City Council Agenda
Regular Meeting via Audio/Video Broadcast
08/18/2020

Notice is hereby given in accordance with an order of the Office of the Governor issued March 16, 2020, of a Regular Meeting of the City Council of the City of San Angelo scheduled for August 18, 2020 at 8:30 a.m. The McNease Convention Center – South Meeting Room, 501 Rio Concho Drive, San Angelo, Texas will not be open to the public. Council members and staff will attend virtually in order to advance the public health goal of limiting face-to-face meetings (also called "social distancing") to slow the spread of the Coronavirus (COVID-19). There will be no public access to the regular meeting location. A public, free-of-charge audio/video broadcast of the meeting will be available on the City's YouTube channel at youtube.com/CityofSanAngelo.

The Meeting Agenda and the Agenda Packet are posted online at https://www.cosatx.us/government/city-council/agenda-minutes-and-agenda-packets.

Members of the public who wish to submit **Public Comment** on agenda items must send their written comments via email to Julia.Antilley@cosatx.us by noon August 17, 2020.

The subject must be in the following format: "Public Comment, [item number] – August 18, 2020."

All emails must include your name and address or SMD.

Please note all Public Comment emails relevant to posted agenda items received by the deadline will be published as part of the agenda packet prior to the meeting and are therefore public record.

Call 325-657-4405 for staff assistance.

Anyone who wishes to speak remotely during **statutorily mandated Public Hearing for items 7g and 7h** must send their request to Julia.Antilley@cosatx.us by noon August 17, 2020 to register as a speaker and obtain information regarding how to make public comment during the meeting.

A recording of the meeting will be available to the public in accordance with the Open Meetings Act upon written request.

1. **Call to Order/Roll Call to Establish Quorum**
2. **Chaplain Prayer**
3. **Special Instructions**

All members of the public, council, and staff should begin speaking by stating their full name and SMD/address, their SMD position, or role within the City.

4. **Public Comment**

At this time Council Members may ask staff members questions regarding Public Comments submitted via email.

5. **Consent Agenda**

   a. Consider approving the August 4, 2020 City Council regular meeting minutes (Julia Antilley)

   b. Consider a resolution approving the release of a 20-ft wide sanitary sewer easement, being 0.0596 acres within a Final Plat of Lot 9, Blk. 2 Carley Addition, Section One, located at 2310 N. Poe St. (Jon James)

   c. Consider awarding NFS-02-20 Animal Adoption Services to Concho Valley Paws in the amount of

$60,000, budgeted for purchase in fiscal year 2020 with the option to extend for four additional one year terms, and authorizing the City Manager to negotiate and execute all related documents (Morgan Chegwidden)

d. Consider a resolution appointing an Alternate Local Health Authority to carry out the duties set forth in the Texas Health and Human Safety Code in the absence of the Local Health Authority (Sandra Villarreal)

e. Consider a resolution authorizing the City Manager to apply for and accept a Homeland Security Grant (#3534002) for the purchase of four satellite phones and one generator (Jim Evans)

f. Consider a resolution to apply for and accept the Texas Office of the Governor Criminal Justice Division - Rifle-Resistant Body Armor Grant and authorizing the City Manager to execute all related documents (Frank Carter)

6. Closed Session

Executive Session under the provision of Government Code, Title 5. Open Government; Ethics, Subtitle A. Open Government, Chapter 551. Open Meetings, Subchapter D. Exceptions to Requirement that Meetings be Open under the following sections:

a. Section 551.071 Consultation with Attorney regarding:
   i. contract for ES-03-20 Chadbourne Street Improvements Project
   ii. contract for FD-01-20 EMS Billing & Receipts
   iii. Wisener Holdings, LLC, d/b/a South Plains Lamesa Railroad
   iv. Ford Ranch
   v. West Texas Water Partnership

b. Section 551.072 Deliberations about Real Property regarding:
   i. Wisener Holdings, LLC, d/b/a South Plains Lamesa Railroad

7. Regular Agenda

a. Consider items discussed in Closed Session, if needed

b. Consider ratifying a resolution approved by COSADC authorizing the negotiation and execution of a real estate sales contract with Wisener Holdings, LLC, d/b/a South Plains Lamesa Railroad and negotiation of a real estate development performance agreement for the development, marketing, and operation of an industrial rail transloading facility necessary for economic development (Presentation made by Economic Development Director Guy Andrews)

c. Consider awarding (contingent upon TxDOT concurrence) ES-03-20 Chadbourne Street Improvements Project - Phase A to TiZack Concrete, Inc. in the amount of $8,892,401.87 and authorizing the City Manager to negotiate and execute all related documents (Presentation made by City Engineer Lance Overstreet)

d. Update on the 2020 Census Complete Count (Presentation made by 2020 Census Partnership Specialist Misty Hill)

e. Consider accepting the recommendation of the San Angelo Airport Advisory Board to approve the final Airport Master Plan and 'Airport Layout Plan' developed by Centurion Planning and Design and authorizing the City Manager to negotiate and execute all related documents (Presentation made by Airport Director Jeremy Valgardson and Centurion Planning and Design)

f. Consider a resolution allowing the suspension of certain ordinance requirements regarding parking, right-of-way encroachments, and signage during the statewide issued disaster declaration related to the COVID-19 pandemic (Presentation made by Planning and Development Services Director Jon James)

g. First reading and public hearing of an ordinance providing for the abandonment of approximately 0.688 acres (60' x 500') of S. Marie St., being an unpaved, north-south portion of street right-of-way, located southeast of the intersection of S. Bell St. and Roosevelt St. (Presentation made by Planning & Development Services Director Jon James)

h. First public hearing and introduction of an ordinance amending the budget for the fiscal year beginning October 1, 2019, and ending September 30, 2020, for grants and capital projects (Presentation made by Finance Director Tina Dierschke)

8. Follow Up and Administrative Issues

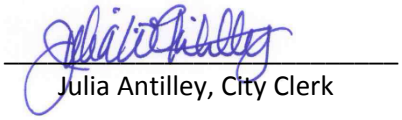
a. Discussion and consideration of September 2020 meeting schedule, potentially September 15th and 29th

b. Announcements and consideration of Future Agenda Items

9. Adjournment

CERTIFICATION

I hereby certify that the above notice of meeting was published on the City of San Angelo's website on the 13th day of August 2020, at 5:02 p.m.



Julia Antilley, City Clerk

All agenda items are subject to action. The City Council reserves the right to consider business out of posted order and/or meet in a closed session on any agenda item should the need arise and if applicable pursuant to authorization by Title 5, Chapter 551, of the Texas Government Code.

In compliance with the Americans with Disabilities Act, the City of San Angelo will provide for reasonable accommodations for persons attending City Council meetings. To better serve you, requests should be received 48 hours prior to the meetings. Please contact the City Clerk's Office at 325-657-4405.

Citizen requests to display materials on the city's monitors must submit the request 96 hours prior to the meeting by email to Julia.Antilley@cosatx.us. Time limits for discussion are as stated above and materials cannot exceed 10-pages. Citizens bringing materials for distribution to City Council members during the meeting must bring a minimum of 12 copies.

City Council regular meetings are broadcast on SATV Channel 17-Government Access at 10:30 a.m. and 7:00 p.m. every day, beginning the evening of the meeting until the evening of the next meeting.

City of San Angelo, Texas
Regular City Council Meeting via Audio/Video Broadcast
Tuesday, August 4, 2020

Present:

Mayor Brenda Gunter
Mayor Pro tem Harry Thomas, SMD 3
Council Member Tommy Hiebert, SMD 1
Council Member Tom Thompson, SMD 2
Council Member Lucy Gonzalez, SMD 4
Council Member Lane Carter, SMD 5
Council Member Billie DeWitt, SMD 6

1. Call to Order/Roll Call to Establish Quorum

With a quorum of the City Council Members present, Mayor Gunter called the regular session of the San Angelo City Council to order at 8:30 a.m. on Tuesday, August 4, 2020, via Zoom livestreamed to the City's YouTube channel at youtube.com/CityofSanAngelo.

2. Chaplain Prayer

San Angelo Police Department Chaplain Marcella Jenkins provided an invocation.

3. Special Instructions

Mayor Gunter read special instructions for the virtual meeting.

4. Public Comment

Mayor Gunter read a proclamation declaring August 3rd El Paso Strong Day.

Mayor Gunter gave an update on San Angelo's Covid-19 statistics.

5. Consent Agenda

a. Approval of the City Council July 21, 2020 regular meeting and July 28, 2020 budget workshop minutes (Julia Antilley)

b. Ratification of a one year Lease Agreement with options to extend for three additional one year terms, and an MOU with ASU Small Business Development Center for operation of the Business Factory program approved by the COSADC Board of Directors July 22, 2020 (Guy Andrews)

c. Award of FD-01-20 EMS Billing & Collection Services to Emergicon, LLC and authorization of the City Manager to negotiate and execute all related documents (Brian Dunn)

d. Award of the purchase of three Gridsmart Traffic Control Cameras to Texas Highway Products through Buyboard Contract #608-20 in the amount of $49,815, budgeted for purchase in fiscal year 2020, and authorization of the City Manager to negotiate and execute all related documents (Dusty Hohensee)

e. Approval of the rehabilitation of fourteen structures at Fort Concho in the amount of $619,352.56 with BasicIDIQ Inc. through BuyBoard Contract #520-16 and authorization of the City Manager to execute all related documents (Al Torres)

f. Adoption of a resolution authorizing the City Manager to negotiate and execute a Professional Services Agreement with the Texas Coalition of Affordable Power (TCAP) and a Commercial Services Agreement with GEXA Energy for power to be provided after January 1, 2023 (Nolan Sosa) **(Pg. 385, 2020-070)**

g. Approval of an amendment to the Concession Agreement between the City of San Angelo and San Angelo Host and authorization of the City Manager to negotiate and execute all related documents (Carl White)

DRAFT

h. Adoption of a resolution authorizing the City Manager to sign Texas Commission on Environmental Quality documents and meeting the signatory requirements in 30 Texas Administrative Code § 295.14 (Allison Strube) **(Pg. 386, 2020-071)**

i. Authorization of the City Manager to negotiate and execute a right-of-way license use agreement with Peaceful Office Properties, LLC, to allow for an awning and two wall lights to encroach into the public right-of-way located at 16 E. Beauregard Ave. (Jon James)

j. Second reading and adoption of an ordinance approving Case Z20-08, a rezoning from the Single-Family Residential zoning district to the Neighborhood Commercial zoning district, being 0.138 acres at the southwest corner of W. Ave. V and S. Bryant Blvd. (Jon James) **(Pg. 387, 2020-072)**

Motion: Council Member DeWitt made a motion, seconded by Council Member Carter, to approve the Consent Agenda, with the exception of items 5a, 5c, 5f, and 5g. The motion carried unanimously (7) ayes to (0) nays.

Mayor Gunter read an email from Alan Prest, SMD1, requesting a change to the July 21, 2020 minutes.

Motion: Council Member Carter made a motion, seconded by Council Member Thompson, to approve item 5a, with the revision to the Public Comment section of the minutes to state, "Mayor Gunter read a public comment from Alan Prest, SMD1, requesting public health officials present to City Council on COVID-19." The motion carried unanimously (7) ayes to (0) nays.

Mayor Gunter read a public comment from Tom McDonald, President of Business and Professional Services, regarding the award of billing and collection services to a new vendor with lower fees.

[Mayor Gunter requested an Executive Session item be added to the August 18th agenda to discuss specific details regarding FD-01-20 EMS Billing and Collections.]

Motion: Council Member DeWitt made a motion, seconded by Council Member Hiebert, to approve item 5c, authorizing contract negotiations with Emergicon, LLC, as presented by Fire Chief Brian Dunn. The motion carried unanimously (7) ayes to (0) nays.

Motion: Council Member DeWitt made a motion, seconded by Council Member Gonzales, to approve item 5f, as presented by Purchasing Manager Nolan Sosa. The motion carried unanimously (7) ayes to (0) nays.

Motion: Council Member Thomas made a motion, seconded by Council Member DeWitt, to approve item 5g, as presented by Parks and Recreation Director Carl White. The motion carried unanimously (7) ayes to (0) nays.

6. Regular Agenda

a. Approval of an amendment to the Infill Incentive Program to include relocation of decent and structurally sound existing homes to neighborhoods targeted for revitalization (Presentation made by Neighborhood and Family Services Director Bob Salas and Ms. A'Lisa Denny)

Motion: Council Member Hiebert made a motion, seconded by Council Member Thomas, to approve the item, as presented. The motion carried unanimously (7) ayes to (0) nays.

b. Award of ES-07-20 Friction Seal for Pavement Preservation to Pavement Restoration, Inc. in the amount of $679,805, budgeted in fiscal year 2020 and authorization of the City Manager to negotiate and execute all related documents (Presentation made by City Engineer Lance Overstreet)

Motion: Council Member Hiebert made a motion, seconded by Council Member Carter, to approve the item, as presented. The motion carried unanimously (7) ayes to (0) nays.

DRAFT

c. Discussion and consideration of revising the ordinance governing hours for house to house door knocking under the Itinerant Merchant permit (Presentation made by City Attorney Theresa James)

Consensus: Direction was given to review the Code of Ordinances and to recommend modifications to the Code setting parameters for acceptable hours for house to house solicitation in compliance with prior court rulings regarding First Amendments rights.

d. Consideration of a resolution allowing the suspension of certain ordinance requirements regarding parking, right-of-way encroachments, and signage during the statewide issued disaster declaration related to the COVID-19 pandemic (Presentation by Planning and Development Services Director Jon James)

Consensus: Direction was given to revise the resolution as discussed and postpone the item until the August 18th agenda.

7. Follow Up and Administrative Issues

a. Announcements and consideration of Future Agenda Items

Council Member DeWitt requested a future agenda item updating citizens on Suddenlink issues and resolution in San Angelo.

City Manager Daniel Valenzuela suggested inviting Suddenlink's VP to a future meeting via Zoom with prepared questions for discussion and a plan/timeline for improvements.

City Attorney Theresa James announced she is working with others in West Texas on a solution that would allow individual citizens possible redress.

Mayor Gunter requested an update regarding San Angelo's plan for Census 2020.

Council Member Thompson requested a discussion of fall/winter seating capacity for ticketed city/county events.

8. Adjournment

Motion: Council Member Hiebert made a motion, seconded by Council Member Thompson, to adjourn the meeting. The motion carried unanimously (7) ayes to (0) nays.

There being no further business, the meeting adjourned at 10:35 a.m.

THE CITY OF SAN ANGELO, TEXAS:

_____

ATTEST: Brenda Gunter, Mayor

_____

Julia Antilley, City Clerk

In accordance with Chapter 2, Article 2.300, of the Official Code of the City of San Angelo, the minutes of this meeting consist of the preceding Minute Record and the Supplemental Minute Record. Details on Council meetings may be obtained from the City Clerk's Office or a video of the entire meeting may be purchased from the Public Information Officer at 481-2727. (Portions of the Supplemental Minute Record video tape recording may be distorted due to equipment malfunction or other uncontrollable factors.)

DRAFT

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Sherry Bailey, Sr. Planner, Planning and Development Services,

Meeting Date: August 18, 2020

Item type: Consent Item

Caption:

Consider a resolution approving the release of a 20-ft wide sanitary sewer easement, being 0.0596 acres within a Final Plat of Lot 9, Blk. 2 Carley Addition, Section One, located at 2310 N. Poe St. (Jon James)

Summary/History:

The original plat, approve in May of 1976, had a 20 foot sewer easement that ran for 130 feet along the south side of Lot 9 from N. Poe Street to the alley. The sewer was removed by the City when a new sewer main line was laid in the alley. The owner of this lot would like to build a home on the lot and use some of the vacant easement area for the placement of his home.

Financial Impact:

N/A

Other Information/Recommendation:

Both the Engineering and Planning Divisions have reviewed the request and recommend approval of the applicants request.

Attachments:

1.	Resolution	Resolution (1).docx
2.	Easement Release 2310 N Poe St - Staff Report	Easement Release 2310 N Poe St.docx

Presentation:

Jon James

Approvals/Reviews:

Sherry Bailey	Created/Initiated
Hillary Bueker	Approved
Jon James	Approved
Brandon Dyson	Approved
Jon James	Approved
Theresa James	Approved
Julia Antilley	Final Approval

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF SAN ANGELO, TEXAS, ABANDONING, VACATING AND RELEASING A 20-FOOT WIDE BY 130 FOOT LONG SANITARY SEWER EASEMENT TOTALING 0.0597 +/- ACRES, LOCATED AT LOT 9, BLOCK 2, CARLEY ADDITION, SECTION ONE; AUTHORIZING THE MAYOR TO EXECUTE A RELEASE OF EASEMENT AND RELATED DOCUMENTS IN A FORM APPROVED BY THE CITY ATTORNEY'S OFFICE; AND, AUTHORIZING RECORDING OF THE RELEASE.

WHEREAS, on May 26, 1976, a final plat of Carley Addition, Section One, City of San Angelo, Tom Green County, Texas was recorded as Instrument No. 93719, Plat Records of Tom Green County, Texas (the "Plat"); and,

WHEREAS, said Plat created a 20 foot wide by 130 foot long "Sanitary Sewer Easement" adjacent to the southern boundary line of Lot 9, Block 2, Carley Addition, Section 1, Tom Green County, Texas, being 0.0597 +/- acres (hereinafter the Property); and,

WHEREAS, Jose A. Ortiz Santiago the owner of the Property has requested abandonment of the described Sanitary Sewer Easement for purposes of constructing a house on Lot 9; and

WHEREAS, the City has abandoned the sewer line formerly located in the easement Property and located a new sewer main in the alley right-of-way running north/south along the easterly boundary line of Block 2 to service future residential development; and,

WHEREAS, the City Council finds that the Sanitary Sewer Easement proposed to be released is no longer needed for any identifiable public purpose now or in the foreseeable future, and that it is in the public interest to abandon, vacate and release said portion of the Sanitary Sewer Easement;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF SAN ANGELO, TEXAS, THAT:

(a) The City Council of the City of San Angelo, Texas, hereby abandons, vacates and releases the Sanitary Sewer Easement, being a 20 foot wide by 130 foot long "Sanitary Sewer Easement" adjacent to the southern boundary line of Lot 9, Block 2, Carley Addition, Section 1, recorded as Instrument No. 93719, Plat Records of Tom Green County, Texas, containing 0.0597 +/- acres of land, as described and depicted on **Exhibit "A",** attached hereto.

(b) The Mayor of the City of San Angelo is hereby authorized and directed to execute and deliver a release of easement in a form approved by the City Attorney's Office officially abandoning, vacating and releasing the Sanitary Sewer Easement described at subparagraph (a) above and depicted on **Exhibit "A"**, insofar as the right, title and easement of the public are concerned, the recording of which is hereby authorized.

ADOPTED on this the 18th day of August, 2020.

THE CITY OF SAN ANGELO, TEXAS

_____
Brenda Gunter, Mayor

ATTEST:

_____
Julia Antilley, City Clerk

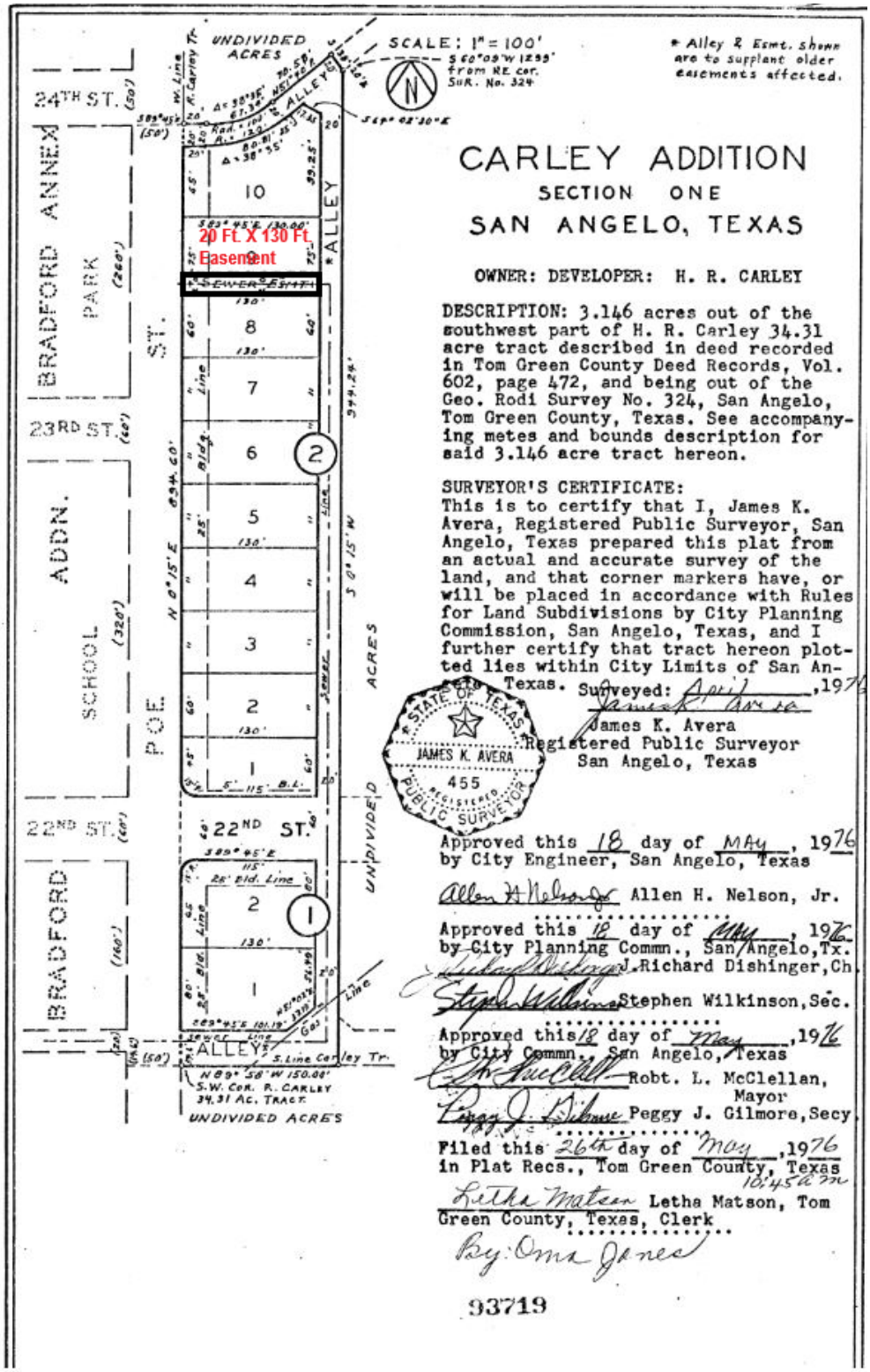
APPROVED AS TO CONTENT:

_____
Jon James, AICP, Director of
Planning and Development Services

APPROVED AS TO FORM:

_____
Theresa James,
City Attorney

Exhibit "A",


UNDIVIDED ACRES
SCALE: 1" = 100'
S 60°09' W 1299' from NE cor. SUR. No. 324
* Alley & Esmt. Shown are to supplant older easements affected.
24TH ST.
BRADFORD ANNEX
PARK
23RD ST.
ADDN.
SCHOOL
22ND ST.
BRADFORD
ALLEY
20 Ft. X 130 Ft. Easement
SEWER ESMT.
10
9
8
7
6
5
4
3
2
1
P.O.E.
UNDIVIDED ACRES
N 89° 58' W 150.00'
S.W. COR. R. CARLEY 34.31 AC. TRACT
S. Line Carley Tr.
CARLEY ADDITION
SECTION ONE
SAN ANGELO, TEXAS
OWNER: DEVELOPER: H. R. CARLEY
DESCRIPTION: 3.146 acres out of the southwest part of H. R. Carley 34.31 acre tract described in deed recorded in Tom Green County Deed Records, Vol. 602, page 472, and being out of the Geo. Rodi Survey No. 324, San Angelo, Tom Green County, Texas. See accompanying metes and bounds description for said 3.146 acre tract hereon.
SURVEYOR'S CERTIFICATE:
This is to certify that I, James K. Avera, Registered Public Surveyor, San Angelo, Texas prepared this plat from an actual and accurate survey of the land, and that corner markers have, or will be placed in accordance with Rules for Land Subdivisions by City Planning Commission, San Angelo, Texas, and I further certify that tract hereon plotted lies within City Limits of San Angelo Texas. Surveyed: April, 1976
James K. Avera
Registered Public Surveyor
San Angelo, Texas
STATE OF TEXAS
JAMES K. AVERA
455
REGISTERED PUBLIC SURVEYOR
Approved this 18 day of MAY, 1976 by City Engineer, San Angelo, Texas
Allen H. Nelson, Jr.
Approved this 18 day of May, 1976 by City Planning Commn., San Angelo, Tx.
J. Richard Dishinger, Ch.
Stephen Wilkinson, Sec.
Approved this 18 day of May, 1976 by City Commn., San Angelo, Texas
Robt. L. McClellan, Mayor
Peggy J. Gilmore, Secy.
Filed this 26th day of May, 1976 in Plat Recs., Tom Green County, Texas 10:45 a.m.
Letha Matson, Tom Green County, Texas, Clerk
By: Oma Jones
93719

CITY COUNCIL – August 18, 2020
STAFF REPORT

APPLICATION TYPE:	CASE:
Easement Release	Easement Release: (Lot 9, Block 2, Carley Addition, Sec. One)

SYNOPSIS:

The applicant has requested release of twenty foot wide sanitary sewer easement that was recorded as part of Carley Addition, Section One, Block 2, Lot 9. Engineering Services has no objections to the release as the easement which was originally intended for a sewer main that was connected to the alley extension and removed from this lot. Releasing this easement will facilitate construction of a home for the applicant with ample room on the lot to build the home size he wants with ample side setbacks. In 1976 when this area was platted the sewer main passed through this lot to the alley main. Eventually, the E 24th St. sewer main extended into the alley and picked up Lot 9 resulting in the sewer main in the Lot 9 easement being removed.

LOCATION:	LEGAL DESCRIPTION:		
2310 N Poe Street	Lot 9, Block 2 Carley Addition, Section One		
SM DISTRICT / NEIGHBORHOOD:	**ZONING:**	**FUTURE LAND USE:**	**SIZE:**
SMD District #4 – Lucy Gonzales Paulann Neighborhood	Single Family Residence (RS-1)	Neighborhood	0.0596

THOROUGHFARE PLAN:

Poe Street – Urban Local Street, 50' ROW required (50' Existing), 36' with a 4' sidewalk or 40' pavement required (36' Existing)

NOTIFICATIONS:

N/A

STAFF RECOMMENDATION:

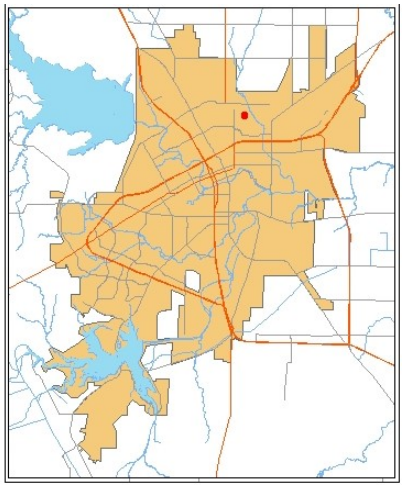
Staff recommends **APPROVAL** of the Easement Release

PROPERTY OWNER/PETITIONER:

Jose A. Ortiz Santiago

STAFF CONTACT:

Sherry Bailey
Principal Planner
(325) 657-4210, Extension 1546
sherry.bailey@cosatx.us



Recommendation:

Staff's recommendation is for City Council to **APPROVE** the proposed Easement Release a twenty foot wide Sanitary Sewer Easements that were recorded as part of the Lot 9, Block 2, Carley Addition, Section One.

Attachments:

Aerial Map
Future Land Use Map
Zoning Map
Location of Easement on Original Replat

Location Map Sewer Easement Release

2310 N. Poe Street

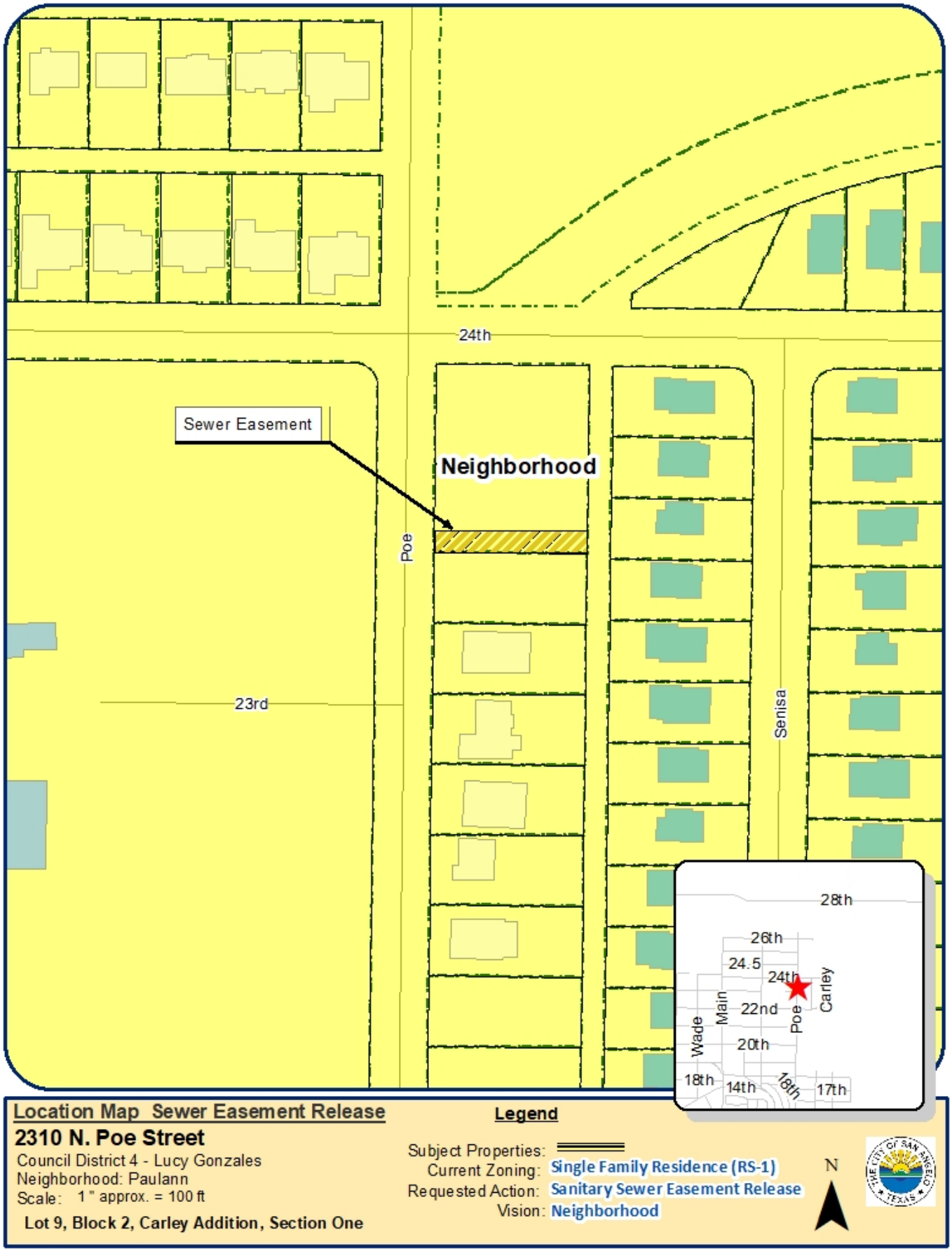
Council District 4 - Lucy Gonzales
Neighborhood: Paulann
Scale: 1 " approx. = 100 ft

Lot 9, Block 2, Carley Addition, Section One

Legend

Subject Properties:
Current Zoning: Single Family Residence (RS-1)
Requested Action: Sanitary Sewer Easement Release
Vision: Neighborhood

N


24th
Sewer Easement
Neighborhood
Poe
23rd
Senisa
28th
26th
24.5
24th
Carley
Main
22nd
Poe
Wade
20th
18th
14th
18th
17th
Location Map Sewer Easement Release
2310 N. Poe Street
Council District 4 - Lucy Gonzales
Neighborhood: Paulann
Scale: 1 " approx. = 100 ft
Lot 9, Block 2, Carley Addition, Section One
Legend
Subject Properties:
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Requested Action: Sanitary Sewer Easement Release
Vision: Neighborhood
N

24th
Sewer Easement
Poe
Senisa
Single Family
Residential
(RS-1)
23rd
28th
26th
24.5
24th
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Vision: Neighborhood
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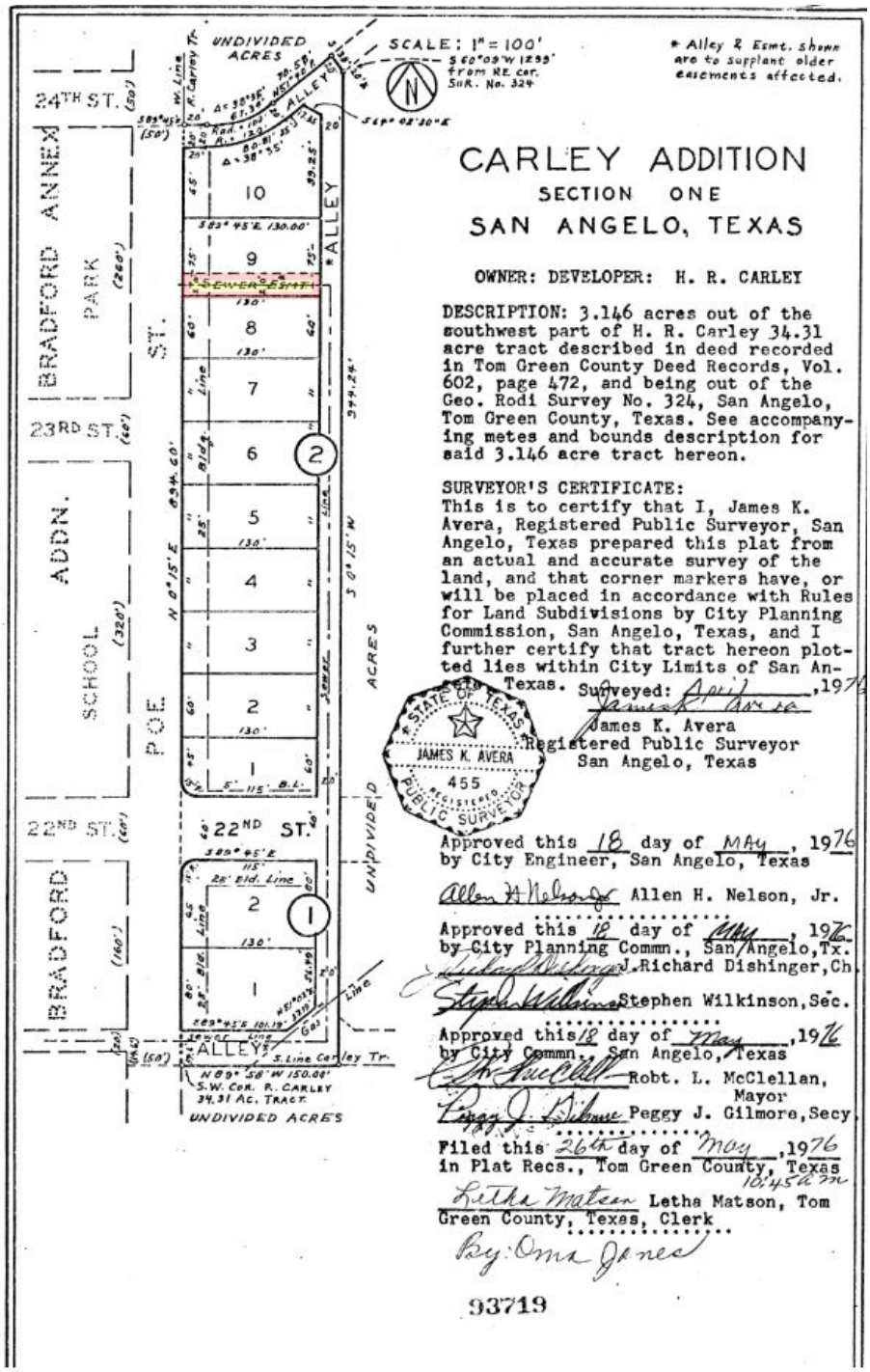
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SURVEYOR'S CERTIFICATE:
This is to certify that I, James K. Avera, Registered Public Surveyor, San Angelo, Texas prepared this plat from an actual and accurate survey of the land, and that corner markers have, or will be placed in accordance with Rules for Land Subdivisions by City Planning Commission, San Angelo, Texas, and I further certify that tract hereon plotted lies within City Limits of San Angelo, Texas. Surveyed: April, 1976
James K. Avera
Registered Public Surveyor
San Angelo, Texas
STATE OF TEXAS
JAMES K. AVERA
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Letha Matson, Tom Green County, Texas, Clerk
By: Oma Jones
93719
24TH ST.
23RD ST.
22ND ST.
BRADFORD ANNEX
BRADFORD ADDN.
PARK
SCHOOL
POE ST.
ALLEY
UNDIVIDED ACRES
S. Line Carley Tr.
N 89° 58' W 150.00'
S.W. Cor. H. CARLEY 34.31 Ac. TRACT
UNDIVIDED ACRES

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Morgan Chegwidden, Assistant Director of Neighborhood Services, Neighborhood and Family Services, 325-657-4224

Meeting Date: August 18, 2020

Item type: Consent Item

Caption:

Consider awarding NFS-02-20 Animal Adoption Services to Concho Valley Paws in the amount of $60,000, budgeted for purchase in fiscal year 2020 with the option to extend for four additional one year terms, and authorizing the City Manager to negotiate and execute all related documents (Morgan Chegwidden)

Summary/History:

In 2018 the City of San Angelo continued a public-private partnership to share the workload of combating San Angelo's unwanted pet issues. Assigning animal adoptions and transfers/transports to an animal welfare organization frees up city staff and tax dollars to address our core functions and creates efficiencies by capitalizing on the welfare organization's core function.

In April 2019, the City of San Angelo adopted the American Pets Alive! methodology as the means to achieve 90% of animals released via redemption by owner, adoption or some other live release. After one year of implementing this model, we identified several limitations in the animal adoption contract with Concho Valley PAWS that are hindering our progress.

Although there are options to renew the 2018 agreement, we need to open a new request for proposal to allow for changes in the scope of services. Changes include:

- Assigning the spay/neuter and rabies vaccine expense of adopted pets to the selected vendor;
- Allowing the selected vendor to set and collect their own adoption fees;
- Opening the hours of operation to be set by the selected vendor; and
- Hosting counseling appointments for owned pets jointly by both the selected vendor and city staff.

Other services such as large scale transports, foster programs and emergency medical support will continue unchanged from prior contracts.

Financial Impact:

The contract fee for each year is as follows:

- $60,000.00 Year 1 - present to 9/30/21
- $69,556.00 Year 2 - 10/1/21 to 9/30/22
- $71,643.00 Year 3 - 10/1/22 to 9/30/23
- $73,792.00 Year 4 - 10/1/23 to 9/30/24
- $76,006.00 Year 5 - 10/1/24 to 9/30/25

Year 1 of the agreement is unchanged from last year and is within the animal services' existing operating budget. Subsequent increases will be funded from General Fund marginal revenue during budget preparation.

Other Information/Recommendation:

Staff requests that Council authorize City Manager to negotiate and execute a contract with Concho Valley PAWS to host adoption and associated services pursuant to the requirements of RFP NFS-02-20.

Attachments:

1.	NFS-02-20 Acknowledgement Worksheet	NFS-02-20 Acknowledgement Worksheets.pdf
2.	NFS-02-20 Committee Ranking Summary	NFS-02-20 Committee Ranking Summary.pdf

Presentation:

Approvals/Reviews:

Morgan Chegwidden	Created/Initiated
Theresa James	Approved
Nolan Sosa	Approved
Tina Dierschke	Approved
Theresa James	Approved
Julia Antilley	Final Approval

City of San Angelo

RFP Acknowledgement

NFS-02-20 Animal Adoption

May 12, 2020 at 2 p.m.

Proposals Received	
1	Concho Valley Paws

Sent To	
1	Concho Valley PAWS
2	Cassie's Place
3	Critter Shack
4	New Beginnings

Ranking Worksheet
RFP Acknowledgement

Committee Member: 1		Concho Valley Paws
Category	**Max Pts**	
Submission Evaluation	100	74
Total Score	**100**	**74.00**

Committee Member: 2		Concho Valley Paws
Category	**Points**	
Submission Evaluation	100	100
Total Score	**100**	**100.00**

Committee Member: 3		Concho Valley Paws
Category	**Points**	
Submission Evaluation	100	96
Total Score	**100**	**96.00**

Committee Member:		Concho Valley Paws
Category	**Points**	
Submission Evaluation	100	
Total Score	**100**	**0.00**

Committee Member:		Concho Valley Paws
Category	**Points**	
Submission Evaluation	100	
Total Score	**100**	**0.00**

Committee Member Summary	Total Points	Concho Valley Paws
Category		
Submission Evaluation	500	270.00
Total Score	**500**	**270.00**
Ranking		1

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Sandra Villarreal, Director of Health, Health Services, 325.657.4493

Meeting Date: August 18, 2020

Item type: Consent Item

Caption:

Consider a resolution appointing an Alternate Local Health Authority to carry out the duties set forth in the Texas Health and Human Safety Code in the absence of the Local Health Authority (Sandra Villarreal)

Summary/History:

The Local Health Authority, in accordance with Texas Health and Safety Code 121.021, is a physician appointed to administer state and local laws relating to public health within the appointing body's jurisdiction.

Under Texas Health and Safety Code 121.024, the Health Authority shall perform each duty necessary to implement and enforce a law to protect the public health or prescribed by the Department of State Health Services. Duties include 1) establishing, maintaining, and enforcing quarantine in the jurisdiction; 2) aiding DSHS in relation to local quarantine, inspection, disease prevention and suppression, birth and death statistics, and general sanitation; reporting the presence of contagious, infectious, and dangerous epidemic diseases; 4) reporting on any subject on which it is proper for DSHS to direct that a report be made; and 5) aiding DSHS in the enforcement of proper rules, requirements, and ordinances; sanitation laws; quarantine rules; and vital statistics collections.

At times, it is necessary for Dr. James Vretis, the Local Health Authority, to be away for an extended amount of time; and therefore, is critical to have an alternate appointed and ready to step in during that extended absence.

Financial Impact:

No additional funding needed; propose to pay both physicians from same funding based on which one is carrying out prescribed duties during a particular time frame.

Other Information/Recommendation:

Attachments:

1. Resolution - Appt of delegates for LHA — Appointment of delegates for LHA.docx

Presentation:

Approvals/Reviews:

Sandra Villarreal	Created/Initiated
Sandra Villarreal	Approved
Rick Weise	Approved
Theresa James	Approved

Nolan Sosa	Approved
Tina Dierschke	Approved
Theresa James	Approved
Julia Antilley	Final Approval

A RESOLUTION OF THE CITY OF SAN ANGELO, TEXAS, APPROVING THE APPOINTMENT OF DR. EMILY BARKANIC AND DR. KIMREY DANIEL AS ALTERNATE PHYSICIANS TO FILL ANY ABSENCE OF DR. JAMES G VRETIS, DO, AS THE CITY HEALTH AUTHORITY AND AUTHORIZING THE CITY MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT FOR SUCH SERVICES.

WHEREAS, The City Health Director has appointed Dr. James G Vretis, DO, as the City's Health Authority pursuant to Section 121.033 of the Texas Health and Safety Code and Section 2.06.211 of the Code of Ordinances of the City of San Angelo; and,

WHEREAS, appointment of the Health Authority for the City is subject to approval of City Council; and,

WHEREAS, under Section 121.029 of the Texas Health and Safety Code, Dr. Vretis, as Local Health Authority, may delegate a power or duty imposed on the health authority to a properly qualified physician to act while the he is absent or incapacitated; and

WHEREAS, in the event Dr. Vretis is absent or incapacitated he desires to delegate his authority and duties to Dr. Emily Barkanic, MD; and

WHEREAS, in the event Dr. Barkanic, MD is absent or incapacitated, Dr. Vretis would delegate his authority and duties to Dr. Kimrey Daniel, MD; and

WHEREAS the duties of the municipal Health Authority and delegates are set forth in the Texas Health and Safety Code and shall be performed pursuant to a Professional Services Agreement between the City and the appointed Health Authority;

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SAN ANGELO THAT:

Section 1. The City of San Angelo City Council hereby approves the delegations of authority of Dr. James G. Vretis, DO, as the Health Authority to Dr. Emily Barkanic, MD and in the event of her absence or incapacitation to Dr. Kimrey Daniel, MD.

Section 2. The delegation shall remain in effect during the duration of the appointment of Dr. Vretis or until such time Dr. Vretis or Council takes action to remove a delegate from their position.

Section 3. The City Manager is authorized to execute a Professional Services Agreements with Dr.

Emily Barkanic, MD and Dr. Kimrey Daniel, MD, for services as the delegates of the Health Authority for the City of San Angelo.

Section 4. That the services of Dr. Barkanic and Dr. Daniel shall be paid from the funds allocated to the contract for services performed by Dr. Vretis on a per day basis.

Section 5. That Dr. Vretis is hereby required to adopt procedures for the service of the designees as health authority to prevent duplication of authority between the health authority and the designee and to provide notice to the department when authority is transferred.

APPROVED AND ADOPTED ON THE 18th DAY OF August, 2020.

THE CITY OF SAN ANGELO

Attest:

Brenda Gunter, Mayor

Julia Antilley, City Clerk

Approved As to Content:

Approved As to Form:

Sandra Villarreal, Health Director

Theresa James, City Attorney

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Jim Evans, Emergency Management Coordinator, Emergency Management, 325-657-4230

Meeting Date: August 18, 2020

Item type: Consent Item

Caption:

Consider a resolution authorizing the City Manager to apply for and accept a Homeland Security Grant (#3534002) for the purchase of four satellite phones and one generator (Jim Evans)

Summary/History:

Consider resolution authorizing the city manager to purchase 4 satellite phones and generator under the Homeland Security Grant #3534002. There is no match for this grant and the grant has a $10,000 threshold. The items to be purchased will allow the satellite system purchase last year to be mobile and expand the communication capabilities of this equipment.

Financial Impact:

There is no match required for this grant. There is a $10,000 threshold on the equipment and it has been budgeted in the FY20/21 budget for Emergency Management.

Other Information/Recommendation:

Attachments:

1. Resolution Satellite phones grant — Resolution Satellite phones grant.docx

Presentation:

Approvals/Reviews:

Jim Evans	Created/Initiated
Theresa James	Approved
Nolan Sosa	Approved
Tina Dierschke	Approved
Theresa James	Approved
Julia Antilley	Final Approval

RESOLUTION NO. _____

RESOLUTION OF THE CITY OF SAN ANGELO, TEXAS AUTHORIZING APPLICATION FOR THE HOMELAND SECURITY GRANT PROGRAM FOR THE PURCHASE OF SATELLITE PHONES.

WHEREAS, The City of San Angelo City Council finds it in the best interest of the citizens of San Angelo and Tom Green County that the Office of Emergency Management apply for Homeland Security Grant (HSG) program funds to purchase satellite phones during the 2020/2021 program year; and

WHEREAS, the City of San Angelo City Council agrees to provide applicable matching funds, if any, as required by the HSG program application; and

WHEREAS, the City of San Angelo City Council agrees that in the event of loss or misuse of the HSG program funds, the funds will be returned to the HSG program in full.

WHEREAS, the City of San Angelo City Council designates the San Angelo City Manager as the grantee's authorized official. The authorized official is given the power to apply for, accept, reject, alter or terminate the grant on behalf of the applicant agency.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SAN ANGELO, TEXAS:

That the City Council approves submission of the Homeland Security Grant Program application for the purchase of satellite phones and authorizes the City Manager execute all documents necessary to apply for, accept, reject, alter or terminate the grant.

PASSED AND APPROVED this 18th day of August, 2020.

_____
MAYOR BRENDA GUNTER

ATTEST:

_____
JULIA ANTILLEY, CITY CLERK

APPROVED AS TO FORM:

_____
THERESA JAMES, CITY ATTORNEY

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Gail Smith, Budget Analyst, Police,

Meeting Date: August 18, 2020

Item type: Consent Item

Caption:

Consider a resolution to apply for and accept the Texas Office of the Governor Criminal Justice Division - Rifle-Resistant Body Armor Grant and authorizing the City Manager to execute all related documents (Frank Carter)

Summary/History:

The Rifle-Resistant Body Armor Grant FY2021 is a grant administered by the Office of the Governor for the specific purpose of supplying peace officers with rifle-resistant body armor. The Rifle-Resistant Body Armor Grant addresses specifically the threats involving military-grade rifles and ammunition. The rounds for AR-15 and AK-47 rifles travel at a higher velocity than hand-gun rounds and standard bullet proof vests will not deflect rifle rounds. Our request is for (3) additional vests to be utilized by the SWAT team. The total of the grant funds is $32,041.44. The grant period is from 9/1/2020-8/31/2021.

Financial Impact:

There is no local matching requirement.

Other Information/Recommendation:

Attachments:

1.	Homeland Security Grant Application _3949701	Homeland Security Grant Application _3949701.pdf
2.	Homeland Security_Grant#3949701_Award Statement	Homeland Security_Grant#3949701_Award Statement.pdf
3.	Resolution Body Armor	Resolution Body Armor.docx

Presentation:

none

Approvals/Reviews:

Gail Smith	Created/Initiated
Frank Carter	Approved
Theresa James	Approved
Nolan Sosa	Approved
Tina Dierschke	Approved
David Howard	Approved
Theresa James	Approved
Julia Antilley	Final Approval

Print This Page

Agency Name: San Angelo, City of
Grant/App: 3949701 **Start Date:** 10/1/2020 **End Date:** 9/30/2021

Project Title: SWAT Night Vision & Infrared
Status: Pending OOG Review

Project Activities Information

HSGP Instructions for Project Activity Selection

Homeland Security Grant Program (HSGP) applicants should only select one project activity. The eGrants system will allow multiple selections, but each HSGP subrecipient project must fit into one and only one of the Investment Categories that are listed as project activities under the "Activity List".

Selected Project Activities:

ACTIVITY	PERCENTAGE:	DESCRIPTION
Protection of Soft Targets/Crowded Places	100.00	Purchase (10) ea night-vision green phosphor monucular units and train with equipment. The night vision equipment is US Night Vision USNV-PVS-14 w/Elbit Systems Gen3 Auto-gated green phophor image tube and includes unit, headmount, transfer arm, demist shield, sacrificial window, brow pads, military soft case, eye cup, daylight filter, and lanyard. Also to be purchased are (10) each Norotos Rhino Arm, 3-way Adjustable articulating helmet mount. The SAPD SWAT unit will be issued this equipment for night vision surveillance and apprehension.

You are logged in as **User Name**: smith_sanangelo

Program Income
Applicant agrees to comply with all federal and state rules and regulations for program income and agrees to report all program income that is generated as a result of the project's activities. Applicant agrees to report program income through a formal grant adjustment and to secure PSO approval prior to use of the program income. Applicant agrees to use program income for allowable costs and agrees to expend program income immediately after PSO's approval of a grant adjustment and prior to requesting reimbursement of funds.

Deduction Method - Program income shall be deducted from total allowable costs to determine the net allowable costs. Program income shall be used for current costs unless PSO authorizes otherwise. Program income which the grantee did not anticipate at the time of the award shall be used to reduce the PSO award and grantee match rather than to increase the funds committed to the project.

Asset Seizures and Forfeitures - Program income from asset seizures and forfeitures is considered earned when the property has been adjudicated to the benefit of the plaintiff (e.g., law enforcement entity).

Building and Sustaining Core Capabilities

1. All capabilities being built or sustained must have a clear link to one or more Core Capabilities in the National Preparedness Goal.
2. Many capabilities which support terrorism preparedness simultaneously support preparedness for other hazards. Grantees must demonstrate this dual-use quality for any activities implemented under this program that are not explicitly focused on terrorism preparedness. Activities implemented under SHSP must support terrorism preparedness by building or sustaining capabilities that relate to the prevention of, protection from, mitigation of, response to, and recovery from terrorism.
3. Funding should be used to sustain core capabilities. New capabilities should not be built at the expense of maintaining current and critically needed core capabilities. New capabilities must be aligned with capability targets and gaps identified through the THIRA/SPR process.

Mission Areas
The National Preparedness Goal organizes the core capabilities into the five mission areas:

- Prevention. Prevent, avoid or stop an imminent, threatened or actual act of terrorism.
- Protection. Protect our citizens, residents, visitors, and assets against the greatest threats and hazards in a manner that allows our interests, aspirations, and way of life to thrive.
- Mitigation. Reduce the loss of life and property by lessening the impact of future disasters.
- Response. Respond quickly to save lives, protect property and the environment, and meet basic human needs in the aftermath of a catastrophic incident.
- Recovery. Recover through a focus on the timely restoration, strengthening and revitalization of infrastructure, housing and a sustainable economy, as well as the health, social, cultural, historic and environmental fabric of communities affected by a catastrophic incident.

Nationwide Cyber Security Review
Grantees will be required to complete the Nationwide Cybersecurity Review (NCSR), enabling agencies to benchmark and measure progress of improving their cybersecurity posture. The Chief Information Officer (CIO), Chief Information Security Officer (CISO), or equivalent for each recipient agency should complete the NCSR. If there is no CIO or CISO, the most senior cybersecurity professional should complete the assessment. The NCSR is available at no cost to the user and takes approximately 2-3 hours to complete. For more information about the NCSR, visit: https://www.cisecurity.org/ms-isac/services/ncsr/.

LETPA

Law Enforcement Terrorism Prevention Activities (LETPA)
The state is responsible for ensuring that at least 25 percent (25%) of the combined HSGP funds allocated under SHSP and UASI are dedicated towards law enforcement terrorism prevention activities, as defined in 6 U.S.C. 607.

Grant projects must be consistent with the Federal Emergency Management Agency (FEMA) Information Bulletin (IB) 412 which discusses eligible activities outlined in:

a. The National Prevention Framework;
b. The National Protection Framework where capabilities are shared with the prevention mission area;
c. Section 2006 of the Homeland Security Act of 2002, as amended; and
d. The FY 2007 Homeland Security Grant Program Guidance and Application Kit.

Activities eligible for use of LETPA focused funds include but are not limited to: Maturation and enhancement of designated state and major Urban Area fusion centers, including information sharing and analysis, threat recognition, terrorist interdiction, and training/hiring of intelligence analysts. Coordination between fusion centers and other analytical and investigative efforts. Implementation and maintenance of the Nationwide Suspicious Activity Reporting (SAR) Initiative. Implementation of the "If You See Something, Say Something" campaign to raise public awareness of indicators of terrorism and terrorism-related crime and associated efforts to increase the sharing of information with public and private sector partners. Increased physical security, through law enforcement personnel and other protective measures, by implementing preventative and protective measures at critical infrastructure sites or at-risk nonprofit organizations.

Overall Certification

Each applicant agency must certify to the specific requirements detailed above as well as to comply with all requirements within the PSO Funding Announcement, the *Guide to Grants*, the *Grantee Conditions and Responsibilities*, any authorizing or applicable state and federal statutes and regulations to be eligible for this program.
X I certify to all of the application content and requirements.

Project Summary :
Briefly summarize the project, including proposed activities and intended impact.
The San Angelo Police Department is requesting (10) US Night Vision AN/PVS-14A GEN III ZS Auto-Gated Green Phosphorous night vision monocular units with helmet mount, filters, brow pads, eye cup, and soft case. Search and seizure as well as surveillance at night can best be accomplished using night vision technology. The SWAT team can use night vision to assess the perimeter and monitor suspect movements in low light and complete darkness. The tactical advantage gained can be the difference between life or serious injury or death for officers working heightened risk situations such as fugitive apprehension, hostage situations, and domestic terrorists. The budget for the equipment is $29,242. Any additional funds needed in excess of awarded funds will come from SAPD regular operating budget. Monocular

units have been chosen for their versatility and to retain some peripheral vision. Night vision binoculars and monocular units both have a 40degree field of vision. Using monocular units allows the officer to retain peripheral vision on one side. Since night vision implements have no magnification ability, the IR (infrared) illuminator accessory has been added to these units for magnification creating active versus passive night vision use. The San Angelo Police Department will purchase the requested items immediately upon notification of the award. The items requested to be purchased fall below the $50,000 formal bid threshold and will be purchased following city purchasing policy. Specific Project Identifiers: Interdiction & Disruption o Sustaining and enhancing SWAT tactical team o Sustaining and enhancing efforts to delay, divert, intercept, halt, apprehend, or secure threats or hazards.

oblem Statement :
ovide a detailed account of the issues, threats or hazards that your project will target. For federal Homeland Security Grants, include specific references to the regional or state *Threat and Hazard Identification and Risk Assessment (THIRA)*, as applicable.
The SAPD needs the capability to employ nighttime surveillance in high crime areas and in hostage situations. In a hostage situation with an armed combatant, night vision will allow the SWAT team to assess the perimeter and monitor suspect movements in low light and complete darkness. The tactical advantage gained with night vision technology can make all the difference in the safety of officers and citizens. Night vision capability is also needed to monitor and assess criminal activities in high crime areas or known high drug traffic locations.

Existing Capability Levels :
Describe the existing capability levels, including resources that are currently in place to support this project prior to the use of grant funds.
The San Angelo Police Department SWAT team currently has 4 outdated night-vision devices. These units do not have helmet mounts that will attach to our current helmet configuration. Additionally, SAPD SWAT doe not have any Infrared ((R) aiming devices. SAPD SWAT is incapable of executing a completely stealth night-time operation with our current configuration. However, the team does have experience with existing equipment although it is now obsolete.

Capability Gaps:
Describe the capability gaps which will be addressed by the project. For federal Homeland Security Grants, include specific references to the regional or statewide State Preparedness Report (SPR).
Per SPR Step 2 -- Identify Credibility Gaps: the State Preparedness Report, page 21-22, Equipment -- by purchasing the Night Vision Monocular with Helmet Mount, we are addressing the need for equipment to operate in low light to no light situations.

Impact Statement :
Describe the project goals/objectives and how this project will maintain capabilities or reduce capability gaps.
This project supports the Protection of Soft Targets/Crowded Places investment area, and will aid in preventing, preparing for, protecting against, and responding to acts of terrorism; help the State to meet its target capabilities; and otherwise reduce overall risk to the State by enhancing the security of locations such as transportation centers, parks, restaurants, shopping centers, special event venues, and similar facilities. The cost effectiveness of this project will be maximized through the use of competitive bidding processes, compliance with organizational procurement policies, continued promotion of mutual aid, and the sharing and use of statewide or regional assets when possible/appropriate. This project will close Interdiction and Disruption capability gaps identified in the State's Stakeholder Preparedness Review (SPR) and address national priorities as outlined in the FY 2020 NOFO by helping to ensure an expeditious outreach to the appropriate fusion center(s) and Joint Terrorism Task Force(s) after the identification of a credible threat, and prompt assignment of personnel to support follow up of interdiction and disruption activities against suspects and/or contraband. Improvement of this capability / progress towards the Capability Target identified in the SPR will be measured and evaluated through the SPR quantitative review process, which assesses capabilities built, sustained, or lost over time. The recipient is not aware of any existing logistical, technological, legal, policy, or other impediments to collaborating, networking, sharing information, cooperating, and fostering a culture of national preparedness. In the event that such an impediment should be identified, the recipient will actively coordinate with relevant partners to alleviate and/or eliminate the impediment. The recipient will continue to collaborate with all partners to prevent, prepare for, protect against, and respond to acts of terrorism; meet target capabilities; support the national security mission of DHS and other federal agencies; and otherwise reduce the overall risk to the high-risk urban area, the State, or the Nation.

Homeland Security Priority Actions:
Identify the Texas Homeland Security Priority Action most closely aligned with this project. Each Priority Action is linked with an *Objective from the Texas Homeland Security Strategic Plan (HSSP)*. List the Priority Action by number and text (e.g. *1.2.3 Expand and enhance the network of human sources that can provide detailed and relevant information on known or suspected terrorist and criminal enterprises.*)
al 4: Respond pgs 47-49 of the Texas Homeland Security Strategic Plan 2015-2020 Increase the capability of the state's response system to minimize damage and loss of life from terrorist and criminal attacks and natural and technological disasters. 4.2 Improve coordination structures, support systems, and teams for managing all hazards response operations.

Target Group :
Identify the target group and population expected to benefit from this project.
The City of San Angelo is the primary recipient of SWAT services. However, MOUs exist with the surrounding 13 counties to assist county or local departments as required. The San Angelo Police Department SWAT team

Long-Term Approach:
Describe how the applicant agency will maintain the capabilities supported by this project without additional federal or state funds. If sustainment is dependent upon federal or state grants, describe the ongoing need for future grants, as applicable.
Continuing technology improvements will require replacement with newer equipment as night-vision equipment becomes obsolete. In the future additional monies will be requested from federal or state funds when needed.

You are logged in as **User Name**: smith_sanangelo

Statement of Grant Award (SOGA)

The Statement of Grant Award is the official notice of award from the Office of the Governor (OOG). This Grant Agreement and all terms, conditions, provisions and obligations set forth herein shall be binding upon and shall inure to the benefit of the Parties and their respective successors and assigns and all other State of Texas agencies and any other agencies, departments, divisions, governmental entities, public corporations, and other entities which shall be successors to each of the Parties or which shall succeed to or become obligated to perform or become bound by any of the covenants, agreements or obligations hereunder of each of the Parties hereto.

The approved project narrative and budget for this award are reflected in eGrants on the 'Narrative' and 'Budget/Details' tabs. By accepting the Grant Award in eGrants, the Grantee agrees to strictly comply with the requirements and obligations of this Grant Agreement including any and all applicable federal and state statutes, regulations, policies, guidelines and requirements. In instances where conflicting requirements apply to a Grantee, the more restrictive requirement applies.

The Grant Agreement includes the Statement of Grant Award; the OOG Grantee Conditions and Responsibilities; the Grant Application in eGrants; and the other identified documents in the Grant Application and Grant Award, including but not limited to: 2 CFR Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards; Chapter 783 of the Texas Government Code, Title 34, Part 1, Chapter 20, Subchapter E, Division 4 of the Texas Administrative Code, and the Uniform Grant Management Standards (UGMS) developed by the Comptroller of Public Accounts; the state Funding Announcement or Solicitation under which the grant application was made, and for federal funding, the Funding Announcement or Solicitation under which the OOG was awarded funds; and any applicable documents referenced in the documents listed above. For grants awarded from the U.S. Department of Justice, the current applicable version of the Department of Justice Grants Financial Guide and any applicable provisions in Title 28 of the CFR apply. For grants awarded from the Federal Emergency Management Agency (FEMA), all Information Bulletins and Policies published by the FEMA Grants Program Directorate apply. The OOG reserves the right to add additional responsibilities and requirements, with or without advance notice to the Grantee.

By clicking on the 'Accept' button within the 'Accept Award' tab, the Grantee accepts the responsibility for the grant project, agrees and certifies compliance with the requirements outlined in the Grant Agreement, including all provisions incorporated herein, and agrees with the following conditions of grant funding. The grantee's funds will not be released until the grantee has satisfied the requirements of the following Condition(s) of Funding and Other Fund-Specific Requirement(s), if any, cited below:

Grant Number:	3949701	**Award Amount:**	$29,242.00
Date Awarded:	PREVIEW - AWARD NOT ACTIVE	**Grantee Cash Match:**	$0.00
Grant Period:	10/01/2020 - 09/30/2021	**Grantee In Kind Match:**	$0.00
Liquidation Date:	12/29/2021	**Total Project Cost:**	$29,242.00
Program Fund:	HS-Homeland Security Grant Program (HSGP)		
Grantee Name:	San Angelo, City of		
Project Title:	SWAT Night Vision & Infrared		
Grant Manager:	Dorothy Caston		
DUNS Number:	078547502		

CFDA:	97.067 - Homeland Security Grant Program (HSGP)
Federal Awarding Agency:	U.S. Department of Homeland Security, Federal Emergency Management Agency
Federal Award Date:	
Federal/State Award ID Number:	EMW-2020-xx-xxxxxx
Total Federal Award/State Funds Appropriated:	$1.00
Pass Thru Entity Name:	Texas Office of the Governor – Homeland Security Grants Division (HSGD)
Is the Award R&D:	No
Federal/State Award Description:	The purpose of the HSGP is to support state and local efforts to prevent terrorism and other catastrophic events and to prepare the Nation for the threats and hazards that pose the greatest risk to the security of the United States. The HSGP provides funding to implement investments that build, sustain, and deliver the 31 core capabilities essential to achieving the National Preparedness Goal (the Goal) of a secure and resilient Nation. The building, sustainment, and delivery of these core capabilities are not exclusive to any single level of government, organization, or community, but rather, require the combined effort of the whole community.

RESOLUTION NO. _____

RESOLUTION OF THE CITY OF SAN ANGELO, TEXAS AUTHORIZING APPLICATION FOR THE OFFICE OF THE GOVERNOR CRIMINAL JUSTICE DIVISION GRANT PROGRAM FOR THE PURCHASE OF RIFLE RESISTANT BODY ARMOR.

WHEREAS, the City of San Angelo City Council finds it in the best interest of the citizens of San Angelo, that the Rifle Resistant Body Armor Grant Program administered by the office of the Governor Criminal Justice Division to be operated for the FY 2021; and

WHEREAS, City of San Angelo agrees there are no matching funds as per grant stipulations or the said project as required by the Office of the Governor grant application; and

WHEREAS, City of San Angelo City Council agrees that in the event of loss or misuse of the Office of the Governor funds, City of San Angelo City Council assures that the funds will be returned to the Office of the Governor in full.

WHEREAS, City of San Angelo City Council designates the City Manager as the grantee's authorized official. The authorized official is given the power to apply for, accept, reject, alter or terminate the grant on behalf of the applicant agency.

NOW THEREFORE, BE IT RESOLVED on this _____ day of August, 2020 that City of San Angelo City Council approves submission of the grant application for the Rifle Resistant Body Armor Grant #3951001 to the Office of the Governor.

_____
MAYOR BRENDA GUNTER

ATTEST:

_____
JULIA ANTILLEY, CITY CLERK

APPROVED AS TO FORM:

_____
THERESA JAMES, CITY ATTORNEY

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Nora Nevarez, Executive Office Coordinator, Economic Development, 325-653-7197

Meeting Date: August 18, 2020

Item type: Regular Item

Caption:

Consider ratifying a resolution approved by COSADC authorizing the negotiation and execution of a real estate sales contract with Wisener Holdings, LLC, d/b/a South Plains Lamesa Railroad and negotiation of a real estate development performance agreement for the development, marketing, and operation of an industrial rail transloading facility necessary for economic development (Presentation made by Economic Development Director Guy Andrews)

Summary/History:

The City of San Angelo Development Corporation, after a year-long market study, determined that there was a need for an inland rail port in San Angelo to serve industrial and agricultural enterprises with both importation and exportation of bulk freight commodities. Additional details are provided in the Rail Port Memorandum Private versus Public Ownership and Operation document.

The City of San Angelo Development Corporation is proposing to sell the 180.452 acre tract of land, purchased from the Schwertner family in December 2019 for the purpose of developing a transload facility that will serve local customers, for $600,000 to WISENER HOLDINGS, LLC, d/b/a SOUTH PLAINS LAMESA RAILROAD, LTD (S.P.L.R.R.) who will own and operate the facility under an economic development agreement that specifies performance measures.

The original purchase price for the 180.452 acre tract was approximately $541,356.

The COSADC Board of Directors approved the following motion unanimously: Motion to adopt the resolution as written with the exception that the board President be authorized to negotiate a sales price not to exceed $600,000 a term not to exceed 6 years and an interest rate not to exceed 3.25% and all other provision of the resolution not modified are moved to be adopted an approved.

Additional Exhibits attached show the location of the property and a concept drawing of the proposed rail port.

Financial Impact:

Other Information/Recommendation:

Attachments:

1.	Rail Port Memo Private vs Public owernship and operation	Rail Port Memo Private vs Public owernship and operation.pdf
2.	Map of the 180.452 Acre Schwertner Tract	Map of the 180.452 Acre Schwertner Tract.pdf
3.	Rail Port Conceptual Design - Small - Oriented	Rail Port Conceptual Design - Small - Oriented.jpg

4.	19080006 180.452 ACRES FINAL	19080006 180.452 ACRES FINAL.pdf
5.	COSADC Presentation	COSADC Rail Facility.pptx
6.	20-0971_COSADC_SPLRR_180-ACRE_SALES_RESO(3)	20-0971_COSADC_SPLRR_180-ACRE_SALES_RESO(3).docx

Presentation:

Approvals/Reviews:

Nora Nevarez	Created/Initiated
Guy Andrews	Approved
Theresa James	Approved
Nolan Sosa	Approved
Tina Dierschke	Approved
Theresa James	Approved
Julia Antilley	Final Approval

SAN ANGELO
Chamber of Commerce
Economic Development

July 28, 2020

Memorandum –San Angelo Rail Port Methods of Operation: Private ownership vs. Public-Private lease arrangement

The San Angelo Rail Port program, a development project of the City of San Angelo Development Corporation (COSADC) is presented with two potential methods of operation – a straight sale to an experienced rail port operator, or a lease by the City to the same experienced rail port operator.

The City of San Angelo Development Corporation, after a year-long market study determined that there was a need for an inland rail port in San Angelo to serve industrial and agricultural enterprises with both importation and exportation of bulk freight commodities.

The COSADC closed on the purchase of 183.5 acres of level farmland on the north side of San Angelo in the vicinity of the existing Texas Pacifico Rail classification yard with the intent of building an inland rail port terminal. The following will describe two methods of operation of the inland rail port terminal.

Option 1: Rail Port Facility Lease to a Private Operator

This scenario would have the City of San Angelo/COSADC construct the primary infrastructure of the rail port. The basic buildout would require approximately 12,000 feet of railroad infrastructure at a material cost exceeding $1 million. As the requirements for expansion grow the infrastructure costs would likely exceed $4 million including material and construction costs. The capitalization costs when added to a reasonable profit margin for the private operator would create a prohibitively high user fee as compared to a straight private operator purchase and arrangement due to the lack of equity value to the private operator. The volumes of rail traffic predicted at the San Angelo Rail Port does not justify the creation of and perpetual management by a City of San Angelo Inland Rail Port Authority.

Option 2: Rail Port Facility Developed and Owned by a Private Operator

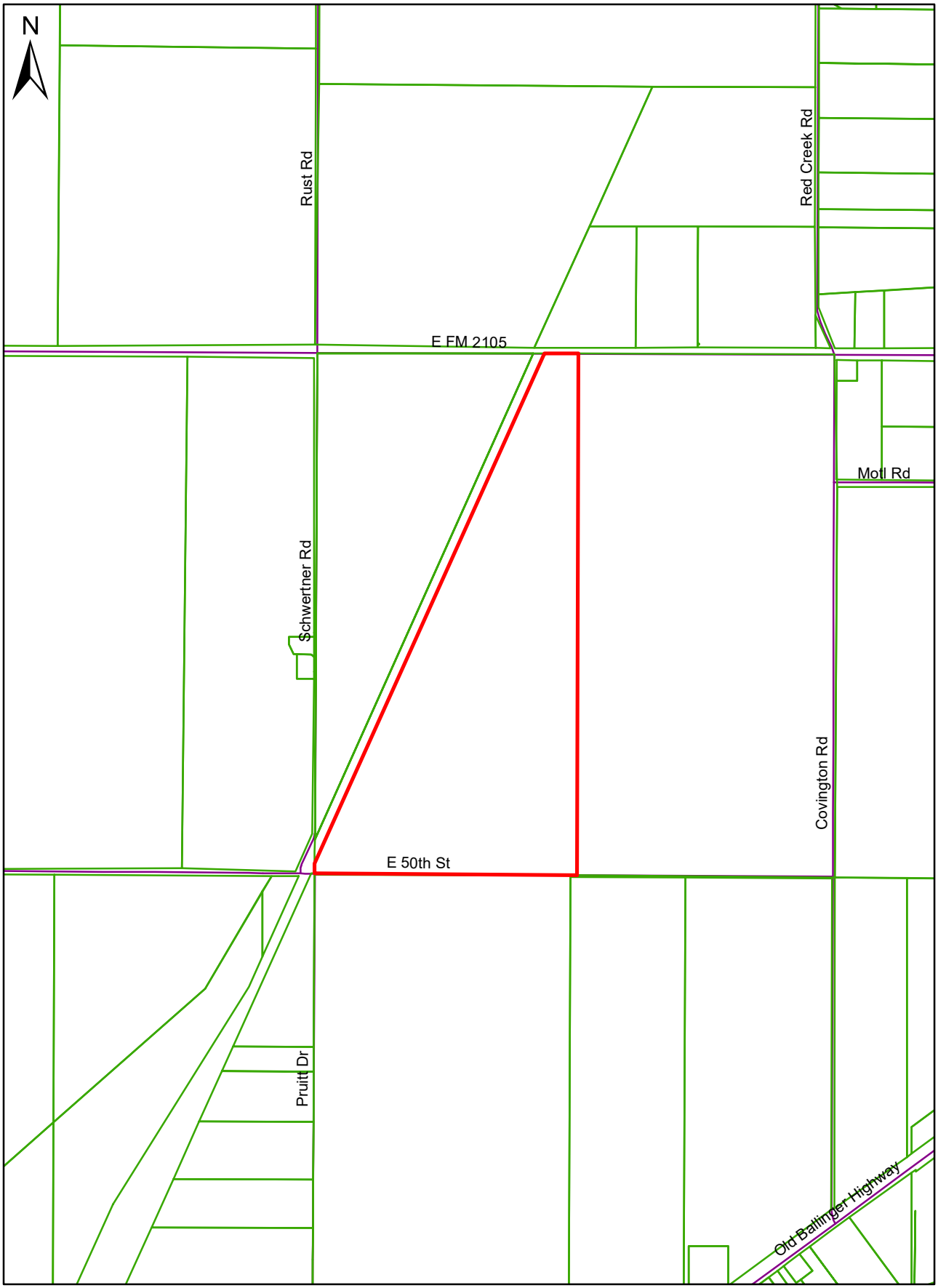
This scenario would have the rail port property sold to an experienced rail port private developer/owner/operator with a package of specific economic development incentives based on operational performance and facility expansion. This scenario provides for less encumbered expansion, more freedom to negotiate for end users for shipping and transloading pricing, less government regulation, higher rate of tax return, easier overall accessibility by end users, and a profit-driven motivation for overall development. This scenario would create an environment for immediate rail port facility development. Predicated on a 300-car-per-month turnaround and using a costing model consistent with current industry standards, the yearly net return to the regional economy would be approximately $12 million annually. The 300-car-per-month baseline is not an unreasonable expectation to achieve. The potential operator has stated that under private ownership, the operator would achieve break-even costs at 100 to 125 cars per month.

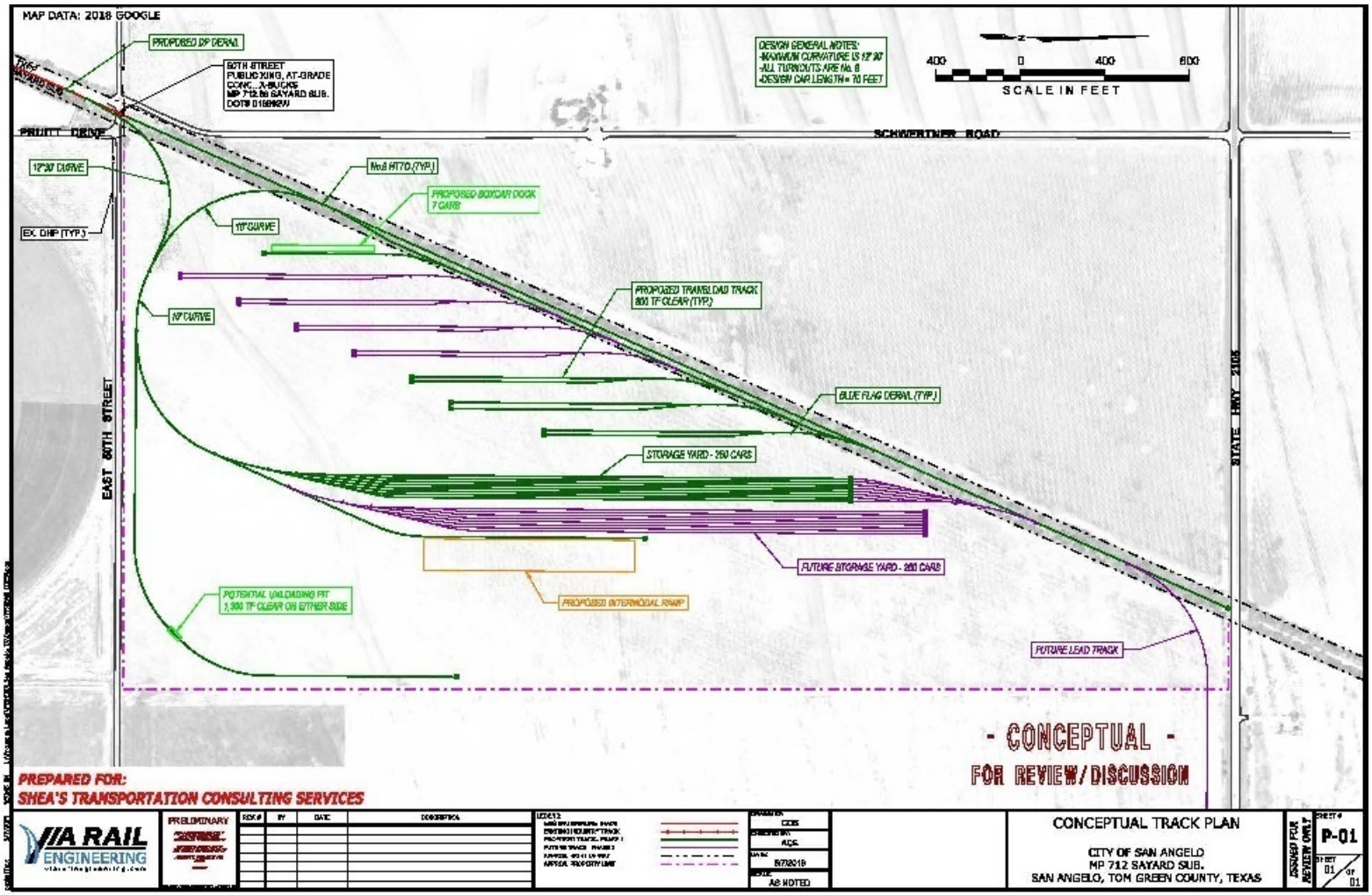
It is our recommendation that the City of San Angelo Development Corporation select Option 2, which will establish San Angelo, Texas as a regional distribution center. The private operator needs to be a functioning railroad entity as private operator.

Issues:

- A public entity controlling access to different end-users creates a possibility of end-user controversy. An example: the City will be required to set and control different freight rates per user based on the volume and cargo type of each user with public funds. This can create tension among users due to seasonal and regular freight handling and movement rates and time-to-delivery schedules. A risk being that lower-volume users may not receive the same priority as large-volume freight shippers. A private operator will be responsible for the efficient movement schedules, transloading and fees, whereas a public taxpayer-funded owner operator may be subject to scrutiny due the public operator's implied rule of non-preferential treatment of all users.

Exhibit "A"


N
Rust Rd
Red Creek Rd
E FM 2105
Motl Rd
Schwertner Rd
Covington Rd
E 50th St
Pruitt Dr
Old Ballinger Highway


MAP DATA: 2018 GOOGLE
PROPOSED BP DERAIL
80TH STREET PUBLIC XING, AT-GRADE CONC...X-BUCKS MP 712.80 SAYARD SUB. DOT# 018982W
DESIGN GENERAL NOTES:
-MAXIMUM CURVATURE IS 12°30'
-ALL TURNOUTS ARE No. 8
-DESIGN CAR LENGTH = 70 FEET
400 0 400 800
SCALE IN FEET
PROFFITT DRIVE
SCHWERTNER ROAD
12°30' CURVE
No.8 HTTO (TYP.)
PROPOSED BOXCAR DOCK 7 CARS
10° CURVE
EX. DHP (TYP.)
PROPOSED TRANSLOAD TRACK 800 TF CLEAR (TYP.)
8° CURVE
BLUE FLAG DERAIL (TYP.)
EAST 80TH STREET
STATE HWY 2105
STORAGE YARD - 250 CARS
FUTURE STORAGE YARD - 200 CARS
PROPOSED INTERMODAL RAMP
POTENTIAL LOADING PIT 1,300 TF CLEAR ON EITHER SIDE
FUTURE LEAD TRACK
- CONCEPTUAL -
FOR REVIEW / DISCUSSION
PREPARED FOR:
SHEA'S TRANSPORTATION CONSULTING SERVICES
VIA RAIL ENGINEERING
PRELIMINARY
REV.# BY DATE DESCRIPTION
CDS
ACE
8/7/2019
AS NOTED
CONCEPTUAL TRACK PLAN
CITY OF SAN ANGELO
MP 712 SAYARD SUB.
SAN ANGELO, TOM GREEN COUNTY, TEXAS
ISSUED FOR REVIEW ONLY
SHEET # P-01
SHEET 01 of 01

F.M. HIGHWAY 2105

S 89°57'33" E
350.58'

WHENCE A CONCRETE
R.O.W. MARKER FOUND
BEARS S75°25'55"W, 2.82'

N
W E
S

TRACT IV
298.77 ACRES
SCHWERTNER et ul
INSTRUMENT # 344171
O.P.R.R.P., T.G.C., TX

13.08 Acres 100' wide strip
J.C. Mathews and Wife to Panhandle
and Gulf Ry. Co.
Volume 23, Page 378, D.R., T.G.C, Tx.

TXDOT RAIL ROAD R.O.W.

N 24°16'10" E 5728.06'

W.C. RR CO
SURVEY No. 177
ABSTRACT No. 4031

J.C. MATTHEWS
SURVEY No. 178
ABSTRACT No. 8071

ABSTRACT ACRES
180.419 ACRES

S 00°34'58" W 5237.94'

S.R. ROBERTSON
SURVEY No. 178
ABSTRACT No. 8474

316.879–ACRES
CITY OF SAN ANGELO
INSTRUMENT # 596999
O.P.R.R.P., T.G.C., TX

180.452–ACRES

K.C.M. & O. RWY CO.

0.46 Acres 100' wide strip
J.C. Clark and Wife to
Panhandle and Gulf Ry. Co.
Volume 23, Page 340, D.R.,
T.G.C, Tx.

0.033 ACRES OUT OF Survey
No. 177, Abstract No. 4031

POINT FROM WHICH A PK
NAIL FOUND BEARS
N89°31'56"W, 5281.13'

@ 88.23' PASSING ½" IRON ROD
WITH RED CAP MARKED "SUDDUTH"

FOUND MAG NAIL WHENCE
ANOTHER MAG NAIL FOUND BEARS,
S 55°32'39" E, 1.91'

@ 5,212.35' PASSING
1/2" IRON ROD FOUND

P.O.B.
½" IRON ROD FOUND
WHENCE A 5/8" IRON
ROD FOUND BEARS
S32°43'21"W, 29.64'

EAST 50TH STREET

N 89°39'14" W 2616.20'

N 89°31'56" W
35.54'

J.J. MINTER
SURVEY No. 180
ABSTRACT No. 5915

11.68 Acres 100' wide
strip Julie Busch to
Panhandle Gulf Ry Co.
Volume 23, Page 379,
D.R., T.G.C., Tx.

TODD NEFF 17.33 ACRES
INST. NO. 201508470
O.P.R. T.G.C., TX

PRUITT DRIVE

EXHIBIT "A–3"
339.21 ACRES
50"s GROUP PROPERTIES
INSTRUMENT # 509405
O.P.R.R.P., T.G.C., TX

W.C. RR CO
SURVEY No. 179
ABSTRACT No. 4032

131–ACRES
CITY OF SAN ANGELO
VOL. 669, PG. 562
D.R., T.G.C., TX

BASIS OF BEARINGS

BEARING BASIS HEREON IS TEXAS STATE PLANE COORDINATE SYSTEM, REFERENCE FRAME NORTH AMERICAN DATUM 1983 (2011) (EPOCH 2010.0000), AS DETERMINED FROM GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) SURVEY EQUIPMENT BY STATIC, VIRTUAL REFERENCE SYSTEM (VRS) NETWORK AND OR REAL TIME KINEMATIC (RTK).

DISTANCES SHOWN HEREON ARE SHOWN AS GRID TEXAS STATE PLANE COORDINATE SYSTEM DISTANCES.

I, Wesley Ray Quinn, Registered Professional Land Surveyor of Texas, do hereby state that this plat represents an actual survey made under my direction to the best of my knowledge and ability, this the 7th day of August, 2019.

STATE OF TEXAS
REGISTERED
WESLEY RAY QUINN
6625
PROFESSIONAL
LAND SURVEYOR

Registered Prof. Land Surveyor
Texas Registration No. 6625

LEGEND

- FOUND 1/2" IRON ROD
- FOUND MAG NAIL
- FOUND 5/8" IRON ROD
- FOUND CONCRETE R.O.W. MONUMENT
- SUBJECT PROPERTY BOUNDARY
- ADJACENT PROPERTY LINE
- SURVEY LINE
- R.O.W. RIGHT–OF–WAY
- O.P.R., T.G.C., TX. OFFICIAL PUBLIC RECORDS, TOM GREEN COUNTY, TEXAS
- O.P.R.R.P., T.G.C., TX. OFFICIAL PUBLIC RECORDS OF REAL PROPERTY, TOM GREEN COUNTY, TEXAS
- D.R., T.G.C., TX. DEED RECORDS, TOM GREEN COUNTY, TEXAS

BOUNDARY SURVEY OF 180.452 ACRES OF LAND CONTAINING 180.419 ACRES OUT OF THE SOUTHEAST PART OF J.C. MATTHEWS SURVEY No. 178, ABSTRACT No. 8071, AND 0.033 ACRES OUT OF W.C.RR Co SURVEY No. 177, ABSTRACT No. 4031, TOM GREEN COUNTY, TEXAS AND BEING THE SOUTH EAST PART OF LANDS DESCRIBED IN VOLUME 284, PAGE 733, OFFICIAL PUBLIC RECORDS OF REAL PROPERTY, TOM GREEN COUNTY, TEXAS

SCALE 1" = 500 FEET

0 500 1000

MQI McMILLAN AND QUINN INC. LAND SURVEYING
FIRM NO. 10194241
P.O. BOX 3506 SAN ANGELO, TEXAS
PHONE: (325) 939-0043 EMAIL: info@mqitx.com
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FIELD: WQ/GS
OFFICE: CS
JOB NO. 19080006

PREPARED FOR:
CITY OF SAN ANGELO

FIELD NOTES

STATE OF TEXAS

COUNTY OF TOM GREEN

Field notes of a 180.452-acre tract of land, more or less, being 180.419 acres out of a 298.77-acre tract described as Tract IV in Special Gift Deed from Mary P. Schwertner, recorded in Instrument No. 344171, Official Public Records of Real Property, Tom Green County, Texas, and 0.033 acres out of a 160 acre tract described in a Special Warranty Gift Deed from Mary P. Schwertner, recorded in Instrument No. 364004, Official Public Records, Tom Green County, Texas, said 180.452 acre tract being all of that certain portion of said 298.77 acre tract lying east of a called 100 foot wide strip of land described as 13.08 acres in a deed from J.C. Mathews and wife to Panhandle and Gulf Ry. Co, recorded in Volume 23, Page 378, Deed Records, Tom Green County, Texas, and all of that certain portion of said 160 acre tract lying east of a called 100 foot wide strip of land described as 0.46 acres in a deed from J.C. Clark and wife to Panhandle and Gulf Ry. Co, recorded in Volume 23, Page 340, Deed Records, Tom Green County, Texas;

Said 180.452 acre tract consisting of a 180.419-acre tract out of the southeast part of the J.C. Matthews Survey No. 178, Abstract No. 8071, Tom Green County, Texas, and 0.033 acres out of W.C.R.R. Co. Survey No. 177, Abstract No. 4031, Tom Green County, Texas and is more particularly described by metes and bounds as follows:

Beginning at a 1/2" iron rod found in the approximate centerline of East 50th Street, at the northeast corner of a 339.21-acre tract described in Exhibit A-3, conveyed to 50's Group Properties, recorded in Instrument No. 509405, Official Public Records of Real Property, Tom Green County, Texas, at the southeast corner of said Abstract No. 8071, at the southwest corner of S.R. Robertson Survey No. 178, Abstract No. 8474, in the north line of Washington County Rail Road Company Survey No. 179, Abstract No. 4032, at the southeast corner of said 298.77-acre tract, for the southeast corner of this herein described tract of land; whence a 5/8" iron rod found at the northwest corner of a 131-acre tract of land conveyed to the City of San Angelo in Special Warranty Deed recorded in Volume 669, Page 562, Deed Records, Tom Green County, Texas bears South 32°43'21" West, 29.64 feet;

Thence North 89°39'14" West with the north line of said Abstract No. 4032, north line of said 339.21-acre Tract, south line of said 298.77-acre Tract south line of said Abstract 8071, with the approximate centerline of said East 50th Street, a distance of 2,616.20 feet to a mag nail found in asphalt at the northwest corner of said Abstract No. 4032, and the corner of said 339.21 acre tract, at the northeast corner of J.J. Minter Survey No. 180, Abstract No. 5915, and the corner of a 17.33 acre tract described in a deed to Todd Neff in Instrument No. 201508470, at the southwest corner of said Abstract No. 8071, at a southeast corner of said 0.37 acre tract for a point in the south line of this herein described tract of land, whence another mag nail found bears South 55°32'39" East, 1.91 feet;

Thence North 89°31'56" West along the south line of W.C. R.R. Co. Survey No. 177, Abstract No. 4031, south line of said 160 acre tract, north line of said Survey No. 180, Abstract No. 5915, north line of said 17.33 acre tract, a distance of 35.54 feet to a point at the southeast corner of said 0.46 acre tract, at the northeast corner of called 100 foot wide strip of land described as 11.68 acres from Jule Busch to Panhandle Gulf Ry Co., recorded in Volume 23, Page 379, Deed Records, Tom Green County, Texas, at the northwest corner of said 17.33 acre tract for the southwest corner of this herein described tract of land, whence a PK nail found in the approximate centerline of said 50th street at the northwest corner of said Survey No. 180, Abstract No. 5915 bears North 89°31'56" West, 5281.13 feet,

Thence North 24°16'10" East with the southeast line of said 0.46 acre tract, at 88.23 feet passing a ½" iron rod found with red cap marked "Sudduth" at an eastern corner of said 0.46 acre tract and the southeast corner of said 13.08 acre tract and continuing with said 13.08 acre tract a total distance of 5,728.06 feet to a concrete right-of-way marker found in the south right-of-way line of F.M. Highway 2105, for a northwest corner of this herein described tract of land;

Thence South 89°57’33” East with the south line of said F.M. Highway 2105, along the north line of this herein described tract, a distance of 350.58 feet to a 1/2” iron rod found at the northwest corner of said 316.879-acre tract, for the northeast corner of this herein described tract of land; whence a concrete right-of-way marker found bears South 75°25’55” West, 2.82 feet;

Thence South 00°34’58” West with the west line of said 316.879-acre tract, east line of said 298.77-acre tract, west line of said Abstract No. 8474, east line of said Abstract No. 8071, passing at 5,212.35 feet a 1/2” iron rod found in the north right-of-way line of said East 50th Street, continuing a total distance of 5,237.94 feet to the Point of Beginning containing 180.452-acres of land, more or less, subject to all easements of record.

A plat accompanies this metes and bounds description.

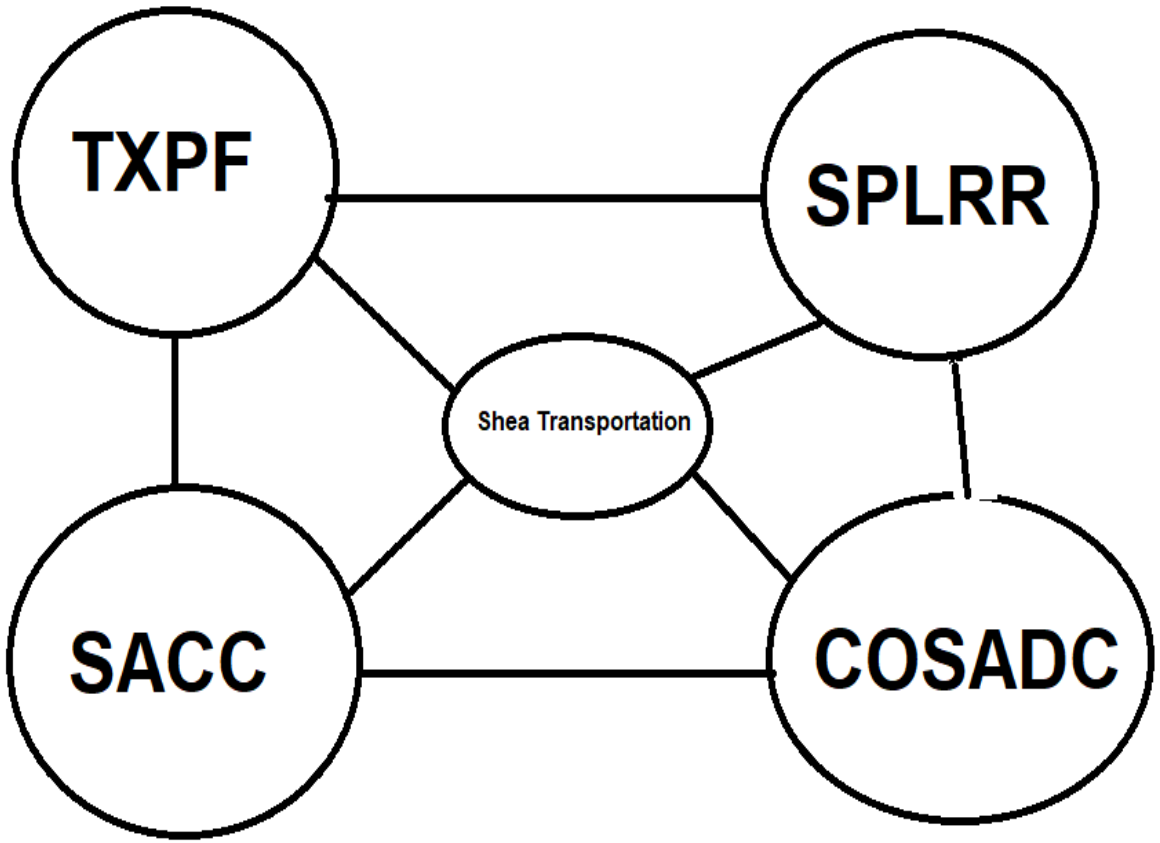
Bearing Basis hereon is Texas State Plane Coordinate System, Reference Frame North American Datum 1983 (2011) (EPOCH 2010.0000), as determined from Global Navigation Satellite System (GNSS) survey equipment by Static, Virtual Reference System (VRS) network and or Real Time Kinematic (RTK). Distances shown hereon are grid Texas State Plane Coordinate System distances. Acres are surface.

I, Wesley Ray Quinn, Registered Professional Land Surveyor of Texas, do hereby state that this description represents an actual survey made on the ground this the 7th day of August, 2019.

Registered Professional Land Surveyor
Texas Registration No. 6625

City Council

August 18, 2020


TXPF
SPLRR
Shea Transportation
SACC
COSADC

San Angelo Rail Port

- The City of San Angelo Development Corporation, after a year-long market study, determined that there was a need for an inland rail port in San Angelo to serve industrial and agricultural enterprises with both importation and exportation of bulk freight commodities.

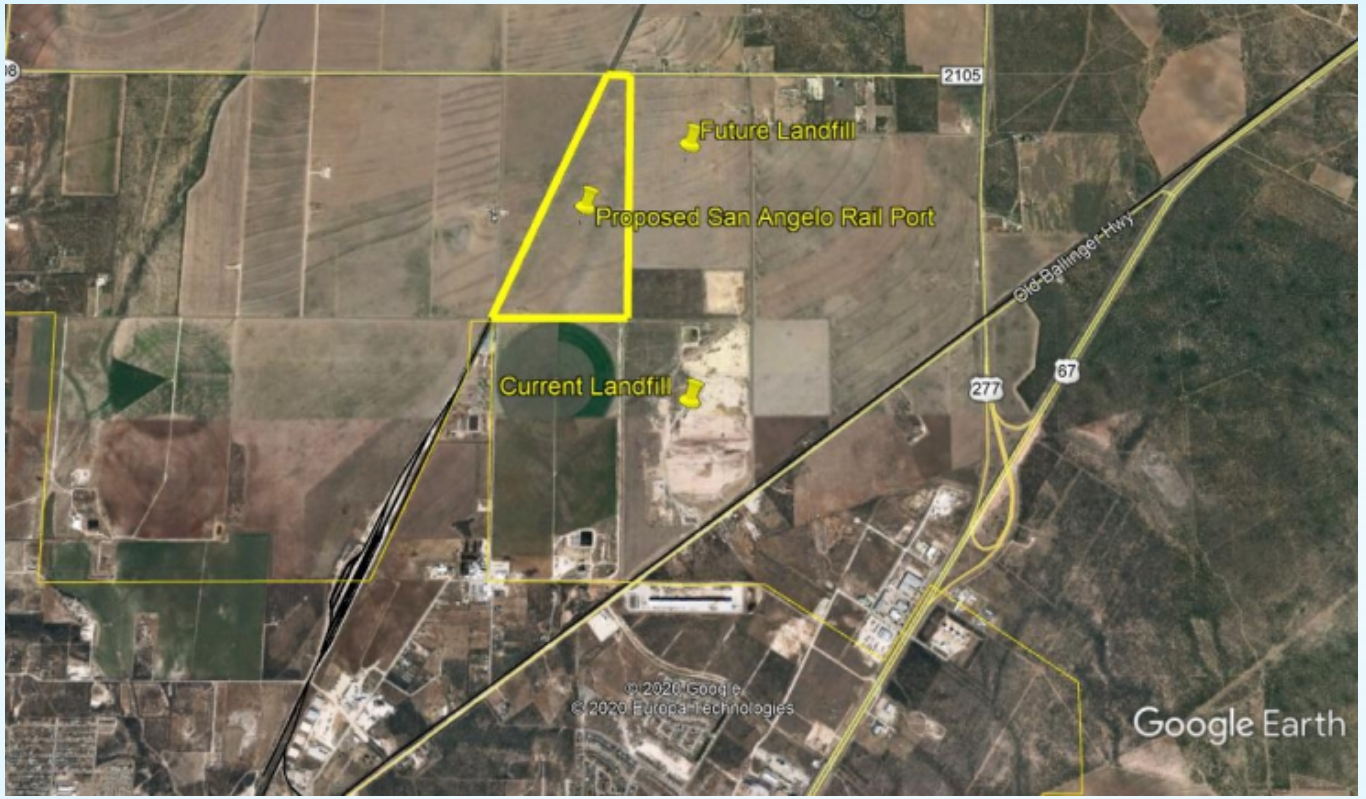
San Angelo Rail Port

- COSADC closed on the purchase of 180.452 acres of farmland on the north side of San Angelo in the vicinity of the existing Texas Pacifico Rail classification yard with the intent of building an inland rail port terminal.

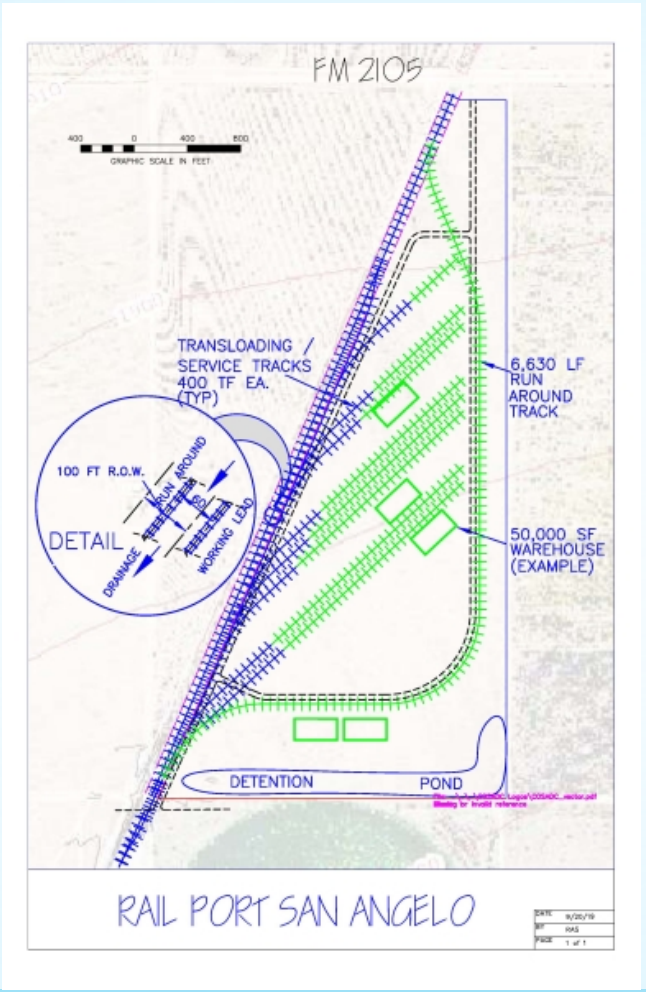
San Angelo Rail Port

- Our goal has been to find an experienced rail operator, with whom we could enter into a Public-Private Partnership, for the operation of a rail transload facility to serve local customers, providing them with lower cost transportation services.

180.452 Acre Rail Port Property



180.452 Acre Rail Port Conceptual Layout



City Council

August 18, 2020

A RESOLUTION OF THE CITY OF SAN ANGELO DEVELOPMENT CORPORATION (COSADC) AUTHORIZING THE BOARD PRESIDENT TO NEGOTIATE AND EXECUTE A REAL ESTATE SALES CONTRACT WITH WISENER HOLDINGS, LLC, d/b/a SOUTH PLAINS LAMESA RAILROAD, LTD (S.P.L.R.R.) FOR 180.452 ACRES OF VACANT LAND IN NORTHEAST SAN ANGELO FOR $600,000, IN COMBINATION WITH A REAL ESTATE DEVELOPMENT PERFORMANCE AGREEMENT FOR THE DEVELOPMENT, MARKETING AND OPERATION OF AN INDUSTRIAL RAIL TRANSLOADING FACILITY NECESSARY FOR ECONOMIC DEVELOPMENT; AND, AUTHORIZING THE DIRECTOR OF ECONOMIC DEVELOPMENT TO NEGOTIATE PROPOSED TERMS FOR THE PERFORMANCE AGREEMENT, PROMISSORY NOTE AND DEED OF TRUST, ALL IN A FORM APPROVED BY THE CITY ATTORNEY, SUBJECT TO BOARD ADOPTION AND CITY COUNCIL APPROVAL.

WHEREAS, there are several interstate and international transportation related proposals at the Federal, State and National level, including the proposed corridors for IH 14 and IH 27, as well as completion of the Presidio—Ojinaga International TxDOT/South Orient Railroad bridge project at the Texas border with Mexico, each of which will dynamically enhance the strategic benefits for new industrial businesses that create and retain primary jobs to locate and expand at San Angelo, assuming local development of inter-connective rail transportation infrastructure and suitable industrial subdivisions; and,

WHEREAS, the Board at its meeting on July 24th, 2019 approved the purchase of a vacant tract of land suitable for such industrial development, being 180.452 acres out of J C Matthews Abstract 8071, Survey 0178, and W.C.R.R. Co Survey 177, Abstract 4031, a portion of Tax Lot ID #61-08071-0711-000-00, generally located adjacent to the south right-of-way of FM 2105, 1.5 miles west of Hwy 277 (hereinafter "Rail Port Property"); said acquisition being completed on December 30, 2019, upon recordation of a Statutory Warranty Deed, Instrument No. 201915780, Official Public Records of Tom Green County, Texas; and,

WHEREAS, the western boundary line of the Rail Port Property is adjacent to the TxDOT Railroad Right-of-Way (Texas Pacifico Transportation Limited line); and,

WHEREAS, South Plains Lamesa Railroad, Ltd. (S.P.L.RR.) has significant experience in the development and operation of a rail transloading facility. In 1993 S.P.L.R.R. established and has since operated a commercial rail transloading facility at Slaton, Texas, for general commercial public use, including adjacent industrial sites, providing the South Plains with a wide variety of rail services and load volume capacities; and,

WHEREAS, S.P.L.R.R. desires to expand its rail services into Southcentral Texas at San Angelo; has preliminarily considered the demand in the San Angelo region of Southcentral Texas for an industrial railroad transloading facility open to the public; has assessed the Rail Port Property for location, topographical characteristics and proximity along its western boundary line to the railroad right-of-way; desires to develop the property as an industrial rail transloading facility for public use and industrial site

development; and would like to negotiate an economic development project performance agreement with COSADC as part of a real estate purchase agreement with COSADC for the Rail Port Property;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF SAN ANGELO DEVELOPMENT CORPORATION THAT:

Section 1. The foregoing recitals are true and correct and are adopted as part of this Resolution.

Section 2. The Board President is hereby authorized and directed to negotiate and execute a real estate sales contract with WISENER HOLDINGS, LLC, d/b/a SOUTH PLAINS LAMESA RAILROAD, LTD (S.P.L.R.R.) for 180.452 acres of vacant land in N/E San Angelo, herein described as "Rail Port Property", for $600,000, in combination with a real estate development performance agreement for the development, marketing and operation of an industrial rail transloading facility necessary for economic development; and, authorizing the Director of Economic Development to negotiate proposed terms for the performance agreement, promissory note and deed of trust, all in a form approved by the City Attorney, subject to Board adoption and City Council approval.

Section 3. The Board President is further authorized and directed to negotiate and execute on behalf of COSADC such related legal documents, contracts and agreements as may be necessary or convenient to carrying out the purposes of this Resolution.

. The foregoing resolution as written is adopted with the exceptions that the Board President be authorized to negotiate a sales price not to exceed $600,000, a term not to exceed 6 years, and an interest rate not to exceed 3.25%. All other provision of the foregoing resolution not modified with these exceptions are adopted and approved.

ADOPTED on this the 12th day of August, 2020.

CITY OF SAN ANGELO
DEVELOPMENT CORPORATION

_____
Todd Kolls, President

ATTEST:

_____
Nora Nevarez, Corporation Secretary

APPROVED AS TO FORM

_____
Dan T. Saluri, Deputy City Attorney

APPROVED AS TO CONTENT

_____
Guy Andrews, Director of
Economic Development

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Mitchell Gatlin, Project Engineer, Engineering Services, 325 657-

Meeting Date: August 18, 2020

Item type: Regular Item

Caption:

Consider awarding (contingent upon TxDOT concurrence) ES-03-20 Chadbourne Street Improvements Project - Phase A to TiZack Concrete, Inc. in the amount of $8,892,401.87 and authorizing the City Manager to negotiate and execute all related documents (Presentation made by City Engineer Lance Overstreet)

Summary/History:

The Chadbourne downtown reconstruction project is prepared to move forward with the construction of Phase A which extends from the Chadbourne bridge to the south and extends though the Beauregard intersection to the North.

This project is joint venture project between Federal grant funding, COSADC, TIRZ, Operations department, Water department and CIP.

The City followed the state/federal acquisition guidelines and opened bids for the project July 24th. There were 3 bidders that submitted packages (Goode, FNH and Ti-Zack).

Financial Impact:

This item will be budgeted in the current year and contributions from the many funding sources are as follows.

Funding Source
Streets Bond: 3,356,740
TIRZ North: 205,294 (8 year allocation of 25%)
TIRZ South: 1,582,543 (8 year allocation of 50%)
COSADC: 3,750,000 ($750,000 per year for 5 years)
Storm Water: 241,000
Sewer Fund: 1,057,375
Water Fund: 976,734
Operations Testing: 100,000
HOT Fund: 50,000
TXDOT Grant: 1,960,335
Est. Total: 13,280,021

Other Information/Recommendation:

Recommend Approval of Award to Ti-Zack Concrete, Inc. as the low bidder.

Attachments:

1. Ti-Zack 2020.07.22 Bid Form.Revised.Addendum3 — Ti-Zack 2020.07.22 Bid Form.Revised.Addendum3.pdf
2. Chadbourne Phase A Construction PPT — Chadbourne Phase A Construction.pptx

Presentation:

Approvals/Reviews:

Mitchell Gatlin	Created/Initiated
Lance Overstreet	Approved
Theresa James	Approved
Nolan Sosa	Approved
Tina Dierschke	Approved
Theresa James	Approved
Julia Antilley	Final Approval

CITY OF SAN ANGELO

RFB ES-03-20 / CHADBOURNE STREET IMPROVMENTS - PHASE A — JULY 24, 2020

Pursuant to the Foregoing Notice to Respondents, the undersigned Respondent hereby proposes to do all work and furnish all necessary superintendence, labor, machinery, equipment, tools, and materials, and whatever else may be necessary to complete all work upon which he Proposals, as provided by the attached specifications and shown on the plans, and binds himself on acceptance of this proposal to execute an Agreement and Bonds according to the accompanying forms, for performing and completing the said work within the time stated, and furnishing all required guarantees, for the following prices to-wit.

Item No.	Spec. No.	Description	Units	Estimated Quantities	Estimated Unit Price	Subtotal
Item 1: Mobilization, Temporary Access and Erosion/Sedimentation Control Measures						
1.01	TxDOT 500	Mobilization	LS	1	$434,200.00	$ 434,200.00
1.02	TxDOT 502	Barricades, Signs, and Traffic Handling	MO	24	$ 500.00	$ 12,000.00
1.03	TxDOT 506	Storm Water Management	MO	24	$ 300.00	$ 7,200.00
					Total Amount for Item 1 =	**$ 453,400.00**
Item 2: Utilities - Sanitary Sewer						
2.01	TxDOT 479	Adjusting Manholes (Sanitary)(Provide new ring and lid)	EA	12	$ 1,160.00	$ 13,920.00
2.02	---	Adjusting Sewer Clean Out to Grade	EA	4	$ 685.00	$ 2,740.00
2.03	---	4' Diameter FRP Manhole (TY B, <10')	EA	1	$ 5,950.00	$ 5,950.00
					Total Amount for Item 2 =	**$ 22,610.00**
Item 3: Utilities - Water						
3.01	TxDOT 479	Adjusting Water Valve Stand to Grade	EA	34	$ 472.00	$ 16,048.00
3.02	TxDOT 479	Adjusting Water Meter Box to Grade	EA	21	$ 433.00	$ 9,093.00
3.03	---	Relocate Fire Hydrant per COSA Standards	EA	5	$ 8,500.00	$ 42,500.00
3.04	---	Relocate Water Meter Box	EA	19	$ 4,070.00	$ 77,330.00
~~3.05~~	~~---~~	~~Relocating Fire Hydrant Closer to Curb~~	~~EA~~		~~$ -~~	~~$ -~~
					Total Amount for Item 3 =	**$ 144,971.00**
Item 4: Storm Drains						
4.01	---	Remove existing inlets	EA	2	$ 896.00	$ 1,792.00
4.02	---	~~24"x24"x20" Precast Concrete Catch Basin w/ Manhole Lid~~ Nyloplast 30" Drain Basin	EA	2	$ 4,760.00	$ 9,520.00

Item No.	Spec. No.	Description	Units	Estimated Quantities	Estimated Unit Price	Subtotal
4.03	---	18" Curb Inlet (2'x3' Rect)	EA	2	$ 4,930.00	$ 9,860.00
4.04	---	18" HDPE Pipe	LF	35	$ 160.00	$ 5,600.00
					Total Amount for Item 4 =	**$ 26,772.00**
Item 5: Paving						
5.01	TxDOT 104	Remove and Dispose of Existing Concrete Curb and Gutter	LF	4,331	$ 11.10	$ 48,074.10
5.02	TxDOT 104	Remove and Dispose of Existing Brick Pavers (COSA to keep brick)	SY	18,100	$ 2.00	$ 36,200.00
5.03	TxDOT 104	Remove and Dispose of Existing Trolley Rail and Cross Ties	LF	1,650	$ 5.00	$ 8,250.00
5.04	TxDOT 105	Remove and Dispose of Existing Apshalt Pavement	SY	18,100	$ 13.10	$ 237,110.00
5.05	TxDOT 105	Remove and Dispose of Existing Flexible Base	SY	18,100	$ 4.45	$ 80,545.00
5.06	TxDOT 110	Excavation (6")	CY	3,000	$ 22.90	$ 68,700.00
5.07	TxDOT 152	Road Grader Work (Desity Control)	SY	19,140	$ 1.00	$ 19,140.00
5.08	TxDOT 340	4" HMAC Type B Base Material	TON	4,126	$ 150.00	$ 618,840.00
5.09	TxDOT 528	Integral Colored Stamped Concrete - Star Intersections	SF	3,410	$ 27.70	$ 94,457.00
5.10	TxDOT 528	Integral Colored Stamped Concrete Medians (Brick Pattern Finish)	SF	5,645	$ 19.90	$ 112,335.50
5.11	TxDOT 360	7" Reinforced Concrete Pavement (Class P)	SY	15,152	$ 100.00	$ 1,515,220.00
5.12	TxDOT 529	6" Concrete Curb and Gutter (TY II)	LF	6,304	$ 45.00	$ 283,680.00
5.13		3" Concrete Curb and Gutter	LF	263	$ 57.00	$ 14,991.00
5.14	TxDOT 530	Driveway Reconnections	SY	250	$ 83.90	$ 20,975.00
5.15	---	Adjusting Electric Manhole to Grade	EA	6	$ 1,030.00	$ 6,180.00
					Total Amount for Item 5 =	**$ 3,164,697.60**
Item 6: Pavement Markings and Signage						
6.01	TxDOT 666	Refl Pav Mrk Ty 1 (Y) 4" (SLD)(100MIL) (SURF PREP subsidiary)	LF	3,545	$ 2.70	$ 9,571.50
6.02	TxDOT 666	Refl Pav Mrk Ty 1 (W) 4" (SLD)(100MIL)	LF	7,830	$ 1.85	$ 14,485.80

Item No.	Spec. No.	Description	Units	Estimated Quantities	Estimated Unit Price	Subtotal
6.03	TxDOT 666	Refl Pav Mrk Ty I(BLACK)7"(BLACK)(100MIL) (SURF PREP subsidiary)	LF	8,310	$ 3.85	$ 31,991.96
6.04	TxDOT 666	Refl Pav Mrk Ty 1 (W) 4" (DOT)(100MIL)	LF	642	$ 1.90	$ 1,219.80
6.05	TxDOT 666	Refl Pav Mrk Ty 1 (W) 8" (SLD)(100MIL)	LF	1,145	$ 3.45	$ 3,950.25
6.06	TxDOT 666	Refl Pav Mrk Ty I(BLACK)11"(BLACK)(100MIL) (SURF PREP subsidiary)	LF	1,157	$ 6.50	$ 7,520.50
6.07	TxDOT 666	Refl Pav Mrk Ty 1 (W) 12" (SLD)(100MIL)	LF	290	$ 6.00	$ 1,740.00
6.08	TxDOT 666	Refl Pav Mrk Ty I(BLACK)15"(BLACK)(100MIL) (SURF PREP subsidiary)	LF	302	$ 9.80	$ 2,959.60
6.09	TxDOT 666	Refl Pav Mrk Ty 1 (W) (ARW) (SURF PREP subsidiary)	EA	26	$ 210.00	$ 5,460.00
6.10	TxDOT 666	Refl Pav Mrk Ty 1 (W) (WORD) (SURF PREP subsidiary)	EA	12	$ 205.00	$ 2,460.00
6.11	TxDOT 672	Raised Pav Mrk Ty II-A-A (SURF PREP subsidiary)	EA	198	$ 26.50	$ 5,247.00
6.12	TxDOT 672	Raised Pav Mrk Ty I-C (SURF PREP subsidiary)	EA	59	$ 26.50	$ 1,563.50
6.13	TxDOT 636	Aluminum Signs (TY A)	SF	95	$ 65.00	$ 6,175.00
6.14	TxDOT 668	Prefab Pav Mrk Acc Prkng (W) 48"x48" (SURF PREP subsidiary)	EA	8	$ 860.00	$ 6,880.00
6.15	TxDOT 644	IN SM RD SUP&AM TY10BWG (1) WS (P) (Wedge Anchor Steel System)	EA	43	$ 300.00	$ 12,900.00
					Total Amount for Item 6 =	**$ 114,124.91**
Item 7: Street Lighting						
7.01	TxDOT 628	Service Pole	EA	1	$ 11,200.00	$ 11,200.00
7.02	TxDOT 610	30' Strenberg Aluminium Pole with double light fixture	EA	17	$ 20,200.00	$ 343,400.00
7.03	TxDOT 416	30" Drill Shaft Foundation	EA	17	$ 3,030.00	$ 51,510.00
7.04	TxDOT 620	#2 AWG	LF	3,500	$ 3.75	$ 13,125.00
7.05	TxDOT 620	#8 AWG	LF	1,750	$ 1.50	$ 2,625.00
7.06	TxDOT 618	2" PVC conduit	LF	1,600	$ 3.30	$ 5,280.00
7.07	TxDOT 618	Trenching and backfill	LF	1,600	$ 17.00	$ 27,200.00
7.08	TxDOT 618	Bore	LF	-	$ 55.00	$ -

Item No.	Spec. No.	Description	Units	Estimated Quantities	Estimated Unit Price	Subtotal
7.08	TxDOT 624	11x17 Inground Pullbox	EA	4	$ 1,520.00	$ 6,080.00
7.09	TxDOT 610	Roadway Illumination Assembly (Remove)	EA	25	$ 1,150.00	$ 28,750.00
					Total Amount for Item 7 =	**$ 489,170.00**
Item 8: Traffic Signals						
8.01	TxDOT 416	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	132	$ 505.00	$ 66,660.00
8.02	TxDOT 618	CONDT (PVC) (SCHD 80) (2")	LF	60	$ 14.00	$ 840.00
8.03	TxDOT 618	CONDT (PVC) (SCHD 80) (3")	LF	420	$ 20.00	$ 8,400.00
8.04	TxDOT 618	CONDT (PVC) (SCHD 80) (4")	LF	250	$ 25.00	$ 6,250.00
8.05	TxDOT 618	CONDT (PVC) (SCHD 80) (4") (BORE)	LF	860	$ 55.00	$ 47,300.00
8.06	TxDOT 620	ELEC CONDUCTOR (NO. 8) INSULATED	LF	3,070	$ 1.50	$ 4,605.00
8.07	TxDOT 620	ELEC CONDUCTOR (NO. 6) BARE	LF	1,620	$ 1.60	$ 2,592.00
8.08	TxDOT 620	ELEC CONDUCTOR (NO. 6) INSULATED	LF	180	$ 1.75	$ 315.00
8.09	TxDOT 624	GROUND BOX TY D (162922) W/APRON	EA	15	$ 1,890.00	$ 28,350.00
8.10	TxDOT 628	ELC SRV TY D 120/240 070 (NS)AL(E)PS(U)	EA	3	$ 7,580.00	$ 22,740.00
8.11	TxDOT 680	INSTALL HWY TRAF SIG (ISOLATED)	EA	3	$ 41,000.00	$ 123,000.00
8.12	TxDOT 680	REMOVING TRAFFIC SIGNALS	EA	3	$ 11,400.00	$ 34,200.00
8.13	TxDOT 682	VEH SIG SEC (12") LED (GRN)	EA	24	$ 379.00	$ 9,096.00
8.14	TxDOT 682	VEH SIG SEC (12") LED (YEL)	EA	24	$ 379.00	$ 9,096.00
8.15	TxDOT 682	VEH SIG SEC (12") LED (YEL ARW)	EA	24	$ 379.00	$ 9,096.00
8.16	TxDOT 682	VEH SIG SEC (12") LED (RED)	EA	24	$ 379.00	$ 9,096.00
8.17	TxDOT 682	VEH SIG SEC (12") LED (RED ARW)	EA	12	$ 379.00	$ 4,548.00
8.18	TxDOT 682	BACKPLATE (12")(3 SEC)(VENTED)ALUM	EA	24	$ 107.00	$ 2,568.00
8.19	TxDOT 682	BACKPLATE (12")(5 SEC)(VENTED)ALUM	EA	12	$ 139.00	$ 1,668.00

Item No.	Spec. No.	Description	Units	Estimated Quantities	Estimated Unit Price	Subtotal
8.20	TxDOT 684	TRF SIG CBL (TY A) (14 AWG) (10 CONDR)	LF	1,610	$ 3.00	$ 4,830.00
8.21	TxDOT 684	TRF SIG CBL (TY A) (14 AWG) (20 CONDR)	LF	1,655	$ 6.00	$ 9,930.00
8.22	TxDOT 684	TRF SIG CBL (TY C) (12 AWG) (3 CONDR)	LF	3,265	$ 2.50	$ 8,162.50
8.23	TxDOT 686	INS TRF SIG PL AM (S) 1 ARM (28') LUM	EA	12	$ 26,500.00	$ 318,000.00
8.24	TxDOT 6058	BBU SYSTEM (EXTERNAL BATT CABINET)	LF	3	$ 12,000.00	$ 36,000.00
8.25	---	GRIDSMART CAMERA	EA	3	$ 39,100.00	$ 117,300.00
8.26	---	CAT5 ETHERNET CABLE	EA	170	$ 3.50	$ 595.00
					Total Amount for Item 8 =	**$ 885,237.50**
Item 9: Amenities						
9.01	---	Excavation of base for planters (24" depth)	CY	551	$ 40.00	$ 22,040.00
9.02	---	Remove existing trees	EA	10	$ 79.30	$ 793.00
9.03	TxDOT 450	TxDOT Handrail PRD-13 Type C	LF	434	$ 99.80	$ 43,313.20
9.04	---	Gateway Columns	EA	8	$ 23,200.00	$ 185,600.00
9.05	TxDOT 170	Irrigation System	LS	1	$ 140,000.00	$ 140,000.00
9.06	TxDOT 192	Tree (30 gal)	EA	18	$ 515.00	$ 9,270.00
9.07	TxDOT 192	Tree (65 gal)	EA	25	$ 773.00	$ 19,325.00
9.08	TxDOT 192	Shrub (7 gal)	EA	104	$ 77.30	$ 8,039.20
9.09	TxDOT 192	Shrub (5 gal)	EA	134	$ 51.50	$ 6,901.00
9.10	TxDOT 192	Shrub (3 gal)	EA	200	$ 30.90	$ 6,180.00
9.11	TxDOT 192	Shrub (1 gal)	EA	112	$ 15.50	$ 1,736.00
9.12	TxDOT 192	Bermuda Sod	SF	4,414	$ 0.88	$ 3,884.32
9.13	TxDOT 160	Imported Topsoil	CY	551	$ 49.40	$ 27,219.40
9.14	TxDOT 529	12" Concrete Stand Up Curb (Planter Boxes)	LF	2,290	$ 77.60	$ 177,704.00

Item No.	Spec. No.	Description	Units	Estimated Quantities	Estimated Unit Price	Subtotal
9.15	---	Paver-grate tree grates (1,081 sf)	EA	27	$ 2,700.00	$ 72,900.00
9.16	TxDOT 192	Bed Prep	SF	7,443	$ 0.88	$ 6,549.84
9.17	TxDOT 192	3/4" Rock Mulch	SF	6,362	$ 1.80	$ 11,451.60
9.18	---	Banner Pole	EA	14	$ 1,000.00	$ 14,000.00
					Total Amount for Item 9 =	**$ 756,906.56**
Item 10: Grant Eligible Items						
10.01	---	Decorative Benches	EA	10	$ 803.00	$ 8,030.00
10.02	---	Bike Racks	EA	5	$ 747.00	$ 3,735.00
10.03	---	Stone benches/seating	~~EA~~ LF	174	$ 258.00	$ 44,892.00
10.04	---	Trash receptacles	EA	5	$ 2,060.00	$ 10,300.00
10.05	TxDOT 104	Remove Concrete (Sidewalk)	SY	6,325	$ 33.60	$ 212,520.00
10.06	TxDOT 110	Excavation	CY	1,730	$ 87.80	$ 151,894.00
10.07	~~TxDOT 132~~ TxDOT 247	~~Embankment (Final)(Ord Comp)(TY A)~~ FL BS (CMP IN PLC)(TY A GR1-2)(FNAL POS)	CY	1,447	$ 75.00	$ 108,532.50
10.08	TxDOT 192	Shade Trees at Rest Areas (65 gal)	EA	7	$ 773.00	$ 5,411.00
10.09	TxDOT 531	6" Concrete Sidewalk with Broom Finish (P-01 and P-11)	SF	13,574	$ 18.10	$ 245,689.40
10.10	TxDOT 531	6" Concrete Sidewalks with Sand Blasted Finish 3'x3' (P-02)	SF	9,134	$ 13.90	$ 126,962.60
10.11	TxDOT 531	6" Concrete Sidewalks with Sand Blasted Finish 5'x5' (P-03)	SF	38,704	$ 13.50	$ 522,504.00
10.12	TxDOT 528	Integral Colored Stamped 6" Concrete Sidewalks (Wood Grain Finish) (P-04)	SF	11,692	$ 19.80	$ 231,501.60
10.13	TxDOT 528	Integral Colored Stamped 7" Concrete Crosswalks (Brick Pattern)	SF	5,384	$ 19.70	$ 106,064.80
10.14	TxDOT 610	23' Strenberg Aluminium Pole with single light fixture	EA	17	$ 15,800.00	$ 268,600.00
10.15	TxDOT 416	30" Drill Shaft Foundation	EA	17	$ 3,030.00	$ 51,510.00
10.16	TxDOT 620	#2 AWG	LF	3,500	$ 3.75	$ 13,125.00
10.17	TxDOT 620	#8 AWG	LF	1,750	$ 1.50	$ 2,625.00

Item No.	Spec. No.	Description	Units	Estimated Quantities	Estimated Unit Price	Subtotal
10.18	TxDOT 618	2" PVC conduit	LF	1,600	$ 3.30	$ 5,280.00
10.19	TxDOT 618	Trenching and backfill	LF	1,600	$ 17.00	$ 27,200.00
10.20	TxDOT 624	11x17 Inground Pullbox	EA	4	$ 1,520.00	$ 6,080.00
10.21	TxDOT 528	ADA Pavers	SF	1,106	$ 11.60	$ 12,829.60
10.22	TxDOT 531	Curb Ramp (TY 1)	EA	28	$ 1,650.00	$ 46,200.00
10.23	---	6" Wide Trench Drain with Slip Resistant Grate Cover (ADA accessible)	LF	300	$ 264.00	$ 79,200.00
10.24	TxDOT 666	Refl Pav Mrk Ty 1 (BIKE SYM) (SURF PREP subsidiary)	EA	16	$ 485.00	$ 7,760.00
10.25	TxDOT 666	Refl Pav Mrk Ty 1 (BIKE ARW) (SURF PREP subsidiary)	EA	4	$ 269.00	$ 1,076.00
10.26	TxDOT 666	Refl Pav Mrk Ty 1 (BIKE CHEV) (SURF PREP subsidiary)	EA	12	$ 175.00	$ 2,100.00
10.27	TxDOT 687	PEDESTAL POLE ASSEMBLY	EA	12	$ 3,540.00	$ 42,480.00
10.28	TxDOT 688	PED DETECT PUSH BUTTON (APS)	EA	24	$ 1,010.00	$ 24,240.00
10.29	TxDOT 688	PED DETECTOR CONTROLLER UNIT	EA	3	$ 5,050.00	$ 15,150.00
10.30	TxDOT 682	PED SIG SEC (LED) (COUNTDOWN)	EA	24	$ 884.00	$ 21,216.00
					Total Amount for Item 10 =	**$ 2,404,708.50**
Item 11: Pedestrian Ramp (Grant Eligible)						
11.01	---	Excavation & Fill	CY	150.0	$ 20.00	$ 3,000.00
11.02	---	Backfill/Compact	CY	110.0	$ 12.00	$ 1,320.00
11.03	---	Level & Grade For Excavation	SF	8,000.0	$ 0.29	$ 2,320.00
11.04	---	Crushed Stone Base	TONS	50.0	$ 35.00	$ 1,750.00
11.05	TxDOT 531	12" CONCRETE MOW CURB	LF	163	$ 21.70	$ 3,537.10
11.06	TxDOT 423	CONCRETE BLOCK RETAINING WALL	FF	5,000.0	$ 28.80	$ 144,000.00
11.07	---	CONCRETE BLOCK RETAINING WALL FOOTING	SF	1,500.0	$ 12.40	$ 18,600.00
11.08	---	PRE-MANUFACTURED PEDESTRIAN BRIDGE	EA	1.0	$ 43,300.00	$ 43,300.00

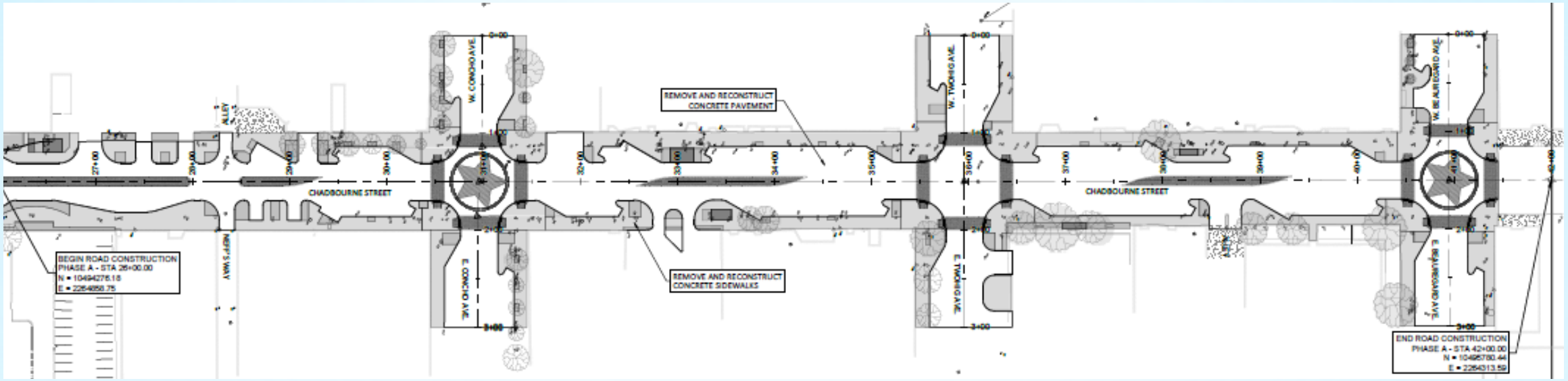
Item No.	Spec. No.	Description	Units	Estimated Quantities	Estimated Unit Price	Subtotal
11.09	---	STEEL BOLLARD	EA	4	$ 1,130.00	$ 4,520.00
11.10	TxDOT 531	6" Concrete Sidewalk with handrails	SF	3,305.0	$ 18.10	$ 59,820.50
11.11	TxDOT 531	6" Concrete Sidewalk with Broom Finish	SF	2,171.0	$ 14.10	$ 30,611.10
11.12	TxDOT 450	TxDOT HANDRAIL PRD-13 TYPE E	LF	652	$ 118.00	$ 76,936.00
11.13	TxDOT 450	TxDOT HANDRAIL PRD-13 TYPE B	LF	170	$ 90.60	$ 15,402.00
					Total Amount for Item 11 =	**$ 405,116.70**
Add/Alternate 1: Tree Lighting Conduit and Lines						
AA.101	---	2" PVC Conduit	LF	3,780	$ 3.10	$ 11,718.00
AA.102	---	Trenching and Backfill	LF	607	$ 21.30	$ 12,929.10
					Total Amount for AA1 =	**$ 24,647.10**
					Total Amount for All Items (No. 1+2+3+4+5+6+7+8+9+10+11) =	**$ 8,867,714.77**

City Council

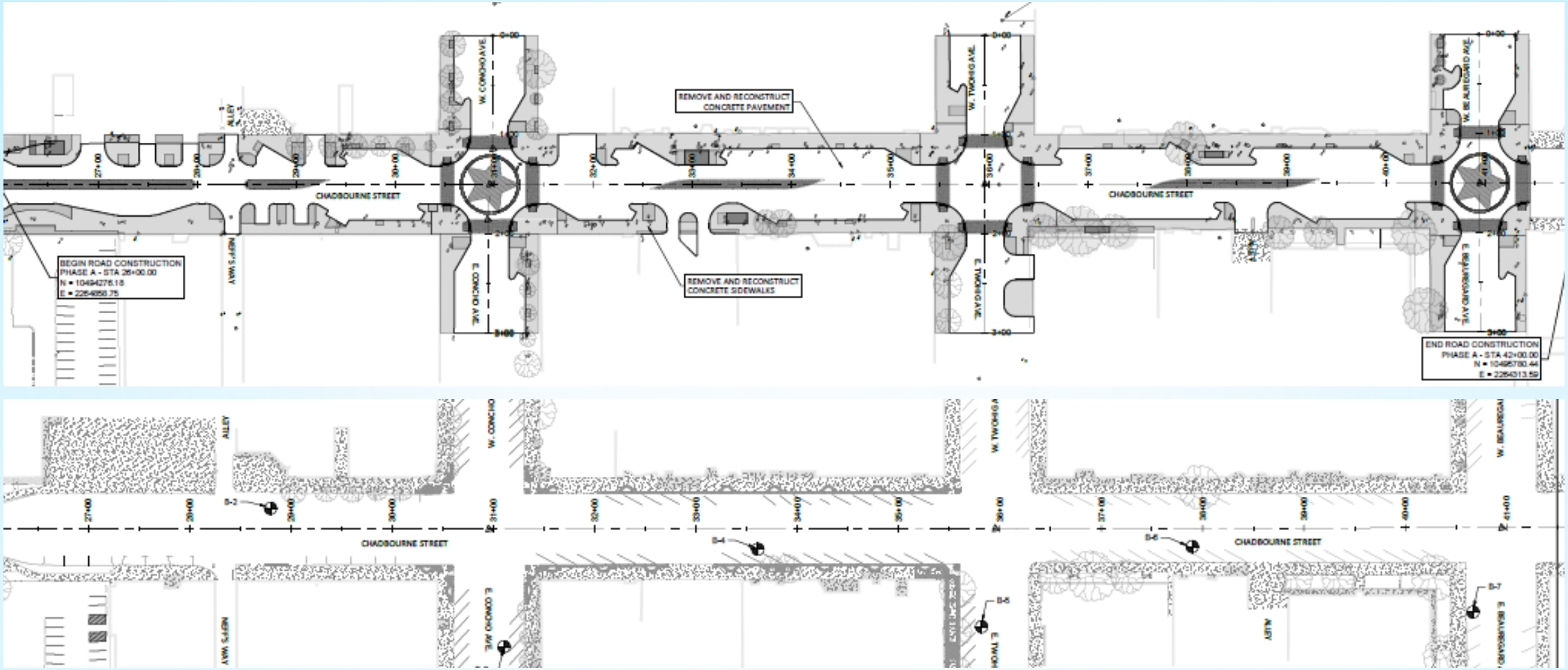
Aug 18, 2020

Chadbourne Phase A – Project Limits

- Chadbourne corridor extending from the Chadbourne bridge at the Concho River north to Beauregard Ave.



