
Total	**7,379**	**24,844**	**2.55**	**10.22**
Airport Sector				
Heavy Commercial	49	-	0.03	0.12
Industrial	1,771	-	1.06	4.25
Light Commercial	167	-	0.07	0.27
Light Industrial	464	-	0.19	0.74
Multi Family	79	2,275	0.11	0.46
Public/Semi-Public	31	-	0.01	0.03
Residential	631	5,113	0.36	1.43
Total	**3,191**	**7,388**	**1.82**	**7.29**

3.3 WATER AND WASTEWATER SYSTEM ANALYSES

FNI utilized information from the *Water Distribution System Analysis* and the *Sanitary Sewer System Analysis* completed by Parkhill, Smith, and Cooper, Inc. in 1985 to assist with determining the sizing of existing storage and pumping facilities.

3.3.1 TCEQ Requirements

As a public water utility, the City of Big Spring must comply with the rules and regulations for public water systems set forth by the Texas Commission on Environmental Quality (TCEQ) in Chapter 290, Public Drinking Water. The City is required to meet the TCEQ elevated storage capacity requirement of 100

gallons per connection and total storage capacity requirement of 200 gallons per connection. In addition to storage requirements, the City is also required to meet the TCEQ pumping capacity requirements. If the City provides at least 200 gallons per connection of elevated storage the resulting TCEQ pumping requirement is 0.6 gpm/connection. If the City provided less than 200 gallons per connection of elevated storage in the future, the TCEQ pumping requirements would increase to 2.0 gpm/connection. **Tables 3-7** through **3-9** summarize the required pumping and storage capacities for the North Sector and the Airport Sector. Since the existing number of connections per pressure plane was not available, the TCEQ requirements could not be verified on a system-wide basis.

Table 3-7 TCEQ Required Total Storage

Sector	TCEQ Requirement	Number of Connections	Required Total Storage (gallons)
North	200 gallons per connection	9,001	1,800,200
Airport	200 gallons per connection	2,526	505,200

Table 3-8 TCEQ Required Pumping

Sector	TCEQ Requirement	Number of Connections	Required Pumping Capacity (gpm)	Required Pumping Capacity (MGD)
North	0.6 gpm per connection(1)	9,001	5,401	7.78
Airport	0.6 gpm per connection(1)	2,526	1,515	2.18

(1) Pumping requirement is 0.6 gpm per connection since the City maintains more than 200 gallons per connection of elevated storage.

Table 3-9 TCEQ Required Elevated Storage

Sector	TCEQ Requirement	Number of Connections	Required Elevated Storage Volume (gallons)
North	100 gallons per connection	9,001	900,100
Airport	100 gallons per connection	2,526	252,600

3.3.2 Storage and Pumping Recommendations

This section summarizes an evaluation of the storage and pumping capacity for the City based on criteria developed by FNI. These criteria are typically more stringent than the TCEQ requirements and take into consideration additional factors including operational flexibility, fire suppression, system redundancy, and energy efficiency. The design criteria used to analyze elevated storage tank capacity is the volume required to provide adequate equalization storage for peak hour demands plus emergency storage for fire protection. It is typically assumed that half of the elevated storage tank capacity is used to meet peak hourly demands in excess of the maximum day rate (equalization volume), while the other half of the tank is used for fire protection and emergency conditions (fire/emergency volume). This evaluation assumes that pumping will meet 125% of maximum day demands and elevated storage will meet 40% of peak hour demands. **Table 3-10** shows the recommended elevated storage by sector.

Table 3-10 Recommended Elevated Storage

Sector	Peak Demand (MGD)(1)	Peak Volume (MG)(2)	Fire Volume (MG)(3)	Total (MG)(4)
North	7.08	1.18	0.63	2.36
Airport	5.03	0.84	0.63	1.68

(1) Equals 40% of peak hour demand

(2) Required volume to supply the peak demand for a duration of 4 hours

(3) Assuming highest fire flow required is 3,500 gpm for 3 hour duration

(4) The greater of twice the peaking volume or the peaking volume plus fire volume

The recommended firm pumping capacity was calculated based on meeting 125% of maximum day demands. Firm pumping capacity is defined as the total available pumping capacity with the largest pump out of service. **Table 3-11** presents the recommended firm pumping capacity by sector.

Recommended ground storage capacity was calculated based on providing storage equivalent to 8-12 hours of maximum day demand. Storage volumes equivalent to 8, 10, and 12 hours of maximum day demand were calculated, and range from least conservative to most conservative, respectively. **Table 3-12** presents the recommended ground storage capacity by sector.

Table 3-11 Recommended Firm Pumping Capacity

Sector	Average Day Demand (MGD)	Maximum Day Demand (MGD)	Peak Hour Demand (MGD)	Recommended Pumping (1) (MGD)
North	5.06	10.11	17.69	12.64
Airport	3.59	7.18	12.56	8.97

(1) Recommended pumping is 125% of maximum day demand

Table 3-12 Recommended Ground Storage

Sector	Maximum Day Demand (MGD)	8 Hours of Storage (MG)	10 Hours of Storage (MG)	12 Hours of Storage (MG)
North	10.11	3.37	4.21	5.06
Airport	7.18	2.39	2.99	3.59

3.3.3 Water and Wastewater Capital Improvements Plan

Proposed water and wastewater system improvement projects were developed based on water demand and wastewater flow projections for each sector. The water system improvements assume that the North Sector will function as its own pressure plane in the future. The alignment of projects in the North Sector was provided by the City from a previous study, but the sizing of the infrastructure was updated by FNI. The Airport Sector will be served from Pressure Plane II on the north side and from Pressure Plane IIIa for the remaining area. The proposed projects assume that the existing treatment plants do not have any additional capacity for growth. The wastewater system improvements assume that the existing gravity lines have adequate capacity to carry the average annual daily flow. The capacity of the existing lines between the airport and the wastewater treatment plant should be verified before additional flows are brought online. The proposed water system projects are shown on **Figure 3-3**. Proposed wastewater projects are shown on **Figure 3-4**. A summary of the costs for each of the projects for both the water and wastewater systems is shown in **Table 3-7** and **Table 3-8**, respectively. The costs are in 2015 dollars and include an allowance for engineering, surveying, and contingencies. Cost estimates do not include allowances for right-of-way acquisition.

