VISTA TRANSIT OPERATIONAL EFFICIENCY STUDY:
Analysis, Evaluation and Recommendations for 
Fare Structure and Service Modifications at Vista Transit

Prepared for the:
Sierra Vista Metropolitan Planning Organization
and City of Sierra Vista

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1.0 Introduction
The Vista Transit Operational Efficiency Study is focused on “Improving the efficiency of Vista Transit and focusing service on those who need access to public transportation”, as identified by the Sierra Vista City Council in the FY18-19 Strategic Leadership Plan. The study has three primary tasks:

- Fare policy
- Paratransit service
- Fixed-Route service to Fort Huachuca

The following sections provide a summary of the tasks developed for this study including analyses and recommendations identified for each task. This report concludes with four scenarios with options for service efficiency enhancements.

2.0 Fare Policy Analysis
The Fare Policy Analysis task consists of two parts, a peer review and a fare policy analysis.

1. Peer Review
   a. An evaluation of 25 similar transit providers, to provide insight into the fare structures and policies being used locally and nationally among similar transit providers, to establish fare-related benchmarks, and to identify best practices.
   b. Results are documented in Appendix A, Technical Memorandum, Fare Policy Peer Review.

2. Fare Policy Analysis
   a. Using the findings documented in the peer analysis, a predictive fare revenue model was utilized to develop several potential fare policy recommendations.
   b. The analysis was performed using farebox revenue and ridership information from Vista Transit for the year beginning October 1, 2015 and ending September 30, 2016.
   c. Results are documented in Appendix B, Technical Memorandum, Fare Policy Analysis.

Peer Review
This task consisted of a review of 25 similar transit providers which documented fare revenue and performance metrics for comparison against transit services in the City of Sierra Vista. The peer review provided insight into the fare structures and policies being used locally and nationally among comparable transit providers, established fare-related benchmarks, and helped identify best practices. The analysis used data from the 2016 National Transit Database (NTD) and was made available by individual transit providers. Appendix A includes a complete analysis of peers as part of the Fare Policy Peer Review Technical Memorandum.

The peer review revealed Vista Transit has an operations and maintenance (O&M) cost per passenger that is well below the average peer. Whether this is a result of strategic operational efficiencies or a larger natural transit market, it is a great starting point and results in an average farebox recovery as
compared to similarly sized peers, despite generating less revenue per trip. However, Vista Transit does have capacity for an even higher farebox recovery through optimization of ticket prices and a streamlined revenue collection system.

When compared to peers, the range between the lowest available fare and premium fare is much narrower for Vista Transit. As shown in Figure 1, peers offering a similar reduced fare, such as Rapid Transit, City of Cheyenne, and the City of Kingman, have a higher base fare and a Paratransit fare that is a dollar higher than Vista Transit. The City of Tucson’s premium is even higher. One general strategy would be to diversify available fares and fare media. Pairing a base fare increase with targeted marketing of lower cost fare options (such as monthly or multi-ride passes), Vista Transit could create a stronger incentive structure towards more operationally efficient pass types and reduce ridership losses normally associated with a fare increase. This diversification could also extend to paratransit fares, with a premium fare for services offered beyond Americans with Disabilities Act (ADA) requirements.

**Figure 1: Comparison of One-way Fares**

Note: Greenville Area Transit and Yuma County IPTA did not list paratransit fares and are not included in the above table. Josephine County and the City of Kingman did not list reduced fare categories online. This analysis assumes a reduced fare equal to half the base fare where other information is not available.
Fare Policy Analysis and Strategies

The findings established through the peer analysis were used alongside a predictive fare revenue model to develop potential fare policy recommendations. A variety of potential fare changes, as documented in Appendix B, Fare Policy Analysis Technical Memorandum, were assessed for potential impacts on ridership and revenue.

In addition to potential revisions to the fare structure, this analysis also evaluated the potential and implementation costs of updated fare collection equipment, which may allow more capabilities in the use of fare media and more flexibility within its fare policy. New farebox equipment could potentially allow Vista Transit to reduce cash handling, enhance ridership data collection, reduce expenses associated with supporting different fare media and improve customer convenience.

The fare policy analysis was performed using farebox revenue and ridership information from Vista Transit for the year beginning October 1, 2015 and ending September 30, 2016. The results of this analysis will allow Vista Transit to:

- Establish ridership and revenue benchmarks for each existing fare category and ticket type
- Use this information to price new fare products
- Forecast the fare revenue impact of potential fare policy changes

An initial and longer-term set of fare strategies were recommended based on the modeled impacts to ridership and revenue in order to determine the most effective short-term solutions. The modeled ridership and revenue impacts are presented as a range, as shown in Tables 1 and 2. Vista Transit’s specific customer base may be more or less sensitive to price changes than national average elasticity for bus fares. The impacts presented are representative of a wide range of measured bus fare elasticities spanning large and small systems for a variety of rider and trip characteristics.