Chadbourne Phase A – Amenities

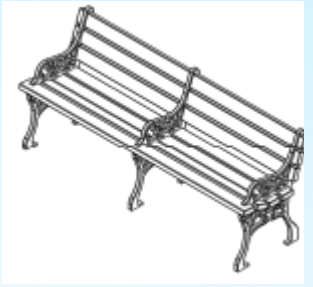


Chadbourne Phase A – Amenities

- Pedestrian ramp from Chadbourne down to the Riverwalk area.

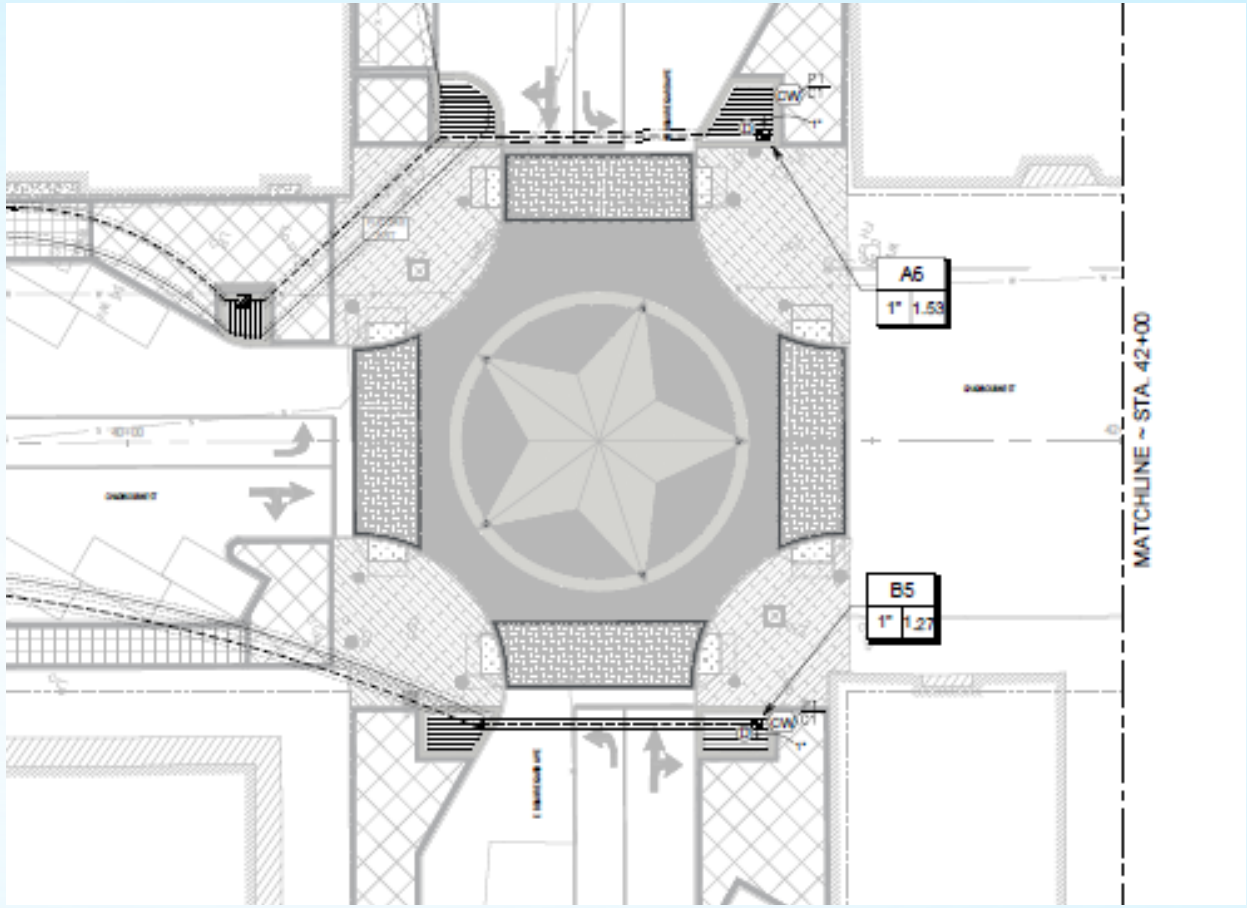
Chadbourne Phase A – Amenities

- Lighting
- Benches
- Bicycle racks
- Trash cans
- Designated art locations



Chadbourne Phase A – Amenities

- Reconstructed intersections
- Pedestrian bulb outs
- Pedestrian cross walks
- Designated art locations



Chadbourne Phase A – Bid Process

- Due to grant funding federal and state regulations of acquisition were followed. City issued an RFB
- Bids were received and bid opening held on July 24, 2020
- Three bidders responded FNH, Goode and Ti-Zack Concrete
- Ti-Zack Concrete was the low bidder.

Chadbourne Phase A – Bid Process

- Ti-Zack Concrete, Inc. has performed other downtown revitalization projects.

Chadbourne Phase A – Recommendation

- Approval of the award of $8,892,402 to Ti-Zack Concrete

City Council

Aug 4, 2020

Questions?

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Bob Salas, Neighborhood Services Director, Neighborhood and Family Services, 325-655-0824

Meeting Date: August 18, 2020

Item type: Regular Item

Caption:

Update on the 2020 Census Complete Count (Presentation made by 2020 Census Partnership Specialist Misty Hill)

Summary/History:

Due to the COVID-19 pandemic, 2020 Census operations were delayed with a restart in May and a soft launch of Nonresponse Follow-up operations in July. Locally, the Census staff is requesting assistance as they begin operations in the rural areas. They ask that we all share Census messaging on social media and email all of your contacts to share. Also, that if you speak to the media this week, please talk about the Census and the importance of responding.

Current Response Numbers
United States 62.8%
Texas 62.8%
Local Counties:
Brown County 51.3%
Comanche County 49.6%
Eastland County 43.4%
Erath County 47.3%
Hood County 63.2%
Runnels County 51%Somervell County 47.1%
Sutton County 30.6%
Stephens County 45.7%
Tom Green County 62.1%

Financial Impact:

N/A

Other Information/Recommendation:

Attachments:

1. Census Update PPT — Census Update PPT.pptx

Presentation:

Approvals/Reviews:

Bob Salas — Created/Initiated

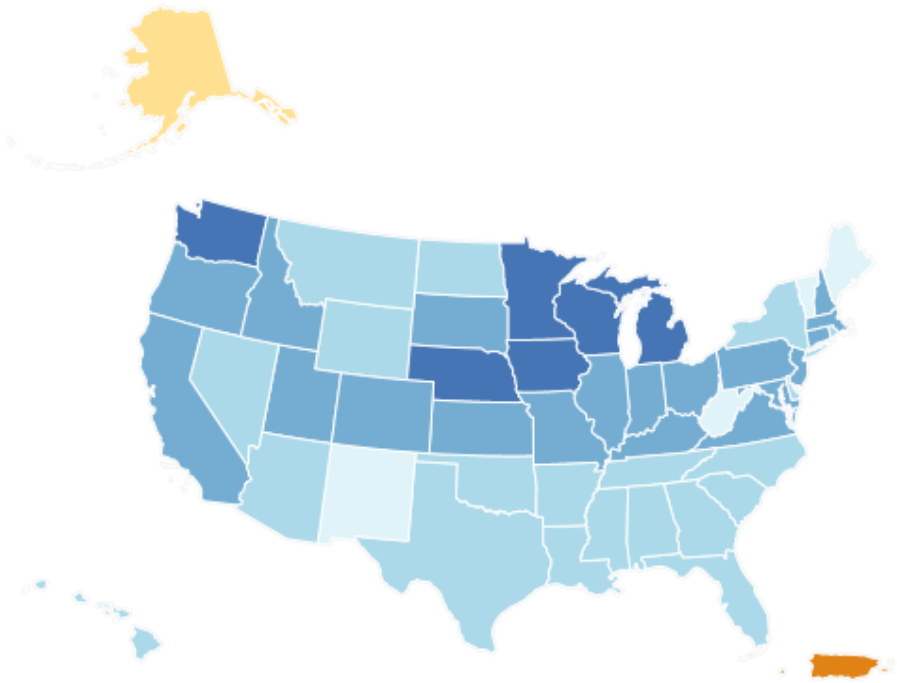
Theresa James	Approved
Nolan Sosa	Approved
Tina Dierschke	Approved
Theresa James	Approved
Julia Antilley	Final Approval

City of San Angelo/Tom Green County 2020 Census Update

Data valid as of August 12, 2020

National
Self-Response
63.4%

Texas
Self-Response
58.4%



2020 Census Self-Response

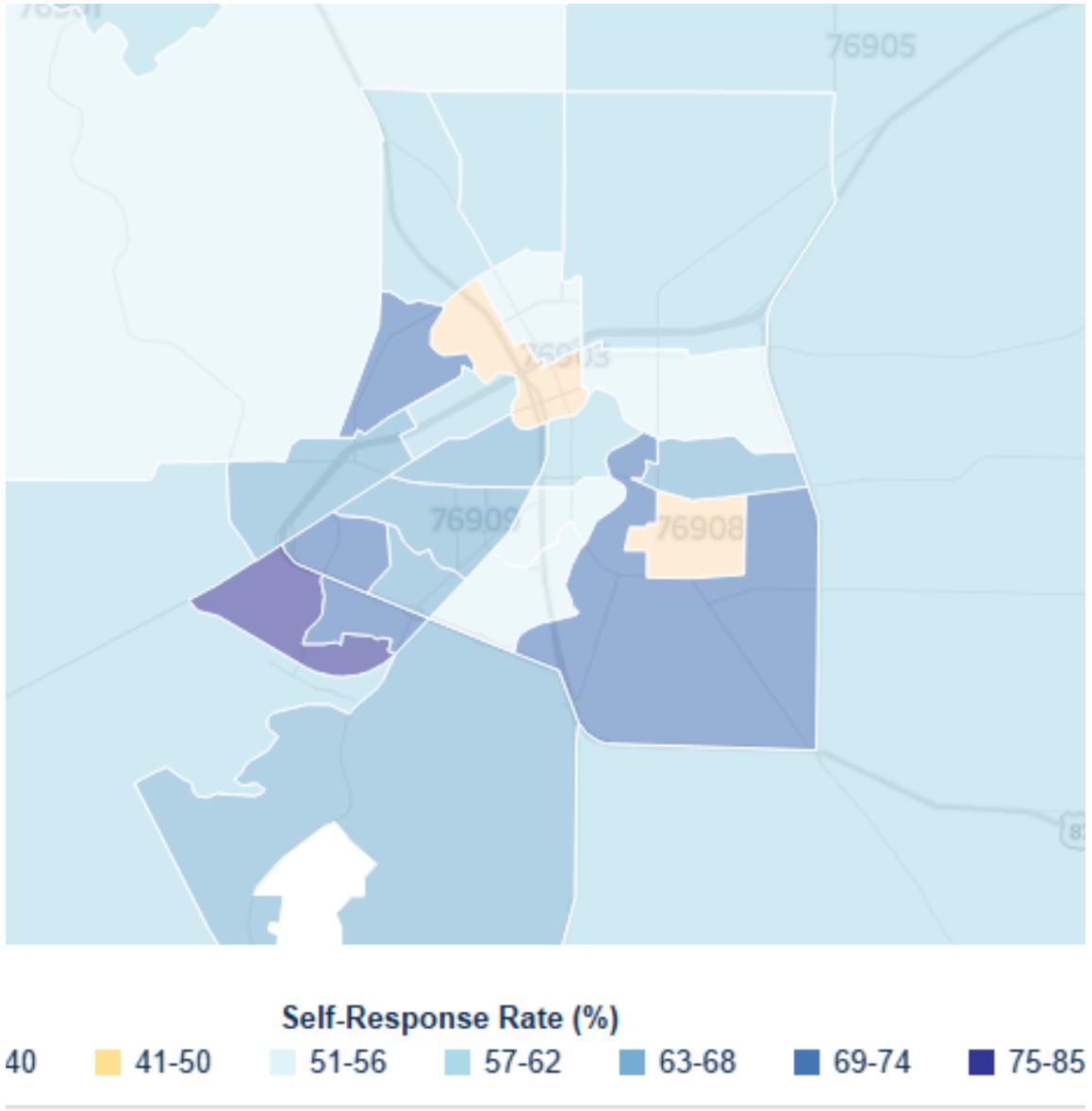
Tom Green County: 62.8%

Ranked 17th out of 254 counties

City of San Angelo: 63.9%

Ranked 237 out of 1200+ cities

Self Response Map



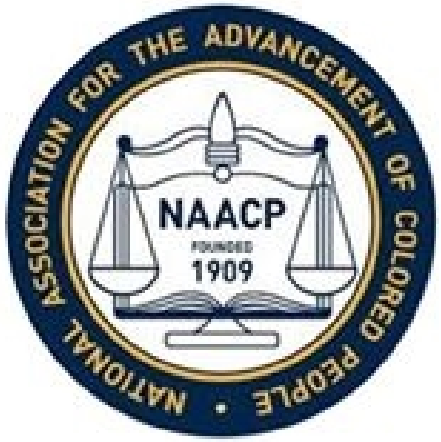
How to be counted

- Online: go to 2020census.gov on your smartphone, iPad or computer
- By phone: call 1-844-330-2020
- By mail: complete and return packet you received to your home

What if a household does NOT self-respond???

A Census door knocker will be coming to your home SOON to complete your survey.

Why has San Angelo had such Census success???
2 proactive complete count committees



Have questions about the 2020 Census?

Misty Hill
682-228-0788
misty.e.hill@2020census.gov

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Jeremy Valgardson, Airport Director, Airport, 325-659-6409

Meeting Date: August 18, 2020

Item type: Regular Item

Caption:

Consider accepting the recommendation of the San Angelo Airport Advisory Board to approve the final Airport Master Plan and 'Airport Layout Plan' developed by Centurion Planning and Design and authorizing the City Manager to negotiate and execute all related documents (Presentation made by Airport Director Jeremy Valgardson and Centurion Planning and Design)

Summary/History:

In 2018 Centurion Planning and Design was tasked with completing a comprehensive Airport Master Plan to investigate the short, medium, and long range infrastructure needs. This was determined by understanding the current use of the airport and predicting the medium and long range needs through data collection and analysis and tenant interviews.

There are 5 major chapters to the Master Plan: 1-Inventory; 2-Forecast; 3-Demand/Capacity; 4- Alternatives; 5-Implementation/Financials. There have been several public meetings along the way to better understand the airports role in serving the communities air service needs.

The final subsection of the Master Plan is the Airport Layout Plan (ALP). The ALP is the most critical piece of this process and will help the airport compete for federal funding as it becomes available. The ALP shows how the current and future infrastructure will need to be upgraded or built to meet FAA's design standards.

The initial project was paid for under the Airports 2018 FAA entitlement grant. The Airport Advisory Board recommended that City Council approves the Master Plan and ALP as presented.

Financial Impact:

There is no financial obligation. This project is being paid for out of 2018 entitlement grants (GRANT 38) that has already been approved.

Other Information/Recommendation:

Attachments:

1.	SJT Airport Master Plan - FULL PLAN	SJT Airport Master Plan - FULL PLAN.pdf
2.	7e Airport Master Plan - Centurion	7e Airport Master Plan - Centurion.pptx

Presentation:

Jeremy Valgardson / Centurion Planning and Design

Approvals/Reviews:

Jeremy Valgardson	Created/Initiated
Jeremy Valgardson	Approved
Theresa James	Approved
Nolan Sosa	Approved
Tina Dierschke	Approved
Theresa James	Approved
Julia Antilley	Final Approval

SAN ANGELO REGIONAL AIRPORT

DRAFT
AIRPORT MASTER PLAN
JULY 2020

centurion
PLANNING AND DESIGN

SAN ANGELO REGIONAL AIRPORT / MATHIS FIELD (SJT)

SAN ANGELO, TOM GREEN COUNTY, TEXAS

AIRPORT MASTER PLAN

AIP PROJECT #3-48-0191-038-2018

JULY 2020

SUBMITTED TO:

FEDERAL AVIATION ADMINISTRATION

TEXAS AIRPORTS DISTRICT OFFICE

SUBMITTED BY:

CENTURION PLANNING AND DESIGN

69 NORTH CHADBOURNE STREET

SAN ANGELO, TEXAS 76903

(325) 757-1001

www.centurionplan.design

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Appendix D: Airport Layout Plan Drawing Set D1

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INTRODUCTION

An airport master plan is a comprehensive study of an airport that focuses on short-, medium-, and long-term development plans to meet future aviation demand. It focuses on facilities that serve passengers, air cargo, aircraft owners, pilots, and airport tenants providing guidance on how facilities should be updated to maintain a high level of service to the flying public into the future. The master planning process concludes with an Airport Layout Plan (ALP) which is a set of drawings depicting existing facilities and the planned future development plans for an airport. ALPs are regularly updated as airport improvements are undertaken. Federal Aviation Administration (FAA) Advisory Circular 150/5070-6B, *Airport Master Plans*, provides guidance for the preparation of Master Plan's and defines the general content.
The latest Airport Master Plan for San Angelo Regional Airport (Airport) was prepared in 1995. The ALP has been regularly maintained with the most recent update completed in 2012.

The Airport Master Plan is a joint effort on behalf of all involved in the use of the airport. It consists of six elements that translate into master plan chapters as follows.

Inventory

This element describes facilities and levels of activity currently existing at the Airport. The inventory is the foundation of subsequent plan elements.

Forecasts

Understanding future demand is a critical part in the decision-making process that occurs during the planning process and the execution of the ensuing capital improvement plan. The forecasts evaluate the volume of passengers and cargo, the number of based aircraft, and the movements of aircraft to describe how the use of the Airport will change over time. Aviation forecasts are pivotal in justifying plan outcomes and helping the City and FAA determine funding priority. For these reasons, the FAA must approve the aviation forecasts. This is one of only two Plan elements that the FAA formally approves.

Facility Requirements and Demand / Capacity Analysis

This element can be thought of as a gap analysis between the facilities that the Airport has (inventory) and the facilities it will need (based on the forecasts). This element will yield recommendations on which facilities need improvement, expansion, replacement, and removal and will provide an idea of the scale of facility changes needed to meet future demand.

Airport Alternatives

This element builds on the recommendations in the Facility Requirements and Demand / Capacity Analysis element and assesses a variety of alternatives to meet future needs. Alternatives are evaluated based on cost, environmental impact, construction feasibility, and operational integration with the existing airfield and facilities. A preferred alternative for each facility type is recommended based on the analysis and carried forward in the Plan.

Financial Feasibility Analysis and Facilities Implementation Plan

This element defines the timing of needed improvements and the how they will be paid for. A financial plan is prepared that addresses up front capital costs, ongoing operations and maintenance costs are identified, and the financial impact and feasibility evaluated. The outcome of this element is a phased, demand-based, capital improvement plan that will guide the City of San Angelo through the facility development process.

Airport Layout Plan

This element is the graphical depiction of the preferred improvements identified in the Master Plan. This document shows how the airfield will look once the improvements have occurred and illustrates the conceptual ultimate plan. This is the second part of the Plan that must be formally approved by the FAA. Only improvement projects depicted on an approved ALP are eligible for FAA funding. The ALP is required to be updated every 5 years unless major changes at the airport are made or planned.

Public Involvement is a critical part of the planning process that occurs constantly throughout the development of the Plan. The purpose of public involvement is to include airport stakeholders, city leadership, and other interested parties in the process of developing the Plan, thereby establishing "ownership" in the future of the Airport. The public involvement process allows questions and concerns to be addressed early in the plan process and is intended to make the Plan reflect the goals and objectives of all stakeholders.

The information contained in this document will give the City of San Angelo a practical strategy for the development of the Airport in consideration of financial, environmental and socioeconomic factors.

BACKGROUND

The City of San Angelo is in an agricultural/ranching region of west-central Texas. In 1860, the area was nothing more than a frontier town, located across the Concho River from Fort Concho. The founder, Bartholomew J. DeWitt, was the first to establish a trading post, which was called Santa Angela. It wasn't until 1883 that the name was changed to San Angelo. Some of the oldest buildings in downtown San Angelo were built in the early 1880's by an architect named Oscar Ruffini and several of these buildings are still in use today. The early growth of the city was very much reliant on Fort Concho. The steady flow of money paid to the soldiers brought traders and merchants from all across Texas and many stuck around to cater to the needs of the soldiers. It didn't take long for people to realize the abundance of water from the North, South and Middle Concho rivers created a viable source for cattle and sheep ranching. Agriculture, ranching and later the oil and gas industry became the most important factors in the city's economy. In fact, they did so well here that at one time San Angelo was the leading cattle market in Texas, the largest sheep market in the United States and the leading wool and mohair markets in the nation. The city became incorporated in 1903 and established a controlled educational system. By the 1940's the United States War Department chose San Angelo as the location of Goodfellow Airforce Base (located west of the city) and San Angelo Army Field (located south of the city). The facilities were built in response to the "program of preparedness", which

includes the construction of facilities dedicated to basic and advanced air training. Both facilities helped feed the economy bringing in more revenue and almost doubling the population of the community.

Airport Location

San Angelo is a city in, and the county seat of, Tom Green County, Texas. Located in the Concho Valley, it is approximately 66 miles north of U.S. Interstate 10, 75 miles south of U.S. Interstate 20, 110 miles southeast of Midland, and 200 miles northwest of Austin along U.S. Highway 87. The current estimated population of San Angelo is 100,450 residents covering 58.2 square miles.

San Angelo Regional Airport is situated to the southwest of San Angelo, 8 miles from the downtown area via Texas Highway 584 and Knickerbocker Road as illustrated on **Exhibit 1A**. It is the only airport in the Concho Valley providing regularly scheduled passenger service. Owned and operated by the City of San Angelo, the airport resides on approximately 1,500 acres.

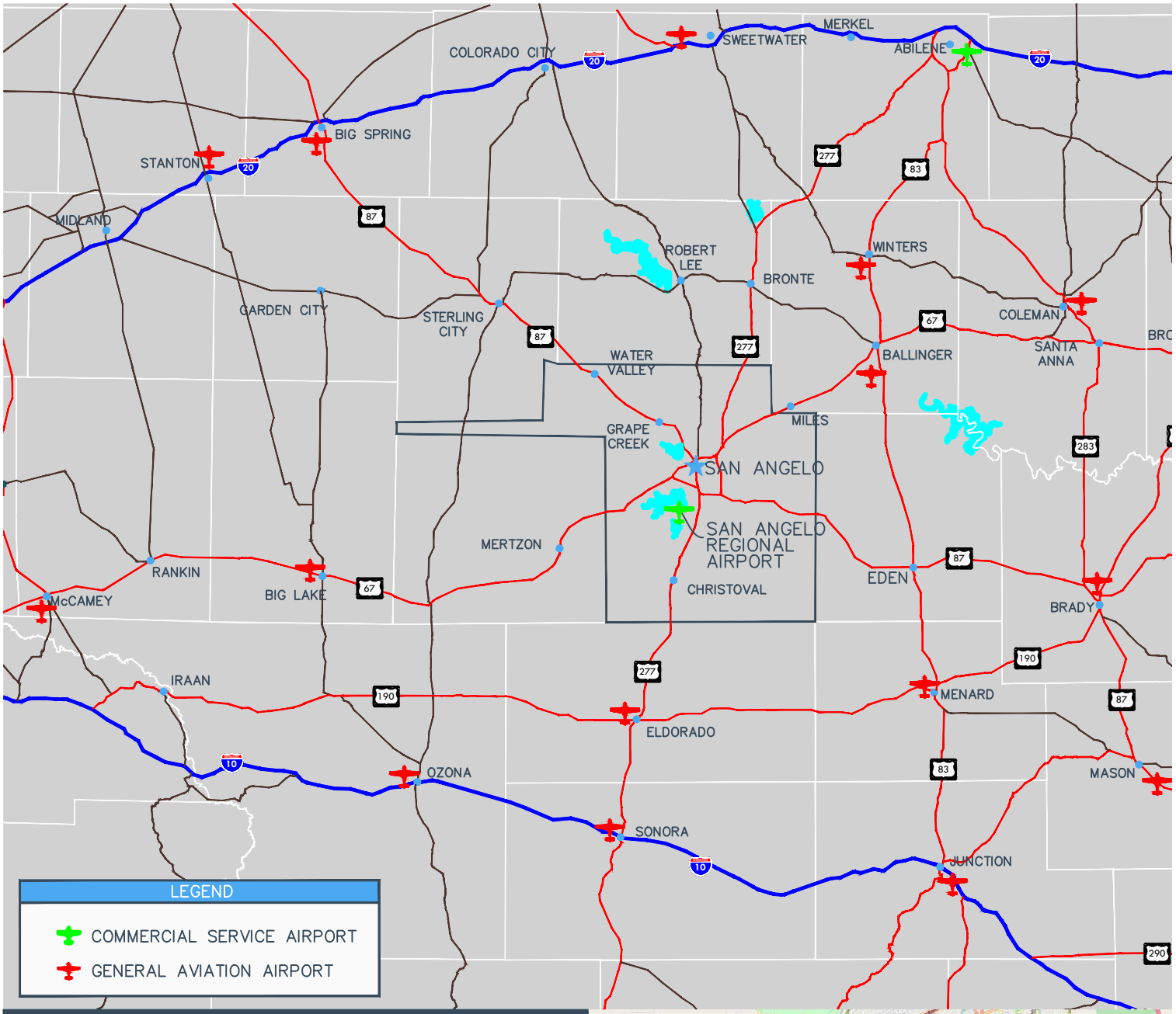
The airports official location is defined by the Airport Reference Point (ARP), or the geometric center of all usable runways. The ARP for San Angelo Regional Airport is N 31° 21' 27.90 latitude and W 100° 29' 46.70 longitude. Airport elevation, or field elevation, defines the highest point of the airports usable runways and is measured in height above Mean Sea Level (MSL). The elevation of San Angelo Regional Airport is 1,918.6 feet MSL.

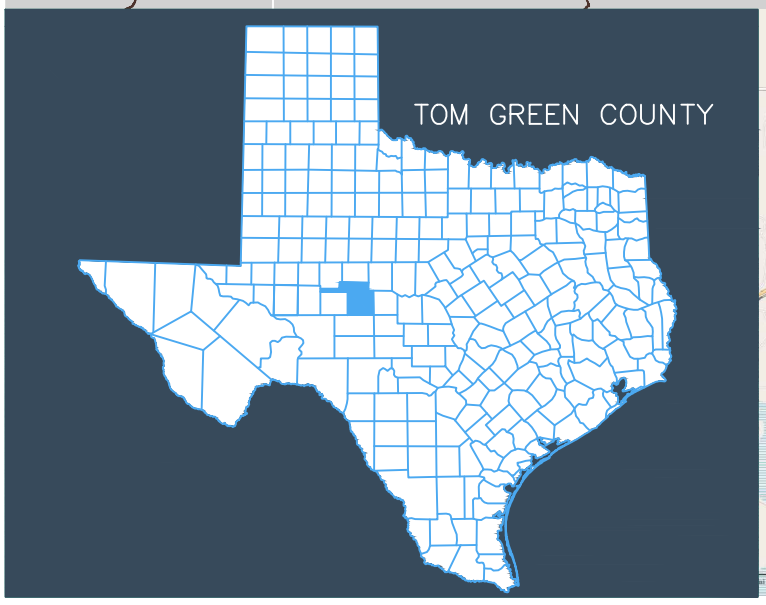
Primary Airport Information

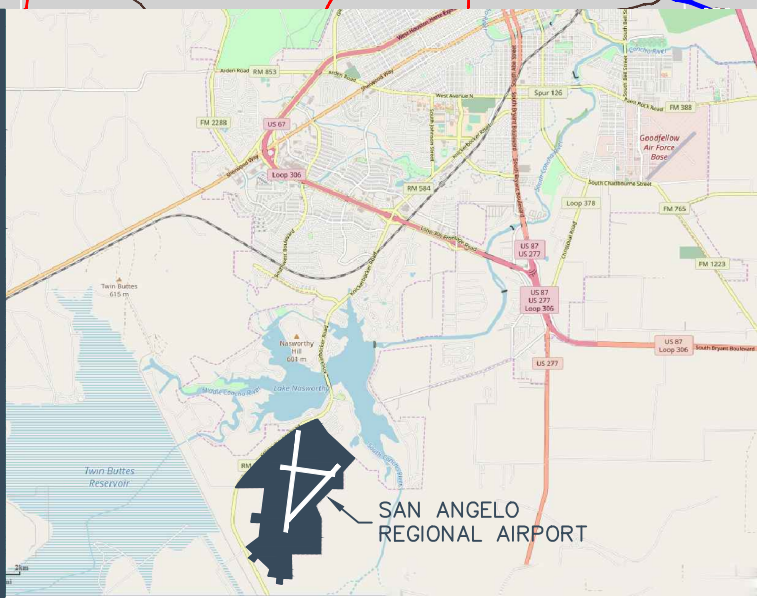
Table 1A provides a summary of important primary data elements for San Angelo Regional Airport.

TABLE 1A
San Angelo Regional Airport Data

San Angelo Primary Data Elements	
Airport Name	San Angelo Regional Airport
FAA Designation	SJT
Associated Town	San Angelo, TX
Airport Owner	City of San Angelo, TX
Airport Sponsor	City of San Angelo, TX
Airport Management	Full-time Airport Director
Date Established	1943
Commercial Air Service	American Eagle
Part 139 Classification	Class II
ARFF Index	B
Airport Acreage	1,503 Acres
Airport Reference Point	Latitude: 31°21'27.900"N
(ARP)	Longitude: 100°29'46.700"W
Airport Elevation	1,918.6 Mean Sea Level (MSL)
Area Mean Max. Temp.	90° F







SAN ANGELO REGIONAL AIRPORT

Exhibit 1A
AIRPORT LOCATION MAP

Airport History

Over 75 years ago, the city commission was considering the idea of establishing a city airport in or near San Angelo. An agreement was made to purchase approximately 670 acres of land located on Knickerbocker Road next to Lake Nasworthy. Shortly after work began, the first municipal airport runway was cleared and ready for construction. At this same time, the United States was preparing to enter World War II and an agreement was made for the Army Air Corps to construct the airport.

Activated in 1943, Carr Field was established to be the site of a new airfield training facility for the Army, later changing jurisdictions to the Army Corps of Engineers in 1946. After war efforts had ceased, a transfer agreement was arranged between the City of San Angelo and the War Assets Administration for the city to reclaim its original airport and government built/owned airport improvements. The airport was renamed in honor of Jack W. Mathis, a recipient of the Medal of Honor for his heroics in World War II. Today the airport is a public airport known as San Angelo Regional Airport – Mathis Field.

Airline Service at San Angelo Regional Airport. In 1948, Continental Airlines served the airport with passenger flights on a daily round trip from San Antonio to Denver and in 1949, Trans-Texas Airways offered daily round trips from Love Field in Dallas to El Paso. By 1961, Trans-Texas offered routes from San Angelo to Memphis with direct flights non-stop to Love Field. Continental also offered daily round trips from Houston to Los Angeles and a direct flight to Lubbock and Amarillo in 1963. One year later, Continental ceased all flights to San Angelo and no longer serviced the airport. Trans-Texas changed names to Texas International and in 1970 introduced jet service to San Angelo, eight years later offering service with four direct flights each day to Dallas/Fort Worth. In 1982, Texas International soon merged with Continental Airlines and again ceased all service to San Angelo.

Nearly five years after Texas International stopped servicing the airport, Rio Airways, an independent airline, began service into San Angelo with eight weekly non-stop flights to Dallas/Fort Worth. In 1985, Rio became connected with Delta Airlines continuing to service passengers to and from San Angelo. Two years later Atlantic Southeast Airlines, now known as Express Jet, replaced Rio Airways as Deltas Connection carrier.

Continental Airlines returned to San Angelo roughly 40 years after stopping services in 1964. The service, flown by Colgan Air, flew nonstop to Houston but eventually this route was discontinued in 2008 when Continental merged with United Airlines.

In 1995, Delta Connection and American Eagle began competing for the Dallas/Fort Worth route and four years later in 1999 American Eagle claimed their title as the only commercial servicer operating non-stop to Dallas/Fort Worth. Currently, American Eagle, operating on behalf of American Airlines, makes four non-stop flights to Dallas/Fort Worth daily.

Airport Improvements. Numerous improvements have been made to San Angelo Regional Airport over the past two decades, these improvements are described in **Table 1B**.

Airport Management

San Angelo Regional Airport is owned by the City of San Angelo and operated by an Airport Director and his or her staff. The Airport Director reports directly to one of two Assistant City Managers. The City operates under a City Manager/City Council form of government. City Council is comprised of the elected Mayor and six Council members.

An Airport Advisory Board, composed of seven members appointed by the City Council, serves as an advisory board for the mayor and the council to monitor the development and operations of the airport.

Airport Role

All airports have functional roles and contribute at varying levels in meeting transportation and economic needs on a national, regional, state and local level. Identifying and understanding the various roles of an airport is an essential part of the airport planning process, ensuring recommended facilities and services are appropriate for fulfilling respective roles.

TABLE 1B
Historical Airport Improvement Program Grants Funded by the FAA (1999-2017)

Year	Grant Funded	Amount
2017	Rehabilitate Taxiway	$ 3,229,017
2017	Acquire ARFF Vehicle, PCI Study	$ 603,175
2016	PCI Study, Rehabilitate Taxiway, Wildlife Hazard Assessment	$ 348,910
2012	Improve Terminal Building	$ 4,000,000
2011	Improve Terminal Building	$ 1,034,814
2010	Improve Terminal Building, Rehabilitate Runway 3-21	$ 1,390,565
2010	Rehabilitate Runway 9-27 and Taxiway, Wildlife Hazard Assessment	$ 2,173,604
2009	Rehabilitate Taxiway	$ 3,074,621
2008	Rehabilitate Apron, Rehabilitate Taxiway, Remove Obstructions	$ 741,606
2008	Rehabilitate Apron	$ 3,000,000
2008	Improve Terminal Building, Remove Obstructions	$ 258,394
2007	Rehabilitate Apron, Rehabilitate Runway Lighting, Rehabilitate Taxiway Lighting	$ 4,233,810
2006	Rehabilitate Apron, Rehabilitate Runway 18-36	$ 4,700,000
2005	Improve Terminal Building, Rehabilitate Apron, Rehabilitate Runway 18-36	$ 2,500,000
2004	Acquire Land for Approaches, Install Runway 3-21 Lighting, Modify Terminal Building, Rehabilitate Runway 3-21	$ 3,525,000

TABLE 1B (cont.)
Historical Airport Improvement Program Grants Funded by the FAA (1999-2017)

Year	Grant Funded	Amount
2003	Rehabilitate Runway 9-27, Rehabilitate Taxiway, Improve Terminal Building, Acquire ARFF Vehicle	$ 1,000,000
2002	Security Enhancements	$ 50,102
2002	Improve Terminal Building	$ 1,490,787
2002	Acquire ARFF Vehicle	$ 562,500
2001	Modify Terminal Building, Rehabilitate Runway 3-21	$ 1,000,000
2000	Acquire Pavement Sweeper	$ 90,000
2000	Construct ARFF Building, Conduct Airport Master Plan Update	$ 177,038
2000	Construct ARFF Station	$ 1,271,596
1999	Construct Lighting Vault	$ 529,984

National Role

The National Plan of Integrated Airport Systems (NPIAS), a 5-year plan, is continually updated and published biennially by the FAA. The plan lists those airports considered to be in the national interest and therefore eligible for financial assistance for airport planning and development under the Airport and Airway Improvement Act of 1982. Over 3,300 airports are included within the NPIAS. Airports are grouped by statute into two major categories: primary and nonprimary. Primary airports are defined in the FAA's authorizing statute as public airports receiving scheduled air carrier service with 10,000 or more enplaned passengers per year. According to the September 2018, *National Plan of Integrated Airport Systems Plan 2019-2023*, there are currently 380 primary airports within the NPIAS.

Non-primary airports primarily support general aviation aircraft. The non-primary category includes nonprimary commercial service airports (public airports receiving scheduled passenger service and between 2,500 and 9,999 enplaned passengers per year), general aviation airports, and reliever airports. There are 2,941 nonprimary airports.

San Angelo Regional Airport is classified as a primary commercial service airport in the NPIAS. This classification does not restrict or prevent its use by general aviation or military aircraft; rather, it is intended to reflect the airport's capacity to provide the highest level of public services and accommodations for some of the largest, most sophisticated aircraft in the commercial and general aviation fleet. This classification is also used as a funding category for the distribution of federal aid.

Primary airports are further grouped into four categories: large hub, medium hub, small hub, and non-hub. The percentage of revenue-producing passengers in each area (referred to as a "hub") is determined by dividing the number of annual passenger enplanements at the airport into the number

of annual enplanements nationwide. This percentage then falls within a predetermined hub classification: large, medium, small, or non-hub.

San Angelo Regional Airport is classified as a non-hub primary airport as it enplanes less than 0.05 percent of all U.S. commercial passenger enplanements, but more than 10,000 annual enplanements. In 2018 there are 247 non-hub primary airports in the United States that together account for three percent of all enplanements. Annual enplaned passenger data for San Angelo Regional Airport is contained in **Table 1C**.

An airport must have an Airport Operating Certificate (AOC) if it is serving air carrier aircraft with more than nine seats or serving unscheduled air carrier aircraft with more than 30 passenger seats. 14 CFR Part 139 (Part 139) describes the requirements for obtaining and maintaining an AOC. This includes meeting various Federal Aviation Regulations (FARs).

TABLE 1C
Historical Airline Enplaned Passengers (1999-2017)

Year	Passengers
1999	39,411
2000	47,544
2001	45,307
2002	39,844
2003	48,299
2004	59,430
2005	65,705
2006	68,236
2007	71,008
2008	64,865
2009	60,353
2010	56,021
2011	54,995
2012	56,301
2013	62,296
2014	65,973
2015	63,842
2016	60,277
2017	59,206

Airports are classified in the following categories based on the type of air carrier operations served:

- Class I Airport – an airport certificated to serve scheduled operations of large air carrier aircraft that can also serve unscheduled passenger operations of large air carrier aircraft and/or scheduled operations of small air carrier aircraft.

- Class II Airport – an airport certificated to serve scheduled operations of small air carrier aircraft and the unscheduled passenger operations of large air carrier aircraft. A Class II airport cannot serve scheduled large air carrier aircraft.
- Class III Airport – an airport certificated to serve scheduled operations of small air carrier aircraft. A Class III airport cannot serve scheduled or unscheduled large air carrier aircraft.
- Class IV Airport – an airport certificated to serve unscheduled passenger operations of large air carrier aircraft. A Class IV airport cannot serve scheduled large or small air carrier aircraft.

Part 139 (which implemented provisions of the Airport and Airway Development Act of 1970, as amended on Nov. 27, 1971) set standards for: the marking and lighting of areas used for operations; firefighting and rescue equipment and services; the handling and storing of hazardous materials; the identification of obstructions; and safety inspection and reporting procedures. It also required airport operators to have an FAA-approved Airport Certification Manual (ACM).

The ACM defines the procedures to be followed in the routine operation of the airport and for response to emergency situations. The ACM is a working document that is updated annually. It reflects the current condition and operation of the airport and establishes responsibility, authority, and procedures.

There are required sections for the ACM, covering administrative detail and procedural detail. Each section independently addresses the: who (primary/secondary), what, how, and when as it relates to each element. The administrative sections of the ACM cover such elements as the organizational chart, operational responsibilities, maps, descriptions, weather sensors, access, and cargo. The procedural elements cover such items as paved and unpaved areas, safety areas, lighting and marking, communications and navigational aids, airport rescue and firefighting, handling of hazardous material, utility protection, public protection, self-inspection program, ground vehicle control, obstruction removal, wildlife management, and construction supervision.

San Angelo Regional Airport has an AOC that is classified as a Class II airport and maintains a current, approved ACM.

Airport Activity

San Angelo Regional Airport is used by a wide range of airport users. According to the airport's 5010 Master Record (5010)[1], 176 aircraft are based at the airport. This number includes:

- 98 single-engine aircraft
- 16 multi-engine aircraft
- 45 jet aircraft
- 7 helicopters
- 10 military

[1] https://www.gcr1.com/5010web/airport.cfm?Site=SJT

It must be noted that the number of based jet aircraft fluctuates. Currently, Envoy Air, a subsidiary of American Airlines, leases apron space north of the terminal building to store regional jet aircraft. As these aircraft are placed back into service, or additional aircraft are taken out of service, the based jet aircraft number will change. The most recent count of the regional jet aircraft was 7. In addition to these aircraft 15 business jets are based at the Airport.

San Angelo Regional Airport is unique in that U.S. Customs and Border Protection bases 4 Unmanned Aircraft Systems (UAS) in the northernmost hangar at the airport. These aircraft are considered single-engine aircraft and operate regularly through a Memorandum of Agreement (MOA) with the airport traffic control tower (ATCT).

The 5010 reported 84,130 total operations during calendar year 2017. These operations are categorized as follows:

- 2,080 air carrier
- 4,458 air taxi
- 12,951 local general aviation
- 22,199 itinerant general aviation
- 42,442 military

Air carrier operations are classified as those that occur in aircraft with more than 60 passenger seats. At San Angelo Regional Airport the air carrier operations are undertaken primarily by charter operations to destinations such as Laughlin, Nevada. Air taxi operations occur in aircraft with fewer than 60 seats and include those regularly scheduled operations by American Airlines to Dallas Fort Worth International Airport. Service is currently provided through four daily arrivals and four daily departures with 40-seat Embraer Regional Jet aircraft.

AIRPORT FACILITIES

To accommodate airport users, San Angelo Regional Airport includes three paved runways and associated taxiways, a passenger terminal complex, an ATCT, aircraft hangars, aircraft parking aprons, and numerous support facilities. Airside facilities typically include those that are required for the physical movement of aircraft and Landside facilities include those that support the use of the airport. The following sections provide details regarding these facilities.

Airside Facilities

Exhibit 1B, depicts the location of the airside facilities, described in **Table 1D**. Below are descriptions of the primary facilities.

Runways

Runways are named using a number between 01 and 36. This represents the runway's general magnetic compass orientation and each runway end is named accordingly. For example, Runway 18 has a magnetic heading of 180 degrees.

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Exhibit 1B
AIRSIDE FACILITIES

The opposite end of Runway 18 is 36, which has a magnetic heading of 360 degrees. These numbers represent the direction the aircraft is approaching or departing the runway and are 180 degrees apart. Runway headings are important as they are used by pilots to identify which runway aligns with the prevailing winds as, ideally, pilot's takeoff and land with the nose of the aircraft facing the wind to maximize lift. As previously described, San Angelo Regional Airport currently maintains three runways, providing 6 runway surfaces.

Runway 18-36 is 8,049 feet long and 150 feet wide. Oriented in a north/south direction, the runway is equipped with Medium Intensity Runway Lights (MIRL) and Precision Approach Path Indicators (PAPI) on both ends of the runway. The runway is constructed of asphalt and has a gross weight bearing capacity of 100,000 pounds for a dual-wheel configuration. The surface is grooved to aid in drainage for improved traction.

To meet Runway Safety Area (RSA) requirements, the landing threshold for Runway 18 is displaced 889 feet allowing for 7,160 feet for landing. The full 8,049 feet of runway is available for departures. Runway 36 has 7,160 feet available for landings and departures.

Runway 3-21 is 5,939 feet long and 150 feet wide. Oriented in a northeast/southwest direction, the runway is equipped with High Intensity Runway Lights (HIRL) and a four-box Visual Approach Slope Indicators (VASI). As the airport's only precision approach capable runway, Runway 3 has an Omnidirectional Approach Light System (ODALS) and Runway 21 has a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). The runway is constructed of asphalt and has a gross weight bearing capacity of 100,000 pounds for a dual-wheel configuration. The surface is grooved to aid in drainage for improved traction.

Runway 9-27, the airport's general aviation utility runway, is 4,402 feet long and 75 feet wide. Oriented in an east/west direction, the runway is equipped with MIRL and is used as a runway for general aviation, but also used for aircraft taxiing by all aircraft types. The runway is constructed of asphalt and has a gross weight bearing capacity of 100,000 pounds for a dual-wheel configuration

TABLE 1D
Summary of Airfield Facilities

	Runway 18-36	Runway 3-21	Runway 9-27
Runway Length (Feet)	8,049*	5,939	4,402
Runway Width (Feet)	150	150	75
Runway Surface	Asphalt	Asphalt	Asphalt
Surface Treatment	Grooved	Grooved	None
Runway Load Bearing Strength (Pounds)			
Single Wheel Loading	70,000	70,000	70,000
Dual Wheel Loading	100,000	100,000	100,000
Pavement Classification Number (PCN)	67	115	39
Runway Lighting	MIRL	HIRL	MIRL
Approach Aids			
Approach Slope Indicators	PAPI-4L	VASI- 4L (21)	None
Approach Lighting Systems	None	MALSR (21) ODAL (3)	None
Pavement Markings			
Runway	Non-Precision	Precision	Visual
Taxiway, Taxilanes, Apron	Centerline	Centerline	Centerline
Taxiway Lighting	MIRL	MIRL	MIRL
Instrument Approach Aids		ILS or LOC (3) HI-ILS (3) RNAV (GPS) (3 ,18, 21) HI-VOR/DME or TACAN (3 ,21) VOR/DME or TACAN (3) VOR (21) NDB (3)	
Weather Reporting		ASOS 325-949-6686 ATIS (128.45 Mhz)	

* To avoid obstruction and meet safety area requirements, published declared distances for Runway 18-36 are as follows:

Take Off Run Available (TORA)	8,049 (18) 7,160 (36)
Take Off Distance Available (TODA)	8,049 (18) 7,160 (36)
Accelerate Stop Distance Available (ASDA)	8,049 (18) 7,160 (36)
Landing Distance Available (LDA)	7,160 (18) 7,160 (36)

Runway Classification and Future Plans

In 2017 the FAA determined that only two runways at San Angelo Regional Airport are eligible for Airport Improvement Plan (AIP) funding assistance. The 2016 Pavement Assessment and Pavement Management Plan allowed the City of San Angelo to prepare a Pavement Prioritization Plan that evaluated the three runways at the airport. This study resulted in the classification of Runway 18-36 as the airport's "primary" runway, Runway 3-21 as the airport's "crosswind" runway, and Runway 9-27 as the airport's "additional" runway, therefore, not eligible for AIP funding assistance. During the December 12, 2017 City Council meeting it was determined that additional City funds would not be allocated for the preservation of Runway 9-27 and the runway will be closed once it reaches the end of its useful life.

Taxiways

Taxiways allow access between the runways and landside areas and are named using letters in the phonetic alphabet, for example, Taxiway Alpha (A) or Bravo (B). There are three main types of taxiways: full parallel, partial parallel, and stub or connector taxiways. Each type is named after its relative location to a runway, i.e., a full parallel taxiway runs the entire length of a runway from end to end.

The existing taxiway system at the San Angelo Regional Airport, depicted on **Exhibit 1B** and summarized in **Table 1E**, consists of several types of taxiways that provide access throughout the airfield. All taxiways at the airport are constructed of asphalt.

Taxiway Alpha is a connector taxiway connecting the northwestern aircraft ramp with landside facilities at the north, but also functions as a partial parallel taxiway to Runway 18-36. Taxiway Alpha intersects Taxiway Bravo and continues on to the Runway 18 end.

Taxiway Bravo is the airfield's only full-length parallel taxiway. It extends between the south end of Runway 18-36 and Taxiway Alpha at the north end of the runway. Taxiway Bravo is separated from Runway 18-36 by 538.5 feet. Taxiways Alpha and Bravo run parallel and are separated by 343 feet.

Taxiway Charlie and Echo are exit taxiways linking Runway 18-36 with parallel Taxiway Bravo. Recent improvements to Taxiways Charlie and Echo have resulted in the taxiways meeting current FAA standards as defined in Advisory Circular (AC) 150/5300-13A, *Airport Design*, providing 90-degree exit taxiways.

Taxiways Delta and Foxtrot provide access from Taxiway Bravo to Runway 3-21. Taxiway Delta first crosses 18-36 and continues east to connect with Runway 3-21, as depicted on **Exhibit 1E**.

TABLE 1E
Taxiway System

Taxiway	Type	Width	Description
A (Alpha)	Connector/Partial Parallel	75′	Provides access from Runway 18 end to Apron
B (Bravo)	Full Length Parallel	75′	Full length parallel taxiway for Runway 18-36
C (Charlie)	Connector	75′	Connects Runway 18-36 to Taxiway Bravo
D (Delta)	Connector	50′	Provides access from center of Runway 3-21 to Apron
E (Echo)	Connector	75′	Connects Runway 18-36 to Taxiway Bravo
F (Foxtrot)	Connector	75′	Connects Runway 18-36 to Taxiway Bravo
H (Hotel)	Partial Parallel	75′	Connects Runway 21 end to Runway 9-27

Taxiway Hotel is a partial parallel taxiway serving the northeastern end of Runway 3-21. It is separated from the runway by 400 feet and extends from Runway 9-27 to the Runway 21 threshold.

Taxilanes

A taxilane is designed for low speed and precise taxiing. They are usually, but not always, located outside the movement area[2], providing access from taxiways (usually an apron taxiway) to aircraft parking positions and other terminal areas. There is currently one marked taxilane at the airport which provides access from Taxiway Bravo to the Fed-Ex cargo area.

Pavement Condition

In the fall of 2016, a Pavement Management Plan (PMP) was prepared for San Angelo Regional Airport. FAA Advisory Circular 150/5380-7B defines a PMP as "a consistent, objective, and systematic procedure for establishing facility policies, setting priorities and schedules, allocating resources, and budgeting for pavement maintenance and rehabilitation. It can also quantify information and provide specific recommendations for actions required to maintain a pavement network at an acceptable level of service while minimizing the cost of maintenance and rehabilitation. A PMP not only evaluates the present condition of a pavement, but also predicts its future condition using pavement condition indicators. By projecting the rate of deterioration, a life- cycle cost analysis can be made for various alternatives to determine the optimal time to apply the best maintenance and rehabilitation alternative and avoid higher maintenance and rehabilitation costs in the future."

This plan is an important part of this master plan inventory process as it provides details regarding the pavement maintenance and rehabilitation projects that should be included within the airport's Capital

[2] Aircraft movement areas are defined as runways, taxiways, and other areas of an airport that are used for taxiing, takeoff, and landing of aircraft.

Improvement Program (CIP). **Exhibit 1C** depicts the current pavement conditions at the airport as well as the anticipated condition in years 2024 and 2029.

Visual and Navigation Aids

Airport navigational and visual aids are important features that provide airport references to pilots, especially during low visibility or nighttime operations. Both aids assist pilots in safe and efficient movement of aircraft during landing, takeoff and taxiing maneuvers.

Pavement Markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on an airport. Runway markings are present for visual identification of a paved runway during all weather conditions. These markings indicate airfield information and paths for pilots to follow while navigating the runways, taxiways or aprons.

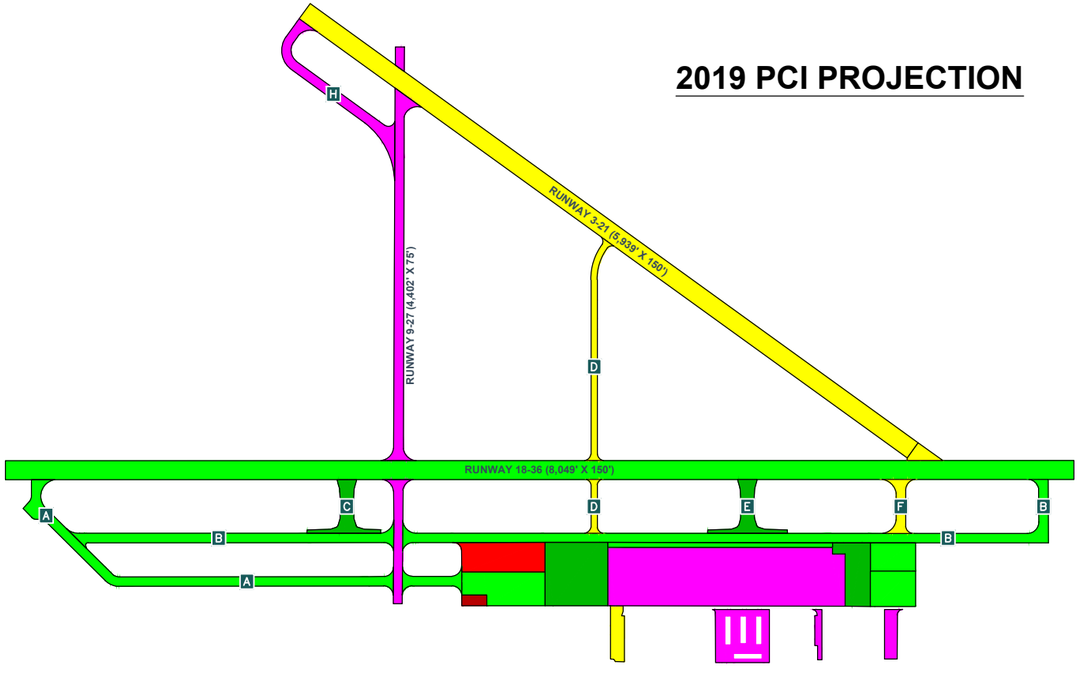
San Angelo Regional Airport uses three types of runway markings (precision, non-precision and visual). Runway 3-21 is a precision runway, meaning a runway end having an instrument approach procedure that provides course and vertical path guidance. This runway consists of surface markings including numerals, centerline, pavement edge, aiming point, threshold, touchdown zone and blast pad markings.

Runway 18-36 is a non-precision runway, or a runway end having an instrument approach procedure that provides course guidance without vertical path guidance. This runway consists of surface markings including numerals, centerline, pavement edge, aiming point, threshold, blast pad and displaced threshold markings.

Runway 9-27 is a visual runway, a runway without an existing planned straight-in instrument approach procedure. This runway consists of surface markings such as numerals, centerline, pavement edge and aiming point. All three runways are equipped with aircraft hold position markings, these prevent aircraft and vehicles from entering critical areas associated with a runway. Taxiway markings including centerlines, enhanced centerlines, lead-on or lead-off lines, holding position and surface painted signs are provided to assist aircraft in movement from the apron to the runway or vice versa.

- The taxiway centerline assists pilots in maintaining proper distances from pavement edges and other objects.
- The enhanced centerline is made up of two 150-foot parallel lines of yellow dashes used to alert pilots that are approaching a runway hold position.
- A hold position marking is designed to be the location of which an aircraft or vehicle is to stop and hold so that the ATCT can control taxiing operations through or onto a runway. This marking is parallel to the corresponding runway, it consists of a set of two continuous lines, two dashed lines and three spaces extending across the width of taxiway.
- Taxiway lead-on or lead-off lines are used in conjunction with a holding position of a taxiway crossing the runway. In this case the taxiway centerline curves onto the runway and extends parallel to the runway centerline for a distance of 200 feet, these lines are offset from the runway centerline by 3 feet.

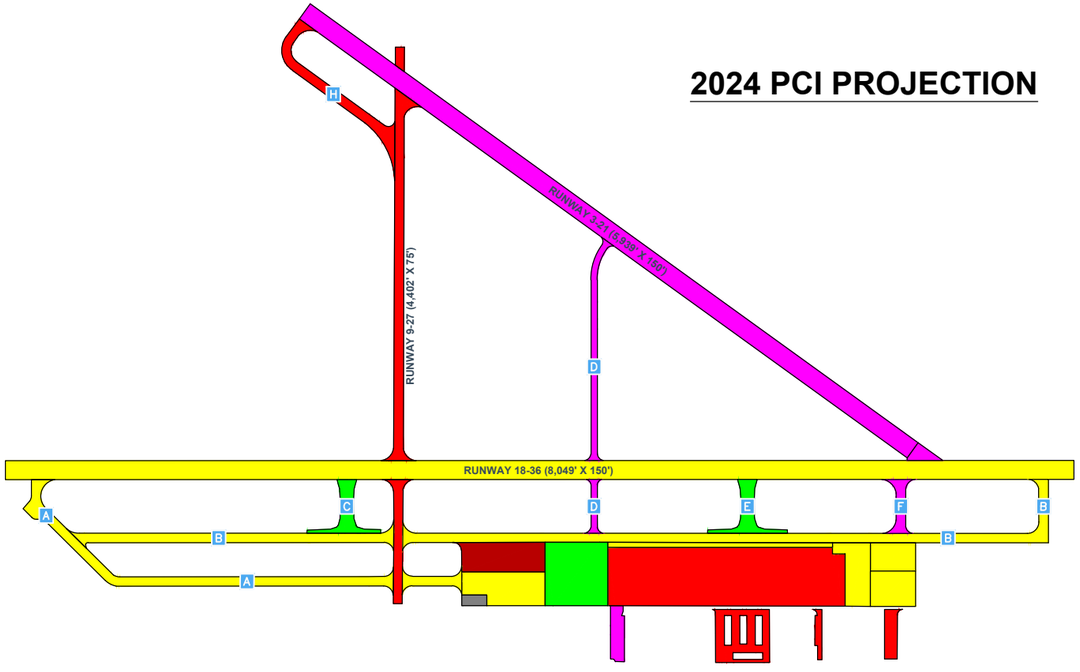
2019 PCI PROJECTION



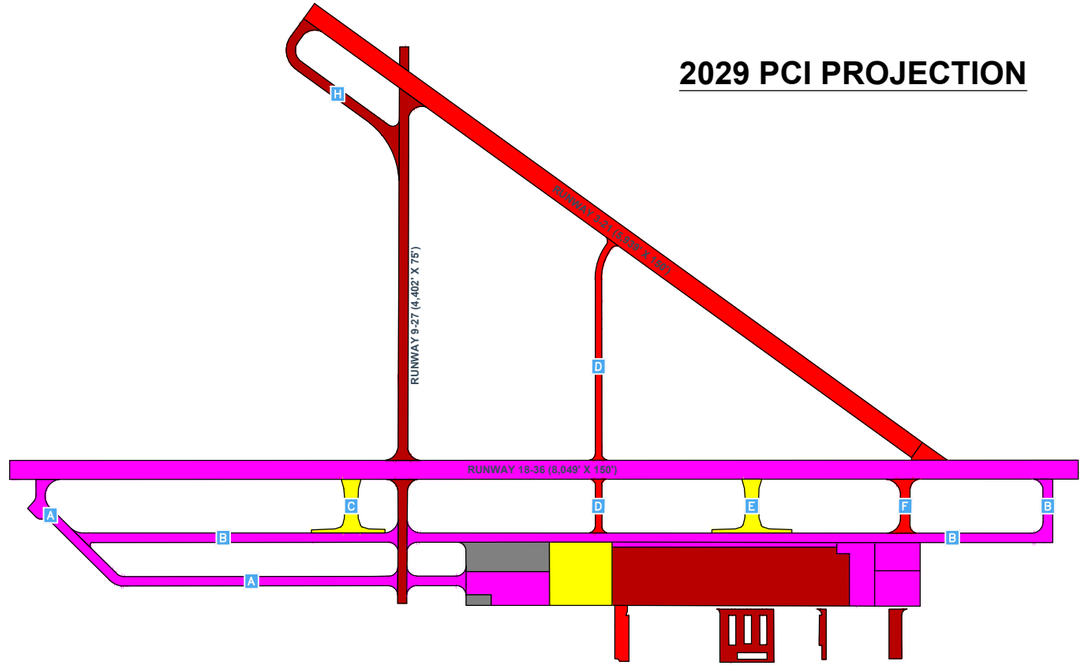
LEGEND

- Good
- Satisfactory
- Fair
- Poor
- Very Poor
- Serious
- Failed

2024 PCI PROJECTION



2029 PCI PROJECTION



SAN ANGELO REGIONAL AIRPORT

Exhibit 1C
AIRFIELD PAVEMENT CONDITIONS

Runway Edge and Threshold Lighting. All runways involved in nighttime use must have lighting which defines the extent of the runway. Runway edge lights are omni-directional and are located just outside the pavement area of the runway (white/yellow lights). Runway Threshold Lights are in a line along the landing or departing threshold at the touchdown end of a runway and define the beginning of the declared landing distance (green/red lights). These lights are placed to outline the edges of runways in low-light and restricted visibility conditions. Runway lighting systems have three different intensity levels: low, medium and high depending on the classification of the runway. San Angelo Regional Airport has high intensity runway lighting (HIRL) installed along Runway 3-21 and medium intensity runway lights (MIRL) installed along both Runway 18-36 and Runway 9-27.

Runway threshold lights

Taxiway edge lights are used to outline the edges of taxiway pavement during periods of low-light or restricted visibility conditions. These lights are omni-directional emitting blue light and are available in low or medium intensity systems. San Angelo Regional Airport uses Medium Intensity Taxiway Lights (MITL) which are can mounted and installed along all taxiways.

Runway End Identifier Lights (REILs) aid in the early identification of the runway or runway ends. They are usually used when there is a large concentration of lights or featureless terrain to provide rapid identification of the approach end of the runway during low-light or restricted visibility conditions. These lights are spaced equidistant apart, approximately 40 foot laterally from the edge of the runway. The system consists of two synchronized flashing white lights aimed toward the approach path. Runway 18 at San Angelo Regional Airport is equipped with REILs.

Visual Approach Lighting. A number of systems are in place to assist pilots with approaching the airport at night or in inclement weather conditions.

Visual Glide Slope Indicators (VGSI) are a set of lights at ground level used to assist pilots in landing. These lights identify the vertical approach path for the runway. Using this device correctly allows a pilot to visually see if the airplane is too high or too low. San Angelo Regional Airport has a VASI on Runway 21 and a PAPI on Runways 18 and 36.

A MALSR provides pilots with visual information on runway alignments, height perception, roll guidance and horizontal references. It is the standard configuration for a Category 1 precision runway and is used to align the aircraft with the centerline of the runway. San Angelo Regional Airport is equipped with a MALSR for Runway 3.

ODALS are used to identify the approach end and centerline of a runway. The system consists of 5 lead in lights spaced equally in line with the runway centerline and 2 lights placed perpendicular to the runway end. ODALS are installed for Runway 21.

The Rotating Beacon at the airport indicates to pilots the location of a lighted airport by sending out a beam of white and green lights in opposite directions. The rotating beacon is located north of the terminal on top of the ATCT.

Guidance Signs provide direction and location to pilots while moving about the airfield surface. There are several sign types, including: mandatory, location, boundary, direction, ending marker, destination, information and remaining distance signs. Mandatory signs are used to indicate critical holding areas and are usually placed at runway and taxiway intersections.

Runway 21 ODALS

Meteorological Facilities

Airport weather information is highly important to the safety of pilots, passengers, airplanes and even the airport itself. Several facilities are located on the airport to provide pilots with future and real time weather information. Facilities available to pilots using San Angelo Regional Airport include the following:

Wind Cones provide pilots with visual wind direction and velocity at the airfield. The Airport is equipped with three wind cones, located north of the intersection of Runway 3 and 36, north of the intersection of Runway 21 and 27 and east of Runway 18.

An ***Automated Surface Observing System (ASOS)*** is an airport weather data collection system that provides continuous, real time information and reports the weather conditions for the airport. The ASOS is the primary means of weather observation network in the United States. They measure a combination of crucial factors regarding local weather (barometric pressure, wind speed, temperature visibility, precipitation, and surface condition). Weather data communicated from an ASOS can be received in a variety of different ways, including: radio frequency, telephone and also by ground data link. The Airport is equipped with an ASOS system located east of the Runway 3 end.

Wind Cone

ASOS

Regional and Local Airspace and Navigation

According to the Aeronautical Information Manual (AIM), the FAA is responsible to ensure the safe, efficient, and secure use of the airspace by civil and military aviation. The Federal Aviation Act of 1958 established the FAA and made it responsible for the control of navigable airspace within the United States. The FAA then created the National Airspace System (NAS) with the intent to protect persons and property on the ground and to establish a safe and efficient airspace for civil, commercial, and military aviation interests. The NAS is made up of facilities for navigation, air traffic control, airports, technology, and rules and regulations required to operate within the system.

Today (2018), the FAA is leading a major modernization of the nation's air transportation system. This modernization project is known as NextGen. NextGen's goal is to increase the safety, efficiency, capacity, predictability, and resiliency of American aviation. The project brings together innovative technologies, capabilities, and procedures that improve how flight operations take place from departure to arrival. Airlines, general aviation operators, pilots, and air traffic controllers gain better information and tools that help passengers and cargo arrive at their destinations more quickly, while aircraft consume less fuel and produce fewer emissions. The transformation began in 2007 and has a target to have all major components in place by 2025. The technologies being utilized consist of aircraft-based equipment, ground-based equipment, and new procedures that utilize the new infrastructure for navigation, communication and safety. While some of the technology is already

being utilized in the airspace in and around San Angelo Regional Airport, this section will be based upon existing procedures and airspace and aircraft navigational capabilities.

The San Angelo Regional Airport operates within the NAS. The following sections will provide an overview of some of the key considerations regarding aircraft navigation and airport operations within the NAS as they relate to San Angelo Regional Airport. The following elements will be covered:

- National Airspace System description
- Air Traffic Areas and Aviation Communications
- Navigational Aids
- FAR Part 77 Imaginary Surfaces

National Airspace System

The National Airspace System (NAS) was created to ensure the safe and efficient use and operation within the airspace of the United States. The FAA has established an airspace structure through the Federal Aviation Regulations (FAR) that regulates and establishes procedures for aircraft that utilize the NAS. To better understand the airspace system a discussion about flight rules and weather conditions is necessary. Weather conditions determine the flight rules that an aircraft may operate and can affect physical separation between aircraft.

Weather and Flight Rules

Aircraft separation is critical to ensure safety of flight. The required separation varies depending upon aircraft type, weather, and flight rules being utilized. Aircraft separation requirements typically increase with poor weather conditions due to decreased visibility. Increased aircraft separation decreases airport capacity, while decreased aircraft separation increases airport capacity with more aircraft using the airport in a given amount of time.

There are two distinct categories of operational flight rules. Visual Flight Rules (VFR) and Instrument Flight Rules (IFR). These two sets of rules are linked to two categories of weather conditions. Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC). VMC exists during times of generally fair to good weather with visibility being good. IMC conditions existing in times of poor weather with low clouds and reduced visibility.

During VMC, aircraft may operate under VFR, and a pilot is primarily responsible for seeing and avoiding other aircraft and maintaining separation standards. Aircraft operating under VFR typically navigate by orientation to geographic and other visual references.

During IMC, aircraft must operate under IFR. Air traffic control exercises positive control over all aircraft in controlled airspace and is primarily responsible for aircraft separation. Aircraft and pilots must meet certain certification and proficiency requirements to operate under IFR. Aircraft may elect to operate IFR in VMC; however, the pilot, and not ATC, is primarily responsible for seeing and avoiding other aircraft.

Most of the commercial air traffic, regardless of weather and all operations at and above FL180, operate under IFR as required by Federal Aviation Regulations. To increase airport capacity, Air Traffic Control (ATC) can allow IFR aircraft to maintain visual separation when weather is VMC.

Airspace Classifications

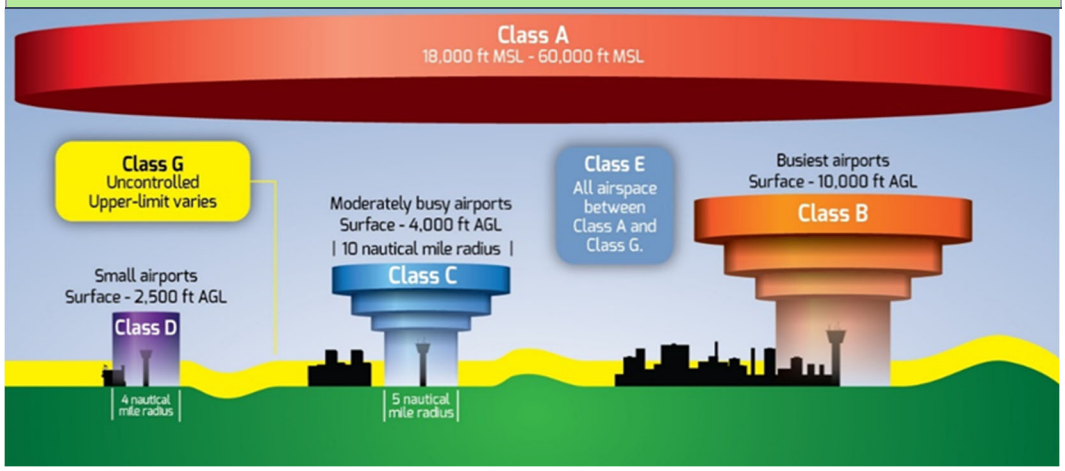
There are two primary types of airspace; controlled and uncontrolled. Controlled airspace means that IFR services are available to aircraft that elect to file IFR flight plans; it does not mean that all flights within the airspace are controlled by ATC. IFR services include ground-to-air radio communications, navigations aids, and air traffic services. Aircraft can operate under IFR in uncontrolled airspace, but they cannot file an IFR flight plan and IFR services are not available. Controlled airspace is intended to ensure separation of IFR traffic from other aircraft, both IFR and VFR.

The FAA has designated six classes of airspace, in accordance with the International Civil Aviation Organization (ICAO) airspace classifications. Airspace designated as Class A, B, C, D, or E is controlled airspace. Class F airspace is not used in the United States. Class G airspace is uncontrolled. **Exhibit 1D** provides a general graphic of airspace as well as details regarding each classification.

Special Use Airspace

Special use airspace (SUA), defined in **Table 1F**, consists of that airspace wherein activities must be confined because of their nature, or wherein limitations are imposed upon aircraft operations that are not a part of those activities, or both. SUA areas are depicted on aeronautical charts, except for controlled firing areas (CFA), temporary military operations area (MOA), and temporary restricted areas.

EXHIBIT 1D
Airspace Classifications

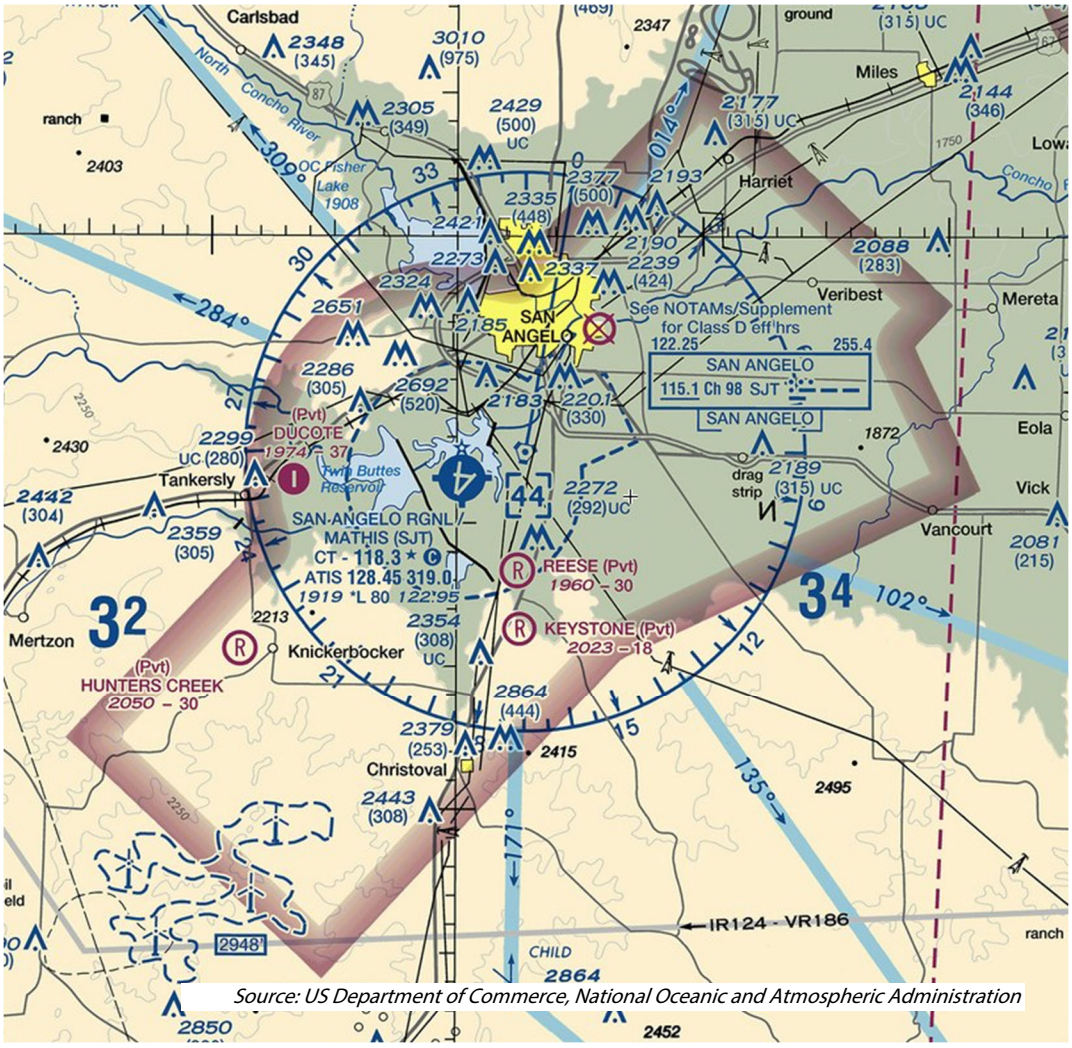


Airspace Class	Description
A	Generally, that airspace from 18,000 feet MSL up to and including 60,000 MSL, including the airspace overlying the waters within 12 nautical miles off the coast of the 48 contiguous States and Alaska within areas of domestic radio navigational signal or ATC radar coverage, and within domestic procedures are applied.
B	Generally, that airspace from the surface to 10,000 MSL surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspace areas resemble upside down wedding cakes) and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds."
C	Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a 5 NM radius core surface area that extends from the surface up to 4,000 feet above the airport elevation, and a 10 NM radius shelf area that extends no lower than 1,200 feet up to 4,000 feet above the airport elevation.
D	Generally, Class D airspace extends upward from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures.
E	Class E airspace is controlled airspace that is designated to serve a variety of terminal or in route purposes.
F	Not used in the United States.
G	Class G Airspace (uncontrolled) is that portion of airspace that has not been designated as Class A, Class B, Class C, Class D, or Class E airspace.

TABLE 1F
Special Use Airspace

Type	Description
Prohibited	Areas where, for reasons of national security, the flight of an aircraft is not permitted are designated as prohibited areas. Prohibited areas are depicted on aeronautical charts. For example, a prohibited area (P-56) exists over the White House and U.S. Capital.
Restricted	In certain areas, the flight of aircraft, while not wholly prohibited is subject to restrictions. These designated areas often have invisible hazards to aircraft, such as artillery firing, aerial gunnery, or guided missiles. Aircraft operations in these areas are prohibited during times when it is "active."
Warning	A warning area contains many of the same hazards as a restricted area, but because it occurs outside the U.S. airspace, aircraft operations cannot be legally restricted within the area. Warning areas are typically established over international waters along coastline of the United States.
Alert	Alert areas are shown on aeronautical charts to provide information of unusual types of aerial activities such as parachute jumping areas or high concentrations of student pilot training.
Military Operations Area	Military operations areas (MOA) are blocks of airspace in which military training and other military maneuvers are conducted. MOA's have specified floors and ceilings for containing military activities. VFR aircraft are not restricted from flying through MOAs while they are in operation but are encouraged to remain outside of the area.

It should be noted that medium density military training occurs in and around San Angelo Regional Airport. Military aircraft utilize military training routes, approach, and departure procedures published for the airport and are in the operational area of the airport. Additionally, the United States Customs and Border Protection, Air and Marine Division, operates unmanned aerial vehicles within the airport environment. A temporary flight restriction (TFR) area is established southeast of San Angelo Regional Airport to facilitate safe operations of the UAV during climb to altitude and descent from altitude. A detailed description of the TFR can be found within the notice to airmen system deployed by the FAA. The graphic on the following page depicts the airspace surrounding San Angelo Regional Airport.



Source: US Department of Commerce, National Oceanic and Atmospheric Administration

Air Traffic Service Areas and Aviation Communications

There are 22 geographic areas that are under the ATC jurisdiction in the United States. Air traffic services within each area are provided by air traffic controllers in Air Route Traffic Control Centers (ARTCC). The ARTCCs provide air traffic service to aircraft operating under IFR flight plans within controlled airspace, and primarily during the enroute phase of flight. Aircraft operating under VFR may also contact the ARTCC or other air traffic control services to request traffic advisory services. Traffic advisory service is used to alert pilots of other air traffic known in the vicinity of, or within the flight path of, the requesting aircraft. The airspace above San Angelo Regional Airport is within the Fort Worth ARTCC jurisdiction.

Aircraft approaching or departing an airport are also subject to airspace and air traffic control designed to serve the primary purpose of separating aircraft from one another. Approach and

Departure services are provided by San Angelo Approach/Departure control utilizing local radio communications and radar services with the physical location of the ATCT in Midland. Approach and departure control services are available from the Fort Worth ARTCC when the Midland-San Angelo approach control is closed. Midland-San Angelo approach and departure control services are available from 6:00am to 9:00pm.

Airport Traffic Control Tower

San Angelo Regional Airport is served by its ATCT. The ATCT controls aircraft operating within the airport movement area and within 4 nautical miles of the airport. The ATCT at San Angelo Regional airport operates daily from 7 am to 9 pm.

The primary means of controlling aircraft by ATCT is through radar systems supplemented by ground-to-air two-way radio communications. Altitude assignments, speed adjustments, and radar vectors are examples of techniques used by ATCT to ensure that aircraft maintain both lateral and vertical separation.

San Angelo Regional Airport is on the San Antonio aeronautical sectional chart. The Fort Worth Center can be contacted on 126.15. Communication facilities associated with the Airport include the local control tower (118.3), ground control (121.9) and approach and departure control (125.35).

Navigational Aids

Navigational aids are electronic equipment, both ground-based and satellite-based, that are utilized by properly-equipped aircraft to communicate position information and facilitate point-to-point navigation. There are different types of equipment available to pilots around San Angelo Regional Airport, both located on-airport or at other locations in the region. Many of these navigational aids (NAVAIDS) are available to enroute air traffic as well. Within the vicinity of San Angelo Regional Airport there is a VORTAC, NDB, and DME.

A VORTAC (VHF Omnidirectional Range / Tactical Air Navigation) is a ground based electronic navigation aid transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north, with equipment used to measure, in nautical miles, the slant range distance of an aircraft from the navigation aid. A VORTAC provides VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site. The San Angelo VORTAC is 1.8 nautical miles from the airport at 60 degrees.

A non-directional beacon (NDB) is an L/MF radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and track to or from the station. There is one NDB located 5.7 nautical miles

from the airport at 214 degrees. The NDB known as WOOLE is also the Locator Outer Marker/Initial Approach Fix (LOM/IAF) for the Instrument Landing System (ILS) approach to Runway 3.

There is a network of low-altitude published federal airways (Victor Airways), in the vicinity of the airport which traverse the area and span between regional ground-based VOR/DME and VORTAC sites. Victor airways include airspace within parallel lines located four nautical miles on either side of the airway and extend 1,200 feet above the terrain up to, but not including, 18,000 MSL. There are 4 victor airways in the vicinity of San Angelo Regional Airport that utilize the San Angelo VORTAC. They are V68, V76, V77, and V556.

There are 11 published instrument approach procedures for San Angelo Regional Airport. There are 9 for Runway 3-21 and 2 for runway 18-36. The Instrument Landing System (ILS) consisting of localizer and glide slope equipment installed on Runway 3 has the lowest minima of the published approaches. **Exhibits 1E-a and 1E-b** depict the current approach plates for these published instrument procedures.

Part 77 Airspace Surfaces

Federal Aviation Regulations (FAR) Part 778, *Objects Affecting Navigable Airspace*, is a tool used to protect the airspace over and around a given airport and each of its runway approaches, from potential obstructions to air navigation. It is important to note that as a federal regulation, all airports included in the NAS are subject to the requirements of Part 77. To determine whether an object is an obstruction to air navigation, Part 77 establishes several imaginary surfaces in relation to an airport and to each runway end. The dimensions and slopes of these surfaces depend on the configuration and approach categories of each airport's runway system. The size of the imaginary surface depends largely upon the type of approach to the runway in question. The Part 77 surfaces can be a tool for the City in reviewing proposed development in the vicinity of the airport and for establishing locally enforceable height and hazard zoning regulations. The City of San Angelo has developed a zoning ordinance based upon historically accepted Part 77 information.

The principal imaginary surfaces are depicted and generally described on the following pages.

SAN ANGELO, TEXAS
14093
HI-ILS RWY 3
LOC I-SJT 109.7 Chan 34
APCH CRS 034°
Rwy Idg 5939 TDZE 1917 Arpt Elev 1919
JAL-367 [USAF]
SAN ANGELO REGIONAL/MATHIS FIELD (KSJT)
* When ALS inop, increase vis CAT CDE ¼ mile.
** When ALS inop, increase vis CAT CDE ½ mile.
*** CAT E circling not authorized W of Rwy 18-36.
MALSR
MISSED APPROACH: Climb to 4000 then climbing left turn to 4400 via SJT VORTAC R-284 to TANKR 11 DME
ATIS 128.45 319.0
SAN ANGELO APP CON 125.35 354.1
MATHIS TOWER * 118.3 (CTAF) 284.7
GND CON 121.9 348.6
ASR
DME OR RADAR REQUIRED
LOCALIZER 109.7 I-SJT Chan 34
TANKR SJT 11
LOM WOOLE 356 SJ
SAN ANGELO 115.1 SJT Chan 98
Use I-SJT DME when on LOC course and pass BONNY
Max holding 265 KIAS
[IAF] RANGE SJT R-241 24
LOUBY SJT 18
BONNY SJT 15
I-SJT 6.9
SJT 19
SJT 24
MSA SJ 25 NM
4400
EMERG SAFE ALT 100 NM 5100
RANGE SJT R-241 24
SJT 19
BONNY SJT 15
/LOC CRS
WOOLE I-SJT 6.9 LOM
4000
4400 SJT R-284
TANKR SJT 11
Intcp lczr
12,000
5000
3900
3824
I-SJT 2.8
I-SJT 1.2
VORTAC
GS 3.00° TCH 51
3.7 NM
ELEV 1919
TDZE 1917
Rwy 18 ldg 7160'
1907
1921
2042
TWR 1990
4402 x 75
4400 x 100
4400 x 150
HIRL Rwy 3-21
MIRL Rwy 9-27 and 18-36
REIL Rwy 18
034° 5.7 NM from FAF
CATEGORY C D E
S-ILS 3 2117-½ 200 (200-½)
S-LOC 3 2420-1 503 (600-1) 2420-1¼ 503 (600-1¼)
CIRCLING 2460-1½ 543 (600-1½) 2480-2 563 (600-2) 2640-2½ 721 (800-2½)
FAF to MAP 5.7 NM
Knots 120 140 160 180 200
Min:Sec 2:51 2:27 2:08 1:54 1:43
SAN ANGELO, TEXAS
Amdt 5A 03APR14
31° 22'N-100° 30'W
SAN ANGELO REGIONAL/MATHIS FIELD (KSJT)
HI-ILS RWY 3
SC-3, 13 SEP 2018 to 11 OCT 2018

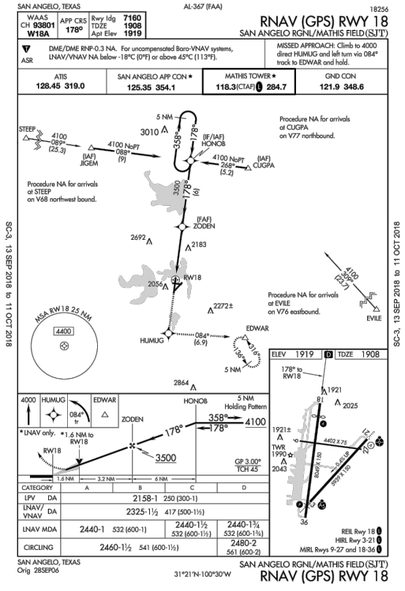
SAN ANGELO, TEXAS
18144
HI-VOR/DME or TACAN RWY 3
VORTAC SJT 115.1 Chan 98
APCH CRS 045°
Rwy Idg 5939 TDZE 1917 Arpt Elev 1919
JAL-367 [USAF]
SAN ANGELO REGIONAL/MATHIS FIELD (KSJT)
* CAT E Circling not authorised W of Rwy 18-36
MALSR
MISSED APPROACH: Climbing left turn to 4400 via SJT VORTAC R-284 to TANKR INT/11 DME and hold.
ATIS 128.45 319.0
SAN ANGELO APP CON 125.35 354.1
MATHIS TOWER * 118.3 (CTAF) 284.7
GND CON 121.9 348.6
ASR
TANKR SJT 11
SAN ANGELO 115.1 SJT Chan 98
ILRUH SJT 6.4
(IAF) JETDE SJT R-225 25
SJT 16
SJT 35
MSA SJT 25 NM
4400
RADAR REQUIRED
EMERG SAFE ALT 100 NM 5100
JETDE R-225 25
4400 SJT R-284
TANKR SJT 11
12,000
5000
3900
3.25° TCH 50
ILRUH
VORTAC
ELEV 1919
TDZE 1917
Rwy 18 ldg 7160'
1907
1921
2042
TWR 1990
4402 x 75
4400 x 100
4400 x 150
HIRL Rwy 3-21
MIRL Rwy 9-27 and 18-36
REIL Rwy 18
045° 5.6 NM from FAF
CATEGORY C D E
S-3 2420-1 503 (600-1) 2420-1¼ 503 (600-1¼)
CIRCLING * 2460-1½ 541 (600-1½) 2480-2 561 (600-2) 2640-2½ 721 (800-2½)
SAN ANGELO, TEXAS
Amdt 5A 24MAY18
31° 22'N-100° 30'W
SAN ANGELO REGIONAL/MATHIS FIELD (KSJT)
HI-VOR/DME or TACAN RWY 3
SC-3, 13 SEP 2018 to 11 OCT 2018

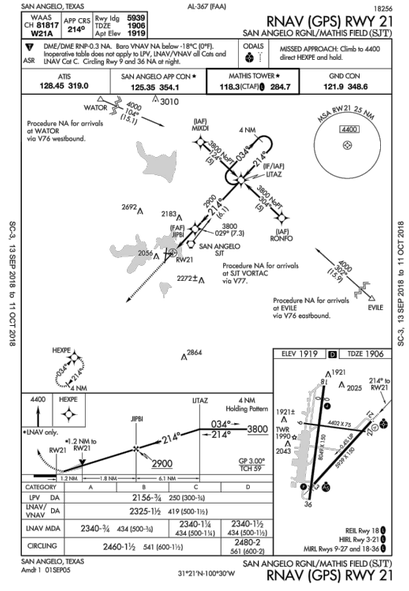
SAN ANGELO, TEXAS
HI-VOR/DME or TACAN RWY 21
VORTAC SJT 115.1 Chan 98
APCH CRS 235°
Rwy Idg 5939 TDZE 1906 Arpt Elev 1919
JAL-367 [USAF]
SAN ANGELO REGIONAL/MATHIS FIELD (KSJT)
* CAT E circling NA W of Rwy 18-36
ODALS
MISSED APPROACH: Climb to 3000, then climbing right turn to 4400 via hdg 360° to intercept SJT VORTAC R-284 to TANKR INT/11 DME and hold.
ATIS 128.45 319.0
SAN ANGELO APP CON 125.35 354.1
MATHIS TOWER * 118.3 (CTAF) 284.7
GND CON 121.9 348.6
ASR
3009
2428
TANKR SJT 11
JERJI SJT 15
R-284
104°
284°
Max holding 230 KIAS
2649
2168
240°
LR-068
R-060
235°
2027
090°
IAF SAN ANGELO 115.1 SJT Chan 98
EWUYI SJT 15
R-090
MSA SJT 25 NM
4400
2860
10 NM
EMERG SAFE ALT 100 NM 5100
VGSI and descent angles not coincident.
3000
4400 Hdg 360° SJT R-284
TANKR SJT 11
SJT VORTAC
12,000
090°
4100
JERJI R-060 15
PAFPY .8
1.8
235°
2600
240°
3.33° TCH 59
ELEV 1919
TDZE 1906
Rwy 18 ldg 7160'
1907
1921
2042
TWR 1990
4402 x 75
4400 x 100
4400 x 150
235° 1.8 NM from FAF
HIRL Rwy 3-21
MIRL Rwy 9-27 and 18-36
REIL Rwy 18
CATEGORY C D E
S-21 2280-¾ 374 (400-¾) 2280-1¼ 374 (400-1¼)
CIRCLING * 2460-1½ 541 (600-1½) 2480-2 561 (600-2) 2640-2½ 721 (800-2½)
SAN ANGELO, TEXAS
Amdt 1A 11209
31° 22'N-100° 30'W
SAN ANGELO REGIONAL/MATHIS FIELD (KSJT)
HI-VOR/DME or TACAN RWY 21
SC-3, 13 SEP 2018 to 11 OCT 2018

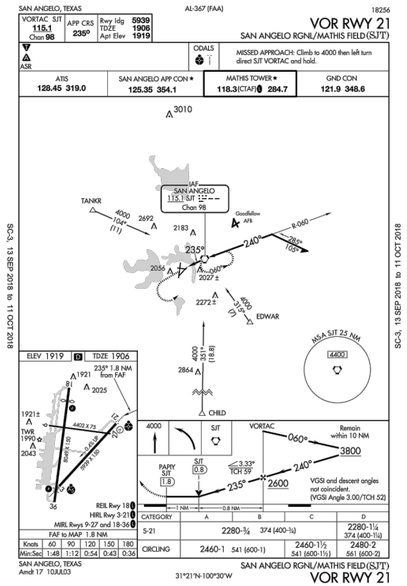
SAN ANGELO, TEXAS
AL-367 (FAA)
18256
NDB RWY 3
LOM SJ 356
APP CRS 034°
Rwy Idg 5939 TDZE 1917 Arpt Elev 1917
SAN ANGELO REGNL/MATHIS FIELD (SJT)
MALSR
MISSED APPROACH: Climbing right turn to 4000 direct WOOLE LOM and hold.
ATIS 128.45 319.0
SAN ANGELO APP CON * 125.35 354.1
MATHIS TOWER * 118.3 (CTAF) 284.7
GND CON 121.9 348.6
ASR
TANKR
SAN ANGELO 115.1 SJT Chan 98
LOM/IAF WOOLE 356 SJ
4000 218° (8.4)
2272±
EDWAR
4000 261° (10.3)
3083
2864
MSA SJ 25 NM
4400
CHILD
4000 NoPT SJT 15 Arc
Remain within 10 NM
LOM
WOOLE
4000
4000
3900
3.19° TCH 45
5.7 NM
ELEV 1917
TDZE 1917
MIRL Rwys 9-27 and 18-36
HIRL Rwy 3-21
REIL Rwy 18
1921
2025
1921±
2043
TWR 1990
4402 x 75
4400 x 100
4400 x 150
034° 5.7 NM from FAF
CATEGORY A B C D
S-3 2460-¾ 543 (600-¾) 2460-1 543 (600-1) 2460-1½ 543 (600-1½)
CIRCLING 2460-1 543 (600-1) 2460-1½ 543 (600-1½) 2480-2 563 (600-2)
FAF to MAP 5.7 NM
Knots 60 90 120 150 180
Min:Sec 5:42 3:48 2:51 2:17 1:54
SAN ANGELO, TEXAS
Amdt 14A 20APR00
31° 21'N-100° 30'W
SAN ANGELO REGNL/MATHIS FIELD (SJT)
NDB RWY 3
SC-3, 13 SEP 2018 to 11 OCT 2018

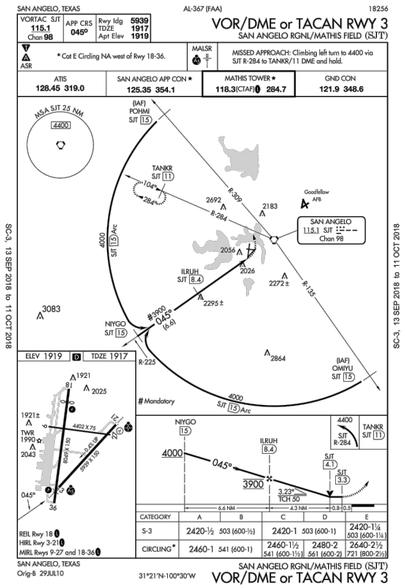
SAN ANGELO, TEXAS
AL-367 (FAA)
18256
RNAV (GPS) RWY 3
WAAS CH 77517 W03A
APP CRS 034°
Rwy Idg 5939 TDZE 1917 Arpt Elev 1919
SAN ANGELO REGNL/MATHIS FIELD(SJT)
For inoperative MALSR, increase LPV visibility to ½ mile all Cats and LNAV Cat D visibility to 1¼ mile. Baro VNAV NA below -18°C (0°F). Circling to Rwy 09 and 36 NA at night. DME/DME RNP-0.3 NA.
MALSR
MISSED APPROACH: Climb to 3800 direct LITAZ and hold.
ATIS 128.45 319.0
SAN ANGELO APP CON * 125.35 354.1
MATHIS TOWER * 118.3 (CTAF) 284.7
GND CON 121.9 348.6
ASR
4 NM
LITAZ
Procedure NA for arrivals at SJT VORTAC via V.556.
TANKR
SAN ANGELO SJT
2692
2183
2056
RW03
2026
217° (14.7)
2272±
EDWAR
4400 (17.5)
3083
2864
(IAF) APDOW
(FAF) ILIMY
(IF/IAF) HEXPE
(MAP) ESOBY
MSA RW03 25 NM
4400
4 NM Holding Pattern HEXPE
4400
214°
034°
ILIMY
3900
GP 3.00° TCH 51
3800
LITAZ
*INAV only.
*1 NM to RW03
RW03
6 NM
5 NM
1 NM
CATEGORY A B C D
LPV DA 2167-½ 250 (300-½)
LNAV/VNAV DA 2301-¾ 384 (400-¾)
LNAV MDA 2300-½ 383 (400-½) 2300-1 383 (400-1)
CIRCLING 2460-1¼ 541 (600-1¼) 2460-1½ 541 (600-1½) 2480-2 561 (600-2)
ELEV 1919
TDZE 1917
Rwy 18 ldg 7160'
1907
1921
2025
1921±
2043
TWR 1990
4402 x 75
4400 x 100
4400 x 150
REIL Rwy 18
HIRL Rwy 3-21
MIRL Rwy 9-27 and 18-36
034° to RW03
SAN ANGELO, TEXAS
Amdt 1 01SEP05
31° 21'N-100° 30'W
SAN ANGELO REGNL/MATHIS FIELD(SJT)
RNAV (GPS) RWY 3
SC-3, 13 SEP 2018 to 11 OCT 2018

SAN ANGELO, TEXAS
AL-367 (FAA)
18256
ILS or LOC RWY 3
LOC/DME I-SJT 109.7 Chan 34
APP CRS 034°
Rwy Idg 5939 TDZE 1917 Arpt Elev 1917
SAN ANGELO REGNL/MATHIS FIELD(SJT)
Cat E Circling NA west of Rwy 18-36.
•Procedure Turn NA for Cat E.
MALSR
MISSED APPROACH: Climb to 4000, then right turn direct SJT VORTAC and hold.
ATIS 128.45 319.0
SAN ANGELO APP CON * 125.35 354.1
MATHIS TOWER * 118.3 (CTAF) 284.7
GND CON 121.9 348.6
ASR
MSA SJ 25 NM
4400
(IAF)
R-309
TANKR
SAN ANGELO 115.1 SJT Chan 98
LOCALIZER 109.7 I-SJT Chan 34
2692
2183
4000 (10.8)
LOM/IAF WOOLE 356 SJ
2056
2026
4000 to WOOLE LOM 218° (8.4)
2272±
4000 261° (10.3)
EDWAR
3083
2864
4000 NoPT SJT 15 Arc
CHILD
BONNY SJT 15
4000 (6.6)
4000 (4.0)
ELEV 1917
TDZE 1917
MIRL Rwys 9-27 and 18-36
HIRL Rwy 3-21
REIL Rwy 18
1921
2025
1921±
2043
TWR 1990
4402 x 75
4400 x 100
4400 x 150
Remain within 10 NM
LOM* I-SJT 6.9
4000
SJT
4000
3824
I-SJT 1.2
Use I-SJT DME when on localizer course.
GS 3.00° TCH 51
3900
5.7 NM
CATEGORY A B C D E
S-ILS 3 2117-½ 200 (200-½)
S-LOC 3 2420-½ 503 (600-½) 2420-1 503 (600-1) 2420-1¼ 503 (600-1¼)
CIRCLING 2460-1 543 (600-1) 2460-1½ 543 (600-1½) 2480-2 563 (600-2) 2640-2½ 721 (800-2½)
FAF to MAP 5.7 NM
Knots 60 90 120 150 180
Min:Sec 5:42 3:48 2:51 2:17 1:54
SAN ANGELO, TEXAS
Amdt 21A 29JUL10
31° 21'N-100° 30'W
SAN ANGELO REGNL/MATHIS FIELD (SJT)
ILS or LOC RWY 3
SC-3, 13 SEP 2018 to 11 OCT 2018









N1

RADAR MINS

18144

RADAR INSTRUMENT APPROACH MINIMUMS

BIGGS AAF (KBIF), TX (Fort Bliss) (Amdt 6A, 15288 USA) ELEV **3948**

RADAR - 124.15 307.0 NA

	RWY	GS/TCH/RPI	CAT	DH/ MDA-VIS	HAT/ HATh/ HAA	CEIL-VIS
ASR[1]	21		AB	**4360**-½	412	(500-½)
			CD	**4360**-¾	412	(500-¾)
			E	**4360**-1	412	(500-1)
CIR[2]	21		AB	**4400**-1	452	(500-1)
			C	**4400**-1⅛	452	(500-1⅛)
			DE	**4500**-2	552	(600-2)

CAUTION: Steeply rising terrain exceeding 7100 ft 4 miles W of airport.
[1]When ALSF inop, increase CAT E visibility to 1¼.
[2]CAT E circling W of Rwy 3-21 not authorized.

CORPUS CHRISTI NAS (KNGP), (TRUAX FLD) TX (18088 USN) ELEV **19**

RADAR - (E) 6835 124.65 270.8 284.6 337.2 354.8

	RWY	GS/TCH/RPI	CAT	DH/ MDA-VIS	HAT/ HATh/ HAA	CEIL-VIS
PAR[1]	13R[2]	3.0°/41/781	ABCDE	**110**-¼	100	(100-¼)
	31L	3.0°/43/820	ABCDE	**117**-½	100	(100-½)
	35	3.0°/45/835	ABCDE	**117**-½	100	(100-½)
	17	3.0°/39/700	ABCDE	**131**-½	118	(200-½)
PAR W/O GS[1]	17		ABCDE	**300**-1¼	287	(300-1¼)
	13R[2]		ABCDE	**360**-1	350	(400-1)
	31L		ABCDE	**420**-1¼	403	(500-1¼)
	35		ABCDE	**440**-1¼	423	(500-1¼)
PAR W/O GS SIDESTEP[1]	13L		ABCDE	**360**-1¼	347	(400-1¼)
	31R		ABCDE	**400**-1¼	382	(400-1¼)
ASR	13L		ABCDE	**380**-1	367	(400-1)
	13R[2]		AB	**440**-¾	430	(500-¾)
			CDE	**440**-1	430	(500-1)
	17		ABCDE	**360**-1	347	(400-1)
	31R		AB	**500**-1	482	(500-1)
			CDE	**500**-1¼	482	(500-1¼)
	31L		AB	**500**-1	483	(500-1)
			CDE	**500**-1¼	483	(500-1¼)
	35		AB	**500**-1	483	(500-1)
			CDE	**500**-1¼	483	(500-1¼)
	4		AB	**500**-1	483	(500-1)
			CDE	**500**-1¼	483	(500-1¼)
CIR[6]	ALL RWYS		A	**500**-1	481	(500-1)
			B	**500**-1¼	481	(500-1¼)
			C	**540**-1½	521	(600-1½)
			D	**620**-2	601	(700-2)
			E	**620**-2¼	601	(700-2¼)

(CONTINUED ON NEXT PAGE)

SC-3

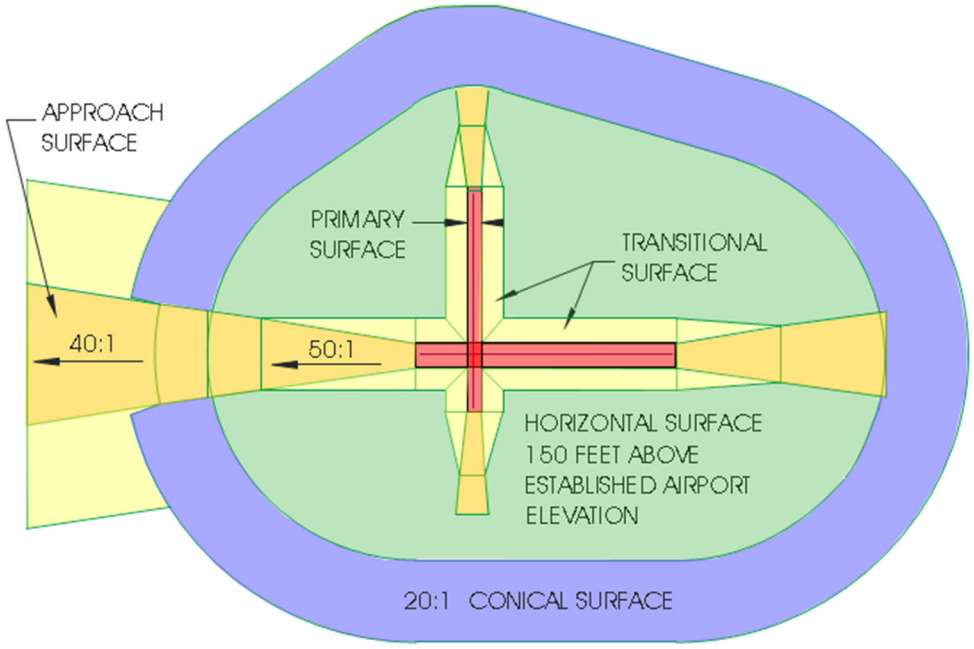
13 SEP 2018 to 11 OCT 2018

RADAR INSTRUMENT APPROACH MINIMUMS

RADAR MINS

18144

N1



Primary Surface. The primary surface is longitudinally centered on the runway and extends 200 feet beyond each runway end. The elevation of any point on the primary surface is the same as the elevation along the nearest associated point on the runway centerline. The primary surfaces for Runways 18-36 and 3-21 are 1,000 feet wide and centered on the runway. The primary surface for Runway 9-27 is 500 feet and centered on the runway.

Approach Surface. The approach surface is also established for each runway end. The approach surface begins at the end of the primary surface, extends upward and outward, and is centered along an extended runway centerline. The approach surface leading to each runway is based upon the type of approach available (instrument or visual) or planned.

In an effort to protect the airport from future adjacent incompatible land uses, approach surfaces with instrument approach procedures are planned to each runway end. The approach surface to Runways 3, 21, and 36 extends a horizontal distance of 10,000 feet at a 50:1 slope with an additional 40,000 feet at a slope of 40:1. The outer width of the approach surface is 16,000 feet. The non-precision approach surface for Runway 18 extends a horizontal distance of 10,000 feet to a width of 3,500 feet and slopes upward at a 34:1 slope. Runway 9-27 is planned to remain visual approach only. The approach surfaces for each runway end of Runway 9-27 extend a horizontal distance of 5,000 feet with an approach slope of 20:1.

Transitional Surface. Each runway has a transitional surface that begins at the outside edge of the primary surface at the same elevation as the runway. The transitional surface also connects with the approach surfaces of runways with precision approaches, such as that existing for Runway 3 and planned for Runways 21 and 36. The surface rises at a slope of 7:1, up to a height 150 feet above the highest runway elevation. At that point, the transitional surface ends and the horizontal surface begins.

Horizontal Surface. The horizontal surface is established at 150 feet above the highest elevation of the runway surface. Having no slope, the horizontal surface connects the transitional surface and the approach surfaces to the conical surface at a distance of 10,000 feet from the end of the primary surface of each runway.

Conical Surface. The conical surface begins at the outer edge of the horizontal surface then continues for an additional 4,000 feet horizontally at a slope of 20:1. Therefore, at 4,000 feet from the horizontal surface, the elevation of the conical surface is 350 feet above the highest airport elevation.

Landside Facilities

Landside facilities are those that support the users of the airport, specifically the aircraft and pilot or passenger handling functions. These facilities include the commercial service passenger terminal complex, cargo facilities, fixed base operators (FBO), general aviation facilities and support facilities including fuel storage, automobile parking, roadway access, and aircraft rescue and firefighting.

Commercial Service Terminal Complex

Commercial service facilities are located adjacent to and at the approximate midpoint of Runway 18-36. Vehicular access to the terminal building from the City of San Angelo is via Knickerbocker Road, Reary Blvd. and Terminal Circle.

Commercial Service Terminal Building

Over the past decade the commercial service terminal has undergone two major overhauls. The first, completed in 2007, included a remodel and expansion of the concourse, adding a second level boarding area with two gates as well as a ground level boarding area with an additional gate. In 2015 the City completed a remodel of the remaining portions of the terminal building which included the modernization and remodel of the airline counters, baggage claim, security checkpoint, administrative offices, and passenger meet and greet areas.

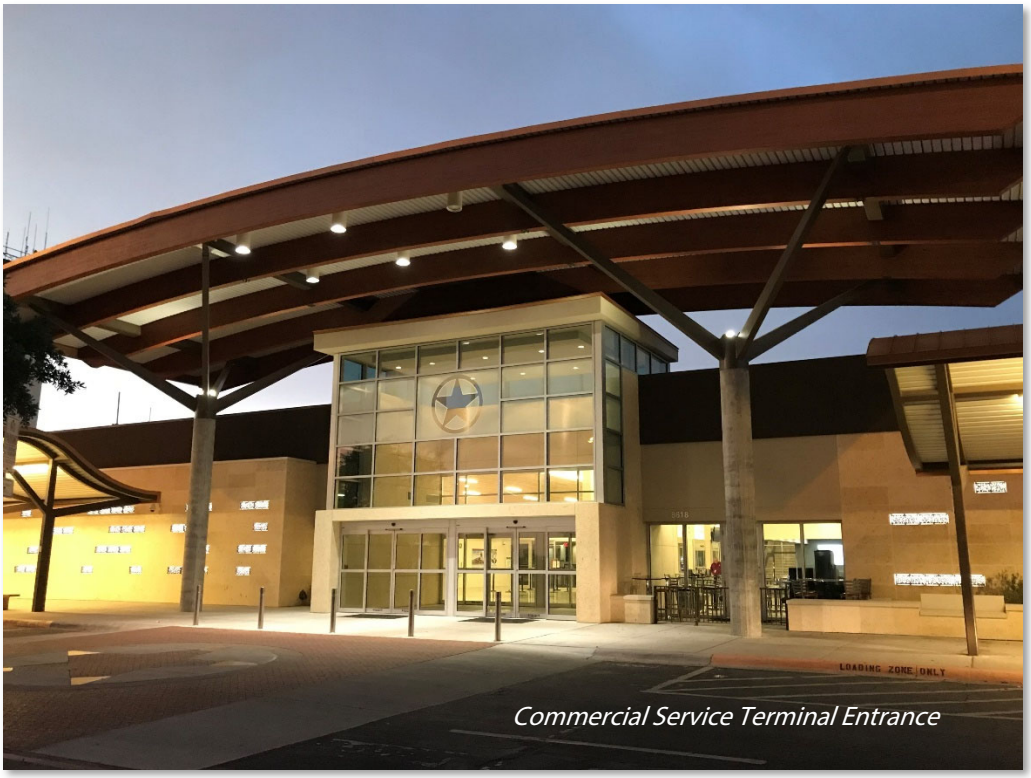
Exhibit 1F depicts the various functional areas of the terminal building along with square footage for each use. Upon entering the terminal building a café and restaurant are located to one's right and ticketing is to the left. Restrooms, rental car counters, tenant space, baggage claim and passenger meet and greet areas make up the remaining portions of the public areas on this level. Secure areas include the airport's administrative offices, airline offices and baggage handling, mechanical space, and the Transportation and Security Administration (TSA) screening area.

Office Space	1,095 SF	Vertical Circulation	878 SF	Secure Circulation	1,282 SF
Ticket Counter	456 SF	Concession Food Services	2,644 SF	Non-Secure Circulation	8,338 SF
Administration	3,117 SF	Concession Serv. (Private)	1,342 SF	Baggage Area	1,290 SF
TSA/SSCP	2,482 SF	Storage Area	925 SF	Rental Car Service	784 SF
Holdroom	3,765 SF	Maintenance	921 SF	Restrooms	1,177 SF

CONCOURSE LEVEL

SAN ANGELO REGIONAL AIRPORT

Exhibit 1F
TERMINAL BUILDING LAYOUT



Commercial Service Terminal Entrance

Once departing passengers leave the TSA screening area signage directs them t to Gates 1 and 2, located on the second floor of the terminal or Gate 3 located on the ground floor. Currently operations are primarily handled via the jet bridges on the 2nd floor.

The terminal remodel ensured ADA access requirements are met. An elevator is available for access to the second floor and all restroom facilities are ADA compliant. Passenger convenience was considered during the terminal remodel and functional spaces were determined based on typical passenger flows and expectations. Future growth needs were also considered, and additional space was included for additional rental car counter space, additional airlines, and gate expansion.

Additional conveniences within the terminal include wi-fi and numerous outlets for the charging of devices including cell phones, laptops, or tablets. Post security vending machines are present for the purchase of drinks or snacks.

Terminal Arrival and Departure

As depicted on **Exhibit 1G**, vehicle access to the terminal building is provided by Terminal Circle Road, which is a one way, two lane road which loops around the short- and long-term terminal parking area. Terminal Circle is accessed via Reary Boulevard which connects with Knickerbocker Road.

The terminal arrival and departure area, or the terminal curb, is a very important feature of the overall terminal design as it needs to allow for the orderly arrival and departure of passengers. The terminal

SAN ANGELO REGIONAL AIRPORT

Exhibit 1G
TERMINAL VEHICLE PARKING AND CIRCULATION

curb at San Angelo Regional Airport is approximately 300 feet long and contains areas for drop off and pick up.

Upon arriving at the terminal, the first set of doors along the curb is for departing passengers and visitors. Upon entering the doors departing passengers will see the ticketing counters and kiosks immediately to the left. Beyond those areas is the TSA security checkpoint.

Further down the terminal curb is another set of doors, typically used by arriving passengers. Upon landing at the airport and departing the aircraft and terminal secured area, passengers will find the rental car counters and baggage claim to their right. Doors to the curb, rental car lot, and short- and long-term parking are beyond the rental car counters at the far end of the terminal.

Terminal Access and Parking

The primary airport entrance, Reary Boulevard, is located to the west of the airport, intersecting Knickerbocker Road. Reary Boulevard is a 4-lane divided roadway with two lanes in each direction, connecting it with S. Terminal Circle which loops through the primary parking areas of the airport. Stewart Lane, located just a little further down on Knickerbocker Road, is an alternative access road intersecting at Reary Boulevard. There are guidance signs providing directions to and from the airport.

San Angelo Regional Airport offers a variety of areas available for vehicle parking. The primary parking lots include short term, long term and overflow parking. **Exhibit 1G** depicts the parking locations and direction of traffic entering and exiting the airport. Each parking lot is paved and in immediate proximity to the terminal building. Parking at the Airport is free, lighted and monitored by airport and city police. These parking lots are mostly used for passenger parking, while there are designated employee parking areas in other locations and tenants generally park adjacent to their aircraft/storage hangars. The short-term parking area which is located closest to the terminal building has 103 regular parking spaces and 12 handicap spaces. The long-term parking lot, located to the west of the short-term lot, has 242 regular parking spaces. Just to the south of the long-term is the overflow parking lot which has 115 regular parking spaces.

Several rental car companies serve San Angelo Regional Airport. These include Avis, Hertz, Dollar/Thrifty and Budget Rent A Car. The ready/return parking lot for these companies is located on the northern side of the short-term parking area and a total of 76 parking spaces are available.

Cargo Facilities

Both Federal Express (FedEx) and UPS utilize San Angelo Regional Airport. Federal Express uses Cessna Caravan aircraft and UPS, through their contractor Ameriflight, uses Swearingen Merlin aircraft. Both operations have a morning and evening operation with activity increasing over the holidays.

UPS package handling occurs on the apron areas whereas FedEx leases hangar space to sort packages and load onto trucks.

Fixed Base Operators

Fixed base operators (FBOs) provide aeronautical services such as fueling, aircraft storage, tie-downs and parking, aircraft rental, aircraft maintenance, flight instruction, and catering. Currently, two FBOs operate at the airport, Ranger Aviation and Skyline Aviation.

Ranger Aviation provides standard FBO services - aircraft rental, flight instruction and refueling - as well as aircraft painting, interior refurbishment, line services, and maintenance. The company leases over 300,000 square feet of space in 8 hangars located across the airport, as noted on **Exhibit 1H**. Ranger currently maintains a fuel farm with three tanks, one 12,000 gallon AvGas, one 15,000 gallon JetA, and a decommissioned 10,000 gallon JetA.

Skyline is a full service FBO that offers aircraft management, fueling, flight training, hangar rental and aircraft sales. Skyline leases a 15,000 square foot hangar and maintains a fuel farm with a 20,000-gallon JetA tank and a 12,000 AvGas tank.

FACILITIES (100)	
100	AIRPORT RESCUE FIREFIGHTING FACILITY
101	U.S. CUSTOMS AND BORDER PROTECTION
102	VACANT HANGAR "AMCOM"
103	U.S. CUSTOMS AND BORDER PROTECTION
104	RANGER AVIATION PAINT FACILITY
105	ELECTRICAL VAULT
106	FUEL STORAGE TANKS
107	VACANT OFFICE
108	VACANT HANGAR

FACILITIES (200)	
200	MAINTENANCE BUILDING
201	AIR TRAFFIC CONTROL TOWER (ATCT)
202	TERMINAL COMPLEX
203	RANGER AVIATION
204	FEDERAL EXPRESS
205	RANGER AVIATION
206	WEST TEXAS WEATHER MODIFICATION
207	COSA EMERGENCY OPERATIONS CENTER
208	TSA OFFICE
209	WESTERN LITTLE LEAGUE

FACILITIES (300)	
300	RANGER AVIATION
301	RANGER AVIATION
302	RANGER AVIATION
303	POOR BOY AVIONICS
304	FIRST FLIGHT
305	T-HANGAR
306	T-HANGAR
307	T-HANGAR
308	T-HANGAR
309	SKYLINE
310	T-HANGAR
311	L-3 VERTEX AEROSPACE
312	RANGER AVIATION PAINT FACILITY
313	PRIVATE HANGAR
314	FUEL STORAGE TANKS
315	PRECISION AIRCRAFT SERVICES
316	T-HANGAR
317	T-HANGAR

RUNWAY 9-27

RUNWAY 18-36

RUNWAY 3-21

NORTH APRON

TERMINAL APRON

SOUTH APRON

HANGAR RD.

HANGAR RD.

KNICKERBOCKER RD.

FAA RD.

REARY BLVD.

STEWART LN.

SAN ANGELO REGIONAL AIRPORT

Exhibit 1H
LANDSIDE FACILITIES

General Aviation Businesses and Tenants

A number of additional business, companies, governmental agencies, and private individuals located at San Angelo Regional Airport. **Exhibit 1H** depicts the location of the tenants described below.

U.S. Customs and Border Protection (CBP) Air and Marine Division, occupies approximately 92,000 square feet of hangar and office space at the north end of the apron. From this facility they complete multiple missions including the operation of four Unmanned Aircraft Systems (UAS) to conduct border security missions from the airport and maintenance and overhaul for all the aircraft within their fleet. CBP operations have been increasing continuously over the past few years and it is anticipated that they will continue to increase their airport footprint. CBP currently leases Building 101 and have plans to extend operations into Building 103.

West Texas Weather Modification Association (WTWMA) operates from Hangar 206. Using Piper Comanche aircrafts, WTWMA conducts a cloud seeding program over 6 million acres of land.

Poor Boy Avionics leases the 8,000 square foot hangar (building 303) to conduct aircraft repair and maintenance services on aircrafts, helicopters and jets.

First Flight is an air ambulance company providing medical fixed wing air transport. Currently First Flight leases building 304, a 1,300 square foot hangar to house 1 King Air Aircraft.

L-3 Vertex Aerospace is a military rotary and fixed wing aircraft services company. L-3 Vertex is currently leasing Hangar 311 which is approximately 13,000 square feet in size.

Precision Aircraft Services is an aircraft and helicopter maintenance services company that offers preventative maintenance, repairs and rebuilds. Currently they lease the 11,000 square foot hangar referred to as Hangar 315.

Apron Areas

The aircraft apron provides an area for aircraft parking, storage, boarding, fueling operations and allows access to hangars or buildings. Apron areas are marked with taxilanes, tie-downs, secure area and non-movement boundaries. The apron is constructed of concrete. San Angelo Regional Airport has 3 primary apron areas. For the purposes of this master plan, apron areas will be described as the North, Terminal, and South Aprons as described below.

North Apron begins at the terminus of Taxiway Alpha and continues south to the Terminal Apron. Currently this area is used for aircraft storage and houses a number of retired regional jets owned by Envoy Air as well as one helicopter landing pad marked on the pavement. This apron is approximately 40,000 square yards.

Terminal Apron is adjacent to the commercial service terminal building and is contained within the Security Identification Display Area (SIDA). This area is a special security area designated to comply with FAA requirements directed by Federal Aviation Regulation (FAR) part 107.205. The Terminal Apron is accessed only by commercial service or charter aircraft and is marked to accommodate aircraft at three gates, two accessed via jet bridge and one ground level. This apron is approximately 24,500 square yards in size.

South Apron begins at the edge of the terminal apron and extends the remaining length of the apron area. Several businesses and tenants utilize this apron to provide access to hangar storage and airport businesses. This apron is approximately 135,000 square yards.

Support Facilities

Support facilities are critical to providing the necessary support to aircraft ground operations. These facilities include, among others, fuel storage, airport maintenance, aircraft rescue and firefighting (ARFF), and airfield access. The location of the facilities described below is shown on **Exhibit 1J**.

Airport Maintenance

The City of San Angelo is responsible for overall maintenance procedures completed at the Airport. There are maintenance facilities located in two areas of the airfield. The first is located in (Building

LEGEND

- Fence
- Perimeter road
- Water Line
- Sanitary Sewer
- Automatic Gate
- Manual Gate

Airport Maintenance Building

Wastewater Treatment Facility (Inactive)

RUNWAY 3–21 (5,939' X 150')

RUNWAY 9–27 (4,402' X 75')

RUNWAY 18–36 (8,049' X 150')

ARFF Facility

Airport Maintenance

Avis Service Facility

Hertz Service Facility

COSA Fuel Depot

Water Treatment Facility (Inactive)

KNICKERBOCKER RD

REARY BLVD

FM 584

SAN ANGELO REGIONAL AIRPORT

Exhibit 1J
AIRFIELD SUPPORT FACILITIES

200) just east of the ATCT building, this building is approximately 1,900 square feet in size. The second is at a location east of Runway 3. Airfield maintenance equipment is stored in and around this facility, it is approximately 3,400 square feet in size with roughly 5,000 square feet of parking and storage area.

Aircraft Rescue and Firefighting Facilities (ARFF)

Part 139 airports are required to provide ARFF services during air carrier operations. Each certificated airport maintains equipment and personnel based on an ARFF index established according to the length of aircraft and scheduled daily flight frequency. There are five indices, A through E, with A applicable to the smallest aircraft and E applicable to the largest aircraft. San Angelo Regional Airport falls within ARFF index B. As such, the Airport is required to maintain a fleet of equipment and properly trained personnel consistent with this standard.

The San Angelo Regional Airport ARFF facility is located on the airfield at the northwest end of Taxiway A, adjacent to Runway 18. This position provides direct access to the ramp areas, taxiways and runways. The facility is owned and serviced by the City of San Angelo. The building is 6,500 square feet with two bay automatic doors that house two ARFF vehicles. It includes housing or living quarters with all the necessities as well as a command and communications center.

The ARFF facility houses the following equipment:

- Primary Firefighting Vehicle – 2018 Oshkosh Striker 4x4 (Purchased 2017)
  - 1,500 Gallons of Water
  - 210 Gallons of Firefighting Foam
  - 550 Pounds of Dry Chemical

- Backup Firefighting Vehicle – 2003 Oshkosh Striker 1500
  - 1,500 Gallons of Water
  - 230 Gallons of Firefighting Foam
  - 450 Pounds of Dry Chemical

Fencing and Security

Airport fencing is installed to prevent unauthorized access by individuals or vehicles from entering the airfield. It also helps protect wildlife and defines the outer airport property boundaries. San Angelo Regional Airport is equipped with security fencing completely enclosing airfield property.

Rental Car Service Areas

Avis and Hertz both maintain on-site centers for maintenance and services.
The Avis service facility is located along Stewart Lane which is west of the terminal building. The servicing facility is approximately 600 square feet with 18,000 square feet of vehicle parking and storage.

The Hertz service facility is located across the street from Avis on Stewart Lane. The facility is approximately 1,150 square feet with 15,500 square feet of vehicle parking and storage.

Utilities

Available utilities at the airport include water, sanitary sewer, electricity, gas, waste disposal and communication. The availability of utilities is vital to its daily operation and future growth potential. Having access to these services tremendously increases the opportunity of expansion for the airport and the surrounding area. Existing utility facilities are depicted on **Exhibit 1J**.

The City of San Angelo provides both water and sanitary sewer service to the airport. Water is supplied through a 12" line located along Knickerbocker Rd. to the west of the airport. Sanitary Sewer is routed with a 12" pipe flowing into a lift station and then pumped into the main sanitary sewer trunk discharging through a 4" force main.

Electricity is provided by American Electric Power (AEP) and is available throughout the airport. Natural gas is provided by Atmos Energy and is available to certain facilities located on the north side of the airport. This area includes the Aircraft Rescue and Firefighting Facility (100), U.S. Customs and Border Protection Facility (101), Border Patrol Facility (103), Ranger Aviation Hangar (108), ATCT (201) and the Terminal Building (202). All other facilities are supplied with liquified petroleum gas (LPG). Telephone and communication services are provided by Suddenlink Communications.

The on-airport water and wastewater treatment systems are currently not in operation. These systems were constructed by the military and then transferred to the city when the airport changed from military to civilian use. The water treatment facility is located on the west side of the airport near Knickerbocker Road and the wastewater treatment facility is located on the southeast side of the property.

Area Land use

Land use around an airport can have major impacts on the operations and future growth and viability of the airport. It is critical that land use planning take into consideration the presence of the airport and the potential impacts operation of the facility can have on surrounding land uses. Currently the airport is surrounded by undeveloped, open space, to the south east and west. To the north of the airport is a mix of residential, recreational, and commercial land uses.

City of San Angelo Zoning

Zoning is the public regulation of land use and involves the adoption of ordinances that divide a community into various districts or zones. Within each district, only certain uses of land are allowed, such as residential, commercial, industrial, etc. Typical zoning regulations also address things such as the height of a building, number of people that can occupy a building, lot area, setbacks, parking, signage, and density.

In 1996 the City adopted revisions to the original 1954 Zoning Ordinance. Chapter 12 of the City of San Angelo Code of Ordinances contains the zoning requirements for property contained within the city limits. Chapter 12, Attachment A, Section 104 states that the "Zoning Ordinance is adopted for the

purpose of promoting the public health, safety and general welfare of the citizens of San Angelo. More specifically, this Zoning Ordinance provides for the division of land into different districts that, in combination with regulations pertaining to such districts, are designed in accordance with a comprehensive plan to achieve objectives that include, but are not limited to, the following:

1. Promote the beneficial and appropriate development of all land and the most desirable use of land in accordance with a well-considered plan;
2. Protect the character and the established pattern of desirable development in each area;
3. Prevent or minimize land use incompatibilities and conflicts among different land uses;
4. Maintain property values by stabilizing expectations and ensuring predictability in development; and
5. Establish a process that effectively and fairly applies the regulations and standards of this Zoning Ordinance and respects the rights of property owners and the interests of citizens."

Twenty-one zoning districts are defined within the ordinance. **Exhibit 1K** depicts the zoning designations in the vicinity of the airport.[3]

As depicted on the exhibit, the area encompassing San Angelo Regional Airport is zoned as PD – Planned Development. The purpose of the PD district, applicable to the airport, is to allow diversification of uses, structures, and open spaces and to promote flexibility of design in a manner compatible with existing and allowed uses of land on adjacent properties and to provide an appropriate balance between the intensity of development and the ability to provide adequate supporting public facilities and services.

Comprehensive Plan

A local comprehensive plan is a strategic long-range document that addresses land use and zoning as it relates to growth and development of a municipality. With respect to an airport that lies within a community, it is critical that local comprehensive planning efforts acknowledge and address the issue of land use compatibility near an airport.