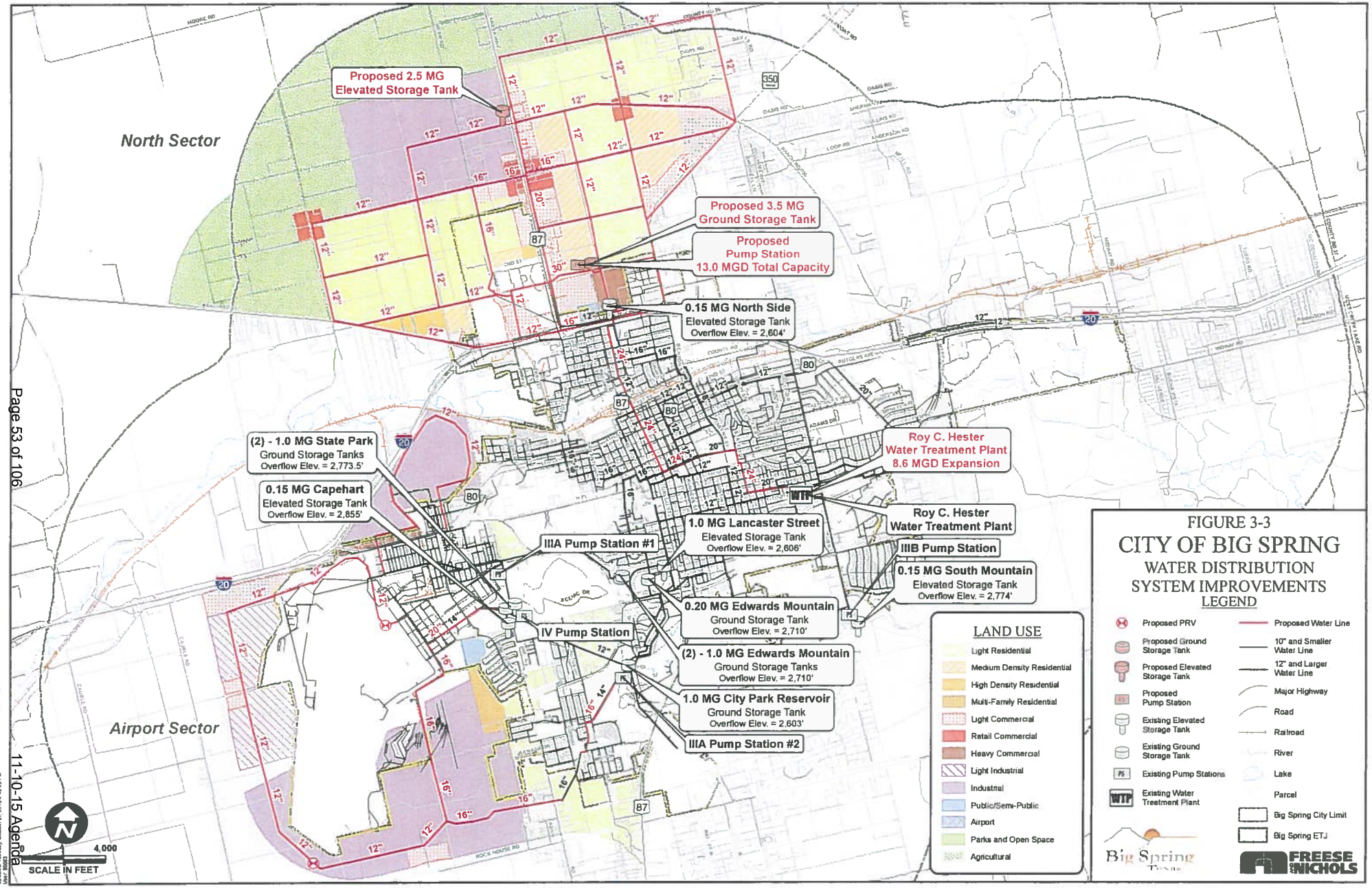


FIGURE 3-3
CITY OF BIG SPRING
WATER DISTRIBUTION SYSTEM IMPROVEMENTS
LEGEND

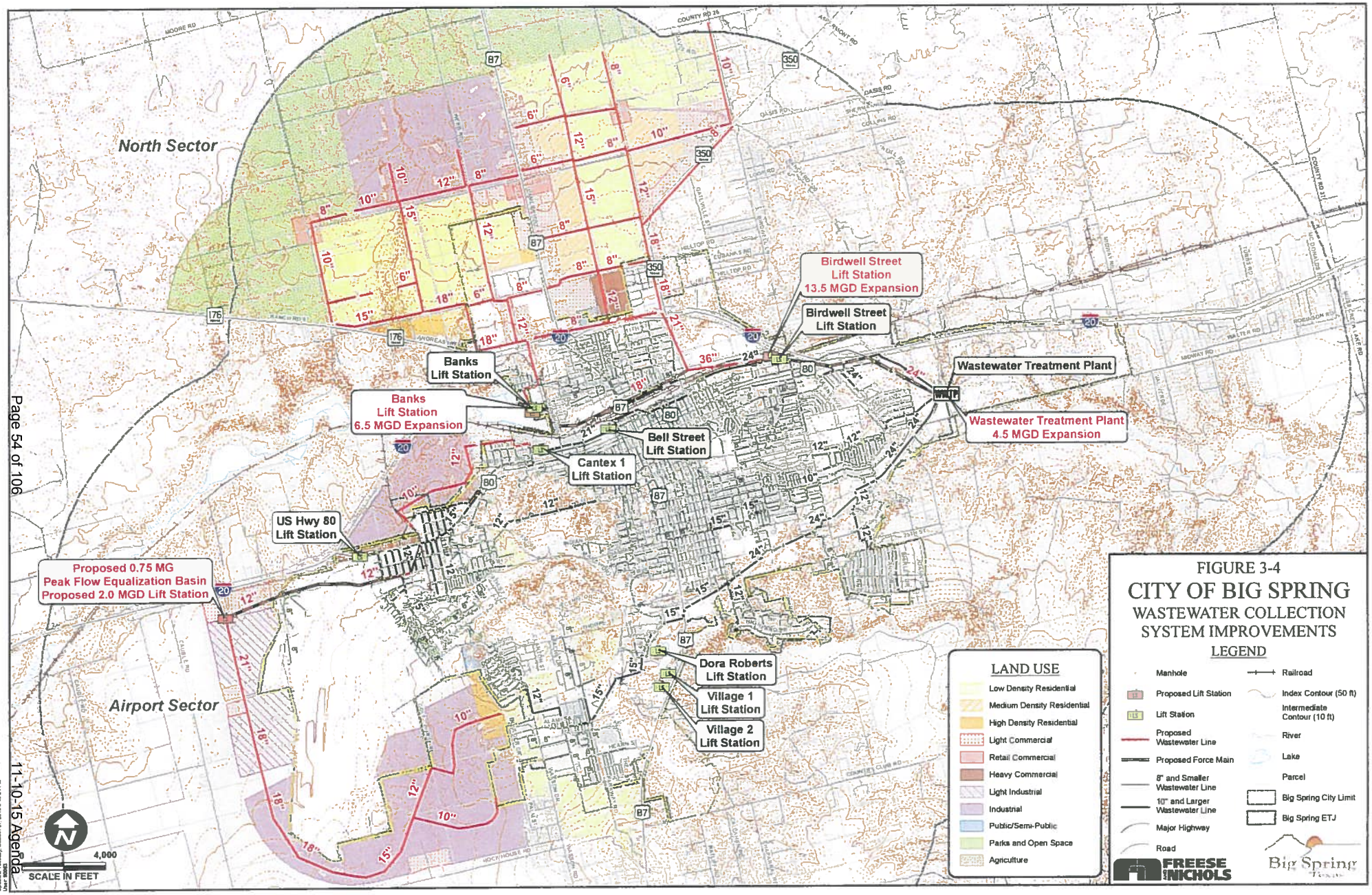


FIGURE 3-4
CITY OF BIG SPRING
WASTEWATER COLLECTION SYSTEM IMPROVEMENTS

Table 3-13 North Sector Opinion of Probable Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" Water Line	118,570	LF	$96	$11,382,720
2	16" Water Line	29,590	LF	$128	$3,787,520
3	20" Water Line	8,510	LF	$160	$1,361,600
4	24" Water Line	16,580	LF	$192	$3,183,360
5	30" Water Line	2,490	LF	$240	$597,600
6	3.5 MG Ground Storage Tank	1	EA	$2,500,000	$2,500,000
7	13.0 MGD Pump Station	1	EA	$6,500,000	$6,500,000
8	2.5 MG Elevated Storage Tank	1	EA	$5,000,000	$5,000,000
9	5.0 MGD Water Treatment Plant Expansion	1	LS	$15,000,000	$15,000,000
10	6" Wastewater Line	11,560	LF	$51	$589,560
11	8" Wastewater Line	34,620	LF	$68	$2,354,160
12	10" Wastewater Line	23,240	LF	$85	$1,975,400
13	12" Wastewater Line	21,530	LF	$102	$2,196,060
14	15" Wastewater Line	16,450	LF	$128	$2,097,375
15	18" Wastewater Line	11,090	LF	$153	$1,696,770
16	21" Wastewater Line	3,090	LF	$179	$551,565
17	24" Wastewater Line	3,900	LF	$204	$795,600
18	36" Wastewater Line	4,450	LF	$306	$1,361,700
19	48" Diameter Manhole	227	EA	$5,000	$1,137,000
20	60" Diameter Manhole	86	EA	$6,000	$518,400
21	72" Diameter Manhole	11	EA	$7,500	$84,000
22	6.5 MGD Lift Station Expansion	1	EA	$6,500,000	$6,500,000
23	13.5 MGD Lift Station Expansion	1	EA	$13,500,000	$13,500,000
24	18" Force Main	8,630	LF	$144	$1,242,720
25	24" Force Main	8,180	LF	$192	$1,570,560
26	Boring and Casing under I-20	1	LS	$2,124,000	$2,124,000
27	2.7 MGD Wastewater Treatment Plant Expansion	1	LS	$21,600,000	$21,600,000
		SUBTOTAL:			$111,207,670
		CONTINGENCY		30%	$33,362,310
		SUBTOTAL:			$144,569,980
		ENG/SURVEY		15%	$21,685,500
		SUBTOTAL:			$166,255,480
TOTAL					$166,255,480

Table 3-14 Airport Sector Opinion of Probable Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" Water Line	50,200	LF	$114	$5,722,545
2	16" Water Line	20,060	LF	$152	$3,049,170
3	20" Water Line	4,210	LF	$190	$799,190
4	Pressure Reducing Valve	2	LS	$80,000	$160,000
5	3.6 MGD Water Treatment Plant Expansion	1	LS	$10,800,000	$10,800,000
6	10" Wastewater Line	13,800	LF	$100	$1,380,345
7	12" Wastewater Line	9,950	LF	$120	$1,194,510
8	15" Wastewater Line	6,950	LF	$150	$1,042,785
9	18" Wastewater Line	10,040	LF	$180	$1,807,800
10	21" Wastewater Line	4,040	LF	$210	$849,300
11	12" Force Main	7,920	LF	$114	$902,880
12	48" Diameter Manhole	59	EA	$5,000	$296,970
13	60" Diameter Manhole	35	EA	$6,000	$211,315
14	2.0 MGD Lift Station	1	LS	$2,000,000	$2,000,000
15	0.75 MG Equalization Basin	1	LS	$750,000	$750,000
16	1.8 MGD Wastewater Treatment Plant Expansion	1	LS	$14,400,000	$14,400,000
		SUBTOTAL:			$45,366,810
		CONTINGENCY		30%	$13,610,050
		SUBTOTAL:			$58,976,860
		ENG/SURVEY		15%	$8,846,540
		SUBTOTAL:			$67,823,400
TOTAL					$67,823,400

4.0 METHODOLOGY FOR DETERMINATION OF SYSTEM IMPACT/CONTRIBUTION OF SPECIFIC DEVELOPMENT PROPOSALS

4.1 ROADWAY

The determination of proportionality involves a three-step process; 1) calculating vehicle-miles of roadway supply provided by proposed development, 2) calculating vehicle-miles of demand placed on the roadway network by the proposed development, and, 3) a comparison of service units supplied relative to the traffic demand to determine the appropriateness, or proportionality of the development contribution. If traffic demands are greater than roadway capacity being supplied, then the developer contribution is proportional and justified. If roadway capacity provided were greater than travel demands, then city participation would be considered for any remaining excess capacity provided.

Step 1: Calculate vehicle-miles of capacity provided by proposed development. Determine roadway class as per Big Spring Thoroughfare Plan, length of improvements (in miles) and number of lanes.

Length of Improvement (in miles)	x	No. of Lanes	x	Hourly Capacity per Lane (Table 2-2)	=	Development's Vehicle-miles Supplied

Note: If the City is participating in over-sizing of the roadway, City contributions are netted-out in order to determine exact contribution by proposed development.

Step 2: Calculate vehicle-miles of demand generated by proposed development using the equivalency table. Determine land uses, size of development, and appropriate equivalency factor using **Table 2-1**.

No. of Development Units	x	Vehicle-miles per Development Unit	=	Development's Vehicle-miles

Examples:
Single-Family Development: 10 dwelling unit x 1.25 vehicle-miles/dwelling unit = 12.50 vehicle-miles
110,000s.f. Shopping Center: 110 (1,000sf units) x 2.46 vehicle-miles/1,000sf units = 270.60 vehicle-miles

Step 3: Compare vehicle-miles supply with demand:

If $VM_{Demand} > VM_{Supply}$; then roadway contribution is proportional and justified.

If $VM_{Supply} > VM_{Demand}$; then City participation to be considered.

It may not be feasible for new development to implement a portion of roadway in a remote portion of the study area. Likewise, it would not be practical to implement a piecemeal series of roadway improvements. As such, new development may escrow costs of facilities that would be necessitated as a

result of traffic demands placed on the roadway system by a development proposal. Such funds would be earmarked into a fund by service area for capital improvements of the roadway system.

The determination of cost attributable to a specific development proposal involves a two-step process; 1) the determination of the total number of service units generated by the development proposal, and 2) the calculation of the cost to serve new development.

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

No. of Development Units	x	Vehicle-miles per Development Unit	=	Development's Vehicle-miles

Examples:
Single-Family Development: 10 dwelling unit x 1.25 vehicle-miles/dwelling unit = 12.50 vehicle-miles
110,000s.f. Shopping Center: 110 (1,000sf units) x 2.46 vehicle-miles/1,000sf units = 270.60 vehicle-miles

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

Development's Vehicle-miles	x	Cost per Service Unit	=	Contribution from Development

Examples:
10 Dwelling Unit Development: 12.50 vehicle-miles x Cost per service unit = Development Contribution
110,000s.f. Shopping Center: 270.60 vehicle-miles x Cost per service unit = Development Contribution

4.2 WATER/WASTEWATER

Water and wastewater costs per service unit were determined using the projected water demands. For residential development a cost per home was developed, and for non-residential development a cost per acre was developed. The average day demand for each land use type was assigned a percentage of the total water demand. The percentage for each type of land use is summarized in **Table 4-1**.

Table 4-1 Percentage of Average Day Demand by Land Use

Land Use	Percentage of Total Sector Average Day Demand
North Sector	
Agriculture	0.0%
Heavy Commercial	2.0%
High Density Residential	3.2%
Industrial	21.7%
Light Commercial	8.7%
Low Density Residential	48.5%
Medium Density Residential	14.3%
Parks and Open Space	0.1%
Public/Semi-Public	0.2%
Retail/Commercial	1.1%
Airport Sector	
Heavy Commercial	1.6%
Industrial	59.2%
Light Commercial	3.7%
Light Industrial	10.3%
Multi Family	4.8%
Public/Semi-Public	0.4%
Residential	19.9%

FNI assumed a 15 year financing rate at 3.5% to calculate the total cost of the system improvements. The total costs were multiplied by the percentages presented in **Table 4-1** and then adjusted to a cost per acre or cost per household based on the land use type. The City requested the cost per service unit be calculated with a 50% credit and without a 50% credit. **Table 4-2** presents the cost per unit or acre for each land use type.

Table 4-2 Cost per Service Unit

Land Use	Cost Per Unit or Acre with 50% Credit	Cost Per Unit or Acre without 50% Credit	Service Unit
North Sector			
Agriculture	$0	$0	per Acre
Heavy Commercial	$25,841	$51,682	per Acre
High Density Residential	$3,876	$7,752	per Unit
Industrial	$25,841	$51,682	per Acre
Light Commercial	$16,151	$32,302	per Acre
Low Density Residential	$8,140	$16,280	per Unit
Medium Density Residential	$6,030	$12,060	per Unit
Parks and Open Space	$2,153	$4,306	per Acre
Public/Semi-Public	$10,767	$21,534	per Acre
Retail/Commercial	$10,767	$21,534	per Acre
Airport Sector			
Heavy Commercial	$14,764	$29,528	per Acre
Industrial	$14,764	$29,528	per Acre
Light Commercial	$9,843	$19,686	per Acre
Light Industrial	$9,843	$19,686	per Acre
Multi Family	$2,215	$4,430	per Unit
Public/Semi-Public	$6,152	$12,304	per Acre
Residential	$4,651	$9,302	per Unit

4.3 CASE EXAMPLE: NEW DEVELOPMENT APPLICATION

A development tract (15.205-acres) of retail used is proposed within the study area. The proposed development consists of 165,582.45 square feet of retail uses (15.205 net acres with a floor-to-area ratio of 0.25:1.0).

4.3.1 Roadway Proportional Contribution

A. Development Project Contribution

The adjacent roadway ("Leatherwood Road") is a four-lane divided roadway in which new development would contribute half of the roadway section. The length of the overall improvement is 1,250 feet.

The proposed roadway improvements of the development consist of the following:

- Thoroughfare Type 4-lane divided minor arterial; 1,250 feet
- The City will participate in half of roadway.

Step 1: Vehicle-Miles of Capacity Supplied by Proposed Improvements

- "Leatherwood Road"; 4-lane divided roadway, 1,250 linear feet

(1,250'/5,280'/mi) x 4 lanes x 675 veh/lane/hour	= 639.20
Less City Portion (1,250'/5,280'/mi) x 2 lanes x 675 veh/lane/hour	= -319.60
Total vehicle-miles supplied	319.60 vm_s

Step 2: Vehicle-Miles of Demand Generated by Proposed Site

165,582.45/1,000 SF of dev. x 2.46 veh-miles/development unit	= 407.33
Total vehicle-miles of demand	407.33 vm_d

Step 3: Supply/Demand Comparison

The projected demand of the site is greater than the roadway supply being provided, and therefore the exaction by the City is proportional and justified.

$$407.33\ vm_d > 319.60\ vm_s$$

B. Development Cost Contribution

The same development is located in North Sector 1. The applicant proposes to contibute funds rather than implement roadway improvements. The proposed development program consists of the following:

- 165,582.45 square feet of retail uses
- The cost per service unit in Service Area 5: $2,566.00

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

165,582.45/1,000 SF of dev. x 2.46 veh-miles/development unit	= 407.33 vm_d
Total vehicle-miles of demand	407.33 vm_d

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

- 407.33 vehicle-miles of demand x $2,566.00/service unit = $1,045,208.78

  Contribution from development $1,045,208.78

The cost contribution by new development for the example development in North Sector 1 would be $1,045,208.78 and funds escrowed in an account for this service area. Funds escrowed in an account for this service area would be used toward specific improvements identified within this service area.

4.3.2 Water/Wastewater Proportional Contribution

A. Retail Development Example

The following is an example to calculate the water and wastewater contribution for a development tract (15.205 acres) of retail use within the North Sector area. For this example, the cost with the 50% credit is used.

Contribution per Development = Total Acres x Cost per Acre

Contribution per Development = 15.205 Acres x $10,767 per Acre = **$163,712.24**

In this example, the contribution for the retail development is $163,712.24.

B. Medium Density Residential Development

The follow is an example to calculate the water and wastewater contribution for a medium density residential development with 100 homes in the North Sector. For this example, the cost with the 50% credit is used.