Smaller or more conservative changes to the fare structure will produce a narrower range of potential outcomes. Other strategies may produce a range including both positive and negative impacts, indicating a higher-risk strategy that is more dependent on Vista Transit customers’ price sensitivity. Strategies include:

- Set Reduced Fare at 50% of Base Fare
- Maximize Paratransit Revenues
- Maximize Student Revenues
- Understand Ideal Pass Prices
- Streamline Fare Purchase and Payment Options

**Set Reduced Fare at 50% of Base Fare**

Regardless of other potential fare strategies pursued, it will be necessary to align Vista Transit’s reduced fare with Federal Transit Administration (FTA) guidance. There are several ways to achieve the required ratio including:
• Increase base fare to $1.50 while holding reduced fare steady at $0.75.
• Hold base fare steady at $1.25 while decreasing reduced fare to $0.62 cents or less.
• Increase both the basic and reduced fares.

Any of the above strategies could be targeted to a particular time of day (for example $1.50 base fare during peak hours only) if a more conservative change is desired. Variable pricing, however, can introduce additional complications for drivers in communicating and enforcing different fares at different times of day. Therefore this strategy is not recommended unless payments are transitioned to a fully automated (cashless) system.

At this time, the ideal mechanism for achieving FTA compliance would be to increase the base fare to $1.50. As shown in Table 1, this is the only strategy that is predicted to result in net positive revenue impacts regardless of local fare elasticity. A reduction of the reduced fare to $0.62 results in a revenue loss even for the most price-sensitive riders, and transit dependent riders tend to be less price sensitive, which could result in revenue losses on the higher end of the range presented. Further, a cash fare of $0.62, requiring a minimum of five (5) coins, would require excessive cash handling as customers board the bus. The possibility of having to overpay when exact change is not available and the added time and energy required upon boarding may negate much of the ridership gains predicted from the fare decrease. A decrease in the reduced fare category is not likely to spur a large ridership growth, but would negatively impact revenue and timely boarding.

Table 1: Revenue Impact of Reduced Fare Adjustments

<table>
<thead>
<tr>
<th>Fare Category</th>
<th>Adjusted Fare</th>
<th>Ridership Impact (Annual Unlinked Trips)</th>
<th>Revenue Impact (Annual $2016)</th>
<th>Net Revenue Impact of Basic &amp; Reduced Fare Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced</td>
<td>$ 0.50</td>
<td>3,200 to 11,100</td>
<td>($4,900) to ($3,000)</td>
<td>($11,800) to ($6,600)</td>
</tr>
<tr>
<td>Basic</td>
<td>$ 1.00</td>
<td>2,700 to 9,600</td>
<td>($6,900) to ($3,600)</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$ 0.62</td>
<td>1,600 to 5,800</td>
<td>($2,400) to ($1,200)</td>
<td>($2,400) to ($1,200)</td>
</tr>
<tr>
<td>Basic</td>
<td>$ 1.25</td>
<td>No change</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$ 0.75</td>
<td>No change</td>
<td>No change</td>
<td>$1,300 to $6,200</td>
</tr>
<tr>
<td>Basic</td>
<td>$ 1.50</td>
<td>-9,600 to -2,700</td>
<td>$1,300 to $6,200</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$ 1.00</td>
<td>-11,100 to -3,200</td>
<td>$400 to $4,100</td>
<td>($2,600) to $20,800</td>
</tr>
<tr>
<td>Basic</td>
<td>$ 2.00</td>
<td>-29,900 to -8,200</td>
<td>($2,900) to $16,700</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$ 1.25</td>
<td>-22,100 to -6,300</td>
<td>($1,900) to $7,500</td>
<td>($18,200) to $32,180</td>
</tr>
<tr>
<td>Basic</td>
<td>$ 2.50</td>
<td>-48,100 to -13,700</td>
<td>($16,400) to $23,500</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$ 1.50</td>
<td>-33,200 to -9,500</td>
<td>($6,800) to $10,200</td>
<td>($45,700) to $40,000</td>
</tr>
<tr>
<td>Basic</td>
<td>$ 3.00</td>
<td>-67,400 to -19,200</td>
<td>($38,900) to $29,800</td>
<td></td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

Increasing both fares would have more mixed results. Although an increase in reduced fares could spur revenue gains for that fare category, any increase in reduced fare would require a corresponding increase in the base fare. Net revenue resulting from higher fares across the board could lead to net losses if Vista Transit customers are more sensitive to fare changes. For this reason, the conservative increase to $1.50 base fare is recommended at this time. The ridership impacts in Table 1 can be used as
a benchmark to compare actual gains or losses resulting from any potential fare change in order to better understand local price sensitivity for Vista Transit.

Maximize Paratransit Revenues
Paratransit service has a higher per passenger operating cost than fixed-route service and generally requires a higher subsidy per passenger than fixed route service, even at higher fares. For this reason FTA allows paratransit fares for ADA-qualified customers to be up to double the basic one-way fare. Paratransit fares are not regulated for passengers that do not meet ADA criteria or live more than three-quarters of a mile from fixed-route service. Currently, Vista Transit’s paratransit fare of $2.00 is only 1.6 times the base fare. The cost to operate the service per passenger trip was $27.95 in 2017. When the fares collected are removed, the remaining subsidy per passenger required to cover the cost of the trip was $25.90.