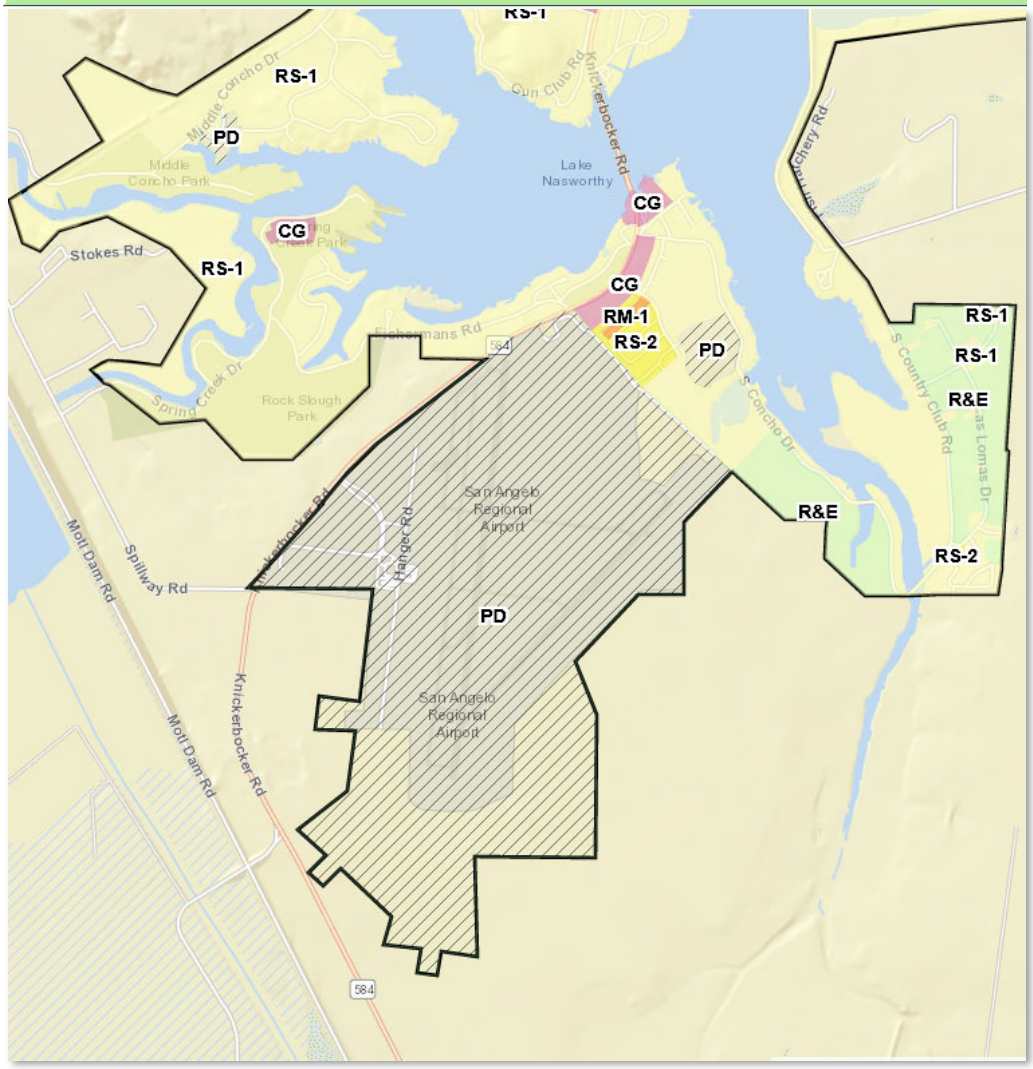
In 2003, the City of San Angelo completed the *San Angelo Comprehensive Plan*. Within a few years, new insight and continued growth pressure dictated the need for updating key sections of that document, particularly the vision and strategy for its implementation. This led to the preparation of the *San Angelo Strategic Plan, 2009 update to the San Angelo*

Comprehensive Plan. The purpose of this document was "to provide the City of San Angelo with positioning strategies for catalyst projects
that deliberately target public initiatives in an effort to attract property investment and reinvestment."[4]

[4] *San Angelo Strategic Plan, 2009 update to the San Angelo Comprehensive Plan* assessed October 2018, http://www.cosatx.us/home/showdocument?id=1714

Both of these planning processes culminated with the preparation of a Vision Plan. The purpose of this plan was to make certain that plans for future development were heading in the right direction, assuring economic vitality and promoting the interests of the citizens. **Exhibit 1L** shows the vision of the area surrounding the airport.

EXHIBIT 1K
Zoning in Airport



[1] City of San Angelo Zoning Ordinance, accessed October 2018, http://z2codes.franklinlegal.net/franklin/Z2Browser2.html?showset=sanangeloset

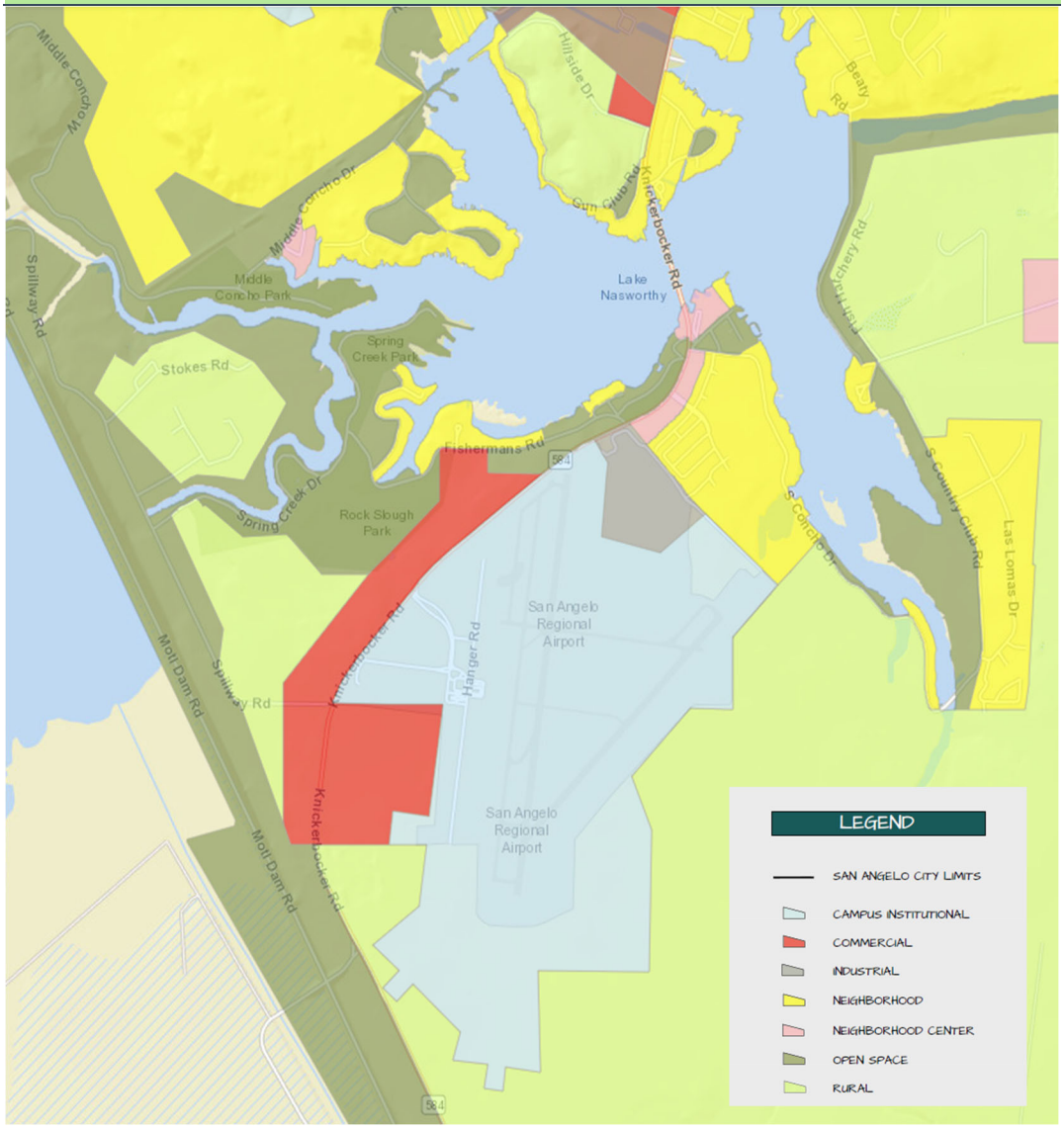
Lake Nasworthy Master Plan and Implementation Strategy

In November 2013 the City of San Angelo concluded a planning process for Lake Nasworthy.[5] The areas evaluated as part of this process included areas immediately north of the Airport. The purpose of the planning process was to identify issues and opportunities for a Lake Nasworthy redevelopment strategy. Potential improvements to existing parks, trails, and other public spaces were described as well as growth of the commercial and tourist-related facilities such as hotels, restaurants, and campgrounds.

Access to San Angelo Regional Airport is primarily provided via Knickerbocker Road. This road bisects the areas evaluated as part of the lake planning study. Improvements outlined within the master plan and implementation strategy could provide benefits to the airport as it continues to grow and develops through the proximity of planned lodging and restaurants. That said, it is critical the City consider the presence of the airport as development projects are approved to ensure long term viability of the airport and airspace protection.

[5] Lake Nasworthy Master Plan and Implementation Strategy, accessed October 2018, http://www.cosatx.us/home/showdocument?id=1028

EXHIBIT 1L
Comprehensive Plan



ENVIRONMENTAL INVENTORY

As defined within Chapter 5 of FAA AC /150-5070.6B, *Airport Master Plans*, the purpose of considering environmental factors in airport master planning is to assist with a thorough evaluation of airport development alternatives and to provide information that will help expedite subsequent environmental reviews. Environmental reviews, in accordance with the *National Environmental Policy Act (NEPA) of 1969*, are required prior to the issuance of AIP funds for airport development projects or the approval of projects depicted on the airport's ALP. FAA Orders 1050.1, Environmental Impacts:

Policies and Procedures and 5050.4, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, define the various levels of review as well as format and content. FAA Order 1050.1 defines a number of environmental impact categories that are to be evaluated through a NEPA process. Most relevant to an airport master plan in West Texas are the following:

- Biological resources
- Cultural or historic resources
- Wetlands
- Floodplains and surface waters
- Air quality

The following pages provide an inventory of each of these resources.

Biological Resources

In 2011 a Wildlife Hazard Assessment was prepared for the Airport. As part of the assessment existing biological resource habitats were inventoried. **Exhibit 1M** depicts the results of the inventory. Field investigations undertaken for this master plan found that much of the data within the 2011 assessment is still accurate and valid.

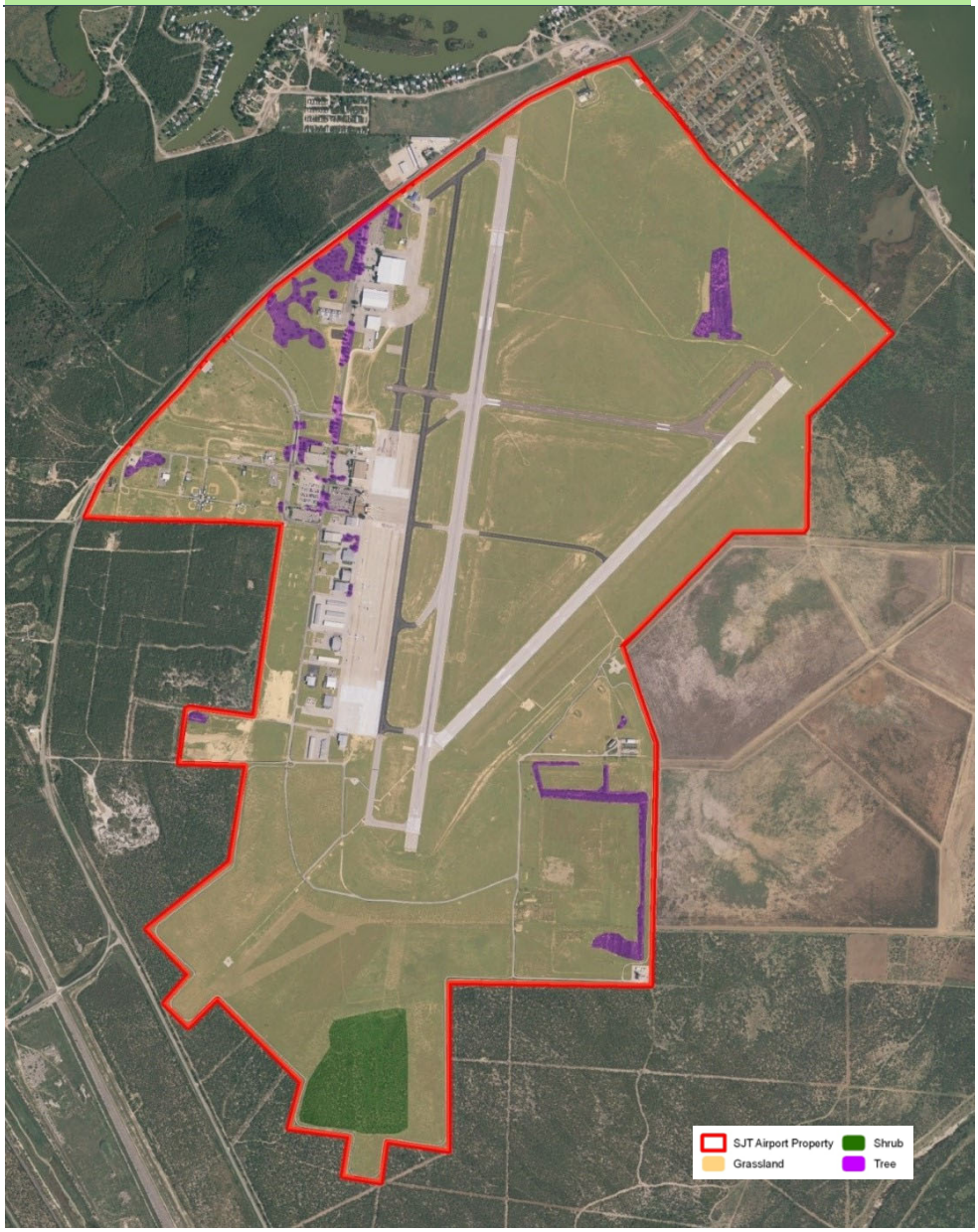
Three habitats are present on Airport property – grassland, shrub, and tree. Grasses and herbaceous flowering plants comprise the majority of the vegetation on the airport property. Dominant grasses and forbs within the airport include Bermudagrass, western ragweed, little bluestem, silverleaf nightshade, common sandbur, curly mesquite, Johnsongrass, white tridens, silver bluestem, old threeawn, purple threeawn, scarlet muskflower, sideoats grama, perennial pepperweed, common sunflower, common broomweed, Texas skullcap, and Texas croton, with the occasional woody species, such as wolfberry.

These stands are dominated by mesquite trees with stands of live oak present just outside the perimeter fence in the northwest portion of the Airport.

Cultural or Historic Resources

The Texas Historical Atlas (Atlas) was queried to identify known cultural or historic resources on or near airport property. The Atlas features over 300,000 site records, including data on Official Texas Historical Markers and National Register of Historic Places properties in Texas. No historic sites were identified as occurring on airport property, the nearest historical site is located north of the airport on the far side of Lake Nasworthy.

EXHIBIT 1M
On-Airport Habitats



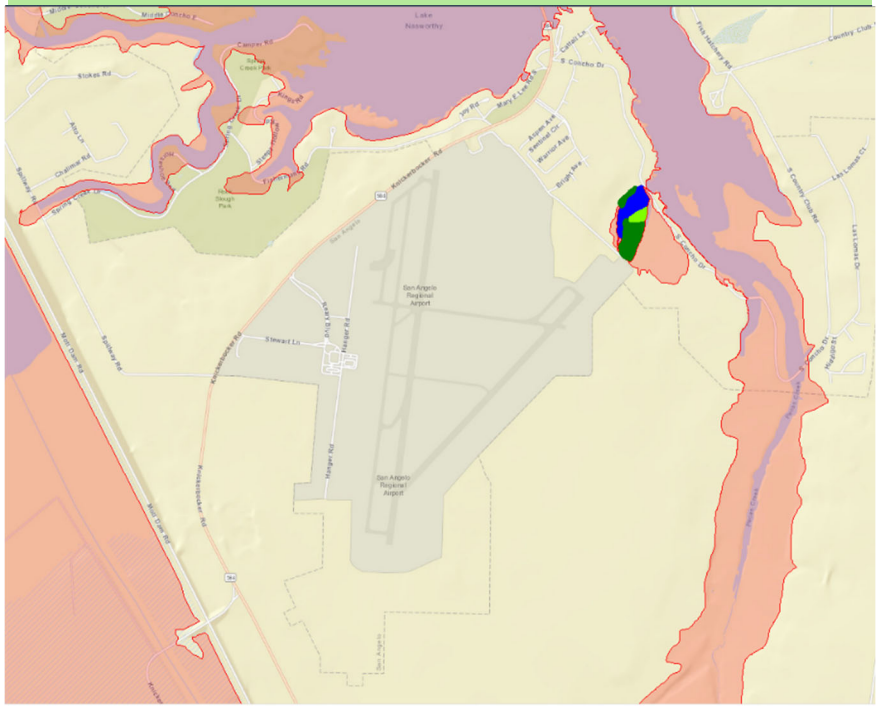
Wetlands

The USFWS National Wetland Inventory Maps were queried to identify wetland resources in the vicinity of the airport. Wetlands were identified at the north end of Runway 3-21. They are connected to Lake Nasworthy via a drainage beneath South Concho Drive. **Exhibit 1N** depicts the location of this wetland resource.

Floodplains and Surface Water

A review of FEMA Floodplain mapping reveals numerous floodplain resources in the vicinity of the airport. Additionally, numerous lakes, rivers, and other water bodies are located within the airport environs. These resources are directly impacted by rainfall and the water levels fluctuate. **Exhibit 1N** illustrates the location of these water resources.

EXHIBIT 1N
Wetland and Floodplain Resources



Air Quality

The United States (U.S.) Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) based on health risks for six pollutants - carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), ozone (O_3), and two classifications of particulate matter (PM), PM measuring 10 micrometers or less in diameter (PM_{10}), and PM measuring 2.5 micrometers or less in diameter ($PM_{2.5}$). An area with ambient air concentrations exceeding the NAAQS for a criteria pollutant is said to be a nonattainment area for the pollutant's NAAQS, while an area where ambient concentrations are below the NAAQS is considered an attainment area. San Angelo Regional Airport is located in Tom Green County, Texas. According to the EPA Green Book the county is in attainment for all pollutants.

SOCIOECONOMIC PROFILE

Socioeconomic information provides background on area population, employment and income. These measures indirectly identify trends in the local area which may contribute to changes in airport activity. Generally, socioeconomics analyzes how societies progress, stagnate or regress due to the nature of their local or regional economy. This information is very important when planning for future growth of an airport because it is directly influenced by the surrounding economic factors related to the area. Data used within this profile was obtained from local sources unless otherwise noted.

Regional Information

The Concho Valley Council of Governments (CVCOG), formed in 1967, is made up of 13 counties surrounding the City of San Angelo. These counties include Coke, Concho, Crockett, Irion, Kimble, Mason, McCulloch, Menard, Reagan, Schleicher, Sterling, Sutton and Tom Green Counties. The region covers over 16,000 square miles, with San Angelo being the largest metropolitan city. The population of the region as of the 2010 census is 154,192. Ranching, farming, oil and gas dominate the economy of this region as a whole.

Population

A growing population can have positive effects on the surrounding economy and more specifically the airport. A larger or increasing population percentage has the potential to add higher demands for aviation activities in the area. The trend of growth, whether it be rising or falling, plays a major role in the planning effort of the airport.

San Angelo is located within Tom Green County; whose population was at 110,224 when the last census was taken in 2010. The City of San Angelo accounts for approximately 85% of the total population of Tom Green County and is an assertive part of the area, with a recorded population of 93,200. In 2016, a new estimate was published that showed San Angelo had increased its population growth by about 8%, from 2010. This increase is most likely related to the increase in companies moving into the city, which create more jobs and higher demands for the community. Education services, Goodfellow Air Force Base, health care services, historical tourism and the oil and gas industry also help contribute to this increase. **Table 1G**, shows the historical population data recorded for the City of San Angelo, Tom Green, Texas and the United States.

TABLE 1G
Historic Population

	1980	1990	2000	2010	Average 10 - Year Growth Rate	2016 (Estimate)
City of San Angelo	73,240	84,462	88,439	93,200	7.56%	100,450
Tom Green County	84,784	98,458	104,010	110,224	8.23%	117,944
State of Texas	14,229,191	16,986,510	20,851,820	25,145,561	17.25%	27,904,862
United States	226,545,805	248,709,873	281,421,906	308,745,538	9.76%	325,719,178

Source: U.S. Census Bureau and the Texas Demographic Center

Employment

Another significant socioeconomic measurement that records the stability and overall well-being of the surrounding economy is employment. This is directly related to the nature of disposable income in the area, which can either help or harm the local economy depending on high/low levels of unemployment. Major employment industries surrounding the City of San Angelo include education, health care, trade or retail-sale, hospitality, manufacturing, services, construction, agriculture, oil and gas. The unemployment rate in San Angelo since the 2010 census was 5.2% and seems to be on a steady decline. As of 2017 the estimated unemployment rate is 3.4%. **Table 1H**, provides the historic unemployment rates recorded for the City of San Angelo, Tom Green, Texas and the United States.

TABLE 1H
Historic Unemployment Rate

	1995	2000	2005	2010	2015	Current (Estimate)
City of San Angelo	4.3%	4.4%	4.7%	7.1%	3.9%	3.4%
Tom Green County	4.1%	4.3%	4.6%	7.1%	3.8%	3.4%
State of Texas	5.8%	4.6%	5.7%	8.3%	4.5%	4%
United States	5.6%	4%	5.3%	9.8%	5.7%	4.1%

Source: Bureau of Labor Statistics

Major employers within the community include the following:

- Goodfellow Airforce Base (2,688)
- Shannon Health System (2,467)
- San Angelo ISD (2,069)
- Angelo State University (1,455)

- The City of San Angelo (909)
- San Angelo Community Medical Center (865)
- San Angelo State Supported Living Center (861)
- Tom Green County (764)
- Ethicon (618)
- Sitel, Inc. (613)
- BlueCross BlueShield (400)
- Lone Star Beef Processors (400)

Income

Income is another socioeconomic measurement tool that can be indicative of new business development. As income levels in the area increase it is likely that the demand for aviation activities will increase as well.

Median household income is the amount that divides the total income distribution into two equal groups, where half of the households earn more, and half of the households earn less. This method is more accurate than taking the average or mean household income because it can give a closer look at the area's actual economic status. **Table 1J**, shows the Median Household Income levels of San Angelo and Tom Green County. In 2010, the average median household income level of the State of Texas was $47,266 and for the whole United States it was $55,093.

TABLE 1J
Historic Median Household Income

	2012	2013	2014	2015	2016	Annual Growth Rate
City of San Angelo	$46,947	$47,409	$45,909	$49,053	$49,096	1.05%
Tom Green County	$43.393	$44,545	$45,261	$47,756	$48,221	2.58%
State of Texas	$53,027	$51,406	$53,875	$56,473	$58,148	2.22%
United States	$53,701	$53,838	$54,398	$56,480	$57,617	1.46%

Source: The U.S. Census Bureau and Data USA

SUPPORTING DOCUMENTS

A number of studies were consulted for the collection of information during the preparation of this chapter. These documents include the following:

- Airport Master Plan Update, Mathis Field, Parkhill, Smith and Cooper, Inc., 1995.
- Wildlife Hazard Assessment, SWCA, 2012
- San Angelo Regional Airport, Taxiway Utilization Plan, Coffman Associates, 2012
- San Angelo Regional Airport Layout Plan and Land Use Study, Coffman Associates, 2014
- Pavement Prioritization Plan, KSA, 2018
- Pavement Management Plan, KSA, 2017

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INTRODUCTION

The Aviation Forecasts chapter of this Airport Master Plan analyzes current and future airport activity at the San Angelo Regional Airport (SJT). Forecasting provides a general idea of the magnitude of growth, as well as fluctuations in activity anticipated over a 20-year forecast period. They assist the Airport in determining existing and planned future facility needs based on airport activity level estimates and projections. Forecasts attempt to develop a realistic estimate of future changes; however, when conditions dramatically change, forecasts should be reviewed and updated. Forecasts developed for an Airport Master Plan are important to adequately plan, size, and sequence development of future facilities to meet future projected growth. Development at airports, however, is demand-based from actual numbers rather than forecasts.

To thoroughly analyze and develop a probable aviation forecast, a technical review has been completed using several methods to help quantify the potential aviation activity over the next 20 years. The forecasts for this Airport Master Plan study were prepared by the project team members including Centurion Planning & Design, Landrum and Brown, and C & S Companies.

FORECAST RATIONALE

Forecasting the demand for airport services is a critical step in the development of an airport. It allows an airport to examine its ability to satisfy the needs of the aircraft and people it serves, and to determine the approximate timing of necessary improvements by projecting airport user activity levels.

Forecasts developed for airport master plans and/or federal grants must be approved by the Federal Aviation Administration (FAA). The SJT Master Plan Aviation Activity Forecast was approved on May 24, 2020. It is the FAA's policy, listed in Advisory Circular 150/5070-6B, *Airport Master Plans*, that FAA approval of forecasts at non-hub airports with commercial service should be consistent with the Terminal Area Forecasts (TAF). Master plan forecasts for operations, based aircraft and enplanements are consistent with the TAF if they meet the following criteria:

1. Forecasts differ from the TAF by less than 10% in the five-year forecast and by less than 15% in the 10-year period, or
2. Forecasts do not affect the timing or scale of an airport project, or
3. Forecasts do not affect the role of the airport as defined in the current version of FAA Order 5090.3, *Field Formulation of the National Plan of Integrated Airport Systems*.

The Airport Master Plan Advisory Circular also acknowledges that locally prepared forecast may contain a more detailed analysis of local economic conditions or development that is not considered when preparing the TAF. The TAF model used for this report is from the 2018 FAA TAF available in January 2018, also factored into this report is the Airports FAA Form 5010-1, *Airport Master Record*,

population and income data for the Metropolitan Statistical Area. This is the latest data available when the forecasting effort began for this airport master plan.

Finally, FAA Order 5090.3C states forecasts should be:

1. Realistic
2. Based on the latest available data
3. Reflect the current conditions at the airport
4. Supported by information in the study

Provide an adequate justification for the airport planning and development

Forecast Executive Summary

The following pages contain a great deal of analysis, information, and forecast methodology descriptions. To ease review of the materials we have provided a brief executive summary below

Summary of Commercial Aviation Forecast Findings

Passenger enplanements at the San Angelo Regional Airport (SJT) are forecasted to grow at a compounded annual growth rate (CAGR) of 1.2% over the coming 20 years

- In line with forecasted economic & population growth
- Resulting in 76,136 enplaned passengers by 2037
- Within 4.3% of the TAF (within 2.1% of 10-year forecast and 1.1% of 5-year forecast)

Growth will be driven by larger aircraft as number of operations are not forecasted to change significantly

- As seat capacity will grow at a 1.2% CAGR through 2037 – indicating flat load factors
- Current SJT 50-seat regional jet flying will evolve to all 76-seat jet flying by 2037
- This is in line with expected industry trends

While not reflected in the forecast information above, it has been determined there is potential for the reintroduction of a second airline at SJT

- Current American Airlines results are persuasive - good profitability & high load factors
- Demand exists, as 50% of traffic base "leaks" to other regional airports
- Should a second airline be introduced, forecast modeling estimates enplaned passenger volume could be as high as 101,192 by 2037
- United (UA) service to Houston (IAH) is compelling as UA plans to grow capacity 6% per year over the next 3 years, mostly with ERJ aircraft – this aircraft is a good fit for IAH-SJT service. Currently Houston ranks as the number 6 market served for people flying out of San Angelo. The drive distance from San Angelo to Houston further strengthens the case for new service by UA.

Summary of General Aviation Forecast Findings

General Aviation operations are expected to grow moderately over the next 20 years

- Itinerant operations expected to grow at 0.7% CAGR over next 20 years from 22,199 to 25,522.
- Local operations are forecasted to grow at a CAGR of 1.3% from 12,951 to 16,669.
- These forecasts are in line with planned economic growth but vary from the general aviation operations forecasted within the FAA TAF.

Combined with commercial operations, total SJT operations are expected to grow

- 0.8% CAGR by 2022, 0.6% by 2027 and 0.5% by 2037.
- These forecasts are in line with planned economic growth but vary slightly from the FAA TAF.

SJT Based Aircraft are forecasted to grow at 0.7% CAGR over the next 20 years

- 0.7% CAGR over 5-year and 10-year periods.
- Increasing from 176 based aircraft in 2017 to 202 by 2037.
- Varies slightly from the projected based aircraft on the FAA TAF

While the preferred general aviation operations forecast varies from the TAF general aviation operations forecasts, airports are often influenced by fluctuations in demographic and socioeconomic factors within their surrounding communities. Although modest, increases in population for the San Angelo MSA, combined with steady increases in employment and per capita income in the same MSA, have the potential to increase the Airport's general aviation activity.

For the purposes of this report, the data as reported on the current 5010 for the 12-month period ending December 31, 2018, served as the baseline data. While TAF uses a forecasted data, the information in the 5010 can be confirmed, and as described in detail later in the report, can account for the slight variation between the recommended forecasts and the TAF forecasts.

Economic Base for Air Traffic

Air travel demand is typically correlated with a region's demographic and economic characteristics. The economic strength of the Air Service Area has a major impact on the aviation activity at the Airport. The next sections review current economic trends and conditions in the Airport's Air Service Area and present data indicative of the Air Service Area's capability to generate growing demand for air transportation throughout the forecast period.

Socio-Economic Trends

Data for population, income, and gross regional product for the Air Service Area are discussed below. Parallel data for the United States and the State of Texas is shown to provide a basis of comparison to trends in the Air Service Area. Where available, historical data will be presented for the 2007-2017 period, which is representative of a longer-term trend and the most recent 10 years of historical data available. Where available, forecast data will be presented through 2037, so as to be consistent with air traffic forecasts presented later in this chapter.

Historical and Forecast Population

Population is a significant source of demand for air travel. **Table 2A** includes 2007 and 2017 population data and provides population trends in the Air Service Area, Texas and the U.S. during this period. Forecasts through 2037 are also included. Data in **Table 2A** below shows that between 2007 and 2017, the population in the Air Service Area increased from 107,774 to 120,712, or 12.0% (1.1% CAGR). During the same period, U.S. population increased by 9.4% (0.9% CAGR), while Texas grew 18.6% (1.7% CAGR).

TABLE 2A
Historical and Forecast Population (2007-2037)

	Historical Population		Forecast Population	Percent Change	CAGR[1/]	
Area	2007	2017	2037	2007-17	2007-2017	2017-2037
Air Service Area	**107,774**	**120,712**	**137,402**	**12.0%**	**1.1%**	**0.7%**
Texas	23,831,000	28,274,000	38,102,000	18.6%	1.7%	1.5%
United States	298,217,999	326,128,000	374,137,000	9.4%	0.9%	0.7%

Note:
1/ Compound annual growth rate.
Source: Woods & Poole Economics, U.S. Census Bureau

Population growth data are based on estimates of the Air Service Area's birth rate, death rate, and net in-migration. The forecast population increase in the Air Service Area for the period 2017 to 2037 reflects a CAGR of 0.7% and is comparable to the U.S. rate during the same period (0.7%), although less than ½ of Texas. The increase in new residents in the Air Service Area, approximates 1,000 between 2017 and 2037, is expected to generate additional demand for air service.

Household Income

As described in **Table 2B**, the average household income for the air service area was $97,866 in 2017 and is forecast to grow to $120,137 by 2037, or a 22.8% increase (1.03% CAGR). During this same time span, the U.S.' average household income is forecasted to increase from $113,991 to $145,160, or 27.3% (1.22% CAGR).

TABLE 2B
Median Household Income and Income Distribution (2017-2037)

	Air Service Area	Texas	United States
2016 Median Household	$42,855	$57,051	$59,039
2017 Average Household	$97,866	$116,535	$113,991
2037 Average Household	$120,137	$150,935	$145,160

		Household Income Distribution %	
2017 Household Income	**Air Service Area**	**Texas**	**United States**
Less than $19,999	23.0%	19.2%	18.5%
$20,000 to $44,999	30.7%	26.2%	24.9%
$45,000 - $74,999	22.8%	22.6%	23.0%
$75,000 - $99,999	11.6%	12.0%	12.6%
$100,000 - $199,999	11.8%	16.0%	16.7%
$200,000 or more	2.0%	4.1%	4.3%
Total	**100.0%**		**100.0%**
2037 Household Income			
Less than $20,000	17.0%	13.1%	12.7%
$20,000 to $45,000	22.8%	18.3%	17.6%
$45,000 - $75,000	27.9%	22.7%	22.7%
$75,000 - $99,999	16.0%	16.6%	17.3%
$100,000 - $199,999	16.4%	23.2%	23.7%
$200,000 or more	2.8%	6.0%	6.0%
Total	**100.0%**		**100.0%**

1/ Amounts are shown in current dollars
Source: Woods & Poole Economics

The percentage of higher income households, defined as those earning $100,000 or more annually, within the Air Service Area is another key indicator of potential demand for air travel services. In 2017, approximately 6,300 Air Service Area households had an income of $100,000 or more. This is equal to approximately 13.8% of all Air Service Area households. According to Consumer Expenditure Survey data from the U.S. Bureau of Labor Statistics, 54% of airline fare expenditures are made by households with annual incomes of $100,000 or more. Data in **Table 2C** on the following page shows that between 2017 and 2037, the Air Service Area will gain an additional 3,572 households with annual income greater than $100,000.

TABLE 2C
Households with Income of $100,000 and Above (2017-2037)

	Air Service Area	Texas	United States
Total Households			
2017 estimate	46,544	10,211,000	127,019,027
2037 forecast	51,417	13,244,000	146,739,258
Increase in households	12.6%	29.7%	15.5%
CAGR 2017-2037[1/]	0.5%	1.3%	0.7%
Households with Income of $100,000 and Above[2/]			
2017 estimate	6,300	1,842,000	26,673,996
2037 forecast	9,872	3,736,000	43,581,560
Increase in households with income of $100,000 and	56.7%	102.8%	63.4%
CAGR 2017-2037	2.3%	3.6%	2.5%
% of Households with Income of $100,000 and Above[2/]			
2017 estimate	13.8%	18.4%	21.0%
2037 forecast	19.2%	28.5%	29.7%

Notes:
1/ Compound annual growth rate.
2/ In current dollars.
Source: Woods & Poole Economics

Gross Regional Product / Gross Domestic Product

Gross domestic product (national level) and gross regional product (state- and county-level) are measures of the value of all final goods and services produced within a geographic area. These measures are general indicators of the economic health of a geographic area and, consequently, of the area's potential demand for air transportation services. **Table 2D** shows the CAGR for the Air Service Area's gross regional product and gross domestic product for the U.S. **Table 2D** indicates that gross regional product for the Air Service Area increased at a CAGR of 0.6% between 2007 and 2017, which was below the U.S. CAGR of 1.5%.

Forecasts for 2037 in **Table 2D** show that gross regional product for the Air Service Area is forecast to increase at a CAGR of 1.4%, which is below the forecasted CAGR of the U.S. of 1.7% between 2017 and 2037.

TABLE 2D
Historical and Forecast Per Capita Gross Regional and Gross Domestic Product (2017-2037)

Gross Regional & Gross Domestic Product Growth			
CAGR[1/]	Air Service Area	Texas	U.S.
2007-2017	0.6%	2.1%	1.5%
2017-2037	1.4%	2.3%	1.7%

Note:
1/ Compound annual growth rate.
Source: Woods & Poole Economics, Inc; in 2009 dollars

Labor Market Trends

Civilian labor force data, unemployment rates, and employment for the Air Service Area are discussed below and are presented in **Table 2E**. Parallel data for the U.S. is also shown to provide a basis of comparison for trends in the Air Service Area.

TABLE 2E
Historical and Forecast Non-Farm Payrolls and Unemployment Rate (2000-2017)

NON-FARM PAYROLLS			UNEMPLOYMENT RATE		
Year	Air Service Area	United States	Year	Air Service Area	United States
2000	44,900	158,439	2000	3.9%	4.0%
2001	45,400	158,510	2001	3.8%	4.7%
2002	45,100	156,779	2002	4.8%	5.8%
2003	44,600	156,413	2003	5.1%	6.0%
2004	44,100	158,124	2004	4.7%	5.5%
2005	44,500	160,850	2005	4.3%	5.1%
2006	45,400	163,748	2006	4.1%	4.6%
2007	45,800	165,596	2007	3.6%	4.6%
2008	45,600	164,688	2008	4.1%	5.8%
2009	44,600	157,560	2009	6.3%	9.3%
2010	45,100	156,423	2010	6.5%	9.6%
2011	45,600	158,329	2011	6.2%	8.9%
2012	46,800	161,004	2012	5.3%	8.1%
2013	47,900	163,655	2013	5.1%	7.4%
2014	48,900	166,724	2014	4.0%	6.2%
2015	49,400	170,175	2015	4.1%	5.3%
2016	48,800	173,166	2016	4.5%	4.9%
2017	48,900	175,949	2017	3.7%	4.4%
CAGR[2/]					
2000 – 2017	0.5%	0.6%			

Source: Bureau of Labor Statistics, U.S. Department of Labor; U.S. non-farm payrolls in 000s

2007 – 2017 Non-Farm Payrolls and Unemployment Rate

Table 2E includes annual civilian labor force and unemployment data from 2000 through 2017 for the Air Service Area, and the U.S. Data in **Table 2E** show that between 2000 and 2017, the Air Service Area labor force grew about 8.9% or at a CAGR of 0.5%. At the same time, the U.S. increased from 158 million to 176 million, or a CAGR of 0.6%.

Regional Economic Overview

San Angelo Regional Airport (SJT) is the primary commercial service airport serving the area of south-central Texas. It is in the Concho Valley, a region of central Texas. San Angelo is home to Angelo State University, historic landmark Fort Concho, and Goodfellow Air Force Base

Economic development officials in the Air Service Area underscore the importance of the Airport's links to destinations in the U.S. and around the world. Because access to domestic and international markets is a major factor in the site selection process, the Airport plays a significant role in attracting new businesses and the expansion of existing enterprises in the Air Service Area.

As part of the economic discussion, it must be pointed out that San Angelo sits on the eastern edge of the Permian Basin, where the shale boom has elevated oil and gas production, or output in millions of barrels of oil and gas, to levels experienced in the middle east and other oil producing countries. Midland, Texas, located 112 miles to the west, is experiencing exponential growth as a result of this oil and gas exploration and development. San Angelo is experiencing spillover growth. Many companies in the city are servicing the shale oil boom west of here while enjoying what industry leaders say is enhanced quality of life. As commercial flights get full it is not uncommon to see people fly into San Angelo before heading further west.

Major Employers

Major employers in the Air Service Area for which employment data are available are shown in **Table 2F**. These firms represent a variety of industries including: Defense (Goodfellow Air Force Base), government, education and healthcare.

TABLE 2F
Major Air Service Area Employers

Company	Approximate Employees
Goodfellow Air Force Base	2,688
Shannon Health System	2,467
San Angelo ISD	2,069
Angelo State University	1,455
City of San Angelo	909
San Angelo Community Medical Center	865
San Angelo State Supported Living Center	861
Tom Green County	764
Verizon, Inc.	645
Ethicon (Johnson & Johnson)	618

Source: https://livability.com/tx/san-angelo/business/san-angelo-tx-top-employers

Economic Outlook

As has been illustrated earlier in this chapter, the San Angelo economy is typically slower growing as compared to U.S. averages. Population and economic forecasts for the Air Service Area are shown in **Table 2G** and are also compared to the U.S. As illustrated, the population, employment, total personal income, and total gross regional product are expected to have relatively lower growth rates in the Air Service Area as compared to the U.S. This continues trends that have been noted previously.

This indicates that the ongoing capacity of the Air Service Area to continue to generate demand for air travel services during the forecast period will continue, albeit at slower rates of growth as compared to the U.S.

TABLE 2G
Passenger Demand Forecast Variables (2017-2037)

	2017	2037	CAGR
Air Service Area Population	120,712	137,402	0.7%
U.S. Population (000s)	298,217	326,128	0.7%
Air Service Area Total Employment	74,325	90,245	1.0%
U.S. Total Employment	184,227,000	210,105,000	1.5%
Air Service Area Total Personal Income ($ billion)	$4.7	$6.5	1.6%
U.S. Total Personal Income ($ billion)	$15,104.2	$18,982.7	2.6%
Air Service Area Per Capita Personal Income	$39,175	$46,978	0.9%
U.S. Per Capita Personal Income	$46,974	$53,841	1.5%
Air Service Area Gross Regional Product ($ billion)	$4.3	$5.7	1.4%
U.S. Gross Domestic Product ($ billion)	$17,839.3	$22,003.7	2.1%

Source: Woods & Poole Economics, Inc., Data Profiles for MSA, state, and U.S.

COMMERCIAL PASSENGER INDUSTRY AVIATION TRENDS

The trends presented in this section are intended to provide a framework for better understanding past and future trends at SJT. It will also establish a basis for estimating how aviation activity may be expected to grow and change in the future. This frame of reference is essential when identifying potential activity scenarios for the airport.

Long-Term History (1978-2008)

Since de-regulation in 1978, through 2008, the U.S. airline industry cumulatively lost approximately 40 billion dollars. This was primarily a function of overcapacity in the industry, where the supply of seats was greater than demand. The result was that airlines had to price airline seats below cost. **Exhibits 2A**

and **2B** illustrate: 1) the widening gap between the supply of seats and demand that took place during this time period, and 2) the resulting decline in airline price (yield).

After roughly thirty (30) years of overcapacity, the airline industry had amassed massive financial losses, numerous airlines had gone out of business or merged, and airline balance sheets consisted of heavy debt levels. These financial results had been generated despite the fact that one of the primary cost inputs (oil prices) had been fairly tame during this time period, typically ranging from about $20-$50 per barrel. There were two primary beneficiaries from the aforementioned excess capacity: airports and the traveling public, who benefited from relatively low air fares. The effect was elevated, but unsustainable passenger volumes.

During this time period, passenger volumes across the U.S. increased at a Compounded Annual Growth Rate (CAGR) of 2.65% (2008 vs 1978, source: A4A).

EXHIBIT 2A

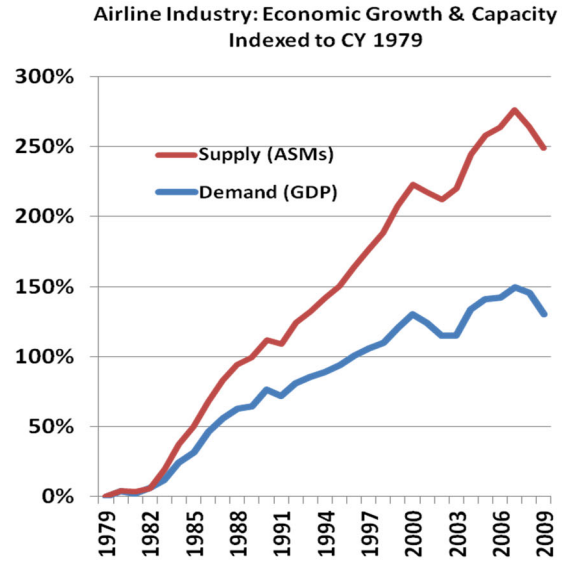
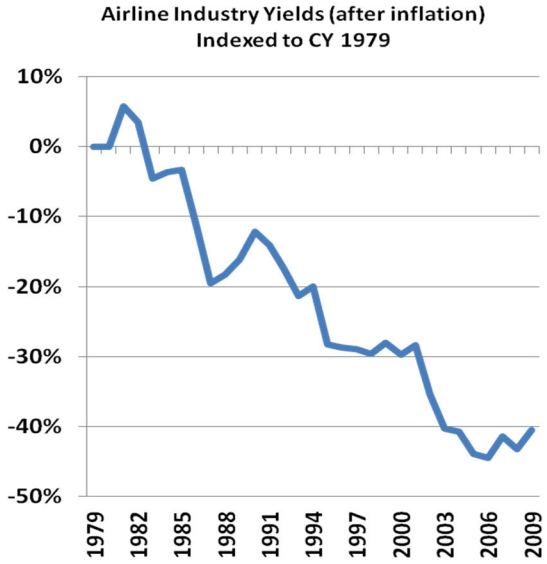


EXHIBIT 2B

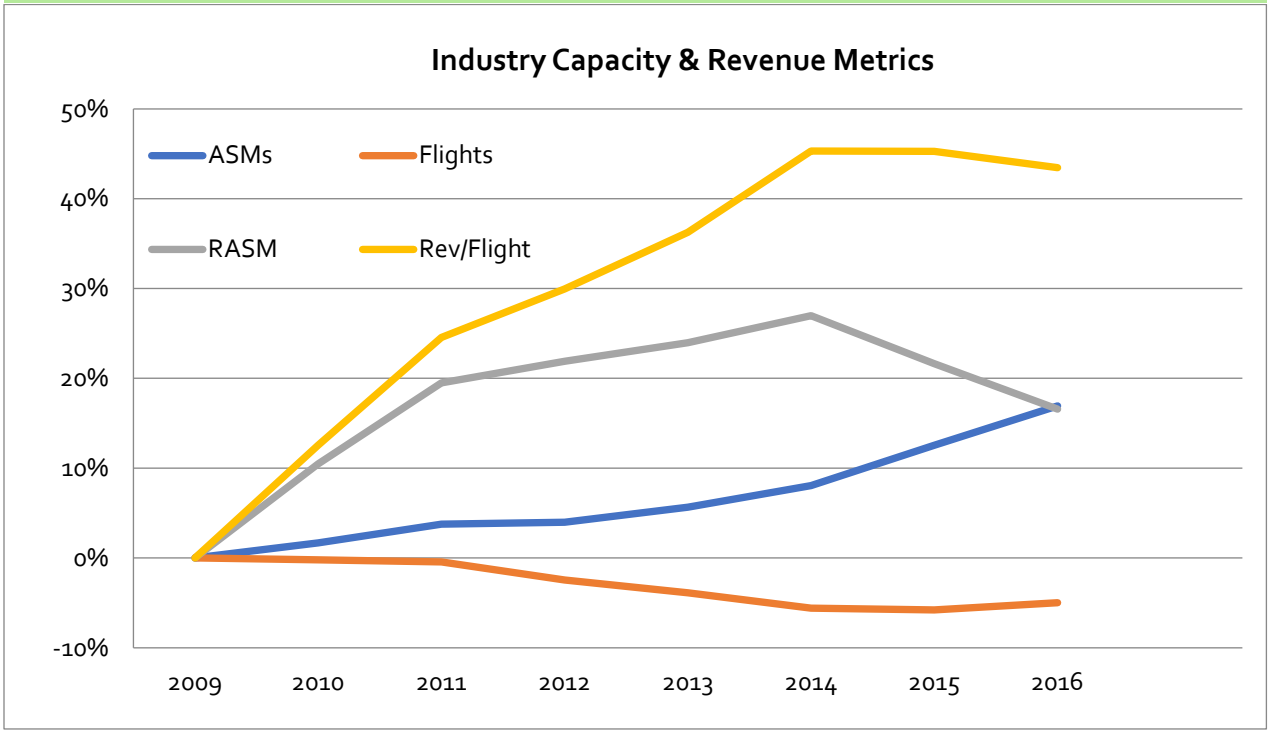


Beginning in 2007, oil prices spiked, eventually peaking at around $150/barrel and a subsequent, severe economic recession. The airline industry's very survival depended upon a significant transformation. The key component would be to sharply reduce capacity, particularly with regard to fuel inefficient aircraft fleets such as 50-seat regional jets. The airlines began to reduce seat capacity in 2008 as fuel prices spiked and the economic recession worsened.

Airline Industry Transformation (2009 – Today)

Exhibit 2C illustrates what has occurred since 2009: airlines cut flight capacity and revenues improved sharply. Revenue increases were driven by higher yields (prices), marginally higher load factors and ancillary fees. Airlines have also benefited from sharply lower oil prices. The result was that a habitually unprofitable industry has become quite profitable, recording the most profitable years in industry history over the past four years, with 2017 generating comparable results to recent history.

EXHIBIT 2C
Industry Capacity and Key Revenue Metrics



** Source: Air Transport Association (A4A)*

The biggest changes came at the largest network airlines (Delta, United & American), where the financial results had historically been the worst. These airlines drastically cut capacity, primarily in the form of eliminating the most unprofitable fleet types, focusing upon improved profitability. At the same time, Ultra Low Cost Commercial Carriers (ULCCs) such as Allegiant, who had been profitable over time, continued to grow significantly while at the same time generating consistent profitability. (Refer to **Table 2H**)

The effects of these changes and its effect upon smaller communities has been vast. Since the oil price spike and subsequent U.S. recession in the late 2000s, the three major network airlines that serve relatively smaller markets (Delta, United and American) have generally reduced seat capacity. Most of the capacity growth across the U.S. has generally come from niche airlines who primarily serve certain areas of the country (JetBlue, Alaska) or ULCCs who primarily cater to leisure travelers, flying to popular vacation spots (Allegiant, Spirit, Frontier).

The one positive during this time period was that ULCC Allegiant was growing significantly into smaller markets, backfilling for some of the lost service from network airlines. Still, the Allegiant Airlines service was limited to vacation travelers, flying to popular vacation spots, where lost network airline service would have allowed for travel to pretty much any market in the world.

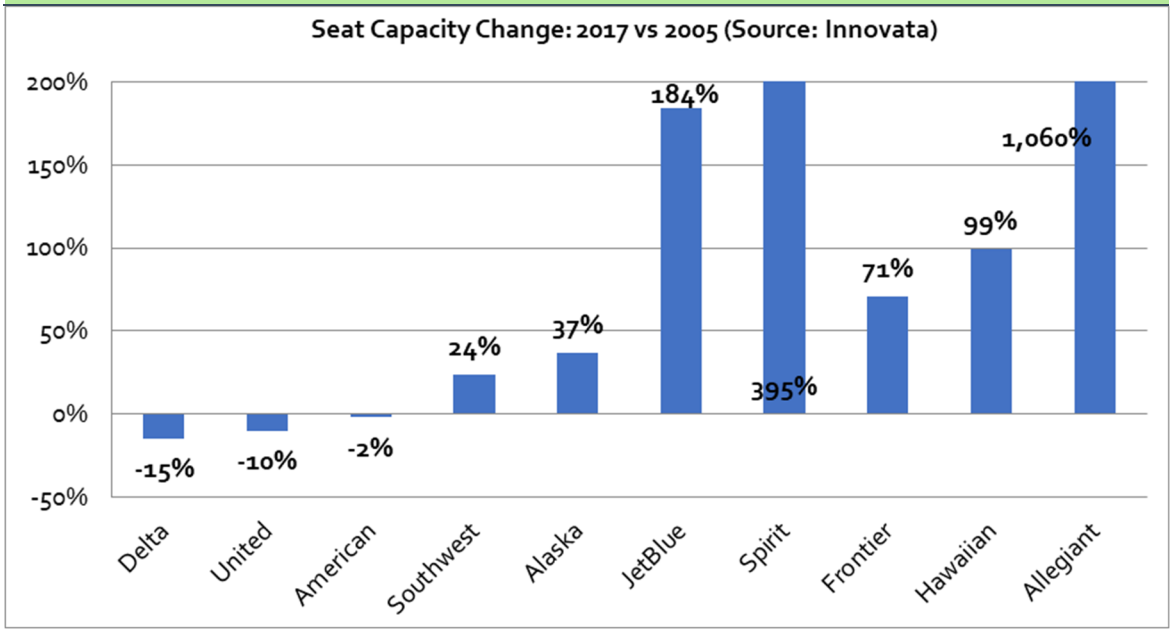
TABLE 2H
Industry Profitability for 9 Publicly Traded Airlines

Calendar Years 2014 - 2017

	Pre-Tax: 2014 (millions)			Pre-Tax: 2015 (millions)			Pre-Tax: 2016 (millions)			Pre-Tax: 2017 (millions)		
Airline	Rev	P&L	Margin	Rev	P&L	Margin	Rev	P&L	Margin	Rev	P&L	Margin
Delta	$40,362	$4,500	11.1%	$40,704	$7,802	19.2%	$39,639	$6,952	17.5%	$41,244	$6,114	14.8%
Southwest	$18,605	$1,816	9.8%	$19,820	$4,116	20.8%	$20,425	$3,760	18.4%	$21,171	$3,515	16.6%
United	$38,901	$2,373	6.1%	$37,864	$5,166	13.6%	$36,556	$4,338	11.9%	$37,736	$3,498	9.3%
American	$42,650	$4,249	10.0%	$40,990	$6,204	15.1%	$40,180	$5,284	13.2%	$42,207	$4,058	9.6%
jetBlue	$5,817	$515	8.9%	$6,416	$1,216	19.0%	$6,632	$1,312	19.8%	$7,015	$1,000	14.3%
Alaska	$5,368	$962	17.9%	$5,598	$1,298	23.2%	$5,931	$1,349	22.7%	$7,933	$1,260	15.9%
Allegiant	$1,137	$157	13.8%	$1,262	$372	29.5%	$1,363	$371	27.2%	$1,504	$227	15.1%
Spirit	$1,932	$355	18.4%	$2,141	$509	23.8%	$2,322	$444	19.1%	$2,648	$389	14.7%
Total	$154,772	$14,927	9.6%	$154,795	$26,683	17.2%	$153,048	$23,810	15.6%	$161,458	$20,061	12.4%

Exhibit 2D illustrates just how disproportionate capacity changes have been by carrier type. It should be noted that the four largest airlines in aggregate (Delta, United, American and Southwest) control approximately 83% of industry seat capacity.

EXHIBIT 2D
Departing Seat Capacity Change (% Change, 2017 vs 2005)



While major airlines have constrained capacity, the effect has been disproportionate across the U.S. For example, Delta Air Lines, over the past twelve years, has reduced seat capacity approximately 12% across their system. Still, Delta has increased seat capacity significantly on the U.S. West Coast, where Delta's Seattle seat capacity is up well over 100% and Los Angeles' is up approximately 100%. In general, airlines are putting capacity where economic growth is the most vibrant and this is on the U.S. Coasts – particularly the West Coast. United, American and Southwest are also focusing the majority of their capacity growth currently in this region of the U.S. – with an emphasis in California.

As the industry transformation has taken place, one of the major effects upon the industry is the increased gauge (larger aircraft) and longer stage length (nonstop flight miles). Part of this effect is occurring because of the sharp reduction in 50-seat regional jet flying that was noted earlier. This flying is then, in many cases, being replaced with 76-seat regional jet aircraft, flying less frequency than was flown with the 50-seat aircraft.

As an example, for many markets across the U.S. over the past few years it is not uncommon that frequency has been reduced from 2 or 3 daily 50-seat regional jet departures, and replaced with 1-2 daily 76-seat jet departures, resulting in less frequency, more seats per departure and similar-to-less overall seat capacity levels.

As depicted on **Exhibits 2E** and **2F**, on flights of less than 600 miles, industry flights are down by 16.4% since 2009, while flights in the 600 to 1,000 mile range are up 0.2% and for flights greater than 1,000 miles, flights actually increased 23.3%. Carriers are typically using larger aircraft to fly longer distances. When specifically looking at 50-seat regional jet departures (CRJ & ERJ aircraft), scheduled flights have declined 41% since 2009 and 53% since peaking in 2005.

EXHIBIT 2E
Industry Capacity Trends by Flight Miles

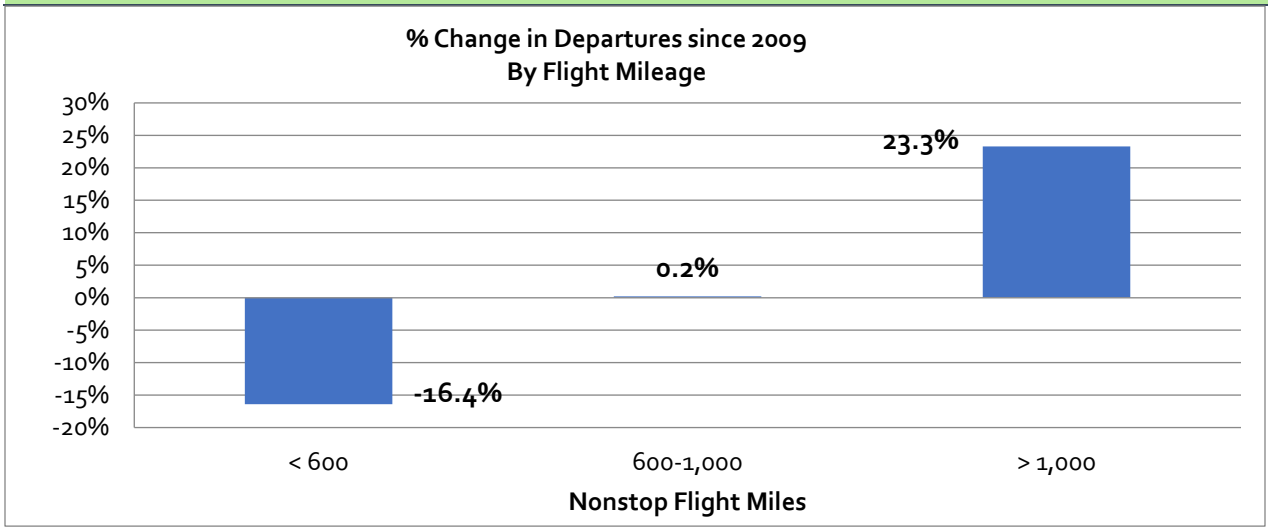
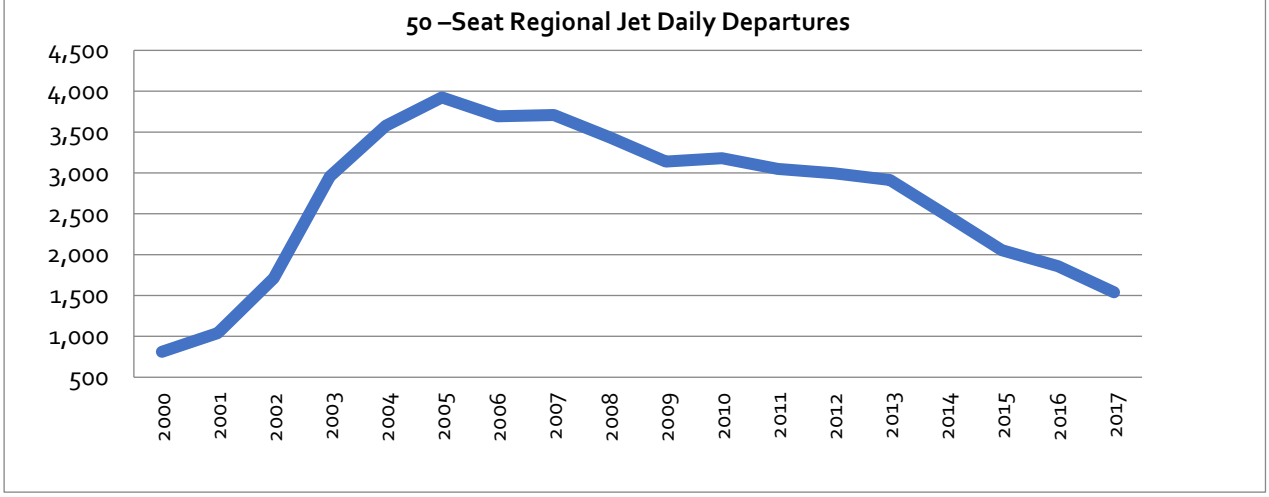
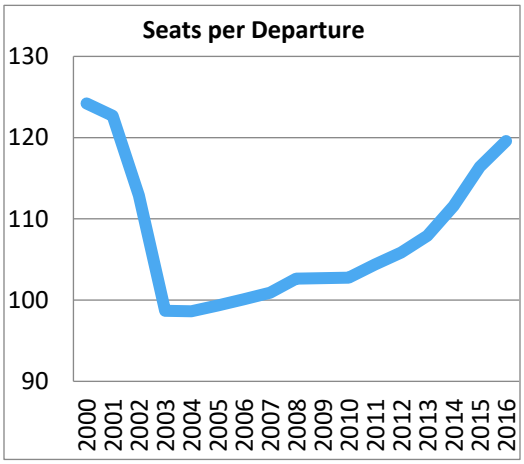


EXHIBIT 2F
Industry Capacity Trends by Daily Departures



Tied in part to the analysis above, as the industry transformation has taken place, one of the major effects upon the industry is the increased gauge (larger aircraft) and longer stage length (nonstop flight miles). Part of this effect is occurring because of the sharp reduction in 50-seat regional jet flying that was noted earlier, but also the trend of larger aircraft being flown by mainline carriers.

The chart to the right illustrates gauge declining during the surge in CRJ/ERJ flying from 2000-05, when seats per depart declined from about 120 to less than 100. Since then, seats per departure have increased back to 120 and further growth appears likely.



Consolidation

The transformation of the U.S. airline industry had its origins in 2007 with the spike in oil prices to $150/barrel and the subsequent U.S. economic recession that began in 2008. For its very survival, major U.S. airlines had to change quickly, and they did.

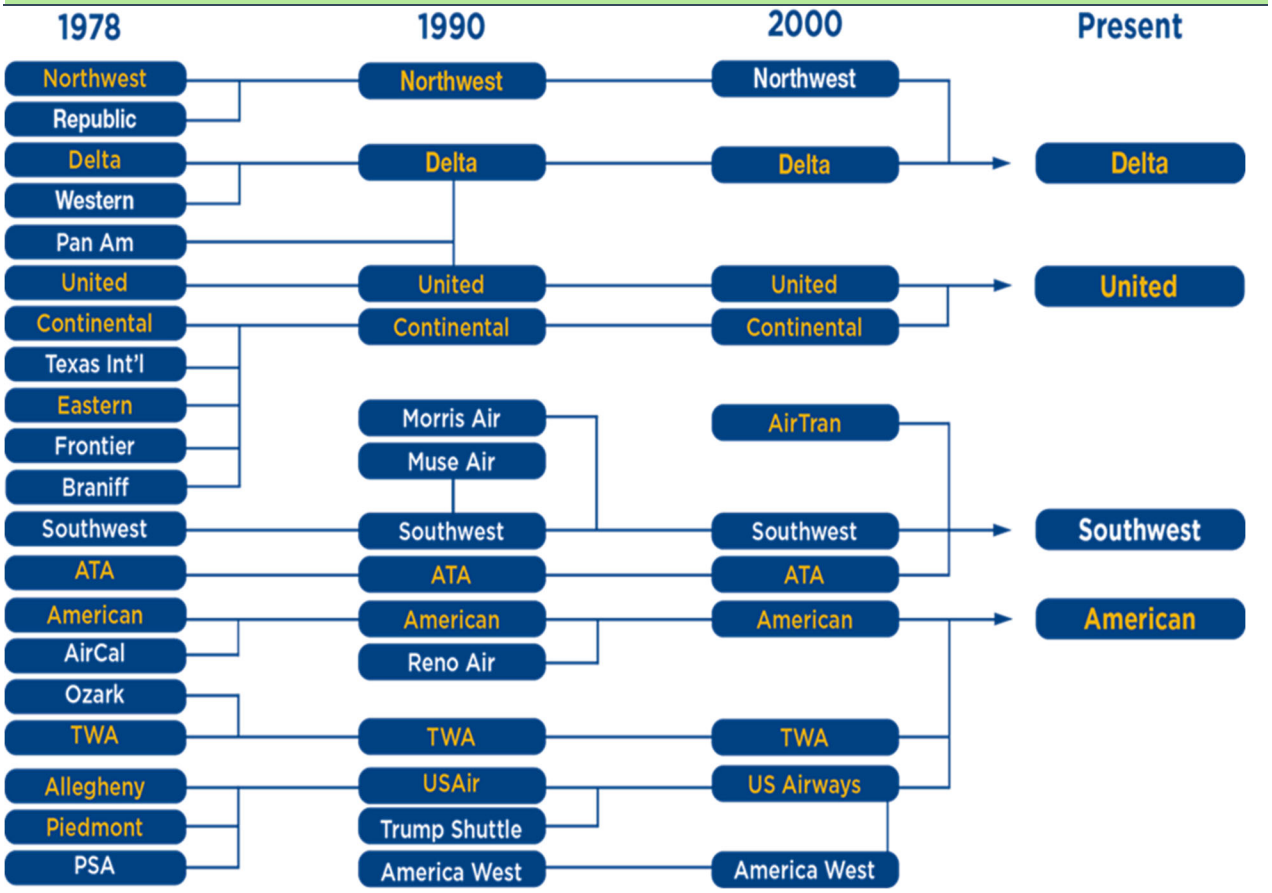
A major part of the industry's transformation has been a continuing consolidation of the industry. The evolution of the industry is shown below in **Exhibit 2G**. Today, the four largest airlines control 83% of industry seats. This consolidation will in large part work to ensure that airline capacity discipline that has been so prevalent over the past few years, will likely work in a similar fashion going forward.

A key consideration is that the airlines highlighted in yellow (Delta, United and American) are major network airlines offering connecting service to large and smaller markets across the U.S., while Southwest Airlines, highlighted in white, focuses upon carrying point-point traffic typically in the largest markets in the U.S. Hence, consolidation has had a more adverse effect upon smaller communities as opposed to larger markets, as noted earlier.

In summary, the U.S. airline industry lost approximately $40 billion during the approximate 30-year period following de-regulation in 1978. These operating losses were largely driven by excess seat capacity which resulted in pricing (yield) that was below airlines cost.

Since 2010, a transformation took place, when airlines drastically reduced seat capacity, mostly in the form of reduced regional jet flying, to the point where prices (yields) increased to the level where airlines were profitable. In addition, airlines were able to add ancillary fees that were another form of a price increase. In addition, carrier Load Factors have also trended higher, from the mid-70% range (in the 1990s) to roughly 85% today. The past three years have been the most profitable in industry history, with industry operating margins averaging close to 15% on an annual basis.

EXHIBIT 2G
Network Airlines from De-regulation through Today



The Future

Going forward, the future will likely look very much like the recent past. There are likely to be four primary trends driving the U.S. airline industry air service trends:

1. **Limited network airline capacity growth (American, Delta, United, Southwest).** In addition, where growth does occur, it will be focused in areas of faster economic growth (east/west coast and international). In general, airlines target overall capacity growth closely to U.S. GDP growth. Hence, system capacity growth is typically in the 2% range for large, network airlines.
2. **Relatively faster growth by ULCCs (Allegiant, Spirit, Frontier).** These airlines will continue growing much faster, although likely a bit slower than recent 10%-20% annual growth rates. In addition, while Allegiant has a large presence in smaller airports, going forward, Allegiant will focus their growth in relatively larger markets, a trend that started in 2014. Finally, expect this sector to start growing faster into international markets, particularly to the Caribbean and Mexico.
3. **Trend of larger aircraft.** This trend has been firmly in place since the end of the recession and will likely continue. While taking place across entire carrier fleets, smaller markets will

experience this trend primarily in the form of less 50-seat regional jet flying and more 76-seat jet flying. In addition, over time, more 100-115 seat aircraft flying could enter the mix (in the form of Bombardier C-series and 717 aircraft). Bombardier, the largest manufacturer of regional jets in the world, expects larger regional jet aircraft (64-90 seats) to more than double, from 3,300 aircraft in 2016 to 6,950 by 2036. In addition, they expect aircraft in the 90-150 seat range to grow from 3,600 aircraft in 2016 to 7,300 aircraft. In total, Bombardier forecasts that aircraft in the 60-to 150-seat segment to double (worldwide) by 2036. Finally, Bombardier expects the small regional jet segment (<= 50 seats) to shrink from 2,500 aircraft in 2016 to only 390 by 2036. Furthermore, regionally, most of these remaining 50-seat aircraft are expected to be operated in 3rd world countries, primarily in the continent of Africa. This forecast is consistent with other aircraft manufacturers, including Boeing, Airbus and Embraer.

4. **Larger airports will continue to outpace smaller airports.** This has been occurring since the end of the latest U.S. recession and will likely continue. Larger metropolitan areas, particularly those on the east/west coast are generating higher economic growth that is translating into additional air travel demand.

FAA Forecast Summary: 2017 – 2037

Over the next 20 years, large airports will continue to grow faster than their smaller counterparts in the United States. As shown in **Table 2I**, the FAA is forecasting that the number of larger regional jets will increase, while most of the smaller regional jets will be retired from the fleet. The following is a summary of the main points outlined in the FAA Aerospace Forecasts 2017-2037:

- Enplanements are forecast to increase 2.2% in 2017. For the remaining 20 years of the forecast period, enplanements are forecasted to grow at an average annual rate of 1.69%.
- U.S. GDP CAGR of 2.1% from 2017-2037.
- Baseline Available Seat Miles forecast of a 2.1% CAGR from 2017-2037, while departures are forecasted at a 1.9% CAGR during this same time period.
- Baseline nominal yields are forecast to grow at a 2.1% CAGR (essentially flat when considering inflation forecasts). Ancillary revenue growth is expected to continue.

TABLE 2I
U.S. Historic and Forecasted Enplaned Passengers

Fiscal Year	Enplaned Passengers	Fiscal Year	Enplaned Passengers
HISTORIC		FORECAST[2]	
2000	641,200	2017	742,000
2001	625,000	2018	762,000
2002	626,800	2019	783,000
2003	574,500	2020	794,000
2004	628,500	2021	805,000
2005	669,500	2022	815,000
2006	668,400	2023	826,000
2007	690,100	2024	838,000
2008	680,700	2025	851,000
2009	630,800	2026	863,000
2010	635,200	2027	877,000
2011	650,100	2028	892,000
2012	653,800	2029	907,000
2013	654,300	2030	921,000
2014	669,000	2031	937,000
2015	696,000	2032	953,000
2016	726,000	2033	968,000
CAGR[1] 2000-2016	**0.73%**	2034	985,000
		2035	1,002,000
[1] CAGR = Compounded annual growth rate		2036	1,019,000
[2] FAA Aerospace Forecast (2017-2037)		2037	1,037,000
Passenger Figures are in 000s		**CAGR[1] 2017-2037**	**1.69%**
		CAGR[1] 2000-2037	**1.27%**

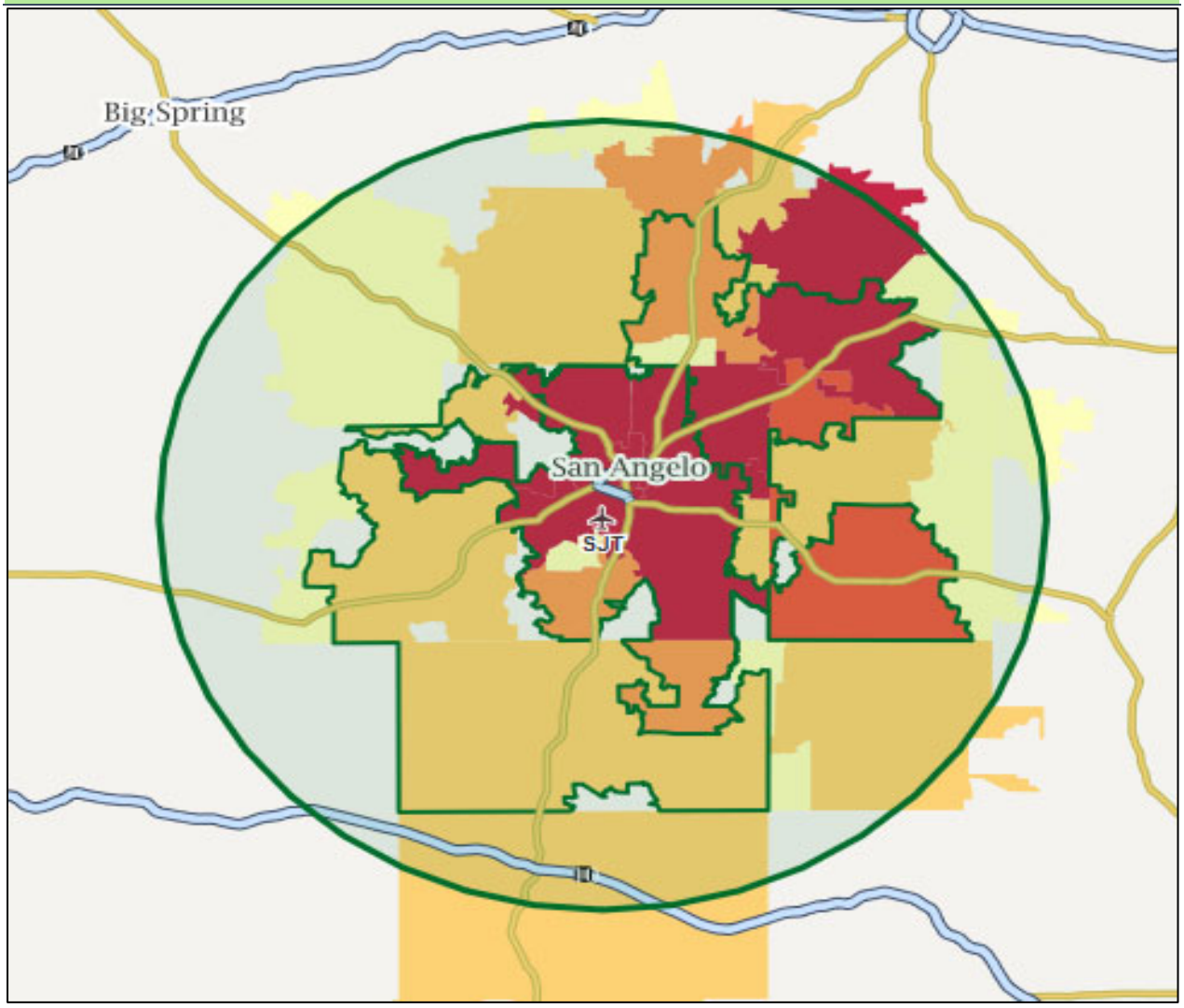
AIR SERVICE AND TRAFFIC ANALYSIS

This section evaluates and describes the current state of air service at the Airport, analyzes historical trends in air traffic, and identifies key factors that generally affect demand for air travel.

Regional Role and Catchment Area Analysis Overview

San Angelo Regional Airport (SJT) is the primary commercial service airport serving the area of south-central Texas. This area is known as the Concho Valley and makes up the San Angelo Metropolitan Statistical Area. The Airport is a point of air access for the region, including being a center for healthcare, education and is home to a key military base.

EXHIBIT 2H
Air Service Area



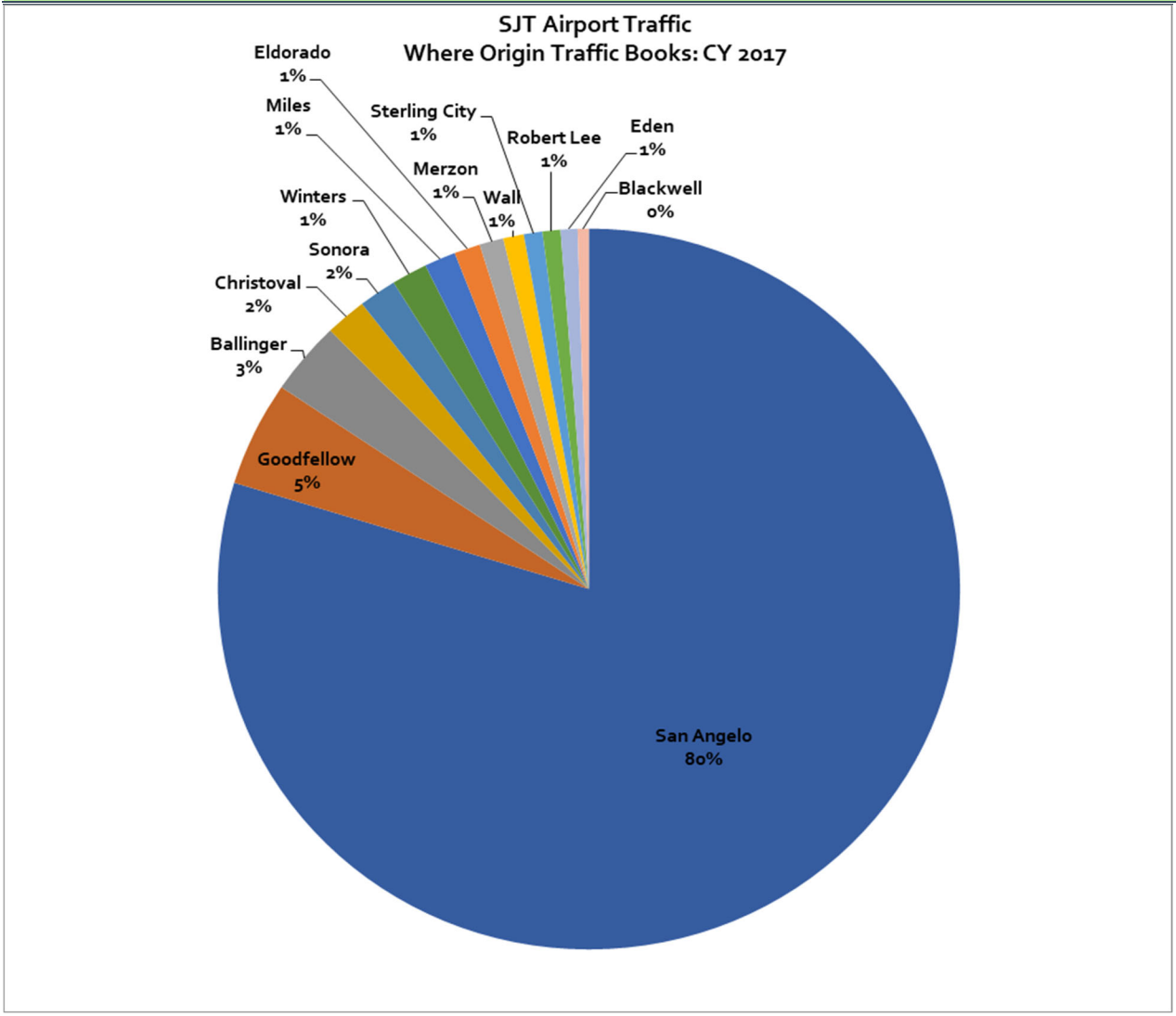
Source: Diio Mi, Catchment Mapper for SJT, 60 miles

There are approximately 137,013 people that reside within 60 miles of SJT (SJT Catchment Area depicted on **Exhibit 2H**). While SJT is the closest commercial airport to this population base, there is significant competition in the region. These airports offer significantly more nonstop air service, and typically at much lower air fares. This includes a variety of low fare carrier service. Specifically, these airports include Austin International Airport (AUS - 212-mile drive), San Antonio International Airport (SAT – 212 mile drive) and Dallas-Fort Worth International/Dallas Love Field Airports (DFW – 261 mile drive DAL – 282 mile drive).

Exhibit 2I illustrates where SJT's origin traffic comes from. As can be seen, 80% of traffic comes from San Angelo. The remaining 20% comes from communities in the region. In general, SJT can capture

traffic from throughout the region, due to the combination of SJT's marketing to this traffic base and the convenience of SJT.

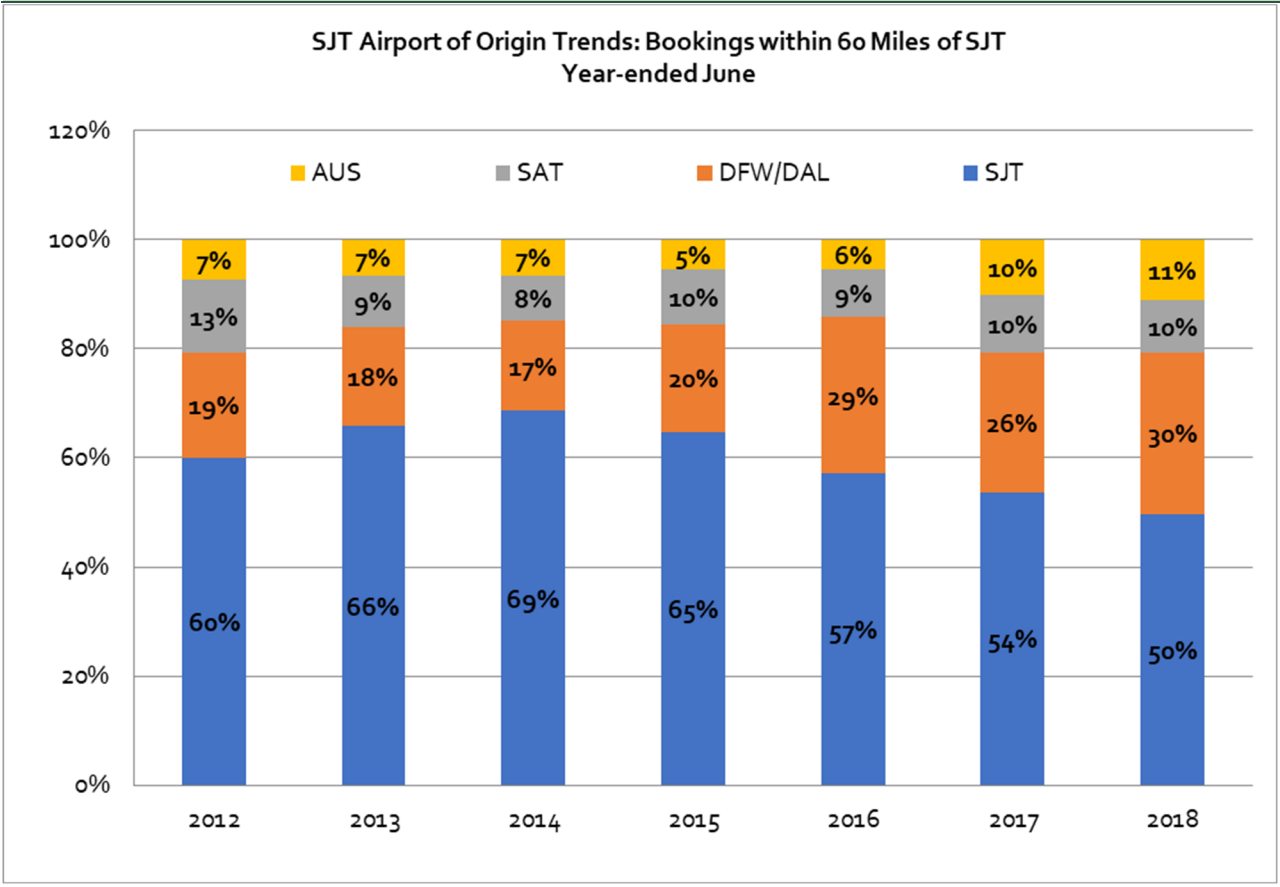
EXHIBIT 2I
U.S. Historic and Forecasted Emplaned Passengers



** Source: Agency Reporting Corporation (ARC). Year-ending June.*

Exhibit 2J illustrates SJT "leakage" trends. This graph shows the airport of origin for bookings within 60 miles of SJT. From 2011 to 2014 (year-ending June), SJT's retention of regional bookings was slowly increasing, going from 60% in 2012 to a peak of 69% in 2014. During this time period, SJT enplaned passengers and load factors were increasing sharply (the SJT load factor increased from 62% in 2011 to 76% in 2014). This was also during a time period that some of the larger regional airports experienced moderate capacity growth.

EXHIBIT 2J
Airport of Origin Trends: Passengers Booked from the SJT Catchment Area



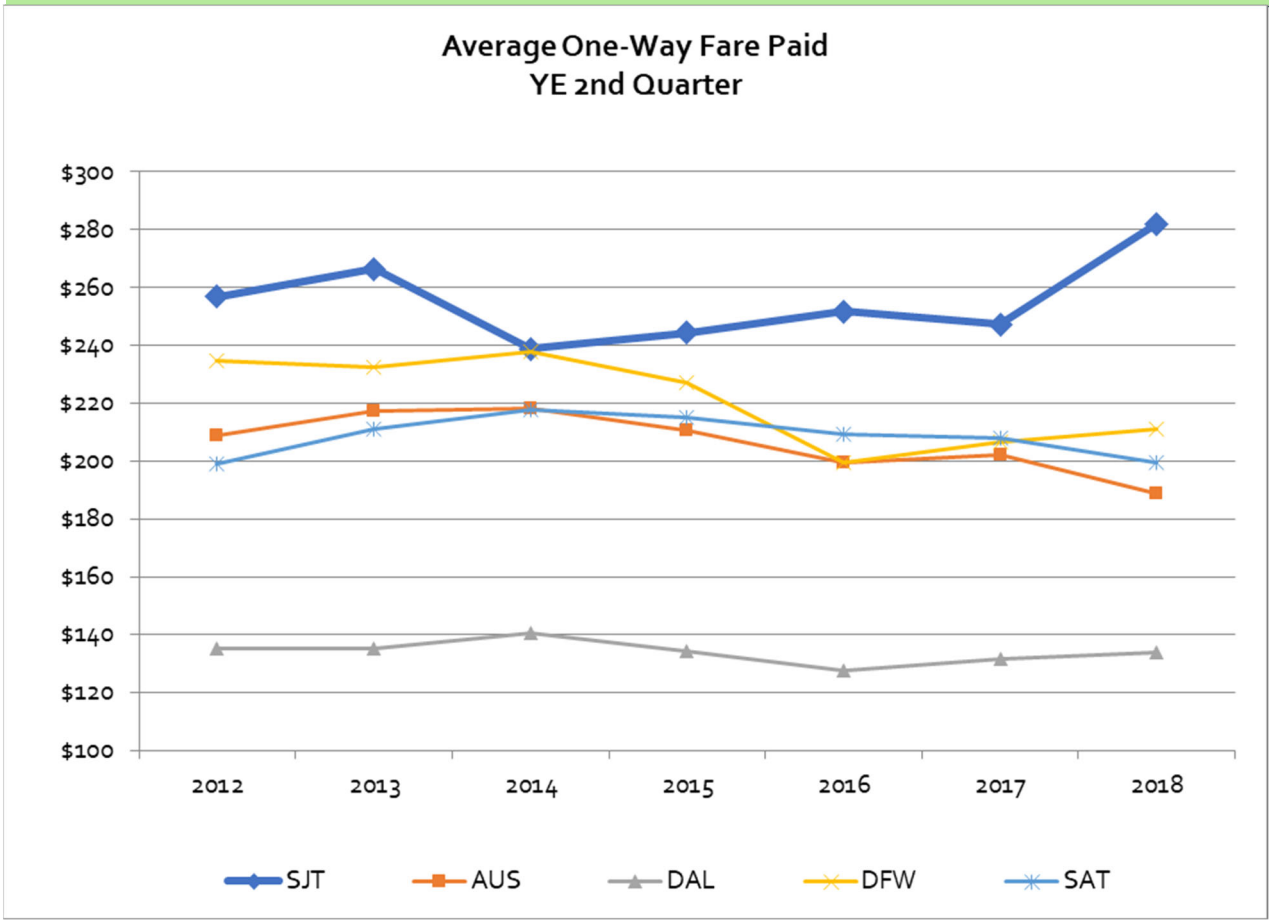
** Source: Agency Reporting Corporation (ARC). Year-ending June.*

Since 2014, SJT has experienced worsening "leakage", reduced seat capacity and declining traffic. This trend has been driven by three factors: 1) Expiration of the Wright Amendment in October 2014 resulted in significant capacity increases at Dallas Love Field (DAL). This in turn resulted in sharp fare declines at DFW and DAL. 2) ULCCs have added service from DFW, SAT and AUS during this time. In particular, Spirit and Frontier Airlines have added service, putting further downside pressure on fares. 3) SJT has experienced moderate air service declines over the past two years.

The key effect of the changes noted in the prior paragraph was the increasing disparity between SJT and larger, regional airport's air fares. As illustrated in **Exhibit 2K** paid air fares at aforementioned, larger airports started to decline subsequent to 2015, while SJT air fares started to increase, with much of SJT air fare increase taking place over the past 12 months.

For year-end 2018, the average paid (net of taxes/fees) one-way fare at SJT was $280, while fares at DFW, SAT and AUS ranged from $190-$210, equivalent to 25%+ differences. DAL fares were even lower. These fare disparities explain much of recent SJT leakage trends.

EXHIBIT 2K
Average One-Way Fare Paid: SJT vs DAL, DFW, AUS and SAT



** Source: DOT Report DB1B (via Diio)*

It should be noted that these fare differences are likely conservative. Published air fare differences are typically much greater (relative to what is purchased), as consumers will not purchase air fares where the disparities are the greatest and/or published SJT air fares are extremely high. When this occurs, "spoilage" takes place, as consumers will not purchase these air fares.

Air Service at the Airport

The following sections will evaluate current air service capacity and operating performance for the primary passenger airlines serving the Airport. Airline performance will be evaluated from an economic perspective, or evaluating carrier revenue, yield and load factor results. The Airport's overall O&D market will also be assessed at the market level, comparing current performance with prior.

Historically, SJT has had commercial air service to both Houston (IAH) on Continental Express and DFW on American Eagle (and for a time on Delta Air Lines). The service to IAH operated from 2000 to 2009. This service was operated with a variety of turboprop aircraft. Delta operated DFW service from 1993 to 1997. The American Eagle service to DFW has operated from 1993 to today.

Since 2012, American has exclusively offered jet service from SJT, primarily in form of ERJ 140/145 and CRJ 200 aircraft, although during much of 2017 (May-December), American offered service on dual cabin, 65-seat CRJ-700 aircraft. In fact, during the months of June 2017 through September, American offered exclusive service on this aircraft type. During this time, American load factors on these larger aircraft were good, typically operating in the 80% range.

Exhibit 2L illustrates SJT load factors by month during 2017 through July 2018. In general, AA has generated strong loads from SJT during this time, including when the CRJ-700 aircraft was utilized. On a relative basis, for all American flying at their DFW hub during the month of July 2018, SJT ranked #41 (of 153 markets with at least 1 daily round-trip departure), ranking in the top 1/3 of AA flying. Based upon load factors, it would appear that SJT is in line for additional capacity from AA. But load factors only tell half of the story.

In addition, **Exhibit 2M** illustrates annual load factor trends at SJT, in addition to Abilene (ABI) and Midland-Odessa (MAF). As shown, load factors have improved sharply at SJT, going from approximately 70% in 2012 to about 82% in 2018. ABI has improved even more, although load factors have been similar over the past three years. MAF has experienced load factor deterioration over the past few years, likely due to declining oil prices and its effect upon the oil industry.

EXHIBIT 2L
SJT Load Factor by Month 2017-2018 and Year (2012-2018)

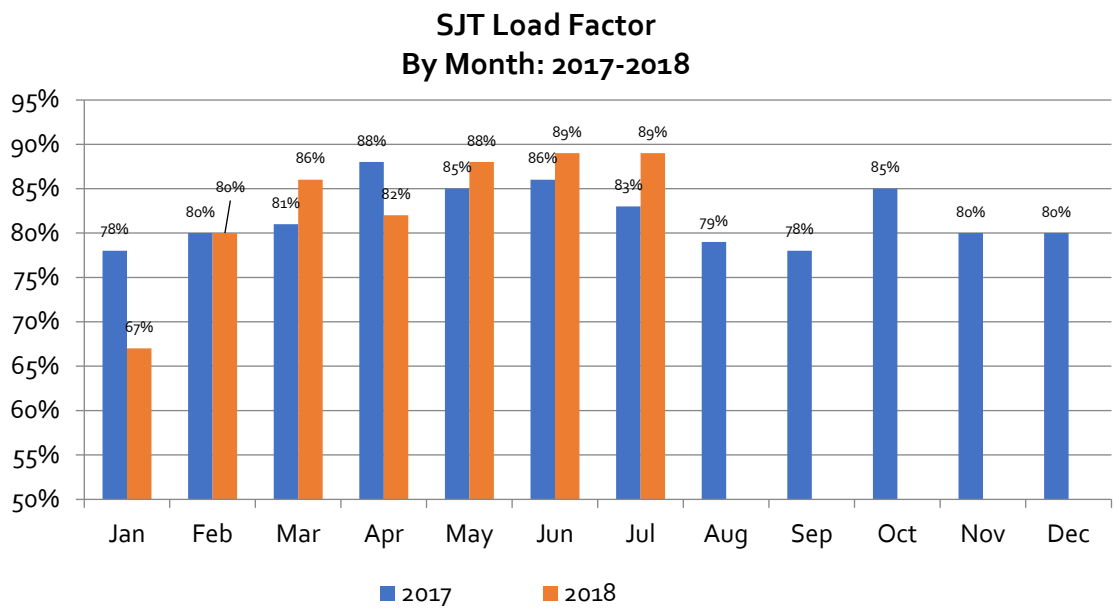


EXHIBIT 2M
SJT Load Factor by Year (2018-2018) including ABI and MAF

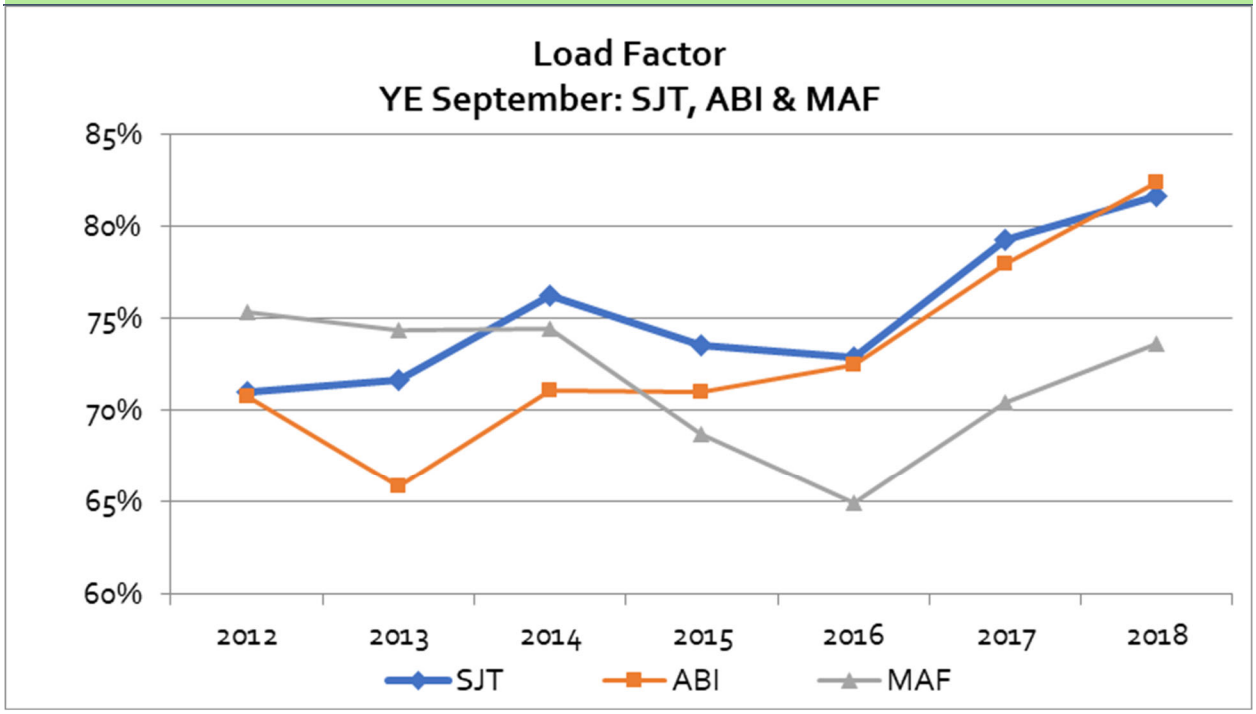
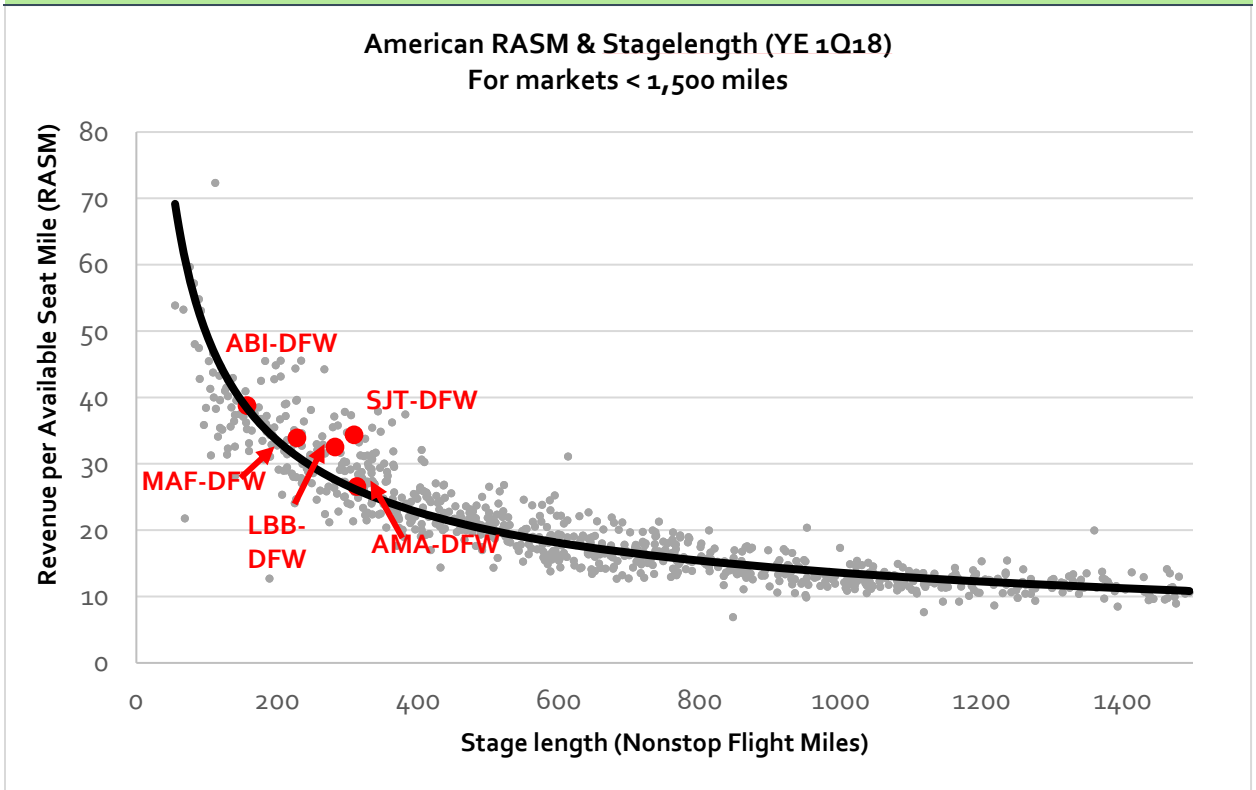


Exhibit 2N illustrates all AA non-stop markets illustrated by gray dots (under 1,500 miles). It shows the RASM and nonstop flight mileage per market. The downward sloping curve is representative of the average mileage-adjusted RASM (proxy for average profitability). The curvature is also representative of an airline's cost curve. As illustrated, AA's SJT service is generating a mileage-adjusted RASM above system averages, indicative of average profitability. In other words, profitability is strong, as our current load factors. This would seem to affirm that SJT is likely in line for capacity increases – either in the form of additional gauge (most likely) or additional frequency.

In addition, AA results to other regional markets of Lubbock (LBB), Amarillo (AMA), ABI and MAF are also illustrated. As shown, SJT-DFW RASMs are moderately higher than at these other regional airports. The two strongest routes appear to be SJT-DFW and LBB-DFW, while MAF-DFW is comparable, and ABI and AMA are right at (mileage-adjusted) system averages. All routes appear profitable for AA.

EXHIBIT 2N
Mileage-Adjusted Revenue Per Available Seat Mile (RASM)



** Source: Diio (BTS Reports DB1A & T100); Less than 1,500 miles*

In addition, by comparing carrier results at SJT for the most recently available period (YE 1Q18) versus results earlier this decade (2012), it can be seen that American Airlines (AA) is generating much better revenues than during this earlier time period. This can be seen in **Table 2J** below. Hence, SJT air service exhibited the same tendencies as the rest of the U.S.: reduced capacity, higher revenue (via improved load factors and yields) and subsequently much more profitable/stable air service.

TABLE 2J
Key AA Revenue Metrics at the Airport and Regional Airports (CY 2017 vs CY 2012)

Airline	RASM 2017 (cents)	RASM 2012 (cents)	% Change	Load Factor 2017	Load Factor 2012	Change (pts.)	Yield 2017 (cents)	Yield 2012 (cents)	% Change
SJT - DFW	33.3	31.5	5.7%	80.3%	74.6%	5.7	41.4	42.3	(2.1%)
AMA – DFW	25.9	25.9	(0.2%)	72.1%	81.9%	(9.8)	35.9	31.6	13.4%
ABI – DFW	36.4	34.1	6.5%	79.7%	68.8%	11.0	45.6	49.6	(8.1%)
LBB – DFW	30.7	29.5	4.0%	77.4%	85.8%	(8.5)	39.7	34.4	15.4%
MAF - DFW	31.8	28.1	13.2%	76.3%	82.1%	(5.7)	41.7	34.3	21.7%

Source: Diio, US DOT Reports DB1A and T100; note that results include merged airline results

O&D Market

Table 2K below presents the Airport's Top 25 Origination and Destination (O&D) markets, including passenger activity and the average one-way fare paid (net of taxes/fees). The table also presents daily departures and daily non-stop seats for each market. In addition, further below in **Table 2L**, % changes in demand are shown in each of SJT's top 25 O&D markets over the past 10 years.

TABLE 2K
Top 25 O&D Markets: Year-Ended 1st Quarter 2018

Rank	Market	Miles	Avg. Daily O&D Pass.	Avg. Fare
1	Dallas	228	13.3	179
2	LA Basin[1]	1,039	5.4	254
3	Las Vegas	904	4.8	243
4	Wash, D.C.[4]	1,411	4.5	310
5	New York[3]	1,613	4.4	275
6	Houston[5]	327	4.1	217
7	Denver	631	3.9	232
8	Atlanta	950	3.7	241
9	Orlando	1,166	3.5	259
10	Chicago	1,010	3.3	243
11	San Diego	983	3.0	242
12	Charlotte	1,161	2.9	264
13	SF Bay Area[2]	1,306	2.9	254
14	Baltimore	1,445	2.8	263
15	Seattle	1,600	2.4	272
16	Miami-FLL[6]	1,285	2.3	274
17	Phoenix	688	2.2	240
18	Nashville	859	2.0	246
19	Philadelphia	1,531	2.0	268
20	St. Louis	767	1.9	225
21	Madison	1,017	1.8	340
22	Minneapolis	1,013	1.8	241
23	Boston	1,789	1.8	274
24	Portland	1,540	1.7	312
25	Tampa	1,104	1.7	242
Total/Average for all Markets		**1,525**	**151.1**	**280**

[1] Includes LAX, ONT, SNA, and BUR
[2] Includes OAK, SFO, and SJC
[3] Includes LGA, JFK, and EWR
[4] Includes DCA and IAD
[5] Includes IAH and HOU
[6] Includes MIA and FLL
Source: Diio; US DOT Report DB1A

TABLE 2L
Top 25 O&D Markets - Year Ended 1st Quarter 2018 vs Year Ended 1st Quarter 2008

Rank	Market	Daily O&D Pass. Change	Avg. Fare Change	Change in Revenue
1	Dallas	(50%)	107%	5%
2	LA Basin[1]	(12%)	18%	4%
3	Las Vegas	(23%)	38%	7%
4	Wash, D.C.[4]	1%	42%	44%
5	New York[3]	(30%)	33%	(8%)
6	Houston[5]	(41%)	74%	3%
7	Denver	(2%)	18%	15%
8	Atlanta	2%	26%	30%
9	Orlando	(12%)	43%	27%
10	Chicago	(10%)	40%	26%
11	San Diego	28%	32%	69%
12	Charlotte	190%	24%	259%
13	SF Bay Area[2]	(13%)	13%	(1%)
14	Baltimore	(28%)	24%	(11%)
15	Seattle	(21%)	24%	(1%)
16	Miami-FLL[6]	6%	63%	73%
17	Phoenix	(12%)	18%	4%
18	Nashville	(24%)	47%	12%
19	Philadelphia	(25%)	45%	9%
20	St. Louis	(26%)	41%	5%
21	Madison	758%	54%	1220%
22	Minneapolis	(25%)	36%	2%
23	Boston	10%	9%	20%
24	Portland	22%	34%	63%
25	Tampa	(39%)	30%	(21%)
	Total	**(14%)**	**40%**	**20%**

[1] Includes LAX, ONT, SNA, and BUR
[2] Includes OAK, SFO, and SJC
[3] Includes LGA, JFK, and EWR
[4] Includes DCA and IAD
[5] Include IAH and HOU
[6] Includes MIA and FLL
Source: Diio; US DOT Report DB1A

Over the past 10 years, like most of the U.S. (particularly for smaller airports), SJT has experienced a significant increase in air fares (40%), with a moderate decline in air traffic (-14%), resulting in sharp revenue growth of 20%. In other words, a very positive trend for AA.

Overall, given the positive revenue/fare trends and relatively strong RASM in conjunction with high load factors currently in place at SJT should result in positive seat capacity trends going forward.

Air Traffic Activity Trends

This section will analyze historical trends in air traffic activity at the Airport. It will also discuss the primary factors affecting these trends.

Enplaned Passengers

Table 2M presents historical enplaned passenger trends at the Airport between CY 2000 and CY 2016, including an estimate of CY 2017. It also presents enplaned passenger activity for overall U.S. domestic activity on a federal fiscal year basis (years ending September 30) for 2000 through 2016 and presents the Airport's share of overall U.S. activity.

Since 2000, SJT enplaned passengers grew at a CAGR of 1.7%, which was generally in line with economic growth during this time-period. But this growth has been volatile. From 2000-02, traffic declined by a CAGR of 4.7%. This was during the post-09/11 time-period, with the traffic decline driven by Continental Express temporarily eliminating service to their IAH hub. During this same time period, American Eagle kept service relatively consistent at 5-6 daily trips to their DFW hub on 34-seat SF3 aircraft. From 2002 until 2008, SJT experienced a strong CAGR of 8.7%. Most of this growth took place in 2004, as Continental Express re-entered the SJT market. In addition, during this same time period, American's traffic increased almost 25%, increasing from approximately 36,500 enplaned passengers in 2003 to over 54,000 in 2008. During this period, American's load factor also increased from 56% to almost 75%. From 2008-10, SJT enplaned passenger activity declined at a CAGR of 6.4%. This was during a time of a significant U.S. economic recession, with the vast majority of U.S. airports experiencing declining passenger volumes. Tied to this, Continental Express exited the market in 2009. During this same time period, American increased seat capacity in response to Continental exiting the market, although traffic didn't keep pace and load factors fell to 51% in 2010.

Since 2010, enplaned passenger activity has increased by almost 6.9% or at a 0.96% CAGR. During this time, American steadily reduced seat capacity, or over 25% during the 7-year time-period. The result was that American's 2010 load factor of 51% has improved to 80% in 2017.

To summarize SJT's current air service situation, SJT is currently positioned better for future air service growth than likely anytime over the past 25+ years. This is due to: 1) Load factor increases from the 50s earlier this decade to the mid-80s currently. In other words, planes are full. Once load factors begin ranging from 85%-90%, carriers look at adding more capacity; 2) Mileage-adjusted RASMs are well above both system averages and other regional airports – indicative of relative profitability and 3) Finally, there is more demand than is currently flying out of SJT, due to significant leakage to other regional airports.

TABLE 2M
Historical Enplaned Passenger Trends at the Airport and U.S.

Fiscal Year	Air Carrier	Air Taxi & Commuter	Enplaned Passengers	% Change	Federal Fiscal Year	U.S. Domestic Enplaned Passengers (000s)	% Change	Airport Share of U.S. Domestic
2000	262	44,067	44,329	-	2000	641,200	-	0.057%
2001	541	48,599	49,140	10.9%	2001	625,000	(2.5%)	0.053%
2002	627	37,745	38,372	(21.9%)	2002	626,800	0.3%	0.045%
2003	1,713	40,975	42,688	11.2%	2003	574,500	(8.3%)	0.050%
2004	1,216	59,010	60,226	41.1%	2004	628,500	9.1%	0.048%
2005	1,907	61,878	63,785	5.9%	2005	669,500	6.5%	0.047%
2006	1,688	66,518	68,206	6.9%	2006	668,400	(0.2%)	0.046%
2007	1,693	68,045	69,738	2.2%	2007	690,100	3.2%	0.044%
2008	2,070	66,560	68,630	(1.6%)	2008	680,700	(1.4%)	0.043%
2009	2,430	57,885	60,315	(12.1%)	2009	630,800	(7.3%)	0.040%
2010	2,451	53,774	56,225	(6.8%)	2010	635,200	0.7%	0.036%
2011	2,469	52,835	55,304	(1.6%)	2011	650,100	2.3%	0.040%
2012	2,403	54,247	56,650	2.4%	2012	653,800	0.6%	0.042%
2013	2,108	58,019	60,127	6.1%	2013	654,300	0.1%	0.042%
2014	1,296	64,018	65,314	8.6%	2014	669,000	2.2%	0.045%
2015	1,963	62,938	64,901	(0.6%)	2015	696,000	4.0%	0.044%
2016	1,787	58,229	60,016	(7.5%)	2016	726,000	4.3%	0.040%
2017E	1,368	58,727	60,095	0.1%	2017E	742,000	2.2%	0.033%

CAGR[1]		CAGR[1]	
2000-17	1.7%	2000-17	0.8%
2000-02	(4.7%)	2000-02	(0.8%)
2002-08	8.7%	2002-08	1.2%
2008-10	(6.4%)	2008-10	(2.3%)
2010-15	2.4%	2010-15	1.5%
2015-17	(2.5%)	2015-17	2.2%

[1] CAGR = Compounded annual growth rate; Source: FAA TAF
Source: FAA Aerospace Forecasts

Commercial Aircraft Operations

As illustrated in **Table 2N**, passenger aircraft operations at SJT have declined by approximately 36% since 2000, as noted in Table 2BB. American exclusively flew 34-seat SF3 turboprop aircraft through 2002, then began to incorporate ERJ-135/140/145 regional jet aircraft beginning in 2003, steadily increasing the usage of that aircraft until turboprops were completely phased out beginning in 2013. As a part of this, from 2008 until 2012, American flew a heavier mix of 66-seat ATR turboprop aircraft.

Finally, as noted earlier, American incorporated more CRJ-700 aircraft in 2017 (May-December), although in 2018 they are again completely relying on ERJ-135/140/145 aircraft.

Continental Express operated 34-seat Embraer 120 turboprop aircraft at SJT from 2000-2002, until they eliminated service at SJT in the post-9/11 environment. Subsequently, Continental re-entered the SJT market in 2004, this time operating a mix of ERJ-135/145 regional jet aircraft, EMB-120 turboprop and SF3 turboprop aircraft, until they exited the market at the depths of the U.S. recession in 2009.

TABLE 2N
Historical Commercial Aircraft Operations at the Airport

Fiscal Year	Air Carrier	Air Taxi & Commuter	Total	% Change
2000	18	9236	9254	-
2001	16	9225	9241	(0.1%)
2002	20	6689	6709	(27.4%)
2003	78	6903	6981	4.1%
2004	198	7997	8195	17.4%
2005	1749	6027	7776	(5.1%)
2006	1332	6262	7594	(2.3%)
2007	396	7584	7980	5.1%
2008	1352	7890	9242	15.8%
2009	5596	5806	11402	23.4%
2010	6597	5571	12168	6.7%
2011	5052	5285	10337	(15.0%)
2012	4784	5923	10707	3.6%
2013	5390	6681	12071	12.7%
2014	5793	7161	12954	7.3%
2015	5787	5775	11562	(10.7%)
2016	3645	4306	7951	(31.2%)
2017E	2269	3676	5945	(25.2%)

** Source: June 2018 SJT Terminal Area Forecast (TAF). Air Carrier: 60 seats or greater, Commuter <60 seats*

Aircraft Fleet Mix: Passenger Aircraft Operations

Scheduled departure data was further analyzed for operational trends over the past seven years in **Table 2O**. As noted previously, there has been a shift toward larger aircraft in the industry, particularly with regard to the large reduction in 50-seat flying across the industry in favor of larger 64-76 seat regional jets.

These trends have been slower in coming to SJT, although these trends began to occur in 2017, with the significant increase in larger regional jet flying. As noted earlier, these trends occurred during the May-December 2017 time period, as American added CRJ-700 flying into the market.

TABLE 2O
Historical Operation by Aircraft Type

Seating Capacity	2012	2013	2014	2015	2016	2017
COMMUTER						
< 40 Seats	0.6%	1.1%	-	-	-	-
40-60 Seats	89.0%	98.9%	100.0%	100.0%	100.0%	45.2%
AIR CARRIER						
61-99 Seats	10.3%	-	-	-	-	54.8%
100-120 Seats	-	-	-	-	-	-
121-150 Seats	-	-	-	-	-	-
151+ Seats	-	-	-	-	-	-

Source: BTS Report T-100 for 2011-16; 2017 was based upon published airline schedules (source: Innovata)

PASSENGER AIR TRAFFIC ACTIVITY FORECASTS

Landrum and Brown has reviewed past activity and related forecasts for the San Angelo Regional Airport (SJT). The upcoming section will forecast SJT enplaned passenger activity for the 5, 10 and 20-year time periods. This is described in the sections below. Subsequent to this, a forecast pertaining to Passenger Aircraft Operations, including by aircraft type will take place.

2018 Forecast Review

A short-term review and forecast was performed to assess the SJT forecast for Calendar Year 2018. Through July 2018, enplaned passenger activity is down 6.1%, on a similar seat capacity decline. Based upon published airline schedules, seat capacity for the full year is expected to decline about 8%. This is due to downgraded aircraft from CRJ-700 to smaller ERJ regional jets. Due to this, we are estimating 2018 enplaned passengers of 55,450, or an 8% decline year over year.

Long-term Forecast Review

The long-term forecast at San Angelo will be done for 5, 10 and 20-year time periods, using 2017 as the baseline. The enplaned passenger forecast below, will be done using a variety of forecast methodologies: 1) Historical Trends, 2) FAA Forecasts, 3) SJT market shares of industry projections and 4) Regression analysis of the Air Service Area's economic metrics.

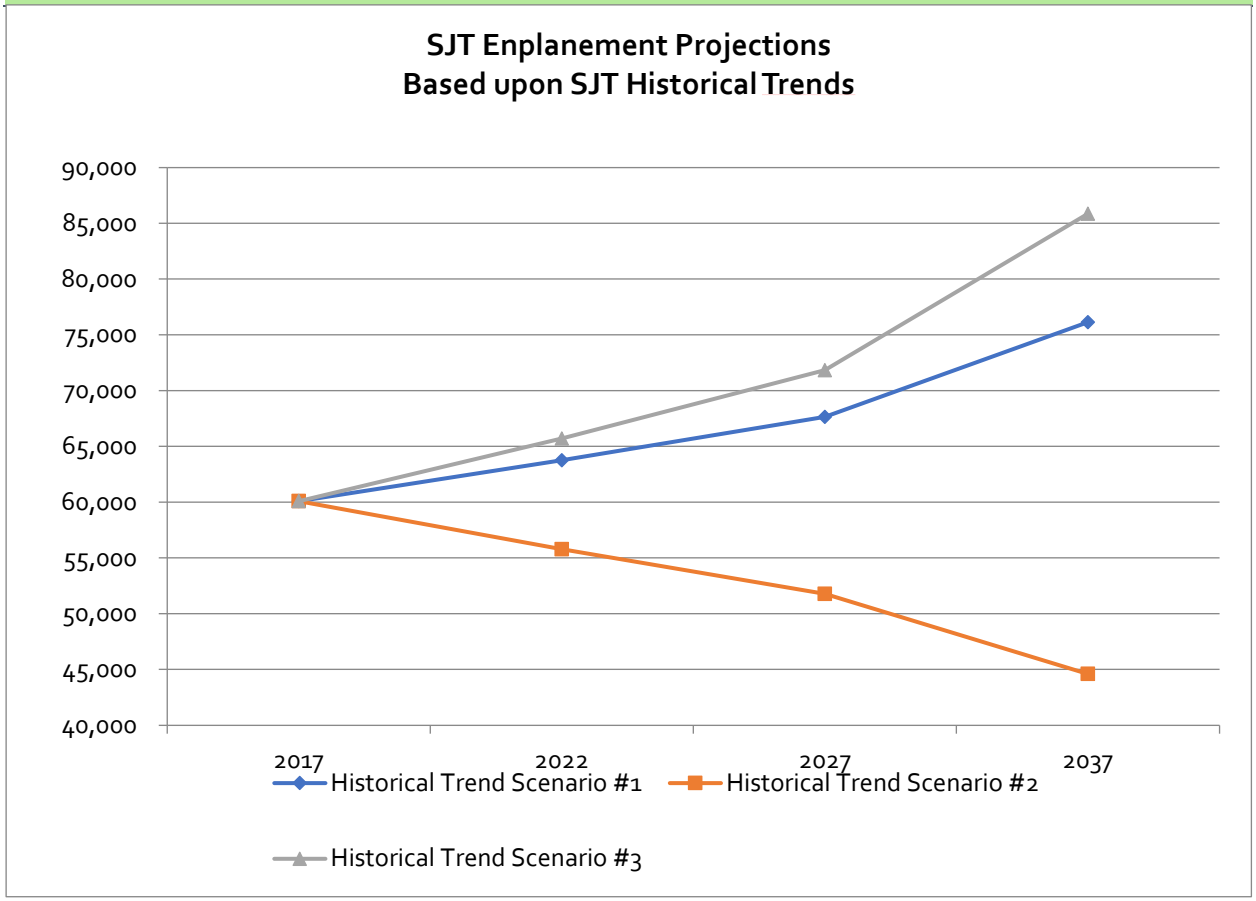
Historical Trend Analysis

Three historical trends have been considered for future projections:

1. **Short-term trend**: The first historical trend emulates the past five years (2012-2017) at SJT, using 2017 enplaned passengers as the baseline. The past five years were a time-period when the area saw moderate economic growth after the significant recession in the late 2000s. The CAGR in enplaned passenger traffic during this five-year time period was 1.19%. This is Scenario #1.
2. **10-Year Trend**: The second trend uses data from the ten-year period of 2007-2017, reflecting a CAGR of (-1.48%). This time period incorporated the significant recession and subsequent economic climb back. This projection will serve as the basis for Historical Trend Scenario #2.
3. **20-year Trend**: The third historical trend uses a 20-year period of historical data (1997-2017) and reflects a CAGR of 1.8%. This projection will be the basis for Historical Trend Scenario #3.

Exhibit 2O illustrates the results of applying these trends to the baseline 2017 result of 60,095 passenger enplanements.

EXHIBIT 2O
SJT Enplanement Projections Based on Historical Trends



Source: Landrum and Brown Analysis

FAA Forecast Sources and Scenarios

The FAA presents aviation activity forecasts in several different sources, including the following two sources to be utilized in this forecast analysis:

FAA Aerospace Forecasts

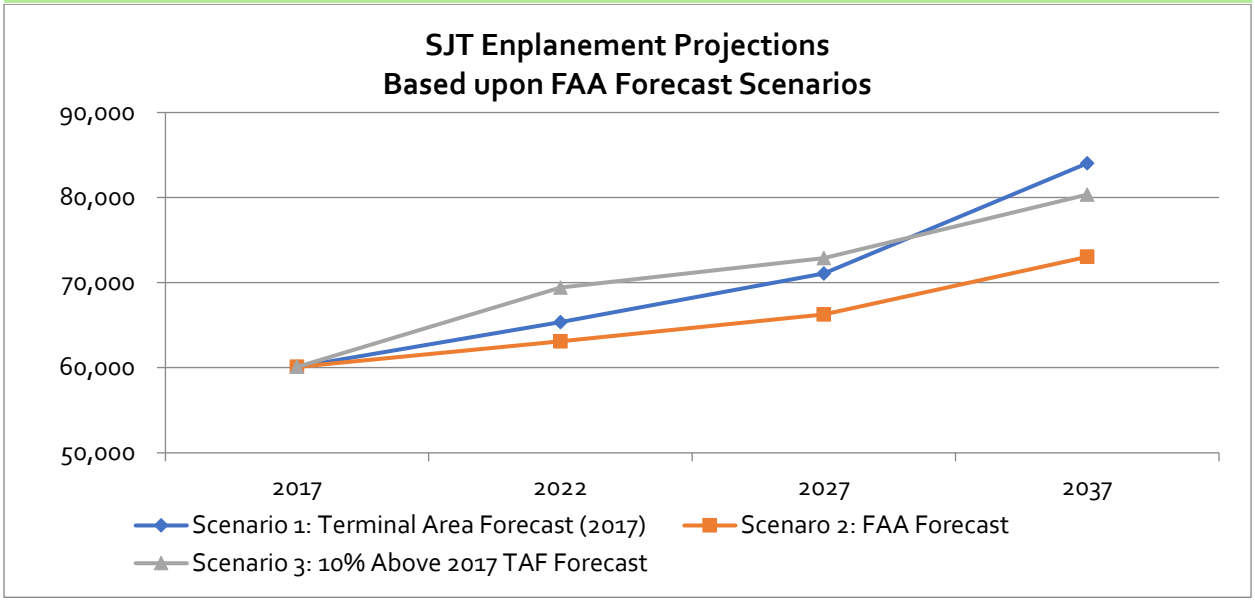
This document provides growth projections for the entire aviation industry in fiscal years, as described earlier. In this document, the FAA predicts that annual total enplanements for U.S. domestic air carriers will increase at a CAGR of approximately 1.69% annually between 2017 and 2037. This growth rate, applied to CY 2017 baseline SJT enplanements, will serve as the basis for FAA Forecast Scenario #1.

2017 FAA Terminal Area Forecast (TAF)

The TAF utilizes national growth trends, coupled with historical local growth trends, to develop airport-specific activity forecasts on a fiscal year basis (October-September). The most recent TAF enplanement projections include a compound growth rate of approximately 0.98% annually for SJT between 2017 and 2037. This will serve as the basis for Forecast Scenario #2.

Exhibit 2P illustrates the results of applying these scenarios based upon FAA Forecast documentation to the 2017 level of 60,095 enplanements. The figure also depicts an enplanement level at 10% above the TAF for the first five years of the forecast period, typically viewed by the FAA as the level of variation from the TAF that is deemed acceptable before additional justification is required to support higher forecasted activity levels.

EXHIBIT 2P
SJT Enplanement Projections Based on FAA Forecast Scenarios



Source: Landrum and Brown Analysis

Market Share Analysis

Market share analysis for airports can provide a valid benchmark from which to access future activity. This approach compares activity at a specific airport with a larger aviation market, such as total U.S. domestic enplanements, to develop a ratio of activity.

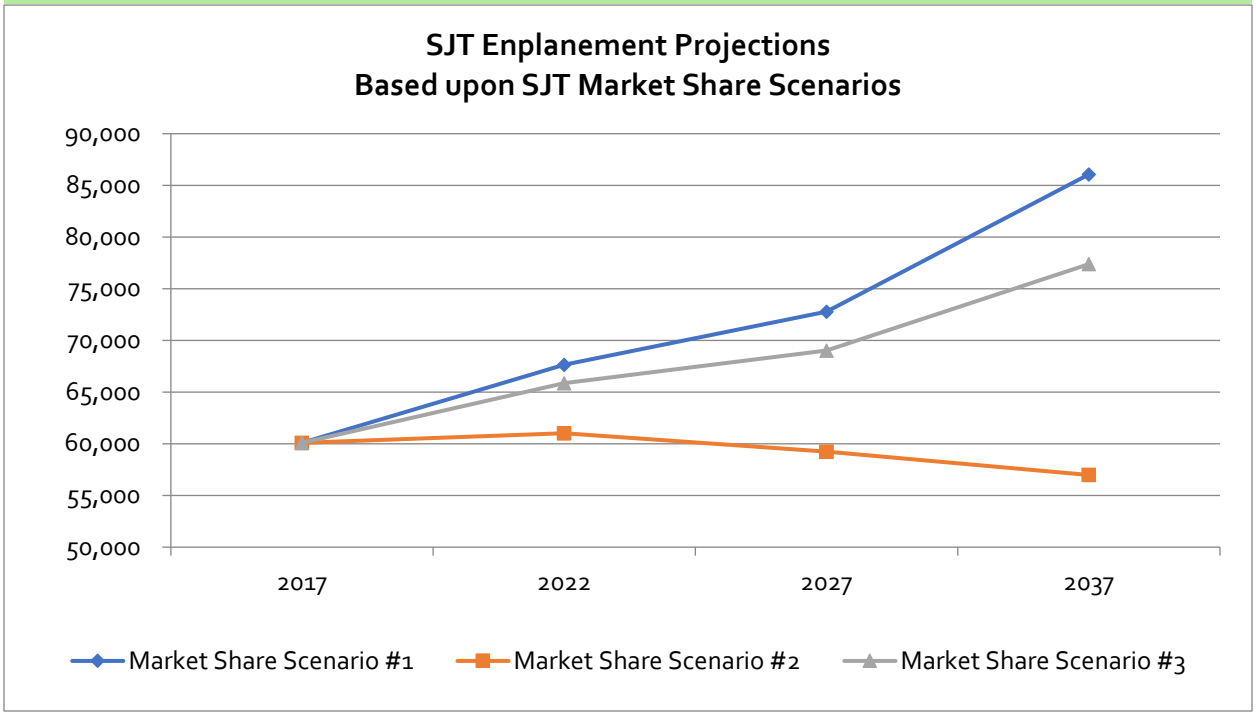
Applied to historical national enplanements as reported in the FAA Terminal Area Forecast (TAF), SJT's annual market share between 2000 and 2016 ranged between a low of 0.0061% of national enplanements in 2002 to a high of 0.0102% of national enplanements in 2006. **Table 2P** illustrates SJT's historical market share of national enplanements between 2000 and 2016. Projections of future enplanement activity based upon market share analysis were conducted using the following scenarios. Results are depicted on **Exhibit 2O**:

1. Constant Market Share: SJT market share will remain constant at 2016 estimated level of 0.0083% of national enplanements through 2037 (using FAA's TAF Forecast of national enplaned passengers). This projection will serve as the basis for Market Share Scenario #1.
2. Market Share Change I: SJT market share will change at the CAGR experienced between 2006-2016 (CAGR of -2.04%) through 2037, starting with the 2016 share of 0.0083% and then declining at the -2.04% rate. This projection will serve as the basis for Market Share Scenario #2.
3. Market Share Change II: SJT market share will change at the CAGR experienced between 2009-2015 (CAGR of -0.53%) through 2037, starting with the 2016 share of 0.0083% and then declining at the -0.53% rate. This projection will serve as the basis for Market Share Scenario #3.

TABLE 2P
Historical Market Share

Fiscal Year	Enplaned Passengers	U.S. Domestic Enplaned Passengers (000s)	Airport Share of U.S. Domestic
2000	44,329	641,200	0.0069%
2001	49,140	625000	0.0079%
2002	38,372	626800	0.0061%
2003	42,688	574500	0.0074%
2004	60,226	628,500	0.0096%
2005	63,785	669,500	0.0095%
2006	68,206	668,400	0.0102%
2007	69,738	690,100	0.0101%
2008	68,630	680,700	0.0101%
2009	60,315	630,800	0.0096%
2010	56,225	635,200	0.0089%
2011	55,304	650,100	0.0085%
2012	56,650	653,800	0.0087%
2013	60,127	654,300	0.0092%
2014	65,314	669,000	0.0098%
2015	64,901	696,000	0.0093%
2016	60,016	726,000	0.0083%

EXHIBIT 2O
SJT Enplanement Projections Based on Market Share Scenarios



Source: Landrum and Brown Analysis

Regression Analysis Projections

Regression analysis, which projects values for a dependent variable on the basis of establishing a statistical relationship between one or more other independent variables, was utilized to determine if a statistically reliable relationship exists between historical passenger enplanements at SJT (dependent variable) and several local socioeconomic indicators (independent variable(s)). The socioeconomic indicators that were evaluated as independent variables in the projection of future passenger enplanements at SJT include MSA population, per capita personal income, total earnings, gross regional product, retail sales, median household income and non-farm payrolls. Finally, a multiple-regression analysis was performed combining all seven independent variables.

The statistical reliability of projections made to the dependent variable through a regression analysis is evaluated using the coefficient of determination, or R-squared value. Technically, the R-squared value explains the relative accuracy of the association between the dependent and independent variables. An R-squared value of 1.0 indicates a perfect correlation between variables; R-square values of less than 0.70 typically indicate that there is less correlation. An R-squared value of 0.90 is generally used as a threshold to depict a high level of statistical reliability. None of the studied socioeconomic factors studied resulted in an R-squared greater than 0.25, indicating little correlation between

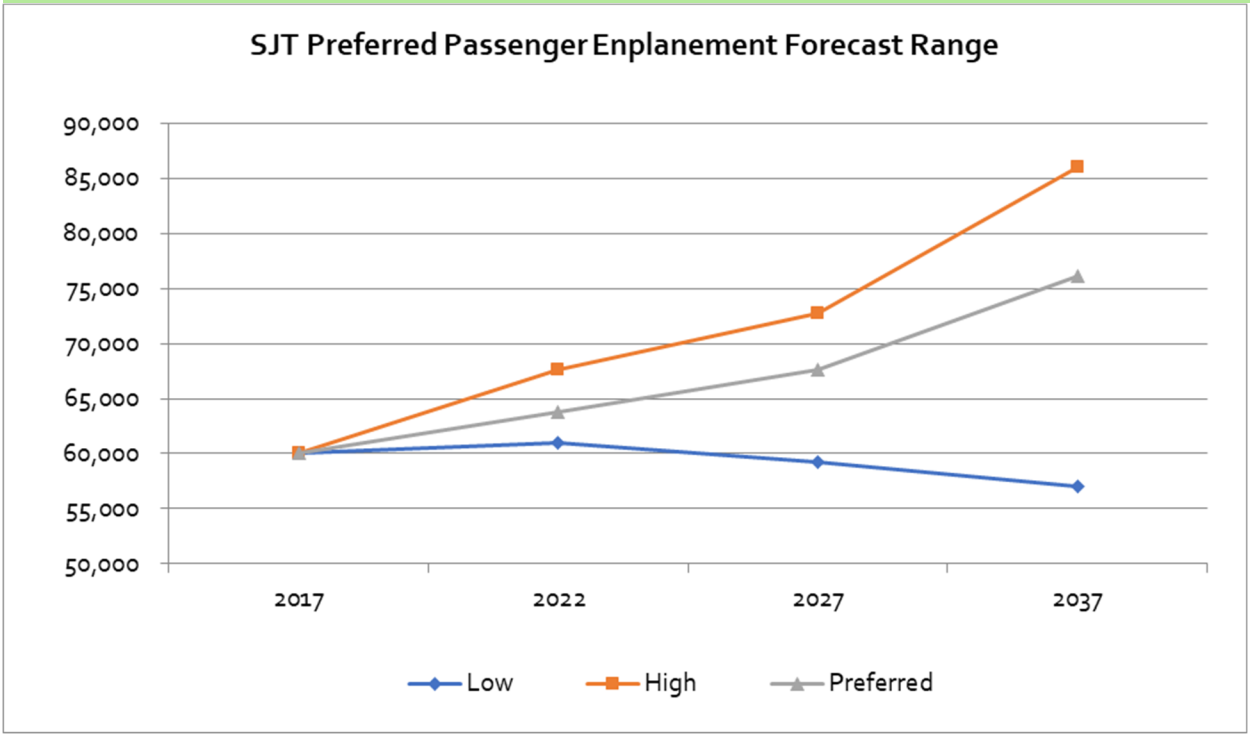
historical enplaned passenger volume and socioeconomic factors. Hence, these should not be considered reasonably reliable for planning/forecasting purposes.

Typically, there is greater correlation between key socioeconomic factors and air travel demand. In this case, there could be greater travel demand over time and hence greater correlation between economic growth and enplaned passenger volume, but it is being masked by ongoing increases in SJT's "leakage" to other regional airports, as was illustrated earlier.

Selection of the Preferred Forecast Range

The preceding sections have presented enplanement projections from several analytical sources. From these sources, a range of potential future enplanement activity can be established. Those are shown below in **Exhibit 2P**.