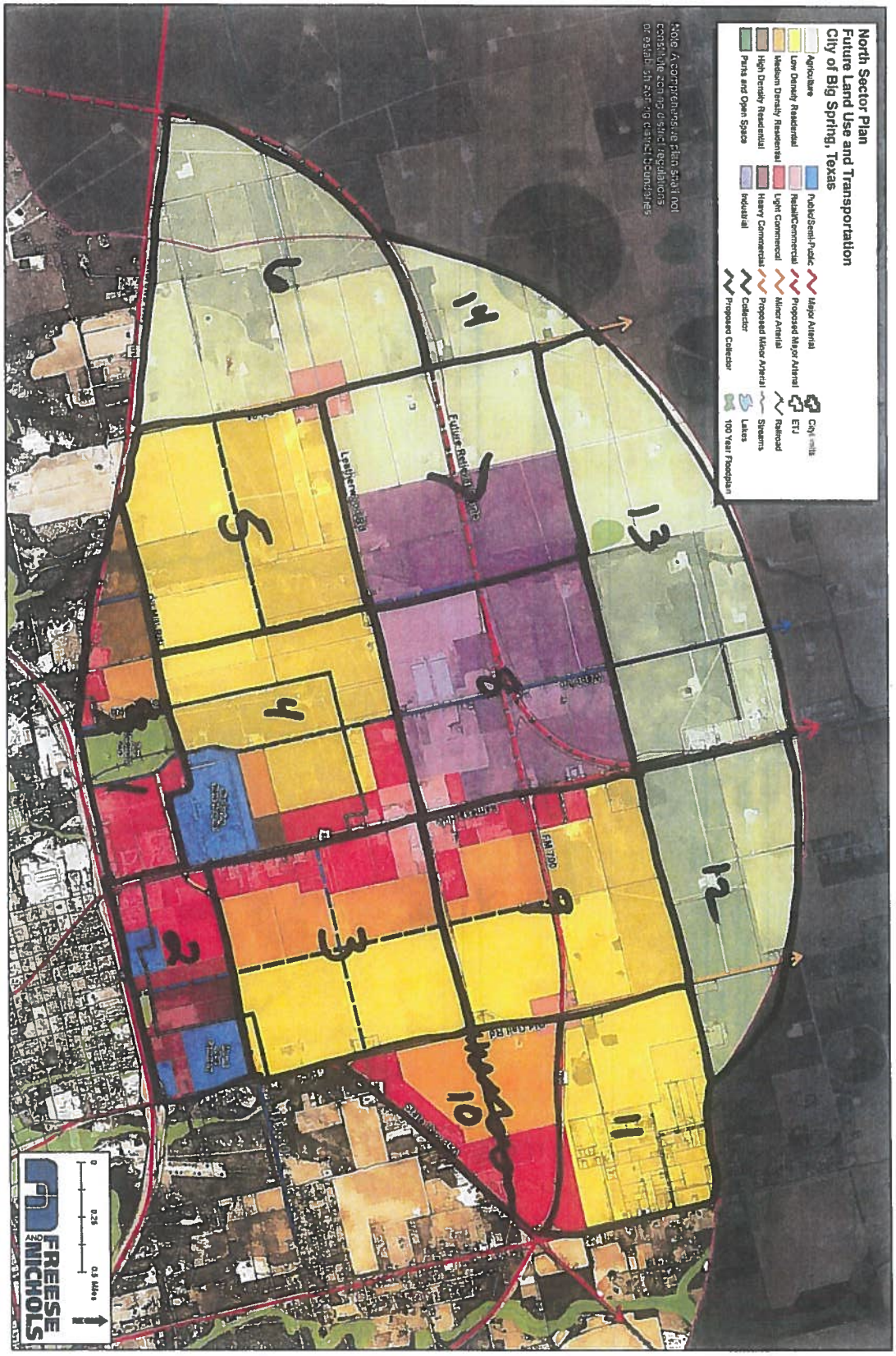
Contribution per Development = Number of Homes x Cost per Unit

Contribution per Development = 100 homes x $6,030 per Unit = **$603,000.00**

In this example, the contribution for the entire development is $603,000.00.

APPENDICES

APPENDIX A
LAND USE ASSUMPTIONS


North Sector Plan
Future Land Use and Transportation
City of Big Spring, Texas
Agriculture
Low Density Residential
Medium Density Residential
High Density Residential
Parks and Open Space
Public/Semi-Public
Retail/Commercial
Light Commercial
Heavy Commercial
Industrial
Major Arterial
Proposed Major Arterial
Minor Arterial
Proposed Minor Arterial
Collector
Proposed Collector
City Limits
ETJ
Railroad
Streams
Lakes
100 Year Floodplain
Note: A comprehensive plan shall not constitute zoning district regulations or establish zoning district boundaries
Future Rail Line
Leatherwood Rd
FM 700
0
0.25
0.5 Miles
FREESE AND NICHOLS

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Sqft per E	Employee
1		0								
AG		0		2.7	0		1	0		
LD		0		2.7	0		3	0		
MD	45	1,960,200		2.0	225		5	450		
HD	64	2,787,840		1.8	768		12	1,382		
RC		0	0.2		0	0		0	350	0
LC	115	5,009,400	0.15		0	751,410		0	450	1,670
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 1							1,832		1,670	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
2		0								
AG		0		2.7	0		1	0		
LD		0		2.7	0		3	0		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC		0	0.2		0	0		0	350	0
LC	86	3,746,160	0.15		0	561,924		0	450	1,249
HC	106	4,617,360	0.15		0	692,604		0	450	1,539
I		0	0.1		0	0		0	1,000	0
Totals Section 2							0		2,788	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
3		0								
AG		0		2.7	0		1	0		
LD	310	13,503,600		2.7	930		3	2,511		
MD	191	8,319,960		2.0	955		5	1,910		
HD		0		1.8	0		12	0		
RC		0	0.2		0	0		0	350	0
LC	108	4,704,480	0.15		0	705,672		0	450	1,568
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 3							4,421		1,568	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
4		0								
AG		0		2.7	0		1	0		
LD	408	17,772,480		2.7	1,224		3	3,305		
MD	25	1,089,000		2.0	125		5	250		
HD	11	479,160		1.8	132		12	238		
RC	14	609,840	0.2		0	121,968		0	350	348
LC	87	3,789,720	0.15		0	568,458		0	450	1,263
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 4							**3,792**		**1,612**	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
5		0								
AG		0		2.7	0		1	0		
LD	617	26,876,520		2.7	1,851		3	4,998		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC	9	392,040	0.2		0	78,408		0	350	224
LC		0	0.15		0	0		0	450	0
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 5							**4,998**		**224**	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
6		0								
AG	833	36,285,480		2.7	417		1	1,125		
LD		0		2.7	0		3	0		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC	18	784,080	0.2		0	156,816		0	350	448
LC		0	0.15		0	0		0	450	0
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 6							**1,125**		**448**	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
7		0								
AG	305	13,285,800		2.7	153		1	412		
LD		0		2.7	0		3	0		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC	9	392,040	0.2		0	78,408		0	350	224
LC		0	0.15		0	0		0	450	0
HC		0	0.15		0	0		0	450	0
I	321	13,982,760	0.1		0	1,398,276		0	1,000	1,398
Totals Section 7							**412**		**1,622**	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
8		0								
AG		0		2.7	0		1	0		
LD		0		2.7	0		3	0		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC	12	522,720	0.2		0	104,544		0	350	299
LC	7	304,920	0.15		0	45,738		0	450	102
HC		0	0.15		0	0		0	450	0
I	595	25,918,200	0.1		0	2,591,820		0	1,000	2,592
Totals Section 8							0		2,992	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
9		0								
AG		0		2.7	0		1	0		
LD	431	18,774,360		2.7	1,293		3	3,491		
MD	81	3,528,360		2.0	405		5	810		
HD		0		1.8	0		12	0		
RC	20	871,200	0.2		0	174,240		0	350	498
LC	74	3,223,440	0.15		0	483,516		0	450	1,074
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 9							4,301		1,572	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
10		0								
AG		0		2.7	0		1	0		
LD		0		2.7	0		3	0		
MD	181	7,884,360		2.0	905		5	1,810		
HD		0		1.8	0		12	0		
RC	6	261,360	0.2		0	52,272		0	350	149
LC	131	5,706,360	0.15		0	855,954		0	450	1,902
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 10							1,810		2,051	

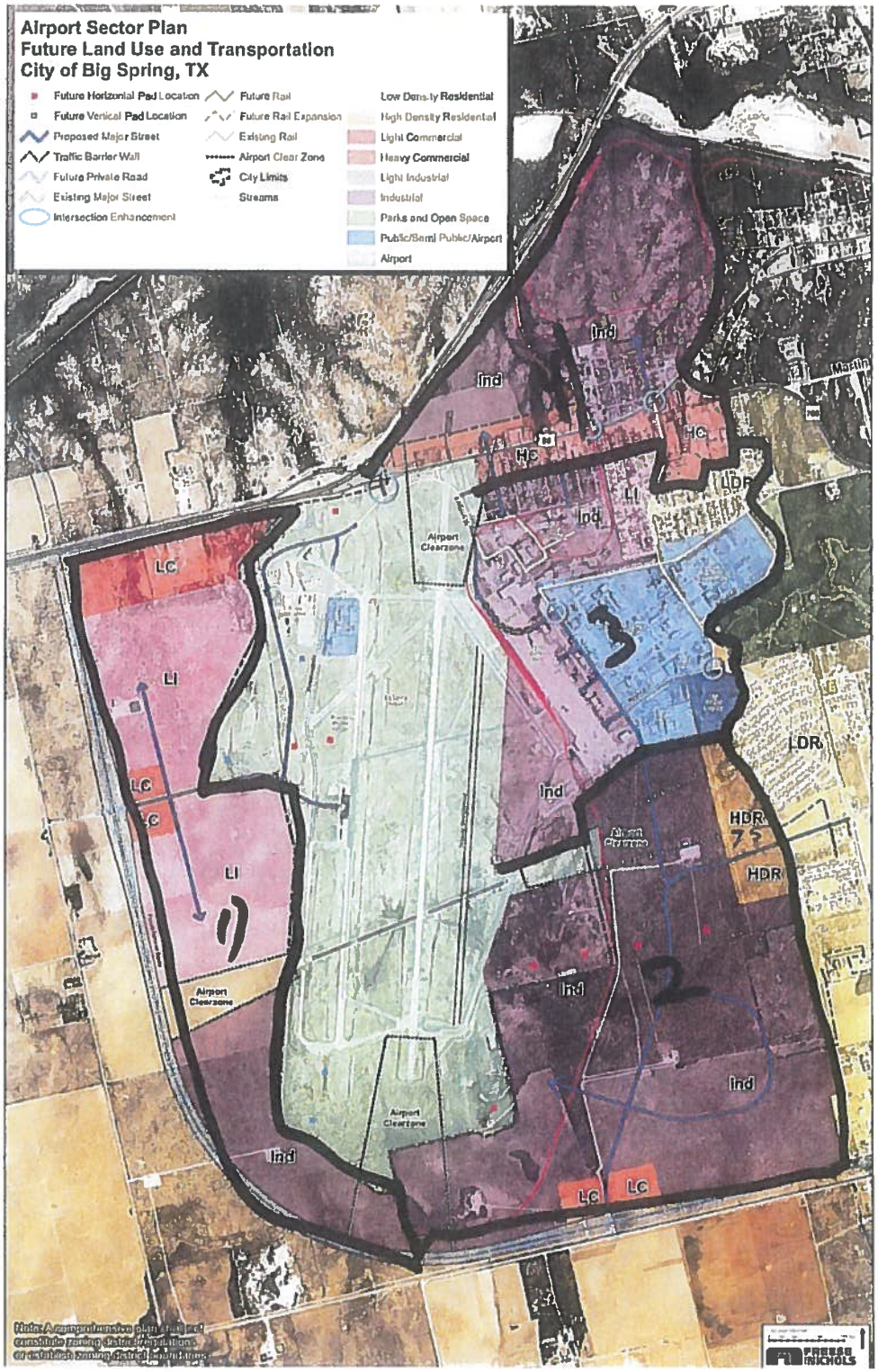
Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
11		0								
AG		0		2.7	0		1	0		
LD	389	16,944,840		2.7	1,167		3	3,151		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC	4	174,240	0.2		0	34,848		0	350	100
LC	23	1,001,880	0.15		0	150,282		0	450	334
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 11							3,151		434	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
12		0								
AG	480	20,908,800		2.7	240		1	648		
LD		0		2.7	0		3	0		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC		0	0.2		0	0		0	350	0
LC		0	0.15		0	0		0	450	0
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 12							648		0	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
13		0								
AG	850	37,026,000		2.7	425		1	1,148		
LD		0		2.7	0		3	0		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC		0	0.2		0	0		0	350	0
LC		0	0.15		0	0		0	450	0
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 13							1,148		0	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
14		0								
AG	145	6,316,200		2.7	73		1	196		
LD		0		2.7	0		3	0		
MD		0		2.0	0		5	0		
HD		0		1.8	0		12	0		
RC		0	0.2		0	0		0	350	0
LC		0	0.15		0	0		0	450	0
HC		0	0.15		0	0		0	450	0
I		0	0.1		0	0		0	1,000	0
Totals Section 14							196		0	

	Population	Employment
Total North Sector	**27,833**	**16,981**


Airport Sector Plan
Future Land Use and Transportation
City of Big Spring, TX
Future Horizontal Pad Location
Future Vertical Pad Location
Proposed Major Street
Traffic Barrier Wall
Future Private Road
Existing Major Street
Intersection Enhancement
Future Rail
Future Rail Expansion
Existing Rail
Airport Clear Zone
City Limits
Streams
Low Density Residential
High Density Residential
Light Commercial
Heavy Commercial
Light Industrial
Industrial
Parks and Open Space
Public/Semi Public/Airport
Airport
Ind
HC
LI
LDR
LC
HDR
Airport Clearzone
Martin
1
2
3

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Sqft per E	Employee
1		0								
AG		0		3	0		1	0		
LD		0		3	0		3	0		
MD		0		2	0		5	0		
HD		0		2	0		12	0		
RC		0	0.2		0	0		0	350	0
LC	131	5,706,360	0.15		0	855,954		0	450	1,902
HC		0	0.15		0	0		0	450	0
LI	463	20,168,280	0.1		0	2,016,828		0	1,500	1,345
I	216	9,408,960	0.1		0	940,896		0	1,500	627
Totals Section 1							0		3,874	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
2		0								
AG		0		3	0		1	0		
LD	132	5,765,594		3	397		3	1,072		
MD		0		2	0		5	0		
HD	75	3,267,000		2	900		12	1,350		
RC		0	0.2		0	0		0	350	0
LC		0	0.15		0	0		0	450	0
HC		0	0.15		0	0		0	450	0
LI		0	0.1		0	0		0	1,500	0
I	1,162	50,616,720	0.1		0	5,061,672		0	1,500	3,374
Totals Section 2							2,422		3,374	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
3		0								
AG		0		3	0		1	0		
LD	72	3,136,320		3	216		3			
MD		0		2	0		5	0		
HD	4	174,240		2	48		12	72		
psp	273	11,891,880	0.1			1,189,188			1500	
RC	68	2,962,080	0.2		0	592,416		0	350	1,693
LC		0	0.15		0	0		0	450	0
HC		2,698,610	0.15		0	404,792		0	450	900
LI	43	1,873,080	0.1		0	187,308		0	1,500	
I	179	7,778,329	0.1		0	777,833		0	1,500	519
Totals Section 3							72		3,111	

Section	Acres	Sq Ft	FAR	PPH	Res DU	Total Sq Ft	Population		Employment	
							DUA	Pop	Ratio	Employee
4		0								
AG		0		3	0		1	0		
LD		0		3	0		3	0		
MD		0		2	0		5	0		
HD		0		2	0		12	0		
RC		0	0.2		0	0		0	350	0
LC		0	0.15		0	0		0	450	0
HC		2,445,214	0.15		0	366,782		0	450	815
LI		0	0.1		0	0		0	1,500	0
I	514	20,345,932	0.1		0	2,034,593		0	1,500	1,356
Totals Section 4							0		2,171	

