



Texas Pacifico Operations Analysis

Final Report

September 2016
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Texas Department of Transportation – Rail Division

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1.0 Executive Summary

The Texas Department of Transportation (TxDOT) owns the South Orient Railroad (SORR) which is leased to Texas Pacifico (TXPF) in a 40 year contract. As the owner of the line, TxDOT authorized TranSystems to complete a Rail Operations Analysis to understand TXPF operational procedures and seek customer feedback on service. This is important to TxDOT because rail volumes have rapidly increased and are anticipated to continue to increase.

Based on the Rail Operations Analysis results, TXPF operates a fundamentally sound short line business based on current traffic levels and operating and infrastructure limitations. TXPF continues to pursue operating best practices and continues to improve their business processes. All levels of the TXPF team are focused on customer service, continuous improvement, investing in locations with the highest return on investment, and flexible operations.

2.0 Overview

The Texas Department of Transportation (TxDOT) owns the South Orient Railroad (SORR), which runs from San Angelo Junction, near Coleman, to the Texas-Mexico border at Presidio, accounting for approximately 371 miles of track. The SORR is operated by Texas Pacifico Transportation LTD (TXPF), a subsidiary of Grupo Mexico, and interchanges with BNSF Railway and Fort Worth and Western Railroad (FWWR). There has been significant growth in TXPF's volume, increasing tenfold from about 2,000 cars interchanged in 2009 to over 25,000 cars in 2014. As the owner of the line, TxDOT authorized TranSystems to complete a Rail Operations Analysis to understand TXPF operational procedures and seek customer feedback on service.

2.1. Background

The Kansas City, Mexico, and Orient (KCMO) constructed the line that is now known as the South Orient during the late 1800's and early 1900's. Once built the line moved minimal traffic until the discovery of oil at Santa Rita, Texas, in 1923.

The KCMO was acquired by the Atchison, Topeka and Santa Fe (ATSF) in 1928. ATSF operated the line for decades and eventually filed for abandonment in 1989. The line was purchased by the state in partnership with private investors to prevent the abandonment, and the investors formed the South Orient Railroad Company (SORC) to operate the line in 1991. SORC was unable to develop a profitable business and filed for abandonment in 1998. TxDOT acquired SORC's interest in 2001 and leased the facility to TXPF. TXPF has a 40-year operating and maintenance agreement with five, 10-year renewal options.

As part of their continuing effort to improve capacity, customer service, and reliable rail operations, TXPF has invested in the infrastructure to ensure continued on time service and reduce the risk of derailment. To date, TXPF has focused upgrades and repairs to track between San Angelo Junction and Alpine to maintain in-demand infrastructure. However, the Alpine to Presidio section has been out of service for approximately seven years.

The international railroad bridge located at the southwestern end of the rail line connecting Presidio, TX to Ojinaga, Mexico burned on two separate occasions, February 29, 2008 and March 1, 2009 (as shown in Figure 1). TxDOT and TXPF plan to rebuild the bridge allowing access to Mexico and increased business potential. The original design maintained the track at the existing grade. This alternative requires the installation of flood gates across the tracks to accommodate the recently increased height of the levee on the north side of the river. The selected alternative raises the bridge above the levee elevation. Current estimates place construction cost at approximately \$10 million. The bridge is currently in the permitting process. A recent project schedule shows the

completion date to be in December 2017¹. Track between Alpine and Presidio would be upgraded as traffic requires through the area.



Figure 1 – Bridge Remains at Presidio, TX

3.0 Physical, Operational, and Customer Data Review

Bruce Anderson, Senior Rail Professional, and Monique Whitehead, Rail Industry Specialist performed a four (4) day on-site visit in June 2016 to collect information related to the South Orient Rail line, observe operations, and conduct interviews. TranSystems collected the following data in electronic form or printed versions:

- Track chart
- Annual inspection reports 2003 to 2015
- Infrastructure and needs assessment report – 2015
- Benefits/cost analysis report – 2015
- Track warrant data for May, June, and July 2016
- Customer carload data for 2014, 2015, and Q1 and Q2 of 2016
- Personnel interviews

¹ Texas Pacifico Website - TXPF: Building the Bridge Toward Global Market Place 2016

3.1. Physical Data

TXPF understands that to allow the operation to continue to handle increased volumes efficiently, they must reinvest revenue back into the rail infrastructure. TXPF has reported spending a total of \$29.8 million in rehabilitation and capacity track improvements between 2012 and 2015. Approximately 7.5 miles of rail was relayed in 2015 with an additional 7.5 miles scheduled for relay in 2016. Track improvements have primarily focused on the line between San Angelo Junction and Alpine. Track that is rehabilitated is constructed to Class II standards.

Selection of track work is based on areas that are expected to provide the highest return on investment and generally selected using track wear monitoring. An ultrasonic car is run along the line two times per year to locate rail defects and a geometry car is run to identify geometry defects. This maintenance and reporting provides TXPF with pertinent information to identify necessary repairs to maintain safe and efficient rail operations.