EXHIBIT 2P
SJT Load Factor by Month 2017-2018 and Year (2012-2018)



Source: Landrum and Brown Analysis

For the 20-year forecast period, the preferred forecast CAGR is 1.19%. This compares to the FAA's U.S. CAGR of 1.69% over this same time-period and is slightly above the latest TAF CAGR of 0.98% during this same time-period.

The preferred forecast for 5 years is 63,758 enplaned passengers as compared to the TAF of 63,092. The preferred 10-year forecast is for 67,643 enplaned passengers versus the TAF of 66,242 (2.1% difference)

The preferred forecast is for 76,136 enplaned passengers for 2037, which is 4.1% greater than the TAF of 73,029.

Alternative, Unconstrained Enplaned Passenger Forecast

The above forecasts are considered the most likely as it pertains to the Master Plan Forecast. These forecasts assume that AA remains the sole commercial passenger airline at SJT. Furthermore, this forecast assumes that additional passenger growth will be accommodated through larger aircraft over time (as will be seen in the next section).

An additional "unconstrained" passenger forecast is being put forth for alternative facility requirements. The rationale for this alternative is the following:

1. Strong, estimated AA profitability serving SJT today (noted by high mileage-adjusted RASM).
2. High load factors, more recently nearing 90%. This level typically indicates the need for more capacity.
3. High, worsening leakage. This indicates that additional demand exists in the market.
4. United (UA) growth, focused upon the 50-seat regional jet. Tied to this, UA has indicated an approximate 6% capacity growth over the next 3 years.

Furthermore, at 321 miles, the IAH-SJT route is optimal distance for a feeder market operated by a CRJ/ERJ aircraft. Finally, UA (CO) has operated at SJT before and knows the region well.

Table 2Q on the next page summarizes potential enplaned passenger activity if UA entered the market. This table essentially estimates traffic based upon SJT's retention of booked traffic (see **Exhibit 2J**). Currently, SJT is retaining 50% of booked traffic. In 2016, SJT retained 57% of booked traffic, while SJT retained 60% in 2012 and 69% in 2014. The table illustrates what SJT enplaned passenger volumes would be at these historical retention rates. As illustrated, SJT enplaned passenger volume would increase from 60,095 today to 68,508 (57% retention), to 72,114 (60% retention) to 82,931 (2014 retention). Tied to these estimates, we have shown what traffic potential could be at 1% annual growth (a bit lower than earlier rate of growth, but in line with forecasted economic growth). Below the line, estimates have been done for both American (AA) and United (UA) at different sensitivities. Given AA's long presence in the market, they would likely garner a premium share – 60% has been assumed. Assuming 75% load factors, it is estimated that AA would operate 3x-4x daily ERJ service. This would not happen immediately, but over the course of 1-2 years. United could initially support 2 times daily ERJ service to its IAH hub, operating at a 75% load factor.

If UA entered the market, it is highly likely that air fares would come down. This would primarily be due to additional (discounted) seat inventory being made available. This in turn would likely reduce

leakage, which is the foundation of this forecast. While fares would come down in the range of 15%-20%, they would still be at healthy enough levels to drive airline profitability.

TABLE 2Q
Alternative, Unconstrained Forecast (2nd Airline)

	Retention Sensitivities			
	Today	2016	2012	2014
Booked Passengers	120,190	120,190	120,190	120,190
% Retention	50%	57%	60%	69%
Enplaned Passengers	60,095	68,508	72,114	82,931
2022		72,003	75,793	87,161
2027		75,676	79,659	91,608
2037		83,593	87,993	101,192
AA - Today				
Share	60%	60%	60%	60%
Enplaned Passengers	36,057	41,105	43,268	49,759
Load Factor	75%	75%	75%	75%
Departing Seats	48,076	54,807	57,691	66,345
Daily Departs	2.6	3.0	3.2	3.6
UA - Today				
Share	40%	40%	40%	40%
Enplaned Passengers	24,038	27,403	28,846	33,172
Load Factor	75%	75%	75%	75%
Departing Seats	32,051	36,538	38,461	44,230
Daily Departs	1.8	2.0	2.1	2.4

Source: Landrum and Brown Analysis

PASSENGER AIRCRAFT OPERATIONS & FLEET MIX FORECAST

Below are forecasts as it pertains to passenger aircraft operations and fleet mix. This forecast was done at a macro-level and ties to earlier enplaned passenger forecast. It follows expected industry trends, of fewer 50-seat regional jet flying and increased larger RJ flying (64-76 seat jets).

Airline Fleet Mix

The type of passenger service aircraft that utilize the airport defines the operations needed to serve the forecasted enplanements. Flight schedules for calendar years 2016-2018 were reviewed to develop an annual schedule and current aircraft fleet mix. Projected fleet mix is developed based on known industry trends. The eventual phase-out of the 50-seat regional jet is significant to the overall fleet mix at SJT as this has historically been the workhorse for SJT. 52% of operated flights in 2017 were on this type of aircraft and 100% of scheduled operations in many of prior years. This transition is detailed in **Table 2R.**

TABLE 2R
SJT Passengers Seat Projections (2017-2037)

Seating	2017	2022	2027	2037
Less Than 40 Seats	-	-	-	-
40-60 Seats	52.4%	58.3%	32.4%	-
61-99 Seats	47.6%	41.7%	67.6%	100.0%
100-120 Seats	-	-	-	-
121-150 Seats	-	-	-	-
151+ Seats	-	-	-	-

Source: Published Flight Schedules (Innovata) for 2017; Landrum and Brown analysis

Table 2S shows aircraft detail (aircraft operations and operating seats) from 2017 through 2037. As indicated earlier, there will be an overall trend toward larger aircraft, less operations and moderate overall seat capacity growth during the forecast period.

The 50-seat Embraer regional jets are assumed to be partially phased out by 2027 and entirely phased out by 2037. While Canadair CRJ-700/900 (or comparable 76-seat jet) will backfill most of these reductions, it will not be a one for one trade off. The net result will be less operations from these aircraft types but at increased overall seat capacity levels as compared to today when much more 50-seat regional jet frequency exists.

The key operations assumptions are that 58% of 2022 operations will be on 50-seat regional jets, with 21% on 65-seat CRJ-700s and 21% on 76-seat CRJ-900. By 2027, 32% of operations will be on 50-seat regional jets, 25% on CRJ-700s and 43% on CRJ-900s. By 2037, it is assumed that all operations will be on CRJ-900 aircrafts. It is assumed that load factors will run at 80%, which is in line with current results. It is assumed that any additional demand will be managed by airlines through higher fares.

The key operations assumptions are that 58% of 2022 operations will be on 50-seat regional jets, with 21% on 65-seat CRJ-700s and 21% on 76-seat CRJ-900. By 2027, 32% of operations will be on 50-seat regional jets, 25% on CRJ-700s and 43% on CRJ-900s. By 2037, it is assumed that all operations will be on CRJ-900 aircrafts. It is assumed that load factors will run at 80%, which is in line with current results. It is assumed that any additional demand will be managed by airlines through higher fares.

TABLE 2S
SJT Passengers Per Departure

Seating Capacity	2017	2022	2027	2037
Regional (<60 seats)				
Average Seats Per Departure	48.6	50.0	50.0	-
Average Load Factor	80.0%	80.0%	80.0%	-
Enplanements Per Departure	38.8	40.0	40.0	-
Air Carrier (60+ seats)				
Average Seats Per Departure	65.0	70.0	72.0	76.0
Average Load Factor	80.4%	80.0%	80.0%	80.0%
Enplanements Per Departure	52.3	56.0	57.6	60.8
Total				
Average Seats Per Departure	56.4	58.4	64.8	76.0
Average Load Factor	80.6%	80.0%	80.0%	80.0%
Enplanements Per Departure	48.2	46.7	51.9	60.8

Source: Landrum and Brown Analysis, Diio (2017)

Passenger Airline Operations

Passenger airline operations are determined from average enplanements per departure from the fleet mix determinations. An operation is considered an aircraft departure or an arrival. **Table 2T** summarizes forecast airline operations.

TABLE 2T
SJT Passenger Airline Operations

Metric	2017	2022	2027	2037
Departures				
Regional (≤ 60 Seats)	654	797	423	-
Air Carrier (> 60 Seats)	593	569	881	1,252
Operations				
Regional (≤ 60 Seats)	1,308	1,594	846	-
Air Carrier (> 60 Seats)	1,186	1,137	1,763	2,504
Total Operations	**2,494**	**2,731**	**2,608**	**2,504**

Source: Landrum and Brown Analysis, Diio (2017)

Summary

A summary of the preferred passenger aviation forecasts are provided in **Table 2U**. As noted earlier, it is expected that operations will drop, as larger aircraft replace 50-seat regional jets. Seat capacity is forecasted to grow moderately over the next 20 years, with higher passenger loads on larger jets and higher load factors.

TABLE 2U
Preferred Passenger Airline Forecasts Summary

ENPLANED PASSENGERS	2017	2022	2027	2037
Regional (≤ 60 Seats)	27,037	31,879	16,911	-
Air Carrier (> 60 Seats)	33.058	31,879	50,732	76,136
Total Enplaned Passengers	**60,095**	**63,757**	**67,642**	**76,136**
Avg. Seats/Departure	56.4	58.4	64.8	76.0
Avg. Load Factor	80.6%	80.0%	80.0%	80.0%
OPERATIONS	2017	2022	2027	2037
Regional (≤ 60 Seats)	1,308	1,594	846	-
Air Carrier (> 60 Seats)	1,186	1,137	1,763	2,504
Total Operations	**2,494**	**2,731**	**2,608**	**2,504**

Source: Landrum and Brown Analysis

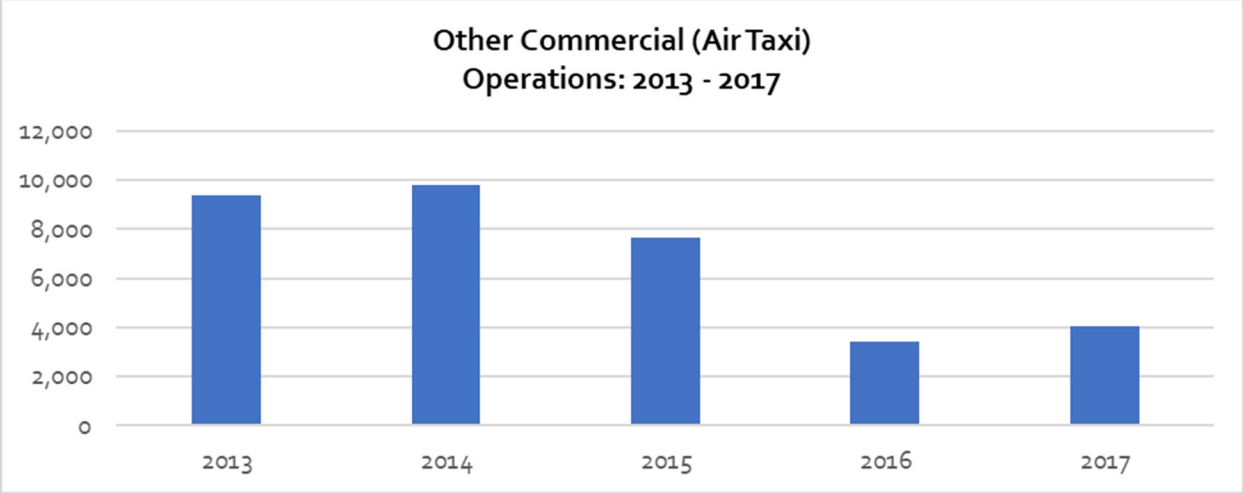
Other Commercial Activity (Non-Passenger Air Taxi)

Operations

Air taxi annual operations are illustrated below in **Exhibit 2Q**. An Air Taxi is a smaller commercial aircraft which makes short flights on demand, usual propeller driven or a helicopter. This compares to commercial passenger air service, which is regularly scheduled and typically on much larger aircraft.

Air taxi operations declined steadily sharply from 2013 through 2016, then increased in 2017. The Airport historically generates good Air Taxi demand, in part driven by the demand from the oil & gas industry, in addition to the regional healthcare industry. Declining Air Taxi operations is a general industry trend, although this is also likely being driven by recent trends in the oil & gas industry. For forecast purposes, it is assumed that more moderate declines will take place through 2022 (as compared to declines experienced over the past 5 years), with small, incremental increases forecasted to take place during the remainder of the forecast period.

EXHIBIT 2Q
Other Commercial (Non-Passenger Air Taxi) Operations



Source: San Angelo Regional Airport 5010 Air Traffic Record, BTS Report T100 (Diio)

Commercial Forecast Summary

In summary, SJT commercial activity is going to be driven by a small reduction in total operations, but the average aircraft size is going to increase significantly, with overall seat capacity increasing moderately, but well below forecasted U.S. levels. It is also expected that higher passenger loads (on larger aircraft) will take place with increases in enplaned passengers per departure.

A summary of the commercial aviation forecasts is shown in **Table 2V**.

TABLE 2V
Commercial Forecast Summary

	Metric	2017	2022	2027	2037
Enplanements	Air Carrier	33.058	31,879	50,732	76,136
	Commuter/Regional	27,037	31,879	16,911	-
	Total Enplanements	**60,095**	**63,757**	**67,642**	**76,136**
Operations	Air Carrier	1,186	1,137	1,763	2,504
	Commuter/Regional	1,308	1,594	846	-
	Air Cargo	n/a	n/a	n/a	n/a
	Air Taxi	4,044	3,500	3,600	3,900
	Total Commercial Operations	6,538	6,231	6,208	6,404
Total	Avg. Seats/Operation	56.4	58.4	64.8	76.0
	Average Load Factor	80.6%	80.0%	80.0%	80.0%

Source: Landrum and Brown Analysis

In addition, as a part of the figures above, include charter operations at SJT. For 2017, this included 3 departing flights. The providers and the operating aircraft were: Swift Air (737-400), Sun Country (737-700 & 800) and Elite Airways (CRJ-700). These were casino charters that operated at load factors in the 90%+ range.

Based Aircraft Forecast

Introduction

The preceding sections focused heavily on the commercial service forecasts for SJT. The steady growth of enplaned passengers and use of larger regional jet aircraft within the planning horizon exemplifies the City's need to continue to plan for future enhancements to the facilities directly related to air service operations, such as the terminal building, landside parking and access, and apron space, just to name a few. However, the commercial service forecasts only partially represent the forecasted facility needs for the airport as a whole. As such, another helpful forecast for airports to consider is the based aircraft forecast.

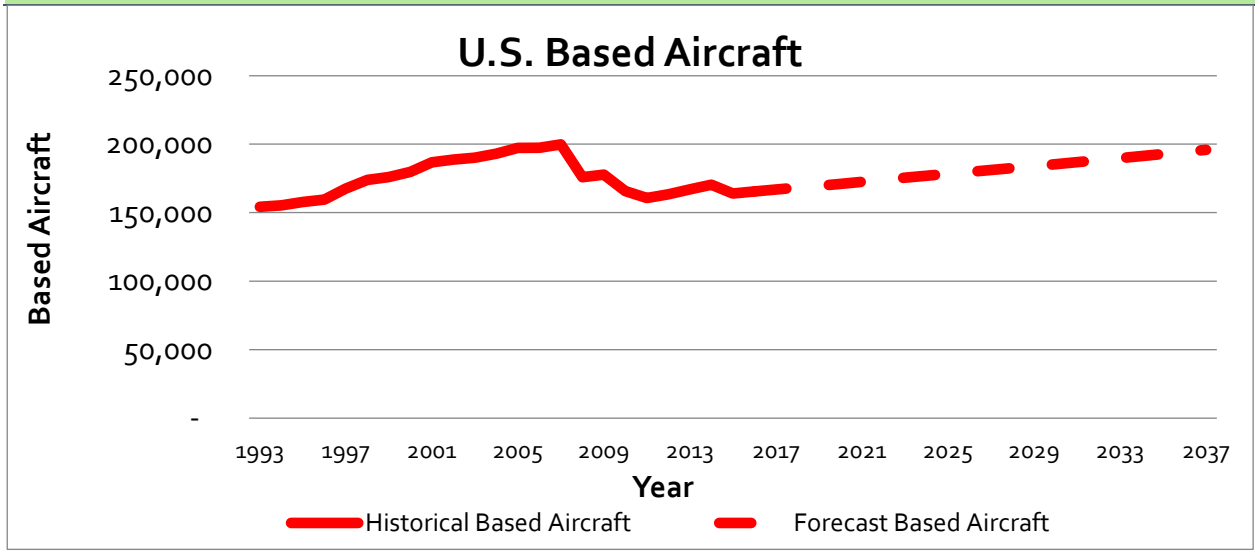
The FAA's definition of a based aircraft is an aircraft that is operational and airworthy, which is based at a specific facility for a majority of the year. Based aircraft can include any airworthy type of aircraft,

such as gliders or ultralights; however, the FAA is mainly interested in an airport's based aircraft of the following types: single-engine piston, multi-engine piston, jet (including turboprop), and helicopters, or SMJH as sometimes referred to by the FAA. A based aircraft forecast is used to estimate the amount and types of aircraft an airport can expect to regularly use all components of the airfield, and therefore are an important aspect of planning for future development at the airport. For example, based aircraft can drive the need for hangars, additional parking apron, and even design standards of the airfield. Development of the based aircraft forecast for SJT includes the review of historical, existing, and forecasted data from the FAA and airport management records. For context, a brief discussion on based aircraft trends at the national level is also provided.

Based Aircraft at the National Level

On the national level, the *FAA Aerospace Forecast* provides an overview of aviation industry trends and expected growth rates for commercial passenger carrier, cargo carrier, and GA activity segments. National growth rates in enplanements, operations, fleet growth and mix for commercial fleets, and the GA fleet are provided over a 20-year forecast period. Using the published report for fiscal years 2017-2037 to align with SJT's baseline year of 2017, the *FAA Aerospace Forecast* indicates based aircraft at U.S. airports hit a 15-year low in 2011 after highs were achieved in 2007. The economic recession has been attributed with the decline in the number of based aircraft, which fell nearly 20 percent between 2007 and 2011. Since the economic recovery from that time period, national forecasts show a modest growth rate in based aircraft of 0.8 percent annually over the next 20 years. The gradual increase in based aircraft nationally beginning in the early 1990s, as well as the periods of decline, followed by a return to conservative growth is illustrated in **Exhibit 2R**. It has been inferred by aviation industry leaders and forecasters that the most recent economic recession demonstrates the new sensitivity-based aircraft have with the overall national economy.

EXHIBIT 2R
U.S. Based Aircraft

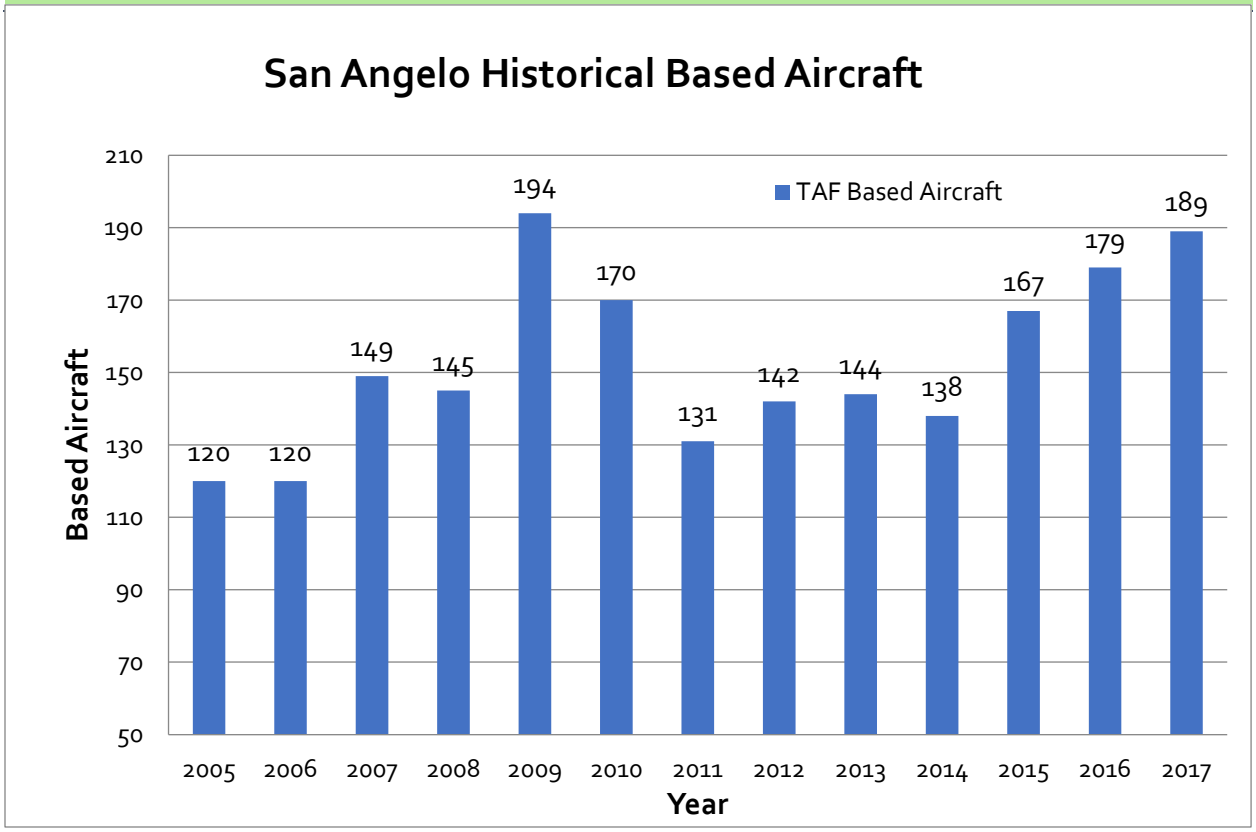


Source: *FAA Aerospace Forecast: Fiscal Years 2017-2037*

Based Aircraft at San Angelo Regional Airport (SJT)

Prior to determining the forecasted based aircraft at SJT within the 20-year planning horizon, a review of historical and existing based aircraft data was necessary. Evaluating historical trends at an airport can be useful when projecting future aviation activity levels by providing insight as to what may be expected. Sources examined for the historical and existing based aircraft figures included the FAA *Terminal Area Forecast* (TAF) and the FAA Form 5010-1, *Airport Master Record* (5010). The TAF is considered the official forecast of aviation activity for U.S. airports, and is often used for planning and budgeting for the implementation of capital projects. It also is a reference for historical data, as it is updated on an annual basis. Based aircraft at SJT from the last twelve years according to the most current TAF are depicted in **Exhibit 2S**. Furthermore, the TAF indicates 189 total based aircraft at SJT in 2017. Periods of steady growth followed by periods of decline seem to closely mirror that of the historical trends of based aircraft at the national level as described above.

EXHIBIT 2S
San Angelo Historical Based Aircraft



Source: FAA Terminal Area Forecast, retrieved January 2019

As previously described in Chapter One – *Inventory*, the Airport's existing based aircraft count for the 12-month period ending December 31, 2017, according to the most recent 5010 dated February 2019, indicates 176 aircraft are based at SJT. A slight discrepancy between what is reported on the TAF versus what is reported on the 5010 is not uncommon. The TAF is a forecasting tool where the FAA uses a unique mathematical formula for each individual airport. It takes into consideration local and national economic conditions, as well as conditions within the aviation industry.[1] On the contrary, data on the 5010 reflects the most current information available about the airport and its facilities, including based aircraft, as required by the FAA. Based aircraft data contained on the 5010 usually comes directly from the airport manager or other designated airport employee. Thus, for the purpose of the based aircraft forecasts within the 2017-2037 planning period contained within this report, the existing total based aircraft, including the fleet mix of aircraft found at the Airport, will reflect the numbers reported on the current 5010; these numbers are believed to reflect the most accurate and current data available.

[1] U.S. Government Accountability Office, *Report to Congressional Committees: Aviation Forecasting – FAA Should Implement Additional Risk-Management Practices in Forecasting Aviation Activity*, March 2016, retrieved February 2019 from https://www.gao.gov/assets/680/675873.pdf.

SJT Based Aircraft Forecast Methodologies and Analysis

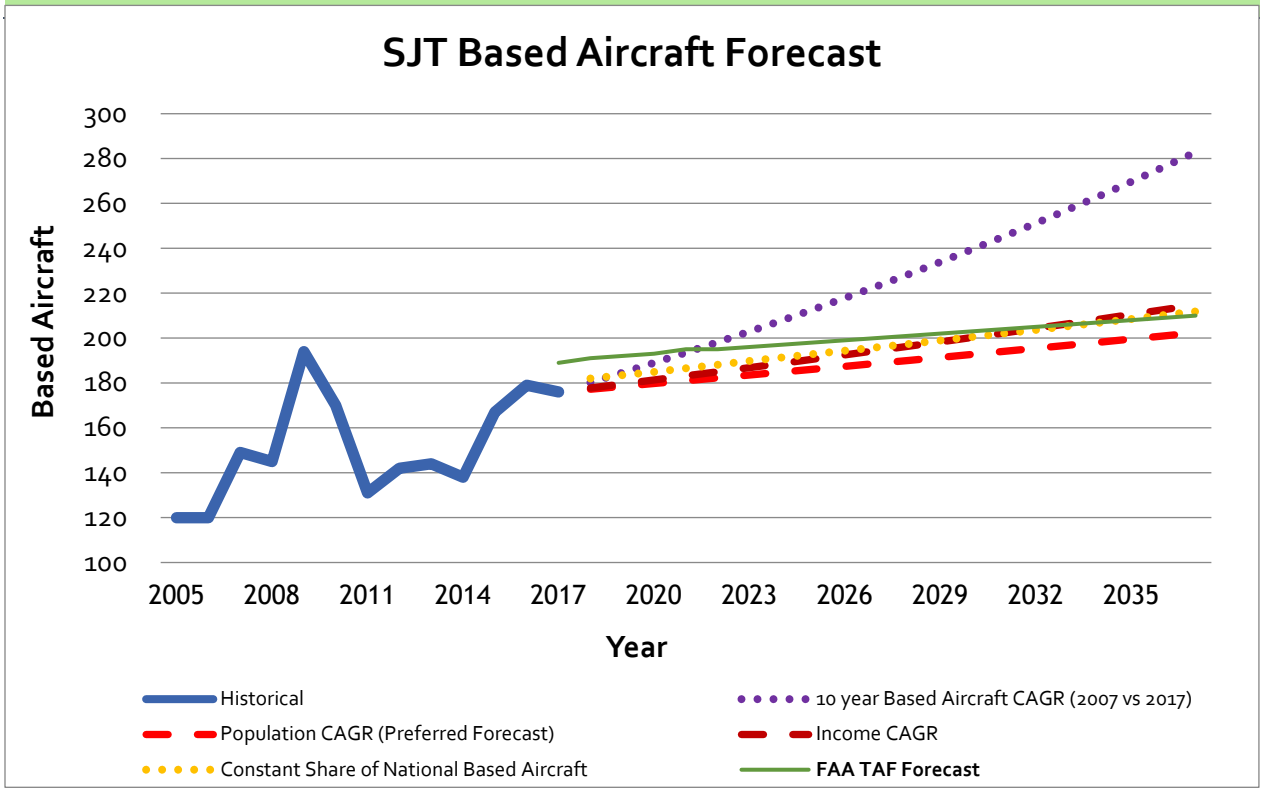
Typical forecast methodologies used to predict based aircraft at airports include time series (trend), regression, and market share analyses. These methods incorporate data from the FAA TAF and Aerospace Forecasts, airport management records, as well as other demographic and socioeconomic data. The specific forecasting methods applied to estimate based aircraft at SJT for the next 20 years included the following:

1) Population CAGR (Metropolitan Statistical Area)
2) 10-year SJT based aircraft CAGR
3) Income CAGR (Metropolitan Statistical Area)
4) SJT's constant share of the national based aircraft forecast

The outcomes produced by the forecasting methodologies listed above are illustrated in **Exhibit 2T.** For comparative purposes, the historical and forecasted FAA TAF based aircraft are also included; the 2017 TAF published for SJT reports 189 based aircraft in 2017, growing to 210 based aircraft by 2037. This represents a CAGR of approximately 0.53 percent.

The population growth model for the San Angelo metropolitan statistical area (MSA) was chosen as the preferred based aircraft forecast. As previously mentioned, airports are often influenced by fluctuations in demographic and socioeconomic factors within their surrounding communities. Although modest, increases in population for the San Angelo MSA, combined with steady increases in employment and per capita income in the same MSA, have the potential to increase the Airport's aviation activity. The logic being that with these increases, there will be an increase in the population that may use general aviation aircraft for recreational or business purposes, and therefore be inclined to either base an aircraft or fly to/from the Airport (or both) on a regular basis.

EXHIBIT 2T
San Angelo Based Aircraft Forecast Methods



Source: FAA Terminal Area Forecast, retrieved January 2019; Landrum and Brown analysis, January 2019

Although this forecast is 3.8 percent below the FAA TAF forecast for the same period, in this instance, population growth is likely the best indicator of changes in based aircraft at SJT within the 20-year planning horizon (when using the 5010 based aircraft data as the baseline) because it is consistent with forecasted economic growth in the region. The San Angelo MSA population is forecasted to increase at a CAGR of 0.7 percent throughout the 20-year period. Thus, applying the same growth rate of 0.7 percent to SJT's existing based aircraft (according to FAA Form 5010-1) results in an estimated 202 based aircraft by 2037. The biggest difference between these forecasts is the 2017 baseline data used, i.e. 176 based aircraft (5010) versus 189 based aircraft (TAF). The results using the population growth CAGR as the preferred forecast for based aircraft at SJT in the planning horizon is depicted in **Table 2W**.

TABLE 2W
Based Aircraft Forecast

Metric	2017	2022	2027	2037	*CAGR*
Total Based Aircraft	176[1]	182	189	202	*0.7%*

Note. Existing based aircraft baseline data taken from FAA Form 5010-1, Airport Master Record, for the 12-month period ending December 31, 2017.

Source: Landrum and Brown analysis, February 2019

SJT Based Aircraft Fleet Mix

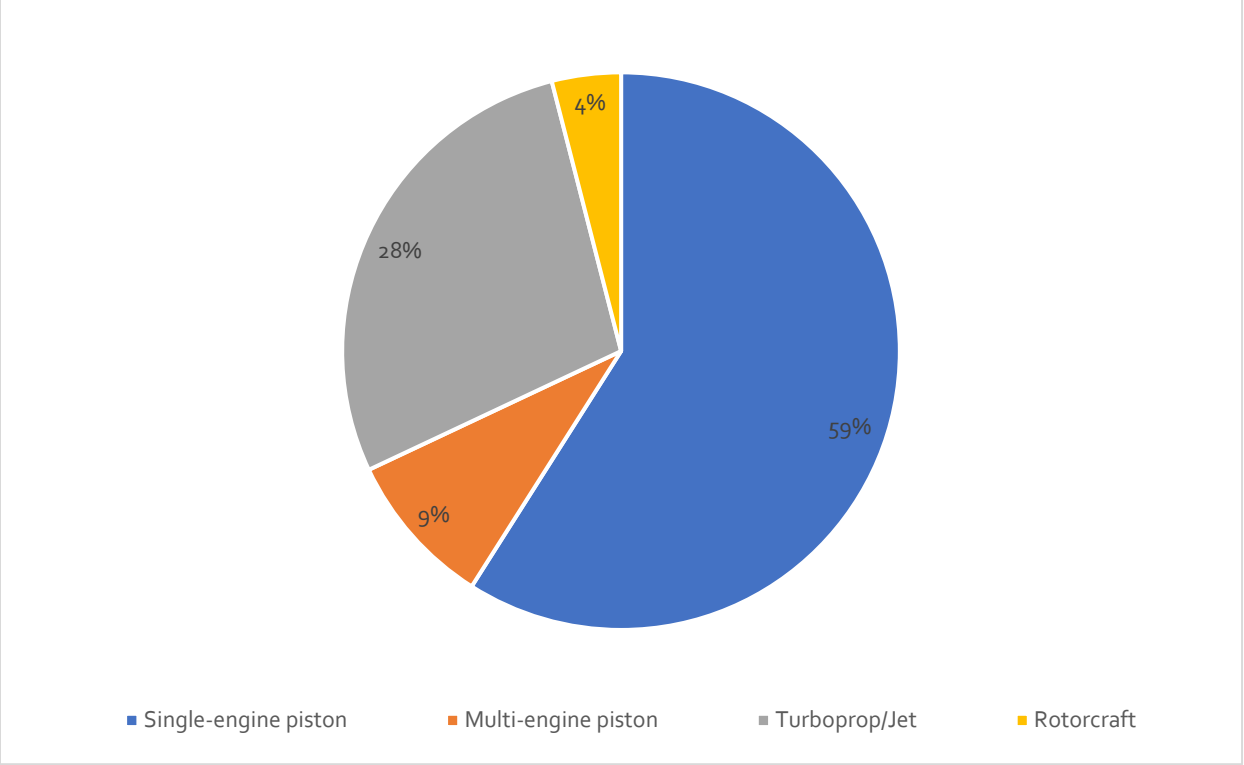
The estimate of based aircraft over the 20-year planning horizon at an airport can be further broken down into an aircraft fleet mix, or the types of aircraft, expected to be based at the airport during this time period. The existing breakdown of the types of aircraft based at the airport is reviewed, and then typically the preferred based aircraft forecast growth rate is applied to the forecasted based aircraft within each planning period, which in turn determines the forecasted fleet mix of based aircraft at the airport. The results of the based aircraft fleet mix are then utilized to determine if the airport's existing facilities will be able to meet the forecasted demand. This will be addressed in the subsequent facility requirements portion of the report.

The existing fleet mix data as reported on the most recent 5010 for the 12-month period ending December 31, 2017, and as described in Chapter One – *Inventory*, is the basis for the future fleet mix. **Exhibit 2U** displays the breakdown of the existing aircraft fleet mix as a percentage of total based aircraft found at SJT today.

Again, for context, the FAA *Aerospace Forecast, Fiscal Years (FY) 2017-2037*, includes the following fleet mix projections at the national level:

- Fixed-wing piston powered aircraft are projected to decline at an average annual rate of 0.8 percent.
- Turbine-powered propeller (turboprop) and rotorcraft fleets are projected to increase at an average annual rate of 1.9 percent.
- Turbine jet aircraft are projected to increase at an average annual rate of 2.3 percent.

EXHIBIT 2U
Existing Fleet Mix



Source: FAA Form 5010-1, Airport Master Record, for the 12-month period ending December 31, 2017

Presently, single-engine piston aircraft and turboprop/jet aircraft comprise the majority of the based aircraft fleet mix at SJT. Multi-engine piston aircraft and rotorcraft round out the mix to a lesser extent. Although the national forecast predicts a decline in single- and multi-engine piston aircraft, it is anticipated that these aircraft types could increase by modest amounts based on historical flight training and recreational activities at SJT. Furthermore, the Airport has already anticipated a potential increase in the number of based turboprop and corporate jet that could be based at the facility in the future.

Both FBOs, as well as airport management, have been approached in recent months by several individuals/companies expressing interest in basing their turboprop or jet at SJT. For example, one business currently bases their aircraft fleet (three jets and four turboprops) at an airport in Midland, Texas, located approximately 120 miles northwest of SJT. This particular company is very interested in relocating its aircraft fleet should a hangar that could accommodate their aircraft become available. The specific facility needs as it relates to projected future demand is discussed in greater detail within Chapter 3, *Demand Capacity and Facility Requirements,* in which the projected turboprop/jet aircraft will play more of a significant role in determining the ultimate facility needs of SJT. Additionally, the

next section, *General Aviation Annual Operations Forecast*, provides a more in-depth analysis of the potential jet activity likely to occur at the Airport within the next 20 years. Thus, the 0.7 percent CAGR applied to the existing based turboprop and jet aircraft to determine future aircraft of the same type may be somewhat conservative; however, as described above, the population growth rate is typically a reliable predictor of based aircraft at airports. Based on the outcomes of the preferred based aircraft forecast, **Table 2X** presents the based aircraft fleet mix for SJT over the next 20-year planning horizon.

TABLE 2X
Based Aircraft Fleet Mix Forecast

Year	Single-engine Piston	Multi-engine Piston	Turboprop/Jet	Rotorcraft	*Total*
2017 (Existing baseline)	103	16	50	7	*176*
2022	107	17	52	7	*182*
2027	110	17	54	8	*189*
2037	118	18	57	8	*202*

Notes. Existing based aircraft baseline data taken from FAA Form 5010 -1, Airport Master Record, for the 12-month period ending December 31, 2017.

Aircraft within the "Military" category as listed on the 5010 have been incorpor ated into SJT's existing fleet mix because they do not fit into the traditional military aircraft category in this instance; these aircraft belong to the U.S. Customs and Bo rder Protection (CBP) who currently lease a facility at the airport. The CBP's flee t consists of five single-engine, four turboprops, and one jet.

Source: C&S Engineers, Inc. analysis, February 2019

General Aviation Annual Operations Forecasts

Introduction

To paint the complete forecasting picture for SJT, general aviation annual operations were also developed for the 20-year planning period. General aviation operations include all aircraft operations other than the commercial service and air taxi operations described at the onset of this chapter, as well as military operations. Furthermore, these operations can be broken into either itinerant or local operations.

Like the based aircraft forecast, general aviation operations forecasts provide airports with information that can be useful for future development planning. Development of the based aircraft forecast for SJT includes the review of historical, existing, and forecasted data from the FAA and airport management

records. For context, a brief discussion on general aviation operational trends at the national level is also provided.

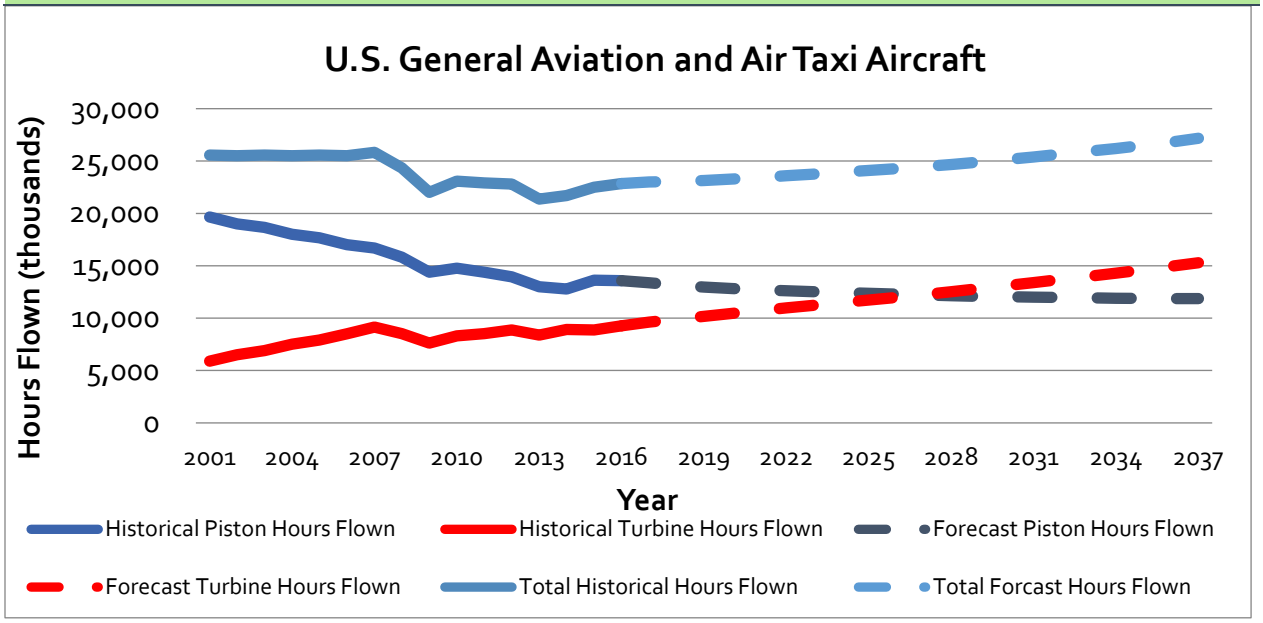
General Aviation Operations at the National Level

Again, review of the FAA *Aerospace Forecast, Fiscal Years (FY) 2017-2037,* reports the number of general aviation (GA) and air taxi (AT) hours flown nationally has decreased by 11 percent since 2001. According to the report, this decline can be attributed to the economic downturn of the early 2000s, the recession of the late 2000s, and increasing operating costs driven by fuel prices. Total GA and AT hours have been steadily increasing since 2012, and ultimately could reach slightly just above the flight hours flown in 2001 by 2037.

Within the overall GA and AT activity category, piston-powered and turbine-powered aircraft have seen a reversal in their activity starting in 2001. Since this time, there has been increased demand for the use of turbine-powered aircraft, and as such, active turbine hours have increased steadily since 2001 (with the exception of the economic recession years from 2008-2011). These aircraft include turboprop and turbojet aircraft primarily used for corporate business travel. More corporate and business operators, large and small, are using GA aircraft for their transportation needs to save time and reduces costs. The number of turbine aircraft hours flown has increased an average of 3.1 percent annually. Helicopters, which are also used by corporations, have also seen steady increases in hours flown. Conversely, the number of piston-powered aircraft hours flown has decreased 0.89 percent annually. Although these types of aircraft still comprise the majority of general aviation aircraft in the U.S., they are used primarily for recreational and flight training purposes. According to the *Aerospace Forecast*, decreases can be attributed to higher ownership costs, increased fuel prices, economic downturn, and a decreasing pilot population. Multi-engine piston aircraft have particularly seen a reduction with decreases of 2.0 percent annually. These aircraft types are being replaced by newer, more efficient turboprop aircraft for business travel.

The trend of strong growth in corporate aircraft, and steady or decreased use of piston aircraft, is expected to continue over the planning period. This forecast may fluctuate with new unleaded fuel engines potentially reducing the cost of flying. The number of turbine aircraft hours flown (including rotorcraft) is expected to increase 2.4 percent annually. The largest segment of the turbine aircraft increase in flight hours will be attributed to jet aircraft, particularly the larger corporate GA aircraft types; hours flown are anticipated to increase at 3 percent annually. Piston aircraft hours flown are expected to decrease at a rate of 0.8 percent annually (similar to the fleet reduction rate). Again, this decrease can be attributed in part to upgrades to newer turbine-powered aircraft types, but also in part due to the increased cost of flying and activity sensitivity to economic conditions. The historical and projected general aviation and air taxi active hours flown at the national level are depicted in **Exhibit 2V**.

EXHIBIT 2V
U.S. General Aviation and Air Taxi Hours Flown

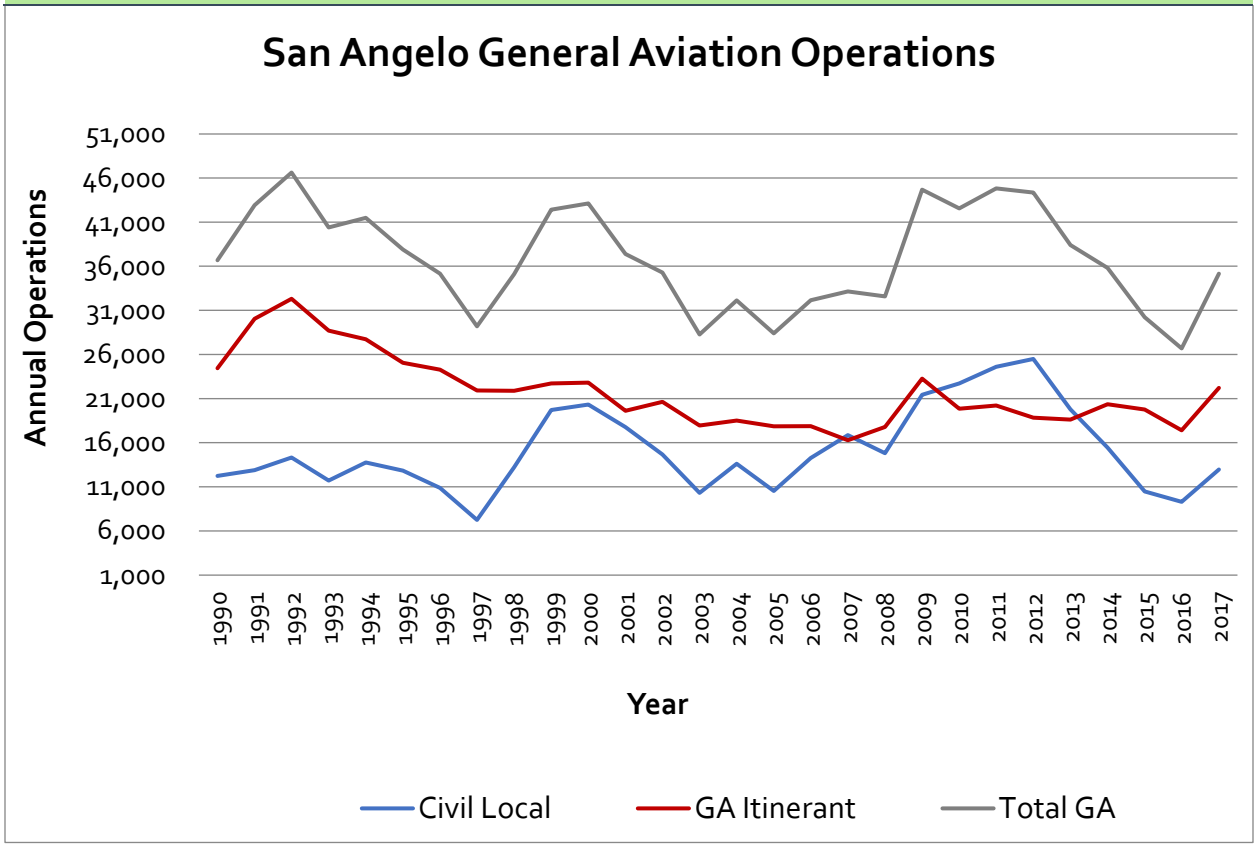


Source: FAA Aerospace Forecast: Fiscal Years 2017-2037

General Aviation Annual Operations at SJT

As previously mentioned in the preceding sections, many factors have the potential to affect general aviation activity at airports, most notably those related to local and regional socioeconomic and demographic factors. Furthermore, GA activities at an airport vary depending on its pilot base, geographic location, and services offered, just to name a few. SJT is no exception to this generality, as the Airport has experienced fluctuations in its overall GA operations, with an overall long-term moderate decline over the past 27 years. Most notably, SJT's GA operations have fallen acutely since 2012, with the sharp decline in the civil local operations category driving the majority of this reduction. Airport management indicates that flight training at the Airport decreased greatly around this time, which may account for the drop in the local operations. Historical operations for SJT from 1990-2017 are illustrated in **Exhibit 2W**.

EXHIBIT 2W
SJT Historical General Aviation Operations (1990-2017)



Sources: FAA SJT TAF (2017-2037) for years 1990-2015; San Angelo Regional Airport records for years 2016 & 2017

For the purposes of generating general aviation operations forecasts for SJT within the 20-year planning horizon, the local and itinerant operations data as reported on the current 5010 for the 12-month period ending December 31, 2017, served as the 2017 baseline data. This data reports 12,951 local and 22,199 itinerant operations performed at the Airport, totaling 35,150 annual GA operations in 2017.

SJT General Aviation Operations Forecast Methodologies and Analysis

Local (Civil) Operations Forecast

A local operation is defined as operations that are performed by aircraft that remain within the local traffic pattern. These operations typically include practice landings, touch-and-go's, practice approaches and maneuvering in the local area. Civil local operations are usually conducted by recreational and flight training aircraft.

SJT is unique in that a large number of military local operations are performed at the Airport each year due to its proximity to several military bases in the area. A more detailed discussion of projected

military operations, both local and itinerant, is provided in a subsequent portion of this chapter. As such, the general aviation local forecasts only include operations within the civil category.

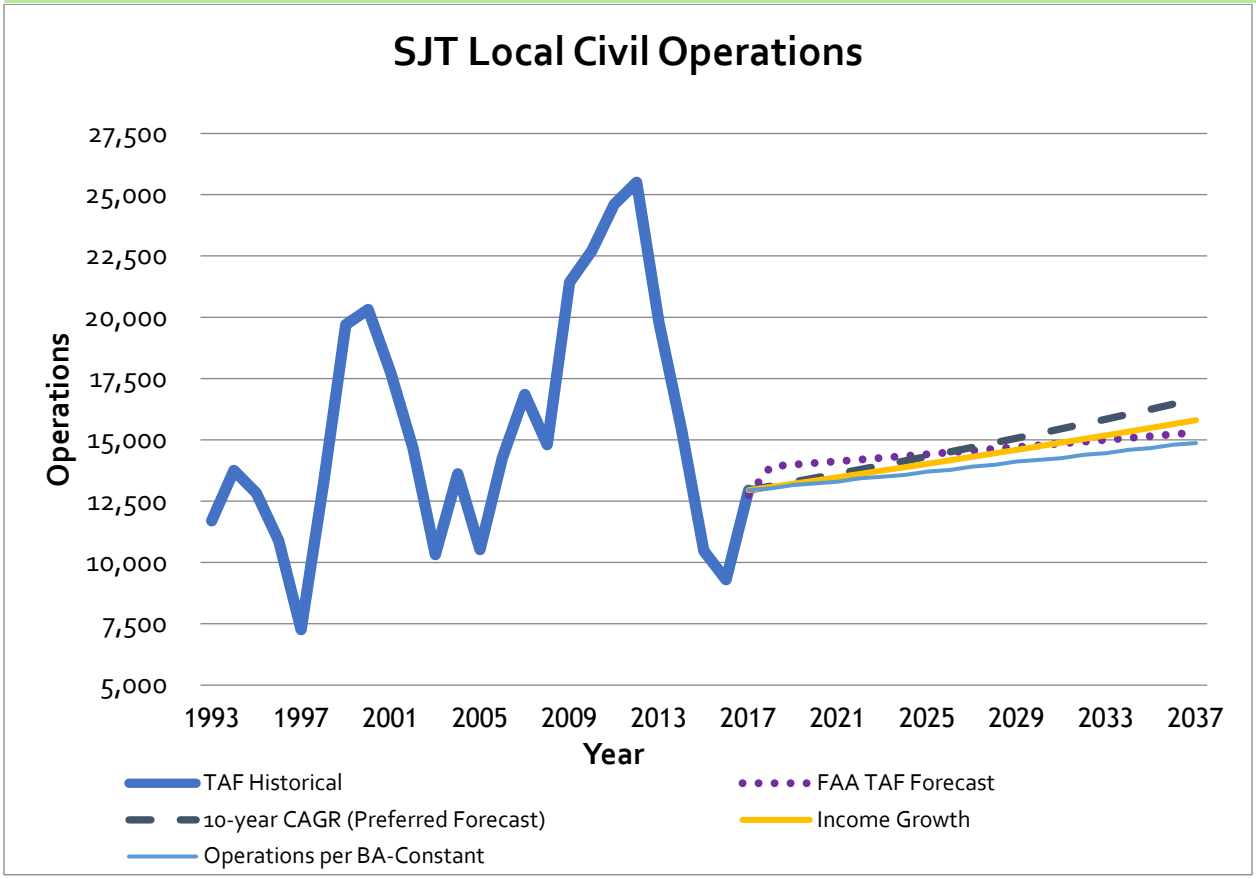
According to the January 2017 FAA TAF, local civil operations at SJT have varied, but generally increased slightly upward until 2012. Since 2012, local civil operations have declined from approximately 26,000 in 2012 to about 9,600 in 2016, but with a subsequent increase to almost 13,000 in 2017. As noted above, the decrease in local operations is most likely attributed to a decrease in flight training originating at the Airport. The estimate of total local civil operations for 2017 according to the TAF are 12,756.

The specific forecasting methods applied to estimate local civil operations at SJT for the next 20 years included the following:

1) Operations per Based Aircraft (OPBA)
2) Local Operations 10-year CAGR (2014 vs 2004) (trend analysis)
3) 20-year income CAGR (income trend analysis)

Each of these methodologies took into account a longer-term perspective that reflected different economic scenarios, as opposed to a shorter-term period that would not be as reflective of longer-term trends. Based on the analysis of these methodologies, the preferred forecast method is identified as the Local Operations 10-year CAGR forecast. This forecast assumes that SJT is at a similar point in the economic cycle and grows to the mid-range of prior year's results. It is believed that this time 10-year time period is a good reflection of longer-term trends. Consequently, this forecast projects that local civil operations will increase at a rate of 1.3 percent per year. This ultimately results in a forecast of 16,669 local civil operations by 2037. The historical and forecasted FAA TAF local operations, as well as the various forecast method projections, are illustrated on **Exhibit 2X**.

EXHIBIT 2X
SJT GA Local Civil Operations Forecast Summary



Sources: FAA SJT TAF (2017-2037) for years 1993-2015; FAA Form 5010-1, Airport Master Record, 2017; Landrum and Brown analysis, January 2019

Intinerant Operations Forecast

An itinerant operation is defined as a landing or departure from an airport. GA itinerant operations are conducted by all types of aircraft. Again, there are several categories of itinerant operations that the FAA records; itinerant operations by air carrier, air taxi, and commuter aircraft were captured within the commercial service forecast section, and itinerant military operations are also included in a subsequent section. The forecast presented here only reflects itinerant operations projections for GA aircraft at SJT.

According to the January 2017 TAF, GA itinerant operations at SJT declined sharply from 1993 to 2008, peaking at 28,704 operations in 1993, and bottoming at 16,284 in 2007. Operations then shot up in 2009, to 23,253 operations, and then declined and subsequently stabilized in the years thereafter, typically ranging from roughly 17,000 to 23,000 annual operations. Likewise, the TAF estimates a total of 18,621 itinerant GA operations in 2017. Airport management believes the increases in itinerant operations at SJT within the last two years have largely been the result of the increase in corporate

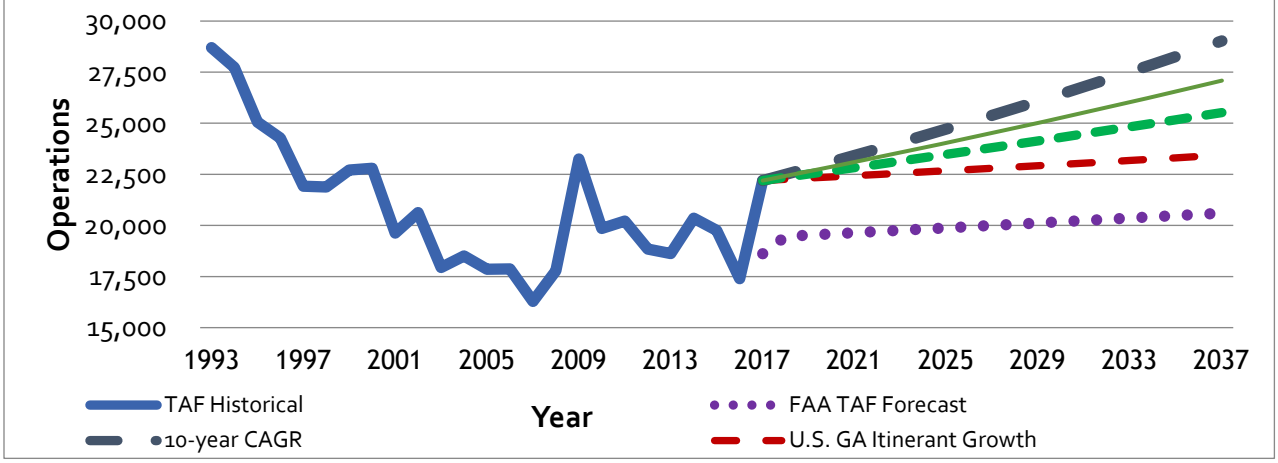
and business activity related to the shale oil boom in the region, as well as an increase in the local manufacturing interests, as described in the *Regional Economic Overview* section of this chapter.

The specific forecasting methods applied to estimate itinerant operations at SJT for the next 20 years included the following:

1) Itinerant Operations 10-year CAGR (2017 vs 2007)
2) U.S. GA Itinerant Growth
3) Population Growth (Metropolitan Statistical Area)
4) Income Growth (Metropolitan Statistical Area)

Based on the analysis of these methodologies, the preferred forecast method is identified as the Population Growth of SJT's surrounding area, which assumes a 0.7 percent CAGR. Similar to the based aircraft forecast, this forecast method is believed to be the best indicator of future GA itinerant activity at the Airport. Entities such as Angelo State University, Goodfellow Air Force Base, and growth in nearby cities such as Midland due to the oil and gas industry, all serve as a constant source of potential population increase in the area. And again, the logic being that some percentage of this population is likely to use local airports, not only for commercial service purposes, but for GA ones as well. This forecast method ultimately results in a forecast of 25,522 GA itinerant operations by 2037. The historical and forecasted FAA TAF itinerant operations, as well as the various forecast method projections, are illustrated on **Exhibit 2Y**.

EXHIBIT 2Y
SJT GA Itinerant Operations Forecast Summary



Note. Forecast method projections are based on the 2017 operations as reported on FAA Form 5010-1, not as reported on the FAA TAF which differs for 2017. Sources: FAA SJT TAF (2017-2037); FAA Form 5010-1, Airport Master Record, 2017; Landrum and Brown analysis, January 2019

General Aviation Operations Forecasts Summary

It is important to note that like the based aircraft forecast, the 2017 baseline TAF figures differ slightly from the FAA Form 5010-1 figures for annual GA operations. In fact, the 2017 baseline data for the Form 5010-1 is approximately 12 percent higher than the TAF. Using the 5010 figure as the baseline therefore ultimately produces higher estimates of GA operations in each of the planning years (2022, 2027, and 2037). By 2037, the difference between the FAA TAF estimate of GA operations and preferred forecasts operations is approximately 18 percent. Furthermore, the CAGR based on the preferred forecast projections is slightly higher at approximately one percent, versus the FAA TAF CAGR of 0.7 percent over the 20-year planning period. A summary of the local civil and itinerant GA operations forecasts for SJT are shown in **Table 2Y**.

TABLE 2Y
General Aviation Operations Forecast Summary

Metric	2017	2022	2027	2037	*CAGR*
Local Operations	12,951	13,795	14,693	16,669	*1.3%*
Itinerant Operations	22,199	22,987	23,803	25,522	*0.7%*
Total Operations	**35,150**	**36,782**	**38,496**	**42,191**	*1.0%*
Local Share	37%	38%	38%	40%	-
Itinerant Share	63%	62%	62%	60%	-

Source: Landrum and Brown analysis, January 2019

BUSINESS JET OPERATIONS

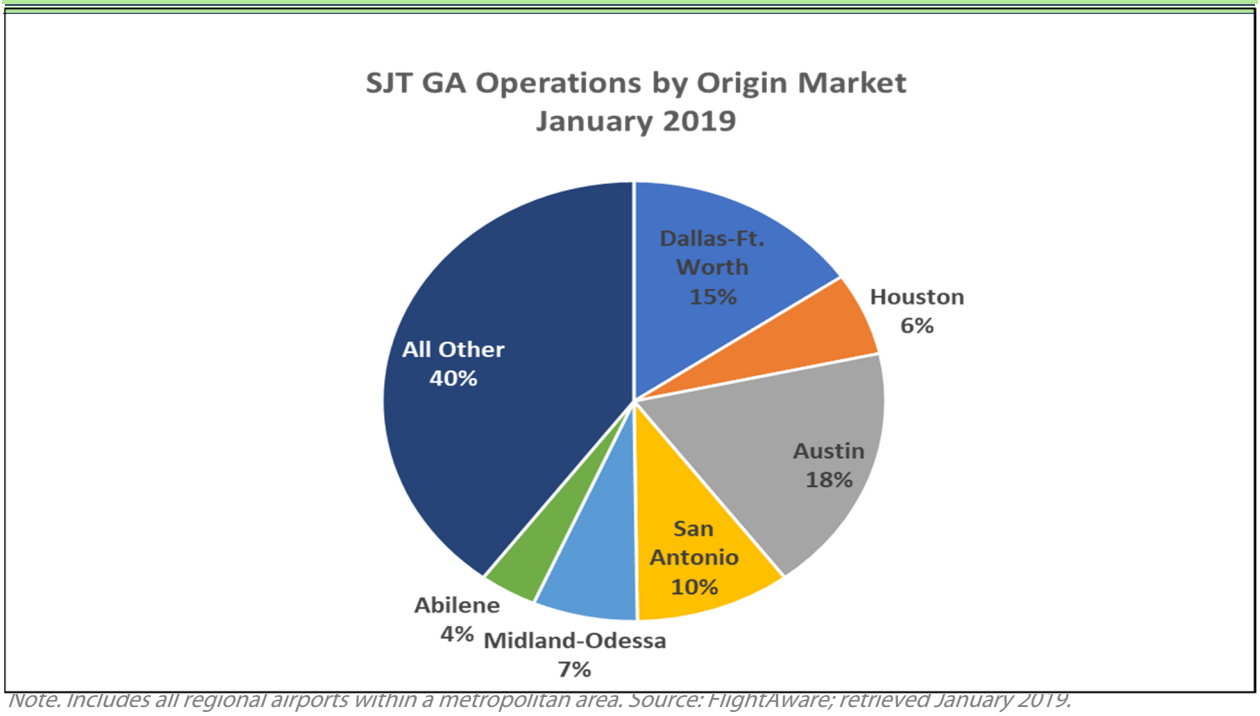
Introduction

As mentioned previously within the based aircraft forecast and fleet mix sections, demand exists today from corporate businesses within the region wanting to base their turbine-powered aircraft at the Airport, which supports the based aircraft fleet mix projections for an increase in these types of aircraft at the facility within the 20-year planning period. Furthermore, the GA operations forecasts predicts a steady increase in GA itinerant operations, whose greatest contributors to activity are likely the business jet operators. This is of interest to the Airport from a planning perspective because typically jet aircraft are the largest and most demanding aircraft to use the airfield, and therefore airport facilities should be developed to accommodate the aircraft, both based and transient. As such, it is prudent to review the existing types of business jet aircraft using SJT today, in conjunction with a business jet forecast sensitivity analysis, in order to determine the future business jet types and activity at SJT within the 20-year planning horizon.

Business Jet Activity at SJT Today

The increase in business jet operations at SJT within the last six years is believed to be a result of several key industries within the region; this includes the oil and gas, healthcare, manufacturing, and education industries. To gain a better understanding of where the business jet operations are originating from, data from the software program FlightAware[2] was obtained and analyzed for the month of January 2019 for all GA operations. Review of this data indicates that almost all activity originated from the state of Texas, and specifically from four major markets – Dallas-Ft. Worth, Houston, Austin, and San Antonio, as well as a handful of smaller markets within the state. According to the FlightAware software, there were 460 GA operations at SJT in the month of January 2019, of which 30 (approximately 7 percent) were conducted by business jets. **Exhibit 2Z** illustrates the results of the FlightAware analysis. Knowing that the majority of GA operations, and in turn business jet operations, originate within the state of Texas as a direct result of the oil and gas and other industries noted above, it is reasonable to infer that as long as these industries continue to grow within the state, SJT is likely to continue to see an increase in GA operations, and more specifically, business jet operations.

EXHIBIT 2Z
SJT GA Operations by Origin Market



Note. Includes all regional airports within a metropolitan area. Source: FlightAware; retrieved January 2019.

Chapter One – *Inventory*, noted that SJT has a federal contract ATCT. The ATCT personnel track all operations into and out of SJT on a daily basis, and in turn this data is reported to the FAA. This data is

[2] FlightAware is a global aviation software and data services company based in Houston, Texas. The company operates a website and mobile application which offers free flight tracking of both private and commercial aircraft in the United States, Canada, Australia, and New Zealand.

available in report format from the FAA on their website. The two most helpful reports published by the FAA that include an airport's operational activity is the Air Traffic Activity Data System (ATADS) and the Traffic Flow Management System Counts (TFMSC). The ATADS will provide a count of all operations at an airport with an ATCT but will only provide limited information on the aircraft itself, such as engine-type. The TFMSC provides a great deal of information about each aircraft performing an operation, such as its aircraft approach category (AAC) and aircraft design group (ADG); however, it only provides data for aircraft that file an Instrument Flight Rules (IFR) flight plan to or from an airport, and thus represent only a small percentage of the airport's total operations. However, because the data provides the aircraft's make and model, and other information such as the AAC (A-E) and ADG (I-VI), it is useful data for planning purposes to use in determining the common types of aircraft that utilize the Airport and how often.

A review of SJT's TFMSC data shows business jet operations have grown from 962 in CY 2012 to 1,258 in CY 2018. This represents 30.8 percent growth over the six-year period, or a CAGR of 4.6 percent. The business jet share of GA operations has increased from 2.2 percent in 2012 to 3.6 percent in 2017. **Exhibit 2AA** depicts the growth of business jet operations at SJT from the years 2012-2018.

EXHIBIT 2AA
SJT Historical Business Jet Operations

Source: FAA Traffic Flow Management System Counts (TFMSC), 2012-2018, retrieved January 2019.

Further review of the TFMSC data for the 2012-2018 time period provided a listing of the types of business jets categorized by their AAC and ADG, and their total operations within each year that operated into or out of SJT within the last six years. As illustrated in **Table 2Z**, the data shows that the majority of jet aircraft that frequent SJT belong within the B-I/II and C-I/II ARC categories. These types of aircraft are classified as small and mid-size jets, with operating ranges between 2,000 – 4,000 miles depending on configuration and payload. Of the various types of jets operating at SJT, the most

prevalent are: the Cessna Citation family of jets including the Sovereign, Bravo, Encore, Excel/XLS, and the III/VI/VII series; the Learjet family of jets including the Lear 35, 45, and 60; the Bombardier Challenger family of jets including the 300 and 600/601/604 series; and finally, the Embraer Phenom 100 and 300, and the British Aerospace Hawker 800. This data will be helpful in determining the future facility needs at SJT, such as hangar and apron space requirements, and is discussed further in the following chapter, *Demand Capacity and Facility Requirements.*

TABLE 2Z
Jet Operations by Airport Reference Code (2012-2018)

ARC	2012	2013	2014	2015	2016	2017	2018
A-I	97	62	94	62	72	67	59
B-I	281	389	307	294	299	459	533
B-II	286	369	514	584	407	441	427
B-III	0	0	2	2	2	8	6
C-I	130	130	123	115	112	126	98
C-II	143	100	108	94	113	92	125
C-III	10	8	6	2	6	8	0
D-II	15	8	18	8	6	18	10
D-III	0	0	6	0	0	2	0
D-IV	0	1	0	0	0	0	0
Total	**962**	**1,067**	**1,178**	**1,161**	**1,017**	**1,221**	**1,258**

Source: FAA TFMSC (2012-2018), retrieved January 2019; compiled by Centurion Planning and Design, LLC, February 2019.

In addition to the types of business jets expected to use SJT, the level of operations business jets might contribute within the 20-year planning horizon is estimated. To do this, a forecast sensitivity of the business jet activity at the Airport was conducted. The use of three growth rates provided the results of this forecast; these growth rates include business jets growing at the same one percent rate as GA operations (as determined in the preferred GA operations forecast), at a 50 percent faster rate (1.5 percent), or at twice a faster growth rate (2.0 percent). These rates are in line with the one percent economic growth expected in the region, as well as the expected growth of the U.S. gross domestic product (GDP) as a whole (between 2-3 percent). A good assumption is that business jets will grow in line with GDP or at a 50 percent premium. The results of the business jet sensitivity forecast is displayed in **Table 2AA**.

TABLE 2AA
Business Jet Operations: Forecast Sensitivity Summary

Forecast	2017	2022	2027	2037	*CAGR*
1% CAGR Growth	1,221	1,283	1,349	1,490	*1.0%*
1.5% CAGR Growth	1,221	1,315	1,417	1,645	*1.5%*
2.0% CAGR Growth	1,221	1,348	1,488	1,814	*2.0%*

Source: FAA TFMSC (2017), retrieved January 2019; Landrum and Brown analysis, February 2019.

Results of the analysis indicate that SJT may experience a conservative increase in business jet operations with the 20-year planning period. However, business jet activity is expected to slow as compared to recent growth experienced since 2012. It should be noted that almost all of business jet growth took place from 2012 to 2014. Activity has been relatively flat since 2014 (CAGR has been 1.6 percent since 2014, which is much closer to regional economic growth). The slight increase in jet operations expected at SJT within the 20-year planning horizon may also influence the facility requirements for these aircraft, which again is discussed in greater detail in the next chapter.

The increase in business jet activity, reports from operators at SJT, and the local industry and economy may indicate the potential for one or more based jet aircraft within the planning horizon and will be considered further in this Master Plan.

MILITARY OPERATIONS

Proposed Forecast

Military missions are difficult to predict but there are signs of at least some growth in the near-term. The U.S. Customs and Border Protection (CBP) bases 4 UAVs at the airport. The CBP recently went through a MOA process with the ATCT prior to beginning operations. They are in the process of making things more "permanent" by installing various communication equipment and leasing additional office space for employees at SJT. Their operational success has led to additional inquiries by the U.S. Army regarding the potential use of the airport UAV training. SJT is very unique in its ability to accommodate these unique users in a growing industry.

According to FAA Form 5010-1, 2017 military operations totaled 42,442. An observation from the review of the 5010 data provided by airport management for the years 2016-2018 showed that from June-August of 2017, the military operations were much higher than what was recorded for those same months in 2016 and 2018. A number of reasons could have led to the increased operations that summer, but ultimately one may infer that the military operations recorded for the summer of 2017 were somewhat atypical at SJT, and contributed to a high amount of total annual military operations for 2017. In order to reflect the typical annual military operations that occur at SJT as accurately as possible, an average of the total annual military operations for the three-year period occurred in order to represent the 2017 baseline. This resulted in 36,377 total operations. This differs only slightly versus

the SJT TAF, which shows 37,059 military operations for 2017 (13,302 itinerant and 23,757 local). These operations consist of training aircraft primarily out of three, regionally located Air Force Bases. The types of military aircraft using the airport ranges from T-1's, T-6's, and T-38's to C-130's. The aircraft frequent the airport daily, as weather permits, with the T-1's being the most prevalent training from around 9 am to 4 pm.

SJT provides a favorable training environment for continued military operations due to its uncrowded airspace, number and types of instrument approaches, and weather conditions. Based upon these factors, as well as the historical use of the airport, a forecast of 5 percent growth over the next five years is considered reasonable, increasing military operations to 38,196. Subsequently we assume that military operations will stay flat at 38,196 through 2037.

Critical Design Aircraft

The critical design aircraft is the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. FAA defines regular use as 500 annual operations.

While in 2018 the workhorse fleet type at SJT are 50-seaters (primarily ERJ 140/145 aircraft), these aircraft will slowly be retired and replaced with larger CRJ-700 and CRJ-900 aircraft. By 2037, the primary aircraft will be the CRJ-900 aircraft. This is in line with industry trends. **Table 2BB** presents the critical aircraft.

TABLE 2BB
Critical Design Aircraft

				Operations			
Period	**Aircraft**	**MTOW**	**ARC**	**2017**	**2022**	**2027**	**2037**
Existing	CRJ-700	75,000	C-II	1,185	613	650	-
Mid & Long-Term	CRJ-900	85,000	C-III	-	524	1,113	2,504

Source: Landrum and Brown Analysis
MTOW = Maximum Takeoff Weight (pounds), ARC = FAA Airport Reference Code, TDG = FAA Taxiway Design Group

Annual Instrument Approaches

Annual instrument approaches (AIAs) are defined as an approach to an airport conducted in actual instrument meteorological conditions. For purposes of this definition, an approach initiated when the observed visibility is less than 3 miles, or the cloud ceiling is less than the decision altitude over the final approach fix is considered an instrument approach. AIA figures for SJT are no longer tracked by the local Air Traffic Control Tower but are a required element to an FAA forecast.

To determine AIAs, the number of itinerant operations are totaled from earlier estimates and compared to annual operations. Approximately 73% of all SJT itinerant flight operations are conducted under instrument flight rules (IFR) according to FAA records. A review of local weather

conditions found that 15% of these operations are conducted in actual instrument conditions for an instrument approach.

TABLE 2CC
Annual Instrument Approach Forecast

Metric	2017	2022	2027	2037	CAGR
Annual Operations	78,065	81,209	82,901	86,791	*0.52%*
Itinerant Operations*	28,737	29,218	30,012	31,926	*0.53%*
% IFR Itinerant Operations	73%	73%	73%	73%	*0.0%*
IFR Itinerant Operations	20,978	21,329	21,909	23,306	*0.52%*
IFR Approaches	10,489	10,665	10,954	11,653	*0.52%*
Instrument Approach Weather	15%			-	
Annual Instrument Approaches	**1,573**	**1,600**	**1,643**	**1,748**	***0.52%***
AIA as % of Itinerant	**5.5%**	**5.5%**	**5.5%**	**5.5%**	***0.0%***

Source: National Climatic Data Center, FAA Air Traffic Activity Data System (ATADS), Landrum and Brown Analysis
** Does not include military operations*

As shown in **Table 2CC**, total AIAs for SJT are forecast to increase from 1,573 currently to an estimated 1,748 at the end of the planning period.

FORECAST SUMMARY

As described in this chapter, many factors must be considered when developing a recommended forecast for an airport. The TAF prepared by the FAA considers national trends and growth factors, and the local and regional economic and income statistics also play a large factor. The City of San Angelo and the surrounding region is unique, generally responding slower than the national economy yet also experiencing an economic impact of the local oil and gas industry. While the commercial aviation activity for the Airport is generally expected to be consistent with the TAF, the general aviation operations and based aircraft forecasts are closely tied with historic trends and the most up to date conditions observed at the Airport and in the local economy. A summary of the preferred forecasts for SJT as presented within this Airport Master Plan are illustrated in **Table 2DD**.

With a discrepancy between the data listed in the TAF and 5010, for purposes of this report and to ensure accuracy, the 5010 data was validated and used. While the data in the TAF is based on national forecasts, the information in the 5010 is supplied and verified by the Airport. As outlined in this report, using the 5010 data as the 2017 baseline resulted in only slight variations from the TAF forecasts and the SJT preferred operations and based aircraft forecasts.

The FAA template to compare the proposed forecasts to the 2017 published FAA Terminal Area Forecast follow in **Table 2EE**.

TABLE 2DD
Airport Master Plan Forecast Summary

San Angelo Regional Airport: Master Plan Forecast

					CAGR*		
	2017	2022	2027	2037	2022	2027	2037
Passenger Enplanements							
Air Carrier	33,058	31,879	50,732	76,136	-0.7%	4.4%	4.3%
Commuter	27,037	31,879	16,911	-	3.3%	-4.6%	-
Total	60,095	63,758	67,643	76,136	1.2%	1.2%	1.2%
Operations							
Itinerant							
Air Carrier	1,186	1,137	1,763	2,504	-0.8%	4.0%	3.8%
Commuter	1,308	1,594	846	-	4.0%	-4.3%	-
Air Cargo	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Air Taxi	4,044	3,500	3,600	3,900	-2.8%	-1.2%	-0.2%
Total Commercial	6,538	6,231	6,209	6,404	-1.0%	-0.5%	-0.1%
General Aviation	22,199	22,987	23,803	25,522	0.7%	0.7%	0.7%
Total Itinerant	28,737	29,218	30,012	31,926	0.3%	0.4%	0.5%
Local							
General Aviation	12,951	13,795	14,693	16,669	1.3%	1.3%	1.3%
Military	36,377	38,196	38,196	38,196	1.0%	0.5%	0.2%
Total Operations	78,065	81,209	82,901	86,791	0.8%	0.6%	0.5%
Annual Instrument Approaches	1,573	1,600	1,643	1,748	0.3%	0.4%	0.5%
Peak Hour Operations	5	4	4	4	-2.3%	-1.2%	-0.6%
Enplaned Air Freight (Tons)	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Based Aircraft	176	182	189	202	0.7%	0.7%	0.7%
Operational Factors							
Average Aircraft Size							
Air Carrier	65	70	72	76	1.5%	1.0%	0.8%
Commuter	49	50	50	-	0.6%	0.3%	-
Total	56	58	65	76	0.8%	1.5%	1.5%
Enplaned Load Factor							
Air Carrier	80.4%	80.0%	80.0%	80.0%	-0.1%	0.0%	0.0%
Commuter	80.0%	80.0%	80.0%	-	0.0%	0.0%	-
Total	80.6%	80.3%	80.0%	80.0%	-0.1%	-0.1%	0.0%
GA operations per based aircraft	200	202	204	209	0.2%	0.2%	0.2%

Source: FAA Form 5010-1, Airport Master Record, 2017; Landrum and Brown analysis, January 2019

TABLE 2EE
Airport Master Plan Forecast Comparison to FAA TAF

San Angelo Regional Airport (SJT)
Airport Planning versus FAA TAF Forecast

	Year	Airport Forecast	2017 FAA Terminal Area Forecast (TAF)	AF/TAF % Difference
Passenger Enplanements				
Base Yr.	2017	60,095	60,095	0.0%
Base Yr. + 5 Years	2022	63,758	63,092	1.1%
Base Yr. + 10 Years	2027	67,643	66,242	2.1%
Base Yr. + 20 Years	2037	76,136	73,029	4.3%
Total Operations				
Base Yr.	2017	78,065	74,381	5.0%
Base Yr. + 5 Years	2022	81,209	77,002	5.5%
Base Yr. + 10 Years	2027	82,901	77,760	6.6%
Base Yr. + 20 Years	2037	86,791	79,315	9.4%
Based Aircraft				
Base Yr.	2017	176	189	-6.9%
Base Yr. + 5 Years	2022	182	195	-6.7%
Base Yr. + 10 Years	2027	189	200	-5.5%
Base Yr. + 20 Years	2037	202	210	-3.8%

Source: FAA SJT TAF (2017-2037); Landrum and Brown analysis, January 2019

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INTRODUCTION

This chapter identifies the specific types and quantities of infrastructure and facilities needed at San Angelo Regional Airport to meet the Federal Aviation Administration's (FAA) approved forecasted aviation demand presented in Chapter 2. The results of the capacity and demand analysis, aviation demand forecasts, and other planning methodologies, determine the requirements for the airfield, landside, and support areas of the Airport.

In addition to objective analyses, considerations were given to recommendations and feedback from airport personnel, tenants, airport businesses, and other stakeholders. The 20-year planning period for the Airport Master Plan begins with the base year of 2017 and extends through 2037. Development needs are broken down into short-term (1-5 years), mid-term (6-10 years), and long-term (11-to-20 years) planning periods. Short-term planning is focused on addressing immediate deficiencies, mid-term planning focuses on a more detailed assessment of needs, and long-term planning primarily focuses on the ultimate role and needs of the Airport. It is important to keep in mind that actual activity at SJT may vary over the 20-year planning period and may be higher or lower than what the aviation demand forecast predicted. By using the three planning periods (short-, mid-, and long-term), the City of San Angelo can make informed decisions regarding the timing of development, which will result in fiscally responsible and demand based development of SJT. For review, a summary of the FAA approved aviation demand forecast for each planning period for San Angelo Regional Airport is provided in the **Table 3A** below.

TABLE 3A
San Angelo Regional Airport Forecast Summary

	2017	2022	2032	2037
Based Aircraft	176	182	189	202
Annual Operations	78,065	81,209	82,901	86,791
Passenger Enplanements	60,095	63,758	67,643	76,136

Source: *Landrum and Brown Analysis*

DEMAND / CAPACITY ANALYSIS

Introduction and Background

This analysis assesses the airfield capacity under its future runway and taxiway configuration (taking into account the future decommissioning of Runway 9-27) and compares it to the Airport's existing and future aircraft operations totals. The goal and result provide an update regarding the Airport's ability to accommodate future levels of aircraft operations.

Airfield Capacity

Airfield capacity is a measure of terminal area airspace and airfield saturation. It is defined as the maximum rate at which aircraft can arrive and depart an airfield with an acceptable level of delay. Measures of capacity include the following:

- **Annual Service Volume**: The annual capacity, or the maximum level of annual aircraft operations, that can be accommodated on the runway system with an acceptable level of delay. An airport's Annual Service Volume (ASV) has been defined by the Federal Aviation Administration's (FAA) as, "a reasonable estimate of an airport's annual capacity. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year's time." Therefore, ASV is a function of the hourly capacity of the airfield and the annual, daily, and hourly demands placed upon it. ASV can be derived from predetermined tables within the FAA Advisory Circular (AC) 150/5060-5, *Airport Capacity and Delay* that is primarily based on the configuration of the airfield's runway system. Alternatively, ASV is estimated by multiplying the existing daily and hourly operation ratios by a weighted hourly capacity. The latter approach is based on the availability of reliable, detailed aircraft operational data.

- **Hourly Capacity**: The maximum number of aircraft operations that can take place on the runway system in one hour taking into account the variables mentioned under the ASV estimate. Because of these variables and peaking considerations, it is not a simple division of time with the stated ASV, and theoretical estimates can be higher than practical capacity when delay is not factored.

A variety of techniques have been developed for the analysis of airfield capacity. The current technique accepted by the FAA is described in the FAA Advisory Circular (AC) 150/5060-5, *Airport Capacity and Delay*. The Airport Capacity and Delay Model (ACDM) uses the following inputs to derive an estimated airport capacity:

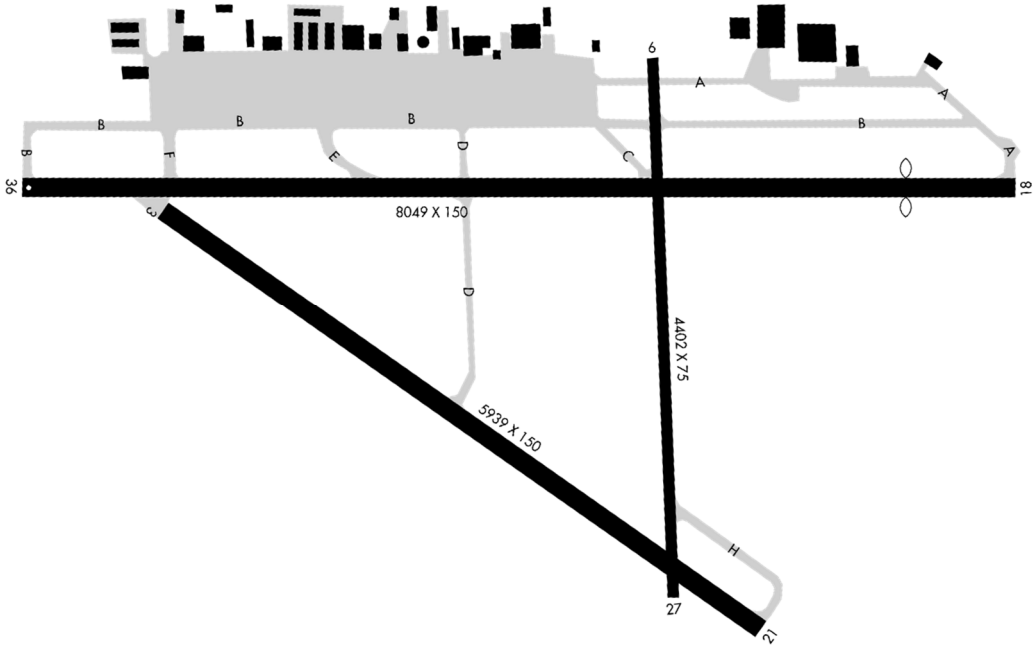
- Airfield layout and runway use
- Meteorological conditions
- Navigational aids
- Aircraft operational fleet mix
- Touch and go operations

Each input used in a calculation of airfield capacity is described in the following sections.

Airfield Layout and Runway Use

The existing airfield layout consists of three runways described below and shown in **Exhibit 3A** below. The Airport has one primary runway (Runway 18/36), one crosswind runway (Runway 3/21), and one additional runway (Runway 9/27). Runway 18/36 is the only runway with a full parallel taxiway. As a part of a previous study, Runway 9-27 has been identified as unnecessary to accommodate operations and will be decommissioned once it reaches the end of its useful life. For this reason, Runway 9-27 has been excluded from this capacity analysis.

EXHIBIT 3A
Existing Airfield Layout



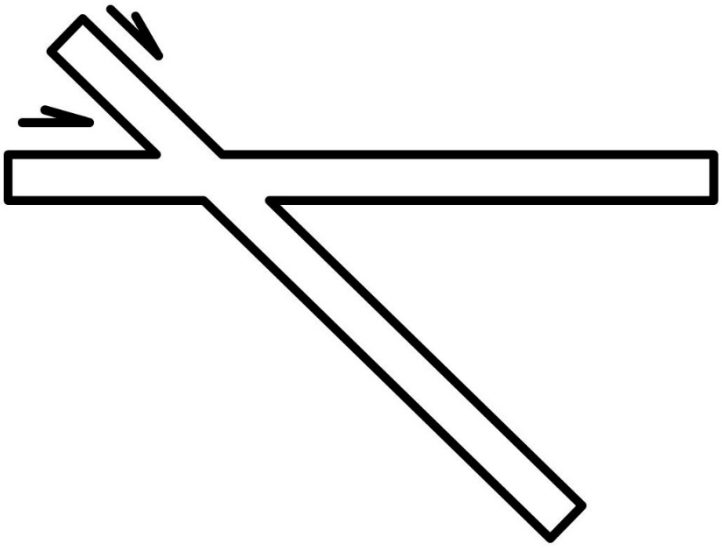
__Note:__ At the time this exhibit was created, the current FAA Chart Supplement had not yet been updated to show the Taxiway C and E realignments. Both taxiways have since been demolished and replaced with new, 90-degree connector taxiways. Taxiway Charlie was reconstructed to the north of Runway 9-27 and Taxiway Echo was reconstructed midway between Taxiways Delta and Foxtrot.

__Source:__ FAA Chart Supplement, effective 28 MAR 2019 to 25 APR 2019

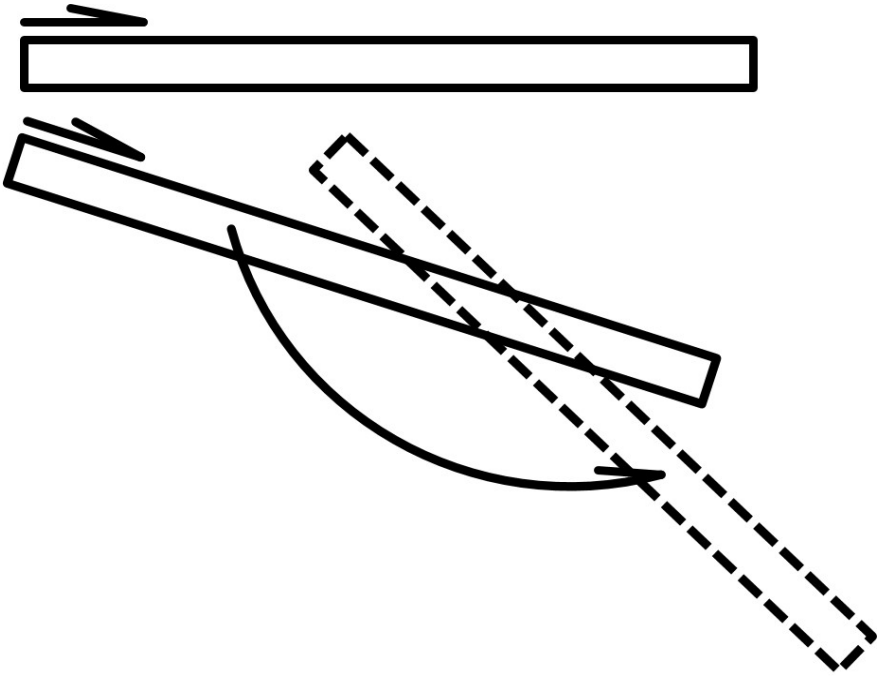
The runway configuration at SJT shares similarities with both Sketch 9 and Sketch 14 of Figure 2-1 in AC 150/5060-5 (See **Exhibit 3B** below). The runways are neither completely intersecting as shown in Sketch 9, nor completely detached as shown in Sketch 14. As discussed later in this section in more detail, Sketch 9 was used as it was determined to provide a more accurate and conservative estimate of capacity.

EXHIBIT 3B
Sketches from Figure 2-1, *AC 150/5060-5*

Sketch 9



Sketch 14



The capacity sketches 9 and 14 in the Advisory Circular 150/5060-5, correspond to the operational capability of airfields in those configurations and will be utilized to estimate existing capacity.

East flow of air traffic is the predominant flow of aircraft at SJT. According to an analysis of the wind conditions at the airport, Runway 18 and Runway 3 are utilized most frequently. Runway 9-27 is primarily used for operations by general aviation aircraft.

Meteorological Conditions

Aircraft navigate under either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR). The term VFR refers to rules that govern the procedures for conducting flight under visual meteorological conditions (VMC) where visibility is sufficient for pilots to see and avoid other traffic.

The term IFR refers to a set of rules governing the conduct of flight under instrument meteorological conditions (IMC) where pilots rely on instrumentation to navigate. The capacity of an airfield can be negatively impacted based on poor weather conditions. Under Federal Aviation Regulations (FAR) Part 91, *General Operating Flight Rules*, VFR and IFR are defined as:

- **Visual Flight Rules (VFR)** – having flight visibility of at least three statute miles and a cloud ceiling of at least 1,000 feet. This can also be referred to as VMC, or Visual Meteorological Conditions.

- **Instrument Flight Rules (IFR)** – having flight visibility less than three statute miles and a cloud ceiling of less than 1,000 feet. This can also be referred to as IMC, or Instrument Meteorological Conditions.

A review of the wind data at SJT revealed that over the past 10 years, only eight percent of all of the wind readings have occurred in IFR conditions.

Navigational Aids

As of May 2019, the Airport has ten published Instrument Approach Procedures (IAP). Three of these approaches are designed for military operations and are not authorized for civilian use. As a result of the Airport having predominately VFR weather conditions and the focus of this study on the maximum capacity of the facility under those conditions, these procedures only play a role in estimating the hourly capacity under IFR conditions, and the weighted capacity that will be calculated later in this effort.

Based Aircraft Operational Fleet Mix

The existing based aircraft fleet mix was analyzed as a part of the forecast chapter and is as follows:

TABLE 3B
Based Aircraft Fleet Mix

Aircraft Type	Total Aircraft	%
Single-engine Piston	103	59%
Multi-engine Piston	16	9%
Turboprop/Jet	50	28%
Helicopter	7	4%

Note: *Aircraft within the "Military" category as listed on the 5010 have been incorporated into SJT's existing fleet mix. See Table 2V in Forecast chapter for additional notes.*

Source: *FAA Form 5010-1, Airport Master Record, December 31, 2017; C&S Engineers, Inc. analysis 2019*

Fleet mix index is a key component of calculating annual service volume and is expressed mathematically as %(C+3D) with "C" representing the percentage of Class C aircraft, and "3D" representing 3 times the percentage of Class D aircraft. The FAA defines Class C as aircraft having a maximum certified takeoff weight of 12,500 lbs. – 300,000 lbs., and Class D as aircraft over 300,000 lbs. Class C aircraft account for approximately 43% of the total fleet mix at SJT, with no operations by Class D. This fleet mix is consistent with FAA guidance and the historical based aircraft mix. The fleet mix index of 21-50 will be used for this analysis.

Touch-and-Go Operations

Touch-and-go operations are generally defined as an aircraft that lands and departs on a runway without stopping or exiting the runway. FAA Advisory Circular 150/5060-5, Airport Capacity and Delay, states:

> "Touch and go operations are normally associated with flight training. The number of these operations usually decrease as the number of air carrier operations increase, as demand for service approaches runway capacity, or as weather conditions deteriorate."

At SJT, touch-and-go training accounts for approximately 17% of all operations. Touch-and-go operations are factored into the FAA's assumptions in determining the ASV and hourly capacities from Figure 2-1 in the Advisory Circular.

Demand Capacity Estimate

This section develops an updated demand capacity estimate for San Angelo Regional Airport based on available current information and resources that include the FAA Advisory Circular, as well as The Airport Cooperative Research Program's (ACRP), Report 79, *Evaluating Airfield Capacity*.

ACRP's Report 79, *Evaluating Airfield Capacity* provides a spreadsheet tool to assist in calculating the ASV based on a weighted hourly capacity utilizing actual demand ratios from the Airport. Using only

the table provided in the AC for estimating ASV is sufficient for high-level capacity analyses and requires only minimal data to query results, but does not allow the user to manipulate assumptions with airport-specific inputs (e.g., VMC/IMC Occurrence, Peaking Characteristics, etc.). Using the spreadsheet tool allows for a tailored analysis, taking into consideration airport specific variables and providing a more accurate ASV estimate.

To calculate ASV, a weighted average of the hourly capacity over the year is calculated using a formula provided in FAA's guidance and checked utilizing ACRP's spreadsheet tool. The following provides the formula and explains each component.

ASV Formula:
$ASV = C_w * D * H$

C_w = the weighted average hourly capacity of the airfield;

D = the ratio of annual to ADPM demand; and

H = the ratio of ADPM demand to peak-hour demand.

ADPM = Average Day Peak Month operations

The FAA and ACRP guidance recommend that ratios for D and H should be calculated using data from airport records, but when data is not available, some default assumptions can be used. For this effort, these assumptions are noted accordingly.

ACRP's Report 79, *Evaluating Airfield Capacity* provides the following descriptions and information regarding the inputs:

> "*The D factor measures seasonal variation in monthly demand, where a value of 365 would indicate that all months have the same demand. Very low D values (e.g., values less than 300) would indicate substantial seasonality typical of vacation destinations.*
>
> *"The H factor measures variation over the hours of the day, where a value of 24 would indicate that all hours of the day have the same demand. Much lower H values (e.g., values less than 12) would indicate substantial peaking in demand over the hours of the day."*

Key assumptions utilized in this estimate include:

- Runway configuration that assumes two intersecting runways similar to Sketch 9 of Figure 2-1 in FAA AC 150/5060-5. The ACRP *Airfield Capacity Estimation using Spreadsheet Models* was utilized to provide a more accurate estimate of existing capacity. This resulted in a lower and more conservative estimate than using simply Figure 2-1 of the AC 150/5060-5.

- Air carrier and general aviation aircraft fleet mix with a 21-50 (C+3D)% ratio.

The results yield the following ASV and Hourly Capacities as reported by the ACRP spreadsheet tool.

TABLE 3C
ASV and Hourly Capacity Estimate

Annual Service Volume	
141,300 Operations (Takeoffs and Landings)	
Hourly Capacity	
VFR = 86	IFR = 62

Source: *ACRP Airfield Capacity Estimation using Spreadsheet Model*

The estimated capacity was also calculated using Sketch 14 from Figure 2-1 of FAA AC 150/5060-5. This input gave a much higher estimate at 225,000 operations a year and a maximum number of hourly operations at 108 VFR or 57 IFR. It was determined that the use of the ACRP spreadsheet model and Sketch 9 provided a more accurate result. This is primarily due to Runways 18-36 and 3-21 not completely intersecting at SJT but are close enough to severely restrict simultaneous operation. Additionally, it is anticipated that during the alternatives analysis, options to lengthen Runway 3-21 so that it completely intersects with Runway 18-36 will be assessed. Using the more restrictive and conservative capacity estimate of 141,300 annual operation allows the Airport to predict potential delays and to start planning for capacity improvements earlier.

Forecast Aircraft Operations Demand versus Capacity

This section compares the updated ASV to the most recent existing operational data as well as to the forecast number of annual operations. The comparison of these two metrics results in the Annual Capacity Ratio.

TABLE 3D
Annual Operations versus ASV

Year	Annual Operations	Annual Service Volume	Annual Capacity Ratio
2017	78,065	141,300	55%
2022	81,209	141,300	57%
2027	82,901	141,300	59%
2037	86,791	141,300	61%

Source: *C&S Engineers, Inc. analysis 2019*

The table above indicates that San Angelo Regional Airport has theoretical capacity to accommodate additional aircraft operations, both in existing conditions and in the forecast 2037 conditions. However, it should be noted that within the existing operational activity, peak demand can still create operational delays.

FAA AC 150/5060-5 states: "*As demand approaches capacity, individual aircraft delay is increased. Successive hourly demands exceeding the hourly capacity result in unacceptable delays.*

When the hourly demand is less than the hourly capacity, aircraft delays will still occur if the demand within a portion of the time interval exceeds the capacity during that interval. Because the magnitude

and scheduling of user demand is relatively unconstrained, reductions in aircraft delay can best be achieved through airport improvements which increase capacity."

While the Airport is currently experiencing no delays, a new entrant airline that schedules flights during the current peak hour has the potential to generate delays even without exceeding the ASV. Currently the level of commercial traffic volume does not conflict with the general aviation operations. Additionally, the vast majority of the unmanned systems operations at the Airport take place overnight and thus have no adverse impact on either the commercial or general aviation activity.

Demand Capacity Summary

According to the FAA, the following guidelines should be used to determine necessary steps as demand reaches designated levels

- 60 Percent of ASV: The threshold at which planning for capacity improvements should begin.
- 80 Percent of ASV: The threshold at which planning for improvements should be complete and construction should begin.
- 100 Percent of ASV: The airport has reached the total number of annual operations it can accommodate, and capacity-enhancing improvements should be made to avoid extensive delays.

The current number of annual operations for the base year of 2017 is 78,065. This is approximately 55 percent of the estimated ASV. **Exhibit 3C** depicts the relationship of the aviation demand forecast for SJT and the current ASV. Based on the ratio between the Airport's existing ASV and forecasted growth in operations, there is not currently a need for the Airport to plan for capacity enhancing runway and taxiway projects within the forecast period.

EXHIBIT 3C
Annual Service Volume vs. Annual Demand

Source: *C&S Engineers, Inc. analysis 2019*

Airport Design Standards

FAA Advisory Circular 150/5300-13A, *Airport Design*, identifies the design standards to be maintained at the Airport. These design criteria provide a guide for airport designers to assure a reasonable amount of uniformity in airport facilities. Any criteria involving widths, gradients, separations of runways, taxiways, and other features of the landing area must necessarily incorporate wide variations in aircraft performance, pilot technique, and weather conditions.

Critical Aircraft

As discussed in the previous chapter, the critical aircraft is the most demanding aircraft type that makes regular use of the airport. The critical aircraft at SJT was selected as part of the analysis of the existing and future operations completed during the forecast process. The critical aircraft for the larger two runways was determined to be a CRJ-700 for existing conditions and a CRJ-900 for the future conditions. Due to the reduced length and width of Runway 9/27, it is not suited to accommodate operations by the larger aircraft. It has been assigned the Cessna Citation Sovereign as a separate critical aircraft that more closely represents the size of aircraft using this runway.

TABLE 3E
Critical Aircraft Characteristics

Period	Aircraft	MTOW	AAC	Approach Speed	ADG	Wingspan	TDG
Runway 18-36 and Runway 3-21							
Existing	CRJ-700	75,000	C	135 Knots	III	76.3 FT	2
Future	CRJ-900	85,000	C	140 Knots	III	81.5 FT	2
Runway 9-27							
Existing	Cessna Citation Sovereign	30,775	B	108 Knots	II	63.33	1B
Future	Cessna Citation Sovereign	30,775	B	108 Knots	II	63.33	1B

Source: *FAA Aircraft Characteristics Database V2*

Airport Reference Code (ARC)

Per FAA AC 150/5300-13A, the ARC combines the AAC and ADG of the critical aircraft and signifies the airports highest runway design code, minus the visibility component of the RDC. Airport improvements should be planned and developed per the established ARC for the entire airport. *"The ARC should be used for planning and design only and does not limit the aircraft that may be able to safely operate on the airport"*. In other words, the ARC is derived from the critical aircraft, but the airport may be able to accommodate larger aircraft. For Runways 18/36 and 3/21 the existing and future ARC is C-III. For Runway 9/27 the existing and future ARC is B-II.

Runway Design Code (RDC)

The Runway Design Code (RDC) is used to identify the standards to which a given runway is to be built and maintained. Airports with multiple runways often have different RDCs. The applicable RDC is based on the AAC and the ADG of the critical aircraft and the approach visibility minimums of each runway end. For the purposes of the RDC, the approach visibility minimums are listed as Runway Visual Range (RVR). **Table 3F** below shows the different RVRs and the corresponding visibility minimums in statute miles.

TABLE 3F
Visibility Minimums

Runway Visual Range (RVR) ft[1]	Instrument Flight Visibility Category (Statute Mile)
5000	Not lower than 1 mile
4000	Lower than 1 mile but not lower than ¾ mile
2400	Lower than ¾ mile but not lower than ½ mile
1600	Lower than ½ mile but not lower than ¼ mile
1200	Lower than ¼ mile

Note: *[1]RVR values are not exact equivalents*
Source: *AC 150/5300-13, Airport Design*

The RDC for each runway end at SJT is listed in the table below. As seen in **Table 3G** below, the RDC may differ on each runway end due to the visibility minimums of the instrument approaches into each runway.

TABLE 3G
Runway Design Codes at SJT

Runway End	Runway Design Code (RDC)
Runway 18	C-III-5000
Runway 36	C-III-VIS
Runway 3	C-III-2400
Runway 21	C-III-4000
Runway 9	B-II-VIS
Runway 27	B-II-VIS

Source: *aeronav.faa.gov*

Taxiway Design Group (TDG)

In addition to runway design standards, the FAA sets design standards for airport taxiway systems based on the established critical aircraft's ADG and Taxiway Design Group (TDG). Both the existing critical aircraft (CRJ-700) and future critical aircraft (CRJ-900) fall within TDG 2 based on their Main Gear Width (MGW) and Cockpit to Main Gear (CMG) distance. The table below presents specific taxiway design standards based on the Airport's ADG and TDG.

TABLE 3H
Taxiway Design Group (TDG) II Dimensional Standards

Item	Dimensions (ft.)
Taxiway Width	35
Taxiway Edge Safety Margin	7.5
Taxiway Shoulder Width	15

Source: *AC 150/5300-13A, Airport Design*

AIRSIDE REQUIREMENTS

Runway Requirements

Runway Width

Runway width standards are established in FAA AC 150/5300-13A and are based on RDC criteria. The table below outlines the FAA runway width standards and the existing runway facilities at SJT. As can be seen in the table below, the existing runway widths satisfy the FAA requirements.

TABLE 3I
Runway Width Requirements

Runway	RDC	FAA Standard	Existing Width
Runway 18-36	C-III-5000 / C-III-VIS	150 FT	150 FT
Runway 3-21	C-III-2400 / C-III-4000	150 FT	150 FT
Runway 9-27	B-II-VIS	75 FT	75 FT

Source: *aeronav.faa.gov*

Runway Length: Takeoff and Landing Distance

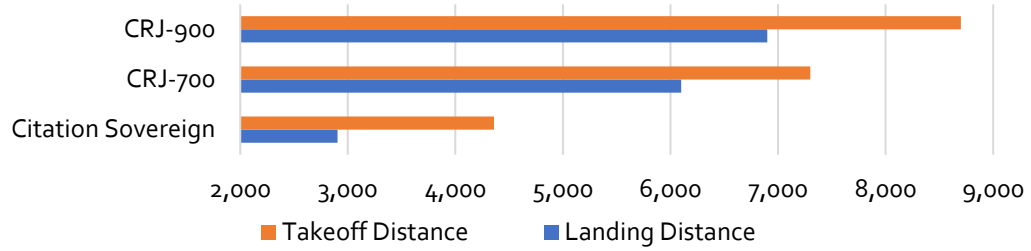
Runway length requirements are based on a variety of factors, the most notable of which is the takeoff distance of the critical aircraft operating on the runway. The takeoff length requirements are often the most critical for measuring runway length required since departing aircraft have a full fuel load thus increasing the amount of runway required. Temperature and airport elevation are some of the other factors that affect runway length requirements. The relatively high average temperature at SJT as well as a field elevation of nearly 2,000 feet above mean sea level increases the runway length required. FAA AC 150/5325-4B, *Runway Length Requirements of Airport Design*, provides guidance on determine the runway length required.

For runways with a critical aircraft with a Maximum Takeoff Weight (MTOW) of more than 60,000 pounds, the AC 150/5325-4B states that the landing distance of the critical aircraft, at maximum weight, and corrected for airport elevation and temperature, will be used to determine the required runway length for takeoff. This methodology was applied to both Runway 18-36 and Runway 3-21. It was found that the existing (CRJ-700) and future critical aircraft (CRJ-900) would require 7,300 feet and 8,700 feet for takeoff. Runway 18 is currently the only runway direction that can accommodate the takeoff distance of the existing critical aircraft, the CRJ-700. Due to the declared distances in effect, discussed in a later section, the amount of runway available for takeoff in the Runway 36 direction is limited to 7,160 feet.

In order to provide the CRJ-900 with the required takeoff distance, Runway 18-36 would require an extension of approximately 650 feet to bring it to a total length of 8,700 feet. However, it should be understood that calculating runway length requirements using MTOW assumes that the aircraft is configured to travel its maximum range. Nearly all of the commercial flights originating out of SJT are direct flights to Dallas Fort Worth International Airport. This destination is approximately 200 nautical miles and would not require operating the aircraft at MTOW. Given that the majority of flights do not require MTOW, the length of the runways is sufficient for existing operations. In the future if the stage length of outbound flights increases, the length of the runway may become a limiting factor at which time an extension should be considered. That said, alternatives to increase the landing and takeoff distance available for Runway 36 will be considered as part of the alternatives evaluation.

The runway length requirements for Runway 9-27 were assessed by looking at the performance of the Cessna Citation Sovereign. It was found that Runway 9-27 had sufficient length for the critical aircraft. The calculated takeoff distances are shown in the exhibit below.

EXHIBIT 3D
Existing Airfield Layout



Note: *Takeoff and landing distances are adjusted to account for non-standard temperature and altitude.*
Source: *1) CRJ700 Aircraft Airport Planning Manual, CSP B-020, Revision 15, dated Dec 17/2015.*
2) CRJ900 Aircraft Airport Planning Manual, CSP C-020, Revision 11, dated Dec 17/2015.
3) Citation Sovereign Flight Planning Guide, April 2011

Runway Designation

As specified in FAA AC 150/5340-1L, "the designator number is the whole number nearest the one-tenth of the magnetic azimuth along the runway centerline when viewed from the direction of the approach." To calculate the magnetic azimuth, you must first determine the runways true bearing and then apply the magnetic declination. Magnetic declination is defined as the difference between true north and magnetic north. The value of magnetic declination varies over time and location. It is a natural process and cause the need to periodically the re-designate runways. The table below shows the runway's true and magnetic bearing, along with the current magnetic declination.

As can been seen in the **Table 3J** below, Runway 18-36 and Runway 9-27 are currently correctly designated and do not require a change. However, the magnetic declination has changed enough that Runway 3-21 should now be designated as Runway 4-22.

TABLE 3J
Runway Designation Calculation

Runway End	True Bearing	Magnetic Declination	Magnetic Bearing	Runway Designation
Runway 18	187.40°	5° 14′ E ± 0° 20′	182.17°	18
Runway 36	7.40°	5° 14′ E ± 0° 20′	2.17°	36
Runway 3	43.23°	5° 14′ E ± 0° 20′	38.0°	**4**
Runway 21	223.23°	5° 14′ E ± 0° 20′	218.0°	**22**
Runway 9	97.57°	5° 14′ E ± 0° 20′	92.34°	9
Runway 27	277.57°	5° 14′ E ± 0° 20′	272.34°	27

Source: *C&S Engineers, Inc. analysis 2019, FAA Airport Master Record, www.ngdc.noaa.gov*

Runway Strength

The 2016 Pavement Assessment and Pavement Management Plan (PMP) determined the strength and condition of the runways at SJT. The results of this study are summarized in **Table 3K** below. They show that all three of the existing runways at the Airport are cable of handling the future critical aircraft, the CRJ-900, which has a MTOW of 82,500 lbs. and a dual wheel main gear configuration.

TABLE 3K
Runway Strength and Condition

	Runway 18-36	Runway 3-21	Runway 9-27
Single Wheel Loading (Pounds)	70,000	70,000	70,000
Dual Wheel Loading (Pounds)	100,000	100,000	100,000
Pavement Classification Number	67	115	39

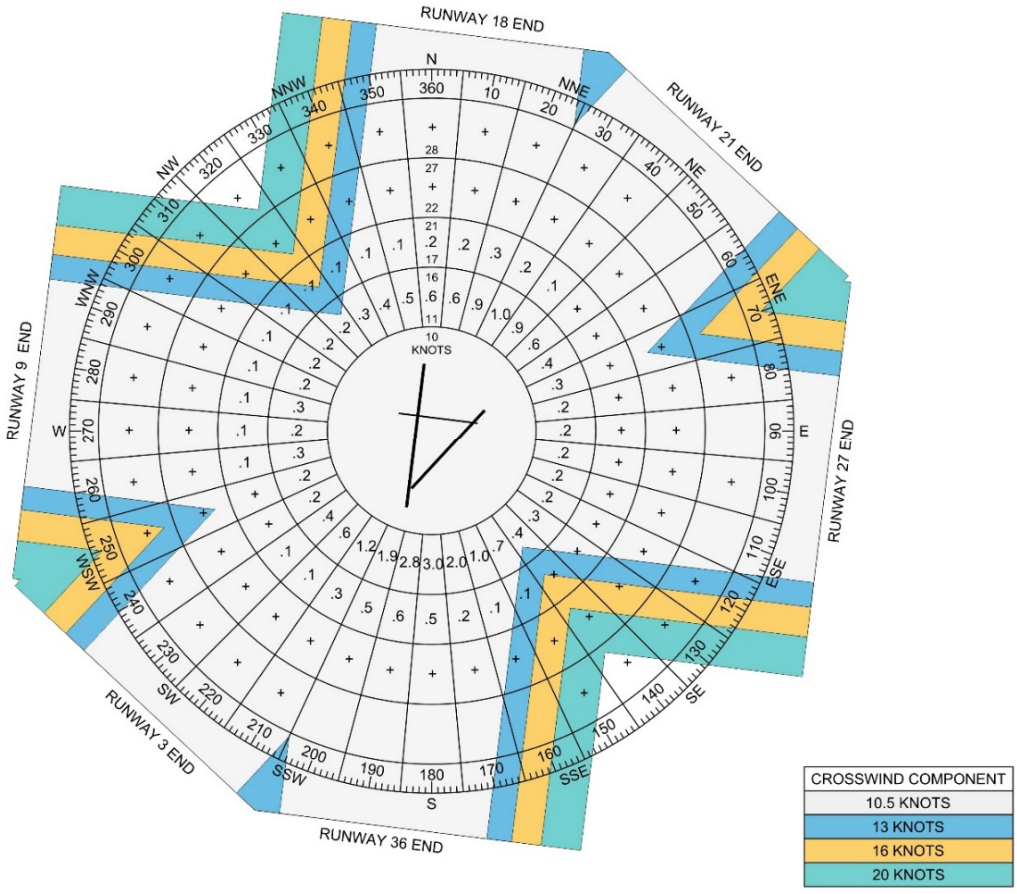
Source: *2016 Pavement Assessment and Pavement Management Plan*

Runway Orientation and Wind Coverage

The selected runway orientation is primarily a function of wind velocity and direction. As a general rule, the primary runway at an airport is oriented as closely as practicable in the direction of the prevailing winds. This allows aircraft to achieve maximum takeoff and landing performance. The crosswind component is the vector of wind velocity that acts at a right angle to the runway. Aircraft are tested by the manufacturer to determine the maximum crosswind component at which they can safely operate. Further, runway wind coverage is that percent of time in which operations can safely occur because acceptable crosswind components are met. The desirable wind coverage criterion for a runway system has been set by the FAA at 95 percent for any aircraft forecasted to use the airport on a regular basis. This means that 95 percent of the time, wind conditions will not exceed the maximum allowable crosswind component of the critical aircraft.

All-weather, VFR, and IFR wind roses were developed for the Airport using information gathered from the weather observations taken over a 10-year period from 2009 to 2018 at SJT. As shown on the wind rose depicted in **Exhibit 3E**, the combined all-weather wind coverage for the Airport is 99.96 percent for a 16-knot crosswind. Although the critical aircraft, the CRJ-700, falls within RDC C-III (which has an allowable crosswind component of 16 knots), the Airport also experiences a significant amount of General Aviation (GA) activity by smaller aircraft including those within RDC A/B-I, which has an allowable crosswind component of 10.5 knots. As shown in the exhibit, none of the existing runways are able to provide over 95 percent crosswind coverage at 10.5 knots. In order to accommodate the portion of the fleet with maximum crosswind components of 10.5 knots or less, a second runway is necessitated. If both runways 18/36 and 3/21 are combined the coverage at 10.5 knots is 96.91 % and sufficient to meet the demands of the GA fleet.

EXHIBIT 3E
All Weather Wind Coverage



Source: NOAA Integrated Surface Database, C&S Engineers, Inc. analysis 2019

TABLE 3L
All Weather Wind Coverage Percentages

Runway	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 18-36	94.72 %	97.14 %	98.89 %	99.63 %
Runway 3-21	90.34 %	95.38 %	98.60 %	99.65 %
Runway 9-27	78.51 %	86.64 %	95.62 %	99.03 %
All Runways Combined	99.46 %	99.85 %	99.96 %	99.99 %
Runways 18-36 and 3-21	96.91 %	98.52 %	99.47%	99.86%

Source: C&S Engineers, Inc. analysis 2019

Runway Thresholds

As discussed in the inventory chapter, the landing threshold for Runway 18 is displaced by 889 feet, leaving only 7,160 feet available for aircraft landing to the south. Since the threshold displacement does not affect the length of runway available for takeoff it also does not negatively impact the takeoff performance of either the existing or future critical aircraft, while operating on Runway 18. Additionally, the landing length analysis determined that the 7,160 feet available on Runway 18 is still sufficient to meet the needs of the CRJ-900. The potential to remove the displaced threshold and allow the entire length of Runway 18 to become available for landing will be looked at as a part of the alternatives analysis.

Declared distances are also in effect for both arrivals and departures on Runway 36. This artificially restricts the length of runway available for both take-off and landing to 7,160 feet.

Runway Protective Surfaces

Runway protective surfaces such as the Runway Safety Area, Runway Object Free Area, and Runway Protection Zone aim to protect aircraft, people, and property in the case of an aircraft deviating from its intended course while conducting conventional runway operations. The following sections outline the existing and future criteria for the runway protective surfaces at SJT.

Runway Safety Area

A Runway Safety Area (RSA) is a graded surface centered on a runway that is required to be free of all objects except for those that are 'fixed by function' such as runway lights and certain NAVAIDS. The purpose of the RSA is to protect aircraft in the event of an under-shoot or overrun from a runway during landing or take-off operations. The area must be able to support emergency vehicle operations and maintenance vehicles and is required to be graded to slope away from the runway at 1.5 to 5.0 percent. The width and length of an RSA depend upon an airport's RDC and approach visibility minimums. Meeting RSA requirements is one of the FAA's highest priorities in maintaining safety at the Nation's airports. **Table 3M** lists the Airport's existing and future RSA requirements.

TABLE 3M
Runway Safety Area Dimensions

Dimensions	Runway 18-36		Runway 3-21		Runway 9-27	
	FAA Standard	Meets Standard ?	FAA Standard	Meets Standard ?	FAA Standard	Meets Standard ?
Length Beyond Departure End	1,000	No	1,000	Yes	300	Yes
Length Prior to Threshold	600	No	600	Yes	300	Yes
Width	500	No	500	Yes	150	Yes

Source: *FAA AC 150/5300-13A, Airport Design, C&S Engineers, Inc. analysis 2019*

Runway 18/36 is the only runway with non-compliant Runway Safety Areas. The issue is due to the proximity of Knickerbocker Rd., approximately 560 feet to the north of the Runway 18 end. To mitigate this issue the Airport has displaced the Runway 18 threshold and put declared distances into effect which limit the amount of runway usable for takeoff and landing. These measures have brought Runway 18/36 into compliance with FAA standards, but at the cost of a reduced usable runway length.

Runway Object Free Area – ROFA

Similar to the RSA, the Runway Object Free Area (ROFA) must be free of objects except those required to support air navigation and ground maneuvering operations. The function of the ROFA is to enhance the safety of aircraft operating on the runway. The width and length of the ROFA depend upon the specific RDC and approach visibility minima. The ROFA does not have specific slope requirements, but the terrain within the ROFA must be relatively smooth and graded to be at or below the edge of the RSA. **Table 3N** notes the ROFA dimensions for SJT.

TABLE 3N
Runway Object Free Area Dimensions

Dimensions	Runway 18-36		Runway 3-21		Runway 9-27	
	FAA Standard	Meets Standard ?	FAA Standard	Meets Standard ?	FAA Standard	Meets Standard ?
Length Beyond Departure End	1,000	No	1,000	Yes	300	Yes
Length Prior to Threshold	600	No	600	Yes	300	Yes
Width	800	No	800	No	500	Yes

Source: *FAA AC 150/5300-13A, Airport Design, C&S Engineers, Inc. analysis 2019*

As with the RSA, the ROFA of Runway 18/36 must be reduced through the use of declared distances in order to achieve the required clearance from Knickerbocker Rd. Additionally the wind cone and segmented circle near Taxiway E and the wind cone adjacent to the Runway 18 threshold penetrate the ROFA. The wind cone near the Runway 21 threshold also penetrates the Runway 3/21 ROFA. Per FAA standards, they should be relocated out of these protected areas.

Runway Protection Zones

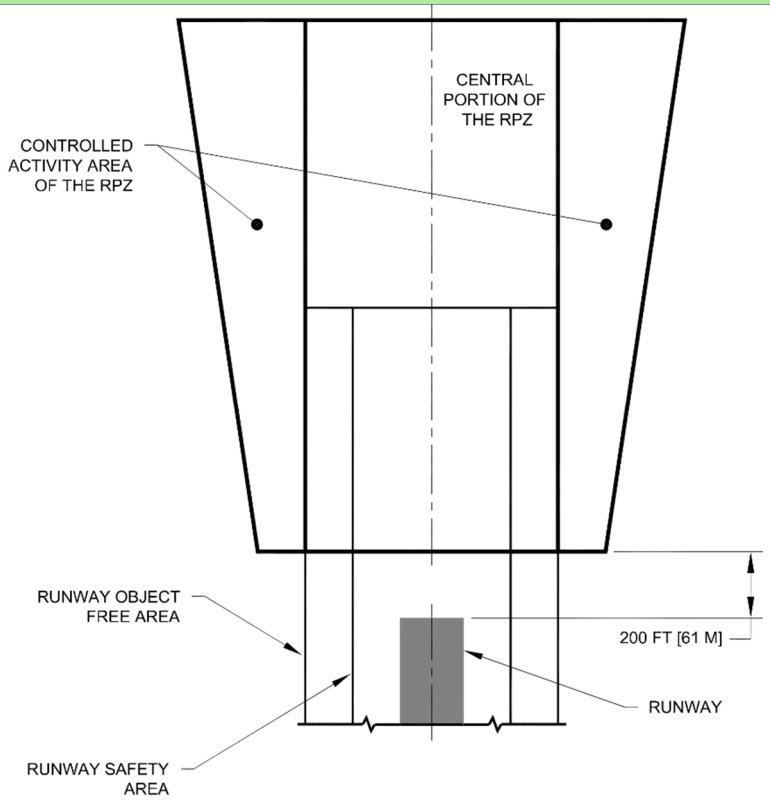
A Runway Protection Zone (RPZ) is an area centered symmetrically on an extended runway centerline. The RPZ has a trapezoidal shape and extends prior to each runway end. The RPZ is designed to enhance the safety of people and property on the ground by limiting and/or restricting the construction of certain structures within its bounds. This area should be free of land uses that create glare, smoke, or other hazards to air navigation. Additionally, the FAA requires that no vertical structures are constructed within the extents of the RPZ. This FAA guidance has become more restrictive in its most recent iteration, and thus some RPZs that were once in compliance with FAA guidance have become non-compliant due greater restrictions within the RPZ. The dimensions of an RPZ depend on each runway's RDC. **Table 3O** illustrates the RPZ requirements for each of the runways at SJT. **Exhibit 3F** depicts a typical RSA, ROFA, and RPZ.

TABLE 3O
Runway Protection Zone Dimensions

	Inner Width (ft.)	Outer Width (ft.)	Length (ft.)	Meet Standards?
Approach RPZ				
Runway 18	500	1,010	1,700	No
Runway 36	500	1,010	1,700	Yes
Runway 3	1,000	1,750	2,500	Yes
Runway 21	1,000	1,510	1,700	Yes
Runway 9	500	700	1,000	No
Runway 27	500	700	1,000	Yes
Departure RPZ				
Runway 18	500	1,010	1,700	Yes
Runway 36	500	1,010	1,700	No
Runway 3	500	1,010	1,700	Yes
Runway 21	500	1,010	1,700	Yes
Runway 9	500	700	1,000	Yes
Runway 27	500	700	1,000	No

Source: *FAA AC 150/5300-13A, Airport Design. C&S Engineers, Inc. analysis 2019*

EXHIBIT 3F
Example RSA, ROFA, and RPZ Dimensions



Source: *FAA AC 150/5300-13A, Airport Design*

Runway Incursion Mitigation

It is the goal of the FAA that airport runways and taxiways are designed in a manner that allows ease of operation for the pilots and minimizes the risk of confusion while taxiing or taking off and landing. The FAA has not currently designated any areas of the SJT airfield as hot spots or identified any areas as a part of the Runway Incursion Mitigation (RIM) Program. However, even though the FAA does not officially recognize any RIM locations at SJT, there still areas on the airfield that do not meet FAA design standards for runways. Most notable is the proximity of the Runway 18/36 and the Runway 3 end. This area is depicted below in **Exhibit 3G** and identified as "Area 1".

In order to reach the Runway 3 end a pilot must cross over Runway 18/36. This leads to confusion and also necessitates non-standard hold short markings. This combination is potentially hazardous and improvements to this area are discussed as a part of the Alternatives chapter in this report.

A second area of concern is the Runway 27 end. It has no taxiway access to the runway end and a departure on Runway 27 would require back taxiing on Runway 9-27 which is not recommended. The future decommissioning of Runway 9/27 will resolve this issue.

EXHIBIT 3G
Potential Areas of Concern

Note: *At the time this exhibit was created, the current FAA Chart Supplement had not yet been updated to show the Taxiway C realignment. Old Taxiway C has since been demolished and a new, 90-degree connector has been constructed to the north of Runway 9-27. Additionally, Taxiway E has been demolished and a new, 90-degree connector has been constructed in the same location.*

Source: *FAA Chart Supplement, effective 28 MAR 2019 to 25 APR 2019*

Taxiway Requirements

The taxiway system for the Airport should complement the runway system by providing safe access to and from runway and landside areas. Several different aspects of the taxiway system at SJT are discussed below.

Taxiway Width

In terms of taxiway design, based on FAA AC 150/5300-13A standards, the taxiways should be constructed to a minimum width of 35 feet to accommodate the TDG 2 CRJ-700 and CRJ-900. Currently the existing taxiway system is made up of a mix of 50 foot and 75-foot-wide taxiways. This exceeds the requirements for both the existing and future critical aircraft.

Taxiway Safety Area (TSA)/ Taxiway Object Free Area (TOFA)

The TSA and TOFA are centered on the taxiway or taxilane centerline and provide clearing standards that prohibit all objects except those whose location is necessary for air navigation or aircraft ground maneuvering purposes. The existing taxiways at SJT have been assessed for compliance with TSA and TOFA standards. Two areas have been flagged as potentially obstructing these surfaces. The first area is directly east of the AMCOM hangar. There is a section of pavement within the Taxiway A TOFA that appears to be used as an equipment parking area. The second area is the parking lot for the ARFF facility. The east side of the parking lot sits within the Taxiway A TOFA and should be kept clear of vehicles.

Run-up Areas

At SJT there is currently one designated aircraft run-up area. This area is located off of Taxiway A near the Runway 18 end. Run-up areas are used by pilots of general aviation aircraft to perform pre-takeoff procedures as well as to hold while waiting for clearance from ATC. Ideally, they should be marked clearly and designed so that they keep aircraft utilizing them completely clear of the active taxiway. The current run-up area is unmarked and does not provide sufficient room to keep aircraft using the area outside the TOFA for Taxiway A. Options for removal or improvements to this area are discussed in the Alternatives Chapter.

Problematic Taxiway Geometry

FAA requirements for taxiway design are intended to guide airports towards constructing and maintaining a safe, logical, and easily navigable network of taxiways. SJT has several areas that could be further optimized to better reach these intended goals.

Direct Access from an Apron to a Runway

As specified in AC 150/5300-13A, taxiways should not "lead directly from an apron to a runway without requiring a turn. Such configurations can lead to confusion when a pilot typically expects to encounter a parallel taxiway but instead accidently enters a runway." Currently Taxiway A leads directly from the apron onto the Runway 9 end.

High Energy Intersections

The FAA discourages against taxiways intersecting the middle third of a runway. This is known as a "high energy" intersection and should be kept clear because it is the point on the runway at which a

pilot is least able to maneuver to avoid a collision. Taxiway D crosses Runway 18-36 in the middle third and potential realignments are considered as a part of the Alternatives Chapter.

Use of a Runway as a Taxiway

The FAA states that using a runway as a taxiway "can lead to confusion, wrong runway takeoffs, or runway incursions. A runway should always be clearly identified as a runway and only a runway." Runway 18-36 is the only runway at the Airport equipped with a full length parallel taxiway. To fully utilize Runways 9-27 or 3-21, aircraft may be required to taxi on a runway.

Taxiway Nomenclature

FAA Engineering Brief No. 99, *Taxiway Nomenclature Convention*, provides clarification on how to properly name taxiways. Adhering to the standards set forth in this document would require several taxiway name changes on the airfield. Taxiways A and B serve Runway 18-36 as both parallel taxiways and entrance/exit taxiways. It is recommended that when a taxiway makes a 90-degree direction change that the designation also change in order to avoid confusion.

Airfield Pavement

A *Pavement Prioritization Program Analysis* completed by KSA Engineers in April of 2018 assessed the condition of the runways and taxiways at SJT and set forth a recommended course of action to maintain the pavement at the Airport. This recommended plan is shown below in **Table 3P**.

TABLE 3P
Recommended Pavement Management Plan

Planning Period	Section Name	Recommended Action	Opinion of Probable Cost
Short Term (0-5 Years)	Runway 18/36	Crack Seal, Seal Coat, Re-Mark	$855,654.10
	Runway 3/21	Crack Seal, Seal Coat, Re-Mark	$845,396.20
	Runway 18/36 Section 0	2" Overlay	$349,807.60
Medium Term (6-10 Years)	Runway 18/36 Section 2	2" Overlay	$1,172,707.61
	Runway 9/27 Section 1	3" Mill and Overlay	$902,215.25
	Runway 9/27 Section2	Reconstruct	$748,605.15

Source: San Angelo Regional Airport, Pavement Prioritization Plan, KSA Engineers (2018)

Airfield Marking, Lighting, & Signage

Markings

The Inventory chapter describes the existing conditions of markings at SJT. A review of the existing conditions and the current FAA requirements found that the Airport is in compliance with all regulations and no recommendations for improvements are made. The existing markings will require to be expanded and updated as necessary in conjunction with any future airfield improvement projects.

Lighting

Chapter 1 – *Inventory*, describes the existing condition of airfield lighting equipment at SJT. Currently, the Airport has appropriate lighting equipment per requirements and no deficiencies exist. However, lighting will be analyzed in the alternatives chapter along with any proposed improvements to instrument approach minimums. Finally, any future improvements to or implementation of lighting equipment should feature LED technologies whenever able and practicable.

Signage

Chapter 1 – *Inventory*, describes existing conditions of airfield signage at SJT. As discussed in the previous section, changes should be made to the taxiway designations to reduce the risk of pilot confusion. Additionally airfield signage will need to be expanded and updated as necessary in conjunction with any airfield improvement projects.

Navigational Aids (NAVAIDS) & Weather Observation Equipment

Navigational Aids

The inventory chapter provides an overview of the existing navigational aids at the Airport. Currently SJT has the appropriate type of equipment required for the types of instrument approach procedures. However, it was found that all three of the wind cones were too close to their respective runways and penetrated the ROFA. A wind cone is not permitted to be placed within this safety area and will require relocation in order to comply with FAA standards.

Weather Observation Equipment

As discussed in the inventory chapter, the Airport is equipped with an ASOS near the south east boundary of the property. The ASOS provides both current as well as forecast conditions. The Airport has not had issues with the quality or accuracy of the reported data and at this time no changes are recommended to the ASOS. Compliance with the safety area surrounding the ASOS should be considered for any future development

Terminal Area and Landside Requirements

Terminal Area Requirements

The following section summarizes the passenger terminal facility requirements and related assumptions. These requirements were developed based on discussions with airport staff, knowledge of industry-wide trends, and published guidelines including International Air Transport Association (IATA's) *Airport Development Reference Manual*, FAA Advisory Circular (AC) 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities*, and ACRP-25 *Airport Passenger Terminal Planning and Design*. **Figure 3H** explains how IATA determines level of service (LOS). "Optimum" LOS is the industry standard goal for developing terminal facilities.

EXHIBIT 3H
IATA Level of Service Standards

		Overdesign	Optimum	Sub-Optimum
		Excessive or empty space	Sufficient space to accommodate necessary functions in a comfortable environment	Crowded and uncomfortable
Overdesign	Overprovision of resources	**OVERDESIGN**	**OPTIMUM**	**SUB-OPTIMUM** Consider Improvements
Optimum	Acceptable processing and waiting times	**OPTIMUM**	**OPTIMUM**	**SUB-OPTIMUM** Consider Improvements
Sub-Optimum	Unacceptable processing and waiting times	**SUB-OPTIMUM** Consider Improvements	**SUB-OPTIMUM** Consider Improvements	**UNDER-PROVIDED** Reconfigure

Source: *Adapted from IATA Airport Development Reference Manual 10th Edition*

As seen in Exhibit 2DD in the forecast chapter, the peak hour passenger forecast from 2017 to 2037 only changes by 10 passengers (36-46). Therefore, terminal requirements were only generated for the baseline (2017) and the forecast outyear (2037). Requirements are generated for aircraft parking positions/gates, check-in positions, baggage screening and handling systems, passenger security screening, holdrooms, concessions, restrooms, inbound baggage and baggage claim. Secondary functions such as circulation and some "back of house" space needs were also considered in a quantitative analysis.

Aircraft Parking Positions

There are currently two aircraft parking positions, both are served with passenger boarding bridges. There is ample apron area adjacent to the terminal for remain overnight (RON) or inactive parking positions. Envoy Airlines currently remotes some of their RJs on this apron.

Currently, the only commercial service activity is five daily American Airline flights, increasing to 6 in the summer of 2019. These flights are spaced a few hours in-between so there are no overlaps. Also, three to four times a month there are charter airlines that use one gate position. There are ample aircraft parking positions to accommodate the current demand assuming power out. Pushback operations will be discussed in the alternatives chapter. **Exhibit 3I** depicts the current and future aircraft parking layout.