	Population	Employment
Total Airport Sector	**2,494**	**12,531**

APPENDIX B
LAND USE EQUIVALENCY TABLE

CITY OF BIG SPRING
LAND USE EQUIVALENCY TABLE

LAND USE	ITE Land Use[1]	ITE Land Use Code	Development Unit	Ave. Trip Rate[2]	Pass By Rate[3]	Diverted Trips[4]	Ave. Trip Rate with Deductions	Trip Length	Ave. Trip Length	Total Service Units (Veh-Mi/Dev Unit)[6]
Residential	Single-family detached housing	210	DU	1.00	0	0	1.00	2.50	1.25	1.25
	Apartment	220	DU	0.62	0	0	0.62	2.50	1.25	0.78
	Residential Condominium / Townhouse	230	DU	0.52	0	0	0.52	2.50	1.25	0.65
	Senior Adult Housing - Detached	251	DU	0.27	0	0	0.27	2.50	1.25	0.34
	Continuing Care Retirement Community	255	DU	0.16	0	0	0.16	2.50	1.25	0.20
Office	General Office	710	1000 sq. ft.	1.49	0	0	1.49	2.42	1.21	1.80
	Corporate Headquarters Bldg	714	1000 sq. ft.	1.41	0	0	1.41	2.42	1.21	1.71
	Medical-Dental Office	720	1000 sq. ft.	3.46	0	0	3.46	2.42	1.21	4.19
	U.S. Post Office	732	1000 sq. ft.	11.22	0	0	11.22	2.42	1.21	13.58
	Research and Development Center	760	1000 sq. ft.	1.07	0	0	1.07	2.42	1.21	1.29
	Business Park	770	1000 sq. ft.	1.26	0	0	1.26	2.42	1.21	1.52
Commercial / Retail	Hotel	310	Rooms	0.60	0	0	0.60	2.42	1.21	0.73
	All Suites Hotel	311	Rooms	0.40	0	0	0.40	2.42	1.21	0.48
	Motel	320	Rooms	0.47	0	0	0.47	2.42	1.21	0.57
	Movie Theater with Matinee	444	Screens	20.22	0.15	0	17.19	2.42	1.21	20.80
	Building Materials and Lumber Store	812	1000 sq. ft.	4.49	0.25	0	3.37	2.42	1.21	4.07
	Free standing Discount Superstore	813	1000 sq. ft.	4.35	0.28	0	3.13	2.42	1.21	3.79
	Variety Store	814	1000 sq. ft.	6.82	0	0	6.82	2.42	1.21	8.25
	Hardware/Paint Store	816	1000 sq. ft.	4.84	0.26	0.28	2.23	2.42	1.21	2.69
	Garden Center	817	1000 sq. ft.	6.94	0	0	6.94	2.42	1.21	8.40
	Nursery (Wholesale)	818	1000 sq. ft.	5.17	0.25	0	3.88	2.42	1.21	4.69
	Shopping Center	820	1000 sq. ft.	6.35	0.45	0.23	2.03	2.42	1.21	2.46
	Automobile Sales	841	1000 sq. ft.	2.62	0.4	0	1.57	2.42	1.21	1.90
	Auto Parts Sales	843	1000 sq. ft.	5.98	0.43	0.13	2.63	2.42	1.21	3.18
	Tire Store	848	1000 sq. ft.	4.15	0.28	0.1	2.57	2.42	1.21	3.11
	Tire Superstore	849	1000 sq. ft.	2.11	0.28	0.1	1.31	2.42	1.21	1.58
	Super market	850	1000 sq. ft.	9.48	0.36	0.38	2.48	2.42	1.21	3.00
	Convenience Market with Gasoline Pumps	853	Fueling Positions	19.07	0.63	0.26	2.10	2.42	1.21	2.54
	Discount Club	857	1000 sq. ft.	4.18	0	0	4.18	2.42	1.21	5.06
	Home Improvement Superstore	862	1000 sq. ft.	2.33	0.48	0.24	0.65	2.42	1.21	0.79
	Electronic Superstore	863	1000 sq. ft.	4.50	0.4	0.33	1.22	2.42	1.21	1.47
	Toy Superstore	864	1000 sq. ft.	4.99	0	0	4.99	2.42	1.21	6.04
	Apparel Store	876	1000 sq. ft.	3.83	0	0	3.83	2.42	1.21	4.63
	Arts and Crafts Store	879	1000 sq. ft.	6.21	0	0	6.21	2.42	1.21	7.51
	Pharmacy with drive thru	881	1000 sq. ft.	9.91	0.49	0.13	3.77	2.42	1.21	4.56
	Furniture Store	890	1000 sq. ft.	0.45	0.53	0.31	0.07	2.42	1.21	0.09
	DVD/Video Rental Store	896	1000 sq. ft.	13.60	0.73	0	3.67	2.42	1.21	4.44
	Bank with Drive Thru	912	1000 sq. ft.	24.30	0.47	0.26	6.64	2.42	1.21	8.04
	Quality Restaurant	931	1000 sq. ft.	7.49	0.44	0.27	2.17	2.42	1.21	2.63
	Restaurant	932	1000 sq. ft.	9.85	0.43	0.26	3.11	2.42	1.21	3.76
	Fast food with drive thru	934	1000 sq. ft.	32.65	0.5	0.23	8.72	2.42	1.21	10.55
	Quick Lubrication Vehicle Stop	941	Serving Positions	5.19	0.55	0.00	2.34	2.42	1.21	2.83
	Automotive Care Center	942	1000 sq. ft.	3.11	0	0	3.11	2.42	1.21	3.76
	Gas/Service Station with Convenience Market	945	Fueling Positions	13.51	0.56	0.31	1.73	2.42	1.21	2.09
Light Industrial	General Light Industrial	110	1000 sq. ft.	0.97	0	0	0.97	2.85	1.43	1.38
	Industrial Park	130	1000 sq. ft.	0.85	0	0	0.85	2.85	1.43	1.21
	Manufacturing	140	1000 sq. ft.	0.73	0	0	0.73	2.85	1.43	1.04
	Mini Warehouse (Self Storage)	151	1000 sq. ft.	0.26	0	0	0.26	2.85	1.43	0.37
	Utilities	170	1000 sq. ft.	0.76	0	0	0.76	2.85	1.43	1.08
	Pipe Yard[6]	N/A	Acres	0.59	0	0	0.59	2.85	1.43	0.84

Notes:

[1] Source ITE Trip Generation Manual 9th Edition

[2] Average number of PM peak hour trips per development unit

[3] Source Trip Generation Handbook, 2nd Edition

[4] Source Trip Generation Handbook, 2nd Edition

[5] Calculated by multiplying the average trip length by the average trip rate w/ deductions

[6] Trip generation calculated using local data provided by the City of Big Spring

APPENDIX C
EXISTING CONDITIONS ANALYSIS

EXISTING CAPITAL IMPROVEMENTS

Definitions

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

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

Big Spring CIP Cost Analysis
Existing Capital Improvements Analysis

Serv Area	Shared Svc Area	Roadway	From	To	A Length (mi)	B No. of Lanes	Type	C Lane Capacity	Pct. in Serv. Area	D Peak Hour Volume A	B	Total	VMT Supply A Dir Pk Dir	VMT Supply B Dir Pk Dir	A x B x C VMT Supply Pk Hr Total	A x D VMT Demand Pk Hr Total	Total VMT Excess Capacity	Total VMT Deficiency
NS1		Leatherwood Rd	CR 21	US 87/Lamesa Hwy	1.99	2	UA	625	100%	50	39	89	1244	1244	2488	177	2310	0
NS1		Leatherwood Rd	US 87/Lamesa Hwy	CR 25	1.01	2	UA	625	100%	39	50	89	631	631	1263	90	1173	0
NS1		CR 21	SH 176/Andrews Hwy	Leatherwood Rd	0.89	2	UA	625	100%	20	47	67	557	557	1113	60	1053	0
NS1		Oil Mill Rd	SH 176/Andrews Hwy	IH-20 Frontage Rd	1.19	2	UA	625	100%	20	20	40	744	744	1488	48	1440	0
NS1		US 87/Lamesa Hwy	IH-20	Leatherwood Rd	1.48	4	DA	675	100%	108	619	727	1998	1998	3996	1076	2920	0
NS1		Weaver Rd	IH-20	Leatherwood Rd	1.58	2	UA	625	100%	20	20	40	988	988	1975	63	1912	0
NS1		CR 25/Old Gail Hwy	SH 350	Leatherwood Rd	0.70	2	UA	625	100%	17	15	32	438	438	876	22	853	0
NS1		SH 350	IH-20	CR 25/Old Gail Hwy	0.80	2	UA	625	100%	256	256	512	500	500	1000	410	590	0
NS1		SH 176/Andrews Hwy	IH-20	CR 21	1.34	2	UA	625	100%	96	96	192	838	838	1675	257	1418	0
Sub-Total					*10.98*										*15,872*	*2,203*	*13,670*	*0*
NS2		CR 21	Leatherwood Rd	N. ETJ Limits	1.32	2	UA	625	100%	20	47	67	826	826	1652	89	1564	0
NS2		Webb Ln	Leatherwood Rd	N. ETJ Limits	1.77	2	UC	500	100%	20	20	40	885	885	1770	71	1699	0
NS2		US 87/Lamesa Hwy	Leatherwood Rd	N. ETJ Limits	1.77	2	UA	625	100%	65	371	436	1104	1104	2208	770	1437	0
NS2		CR 25/Old Gail Hwy	Leatherwood Rd	N. ETJ Limits	1.42	2	UA	625	100%	17	15	32	888	888	1775	45	1730	0
NS2		FM 669	FM 700	N. ETJ Limits	0.80	2	UA	625	100%	41	40	81	500	500	1000	65	935	0
NS2		SH 176/Andrews Hwy	CR 21	W. ETJ Limits	1.49	2	UA	625	100%	96	96	192	930	930	1860	286	1574	0
NS2		FM 700	US 87/Lamesa Hwy	SH 350	2.07	2	UA	625	100%	66	49	115	1294	1294	2588	238	2349	0
NS2		SH 350	CR 25/Old Gail Hwy	FM 700	1.30	2	UA	625	100%	189	189	378	813	813	1625	491	1134	0
Sub-Total					*11.94*										*14,478*	*2,055*	*12,423*	*0*
APS		Randolph Blvd	Simler Dr	Wasson Rd	0.83	2	DA	675	100%	57	51	108	560	560	1120	90	1030	0
APS		Wasson Rd	Randolph Blvd	Outer Loop	1.30	2	UA	625	100%	114	103	217	813	813	1625	282	1343	0
APS		Wright Ave	1st Ave	Simler Dr	0.39	2	UC	500	100%	50	50	100	194	194	388	39	349	0
APS		Simler Dr	Ave A	Randolph Blvd	0.46	2	UC	500	100%	118	133	251	232	232	463	116	347	0
APS		Warehouse Ave	1st Ave	Simler Dr	0.48	2	UC	500	100%	75	24	99	238	238	475	47	428	0
APS		Ave A	Simler Dr	State Park Dr	0.53	2	UC	500	100%	75	24	99	266	266	531	53	479	0
APS		Airbase Rd	US 80	Simler Dr	0.62	2	UC	500	100%	118	133	251	312	312	623	156	467	0
APS		1st Ave	Warehouse Ave	Perimeter Rd	0.75	2	UC	500	100%	50	50	100	374	374	748	75	673	0
APS		US 80	IH 20	RR Tracks	0.84	4	UA	625	100%	429	294	723	1044	1044	2089	604	1485	0
APS		US 80	RR Tracks	FM 700	0.39	4	DA	675	100%	429	294	723	526	526	1051	282	770	0
APS		Airpark Dr	Rickabaugh Dr	1st Ave	1.32	2	UC	500	100%	81	55	136	660	660	1320	180	1140	0
APS		Rickabaugh Dr	Airpark Dr	Industrial	0.72	2	UC	500	100%	25	25	50	359	359	718	36	682	0
Sub-Total					*2.04*										*2,038*	*215*	*1,822*	*0*
Total					**24.95**										**32,388**	**4,473**	**27,914**	**0**

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

APPENDIX D
CALCULATION OF VEHICLE-MILES OF NEW DEMAND

Vehicle-Mile Trip Generation by Service Area, Big Spring CIP Cost Analysis

Based on June 17, 2014 Land Use Assumptions by FNI.