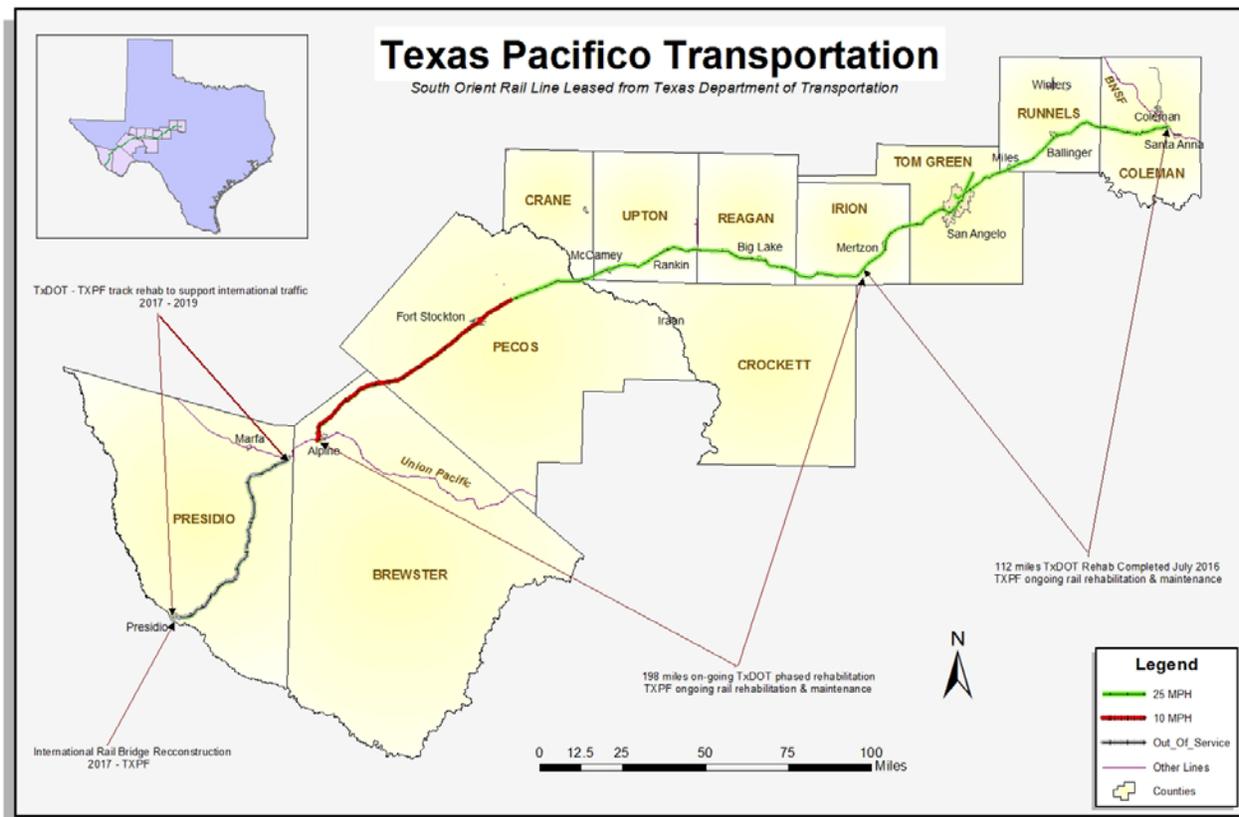


Figure 2 – Rehabilitation Plan

Investments in track maintenance and rehabilitation have been provided by both TxDOT and TXPF. A phasing plan has been created to maximize the railroad’s potential for growth by focusing on the most travelled area of the line as shown in Figure 2. The first group of track rehabilitation projects from San Angelo Junction to Mertzton, approximately 112 miles, was completed in July 2016 and will be maintained by TXPF going forward. A second group of phased projects is currently in

progress to rehabilitate track between Mertzson and Alpine, approximately 198 miles. The remaining TxDOT owned track between Alpine and Presidio will be rehabilitated to support international traffic between 2017 and 2019 once the bridge reconstruction is completed by TXPF.

Rehabilitation of the track has taken train speed into consideration to increase the throughput potential of the railroad. Track from San Angelo Junction to approximately 10 miles East of Fort Stockton has been improved to accommodate 25 MPH. Continuing down the line to Alpine, track speeds are currently 10 MPH with on-going projects to continue to improve the track. The remaining line owned by TxDOT is currently out of service but is expected to be rehabilitated by 2019.

In addition to relaying track for maintenance requirements, sidings and other improvements have also been incorporated into the network to allow for increased capacity and storage areas along the line as shown in Figure 3. New sidings and improvements have been constructed in the following locations:

- San Angelo Junction
 - Additional track constructed
 - Existing siding extension
- Ballinger
 - Fogelman Siding added
- San Angelo Yard improvements including:
 - Upgraded office and crew headquarters
 - New locomotive service shed and pit
 - Upgraded locomotive fueling facility
 - Rehabilitation to tracks
- Barnhart
 - Enron Oil and Gas (EOG industry support track converted to a siding
- Big Lake
 - Santa Rita Siding added

Based on the improvements to date, TXPF leadership currently estimates that existing infrastructure would support 50,000 revenue cars per year, pending additional personnel and locomotives. Review of the data provided shows that several weeks in the past 2 ½ years the railroad handled close to or over 1000 cars per week so the ability to handle 50,000 cars per year seems reasonable.