EXHIBIT 3I
Existing Aircraft Parking Layout

Source: *C&S Engineers, Inc. analysis 2019*

By the end of the planning horizon (2037) the peak hour operation is projected to be five. This is based on the assumption that the airport will attract additional airline service from a second commercial air-carrier. It is also assumed that the schedule will mimic American Airlines' current schedule. American Airlines is expected to increase aircraft size but is not expected to increase frequency of operations. Therefore, two gates are needed to accommodate the future levels of commercial service. On the days where there is a charter flight, or there are irregular operations and a third position is needed, there is ample apron area to park another aircraft between the two existing aircraft parking positions, and there is a lower-level holdroom to accommodate that flight. In conclusion, there are ample aircraft parking positions to accommodate the projected demand throughout the planning period.

Passenger Check-in/Bag Drop

Passenger check-in requirements are calculated using peak hour passengers, with an assumption that 50% of the peak hour passengers arrive at check-in at the peak 30 minutes of the peak hour. Peak hour passengers are split into different processing types such as traditional check-in, kiosk with no bag drop, or kiosk with bag drop. Within the traditional check-in, most airlines have a separate check-in area for premium passengers. While this is not the most efficient use of space, it is part of the airline's branding and business model, so it can be expected to remain.

At SJT, there are currently eight traditional check-in positions. American Airlines uses four positions. Three are for economy and one is for premium passengers. American Airlines also has two kiosks adjacent to the premium passenger line for those passengers who do not check a bag. There are no self-bag tag stations, although the two kiosks are equipped to do this function if that is desired in the future. For this analysis, the following assumptions were used:

TABLE 3Q
Passenger Check-in/Bag Drop Assumptions

50% of passengers arrive in the peak 30 minutes of the peak hour[1]
85% of passenger use the traditional and premium check-in[2]
Traditional check-in processing rate is five minutes; Premium check-in is two minutes[1]
Kiosk check-in with no bags processing rate is two minutes[1]
Maximum desired wait time is 10 minutes[1]

Source: [1]C&S Engineers, Inc. assumptions 2019, [2]American Airlines

Based on the assumptions above, the total number of required check-in positions is three. To plan for moderate growth over the planning period, it is reasonable to assume a fourth position. American Airlines currently leases four positions. While the kiosks are not needed to meet the demand, they do offset demand on the traditional check-in area by 15% from passengers who are not checking bags.

The queue area is sufficient throughout the planning period, too. Currently American Airlines takes up about two-thirds of the queue area even though they only lease half of the check-in positions. If another airline starts service at the airport, American would likely need to reduce their queue area to accommodate the new entrant. It is recommended that American equally share the check-in area, queue area, and back of office space with the new entrant knowing that the new entrant carrier would likely have a similar aircraft type and schedule as American.

Currently, three to four times a month, charters are processed through the existing check-in area and these charter flight schedules can overlap with American Airlines schedules. In the existing condition, the check-in area is sized appropriately to accommodate this occurrence. However, if a new entrant similar to American's operation is introduced and has a matching flight schedule, the check-in area will not be able to process the charters at the same time. The simplest fix would be to reschedule the charter's flight operations outside the commercial service airline schedule. Also, because there is no room to expand the check-in area, the airport would need to support a common use check-in platform to toggle back and forth between the commercial service airlines and charter flights.

Explosive Detection System (EDS) Baggage Screening

EDS baggage screening equipment and staffing are typically determined by TSA. However, EDS screening requirements can be calculated by dividing the EDS checked baggage screening equipment processing rate by peak hour checked bags. Per the TSA guidelines, processing rates for Stand Alone checked baggage EDS screening equipment range from 100-200 bags per hour.

According the American Airlines, the only commercial carrier operating at the airport, 85% of passengers check one bag. Therefore, there are approximately 31 peak hour checked bags in the Baseline scenario (2017), and 40 checked bags by the end of the planning horizon (2037). In either scenario, the number of checked bags is well below the estimated capacity of the current system. In fact, there is capacity to process additional bags if American wanted to add more peak hour flights, or if another airline were to add service in the peak hour.

Outbound Baggage

Outbound baggage is sorted and loaded onto airline carts for each departing flight. This function occurs behind the check-in and baggage screening area. Typically, baggage makeup requirements are calculated in terms the number of carts required to accommodate aircraft in the departure peak and the area needed for to accommodate the carts, with an allowance for baggage tug circulation. Typically requirements are based on size of the aircraft (e.g. ADG-III aircraft is 1.0 equivalent gate, but smaller aircraft like a large regional jet is 0.5 equivalent gates or larger aircraft like a ADG-IV is 1.2 equivalent gates) either during the peak period or maximum that can be accommodated at the gate. The latter was used for this analysis.

The outbound baggage makeup area is adequately sized to accommodate three concurrent departures which is the maximum number based on the aircraft parking apron, noted in the section above. Three large regional jet departures would require four staged carts. Assuming the carts are 5 feet by 10 feet then the required baggage belt length would be 20 feet or 40 feet, depending on the cart orientation. With some maneuvering space, 50 feet of baggage belt length is needed to accommodate this scenario. The current baggage belt length is approximately 50 feet. The only scenario that would create congestion is three different airlines departing simultaneously, one at each gate. This scenario is unlikely and could be reconciled by staggering the flight schedules of the various airlines. The interior area of the baggage makeup may be congested in peak periods because of the emergency exit stair adjacent to the makeup device.

Passenger Security Screening

There is one security checkpoint lane and queue area adjacent to the check-in area. Passenger security checkpoint lane and area requirements are calculated based on the peak hour passenger volume. Typically, the processing throughput for a standard passenger security checkpoint ranges from 120-180 passengers per hour. For TSA PreCheck lanes, the processing rate ranges from 200 to 300 passengers per hour. TSA is developing biometric solutions that could increase these throughputs further, in the future. These processing rates are also based on standard security checkpoint layout designs.

The projected peak hour passenger volume in 2017 is 36. The projected peak hour passenger volume in 2037 is 46. Therefore, one passenger security checkpoint lane will accommodate the projected demand throughout the planning horizon. Even though the airport has a non-standard layout, the size of the security checkpoint and queue is sufficient. The only potential impact to the security

checkpoint would be the addition of a PreCheck lane. However, given the small passenger volume and the layout of the security checkpoint, an additional lane is not likely; the few PreCheck passengers can be accommodated through the standard checkpoint lane.

Holdrooms and Boarding Gates

There are two common industry accepted methods to calculate holdroom requirements. One is to apply a standard area to a gate based on the maximum aircraft size allowable at that gate. The other is to estimate the demand based on the estimated gate requirements in the peak hour of operation. The former was chosen for this analysis because there is only one carrier currently operating, but the Airport has requested the master plan team review the recent terminal improvements to confirm it can accommodate future growth, including other airlines. The way the airport is currently operated, there are two gates with boarding bridges. As shown in **Figure 3I** above, there is area on the apron to park up to three large regional jets simultaneously. As shown in **Table 3R**, the existing holdrooms can accommodate two gates. A simultaneous 3-gate operation or a larger regional jet boarding from the lower level would cause congestion.

TABLE 3R
Holdroom Requirements

	Existing	2 Gate Scenario	3 Gate Scenario
Holdroom Requirements	850 SF (Lower Level) 3,000 SF (Upper Level) 3,850 SF (Total Existing)	2,800 SF	4,200 SF

Source: *C&S Engineers, Inc. analysis 2019*

Concessions

Concession areas provide an improved passenger level of service, create a sense of place for the airport, and provide an opportunity for increased revenue generation. Currently, the Airport is home to two restaurants, both of which are pre-security. A vending machine is the sole food option in the secure area.

Typically, to estimate the size of the future area that would provide the airport with a reasonable program, demand is projected using industry standard planning assumptions. As stated in ACRP 54, *In-Terminal Concessions*, for Airports under 1 million enplanements, approximately 14.7 SF of concessions space was calculated per every 1,000 annual enplanements; 10.6 SF for food and beverage, .4 SF for convenience retail, and 3.7 SF for specialty retail. 70 percent or more of the total concessions space should be allocated post-security, and 30 percent or less for pre-security. Often at smaller airports, there is a desire to have one pre-security restaurant that employees or other tenants can use. Depending on the commercial service departure profiles, it can be difficult for a concessionaire to staff post-security concessions. The commercial flights at SJT are currently once

every few hours and there isn't enough volume of passengers to justify inventory or staffing a post-security concessions. If future flight schedules included more departures in a concentrated period, then a small area may be justified.

Based on the assumptions above, the Airport needs approximately 900 total SF (2017) and 1,150 total SF by the end of the planning horizon (2037). The Airport has more than enough pre-security food and beverage areas to accommodate the future demand. The Airport may consider a small retail shop pre-security in addition to the two existing restaurants. The post-security area is below the requirement, but given the very low passenger volumes, it is understood why there are no larger spaces. A small, non-cooking, coffee/bar with snacks might be appropriate post-security.

On average, an additional 25 percent is typically allocated for food and beverage storage, and an additional 20 percent should be added for retail storage, away from the immediate concessions area. Applying these additional percentages shows that all concessions areas seem to have adequate storage area.

Inbound Baggage Makeup and Baggage Claim

Baggage claim is located to the left of the passenger check-in area and has one flat plate device. Baggage claim linear frontage requirements are calculated based on the following assumptions.

TABLE 3S
Inbound Baggage Makeup and Baggage Claim Assumptions

85% of passengers check one bag[1]
An additional 30% load is added to passenger volumes to account for "meeters and greeters"[2]
1.5 linear feet is needed to accommodate one person comfortably[2]

Source: *[1]American Airlines, [2]C&S Engineers, Inc. assumptions 2019*

The baseline scenario (2017) has a peak hour passenger volume of 36, so baggage claim linear frontage requirement is 34 feet. By the end of the planning horizon (2037) the peak hour passenger volume is 46, and the baggage claim linear frontage requirement is 44 feet. The existing linear frontage is approximately 47 feet. Therefore, in the current, one airline scenario, the baggage claim area is sufficient to accommodate the projected demand. However, in the scenario where there are two airlines, with flights arriving around the same time, the baggage claim belt and pick up areas would become congested. Given the size of the aircraft, this would only be a short period of time.

Passenger baggage from arriving flights is unloaded and tugged to the inbound baggage handling area in the back-of-house side of the baggage claim. There is one inbound belt, which is directly connected to the one flat-plate baggage claim belt. Requirements for inbound baggage makeup area are calculated in a similar manner as outbound baggage make up, except that inbound typically has all of the bags from a small aircraft at one time, where outbound make up is more dispersed, based on when passenger arrive and check-in. Inbound baggage linear frontage is approximately 50 feet.

Because of the building layout, it is assumed that baggage carts are parked parallel to the belt. Therefore, the belt can have two to three baggage carts parked adjacent to it at any one time. Two to three carts are more than enough to accommodate the project demand through the planning horizon.

In a future scenario with two different airlines with simultaneous arriving flights, the inbound baggage area would be congested, similar to baggage claim. However, this would only occur in the peak period (10-15 minutes) or the airlines could slightly modify schedules to avoid the congestion.

Restrooms

Restrooms are an important, but often overlooked element at an airport. They are not one of the major functional terminal areas but are often the area that receives the most passenger complaints when surveyed. Per ACRP Report 25, one way restrooms requirements are calculated for terminal buildings is 2.0 to 2.5 SF per peak hour arriving and departure passengers and well-wishers/meeters and greeters. Because of the small peak hour volume, even including added meeters and greeters, the existing restrooms can accommodate the projected demand. In this case, the actual building occupancy, governed by local building code, is more appropriate to apply, based on the total person load, not just departing or arriving passengers.

Circulation

Circulation is typically split into three areas: public circulation, Federal Inspection Station (FIS) sterile arrivals circulations, and non-public walkways. Minimum clear circulation widths for public areas is typically 25 feet between major functional elements. For a concourse, the minimum width is 20 feet for a single loaded concourse, and 30 feet for a double loaded concourse without a moving walkway. For FIS sterile corridors, the minimum width standard is 15 feet for a single direction flow. For non-public areas, such as back-of-house spaces, office space, etc., the width is determined by the function (i.e. moving supplies in a corridor near a loading dock) and local building codes. SJT is unique because of the small volume of commercial passenger traffic. These industry standard rules don't really apply. If the future commercial flight schedule had three simultaneous departures or arrivals (two commercial and one charter) there could be some congestion, but only for 10-15 minutes. Generally, based on field observations, and the analysis that the projected peak hour demand passenger volume is only expected to rise by 10 passengers by 2037, there are no issues to address with circulation.

Office Space

In the terminal building, this includes non-public areas such as airline ticket offices (ATO), TSA offices, baggage service offices (BSO), rental car offices, general storage space, and airport offices. There is no official industry standard calculation to determine required office space. The area requirements are generally determined by the airport or the tenant (concessions, TSA, airlines, etc.). Through field observations, discussions with staff, and review of the terminal layout plan, reasonable office space is available throughout the building.

American Airlines occupies one half of the ATO space and uses much of the other half for storage. If another airline starts service, American would have to relocate their storage so the airport can accommodate the other carrier. There should be ample space for both airlines assuming that they are willing to share a common break room. Rental cars have ample office space. The Airport reports that TSA has sufficient office space by the baggage and passenger checkpoint, and there are no airline BSOs. If American or a second airline starts service, space for individual BSOs should be considered by the Airport. Otherwise, office space seems to be appropriate for an airport of this size.

Second Commercial Service Airline

During the master plan process, the re-introduction of additional service from a second commercial airline was found to be realistic and an additional forecast scenario was developed to account for this. This scenario assumes that the second commercial service airline would mimic the current American Airlines schedule and would affect the peak hour passenger volume in the out-years, increasing from 46 (in the Baseline) to 101. This increase would impact the requirements of some functional areas more than others. The impact of a potential second commercial service airline was mentioned within the various functional areas described above, but given that this reality is more likely sooner rather than later, additional summary below further explains some of the issues that may result.

In general, the number of check-in positions, security checkpoint lanes, and aircraft parking positions is sufficient to accommodate the second commercial service airline. In addition, the checked baggage screening rate, of 100-200 bags per hour is sufficient to accommodate the second commercial service airline. With the sizable pre-security restaurants and restrooms there is ample space to accommodate passengers. It is recommended that charter service is accommodated in the off-peak or completely outside the terminal as the existing facility could not accommodate two commercial services airlines and a charter at the same time.

The following areas will likely experience congestion with the addition of the second airline operating on a similar schedule as the existing service:

- Check-in queue area
- Security checkpoint queue areas
- Outbound baggage makeup
- Holdrooms
- Inbound baggage makeup
- Baggage claim area.

While the number of check-in positions is sufficient to accommodate a second airline, the queue area will be congested. Today, American Airlines occupies approximately two-thirds of the check-in queue. When a second airline is added, it is assumed they will split the area equally, but that could result in the queues extending outside of the designated queue area. A charter flight cannot be accommodated if two airlines are operating in the existing check-in area unless it is in an off-peak time and the airport is on a common use check-in platform.

Typical security checkpoint lanes can accommodate 120-180 passengers per hour. So even on the low end, the existing lane can accommodate the additional demand. However, given the non-standard checkpoint layout, it is likely that if an additional airline is added during the peak period, the security checkpoint queue would expand into the terminal lobby. If a charter operation occurred at this same time, the security checkpoint would be overwhelmed. Another scenario that could cause congestion at the security checkpoint is based on the unique characteristics of the airport. Because there are very limited post-security concessions, passengers may be inclined to wait in the pre-security restaurants or lobby before their flights, and not enter the security checkpoint until 30-40 minutes prior to their flight. This could cause significant congestion in the lobby and checkpoint queue as typically the flow of passengers is staggered based on the passenger arrival curve.

The outbound baggage makeup area would be at full capacity in a second airline scenario. The baggage belt length is sufficient, but the overall area would be congested due to both airlines using one belt and the emergency exit stairway adjacent to the area. If a charter flight operated simultaneously with the commercial service airlines, the outbound baggage make up area would be overwhelmed.

Holdrooms are sufficient to accommodate two commercial service airline departures, one per each gate with a boarding bridge. If there was a third departure in the same time period, or if an aircraft is delayed, the holdrooms would become congested, even if the third holdroom area at the ground level was utilized. Additionally, if a charter flight occurred at the same time as the two commercial service flights, the holdrooms would be overwhelmed.

Of all functional areas, the inbound baggage make up and baggage claim areas are the most challenged in the second commercial service airline scenario. These areas would be at capacity by the end of the planning period. If a second commercial service airline is added in the near-term, the demand would double and immediately exceed capacity. These areas could not function if a charter was added during this peak period. Also, there are currently no baggage service offices (BSO), which is typical for a small airport. However, if a second commercial service airline is added, it is recommended that a BSO area is programed. Ways to accommodate the demands resulting from the second commercial service airline scenario will be addressed in the alternatives analysis chapter. The viability of accommodating the added demand within the existing terminal building versus constructing a new terminal will be evaluated.

Landside Requirements

Cargo Facilities

Currently FedEx and UPS are the only cargo operators at the Airport. FedEx leases approximately 10,000 SF of Hangar No. 204. They use this space to offload aircraft, sort cargo, and load trucks. The UPS operation takes place entirely on the apron and they have no permanent facilities at the Airport. The existing cargo area is deemed adequate for the size of the operation, although local FedEx representatives indicate the existing location can be operationally difficult.

Fuel Facilities

All aircraft fueling services at SJT are provided by Ranger Aviation and Skyline Aviation — the two FBOs at the Airport. Between the two, a total of 35,000 gallons of Jet A and 24,000 gallons of 100LL fuel is stored in four above-ground storage tanks. In addition to the fuel storage tanks, several fuel trucks operate at the Airport as follows:

Ranger Aviation

- 5,000 Gal. Jet A with additives (Leased from Avfuel)
- 2,500 Gal. Jet A with additives (Leased from Avfuel)
- 1,000 Gal. 100 Low-lead (Owned by Ranger)

Skyline Aviation

- 3,000 Gal. Jet A (Leased from World Fuel)
- 1,200 Gal 100 Low-lead (Leased from World Fuel)

Fuel storage requirements at SJT were calculated by determining the average number of projected daily turbine and piston operations throughout the planning period. Ratios of 10 gallons of Jet A per turbine operation and 4.2 gallons of 100LL fuel per piston operation were applied to determine two-week fuel storage requirements, as well as an applied 10 percent increase adjustment to accommodate peak periods. **Table 3T** illustrates the projected average and peak fuel demand for SJT for a two-week period throughout the 20-year planning horizon.

TABLE 3T
Estimated Aircraft Fuel Demand (Two-Week Period)

Year	Average Daily Piston Ops.	Average Daily Turbine Ops.	Average Demand (gal.)		Peak Demand (+10%) (gal.)	
			100LL	Jet A	100LL	Jet A
2017	121	87	7,115	12,180	7,826	13,398
2022	124	90	7,291	12,600	8,020	13,860
2027	127	92	7,468	12,880	8,214	14,168
2037	133	96	7,820	13,440	8,602	14,784

Note: *Existing average daily piston and turbine operations were estimated using FAA Air Traffic Activity Data System (ATADS) and Traffic Flow Management System Counts (TFSMC) data for the year 2017; forecasted average daily piston and turbine operations were estimated using the forecasted total annual operations within each planning period. Historic fuel sales data from the FBOs were not available for analysis.*

Sources: *FAA ATADS, 2017; FAA TFMSC, 2017; Landrum & Brown, Draft Forecasts, San Angelo Regional Airport Master Plan, C&S Engineers, Inc. analysis 2019.*

Based on the analysis illustrated in Table 3T, SJT's existing fuel storage capacity and supply will likely meet demand throughout the 20-year planning timeframe, and thus construction of additional fuel storage equipment is not anticipated. The FBOs should continue to maintain and service their fuel storage tanks and equipment in accordance with required standards set forth by the Airport, the City of San Angelo, as well as any federal or state regulatory agencies.

There has been some discussion between both FBOs and airport management about constructing a consolidated fuel farm wherein each FBO could maintain their own tank(s). Should the Airport wish to move forward with this concept, potential locations will be evaluated and presented during the Alternatives Analysis chapter.

Access and Parking

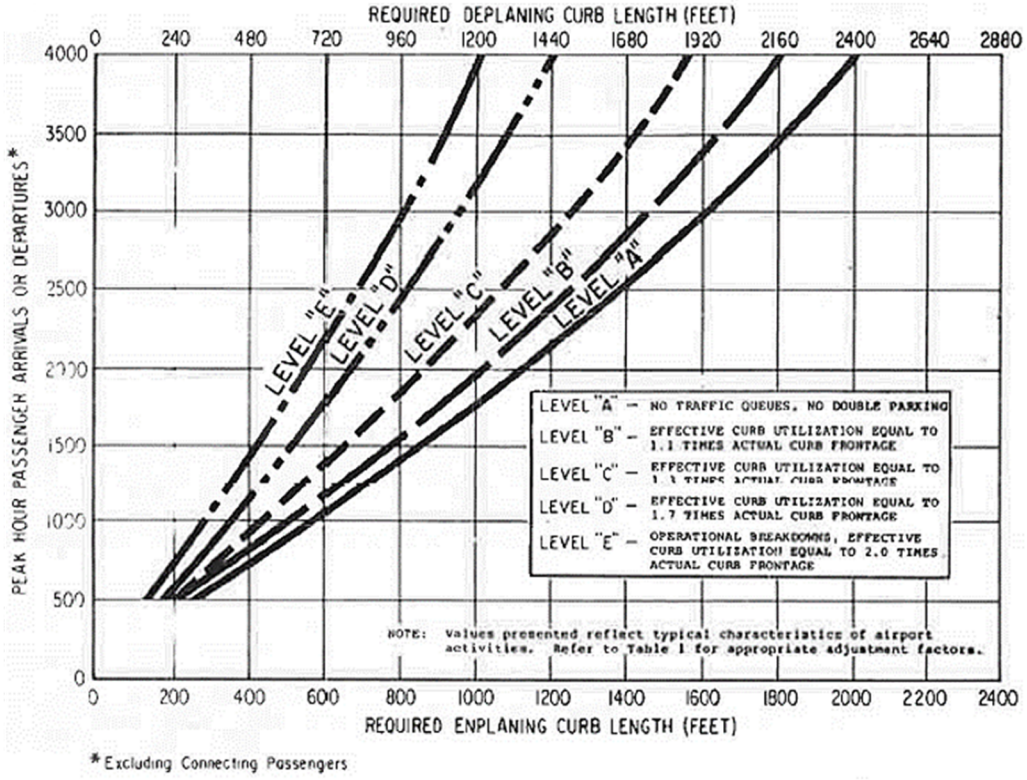
Based on feedback from the technical and planning advisory committees (TAC/PAC), there are no existing or future access roadway concerns regarding the capacity of the roadways to accommodate future traffic generated by the Airport based on the 20-year forecast. Reary Boulevard and Knickerbocker Road north of the main Airport entrance each consist of two travel lanes in each direction. Terminal Circle consists of two travel lanes around the public parking facilities and adjacent to the terminal. While Hangar Road, Stewart Lane, and Knickerbocker Road south of the main Airport entrance consist of one lane in each direction. There are no existing or future operational concerns regarding traffic based on Airport operations.

While the TAC and PAC identified easy access to and from the Airport as a strength, they also noted concern regarding lack of secondary access to the Airport along with delays associated with the railroad crossing on Knickerbocker Road. The most time efficient route from San Angelo to the Airport is via Knickerbocker Road which includes a railroad crossing and a bridge across Lake Nasworthy. There are other available routes: via US Route 87 and US Route 277 to Country Club Road to South Concho Drive then Knickerbocker Road (around Lake Nasworthy) or via US Route 277 to Farm to Market Rd 584 that becomes the southern approach to the Airport on Knickerbocker Road. Wayfinding signage could be provided on these roadways and these secondary access routes could be noted on the website to inform the traveling public of these options.

The data required to conduct a full analysis of the curb area operations (peak hour vehicle counts by type) is not available. Figure 3 of Transportation Research Record 840 provides a method of determining length of curb frontage needed based on peak hour enplaning/deplaning passengers and the desired LOS. (See **Exhibit 3J**).

EXHIBIT 3J
Transportation Research Record 840

Figure 3. Suggested Method for Estimating Curb Frontage Needs



Source: C&S Engineers, Inc. analysis 2019

SJT currently has 300 feet of curb frontage. Since arrivals and departures share the same area, to be conservative, it is assumed they each have 150 feet of curb frontage available to them at any given time. Based on Figure 3 of Transportation Research Record 840, the ratio of feet of curb available per enplanement is approximately 0.42 to maintain a LOS C and 0.49 for deplanements. Therefore, assuming there is 150 feet available for enplanements and 150 feet available for deplanements, the curb frontage at SJT could theoretically handle approximately 360 peak hour enplanements at a LOS C and approximately 300 deplanements. Since the forecast indicates only 46 enplanements and 46 deplanements during the peak hour in 2037, the existing 300 feet of curb frontage at SJT is expected to accommodate future demand at an acceptable LOS.

There do not appear to be any issues or concerns with curb frontage usage. Taxis and transportation network companies (TNCs) like Uber/Lyft do use the curb, but given the free and easily accessible parking lot adjacent to the terminal, double parking or other congestion on the curb frontage is not typically observed.

The TAC and PAC also provided favorable comments regarding the public parking facilites at SJT noting that they are easy to access and free to the public. There are currently 103 short-term spaces, 242 long-term spaces, 76 spaces dedicated to rental car operations, and 115 overflow spaces. Based on an ACRP 25, *Airport Passenger Terminal Planning and Design, Volume 1: Guidebook*, rule-of-thumb range of parking supply that should be provided per enplanements, the Airport has more than enough parking to accommodate their existing and future demand. ACRP Report 25 also indicates that approximately 25 to 30 percent of public parking spaces should be dedicated to short-term use. This would mean that of the 460 spaces available to the public, 115 to 138 spaces should be dedicated to short-term parking. Since the Airport also has two restaurants within the non-secure areas of the terminal that also generate short-term parking demand, it is recommended that the higher number of spaces (approximately 135-140 spaces) are dedicated to short-term parking.

It is assumed that employee parking and rental car parking demand are currently being accommodated by existing facilities and that there are no concerns based on the forecast for the 20-year planning period. There were no comments from the TAC or PAC regarding any weaknesses or threats regarding employee or rental car parking facilities.

Airfield Perimeter Fencing, Gates, and Security

Perimeter Fencing/Gates

The primary function of airport fencing is to restrict inadvertent and intentional unauthorized entry to the airfield by individuals or wildlife. The Airport currently has fencing and access control measures in place that provide a layer of security and safety for its users and the public. As discussed in chapter one, SJT's property is entirely enclosed by a 6-foot high, chain-link fence. According to a site visit and as illustrated on Exhibit 1J, there are 11 automatic gates with access control systems, and 27 manual gates at various locations along the fence line.

Overall, the perimeter fencing at the Airport, as well as the vehicle and pedestrian gates, are in good, functional condition. However, several comments made during the initial TAC meeting at the onset of the airport master planning process included, "the perimeter fencing and gates are confusing and difficult to maneuver" and that there are "too many gates/access points." One recommendation for the Airport would be to conduct an assessment of all gates/entry points in order to identify redundancies and/or inefficiencies with existing locations of both manual and automatic gates. The outcome of the assessment may lead to a reduction in gates, or an increase or enhancement to signage, or both.

A Wildlife Hazard Assessment (WHA) was published for the Airport in 2012. Among other valuable findings, a WHA informs the Airport where vulnerabilities are present in the perimeter fencing that allows wildlife to breach the perimeter and suggests measures to correct or prevent future breaches. Because wildlife was also a concern of TAC members, Airport personnel should continue to closely

monitor any areas identified in the WHA where wildlife have previously, or continue, to breach perimeter fencing to ensure the airfield remains safe and secure from any unauthorized intrusions, whether animal or human.

Security

Chapter One indicated that SJT is designated as a Class II airport under 14 CFR Part 139 requirements and must maintain a current airport operating certificate at all times as long as commercial airline activity takes place at the Airport. Likewise, SJT is required to have an airport security program in place in accordance with 49 CFR Part 1542 – *Airport Security*.

According to airport management and observations during the inventory site visit, SJT currently meets all requirements of 49 CFR Part 1542. SJT should continue to maintain their airport security program in order to remain in compliance with 49 CFR Part 1542, as well as adhere to the general rules contained in Part 1540 – *Civil Aviation Security: General Rules.*

General aviation security measures are not mandated by the federal government; however, many GA airports provide some varying degree of security for their users, especially in busy urban areas, and even more so since the events of September 11, 2001. SJT is considered a commercial service airport, although GA and military operations comprise the majority of the activity at the airport. As mentioned above, the Airport already conforms to and meets federally mandated security measures through its Part 1542 airport security program. However, there are several programs worth noting designed to increase general aviation security.

The Aircraft Owners and Pilots Association's (AOPA) Airport Watch Program created an around-the-clock telephone hotline answered by federal authorities for pilots and other airport users to report suspicious activity at GA airports. Usually, if requested, AOPA representatives can provide informational materials and signage to airports/FBOs on the Airport Watch Program. Furthermore, the Transportation Security Administration's (TSA) *Security Guidelines for General Aviation Airport Operators and Users* (Information Publication A-001, Version 2), provides a set of federally-endorsed recommendations to enhance security for municipalities, owners, operators, sponsors, and entities charge with oversight of general aviation airports. The TSA's guidance provides nationwide consistency with regards to security at general aviation facilities, as well as a rational method for determining when and where security enhancements may be appropriate based on the airport's own self-assessment of its operational facility. The guidelines offer extensive suggestions and proven best practices for the airport operator, sponsor, tenant and/or user. It is recommended that the City of San Angelo and Airport management review the TSA *Security Guidelines* in order to assess if SJT could benefit from any additional security enhancements on the airfield. Periodic reviews of this document and the self-assessment should also be conducted.

General Aviation Requirements

General aviation operations make up the majority of activity at SJT, thus ensuring these activities can be accommodated is essential to the continued success of the Airport. GA activity at SJT depends on the following facilities – storage hangars, aircraft parking apron, and the FBOs, who in essence serve as the GA terminals on the airfield. As previously described in Chapter One – *Inventory*, GA facilities at SJT are located to the north and south of the commercial service terminal building and apron. The Airport leases hangars and offices to individual tenants in these areas, including two FBOs – Ranger Aviation and Skyline Aviation. The FBOs typically cater to transient GA aircraft, although based aircraft tenants may use their facilities and services in some capacity or another, for fuel or maintenance, for example.

The GA facility requirements for SJT were determined using the forecast GA annual operations and existing and forecast based aircraft fleet mix. The forecast annual GA operations (see **Table 2W**) established the peak month and design day/hour operations, which was used to estimate the required common space needed for GA pilots and passengers within the planning period. Likewise, the existing and forecast based aircraft fleet mix (see **Table 2V**) provided requirements for hangar and apron storage within the planning period. However, it is important to note that the hangar and apron requirements herein do not take into consideration the five Envoy Air commercial jet aircraft that currently utilize the North Apron because they are not considered general aviation aircraft. Thus, five turbine aircraft were excluded from the 2017 baseline GA facility requirement calculations. Additionally, it is assumed that five commercial jet aircraft will make up the total turbine-based aircraft at the Airport throughout the planning period, and thus were also excluded from calculations to determine future based GA aircraft needs.

Aircraft Storage

Aircraft Hangars

Hangar requirements for a GA facility are a function of the number of based aircraft, the type of aircraft to be accommodated, owner preferences, and area climate. Furthermore, it is common when calculating the hangar size needs of a facility to use an average size requirement for the various types of aircraft, meaning that each type of aircraft will require a different amount of space (usually measured in square-feet) within a specific type of storage facility, e.g. T-hangar, single-aircraft box hangar, or large multi-aircraft conventional hangar. Industry standards regarding facility space for GA based aircraft were developed using guidance from ACRP Report 113, *Guidebook on General Aviation Facility Planning*, which includes recommended space requirements unique to the type of aircraft engine typical for most general aviation aircraft. The space requirements were modified per industry standards for the turbine aircraft to better represent the typical aircraft that are currently stored in hangars at SJT. **Table 3U** illustrates the average aircraft space requirements based on aircraft type for the Airport.

TABLE 3U
Average Aircraft Space Requirements

Aircraft Storage Type	Space Required (SF)
Conventional Hangar	
Single-Engine Piston	1,200
Multi-Engine Piston	1,400
Turboprop/jet[1]	10,000
Rotorcraft	1,800
T-Hangar/Single-aircraft Box Hangar	
Single-Engine Piston/Multi-Engine Piston	1,400

Note: *1) Based on the average SF of the Cessna Citation family of jets currently based at SJT.*
Source: *C&S Engineers, Inc., analysis 2019*

The average space requirements for the various aircraft in the Airport's based aircraft fleet mix was applied to the based aircraft forecasts to estimate hangar area requirements for each hangar type. Since the exact storage location for each based aircraft was unavailable for analysis, assumptions were made that estimate the location of each based aircraft at SJT today. **Table 3V** displays the assumptions made regarding the type of storage needed for each type of based aircraft at the Airport. The existing based aircraft data provided by airport management, along with the estimate of some of the current aircraft storage conditions as they exist on the airfield today, were used to develop these assumptions. Finally, using these averages and assumptions, combined with the forecasted fleet mix, **Table 3W** depicts the calculated demand requirements for hangar space at the Airport for each of the planning periods.

TABLE 3V
Based Aircraft Storage Assumptions

Aircraft & Storage Type	% of Based Aircraft Fleet Using Storage[1]
Single-Engine Piston	
T-hangar/Single Box	55%
Conventional Hangar	40%
Parking Apron	5%
Multi-Engine Piston	
T-hangar/Single Box[2]	0%
Conventional Hangar	80%
Parking Apron	20%
Turboprop/Jet	
Conventional Hangar	95%
Parking Apron	5%
Rotorcraft	
Conventional Hangar	100%

Notes: [1]Assumes the percentage of the based aircraft fleet using each type of storage remains constant over the planning period. [2]According to airport management, the existing single-box/T-hangars are not large enough to accommodate a ME piston aircraft, but the demand to store ME piston aircraft in single-box/T-hangars does exist should these hangars become available.

Source: San Angelo Regional Airport; C&S Engineers, Inc. analysis 2019

TABLE 3W
Existing and Forecasted Hangar Needs

Hangar Type (SF)	2017 (Existing)	2017 Forecasted	2022	2027	2037
Conventional (Corporate/Executive)1	481,000[2]	510,000	533,800	556,800	580,400
T-hangar/Single-Aircraft Box	94,000[3]	79,800[4]	82,600	84,000	91,000
Total Hangar Area	**575,000**	**589,800**	**616,400**	**640,800**	**671,400**
Estimated Total Aircraft Utilizing Hangars[4]	**N/A**	**161**	**168**	**173**	**183**

Notes: [1]Includes conventional hangars leased to GA tenants exclusively. [2]Total square feet (SF) excludes Hangar No. 102 (80,000 SF) and Hangar No. 108 (42,000 SF) which are in poor and unleasable condition for aircraft storage at this time and excludes Hangar No. 313 which is privately owned. [3]Actual SF not available, thus hangars were measured using aerial imagery and are approximate in size. [4]Although the reported existing 2017 SF varies from the estimated 2017 baseline SF; the calculations indicate demand for T-hangars and/or single-aircraft box hangars does exist within the planning time frame.

Source: C&S Engineers, Inc. analysis 2019

Currently, according to airport management and tenants, all existing hangars (excluding No. 102 and No. 108 – the old AMCOM hangars) at SJT are currently leased, and a wait list for hangars is in effect. Likewise, the Airport has in recent months received numerous inquiries from several companies and individuals wishing to relocate their aircraft from another airport in the region to SJT should hangar space become available. The results of the hangar demand analysis illustrated in **Table 3W** above supports the claim that the Airport is currently deficient in conventional, T-, and single-aircraft box hangars.

According to the discussion with airport management and existing tenants, conventional hangar space, or lack thereof, is a high priority need at SJT. In addition to the lack of available conventional hangars at the airport, several tenants noted that available hangars lack the proper door heights and widths to fit some of the larger turbine aircraft. The preferred size for conventional hangars at SJT range somewhere between 20,000 – 24,000 square feet in size. The hangar analysis suggests the Airport is approximately 29,000 square feet deficient in conventional hangar space today, with forecasted deficiencies ranging from 52,800 – 99,400 square feet throughout the remainder of the planning horizon. It should be noted that the existing AMCOM north and south hangars (No. 102 and No. 108) at 80,000 and 42,000 square feet respectively, could provide approximately 122,000 additional square feet of conventional hangar space if they were properly refurbished to meet current safety and environmental requirements. The Airport has explored this option in the past and found it to be very costly. In any case, the option to reuse these hangars exists should a private developer or company wish to make the investment. Conversely, it may be less of an investment to construct new conventional hangars with smaller footprints that may serve the needs of existing and future users alike. Both are feasible options for SJT to consider.

T-hangars and single-aircraft box hangars are also in demand at SJT. Although the existing and forecast baseline total square footage varies in Table 3T (hangar needs) for these hangars, the analysis still suggests that demand for these types of hangars exists. Furthermore, because these existing hangars are currently not large enough to accommodate any multi-engine piston aircraft, these aircraft types were not included in the forecast projections. Thus, not only does a need for additional T- and single-aircraft box hangars exist, the demand may be greater than what is reflected from the analysis. All hangars of this type are also at capacity at the Airport. The analysis suggests that an additional 2,800 – 11,200 square feet of T-hangars and/or single-aircraft box hangars are needed within the planning horizon. In order to reflect the demand to accommodate multi-engine piston aircraft, it is safe to assume double the forecasted amount may be necessary, resulting in approximately 5,600 – 22,400 square feet needed for T- and single-aircraft box at SJT through 2037.

Recommendations for the amount and location of additional hangars will be explored during the Alternatives Development analysis and recommendations ultimately displayed on the Airport Layout Plan (ALP). It is important to note that hangars of all types are not normally eligible for FAA Airport Improvement Plan (AIP) funding, and therefore are usually funded by the sponsor, private investor, or a combination thereof. Thus, it is also recommended that the City continue to monitor the actual

demand for hangars at the Airport and make adjustments in the types and number of hangars as needed over the course of the planning horizon.

Aircraft Parking Aprons

As previously mentioned in Chapter One, three designated aircraft parking aprons are available at the Airport. The GA aircraft parking aprons include the North and South Aprons. However, the North Apron is currently utilized for storage of Envoy Air's regional jets, and therefore based and transient GA aircraft mostly utilize the South Apron for parking. Combined, these aprons encompass approximately 175,000 square yards of pavement, with the South Apron making up the majority of this area with approximately 135,000 square yards of pavement.

Applying the same methodology discussed above resulted in an estimation of the aircraft parking needs for based and transient aircraft at SJT within the planning horizon. The apron parking needs for based aircraft were calculated using the existing based aircraft storage assumptions found in **Table 3S.**

Apron parking needs for aircraft other than based were calculated using the forecasted GA design day and the percentage of GA itinerant operations within the design day over the 20-year period. Then, an average apron square-yardage requirement was applied to the total based and itinerant aircraft calculated (using ACRP Report 113 as a guide with modifications specific to SJT), which produced the total amount of aircraft parking apron needed for both. For based aircraft, an average of 1,100 square yards was used, which represents the footprint of some of the larger based aircraft found on the Airport's apron today. Likewise, for the itinerant aircraft, an average of 1,200 square yards was used, which represents the footprint of some of the mid-size corporate jets that use the Airport today (mostly in the Cessna family of jet aircraft), and that are anticipated to use the Airport in the future. Both the based and itinerant square-foot averages include the appropriate taxilane separation and set-back requirements.

Based on the existing and forecasted aircraft fleet mix at SJT over the 20-year planning period, the total existing aircraft apron areas should be more than adequate to accommodate based and itinerant aircraft parking and maneuvering needs. The South Apron should continue as the primary GA apron, but portions of the North Apron could also be utilized if needed (excluding the area where any commercial service jets may be temporarily parked) **Table 3X** illustrates the estimated based and transient aircraft parking apron needs over the 20-year planning horizon.

TABLE 3X
Existing and Forecasted GA Aircraft Parking Apron Needs

Apron Area (SY)	2017	2022	2027	2037
Total GA Apron Area[1]	161,800[2]	160,500[3]	160,500[3]	160,500[3]
Estimated Total Apron Area Required	**33,800**	**35,000**	**36,100**	**40,700**
+Surplus/-Deficit	+128,000	+125,500	+124,400	+119,800
Estimated Total Aircraft Parked on Apron[4]	**29**	**30**	**31**	**35**

Notes: *[1]Includes all apron pavement, such as taxilanes and other areas within the North and South Aprons. There is no formal delineation between based and transient apron at SJT, although it can be assumed that designated transient apron is allocated adjacent to both FBO facilities. [2]Total apron excludes the approximately 13,200 SY required for the five Envoy Air aircraft (CRJ 700) parked on the North Apron. [3]Total apron excludes the approximately 14,500 SY required for the five Envoy Air aircraft (CRJ 900) assumed to be parked on the North Apron throughout the remainder of the planning horizon. [4]Includes based aircraft and total transient aircraft simultaneously parked on apron during the busiest hour of the average day within the peak month.*

Source: *C&S Engineers, Inc. analysis 2019*

Fixed Base Operator (FBO)/Flight Schools

The SJT terminal building requirements described in the preceding section included those requirements related to the commercial service activity at the Airport. All other activity at the airport that is not related to commercial service operations is considered GA activity. Typically, GA airports may include an administration building where airport personnel are stationed, and that facility also serves as a terminal building for transient visitors or based tenants. In other instances, the FBO facility serves as the GA terminal. At SJT, Ranger Aviation and Skyline Aviation are FBOs whose facilities also serve as the GA terminal facilities.

Much like the commercial service terminal, FBO facilities are comprised of public common space, such as lobbies/waiting areas, restrooms, meeting rooms, snack bar/restaurants, or any other nonexclusive areas accessible to the public. Therefore, in order to determine if the existing GA terminal space is adequate to meet demand throughout the planning horizon, only the common space associated with these facilities was analyzed.

To determine the forecasted size requirement for a GA terminal building to meet current and future demand, the forecasted GA annual operations were used to derive the peak month, design day, and design hour operations. The forecasted design hour was then used to determine the peak-hour pilot and passenger throughput calculation; the peak-hour pilot and passenger calculation is determined by multiplying the design hour by the industry standard of 2.5. The peak-hour pilot and passenger calculation provide an estimate of the number of pilots and passengers an airport might expect to utilize the terminal (or FBO) building during the average busy day during the peak month of activity.

The product of the peak-hour pilot and passenger calculation is then multiplied by a square-footage – in this instance an industry standard of 100 square feet – to provide the estimated amount of area required to meet demand. **Table 3Y** summarizes the outcome of these calculations for SJT.

TABLE 3Y
Forecasted GA Terminal Building Needs at SJT

Year	Forecasted GA Annual Operations	Peak Month Operations	Design Day Operations	Design Hour Operations	Peak-Hour Pilot and Passengers	Common Space Required (SF)
2017	35,150	3,808	123	19	48	4,800
2022	36,782	3,985	129	20	50	5,000
2027	38,496	4,170	135	21	53	5,300
2037	42,191	4,571	148	23	58	5,800

Note: *Results rounded to the nearest whole number to simplify calculations.*
Source: *C&S Engineers, Inc. analysis 2019*

The combined area of the existing FBO facilities' common space totals approximately 2,025 square feet. This alone does not appear to meet the GA common space requirements as illustrated in **Table 3Y**; however, a designated GA administration area (with restroom) also exists within the terminal building that is approximately 3,117 square feet in size (see Exhibit 1F). Thus, the FBO common area combined with the City's GA administration area totals approximately 5,142 square feet. According to the outcome of the peak-hour pilot and passenger calculations, this space should adequately meet the needs for GA users through 2022, although may start to experience some constraint shortly thereafter and throughout the remainder of the 20-year planning horizon. Again, constraint will depend on actual demand for use of these GA facilities and how the existing facilities are utilized in the future. The City should continue to monitor the space based on feedback from the FBOs and airport personnel. Presently, there is no indication from either the FBOs or Airport management that the GA common space facilities are constrained at SJT. Routine maintenance and repair on the FBO buildings and City terminal GA space is necessary over the planning period.

At many GA airports, flight schools are often based within an FBO. At SJT, Skyline Aviation offers FAR Part 141 flight training as one of its services. Flight training at the airport has historically experienced ups and downs in line with economic cycles as noted in the Forecast chapter. There are currently 35 flight students at Skyline, and as of today there are no immediate plans to add additional trainer aircraft or pursue other expansion projects.

SASO and Other GA Tenants

The results of the SWOT analysis from the PAC and TAC meetings suggest that SJT is lacking in these areas:

- Availability of storage hangars, to include storage hangars of adequate size and function

- Lack of office space for existing hangars
- Centralized fuel farm facility
- Power lines along Hangar Road impede development to the west, and also currently hinder operations for a couple of existing tenants (notably FedEx and Poor Boy Avionics).

These concerns will be further examined and evaluated in the Alternatives Analysis, and eventually a preferred option for each may be reflected on the ALP.

GA Access & Parking Facilities

Access Road

From the main Airport entry road — Reary Boulevard, access to GA facilities in the north and south areas of the airfield are accessed via Hangar Road. Overall, Hangar Road appears to be in fair condition, with some portions of the road in worse condition than others. For example, the portion of pavement north of FAA Road and leading up to the hangar area at the north end, shows signs of heavy wear and cracking, as does the portion adjacent to the Poor Boy Avionics and First Flight hangars and near the last T-hangar facility at the far south end.

It is recommended that routine maintenance of this access road continue, and it is likely that all, or portions of, Hangar Road will need some form of pavement rehabilitation in the 20-year planning period.

Vehicle Parking

All GA facilities at SJT have vehicle parking available either directly adjacent to hangars/buildings, or in nearby parking lots. At this time, vehicle parking is not a concern for the existing GA tenants and users of the Airport, and it appears existing demand meets the current vehicle parking available. However, much like Hangar Road, some vehicle parking lots are in need of rehabilitation, in particular the lot associated with Hangar #108 just north of the terminal building. It is recommended that the Airport, or the GA lessee, invest in routine maintenance of the vehicle parking areas, and it is likely some form of rehabilitation of these parking areas will be needed within the 20-year planning period.

Support Facility Requirements

Airport Maintenance

As noted in Chapter One – *Inventory*, the Airport currently includes two airport maintenance and equipment facilities on the airfield. The approximate 1,900-square foot building adjacent to the ATCT and Terminal and the 3,400-square foot building in the southeast quadrant of the airfield meet the current and projected needs of airport personnel.

Air Traffic Control Tower

The FAA currently maintains and operates the ATCT located just north of the Terminal building. Although the structure itself is outdated, does not meet ADA requirements, and is beginning to show signs of wear, it remains functional. The ATCT stands 1982.6 feet above mean sea level (MSL) and meets line-of-sight requirements as outlined in FAA Order 6480.4A, *Airport Traffic Control Tower Siting Criteria*. While the ATCT is functional in its current location, relocation to support potential terminal modifications will be considered as a part of the Alternatives Analysis Chapter. The line-of-sight of the ATCT will be re-evaluated for any alternatives that involve changing runway ends.

One concern of both the PAC and TAC noted at the onset of the airport master planning process was the lack of 24-hour ATC services at SJT. Currently, the ATCT is operational from 7 a.m. until 9 p.m. daily; outside of these hours, pilots must utilize the common traffic advisory frequency (CTAF) and/or UNICOM radio frequencies to report their locations within the traffic pattern and on the movement areas of the airfield. The ATCT is a FAA contract tower that is managed and staffed independently. It is likely that current activity at the Airport does not warrant 24-hour ATC service; however, Airport management should continue to monitor and document any concerns about airspace or other functions related to its ATCT from its users, and respond appropriately as needed.

Airport Rescue & Fire Fighting (ARFF)

SJT currently falls within ARFF Index B based on the existing commercial service aircraft operating at the airport today (CRJ-700), and currently meets the equipment and fire extinguishing agent requirements for this Index as established in CFR Part 139.317 – *Aircraft rescue and firefighting: Equipment and agents*.

SJT is forecasted to accommodate a larger version of the CRJ beginning in the 2027 planning period – the CRJ-900. Based on the fuselage length of this aircraft, SJT will remain within ARFF Index B throughout the 20-year planning horizon. The airport should continue to maintain its current ARFF vehicle fleet and replace as necessary once a vehicle's useful life has ended. The primary firefighting vehicle – an Oshkosh Striker 4x4, was purchased new in 2017 and is in excellent condition.

The ARFF building is in overall good condition and meets the Airport's and ARFF personnel's needs. Routine building maintenance should be performed on an as needed basis. It's location on the airfield is considered adequate, and there are no plans to relocate the facility to a new location on the airfield within the planning period. Future changes to runway and taxiway alignments have potential to impact ARFF response times and the location will need to be considered as a part of the alternatives evaluation process.

Electrical Vault/Utilities

The airfield electrical vault is located just north of Hangar 108 and the North Apron (see Exhibit 1H – *Landside Facilities*) and is in good condition. The current size of the building and the equipment inside

are adequate to meet the Airport's current airfield electrical demand. However, the Airport should continue to monitor and maintain the equipment and replace as needed.

The current capacity for all utilities discussed in the Inventory element is adequate for present day demands. However, some tenants have expressed concerns with the water/sewer system, low power lines (along Hangar Road), and some areas of poor drainage on the airfield. Future development may require enhanced or additional electrical or water capacity to meet the power needs of the operation or to meet fire codes (usually for new hangar developments). As such, during the planning phase of all future proposed development, coordination with the local utility providers should occur to ensure sufficient capacity exists. Furthermore, if the City of San Angelo desires to determine the adequacy of the existing infrastructure at SJT, it is recommended that a general utility study be performed to gauge the Airport's current systems, which in turn should assist in estimating the future utility demands needed to support the proposed future development contained in this Master Plan update.

FACILITY REQUIREMENTS SUMMARY

A summary of each of the areas discussed is included in **Table 3Z** below.

TABLE 3Z
Summary of Identified Requirements

Demand/Capacity	
Airfield Capacity	No Action Needed
Airside Facility Requirements	
Runway Length/Width	No Action Needed (based on carrier route structure)
Runway Designation	Re-designate Runway 3-21 as Runway 4-22
Runway Strength	Routine maintenance required
Runway Wind Coverage	No Action Needed
Runway Strength	Routine capital maintenance
Runway Thresholds	Relocate RWY 3 Threshold (see Runway Incursion Mitigation)
RSA and ROFA	No Action Needed
Runway Protection Zone	Mitigate incompatible uses within RPZ's on Runway 9 and Runway 18 end
Runway Incursion Mitigation	Runway 3 and Runway 36 threshold proximity requires geometry changes to deconflict
Taxiway Width	All new and reconstructed taxiways should be designed to TDG 2 standards, 35 feet wide
TSA and TOFA	Mitigate TOFA penetrations on Taxiway A
Run-up Areas	Proper marking and sizing
Problematic Taxiway Geometry	Reconfiguration of multiple areas
Taxiway Pavement Strength	Routine capital maintenance
Airfield Markings/Lighting	(See Runway Designation)

TABLE 3Z
Summary of Identified Requirements

Airfield Signage	Update taxiway nomenclature to comply with EB N. 89
Navigational Aids	No Action Needed
Weather Observation Equipment	No Action Needed
Terminal Area Requirements *	
Aircraft Parking Positions	No Action Needed
Passenger Check-in/Bag Drop	No Action Needed
EDS Baggage Screening	No Action Needed
Outbound Baggage	No Action Needed
Passenger Security Screening	No Action Needed
Holdrooms and Boarding Gates	Expansion needed if simultaneous 3-gate operation begins
Concessions	Existing is adequate, but there is room for improvement in post security offerings
Inbound Baggage Makeup and Baggage Claim	No Action Needed
Restrooms	No Action Needed
Circulation	No Action Needed
Office Space	No Action Needed
Landside Requirements	
Cargo Facilities	No Action Needed
Fuel Facilities	No Action Needed
Access and Parking	No Action Needed
Airfield Perimeter Fencing, Gates, and Security	Assess all gates/entry points to identify redundancies and inefficiencies
Security	No Action Needed
General Aviation Requirements	
Aircraft Hangars	Construct additional T-hangars and conventional hangars
Aircraft Parking Aprons	Routine capital maintenance
FBO and Flight Schools	No Action Needed
Access Roads	No Action Needed
Vehicle Parking	No Action Needed
Support Facility Requirements	
Airport Maintenance	No Action Needed
Air Traffic Control Tower	No Action Needed
Airport Rescue & Fire Fighting	No Action Needed
Electrical Vault/Utilities	Future development may require updating utility infrastructure capacity

** Terminal requirements based on baseline forecast. If additional service is introduced on a similar schedule, improvements will be needed. This issue to be examined in the development of alternatives.*

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The previous chapter identified airside and landside facilities necessary to satisfy forecasted demand through the long-range planning period. The next step in the planning process is to identify and evaluate alternatives to meeting the defined needs of airport users as well as the City of San Angelo's airport vision.

Alternative development options are numerous; therefore, this chapter is organized into distinct airside (runways, navigational aids, taxiways, etc.) and landside (hangars, apron, terminal area, support facilities, and vehicle access) discussions. Within each of these areas, specific capabilities and facilities are required or desired. Each functional area interrelates and affects the development potential of the others. Therefore, all areas are examined both individually and collectively to ensure that the final plan is functional, efficient, and cost effective.

Each alternative is evaluated based on:

- Best Planning Tenets
- Operational Performance
- Environmental Implications

The key elements of this planning process are: (1) identification of alternative methods to address previously identified facility requirements; (2) evaluation of the alternatives, individually and collectively, allowing planners to gain a thorough understanding of the strengths, weaknesses, and other implications of each; and (3) selection of the recommended alternative.

It is important to recognize that this chapter must necessarily focus on the facility requirements (including timing) and other considerations, such as the Airport's strategic development objectives, site or environmental considerations, and other factors, although it may be easy to identify alternatives that do not meet the Airport's needs or fail to consider certain long-term development options, particularly if one highly visible issue seems to overshadow other planning elements.

AIRSIDE ALTERNATIVES

Several alternative plans for the proposed airside development at SJT are described and evaluated on the following pages. These alternatives aim to address the airside facility requirements, as identified in the previous chapter, while complying with all applicable FAA guidance and regulations.

Objectives

In addition to meeting the requirements determined by FAA standards and described in Chapter 3, there are several additional objectives identified by the Airport:

- Maintain the existing level of instrument approach capability
- Keep proposed projects within the existing airport boundary as much as practicable
- Increase operational efficiency of the Airport

Alternatives Elements

The identification of alternatives begins with primary elements that require large contiguous areas of land as directed by FAA guidance (e.g., runways, taxiways, and associated safety areas). Once these are addressed, secondary elements are considered. These are the items that have greater flexibility in planning and can fill gaps around the primary elements (e.g., navigational aids [NAVAIDS], run-up aprons, etc.). Below is a list of both the primary and secondary elements.

Primary Elements

The following primary elements are the focus of the alternatives

1. Runway 18-36 and Runway 3-21.
2. Approach lighting systems.
3. The closure of Runway 9-27 and conversion into a taxiway was already determined as a part of an earlier study and is included in this analysis as an existing assumption.
4. Taxiway system.

Secondary Elements

The following secondary elements are identified on the alternatives and addressed on the preferred alternative.

1. Wind cone and segmented circle relocation out ofsafety areas.
2. Airport beacon relocation.
3. Aircraft run-up aprons.
4. Taxiway nomenclature.

Projects Found on All Alternatives

Several of the projects that address both the primary and secondary elements are found on all of the airside alternatives. These projects are discussed below.

Runway 3-21 and Runway 18-36 Intersection

The proximity of the Runway 18-36 and Runway 3 ends is the highest priority item to address on the airfield. Multiple methods of mitigating this issue were looked at as a part of the alternatives process. This analysis determined that the preferred way to deconflict the runways is either to shorten or extend the Runway 3 end. Shortening Runway 18-36 enough to clear Runway 3-21 would require removal of approximately 2,600 feet of pavement from the Runway 36 end. This was found to be unfeasible because it would leave only 3,600 feet of usable runway once the displaced threshold and declared distances on the Runway 18 end are considered.

Runway 9-27 Decommissioning and Conversion to Taxiway

Prior to this planning process it was determined by the airport that Runway 9-27 will be decommissioned and converted into a taxiway. The existing width of the runway is 75 feet, while the required taxiway width is only 50 feet. Initially the full width of the existing runway will be used, and the width will be reduced to 50 feet at the next required reconstruction project.

Removal of Pavement on Runway 18 End and Runway 36 End Extension

The existing Runway 18 threshold is displaced by 889 feet and declared distances are in effect due to the proximity of Knickerbocker Road to the Runway 18 end. In all alternatives, approximately 1,723 feet of pavement will be removed from the Runway 18 end to clear Knickerbocker Road from both the Runway 18-36 RSA and ROFA. This will also clear the central portion of the Runway 18 approach RPZ. As a part of this project a portion of Taxiway A and Taxiway B will be demolished, and a new entrance/exit taxiway will be constructed for the Runway 18 end.

Demolish Taxiway A

This project corresponds to the decommissioning of Runway 9-27 and the removal of pavement from the Runway 18 end. Taxiway A currently serves as an entrance/exit taxiway for the Runway 9 end and it will no longer be needed once the runway is converted into a taxiway.

Taxiway Renaming

In order to comply with the guidance found in *FAA Engineering Brief No. 89, Taxiway Nomenclature Convention*, multiple taxiways will need to be renamed. For the purpose of clarity, existing taxiway names are shown on Alternatives one through four and proposed taxiway names are used only on the Preferred Alternative.

Runway 18-36 PAPI Relocation

Due to the proposed changes to both ends of Runway 18-36, the PAPI's will require relocation.

Wind Cone and Segmented Circle Relocation

The wind cones near the Runway 18 and Runway 21 end, and the segmented circle east of Taxiway E are located within the ROFA and will be relocated to comply with FAA standards. The proposed locations are shown on the Preferred Alternative.

Airside Alternatives

Airside Alternative 1 – No Action

The first alternative is to take no action other than the decommissioning of Runway 9-27 into a taxiway. This alternative does not address the critical issue of the conflict between Runway 18-36 and the Runway 3 end. **Exhibit 4A** depicts the No Action airside alternative.

Airside Alternative 2 – Reducing Cost

This alternative mitigates the runway end proximity issue by shortening the Runway 3 end approximately 1,500 feet. This would allow for a full-length RSA on the Runway 3 end that does not intersect with the Runway 18-36 RSA. The pavement removal would shorten Runway 3-21 to 4,400 feet. Rather than installing a new ILS on the shortened Runway 3 end, an ILS would instead be placed on the Runway 36 end. The proposed Runway 36 end extension would bring the total length of Runway 18-36 to 8,700 feet. Airside Alternative 2 is depicted in **Exhibit 4B**.

Airside Alternative 3 – Maximize Runway Length

This alternative lengthens the Runway 3 end by approximately 1,745 feet. This extension, in concert with an extension on the Runway 36 end, clearly differentiates the runway ends without reducing the total length available. The length of the Runway 3 extension was maximized to keep the central portion of the RPZ clear from Route 584. An additional runway extension of 570 feet is proposed on the Runway 21 end which brings the total length of Runway 3-21 to 8,245 feet. The extension on the 21 end is limited by the central portion of the RPZ and S. Concho Dr. In this alternative, Runway 3 remains the primary instrument runway. Due to the change in runway ends on both Runway 3 and 21, the associated NAVAIDS and approach lighting systems will need to be relocated/replaced. Airside Alternative 3 is depicted in **Exhibit 4C.**

Airside Alternative 4 – Planning for Future Expansion

Like Alternative 3, this alternative mitigates the runway end proximity issue by lengthening the Runway 3 end. This alternative takes a more conservative approach and only proposes for a 1,525-foot extension. In concert with runway safety area and protection zone improvements that takes Knickerbocker Road out of the central portion of the RPZ, an extension to the Runway 36 end would differentiate the runway ends while meeting runway length requirements. In this scenario, Runway 36 would become the primary instrument runway. Lastly, a full parallel taxiway is proposed on the east side of Runway 3-21. This would allow access for future aeronautical development on the east side of the Airport. Airside Alternative 4 is depicted in **Exhibit 4D**.

APPROACH MINIMUMS	
EXISTING	FUTURE
Runway 3: ILS Y (200 FT - 2400 FT)	Same
Runway 21: RNAV (200 FT - 3/4 SM)	Same
Runway 18: RNAV (250 FT - 3/4 SM)	Same
Runway 36: Visual Only	Same

KEY

- Proposed Pavement
- Proposed Demolition
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Protection Zone (RPZ)
- Middle Third of Runway
- Airport Property Line
- Proposed Property Acquisition

RUNWAY 3/21: 5,939 FT

RUNWAY 9/27: 4,402 FT
TO BE CONVERTED TO TAXIWAY

RUNWAY 18/36: 8,049 FT

LAKE NASWORTHY

S. CONCHO DR.

BRIGHT AVE.

WARRIOR AVE.

ASPEN AVE.

LAKE SHORE BLVD.

FISHERMAN RD.

KNICKERBOCKER RD.

HANGAR RD.

FAA RD.

REARY BLVD.

TERMINAL CIRCLE

STEWART LN.

Route 584

SLEEPY

HOL

N

500' 0 500' 1,000'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4A
AIRSIDE ALTERNATIVE 1

APPROACH MINIMUMS	
EXISTING	FUTURE
Runway 3: ILS Y (200 FT - 2400 FT)	Runway 3: RNAV (250 FT -3/4 SM)
Runway 21: RNAV (200 FT - 3/4 SM)	Same
Runway 18: RNAV (250 FT - 3/4 SM)	Same
Runway 36: Visual Only	Runway 3: ILS (200 FT - 2400 FT)

KEY

- Proposed Pavement
- Proposed Demolition
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Protection Zone (RPZ)
- Middle Third of Runway
- Airport Property Line
- Proposed Property Acquisition

LAKE NASWORTHY
S. CONCHO DR.
BRIGHT AVE.
WARRIOR AVE.
LAKE SHORE BLVD.
ASPEN AVE.
WIND CONE TO BE RELOCATED
RUNWAY 3/21: 4,400 FT
RUNWAY 9/27: 4,402 FT TO BE CONVERTED TO TAXIWAY
AIRCRAFT RUN-UP APRON (B-II)
1,499 FT DEMO
WIND CONE TO BE RELOCATED
PAPI TO BE RELOCATED
RUNWAY 18/36: 8,700 FT
2,370 FT EXTENSION
MALSR
1,723 FT DEMO
SEGMENTED CIRCLE TO BE RELOCATED
PAPI TO BE RELOCATED
AIRCRAFT RUN-UP APRON (B-II)
LAKE NASWORTHY
FISHERMAN RD.
KNICKERBOCKER RD.
HANGAR RD.
FAA RD.
REARY BLVD.
TERMINAL CIRCLE
HANGAR RD.
STEWART LN.
Route 584
SLEEPY
A
B
C
D
E
F
H
500' 0 500' 1,000'
GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4B
AIRSIDE ALTERNATIVE 2

APPROACH MINIMUMS	
EXISTING	FUTURE
Runway 3: ILS Y (200 FT - 2400 FT)	Same
Runway 21: RNAV (200 FT - 3/4 SM)	Same
Runway 18: RNAV (250 FT - 3/4 SM)	Same
Runway 36: Visual Only	Same

KEY

- Proposed Pavement
- Proposed Demolition
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Protection Zone (RPZ)
- Middle Third of Runway
- Airport Property Line
- Proposed Property Acquisition

LAKE NASWORTHY
S. CONCHO DR.
ODALS
570 FT EXTENSION
BRIGHT AVE.
WARRIOR AVE.
LAKE SHORE BLVD.
ASPEN AVE.
WIND CONE TO BE RELOCATED
H
RUNWAY 9/27: 4,402 FT TO BE CONVERTED TO TAXIWAY
RUNWAY 3/21: 8,245 FT
WIND CONE TO BE RELOCATED
PAPI TO BE RELOCATED
SEGMENTED CIRCLE TO BE RELOCATED
D
RUNWAY 18/36: 8,700 FT
2,370 FT EXTENSION
1,723 FT DEMO
A
B
C
D
E
F
B
A
PAPI TO BE RELOCATED
1,744 FT EXTENSION
AIRCRAFT RUN-UP APRON (B-II)
AIRCRAFT RUN-UP APRON (B-II)
LAKE NASWORTHY
FISHERMAN RD.
KNICKERBOCKER RD.
HANGAR RD.
FAA RD.
REARY BLVD.
TERMINAL CIRCLE
HANGAR RD.
STEWART LN.
MALSR
Route 584
SLEEPY
500' 0 500' 1,000'
GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4C
AIRSIDE ALTERNATIVE 3

APPROACH MINIMUMS	
EXISTING	FUTURE
Runway 3: ILS Y (200 FT - 2400 FT)	Runway 3: RNAV (250 FT - 3/4 SM)
Runway 21: RNAV (200 FT - 3/4 SM)	Same
Runway 18: RNAV (250 FT - 3/4 SM)	Same
Runway 36: Visual Only	Runway 36: ILS (200 FT - 2400 FT)

KEY

- Proposed Pavement
- Proposed Demolition
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Protection Zone (RPZ)
- Middle Third of Runway
- Airport Property Line
- Proposed Property Acquisition
- Proposed NAVAID

LAKE NASWORTHY
S. CONCHO DR.
BRIGHT AVE.
WARRIOR AVE.
LAKE SHORE BLVD.
ASPEN AVE.
WIND CONE
RUNWAY 9/27: 4,402 FT TO BE CONVERTED TO TAXIWAY
RUNWAY 3/21: 7,464 FT
RELOCATED SEGMENTED CIRCLE AND WIND CONE
2,370 FT EXTENSION
1,723 FT DEMO
WIND CONE
RELOCATED AIRPORT BEACON
PAPI
RUNWAY 18/36: 8,700 FT
WIND CONE
PAPI
MALSR
LAKE NASWORTHY
FISHERMAN RD.
KNICKERBOCKER RD.
HANGAR RD.
FAA RD.
REARY BLVD.
TERMINAL CIRCLE
HANGAR RD.
STEWART LN
WIND CONE
1,525 FT EXTENSION
AIRCRAFT RUN-UP APRON (B-II)
Route 584
SLEEPY
500' 0 500' 1,000'
GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4D
AIRSIDE ALTERNATIVE 4

Associated Projects

Several projects were identified that are necessary to meet each of the alternative's objectives. Due to the overlaps across alternatives, a matrix has been developed identifying each project and their inclusion in each alternative (see **Table 4A**).

TABLE 4A
Associated Projects

	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Taxiway A and Portion of Taxiway B Pavement Demo		X	X	X
Runway 18 End Pavement Removal and Runway 36 End Extension		X	X	X
Runway 9-27 Converted into Taxiway	X	X	X	X
Wind Cone and Segmented Circle Rotation		X	X	X
Airport Beacon Relocation		X	X	X
Runway 21 End Extensions and NAVAID Relocation			X	
Runway 18-36 PAPI Relocation		X	X	X
New ILS on Runway 3 End			X	
New ILS on Runway 36 End		X		X
Taxiway C Demolition		X	X	X
Taxiway D Demolition				X
Property Acquisition on Runway 3 End			X	
Property Acquisition on Runway 21 End		X	X	X
Property Acquisition on Runway 18 End		X	X	X
Property Acquisition on Runway 36 End		X	X	X

Alternative Evaluation Criteria

The evaluation of the alternatives followed the criteria as found in FAA's AC 150/5070-6B, *Airport Master Plans* and included the following:

- Best Planning Tenets
- Operational Performance
- Environmental Implications
- Financial Feasibility

Best Planning Tenets

Several best planning tenets were selected to determine the most responsible and implementable alternative within this Airport Master Plan. These include:

- Flexibility to accommodate unforeseen change (e.g., increases or decreases in activity levels, changes to fleet mix, new users).
- Technically feasible (e.g., considers site constraints and other limitations).
- Conforms to the City's goal of keeping development on Airport property and not losing any operational capability.

Operational Performance

An airport's ability to function as a system can be determined based on several factors:

- Capacity – The ability to accommodate future demand as determined in the facility requirements.
- Capability – The ability to meet airport design standards and ensure a safe operating environment.
- Operational efficiency – How well the alternatives work as a system to avoid delays, inefficiencies, airspace conflicts, etc. This also considers the coexistence of existing and future users.

Environmental Implications

As discussed in Chapter 1 – Inventory, there are several environmental resources that may be impacted to some degree as a result of airport development. To review each of the NEPA environmental categories associated with SJT in more detail, please refer to the Environmental Inventory section of Chapter 1 of this Master Plan. The following are the environmental criteria identified for SJT:

- Biological resources
- Cultural or historic resources
- Wetlands
- Floodplains and surface waters
- Air quality

Financial Feasibility

This analysis considers the impacts of each alternative in relation to the Airport's economic viability, as well as that of the surrounding community. The analysis also considers the estimated development costs associated with the various alternatives, along with prospective funding sources. The following were assessed as a part of this analysis:

- Development costs – Includes anticipated costs of development and potential alternative funding sources. Alternative funding sources include those other than the City or the FAA, such as private business owners and/or developers.
- Job creation – The potential of each alternative to create employment and other economic development benefits for the Airport and immediate surrounding area.
- Financial Sustainability – Anticipated opportunities for revenue generation through increased activity, new businesses, etc. in order to increase the Airport's ability to become more financially self-sufficient.

Alternative Evaluation Summary

Evaluation Criteria Descriptions and Analysis

The evaluation criteria described above were applied to each airside alternative. **Table 4.2** contains a detailed summary of each alternative evaluation.

Evaluation Scoring

Based on the qualitative and quantitative assessments presented, each evaluation criteria were assigned a comparative rating. The rating system ranked each criterion as either Negative (-1), Neutral (0), or Positive (+1).

The environmental category criteria outnumbered the criteria in other categories; thus, to ensure balanced results, the environmental category was weighted accordingly to equate to the other categories. A summary of the airside alternatives' evaluation scoring is presented in **Table 4B**.

Table 4.2 - Airside Alternatives Evaluation

	Description	Alternative 1: No Action	Alternative 2: Reducing Cost	Alternative 3: Maximize Runway Length	Alternative 4: Planning for Future Expansion
Comparative Features					
Best Planning Tenets					
Flexibility	Accommodates unforeseen change (e.g., increases or decreases in activity levels, changes to fleet mix, new users, etc.).	No change.	Runway 3-21 length is reduced to 4,400 feet limiting use by commercial aircraft.	This alternative shows the maximum possible runway lengths while still protecting the central portion of the RPZs. This would allow for a potential change in fleet mix or stage length of commercial operations.	The future east side parallel taxiway to Runway 3-21 would allow for additional aeronautical development on the east side of the airfield.
Technically Feasible	Considers site constraints and other limitations.	No change.	The proposed Runway 36 MALSR is off airport property.	The Runway 21 extension would require relocating an ALS off airport property and in an environmentally sensitive area. RSA and ROFA grading required in an environmentally sensitive area.	All improvements occur on airport property.
Conforms to the City's Goals	Conforms to the City's goal of keeping development on Airport property and not losing any operational capability.	No change.	The reduction in width of Runway 3-21 to 4,400 feet is a loss in operational capability. The future RPZ on the Runway 36 end extends significantly off airport property and would require an easement or acquisition.	This alternative maximizes operational capability, but requires locating an ALS and RSA/ROFA improvements off airport property.	All improvements occur on airport property, but total runway length is less than in other alternatives.
Operational Performance					
Capacity	Ability to accommodate future demand as determined in the facility requirements.	No change. Does not meet the recommended runway length of 8,700 feet.	Runway 18-36 is extended, but Runway 3-21 is reduced. Proximity of Runway 3 approach and departure surfaces to Runway 18-36 may restrict operations.	Provides maximum runway length and taxi routes.	Meets the recommended runway length of 8,700 feet and increases capacity through the addition of a parallel taxiway to the east side of Runway 3-21.
Capability	Ability to meet airport design standards and ensure a safe operating environment.	No change. Does not address current airfield deficiencies.	Runways are separated, but can not be operated simultaneously due to approach/departure surface clearance requirements.	Meets airport design standards and supports a safe operating environment.	Meets airport design standards and supports a safe operating environment.
Operational Efficiency	How well the alternatives work as a system to avoid delays, inefficiencies, airspace conflicts, etc. Considers the coexistence of existing and future users.	No change.	Moving the ILS to Runway 36 better accommodates IFR conditions and places commercial traffic closer to the terminal. Operations on Runway 18-36 would need to be restricted while Runway 3-21 is in use.	The Runway 36 extension allows Taxiway D to remain without crossing Runway 18-36 in the middle third of the runway. The ILS remains on Runway 3 which is less efficient for commercial operations.	Moving the ILS to Runway 36 better accommodates IFR conditions and places commercial traffic closer to the terminal. Future parallel taxiway provides additional taxi routes.

Table 4.2 - Airside Alternatives Evaluation (Continued)

	Description	Alternative 1: No Action	Alternative 2: Reducing Cost	Alternative 3: Maximize Runway Length	Alternative 4: Planning for Future Expansion
Comparative Features					
Environmental Implications					
Biological Resources	Adverse impacts to special status species and substantial loss, degradation, disturbance, or fragmentation of native species habitats or populations.	No change.	The proposed development occurs in areas previously identified as having the presence of biological resources. Additional environmental review and evaluation for all proposed development is needed prior to construction.	The proposed development occurs in areas previously identified as having the presence of biological resources. Additional environmental review and evaluation for all proposed development is needed prior to construction.	The proposed development occurs in areas previously identified as having the presence of biological resources. Additional environmental review and evaluation for all proposed development is needed prior to construction.
Cultural or Historic Resources	Potential for project to disturb any cultural, historic, or archaeological resources at the Airport.	No change.	Proposed development is not anticipated to have a significant impact. However, proposed development in previously undisturbed areas has to potential to impact underground resources, thus further review and coordination is needed prior to construction.	Proposed development is not anticipated to have a significant impact. However, proposed development in previously undisturbed areas has to potential to impact underground resources, thus further review and coordination is needed prior to construction.	Proposed development is not anticipated to have a significant impact. However, proposed development in previously undisturbed areas has to potential to impact underground resources, thus further review and coordination is needed prior to construction.
Wetlands	Wetlands identified at the north end of Runway 3-21.	No change.	The proposed development is not anticipated to have a significant impact.	The proposed Runway 21 extension and ALS location could impact wetlands identified in this area.	The proposed development is not anticipated to have a significant impact.
Floodplains and Surface Waters	Numerous floodplain resources, lakes, rivers, and other water bodies are located in the vicinity of the Airport.	No change.	There will be an increased amount of impervious surface due to the proposed development. Further review and coordination prior to construction is needed to determine impact to floodplains and surface waters.	There will be an increased amount of impervious surface due to the proposed development. Further review and coordination prior to construction is needed to determine impact to floodplains and surface waters.	There will be an increased amount of impervious surface due to the proposed development. Further review and coordination prior to construction is needed to determine impact to floodplains and surface waters.
Air Quality	Anticipated change in emissions.	No change.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.

Table 4.2 - Airside Alternatives Evaluation (Continued)

	Description	Alternative 1: No Action	Alternative 2: Reducing Cost	Alternative 3: Maximize Runway Length	Alternative 4: Planning for Future Expansion
Comparative Features					
Financial Feasibility					
Development Costs	Anticipated costs of development, considering potential alternative funding sources.	No change.	Approximately $36 million in development costs including runway/taxiway pavement, NAVAID relocation, and airfield lighting and signage.	Approximately $58 million in development costs including runway/taxiway pavement, NAVAID relocation, and airfield lighting and signage.	Approximately $65 million in development costs including runway/taxiway pavement, NAVAID relocation, and airfield lighting and signage.
Job Creation	Via employment, economic development, etc.	No change.	Some temporary employment opportunities tied to project design and construction would occur.	Some temporary employment opportunities tied to project design and construction would occur.	Some temporary employment opportunities tied to project design and construction would occur. Additionally the construction of the east side Runway 3-21 parallel would facilitate future aeronautical expansion and additional jobs.
Financial Sustainability	Revenue generation through increased activity and new businesses, etc. in order to increase the Airport's ability to become more financially self-sufficient.	No change.	Reduction in size of Runway 3-21 would reduce pavement maintenance costs.	Longer runway lengths would allow airlines to offer more non-stop destinations if desired.	Runway 3-21 parallel would facilitate future aeronautical expansion and revenue.

TABLE 4B
Airside Alternatives Evaluation Summary

-1: Negative 0 : Neutral +1: Positive	Alternative 1: No Action	Alternative 2: Reducing Cost	Alternative 3: Maximize Runway Length	Alternative 4: Planning for Future Expansion
Comparative Features				
Best Planning Tenets = 25% Weighting Factor				
Flexibility	-1	-1	1	1
Technically Feasible	0	-1	-1	1
Conforms to the City's Goals	0	-1	0	0
Operational Performance = 25% Weighting Factor				
Capacity	-1	0	1	0
Capability	-1	0	1	1
Operational Efficiency	-1	0	0	1
Environmental Implications = 25% Weighting Factor				
Biological Resources	0	-1	-1	-1
Cultural or Historic Resources	0	0	0	0
Wetlands	0	0	-1	0
Floodplains and Surface Waters	0	-1	-1	-1
Air Quality	0	-1	-1	-1
Financial Feasibility = 25% Weighting Factor				
Development Costs	+1	-1	-1	-1
Job Creation	0	+1	+1	+1
Financial Sustainability	-1	+1	+1	+1
Summary Score				
Summary Score	-4	-3.8	0.6	3.1
Ranking				
Ranking	4	3	2	1

Preferred Airside Alternative

As shown in the previous tables, Alternative 4 received the highest summary score of all the alternatives. This alternative has been selected as the Preferred Airside Alternative. This alternative also incorporates proposed locations for wind cone and segmented circle relocations, the airport beacon relocation, and proposed taxiway nomenclature to meet FAA design standards. Cost estimates for the proposed improvements will be completed as part of the implementation and financial plan chapter.

LANDSIDE ALTERNATIVES

This section of the alternatives analysis examines the future placement and feasibility of new or redeveloped landside facilities to address existing operational concerns, meet the facility requirements identified in the previous chapter, and achieve the airport's vision. It primarily evaluates development scenarios against several factors to determine a preferred development plan that minimizes environmental and community impacts while complying with applicable FAA regulations.

To a feasible extent, the development of landside alternatives aims to promote the highest and best use of airport property by delineating specific aviation activity areas in the interest of operational continuity and efficiency. This may include relocating facilities to provide for expansion of adjacent facilities, redeveloping facilities that are reaching or have exceeded their useful life, or reconfiguring facilities to improve operational efficiency.

In addition to meeting the facility requirements, airport development options also sought to:

- Define and delineate aviation, non-aviation, and other general land uses within the existing airport property limits;
- Evaluate the expansion capabilities of the aviation business and industrial functions of the airport, as well as the expansion of small general aviation aircraft storage facilities;
- Account for local and regional comprehensive plans; and
- Consider the financial feasibility of each viable landside alternative.

During the 20-year planning horizon, the existing commercial service terminal area will remain the core around which other aviation activities are coordinated. To provide the airport with the capability to respond to unforeseen demand, areas have been identified to accommodate facility improvements development beyond what is required to accommodate the forecasts prepared in this study.

The identification and evaluation of the landside alternatives are outlined as follows:

- Airport Land Use and Activity Areas
- Evaluation Criteria
- Commercial Aviation Alternatives

- Business Aviation Industrial Alternatives
- General Aviation Alternatives
- Support Facilities
- Preferred Development Alternative

Airport Land Use and Activity Areas

Effective planning of airport landside development requires careful consideration of defined land use development areas and the relationship between airport activity centers. Activity centers include various designated areas within portions of airport property where certain aeronautical or non-aeronautical activity occurs.

In addition to the airfield operations area, the airport activity centers identified for SJT include, general aviation, commercial airline, air cargo, aviation business/industrial, and areas for various non-aeronautical uses, among others.

As aviation activity increases and new airport infrastructure becomes realized, the smooth functioning of these activity centers and the relationships between them will become increasingly important.

Land Use Development Areas

The identification of landside alternatives begins with the development of a land use plan to identify developable space and delineate activity areas to promote airport efficiency and avoid operational conflicts.

As shown in **Exhibit 4E** and listed below, the land uses at SJT include aviation, non-aviation, mixed-use, restricted development, and open space. The aviation, non-aviation, and mixed-use areas are comprised of activity centers to promote aviation safety and operational efficiency.

- Airfield Operations Area (AOA)
- Aviation Development
  - Commercial Aviation Activity Area (CA)
  - Aviation Business/Industrial
  - General Aviation
  - Air Cargo

- Non-Aviation Development
  - Non-Aeronautical Support
- Airport Compatible Development (Mixed Use)
  - Governmental
- Restricted Development
  - Existing Easement
- Open Space

LEGEND

LAND USE DEVELOPMENT AREA	ACTIVITY	
Restricted Development (Reserved)	AO	Airfield Operations (766 AC)
Aviation Development	BI	Aviation Business/Industrial (293 AC)
Non-Aviation Development	C	Cargo (8 AC)
Airfield Operations (Restricted)	G	Governmental (28 AC)
Airport Compatible Development (Mixed Use)	GA	General Aviation (110 AC)
Airport Property Line	CA	Commercial Airline (45 AC)
	OS	Open Space (178 AC)
	E	Existing Easement (275 AC)
	NA	Non-Aeronautical Support (75 AC)

600' 0 600' 1200'

GRAPHIC SCALE IN FEET

E
119 AC

E
157 AC

CA
25 AC

BI
203 AC

AO
760 AC

OS
165 AC

E
3 AC

AO
6 AC

G
46 AC

BI
74 AC

CA
20 AC

GA
110 AC

OS
13 AC

C
8 AC

NA
75 AC

SAN ANGELO REGIONAL AIRPORT

Exhibit 4E
AIRPORT LAND USE & ACTIVITY AREA DESIGNATIONS

Airfield Operations

The Airfield Operations Area (AOA) is a restricted access area that is primarily used for aircraft taxi, takeoff and landing. The AOA at SJT circumferences the airport runway and taxiway system and covers approximately 760 acres. Presented in the Airside Alternatives section, proposed development in the AOA is governed by FAA airport design standards and generally limited to infrastructure and navigational equipment to support the landing, take-off, and taxiing of aircraft.

Aviation Development

The Aviation Development land use at SJT is comprised of several activity areas with direct or indirect airfield access and is therefore designated for aviation related development only.

The activity areas that comprise the Aviation Development land use at SJT are described as follows.

Commercial Aviation Activity Area (CA)

Commercial aviation is the part of civil aviation (non-military) that involves operating aircraft for compensation or hire to transport passengers or cargo. As such, the commercial activity area(s) at SJT support FAR Part 121 commercial air carrier activities, Part 135 aircraft charter activities, and air cargo activities.

The Commercial Activity areas at SJT include two distinct areas of airport property totaling approximately 45 acres of land. This includes 20 acres (+/-) on the airport's west side with limited expansion potential where the existing commercial airline activities are accommodated and a 25-acre area on the east side of the airport.

To meet the airport's objectives for supporting commercial air service within the planning period, this effort considered the following needs:

- Reconfiguration/expansion of the existing terminal building space to improve operational efficiency and accommodate additional air carrier activity.
- Reconfiguration/expansion of the short-term commercial terminal automobile parking facilities to improve operational efficiency and accommodate the needs of the existing rental car service providers.
- Identification of a suitable location for the development of a consolidated quick turnaround facility to better serve the functions of rental car service providers; and Since the existing tower has surpassed its useful life and presents a constraint to future air carrier terminal expansion, the
- Identification of a suitable location for the development of a new air traffic control tower.

Although the any relocation of commercial airline activities would likely occur beyond the planning period and coincide with the planned development of I-27 to the airport's east, it is recommended

that the 25 acres identified as "CA" on the east side be reserved for this potential, although the construction of a new commercial airline terminal in this area would still require land acquisition.

Aviation Business/Industrial (BI)

The Aviation Business/Industrial activity area identified at SJT is made up of nearly 300 acres of land among two areas; 203 acres north of Runway 9-27 in the midfield of the airport, and 74 acres (+/-) adjacent to the commercial terminal area between Taxiway B and Knickerbocker Road. As mentioned previously, the midfield area considers the eventual closure of Runway 9-27 and determined to be best suited for corporate business aviation and aviation industrial related development.

In the area west of Taxiway B and north of the Commercial Terminal, the airport's Real Estate Development Strategy Plan (Appendix A) identified potential development of an Aviation Industrial Park, Aero Complex, and an Aviation Workforce Development Center.

While the findings of the Facility Requirements suggest that the airport has enough space within the 74-acre area to accommodate aviation business industrial development within the 20-year planning period, specific user needs could also be accommodated by development in the midfield area.

General Aviation (GA)

The General Aviation activity area includes approximately 110 acres of land adjacent to Taxiway B and south of the commercial terminal where based and transient civil aviation activities other than scheduled air services originate and terminate. To meet the GA objectives of the airport, this effort will provide a conceptual layout that considers how the development/redevelopment and/or a reconfiguration of this area would best accommodate the existing and anticipated general aviation aircraft storage needs at the airport.

Air Cargo (C)

Air cargo operations at the airport currently take place on the apron just south of the commercial terminal building and passenger parking areas. While the aviation forecasts did not identify any additional air cargo demand, the alternatives consider how the airport could accommodate expanded air cargo services if unforeseen demand occurs within the planning period.

Non-Aviation Development

Land use identified for non-aviation development includes area(s) best suited for non-aviation development. At SJT this area includes only one activity area identified as, Non-Aeronautical Support.

Non-Aeronautical Support (NA)

The 75-acre area identified as non-aeronautical support is located along Knickerbocker Road in the most western portion of the property and is identified as such due to its lack of direct airfield access and considered non-essential for aviation due to its remote location. Within the 75-acre area, the airport's Real Estate Development Strategy Plan identified areas for the potential development of a Commerce Park and community-related activities.

Airport Compatible Development

Land use identified as Airport Compatible/Mixed use is made up of revenue generating development consistent with on-going airport functions and the airport sponsor's objectives. Development in this area is triggered by demand and may or may not require airfield access.

Restricted Development

Land Use identified as Restricted Development serves to maintain FAA safety/protection zones and prevent potential hazards to air navigation. At SJT, this land use is comprised of avigation easements associated with the runway protection zones and FAR Part 77 surfaces of the airport.

An avigation easement is a conveyance of a specified property interest for an area that restricts the use by the owner of the surface and yet assures the owner of the easement the right and privilege of a specific use contained within the easement document. Where it is determined that ownership in fee title is not necessary, an avigation easement may be used to secure airspace for airport and runway approach protection and may prohibit the construction of all above ground objects. Easements may also contain any number of additional restrictions as the airport owner deems necessary.

Existing Easement (E)

Totaling approximately 275 acres, SJT maintains avigation (aviation) easements to the north, northeast and west of the airport. Generally, these easements are agreements between property owners and the airport that gives the airport air rights over property, which allows the regulation of structures or vegetation in the interest of aviation safety.

RPZ Easement

For Runway Protection Zones (RPZs), airport owners should maintain sufficient interest to offer protection from obstructions and incompatible land use. While ownership of RPZ land in fee simple is recommended, a 13-acre easement is located north of Runway 18 is in place to avoid introducing potential hazards to air navigation.

Existing Development Constraints

Other than the limited availability of public funds for airport development and the airport's desire to avoid having to relocate Knickerbocker Road, there are no known development constraints at the airport. Airport soil conditions present an environmental challenge that is common among all future development. This challenge can largely be overcome during the engineering design process for any new development.

Landside Alternatives Evaluation Criteria

A set of evaluation criteria was developed to provide an equal and consistent assessment of each landside alternative. The criteria for the landside alternatives vary slightly from the airside alternatives in that the evaluation criteria considers airport land use compatibility and are weighted and defined differently. Other than Knickerbocker Road that cannot be relocated and soil

conditions that can largely be overcome during the engineering design process, and general funding availability, there are no known development constraints at the airport.

The evaluation criteria pose questions regarding how well each alternative satisfies user needs and considers best planning tenets, operational performance, environmental implications, and financial impacts and are described as follows:

Best Planning Tenets

- Does the alternative meet or exceed user needs?
- Is the alternative compatible with airport land-use designations?
- Does the alternative provide flexibility to adjust to unforeseen changes?
- Does the alternative have any significant site constraints or pose significant engineering/construction challenges?
- Is the alternative compatible with the airport's vision?

Operational Performance

- Does this alternative contribute to the development of a smoothly functioning airport with efficient movement of aircraft?
- Does this alternative leave flexibility for change and future surrounding development?
- Does the alternative accommodate forecasted growth throughout the planning period or provide for growth beyond the planning horizon?

Environmental Implications

- What are the potential environmental effects of the alternatives per the impact categories defined in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures and FAA Order 5050.4B, FAA Airports guidance for complying with the National Environmental Policy Act (NEPA)?

Financial Impacts

- Is the alternative financially feasible?
- Does the alternative afford opportunities for airport management to increase revenue generation thereby improving the financial sustainability and cost effectiveness of the airport?
- What potential does the alternative provide for job creation?

Landside Alternatives

The alternatives identified and evaluated in the following subsections have been created to meet or exceed the facility requirements summarized in **Table 4C**, except that the alternatives are also measured against a no-build or "Do-Nothing" alternative scenario. In some cases, where development scenarios have already been decided by the sponsor, the alternatives include only two options; the build and no-build scenario. The individual landside development alternatives are presented in four primary airport function categories and evaluated against one another. The highest scoring

alternatives among each function will comprise the preferred landside development alternative presented in the next chapter.

TABLE 4C
Summary of Landside Facility Requirements

Commercial Aviation	
Terminal Area Requirements *	
Aircraft Parking Positions	Expansion may be needed if new air carrier service is introduced
Boarding Gates	Expansion may be needed for simultaneous 3 gate operations
Inbound Baggage Makeup and Baggage Claim	Expansion may be needed if new air carrier is introduced
Terminal Access and Parking	Additional Short-term parking desired by sponsor
Rental Car Services	
Rental Car Parking	Rental Car Parking Layout Reconfiguration desired by sponsor
Rental Car Quick Turnaround	Consolidated QTA desired by sponsor (Current providers occupy two separate areas to fuel and prepare rental cars for use)
Air Cargo Facilities	
Cargo Facilities	No immediate Action Needed – Preserve Area to accommodate unforeseen demand
Aviation Business Industrial Requirements	
Aircraft Hangars	Construct additional T-hangars and conventional hangars
General Aviation Requirements	
Aircraft Hangars	Construct additional T-hangars and conventional hangars
Support Facility Requirements	
Aircraft Traffic Control Tower	No Immediate Action Needed – However facility is aging and does not meet ADA requirements. Maintenance is an ongoing challenge to identify recommended site for new ATCT if funding becomes available
Fuel Facilities	No immediate Action Needed – Consolidated Fuel Farm Facility desired by sponsor

** Terminal requirements based on baseline forecast. If additional service is introduced on a similar schedule, improvements will be needed.*

Comprised of individual components, landside development alternatives were developed for the existing airport functions at SJT and are categorized as follows:

Commercial Aviation

- Commercial Terminal Building Improvement/Expansion
- Commercial Terminal Area Development
  - Auto Parking Expansion
  - Rental Car Parking Expansion/Reconfiguration and Consolidated Rental Car Quick Turnaround (QTA)Facilities
  - Air Cargo Expansion

Business Aviation/Industrial

- Business/Corporate Aviation Hangar Development
- Specialized Aviation Services Operations Hangar Development
- Government Agency Services Expansion

General Aviation

- General Aviation Hangar Development

Airport Support Facilities

- Air Traffic Control Tower Site Selection
- Consolidated Aviation Fuel Farm Facilities
- Self-Serve GA fueling facility

All development options consider the maximum potential impact. In many cases, options shown may identify more development than demand may warrant when it comes time for construction. To preserve long-term flexibility and avoid any reconstruction costs, the alternatives identify the maximum potential outcome. If demand is not justified at the time of construction, this plan recommends incorporating future expansion into the design and construction. In such instances, an agreement between the airport, the FAA Airport District Office, and the entity providing engineering design services should be established.

Commercial Aviation Landside Alternatives

Commercial Terminal Building Improvement/Expansion

The Facility Requirements indicated that simultaneous two airline operations could cause existing airline operations to become congested. While there is no immediate need to expand or reconfigure the existing air carrier terminal today, the airport requested that the alternatives consider warranted improvements to accommodate additional air carrier service or simultaneous gate operations.

In addition to Alternative 1 (no-build scenario), Alternative 2 presented in **Exhibit 4F** and Alternative 3 presented in **Exhibit 4G** provide options that expand the existing terminal by providing an additional gate and passenger boarding bridge as well as the expanded baggage handling facilities.

Assessing the No-Build Commercial Terminal Building Alternative against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In a no-build scenario the airport terminal area would continue to operate as it is today, with no disruptions to existing operations or the existing activity areas on the airport. This alternative is compatible with adjacent land uses as no new development is proposed that will impact either on or off-airport land use.

- **Operational Performance** - In a no-build scenario, the airport provides no flexibility for change and would be unprepared to respond to unforeseen demand if changes to existing flight schedules or additional air carrier demand presented itself.

- **Environmental Implications** - As no changes to the airport are proposed under this alternative, no environmental impacts will occur as a result of this alternative.

- **Financial Impacts -** As no new development is proposed as part of the No-Build Alternative, the potential to generate additional revenue or create jobs is non-existent.

The assessment of Commercial Terminal Building Alternative 2 and Alternative 3 against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In Alternative 2 the airport would be better prepared to meet unforeseen changes in commercial service demand by having a terminal development plan in place. However, these alternatives would cause some disruption to existing operations as the airport would likely lose the use of one of its three existing gates as improvements are made. The no-build alternative is not desirable since the airport would be unprepared if unforeseen demand presented itself.

- **Operational Performance** – Of the existing terminal alternatives, Alternative 2 would maintain continuity with existing commercial aircraft operations without impacting air cargo and GA operations to the south and would allow the airport to effectively respond to unforeseen demand if changes to existing flight schedules or additional air carrier demand presented itself. Alternative 3 encroaches on the airport's Security Identification Display Area (SIDA) and would negatively impact existing operations on the apron since air carrier aircraft taxiing to the gate would likely interfere with on-going cargo operations and GA operations to the south.

- **Environmental Implications** – Since changes are limited to the confines of the existing terminal area, no environmental impacts are anticipated.

KEY

Proposed Expansion

Terminal Building Development

Terminal Building Development

Baggage Handling Development

PORCH

PORCH

30' 0 30' 60'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4F

COMMERCIAL TERMINAL BUILDING

ALTERNATIVE 2

KEY

Proposed Expansion

Terminal Building Development

Baggage Handling Development

PORCH

PORCH

30' 0 30' 60'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4G

COMMERCIAL TERMINAL BUILDING ALTERNATIVE 3

- **Financial Impacts –** While the costs associated with making improvements to the existing terminal would initially have negative financial impacts, the potential to generate additional revenue and create jobs over the long-run has the potential to provide a greater benefit to the airport and city over time.

The evaluation of the alternatives for commercial terminal building improvements are presented in **Table 4D.**

TABLE 4D
Commercial Terminal Development Alternatives

-1: Negative 0: Neutral 1: Positive	Commercial Terminal Development Alt 1	Commercial Terminal Development Alt 2	Commercial Terminal Development Alt 3
Best Planning Tenets = 25% Weighting Factor			
Land Use Compatibility	0	0	0
Technical Feasibility	0	0	0
Airport Vision Alignment	-1	1	1
Operational Performance = 25% Weighting Factor			
Capacity	-1	1	1
Capability	-1	1	-1
Operational Efficiency	1	0	-1
Environmental Implications = 25% Weighting Factor			
Biological Resources	0	0	0
Cultural or Historic	0	0	0
Wetlands	0	0	0
Floodplains and Surface	0	0	0
Air Quality	0	0	0
Financial Feasibility = 25% Weighting Factor			
Development Costs	1	-1	-1
Job Creation	-1	1	1
Financial Sustainability	-1	1	1
Summary Score	-5	4	1
Recommended	**Commercial Terminal Development Alternative 2**		

Commercial Terminal Building Improvement/Expansion Alternatives Conclusion

The inability to respond to unforeseen changes in demand and operational drawbacks make Alternative 1 and Alternative 3 unworthy of serious consideration. Therefore, it is recommended that the ALP depict an area to expand the existing air carrier terminal to the north and the airport pursue a separate stand-alone terminal study to determine a preferred terminal design improvement option and associated costs for expanding the existing terminal.

Commercial Terminal Area – Auto Parking and Hangar Redevelopment

Airport discussions during the planning process revealed that aircraft charter activities, the timing/overlap of flights, and the relatively high number of work trucks that occupy short-term parking causes the short-term automobile parking to become constrained. Another generator of automobile parking demand that causes challenges to automobile parking is the restaurant inside the terminal, on the non-secure portion of the building. While actual parking demand associated with the restaurant is not specifically known, restaurant business typically peaks during lunchtime hours and its patrons, who don't require airline tickets for access, use the short-term parking area that is currently free of charge.

Considering these discussions, alternatives to improve and reconfigure the various terminal area facilities were studied.

During development of the alternatives for this area, it was determined that structural and fire suppression improvements in excess of $1 million would be required before the hangar could be occupied by a new tenant. Furthermore, it has been made apparent that the significant size of the hangar is a deterrent to prospective tenants. Consequently, the redevelopment of this area was considered.

In addition to the No-Build Alternative (Alternative 1), alternatives that provide additional short-term parking and the redevelopment of the AMCOM South hangar area were developed.

Commercial Terminal Automobile Parking Alternative 2 presented in **Exhibit 4H** sought to meet airport objectives by developing a scenario that does the following:

- Adds 62 additional automobile parking spaces to the existing short-term lot;
- Relocates and expands the rental car auto parking area providing for 160 total spaces;
- Plans for the removal and redevelopment of the AMCOM South hangar area; and
- Provides overflow auto parking facilities to accommodate parking associated with proposed aviation business/industrial hangar facilities and additional unforeseen aircraft charter customers.

Commercial Terminal Auto Parking and Hangar Alternative 3 presented in **Exhibit 4I** sought to meet airport objectives by developing a scenario that does the following:

- Adds 62 additional automobile parking spaces to the existing short-term;

- Relocates rental car auto parking area providing for 71 spaces and a rental car quick turnaround facility.
- Plans for the removal and redevelopment of the AMCOM South hangar area; provides two new aircraft hangar storage facilities; and
- Provides auto parking facilities (60 spaces) for the proposed hangar facilities and additional overflow parking.

Commercial Terminal Auto Parking and Hangar Alternative 4 presented in **Exhibit 4J** sought to meet airport objectives by developing a scenario that does the following:

- Adds 62 additional automobile parking spaces to the existing short-term lot by relocating the rental car parking;
- Relocates rental car auto parking area providing for 57 spaces.
- Plans for the removal and redevelopment of the AMCOM South hangar area; provides three (3) new 80' x 100' aircraft hangar storage facilities; and
- Provides 84 auto parking spaces to accommodate new hangar facility parking needs and additional overflow parking.

The assessment of a Terminal Area No-Build Alternative against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In a no-build scenario the airport terminal area would continue to operate as it is today, with no improvements to short-term parking capacity or disruption to existing operations. This alternative is compatible with adjacent land uses as no new development is proposed.

- **Operational Performance** - In a no-build scenario, the airport provides no flexibility for change and would not accommodate unforeseen growth. Perhaps more importantly, a no-build scenario does not support the need for improved capacity and efficiency for the rental car service providers or commercial passengers who leave their cars parked at the airport when traveling on air carrier or charter aircraft.

- **Environmental Implications** – Since no changes to the airport are proposed under this alternative, no environmental impacts are associated with this alternative.

- **Financial Impacts -** Since new development is not proposed in the No-Build Alternative, there are no associated development costs and the potential to generate additional airport revenue or job creation does not exist.

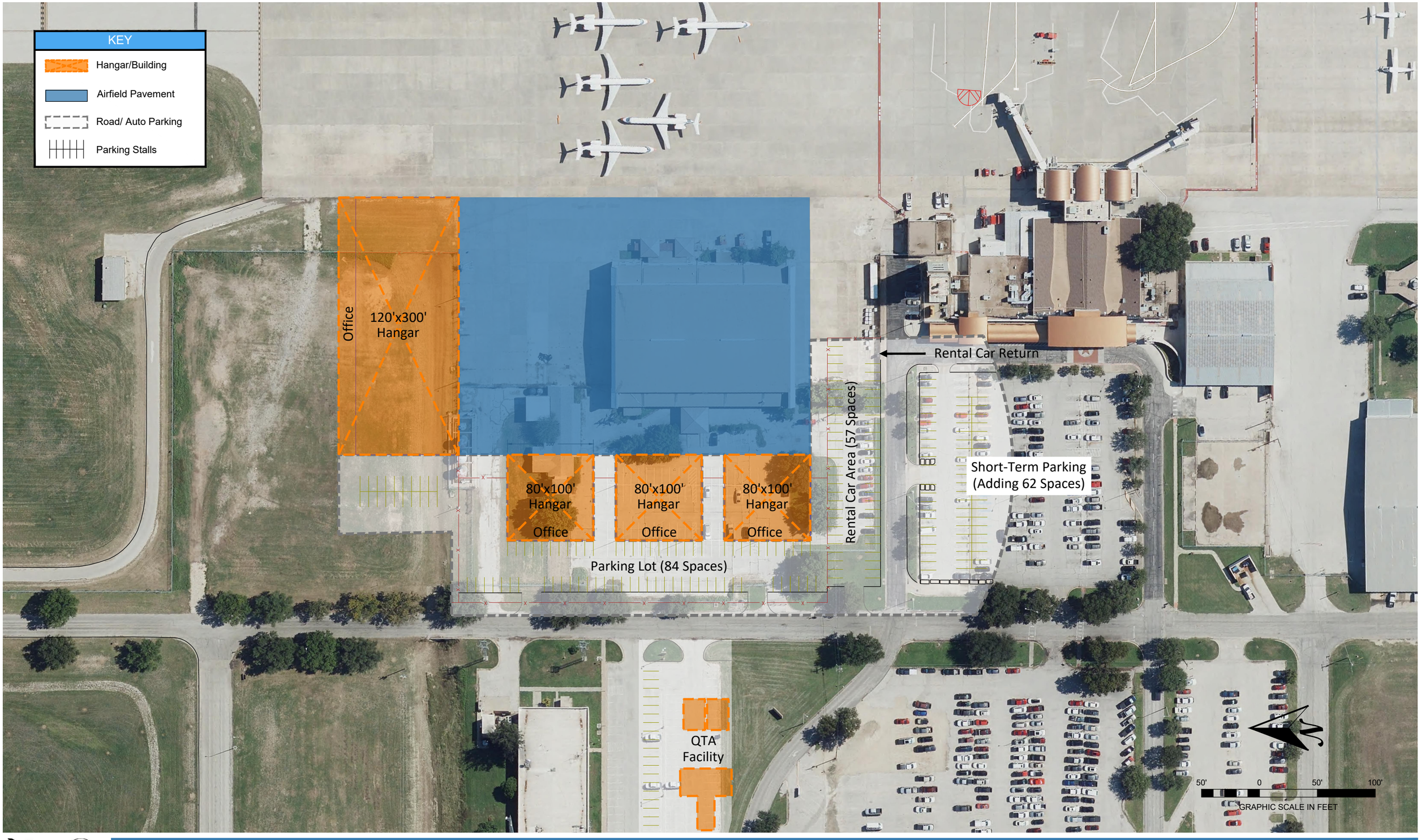

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Exhibit 4J
TERMINAL AUTO PARKING & HANGAR REDEVELOPMENT
ALTERNATIVE 4

The assessment of the Commercial Terminal Area Development Alternative 2, 3, and 4 against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In Alternative 2 the airport would improve the auto parking and rental car functions of the airport. Redeveloping the AMCOM South hangar area would also enable the airport to meet the near and long-term demand for aviation business/industrial facilities. This alternative would temporarily disrupt the existing automobile operations as the airport would temporarily lose a portion of its short-term lot and require users to park further from the terminal. From a social and political standpoint, the expansion of automobile parking and the redevelopment of the AMCOM South Hangar area has the support of local government officials who view this alternative favorably. Alternative 2 is also most desired since it provides more hangar space than Alternative 3 and more flexibility for user needs than Alternative 4. Since this area provides optimal space for aviation specific use, a QTA facility in this area as shown in Alternative 3 and Alternative 4 does not make the highest and best use of this space.

- **Operational Performance** – Alternative 2 provides flexibility for change and would allow the airport to effectively respond to unforeseen demand if changes to existing flight schedules or additional air carrier demand presented itself. While the development of landside terminal area improvements would cause temporary disruption to existing activities, the benefits of proposed development outweigh the short-term negative impacts.

- **Environmental Implications** – Other than the potential need to address stormwater impacts that could occur as a result of additional impervious surface, no negative environmental impacts are anticipated.

- **Financial Impacts –** By improving the automobile parking facilities and rental car services infrastructure, the potential to generate additional revenue through a new auto parking fee structure and land leases provide financial sustainability benefits through long-term revenue that would likely outweigh the short-term costs to the city. By making the highest and best use of this space for aviation purposes. Alternative 2 has the greatest revenue generating potential out of all three.

The alternatives for commercial terminal area development improvements have been assessed and summarized in **Table 4E.**

TABLE 4E
Commercial Terminal Area Development Alternatives

-1: Negative 0 : Neutral 1 :Positive	Terminal Development No-Build Alt 1	Terminal Area Development Alt 2	Terminal Area Development Alt 3	Terminal Area Development Alt 4
Best Planning Tenets = 25% Weighting Factor				
Land Use Compatibility	0	0	-1	-1
Technical Feasibility	0	0	0	0
Airport Vision Alignment	-1	1	0	0
Operational Performance = 25% Weighting Factor				
Capacity	-1	1	0	0
Capability	-1	1	0	0
Operational Efficiency	-1	1	1	1
Environmental Implications = 25% Weighting Factor				
Biological Resources	0	0	0	0
Cultural or Historic Resources	0	0	0	0
Wetlands	0	0	0	0
Floodplains and Surface Waters	0	-1	-1	-1
Air Quality	0	0	0	0
Financial Feasibility = 25% Weighting Factor				
Development Costs	1	-1	-1	-1
Job Creation	-1	1	0	0
Financial Sustainability	-1	1	0	0
Summary Score	-7	4	-2	-2
Recommended Alternative	**Terminal Area Development Alternative 2**			

Commercial Terminal Area Auto Parking and Hangar Development Alternatives Conclusion

Based on input received from the master planning committees and airport leadership, Alternative 2 is preferred. The selection of this alternative was made since it maximizes vehicle parking spaces, separates rental cars from general airport parking and the proposed redevelopment of the AMCOM. South hangar area is optimal and meets the aviation needs of potential tenants interested in developing facilities at the airport in the near term.

Commercial Terminal Area – Rental Car Quick Turn Around Facility Development

Rental Car Quick Turn-Around (QTA) buildings are innovative airport facilities that allow rental car service providers to clean and fuel rental cars most efficiently to meet the current demands of airport customers. To improve the efficiency of how these functions are executed today, and accommodate future growth, potential locations for the development of a consolidated QTA facility were identified.

Coupled with expanded rental car automobile parking facilities, a consolidated QTA will allow the rental car services providers to operate much more efficiently. Additionally, a consolidated QTA facility has the potential to attract a new rentalcar service provider(s) to the airport.

In the no-build, Alternative 1 scenario, the rental car providers would see no improvement to their current operations. Rental Car Quick Turn Around Facility Development Site Alternatives 2,3, and 4 are presented in **Exhibit 4K**.

The assessment of a Rental Car Quick Turn Around Facility No-Build Alternative (Alternative 1) against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In a no-build scenario, the rental car service providers would continue to operate as they do today, with no improvements to existing operations. This alternative is compatible with adjacent land uses as no new development is proposed.

- **Operational Performance** - In a no-build scenario, the airport provides no flexibility for change and would not accommodate unforeseen growth and the likelihood of attracting new business is diminished. Perhaps more importantly, a no-build scenario does not support the need for improved efficiency for the rental car service providers.

- **Environmental Implications** – Since no changes to the airport are proposed under this alternative, there are no associated environmental impacts.

- **Financial Impacts -** Since new development is not proposed in Alternative 1, there are no associated development costs and the potential to generate additional airport revenue or job creation does not exist.

KEY

QTA Area

QTA Site Alternative 4

QTA Site Alternative 3

QTA Site Alternative 2

TERMINAL CIR.

HANGAR RD.

REARY BLVD.

REARY BLVD.

STEWART LN.

50' 0 50' 100'

GRAPHIC SCALE IN FEET

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Exhibit 4K

CONSOLIDATED RENTAL CAR QTA FACILITY SITE
ALTERNATIVE 2, 3 & 4

The assessment of the Rental Car Quick Turn Around Facility Alternatives 2, 3, and 4 against the evaluation criteria are summarized as follows:

- **Best Planning Tenets** – Alternatives 2, 3 and 4 do not have any known site constraints from an engineering/design standpoint and each include enough space for the development of a QTA facility. However, from a land use compatibility, flexibility, and airport vision perspective, Alternative 2 has the least number of drawbacks. Alternative 3 conflicts with the proposed redevelopment of the AMCOM South hangar and Alternative 4 conflicts with the proposed land use identified in the Airport Real Estate Strategy Plan.

- **Operational Performance** – Alternatives 2, 3, and 4 all have the same general proximity to the terminal building and share the same operational characteristics regarding location. However, when compared to Alternatives 3 and 4, Alternative 2 has a larger footprint and provides more flexibility for change. Additionally, since the location of Alternative 2 is slightly more remote than Alternatives 3 and 4, Alternative 2 would cause the least disruption to existing activities during construction.

- **Environmental Implications** – Other than the potential need to address stormwater impacts that could occur as a result of additional impervious surface, no environmental impacts are anticipated.

The evaluation of the Rental Car QTA development site alternatives assessment is presented in **Table 4F.**

TABLE 4F
Rental Car QTA Development Site Alternatives

-1: Negative 0 : Neutral 1 :Positive	QTA No-Build Alt 1	QTA Development Site Alt 2	QTA Development Site Alt 3	QTA Development Site Alt 4
Best Planning Tenets = 25% Weighting Factor				
Land Use Compatibility	0	0	-1	-1
Technical Feasibility	0	0	0	0
Airport Vision Alignment	-1	1	-1	-1
Operational Performance = 25% Weighting Factor				
Capacity	-1	1	-1	-1
Capability	-1	1	1	1
Operational Efficiency	-1	1	1	1
Environmental Implications = 25% Weighting Factor				
Biological Resources	0	0	0	0
Cultural or Historic Resources	0	0	0	0
Wetlands	0	0	0	0
Floodplains and Surface Waters	0	-1	-1	-1
Air Quality	0	0	0	0
Financial Feasibility = 25% Weighting Factor				
Development Costs	1	-1	-1	-1
Job Creation	-1	1	1	1
Financial Sustainability	-1	1	1	1
Summary Score	-5	4	-1	-1
Recommended Alternative	**Rental Car QTA Development Site Alternative 2**			

Rental Car QTA Development Site Alternatives Conclusion

Except for the no-build scenario, each of the alternatives provide enough space for the development of a consolidated Rental Car QTA Facility and each would provide improved operational efficiency.

However, since Alternative 3 and Alternative 4 have land use compatibility drawbacks and do not align with the airport's vision for overall development, Alternative 2 is the selected option. It is recommended that this area be depicted on the ALP.

Commercial Terminal Area – Air Cargo Development

To address the unforeseen demand for additional air cargo facilities, the alternatives sought to identify a potential location for expanding the air cargo functions of the airport. While the actual size of these facilities is unknown today, it is assumed that an additional facility, comparable in size to the existing air cargo facility is sufficient for planning purposes. By identifying a specific location for air cargo development and depicting it on the ALP, the airport will be better prepared to accommodate air cargo development if the need arises.

In the No-Build, (Alternative 1) scenario, a location for additional air cargo facilities would not be identified. If a location for air cargo expansion is not identified, the airport would be less prepared to respond to events that could trigger a need for new or expanded air cargo facilities. Moreover, this could lead to future air cargo facilities that do not promote continuity with existing operations.

Air Cargo Expansion Site Alternative 2 is presented in **Exhibit 4L.**

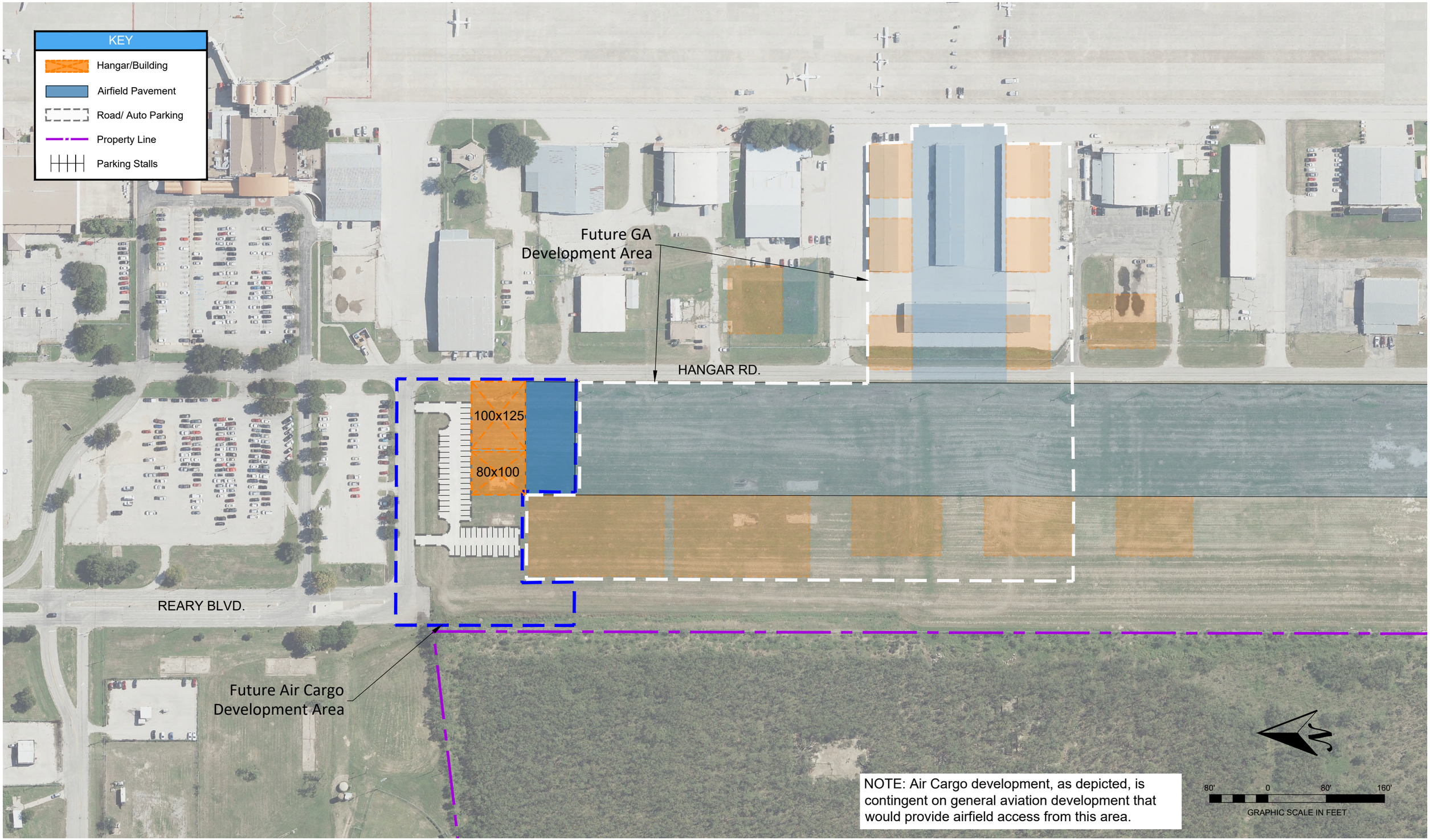

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Exhibit 4L
AIR CARGO EXPANSION
ALTERNATIVE 2

The assessment of an Air Cargo expansion do-nothing alternative (Alternative 1) and Alternative 2 against the evaluation criteria are summarized as follows:

- **Best Planning Tenets** – In a do-nothing scenario, the airport would be less prepared to accommodate the to develop additional/expanded air cargo facilities. By identifying a specific location for new or expanded air cargo facilities, land use compatibility with existing designations would be maintained. Alternative 2 is contingent upon additional development that would expand the aircraft movement capabilities of this area. Otherwise, Alternative 2 as shown, does not have airfield access.

- **Operational Performance** - In a do-nothing scenario, a specific area for air cargo development would not be shown on the ALP. While this would not prohibit such facilities to be developed, the likelihood of introducing operational conflicts is increased since not identifying a specific area may result in air cargo development occurring at a location on the airport that is suboptimal. Alternative 2 ensures that air cargo expansion can be accommodated in an area of sufficient size and the operations associated with such facilities promote continuity with existing operations. Notably however, for Alternative 2 to be realized, additional improvements to GA facilities and configuration would need to occur to provide aircraft access west of Hangar Road.

- **Environmental Implications** – In Alternative 1, since no location for air cargo development is proposed under this alternative, the environmental impacts are unknown. Alternative 2 allows for the environmental impacts associated with additional air cargo development to be understood in advance of actual demand.

- **Financial Impacts –** In Alternative 1, since no location for air cargo development is proposed under this alternative, job creation potential and additional airport revenue through a new land lease is unknown. Alternative 2 provides a footprint for air cargo development where construction costs, job creation, and potential revenues can be estimated.

The evaluation of the Air Cargo Expansion site alternatives assessment is presented in **Table 4G.**

TABLE 4G
Air Cargo Development Site Alternatives

-1 : Negative 0 : Neutral 1 : Positive	Air Cargo No-Build Alt 1	Air Cargo Development Site Alt 2
Best Planning Tenets = 25% Weighting Factor		
Land Use Compatibility	-1	1
Technical Feasibility	0	0
Airport Vision Alignment	-1	1
Operational Performance = 25% Weighting Factor		
Capacity	-1	1
Capability	-1	1
Operational Efficiency	-1	1
Environmental Implications = 25% Weighting Factor		
Biological Resources	0	1
Cultural or Historic Resources	0	1
Wetlands	0	1
Floodplains and Surface Waters	0	-1
Air Quality	0	0
Financial Feasibility = 25% Weighting Factor		
Development Costs	0	1
Job Creation	-1	1
Financial Sustainability	-1	1
Summary Score	-7	10
Recommended Alternative	**Air Cargo Development Site Alternative 2**	

Air Cargo Development Site Alternatives Conclusion

It is recommended that the recommended development site shown in Alternative 2 be depicted on the Aior ALP. The alternative was primarily selected over the Do-Nothing alternative since this gives the airport the ability to effectively respond to the need for expanded air cargo facility development in a manner that promotes land use compatibility and operational efficiency. Additionally, by understanding the size of the area preserved for future air cargo development, Alternative 2 allows the airport to estimate the financial implications associated with expanded air cargo facilities.

Business Aviation/Industrial Landside Alternatives

Aviation Business/Industrial Aviation Hangar Development

Considering the availability of existing developable space and the eventual closure of Runway 9-27, aviation compatible sites and opportunities for expansion have been identified to accommodate future aviation business/industrial hangar development. Since the west side of the airport, adjacent to Taxiway A appears to be ample for the planning period, no specific alternatives have been evaluated for this area. However, if development within the airport midfield is desired, it is critical that the design and configuration of aircraft aprons and movement areas consider the airport's vision for the full build-out of this area. **Exhibit 4M** presents a concept that considers how development in this area provides for aircraft movements to and from the runway(s).

In addition, the alternatives considered insight gained through airport discussions and the development of the Airport Real Estate Development Strategy Plan which included significant outreach to better define the number of and size of hangars that would best suit the needs of potential airport tenants. More specifically, discussions with airport tenants suggested that a hangar size of 100' by 120' is optimal, and discussions with US Customs and Border Protection indicated that the development of a 120' by 150' would be ideal to accommodate their P-3 Orion aircraft.

As mentioned, the existing size and condition of the hangars associated with the former AMCOM Maintenance Repair and Overhaul (MRO) facility suggests that the redevelopment of that site provides the highest and best use. For business and industrial development, the most desired and suitable hangar size was a 12,000 square foot hangar. Smaller hangars are not capable of accommodating the types of aircraft that come to SJT for maintenance and repair services.

The aviation business/industrial hangar alternatives also sought to provide a full buildout of this area to include hangars of various sizes to accommodate a full-range of aircraft anticipated to operate in this area.

Also considered in these alternatives is the existing aircraft paint facility, a proven benefit to the airport. While the location of this facility is not ideal, it was determined too costly to relocate; therefore, it is assumed the facility will remain in its current location. However, to ensure the future viability of this facility, aircraft access improvements are needed. Since this facility offers the ability to co-locate supporting aircraft maintenance tenants; therefore, it will be preserved for continued similar uses.

Finally, it is critical that the design of the taxilanes and aprons in this are commensurate with the aircraft needing access to this area to maintain safety avoid restrictions.

KEY

- Hangar/Building
- Airfield Pavement
- Building Restriction Line
- Property Line

27

APRON

PARALLEL TAXIWAY

200' 0 200' 400'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4M

MIDFIELD AIRPORT DEVELOPMENT CONCEPT

While a No-Build Alternative wouldn't prelude the airport from developing future aviation business/industrial hangars, merely identifying general space on the ALP for such development would not promote operational efficiency throughout the planning period. Alternatives 2 and 3 presented in **Exhibit 4N** and **Exhibit 4O** sought to provide alternatives that provide an adequate yet reasonable number of hangars, and:

- Accommodate a full range of aircraft most likely to require hangar facilities;
- Maintain/provide access to existing paintfacilities;
- Consider current airport tenants and their use of the area; and
- Provide operational continuity with other airport functions and activity areas.

In addition to the two alternatives discussed herein, there were several other conceptual layouts prepared for this area that the airport considered suboptimal. However, since the hangar development in this area will be triggered by demand and mostly funded through private investment, it is likely that the actual layout will vary from the recommended concept.

HANGAR RD.

REARY BLVD.

KNICKERBOCKER RD.

GOVERNMENT AGENCY DEVELOPMENT AREA

AVIATION BUSINESS/INDUSTRIAL DEVELOPMENT AREA

⓪ 50x50 HANGAR (TYP)

KEY	
	Hangar/Building
	Airfield Pavement
	Road/ Auto Parking
	Proposed Demolition
	Property Line

HANGAR SIZES	
⓪	50x50 Hangar
③	100x120 Hangar
⑥	130x200 Hangar
⑦	150x200 Hangar
⑨	130x340 Hangar

200' 0 200' 400'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4N

BUSINESS AVIATION/INDUSTRIAL HANGAR DEVELOPMENT
ALTERNATIVE 2

GOVERNMENT AGENCY
DEVELOPMENT AREA

KNICKERBOCKER RD.

AVIATION
BUSINESS/INDUSTRIAL
DEVELOPMENT AREA

REARY BLVD.

STEWART LN.

KEY	
	Hangar/Building
	Airfield Pavement
	Road/ Auto Parking
	Proposed Demolition
	Property Line

HANGAR SIZES	
2	80x100 Hangar
3	100x120 Hangar
6	130x220 Hangar
7	150x200 Hangar
8	150x250 Hangar
9	130x340 Hangar

200' 0 200' 400'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4O
BUSINESS AVIATION/INDUSTRIAL HANGAR DEVELOPMENT
ALTERNATIVE 3

The assessment of the Aviation Business/Industrial Aviation Hangar Development No-Build Alternative against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In a do-nothing scenario the area north of the terminal area would go unplanned and continue to operate as it is today, with no improvements to existing user needs or disruption to the way things operate today until triggered by demand, at which point the airport risks development that could be out of line with the long-range vision of the airport and city.. This alternative is compatible with adjacent land uses as no new development is proposed that will impact either on or off-airport land use.

- **Operational Performance** - In a no-build scenario, the airport still provides flexibility in this area but risks pursuing private development that may constrain future development of that area.

- **Environmental Implications** - As no changes to the airport are proposed under this alternative, environmental impacts of the entire area are largely unknown and would have to be addressed on a case by case basis as development demand warrants.

- **Financial Impacts -** As no specific development plan is proposed as part of the No-Build Alternative, the potential to understand the overall value and revenue generating capabilities of this area does not exist.

The assessment of the Aviation Business/Industrial Aviation Hangar Development Area Alternative 2 and Alternative 3 against the evaluation criteria are summarized as follows:

- **Best Planning Tenets** – In Alternative 2 the airport would be better prepared to ensure land use compatibility and due to the various hangar sizes, have the flexibility to meet the aviation business industrial needs of the area.

- **Operational Performance** – Alternatives 2 and 3 provide flexibility for developing infrastructure in a strategic manner while maintaining land use compatibility and operational efficiency. However, with a fuller range of hangar sizes, Alternative 2 provides more flexibility in accommodating user needs.

- **Environmental Implications** – With the exception of environmental permitting requirements and stormwater impacts that could occur as a result of additional impervious surface, the environmental overview suggests that development of this area is likely to receive a categorical exclusion, without the need of a detailed environmental assessment.

- **Financial Impacts –** By understanding a relatively specific buildout as depicted in Alternative 1 the airport can better understand the total revenue generating capabilities this area could provide. In the same manner, the airport can understand the potential for job creation, and overall economic impact potential of the airport over the planning horizon. While initial short-term costs to the city are relatively low since all development in this area is assumed by private development, the city might incur initial short-term costs associated with marketing activities, economic development outreach, and high level site assessments they may choose to perform to better advertise the development potential of this site.

The evaluation of the Aviation Business/Industrial development alternatives assessment is presented in **Table 4H.**

TABLE 4H
Aviation Business/Industrial Development Alternatives

-1 : Negative 0 : Neutral 1 : Positive	Aviation Business/Industrial Development No-Build Alt 1	Aviation Business/Industrial Development Alt 2	Aviation Business/Industrial Development Alt 3
Best Planning Tenets = 25% Weighting Factor			
Land Use Compatibility	0	1	1
Technical Feasibility	0	1	1
Airport Vision Alignment	-1	1	0
Operational Performance = 25% Weighting			
Capacity	-1	1	1
Capability	-1	1	0
Operational Efficiency	-1	1	1
Environmental Implications = 25% Weighting			
Biological Resources	0	0	0
Cultural or Historic Resources	0	0	0
Wetlands	0	0	0
Floodplains and Surface Waters	0	-1	-1
Air Quality	0	0	0
Financial Feasibility = 25% Weighting Factor			
Development Costs	1	-1	-1
Job Creation	-1	1	1
Financial Sustainability	-1	1	1
Summary Score	-5	6	4
Recommended Alternative	**Aviation Business/Industrial Area Development Alternative 2**		

Aviation Business/Industrial Area Development Alternatives Conclusion

Among the two development options that depict an aviation business/industrial hangar development plan, Alternative 2 is most capable of meeting the expectations of existing and potential tenants, preserves existing land use, and is aligned with the airport's vision. It is recommended that the recommended development shown in Alternative 2 be depicted on the ALP.

Governmental, Non-Aviation, and Aeronautical Support

In proximity to the Business Aviation/Industrial functions of the airport, the Real Estate Strategy Plan referenced earlier, identified potential Aviation Compatible/Mixed-Use development that should be considered in conjunction with the recommendations of this alternatives analysis.

Airport Compatible Development

Land use identified as Airport Compatible/Mixed use is made up of revenue generating development consistent with on-going airport functions and the airport sponsor's objectives. Development in this area is triggered by demand and may or may not require airfield access.

This 27-acre space has been identified as Governmental and was considered in the airport's Real Estate Development Strategy Plan to provide continuity with the existing activities in this area. More specifically, the strategy plan identified five (5) acres for future expansion to accommodate CBP ancillary facilities or storage, potential UAV service infrastructure, or programmatic space.

The Non-Aviation and Airport Compatible Mixed-Use areas are depicted on **Exhibit 4P**.

EXHIBIT 4P
Airport Compatible Mixed-Use

As potential tenants seek opportunities for development, flexibility with hangar and taxilane access must be considered. In doing so, the way hangars and support facilities are constructed may differ from what is shown in Alternative 2. As development is pursued in this area, it is critical that access to the paint hangar area be maintained for aircraft up to ARC C-III. Development should always consider the ultimate ability of the airport to accommodate a wide range of airport users and tenants.

General Aviation Development Area Alternatives

Airport planning principles recommend that to a feasible extent, airport development aim to consolidate similar activities such that the comingling of aircraft of vastly different sizes and types is avoided. While complete segregation is most desirable, the location of existing use areas at SJT make absolute consolidation difficult since one contiguous apron serves a full range of aircraft and the existing commercial airline terminal is situated between GA hangars that serve various functions. The airport activity centers depicted on the airport land use exhibit did however identify one consolidated 110-acre area to accommodate the hangar needs of small and midsize aircraft (Group I & Group II).

Notably, there is limited space available on the existing flight line for development of additional hangars. Based on input from tenants and users there is an immediate need for hangar development; therefore, the alternatives analysis included in this section includes development of the west side of hangar road. Considering the limited space currently available, it is important that access to this area is suitable for a full-range of aircraft. Additionally, should cargo demand increase during the planning period it, air cargo development adjacent to the existing facilities would be most advantageous; therefore, access to the east side of hangar road should be maintained to accommodate larger cargo aircraft.

General Aviation Development Area Alternatives 2 and 3 presented in **Exhibit 4Q** and **Exhibit 4R** sought to meet the airport's objectives for its General Aviation functions to the most feasible extent by developing a scenario that:

- Provides areas for near-term box hangars and T-hangars;
- Provides near-term development areas to accommodate the airport' existing hangar waiting list;
- Provides a scenario to redevelop/replace existing infrastructure;
- Provides a long-term GA hangar development layout to understand long-term GA hangar capacity;
- Identifies existing hangar facilities with increasing maintenance costs due to age, and evaluate the removal and relocation of such facilities;
- Segregates GA users by aircraft type, size and operational needs.

GENERAL AVIATION
DEVELOPMENT AREA

50x50 HANGAR (0)
(TYP)

KEY
Hangar/Building
Airfield Pavement
Road/ Auto Parking
Proposed Demolition
Property Line

HANGAR SIZES	
0	50x50 Hangar
1	60x80 Hangar
2	80x100 Hangar
3	100x120 Hangar
4	110x140 Hangar
5	100x165 Hangar
7	150x200 Hangar
10	12 Unit T-Hangar
11	12 Unit Shade Hangar

200' 0 200' 400'
GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4Q
GENERAL AVIATION HANGAR DEVELOPMENT
ALTERNATIVE 2

GENERAL AVIATION
DEVELOPMENT AREA

KEY
Hangar/Building
Airfield Pavement
Road/ Auto Parking
Proposed Demolition
Property Line

HANGAR SIZES	
1	60x80 Hangar
2	80x100 Hangar
3	100x120 Hangar
4	110x140 Hangar
10	12 Unit T-Hangar
11	12 Unit Shade Hangar

200' 0 200' 400'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4R
GENERAL AVIATION HANGAR DEVELOPMENT
ALTERNATIVE 3

The assessment of the **General Aviation Hangar Development, No-Build Alternative** against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** - In a no-build scenario the airport would not meet user needs or the airport's vision for future development

- **Operational Performance** - In a no-build scenario, the airport still provides flexibility in this area but risks pursuing private development that may constrain future development of facilities in the GA activity area.