Estimated Residential Growth Vehicle-Mile Trip Generation (2.7 per/DU)

Service Area	Added Population	Added Dwelling Units	Vehicle-Miles per DU	Total Vehicle-Miles
NS1	14,910	5522	1.25	6903
NS2	12,691	4700	1.25	5875
APS	2,494	924	1.25	1155

SU Equivalency	
Residential DU	1.25
Basic Employ SF	1.38
Service Employ SF	1.80
Retail Employ SF	2.46

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

Service Area	Added Employees	Square Feet per emp.	Total Square Feet	Vehicle-Miles Per 1000/SF	Total Vehicle-Miles
NS1	0	1000	0	1.38	0
NS2	3990	1000	3,990,000	1.38	5,515
APS	7221	1000	7,221,000	1.38	9,981

Estimated Service Employment Growth Vehicle-Mile Generation (450 SF/employee)

Service Area	Added Employees	Square Feet per emp.	Total Square Feet	Vehicle-Miles Per 1000/SF	Total Vehicle-Miles
NS1	7289	450	3,280,050	1.80	5,914
NS2	3412	450	1,535,400	1.80	2,768
APS	3617	450	1,627,650	1.80	2,934

Estimated Retail Employment Growth Vehicle-Mile Generation (350 SF/employee)

Service Area	Added Employees	Square Feet per emp.	Total Square Feet	Vehicle-Miles Per 1000/SF	Total Vehicle-Miles
NS1	573	350	200,550	2.46	493
NS2	1718	350	601,300	2.46	1,477
APS	1693	350	592,550	2.46	1,455

Vehicle-mile Generation Summary

Service Area	Residential Growth Vehicle-Miles	Basic Growth Vehicle-Miles	Service Growth Vehicle-Miles	Retail Growth Vehicle-Miles	Total Growth Vehicle-Miles
NS1	6903	0	5914	493	**13309**
NS2	5875	5515	2768	1477	**15635**
APS	1155	9981	2934	1455	**15526**
Totals	13,933	15,496	11,616	3,425	**44,470**

APPENDIX E
ROADWAY IMPROVEMENT PLAN PROJECTS

ROADWAY IMPROVEMENTS PLAN PROJECTS

Definitions

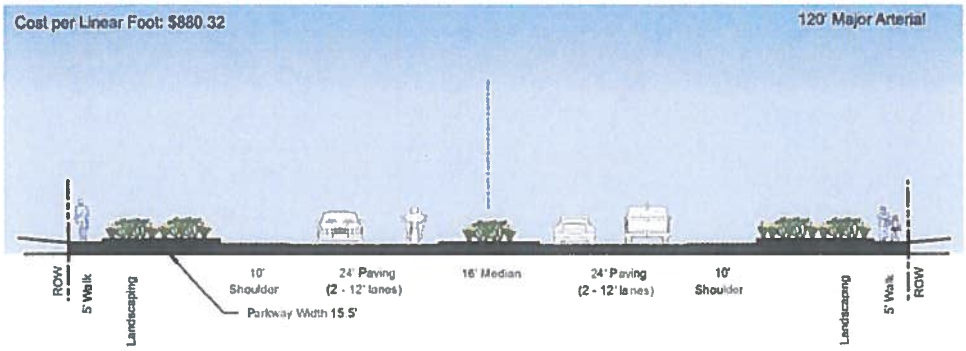
LANES	The total number of lanes in both directions available for travel.
TYPE	The type of roadway (used in determining capacity): DA = divided arterial UA = undivided arterial SA = special arterial (arterial with continuous left turn) UC = undivided collector
PK-HR VOLUME	The existing volumes of cars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

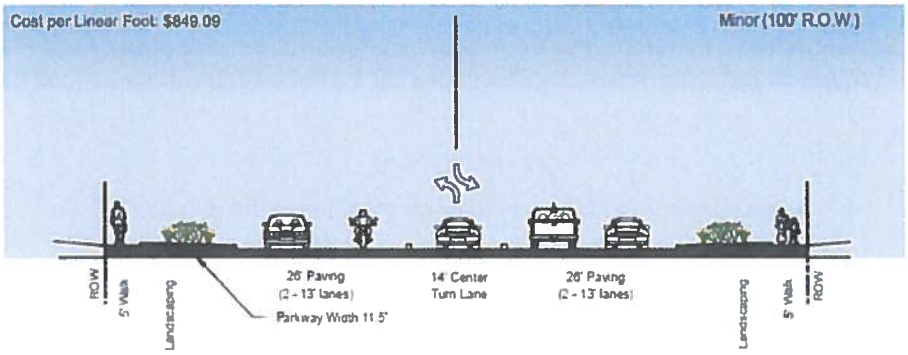
Big Spring CIP Cost Analysis
2015 Proposed Capital Improvements Plan

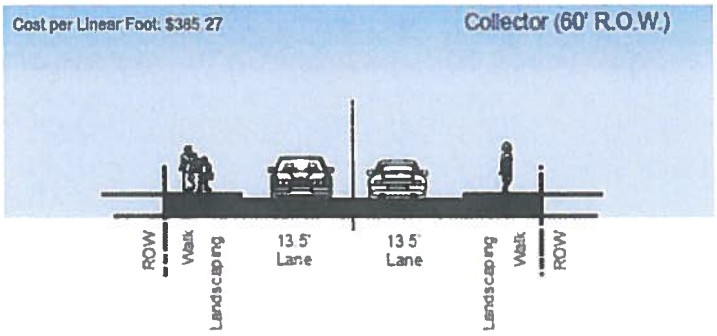
Serv Area	Reference CIP No.	Roadway	From	To	Project Status	Length (mi)	No. of Lanes	Type Rdwy	Lane Capacity	Pct. in Serv. Area	Peak Hour Volume* A	B	Total	VMT Supply Pk Hr Total	VMT Demand Pk Hr Total	Excess VMT Capacity	CIP VMT Deficiency
NS1	1	Leatherwood Rd	CR 21	US 87/Lamesa Hwy	New	2.00	4	DA	675	100%	50	39	89	5404	178	5226	0
NS1	2	Leatherwood Rd	US 87/Lamesa Hwy	CR 25/Old Gail Hwy	New	1.00	4	DA	675	100%	39	50	89	2693	89	2604	0
NS1	3	New E-W Collector	CR 21	New N-S Collector	New	0.99	2	UC	500	100%	0	0	0	994	0	994	0
NS1	4	New E-W Collector	US 87/Lamesa Hwy	CR 25/Old Gail Hwy	New	1.08	2	UC	500	100%	0	0	0	1076	0	1076	0
NS1	5	Oil Mill Rd	SH 176/Andrews Hwy	(Ex) W. Oil Mill Rd	New	0.50	4	DA	675	100%	0	0	0	1343	0	1343	0
NS1	6	Oil Mill Rd	(Ex) W. Oil Mill Rd	(Ex) E. Oil Mill Rd	New	0.52	4	DA	675	100%	20	20	40	1414	21	1393	0
NS1	7	Oil Mill Rd	(Ex) E. Oil Mill Rd	Webb Ln	New	0.21	4	DA	675	100%	0	0	0	565	0	565	0
NS1	8	Hilltop Rd	Webb Ln	SH 350	New	1.51	4	DA	675	100%	0	0	0	4084	0	4084	0
NS1	9	CR 21	Leatherwood Rd	SH 176/Andrews Hwy	New	0.91	4	DA	675	100%	20	47	67	2447	61	2387	0
NS1	10	New N-S Collector (W)	Leatherwood Rd	Oil Mill Rd	New	1.01	2	UC	500	100%	0	0	0	1014	0	1014	0
NS1	11	Webb Ln	Leatherwood Rd	IH-20	New	1.45	2	UC	500	100%	0	0	0	1453	0	1453	0
NS1	12	New N-S Collector (E)	Leatherwood Rd	IH-20	New	1.48	2	UC	500	100%	0	0	0	1476	0	1476	0
NS1	13	CR 25/Old Gail Hwy	Leatherwood Rd	SH 350	New	0.62	4	DA	675	100%	17	15	32	1677	20	1657	0
NS1	14	N/S Oil Mill Rd (W)	Oil Mill Rd	SH 176/Andrews Hwy	New	0.22	2	UC	500	100%	20	20	40	218	9	209	0
NS1	15	N/S Oil Mill Rd (E)	Oil Mill Rd	SH 176/Andrews Hwy	New	0.43	2	UC	500	100%	20	20	40	429	17	412	0
Sub-total NS1						**13.93**							**397**	**26288**	**394**	**25893**	**0**
NS2	16	CR 21	Leatherwood Rd	N. ETJ Limits	New	1.29	4	DA	675	100%	20	47	67	3478	86	3391	0
NS2	17	New N-S Collector (W)	Leatherwood Rd	Future Reliever Route	New	0.49	2	UC	500	100%	0	0	0	494	0	494	0
NS2	18	Webb Ln	Leatherwood Rd	N. ETJ Limits	New	1.76	2	UC	500	100%	20	20	40	1759	70	1688	0
NS2	19	New N-S Collector (E)	Leatherwood Rd	FM 700	New	0.48	2	UC	500	100%	0	0	0	485	0	485	0
NS2	20	CR 25/Old Gail Hwy	Leatherwood Rd	N. ETJ Limits	New	1.45	4	DA	675	100%	17	15	32	3928	47	3881	0
Sub-total NS2						**5.48**							**139**	**10143**	**203**	**9940**	**0**
APZ	21	Randolph Blvd	Simler Dr	Wasson Rd	New	0.83	4	DA	675	100%	57	51	108	2240	90	2150	0
APZ	22	Wasson Rd	Randolph Blvd	Outer Loop	New	1.30	4	DA	675	100%	114	103	217	3510	282	3228	0
APZ	23	New Minor Arterial	Wasson Rd	Outer Loop	New	2.06	4	DA	675	100%	0	0	0	5563	0	5563	0
APZ	24	Wright Ave	1st Ave	Simler Dr	New	0.39	2	UC	500	100%	50	50	100	388	39	349	0
APZ	25	Simler Dr	Ave A	Randolph Blvd	New	0.46	2	UC	500	100%	118	133	251	463	116	347	0
APZ	26	Warehouse Ave	1st Ave	Simler Dr	New	0.48	2	UC	500	100%	75	24	99	475	47	428	0
APZ	27	Ave A	Simler Dr	State Park Dr	New	0.53	2	UC	500	100%	75	24	99	531	53	479	0
APZ	28	Airbase Rd	US 80	Simler Dr	New	0.62	2	UC	500	100%	118	133	251	623	156	467	0
APZ	29	1st Ave	Warehouse Ave	Perimeter Rd	New	0.75	2	UC	500	100%	50	50	100	748	75	673	0
APZ	30	1st Ave	Perimeter Rd	New Minor Arterial	New	0.51	2	UC	500	100%	0	0	0	506	0	506	0
APZ	31	Airpark Dr	Rickabaugh Dr	1st Ave	New	1.32	2	UC	500	100%	81	55	136	1320	180	1140	0
APZ	32	Rickabaugh Dr	Airpark Dr	Industrial	New	0.72	2	UC	500	100%	25	25	50	718	36	682	0
APZ	33	New E-W Collector	Outer Loop	Rickabaugh Dr	New	0.65	2	UC	500	100%	0	0	0	652	0	652	0
APZ	34	New N-S Collector	IH 20	New E-W Collector	New	0.98	2	UC	500	100%	0	0	0	982	0	982	0
APZ	35	New Collector	New E-W Collector	New Minor Arterial	New	2.96	2	UC	500	100%	0	0	0	2965	0	2965	0
Sub-total APZ						**14.56**							**1411**	**21684**	**1073**	**20611**	**0**
Totals:						**33.97**							**1,947**	**58,115**	**1,671**	**56,444**	**0**

APPENDIX F
ROADWAY IMPROVEMENT PLAN UNIT COSTS

TRANSPORTATION







City of Big Spring, Texas
Engineer's Opinion of Probable Construction Cost Estimate for
Major Arterial

Roadway Description:	Quantity	Unit
Roadway Length	5,280	LF
Right-of-Way Width	100	FT
Roadway Width (BOC - BOC) (Divided Section)	67	FT
Existing Right-of-Way Estimate	-	SF

Project Scope: Build 5 lane undivided arterial

Item No.	Item Description	Freese and Nichols Date Performed: 7/29/15			
		Quantity	Unit	Unit Cost	Total Cost
1	Mobilization (5% of Construction Cost)	1	LS	$220,000.00	$220,000
2	Right of Way Preparation	20	ACRE	$4,000.00	$80,000
3	Unclassified Street Excavation or Embankment	19,600	CY	$15.00	$294,000
4	3-1/2" Asphaltic Concrete (Ty D)	7,500	TON	$90.00	$675,000
5	12" Flexible Compacted Base	39,900	SY	$17.00	$678,300
6	6" Lime or Cement Stabilized Subgrade	39,900	SY	$12.00	$478,800
7	Lime or Cement for Stabilization (30lbs/SY)	600	TON	$130.00	$78,000
8	6" Integral Curb	10,600	LF	$12.00	$127,200
9	Sidewalk and Ramps	52,800	SF	$7.00	$369,600
10	Traffic Signals	0	LS	$250,000.00	$0
11	Hydromulching	13,500	SY	$2.00	$27,000
12	Pavement Markings & Signage	21,120	LF	$2.00	$42,240
13	Traffic Control	5,280	LF	$15.00	$79,200
14	Drainage Improvements (RCP, Inlets, MH, Outfalls)	1	LS	$630,000.00	$630,000
15	Erosion Control	1	LS	$94,000.00	$94,000
	Subtotal Construction Cost Estimate				**$3,873,400**
	Contingency	**20%**			**$774,700**
	Total Construction Cost Estimate				**$4,648,100**
	Construction Cost Per Foot				**$880.32**

Note: Asphalt and Flex Base thicker than other sections due to width of paving

City of Big Spring, Texas
Engineer's Opinion of Probable Construction Cost Estimate for
Minor Arterial

Roadway Description:	Quantity	Unit
Roadway Length	5,280	LF
Right-of-Way Width	120	FT
Roadway Width (BOC - BOC) (Divided Section)	70	FT
Existing Right-of-Way Estimate	-	SF

Project Scope: Build 4 lane divided arterial

Item No.	Item Description	Freese and Nichols Date Performed: 7/29/15 Quantity	Unit	Unit Cost	Total Cost
1	Mobilization (5% of Construction Cost)	1	LS	$220,000.00	$220,000
2	Right of Way Preparation	20	ACRE	$4,000.00	$80,000
3	Unclassified Street Excavation or Embankment	23,500	CY	$15.00	$352,500
4	1-3/4" Asphaltic Concrete (Ty D)	4,000	TON	$90.00	$360,000
5	8" Flexible Compacted Base	42,300	SY	$15.00	$634,500
6	6" Lime or Cement Stabilized Subgrade	42,300	SY	$12.00	$507,600
7	Lime or Cement for Stabilization (30lbs/SY)	700	TON	$130.00	$91,000
8	6" Integral Curb	21,200	LF	$12.00	$254,400
9	Sidewalk and Ramps	52,800	SF	$7.00	$369,600
10	Traffic Signals	0	LS	$250,000.00	$0
11	Hydromulching	23,470	SY	$2.00	$46,940
12	Pavement Markings & Signage	21,120	LF	$2.00	$42,240
13	Traffic Control	5,280	LF	$15.00	$79,200
14	Drainage Improvements (RCP, Inlets, MH, Outfalls)	1	LS	$607,000.00	$607,000
15	Erosion Control	1	LS	$91,000.00	$91,000
	Subtotal Construction Cost Estimate				**$3,736,000**
	Contingency	**20%**			**$747,200**
	Total Construction Cost Estimate				**$4,483,200**
	Construction Cost Per Foot				**$849.09**