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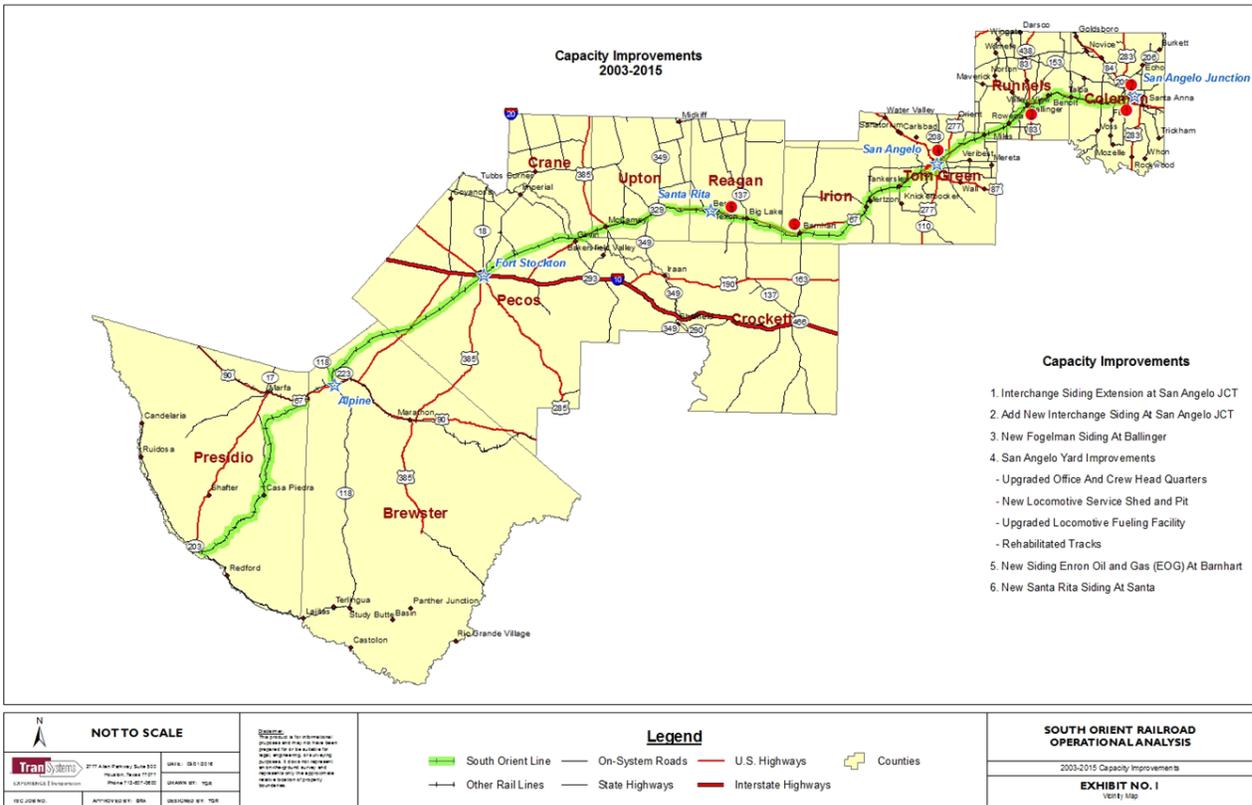


Figure 3 – Major Capacity Improvements, 2003-2015

3.2. Operational Data

Over the last 15 years, TXPF has experienced an increase in volume of approximately 1,367% from an annual volume of 1,710 in 2001 to 25,089 in 2015 as shown in Figure 4. This growth is heavily attributed to a second oil boom that brought an increase in sand shipments and other energy related rail shipments throughout the West Texas area.

Since the traffic boom in the early part of the decade, traffic growth has levelled off. TXPF currently has a projected growth of 4% annually for the near term. The next significant opportunity for market expansion and traffic diversification is anticipated to come with reconstruction of the international bridge at Presidio.

TXPF: Performance

Investments have allowed a significant increase in the volume handled on the TXPF, but there is still plenty of market share to capture.

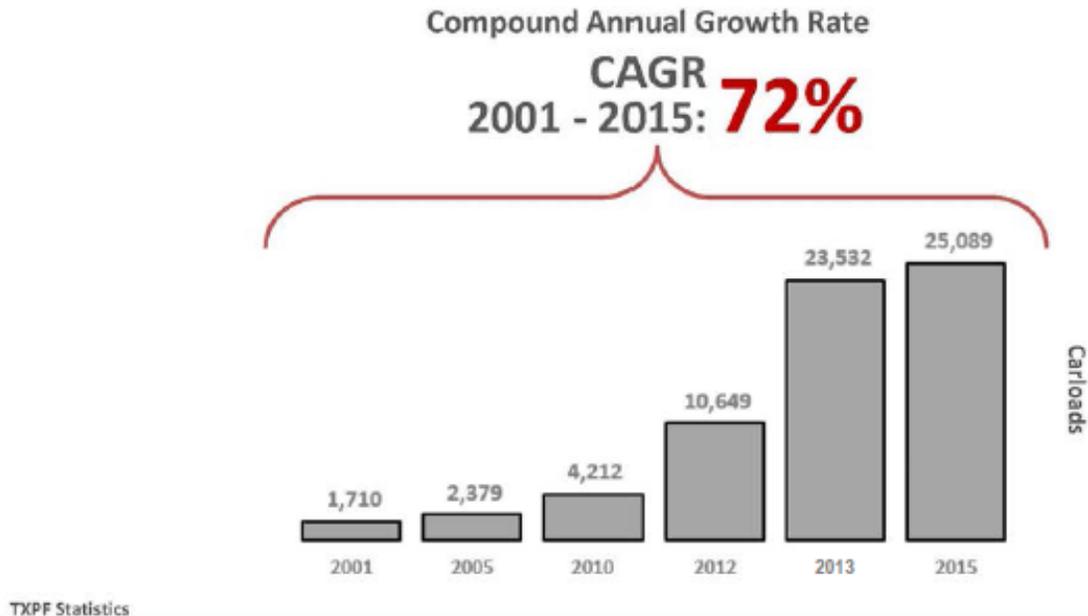


Figure 4 – TXPF Performance Data

3.3. Major Customers

Over the last two decades, TXPF customers have changed based on regional demand. However, three main industries have remained consistent: agriculture, sand, and industrial. Below is a customer list with approximate location as well as Figure 5 and 6 as a pictorial representation for the South Orient Rail Line in 2002 and 2016.