- **Environmental Implications** - As no changes to the airport are proposed under this alternative, environmental impacts of the entire area are largely unknown and would have to be addressed on a case by case basis as development demand warrants.

- **Financial Impacts** - Since no specific development plan is proposed as part of the No- Build Alternative, it is not possible to understand the overall value and revenue generating capabilities of this area.

Much like the assessment of Aviation Business/Industrial hangar development alternatives, the assessment of the General Aviation Hangar Development Area Alternatives 2 and 3 against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – While both Alternative 2 and 3 provide sufficient overall hangar space to meet future GA Hangar needs, Alternative 2 is aligned closer with the airport's objectives and vision than Alternative 3 since it can be implemented more effectively in the short-term to meet existing needs and provides a concept that considers a fuller range of hangar sizes.

- **Operational Performance** – Alternatives 2 and 3 both provide flexibility in developing infrastructure strategically while maintaining land use compatibility and operational efficiency. However, Alternative 2 provides better aircraft access and maneuverability.

- **Environmental Implications** – With the exception of environmental permitting requirements and stormwater impacts that could occur as a result of additional impervious surface, the environmental overview suggests that development of this area is likely to receive a categorical exclusion, without the need of a detailed environmental assessment.

- **Financial Impacts –** By understanding detailed buildout capabilities of the GA Development Area, the concepts presented in both Alternative 2 and Alternative 3 allow the airport to better understand the total revenue generating capabilities this area may provide. In the same manner, the airport can understand the potential for job creation, and overall economic impact potential of the airport over the planning horizon.

The evaluation of the General Aviation development area alternatives assessment is presented in **Table 4I.**

TABLE 4I
General Aviation Development Area Alternatives

-1 : Negative 0:Neutral 1:Positive	General Aviation Hangar Development No-Build Alt 1	General Aviation Hangar Development Alt 2	General Aviation Hangar Development Alt 3
Best Planning Tenets = 25% Weighting Factor			
Land Use Compatibility	0	1	1
Technical Feasibility	0	1	1
Airport Vision Alignment	-1	1	0
Operational Performance = 25% Weighting Factor			
Capacity	-1	1	1
Capability	-1	1	1
Operational Efficiency	-1	1	0
Environmental Implications = 25% Weighting Factor			
Biological Resources	0	0	0
Cultural or Historic Resources	0	0	0
Wetlands	0	0	0
Floodplains and Surface Waters	0	-1	-1
Air Quality	0	0	0
Financial Feasibility = 25% Weighting Factor			
Development Costs	1	-1	-1
Job Creation	-1	1	1
Financial Sustainability	-1	1	1
Summary Score	-5	6	4
Recommended Alternative	**General Aviation Development Area Alternative 2**		

General Aviation Development Area Alternatives Conclusion

It is recommended that the development concept shown in Alternative 2 be depicted on the ALP. This alternative was selected over Alternative 3 primarily because the aircraft access points in this alternative provide better operational and implementation benefits. Additionally, the aircraft maneuverability capabilities provided by Alternative 2 are favorable.

Airport Support Facilities Development Alternatives

The last area of consideration in the alternatives analysis includes airport support facilities since they are generally a function of all previous analyses. Like all previous No-Build scenarios (Alternative 1), the no-build alternative is the airport's existing condition. For SJT, airport support alternatives focused on infrastructure related to air traffic control and fueling facilities.

Air Traffic Control Tower Site Selection

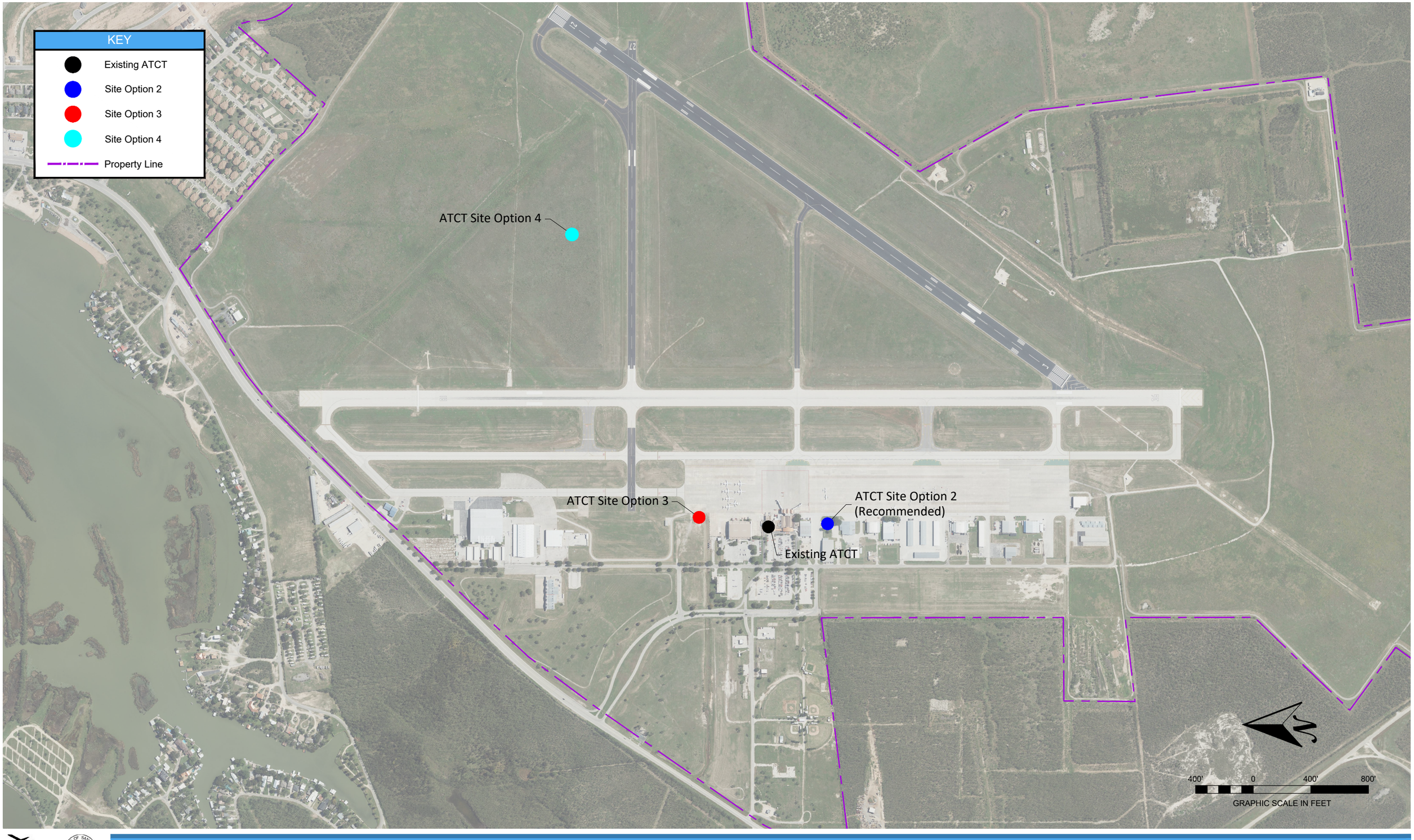
The current air traffic control tower is over 60 years old, does not meet ADA requirements, and building maintenance is ongoing challenge. Although there is no immediate funding available for the construction of a new air traffic control tower facility, the alternatives considered potential development site locations for a new tower if funding becomes available.

Exhibit 4S provides three potential sites for the development of a new air traffic control tower.

Considering line-of-site requirements, solar impacts, and the proposed development of other airport facilities previously discussed, the recommended site for a new air traffic control tower is Alternative 2. When compared to the locations identified in Alternative 3 and 4 which conflict with the airport's vision and other proposed development, Alternative 2 provides the best location from an operational standpoint.

The assessment of the ATCT development site alternatives against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** - In a no-build scenario the airport would continue to experience maintenance challenges with the existing ATCT that does not meet ADA requirements. When compared against Alternatives 3 and 4, Alternative 2 is most compatible with airport land use and would support existing commercial terminal building expansion.
- **Operational Performance** - In a no-build scenario, the airport would continue to operate as it does today with an air traffic control tower that over time, has become more difficult to maintain. The construction of a new ATCT would have some operational impacts during removal of the existing tower and any tenant(s) on the proposed site.
- **Environmental Implications** - While no changes to the airport are proposed under a no- build alternative, there are no known environmental impacts associated with any of the site options. However, since Alternative 2 is in proximity to other proposed development, it is likely that by the time a new ATCT is likely to be constructed, the environmental documentation for that area will have been completed.
- **Financial Impacts** - Although no specific development plan is proposed as part of the No-Build Alternative, the cost to maintain the existing ATCT is likely to increase over time. The financial impacts are generally the same among Alternative 2, 3 and 4 in terms of financial feasibility and job creation.



SAN ANGELO REGIONAL AIRPORT

Exhibit 4S
AIR TRAFFIC CONTROL TOWER SITE SELECTION
ALTERNATIVES 2, 3 & 4

Consolidated Aviation Fuel Farm Development Site Alternatives

As identified in the airport inventory, the airport has several fuel farm locations in various locations on the airport. Operationally, this existing condition is inefficient and requires the maintenance of several facilities, of various age and condition that serve a common function. The development alternatives sought to identify a new location, independent of any of the existing locations that could accommodate one consolidated fuel farm facility.

Exhibit 4T provides two potential sites for the development of a consolidated fuel farm facility.

Due to its location within the AOA and proximity and access to the aircraft aprons, the recommended site for a new consolidated fuel farm facility is Alternative 2. If a new facility was to be located outside the AOA, additional permits and authorizations would be required for fuel truck operators.

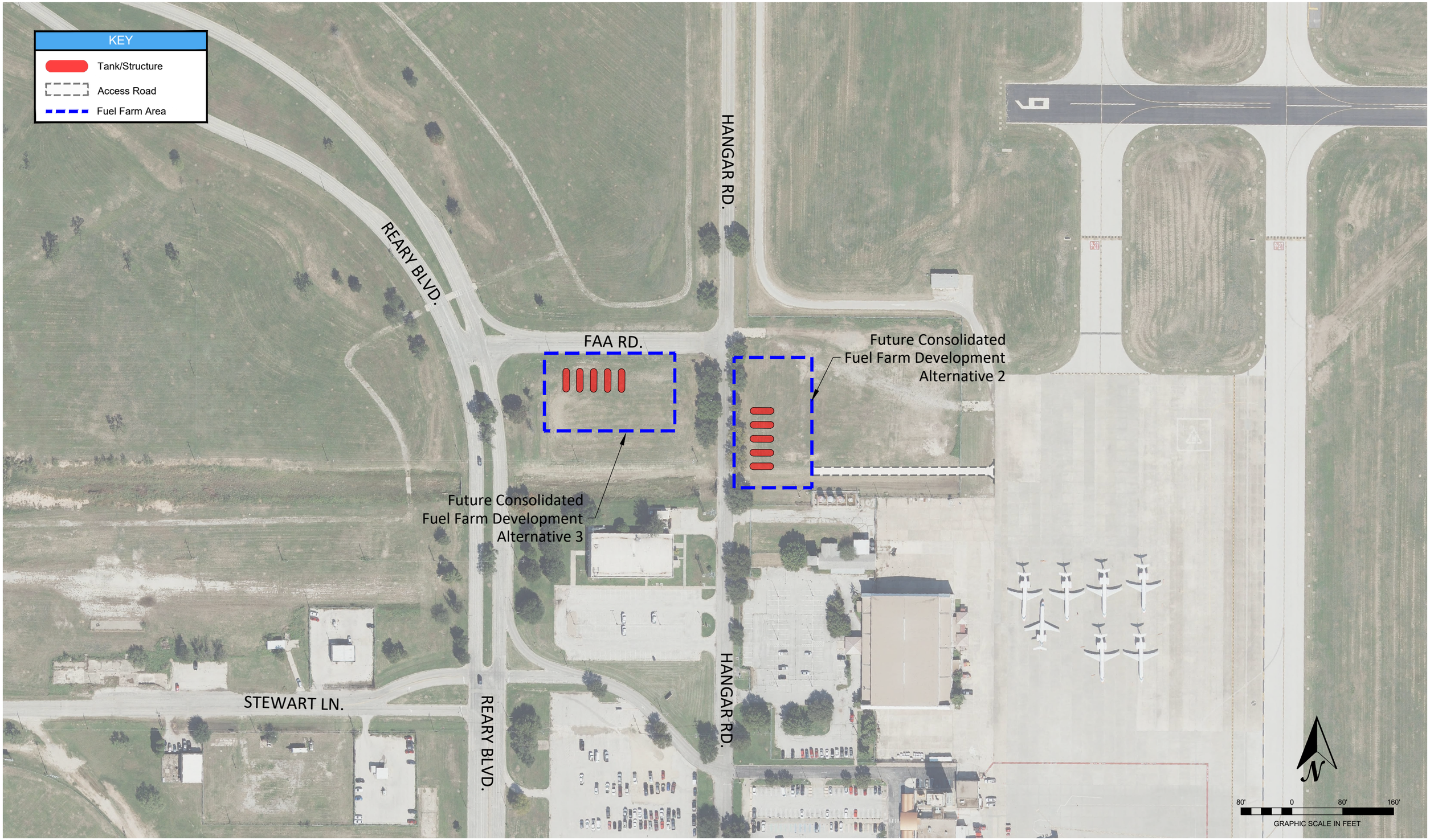
The assessment of the consolidated fuel farm development site alternatives against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – With limited potential for expansion and no improvement depicted on the ALP a no-build scenario (Alternative 1), would continue to operate as they do today, inefficiently, to and from multiple locations.

- **Operational Performance** - In a no-build scenario, inefficient fuel farm operations will continue with fuel trucks required to drive to and from various locations. Alternative 2 provides more operational benefits than Alternative 3 considering that it remains in the AOA.

- **Environmental Implications** - While no changes to the airport are proposed under a no- build alternative, the development of a new consolidated fuel farm would be subject to the required environmental documentation associated with fuel farm activities.

- **Financial Impacts–** Although no specific development plan is proposed as part of the No-Build Alternative, the cost to maintain the existing fuel farm facilities and the roads traveled by airport fuel trucks is likely to increase over time. The financial impacts are generally the same among Alternative 2 and 3 in terms of financial feasibility and job creation.



SAN ANGELO REGIONAL AIRPORT

Exhibit 4T
CONSOLIDATED AVIATION FUEL FARM
ALTERNATIVES 2 & 3

General Aviation Self-Serve Fueling Facility

During the public involvement component of the master planning effort, the GA users of the airport brought to the attention of the project team and airport leadership, the desire for a General Aviation self-serve fueling facility at the airport.

In response, the alternatives analysis sought to identify a location that could accommodate a self-serve GA fueling facility without conflicting with proposed hangar development presented earlier.

In coordination with airport leadership, a recommended development site for a GA self-serve fueling facility was identified on the north end of the General Aviation apron (**Exhibit 4U**).

The assessment of a self-serve GA fuel facility development No-Build (Alternative 1) and a development option (Alternative 2) against the evaluation criteria are summarized as follows:

- **Best Planning Tenets** – In a no-build scenario, the airport would continue to operate without a self-serve fuel facility. This Alternative does not meet the airport user need identified in the public involvement program. Alternative 2 provides a suitable site that is compatible with existing land use without conflicting with proposed aircraft hangar development.

- **Operational Performance** - In a no-build scenario, GA aircraft fueling operations would continue as they are today. The development of a self-serve fuel facility as shown in Alternative 2 would likely cause some negative impacts to GA apron operations. However, these impacts would likely diminish over time as aircraft taxiing to and from the self-serve fueling area becomes more routine among regular users.

- **Environmental Implications** - While no changes to the airport are proposed under a no- build alternative, the development of a new self-serve GA fueling facility would be subject to the required environmental documentation associated fuel farm facilities.

- **Financial Impacts –** The status quo, No-Build Alternative has no initial negative financial implications since there are no associated development costs, neither would this alternative provide any long-term financial benefits, since a new revenue stream would not be established. Conversely, while the costs of development associated with Alternative 2 presents an initial financial drawback, these costs could eventually be outweighed by a new revenue stream that the self-serve facility would provide the airport.

KEY

- Tank/ Structure
- Airfield Pavement
- GA Self-Serve Fueling Area
- Access Road

Hangar Rd

Hangar Rd

Hangar Rd

GA Self Serve Fueling Facility Alternative 2

100' 0 100' 200'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT

Exhibit 4U
GA SELF-SERVE FUELING FACILITY
ALTERNATIVE 2

Ultimate Commercial Development

Considering the volatile nature of the aviation industry and the difficulties in predicting how outside influences might impact the need for new airport development, this plan sought to provide SJT with a bigger picture of how the airport might look if commercial air service demand grows beyond the capabilities of the airport's west side. As previously stated, the current terminal is adequate to meet the commercial forecasts prepared for this plan through 2037. However, commercial passenger enplanements beyond those estimated for two airline operations (101,192), or simultaneous 3-gate operations would trigger the need for additional analyses. Given the limited expansion potential in the current terminal area, a viable option to accommodate commercial air service on the opposite side (east side) of the airport could be provided through a detailed terminal area study.

Two known potential influences that could trigger higher than anticipated air carrier demand made it especially important for this study to at least understand airport property impacts that could be associated with relocating commercial aviation functions to the airport's east side.

The first potential influence includes an on-going study by the Texas Department of Transportation that is evaluating the feasibility of improvements to Interstate Highway 27 that would create a continuous flow, four-lane divided highway, including improvements that extend I-27 to the south, as part of the Ports-to-Plains trade corridor (**Exhibit 4V**). In 1998 Congress designated this as a High Priority Corridor to provide the efficient transportation of goods and people from Mexico, through West Texas, Oklahoma, New Mexico, Colorado and ultimately Canada and the Pacific Northwest.

The second known potential influence is a proposed minor arterial road that although unlikely to impact air cargo facility demand as much as an extension of I-27, still has the potential of increasing the demand for new commercial air service development, if an airport access road were to connect the new arterial roadway to new commercial terminal facilities on the airport's east side (**Exhibit 4W**).

EXHIBIT 4V
TxDOT Ports-to-Plains Feasibility Study Corridor Map

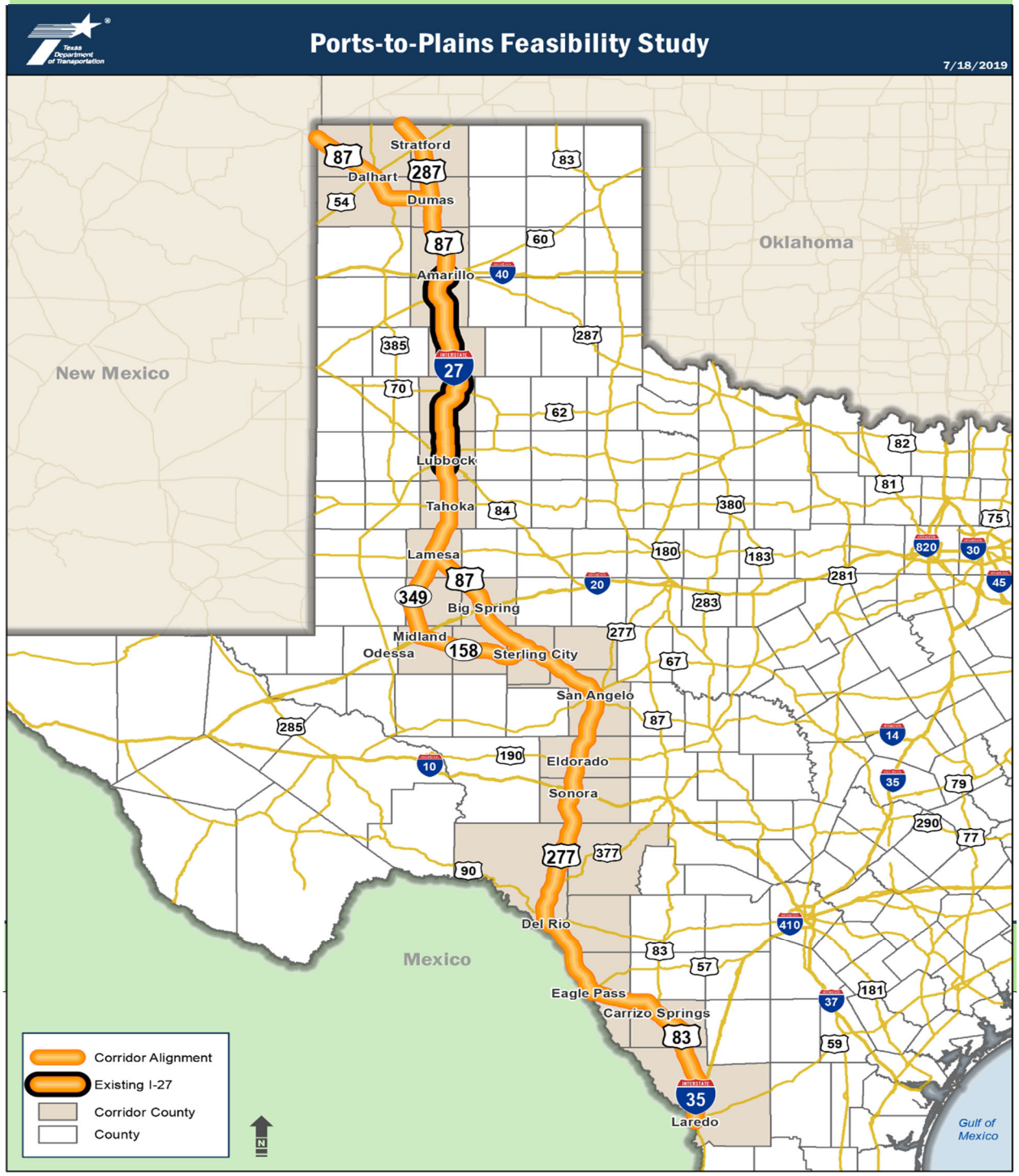
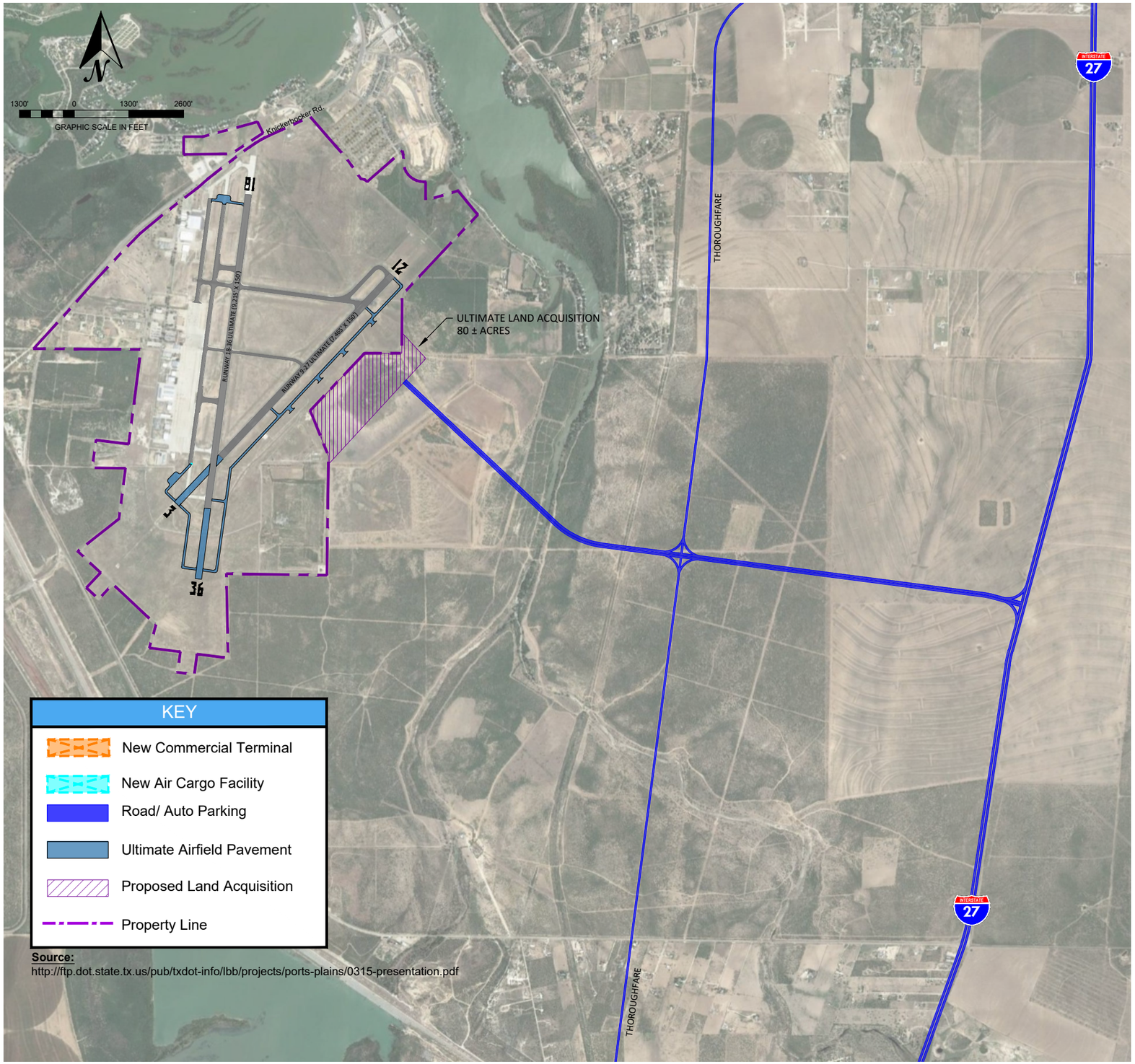


EXHIBIT 4W
City of San Angelo Long-Range Surface Transportation Plan

Since the specific needs for new commercial passenger or air cargo development resulting from these proposed roadway improvements are largely unknown, the alternatives shown in **Exhibit 4X** were created primarily to understand the amount of additional land that the airport would need to acquire. When either one of these roadway improvements come to fruition, it is recommended that the airport develop new forecasts as part of an air cargo and terminal study that will determine the recommended size, cost and configuration of this ultimate development.

For the purposes of this plan, the ultimate commercial terminal and air cargo alternatives, are only evaluated against a do-nothing alternative that does not identify future land acquisition. Since almost any commercial air service development on the airport's east side would likely require additional airport property, the benefits of having land the land available for development outweigh the associated financial drawbacks. It is recommended that the ALP identify the future land acquisition needed to accommodate new commercial air service and air cargo facilities east of Runway 3-21.



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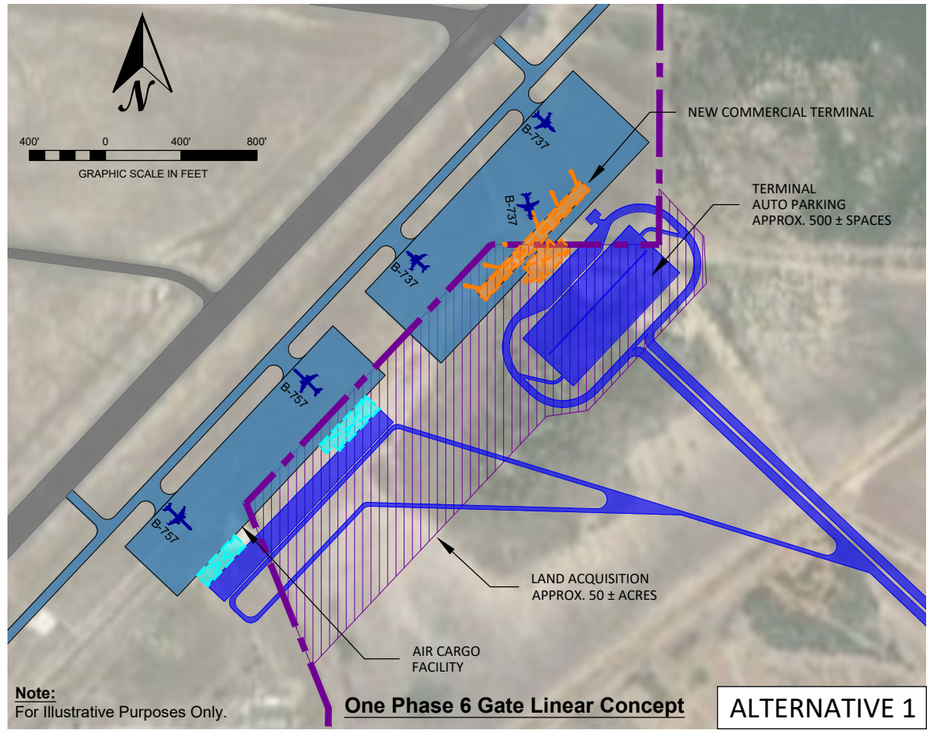
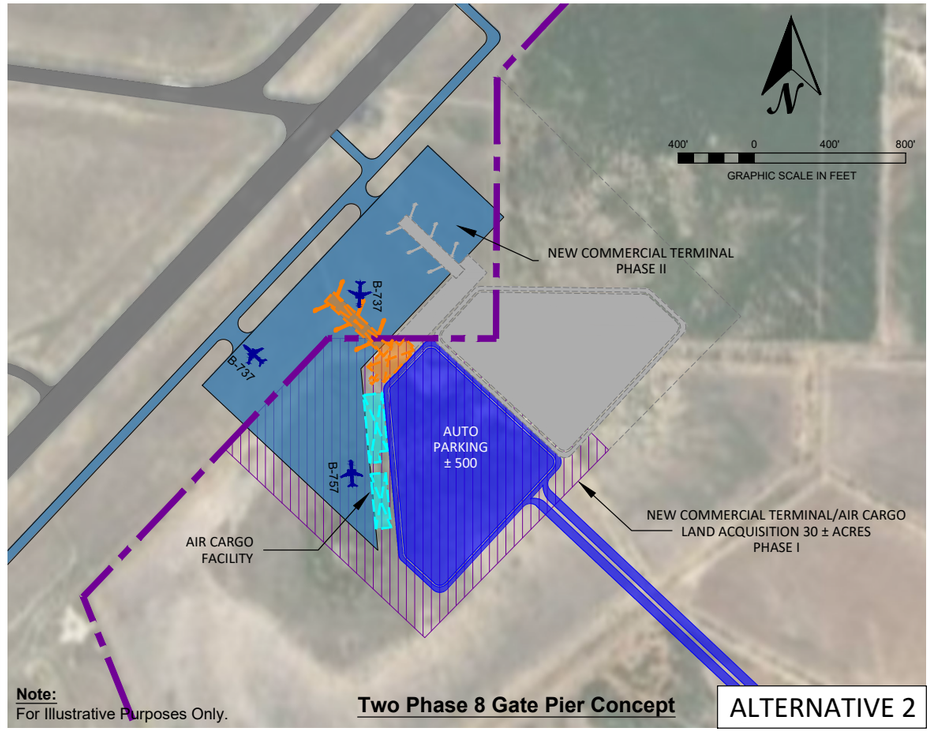


Note:
For Illustrative Purposes Only.

One Phase 6 Gate Linear Concept

ALTERNATIVE 1



Note:
For Illustrative Purposes Only.

Two Phase 8 Gate Pier Concept

ALTERNATIVE 2

SAN ANGELO REGIONAL AIRPORT

Exhibit 4X
ULTIMATE COMMERCIAL TERMINAL AREA DEVELOPMENT
ALTERNATIVES 1 & 2

Landside Alternatives Summary

The selected development option among each of the assessed alternatives for their respective activity center had varying evaluation scores. The following table (**Table 4J**) summarizes the preferred development alternative selected for each category or area evaluated. The preferred alternative is made up of each of the development alternatives that scored the highest and will consider any feedback received from the airport, FAA, and the community through the public involvement program.

The following section provides a narrative that describes the final development recommendations and presents a composite figure of the preferred alternative that will be shown on the ALP.

The Implementation Plan that proceeds the following section will describe how the actual development of the airside and landside recommendations will be phased over the planning horizon and include preliminary opinions of development costs that will be incorporated into the Airport Capital Improvement Plan.

TABLE 4J
Preferred Airport Landside Alternatives Summary

Commercial Aviation
Existing Commercial Terminal Building
Expand existing commercial passenger terminal to the north and add an additional passenger boarding bridge. Expand existing baggage handling facilities to the south.
Commercial Terminal Area
Recapture 60 (+/-) short-term automobile parking spaces by relocating existing rental car parking. Construct new rental parking lot (150 +/-), redevelop AMCOM South Hangar Area and provide a development area for four (4) new corporate/industrial hangars with associated aircraft pavement.
Consolidated Rental Car QTA
Preserve the area east of Reary Boulevard at the intersection of Stewart Lane and Reary Boulevard and construct a new consolidated rental car quick turnaround facility.
Air Cargo Facilities
Preserve the area west of Hangar Road and west of the existing air cargo facilities for the expansion/development of new air cargo facilities (hangar and apron area)
General Aviation
Aviation Business/Industrial Hangar Facilities
Maximize the development of Aviation Business/Industrial facilities in the Aviation Business/Industrial Area through the closure of Runway 9-27 and the construction/redevelopment of a new apron area.
General Aviation Hangar Facilities
Maximize Hangar Development in the Existing GA Development Area through a combination of conventional hangars and nested T hangar development with adequate taxilanes/movement areas and access points.
GA Self-Serve Fueling Facility
Preserve the area south of the existing General Aviation Apron in the vicinity of Taxiway B and F.
Support Facilities
Air Traffic Control Tower
Preserve the area immediately south of the existing Air Cargo Apron for the development/construction of a new air traffic control tower.
Consolidated Fuel Farm Facility
Ultimate CommercialDevelopment
Acquire 30-50 acres of land of additional land for the development of new commercial terminal and air cargo development east of Runway 3-21.

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The selection of a Recommended Development Concept is based on a combination of efforts by the planning team, Airport and City leadership, and tenant input. The airport master planning process for San Angelo Regional Airport (SJT) began with an inventory of existing facilities (Chapter One) followed by an evaluation of existing and potential future operational demand (Chapter Two) and facilities necessary to accommodate such demand (Chapter Three). Development alternatives were formulated to meet airport needs (Chapter Four) and then presented to the Planning and Technical Advisory Committees. Input received from these committees, Airport Leadership, and City Leadership resulted in the identification of the Recommended Development Concept.

The purpose of this chapter is to describe the recommended direction for the future development of SJT. This begins with a definition of the Recommended Development Concept. This concept will be appropriately phased, taking into consideration the planning horizons defined within the aviation forecasts and facility requirements. The phasing will result in the formulation of a Capital Improvement Program and a financial plan will define the financial implications and opportunities of planned development.

Recommended Development Concept

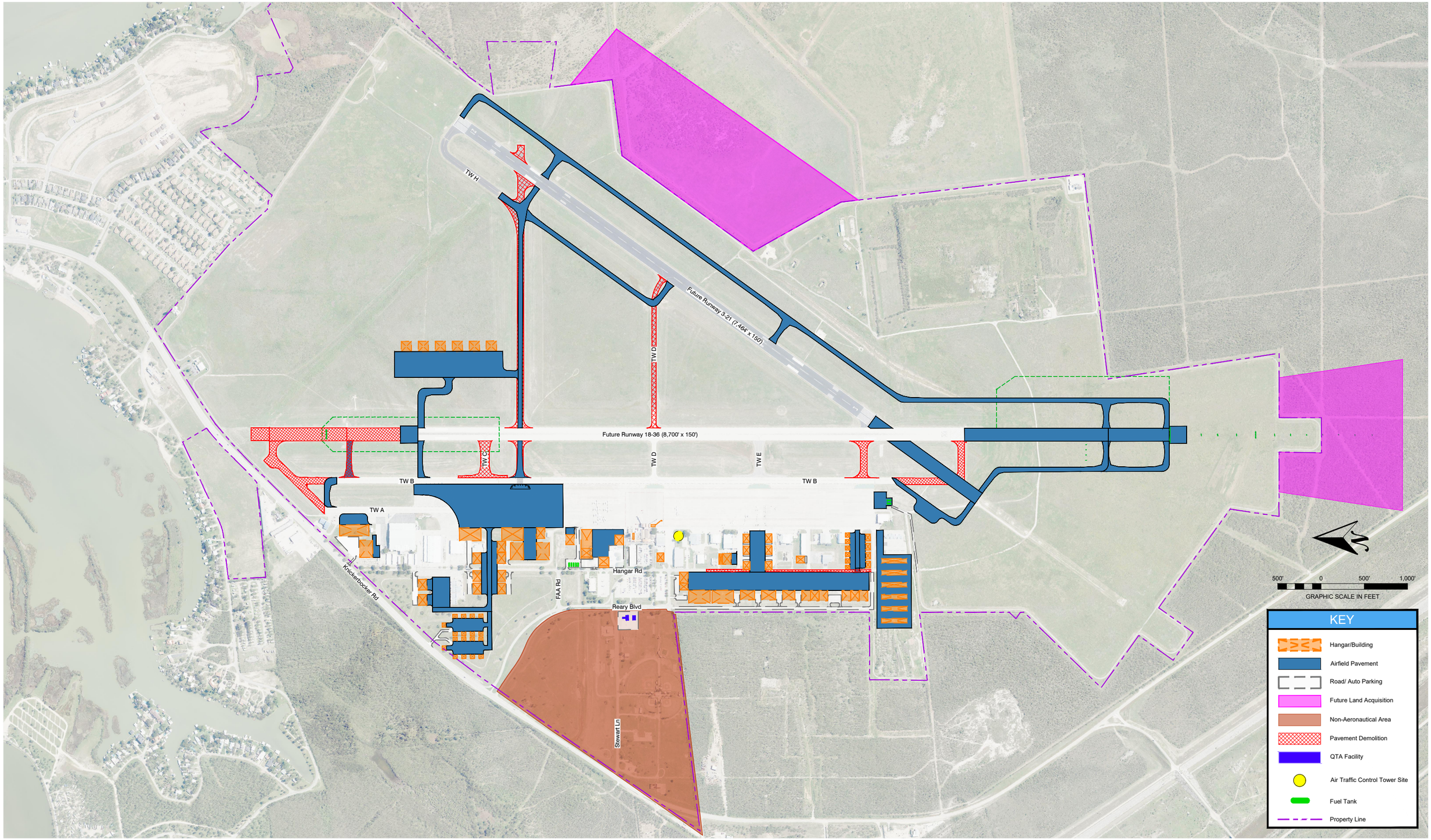
The Recommended Development Concept is depicted on **Exhibit 5A**. This concept provides airport improvements that not only conform to the City's goals and objectives but also meet identified facility needs while maintaining flexibility for future airfield expansion.

The Recommended Development Concept was prepared after the development alternatives presented in Chapter Four were vetted and refined based on stakeholder input. The Recommended Development Concept addresses all FAA design standards and provides direction to meet existing and future facility needs.

In comparing this plan to the Airport Layout Plan approved in 2012, primary differences include:

- Deconfliction of Runway 3 and 36 ends.
- Decommissioning of Runway 9-27 and conversion to a taxiway.
- Provision for additional aircraft access points for general aviation and cargo development along the extended Reary Boulevard.
- Potential expansion of the existing terminal building to meet long term commercial development needs. Prior planning reserved the area north of Runway 9-27 for the development of a commercial service terminal. This area is now set aside for the expansion of aviation related commercial and industrial land uses. Should a new terminal be necessary it is now planned for the areas east of Runway 3-21, providing access to the proposed Interstate 27 corridor.

For explanation purposes, the Preferred Development Concept can be separated into three categories, Airside Development, Landside Development, and Support Facilities. Below are detailed descriptions of each category.



SAN ANGELO REGIONAL AIRPORT

Exhibit 5A
RECOMMENDED DEVELOPMENT CONCEPT

Airside Development

As described in previous chapters, airside development needs relate primarily to the need to mitigate incompatible land uses within Runway Protection Zones (RPZs), mitigation of runway incursion hotspots, taxiway reconfiguration, and airfield development necessary to support the growth of the airport. Details regarding the projects are contained within the alternatives chapter and summarized below.

Runway 18-36

To meet FAA design standards and the overall vision of the airport the following improvements are recommended:

- Shift the runway to the south, thereby removing Knickerbocker Road from the RPZ critical surface. This will also allow the runway to fully meet runway safety area (RSA) and object free area (OFA) requirements eliminating the need for displaced thresholds.
- Relocate the Instrument Landing System (ILS) from Runway 3 to Runway 18. This will provide instrument landing capability to the airport's longest runway.
- The runway shift and upgrade to a precision instrument runway results in the need to acquire approximately 46 acres of land north of the airport. This property will contain the extended RPZ and approach lighting system.

Runway 3-21

To meet FAA design standards and the overall vision of the airport the following improvements are recommended:

- Extend the runway 1,525 feet to the southwest for a total runway length of 7,464 feet. This eliminates the potential runway incursion that results when aircraft access the Runway 3 end.
- Redesignate the runway as Runway 4-22 to reflect the change in magnetic declination.

Runway 9-27

Runway 9-27 will be decommissioned and converted to a taxiway to provide direct access from the east and west sides, as well as the ultimate aeronautical development in the midfield.

Taxiway Improvements

A number of taxiway improvements are proposed to meet FAA design standards as well as improve airfield efficiency.

- To ensure access to runway ends, taxiway improvements are recommended to accommodate the ultimate runway configuration.
- A full-length parallel taxiway on the east side of Runway 3-21 will provide access to the potential future terminal and cargo areas on the east side of the airfield. Please note, the ultimate terminal and cargo development is outside the planning horizon for this master plan.
- Taxiway Delta, between Runway 18-36 and Runway 3-21 will be closed to eliminate the high energy crossing location.

- New taxiways are proposed on the east side of Runway 18-36 to provide access for aviation-related development.

Taxilane Improvements

Numerous taxilane improvements are included within the ultimate plan to provide access to proposed hangar development areas. Most significant are the proposed taxilanes at the far north end of the existing apron, in the current t-hangar area, and leading to the airport's existing paint hangars.

Apron Improvements

As a result of the conversion of Runway 9-27 to a taxiway, it is proposed the area beyond the current Runway 9 end be converted to apron. This will facilitate needed hangar development as well as improved access from the southern portion of the airport to the northern portion.

Landside Development

Throughout the planning process the need for additional landside facilities was communicated to the planning team. To ensure future development is undertaken in a reasonable manner landside development planned in accordance with the land uses defined within Chapter Four, Alternatives.

General Aviation

General aviation is planned for the northern portion of the airport, west of Runway 18-36. As shown on Exhibit 5A, hangar facilities for smaller, general aviation aircraft are planned for the northernmost portion of the area with hangars for larger aircraft closer to midfield. As with previous planning efforts, expansion of aircraft storage is planned to occur west of existing hangars; therefore, it is critical access points be preserved.

Planned hangar facilities allow for a mix of development for single-engine, multi-engine, turboprop and business jet aircraft.

Aviation Business/Industrial

Expansion of aviation related business activity is planned to occur in the central and southern portions of the airport. Expansion of existing "MRO type" development is planned to occur in the areas north of the current commercial service terminal facilities. Additionally, the area south of Runway 9-27, between Runway 18-36 and Runway 3-21 has been set aside for additional aviation business/industrial growth.

Commercial Aviation

Expansion of the facilities necessary to support commercial service at SJT are planned to occur in the footprint of the existing terminal. Forecasts of activity determined that the expansion of the existing terminal building, parking, and associated facilities will meet the forecasted demand throughout the planning period. Please note, space is reserved on the east side of Runway 3-21 for the development of facilities to support the growth of commercial service beyond what is forecasted within this master plan. Such growth would likely be the result of growth resulting from the development of Interstate 27.

Air Cargo

Currently air cargo is handled south of the commercial service terminal area. Significant expansion of cargo activity at SJT is not anticipated through this planning period; however, to ensure increased demand can be accommodated the expansion of cargo facilities on the other side of Hangar Road is planned. This will require the development of aircraft access through the existing t-hangar area.

Governmental

SJT has a history of accommodating governmental aviation uses at the airport. Through the planning process it was determined that the areas at the far north end of the airport should be preserved to allow for the continued use and growth of governmental facilities.

Support Facilities

A number of aviation support facilities were evaluated through the alternatives analysis. YThe recommended development concept includes areas for the following:

- New Airport Traffic Control Tower (ATCT)
- Consolidated fuel farm
- Self-serve fuel farm
- Consolidated rental car quick turn-around facility
- Additional parking for the commercial service terminal area

RECOMMENDED DEVELOPMENT CONCEPT PHASING

Table 5A presents a summary of the Recommended Development Concept recommendations and their rough order of magnitude (ROM) cost estimates. It is important to note that the cost estimates must be viewed as preliminary, reflecting a master plan level of detail subject to refinement in subsequent implementation steps.

As shown in the table, the preferred development alternative recommendations are estimated to total approximately $256 million over the 20-year planning horizon.

Short-Term Improvements

Exhibit 5B depicts the proposed short-term improvements at SJT. These improvements are focused on the following.

Conversion of Runway 9-27 to a taxiway

Previous planning conducted at the airport resulted in the decision to convert Runway 9-27 to a taxiway. Project A1 includes the costs for the conversion of the runway as well as additional improvements necessary to meet FAA taxiway design standards.

Apron Improvements

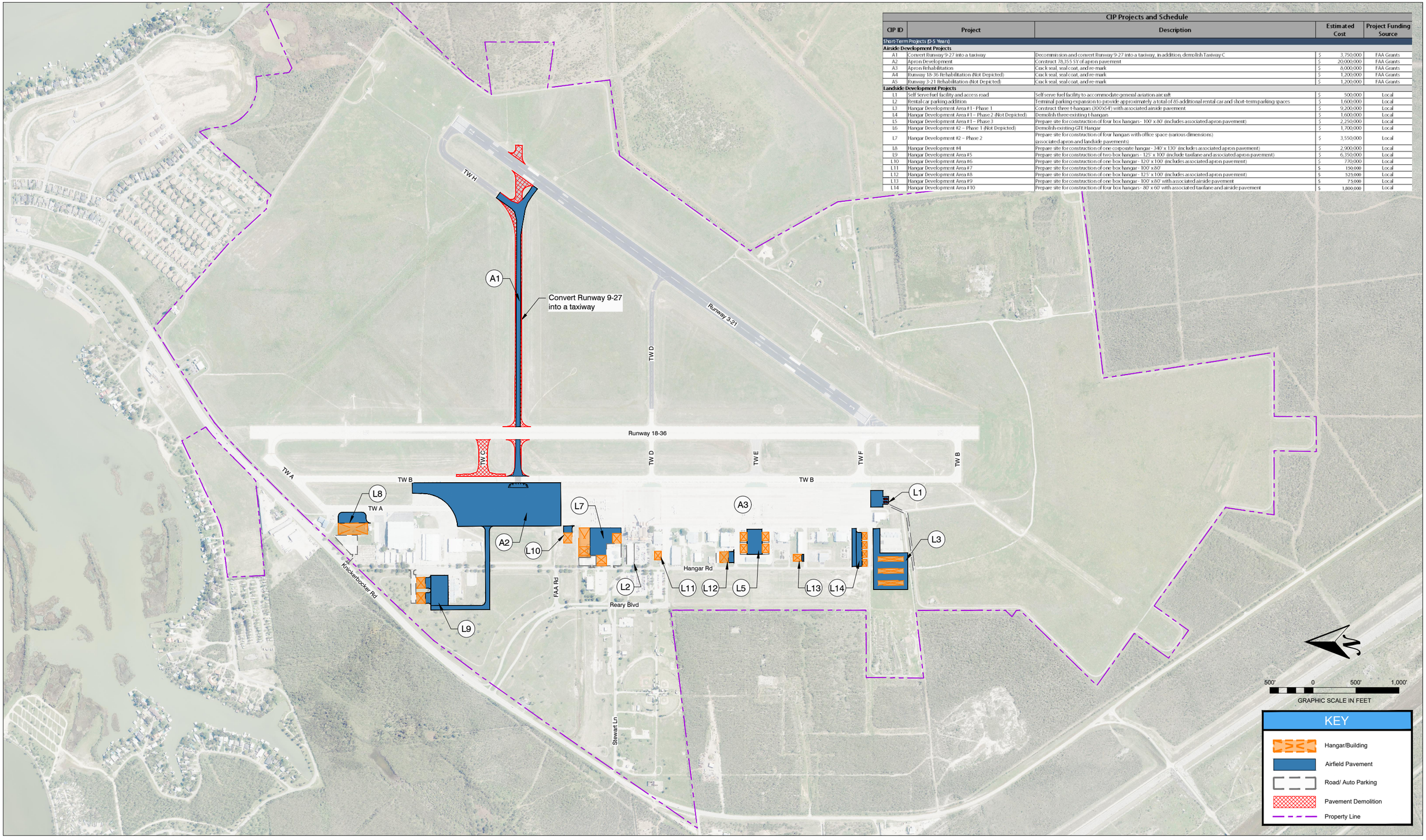
Conversion of Runway 9-27 to a taxiway provides the opportunity for additional apron development as depicted as project A2.

TABLE 5A
RECOMMENDED DEVELOPMENT CONCEPT

CIP Projects and Schedule				
CIP ID	**Project**	**Description**	**Estimated Cost**	**Project Funding Source**
Short-Term Projects (0-5 Years)				
Airside Development Projects				
A1	Convert Runway 9-27 into a taxiway	Decommission and convert Runway 9-27 into a taxiway, in addition, demolish Taxiway C	$ 3,750,000	FAA Grants
A2	Apron Development	Construct 78,355 SY of apron pavement	$ 20,000,000	FAA Grants
A3	Apron Rehabilitation	Crack seal, seal coat, and re-mark	$ 8,000,000	FAA Grants
A4	Runway 18-36 Rehabilitation (Not Depicted)	Crack seal, seal coat, and re-mark	$ 1,200,000	FAA Grants
A5	Runway 3-21 Rehabilitation (Not Depicted)	Crack seal, seal coat, and re-mark	$ 1,200,000	FAA Grants
Landside Development Projects				
L1	Self Serve fuel facility and access road	Self serve fuel facility to accommodate general aviation aircraft	$ 500,000	Local
L2	Rental car parking addition	Terminal parking expansion to provide approximately a total of 85 additional rental car and short-term parking spaces	$ 1,600,000	Local
L3	Hangar Development Area #1 - Phase 1	Construct three t-hangars (300'x54') with associated airside pavement	$ 9,200,000	Local
L4	Hangar Development Area #1 – Phase 2 (Not Depicted)	Demolish three existing t-hangars	$ 1,600,000	Local
L5	Hangar Development Area #1 – Phase 3	Prepare site for construction of four box hangars - 100′ x 80′ (includes associated apron pavement)	$ 2,250,000	Local
L6	Hangar Development #2 – Phase 1 (Not Depicted)	Demolish existing GTE Hangar	$ 1,700,000	Local
L7	Hangar Development #2 – Phase 2	Prepare site for construction of four hangars with office space (various dimensions) (associated apron and landside pavements)	$ 3,550,000	Local
L8	Hangar Development #4	Prepare site for construction of one corporate hangar - 340′ x 130′ (includes associated apron pavement)	$ 2,900,000	Local
L9	Hangar Development Area #5	Prepare site for construction of two box hangars - 125′ x 100′ (include taxilane and associated apron pavement)	$ 6,350,000	Local
L10	Hangar Development Area #6	Prepare site for construction of one box hangar - 120′ x 100′ (includes associated apron pavement)	$ 770,000	Local
L11	Hangar Development Area #7	Prepare site for construction of one box hangar - 100′ x 80′	$ 150,000	Local
L12	Hangar Development Area #8	Prepare site for construction of one box hangar - 125′ x 100′ (includes associated apron pavement)	$ 525,000	Local
L13	Hangar Development Area #9	Prepare site for construction of one box hangar - 100′ x 80′ with associated airside pavement	$ 75,000	Local
L14	Hangar Development Area #10	Prepare site for construction of four box hangars - 80′ x 60′ with associated taxilane and airside pavement	$ 1,800,000	Local
Mid-Term Projects (6-10 Years)				
Airside Development Projects				
A6	Runway 36 Extension	Construct 1,664 foot extension to Runway 36 and relocation of PAPI. Construct approximately 2,500 LF of taxiway pavement to provide access to Runway 36 extension and demolish a portion of Taxiway B	$ 16,800,000	FAA Grants
A7	Midfield Development	Construct approxmiately 50,000 SY of apron pavement	$ 13,000,000	FAA Grants
A8	ILS Relocation to Runway 36	Installation of Glide Slope, Localizer, and MALSR on Runway 36 (Includes removal of Glide Slope, Localizer, and MALSR from Runway 3)	$ 2,800,000	FAA Grants
A9	Runway 3 extension and the removal of Taxiway F	Construct 1,525 foot extension on Runway 3 and demolish Taxiway F	$ 6,800,000	FAA Grants
A10	Runway 18-36 Partial Mill/Overlay (Not Depicted)	2" Overlay	$ 3,000,000	FAA Grants
A11	Taxiway A Construction	Construct two taxiway connectors adjacent to the Runway 18 end with partial pavement demo	$ 3,800,000	FAA Grants
A12	Taxiway D Reconstruction (Not Depicted)	Reconstruction of Taxiway D east and west of Runway 18-36	$ 1,292,000	FAA Grants
A13	Taxiway F Rehabilitation (Not Depicted)	Crack seal, seal coat, and re-mark	$ 117,000	FAA Grants
A14	Taxiway H Mill/Overlay (Not Depicted)	Mill and Overlay 3-inch	$ 402,000	FAA Grants
Landside Development Projects				
L15	Hangar Development Area #3 – Phase 2	Prepare site for construction of eight hangars (various dimensions) with associated airside and landside pavement (includes associated apron pavement)	$ 22,180,000	Local
L16	QTA facility	Construction of a Quick-turn-around facility for rental cars. Facility will include carwash, vaccuum and fueling	$ 3,000,000	Local
L17	Closure of Hangar Road and extension of Reary Boulevard	Close Hangar Road to provide for construction of west hangar facilities. Extend Reary Boulevard to provide access to hangar areas	$ 2,000,000	Local
L18	Consolidated fuel farm facility	Construct a fuel facility to be leased to tenants	$ 1,500,000	Local
L19	ATCT relocation	Demolition of the existing tower and construction of a new ATCT on the site identified.	$ 4,000,000	Local
L20	Hangar Development #4	Prepare site for construction of one corporate hangar (340′ x 130′) with associated airside pavement	$ 4,800,000	Local
L21	Construct two box hangars (100′ x 80′) with associated airside pavement	Prepare site for construction of two box hangars - 100′ x 80′	$ 1,800,000	Local
Long-Term Projects (11-20 Years)				
Airside Development Projects				
A15	Runway 36 extension	Construct 1,416 foot extension to Runway 36 and relocation of PAPI	$ 16,800,000	FAA Grants
A16	Partial demo of Runway 18 end and associated work	Demollish 820 feet from Runway 18 and construct two entrance taxiways on both side of the runway	$ 3,500,000	FAA Grants
A17	Relocation of Runway 36 ILS	Relocate ILS (MALSR, Glide Slope, and Localizer) to accommodate Runway 36 extension	$ 2,800,000	FAA Grants
A18	Taxiway H extension and partial removal of Taxiway D	Construct approximately 2,100 LF of taxiway pavement and demolish approximately 1,,800 LF of Taxiway D	$ 6,300,000	FAA Grants
A19	Full-length parallel taxiway	Construct full-length parallel taxiway with connectors to provide access on the eastside of the airfield	$ 16,250,000	FAA Grants
A20	Commercial Terminal Building Expansion	Expansion to the existing terminal to provide one additional aircraft parking gate, as well as, expansion to the baggage handling facilities.	$ 6,000,000	FAA Grants
Landside Development Projects				
L22	Land acquisition for MALSR and RPZ for Runway 36 extension	Acquire approximately 46 acres of land to maintain Runway 36 RPZ and MALSR on Airport property	$ 30,000	FAA Grants
L23	Terminal land acquisition	Acquire approximately 75 acres of land for future terminal development	$ 125,000	FAA Grants
L24	Construct three t-hangars (300′ x 54′) with associated airside pavement	Prepare site for construction of three t- hangars - 300′ x 54′ (includes associated apron pavement)	$ 3,600,000	Local
L25	Construct six box hangars with associated airside pavement	Prepare site for construction of six box hangars - 50′ x 50′ (includes associated apron pavement)	$ 4,500,000	Local
L26	Construct (11) hangars (various dimensions) with associated airside and landside pavement	Prepare site for construction of eleven hangars - Various dimensions (includes associated apron and landside pavement)	$ 10,340,000	Local
L27	Construct four corporate hangars with associated airside and landside pavement	Prepare site for construction of four hangars - 125' x 100' (includes associated apron and landside pavement)	$ 8,500,000	Local
L28	Construct (18) box hangars with associated airside pavement	Prepare site for construction of eighteen box hangars - 50′ x 50′ (includes associated apron pavement)	$ 8,000,000	Local
Cargo Development Projects				
C1	Cargo facility	Construct two hangars with associated landside pavement	$ 15,000,000	Private

CIP Projects and Schedule

CIP ID	Project	Description	Estimated Cost	Project Funding Source
Short-Term Projects (0-5 Years)				
Airside Development Projects				
A1	Convert Runway 9-27 into a taxiway	Decommission and convert Runway 9-27 into a taxiway, in addition, demolish Taxiway C	$ 3,750,000	FAA Grants
A2	Apron Development	Construct 78,355 SY of apron pavement	$ 20,000,000	FAA Grants
A3	Apron Rehabilitation	Crack seal, seal coat, and re-mark	$ 8,000,000	FAA Grants
A4	Runway 18-36 Rehabilitation (Not Depicted)	Crack seal, seal coat, and re-mark	$ 1,200,000	FAA Grants
A5	Runway 3-21 Rehabilitation (Not Depicted)	Crack seal, seal coat, and re-mark	$ 1,200,000	FAA Grants
Landside Development Projects				
L1	Self Serve fuel facility and access road	Self serve fuel facility to accommodate geneeal aviation aircraft	$ 500,000	Local
L2	Rental car parking addition	Terminal parking expansion to provide approximately a total of 85 additional rental car and short-term parking spaces	$ 1,600,000	Local
L3	Hangar Development Area #1 - Phase 1	Construct three t-hangars (30'x54') with associated airside pavement	$ 9,200,000	Local
L4	Hangar Development Area #1 – Phase 2 (Not Depicted)	Demolish three existing t-hangars	$ 1,600,000	Local
L5	Hangar Development Area #1 – Phase 3	Prepare site for construction of four box hangars - 100' x 80' (includes associated apron pavement)	$ 2,250,000	Local
L6	Hangar Development #2 – Phase 1 (Not Depicted)	Demolish existing GTE Hangar	$ 1,700,000	Local
L7	Hangar Development #2 – Phase 2	Prepare site for construction of four hangars with office space (various dimensions) (associated apron and landside pavements)	$ 3,550,000	Local
L8	Hangar Development #4	Prepare site for construction of one corporate hangar - 340' x 130' (includes associated apron pavement)	$ 2,900,000	Local
L9	Hangar Development Area #5	Prepare site for construction of two box hangars - 125' x 100' (include taxilane and associated apron pavement)	$ 6,350,000	Local
L10	Hangar Development Area #6	Prepare site for construction of one box hangar - 120' x 100' (includes associated apron pavement)	$ 770,000	Local
L11	Hangar Development Area #7	Prepare site for construction of one box hangar - 100' x 80'	$ 150,000	Local
L12	Hangar Development Area #8	Prepare site for construction of one box hangar - 125' x 100' (includes associated apron pavement)	$ 525,000	Local
L13	Hangar Development Area #9	Prepare site for construction of one box hangar - 100' x 80' with associated airside pavement	$ 75,000	Local
L14	Hangar Development Area #10	Prepare site for construction of four box hangars - 80' x 60' with associated taxilane and airside pavement	$ 1,800,000	Local



SAN ANGELO REGIONAL AIRPORT

Exhibit 5B
SHORT-TERM CIP PROJECTS
(0-5 YEARS)

Meeting current hangar development needs

During the planning process the ongoing need for additional hangar storage was communicated. It was important that development occurring in the short term not hinder future opportunities; therefore, the short-term hangar development plan was formulated in a logical manner that will allow for implementation of the long-term development plan.

General aviation hangars noted as L11, L12, and L13 could be developed with minimal infrastructure needs. Hangar location L5 requires the demolition and replacement of three t-hangar facilities in the location noted as L3. L14 requires the construction of a taxilane to facilitate the development of small hangar units.

The Business/Industrial hangar L10 can be developed within minimal infrastructure improvements. The hangar complex noted as L7 requires the removal of the large "AMCOM" hangar and L9, located in the area of the current paint hangars, requires the construction of a taxilane to provide access.

Hangar L8 in the Governmental Hangar area could also be developed with minimal infrastructure needs in the short term.

Please note, cost estimates within the CIP for conventional and box hangar development only include site preparation costs as the cost of the hangar is typically borne by the user at SJT. Cost estimates for the replacement of the t-hangar facilities is included as these are City-owned hangars that are individually leased.

Table 5B provides general information for the cost of hangar development using 2020 dollars. These figures include a basic hanger with office space.

TABLE 5B
Cost of Hangar Development

Hangar Dimensions (in feet)	Estimated Cost (in 2020 dollars)
80′ x 60′	$1,200,000
100′ x 80′	$800,000
120′ x 100′	$1,140,000
125′ x 100′	$1,187,500
130′ x 100′	1,235,000
200′ x 150′	$2,850,000
220′ x 130′	2,717,000
250′ x 150′	3,562,500
300′ x 54′	$1,200,000
340′ x 130′	$4,200,000

Source: Centurion Planning and Design, April 2020.

Expansion of commercial service terminal parking

During the planning process the need for additional parking to support commercial service operations was identified. The development of project L7 allows for the development of additional parking spaces for rental cars and the conversion of existing rental car spaces to short term parking spaces. This reallocation of space is depicted on **Exhibit 5C**.

EXHIBIT 5C
Service Terminal Parking Extension

Source: Centurion Planning and Design, December 2019.

Self-serve fuel facility

Input received from the general aviation pilot community indicated the desire for a self-serve fuel facility at the airport. This project is noted as project L1 and requires the construction of an access road to support fuel deliveries.

Mid-Term Improvements

Exhibit 5D depicts the proposed mid-term improvements at SJT. These improvements are focused on the following.

Runway improvements necessary to meet FAA design standards

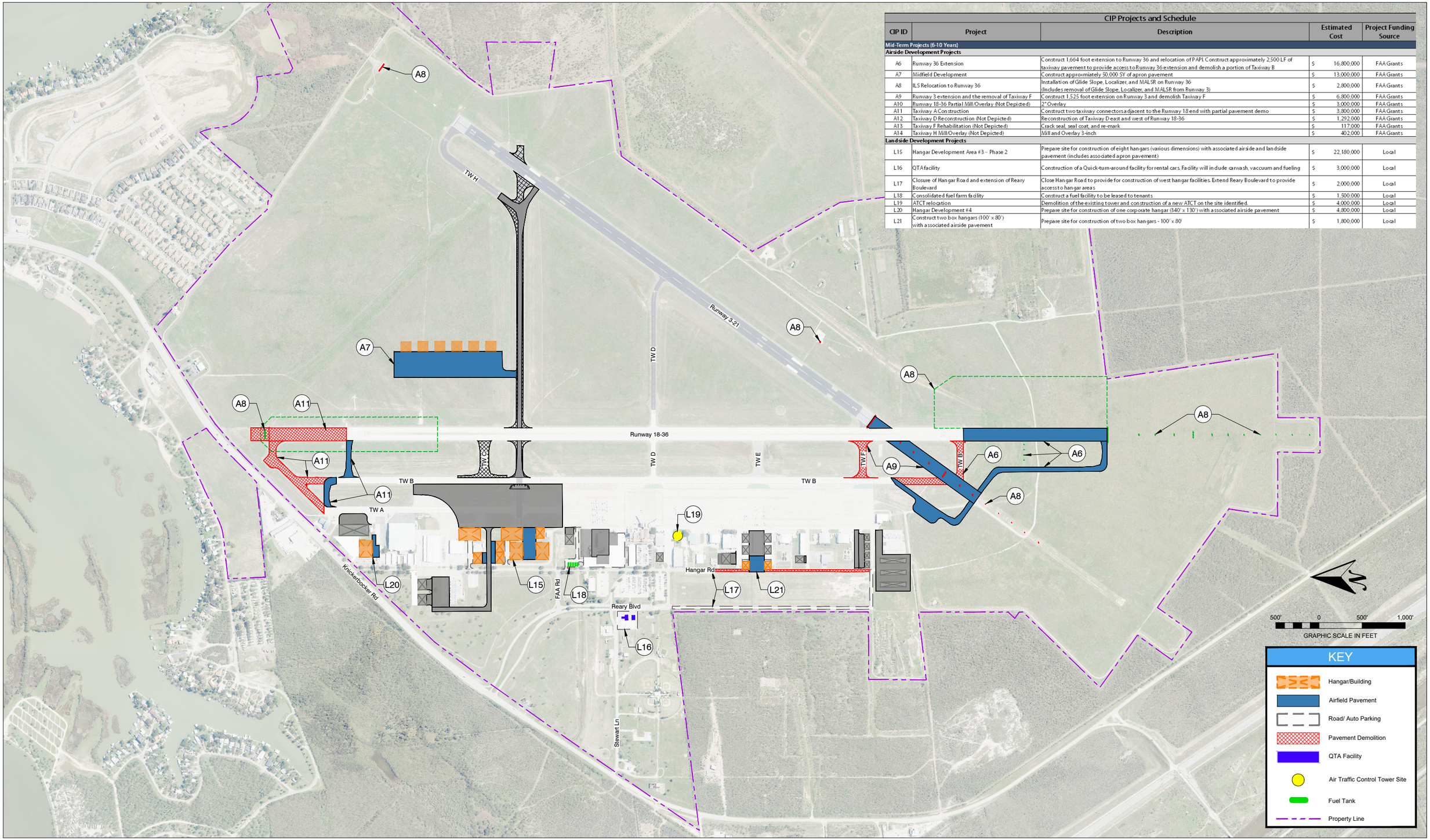
Runway improvements necessary to meet RSA and runway incursion mitigation needs are planned to begin during the mid-term development phases. Planned improvements will meet RSA requirements for Runway 18-36 and will deconflict the Runway 3 end from Runway 18-36.

Relocation of ILS to Runway 18-36

An evaluation of wind and weather data determined that Runway 18-36 best serves the airport during inclement weather. This is the airport's longest runway; therefore, the relocation of the ILS is reasonable and should be pursued as part of the improvements to Runway 18-36.

CIP Projects and Schedule

CIP ID	Project	Description	Estimated Cost	Project Funding Source
Mid-Term Projects (6-10 Years)				
Airside Development Projects				
A6	Runway 36 Extension	Construct 1,664 foot extension to Runway 36 and relocation of PAPI. Construct approximately 2,500 LF of taxiway pavement to provide access to Runway 36 extension and demolish a portion of Taxiway B	$ 16,800,000	FAA Grants
A7	Midfield Development	Construct approximately 50,000 SY of apron pavement	$ 13,000,000	FAA Grants
A8	ILS Relocation to Runway 36	Installation of Glide Slope, Localizer, and MALSR on Runway 36 (Includes removal of Glide Slope, Localizer, and MALSR from Runway 3)	$ 2,800,000	FAA Grants
A9	Runway 3 extension and the removal of Taxiway F	Construct 1,525 foot extension on Runway 3 and demolish Taxiway F	$ 6,800,000	FAA Grants
A10	Runway 18-36 Partial Mill/Overlay (Not Depicted)	2" Overlay	$ 3,000,000	FAA Grants
A11	Taxiway A Construction	Construct two taxiway connectors adjacent to the Runway 18 end with partial pavement demo	$ 3,800,000	FAA Grants
A12	Taxiway D Reconstruction (Not Depicted)	Reconstruction of Taxiway D east and west of Runway 18-36	$ 1,292,000	FAA Grants
A13	Taxiway F Rehabilitation (Not Depicted)	Crack seal, seal coat, and re-mark	$ 117,000	FAA Grants
A14	Taxiway H Mill/Overlay (Not Depicted)	Mill and Overlay 3-inch	$ 402,000	FAA Grants
Landside Development Projects				
L15	Hangar Development Area #3 – Phase 2	Prepare site for construction of eight hangars (various dimensions) with associated airside and landside pavement (includes associated apron pavement)	$ 22,180,000	Local
L16	QTA facility	Construction of a Quick-turn-around facility for rental cars. Facility will include carwash, vaccuum and fueling	$ 3,000,000	Local
L17	Closure of Hangar Road and extension of Reary Boulevard	Close Hangar Road to provide for construction of west hangar facilities. Extend Reary Boulevard to provide access to hangar areas	$ 2,000,000	Local
L18	Consolidated fuel farm facility	Construct a fuel facility to be leased to tenants	$ 1,500,000	Local
L19	ATCT relocation	Demolition of the existing tower and construction of a new ATCT on the site identified.	$ 4,000,000	Local
L20	Hangar Development #4	Prepare site for construction of one corporate hangar (340' x 130') with associated airside pavement	$ 4,800,000	Local
L21	Construct two box hangars (100' x 80') with associated airside pavement	Prepare site for construction of two box hangars - 100' x 80'	$ 1,800,000	Local



SAN ANGELO REGIONAL AIRPORT

Exhibit 5D
MID-TERM CIP PROJECTS
(6-10 YEARS)

Midfield development

Project A7 begins the development of the midfield for business and industrial development. Conversion of Runway 9-27 to a taxiway facilitates this development.

Additional hangar development

If demand warrants, additional areas for general aviation and business/industrial hangar development are provided. General aviation hangar development is noted as project L21. This development provides for two additional hangars along with apron pavement that provides access to the west side hangar development area. Construction of this apron and hangar requires the closure of Hangar Road and the extension of Reary Boulevard (project L17).

Additional business/industrial hangar development (L15) will occur in the areas provided by the apron and taxilane improvements developed as part of the short-term development plan. Additional Governmental hangar development will occur in the areas currently occupied by U.S. Customs and Border Protection (L20).

Please note, cost estimates for conventional and box hangar development only include site preparation costs as the cost of the hangar is typically borne by the user.

Commercial service terminal expansion

The need for the expansion of the commercial service terminal is dependent on number of passenger enplanements as well as the number of airlines service. For purposes of this CIP the expansion of the terminal building is included as a mid-term project.

Support facilities

Development of a number of airport support facilities are included in the mid-term CIP. A new ATCT is planned south of the existing facility (L19), a consolidated fuel farm is planned on Reary Boulevard (L18), and a consolidated rental quick turn around facility is planned west of the long-term parking area (L16).

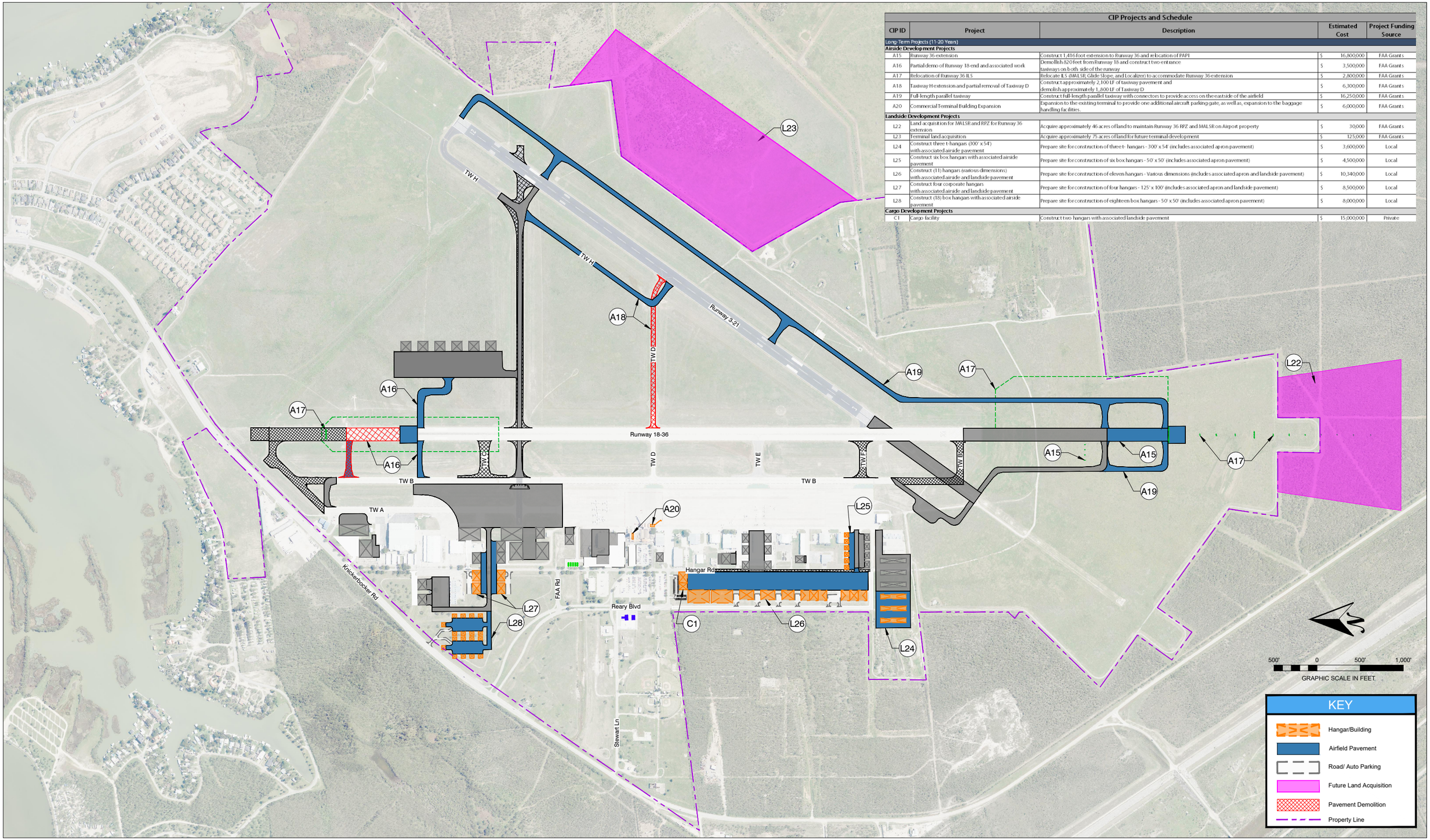
Long-Term Improvements

Exhibit 5E depicts the proposed long-term improvements at SJT. These improvements are more conceptual in nature and may be accelerated as needed. Generally, the improvements include:

- Shift of Runway 18-36 to meet RPZ requirements.
- Closure of Taxiway D and extension of Taxiway H to meet taxiway design standards.
- Construction of a parallel taxiway on the east side of runway 3-21 to facilitate a new commercial service terminal should it be required.
- Land acquisition for a new commercial service terminal.
- Additional general aviation and business/industrial hangar development.
- Expanded cargo facilities.

CIP Projects and Schedule

CIP ID	Project	Description	Estimated Cost	Project Funding Source
Long-Term Projects (11-20 Years)				
Airside Development Projects				
A15	Runway 36 extension	Construct 1,416 foot extension to Runway 36 and relocation of PAPI	$ 16,800,000	FAA Grants
A16	Partial demo of Runway 18 end and associated work	Demolish 820 feet from Runway 18 and construct two entrance taxiways on both side of the runway	$ 3,500,000	FAA Grants
A17	Relocation of Runway 36 ILS	Relocate ILS (MALSR, Glide Slope, and Localizer) to accommodate Runway 36 extension	$ 2,800,000	FAA Grants
A18	Taxiway H extension and partial removal of Taxiway D	Construct approximately 2,100 LF of taxiway pavement and demolish approximately 1,800 LF of Taxiway D	$ 6,300,000	FAA Grants
A19	Full-length parallel taxiway	Construct full-length parallel taxiway with connectors to provide access on the eastside of the airfield	$ 16,250,000	FAA Grants
A20	Commercial Terminal Building Expansion	Expansion to the existing terminal to provide one additional aircraft parking gate, as well as, expansion to the baggage handling facilities.	$ 6,000,000	FAA Grants
Landside Development Projects				
L22	Land acquisition for MALSR and RPZ for Runway 36 extension	Acquire approximately 46 acres of land to maintain Runway 36 RPZ and MALSR on Airport property	$ 30,000	FAA Grants
L23	Terminal land acquisition	Acquire approximately 75 acres of land for future terminal development	$ 125,000	FAA Grants
L24	Construct three t-hangars (300' x 54') with associated airside pavement	Prepare site for construction of three t- hangars - 300' x 54' (includes associated apron pavement)	$ 3,600,000	Local
L25	Construct six box hangars with associated airside pavement	Prepare site for construction of six box hangars - 50' x 50' (includes associated apron pavement)	$ 4,500,000	Local
L26	Construct (11) hangars (various dimensions) with associated airside and landside pavement	Prepare site for construction of eleven hangars - Various dimensions (includes associated apron and landside pavement)	$ 10,340,000	Local
L27	Construct four corporate hangars with associated airside and landside pavement	Prepare site for construction of four hangars - 125' x 100' (includes associated apron and landside pavement)	$ 8,500,000	Local
L28	Construct (18) box hangars with associated airside pavement	Prepare site for construction of eighteen box hangars - 50' x 50' (includes associated apron pavement)	$ 8,000,000	Local
Cargo Development Projects				
C1	Cargo facility	Construct two hangars with associated landside pavement	$ 15,000,000	Private



SAN ANGELO REGIONAL AIRPORT

Exhibit 5E
LONG-TERM CIP PROJECTS
(11-20 YEARS)

FINANCIAL PLAN

The previous sections of the Master Plan evaluated the Airport's existing facilities, projected the future activity levels, identified potential facility needs, and detailed alternatives and preferred development alterative recommendations for addressing those facility needs throughout the 20-year planning period. Regardless of the identified need for improvements, the ability to pay for a project will ultimately influence when the project is implemented. This section addresses the financial implications of the proposed Master Plan improvements.

Following an overview of both the state and federal grant programs, a general overview of potential funding sources and eligibility relative to state and federal funding programs is outlined. Finally, the net operating position of the airport is presented, along with a review of the Airport's potential sources for additional revenue that may assist in meeting the local funding requirements.

In general, the financial plan for the Master Plan was conducted as follows:

- An overview of the Airport's financial structure was prepared to present the current accounting practices, financial operating environment, and key provisions of certain governing documents.
- Rough order of magnitude (ROM) cost estimates for each project in the preferred development alternative recommendations are summarized in this section.
- Potential funding sources were identified, including the FAA's Airport Improvement Program (AIP), Texas Department of Transportation (TxDOT) funding, and other funding sources. Project costs not funded by these sources are expected to be funded by some combination of third-party investment, Airport funds, and/or City debt.
- The Airport's existing financial operating results were projected to determine primary revenue generating sources, its major expenses, and the ability of the Airport to fund the costs of the preferred development alternative recommendations.

This section, which presents the results of the financial analysis, is organized as follows:

- Financial Structure Overview
- Federal Grant Assurances
- Capital Program Funding Sources
- Operating Expenses
- Operating Revenues
- Airport Cash Flow and Capital Funding
- Passenger Facility Charges
- Additional Revenue Opportunities
- City Investment and Long-Term Debt
- Summary

Financial Structure Overview

The Airport is owned by the City of San Angelo and is classified by the Federal Aviation Administration as a commercial primary, non-hub airport. The City's fiscal year ends on September 30th of each year, and its financial statements are presented on the full accrual basis in accordance with Generally Accepted Accounting Practices (GAAP). All Airport's activities are accounted for within a single proprietary (enterprise) fund within the City of San Angelo.

The City operates under the council-manager form of government. Policy making and legislative authority reside in a council comprised of a mayor and six council members. The City Council is responsible for, among other things, passing ordinances, adopting a budget, selecting a city manager and municipal court judges, and appointing citizens to City boards and commissions. Council members are selected on a non-partisan basis and serve four-year, staggered, terms. The six council members are selected by the voters in single-member districts. The Mayor is selected by city voters at large. The City Manager is responsible for implementation of the Council adopted policies and ordinances, oversight of the operations of the City, and for appointment of City department heads.

The City annually adopts an operating budget for the General, Special Revenue and Debt Service Funds. Budgets for the Proprietary Funds are adopted for internal management purposes. Budgetary control is maintained at the line item level by the encumbered, appropriated and expended balances within any fund; however, any revision that increases the total budgeted expenditures must be approved by the City Council after public hearings. City budgets are prepared on a modified accrual basis and accounting records are maintained on that basis throughout the fiscal year. Applicable accounting records are then adjusted to the full or modified accrual basis for year-end reporting purposes.

Federal Grant Assurances

In addition to State and local legal requirements, the Airport also must fulfill various federal legal obligations because it uses federal grant funds for airport purposes. All airport sponsors that receive federal grants must comply with certain grant assurances, legislation, orders, regulations, and circulars as part of their agreement to access those funds. The federal grant assurances are codified in Title 49, U.S.C. Subtitle VII, as amended. Two of the requirements among these grant assurances pertain to airport revenue use exclusively for airport-related purposes and for maintaining fee structures that make the airport as self-sustaining as possible. The next two subsections further describe these requirements.

Revenue Use

Grant assurances provide that a public airport will only expend the revenue it generates for its capital or operating costs, the local airport system, or other local facilities owned or operated by the airport owner. These other local facilities must be directly and substantially related to the air transportation of passengers or property. Any use of the revenue that does not conform to the permitted capital or operating costs above may be considered revenue diversion, which is prohibited.

Revenue diversion includes direct or indirect payments exceeding the value of services and facilities provided to the airport, use of the airport revenues for general economic development, marketing, and promotional activities unrelated to airports, and payments in lieu of taxes. In addition, this grant assurance prohibits payments to compensate non-sponsoring governmental bodies for lost tax revenues exceeding stated tax rates.

An airport must conduct annual financial audits to prove its permissible use of airport revenue and to establish compliance with the prohibition on revenue diversion. The statutory penalties for diverting revenue are severe.

Self-Sufficiency

Airports must maintain a fee and rental structure that makes the airport as financially self-sustaining as possible under the particular circumstances at that airport. The requirement recognizes that individual airports will differ in their ability to be fully self-sustaining, given differences in conditions at each airport. The purpose of the self-sustaining rule is to maintain the utility of the federal investment in the airport.

To conform to this requirement, an airport owner must have undertaken reasonable efforts to maintain a fee and rental structure to sustain itself as much as possible under the circumstances existing at that particular airport. Fees for the use of the airfield generally may not exceed the airport's capital and operating costs of providing the airfield. Aeronautical fees for landside or airfield facilities (e.g., hangars and aviation offices) in non-movement areas may be at a fair market rate but are not required to be higher than a level that reflects the cost of services and facilities.

Rates charged for non-aeronautical use (e.g., concessions) of the airport must be based on fair market value (e.g., lease of land at fair market rent subject to the specific exceptions).

Capital Program Funding Sources

Based on the preferred development alternative projects and their associated costs, various sources of potential project funding were identified. It is assumed that the costs for the preferred development alternative will be funded from a combination of the following sources:

- Federal Aviation Administration (FAA) Grants
- Texas Department of Transportation (TxDOT) Funds
- Third-Party Funds
- Local Funds
- Coronavirus Aid, Relief, and Economic Security (CARES) Funds

A description of the funding sources anticipated to be available for the funding of the Recommended Development Concept is presented in the following paragraphs.

FAA Grants

Federal participation is based on the Airport Improvement Program (AIP) as reauthorized under the FAA Modernization and Reform Act of 2012. The FAA provides federal grants in the form of entitlement grants (based on annual enplaned passenger levels) and discretionary grants. The FAA

distributes AIP funds each year based on the appropriation received from Congress. If Congress authorizes AIP at a level above $3.2 billion, the current legislation provides eligible "Primary" airports with entitlement funds that are calculated based on the Airport's number of annual enplaned passengers and cargo operations.

The FAA allocates funds from the FAA to the nation's airports based on various eligibility criteria. Allocation is tied to a priority system used to rank each request and determine which projects will occur during any given federal fiscal year. The priority system employed by the FAA has different criteria for different projects. Generally, projects that enhance the safety of aircraft operations and those that enhance capacity in the system are higher priority projects. The priority system also ranks projects based on the airport size and the number of aircraft and aircraft operations at the facility.

Each FAA region distributes discretionary grants based on availability and project priorities. FAA Order 5100.38D, Airport Improvement Program Handbook, provides guidance on issues of eligibility. In general, only those projects related to non-revenue producing items, such as land acquisition, airfield construction, certain public areas of the terminal area building, and safety/security projects are eligible for FAA AIP funding.

The FAA AIP Program may fund up to 90 percent of eligible projects at the Airport, depending on funding availability. In FY 2019, the Airport received approximately $1.1 million in FAA AIP Entitlement grants. This amount is based on enplaned passenger levels at the Airport and the number of cargo operations. It is assumed that the Airport will continue to receive FAA AIP Entitlement grants based on the FAA's current formula. It is also assumed that the Airport will apply for discretionary amounts to maximize federal funding up to 90 percent of eligible project costs.

Given that future FAA AIP grant funding is based on factors as described above, the Airport could potentially receive less funding than eligible project costs. If future FAA AIP funding were not available at assumed levels, the Airport would have to find alternative funding in addition to the local share already required.

Texas Department of Transportation (TxDOT) Funds

TxDOT administers the Routine Airport Maintenance Program (RAMP) which matches local government grants up to a maximum of $50,000 annually. This grant program is available to cover 50% of the costs of many annual airport maintenance requirements, such as airfield pavement repair and rehabilitation, drainage maintenance, sweeping and repair and maintenance of lighting and approach aids. It can also be utilized for certain low-cost capital improvements such as airport public parking lots, installation of security fencing, replacement of rotating beacons, etc. Under the RAMP, any project costs in excess of $100,000 are to be covered with local funds.

Third-Party Funds

Third-Party funding can be available for certain revenue-producing facilities at an airport, including fixed base operators (FBOs), hangars, aircraft maintenance, or cargo facilities. While private funding can be provided in many different forms, a typical approach is for private parties to fund and construct the development of FBO facilities or hangars at an airport and pay ground rent to the airport. FBOs, maintenance facilities, and hangars for aircraft are usually built as demand warrants.

Local Funds

The balance of project costs (i.e., after consideration of FAA funding, State grants, and other funding sources) must be funded through the local sponsor. As such, it is anticipated that local sources will be a primary component for the funding of the preferred development alternative projects. Local funding of airport improvements can come from PFCs, CFCs, Airport cash, City investment, or the issuance of bonds or other debt. Additional discussion of local funding sources is provided in the following sections.

Cares Act Funds

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security (CARES) Act was signed into law and included $10 billion in funds to be awarded as economic relief to certain U.S. airports as a response to the COVID-19 pandemic. In addition to an increase to the federal share to 100 percent for fiscal year 2020 AIP grant funding, fund allocations to airports were determined by various formulas relative to enplanements, debt, and unrestricted cash reserves. For SJT, the CARES Act grant amounts, exclusive of the 2020 AIP grant increase, were $1,227,539. These funds may be used for any purpose for which airport revenues may be lawfully used. As determined through a standard form 424 administered by the FAA, airports may use these funds on operating expenses, debt service payment or new airport development. While FAA stated that the funding is available until expended, FAA has amended its guidance that some or all funds would be subject to a four-year limit on the period of performance regarding operating expenses with remaining amounts subject to recovery by FAA.

Table 5C presents anticipated potential funding sources of the preferred development alternative recommendations.

TABLE 5C
Potential Funding Sources for Preferred Development Alternatives

Preferred Development Alternative	TOTAL COST	PROJECT FUNDING SOURCES			
		FAA Grants	TxDOT	Third Party	Local
Airside Development Projects	$133.8 -	$123.8 -	$1.0 -	--	$9.0 -
Landside Development Projects	--	--	--	--	--
Hangar Development Projects[1]	$94.6 -	$10.0 -	--	$83.6 -	$1.0 -
Rental Car Parking Addition	$1.6 -	--	--	--	$1.6 -
Rental Car QTA Facility	$3.0	--	--	--	$3.0
Fuel Facility Projects	$2.0 -	--	--	--	$2.0-
Other Landside Development Projects	$6.2 -	$0.1 -	--	--	$6.0 -
Total Landside Development Projects	$107.3 -	$0.1 -	--	$83.6 -	$13.6
Cargo Development Projects	$15.0 -	--	--	$15.0 -	--
TOTAL	**$256.2 -**	**$134.0 -**	**$1.0 -**	**$98.6 -**	**$22.6 -**

[1] *Hangar development grant eligibility will ultimately be determined through project development and funding sources determined through public-private partnership, City investment, and/or third-party investment opportunities. See 'New Hangar Lease Revenues' below.*

Source: San Angelo Airport, Landrum & Brown.

As shown in Table 5C, project costs are estimated to approximately $256.2 million. Of this total, approximately $134 million of project costs are anticipated to be eligible for funding through FAA grants and approximately $1 million of project costs are eligible for funding through TxDOT funding. It is important to note that these funding estimates represent the amount of project costs that are eligible for federal and State funding. However, depending on actual funding appropriations made each year, and competition with other airport funding needs throughout Texas, these levels of federal and State participation may not be attainable.

Also shown in Table 5C, approximately $98.6 million of preferred development alternative project costs are anticipated to be funded through third-party funding with the remaining

$22.6 million of estimated project costs anticipated to be funded from local funds generated by the Airport over the 20-year forecast period.

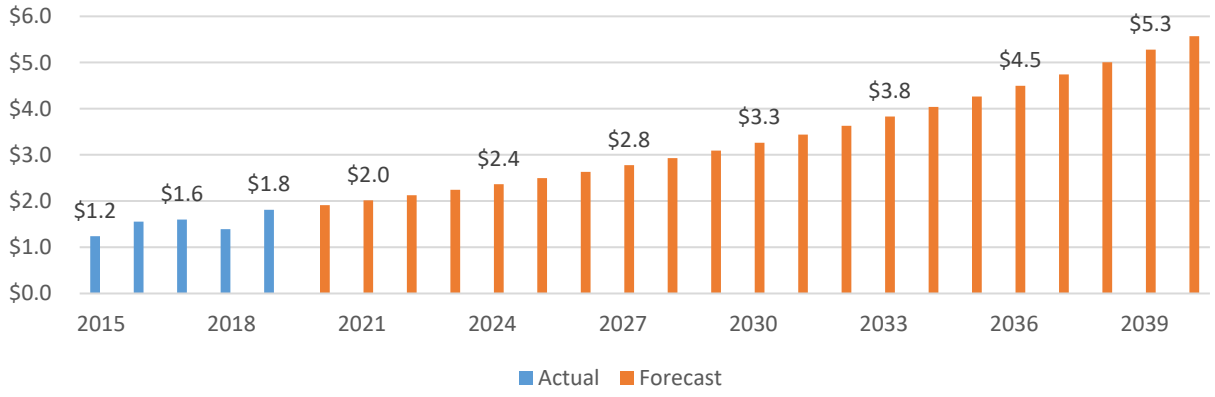
Operating Expenses

Operating expenses at the Airport are assigned to various expense categories including personnel, supplies and equipment, contract services, utilities, other charges, and minor capital outlays.

Exhibit 5F presents actual operating expenses at the Airport for FY 2015 through FY 2019 and projected operating expenses at the Airport through the 20-year forecast period. In general, projections of future operating expenses were based on a review of historical trends and the anticipated impacts of inflation. As shown, operating expenses are estimated to increase from approximately $1.9 million in FY 2020 to approximately $5.6 million in 2040, representing a compounded annual growth rate of 5.5%.

It should be noted that the implementation of the preferred development alternative may result in additional operating expenses above what is projected. The timing and magnitude of these potential incremental expenses will ultimately be determined based on the projects implemented.

EXHIBIT 5F
Airport Operating Expenses (FY 2015 – FY 2039)



Source: San Angelo Airport, Landrum & Brown.

Operating Revenues

The Airport is provided with a diverse revenue stream from a number of different sources. These revenue sources include revenues from the airlines (landing fees and terminal rent), restaurant, rental car, general aviation, cargo, and other miscellaneous revenues. In FY 2019, the Airport's operating revenue totaled approximately $1.7 million.

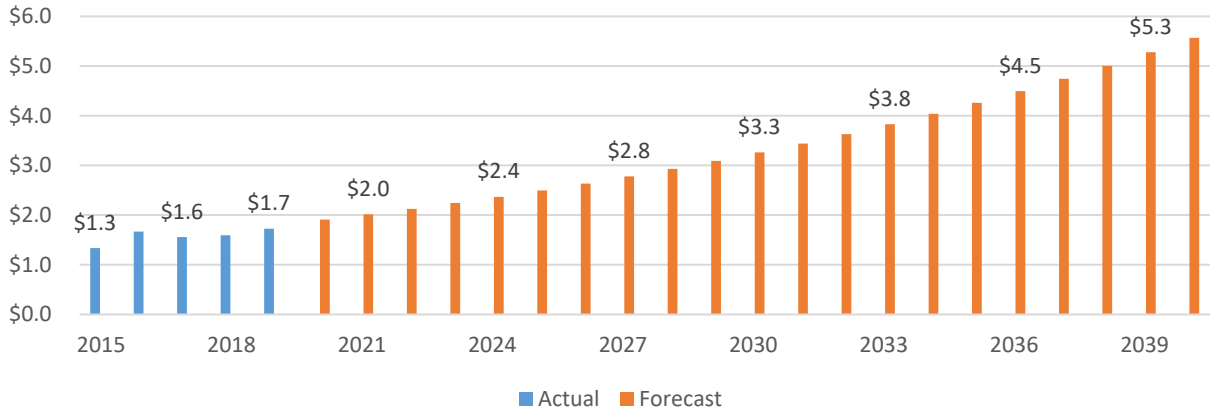
Major revenue sources include.

- **Airline Revenues** – Comprised of terminal rentals and landing fees, rates are set annually by City Council, based on market value and fair market values at comparable airports.
- **Restaurant Revenues** – Revenues equal to 5% of gross restaurant revenues or the monthly minimum annual guarantee.
- **Rental Car Revenues**– Rental car fees are privilege fees assessed to the rental car operators for the right to provide services to users of the Airport, equal to 10% of gross rental car sales or the monthly minimum annual guarantee.
- **Building and Ground Rental Revenues** - Building and ground rental revenues consist of revenues generated from building and ground rental fees assessed to various tenants located on the Airport such as the Airport's FBO, cargo tenants, etc. These revenues are generally charged to tenants based on a per square foot basis for the building and/or land contained within their leasehold for which their facilities occupy.
- **Other Revenues** – Include other revenues generated through fuel flowage fees, cargo, general aviation, and other operating activities.

Exhibit 5G presents actual operating revenues at the Airport for each year from FY 2015 through FY 2019 and projected operating revenues from 2020 through the 20-year forecast period. In general, projections of future operating revenues were based on a review of historical trends and the anticipated ability of the City to recover Airport operating expenses from various users of the Airport. As shown, operating revenues are estimated to increase from approximately $1.9 million in FY 2020 to approximately $5.6 million in 2040, representing a compounded annual growth rate of 5.5%.

It should be noted that the implementation of the preferred development alternative may result in opportunities to generate additional operating revenues in addition to what is projected. These additional opportunities are described in the following sections.

EXHIBIT 5G
Airport Operating Revenue (FY 2015 – FY 2039)



Source: San Angelo Airport, Landrum & Brown.

Airport Cash Flow and Capital Funding

As shown in Exhibits 5F and 5G above, operating revenues are projected to be sufficient to cover operating expenses of existing facilities and planned minor capital outlays. However, existing Airport operations are not anticipated to generate operating revenues above operating expenses to the extent that sufficient revenues would be available to fund the portions of the preferred development alternative projects not funded through Federal, State, or Third-Party funding. Therefore, funding of the preferred development may depend on utilizing PFCs, developing new revenue sources not currently generated at the Airport, and utilizing City investment, which may include the issuance of City debt, each of which is described in the following sections.

Passenger Facility Charges (PFCs)

PFCs may be used by the Airport to fund the local share of eligible project costs (PFC eligibility for projects generally follows the same general guidelines for determining AIP grant eligibility outlined earlier). In accordance with the Aviation Safety and Capacity Expansion Act of 1990, as amended by the Aviation Investment and Reform Act for the 21st Century, the Airport is currently imposing a $4.50 PFC at the Airport. The Airport currently collects approximately $250,000 in PFC revenues each year.

Additional Revenue Opportunities

The City has identified several opportunities to generate additional operating revenues which could be used for the local funding of the preferred development alternative, which are as follows.

New Hangar Lease Revenues

The City is planning numerous hangar development opportunities to grow its tenant base and generate additional non-airline revenues. As mentioned previously, various funding sources will be necessary to complete the hangar projects. These capital funding sources may be comprised of federal or state grants, City bonds or allocated funds, public-private partnerships, third party investments or

available Airport discretionary funds. Each type of hangar (e.g., t-hangar, box hangar, or corporate hangar) will have a different trigger to determine the timing and potential for its development. The enabling demolition as a prerequisite for construction and/or the associated landside or airside adjacent pavement will factor into the capital cost, ongoing maintenance, and overall project viability. Hangars will be constructed as demand necessitates and as the projected revenues support the development costs.

Many of the hangar projects have an associated airside pavement component. In each case where the hangar(s) will be multi-tenant, the project may be eligible for FAA grants. The significant cost of constructing the adjacent ramp, as well as the ongoing ramp maintenance, will likely make the rental of a multi-tenant hangar not feasible if those costs are required to be absorbed by the tenants. Conversely, the airside portion of the ramp that may be dedicated to a single tenant or a relatively small allocation of ramp could be included as part of the overall project cost.

The hangar developments are separated into the short-, mid-, and long-range planning periods as described in the early portions of this chapter. The relevant rental rates are subject to appraisal at the time of development to ensure that the rental rate is reflective both of a reasonable rate of return and of a tenant's tolerance. Based on historical market rates, future hangar building rental rates for hangar developments could be expected to be approximately $4.00-$5.00 per square foot annually. However, actual rates and resulting rental revenues will depend on timing of the developments, available funding sources, size of the development, and prevailing market conditions at the time.

Depending on whether the hangar structures are funded by the City or Airport, or by a third party, or some combination of the two, the rental rates will vary. In these instances, a portion of the rental rate assumes some level of debt service or imputed interest to recover the investment, in addition to building and land rent. The landside improvements are likely to be invested similarly to the structures and recovered through rents in the same manner. As noted above, the airside improvements may be eligible to be funded through federal grants. In some cases, a portion of the ramp may be funded privately or through City or Airport investment. In those cases, rent recovery could be negotiated. However, in most cases, the airside construction cost is prohibitive to fund directly and charging rents on grant funded projects is generally unacceptable.

Breakeven costs based solely on rental rate recovery requires a substantial amount of time if funded through the City or Airport. Other considerations such as job creation and economic impact may be assumed in making the business case for development.

Auto Parking

Auto parking revenues are generally a significant component of non-airline revenues generated by airports. Currently, the City does not charge for automobile parking at the Airport. At most commercial airports throughout the U.S., public parking lots are fee-based and one of the largest sources of non-airline generated revenue. As previously described, FAA intends for airports to generate revenues in order to provide for financial self-sufficiency and to reinvest those funds into the airport infrastructure. In order for the Airport to begin charging for parking, the City Council will need to pass an ordinance establishing set rates.

To determine reasonable parking rates, an understanding of necessary initial investment and ongoing costs should be established by the Airport. Currently, there are two major parking parcels adjacent the terminal building with one directly in front of the terminal and the second due west of the first. An overflow lot is directly south of the second parking parcel.

To secure the parking lots, both entrance and exit areas' infrastructure must be addressed as well as adding a barrier (e.g., railing) around the parameter to prevent non-paying persons from entering or departing the lots. Additional investments include a revenue control system / pay station (e.g., Luke II) for payment processing of credit card in / credit card out, gate arms (with related cameras and electrical), repair or repaving of the lots, as needed, and striping of the parking stalls. Maintenance of the pavement and equipment will require minimal personnel; however, customer service for issues regarding the lot or payment system may require a designee by the Airport.

Estimated costs for these improvements are estimated at $400k, subject to the level of infrastructure modifications and the number of entrance/exit points maintained for the project. While the initial investment must be funded by the Airport or City, establishing a modest daily rate for parking will eventually offset these costs.

Parking rates are often front loaded such that the full day rate is met in a matter of only a few hours. However, the Airport may elect to have a grace period for the first hour or two, which would allow meeters and greeters to pick up deplaned passengers without a charge. If so, the hourly rate could begin in the second or third hour. If the initial rate goal is $5 per day, then each hour would be $1 per hour after the grace period noted above. Within a few hours, the daily maximum rate of $5 would be met. This would allow the Airport to recoup the full day's cost on either a day trip business traveler or on a last day trip where the passenger parked for a portion of the final day.

Potential parking revenues at the Airport were estimated based on the Airport's expected passenger activity profile, an assumed daily parking rate provided by the City, and assumptions for leisure and business travel, which are summarized below:

- Of the Airport's annual approximately 60,000 enplaned passengers, it is assumed that approximately 25% would result in a paid parking transaction, or approximately 15,600 transactions annually. This assumption takes into account both originating versus destination passengers and an assumption of multiple travelers per parking transaction for leisure travelers.
- The remaining originating passengers not assumed to park at the Airport are assumed to be dropped off at the Airport by friends/relatives, taxicabs, transportation network companies (TNCs), or other modes of transportation.
- Of the number of passengers parking at Airport, 75% were assumed to be business travelers, with an average parking duration of 2 days. The remaining 25% of parkers were assumed to be leisure travelers with an average parking duration of 6 days.
- A maximum daily parking rate of $5.00 was assumed.

Table 5D presents projected potential parking revenues at various forecast enplaned passenger levels.

TABLE 5D
Projected Parking Revenue

	PROJECTED			
	2021	**2022**	**2027**	**2037**
Enplaned Passengers	62,491	63,758	67,643	76,136
Share of Enplanements Parking at the Airport	25%	25%	25%	25%
Parking Transactions	15,623	15,940	16,911	19,034
Average Length of Stay (days)	3.0	3.0	3.0	3.0
Parking Transaction Days	42,963	43,834	46,505	52,344
Daily Parking Rate	$5.00	$5.00	$5.00	$5.00
TOTAL PARKING REVENUE	**$234,341**	**$239,093**	**$253,661**	**$285,510**

Source: San Angelo Airport, Landrum & Brown.

As shown in Table 5D, based on the above parking assumptions, gross parking revenues are estimated to total approximately $234,000 annually if the Airport implements a parking revenue system and increase over time as enplaned passengers are forecast to increase. It should be noted that this incremental revenue does not take into account any parking management fees that might be paid to a parking operator or operating expenses associated with the parking lot improvements required to implement a parking revenue system. These revenues would pay down the initial investment and be applied to annual parking lot operation and maintenance costs; however, once the initial investment is recovered, the excess revenues would be utilized as local matching funds for AIP grants or Airport cash for projects that are not AIP or PFC qualified. It should also be noted that this forecast assumes the maximum daily parking rate remains at $5 per day through the forecast period, however, the City would have the ability increase the maximum daily rate over time as needed.

Per the rental car concession agreements in effect, the Airport collects a minimum annual guarantee of $12,000 per year per concession or ten percent (10%) of gross revenues, whichever is greater. Recently, the Airport has determined it will collect seven dollars ($7.00) per month for each ready return stall for rental car parking. This new, additional charge collection amount will vary depending on how many rental car stalls are allocated and leased to each company. Each concession agreement is currently expired and operating on holdover month to month tenancy pursuant to Section 2.2 of the agreement. As part of a renegotiated concession agreement, both the quantity and location of ready return stalls may be determined for the RACs.

Rental Car Customer Facility Charge (CFC)

In order to fund all or a portion of the QTA development and the rental car parking addition, and to pay for associated ongoing operating expenses, the Airport can create a customer facility charge (CFC) that is a fee associated with rental car transactions. Those fees are remitted to the Airport by the RACs

and can be used for projects and associated costs that are for the benefit of the RACs. A QTA is a common use for CFC funding at other airports in the United States. CFCs are generally in the range of $2.00 to $4.50 per transaction day charged to a rental car customer. Determining the appropriate level of CFC is a function of the anticipated projects to be funded over a definitive period of time and taking into consideration CFCs of other airports in the region. This analysis assumes $3.00 per transaction day, the same CFC rate currently charged at Abilene Regional Airport, as the likely CFC amount implemented. In order to implement a CFC, the City Council would be required to pass an ordinance for the RACs to collect a CFC, and a notification to the RACs to collect and remit the CFC would follow. It is prudent for the Airport to begin collection of a CFC well in advance of incurring the capital or operation costs associated with a project due to the need to accumulate a substantial dollar amount that will need to be expended.

Potential CFC revenues at the Airport were estimated based on the Airport's expected passenger activity profile, an assumed CFC rate based on industry averages at comparable airports, and assumptions for leisure and business travel, which are summarized below:

- Of the Airport's annual approximately 60,000 deplaned passengers, it is assumed that approximately 25% would result in a rental car transaction, or approximately 15,600 rental car transactions annually. This assumption takes into account both originating versus destination passengers and an assumption of multiple travelers per rental car transaction for leisure travelers.

- The remaining visiting passengers not assumed to rent a car at the Airport are assumed to be picked at the Airport by friends/relatives, taxicabs, transportation network companies (TNCs), or other modes of transportation.

- Of the number of passengers renting cars at Airport, 75% were assumed to be business travelers, with an average parking duration of 2 days. The remaining 25% of passengers renting cars were assumed to be leisure travelers with an average parking duration of 6 days.

- A CFC rate of $3.00 per rental car transaction day was assumed.

Table 5E presents projected potential CFC revenues at various forecast enplaned passenger levels.

TABLE 5E
Projected CFC Revenue

	PROJECTED			
	2021	**2022**	**2027**	**2037**
Deplaned Passengers	62,491	63,758	67,643	76,136
Share of Deplanements Renting Cars at the Airport	25%	25%	25%	25%
Rental Car Transactions	15,623	15,940	16,911	19,034
Average Length of Stay (days)	3.0	3.0	3.0	3.0
Rental Car Transaction Days	46,868	47,819	50,732	57,102
CFC Rate (per transaction day)	$3.00	$3.00	$3.00	$3.00
TOTAL CFC REVENUE	**$140,605**	**$143,456**	**$152,197**	**$171,306**

Source: San Angelo Airport, Landrum & Brown.

Based on the above assumptions, CFC revenues are estimated to total approximately $141,000 annually if implemented and increase over time as enplaned passengers are forecast to increase. It should be noted that CFC revenue must be used for rental car related capital and operating costs. If CFC revenues are insufficient to fully cover the costs of the Rental Car QTA, the Airport may also elect to impose a car wash fee on rental car companies but may not collect more than the cost of the facility. Car wash fees and resulting revenues would be determined based on project scope, timing, and resulting CFC revenues. It should also be noted that this forecast assumes the CFC rate remains at $3 per transaction day through the forecast period, however, the City would have the ability increase the CFC rate over time as needed to cover for rental car related capital and operating costs.

In addition to the CFC, the Airport could collect a per gallon fuel fee from the RACs for gasoline sold or dispensed at the QTA. This fee collected is often around $0.05 per gallon and can be used for any airport purpose.

Fuel Farm Revenues

Generally, a lease rental rate for the ground rent would be applied based on fair market value. While an appraiser should determine, a reasonable estimate for aeronautical, commercial land would be approximately $0.25 per square foot. If fuel storage tanks are provided by the Airport, it would provide the opportunity for the Airport to charge rent on a per gallon basis. Again, an appraiser would have to set the fair market rate, but a reasonable rate for storage would be $0.75 per gallon.

The revenues generated from a consolidated fuel farm may not be substantial, but the source of revenue is in addition to the benefits of safety and control regarding fuel on the airfield.

City Investment and Long-Term Debt

Any additional local funding beyond what can be funded from Airport revenues (including parking revenues and incremental fuel and rental revenues), PFCs, and CFCs would require investment from the City. Depending on the exact timing and magnitude of future capital expenditures, it may be necessary for the City to issue future debt to fund the preferred development alternative. Debt service payable on the City debt may be offset by PFCs and the incremental revenue opportunities provided herein.

Summary

Implementing and funding the preferred development alternative will largely be a function of circumstances of federal, state, and third-party funding sources at the time of specific project implementation. Due to the conceptual nature of a master plan, implementation of most of these capital projects should occur only after further refinement of their costs and timing. The financial feasibility of the preferred development alternative is based on a number of factors, most notably of which is the level of external funding sources the City is able to secure to fund the various capital projects. While the previous sections identified the maximum eligibility levels available for certain projects from the FAA, TxDOT, and other potential sources, there is no guarantee that these funds will be made available in any given year, or if they are, that they will be funded at the full eligibility levels. Given this uncertainty, there are a number of approaches that the City can undertake in order to undertake the preferred development alternative projects and also ensure their financial feasibility, including:

- **Defer or delay capital project cost expenditures** – The actual implementation schedule for the capital projects identified in the Master Plan will be defined by certain development triggers and demand growth rather than by specific years. In the event that certain funding sources are not available, or that financial feasibility cannot be achieved when a project is needed, however, the City may need to defer certain projects until appropriate funding sources can be obtained. In addition, rather than deferring whole projects, in some cases, projects can be completed in several smaller phases over several years to help increase the participation from other funding sources and spread out local funding requirements.
- **Prioritize revenue-producing projects** – As identified in the preferred development alternative, certain projects, including the development of new hangars, auto parking, and QTA, would be revenue-producing projects that would ideally, at a minimum, support the associated local share costs for that facility. These projects will be demand-driven projects that should only be undertaken when demand warrants and the project can be as self-supporting as possible from the day it is put in operation. In addition, ideally, these projects could generate additional profits that could help to support other non-revenue producing projects. As such, it will be important for the City to thoroughly review any revenue-producing projects to ensure that they will be supported by anticipated demand and generate positive cash flow at the Airport.

- **Issue long-term debt** – As discussed earlier, in order to fund the local share of large capital projects, airports typically will issue long-term debt to help defray upfront expenditures and mitigate the impacts to its available cash balances. In addition, special facility debt can be issues for certain revenue-producing projects which are secured by a pledge of the revenues to be produced by the proposed facility. While issuing long-term debt can be an effective approach for implementing certain projects and minimizing up-front cash expenditures, it is important to ensure that the Airport's expected net operating income (revenues minus expenses) can not only pay for the expected annual debt service, but also generate the required minimum debt service coverage ratio of 1.25X.

Funding and ultimately implementing the preferred development alternative will largely be a function of circumstances of federal, state, and other funding sources at the time of specific project implementation. As previously mentioned, due to the conceptual nature of a master plan, implementation of most of these capital projects should occur only after further refinement of their costs. As a result, the project capital costs developed for the Airport must be viewed as preliminary, reflecting a master plan level of detail subject to refinement in subsequent implementation steps.

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APPENDIX A
FAA Forecast Approval

U.S. Department
of Transportation
**Federal Aviation
Administration**

Southwest Region
Airports Division, Texas Airports Development Office

Fort Worth, Texas 76193-0650

August 7, 2019

Mr. Jeremy Valgardson
Airport Director
San Angelo Regional Airport
8618 Terminal Circle, Suite 101
San Angelo, Texas 76904

SUBJECT: San Angelo Regional Airport (SJT),
Master Plan Aviation Activity Forecast

Dear Mr. Valgardson:

Your submitted Master Plan Aviation Activity Forecast, dated May 24, 2019, is hereby approved.

Please do not hesitate to contact me if you have any questions.

Sincerely,

Marcelino Sanchez, P.E.
Program Manager
Texas Airports District Office

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SAN ANGELO REGIONAL AIRPORT

APPENDIX B
ACRP Report 79 Results

ATTACHMENT A

ACRP Report 79 Results

Annual Service Volume Estimation (ASV)

0.0	Calculated Cells
0.0	Input Cells
0.0	Linked Cells (within this worksheet)
150,000	Output Cells

Use the capacities determined in the capacity model to estimate ASV

ASV Calculations: {D * H * Cw = ASV}

D Factor	H Factor	Cw	ASV
276.9	6.7	76.2	141,300

D = Annual Demand/Avg. Peak Month Daily Demand
H = Avg. Peak Month Daily Demand/Avg. Peak Hour Demand

Fleet Mix Index: 21-50 (C+3D)%
(C = Large Aircraft (i.e. Large-TP + Large-Jet + Large-757), D = Heavy Aircraft)

Weighted Average Capacity Calculations:

Runway use / weather	Hourly Capacity	% Occurrence	% Max Capacity	Weighting Factor	P*C*W	P*W
VMC (Optimal)	86.0	92.0%	100.0%	1	79.1	92.0%
IMC (Instrument)	62.0	8.0%	72.1%	8	39.7	64.0%
other 1			0.0%	16	0.0	0.0%
other 2			0.0%	0	0.0	0.0%
other 3			0.0%	0	0.0	0.0%
	(C)	(P)		(W)		
			Weighting Factors USED			
		100.00%			118.8	156.0%

Weighting Factors

	VMC Mix	IMC Mix Indexes		
% of Max Cap	0 - 180	0-20	21-50	51-180
91+	1	1	1	1
81 - 90	5	1	3	5
66 - 80	15	2	8	15
51 - 65	20	3	12	20
0 - 50	25	4	16	25

Above Table is from AC 150/5060-5, Airport Capacity and Delay Table 3-1

Cw = 76.2

Source: ACRP Report 79 - Airfield Capacity Estimation using Spreadsheet Models

APPENDIX C
Airport Real Estate Development Strategy

Airport Real Estate Development Strategy for San Angelo Regional Airport

Prepared by: C&S COMPANIES®

in partnership with centurion PLANNING AND DESIGN

August 2019

Project Context

The City of San Angelo has commissioned this land use and market assessment for a ±120 acre city-owned property along Knickerbocker Road at San Angelo Regional Airport (SJT) in order to identify potential development opportunities that benefit the airport and region. While land not needed for aeronautical facilities can be available for commercial and/or aviation-related development, it is subject to additional oversight and governance by the Federal Aviation Administration (FAA) given its on-airport location. As such, the purpose of this study is to help understand potential opportunities for this property within that regulatory context and to devise a guiding land use plan to provide direction and vision as the City looks to market this site and pursue future development.

City Goals for On-Airport Development

Augment non-aeronautical airport revenues as additional source of operational support

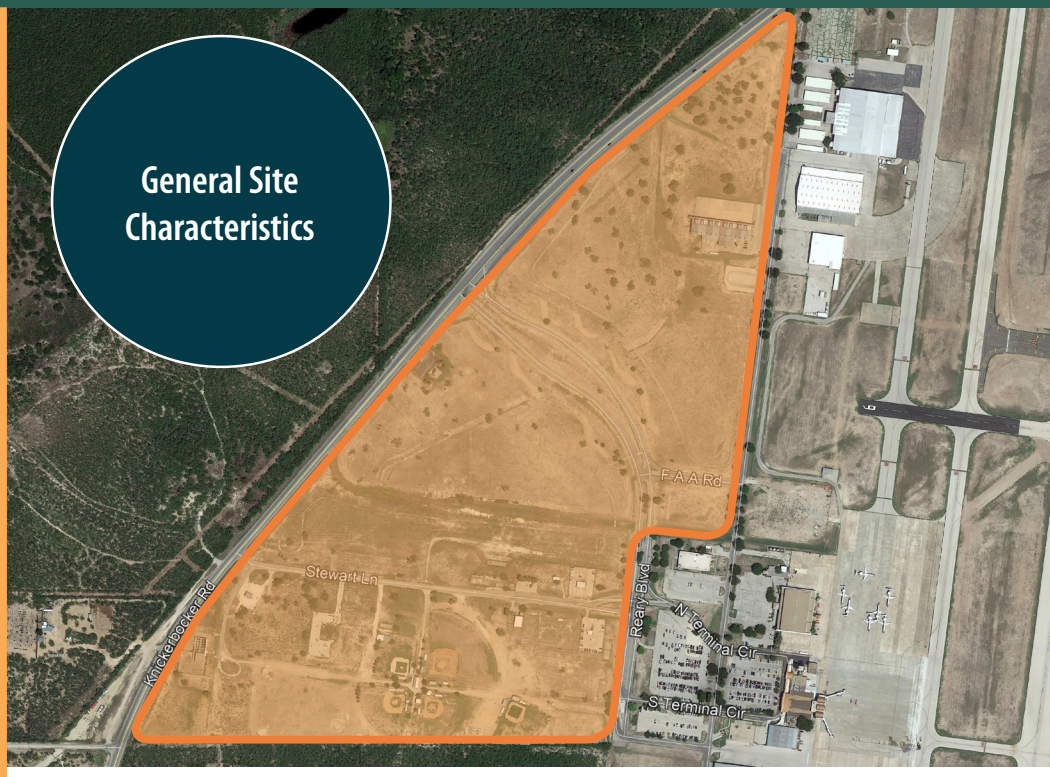
Leverage the airport to help realize unmet economic potential in the region

- Aviation-related industries
- Target industries and corporations
- High-value job creation

Support the region's key institutions (Goodfellow AFB, CBP drone operations, Angelo State & Howard College, among others)

Improve perceptions of airport as a community asset

General Site Characteristics



- ± 120 acres
- Airport-oriented Planned Development (PD) zoning
- Primary access via Knickerbocker Road with more than ¾ mile of frontage
- Secondary access via Reary Blvd. and Stewart Ln.
- Northern & central site areas mostly undeveloped
- Potential airfield access on site areas north & east of Reary Blvd.
- Ballfields & small-scale support development south of Stewart Ln.
- No known major environmental, wetland or habitat features on site
- Water, sewer and other infrastructure improvements needed to support current operators and allow for future development

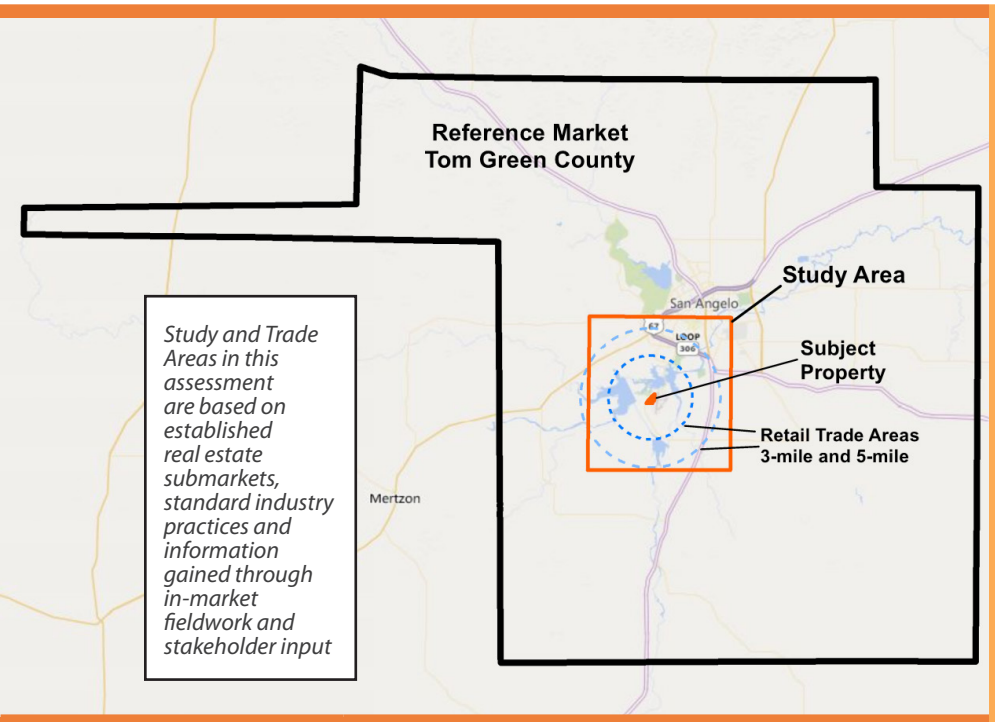
Approach & Context

- Coordination with Master Plan team
- Reviewed existing studies, plans, property holdings, economic and demographic conditions, etc.
- Stakeholder engagement
  - Focus groups, individual interviews
  - Key airport tenants
- In-market fieldwork and development patterns observation
- Location quotient analysis
- Market demand assessment
  - Office
  - Industrial & flex
  - Retail, restaurant, services
  - Hospitality
- Aerospace and aviation industry research and evaluation
- Competitive context and positioning
- Allocate potential demand to subject property
- Conceptual site layout
- Recommendations and next steps

Data Sources

- **San Angelo Regional Airport**
- **Master Plan Update team**
- **Various subscription-based third-party real estate, economic, and demographic data providers**
- **City of San Angelo staff**
- **Tom Green County Appraisal District**
- **Zoning, land use and previous studies from City of San Angelo and Tom Green County**
- **State of Texas**
  - **Comptroller's Office**
  - **Workforce Commission**
  - **Demographic Center**
  - **Department of Transportation**
- **Federal Sources:**
  - **US Census Bureau**
  - **Bureau of Labor Statistics**
  - **Quarterly Census of Employment & Wages**
  - **FAA**
  - **TRB**
- **Business journals, industry associations, commercial brokerage reports and interviews, other publications and agencies**

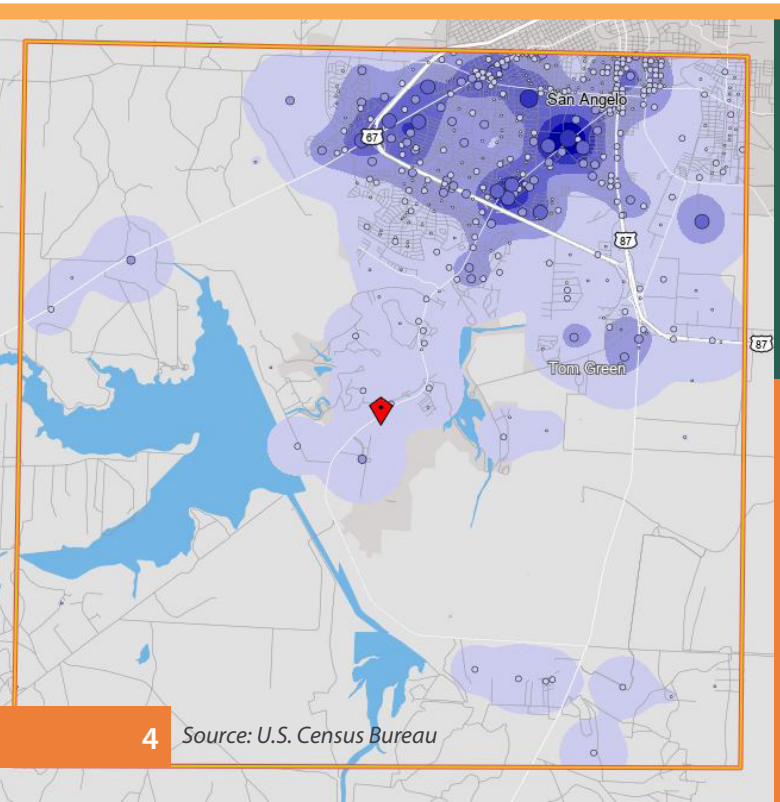
Market & Economic Overview



Study Area Inventory as % of Reference Market

Asset Class	Inventory within Study Area, by SF
Industrial/Flex	40%
Retail	66%
Office	52%
Hotel	50%

Note: Reference Market includes Tom Green County; Study Area is 7% of Reference Market by area



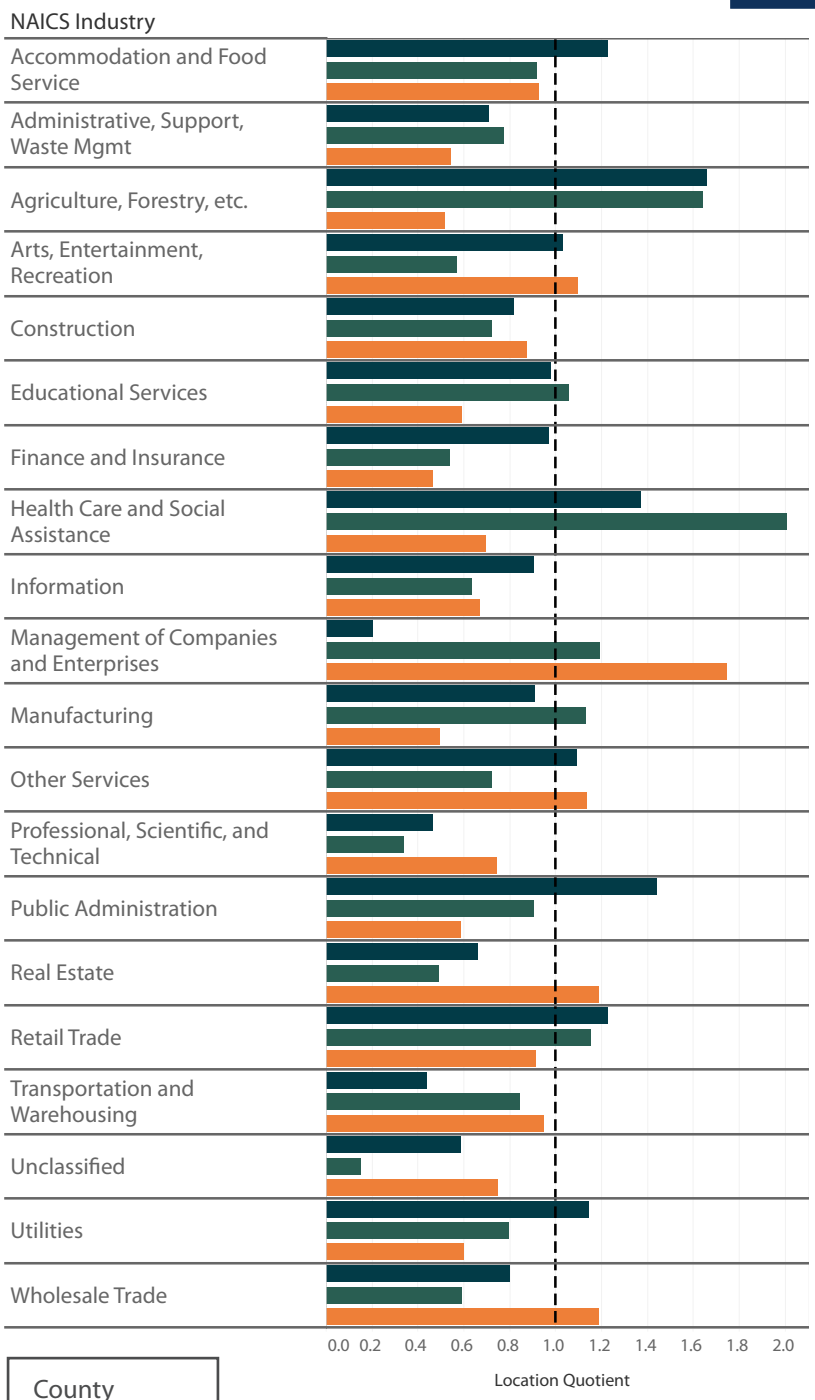
Notable Development & Economic Trends

- San Angelo industrial parks:
  - San Angelo Business & Industrial Park
    - Certified shovel-ready "Super Park" actively promoted as a city and regional economic development initiative
    - 746 total acres with available industrial/manufacturing or commercial sites ranging from small to very large
    - Planned rail-oriented industrial park
- The Study Area defined for this project encompasses 40% of the Tom Green County reference market's industrial inventory, and more than half of the office, retail, and hotel inventory
- Recent development (past 10 years) is generally concentrated around the Loop 306 area
- Employment and population density, as well as traffic counts, are low in the airport vicinity
- Tech-related employment has not kept pace with national level
  - Rate of population growth is slightly higher than the national average, but has slowed and is expected to level off
  - Recent job growth has been concentrated in support service industries

Source: U.S. Census Bureau

Location Quotient Economic Analysis

- To understand the strengths and weaknesses of the local economy based on levels of industry presence, location quotient analysis was conducted for Tom Green County (San Angelo). For benchmarking purposes, "peer regions" of Taylor (Abilene) and Midland Counties were also analyzed. Texas statewide employment data were used as the reference values.
- Values can be interpreted as follows:
  - LQ > 1 means an industry is relatively concentrated in the region, is self-sufficient or may export beyond the region
  - LQ < 1 means an industry may not be self-sufficient in the region, or may depend on other regions to provide services from the industry
  - Values of 1.25 or more may indicate the presence of an industry "cluster", while values of 0.75 or less suggest a limited industry presence



Takeaways

- Tom Green County presents a greater degree of balance and self-sufficiency across industries than its peers, which exhibit fewer strengths and more apparent industry gaps
- The LQ for Oil & Gas Extraction is extremely high in Midland County, highlighting its dominant role in driving the Midland economy; Tom Green County shows a strong presence of Oil & Gas industry, but at a more moderate concentration
- Support service industries (accommodation & food, health care, retail) are relatively concentrated in Tom Green County—likely reflecting the presence of Goodfellow AFB and educational institutions, and San Angelo's status as a regional center for these services
- Knowledge-based industries such as Management of Companies and Professional/Scientific/Technical are among Tom Green County's least concentrated industries

Mining, Oil, and Gas Extraction

1.16	Tom Green County
0.88	Taylor County
12.90	Midland County

Stakeholder Engagement

C&S staff held meetings with representatives from the following agencies, organizations, and companies to discuss their perspectives regarding future development of the Airport, its remaining property, and community context.