City of Big Spring, Texas
Engineer's Opinion of Probable Construction Cost Estimate for
Collector

Roadway Description:	Quantity	Unit
Roadway Length	5,280	LF
Right-of-Way Width	60	FT
Roadway Width (BOC - BOC) (Divided Section)	18	FT
Existing Right-of-Way Estimate	-	SF

Project Scope: Build 2 lane undivided arterial

Item No.	Item Description	Freese and Nichols Date Performed: 7/29/15 Quantity	Unit	Unit Cost	Total Cost
1	Mobilization (5% of Construction Cost)	1	LS	$100,000.00	$100,000
2	Right of Way Preparation	10	ACRE	$4,000.00	$40,000
3	Unclassified Street Excavation or Embankment	11,800	CY	$15.00	$177,000
4	1-3/4" Asphaltic Concrete (Ty D)	1,100	TON	$90.00	$99,000
5	8" Flexible Compacted Base	11,200	SY	$15.00	$168,000
6	6" Lime or Cement Stabilized Subgrade	11,200	SY	$12.00	$134,400
7	Lime or Cement for Stabilization (30lbs/SY)	200	TON	$130.00	$26,000
8	6" Integral Curb	10,600	LF	$12.00	$127,200
9	Sidewalk and Ramps	52,800	SF	$7.00	$369,600
10	Traffic Signals	0	LS	$250,000.00	$0
11	Hydromulching	18,780	SY	$2.00	$37,560
12	Pavement Markings & Signage	10,560	LF	$2.00	$21,120
13	Traffic Control	5,280	LF	$15.00	$79,200
14	Drainage Improvements (RCP, Inlets, MH, Outfalls)	1	LS	$275,000.00	$275,000
15	Erosion Control	1	LS	$41,000.00	$41,000
	Subtotal Construction Cost Estimate				**$1,695,100**
	Contingency	**20%**			**$339,100**
	Total Construction Cost Estimate				**$2,034,200**
	Construction Cost Per Foot				**$385.27**

APPENDIX G
ROADWAY IMPROVEMENT PLAN PROJECT COST ANALYSIS

ROADWAY IMPROVEMENTS PLAN COST ANALYSIS

Definitions

LANES	The total number of lanes in both directions available for travel.
TYPE	The type of roadway (used in determining capacity): DA = divided arterial UA = undivided arterial SA = special arterial (arterial with continuous left turn) UC = undivided collector
% IN SERVICE AREA	If the roadway is located on the boundary of the service area (with the city limits running along the centerline of the roadway), then half of the roadway is inventoried in the service area and the other half is not. This value is either 50% or 100%.
TOTAL SEGMENT COST	The estimated cost (in dollars) of the entire segment of the proposed improvement.
TOTAL COST IN SERVICE AREA	The estimated cost (in dollars) of the portion of the proposed roadway improvement within the service area.

Big Spring CIP Cost Analysis
2015 Proposed Capital Improvements Plan

Serv Area	Reference CIP No.	Roadway	From	To	Project Status	Length (mi)	No. of Lanes	Type Rdwy	Pct. in Serv Area	Roadway Project Costs: Engineering	ROW	Construction	Finance*	Total Project Cost
NS1	1	Leatherwood Rd	CR 21	US 87/Lamesa Hwy	New	2.00	4	DA	100%	$1,076,782	$0	$8,973,183	$2,251,192	$12,301,157
NS1	2	Leatherwood Rd	US 87/Lamesa Hwy	CR 25/Old Gail Hwy	New	1.00	4	DA	100%	$536,557	$0	$4,471,308	$1,121,762	$6,129,627
NS1	3	New E-W Collector	CR 21	New N-S Collector	New	0.99	2	UC	100%	$242,535	$314,760	$2,021,126	$649,762	$3,228,184
NS1	4	New E-W Collector	US 87/Lamesa Hwy	CR 25/Old Gail Hwy	New	1.08	2	UC	100%	$262,646	$340,860	$2,188,719	$703,641	$3,495,866
NS1	5	Oil Mill Rd	SH 176/Andrews Hwy	(Ex) W. Oil Mill Rd	New	0.50	4	DA	100%	$267,667	$262,700	$2,230,559	$618,448	$3,379,374
NS1	6	Oil Mill Rd	(Ex) W. Oil Mill Rd	(Ex) E. Oil Mill Rd	New	0.52	4	DA	100%	$281,728	$0	$2,347,734	$588,999	$3,218,461
NS1	7	Oil Mill Rd	(Ex) E. Oil Mill Rd	Webb Ln	New	0.21	4	DA	100%	$112,589	$110,500	$938,244	$260,139	$1,421,473
NS1	8	Hilltop Rd	Webb Ln	SH 350	New	1.51	4	DA	100%	$813,802	$798,700	$6,781,682	$1,880,297	$10,274,481
NS1	9	CR 21	Leatherwood Rd	SH 176/Andrews Hwy	New	0.91	4	DA	100%	$487,649	$0	$4,063,745	$1,019,512	$5,570,906
NS1	10	New N-S Collector (W)	Leatherwood Rd	Oil Mill Rd	New	1.01	2	UC	100%	$247,528	$321,240	$2,062,736	$663,139	$3,294,643
NS1	11	Webb Ln	Leatherwood Rd	IH-20	New	1.45	2	UC	100%	$354,787	$460,440	$2,956,562	$950,491	$4,722,280
NS1	12	New N-S Collector (E)	Leatherwood Rd	IH-20	New	1.48	2	UC	100%	$360,243	$467,520	$3,002,024	$965,106	$4,794,893
NS1	13	CR 25/Old Gail Hwy	Leatherwood Rd	SH 350	New	0.62	4	DA	100%	$334,202	$0	$2,785,015	$698,705	$3,817,922
NS1	14	N/S Oil Mill Rd (W)	Oil Mill Rd	SH 176/Andrews Hwy	New	0.22	2	UC	100%	$53,260	$0	$443,831	$125,267	$622,358
NS1	15	N/S Oil Mill Rd (E)	Oil Mill Rd	SH 176/Andrews Hwy	New	0.43	2	UC	100%	$104,670	$0	$872,251	$246,184	$1,223,106
Sub-total NS1						13.93				$5,536,646	$3,076,720	$46,138,720	$12,742,644	$67,494,730
NS2	16	CR 21	Leatherwood Rd	N. ETJ Limits	New	1.29	4	DA	100%	$692,959	$0	$5,774,661	$1,448,747	$7,916,367
NS2	17	New N-S Collector (W)	Leatherwood Rd	Future Reliever Route	New	0.49	2	UC	100%	$120,620	$156,540	$1,005,169	$323,147	$1,605,477
NS2	18	Webb Ln	Leatherwood Rd	N. ETJ Limits	New	1.76	2	UC	100%	$429,314	$0	$3,577,617	$1,009,747	$5,016,678
NS2	19	New N-S Collector (E)	Leatherwood Rd	FM 700	New	0.48	2	UC	100%	$118,355	$153,600	$986,291	$317,078	$1,575,324
NS2	20	CR 25/Old Gail Hwy	Leatherwood Rd	N. ETJ Limits	New	1.45	4	DA	100%	$782,623	$0	$6,521,860	$1,636,204	$8,940,688
Sub-total NS2						5.48				$2,143,872	$310,140	$17,865,599	$4,734,923	$25,054,534
APZ	21	Randolph Blvd	Simler Dr	Wasson Rd	New	0.83	4	DA	100%	$446,282	$0	$3,719,014	$933,026	$5,098,322
APZ	22	Wasson Rd	Randolph Blvd	Outer Loop	New	1.30	4	DA	100%	$699,378	$0	$5,828,154	$1,462,167	$7,989,699
APZ	23	New Minor Arterial	Wasson Rd	Outer Loop	New	2.06	4	DA	100%	$1,108,368	$1,087,800	$9,236,401	$2,560,895	$13,993,465
APZ	24	Wright Ave	1st Ave	Simler Dr	New	0.39	2	UC	100%	$94,776	$0	$789,804	$222,914	$1,107,494
APZ	25	Simler Dr	Ave A	Randolph Blvd	New	0.46	2	UC	100%	$113,038	$0	$941,985	$265,866	$1,320,889
APZ	26	Warehouse Ave	1st Ave	Simler Dr	New	0.48	2	UC	100%	$116,043	$0	$967,028	$272,934	$1,356,005
APZ	27	Ave A	Simler Dr	State Park Dr	New	0.53	2	UC	100%	$129,728	$0	$1,081,068	$305,121	$1,515,916
APZ	28	Airbase Rd	US 80	Simler Dr	New	0.62	2	UC	100%	$152,197	$0	$1,268,309	$357,967	$1,778,473
APZ	29	1st Ave	Warehouse Ave	Perimeter Rd	New	0.75	2	UC	100%	$182,479	$0	$1,520,661	$429,191	$2,132,331
APZ	30	1st Ave	Perimeter Rd	New Minor Arterial	New	0.51	2	UC	100%	$123,487	$160,260	$1,029,056	$330,826	$1,643,629
APZ	31	Airpark Dr	Rickabaugh Dr	1st Ave	New	1.32	2	UC	100%	$322,221	$0	$2,685,178	$757,865	$3,765,264
APZ	32	Rickabaugh Dr	Airpark Dr	Industrial	New	0.72	2	UC	100%	$175,221	$0	$1,460,173	$412,119	$2,047,513
APZ	33	New E-W Collector	Outer Loop	Rickabaugh Dr	New	0.65	2	UC	100%	$159,224	$206,640	$1,326,870	$426,569	$2,119,303
APZ	34	New N-S Collector	IH 20	New E-W Collector	New	0.98	2	UC	100%	$239,669	$311,040	$1,997,240	$642,083	$3,190,031
APZ	35	New Collector	New E-W Collector	New Minor Arterial	New	2.96	2	UC	100%	$723,722	$939,240	$6,031,017	$1,938,883	$9,632,861
Sub-total APZ						14.56				$4,785,835	$2,704,980	$39,881,956	$11,318,427	$58,691,198
Totals:						33.97				$12,466,353	$6,091,840	$103,886,275	$28,795,994	$151,240,462

Notes:

*Financing estimated at 3.5% over 15 years

APPENDIX H
SERVICE AREA ANALYSIS SUMMARY

Big Spring CIP Cost Analysis
Service Area Analysis Summary

03-Sep-15
04:07 PM

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Service Area	Capacity Supplied by CIP (veh-mi)	Existing Utilization (veh-mi)	Existing Deficiencies (veh-mi)	Net Capacity Supplied by CIP (veh-mi)	Total Project Cost of CIP	Project Cost of CIP with 50% Credit	Cost of Net Capacity Supplied	Cost to Meet Existing Utilization	Projected Demand (veh-miles)	Pcnt. of CIP Attributable to New Dev.	Cost Attributable to New Dev.	Cost per Service Unit w/ 50% Credit	*Actual Cost per Service Unit (veh-mi)*	Cost of Impact (50%) Per SF Dwelling Unit *
NS1	26,288	394	0	25,893	$67,494,730	$33,747,365	$33,240,921	$506,444	13,309	51.4	$17,085,237	$1,283	*$2,566*	$1,604
NS2	10,143	203	0	9,940	$25,054,534	$12,527,267	$12,276,283	$250,984	15,635	100.0	$12,276,283	$785	*$1,570*	$981
APZ	21,684	1,073	0	20,611	$58,691,198	$29,345,599	$27,893,180	$1,452,419	15,526	75.3	$21,011,975	$1,353	*$2,706*	$1,691
Totals	58,115	1,671	0	56,444	$151,240,462	$75,620,231	$73,410,384	$2,209,847	44,470	78.8	$57,865,240	$1,301	*$2,602*	$1,626

** Based on service unit equivalency of 1.25 veh-miles per development unit.*

1. TOTAL VEH-MI OF CAPACITY SUPPLIED BY CIP (TVMCAP)
2. TOTAL VEH-MI OF EXISTING DEMAND (VMEXT)
3. TOTAL VEH-MI OF EXISTING DEFICENCIES (VMDEF)
4. NET AMOUNT OF ROADWAY CAPACITY SUPPLIED (NVMCAP) =
   NVMCAP =TVMCAP-VMEXT-VMDEF
5. TOTAL COST OF CIP WITHIN STUDY AREA
6. TOTAL COST OF CIP IN SERVICE AREA w/50% CREDIT (TVMCOST)
7. COST OF NET CAPACITY SUPPLIED (NCVMCAP) =
   NCVMCAP = (NVMCAP/TVMCAP)*TVMCOST
8. COST TO MEET EXISTING NEEDS AND USAGE (EXCOST) =
   EXCOST = TVMCOST-NCVMCAP
9. TOTAL VEH-MI OF NEW DEMAND OVER TEN YEARS (TNEWDEM)
10. PERCENT OF CIP ATTRIBUTABLE TO NEW DEVELOPMENT (NPCNT) =
    IF TNEWDEM > NVMCAP, NPCNT = 100%
    IF TNEWDEM < NVMCAP, NPCNT = (TNEWDEM / NVMCAP)*100
11. COST OF CIP ATTRIBUTABLE TO NEW DEVELOPMENT (NCVMDEM) =
    NCVMDEM = (TNEWDEM / NVMCAP) * NCVMCAP
12. COST PER SERVICE UNIT = (MAX FEE)
    MAX FEE = NCVMDEM / TNEWDEM
13. ACTUAL COST PER SERVICE UNIT
14. COST OF IMPACT FOR 1 SINGLE-FAMILY RESIDENTIAL UNIT

RESOLUTION NO. _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BIG SPRING, TEXAS, CASTING VOTE(S) TO ELECT DIRECTORS FOR THE HOWARD COUNTY APPRAISAL DISTRICT FOR THE YEARS 2016 AND 2017

WHEREAS, the City Council of the City of Big Spring is a taxing unit entitled to vote in the election of the Howard County Appraisal District Board of Directors, and therefore entitled to nominate and cast votes for candidates for election thereto pursuant to Tex. Tax Property Code §6.03;

WHEREAS, five (5) directors serving two-year terms beginning January 1st of even-number years are appointed by the taxing units participating in the district;

WHEREAS, a member of the governing body may cast all its votes for one candidate or distribute them among candidates for any number of directorships (the City of Big Spring is entitled to 402.47 votes); and

WHEREAS, the City Council of the City of Big Spring hereby submits the Official Ballot, as issued by the Chief Appraiser and attached hereto as Exhibit A, stating our vote for candidates for the election of the Board of Directors for the Howard County Appraisal District for 2016-2017;

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BIG SPRING, TEXAS, THAT:

SECTION 1. The City Council does hereby cast its 402.47 votes for the following candidate(s) for the Howard County Joint Tax Appraisal District Board of Directors for the year 2016 and 2017:

1. Mr. Donnie Baker. . . . . _____ votes

2. Mr. Mark Barr. . . . . _____ votes

3. Ms. Cash Berry. . . . . _____ votes

4. Mr. Tim Blackshear. . . . . _____ votes

5. Mr. Danny Howard. . . . . _____ votes

6. Mr. Jimmy Miller. . . . . _____ votes

PASSED AND APPROVED on first reading at a regular meeting of the City Council on the **10th** day of **November, 2015**, with all Councilmembers voting "aye" for passage of same.