Customers in 2002 included but were not limited to the following:

- Elm Creek Grain – Ballinger, TX
- Wingate Gin – Ballinger, TX
- Pinnacle Sand – San Angelo, TX
- Hirschfeld Steel – San Angelo, TX
- Texas Tank – San Angelo, TX

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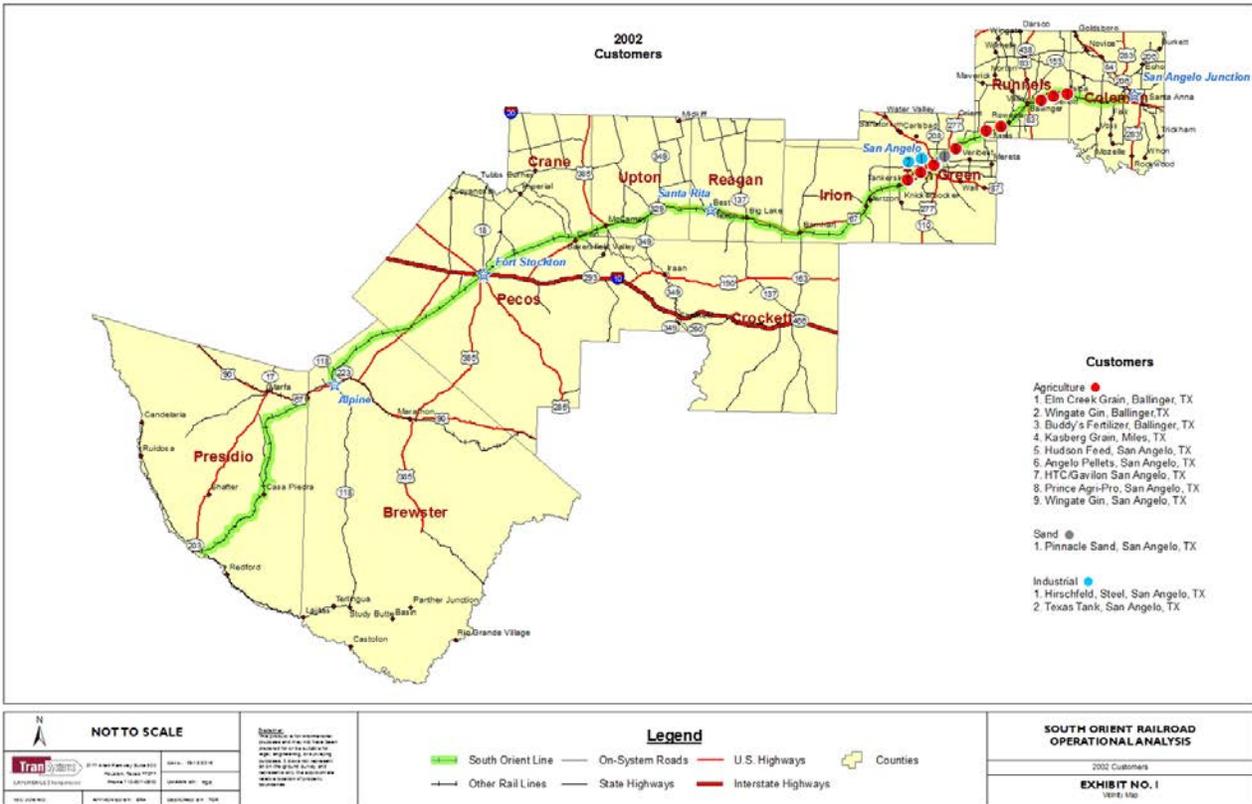


Figure 5 – Major Customers, 2002

Customers in 2016 include but are not limited to the following:

- Elm Creek Grain – Ballinger, TX
- Wingate Gin – Ballinger, TX
- Buddy's Fertilizer – Ballinger, TX
- Kasberg Grain – Miles, TX
- Hudson Feeds – Harriet, TX
- Western Towers – Harriet, TX
- Pinnacle Sand – San Angelo, TX
- Vista – Big Lake, TX
- Fairmont Minerals – Big Lake, TX
- Texas Specialty – Barnhart, TX
- Vista – Fort Stockton, TX
- Texas Specialty – Fort Stockton, TX
- Hirschfeld Steel – San Angelo, TX
- Texas Tank, San Angelo, TX
- Coopers – Rankin, TX

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Figure 6 – Major Customers, 2016

4.0 Operational Analysis

As shown in Figure 7, TXPF operates trains based on four operating segments within the line. No more than one crew is used within each operating segment at a time with an additional crew used for switching in the San Angelo Yard. The first segment begins near Coleman, TX at San Angelo Junction where trains are received from the BNSF or FWR. This segment ends in San Angelo, TX at the San Angelo Yard. Manifest trains are brought into the yard for classification; however, unit trains will bypass San Angelo Yard and are delivered direct to the customer.