Organization	Representatives
City of San Angelo	Office of the Mayor City Council, District 1 Office of the Assistant City Manager Economic Development Department & Development Corporation San Angelo Regional Airport
San Angelo Chamber of Commerce	President/CEO Vice President of Economic Development San Angelo Regional Manufacturers Alliance
Angelo State University	Former President
Goodfellow Air Force Base	Community Partnership Specialist Retired Officers
State of Texas	Military Preparedness Commissioner
San Angelo Independent School District	Retired Superintendent
Airport Tenants	Vertex Aerospace Ranger Aviation Enterprises, Inc. Poor Boys Avionics

Overall theme: Desire to refocus attention on the airport and invest in its future for community and economic benefit

Strengths

- San Angelo Region
  - San Angelo provides a central location within both the state and country
  - Quality of life benefits include affordability and cultural, educational, recreational assets
  - Greater degree of economic stability with diverse set of local industries—relative to communities more reliant on oil & gas industries
  - Strong agricultural industry and expanding manufacturing base, particularly for support service and equipment for energy production industry given proximity to Permian Basin
  - Favorable climate and weather for agriculture and related manufacturing
- San Angelo Regional Airport
  - Central US location holds potential for connections and increased air traffic
  - Abundant airfield capacity and uncongested airspace
  - Climate and weather are conducive to air travel
  - Existing government UAV operations with authorized corridor and capacity to manage UAV activity alongside commercial traffic
  - Flightline operators offer a "Mini-MRO" through the services they provide, although some gaps were identified

Challenges

- San Angelo Region
  - Limited population and economic growth
  - Location is somewhat remote within the state
  - Lacks interstate highway connectivity currently; two future interstate systems are planned through or nearby San Angelo but timing is unknown
  - The region is relatively unknown outside of Texas
  - Very limited aviation and aerospace presence locally and no industry-specific educational or training programs are available
- San Angelo Regional Airport
  - Commercial air service is limited and can be expensive
  - Issues reported regarding water and sewer infrastructure capacity and quality
  - Improvements to utilities, hangars, and other airport facilities are needed
  - Located in less populated and developed area, which is an advantage for aircraft operations but a disadvantage for commercial development
  - Past inattention to airport as key community asset has resulted in need to "catch up" in terms of preparing for future
  - Limited labor pool: airport tenants generally must train own labor force on-the-job or must look outside the community for trained technicians

Key Influencing Factors

Goodfellow Air Force Base

- Long established, revered and highly supported community economic anchor
- Intelligence and cyber-oriented commands
- Contributes population and human capital to support industry and services in the community
- Potential need for space to house operations and technologies; off-base locations may be a possibility

Oil & gas industry

- Influential in San Angelo; not dominant but some expansion
- Economy not as vulnerable to industry-related "boom and bust" cycles as Midland/Odessa which are more reliant on oil & gas. Greater market stability seems to be prevailing due to change in US law allowing crude sales
- Desire for San Angelo to further expand roles in oil & gas related manufacturing, specialized "knowledge-based" services, housing, based corporate jets. Industry-related manufacturing also provides opportunity to sell products in global marketplace

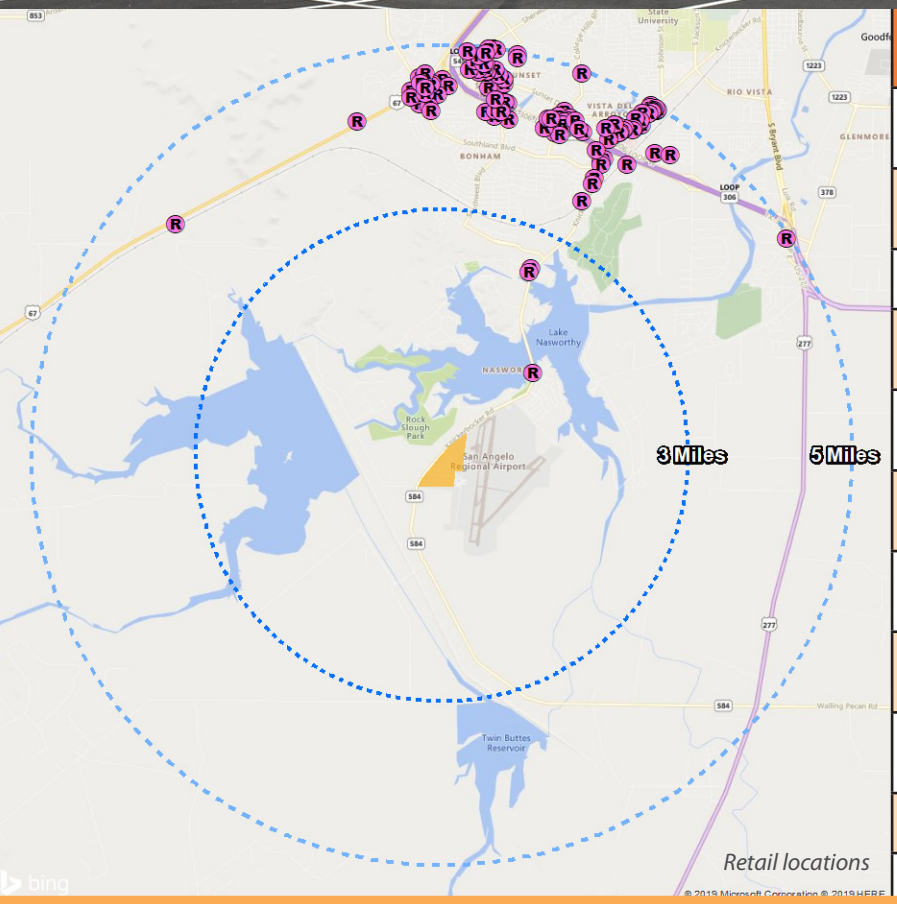
UAS operations at airport

- Existing flight corridor enables border-related government operations using fixed-wing surveillance UAS
- SJT contract tower has unique experience managing both UAS and commercial air traffic, which is a differentiator
- Perceived potential to expand UAS industry through government operations or private industry that continues to emerge and evolve

Key Themes and Takeaways

- Enhance the airport, including its appearance and functionality, in ways that establish it as an asset that promotes the community and region
- Strengthen relationships between the airport and key industries and corporations
- Support and expand government and military services at the airport, for example UAS operations
- Maintain focus of airport on service to the community
- Emerging tech including Smart City, 5G, 3D printing, and military-related spin-off (i.e. data interpretation) may create possibilities for greater San Angelo and are being further understood and pursued
- Awareness of gap in providing aviation-related educational and training programs locally
- Consensus that airport investment may contribute to opportunities and growth in the region by supporting key industries
- Goodfellow AFB, on-airport UAS operations, and other government services may present opportunities to expand private industry in related fields in the community and at the airport, however success in developing such spin-off opportunities has been limited so far
- Small market size and limited accessibility are key challenges

Retail Snapshot



DEMOGRAPHICS	3 Mile	5 Mile
Total Population (2018 / 2023)	3,270 / 3,500	27,900 / 29,800
% Annual Population Growth 2018-2023	1.37%	1.33%
Median Age, 2018	49.7	41.0
Total Households (2018 / 2023)	1,290/ 1,360	12,300 / 13,130
% Annual Household Growth (2018 / 2023)	1.09%	1.35%
Average Household Size, 2018	2.5	2.25
Median Household Income (2018 / 2023)	$86,900 / $96,700	$61,300 / $66,900
Average Household Income (2018 / 2023)	$130,320 / $148,000	$88,500 / $98,400
% Owner- / Renter-Occupied Housing, 2018	73% / 27%	53% / 47%
Daytime Employment	470	12,600

Source: ESRI, C&S Companies

Sources of Demand

Steady but modest 0.9% annual population growth projected for metro area

Limited population residing nearby and passerby traffic

Airport passengers, employees, and other visitors associated with airport

Nearby recreational use

KEY MARKET METRICS 5 MILE TRADE AREA	ALL RETAIL	RETAIL < 25,000 SF
Inventory % of Reference Market for same measure	36%	80%
Average building size	25,000 SF	7,000 SF
Average building size, past 10 years	49,000 SF	9,000 SF
Average age	33 years	34 years
Typical parcel size	1-10+ acres	1-3 acres
Prevailing scale of development	.15 - .23 FAR	.10 - .20 FAR
Prevailing market occupancy rates	Worsening ▼	Improving ▲
Prevailing market rental rates	Improving ▲	Improving ▲

Source: C&S Companies, based on third-party data

Market Considerations

- Analysis considers convenience-oriented retail product only—due to demographics, limited average annual daily traffic volume (AADT), subject site distance from higher-volume traffic corridors
  - Retail formats in this category are generally less than 25,000-square-feet including strip shopping centers; small neighborhood shopping centers; convenience store/gas, service-oriented and other standalone retail; restaurants
  - While a 1-mile radius is often treated as the trade area for convenience retail, we broadened our look first to a 3-mile and then a 5-mile radii to better understand and evaluate the market profile and demand potential for the subject airport site given the nature of the airport as a destination, the geographic features of the area, and customer willingness to drive further in this market
- Inventory values and associated calculations are sourced from third-party data providers and may be subject to limitations based on availability within the study area

Observations & Findings

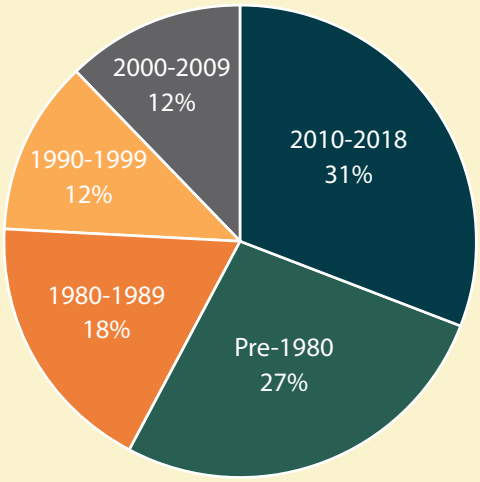
- Northern portion of 5-mile trade area includes high-traffic corridors and established competitive concentrations of retail inventory with greater surrounding population density to support
- Very limited population and daytime employment within 3-mile radius
- Retail space (all retail) in 5-mile trade area is approximately 36% of countywide total, but retail space within 3-mile trade area represents only 0.2% of countywide total
- Insufficient average annual daily traffic volume (AADT) on Knickerbocker Road proximate site to meet criteria for convenience-oriented retail site selection requirements—generally > 20,000 AADT to be considered viable
  - 6,300 AADT (TXDOT 2017) on north of the airport at S. Concho Rd
  - 1,750 AADT (TXDOT 2017) south of airport at Stewart Ln
- Nearby gas station/convenience store inventory includes four operators on Rickenbacker Rd. between Loop 306 and Airport, with better positioned locations and traffic volumes; closest location 1.5 miles north of airport entrance road
- Approximately one convenience-oriented retail property of average size is added to 3-mile trade area every 1-1.5 years
- Abundant supply of vacant, higher visibility, fee-simple land available closer to main corridors and demand centers

Result

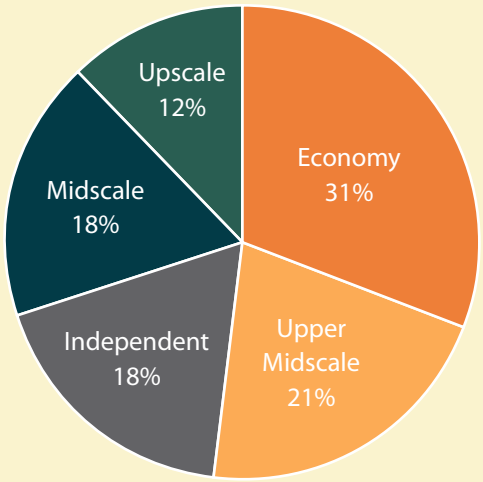
No market-based retail demand supported on site in the foreseeable future

Hotel Snapshot

Hotels by Year Built



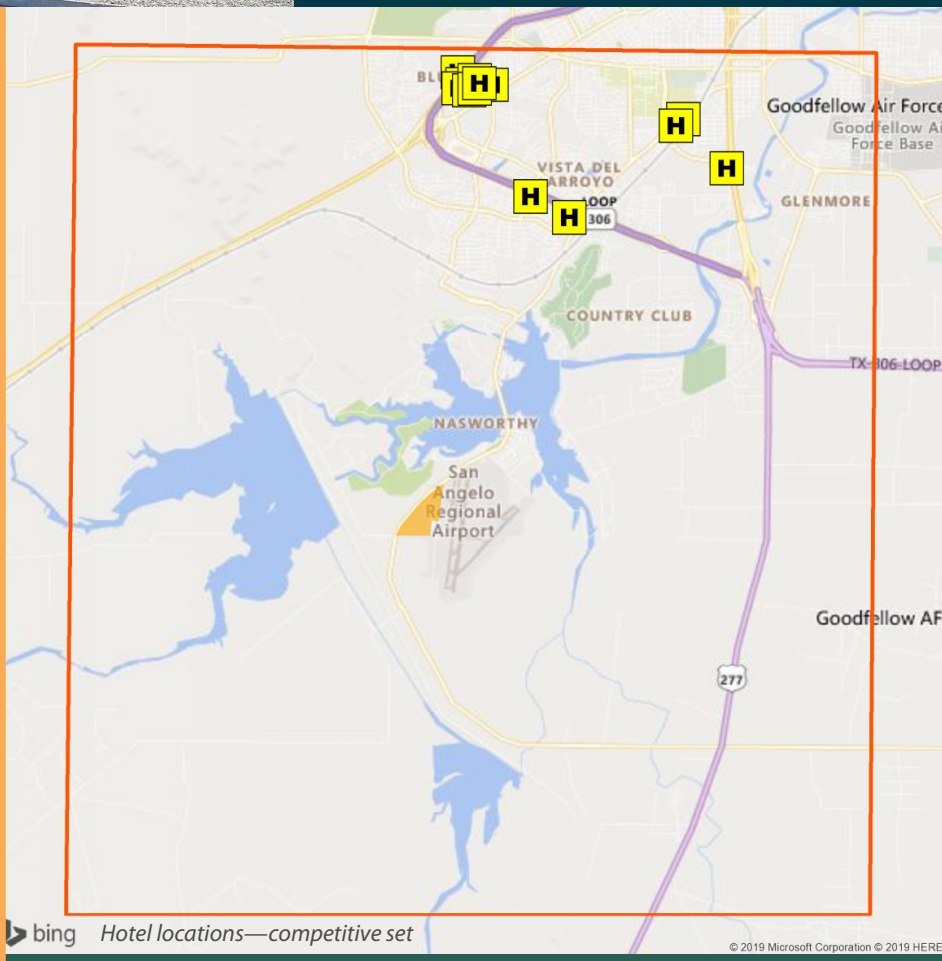
Hotels by Scale



Sources of Demand

Airport passengers, business travel and other activity associated with airport (limited)

Nearby recreational tourism



Hotel locations—competitive set

KEY MARKET METRICS STUDY AREA	HOTEL COMPETITIVE SET
Total inventory	1,132 rooms
Average building size	85 rooms
Average age	12 years
Typical parcel size	2 acres
Prevailing scale of development	40 rooms/acre
Annualized delivery	50 rooms (2000-present)

Source: C&S Companies

Market Considerations

- Competitive set of 13 hotels located in study area, which includes midscale class properties built since 2010 and all upper midscale and upscale class properties
- Geographic location and surrounding features of subject property and limited airport passenger volume

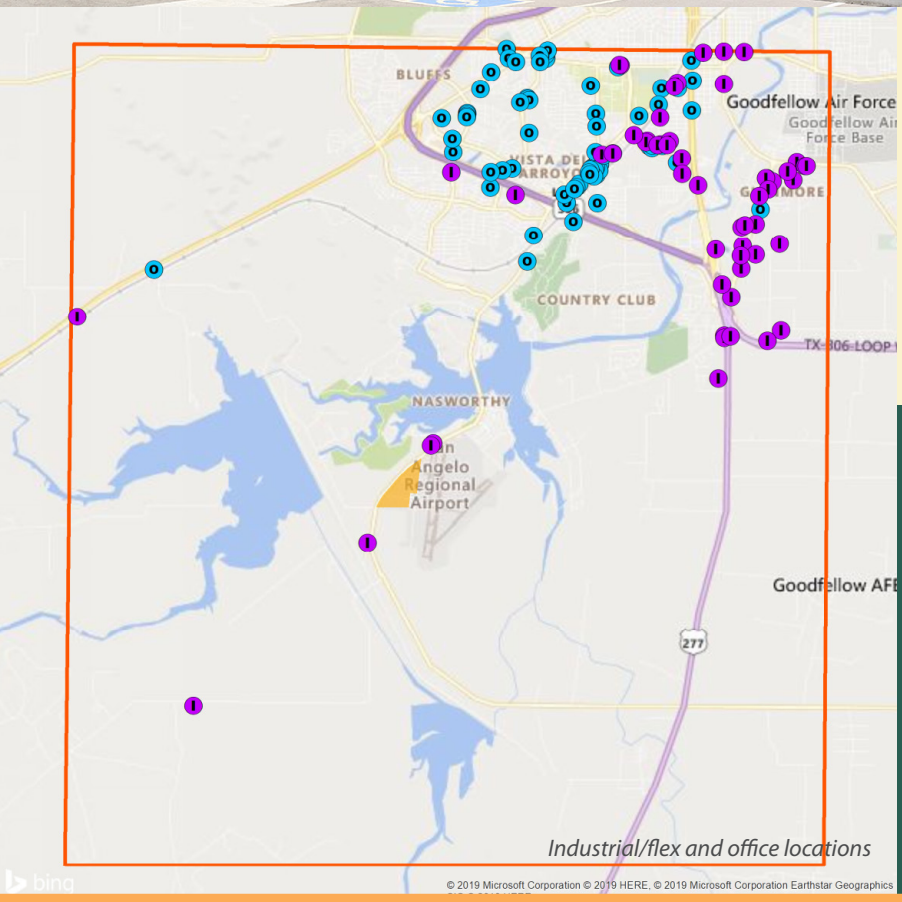
Observations & Findings

- Northern portion of study area includes high-traffic corridors and significant established competitive concentrations of hotel inventory with demand drivers to support it
- Fifty-four percent (54%) of competitive set built since 2010
- Approximately one hotel property of average size added to study area every 1.5 - 2 years for competitive set
- Major addition to hotel inventory with a combined 6 new properties in 2014 and 2016 temporarily lowered occupancy rates for two years, as expected, but upward trend in occupancy has resumed and currently in 70% range, historically a threshold for new entry decisions in this industry
- No known or announced plans for new hotel development in market
- Positive overall hotel market fundamentals in study area may indicate additional hotel development could occur in near-term assuming continuation of current economic conditions
- Abundant supply of vacant, higher visibility, fee-simple land available closer to highway corridors, demand centers, and amenity preferences
- Under current and assumed future conditions, subject site does not meet preferred site location criteria for hotel development given distance from higher-volume traffic corridors, demand centers and amenities concentrations, as well as low airport passenger volume

Result

No hotel demand supported on site in the foreseeable future

Industrial & Office Snapshot



Industrial/flex and office locations

Sources of Demand

- Estimated non-farm employment growth for MSA of 1.1% annually, 2019-2029
- Expansion of existing business and industries
- Strategic relocations or new market entrants

Market Considerations

- Flex buildings, also known as incubator, tech and showroom buildings, are versatile by design with at least 50% office use in combination with production, R&D, storage, lab, distribution, etc.
- Inventory values and associated calculations are sourced from third-party data providers and may be subject to limitations based on availability within the study area

KEY MARKET METRICS STUDY AREA	INDUSTRIAL	FLEX	OFFICE
Inventory % of Reference Market	40%	57%	52%
Average building size	18,500 SF	9,800 SF	16,200
Average building size, past 10 years	12,000 SF	n/a	6,000 SF
Average age	40 years	35 years	38 years
Typical parcel size	1-5 acres	1-2 acres	1-3 acres
Prevailing scale of development	.15 - .2 FAR	.25 - .3 FAR	.2 - .25 FAR
Prevailing market occupancy rates	Improving ▲	Stabilized ◄►	Stabilized ◄►
Prevailing market rental rates	Improving ▲	Unreported	Stabilized ◄►

Source: C&S Companies, based on third party data

Observations & Findings

- Existing industrial and office concentrations located in the northern part of the study area:
  - Industrial clusters to the northeast toward Goodfellow AFB
  - Office spaces located more centrally north of Loop 306
  - Additional concentrations of both uses elsewhere in broader market
- Industry trends:
  - Nationwide, average industrial building size has increased substantially over the past decade largely due to proliferation of large-scale distribution warehouse. This trend was not observed in the study area
  - Industrial development favors locations offering close proximity and ease-of-access to significant transportation corridors
  - Commerce/industrial park settings are generally appealing because utilities and infrastructure readiness bolsters speed-to-market given ever-increasing pressure to accelerate development timeframes
  - Nationally, square feet of office space per employee has trended downward as collaborative workspaces, open office concepts and remote work have expanded. The study area has experienced a downward trend in new office building size
- Study area industrial and flex product is 41% of countywide total; office is 52%
- Flex buildings represent only 6% of industrial inventory and are less prevalent here than in many markets
- Study area industrial and office vacancy rates are low:
  - Strong industrial absorption in 2018 as vacancy rate declined from more than 10% to nearly 1% by year end
  - Office vacancy has stabilized below 5% in the last 3 years
- Based upon available development rates:
  - Approximately 1 industrial building of average size added to the study area every 3-5 years
  - Approximately 1 office building of average size added to the study area every 1-2 years
- Abundant supply of competitive fee-simple property available throughout the study area and in closer proximity to major transportation corridors and amenity preferences

Result

No market-based industrial/ flex and office demand supported on site under current conditions

Aviation & Aerospace Industry

Notable Industry Trends

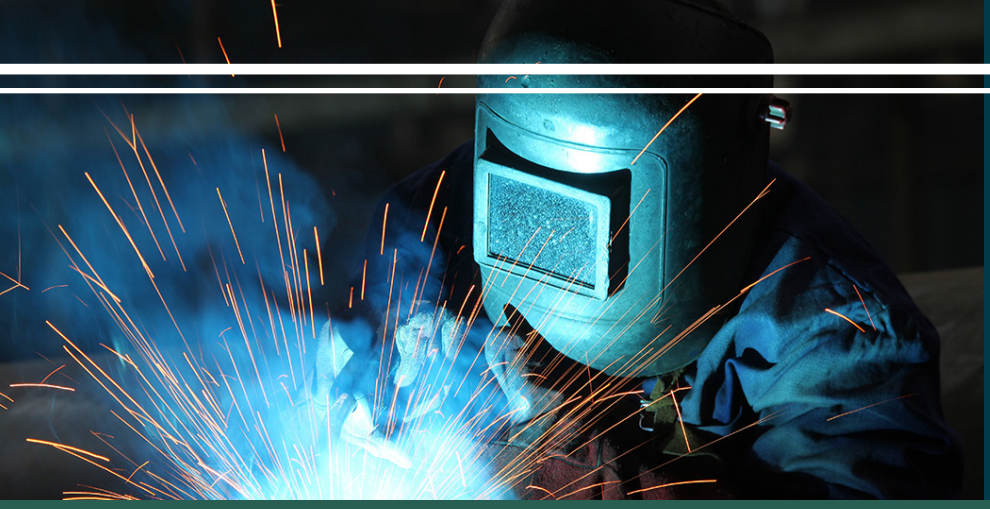
- Significant growth is projected for commercial and private aviation over the next 10-20 years
  - Demand for more aircraft, including "next generation" models
  - Increased aftermarket service needs, including aircraft updates and maintenance
  - Associated manufacturing and supply chain growth
- New technologies will become commonplace as A&A industries advance.
  - Examples include additive manufacturing (3D printing) and automation
  - Operators must invest and adapt
- A major workforce shortage exists throughout A&A industries—companies need more technicians and engineers
  - Specialized training and skills are increasingly important as technologies advance
  - Partnerships involving colleges or universities, private industry, and economic development organizations have been established in many communities to support and attract A&A industry
- Unmanned aerial vehicles (UAV) and other non-traditional aircraft will transform our transportation systems in the coming years
  - Government and military applications are established in designated locations including at SJT
  - Many advanced commercial UAV technologies have been developed but current regulations allow only limited applications in public airspace
  - Most commercial and all unauthorized UAV use is prohibited at and around airports
  - Timeframes for adoption depend on development of regulatory framework
- Consolidation is occurring within the aircraft manufacturing and aftermarket service industries
  - Major aircraft manufacturers (OEMs) including Boeing and Airbus have expanded into the MRO industry
  - Demand for increased output and modern production methods favors larger and flexible supply chain operators
  - Intensifying competition for small aftermarket/MRO and supply chain operators, and expanded market share for large established operators

Takeaways

- A&A industry growth is expected to continue, and a competitive environment exists as regions seek to attract industry operators
- Airport facilities and the available subject property acreage would limit possible manufacturing or MRO operations at SJT—if demand and interest were identified—to a regional/business aircraft scale
- Industry-specific educational and workforce development programming is a necessity in communities that support or wish to attract A&A industry
- Most A&A supply chain manufacturers favor off-airport industrial locations
- Expanded UAS operations or facility needs at SJT would likely be linked to government programming
- The airfield-adjacent portion of the subject property is best suited to accommodate various A&A operations

Typical Scale and Requirement by A&A Industry Sub-Sector

	Original Equipment Manufacturers (OEM)	Supply Chain Manufacturing	Maintenance, Repair and Overhaul (MRO)	Unmanned Aerial Vehicles (UAV)
Description	Primary manufacturers of aircraft and engines	Producers of aircraft components; classified by tier with Tier 1 directly supplying OEMs and lower tiers supplying more basic components	Provide "aftermarket" services to aircraft in operation including structural or mechanical repair, and upgrades to aircraft systems or components	UAV technologies and regulatory environment are advancing—commercial applications include R&D, training, surveillance, imaging, manufacturing, maintenance
Typical Scale	Commercial Aircraft 500,000-1 million+ SF 60-250 acres	Aircraft Components Manufacturing 40,000-200,000 SF 4-20 acres	Commercial Aircraft 250,000-1 million+ SF 25-90 acres	Limited information available
	Regional/Business Aircraft 200,000-500,000 SF 20-60 acres		Regional/Business Aircraft 75,000-400,000 SF 6-40 acres	
			Components or other 30,000-200,000 SF 2-20 acres	
Key Requirements	» Airfield access and capacity » Specialized, highly skilled workforce—engineers & technicians » Supply chain considerations—costs and accessibility » Airport or aero-industrial park setting and industrial infrastructure	» Generally do not require airfield access and/or airport location » Skilled manufacturing-oriented workforce » Supply chain considerations including input material costs and multi-modal (air, highway, other) access » Industrial setting and infrastructure	» Airfield access and capacity » Specialized, highly skilled workforce with emphasis on technicians » Supply chain considerations—costs and accessibility » Airport or aero-industrial park setting and industrial infrastructure	» Most UAV flight operations not compatible with airports—military as an exception » Major UAV test sites have FAA authorization, designated territory, R&D and testing infrastructure » R&D and training often affiliated with educational institutions » UAV supply chain and maintenance networks not well established » Industrial setting and infrastructure for most UAV related operators

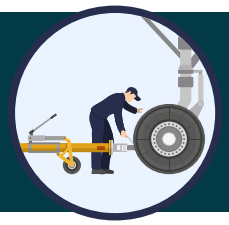


Training Facilities

A skilled workforce is almost universally considered the most important resource in attracting A&A industries, as well as other specialized manufacturing and tech-related jobs. Workforce training facilities and programs intended to develop industry-specific knowledge and skills have become an important means to educate employees in such industries.

A&A Industry Specific Training Facilities

- San Angelo region currently has no A&A degree or certification programs offered through local colleges
- Growing trend of formal partnerships and other close relationships among educational institutions, private industry, and economic development organizations—established to support or attract A&A industries
- Investment in A&A workforce training facilities has become a common practice
  - Programming often developed and offered by community colleges with funding, technical and other support provided by partners
  - Located at or near airports to allow hands-on training
  - A&A programs include Airframe and Powerplant (A&P) certification for aircraft maintenance technicians, airframe manufacturing, avionics, and pilot training
  - Private industry partners may offer job shadowing and mentoring opportunities, apprenticeships, guaranteed interview upon graduation
- Examples include:
  - Northeast State Community College, Blountville, TN—developing aviation programming and training facility as part of new aerospace park at Tri-Cities Airport (TRI)
  - Rock Valley College and AAR, Rockford, IL—formal partnership and workforce pathway program for aircraft technicians at Chicago-Rockford International Airport



A&A training facilities—typical scale

- **25,000 - 200,000 sf**
- **2 – 15 acres**

Regional Workforce Training Center

Some communities have invested in workforce training centers to help develop human capital and respond to evolving industry needs in an effort to attract and expand key industries.

- **Flexible facilities and space intended to serve a broad range of industries—in contrast to A&A or other industry-specific training centers**
- **Generally developed and operated by economic development organizations, in partnership with community-based educational institutions and private industry**
- **Flexible training space concept as a potential complement to A&A training facility, offering opportunities for short-term or evolving needs**

Western New York Workforce Training Center **Buffalo, NY**	» strong economic development/educational partnerships » focus training on skills relevant to emerging or prospective industries
Southwest Mississippi Regional Workforce Training Center **Summit, MS**	» develops curricula to meet needs identified by businesses in the community » located at SW Mississippi Community College

Private Industry Training Centers

Some companies develop their own customized training centers where employees, vendors, or other users can gather for hands-on, in-person instruction and training on their specific products and/or processes. Locations on or near airports or major transportation centers provide ease of access and efficiency for trainees.

Photo: BlastOne Training Center, Columbus, OH Company's national training center located in flex space on airport property (non-aviation company)

Takeaways

- Specialized, non-traditional workforce education/ training expected to gain traction as an alternative to university model
- A&A facilities offer hands-on training and must have airfield access—SJT provides opportunity for siting of such a facility
- Risk in developing educational programs—or building specialized (A&A) facilities without established industry presence in the community
- Possible multi-use opportunity for "flexible" training facility: A&A, military, general economic development purposes, private company. Opportunity for short-term or temporary use could be attractive.
- "Hybrid" facility with mix of educational program space and flexible training space could provide unique approach. Could include affiliated hangar space and access to airfield.

Concept Plan for Land Use & On-Airport Development

Because current demand and immediate opportunities appear to be limited for this site, SJT should focus near-term efforts on prudent land planning and preparation to support future on-airport development. That starts with developing a concept plan for land use and on-airport development that sets forth a vision for the future, defines optimal and agreed-upon zones for certain uses, and guides the actions and next steps needed to get there.

Concept Plan

Land use planning approach:

North of Reary Blvd (northern portion): While hurdles exist both locally and globally for attracting aviation-related enterprise, this northern portion of the property offers a unique and valuable asset—airfield access—and its future use should build upon that feature.

South of Reary Blvd to Stewart Lane (central portion): Market-based demand is not apparent, however this central portion of the site could offer a quality location for future office and flex development in a business park setting. This may appeal to some businesses for travel-related or other considerations that make an on-airport location advantageous.

South of Stewart Lane (southern portion): In the absence of market-driven demand, this southern portion of the site offers SJT the opportunity to build upon positive perceptions and relationships within the San Angelo community by preserving and enhancing active community use. Should market conditions change significantly in the future, and the central section of the site were to build out, this portion of the property could be utilized for business park expansion.

Summary of Findings

Absence of demand for market-driven (retail, office, industrial/flex, hotel) development on subject property

- Lack of surrounding population and development
- Low traffic counts along Knickerbocker Road
- "Path of growth" does not favor airport location
- Enplanements not high enough to attract service-oriented development as airport complement
- Abundant fee-simple, better-positioned land available in surrounding area, including City-supported industrial park

Investments in infrastructure and site readiness are necessary to support new development on subject property

Aviation & aerospace (A&A) industries continue to expand; SJT property offers airfield access as required by MRO, aircraft manufacturing, and some UAV operators, although challenges exist in attracting A&A industry

- Northern portion of subject property could accommodate operators at a regional/business aircraft scale
- Limited industry presence and workforce in the region
- No existing A&A industry-specific academic or workforce training programs
- Expanded UAV operations, if possible, would likely have to be associated with government programs
- Current industry trends favor larger—rather than smaller—operators

Challenges to non-aeronautical development on airport land:

- FAA ground lease and fair market value mandates—developers often prefer to acquire property on a fee-simple basis
  - On the other hand, some may prefer a ground lease arrangement
- Required take-back clauses may complicate or preclude development financing
- Section 163 of the 2018 FAA Reauthorization has recently diminished a regulatory hurdle by limiting the FAA's role in approving non-aeronautical development moving forward
  - FAA review/approval was traditionally required for all non-aeronautical development
  - Per Section 163, FAA approval is no longer required for non-aeronautical development—provided that certain conditions are met, such as not impacting safe and efficient movement of aircraft and accurate land designations on the Airport Layout Plan (ALP)

Efforts to improve perceptions of the airport through strategic investments, programming, and marketing may enhance its position to attract development

Given the lack of apparent demand for the subject property, focus shifts to land planning—to ensure desired uses could be accommodated in the future, and to guide development in a strategic manner that aligns with best use of the land

Any development to occur on the subject property would likely do so because of advantages derived from the airport itself

- When it comes to attracting development, the airport is its own greatest asset
- For example:
  - Businesses working with the airport, or with staff that travel frequently
  - A&A industry operators that require airfield access

Next Steps

Where do we go from here?

Through prudent planning and thoughtful preparation, SJT has an opportunity to position its non-aeronautical property assets for the future. The site concept establishes a vision for future use of the subject site, and can be used to help guide decisions—so that when development opportunities arise, City and Airport leaders can take actions in the short term that promote, rather than preclude, the airport's long-term goals.

Moving forward, it will be important to maintain a strategic approach to the use and development of the subject property. The following set of "Next Steps" lays out a number of actions the airport may take in the near term to advance its goals.

Implement multi-channel marketing program—for the airport in general, as well as to promote development opportunities on airport land

- Create an airport brand, complete with logo and design package, and carry forward on physical features (signage, etc.) and digital presence
- Prepare print and digital marketing materials to promote awareness of development potential at SJT, and elevate understanding of the airport's roles as a community and economic asset
- Expand digital presence:
  - Establish dedicated, standalone airport website to distinguish SJT as a competitive and independent enterprise
  - Use website as a means to distribute customer and promotional information
  - Create and maintain active standalone airport social media accounts (Twitter, Instagram, Facebook, etc.)
  - Promote aviation-related and other development opportunities via real estate listings or registries, site selection services, etc.

Placemaking and Aesthetic Improvements

- Create airport gateway presence through enhancements
  - Prominent signage at airport entrance on Knickerbocker Road
  - Plantings and landscaping treatments as appropriate along Knickerbocker Road frontage and Reary Blvd. median
- As a City initiative, consider creating a broader branded community district in the airport vicinity
  - Highlight recreation opportunities with lake and ball fields, link to nearby natural features, frame airport as way to explore the world, etc.— "Exploration District" as an example of possible branding
- Consider establishing the area around existing ball fields as a "community destination" with possible expansion of recreation opportunities and airport-related branding
  - Non-airport funded enhancement of existing facilities
  - Potential relocation of War Memorial to this area

Preparing for Development

- Release airport land for non-aeronautical development and/or concurrent use and update ALP
- Identify and pursue infrastructure improvements as necessary to support existing and potential future development at airport:
  - Water and sewer upgrades to meet current tenant needs and prepare for future growth
  - Remove utility poles along Hangar Road and replace with underground lines to improve access between airfield and northern portion of subject property
  - Conduct infrastructure assessment to document conditions, capacities, and projected needs; prioritize investments accordingly
- Remain aware of changing FAA policy regarding approval of non-aeronautical development (FAA Section 163)
- Register available airport land with real estate data and site selection services
- Establish a local brokerage policy and/or enlist a local broker to assist with inquiries and promotion of sites

Further investigate the creation of an on-airport workforce training center focusing on skill development in aviation & aerospace (A&A) industries

- Engage higher education partners to develop an Airframe and Powerplant (A&P) certification program for aircraft maintenance technicians, and potentially other workforce programming with A&A applications
- Expand aviation-related curriculum and/or promote awareness of A&A career opportunities through initiatives like the existing 5th grade program sponsored by the Fine Art Museum and Goodfellow AFB
- Explore potential to engage A&A industry operators, economic development organizations, local government, or other parties in partnerships with educational institutions to develop workforce training programs—a model successfully applied in a number of communities
- Pursue creation of a "hybrid" on-airport workforce development center providing specialized facilities for hands-on A&A training, while also offering flexibility to support more generalized regional workforce training and economic development programs
  - A&A industry-specific components:
    - Aircraft maintenance hangar with airfield access, serving as center for hands-on A&A training
    - Training facility would typically provide space for multiple aircraft, modern aircraft maintenance tools & equipment, etc.
    - Classroom, lab, and ancillary space
  - Potential co-location opportunities for a "hybrid" workforce development center:
    - Space for academic programs affiliated with local institutions—classrooms, labs, etc.
    - Flexible integrated space for a variety of operators/industries to use for short-term training or special use purposes
    - Possible co-working or incubator elements, i.e. branded "Aero[Space]"

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Prepared by:

in partnership with

APPENDIX D
Airport Layout Plan Drawing Set

AIRPORT LAYOUT PLAN

DRAFT

SAN ANGELO REGIONAL AIRPORT/MATHIS FIELD (SJT)
SAN ANGELO, TEXAS
JULY 2020

PREPARED FOR:

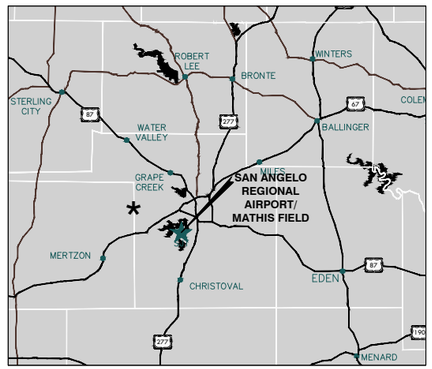
SAN ANGELO REGIONAL AIRPORT

SAN ANGELO REGIONAL AIRPORT
8618 TERMINAL CIRCLE
SAN ANGELO, TX 76904
PHONE NO. (325) 659-6409

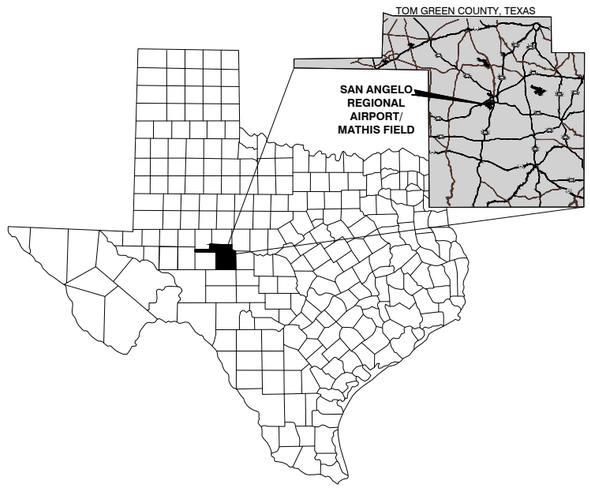
PREPARED BY:

centurion PLANNING AND DESIGN

CENTURION PLANNING AND DESIGN
69 N. CHADBOURNE STREET, SUITE 210.7
SAN ANGELO, TX 76903
PHONE NO. (325) 812-8430
FIRM NO. 19840



VICINITY MAP



LOCATION MAP

INDEX OF DRAWINGS		
SHEET NUMBER	SHEET TITLE	REVISION
1	COVER SHEET	
2	AIRPORT DATA SHEET (SHEET 1 OF 2)	
3	AIRPORT DATA SHEET (SHEET 2 OF 2)	
4	EXISTING AIRPORT LAYOUT PLAN	
5	ULTIMATE AIRPORT LAYOUT PLAN	
6	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 18	
7	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 36	
8	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 3 (ULTIMATE RUNWAY 4)	
9	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 21 (ULTIMATE RUNWAY 22)	
10	OBSTRUCTION DATA TABLES	
11	PART 77 AIRPORT AIRSPACE DRAWING	
12	PART 77 AIRPORT AIRSPACE DRAWING - RUNWAY 36 PRECISION APPROACH	
13	TERMINAL AREA DRAWING	
14	ULTIMATE LAND USE PLAN	
15	AIRPORT PROPERTY MAP	

AIRPORT APPROVAL

JEREMY VALGARDSON - AIRPORT DIRECTOR DATE

RUNWAY DATA TABLE

RUNWAY DATA	RUNWAY 18-36				RUNWAY 3-21 (ULTIMATE RUNWAY 4-22)				RUNWAY 9-27			
	EXISTING		ULTIMATE		EXISTING		ULTIMATE		EXISTING		ULTIMATE	
	18	36	18	36	3	21	4	22	9	27	9	27
RUNWAY IDENTIFICATION	PRIMARY		SAME		CROSSWIND		SAME		GA UTILITY			
CRITICAL DESIGN AIRCRAFT	CRJ-700		CRJ-900		CRJ-700		CRJ-900		BEECH KING AIR B100			
MAX. CTOW OF DESIGN A/C	75,000 LBS		84,500 LBS		75,000 LBS		84,500 LBS		11,800 LBS			
RUNWAY DESIGN CODE (RDC)	C-II		C-III		C-II		C-III		B-II(S)-VIS			
APPROACH REFERENCE CODE (APRC)	D/VI/4000	D/VI/VIS	SAME	SAME	D/VI/2400	D/VI/4000	SAME	SAME	D/IV/VIS D/V/VIS	D/IV/VIS D/V/VIS		
DEPARTURE REFERENCE CODE (DPRC)	D/VI	D/VI	SAME	SAME	D/VI	D/VI	SAME	SAME	D/IV D/V	D/IV D/V		
PAVEMENT STRENGTH AND MATERIAL TYPE:												
STRENGTH BY WHEEL LOADING	70,000 (S), 100,000 (D)		SAME		70,000 (S), 100,000 (D)		SAME		70,000 (S), 100,000 (D)			
STRENGTH BY PCN	67/F/A/W/T				115/F/A/W/T				39/F/A/W/T			
SURFACE MATERIAL	ASPHALT				ASPHALT				ASPHALT			
SURFACE TREATMENT	GROOVED				GROOVED				NONE			
EFFECTIVE RUNWAY GRADIENT (%)	0.27%		SAME		0.40%		SAME		0.17%			
RUNWAY WIND COVERAGE (16 KNOTS)	98.95%		SAME		98.68%		SAME		96.23%			
RUNWAY END COORDINATES (NAD83)												
LATITUDE	N31° 22' 07.5846"	N31° 20' 48.5855"	N31° 21' 50.73"	N31° 20' 25.32"	N31° 20' 58.9348"	N31° 21' 41.8119"	N31° 20' 47.92"	N31° 21' 41.82"	N31° 21' 40.4704"	N31° 21' 34.7974"		
LONGITUDE	W 100° 29' 51.0472"	W 100° 30' 02.8605"	W 100° 29' 53.8"	W 100° 30' 06.34"	W 100° 29' 59.5234"	W 100° 29' 12.6821"	W 100° 30' 11.55"	W 100° 29' 12.68"	W 100° 30' 07.4178"	W 100° 29' 17.0866"		
RUNWAY DIMENSIONS (L X W)	8,049' X 150'		8,700' X 150'		5,939' X 150'		7,464' X 150'		4,402' X 75'			
RUNWAY END ELEVATION MSL (NAVD88)	1,897.2'	1,918.6'	SAME	SAME	1,916.7'	1,893.1'	SAME	SAME	1,902.5'	1,898.6'		
RUNWAY TRUE BEARING	187°	007°	SAME	SAME	043°	223°	SAME	SAME	097°	277°		
RUNWAY SHOULDERS	NONE		SAME		NONE		SAME		NONE			
TOUCHDOWN ZONE ELEVATION MSL (NAVD88)	1,908'	1,918'	SAME	SAME	1,916.7'	1,906.4'	SAME	SAME	1,906.1'	1,904.8'		
DISPLACED THRESHOLD COORDINATES (NAD83)												
LATITUDE	N31° 21' 58.861"	N/A	N/A	SAME	N/A		SAME		N/A			
LONGITUDE	W 100° 29' 52.352"	N/A	N/A	SAME	N/A		SAME		N/A			
DISPLACED THRESHOLD LENGTH	888.7'	N/A	N/A	SAME	N/A		SAME		N/A			
DISPLACED THRESHOLD ELEVATION (NAVD88)	1,899.3'	N/A	N/A	SAME	N/A		SAME		N/A			
RUNWAY HIGH POINT ELEVATION MSL (NAVD88)	1,918.6'		SAME		1,916.7'		SAME		1,906.1'			
RUNWAY LOW POINT ELEVATION MSL (NAVD88)	1,818.2'		SAME		1,893.1'		SAME		1,898.6'			
RUNWAY LIGHTING TYPE	MIRL		HIRL		HIRL		SAME		MIRL			
RUNWAY MARKING TYPE	NON-PRECISION		PRECISION		PRECISION		NON-PRECISION		BASIC			
RUNWAY SURFACES												
RUNWAY SAFETY AREA (EXISTING)												
WIDTH	500'	500'	SAME	SAME	500'	500'	SAME	SAME	120'	120'		
LENGTH BEYOND DEPARTURE END (SEE NOTE 1)	1,000'	1,000'	SAME	SAME	1,000'	1,000'	SAME	SAME	240'	240'		
LENGTH PRIOR TO THRESHOLD (SEE NOTE 1)	600'	600'	SAME	SAME	600'	600'	SAME	SAME	240'	240'		
RUNWAY SAFETY AREA (DESIGN STANDARD)												
WIDTH	500'				500'				120'			
LENGTH BEYOND DEPARTURE END	1,000'				1,000'				240'			
LENGTH PRIOR TO THRESHOLD	600'				600'				240'			
RUNWAY OBJECT FREE AREA (EXISTING)												
WIDTH	800'	800'	SAME	SAME	800'	800'	SAME	SAME	250'	250'		
LENGTH BEYOND DEPARTURE END	1,000'	1,000'	SAME	SAME	1,000'	1,000'	SAME	SAME	240'	240'		
LENGTH PRIOR TO THRESHOLD	600'	600'	SAME	SAME	600'	600'	SAME	SAME	240'	240'		
RUNWAY OBJECT FREE AREA (DESIGN STANDARD)												
WIDTH	800'				800'				250'			
LENGTH BEYOND DEPARTURE END	1,000'				1,000'				240'			
LENGTH PRIOR TO THRESHOLD	600'				600'				240'			
RUNWAY OBSTACLE FREE ZONE (EXISTING)												
WIDTH	400'	400'	SAME	SAME	400'	400'	SAME	SAME	250'	250'		
LENGTH BEYOND DEPARTURE END	200'	200'	SAME	SAME	200'	200'	SAME	SAME	200'	200'		
RUNWAY OBSTACLE FREE ZONE (DESIGN STANDARD)												
WIDTH	400'				400'				250'			
LENGTH BEYOND DEPARTURE END	200'				200'				200'			
RUNWAY PROTECTION ZONE - APPROACH												
LENGTH	1,700'	1,700'	SAME	2,500'	2,500'	1,700'	1,700'	SAME	1,000'	1,000'		
INNER WIDTH	1,000'	500'	SAME	1,000'	1,000'	1,000'	1,000'	SAME	250'	250'		
OUTER WIDTH	1,510'	1,010'	SAME	1,750'	1,750'	1,510'	1,510'	SAME	450'	450'		
RUNWAY PROTECTION ZONE - DEPARTURE												
LENGTH	1,700'	1,700'	SAME	1,700'	1,700'	1,700'	SAME	SAME	1,000'	1,000'		
INNER WIDTH	500'	500'	SAME	500'	500'	500'	SAME	SAME	250'	250'		
OUTER WIDTH	1,010'	1,010'	SAME	1,010'	1,010'	1,010'	SAME	SAME	450'	450'		
AIRSPACE AND NAVAIDs												
14 CFR PART 77 APPROACH CATEGORY	NPI-D	VIS-B	SAME	PIR	PIR	NPI-D	NPI-D	SAME	VIS-A	VIS-A		
APPROACH TYPE	NON-PRECISION	VISUAL	SAME	PRECISION	PRECISION	NON-PRECISION	NON-PRECISION	SAME	VISUAL	VISUAL		
APPROACH SLOPE	34:1	20:1	SAME	50:1	50:1	34:1	34:1	SAME	20:1	20:1		
VISIBILITY MINIMUMS	3/4 MILE	VISUAL	SAME	1/2 MILE	1/2 MILE	3/4 MILE	3/4 MILE	SAME	VISUAL	VISUAL		
RUNWAY APPROACH LIGHTING SYSTEM	NONE	NONE	SAME	MALSR	MALSR	ODALS	NONE	SAME	NONE	NONE		
TYPE OF AERONAUTICAL SURVEY REQUIRED FOR APPROACH	VERTICALLY GUIDED	NON-VERTICALLY GUIDED	SAME	VERTICALLY GUIDED	VERTICALLY GUIDED	VERTICALLY GUIDED	SAME	SAME	NON-VERTICALLY GUIDED	NON-VERTICALLY GUIDED		
NAVIGATION AIDS (NAVAIDs)	PAPI-4L, REIL, WC	PAPI-4L, WC	SAME	LOC, GS, WC	LOC, GS, WC	VASI-4L, REIL, WC	PAPI-4L, REIL, WC	SAME	NONE	NONE		
RUNWAY DEPARTURE SURFACE	YES	YES	SAME	SAME	YES	YES	SAME	SAME	NO	YES		
THRSHOLD SITING SURFACE (TSS) - ENGINEERING BRIEF #99	TYPE 4 (20:1)	TYPE 3 (20:1)	SAME	TYPE 5 (34:1)	TYPE 5 (34:1)	TYPE 4 (20:1)	TYPE 4 (20:1)	SAME	TYPE 2 (20:1)	TYPE 2 (20:1)		
DECLARED DISTANCES												
TAKEOFF RUN AVAILABLE (TORA)	8,049'	7,160'	8,700'	8,700'	5,939'	5,939'	7,464'	7,464'	4,402'	4,402'		
TAKEOFF DISTANCE AVAILABLE (TODA)	8,049'	7,160'	8,700'	8,700'	5,939'	5,939'	7,464'	7,464'	4,402'	4,402'		
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	8,049'	7,160'	8,700'	8,700'	5,939'	5,939'	7,464'	7,464'	4,402'	4,402'		
LANDING DISTANCE AVAILABLE (LDA)	7,160'	7,160'	8,700'	8,700'	5,939'	5,939'	7,464'	7,464'	4,402'	4,402'		

DECOMMISSIONED

SOURCE: AIRPORT MASTER RECORDS AND REPORTS, AIRPORTIQ 5010, ACCESSED FEBRUARY 2020.
NOTES: 1/ THE RUNWAY 18 DISPLACED THRESHOLD AND DECLARED DISTANCES ARE IMPLEMENTED TO ALLOW FOR A FULL STANDARD RSA AND ROFA.
(S): SINGLE WHEEL
(D): DUAL WHEEL

AIRPORT FACILITIES (FAA OWNED)

NDB, ASR, VOR/DME, RTR, RVR,ASOS
ILS, GS, MALSR (RUNWAY 3)
ODALS, LOCALIZER ANTENNA (RUNWAY 21)
PAPI-4 (RUNWAY 18 & 36)
VASI-4 (RUNWAY 21)
REIL (RUNWAY 18)

MODIFICATION TO STANDARD

STANDARD MODIFIED	DESCRIPTION	AIRSPACE CASE NUMBER	APPROVAL DATE

AIRPORT INSTRUMENT APPROACH PROCEDURES EXISTING CONDITIONS

RUNWAY 18	RNAV (GPS)
RUNWAY 36	N/A
RUNWAY 3	ILS Y OR LOCY, RNAV (GPS), HI-VOR/DME OR TACAN, VOR/DME OR TACAN, NBD
RUNWAY 21	RNAV (GPS), HI-VOR/DME OR TACAN, VOR/DME OR TACAN
RUNWAY 9	N/A
RUNWAY 27	N/A

AIRPORT INSTRUMENT APPROACH PROCEDURES ULTIMATE CONDITIONS

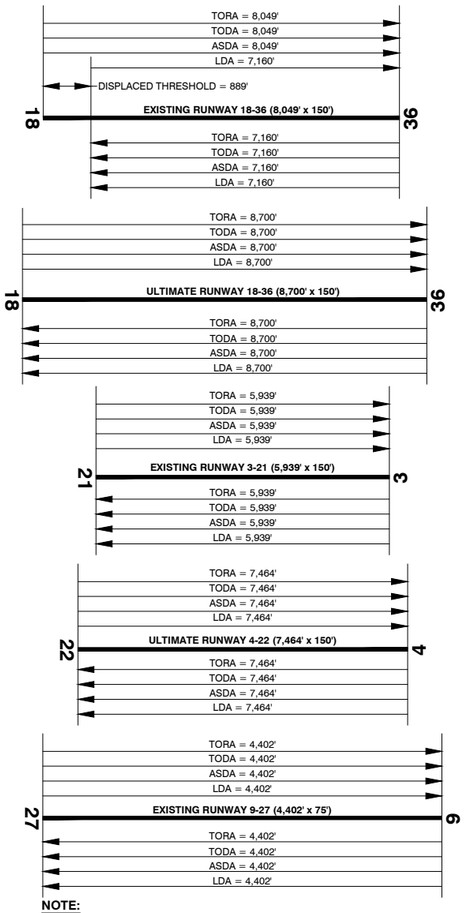
RUNWAY 18	RNAV (GPS)
RUNWAY 36	ILS Y OR LOCY, RNAV (GPS), HI-VOR/DME OR TACAN, VOR/DME OR TACAN, NBD
RUNWAY 3	RNAV (GPS)
RUNWAY 21	RNAV (GPS), HI-VOR/DME OR TACAN, VOR/DME OR TACAN
RUNWAY 9	DECOMMISSIONED
RUNWAY 27	DECOMMISSIONED

AIRPORT DATA TABLE

DESCRIPTION	EXISTING	ULTIMATE
AIRPORT REFENCE CODE	C-II	C-III
ACREAGE	1,517	SAME
CRITICAL DESIGN AIRCRAFT	CRJ-700	CRJ-900
AIRPORT ELEVATION MSL (NAVD88)	1,918.6'	SAME
AIRPORT NAVAIDs	ROTATING BEACON, LIGHTED WIND CONE, SEGMENTED CIRCLE, MALSR, ODALS, VASI, PAPI, REIL	SAME
AIRPORT REFERENCE POINT (NAD83)		
LATITUDE	N31° 21' 27.90"	N31° 21' 11.19"
LONGITUDE	W 100° 29' 46.70"	W 100° 29' 51.72"
MISCELLANEOUS FACILITIES	ATCT, ASOS, LOC AND GS	SAME
AIRPORT MAGNETIC DECLINATION		
VARIATION	5° 7' E CHANGING BY 0° 7' W PER YEAR	5° 8' E CHANGING BY 0° 7' W PER YEAR
DATE	APRIL 2020	SAME
SOURCE	NGDC.NOAA.GOV	SAME
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH	89.7° - AUGUST	SAME
NPIAS SERVICE LEVEL	COMMERCIAL SERVICE	SAME
STATE EQUIVALENT SERVICE ROLE	PRIMARY	SAME

DECLARED DISTANCES

	EXISTING	ULTIMATE
RUNWAY 18-36		
TAKEOFF RUN AVAILABLE (TORA)	8,049'/7,160'	8,700'/8,700'
TAKEOFF DISTANCE AVAILABLE (TODA)	8,049'/7,160'	8,700'/8,700'
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	8,049'/7,160'	8,700'/8,700'
LANDING DISTANCE AVAILABLE (LDA)	7,160'/7,160'	8,700'/8,700'
RUNWAY 3-21 (ULTIMATE RUNWAY 4-22)		
TAKEOFF RUN AVAILABLE (TORA)	5,939'/5,939'	7,464'/7,464'
TAKEOFF DISTANCE AVAILABLE (TODA)	5,939'/5,939'	7,464'/7,464'
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	5,939'/5,939'	7,464'/7,464'
LANDING DISTANCE AVAILABLE (LDA)	5,939'/5,939'	7,464'/7,464'
RUNWAY 9-27		
TAKEOFF RUN AVAILABLE (TORA)	4,402'/4,402'	DECOMMISSIONED
TAKEOFF DISTANCE AVAILABLE (TODA)	4,402'/4,402'	
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	4,402'/4,402'	
LANDING DISTANCE AVAILABLE (LDA)	4,402'/4,402'	



NOTE:
ULTIMATE RUNWAY 9-27 WILL BE DECOMMISSIONED AND CONVERTED INTO A TAXIWAY.

SAN ANGELO REGIONAL AIRPORT
8618 TERMINAL CIRCLE
SAN ANGELO, TX 76904
PHONE NO. (325) 659-6409

CENTURION PLANNING AND DESIGN
69 N. CHADBOURNE STREET
SUITE 210.7
SAN ANGELO, TX 76903
PHONE NO. (325) 812-8430
FIRM NO. 19840

SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

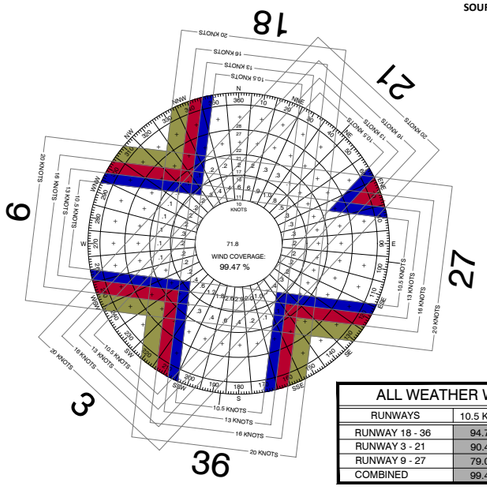
MARK	REVISION	DATE

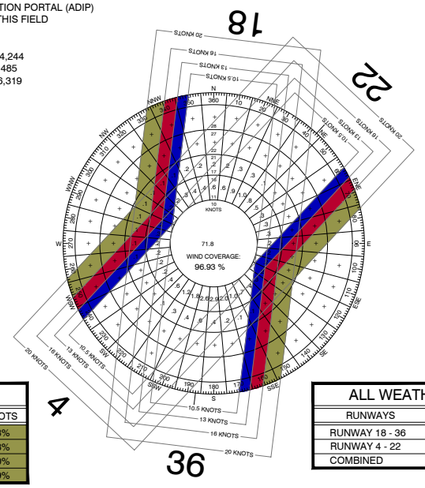
DRAFT

AIRPORT DATA SHEET (SHEET 1 OF 2)

LATEST REVISION:	JULY 2020	SHEET NO.
DRAWN BY:	JA	2
REVIEWED BY:	DA	
JOB NO.	SJT1801P	

SOURCE: FAA: THE AIRPORT DATA AND INFORMATION PORTAL (ADIP)
SAN ANGELO REGIONAL AIRPORT - MATHIS FIELD
SAN ANGELO, TX
OBSERVATIONS:
ALL WEATHER OBSERVATIONS: 114,244
IFR WEATHER OBSERVATIONS: 8,485
VFR WEATHER OBSERVATIONS: 96,319
PERIOD: 2010-2019



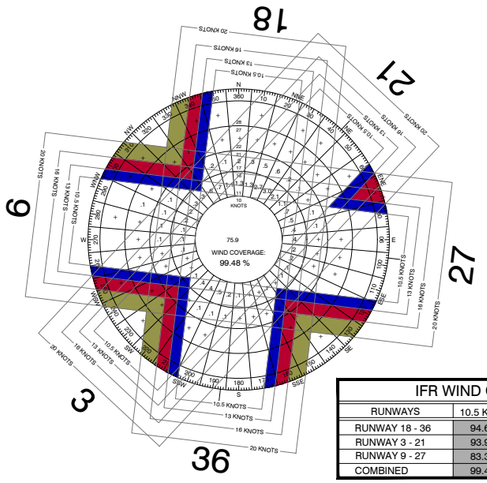


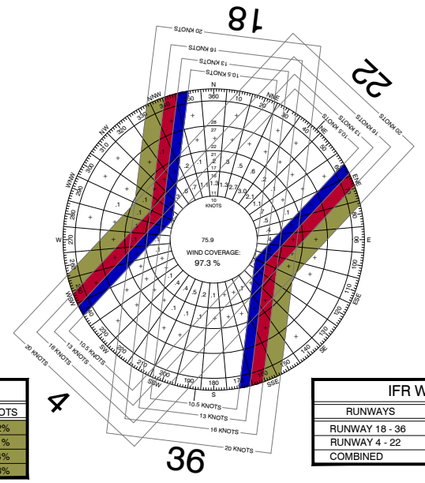
ALL WEATHER WIND COVERAGE - EXISTING

RUNWAYS	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 18 - 36	94.72%	97.12%	98.90%	99.63%
RUNWAY 3 - 21	90.40%	95.43%	98.63%	99.68%
RUNWAY 9 - 27	79.08%	87.03%	95.83%	99.10%
COMBINED	99.47%	99.86%	99.96%	99.99%

ALL WEATHER WIND COVERAGE - ULTIMATE

RUNWAYS	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 18 - 36	94.72%	97.12%	98.90%	99.63%
RUNWAY 4 - 22	90.40%	95.43%	98.63%	99.68%
COMBINED	96.93%	98.55%	99.50%	99.88%



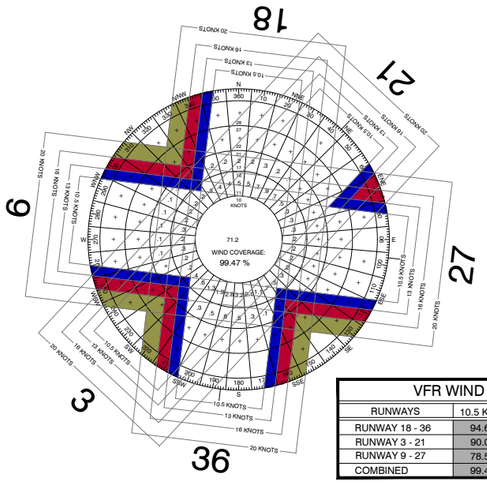


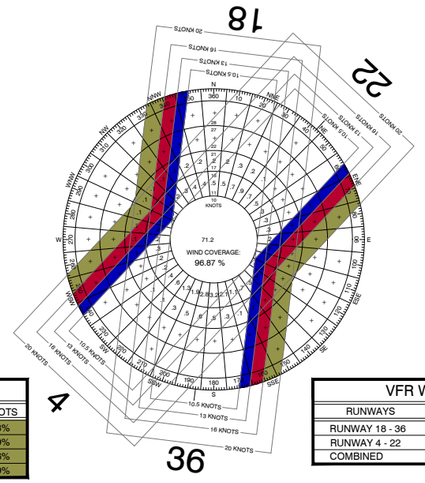
IFR WIND COVERAGE - EXISTING

RUNWAYS	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 18 - 36	94.68%	97.06%	98.81%	99.52%
RUNWAY 3 - 21	93.96%	96.79%	98.77%	99.51%
RUNWAY 9 - 27	83.34%	90.25%	97.04%	99.34%
COMBINED	99.48%	99.77%	99.92%	99.98%

IFR WIND COVERAGE - ULTIMATE

RUNWAYS	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 18 - 36	94.68%	97.06%	98.81%	99.52%
RUNWAY 4 - 22	93.96%	96.79%	98.77%	99.51%
COMBINED	97.30%	98.62%	99.41%	99.75%





VFR WIND COVERAGE - EXISTING

RUNWAYS	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 18 - 36	94.68%	97.10%	98.89%	99.63%
RUNWAY 3 - 21	90.01%	95.26%	98.60%	99.69%
RUNWAY 9 - 27	78.52%	86.62%	95.68%	99.06%
COMBINED	99.47%	99.86%	99.97%	99.99%

VFR WIND COVERAGE - ULTIMATE

RUNWAYS	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 18 - 36	94.68%	97.10%	98.89%	99.63%
RUNWAY 4 - 22	90.01%	95.26%	98.60%	99.69%
COMBINED	96.87%	98.62%	99.49%	99.88%

EXISTING TAXIWAY DATA TABLE

DESCRIPTION	WIDTH	TDG	TESM	TSA	TOFA	LIGHTING	OBJECTS INSIDE SAFETY AREA
TAXIWAY A	75'	TDG 5	15'	118'	186'	MITL	N/A
TAXIWAY B	75'	TDG 5	15'	118'	186'	MITL	N/A
TAXIWAY C	60'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY D	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY E	60'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY F	75'	TDG 5	15'	118'	186'	MITL	N/A
TAXIWAY H	75'	TDG 5	15'	118'	186'	MITL	N/A

ULTIMATE TAXIWAY DATA TABLE

DESCRIPTION	WIDTH	TDG	TESM	TSA	TOFA	LIGHTING	OBJECTS INSIDE SAFETY AREA
TAXIWAY A (TWY B)	75'	TDG 5	15'	118'	186'	MITL	N/A
TAXIWAY A	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY A1	75'	TDG 5	15'	118'	186'	MITL	N/A
TAXIWAY A2 (TWY D)	60'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY A3 (TWY E)	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY A4	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY A5	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY B (TWY H)	75'	TDG 5	15'	118'	186'	MITL	N/A
TAXIWAY B1 (TWY H)	75'	TDG 5	15'	118'	186'	MITL	N/A
TAXIWAY B2	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY B3	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY C (RW 9-27)	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY D	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY D1	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY D2	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY D3	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY D4	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY D5	50'	TDG 3	10'	118'	186'	MITL	N/A
TAXIWAY E (TWY A)	75'	TDG 5	15'	118'	186'	MITL	N/A
TAXIWAY E1	50'	TDG 3	10'	118'	186'	MITL	N/A

NOTE:
NAMES IN PARENTHESES REPRESENT EXISTING RUNWAY OR TAXIWAY IDENTIFIERS.

ABBREVIATIONS

AS	14 CFR PART 77 APPROACH SURFACE
ASDA	ACCELERATED STOP DISTANCE AVAILABLE
ASOS	AUTOMATED SURFACE OBSERVING SYSTEMS
ASR	AIRPORT SURFVEILLANCE RADAR
ATCT	AIR TRAFFIC CONTROL TOWER
BRL	BUILDING RESTRICTION LINE
D	DUAL WHEEL
DME	DISTANCE MEASURING EQUIPMENT
DS	TERPS DEPARTURE SURFACE
EB#99	ENGINEERING BRIEF #99
FAA	FEDERAL AVIATION ADMINISTRATION
GPS	GLOBAL POSITIONING SYSTEM
GS	GLIDE SLOPE
IFR	INSTRUMENT FLIGHT RULES
ILS	INSTRUMENT LANDING SYSTEM
LDA	LANDING DISTANCE AVAILABLE
LOC	LOCALIZER
MALSR	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS
MIRL	MEDIUM INTENSITY RUNWAY LIGHTS
NAD83	NORTH AMERICAN DATUM 1983
N/A	NOT APPLICABLE
NAVD88	NORTH AMERICAN VERTICAL DATUM 1988
NDB	NON-DIRECTIONAL BEACON
ODALS	OMNI-DIRECTIONAL APPROACH LIGHTS
OFZ	OBJECT FREE ZONE
PAPI	PRECISION APPROACH PATH INDICATORS
REIL	RUNWAY END IDENTIFIER LIGHTS
RNAV	AREA NAVIGATION
ROFA	RUNWAY OBJECT FREE AREA
RPZ	RUNWAY PROTECTION ZONE
RSA	RUNWAY SAFETY AREA
RTR	REMOTE TRANSMITTER/RECEIVER
RVR	RUNWAY VISUAL RANGE
RW	RUNWAY
S	SINGLE WHEEL
SJT	SAN ANGELO REGIONAL AIRPORT/MATHIS FIELD
TACAN	TACTICAL AIR NAVIGATION SYSTEM
TODA	TAKEOFF DISTANCE AVAILABLE
TORA	TAKEOFF RUN AVAILABLE
TSS	THRESHOLD SITING SURFACE
TWY	TAXIWAY
VASI	VISUAL APPROACH SLOPE INDICATORS
VFR	VISUAL FLIGHT RULES
VOR	VHF OMNIDIRECTIONAL RADIO RANGE
WC	WINDCONE

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SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

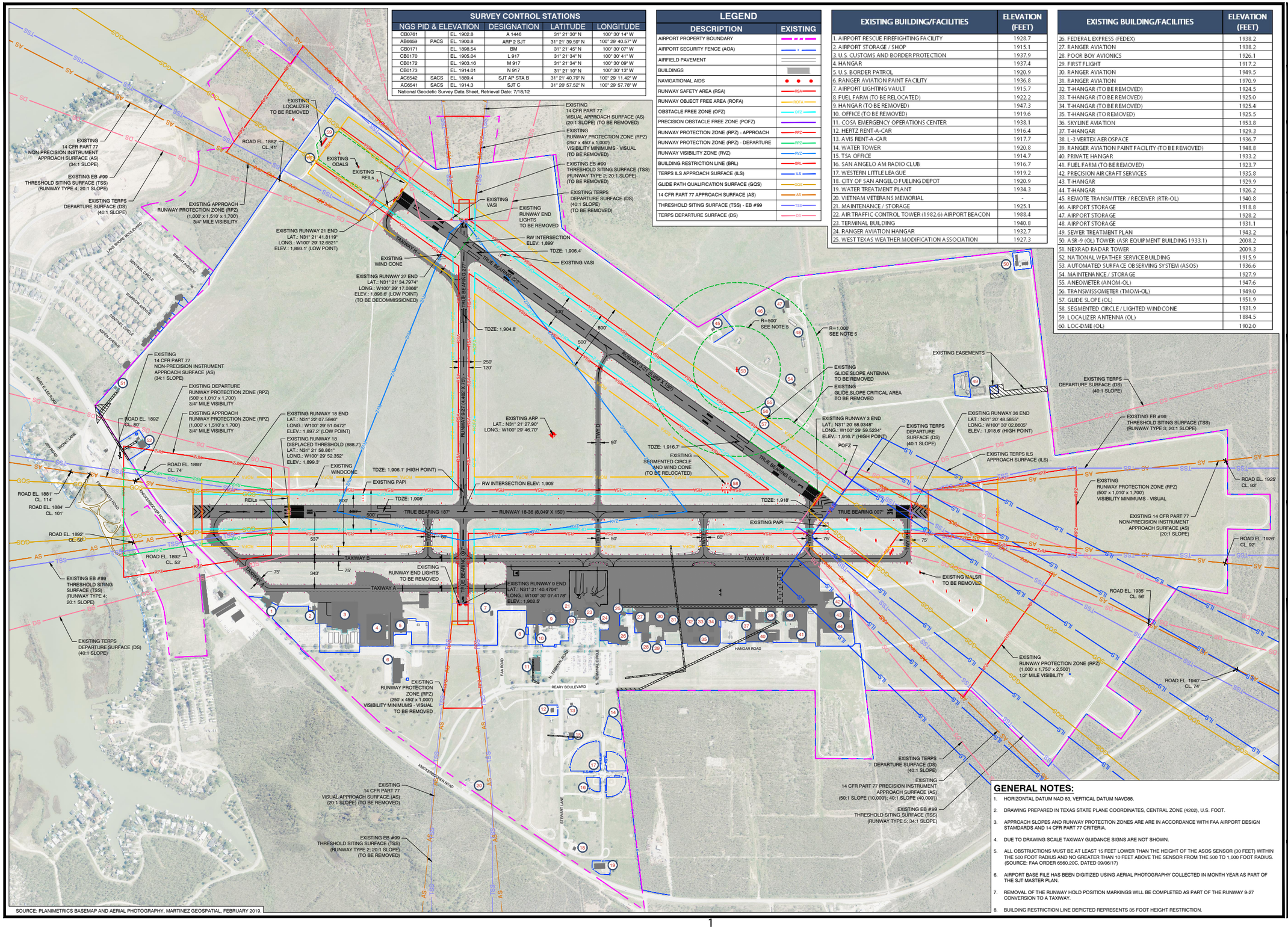
MARK	REVISION	DATE

DRAFT

AIRPORT DATA SHEET (SHEET 2 OF 2)

LATEST REVISION:	JULY 2020
DRAWN BY:	JA
REVIEWED BY:	DA
JOB NO.	SJT1801P

SHEET NO. 3



SURVEY CONTROL STATIONS

NGS PID & ELEVATION			DESIGNATION	LATITUDE	LONGITUDE
CB0761		EL. 1902.8	A 1446	31° 21' 30" N	100° 30' 14" W
AB6659	PACS	EL. 1900.8	ARP 2 SJT	31° 21' 39.59" N	100° 29' 40.57" W
CB0171		EL. 1898.54	BM	31° 21' 45" N	100° 30' 07" W
CB0170		EL. 1905.04	L 917	31° 21' 34" N	100° 30' 41" W
CB0172		EL. 1903.16	M 917	31° 21' 34" N	100° 30' 09" W
CB0173		EL. 1914.01	N 917	31° 21' 10" N	100° 30' 13" W
AC6542	SACS	EL. 1889.4	SJT AP STA B	31° 21' 40.79" N	100° 29' 11.42" W
AC6541	SACS	EL. 1914.3	SJT C	31° 20' 57.52" N	100° 29' 57.78" W

National Geodetic Survey Data Sheet, Retrieval Date: 7/18/12

LEGEND

DESCRIPTION	EXISTING
AIRPORT PROPERTY BOUNDARY	
AIRPORT SECURITY FENCE (AOA)	
AIRFIELD PAVEMENT	
BUILDINGS	
NAVIGATIONAL AIDS	
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
OBSTACLE FREE ZONE (OFZ)	OFZ
PRECISION OBSTACLE FREE ZONE (POFZ)	
RUNWAY PROTECTION ZONE (RPZ) - APPROACH	RPZ
RUNWAY PROTECTION ZONE (RPZ) - DEPARTURE	RPZ
RUNWAY VISIBILITY ZONE (RVZ)	RVZ
BUILDING RESTRICTION LINE (BRL)	BRL
TERPS ILS APPROACH SURFACE (ILS)	ILS
GLIDE PATH QUALIFICATION SURFACE (GQS)	GQS
14 CFR PART 77 APPROACH SURFACE (AS)	AS
THRESHOLD SITING SURFACE (TSS) - EB #99	TSS
TERPS DEPARTURE SURFACE (DS)	DS

EXISTING BUILDING/FACILITIES	ELEVATION (FEET)
1. AIRPORT RESCUE FIREFIGHTING FACILITY	1928.7
2. AIRPORT STORAGE / SHOP	1915.1
3. U.S. CUSTOMS AND BORDER PROTECTION	1937.9
4. HANGAR	1937.4
5. U.S. BORDER PATROL	1920.9
6. RANGER AVIATION PAINT FACILITY	1936.8
7. AIRPORT LIGHTING VAULT	1915.7
8. FUEL FARM (TO BE RELOCATED)	1922.2
9. HANGAR (TO BE REMOVED)	1947.3
10. OFFICE (TO BE REMOVED)	1919.6
11. COSA EMERGENCY OPERATIONS CENTER	1938.1
12. HERTZ RENT-A-CAR	1916.4
13. AVIS RENT-A-CAR	1917.7
14. WATER TOWER	1920.8
15. TSA OFFICE	1914.7
16. SAN ANGELO AM RADIO CLUB	1916.7
17. WESTERN LITTLE LEAGUE	1919.2
18. CITY OF SAN ANGELO FUELING DEPOT	1920.9
19. WATER TREATMENT PLANT	1934.3
20. VIETNAM VETERANS MEMORIAL	-
21. MAINTENANCE / STORAGE	1925.1
22. AIR TRAFFIC CONTROL TOWER (1982.6) AIRPORT BEACON	1988.4
23. TERMINAL BUILDING	1940.8
24. RANGER AVIATION HANGAR	1932.7
25. WEST TEXAS WEATHER MODIFICATION ASSOCIATION	1927.3

EXISTING BUILDING/FACILITIES	ELEVATION (FEET)
26. FEDERAL EXPRESS (FEDEX)	1938.2
27. RANGER AVIATION	1938.2
28. POOR BOY AVIONICS	1926.1
29. FIRST FLIGHT	1917.2
30. RANGER AVIATION	1949.5
31. RANGER AVIATION	1970.9
32. T-HANGAR (TO BE REMOVED)	1924.5
33. T-HANGAR (TO BE REMOVED)	1925.0
34. T-HANGAR (TO BE REMOVED)	1925.4
35. T-HANGAR (TO REMOVED)	1925.5
36. SKYLINE AVIATION	1953.8
37. T-HANGAR	1929.3
38. L-3 VERTEX AEROSPACE	1936.7
39. RANGER AVIATION PAINT FACILITY (TO BE REMOVED)	1948.8
40. PRIVATE HANGAR	1933.2
41. FUEL FARM (TO BE REMOVED)	1923.7
42. PRECISION AIR CRAFT SERVICES	1935.8
43. T-HANGAR	1929.9
44. T-HANGAR	1926.2
45. REMOTE TRANSMITTER / RECEIVER (RTR-OL)	1940.8
46. AIRPORT STORAGE	1918.8
47. AIRPORT STORAGE	1928.2
48. AIRPORT STORAGE	1931.1
49. SEWER TREATMENT PLAN	1943.2
50. ASR-9 (OL) TOWER (ASR EQUIPMENT BUILDING 1933.1)	2008.2
51. NEXRAD RADAR TOWER	2009.3
52. NATIONAL WEATHER SERVICE BUILDING	1915.9
53. AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)	1936.6
54. MAINTENANCE / STORAGE	1927.9
55. ANEOMETER (ANOM-OL)	1947.6
56. TRANSMISSOMETER (TMOM-OL)	1949.0
57. GLIDE SLOPE (OL)	1951.9
58. SEGMENTED CIRCLE / LIGHTED WINDCONE	1931.9
59. LOCALIZER ANTENNA (OL)	1884.5
60. LOC-DME (OL)	1902.0

GENERAL NOTES:

1. HORIZONTAL DATUM NAD 83, VERTICAL DATUM NAVD88.
2. DRAWING PREPARED IN TEXAS STATE PLANE COORDINATES, CENTRAL ZONE (4202), U.S. FOOT.
3. APPROACH SLOPES AND RUNWAY PROTECTION ZONES ARE ARE IN ACCORDANCE WITH FAA AIRPORT DESIGN STAMDARDS AND 14 CFR PART 77 CRITERIA.
4. DUE TO DRAWING SCALE TAXIWAY GUIDANCE SIGNS ARE NOT SHOWN.
5. ALL OBSTRUCTIONS MUST BE AT LEAST 15 FEET LOWER THAN THE HEIGHT OF THE ASOS SENSOR (30 FEET) WITHIN THE 500 FOOT RADIUS AND NO GREATER THAN 10 FEET ABOVE THE SENSOR FROM THE 500 TO 1,000 FOOT RADIUS. (SOURCE: FAA ORDER 6560.20C, DATED 09/06/17)
6. AIRPORT BASE FILE HAS BEEN DIGITIZED USING AERIAL PHOTOGRAPHY COLLECTED IN MONTH YEAR AS PART OF THE SJT MASTER PLAN.
7. REMOVAL OF THE RUNWAY HOLD POSITION MARKINGS WILL BE COMPLETED AS PART OF THE RUNWAY 9-27 CONVERSION TO A TAXIWAY.
8. BUILDING RESTRICTION LINE DEPICTED REPRESENTS 35 FOOT HEIGHT RESTRICTION.

SOURCE: PLANIMETRICS BASEMAP AND AERIAL PHOTOGRAPHY, MARTINEZ GEOSPATIAL, FEBRUARY 2019.

SAN ANGELO REGIONAL AIRPORT

SAN ANGELO REGIONAL AIRPORT
8618 TERMINAL CIRCLE
SAN ANGELO, TX 76904
PHONE NO. (325) 659-6409

centurion PLANNING AND DESIGN

CENTURION PLANNING AND DESIGN
69 N. CHADBOURNE STREET
SUITE 210.7
SAN ANGELO, TX 76903
PHONE NO. (325) 812-8430
FIRM NO. 19840

5° 15.36' E TRUE

5° 7' E CHANGING BY 0° 7' W PER YEAR

0' 500' 1000'

GRAPHIC SCALE IN FEET

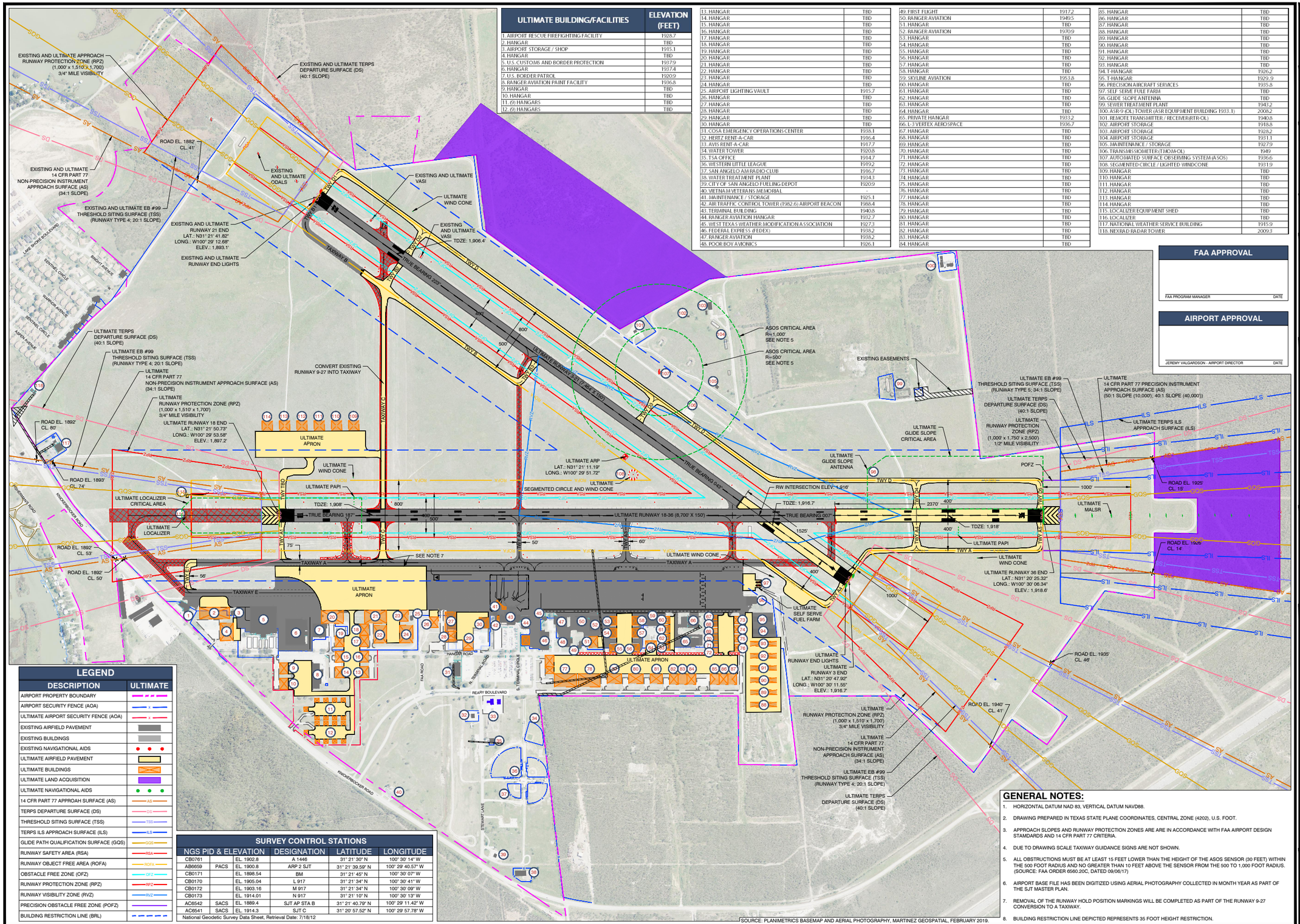
SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

MARK	REVISION	DATE

DRAFT

EXISTING AIRPORT LAYOUT PLAN

LATEST REVISION:	JULY 2020	SHEET NO.
DRAWN BY:	JA	4
REVIEWED BY:	DA	
JOB NO.	SJT1801P	



ULTIMATE BUILDING/FACILITIES	ELEVATION (FEET)
1. AIRPORT RESCUE FIREFIGHTING FACILITY	1928.7
2. HANGAR	TBD
3. AIRPORT STORAGE / SHOP	1915.1
4. HANGAR	TBD
5. U.S. CUSTOMS AND BORDER PROTECTION	1937.9
6. HANGAR	1937.4
7. U.S. BORDER PATROL	1920.9
8. RANGER AVIATION PAINT FACILITY	1936.8
9. HANGAR	TBD
10. HANGAR	TBD
11. (6) HANGARS	TBD
12. (6) HANGARS	TBD

13. HANGAR	TBD
14. HANGAR	TBD
15. HANGAR	TBD
16. HANGAR	TBD
17. HANGAR	TBD
18. HANGAR	TBD
19. HANGAR	TBD
20. HANGAR	TBD
21. HANGAR	TBD
22. HANGAR	TBD
23. HANGAR	TBD
24. HANGAR	TBD
25. AIRPORT LIGHTING VAULT	1915.7
26. HANGAR	TBD
27. HANGAR	TBD
28. HANGAR	TBD
29. HANGAR	TBD
30. HANGAR	TBD
31. COSA EMERGENCY OPERATIONS CENTER	1938.1
32. HERTZ RENT-A-CAR	1916.4
33. AVIS RENT-A-CAR	1917.7
34. WATER TOWER	1920.8
35. TSA OFFICE	1914.7
36. WESTERN LITTLE LEAGUE	1919.2
37. SAN ANGELO AM RADIO CLUB	1916.7
38. WATER TREATMENT PLANT	1934.3
39. CITY OF SAN ANGELO FUELING DEPOT	1920.9
40. VIETNAM VETERANS MEMORIAL	-
41. (MAINTENANCE / STORAGE	1925.1
42. AIR TRAFFIC CONTROL TOWER (1982.6) AIRPORT BEACON	1988.4
43. TERMINAL BUILDING	1940.8
44. RANGER AVIATION HANGAR	1932.7
45. WEST TEXAS WEATHER MODIFICATION ASSOCIATION	1927.3
46. FEDERAL EXPRESS (FEDEX)	1938.2
47. RANGER AVIATION	1938.2
48. POOR BOY AVIONICS	1926.1

49. FIRST FLIGHT	1917.2
50. RANGER AVIATION	1949.5
51. HANGAR	TBD
52. RANGER AVIATION	1970.9
53. HANGAR	TBD
54. HANGAR	TBD
55. HANGAR	TBD
56. HANGAR	TBD
57. HANGAR	TBD
58. HANGAR	TBD
59. SKYLINE AVIATION	1953.8
60. HANGAR	TBD
61. HANGAR	TBD
62. HANGAR	TBD
63. HANGAR	TBD
64. HANGAR	TBD
65. PRIVATE HANGAR	1933.2
66. L-3 VERTEX AEROSPACE	1936.7
67. HANGAR	TBD
68. HANGAR	TBD
69. HANGAR	TBD
70. HANGAR	TBD
71. HANGAR	TBD
72. HANGAR	TBD
73. HANGAR	TBD
74. HANGAR	TBD
75. HANGAR	TBD
76. HANGAR	TBD
77. HANGAR	TBD
78. HANGAR	TBD
79. HANGAR	TBD
80. HANGAR	TBD
81. HANGAR	TBD
82. HANGAR	TBD
83. HANGAR	TBD
84. HANGAR	TBD

85. HANGAR	TBD
86. HANGAR	TBD
87. HANGAR	TBD
88. HANGAR	TBD
89. HANGAR	TBD
90. HANGAR	TBD
91. HANGAR	TBD
92. HANGAR	TBD
93. HANGAR	TBD
94. T-HANGAR	1926.2
95. T-HANGAR	1929.9
96. PRECISION AIRCRAFT SERVICES	1935.8
97. SELF SERVE FUEL FARM	TBD
98. GLIDE SLOPE ANTENNA	TBD
99. SEWER TREATMENT PLANT	1943.2
100. ASR-9 (OL) TOWER (ASR EQUIPMENT BUILDING 1933.1)	2006.2
101. REMOTE TRANSMITTER / RECEIVER(RTR-OL)	1940.8
102. AIRPORT STORAGE	1918.8
103. AIRPORT STORAGE	1928.2
104. AIRPORT STORAGE	1931.1
105. (MAINTENANCE / STORAGE	1927.9
106. TRANSMISSIOMETER (TMOM-OL)	1949
107. AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)	1936.6
108. SEGMENTED CIRCLE / LIGHTED WINDCONE	1931.9
109. HANGAR	TBD
110. HANGAR	TBD
111. HANGAR	TBD
112. HANGAR	TBD
113. HANGAR	TBD
114. HANGAR	TBD
115. LOCALIZER EQUIPMENT SHED	TBD
116. LOCALIZER	TBD
117. NATIONAL WEATHER SERVICE BUILDING	1915.9
118. NEXRAD RADAR TOWER	2009.3

LEGEND

DESCRIPTION	ULTIMATE
AIRPORT PROPERTY BOUNDARY	
AIRPORT SECURITY FENCE (AOA)	
ULTIMATE AIRPORT SECURITY FENCE (AOA)	
EXISTING AIRFIELD PAVEMENT	
EXISTING BUILDINGS	
EXISTING NAVIGATIONAL AIDS	
ULTIMATE AIRFIELD PAVEMENT	
ULTIMATE BUILDINGS	
ULTIMATE LAND ACQUISITION	
ULTIMATE NAVIGATIONAL AIDS	
14 CFR PART 77 APPROAH SURFACE (AS)	AS
TERPS DEPARTURE SURFACE (DS)	DS
THRESHOLD SITING SURFACE (TSS)	TSS
TERPS ILS APPROACH SURFACE (ILS)	ILS
GLIDE PATH QUALIFICATION SURFACE (GQS)	GQS
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
OBSTACLE FREE ZONE (OFZ)	OFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
RUNWAY VISIBILITY ZONE (RVZ)	RVZ
PRECISION OBSTACLE FREE ZONE (POFZ)	
BUILDING RESTRICTION LINE (BRL)	

SURVEY CONTROL STATIONS

NGS PID & ELEVATION			DESIGNATION	LATITUDE	LONGITUDE
CB0761		EL. 1902.8	A 1446	31° 21' 30" N	100° 30' 14" W
AB6659	PACS	EL. 1900.8	ARP 2 SJT	31° 21' 39.59" N	100° 29' 40.57" W
CB0171		EL. 1898.54	BM	31° 21' 45" N	100° 30' 07" W
CB0170		EL. 1905.04	L 917	31° 21' 34" N	100° 30' 41" W
CB0172		EL. 1903.16	M 917	31° 21' 34" N	100° 30' 09" W
CB0173		EL. 1914.01	N 917	31° 21' 10" N	100° 30' 13" W
AC6542	SACS	EL. 1889.4	SJT AP STA B	31° 21' 40.79" N	100° 29' 11.42" W
AC6541	SACS	EL. 1914.3	SJT C	31° 20' 57.52" N	100° 29' 57.78" W

National Geodetic Survey Data Sheet, Retrieval Date: 7/18/12

SOURCE: PLANIMETRICS BASEMAP AND AERIAL PHOTOGRAPHY, MARTINEZ GEOSPATIAL, FEBRUARY 2019.

GENERAL NOTES:

1. HORIZONTAL DATUM NAD 83, VERTICAL DATUM NAVD88.
2. DRAWING PREPARED IN TEXAS STATE PLANE COORDINATES, CENTRAL ZONE (4202), U.S. FOOT.
3. APPROACH SLOPES AND RUNWAY PROTECTION ZONES ARE ARE IN ACCORDANCE WITH FAA AIRPORT DESIGN STAMDARDS AND 14 CFR PART 77 CRITERIA.
4. DUE TO DRAWING SCALE TAXIWAY GUIDANCE SIGNS ARE NOT SHOWN.
5. ALL OBSTRUCTIONS MUST BE AT LEAST 15 FEET LOWER THAN THE HEIGHT OF THE ASOS SENSOR (30 FEET) WITHIN THE 500 FOOT RADIUS AND NO GREATER THAN 10 FEET ABOVE THE SENSOR FROM THE 500 TO 1,000 FOOT RADIUS. (SOURCE: FAA ORDER 6560.20C, DATED 09/06/17)
6. AIRPORT BASE FILE HAS BEEN DIGITIZED USING AERIAL PHOTOGRAPHY COLLECTED IN MONTH YEAR AS PART OF THE SJT MASTER PLAN.
7. REMOVAL OF THE RUNWAY HOLD POSITION MARKINGS WILL BE COMPLETED AS PART OF THE RUNWAY 9-27 CONVERSION TO A TAXIWAY.
8. BUILDING RESTRICTION LINE DEPICTED REPRESENTS 35 FOOT HEIGHT RESTRICTION.

FAA APPROVAL

FAA PROGRAM MANAGER — DATE

AIRPORT APPROVAL

JEREMY VALGARDSON - AIRPORT DIRECTOR — DATE

SAN ANGELO REGIONAL AIRPORT
8618 TERMINAL CIRCLE
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PHONE NO. (325) 659-6409

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0' 500' 1000'

GRAPHIC SCALE IN FEET

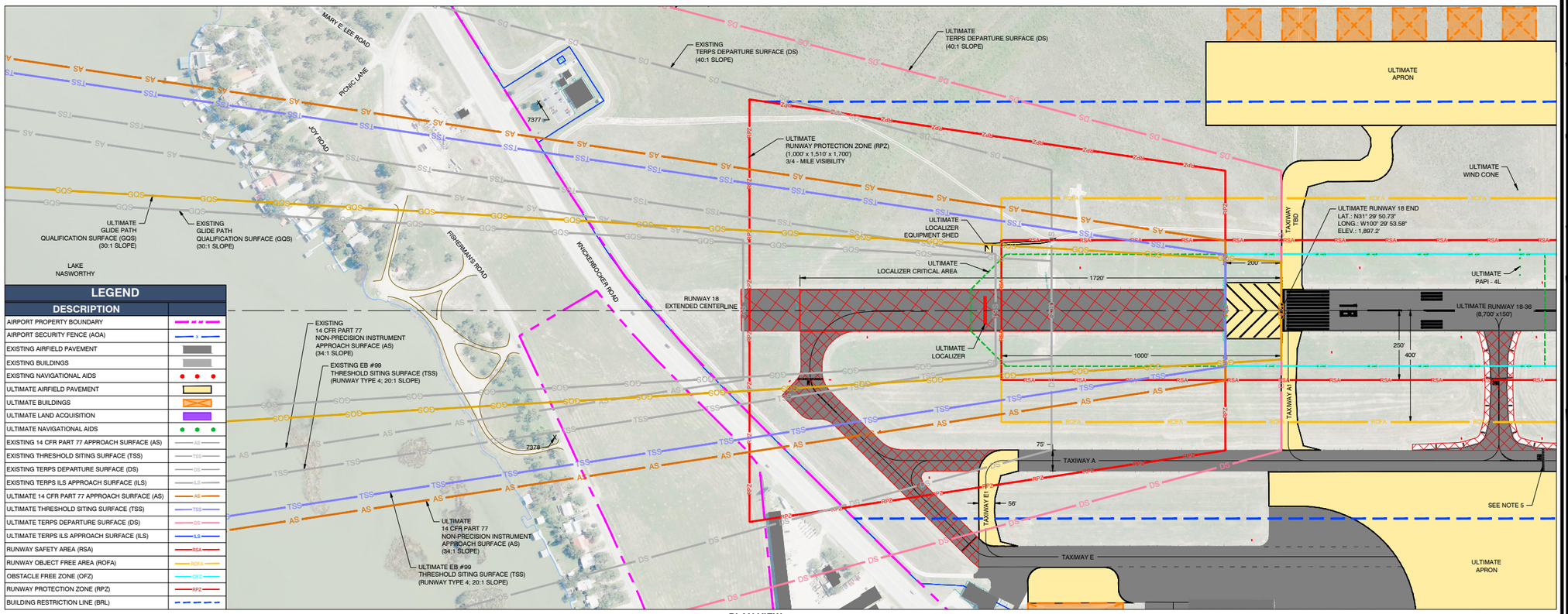
SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

MARK	REVISION	DATE

DRAFT

ULTIMATE AIRPORT LAYOUT PLAN

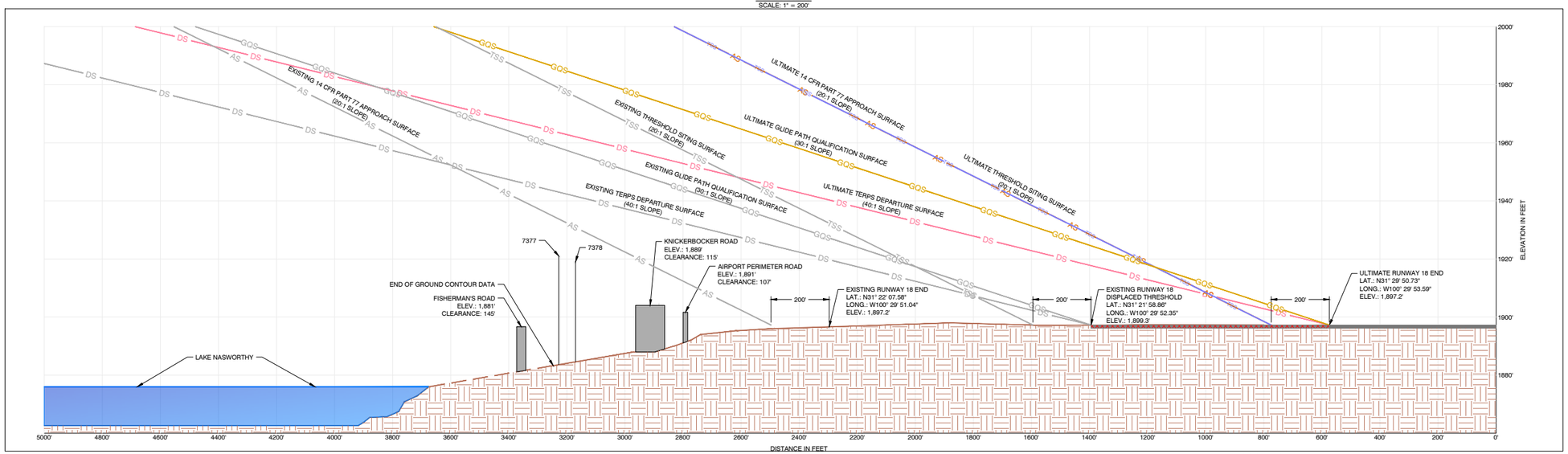
LATEST REVISION:	JULY 2020	SHEET NO. 5
DRAWN BY:	JA	
REVIEWED BY:	DA	
JOB NO.	SJT1801P	



LEGEND

DESCRIPTION	
AIRPORT PROPERTY BOUNDARY	
AIRPORT SECURITY FENCE (AOA)	X
EXISTING AIRFIELD PAVEMENT	
EXISTING BUILDINGS	
EXISTING NAVIGATIONAL AIDS	
ULTIMATE AIRFIELD PAVEMENT	
ULTIMATE BUILDINGS	
ULTIMATE LAND ACQUISITION	
ULTIMATE NAVIGATIONAL AIDS	
EXISTING 14 CFR PART 77 APPROACH SURFACE (AS)	AS
EXISTING THRESHOLD SITING SURFACE (TSS)	TSS
EXISTING TERPS DEPARTURE SURFACE (DS)	DS
EXISTING TERPS ILS APPROACH SURFACE (ILS)	ILS
ULTIMATE 14 CFR PART 77 APPROACH SURFACE (AS)	AS
ULTIMATE THRESHOLD SITING SURFACE (TSS)	TSS
ULTIMATE TERPS DEPARTURE SURFACE (DS)	DS
ULTIMATE TERPS ILS APPROACH SURFACE (ILS)	ILS
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
OBSTACLE FREE ZONE (OFZ)	OFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
BUILDING RESTRICTION LINE (BRL)	

PLAN VIEW
SCALE: 1" = 200'



PROFILE VIEW
SCALE: 1" = 200'

NOTES:

1. ONLY ULTIMATE APPROACH AND DEPARTURE SURFACES ARE SHOWN ON THIS SHEET.
2. OBJECT NUMBERS 7377 AND 7378 PENETRATE THE EXISTING 40:1 TERPS DEPARTURE SURFACE.
3. REFER TO SHEET 10 FOR FOR OBSTRUCTION DATA TABLE AND ADDITIONAL NOTES.
4. NAVD88 DATUM WAS USED FOR ALL VERTICAL ELEVATIONS AND NAD83 FOR ALL HORIZONTAL ELEVATIONS.
5. RUNWAY HOLD POSITION MARKINGS SHALL BE REMOVED DURING THE DECOMMISSION OF RUNWAY 9-27.
6. THRESHOLD SITING SURFACE DIMENSIONS PER LATEST FAA ENGINEERING BRIEF #99, DATED SEPTEMBER 20, 2018.

SAN ANGELO REGIONAL AIRPORT

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8618 TERMINAL CIRCLE
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PHONE NO. (325) 812-8430
FIRM NO. 19840

5° 15.36' E TRUE

5° 7' E CHANGING BY 0° 7' W PER YEAR

0' 500' 1000'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

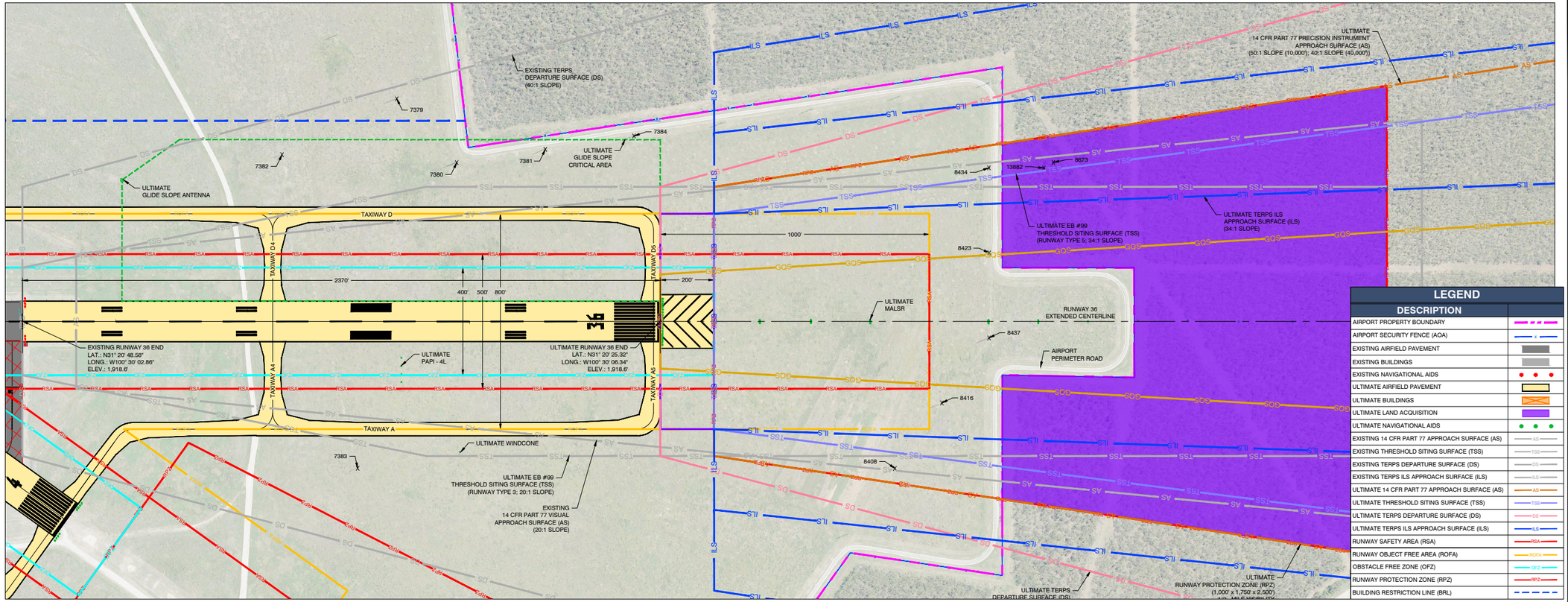
MARK	REVISION	DATE

DRAFT

INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 18

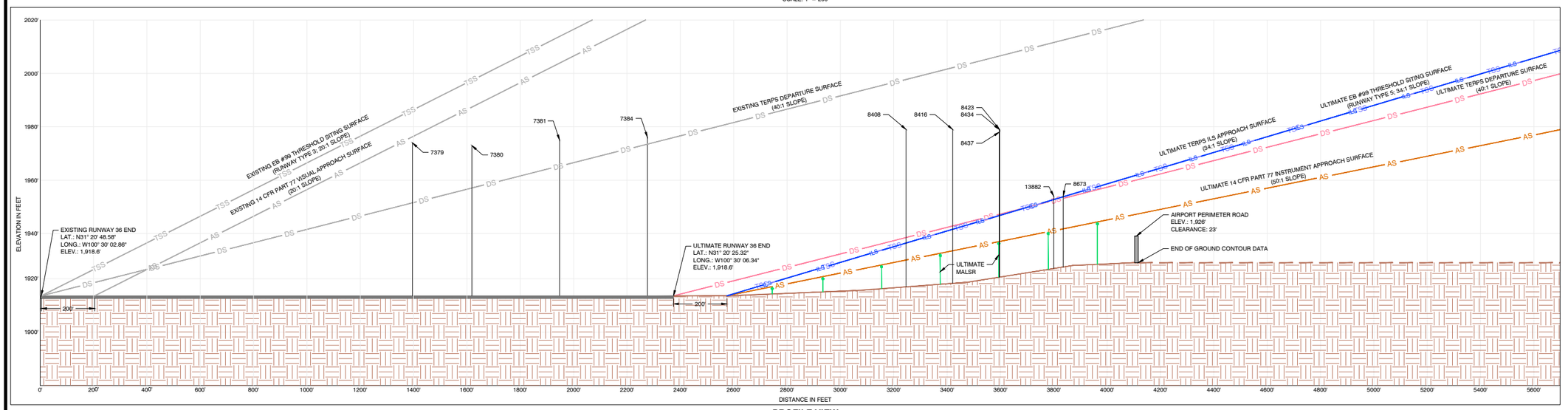
LATEST REVISION:	JULY 2020
DRAWN BY:	JA
REVIEWED BY:	DA
JOB NO.	SJT1801P

SHEET NO. 6



PLAN VIEW
SCALE: 1" = 200'

LEGEND	
DESCRIPTION	
AIRPORT PROPERTY BOUNDARY	
AIRPORT SECURITY FENCE (AOA)	
EXISTING AIRFIELD PAVEMENT	
EXISTING BUILDINGS	
EXISTING NAVIGATIONAL AIDS	
ULTIMATE AIRFIELD PAVEMENT	
ULTIMATE BUILDINGS	
ULTIMATE LAND ACQUISITION	
ULTIMATE NAVIGATIONAL AIDS	
EXISTING 14 CFR PART 77 APPROACH SURFACE (AS)	AS
EXISTING THRESHOLD SITING SURFACE (TSS)	TSS
EXISTING TERPS DEPARTURE SURFACE (DS)	DS
EXISTING TERPS ILS APPROACH SURFACE (ILS)	ILS
ULTIMATE 14 CFR PART 77 APPROACH SURFACE (AS)	AS
ULTIMATE THRESHOLD SITING SURFACE (TSS)	TSS
ULTIMATE TERPS DEPARTURE SURFACE (DS)	DS
ULTIMATE TERPS ILS APPROACH SURFACE (ILS)	ILS
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
OBSTACLE FREE ZONE (OFZ)	OFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
BUILDING RESTRICTION LINE (BRL)	



PROFILE VIEW
SCALE: 1" = 200'

NOTES:

1. REFER TO SHEET 10 FOR FOR OBSTRUCTION DATA TABLE AND ADDITIONAL NOTES.
2. NAVD88 DATUM WAS USED FOR ALL VERTICAL ELEVATIONS AND NAD83 FOR ALL HORIZONTAL ELEVATIONS.
3. THRESHOLD SITING SURFACE DIMENSIONS PER LATEST FAA ENGINEERING BRIEF #99, DATED SEPTEMBER 20, 2018.

SAN ANGELO REGIONAL AIRPORT

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5° 15.36' E TRUE

5° 7' E CHANGING BY 0° 7' W PER YEAR

0' 500' 1000'
GRAPHIC SCALE IN FEET

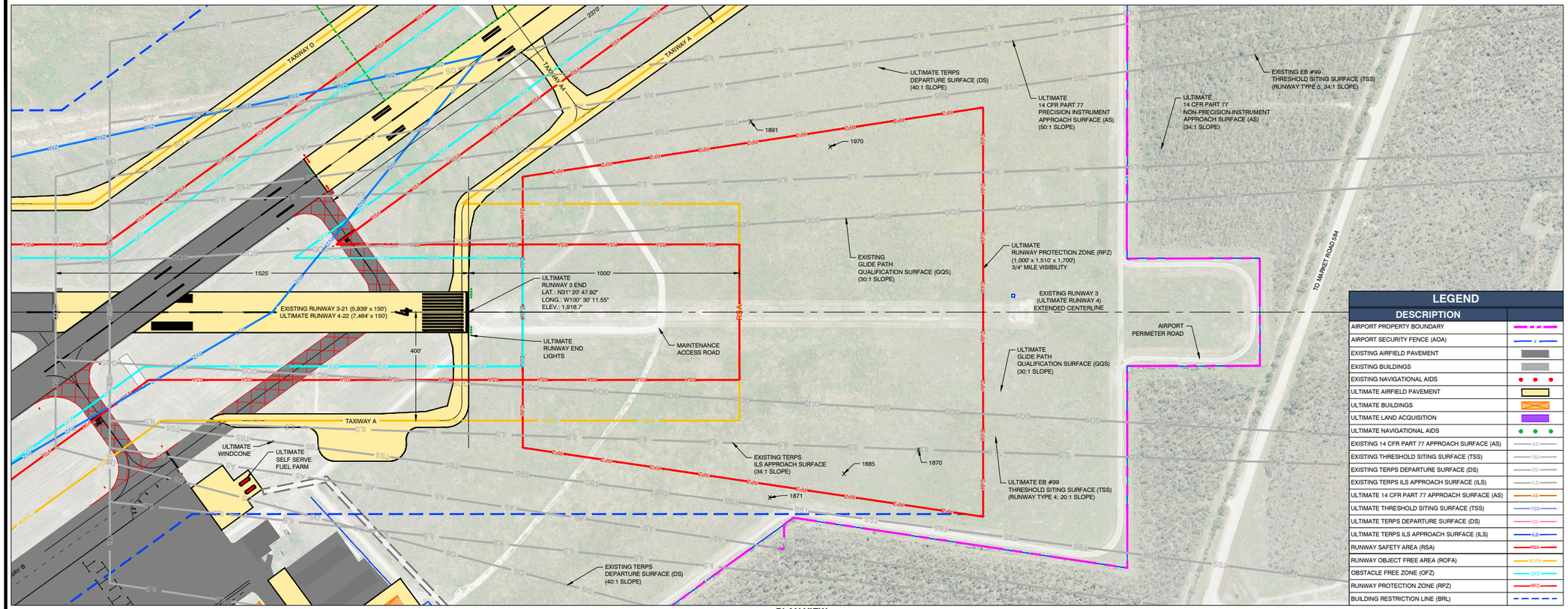
SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

MARK	REVISION	DATE

DRAFT

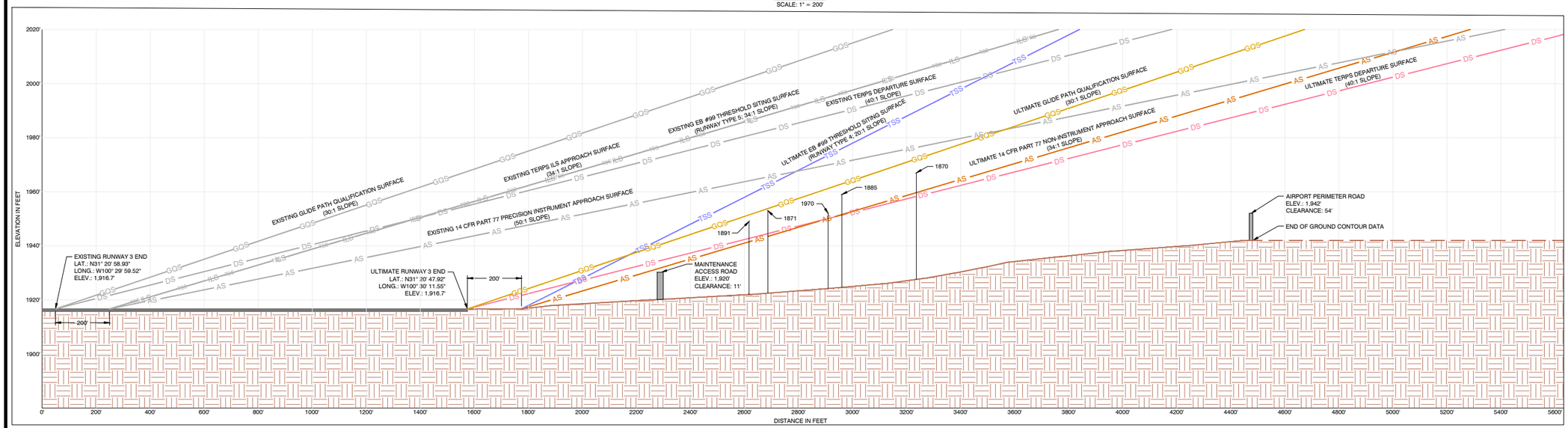
INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 36

LATEST REVISION:	JULY 2020	SHEET NO.
DRAWN BY:	JA	7
REVIEWED BY:	DA	
JOB NO.	SJT1801P	



PLAN VIEW
SCALE: 1" = 200'

LEGEND	
DESCRIPTION	
AIRPORT PROPERTY BOUNDARY	
AIRPORT SECURITY FENCE (AOA)	
EXISTING AIRFIELD PAVEMENT	
EXISTING BUILDINGS	
EXISTING NAVIGATIONAL AIDS	
ULTIMATE AIRFIELD PAVEMENT	
ULTIMATE BUILDINGS	
ULTIMATE LAND ACQUISITION	
ULTIMATE NAVIGATIONAL AIDS	
EXISTING 14 CFR PART 77 APPROACH SURFACE (AS)	AS
EXISTING THRESHOLD SITING SURFACE (TSS)	TSS
EXISTING TERPS DEPARTURE SURFACE (DS)	DS
EXISTING TERPS ILS APPROACH SURFACE (ILS)	ILS
ULTIMATE 14 CFR PART 77 APPROACH SURFACE (AS)	AS
ULTIMATE THRESHOLD SITING SURFACE (TSS)	TSS
ULTIMATE TERPS DEPARTURE SURFACE (DS)	DS
ULTIMATE TERPS ILS APPROACH SURFACE (ILS)	ILS
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
OBSTACLE FREE ZONE (OFZ)	OFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
BUILDING RESTRICTION LINE (BRL)	



PROFILE VIEW
SCALE: 1" = 200'

NOTES:

1. REFER TO SHEET 10 FOR FOR OBSTRUCTION DATA TABLE AND ADDITIONAL NOTES.
2. MALSR, LOCALIZER, AND GLIDE SLOPE ANTENNA TO BE REMOVED AND RELOCATED TO ULTIMATE RUNWAY 36 END.
3. NAVD88 DATUM WAS USED FOR ALL VERTICAL ELEVATIONS AND NAD83 FOR ALL HORIZONTAL ELEVATIONS.
4. THRESHOLD SITING SURFACE DIMENSIONS PER LATEST FAA ENGINEERING BRIEF #99, DATED SEPTEMBER 20, 2018.

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TRUE
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GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

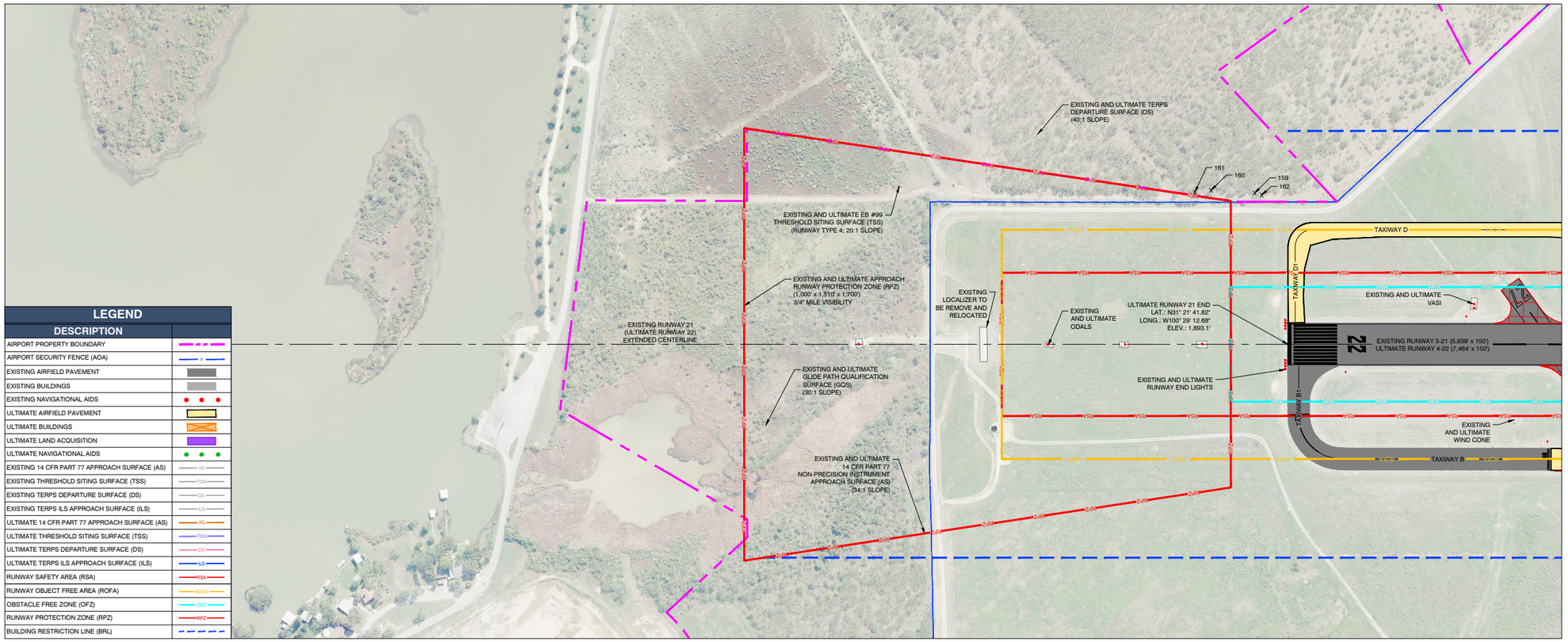
MARK	REVISION	DATE

DRAFT

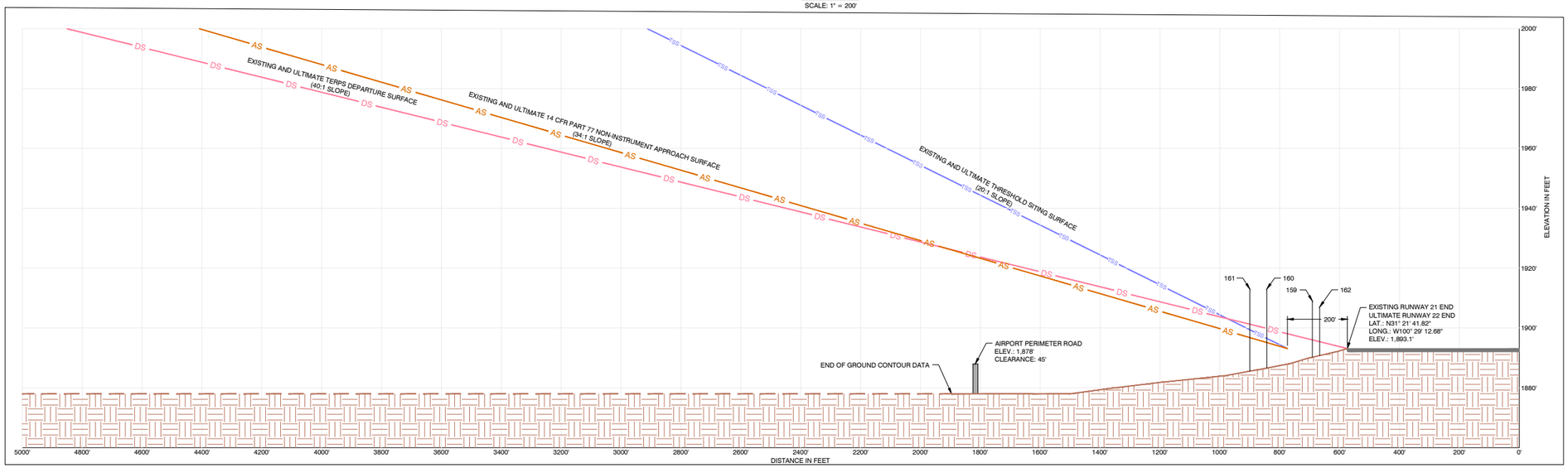
INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 3

LATEST REVISION:	JULY 2020	SHEET NO.
DRAWN BY:	JA	8
REVIEWED BY:	DA	
JOB NO.	SJT1801P	

LEGEND	
DESCRIPTION	
AIRPORT PROPERTY BOUNDARY	
AIRPORT SECURITY FENCE (AOA)	
EXISTING AIRFIELD PAVEMENT	
EXISTING BUILDINGS	
EXISTING NAVIGATIONAL AIDS	
ULTIMATE AIRFIELD PAVEMENT	
ULTIMATE BUILDINGS	
ULTIMATE LAND ACQUISITION	
ULTIMATE NAVIGATIONAL AIDS	
EXISTING 14 CFR PART 77 APPROACH SURFACE (AS)	AS
EXISTING THRESHOLD SITING SURFACE (TSS)	TSS
EXISTING TERPS DEPARTURE SURFACE (DS)	DS
EXISTING TERPS ILS APPROACH SURFACE (ILS)	ILS
ULTIMATE 14 CFR PART 77 APPROACH SURFACE (AS)	AS
ULTIMATE THRESHOLD SITING SURFACE (TSS)	TSS
ULTIMATE TERPS DEPARTURE SURFACE (DS)	DS
ULTIMATE TERPS ILS APPROACH SURFACE (ILS)	ILS
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
OBSTACLE FREE ZONE (OFZ)	OFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
BUILDING RESTRICTION LINE (BRL)	



PLAN VIEW
SCALE: 1" = 200'



PROFILE VIEW
SCALE: 1" = 200'

NOTES:

1. THIS SHEET ONLY IDENTIFIES OBSTRUCTIONS THAT PENETRATES THE APPROACH AND/OR DEPARTURE SURFACES BY 11 FEET OR GREATER.
2. MALSR, LOCALIZER, AND GLIDE SLOPE ANTENNA TO BE REMOVED AND RELOCATED TO ULTIMATE RUNWAY 36 END.
3. REFER TO SHEET 10 FOR FOR OBSTRUCTION DATA TABLE AND ADDITIONAL NOTES.
4. NAVD88 DATUM WAS USED FOR ALL VERTICAL ELEVATIONS AND NAD83 FOR ALL HORIZONTAL ELEVATIONS.
5. THRESHOLD SITING SURFACE DIMENSIONS PER LATEST FAA ENGINEERING BRIEF #99, DATED SEPTEMBER 20, 2018.

SAN ANGELO REGIONAL AIRPORT

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0' 500' 1000'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

MARK	REVISION	DATE

DRAFT

INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 21 (ULTIMATE RUNWAY 22)

LATEST REVISION:	JULY 2020
DRAWN BY:	JA
REVIEWED BY:	DA
JOB NO.	SJT1801P

SHEET NO. 9

RUNWAY 3 (ULTIMATE RUNWAY 4) OBSTRUCTION DATA TABLE

OBSTRUCTION INFORMATION					34:1 TERPS ILS APPROACH SURFACE (FAA ORDER 8260.3C, CHAPTER 10)				14 CFR PART 77 APPROACH SURFACE				RUNWAY 21 TERPS 40:1 DEPARTURE SURFACE (RUNWAY 3 END)				THRESHOLD SITING SURFACE (FAA ENGINEERING BRIEF #99, TABLE 3-2)				RECOMMENDED ACTION
					EXISTING CONDITIONS		ULTIMATE CONDITIONS (REMOVED ILS APPROACH)		EXISTING CONDITIONS (50:1 PRECISION INSTRUMENT APPROACH)		ULTIMATE CONDITIONS (34:1 NON-PRECISION INSTRUMENT APPROACH)		EXISTING CONDITIONS		ULTIMATE CONDITIONS (ULTIMATE RUNWAY 4 END)		EXISTING CONDITIONS (34:1, RUNWAY TYPE 5)		ULTIMATE CONDITIONS (20:1, RUNWAY TYPE 4)		
POINT NO.	LATITUDE	LONGITUDE	ELEVATION (FEET)	DESCRIPTION	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	
1870	N31° 20' 39.36"	W 100° 30' 28.93"	1967	UTILITY POLE	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	1958	9	N/A	N/A	N/A	N/A	LIGHT OR MARK
1871	N31° 20' 44.52"	W 100° 30' 26.08"	1953	UTILITY POLE	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	1945	8	N/A	N/A	N/A	N/A	LIGHT OR MARK
1885	N31° 20' 41.94"	W 100° 30' 27.50"	1959	UTILITY POLE	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	1951	7	N/A	N/A	N/A	N/A	LIGHT OR MARK
1891	N31° 20' 35.63"	W 100° 30' 13.85"	1949	UTILITY POLE	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	1943	6	N/A	N/A	N/A	N/A	LIGHT OR MARK
1970	N31° 20' 34.15"	W 100° 30' 16.95"	1952	UTILITY POLE	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	1950	2	N/A	N/A	N/A	N/A	LIGHT OR MARK

RUNWAY 18 OBSTRUCTION DATA TABLE

OBSTRUCTION INFORMATION					14 CFR PART 77 34:1 NON-PRECISION INSTRUMENT APPROACH SURFACE				RUNWAY 36 TERPS 40:1 DEPARTURE SURFACE (RUNWAY 18 END)				20:1 THRESHOLD SITING SURFACE (FAA ENGINEERING BRIEF #99, TABLE 3-2, RUNWAY TYPE 4)				RECOMMENDED ACTION
					EXISTING CONDITIONS		ULTIMATE CONDITIONS		EXISTING CONDITIONS		ULTIMATE CONDITIONS		EXISTING CONDITIONS		ULTIMATE CONDITIONS		
POINT NO.	LATITUDE	LONGITUDE	ELEVATION (FEET)	DESCRIPTION	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	
7377	N31° 22' 15.84"	W100° 29' 41.19"	1921	TREETOP	N/A	N/A	N/A	N/A	1921	1	N/A	N/A	N/A	N/A	N/A	N/A	TRIM OR REMOVE
7378	N31° 22' 16.78"	W100° 29' 54.96"	1919	TREETOP	N/A	N/A	N/A	N/A	1919	0	N/A	N/A	N/A	N/A	N/A	N/A	TRIM OR REMOVE

RUNWAY 36 OBSTRUCTION DATA TABLE

OBSTRUCTION INFORMATION					34:1 TERPS ILS APPROACH SURFACE (FAA ORDER 8260.3C, CHAPTER 10)				14 CFR PART 77 APPROACH SURFACE				RUNWAY 18 TERPS 40:1 DEPARTURE SURFACE (RUNWAY 36 END)				THRESHOLD SITING SURFACE (FAA ENGINEERING BRIEF #99, TABLE 3-2)				RECOMMENDED ACTION
					EXISTING CONDITIONS (ILS APPROACH DID NOT APPLY)		ULTIMATE CONDITIONS		EXISTING CONDITIONS (20:1 VISUAL APPROACH)		ULTIMATE CONDITIONS (50:1 PRECISION INSTRUMENT APPROACH)		EXISTING CONDITIONS		ULTIMATE CONDITIONS		EXISTING CONDITIONS (20:1, RUNWAY TYPE 3)		ULTIMATE CONDITIONS (34:1, RUNWAY TYPE 5)		
POINT NO.	LATITUDE	LONGITUDE	ELEVATION (FEET)	DESCRIPTION	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	
7379	N31° 20' 33.80"	W 100° 29' 55.44"	1974	UTILITY POLE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1994	20	N/A	N/A	-	-	N/A	N/A	LIGHT OR MARK
7380	N31° 20' 31.99"	W 100° 29' 58.48"	1973	UTILITY POLE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1988	14	N/A	N/A	-	-	N/A	N/A	LIGHT OR MARK
7381	N31° 20' 28.70"	W 100° 29' 58.40"	1975	UTILITY POLE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1983	8	N/A	N/A	-	-	N/A	N/A	LIGHT OR MARK
7382	N31° 20' 38.33"	W 100° 29' 57.19"	1950	UTILITY POLE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1958	8	N/A	N/A	-	-	N/A	N/A	LIGHT OR MARK
7383	N31° 20' 37.04"	W 100° 30' 10.93"	1952	UTILITY POLE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1955	3	N/A	N/A	-	-	N/A	N/A	LIGHT OR MARK
7384	N31° 20' 25.41"	W 100° 29' 58.32"	1976	UTILITY POLE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1977	1	N/A	N/A	-	-	N/A	N/A	LIGHT OR MARK
8408	N31° 20' 17.44"	W 100° 30' 13.87"	1979	UTILITY POLE	N/A	N/A	-	-	N/A	N/A	N/A	N/A	1932	47	N/A	N/A	1940	39	-	-	N/A	N/A	LIGHT OR MARK
8416	N31° 20' 15.42"	W 100° 30' 11.34"	1979	UTILITY POLE	N/A	N/A	1944	35	N/A	N/A	1935	43	N/A	N/A	1945	34	-	-	1961	18	LIGHT OR MARK
8423	N31° 20' 13.00"	W 100° 30' 05.22"	1979	UTILITY POLE	N/A	N/A	1949	30	N/A	N/A	1939	40	N/A	N/A	1949	30	-	-	1970	9	LIGHT OR MARK
8434	N31° 20' 12.61"	W 100° 30' 01.61"	1979	UTILITY POLE	N/A	N/A	-	-	N/A	N/A	1939	40	N/A	N/A	1949	29	-	-	N/A	N/A	LIGHT OR MARK
8437	N31° 20' 13.40"	W 100° 30' 08.83"	1978	UTILITY POLE	N/A	N/A	1949	30	N/A	N/A	1939	39	N/A	N/A	1949	29	-	-	1970	9	LIGHT OR MARK
8673	N31° 20' 10.23"	W 100° 30' 01.73"	1954	TREE	N/A	N/A	-	-	N/A	N/A	1944	11	N/A	N/A	N/A	N/A	-	-	N/A	N/A	TRIM OR REMOVE
13882	N31° 20' 10.61"	W 100 30' 01.92"	1954	TREE	N/A	N/A	-	-	N/A	N/A	1943	11	N/A	N/A	N/A	N/A	-	-	N/A	N/A	TRIM OR REMOVE

RUNWAY 21 (ULTIMATE RUNWAY 22) OBSTRUCTION DATA TABLE

OBSTRUCTION INFORMATION					EXISTING AND ULTIMATE 14 CFR PART 77 34:1 NON-PRECISION INSTRUMENT APPROACH SURFACE		EXISTING AND ULTIMATE RUNWAY 3 TERPS 40:1 DEPARTURE SURFACE (EXISTING RUNWAY 21 END) (ULTIMATE RUNWAY 22 END)		EXISTING AND ULTIMATE 20:1 THRESHOLD SITING SURFACE (FAA ENGINEERING BRIEF #99, TABLE 3-2, RUNWAY TYPE 4)		RECOMMENDED ACTION
POINT NO.	LATITUDE	LONGITUDE	ELEVATION (FEET)	DESCRIPTION	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	
1	N31° 21' 41.11"	W 100° 29' 05.14"	1909	TREETOP	1919	10	N/A	N/A	N/A	N/A	TRIM OR REMOVE
2	N31° 21' 41.68"	W 100° 29' 04.53"	1909	TREETOP	1917	8	N/A	N/A	N/A	N/A	TRIM OR REMOVE
3	N31° 21' 41.80"	W 100° 29' 04.17"	1909	TREETOP	1917	8	N/A	N/A	N/A	N/A	TRIM OR REMOVE
4	N31° 21' 40.99"	W 100° 29' 05.67"	1905	TREETOP	1912	7	N/A	N/A	N/A	N/A	TRIM OR REMOVE
5	N31° 21' 41.11"	W 100° 29' 05.52"	1905	TREETOP	1911	7	N/A	N/A	N/A	N/A	TRIM OR REMOVE
6	N31° 21' 42.01"	W 100° 29' 04.04"	1909	TREETOP	1915	6	N/A	N/A	N/A	N/A	TRIM OR REMOVE
10	N31° 21' 40.93"	W 100° 29' 05.81"	1901	TREETOP	1904	3	N/A	N/A	N/A	N/A	TRIM OR REMOVE
11	N31° 21' 40.32"	W 100° 29' 06.47"	1898	TREETOP	1902	3	N/A	N/A	N/A	N/A	TRIM OR REMOVE
15	N31° 21' 40.78"	W 100° 29' 05.92"	1900	TREETOP	1902	3	N/A	N/A	N/A	N/A	TRIM OR REMOVE
16	N31° 21' 41.23"	W 100° 29' 05.41"	1901	TREETOP	1903	2	N/A	N/A	N/A	N/A	TRIM OR REMOVE
20	N31° 21' 42.36"	W 100° 29' 03.41"	1906	TREETOP	1907	1	N/A	N/A	N/A	N/A	TRIM OR REMOVE
21	N31° 21' 42.10"	W 100° 29' 03.91"	1904	TREETOP	1905	1	N/A	N/A	N/A	N/A	TRIM OR REMOVE
24	N31° 21' 42.88"	W 100° 29' 02.74"	1907	TREETOP	1908	1	N/A	N/A	N/A	N/A	TRIM OR REMOVE
159	N31° 21' 39.08"	W 100° 29' 07.31"	1909	TREETOP	N/A	N/A	1922	13	N/A	N/A	TRIM OR REMOVE
160	N31° 21' 40.11"	W 100° 29' 06.03"	1913	TREETOP	N/A	N/A	1926	13	N/A	N/A	TRIM OR REMOVE
161	N31° 21' 40.57"	W 100° 29' 05.64"	1913	TREETOP	N/A	N/A	1925	12	N/A	N/A	TRIM OR REMOVE
162	N31° 21' 38.95"	W 100° 29' 07.56"	1907	TREETOP	N/A	N/A	1919	12	N/A	N/A	TRIM OR REMOVE
170	N31° 21' 40.83"	W 100° 29' 04.20"	1910	TREETOP	N/A	N/A	1915	6	N/A	N/A	TRIM OR REMOVE
175	N31° 21' 41.56"	W 100° 29' 03.67"	1911	TREETOP	N/A	N/A	1917	5	N/A	N/A	TRIM OR REMOVE
177	N31° 21' 39.56"	W 100° 29' 07.26"	1902	TREETOP	N/A	N/A	1906	5	N/A	N/A	TRIM OR REMOVE
181	N31° 21' 41.68"	W 100° 29' 04.53"	1909	TREETOP	N/A	N/A	1914	4	N/A	N/A	TRIM OR REMOVE
187	N31° 21' 40.99"	W 100° 29' 05.69"	1905	TREETOP	N/A	N/A	1908	3	N/A	N/A	TRIM OR REMOVE
188	N31° 21' 41.11"	W 100° 29' 05.52"	1905	TREETOP	N/A	N/A	1907	2	N/A	N/A	TRIM OR REMOVE
190	N31° 21' 41.85"	W 100° 29' 03.01"	1909	TREETOP	N/A	N/A	1912	2	N/A	N/A	TRIM OR REMOVE
192	N31° 21' 40.56"	W 100° 29' 04.49"	1905	TREETOP	N/A	N/A	1906	2	N/A	N/A	TRIM OR REMOVE
195	N31° 21' 38.46"	W 100° 29' 08.48"	1894	FENCE	N/A	N/A	1896	1	N/A	N/A	LIGHT OR MARK
196	N31° 21' 38.66"	W 100° 29' 08.26"	1894	FENCE	N/A	N/A	1894	0	N/A	N/A	LIGHT OR MARK
200	N31° 21' 42.20"	W 100° 29' 01.43"	1910	TREETOP	N/A	N/A	1910	0	N/A	N/A	TRIM OR REMOVE

NOTES:

1. REFER TO SHEETS 6 THROUGH 9 FOR OBJECT LOCATION.
2. A POSITIVE VALUE INDICATES THE AMOUNT OF PENETRATION ABOVE THE AIRSPACE SURFACE.
3. AS NOTED IN FAA ADVISORY CIRCULAR 150/5300-18C, *SURVEY AND DATA STANDARDS FOR SUBMISSION OF AERONAUTICAL DATA USING AIRPORTS GIS*, THE AIRPORT OPERATOR IS NOT REQUIRED TO PREVENT OR CLEAR PENETRATIONS TO THE PART 77, SUBPART C, IMAGINARY SURFACES WHEN THE FAA HAS DETERMINED THESE PENETRATIONS ARE NOT A HAZARD TO NAVIGATIONAL AIRSPACE.
4. AIRSPACE SURFACE AND OBSTRUCTION ELEVATIONS ARE SHOWN IN NAD83 AND NAVD88. ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL (MSL).
5. OBSTRUCTION DATA COORDINATES ARE BASED ON NAD83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT.