PASSED AND APPROVED on second reading at a regular meeting of the City Council on the **8th** day of **December, 2015**, with all Councilmembers voting "aye" for passage of same.

_____
Larry McLellan, Mayor

ATTEST:

_____
Tami L. Davis, Assistant City Secretary

OFFICIAL BALLOT

ISSUED TO CITY OF BIG SPRING

BOARD OF DIRECTORS FOR HOWARD COUNTY APPRAISAL DISTRICT 2016-2017

(DIRECTIONS) Please enter the number of votes cast on the blank space opposite the name of the candidate. You may cast all of your votes for one candidate or you may divide your votes among any number of candidates that you desire. You have **402.47** total votes that you may cast.

NAMES OF CANDIDATES

1. Mr. Donnie Baker _____
2. Mr. Jimmy Miller _____
3. Ms. Cash Berry _____
4. Mr. Danny Howard _____
5. Mr. Tim Blackshear
6. Mr. Mark Barr _____

ISSUED UNDER MY HAND AND SEAL OF OFFICE THE 30TH DAY OF OCTOBER, 2015

Ronny Babcock, Chief Appraiser
Howard County Appraisal district

RESOLUTION OF VOTES CAST TO ELECT DIRECTORS FOR HOWARD COUNTY APPRAISAL DISTRICT FOR THE YEAR 2016-2017

WHEREAS, SB 621, Section 6.03(g) requires that each taxing unit entitled to vote, to cast their vote by resolution and to submit that resolution to the Chief Appraiser of the Howard County Appraisal district before DECEMBER 15, 2015.

THEREFORE, the City Council of Big Spring submits the above Official Ballot, as issued by the Chief Appraiser, stating our vote for candidates for the election of the Board of Directors for the Howard County Appraisal District for 2016-2017.

ACTION TAKEN ____ day of _____, 2015, in _____ session of the City Council of Big Spring, which is entitled under SB 621 to cast votes to elect the Board of Directors of the Howard County Appraisal district.

_____
Mayor

ATTEST: _____

HOWARD COUNTY APPRAISAL DISTRICT

Board of Directors:
Donnie Baker, Chairman
Tim Blackshear
Kathy Sayles
Jimmy Miller
Donnie Reid
Diane Carter, TAC

315 South Main
PO Box 1151
Big Spring, TX 79720-1151
Ronny Babcock, Chief Appraiser

Phone432-263-8301
Fax: 432-263-8303

October 30, 2015

City of Big Spring
c/o Todd Darden
310 Nolan
Big Spring, TX 79720

Dear Mr. Darden,

Please find enclosed an official ballot for the election of the Board of Directors for the Howard County Appraisal district.

The City of Big Spring has a total of 402.47 votes to cast in the election of the Board.

The ballot is to be submitted to my office by December 15, 2015. I will notify all parties by December 31, 2015 of the results of the election.

Thank you for your assistance and if you have any questions let me know.

Respectfully,

Ronny Babcock, RPA, RTA/C
Chief Appraiser
Howard County Appraisal District

RESOLUTION NO._____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BIG SPRING, TEXAS, AUTHORIZING CITY STAFF TO SUBMIT INVOICES AND PROOF OF PAYMENT FOR CAPITAL EQUIPMENT, PREVIOUSLY PURCHASED WITH CITY FUNDS, TO JP MORGAN CHASE FOR INCLUSION IN THE 2014-15 LEASE FINANCING PACKAGE; RECEIVE REIMBURSEMENT FOR THE CAPITAL EQUIPMENT PREVIOUSLY PURCHASED WITH CITY FUNDS; AND AVOID FUNDING FEES APPLICABLE TO A REFUND/CREDIT OF THE REMAINING LEASE FUND BALANCE.

WHEREAS, in budget year 2014-15, the City entered into a Lease Financing Agreement with JP Morgan Chase to purchase capital equipment valued at $1,722,500.00. The actual purchase of the capital equipment totaled $1,661,186.89, leaving a $61,313.11 balance on the lease;

WHEREAS, JP Morgan Chase amortized the lease, which the City has been making payments on, for the total $1,722,500 and does not wish to refund or apply the remaining funds to the loan without charging funding fees;

WHEREAS, City staff requests authorization to submit invoices and proof of payments to JP Morgan Chase for the Groundsmaster 4300D Rough Mower and the Propass 200 Wireless Top Dresser, purchased at a cost of $64,344.98;

WHEREAS, JP Morgan Chase has agreed to include this capital equipment as part of the 2014-15 lease financing package and reimburse the City $61,313.11 in capital equipment expenditures (equal to the remaining lease fund balance); and

WHEREAS, the City will prorate the monthly lease payments per dollar amount of lease assets per department, thereby increasing the General Fund lease payment while decreasing the lease payment in other funds;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BIG SPRING, TEXAS, AS FOLLOWS, THAT:

SECTION 1. The City Council of the City of Big Spring hereby authorizes City staff to submit invoices and proof of payment for specific capital equipment to JP Morgan Chase in order to avoid funding fees and receive reimbursement for capital equipment in the amount of $61,313.11.

PASSED AND APPROVED on first reading at a regular meeting of the City Council on the **10th** day of **November, 2015**, with all members of the Council voting "aye" for passage of the same.

PASSED AND APPROVED on second and final reading at a regular meeting of the City Council on the **8th** day of **December, 2015**, with all members of the Council voting "aye" for passage of the same.

ATTEST: _____ Larry McLellan, Mayor

_____
Tami L. Davis, Assistant City Secretary

ORDINANCE NO._____

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BIG SPRING, TEXAS, AMENDING ORDINANCE NUMBER 044-2015 WHICH ADOPTED THE ANNUAL BUDGET FOR THE CITY OF BIG SPRING, TEXAS FOR THE FISCAL YEAR BEGINNING OCTOBER 1, 2015 AND ENDING SEPTEMBER 30, 2016 BY INCREASING THE GENERAL FUND BUDGET FOR THE PURPOSE OF PURCHASING AN ANIMAL CONTROL TRUCK; PROVIDING FOR REPEAL OF ORDINANCES IN CONFLICT HEREWITH; PROVIDING FOR PUBLICATION; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS the City Council adopted the annual 2015-16 budget for the City of Big Spring, Texas on September 21, 2015; and

WHEREAS the funding for purchase of new animal control truck was adopted in the 2014-15 fiscal budget, but was not purchased during the 2014-15 fiscal year; and

WHEREAS the effect of not purchasing the truck in 2014-15 was an increase in the fund balance of the general fund for September 30, 2015.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BIG SPRING, TEXAS AS FOLLOWS, THAT:

SECTION 1. The General Fund Budget of the Annual Budget for the City of Big Spring, Texas for the Fiscal Year beginning October 1, 2015 and ending September 30, 2016 is hereby increased by the amount of $26,000 in the account of 002-011-240-6401 for the purpose of purchasing a new truck for the Animal Control Department.

SECTION 2. The remaining portions of Ordinance Number 044-2015 shall remain in full force and effect.

SECTION 3. All ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of the conflict.

SECTION 4. The City Secretary is hereby authorized and directed to cause the publication of this ordinance in accordance with law.

SECTION 5. This ordinance shall take effect immediately after passage in accordance with the provisions of the Charter of the City of Big Spring, and it is accordingly so ordained.

.

PASSED AND APPROVED on first reading at a regular meeting of the City Council on the **10th** day of **November, 2015** with all members of the Council voting "aye" for the passage of same.

PASSED AND APPROVED on second reading at a regular meeting of the City Council on the **8th** day of **December, 2015** with all members of the Council voting "aye" for the passage of same.

CITY OF BIG SPRING

_____

Larry McLellan, Mayor

ATTEST:

_____

Tami L. Davis, Assistant City Secretary

American Fidelity Assurance Company

A member of the American Fidelity Group

2000 North Classen Boulevard, Oklahoma City, Oklahoma 73106

EXCESS LOSS INSURANCE POLICY

Non-Participating

PLEASE READ CAREFULLY

Policyholder Name:	**City of Big Spring**
Principal Address:	**310 Nolan** **Big Spring, TX 79720**
Policy Number:	**AFA-SLP-2008-899-TRU**
Effective Date:	**October 1, 2015**
Expiration Date:	**September 30, 2016**

YOUR Designated Third-Party Administrator: TML Multistate Intergovernmental Employee Benefits

This Policy is issued in consideration of YOUR Application/Schedule and the payment of premiums. The attached Application/Schedule and a copy of YOUR ERISA Employee Welfare Benefit Plan Document form a part of this Policy. All periods of coverage will begin and end at 12:01 a.m. Standard Time at YOUR Principal Address.

This Policy is governed by the laws of the state of YOUR Principal Address.

This Policy is issued by US at OUR Underwriting Offices as of the Effective Date.

Secretary

President

NOTICE: This is a reimbursement Policy. YOU, or YOUR Plan Administrator, are responsible for making benefit determinations under YOUR Employee Welfare Benefit Plan. WE have no duty or authority to administer, settle, adjust, or provide advice regarding claims filed under YOUR Employee Benefit Plan.

WARNING: Any person who knowingly, and with intent to injure, defraud or deceive any insurer, makes any claim for the proceeds of an insurance policy containing any false, incomplete or misleading information may be guilty of insurance fraud.

THIS IS NOT A POLICY OF WORKERS' COMPENSATION INSURANCE. THE EMPLOYER DOES NOT BECOME A SUBSCRIBER TO THE WORKERS' COMPENSATION SYSTEM BY PURCHASING THIS POLICY, AND IF THE EMPLOYER IS A NON-SUBSCRIBER, THE EMPLOYER LOSES THOSE BENEFITS, WHICH WOULD OTHERWISE ACCRUE UNDER THE WORKERS' COMPENSATION LAWS. THE EMPLOYER MUST COMPLY WITH THE WORKERS' COMPENSATION LAW AS IT PERTAINS TO NON-SUBSCRIBERS AND THE REQUIRED NOTIFICATIONS THAT MUST BE FILED AND POSTED.

Field Office
PO Box 2061
Big Spring, TX 79721
Ph: 432-271-2577

PERMIT TO CONDUCT GEOPHYSICAL OPERATIONS

CITY OF BIG SPRING
310 NOLAN ST
BIG SPRING, TX 79720

Effective Date: 10/26/2015
Project: Hobo 3D
Location: Howard, Martin and Borden County , TX
Permit No.: 8000

CGG Land (U.S.) Inc. (CGG) is conducting a 3-D seismic survey and hereby respectfully requests your permission to enter, including the rights of ingress and egress, on the following described lands in which you have interest in the surface, minerals, or oil and gas leasehold. In consideration for this permit covering geophysical operations on the lands described below, CGG shall make payment to you, as Grantor, a flat fee of $30.00 per acre owned by you, as reasonable and customary compensation for damages to your property that is associated with this survey.

Legal Description (see attached plat)	Percent	Total Acreage
Howard County -- Multiple Tracts - See Attached Map -- 3072.63 acres	100%	3,072.63

Total Acres: 3,072.63 Per Acre: $30.00 Total Check: $92,178.90

This permit covers all surface and mineral interests owned by you that lie within the boundary of this survey, including such lands, rights, and interests that may not be known at the time this permit is executed. CGG shall compensate you at the same rate of payment agreed to in this permit for any additional surface acreage owned by you that is discovered and later added to this permit after the effective date.

CGG will conduct geophysical operations in accordance with good standard industry practices and in a prudent and careful manner. CGG operations may consist of the following activities: mapping and surveying, creating accessible survey paths, placing identifying survey flags, stakes and ribbons, distributing and maintaining (via helicopter, UTV or truck) recording equipment, cables and geophones, clearing or mulching paths for vibrator access, (if necessary), vibroseis acquisition and monitoring, and such other activities as are convenient and necessary to conduct the geophysical testing. CGG agrees to indemnify and hold you harmless against all actions, suits, claims, and demands whatsoever that may arise as a direct result of our operations on your property.

If geophysical operations are not conducted on any portion of the above-described properties, CGG will not be obligated to make the total payment to you. The payment made will be based on the total number of acres owned and utilized within the final seismic survey area.

Grantor hereby declares that he/she has the legal authority to sign this permit and receive the payment and damage settlements, if any, with respect to the above described properties. By accepting payment, Grantor agrees to assume full responsibility for distributing that portion of the proceeds due to surface owner, surface tenant or other third parties who claim interests in the property or payment unless we are directed with instructions below to divide up the payment. Unless otherwise voided by conditions stated herein, this permit will survive any lease, sale, trade, or conveyance of property interests described above and made after the effective date, and will be binding on successors or assigns. This permit is fully transferable by CGG to its successors and assigns.

If you have any questions, please contact us at the numbers provided above . Thank you very much for your cooperation on this matter.