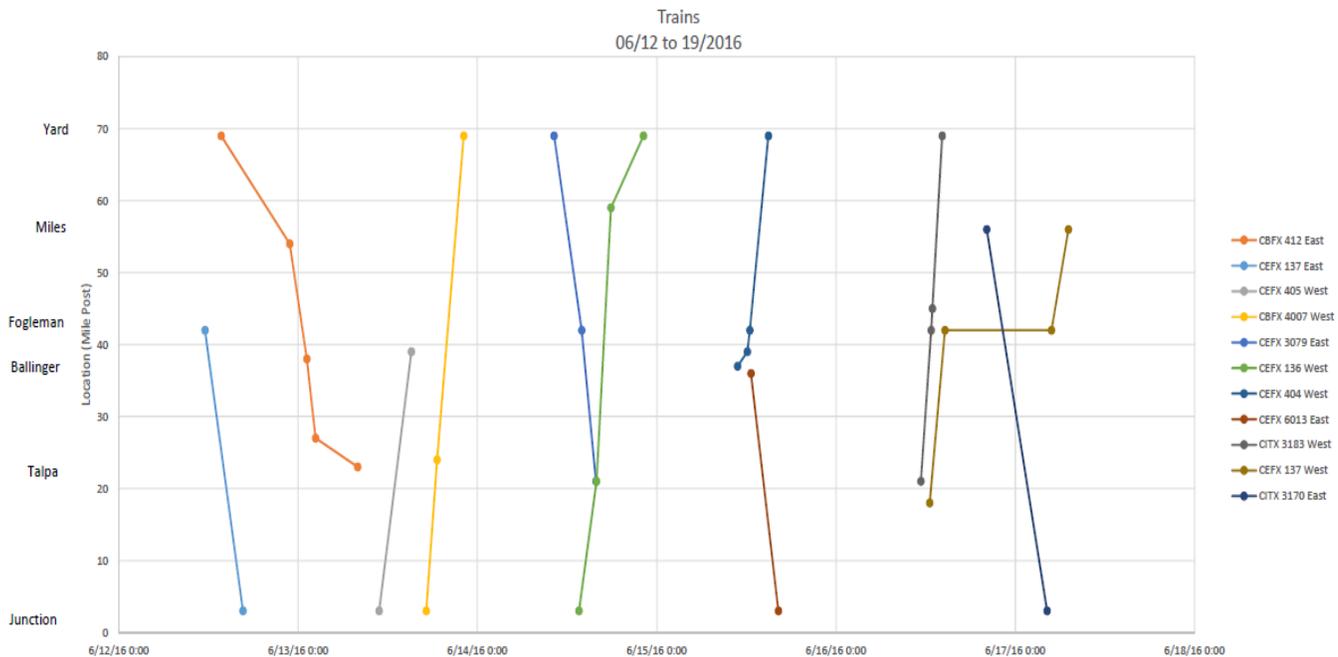


Figure 8 – String Line Diagram Train Movement June12-19, 2016 between San Angelo Junction and San Angelo Yard

Freight movement between San Angelo Junction and San Angelo Yard is unscheduled service which, as shown in Figure 7 on June 17, can cause train meets at Fogleman siding or other locations on the line. Fogleman Siding near Ballinger was added in 2013 primarily for this purpose and adds significant operational capacity and flexibility and serves as an example of the strategic investments made by TXPF. Train meets are typical within single track rail operations and the current configuration of main track and sidings will support an increase in traffic. The limited infrastructure at San Angelo Junction could become a potential bottleneck going forward. San Angelo Junction includes only two interchange tracks and a run-around to accommodate interchanging traffic with two railroads. This means TXPF has only a short window each day to clear one railroad’s inbound and set the other’s outbound between interchanges in order to keep their railroad fluid and the interchange operations functioning correctly. If TXPF were to see traffic growth to a point that required more than two interchanges in a 24 hour period, sidings at Talpa and Ballinger may be used to stage trains but track upgrades to the main and sidings would be warranted to withstand the greater volumes.

A key component to maintaining TXPF’s operation and increasing capacity with the current operating plan requires cooperation with their interchange partners. The cooperation currently appears to be working well but any coordinated function between groups requires constant attention. TXPF has demonstrated the willingness, capability, and discipline necessary to maintain and enhance the cooperative relationships with their interchange partners that they have

developed over time. The opportunity to create scheduled interchange operations may present greater opportunities for improved coordination and improved utilization of track and assets.

5.0 Volume Analysis

Carload information was received from TXPF for 2014, 2015, and 2016. The carload information was reviewed and organized based on commodity and year. Figure 9 shows the results of the review by commodity. Results from the analysis include the following:

- Total traffic volumes have remained relatively consistent through 2014, 2015, and 2016
- Traffic mix has changed (pipe has come and gone and crude traffic is declining)
- Sand is currently the predominant commodity and accounts for 90-95% of shipments each year