SAN ANGELO REGIONAL AIRPORT

SAN ANGELO REGIONAL AIRPORT
8618 TERMINAL CIRCLE
SAN ANGELO, TX 76904
PHONE NO. (325) 659-6409

centurion PLANNING AND DESIGN

CENTURION PLANNING AND DESIGN
69 N. CHADBOURNE STREET
SUITE 210.7
SAN ANGELO, TX 76903
PHONE NO. (325) 812-8430
FIRM NO. 19840

SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

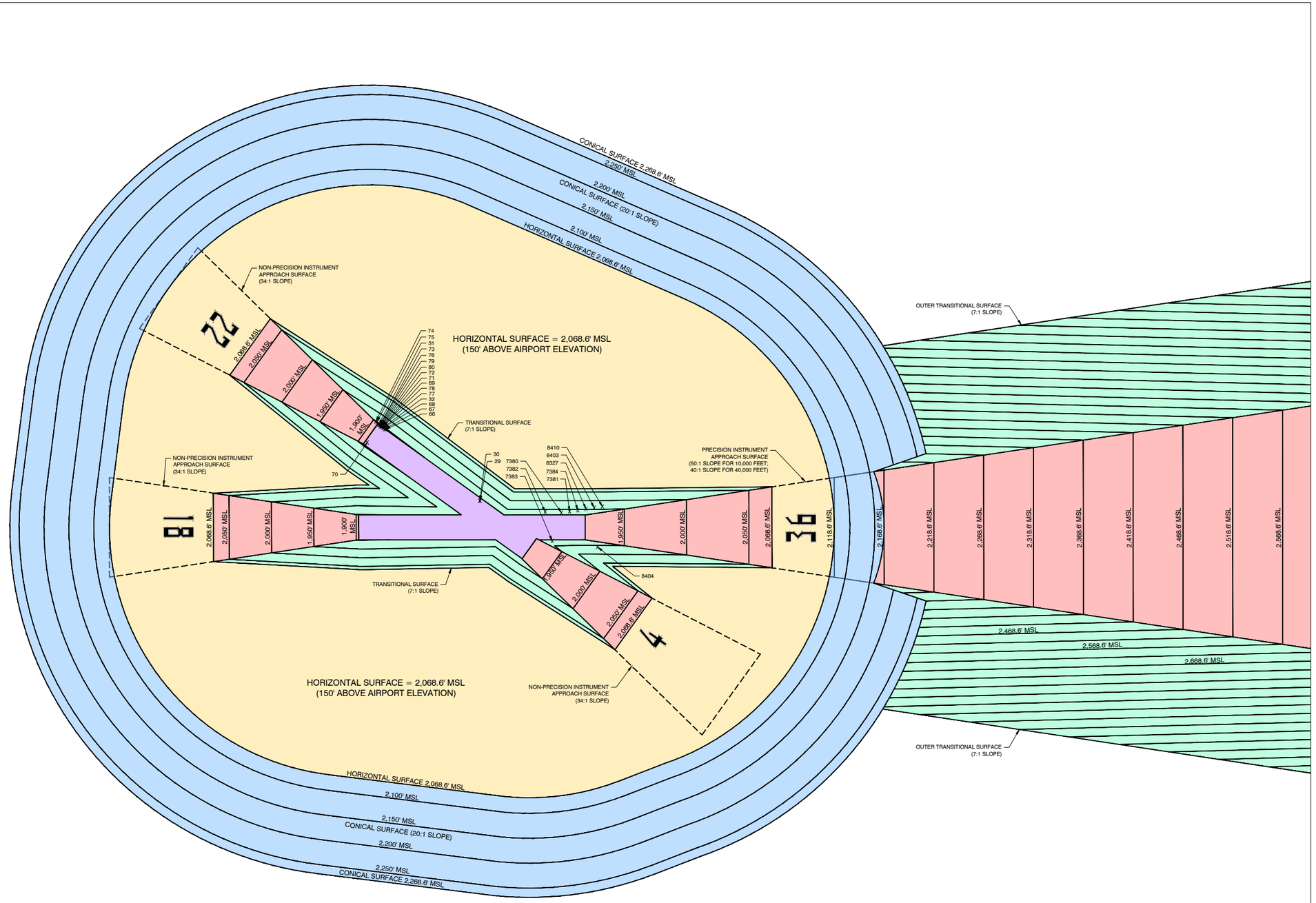
MARK	REVISION	DATE

DRAFT

OBSTRUCTION DATA TABLES

LATEST REVISION:	JULY 2020
DRAWN BY:	JA
REVIEWED BY:	DA
JOB NO.	SJT1801P

SHEET NO. 10



SOURCE: OBSTRUCTION ANALYSIS SURVEY, MARTINEZ GEOSPATIAL, APRIL 2019.

NOTES:

1. THIS SHEET ONLY IDENTIFIES OBSTRUCTIONS WITHIN THE 14 CFR PART 77 IMAGINARY SURFACES THAT PENETRATE 11 FEET OR GREATER, EXCEPT WHEN AN OBSTRUCTION IS WITHIN THE PRIMARY SURFACE.
2. THERE ARE NO OBSTRUCTION PENETRATIONS TO THE ULTIMATE HORIZONTAL AND CONICAL SURFACES.
3. REFER TO SHEET 12 FOR RUNWAY 36 PRECISION OUTER APPROACH SURFACE, OBSTRUCTION DATA TABLE, AND ADDITIONAL NOTES.
4. NAVD88 DATUM WAS USED FOR ALL VERTICAL ELEVATIONS AND NAD83 FOR ALL HORIZONTAL ELEVATIONS.
5. AIRPORT ZONING REGULATIONS - RUNWAY PROTECTION ZONES OUTSIDE OF PROPERTY BOUNDARIES IS PROTECTED BY SAN ANGELO-TOM GREEN COUNTY AIRPORT ZONING ORDINANCE: CHAPTER 12, *PLANNING AND DEVELOPMENT, EXHIBIT B - AIRPORT ZONING REGULATIONS.*

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FIRM NO. 19840

5° 15.36' E
TRUE
5° 7' E CHANGING BY 0° 7' W PER YEAR
0' 2000' 4000'
GRAPHIC SCALE IN FEET

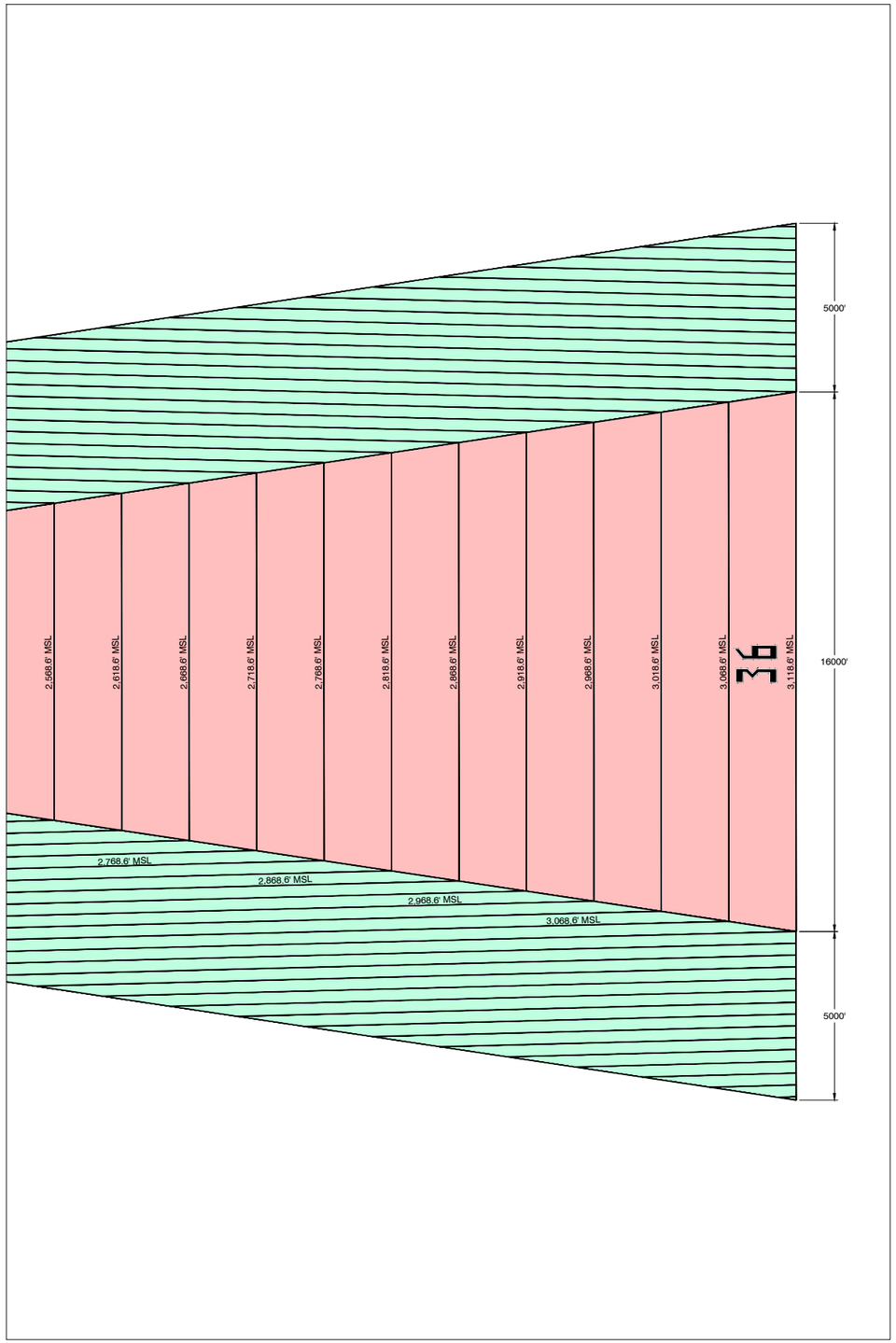
SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

MARK	REVISION	DATE
	DRAFT	

PART 77 AIRPORT AIRSPACE DRAWING

LATEST REVISION:	JULY 2020
DRAWN BY:	JA
REVIEWED BY:	DA
JOB NO.	SJT1801P

SHEET NO. 11



14 CFR PART 77 OBSTRUCTION DATA TABLE

OBSTRUCTION INFORMATION					EXISTING CONDITIONS			ULTIMATE CONDITIONS			RECOMMENDED ACTION
POINT NO.	LATITUDE	LONGITUDE	ELEVATION (FEET)	DESCRIPTION	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE PENETRATED	SURFACE ELEVATION (FEET)	SURFACE PENETRATION (FEET)	SURFACE PENETRATED	
29	N31° 21' 03.44"	W100° 29' 48.28"	1944	AIRFIELD EQUIPMENT	1915	29	PRIMARY	N/A	N/A	N/A	FIXED BY FUNCTION[1]
30	N31° 21' 03.56"	W100° 29' 48.15"	1924	BUILDING	1915	9	PRIMARY	N/A	N/A	N/A	FIXED BY FUNCTION[1]
31	N31° 21' 39.56"	W100° 29' 07.26"	1902	TREE	1893	9	PRIMARY	1893	9	PRIMARY	REMOVE
32	N31° 21' 38.03"	W100° 29' 08.91"	1902	TREE	1893	9	PRIMARY	1893	9	PRIMARY	REMOVE
66	N31° 21' 37.19"	W100° 29' 09.83"	1897	FENCE	1894	3	PRIMARY	1894	3	PRIMARY	REMOVE
67	N31° 21' 37.42"	W100° 29' 09.61"	1896	FENCE	1894	2	PRIMARY	1894	2	PRIMARY	REMOVE
68	N31° 21' 37.92"	W100° 29' 09.06"	1895	FENCE	1894	2	PRIMARY	1894	2	PRIMARY	REMOVE
69	N31° 21' 38.46"	W100° 29' 08.48"	1894	FENCE	1893	1	PRIMARY	1893	1	PRIMARY	REMOVE
70	N31° 21' 44.97"	W100° 29' 14.80"	1894	TREE	1893	1	PRIMARY	1893	1	PRIMARY	REMOVE
71	N31° 21' 38.66"	W100° 29' 08.26"	1894	FENCE	1893	1	PRIMARY	1893	1	PRIMARY	REMOVE
72	N31° 21' 38.82"	W100° 29' 08.09"	1894	FENCE	1893	1	PRIMARY	1893	1	PRIMARY	REMOVE
73	N31° 21' 39.20"	W100° 29' 07.68"	1893	FENCE	1893	0	PRIMARY	1893	0	PRIMARY	REMOVE
74	N31° 21' 40.57"	W100° 29' 05.64"	1913	TREE	1898	15	TRANSITIONAL	N/A	N/A	N/A	MONITOR GROWTH
75	N31° 21' 40.11"	W100° 29' 06.03"	1913	TREE	1899	14	TRANSITIONAL	N/A	N/A	N/A	MONITOR GROWTH
76	N31° 21' 39.08"	W100° 29' 07.31"	1909	TREE	1897	12	TRANSITIONAL	N/A	N/A	N/A	MONITOR GROWTH
77	N31° 21' 38.02"	W100° 29' 08.14"	1912	TREE	1900	12	TRANSITIONAL	N/A	N/A	N/A	MONITOR GROWTH
78	N31° 21' 38.20"	W100° 29' 08.08"	1910	TREE	1899	11	TRANSITIONAL	N/A	N/A	N/A	MONITOR GROWTH
79	N31° 21' 38.95"	W100° 29' 07.56"	1907	TREE	1896	11	TRANSITIONAL	N/A	N/A	N/A	MONITOR GROWTH
80	N31° 21' 38.64"	W100° 29' 07.57"	1910	TREE	1899	11	TRANSITIONAL	N/A	N/A	N/A	MONITOR GROWTH
7379	N31° 20' 33.89"	W100° 29' 55.44"	1974	UTILITY POLE	N/A	N/A	N/A	1965	8	TRANSITIONAL	LIGHT OR MARK
7380	N31° 20' 31.99"	W100° 29' 58.48"	1973	UTILITY POLE	N/A	N/A	N/A	1931	42	TRANSITIONAL	LIGHT OR MARK
7381	N31° 20' 28.71"	W100° 29' 58.40"	1975	UTILITY POLE	N/A	N/A	N/A	1938	37	TRANSITIONAL	LIGHT OR MARK
7382	N31° 20' 38.33"	W100° 29' 57.19"	1950	UTILITY POLE	N/A	N/A	N/A	1936	15	TRANSITIONAL	LIGHT OR MARK
7383	N31° 20' 37.04"	W100° 30' 10.93"	1952	UTILITY POLE	N/A	N/A	N/A	1925	27	TRANSITIONAL	LIGHT OR MARK
7384	N31° 20' 25.41"	W100° 29' 58.32"	1976	UTILITY POLE	N/A	N/A	N/A	1946	30	TRANSITIONAL	LIGHT OR MARK
8327	N31° 20' 22.11"	W100° 29' 58.24"	1977	UTILITY POLE	N/A	N/A	N/A	1952	24	TRANSITIONAL	LIGHT OR MARK
8403	N31° 20' 18.81"	W100° 29' 58.16"	1978	UTILITY POLE	N/A	N/A	N/A	1959	18	TRANSITIONAL	LIGHT OR MARK
8404	N31° 20' 19.47"	W100° 30' 16.38"	1980	UTILITY POLE	N/A	N/A	N/A	1959	21	TRANSITIONAL	LIGHT OR MARK
8410	N31° 20' 15.51"	W100° 29' 58.08"	1978	UTILITY POLE	N/A	N/A	N/A	1966	12	TRANSITIONAL	LIGHT OR MARK

NOTES:

1. THIS OBJECT IS LOCATED WITHIN THE EXISTING 14 CFR PART 77 PRIMARY SURFACE AND IS FIXED BY FUNCTION, HOWEVER WILL BE REMOVED AND RELOCATED DURING THE REMOVAL OF THE ILS APPROACH TO EXISTING RUNWAY 3.
2. TREE LOCATED WITHIN THE 14 CFR PART 77 TRANSITIONAL SURFACES ARE RECOMMENDED TO "MONITOR GROWTH" UNLESS THE FAA DETERMINES THE TREE TO BE A HAZARD TO NAVIGATIONAL AIRSPACE.
3. ANY UTILITY POLE THAT PENETRATES THE 14 CFR PART 77 TRANSITIONAL SURFACES SHALL BE EQUIPPED WITH AN OBSTRUCTION LIGHT IF SUCH LIGHT DOES NOT ALREADY EXIST.

SAN ANGELO REGIONAL AIRPORT

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PHONE NO. (325) 659-6409

centurion PLANNING AND DESIGN

CENTURION PLANNING AND DESIGN
69 N. CHADBOURNE STREET
SUITE 210.7
SAN ANGELO, TX 76903
PHONE NO. (325) 812-8430
FIRM NO. 19840

5° 15.36' E
TRUE
5° 7' E CHANGING BY 0° 7' W PER YEAR
0' 2000' 4000'
GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

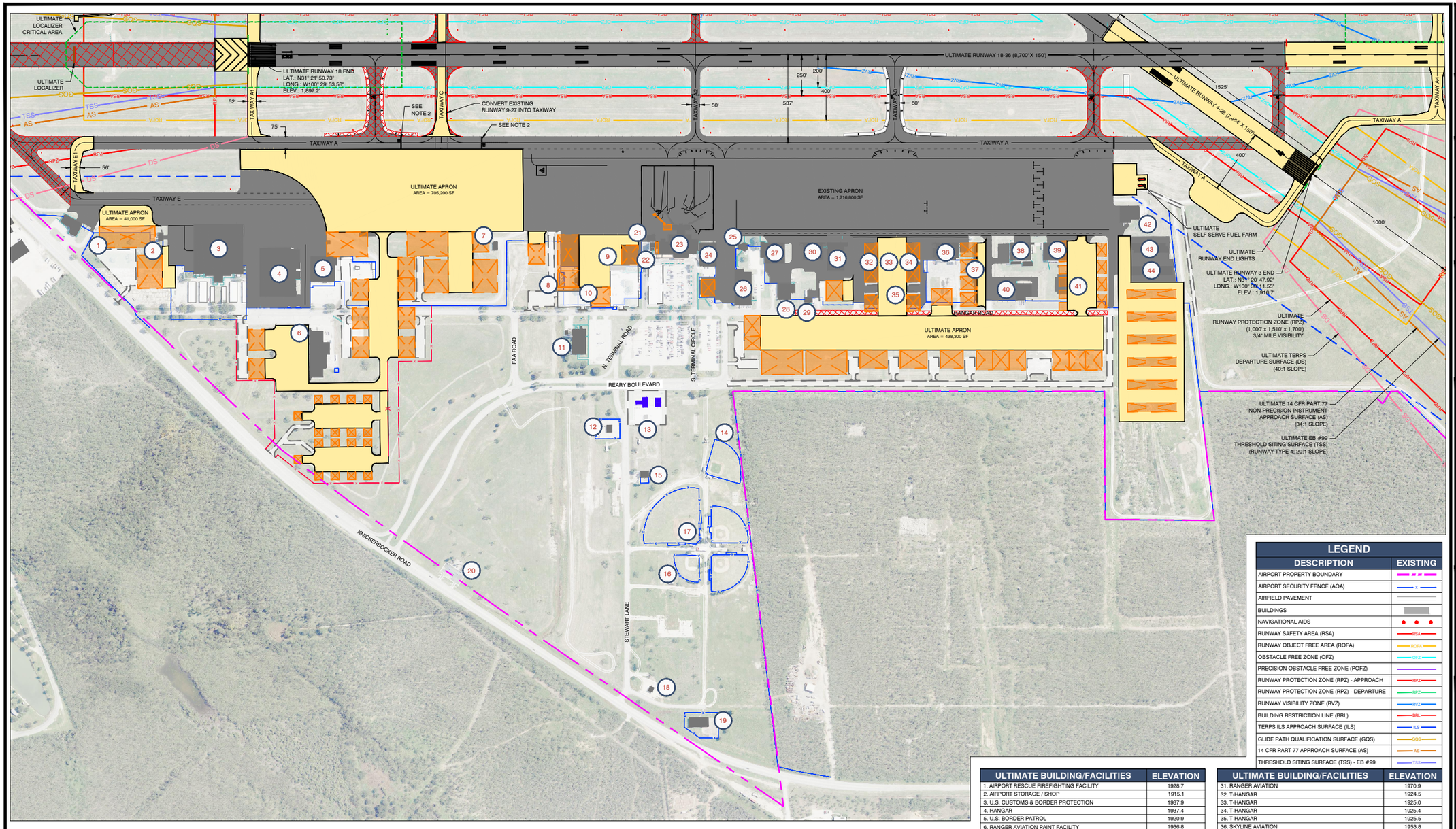
MARK	REVISION	DATE

DRAFT

PART 77 AIRPORT AIRSPACE DRAWING - RUNWAY 36 PRECISION APPROACH

LATEST REVISION:	JULY 2020
DRAWN BY:	JA
REVIEWED BY:	DA
JOB NO.	SJT1801P

SHEET NO. 12



LEGEND

DESCRIPTION	EXISTING
AIRPORT PROPERTY BOUNDARY	
AIRPORT SECURITY FENCE (AOA)	
AIRFIELD PAVEMENT	
BUILDINGS	
NAVIGATIONAL AIDS	
RUNWAY SAFETY AREA (RSA)	
RUNWAY OBJECT FREE AREA (ROFA)	
OBSTACLE FREE ZONE (OFZ)	
PRECISION OBSTACLE FREE ZONE (POFZ)	
RUNWAY PROTECTION ZONE (RPZ) - APPROACH	
RUNWAY PROTECTION ZONE (RPZ) - DEPARTURE	
RUNWAY VISIBILITY ZONE (RVZ)	
BUILDING RESTRICTION LINE (BRL)	
TERPS ILS APPROACH SURFACE (ILS)	
GLIDE PATH QUALIFICATION SURFACE (GQS)	
14 CFR PART 77 APPROACH SURFACE (AS)	
THRESHOLD SITING SURFACE (TSS) - EB #99	

ULTIMATE BUILDING/FACILITIES	ELEVATION
1. AIRPORT RESCUE FIREFIGHTING FACILITY	1928.7
2. AIRPORT STORAGE / SHOP	1915.1
3. U.S. CUSTOMS & BORDER PROTECTION	1937.9
4. HANGAR	1937.4
5. U.S. BORDER PATROL	1920.9
6. RANGER AVIATION PAINT FACILITY	1936.8
7. AIRPORT LIGHTING VAULT	1915.7
8. FUEL FARM	1922.2
9. HANGAR	1947.3
10. OFFICE	1919.6
11. COSA EMERGENCY OPERATIONS CENTER	1938.1
12. HERTZ RENT-A-CAR	1916.4
13. AVIS RENT-A-CAR	1917.7
14. WATER TOWER	1920.8
15. TSA OFFICE	1914.7
16. SAN ANGELO AM RADIO CLUB	1916.7
17. WESTERN LITTLE LEAGUE	1919.2
18. CITY OF SAN ANGELO FUELING DEPOT	1920.9
19. WATER TREATMENT PLANT	1934.3
20. VIETNAM VETERANS MEMORIAL	-
21. MAINTENANCE / STORAGE	1925.1
22. AIR TRAFFIC CONTROL TOWER (1982.6) AIRPORT BEACON	1988.4
23. TERMINAL BUILDING	1940.8
24. RANGER AVIATION HANGAR	1932.7
25. WEST TEXAS WEATHER MODIFICATION ASSOCIATION	1927.3
26. FEDERAL EXPRESS (FEDEX)	1938.2
27. RANGER AVIATION	1938.2
28. POOR BOY AVIONICS	1926.1
29. FIRST FLIGHT	1917.2
30. RANGER AVIATION	1949.5

ULTIMATE BUILDING/FACILITIES	ELEVATION
31. RANGER AVIATION	1970.9
32. T-HANGAR	1924.5
33. T-HANGAR	1925.0
34. T-HANGAR	1925.4
35. T-HANGAR	1925.5
36. SKYLINE AVIATION	1953.8
37. T-HANGAR	1929.3
38. L-3 VERTEX AEROSPACE	1936.7
39. RANGER AVIATION PAINT FACILITY	1948.8
40. PRIVATE HANGAR	1933.2
41. FUEL FARM	1923.7
42. PRECISION AIRCRAFT SERVICES	1935.8
43. T-HANGAR	1929.9
44. T-HANGAR	1926.2
45. REMOTE TRANSMITTER / RECEIVER (RTR-OL)	1940.8
46. AIRPORT STORAGE	1918.8
47. AIRPORT STORAGE	1928.2
48. AIRPORT STORAGE	1931.1
49. SEWER TREATMENT PLANT	1943.2
50. ASR-9 (OL) TOWER (ASR EQUIPMENT BUILDING 1933.1)	2008.2
51. NEXRAD RADAR TOWER	2009.3
52. NATIONAL WEATHER SERVICE BUILDING	1915.9
53. AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)	1936.6
54. MAINTENANCE / STORAGE	1927.9
55. ANEOMETER (AMOM-OL)	1947.6
56. TRANSMISSOMETER (TMOM-OL)	1949.0
57. GLIDE SLOPE (OL)	1951.9
58. SEGMENTED CIRCLE/LTD WINDCONE	1931.9
59. LOCALIZER ANTENNA (OL)	1884.5
60. LOC-DME (OL)	1902.0

NOTES:

1. REFER TO SHEETS 4 AND 5 FOR EXISTING AND ULTIMATE AIRPORT LAYOUT PLANS.
2. REMOVAL OF THE RUNWAY HOLD POSITION MARKINGS WILL BE COMPLETED AS PART OF THE RUNWAY 9-27 CONVERSION TO A TAXIWAY.

SAN ANGELO REGIONAL AIRPORT

SAN ANGELO REGIONAL AIRPORT
8618 TERMINAL CIRCLE
SAN ANGELO, TX 76904
PHONE NO. (325) 659-6409

centurion PLANNING AND DESIGN

CENTURION PLANNING AND DESIGN
69 N. CHADBOURNE STREET
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SAN ANGELO, TX 76903
PHONE NO. (325) 812-8430
FIRM NO. 19840

SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

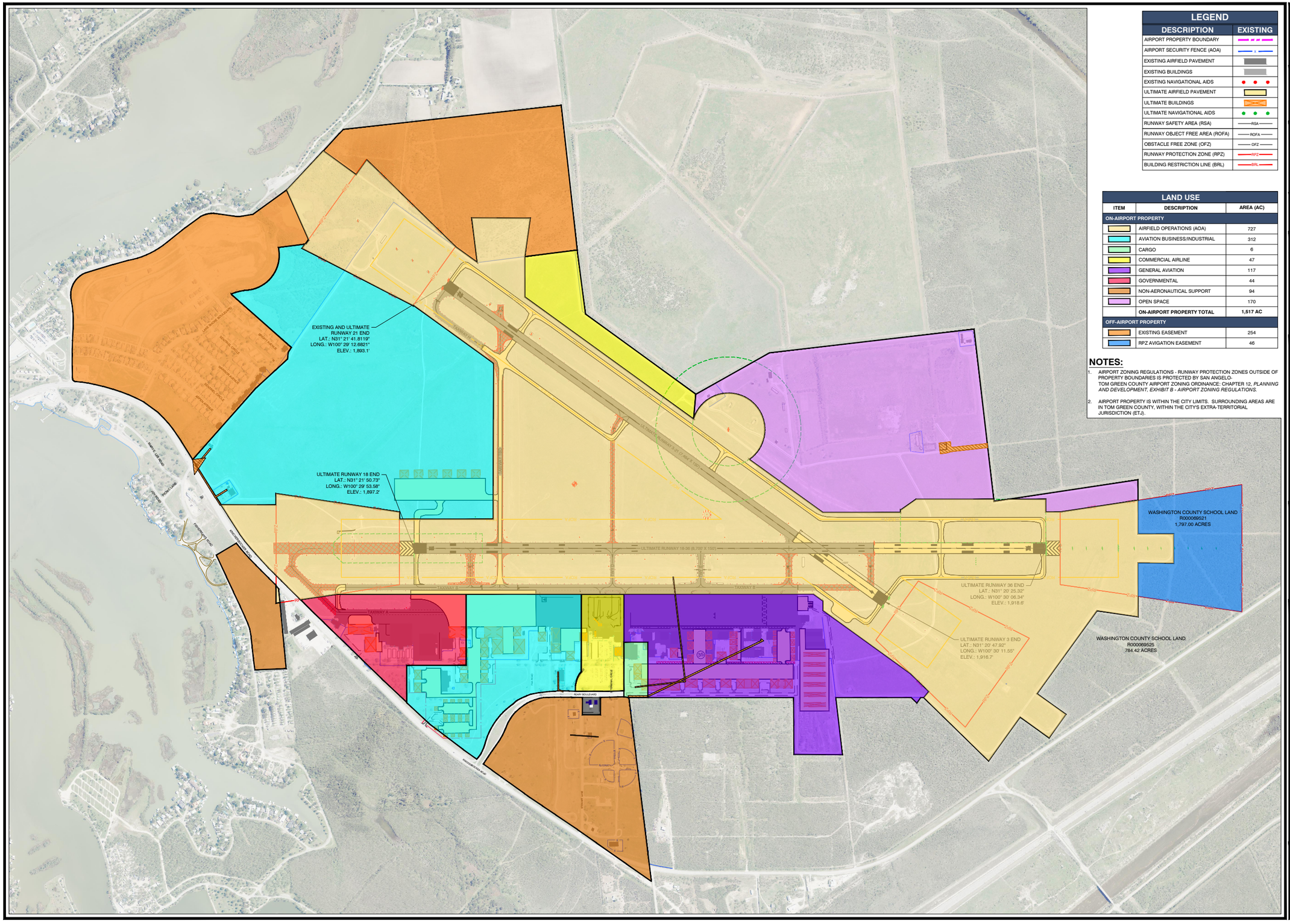
MARK	REVISION	DATE

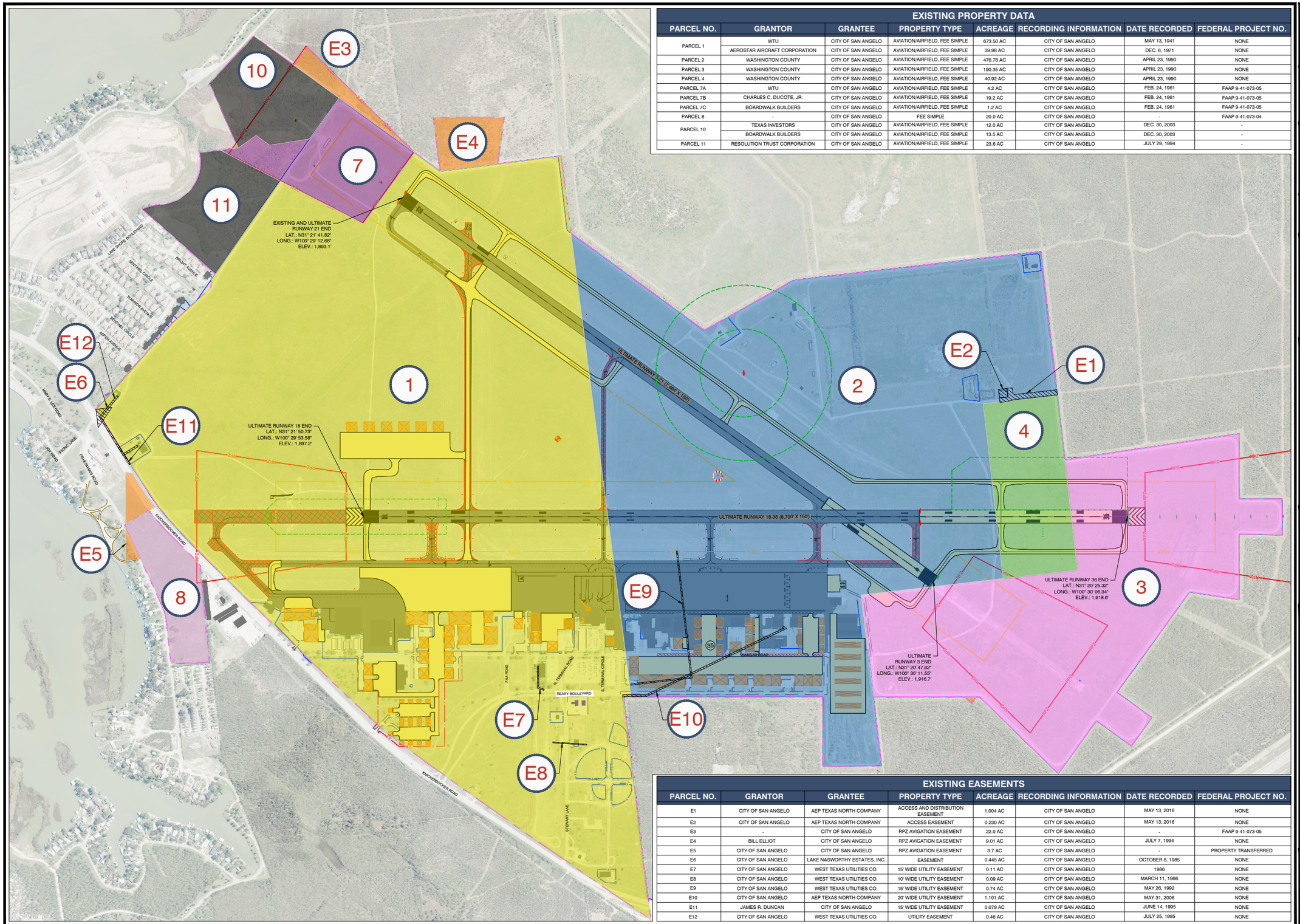
DRAFT

TERMINAL AREA DRAWING

LATEST REVISION:	JULY 2020
DRAWN BY:	JA
REVIEWED BY:	DA
JOB NO.	SJT1801P

SHEET NO. 13


EXISTING AND ULTIMATE
RUNWAY 21 END
LAT.: N31° 21' 41.811'
LONG.: W100° 29' 12.6821"
ELEV.: 1,893.1'
ULTIMATE RUNWAY 18 END
LAT.: N31° 21' 50.73'
LONG.: W100° 29' 53.58"
ELEV.: 1,897.2'
ULTIMATE RUNWAY 36 END
LAT.: N31° 20' 25.32"
LONG.: W100° 30' 06.34"
ELEV.: 1,918.6'
ULTIMATE RUNWAY 3 END
LAT.: N31° 20' 47.92"
LONG.: W100° 30' 11.55"
ELEV.: 1,916.7'
WASHINGTON COUNTY SCHOOL LAND
R000069521
1,797.00 ACRES
WASHINGTON COUNTY SCHOOL LAND
R000069525
784.42 ACRES
ULTIMATE RUNWAY 18-36 (8,700' X 150')
TAXIWAY A
TAXIWAY B
TAXIWAY C
TAXIWAY D
TAXIWAY E
TAXIWAY F
TAXIWAY G
TAXIWAY H
RUNWAY 21-3 (7,018' X 150')
RUNWAY 18-36 (8,700' X 150')
RUNWAY 3-21 (7,018' X 150')
MARY LEE ROAD
PARKWAY ROAD
ROCKDALE ROAD
AVIATION DRIVE
AIRPORT DRIVE
RUNWAY CIRCLE
TERMINAL CIRCLE
REARY BOULEVARD
AIRPORT LANE
OAK ROAD
LAKE SHORE BOULEVARD
SUNRISE CIRCLE
MEADOW AVENUE
SUNSET AVENUE
SUNSET CIRCLE
SUNRISE AVENUE
SUNRISE CIRCL



EXISTING PROPERTY DATA

PARCEL NO.	GRANTOR	GRANTEE	PROPERTY TYPE	ACREAGE	RECORDING INFORMATION	DATE RECORDED	FEDERAL PROJECT NO.
PARCEL 1	WTU	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	673.50 AC	CITY OF SAN ANGELO	MAY 13, 1941	NONE
	AEROSTAR AIRCRAFT CORPORATION	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	39.98 AC	CITY OF SAN ANGELO	DEC. 6, 1971	NONE
PARCEL 2	WASHINGTON COUNTY	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	476.78 AC	CITY OF SAN ANGELO	APRIL 23, 1990	NONE
PARCEL 3	WASHINGTON COUNTY	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	190.35 AC	CITY OF SAN ANGELO	APRIL 23, 1990	NONE
PARCEL 4	WASHINGTON COUNTY	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	40.92 AC	CITY OF SAN ANGELO	APRIL 23, 1990	NONE
PARCEL 7A	WTU	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	4.2 AC	CITY OF SAN ANGELO	FEB. 24, 1961	FAAP 9-41-073-05
PARCEL 7B	CHARLES C. DUCOTE, JR.	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	19.2 AC	CITY OF SAN ANGELO	FEB. 24, 1961	FAAP 9-41-073-05
PARCEL 7C	BOARDWALK BUILDERS	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	1.2 AC	CITY OF SAN ANGELO	FEB. 24, 1961	FAAP 9-41-073-05
PARCEL 8	-	CITY OF SAN ANGELO	FEE SIMPLE	20.0 AC	CITY OF SAN ANGELO	-	FAAP 9-41-073-04
PARCEL 10	TEXAS INVESTORS	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	12.0 AC	CITY OF SAN ANGELO	DEC. 30, 2003	-
	BOARDWALK BUILDERS	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	13.5 AC	CITY OF SAN ANGELO	DEC. 30, 2003	-
PARCEL 11	RESOLUTION TRUST CORPORATION	CITY OF SAN ANGELO	AVIATION/AIRFIELD, FEE SIMPLE	23.6 AC	CITY OF SAN ANGELO	JULY 29, 1994	-

EXISTING EASEMENTS

PARCEL NO.	GRANTOR	GRANTEE	PROPERTY TYPE	ACREAGE	RECORDING INFORMATION	DATE RECORDED	FEDERAL PROJECT NO.
E1	CITY OF SAN ANGELO	AEP TEXAS NORTH COMPANY	ACCESS AND DISTRIBUTION EASEMENT	1.004 AC	CITY OF SAN ANGELO	MAY 13, 2016	NONE
E2	CITY OF SAN ANGELO	AEP TEXAS NORTH COMPANY	ACCESS EASEMENT	0.230 AC	CITY OF SAN ANGELO	MAY 13, 2016	NONE
E3	-	CITY OF SAN ANGELO	RPZ AVIGATION EASEMENT	22.0 AC	CITY OF SAN ANGELO	-	FAAP 9-41-073-05
E4	BILL ELLIOT	CITY OF SAN ANGELO	RPZ AVIGATION EASEMENT	9.01 AC	CITY OF SAN ANGELO	JULY 7, 1994	NONE
E5	CITY OF SAN ANGELO	CITY OF SAN ANGELO	RPZ AVIGATION EASEMENT	3.7 AC	CITY OF SAN ANGELO		PROPERTY TRANSFERRED
E6	CITY OF SAN ANGELO	LAKE NASWORTHY ESTATES, INC.	EASEMENT	0.445 AC	CITY OF SAN ANGELO	OCTOBER 8, 1985	NONE
E7	CITY OF SAN ANGELO	WEST TEXAS UTILITIES CO.	15' WIDE UTILITY EASEMENT	0.11 AC	CITY OF SAN ANGELO	1986	NONE
E8	CITY OF SAN ANGELO	WEST TEXAS UTILITIES CO.	10' WIDE UTILITY EASEMENT	0.09 AC	CITY OF SAN ANGELO	MARCH 11, 1986	NONE
E9	CITY OF SAN ANGELO	WEST TEXAS UTILITIES CO.	15' WIDE UTILITY EASEMENT	0.74 AC	CITY OF SAN ANGELO	MAY 26, 1992	NONE
E10	CITY OF SAN ANGELO	AEP TEXAS NORTH COMPANY	20' WIDE UTILITY EASEMENT	1.101 AC	CITY OF SAN ANGELO	MAY 31, 2006	NONE
E11	JAMES R. DUNCAN	CITY OF SAN ANGELO	15' WIDE UTILITY EASEMENT	0.079 AC	CITY OF SAN ANGELO	JUNE 14, 1995	NONE
E12	CITY OF SAN ANGELO	WEST TEXAS UTILITIES CO.	UTILITY EASEMENT	0.46 AC	CITY OF SAN ANGELO	JULY 25, 1995	NONE

SAN ANGELO REGIONAL AIRPORT
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CENTURION PLANNING AND DESIGN
69 N. CHADBOURNE STREET
SUITE 210.7
SAN ANGELO, TX 76903
PHONE NO. (325) 812-8430
FIRM NO. 19840

5° 15.36' E TRUE

5° 7' E CHANGING BY 0° 7' W PER YEAR

0' 500' 1000'

GRAPHIC SCALE IN FEET

SAN ANGELO REGIONAL AIRPORT/ MATHIS FIELD (SJT) SAN ANGELO, TEXAS

MARK	REVISION	DATE

DRAFT

AIRPORT PROPERTY MAP

LATEST REVISION:	JULY 2020
DRAWN BY:	JA
REVIEWED BY:	DA
JOB NO.	SJT1801P

SHEET NO. 15

August 18, 2020

What is an Airport Master Plan?

- 12-24 month planning process undertaken to plan for short, intermediate, and long-term airport facility needs
- Prepared in accordance with FAA and industry guidance materials
- Results in phased development plan as well as Capital Improvement Program
- Identifies projects eligible for federal airport funding assistance
- Four key milestones
  - Inventory and Forecasts
  - Facility Requirements and Alternatives
  - Recommended Development Concept
  - Preparation of Airport Layout Plan (ALP) for FAA review and approval

Stakeholder Outreach

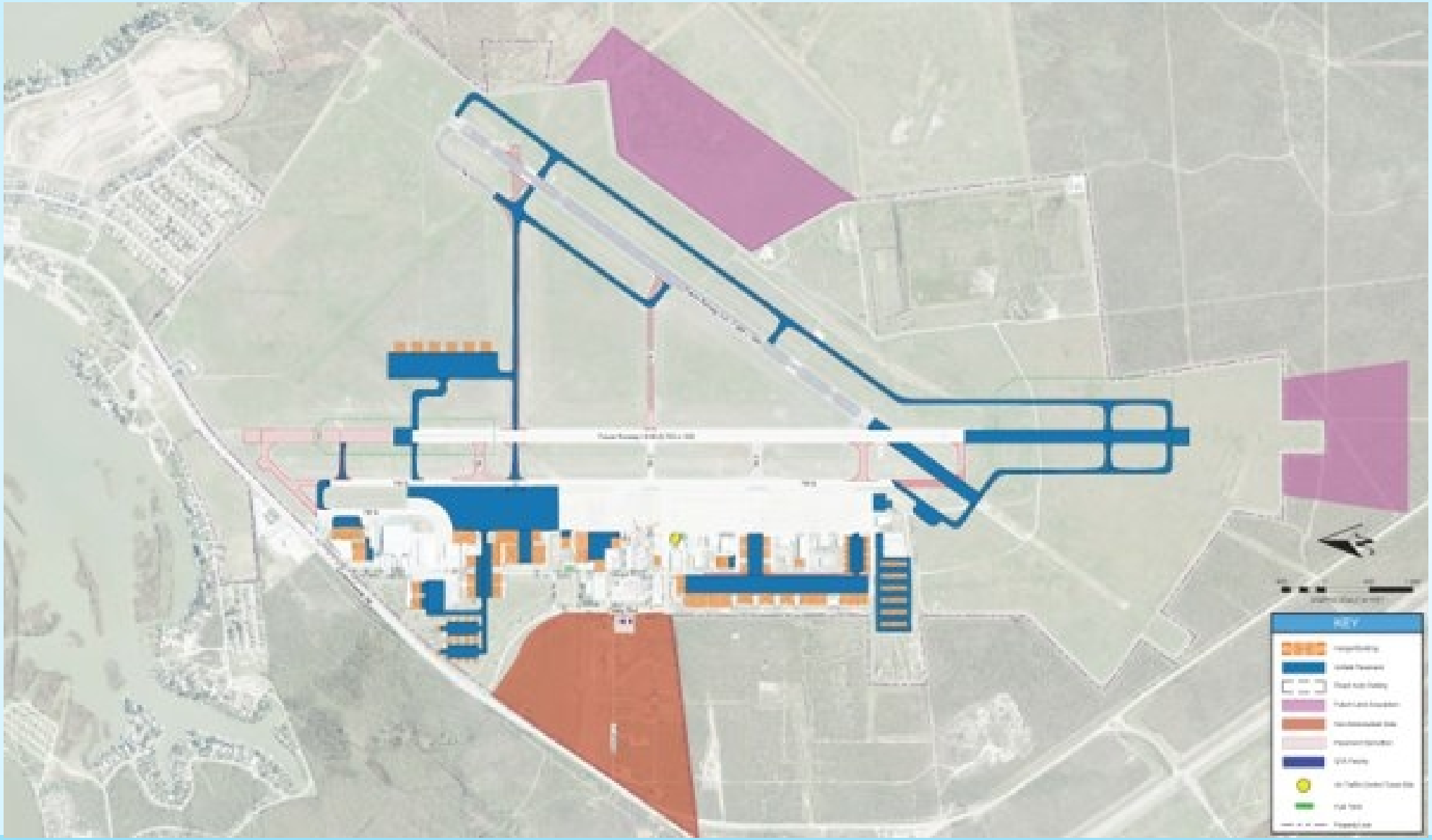
- Planning and Technical Advisory Committees
  - PAC and TAC met at key points in the planning process
    - Kick-off and SWOT meetings – November 8, 2018
    - Inventory and Forecasts – May 30, 2019
    - Facility Requirements and Alternatives – November 14, 2019
    - Recommended Development Concept/Financials – June 17, 2020

- Public Meetings
  - November 8, 2018
  - May 30, 2019
  - November 14, 2019

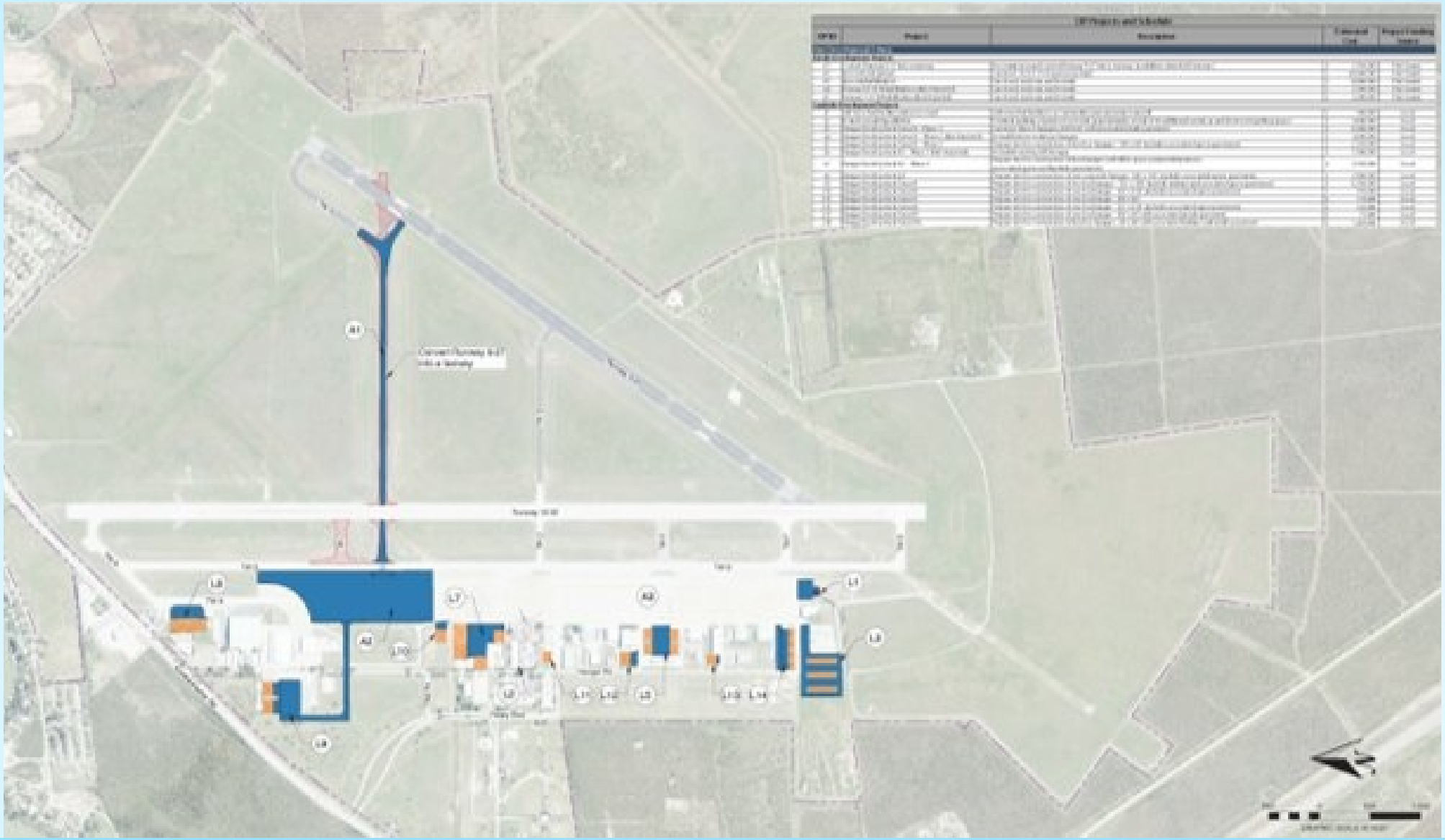
Findings and Recommendations

- Facility Requirements
  - Need for airfield improvements to meet FAA runway and taxiway design standards
  - Commercial service terminal may require modification to meet long-term demand. Need for new, larger facility is not anticipated without the development of additional demand (i.e., Interstate, new industry)
  - Need for additional hangar storage facilities for larger aircraft
  - Identified revenue enhancing opportunities

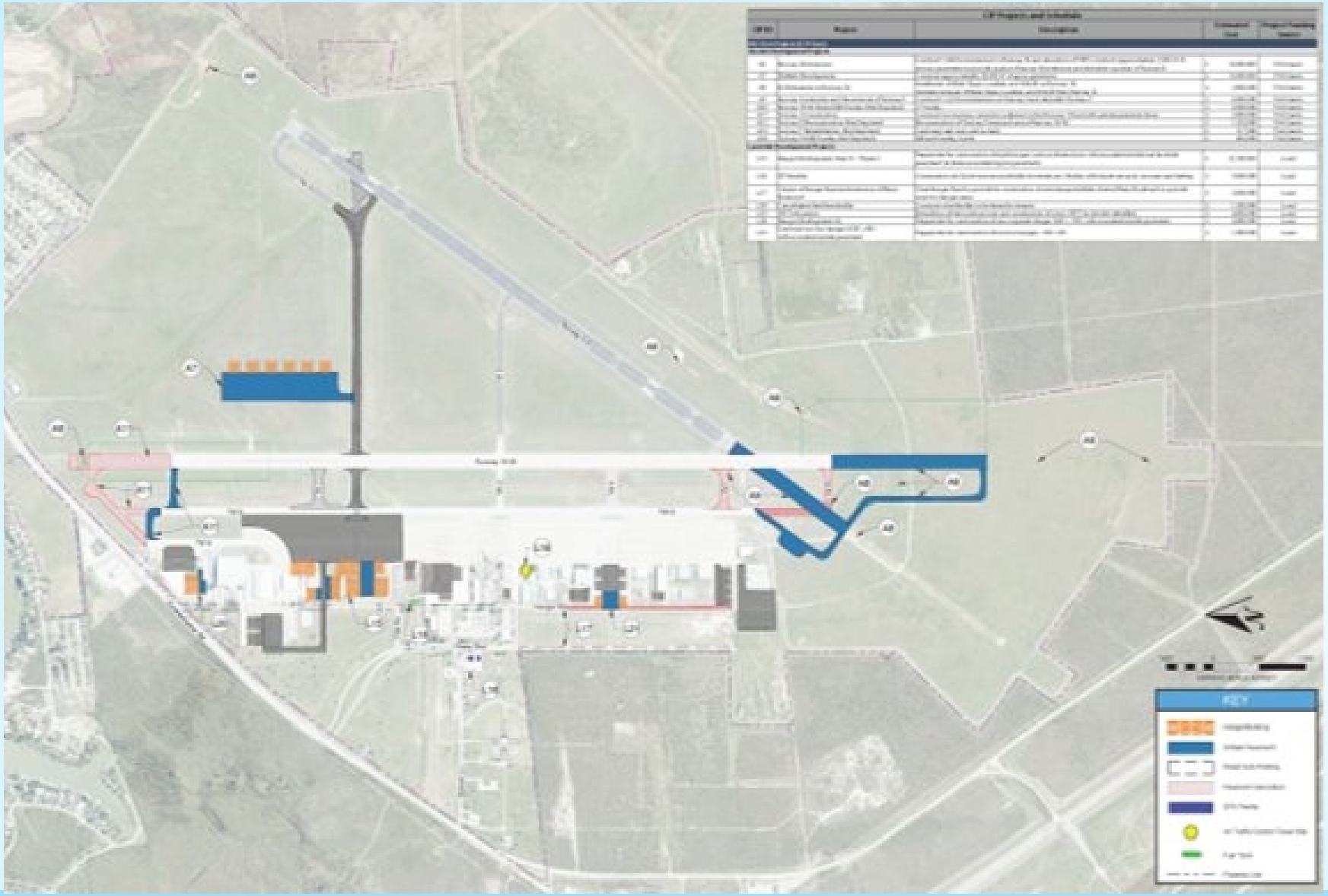
Recommended Development Concept



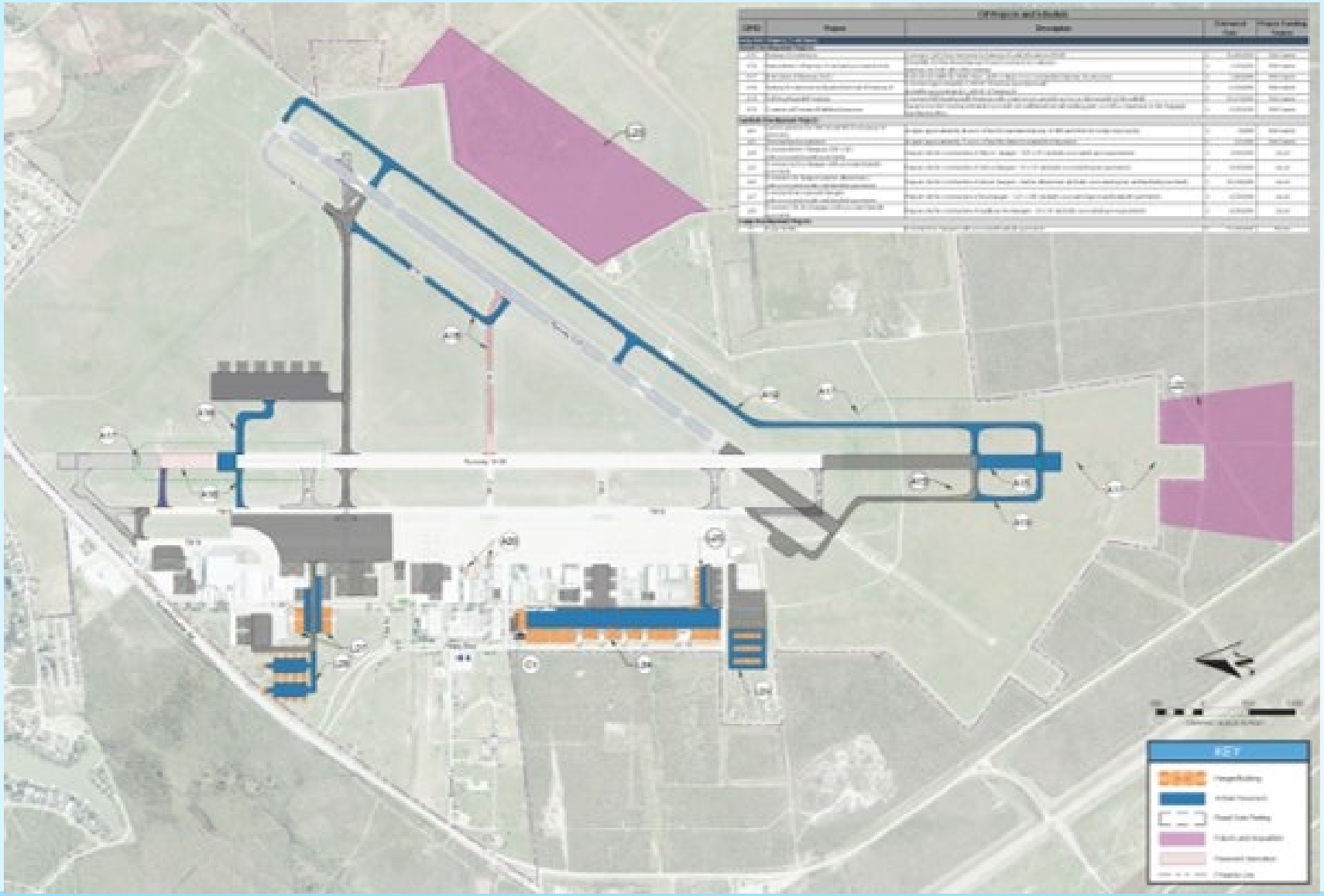
Short-term Development



Intermediate-term Development



Long-term Development



Existing Airport Revenue Sources

- Airlines – terminal leases, PFCs
- Restaurant/Concession Revenue
- Rental Car Revenue
- Building and Ground Lease Revenue
- Other – fuel flowage fees, landing fees, above wing services, aircraft storage, etc.

Potential Airport Revenue Sources

- New hangar/ground leases
- Auto parking *(not currently collected)*
- Rental Car Customer Facility Charge (CFC) (*not currently collected)*
- Shared facilities
  - Consolidated Fuel Farm *(not currently collected)*
  - GA Self Serve *(not currently collected)*
  - Consolidated Quick Turn Around Facility

Next Steps

- Submit ALP to FAA for review, comment, and approval

August 18, 2020

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Jon James, Director of Planning & Development Services, Planning and Development Services, x1180

Meeting Date: August 18, 2020

Item type: Regular Item

Caption:

Consider a resolution allowing the suspension of certain ordinance requirements regarding parking, right-of-way encroachments, and signage during the statewide issued disaster declaration related to the COVID-19 pandemic (Presentation made by Planning and Development Services Director Jon James)

Summary/History:

This item has been revised based on the discussion by City Council at the August 4th meeting. The provisions related to the public right-of-way have been removed, leaving items #2 and #3 below. Use of the right-of-way for outdoor dining, retail display, and similar uses will still require case-by-case approval by the City Council.

This revision also ties the resolution to COVID-related occupancy restrictions only. If occupancy restrictions end, but the pandemic disaster declaration is still in place, these suspensions would no longer apply. However, staff recommends allowing this suspension of ordinances to continue while a pandemic disaster declaration is still in place, even if occupancy restrictions are eliminated. This would allow continued flexibility for businesses that may want to continue limiting occupancy even if not legally required to do so.

With the strain that has been placed on many businesses due to the COVID-19 pandemic, many cities have relaxed ordinance requirements to help provide options for these businesses to accommodate these unique circumstances.

This proposed resolution does three things:
1. It suspends the ordinance requirements that prohibit encroachments within the pubic right-of-way to allow for business to have outdoor retail display or outdoor seating areas in the public right-of-way. An example of this would be sidewalk seating areas for downtown businesses.
2. It suspends ordinance requirements related to required parking in order to allow business to use required parking areas for other uses, such as outdoor seating areas, curbside delivery staging areas, etc.
3. It suspends requirements for certain temporary signs to allow businesses additional signage to advertise curbside pickup, delivery phone numbers, etc.

For the first two items, a business would still need to submit a plan to staff for review to ensure that the proposed use of the right-of-way or parking area does not affect public safety, but is a much simplified process and would not require approval by the City Council or a board or commission, but could be administratively approved by staff.

Financial Impact:

N/A

Other Information/Recommendation:

Attachments:

1.	Resolution - COVID Parking ROW Signs Suspension (2020) Aug 4 update	Resolution - COVID Parking ROW Signs Suspension (2020) Aug 4 update.docx
2.	Planning Council Presentation (2020-08-18) Ordinance Suspension	Planning Council Presentation (2020-08-18) Ordinance Suspension.pptx

Presentation:

Jon James

Approvals/Reviews:

Jon James	Created/Initiated
Jon James	Approved
Brandon Dyson	Approved
Jon James	Approved
Theresa James	Approved
Julia Antilley	Final Approval

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN ANGELO, TEXAS, TO ALLOW SUSPENSION OF CERTAIN ORDINANCE REQUIREMENTS REGARDING PARKING~~, RIGHT-OF-WAY ENCROACHMENTS,~~ AND SIGNAGE DURING THE STATEWIDE ISSUED DISASTER DECLARATION RELATED TO THE COVID-19 PANDEMIC; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE

WHEREAS, the Governor of the State of Texas has issued a Public Health Disaster Declaration related to COVID-19; and

WHEREAS, the Public Health Authority for Tom Green County, Texas has issued orders limiting business occupancies, among other restrictions; and

WHEREAS, businesses in the City have been negatively impacted by restrictions on their operations and the desire to follow social distancing guidelines related to COVID-19; and

WHEREAS, suspension of certain ordinance standards has the potential to assist businesses in accommodating their customers through other means not normally permitted.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SAN ANGELO, TEXAS THAT:

Section 1. The City suspends ~~the requirements of Section 8.05.004 of the City of San Angelo City Code prohibiting obstructions within the public right-of-way and~~ the requirements of Section 511 of the City of San Angelo Zoning Ordinance regarding the prohibition on using required parking spaces for other uses, such as outdoor seating areas, curbside delivery staging, outdoor retail display, and similar uses for those business impacted by occupancy restrictions, indoor seating limitations, or similar hardships related to COVID-19. However, a business proposing to take advantage of this provision, must submit a layout plan showing their proposed layout in order for City staff to ensure adequate health and safety, including safety for pedestrians and vehicles, adequate access for emergency vehicles, compliance with applicable accessibility standards, adequate parking for the reduced occupancy, and compliance with all health code requirements and COVID-19 guidelines.

Section 2. The City suspends the requirements of Section 12.04.004 of the City of San Angelo Sign Ordinance that requires permits for and places limits on certain temporary signs, such as signs directing people for curbside pickup, phone numbers for placing orders, directions for online ordering, and similar signage related to hardships created by the current unique circumstances. However, businesses must still place these signs so as not to create traffic hazards or visibility issues. In addition, in order to avoid excessive signage, only the minimum number of signs to adequately provide the necessary information are allowed. Sign permits are still required for all permanent signs and this is not intended to allow extra general advertising signage beyond what the sign ordinance authorizes, but only those additional signs

necessary to address unique needs related to COVID-19 limitations.

Section 3. Interpretations of the applicability of these suspensions and approval of required layout plans shall be made by the Planning Director, in consultation with relevant staff from other departments or divisions, such as Permits, Planning, Public Works, Health, Fire, and Police.

Section 4. This resolution shall be in effect until such time as all orders that limit occupancy of retail, restaurant, or other establishments issued by the State of Texas, City of San Angelo, or Tom Green County Health Authority~~, and the Governor's disaster declaration~~, have expired or been revoked and are no longer in place. Upon expiration or revocation, all sites having utilized these provisions shall either return to compliance with normal ordinance standards or properly permit any such changes.

Section 5. The terms and provisions of this Resolution shall be deemed to be severable in that if any portion of this Resolution shall be declared to be invalid, the same shall not affect the validity of the other provisions of this Resolution.

Section 6. This Resolution shall be effective from and after the date of adoption.

ADOPTED on this 18th day of August, 2020.

THE CITY OF SAN ANGELO, TEXAS:

_____

Brenda Gunter, Mayor

ATTEST:

_____

Julia Antilley, City Clerk

APPROVED AS TO FORM:

_____

Theresa James, City Attorney

City Council

August 18, 2020

COVID-19 Ordinance Suspensions

- Update based on direction from City Council at August 4th meeting
- Keeps suspension related to:
  - private parking lots
  - signage
- Remove suspension related to:
  - public right-of-way (streets and sidewalks)

COVID-19 Ordinance Suspensions

- Removes requirement for City Council approval
- Submitted plans, as well as compliance issues, will be reviewed and approved by staff
- Effective as long as occupancy limits ~~or disaster declaration~~ is in place.

City Council

August 18, 2020

COVID-19 Ordinance Suspensions

1. Eliminates the prohibition on obstructions within the right-of-way without City Council approval.

- Allows administrative approval by staff of proposed layout
- Will still ensure ADA accessibility, public safety access, etc.
- Review by all relevant departments

COVID-19 Ordinance Suspensions

2. Eliminates the prohibition on using required parking spaces for other uses.

- Allows administrative approval by staff of proposed layout
- Will still ensure ADA accessibility, public safety access, etc.
- Review by all relevant departments

COVID-19 Ordinance Suspensions

3. Allows additional temporary signage without sign permits.

- Not for extra general signage, but must be specific to COVID-related signage (curbside pickup, delivery options, etc.)
- Signs cannot create traffic visibility issues

City Council

August 18, 2020

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Jeff Fisher, Sr. Planner, Planning and Development Services, 325.657.4210

Meeting Date: August 18, 2020

Item type: Regular Item

Caption:

First reading and public hearing of an ordinance providing for the abandonment of approximately 0.688 acres (60' x 500') of S. Marie St., being an unpaved, north-south portion of street right-of-way, located southeast of the intersection of S. Bell St. and Roosevelt St. (Presentation made by Planning & Development Services Director Jon James)

Summary/History:

The applicant intends to acquire the the portion of street right-of-way for additional land for future development. The applicant owns the property to the east, addressed as 1619 Roosevelt Street, and obtained a rezoning approval from City Council on June 5, 2018 for this property, changing the zoning from Single-Family Residential (RS-1) to General Commercial (CG).

City Staff circulated the application to all relevant municipal departments, as well as public and private utility companies, and there were no responses in opposition to the request.

Financial Impact:

There is no direct financial impact to the City. However, removal of this right-of-way reduces the burden for maintenance of this area and returns a small piece of property to the tax rolls.

Other Information/Recommendation:

On July 20, 2020, the Planning Commission voted unanimously 6-0 to recommend APPROVAL of the street right-of-way abandonment.

Attachments:

1.	Ordinance (S. Marie St_ROW Abandon)	Ordinance (S. Marie St_ROW Abandon) (2).pdf
2.	Staff Report (S. Marie St_ROW Abandon)	Staff Report (S. Marie St_ROW Abandon).pdf
3.	Planning CC Presentation (2020-08-18) Marie St ROW Abandonment	Planning CC Presentation (2020-08-18) Marie St ROW Abandonment.pptx

Presentation:

Jon James

Approvals/Reviews:

Jeff Fisher	Created/Initiated
Hillary Bueker	Approved
Jon James	Approved
Brandon Dyson	Approved
Jon James	Approved

Theresa James	Approved
Julia Antilley	Final Approval

AN ORDINANCE PROVIDING FOR ABANDONMENT AND VACATION OF A PORTION OF A PUBLIC STREET RIGHT-OF-WAY COMPRISING OF APPROXIMATELY 0.688 ACRES (60' X 500') OF AN UNPAVED NORTH-SOUTH RIGHT-OF-WAY WITHIN A REVISED PLAT OF THE CARRUTHERS ADDITION; LOCATED SOUTHEAST OF SOUTH BELL STREET AND ROOSEVELT STREET; AUTHORIZING CONVEYANCE THEREOF BY QUITCLAIM DEED TO ABUTTING PROPERTY OWNERS; AND PROVIDING TERMS AND CONDITIONS OF ABANDONMENT AND CONVEYANCE.

WHEREAS, the City Council of the City of San Angelo, Texas, acting pursuant to law, is of the opinion that the public street right-of-way within a Revised Plat of the Carruthers Addition, Tom Green County, Texas, is no longer needed for public use and therefore deems it advisable to abandon said portion of street right-of-way; and,

WHEREAS, the City Council is of the opinion that the best interest and welfare of the public will be served by conditionally conveying the underlying abandoned public street right-of-way to the abutting property owners;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY OF SAN ANGELO THAT:

SECTION 1: The public street right-of-way located in the City of San Angelo, comprising of approximately 0.688 acres (60' x 500') of an unpaved north-south street right-of-way within a Revised Plat of the Carruthers Addition, Tom Green County, Texas, more particularly described and depicted in **Exhibit "A,"** attached hereto and made a part hereof for all purposes, be and the same is hereby vacated, abandoned and closed insofar as the right, title and easement of the public are concerned, subject to the conditions and restrictions herein set forth.

SECTION 2: The abandonments and conveyances provided for herein are made and accepted subject to all present zoning and deed restrictions, if the latter exist, and all existing easements, if any, whether apparent or not, aerial, surface, underground or otherwise.

SECTION 3: The abandonments and conveyance provided for herein shall extend only to the public right, title, easement and interest and shall be construed to extend only to the interest which the governing body for the City of San Angelo may legally and lawfully abandon and vacate.

SECTION 4: The following conditions precedent to the abandonment shall apply and be part of the consideration for conveyance by quitclaim deed(s) of the underlying tracts of land to owners of abutting properties:

a) Payment per the assessment formula per the Schedule of Fees and Charges adopted by City Council shall be remitted for all of the abandoned street right-of-way.

b) Submit, obtain approval, and officially record a subdivision replat absorbing all of the abandoned right-of-way into adjacent lot(s) meeting all requirements of the Land Development and Subdivision Ordinance, within 36 months of City Council's decision and prior to recording the quit claim deed.

SECTION 5: The terms and conditions set forth hereinabove shall be applicable to the conveyances of rights-of-way herein provided for, and shall be binding upon Grantees thereof and their heirs, successors and assigns.

SECTION 6: Upon confirmation from the Planning Director of compliance with conditions hereinabove set forth, the Mayor of the City of San Angelo is hereby authorized to execute and deliver quit claim deeds conveying the subject tracts of abandoned right-of-way described and depicted in **Exhibit "A,"** to the owners of the designated abutting properties.

SECTION 7: Upon confirmation from the Planning Director of compliance with conditions hereinabove set forth, the City Clerk is hereby authorized and directed to certify a copy of this adopted Ordinance for recordation in the Official Real Property Records of Tom Green County, Texas, wherein the tracts of land are located.

INTRODUCED on the **18th day of August, 2020,** and finally PASSED, APPROVED AND ADOPTED on this the **1st day of September, 2020**.

THE CITY OF SAN ANGELO

_____
Brenda Gunter, Mayor

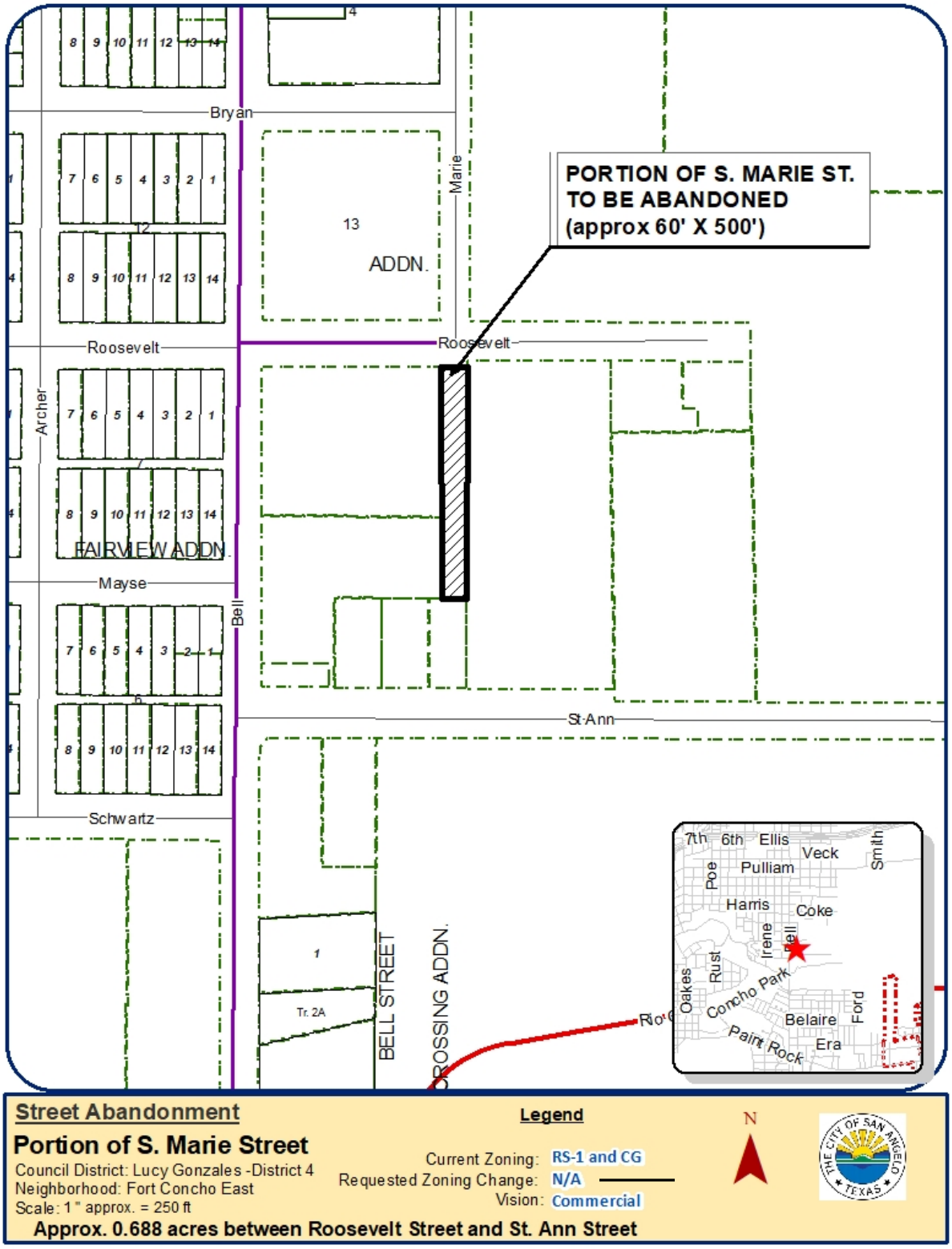
ATTEST:

_____
Julia Antilley, City Clerk

APPROVED AS TO FORM:

_____
Theresa James, City Attorney

EXHIBIT “A”


PORTION OF S. MARIE ST.
TO BE ABANDONED
(approx 60' X 500')
Bryan
Roosevelt
Mayse
Schwartz
Archer
Bell
Marie
St Ann
13
ADDN.
FAIRVIEW ADDN.
BELL STREET
CROSSING ADDN.
Tr. 2A
7th
6th
Ellis
Veck
Smith
Pulliam
Poe
Harris
Coke
Irene
Bell
Rust
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Paint Rock
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Street Abandonment
Portion of S. Marie Street
Council District: Lucy Gonzales -District 4
Neighborhood: Fort Concho East
Scale: 1 " approx. = 250 ft
Legend
Current Zoning: RS-1 and CG
Requested Zoning Change: N/A
Vision: Commercial
N
THE CITY OF SAN ANGELO TEXAS
Approx. 0.688 acres between Roosevelt Street and St. Ann Street

CITY COUNCIL – August 18, 2020
STAFF REPORT

APPLICATION TYPE:	CASE:
Street Right-of-way Abandonment	South Marie Street (South of Roosevelt Street)

SYNOPSIS:

The applicant has submitted this request to abandon South Marie Street, an approximate 60' by 500' unpaved street right-of-way that runs in a north-south direction south of Roosevelt Street. The applicant owns a 5-acre property immediately adjacent to the east and the abandonment would allow purchase of a portion of the abandoned area for future development (see Additional Information).

LOCATION:	LEGAL DESCRIPTION:
Southeast of Bell Street and Roosevelt Street	Being an approximate 60' x 500' portion of the South Marie Street right-of-way, south of Roosevelt Street.

SM DISTRICT / NEIGHBORHOOD:	ZONING:	FUTURE LAND USE:	SIZE:
District #4 – Lucy Gonzales Fort Concho East Neighborhood	RS-1/CG	Commercial	0.688 ac. (30,000 sq. ft.)

THOROUGHFARE PLAN:

South Marie Street – Urban Local Street, Required: 50' right-of-way, 40' pavement or 36' with 4' sidewalk; Provided: 60' right-of-way; unpaved street

NOTIFICATIONS:

6 notifications were mailed within a 200-foot radius of the property on July 20, 2020. No responses have been received for or against to date.

STAFF RECOMMENDATION:

Staff recommends **APPROVAL** of the Street Right-of-Way Abandonment of the portion of South Marie Street, south of Roosevelt Street, subject to **two Conditions of Approval.**

PROPERTY OWNER/PETITIONER:

Owner/Petitioner: Earl Ayers

STAFF CONTACT:

Jeff Fisher, AICP
Principal Planner
(325) 657-4210, Ext. 1550
jeff.fisher@cosatx.us

Additional Information:

City Staff circulated to all relevant municipal departments, as well as public and private utility companies, and there were no responses in opposition to the request.

As indicated, the applicant intends to acquire a portion of the street right-of-way for future development adjacent to their property to the east, addressed as 1619 Roosevelt Street. They obtained a rezoning approval from City Council on June 5, 2018 for their property, changing the zoning from Single-Family Residential (RS-1) to General Commercial (CG). This will allow future commercial development for permitted CG uses.

On October 3, 2017, City Council abandoned the north portion of South Marie Street, between Bryan Street and Roosevelt Street. Similar to this request, that application was also based on an adjacent owner who desired the additional area to expand their development.

Analysis:

Staff conducted research on the proposed street right-of-way to be abandoned. The subject portion of South Marie Street is identified as street right-of-way in the replat of the Carruthers Addition, filed for record and duly recorded on May 20, 1930 with the Tom Green County Clerk. The County Clerk's Real Estate Office has confirmed that the subject replat remains in effect.

Staff also conducted a site visit to the property on Thursday, July 2, 2020. This street right-of-way was never developed and remains an unimproved portion of South Marie Street. There are no known utilities, public or private, in the subject portion, and the right-of-way is not identified for any future street in the City's Master Thoroughfare Plan, nor for any future bicycle or pedestrian path in the City's Area and Bicycle and Pedestrian Plan.

The proposed abandonment would not contradict any applicable City Ordinance. As conditions of approval, the applicant will be required to replat the abandonment area into the adjacent lot(s); and pay the required assessment formula fee.

Rationale:

Planning Staff reviewed all relevant history, ordinances, policies, and as indicated above, conducted a site visit to the property to determine the appropriateness of abandoning this public right-of-way.

- *Traffic patterns:* This portion of South Marie Street which shows as public right-of-way since at least 1930 according to public records, has never been used as a street. All of the adjacent lots have street frontage onto South Bell Street, St. Ann Street, and/or Roosevelt Street and there are no plans to construct a future street in this right-of-way. The City's Real Estate Division has confirmed that the City has no plans to sell their property to the south which would connect this right-of-way to St. Ann Street. Therefore, this right-of-way remains as a dead-end, unimproved street and Staff recommends that it be abandoned.

- *Utilities*: There are no existing City or private utilities in this segment of street right-of-way, and Staff received no objections from utility providers in the area.

- *Community Impact:* There would be no negative community impact if this portion of South Marie Street was abandoned. As indicated, all adjacent properties have frontage onto other streets, and the City intends to retain the property south of S. Marie Street making the subject portion an unimproved dead-end right-of-way. Allowing this right-of-way to be abandoned will allow the adjacent developer to acquire it from the City and expand their future commercial development.
- *Public Benefit:* Abandoning this portion of South Marie Street would not remove any public benefit as this right-of-way has never been used as a street nor are there any plans to make this area into a street. The abandoned portion will provide the adjacent developer additional land for development.

Planning Commission Recommendation:
On July 20, 2020, the Planning Commission recommended unanimous **APPROVAL** by a vote of 6-0 of a request for the Street Right-of-Way Abandonment of the portion of South Marie Street, south of Roosevelt Street as identified on the attached maps. The following is the complete excerpt of the draft minutes from the July 20, 2020 meeting for this case:

Jeff Fisher, Principal Planner presented the proposed street right-of-way abandonment request. He explained that the subject request was for the south portion of South Marie Street, south of Roosevelt Street, and that a previous request to abandon the north portion of South Marie Street adjacent to Talk O' Texas was approved in 2017. He further explained that the purpose of this request was to provide additional land for the adjacent landowner for future commercial development. Mr. Fisher indicated that six notices were mailed to all property owners within 200 feet and no responses had been received to date.

Mr. Fisher outlined Staff's rationale to recommend approval of the street right-of-way abandonment request on the grounds that there were no responses received from any utility companies; that the street was never developed and remains a dead-end street; that the street is not identified in the City's Master Thoroughfare Plan (MTP); that all adjacent properties have frontage onto other streets; and, that the City has no plans to sell the property immediately south of the abandoned area leaving this a dead-end street. He concluded his presentation by outlining the two conditions of approval contained in the Staff Report.

Vice Chair Jackson opened public comment.

Mr. John Anderson, representing the applicant and owner, indicated he had no comment at this time.

Vice Chair Jackson closed public comment.

Commissioner Self made a motion to recommend APPROVAL of the abandonment of approximately 0.688 acres (60' x 500') of South Marie Street, being an unpaved, north-south portion of street right-of-way, located southeast of the intersection of South Bell Street and Roosevelt Street, subject to two conditions of approval as presented. Commissioner Uherik seconded the motion. The motion carried unanimously, 6-0.

Recommendation:

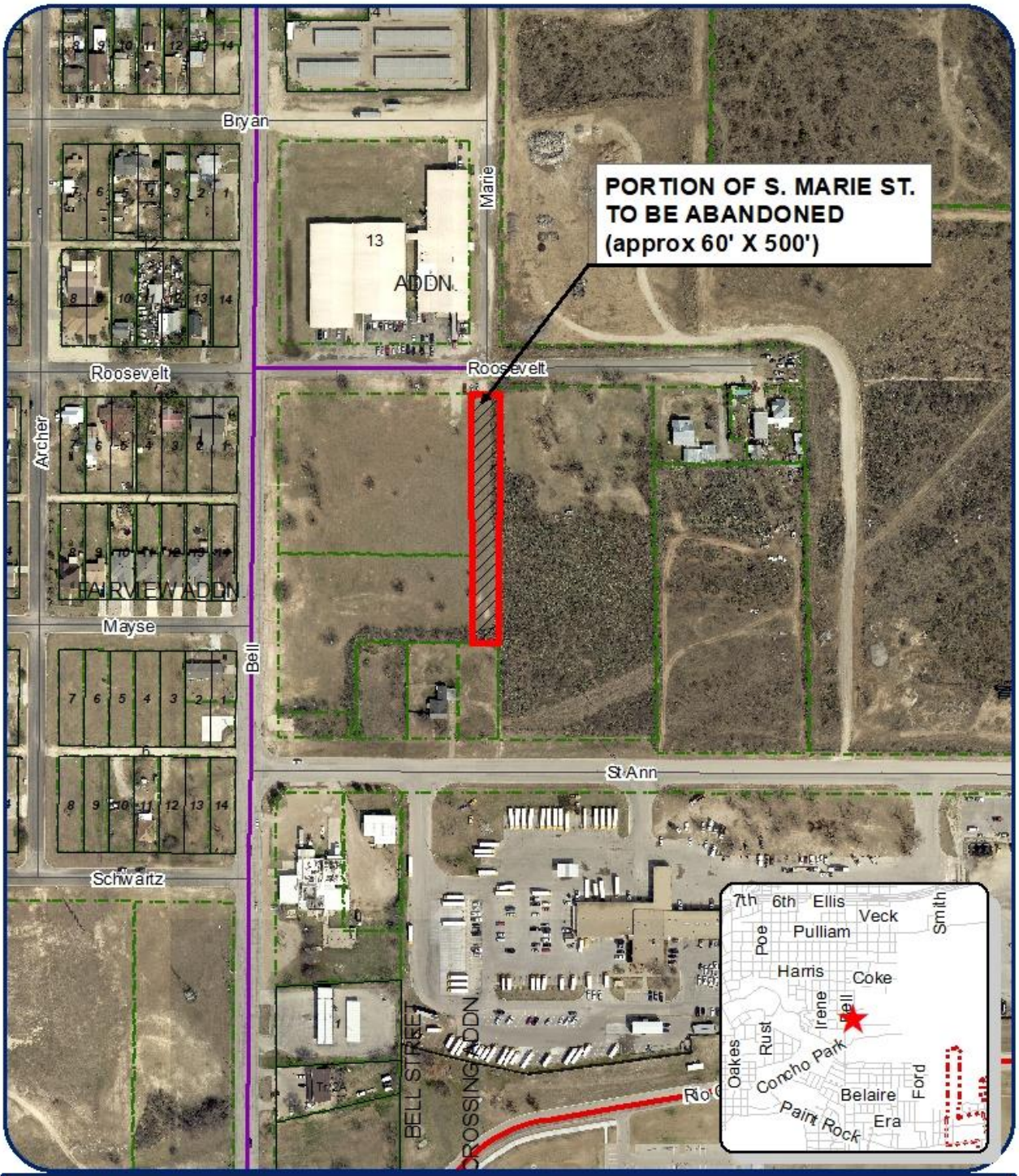
Staff recommendation is for City Council to **APPROVE** the Street Right-of-Way Abandonment of the portion of South Marie Street, south of Roosevelt Street, subject to **two Conditions of Approval:**

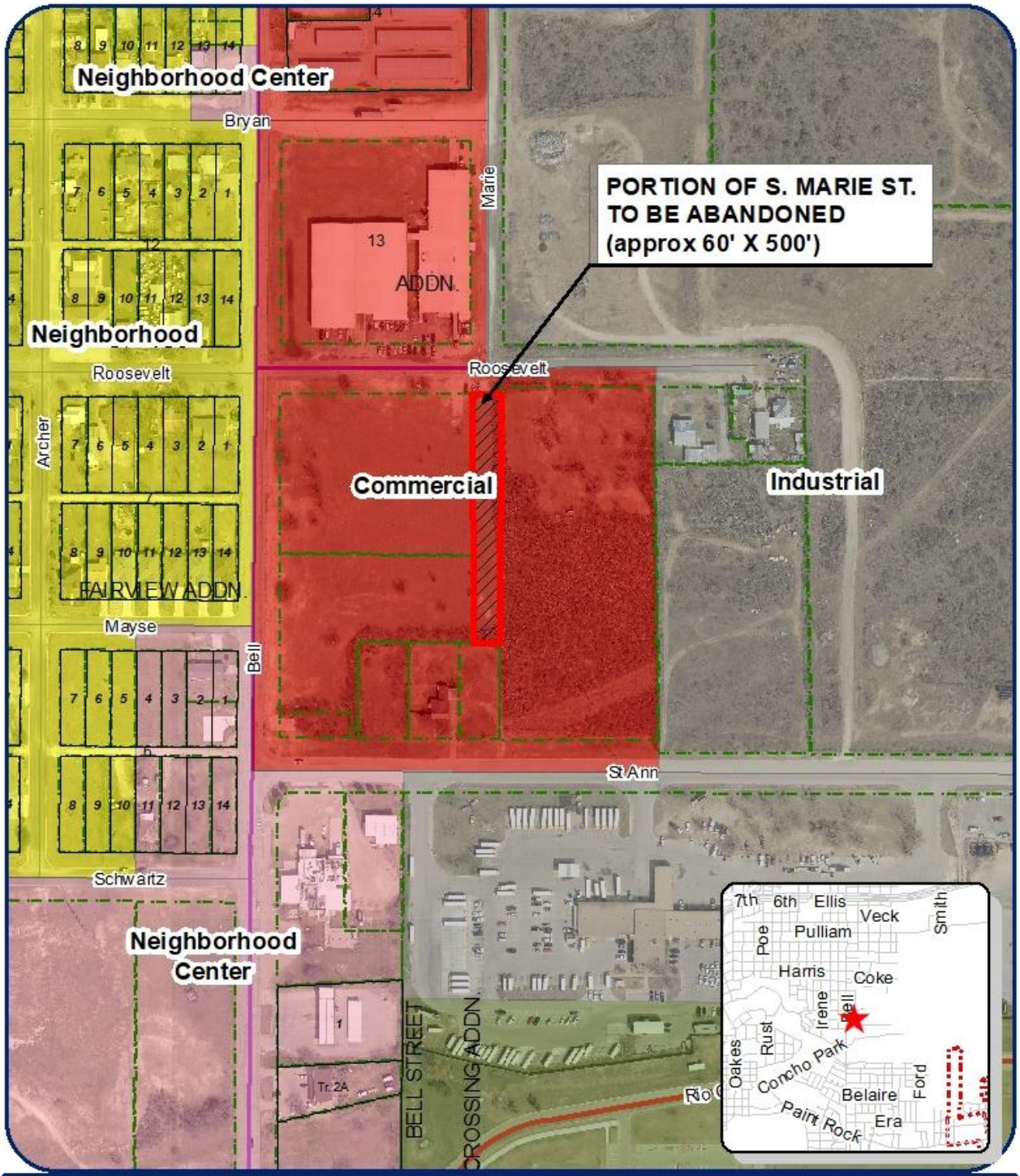
1. Payment per the assessment formula per the Schedule of Fees and Charges adopted by City Council shall be remitted for all of the abandoned street right-of-way.

2. Submit, obtain approval, and officially record a subdivision replat absorbing all of the abandoned right-of-way into adjacent lot(s) meeting all requirements of the Land Development and Subdivision Ordinance, within 36 months of City Council's decision and prior to recording the quit claim deed [Land Development and Subdivision Ordinance, Chapter 1.V].

Attachments:

Aerial Map
Future Land Use Map
Zoning Map
Photographs
Excerpt from Subdivision Plat
Application


PORTION OF S. MARIE ST. TO BE ABANDONED (approx 60' X 500')
Bryan
Marie
13
ADDN.
Roosevelt
Roosevelt
Archer
FAIRVIEW ADDN
Mayse
Bell
St Ann
Schwartz
BELL STREET
CROSSING ADDN
7th
6th
Ellis
Veck
Smith
Poe
Pulliam
Harris
Coke
Irene
Bell
Rust
Oakes
Concho Park
Ford
Belaire
Paint Rock
Era
Street Abandonment
Portion of S. Marie Street
Council District: Lucy Gonzales -District 4
Neighborhood: Fort Concho East
Scale: 1 " approx. = 250 ft
Legend
Subject Properties:
Current Zoning: RS-1 and CG
Requested Zoning Change: N/A
Vision: Commercial
N
THE CITY OF SAN ANGELO TEXAS
Approx. 0.688 acres between Roosevelt Street and St. Ann Street



Street Abandonment

Portion of S. Marie Street

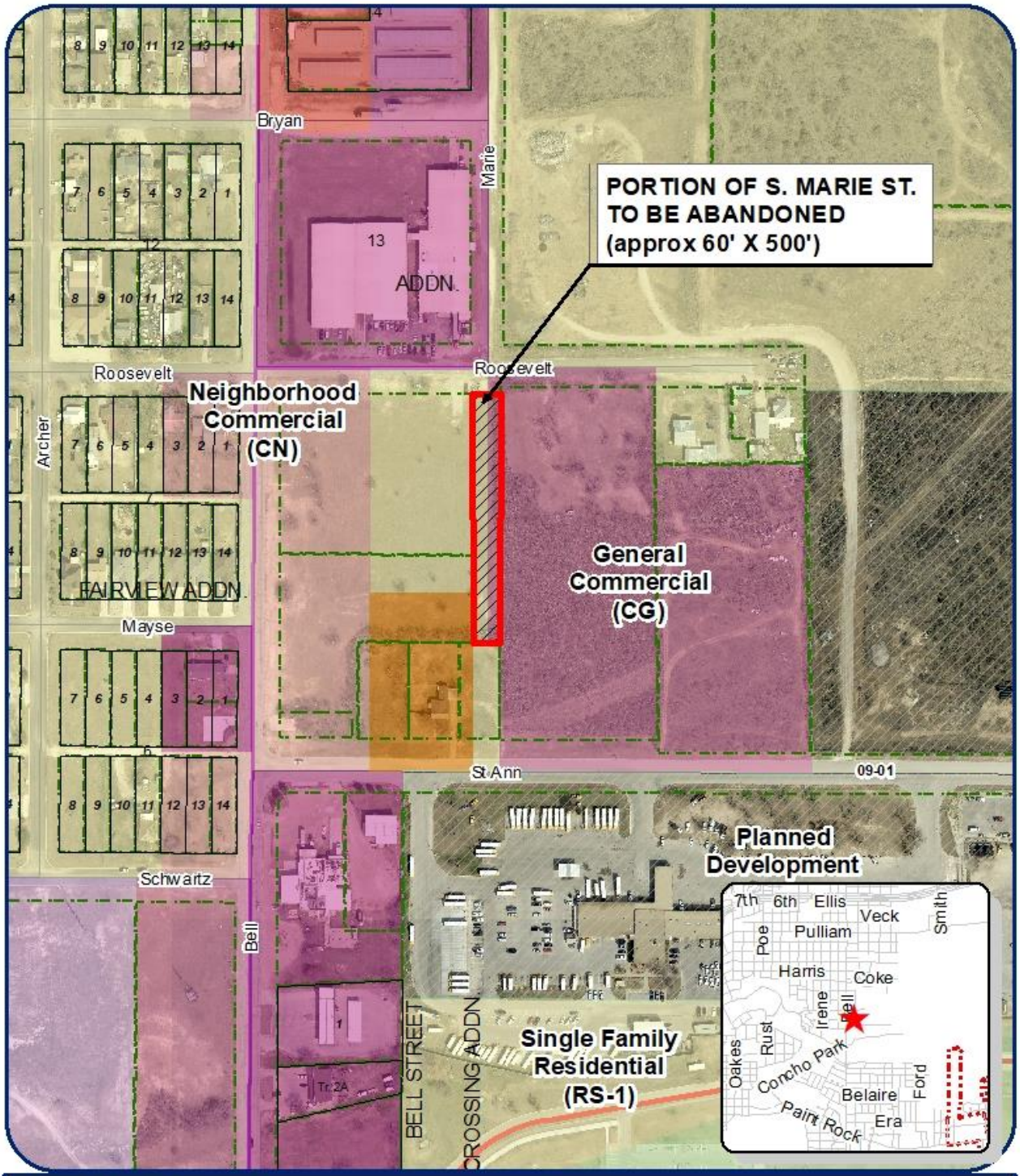
Council District: Lucy Gonzales -District 4
Neighborhood: Fort Concho East
Scale: 1 " approx. = 250 ft

Legend

Subject Properties:
Current Zoning: RS-1 and CG
Requested Zoning Change: N/A
Vision: Commercial

N

Approx. 0.688 acres between Roosevelt Street and St. Ann Street


PORTION OF S. MARIE ST. TO BE ABANDONED (approx 60' X 500')
Neighborhood Commercial (CN)
General Commercial (CG)
Planned Development
Single Family Residential (RS-1)
Bryan
Roosevelt
Mayse
St Ann
Schwartz
Archer
Bell
Marie
FAIRVIEW ADDN
13 ADDN
BELL STREET CROSSING ADDN
09-01
7th
6th
Ellis
Veck
Smith
Pulliam
Poe
Harris
Coke
Irene
Bell
Rust
Oakes
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Street Abandonment
Portion of S. Marie Street
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Subject Properties:
Current Zoning: RS-1 and CG
Requested Zoning Change: N/A
Vision: Commercial
N
THE CITY OF SAN ANGELO TEXAS
Approx. 0.688 acres between Roosevelt Street and St. Ann Street

Photos of Site and Surrounding Area

PROPOSED AREA TO BE ABANDONED
(60' X 500' S. MARIE ST. RIGHT-OF-WAY)

NORTH PORTION OF S. MARIE ST. (DECISION BY COUNCIL TO ABANDON – OCT. 3/2017)

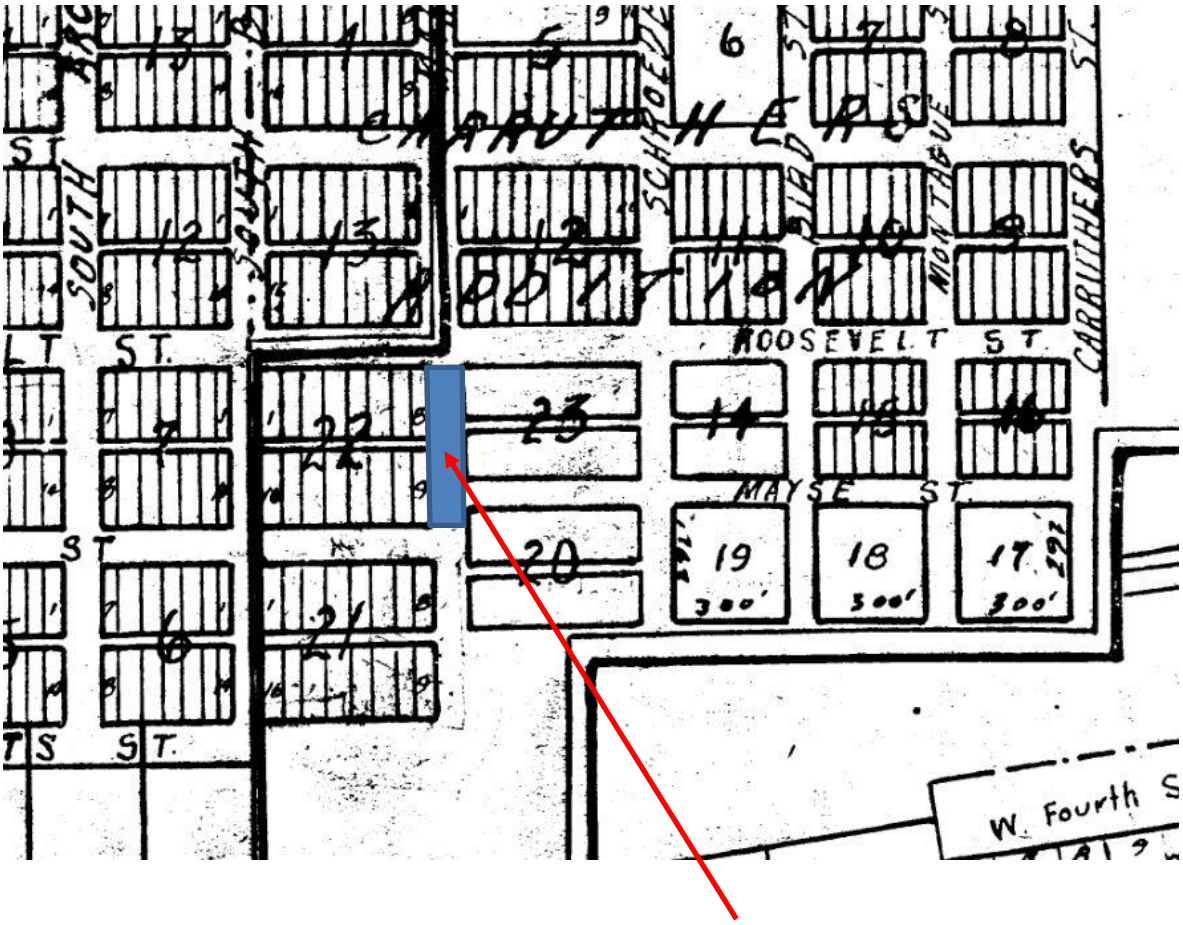
SOUTH OF ABANDONMENT AREA (TO ST. ANN ST.)

ADJACENT PROPERTY (1619 ROOSEVELT ST.)

ROOSEVELT ST. LOOKING WEST

ROOSEVELT ST. LOOKING EAST

Excerpt of area to be abandoned
(Replat of Carruthers Addition - May 20, 1930)



60’ X 500’ STREET RIGHT-OF-WAY TO BE ABANDONED

Effective January 3, 2017

City of San Angelo, Texas – Planning Division
52 West College Avenue

Application to Abandon Right-of-way for Street(s) and/or Alley(s)

Section 1: Basic Information

Name of Applicant(s): Earl Ayers

■ Owner ☐ Representative (Affidavit Required)

11438 Texas Oak	Carslbad	Texas	76934
Mailing Address	City	State	Zip Code

325-277-9353	bayers@mayfieldpaper.com
Contact Phone Number	Contact E-mail Address

1619 Roosevelt	San Angelo	Texas	76903
Subject Property Address	City	State	Zip Code

Legal: Acres: 5.000, Abst: A-1854 S-0326, Survey: G SCHUBITZ, 5.0000 ACRES

Legal Description (*can be found on property tax statement or at www.tomgreencad.com*)

Lot Size: 5 acres Zoning: RS-1

Section 2: Site Specific Details

Subdivision Name:

Lots and/or Blocks Affected*:

General Description of Location*: abondoned street

Reason for Abandonment*: not in use

*Use attachment if necessary.

Hours of Operation: 8 AM -12 PM & 1PM – 5 PM 325-657-4210, #2 www.cosatx.us/planning

Effective January 3, 2017

Section 3: Applicant's acknowledgement

I/We the undersigned acknowledge that the information provided above is true and correct.

Earl Ayers
Signature of licensee or authorized representative affirming the truth of the above statement.

6-19-2020
Date

Earl Ayers
Printed name of licensee or authorized representative

Name of business/Entity of representative

FOR OFFICE USE ONLY:

Date of Application: _____/_____/_____

Non-Refundable Fee: $_____ **Receipt #:** _____ **Date paid:** _____/_____/_____

Date of hearing by Planning Commission: _____/_____/_____ **Date of hearing by City Council:** _____/_____/_____

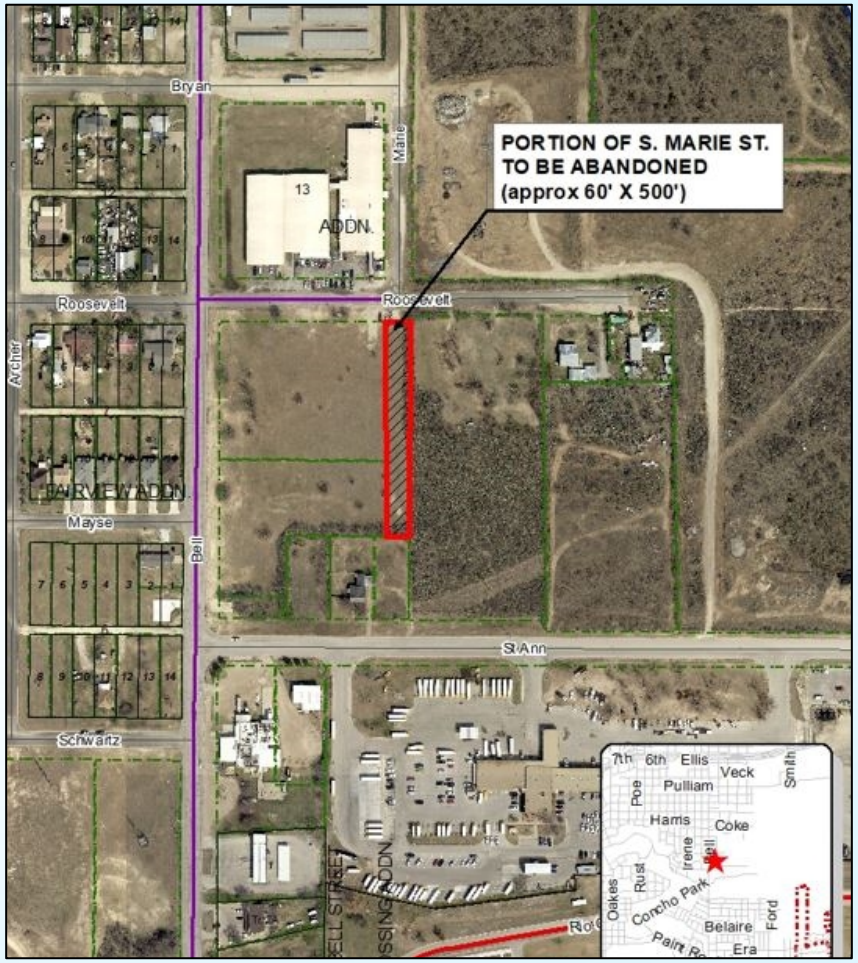
Reviewed/Accepted by: _____

City Council

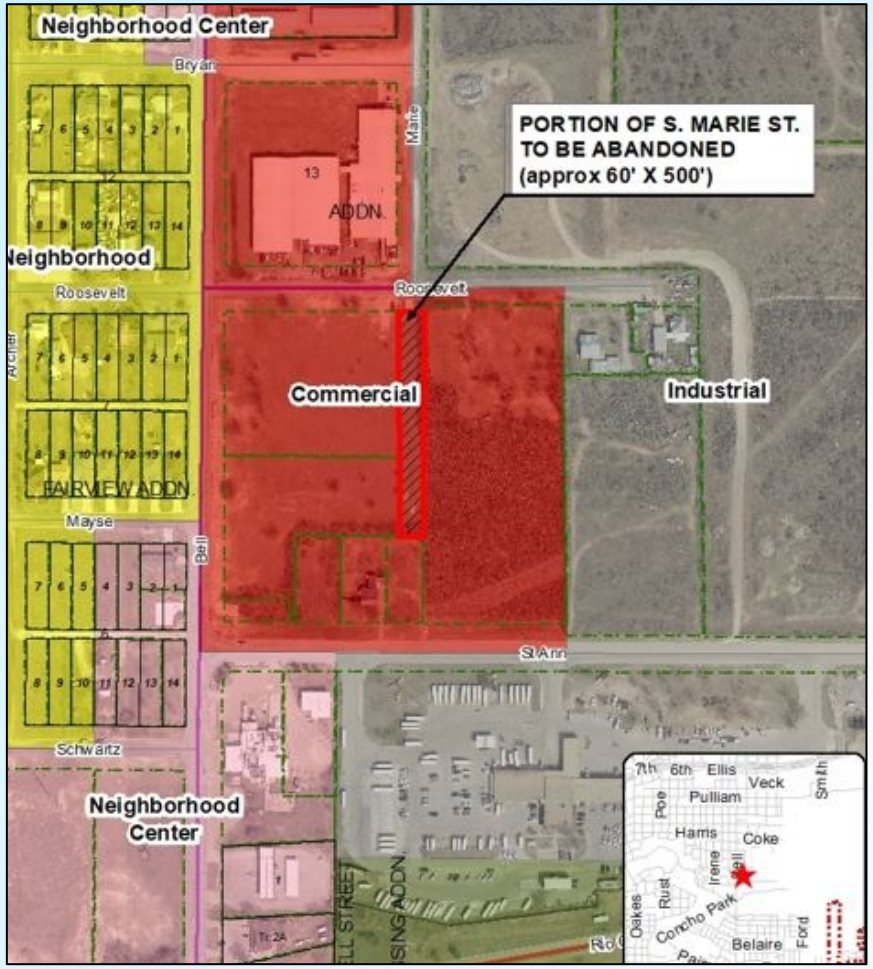
August 18, 2020

Street ROW Abandonment: South Marie Street (south of Roosevelt St.)

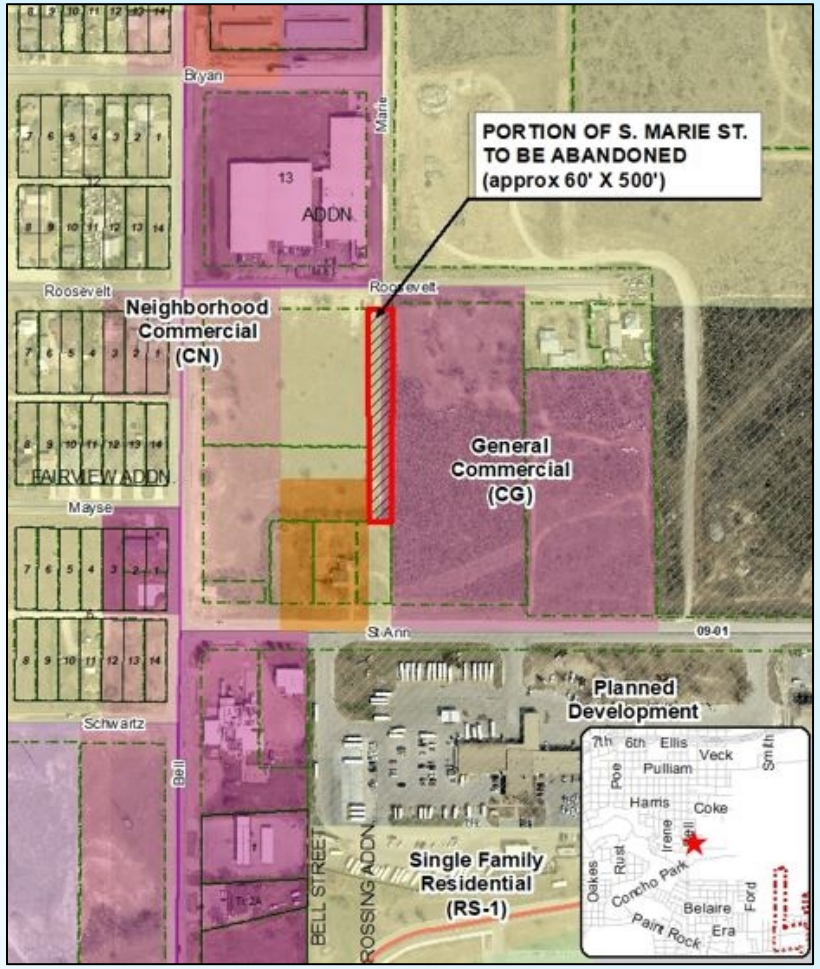
- Proposed abandonment of south end of S. Marie Street
- Would add to adjacent land 1619 Roosevelt Street
- District 4 – Lucy Gonzales
- Fort Concho East neighborhood



Future land use and zoning map



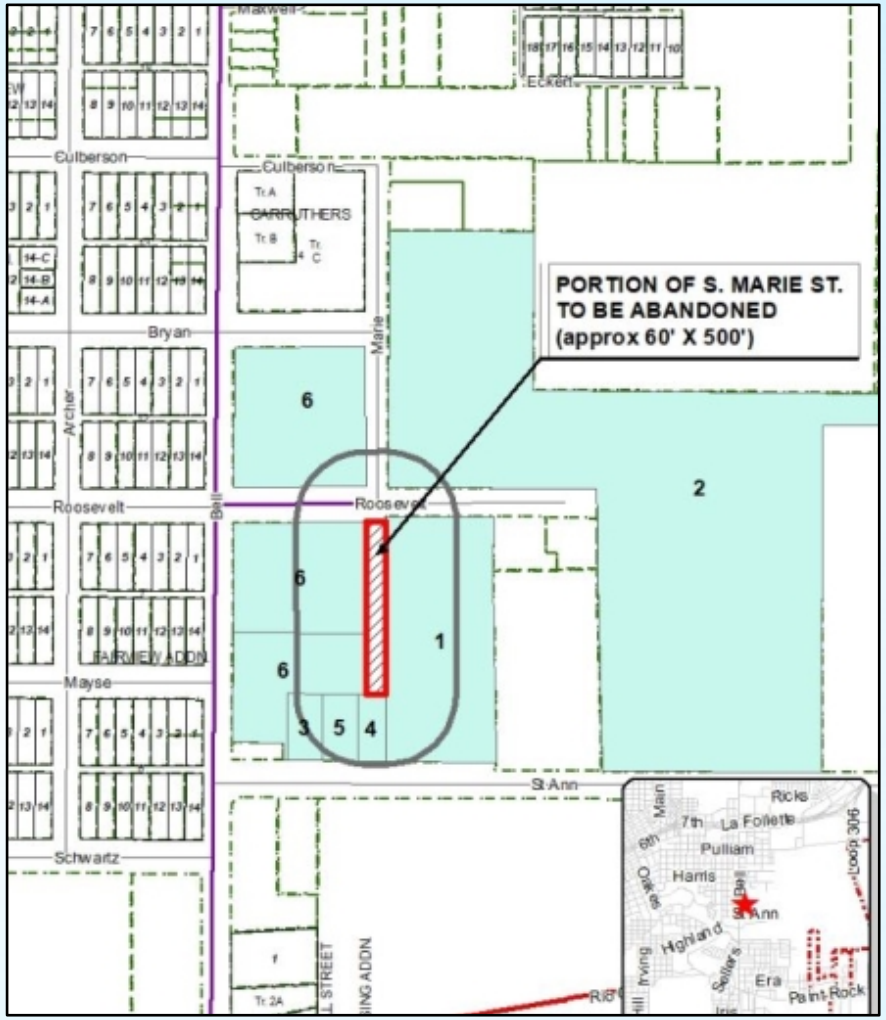
Commercial



CG/CH & RS-1

Public notification

- 6 notices mailed
- 0 in favor
- 0 in opposition



Street ROW Abandonment: South Marie Street (south of Roosevelt St.)

South portion of S. Marie Street to be abandoned

North portion abandoned by Council 2017

Street ROW Abandonment: South Marie Street (south of Roosevelt St.)

South of abandonment area (towards St. Ann Street)

Adjacent property (1619 Roosevelt St.)

Street ROW Abandonment:
South Marie Street (south of Roosevelt St.)

Roosevelt Street
looking west

Roosevelt Street
looking east

Rationale for approval

- Staff circulated to all relevant municipal departments and utility companies, with no objections.
- Part of 1930 replat of Carruther's Addition; this street portion was never developed.
- Not identified in City's **Master Thoroughfare Plan** for future major thoroughfare.
- Adjacent properties have frontage onto other streets; City has no plans to sell property to south leaving this a dead-end.

Recommendations

Staff recommends **APPROVAL** of the proposed street right-of-way abandonment, subject to two conditions of approval:

1. Remit payment per City fee schedule assessment formula
2. Submit replat within 36 months

On July 20, 2020 the Planning Commission recommended **APPROVAL** with a 6-0 vote.

City Council

August 18, 2020

REPORT TO MAYOR & MEMBERS OF CITY COUNCIL

Requestor: Kimberly Holle, Budget Manager, Budget, 325-657-4211

Meeting Date: August 18, 2020

Item type: Regular Item

Caption:

First public hearing and introduction of an ordinance amending the budget for the fiscal year beginning October 1, 2019, and ending September 30, 2020, for grants and capital projects (Presentation made by Finance Director Tina Dierschke)

Summary/History:

This proposed amendment contains the following items (additional information attached):
- Texas Parks and Wildlife Department grant for trail-head improvements at Twin Buttes
- Police Gang Suppression Unit Vehicle grant
- Police Homeland Security Grant for the purchase of night vision for SWAT officers
- Criminal Justice Division Rifle Resistant Body Armor Grant for the purchase of Rifle Resistant Body Armor for SWAT officers
- Airport US Customs Retention project
- Airport FAA Grant for Terminal Drainage Improvement project
- COSA DC sale of two properties in the Industrial Park and for upcoming projects
- Chadbourne Street Project Funding

Financial Impact:

See Exhibit A of the ordinance.

Other Information/Recommendation:

Attachments:

1.	BA Memo - ALL	BA Memo - ALL.pdf
2.	Ordinance 09.01.20	Ordinance 09.01.20.docx
3.	08.18.20 FIN Budget Amendment Slides	08.18.20 FIN Budget Amendment.pptx

Presentation:

Tina Dierschke

Approvals/Reviews:

Kimberly Holle	Created/Initiated
Tina Dierschke	Approved
Theresa James	Approved
Julia Antilley	Final Approval

City of San Angelo

Memo

To: Tina Dierschke, Finance Director

From: Carl White, Director of Parks & Recreation

Date: 08/18/20

Re: Budget Amendment Request

Purpose of Budget Amendment Request:

Budget for a grant for trail-head improvements at Twin Buttes

Source of Funding:

Texas Parks and Wildlife Department grant with Local match from 2011 bond project budget and interest income

Funding previously approved? If so, by City Manager or City Council and when?

November 19, 2019

Project/Budget to be amended	Current Budget	Proposed Change	Proposed Revised Budget
Grant Revenue	0	240,000	240,000
Local Match	0	60,000	60,000
Project Expense	0	300,000	300,000
			0
			0
			0

Additional Comments:

City of San Angelo

Memo

To: Tina Dierschke, Finance Director

From: Frank Carter, Police Chief

Date: 08/18/20

Re: Budget Amendment Request

Purpose of Budget Amendment Request:

To budget for a Gang Suppression Unit Vehicle grant

Source of Funding:

Edward Byrne Memorial Justice Assistance Grant

Funding previously approved? If so, by City Manager or City Council and when?

City Council approval to apply for grant on 4/21/2020

Project/Budget to be amended	Current Budget	Proposed Change	Proposed Revised Budget
Grant Revenue	0	42,046	42,046
			0
Project Expense	0	42,046	42,046
			0
			0
			0

Additional Comments:

Estimate of additional equipment required to customize vehicle with police equipment is between $5,000-$6,000.

City of San Angelo

Memo

To: Tina Dierschke, Finance Director

From: Frank Carter, Chief of Police

Date: 08/18/20

Re: Budget Amendment Request

Purpose of Budget Amendment Request:

To budget for awarded grant funds for the purchase of night vision for SWAT officers.

Source of Funding:

Homeland Security Grant Program

Funding previously approved? If so, by City Manager or City Council and when?

Award Acceptance is on the Council Consent Agenda for 9/1/2020.

Project/Budget to be amended	Current Budget	Proposed Change	Proposed Revised Budget
Grant Revenue	0	29,242	29,242
			0
Project Expense	0	29,242	29,242
			0
			0
			0

Additional Comments:

There is no local matching requirement and no additional expense anticipated.

City of San Angelo

Memo

To: Tina Dierschke, Finance Director

From: Frank Carter, Chief of Police

Date: 08/18/20

Re: Budget Amendment Request

Purpose of Budget Amendment Request:

To budget for awarded grant funds for the purchase of Rifle Resistant Body Armor for SWAT officers

Source of Funding:

Criminal Justice Division Rifle Resistant Body Armor Grant Program

Funding previously approved? If so, by City Manager or City Council and when?

Award Acceptance is on the Council Consent Agenda for 8/18/2020.

Project/Budget to be amended	Current Budget	Proposed Change	Proposed Revised Budget
Grant Revenue	0	32,042	32,042
			0
Project Expense	0	32,042	32,042
			0
			0
			0

Additional Comments:

There is no local matching requirement.

City of San Angelo

Memo

To: Tina Dierschke, Finance Director

From: Jeremy Valgardson, Airport Director

Date: 08/18/20

Re: Budget Amendment Request

Purpose of Budget Amendment Request:

Budget for US Customs Retention project at the Airport

Source of Funding:

City of San Angelo Development Corporation

Funding previously approved? If so, by City Manager or City Council and when?

Project/Budget to be amended	Current Budget	Proposed Change	Proposed Revised Budget
Airport Revenue	0	1,100,000	1,100,000
Airport Project Expense	0	1,100,000	1,100,000
			0
			0
			0
			0

Additional Comments:

City of San Angelo

Memo

To: Tina Dierschke, Finance Director

From: Jeremy Valgardson, Airport Director

Date: 08/18/20

Re: Budget Amendment Request

Purpose of Budget Amendment Request:

Budget for updated grant award amounts for Airport FAA Grant 40

Source of Funding:

100% funded by FAA/2020 Entitlement Grant

Funding previously approved? If so, by City Manager or City Council and when?

Grant Application submitted May 6, 2020. Project approved through yearly FAA Entitlement Grant.

Project/Budget to be amended	Current Budget	Proposed Change	Proposed Revised Budget
FAA Revenue	17,820	1,093,291	1,111,111
PFC Revenue	1,680	-1,680	0
Project Expenses	19,500	1,091,611	1,111,111
			0
			0
			0

Additional Comments:

Grant 40 is the Terminal Drainage Improvement project. This grant is fully reimbursable with 100% FAA funding and no local match required.

City of San Angelo

Memo

To: Tina Dierschke, Finance Director

From: Nora Nevarez, Economic Development Assistant

Date: 08/18/20

Re: Budget Amendment Request

Purpose of Budget Amendment Request:

Budget for revenue from the sale of two properties in the Industrial Park and for upcoming projects.

Source of Funding:

Sale of Property ($560,702) and Fund Balance ($539,298)

Funding previously approved? If so, by City Manager or City Council and when?

Project/Budget to be amended	Current Budget	Proposed Change	Proposed Revised Budget
Revenue:			0
Sale of Property	0	560,702	560,702
Expense:			0
Business Retention Programs	11,880,910	700,000	12,580,910
US Hwy 87 Monument	0	150,000	150,000
Airport Exit Monument	0	250,000	250,000

Additional Comments:

City of San Angelo

Memo

To: Tina Dierschke, Finance Director

From: Kimberly Holle, Budget Manager

Date: 08/18/20

Re: Budget Amendment Request

Purpose of Budget Amendment Request:

Budget for remaining funds for Phase A of the Chadbourne Street Project

Source of Funding:

City of San Angelo Development Corporation, General Fund Operations, Hotel Occupancy Tax Fund (Fund Balance), TIRZ – South (Fund Balance / committed property tax revenue), & TxDot Grant

Funding previously approved? If so, by City Manager or City Council and when?

Project/Budget to be amended	Current Budget	Proposed Change	Proposed Revised Budget
COSA Development Corporation	0	2,250,000	2,250,000
General Fund Operations	0	100,000	100,000
Hotel Occupancy Tax Fund	0	50,000	50,000
TIRZ - South	0	1,050,425	1,050,425
TxDot Grant	0	1,960,335	1,960,335
			0

Additional Comments:

AN ORDINANCE OF THE CITY OF SAN ANGELO AMENDING THE BUDGET FOR THE FISCAL YEAR BEGINNING OCTOBER 1, 2019, AND ENDING SEPTEMBER 30, 2020, FOR GRANTS, REIMBURSED EXPENSES, AND CAPITAL PROJECTS.

WHEREAS the City of San Angelo has determined that certain budgeted amounts should be amended due to project changes and unforeseen circumstances, and

WHEREAS the resources necessary for these changes are available;

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SAN ANGELO, TEXAS THAT:

The City's budget for fiscal year 2019-2020 be amended by the amounts contained in Exhibit A.

INTRODUCED on the 18th day of August, 2020, and APPROVED and ADOPTED on this 1st day of September.

ATTEST:

_____
Julia Antilley, City Clerk

CITY OF SAN ANGELO, TEXAS:

_____
Brenda Gunter, Mayor

APPROVED AS TO CONTENT:

_____
Tina Dierschke, Finance Director

APPROVED AS TO FORM:

_____
Theresa James, City Attorney

City of San Angelo
Proposed Budget Amendment
Exhibit A

Fund	Total Revenue Amendment	Total Expense Amendment	Net Benefit/(Cost)
General	-	-	-
Intergovernmental	3,017,110	3,017,110	-
TIRZ	-	1,050,425	(1,050,425)
Airport	1,100,000	1,100,000	-
General Capital Projects	2,400,000	2,400,000	-
2011 Bond Issue	-	43,061	(43,061)
Passenger Facility Charge	-	(1,680)	1,680
Airport PFC Projects	1,091,611	1,091,611	-
Hotel Occupancy Tax	-	50,000	(50,000)
Development Corporation	560,702	1,100,000	(539,298)
	$8,169,423	**$9,850,527**	**$(1,681,104)**

City of San Angelo
Proposed Budget Amendment
Additional Information

Project/Need	Source of Funding	Revenue	Expense	Net Benefit/(Cost)
Trail-head Improvements at Twin Buttes	Texas Parks & Wildlife Department and 2011 Bond Issue	300,000	343,061	(43,061)
Upcoming Projects	Sale of Property and Fund Balance	560,702	1,100,000	(539,298)
Chadboune St. Project	COSADC, General Fund Operations, HOT, TIRZ, & TxDot Grant	5,013,780	6,114,205	(1,100,425)
Night Vision for SWAT Officers	Homeland Security Grant Program	29,242	29,242	-
Rifle Resistant Body Armor	Criminal Justice Division Rifle Resistant Body Armor Grant Program	32,042	32,042	-
Gang Suppression Vehicle	Edward Byrne Memorial Justice Assistance Grant	42,046	42,046	-
Airport US Customs Retention project	City of San Angelo Development Corporation	1,100,000	1,100,000	-
Airport Grant 40	FAA Entitlement Grant	1,091,611	1,089,931	1,680
		$8,169,423	**$9,850,527**	**$(1,681,104)**

City Council

August 18, 2020

Budget Amendment

Intergovernmental Fund	Revenue	Expense
Grant Revenue	$240,000	
Local Match	$60,000	
Trail-head Improvements at Twin Buttes Project		$300,000

Budget Amendment

Intergovernmental Fund	Revenue	Expense
Grant Revenue	$42,046	
Police Gang Suppression Unit Vehicle		$42,046

Budget Amendment

Intergovernmental Fund	Revenue	Expense
Grant Revenue	$29,242	
Night vision for SWAT officers		$29,242

Budget Amendment

Intergovernmental Fund	Revenue	Expense
Grant Revenue	$32,042	
Rifle Resistant Body Armor for SWAT officers		$32,042

Budget Amendment

Airport Fund	Revenue	Expense
COSA DC Funding	$1,100,000	
US Customs Retention project		$1,100,000

Budget Amendment

Airport Capital Projects Fund	Revenue	Expense
FAA Revenue	$1,093,291	
PFC Revenue	($1,680)	
Project Expenses		$1,091,611

Budget Amendment

Economic Development Fund	Revenue	Expense
Sale of Property	$560,702	
Business Retention Programs		$700,000
US Hwy 87 Monument		$150,000
Airport Exit Monument		$250,000

Budget Amendment

Chadbourne Street Project	Expense
COSA DC	$2,250,000
General Fund Operations	$100,000
Hotel Occupancy Tax Fund *	$50,000
TIRZ – South *	$1,050,425
TxDot Grant	$1,960,335

* Utilizing Fund Balance

City Council

August 18, 2020