Do you have a surface tenant? _____ If Yes, who? _____Ph: (_____) _____ - _____

Portion / percentage to be paid to landowner: _____ Portion / percentage to be paid to tenant: _____

Wells? (Y/N) _____, Crops? (Y/N) _____, Locks? (Y/N) _____, Is it OK to Interlock a Lock? (Y/N) _____

Tax ID # or Social Security # _____ Landowner Phone #_____
(Required by the IRS)

Signed this _____ day of _____, 2015

By: _____
(Landowner's Authorized Signature)

By: _____
Contract Agent for CGG

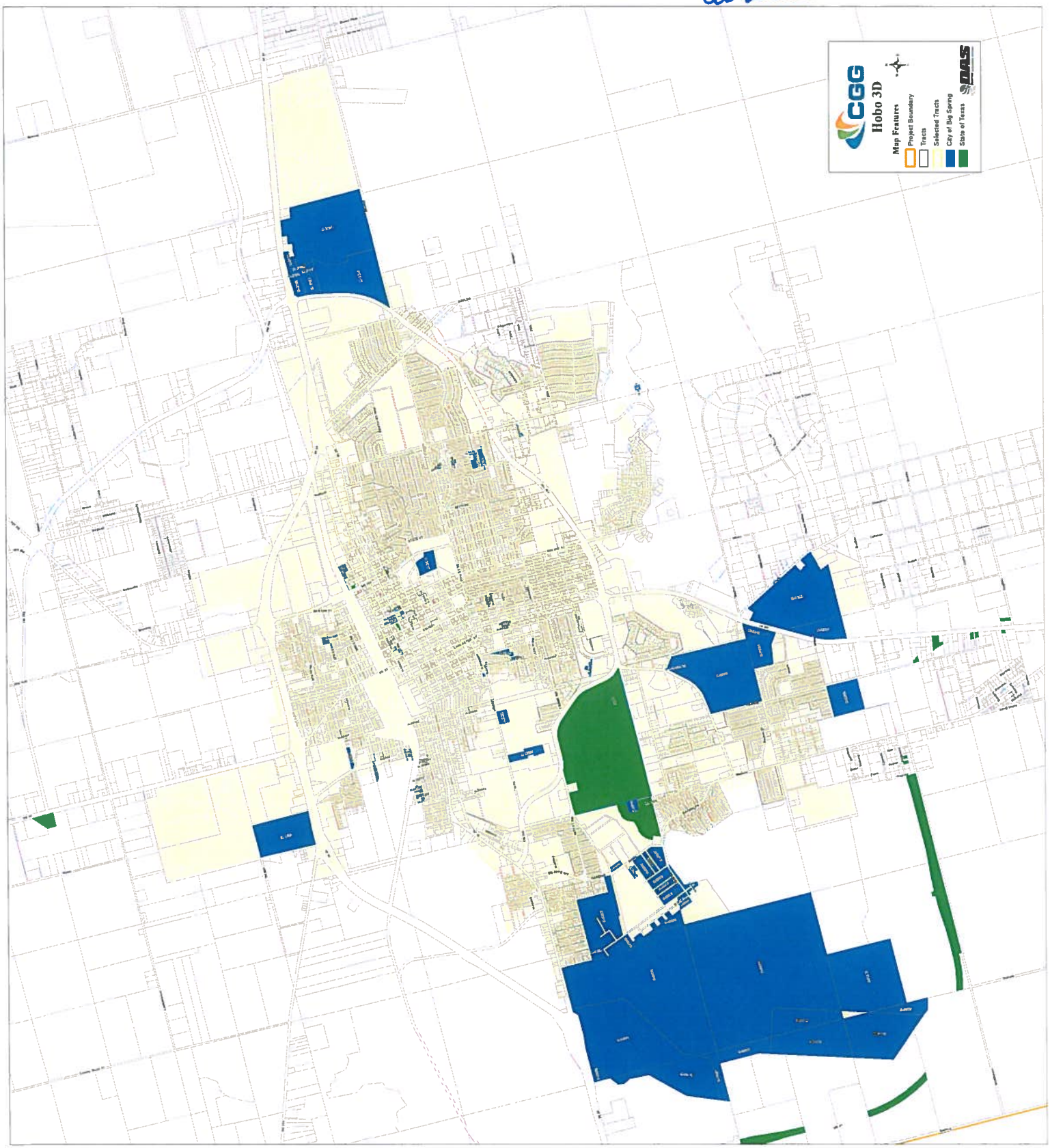
Special Conditions/Additional Instructions:

_____

_____

CGGVeritas 10300 TOWN PARK HOUSTON, TX 77072 PH (832)351-8300 FX (832) 351-8701

Need Moss Lake as well -



210 West 3rd St.
Big Spring, TX 79720
Office: 432-271-2577

Exhibit "A"

Addendum

This Addendum (the "Addendum") is attached and made part of that certain seismic permit between CGG and the City of Big Spring ("City"). To the extent there is a conflict between the Permit and this Addendum, then CGG and City agree that this Addendum shall control. This permit is granted subject to the following:

1. **Permission.** City grants CGG, its contractors and subcontractors permission to conduct seismographic operations between the hours of 7:00 a.m. local time and sunset, including the right of ingress and egress for such purposes across the surface of City's property, more fully described in the Permit attached hereto. CGG shall not have the right to transfer this permission without the City's written consent.

2. **Time Limit.** The Agreement shall automatically terminate upon completion of the Hobo 3D seismic project by CGG or 18 months from date of City signing, whichever occurs first.

3. **Notification.** CGG shall notify the Mayor or City Manager of the City of Big Spring at least ten (10) days prior to starting any seismic operations. CGG shall also put written notice in the form of an ad in the local newspaper, as well as on the City website, and shall take out a radio ad on the local station and Channel 17 on Television; these ads will give contact information for CGG and ask that all inquiries be made to CGG, not the City.

4. **Reclamation.** CGG shall indemnify the City of Big Spring for any damages that may occur to any adjoining property due to CGG's seismic survey. CGG shall make payment for any and all actual damages suffered as a result of the CGG operations to any City infrastructure including without limitation damage to water lines, sewer lines, storm sewer lines, streets; or damages above and beyond for normal wear and tear that may occur as a result of the CGG operations. The City or any resident will notify CGG within seven (7) days of the discovery of any damage and shall supply an estimate of the costs to repair the damages with the notice. CGG will reimburse City for any damage that has occurred as a result of the seismic operations within thirty (30) days of City notification to CGG. If the parties cannot agree on the damage amount, CGG will hire an independent appraiser to evaluate the damages and generate an estimate to be presented to the City. The City will have input into the calculation. CGG further indemnifies and hold the City of Big Spring harmless from and against all actions, suits, claims and demands whatsoever that may arise by virtue of The City of Big Spring's permission granted herein.

5. **Insurance.** CGG or its Geophysical Contractor shall maintain a comprehensive policy of insurance, including commercial general liability, automotive and workers compensation, at

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Big Spring, TX 79720
Office: 432-271-2577

no expense to the City, insuring against liability arising in connection with the Project, and shall provide City with a certificate naming City as additionally insured.

6. **Operations.** CGG will utilize the Fairfield Nodal wireless system, using individual stand-alone receiver nodes, and the energy source will be vibroseis trucks. These nodes will be placed on City property where allowed, and on private property; CGG agrees to obtain all necessary permits from landowners prior to placing any nodes on their property. The vibroseis trucks shall operate on public roadways and City property where allowed. CGG shall consult with City to determine locations of any sensitive infrastructure, and agrees to avoid and buffer around these locations for any vibroseis operations at a safe operating distance. CGG further agrees that the City will have final approval on all proposed locations prior to recording operations commencing. CGG shall, if approved by City, hire off-duty City police officers to escort the vibroseis trucks while operating within the City. CGG shall also hire an independent third party monitoring company to monitor the Peak Particle Velocity (PPV) levels of the vibroseis operations at all times while working within the City. CGG will have designated personnel working as support agents with the surveying and recording crews as liaisons between the City, the crews, and the private residents of the City; any questions or concerns that are brought to the City by residents shall be passed to CGG's personnel to handle.

7. **Cancellation.** In the event of cancellation of the seismic work described above, this contract is null and void.

CGG or Agent for CGG:	**City of Big Spring:**
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

Minutes of the Board of Director's Regular Meeting
BIG SPRING ECONOMIC DEVELOPMENT CORPORATION
Tuesday, September 15, 2015, 5:15 p.m.
Offices of the Big Spring Economic Development Corporation
215 West Third Street, Big Spring, Texas

The Regular Meeting of the Board of Directors of the Big Spring Economic Development Corporation was called to order at 5:15 p.m. Tuesday, September 15, 2015 in the offices of the Big Spring Economic Development Corporation. The following notice was sent on September 11, 2015 to all Directors, the news media, and duly posted on September 11, 2015, by Teresa Darden in compliance with the Open Meeting's Act by posting it on the outside door of the Big Spring Economic Development Corporation and on the inside and outside of City Hall.

"The Board of Directors of the Big Spring Economic Development Corporation will hold a Regular Board Meeting on Tuesday, September 15, 2015, 5:15 p.m. in the offices of the Big Spring Economic Development Corporation, 215 West Third Street, Big Spring, Texas. The purpose of the meeting is: Action on Minutes of the August 19, 2015 Regular Meeting, Action to Approve August Financials Report, Action to Approve August Investment Report, Action to Approve 2014-2015 Annual Report, Presentation by IMS Worldwide Inc., Update by Bartlett & West on Airpark Rail Infrastructure Project, Resolution recognizing outgoing Board Member Cole Morgan, Directors Report, Executive Session, Action as a Result of Executive Session, Public Comment, Board Comment, and Adjourn".

Directors Present:

Mr. Terry Hansen- President
Mr. Cole Morgan-Vice President
Mrs. Nadine Reyes- Secretary/Treasurer
Mr. Bob Price

Directors Absent:

Kay McDaniel

Staff Present:

Mr. Terry Wegman
Mrs. Teresa Darden

Guests that signed in:

Jim DePauw, Raul Benavides, Baxter Wellman, Mike Murphy, Steve Schellenberg, Larry McLellan, Jim Little

AGENDA ITEM # 1 – Call to Order/Invocation and Pledge:
Mr. Hansen called the meeting to order at 5:15 p.m. Mr. Price led the invocation and Mrs. Reyes led the pledge.

ACTION ITEM #2- Action on Minutes of the August 19, 2015 Regular:
Mr. Hansen presented the Minutes. Motion to accept the Minutes was made by Mr. Morgan, seconded by Mrs. Reyes. The motion passed 4 to 0 with all members present voting "aye" in favor of the motion.

ACTION ITEM #3- Action to Approve August Financials:
Mrs. Reyes presented the Financials. Motion to approve the Financials was made by Mrs. Reyes seconded by Mr. Morgan. The motion passed 4 to 0 with all members present voting "aye" in favor of the motion.

ACTION ITEM #4-Action to Approve August Investment Report:
Mrs. Reyes presented the Investment Report. Motion to approve the Investment Report was made by Mrs. Reyes seconded by Mr. Morgan. The motion passed 4 to 0 with all members present voting "aye" in favor of the motion.

ACTION ITEM #5- Action to Approve 2014-2015 Annual Report:
Mr. Wegman presented the Annual Report. Motion to approve the 2014-2015 Annual Report was made by Mr. Price seconded by Mr. Morgan. The motion passed 4 to 0 with all members present voting "aye" in favor of the motion.

ACTION ITEM #6- Presentation by IMS Worldwide Inc.:
Mr. Steve Schellenberg, VP of Business Development for IMS Worldwide Inc gave a presentation on a study to determine the feasibility for a logistics Hub in Big Spring. The study should take an approximate 4 months to complete.

ACTION ITEM #7- Update by Bartlett & West on Airpark Rail Infrastructure Project:
Mr. Mike Murphy updated the Board on the infrastructure upgrade. Anticipated start date to begin in October and completion should take 4 months.

ACTION ITEM #8- Resolution recognizing outgoing Board Member Cole Morgan:
Mr. Hansen presented the Resolution to Cole Morgan for his outstanding service to the Corporation.

ACTION ITEM #9- Directors Report:
Mr. Wegman updated the Board on several projects including: Site visit from a Pipe Company and a Japanese company joint venture. A horizontal pipe company chose Sweetwater because of the access to BNSF but is looking at other long term possibilities for Big Spring. Two companies are interested in the vacant hangars at the Airpark. Mr. Wegman updated the Board on past and upcoming meetings to include: TEDC Global Logistics Workshop, Presentation to the Big Spring Chapter of Credit Unions on Sept 17th, Present Budget to City Council Sept. 21st, TML Sept 22-25, TEDC Annual Meeting Oct 14-16, ICSC Nov 5-6th, Next Board meeting Oct 22nd.

ACTION ITEM #10-Executive Session in accordance with Texas Government Code, Section 551.071. CONSULTATION WITH ATTORNEY; CLOSED MEETING. A governmental body may not conduct a private consultation with its attorney except: (1) when the governmental body seeks the advice of its attorney about: (A) pending or contemplated litigation; or (B) a settlement offer; or (2) on a matter in which the duty of the attorney to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with this chapter.

Mr. Hansen adjourned the Board of Directors into Executive Session @ 6:31 pm., September 15, 2015
Mr. Hansen called the Executive Session to order at 6:32pm, September 15, 2015
Mr. Hansen adjourned out of executive session at 6:47pm, September 15, 2015
Mr. Hansen reconvened into open session at 6:48pm, September 15, 2015

ACTION ITEM #11- Action as a Result of Executive Session:
None

AGENDA ITEM #12- Public Comments:
Mr. DePauw commended the guests on the impact they have had on the community and the sincerity of economic growth to the community.

AGENDA ITEM #13- Board Comments:

Mr. Price implores everyone to stay focused on growing the community. With this being Mr. Morgans last meeting, he stated that he hopes this community and its leaders continue with the same focus that the founding fathers had of the EDC.

AGENDA ITEM # 14- Adjourn:
Mr. Morgan made a motion to adjourn, seconded by Mr. Price.
The motion passed 4 to 0 with all members present voting "aye" in favor of the motion.
Meeting adjourned at 6:51 pm on September 15, 2015

Mr. Terry Hansen, President

ATTEST:

Mrs. Nadine Reyes, Secretary/Treasurer