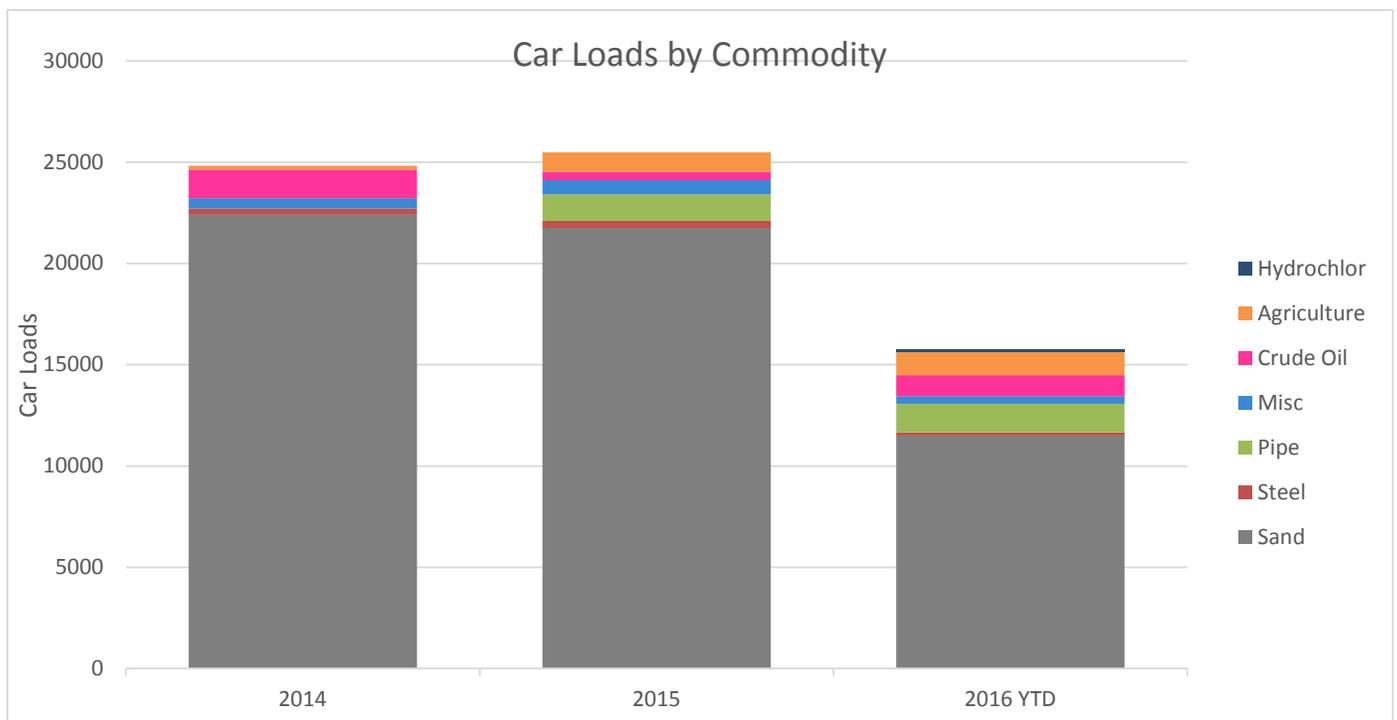


Figure 9 – Car Loads by Commodity

Comparing sand car loads to total car loads over the two and a half years of data produces the graphs shown in Figures 10 and 11. Key results from this analysis confirm the following:

- Total volume over this period was heavily dependent on sand shipments
- Although lower in total car loads, other commodities can significantly affect short term traffic volumes; pipe and grain are examples of commodities having this affect in 2015 and 2016

Sand has been a stable commodity for TXPF recently. Based on current demand and TXPF's infrastructure and location it appears the sand traffic will remain strong in the short term.

Nationally, analysts believe that although rail shipment of some energy related commodities have dropped off, the demand for sand will continue to be a revenue producing commodity for the railroads. This would seem to indicate TXPF could benefit from this demand for the foreseeable

future. TXPF has also deftly maximized the opportunities related to short duration commodities to improve their traffic volumes and revenues. Pipe for the new Trans-Pecos pipeline and crude oil shipments are two examples. TXPF has also begun conducting site visits to potential customers as a means of attracting new business with the goal of diversifying the commodities that they handle.

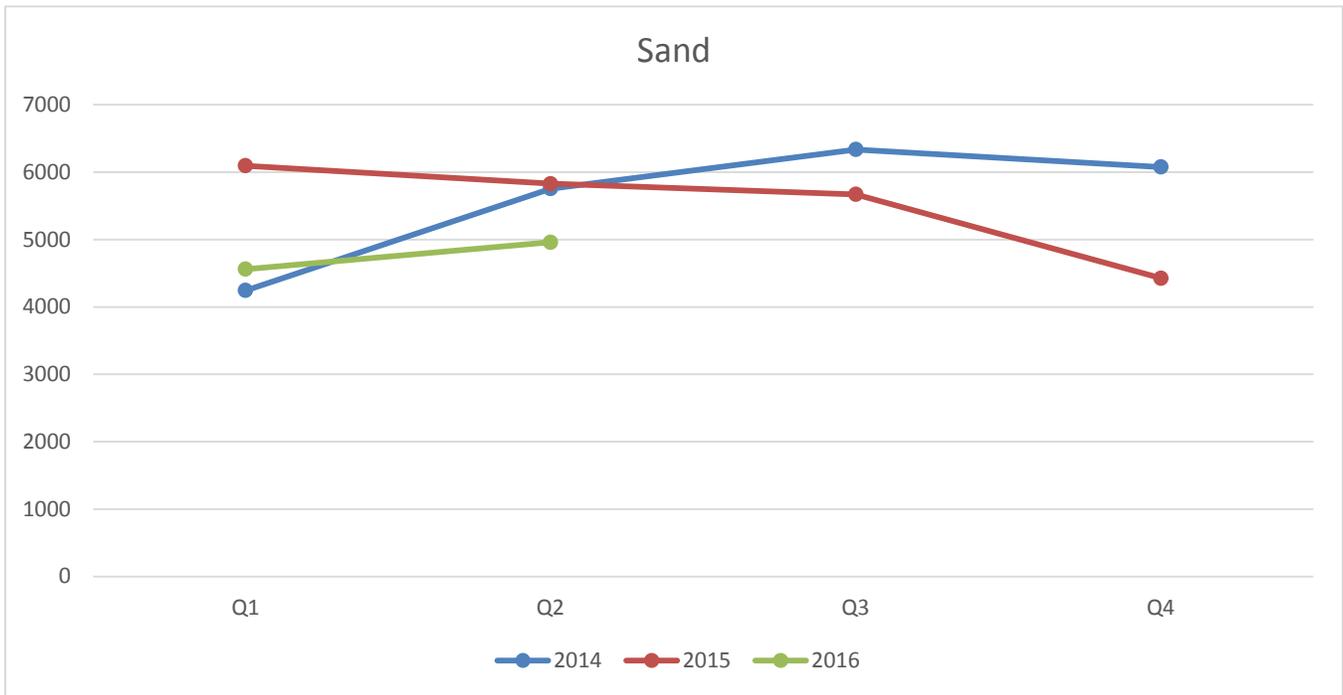


Figure 10 – Sand Carload Comparison, 2014-2016

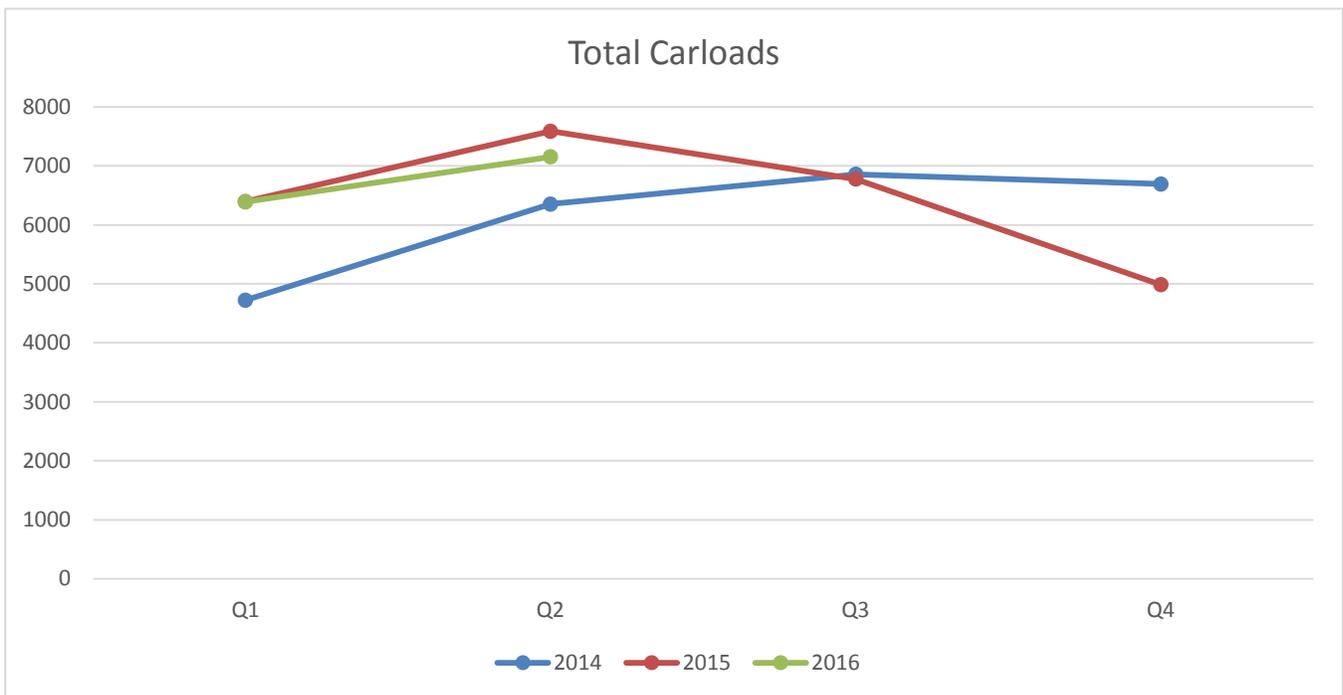


Figure 11 – Total Carload Comparison, 2014-2016

Although no specific financial data was reviewed, observations indicate the entire TXPF organization is focused on serving their customers and conscious of doing it efficiently. Cost control and efficient operations are always important factors in operating a successful railroad; however, going forward, opportunities for future growth for TXPF will likely not be primarily driven by lowering costs or changing their current operating plan. Traffic growth will more likely be a result of the expansion of TXPF's market reach and business development along their route. Expansion of business is expected to be through the following opportunities:

- Organic growth, approximately three to four percent per year forecasted through 2016 as reported by TXPF
- Additional short duration opportunities
- Expanding business with current customers to include other commodities
- Attract additional development on the line

6.0 Interviews

Interviews were conducted with various management and operations personnel from TXPF and their stakeholders. These interviews were completed to gain a better understanding of the current operations, TXPF projected growth, and relationships between TXPF and their stakeholders (both customers and counterparts). The following individuals were interviewed in this process:

- Federico Diaz
- Elizabeth Grindstaff
- Jorge Gonzales
- Eduardo Gomez
- Chad Walter
- Fernando "Chip" Sanchez
- Jake Wade
- Steve Karnopp
- Alfonso Martinez
- Isaac Ramos
- Mark Martinez
- Javier "Bear" Abarca
- Anthony Collier, Wabtec
- Steve Salzman, BNSF
- Tres Meyer, Rio Grande Pacific
- Donnie Schwertner, Kasberg Grain

Questions for these interviews were developed and reviewed with TXPF and TxDOT. Interviews were adjusted based on each individual's expertise and additional questions were added during the interview for clarity purposes. All interviews led to encouraging conversations with overlapping themes focusing on the following:

- Customer service
- Communication
- Investment in people
- Investment in infrastructure
- Improved operations
- Growth and diversification of traffic
- Belief in a positive future

6.1. Customer Service

One customer stated that previously train crews struggled with switch lists and understanding the needs of the customer. Through increased communication, decreased employee turnover, and increased training, TXPF employees have been able to work closely to gain a better understanding

of the customers' needs and provide better quality customer service. One customer alone claimed that they were able to remove 4,100 trucks off the road during the 2016 peak season.

Various operations employees stated that working with specific customers has become much easier as well. Several larger customers have taken time to understand rail operations and adjusted their operations to better fit the needs of TXPF. This has led to improved operations for both the customer and TXPF because of fewer overall switching requirements; therefore, more production time for the customer.

Field employees also stated that they prefer to work with high volume customers that focus on unit trains. These customers can be served quickly and efficiently. To accommodate smaller volume customers, TXPF generally tries to add manifest freight to what would typically be a unit train. This is a more cost conscious way of operating but can cause cars to dwell in storage.

6.2. Communication

As stated above, communication between TXPF and their customers has improved. The development of these relationships and relationships with the interchanging railroads has allowed for TXPF to increase their efficiency and better align their operations with customer needs.

There are two daily conference calls used to aid in the daily operations planning. The first is conducted at 07:45 between TXPF and FWR to discuss trains to be interchanged throughout the next 24 hours and upcoming days as information permits. The second is an internal call conducted at 08:00 to discuss train movement and track maintenance. Both allow for rapid operations adjustments to accommodate variations in service.

6.3. Investment in People

In the last five years, employee turnover has decreased leading to more consistent operations. High turnover previously led to the following issues:

- Conductors and engineers with limited experience
- Increase wear on the leased locomotives
- Limited switching knowledge and experience

Changes to the training structure and increased job satisfaction have reduced the above stated impacts and increased employee retention.

Training is provided to employees as required by the FRA through class room training and on-the-job training. Section 240.123(b) and section 242.119 of Title 49 CFR describe the continuing education of certified conductors and locomotive engineers to ensure that they maintain the necessary knowledge, skill and ability concerning personal safety, operating rules and practices,

mechanical condition of equipment, methods of safe train handling, and relevant Federal safety rules.

TXPF has increased the frequency of training and decreasing the class duration to provide an opportunity to review relevant information quarterly instead of yearly, creating an opportunity to increase retention. Operations personnel stated that they like the concept of the quarterly training and believe that the shorter durations of training will allow them to retain more information.

Some employees did show interest in additional training including the following:

- Leadership training
- Cross-functional training
- Additional FRA class training

6.4. Investment in Infrastructure

TXPF has focused on reinvesting their revenue into the track as a means to allow for future growth and maintain safe operations. Derailments create an opportunity cost that prevents TXPF from investing revenue in infrastructure to increase rail capacity. Infrastructure improvements have focused on opportunities to increase rail speed, increase storage requirements, and for maintenance purposes as shown in Section 3.1.

6.5. Improved Operations

Both customers and employees commented on the improvement in operations as volumes have continued to grow. Attributes to the improved operation include, but are not limited to, the following:

- Hiring staff with railroad experience to provide industry best practices
- Promotion from within to provide local best practices and challenge the processes for improvement
- Increased business forced a change in operations
- Consistent communication between interchange railroads and customers
- Improved employee satisfaction and reduced turnover

All levels of the organization have become flexible to adjust the operations as required. From a corporate level, employees understand that investment within the infrastructure will provide more capacity and more opportunity to grow the business. From a field level, employees understand that operations change constantly and plans must be adjusted throughout the day. Tactics similar to these will continue to help develop an environment focused on change management.

Initial discussions for potential improvements have been discussed between TXPF and BNSF to accommodate BNSF engines to the customer destination; although, there are no documented plans to proceed at this time. If improvements are completed to accommodate BNSF engines, there is potential to reduce time between interchange and delivery to the customer; however, current

operating procedures would need to be adjusted to accommodate the change in freight movement within the network.

6.6. Growth and Diversification of Traffic

TXPF has experienced an increase in volume of approximately 1,367% between 2001 and 2015 and continue to seek new opportunities for growth in the future. Opportunities recognized by TXPF include, but are not limited, to the following:

- Rebuilding the bridge to connect to Mexico
- Team track capabilities
- Providing additional leases within the current footprint of the ROW
- Expand business with current customers
- Exploit short duration opportunities, like pipe

A study was conducted by the Texas Transportation Institute pertaining to the reconstruction of the bridge. The study showed that the project could increase TXPF volume by 20% and diversify the commodities currently shipped. TXPF has already begun advertising the future interchange point and believe that potential commodities moving forward include car parts, tile, cement, pasta, dog food, cotton, and fertilizer.

Growth is also expected to be organic and through new customers on the current line. Domestic growth opportunities include, but are not limited to, the following:

- Mining of zeolite and bentonite
- Adding an industrial park in the San Angelo area, pending improvements to the Loop 306 rail crossing
- Shipment of cotton seed

TXPF does recognize the limitations of their current and future operations. Operating an unscheduled service on Class II track provides limits on train speed causing trains to travel in excess of 20 hours when including crew changes and interchange requirements. This type of operation is not likely ideal for auto manufacturing facilities working on a “just in time” inventory system.

6.7. Belief in a Positive Future

Overall, interviews conducted were positive and provided insight into an encouraging future. All employees seem to be forward looking and focused on improving operations and increasing business. Continuing the best practices created to date will allow the TXPF team to continue to succeed moving forward.

7.0 Summary

TranSystems has compiled a list of opportunities for TXPF and TxDOT going forward. These opportunities include practices that should be continued and recommendations to focus on in the future as follows:

- Continue focus on safety
- Continue focus on communication
- Continue to improve skills in the workforce, like a mentorship program
- Expand business with current customers, like cotton seed
- Attract development on line, like a team track
- Continue to take advantage of short duration or “one off” opportunities, like pipe
- Continue permitting and construction process to rebuild the bridge into Mexico
- Pending cooperation with one or both interchange railroads, create an interchange schedule to increase efficiency of San Angelo Junction

At a high level, TXPF has made tremendous strides in developing and implementing processes and procedures to improve operations, customer service, and employee morale and professionalism. Going forward, change management will be key in building new business and continuing to improve operations and customer service. Developing and documenting best practices and processes is important for TXPF to continue.