This analysis examines the revenue impacts of potential paratransit fare adjustments including:

- Increase paratransit fare to $2.50 (maximum allowed with existing base fare)
- Increase paratransit fare to $3.00 (maximum allowed for base fare = $1.50)
- Establish higher fares for paratransit service beyond ADA requirements

As shown in Table 2, the revenue impact of a $2.50 paratransit fare is positive across all elasticities tested. The impact of $3.00 paratransit fares is similarly positive, with a potential for a very small revenue loss only under the most price sensitive scenario. Paratransit fares above $3.00 are not recommended due to its potential for lost revenue and the requirements this would impose on the base fare. Ultimately the decision between a $2.50 fare and a $3.00 fare will depend on broader system performance goals. If there is a desire to reduce operating costs through stricter eligibility, then a $3.00 paratransit fare, which has a bigger impact on ridership, may be preferred. If the goal is to provide as much service to customers as possible, then a $2.50 paratransit fare would be ideal.

<table>
<thead>
<tr>
<th>Adjusted Paratransit Fare</th>
<th>Ridership Impact (Annual Unlinked Trips)</th>
<th>Revenue Impact (Annual $2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 2.50</td>
<td>-1,500 to -400</td>
<td>$500 to $3,200</td>
</tr>
<tr>
<td>$ 3.00</td>
<td>-3,000 to -800</td>
<td>($400) to $5,900</td>
</tr>
<tr>
<td>$ 4.00</td>
<td>-5,900 to -1,700</td>
<td>($6,800) to $10,100</td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

As discussed in Appendix C, Paratransit Cost/Benefit Analysis Technical Memorandum, only 6% of paratransit trips originate outside of the three-quarter mile area required for ADA paratransit service. As a result, any fare adjustments for an extended service area are not likely to significantly impact net revenue. Stricter enforcements of the geographic requirement would likely lead to lower revenue, as most of these trips would not be possible using fixed route services.
Maximize Student Revenues
Currently, students are priced similarly to customers with a disability and those over 65 years of age. This is not required by ADA, and many peer systems charge an alternate fare for student trips. Changes to student fares would have similar results as shown for all reduced fare trips in Table 1, above, but would only affect about a quarter of the trips and would not require corresponding adjustments to the base fare. For example, a student fare of $1.00 could lead to annual revenue gains between $100 and $1,100. This would come with a ridership loss of between 500 and 2,100 unlinked student trips. Students tend to be more price sensitive than a typical rider, so ridership losses may lean more towards the high end of the range. Although the net revenue impact would be positive other factors may warrant leaving the student fare at $0.75, including:

- Ability to grow longer-term ridership by familiarizing more students with transit
- Retain ability to adjust student one-way fare at a later time to help incentivize group sales or new fare media
- Low-end of revenue impacts associated with a price sensitive student demographic are not significant enough to warrant change

Because the number of student trips affected is less impactful than other changes discussed above, student fare adjustments, if any, should be part of a longer-term strategy that reflects system-wide goals.

Understand Ideal Pass Prices
Under the current fare structure, day and monthly passes are generating the highest revenue per boarding of any fare media. Given a limited evening and weekend service schedule, it may be difficult for customers to utilize these passes enough to generate a per-trip discount over existing fares. In addition, passes do not require cash handling and can speed up the boarding time at stops. Monthly passes in particular have a lower production cost than single ride tickets. Incentivizing this fare media can help to reduce operating costs and increase overall efficiency of the system.

Because of bus fares’ natural inelasticity, reducing the price of passes is not likely to generate much additional ridership and can negatively impact revenues. However, increasing pass prices may push more riders to switch to one-ride tickets or cash. It is recommended that the price of passes is held constant while cash fares go up in order to incentivize this more efficient media.

Streamline Fare Purchase and Payment Options
A variety of new fare media equipment is available to streamline the fare payment and collection process. Some strategies used by other bus systems to speed up the boarding process and reduce cash handling errors include:

- Off-board fare collection
- Magnetic strip cards
- Smart Card/TAP card media
- Mobile payment apps
Off-board fare collection works by allowing customers to purchase their fare using cash or card at an off-board machine in exchange for a proof of payment receipt. The receipts are standardized and reduce the need for drivers to handle cash payments or verify correct amounts. While this system can speed up boarding time when the bus arrives, it can add to a passenger’s overall commute time to make the payment at a designated stop. Buses may still be delayed if waiting for a customer to finish an off-board transaction.

Because the system is still primarily paper-based, there are no large capital costs associated with software or systems costs. Individual vending machines can cost approximately $15,000 per unit and printing costs can add a few cents per fare issued. This system of payment works best in areas with high stop volumes or in combination with on-board fare collection equipment at low-volume stops. It would not be cost effective to include ticket vending machines at all boarding locations, so some other form of payment collection would still be required.

Magnetic fare cards use the same technology found in consumer credit cards, and require the passenger to swipe or insert the card upon boarding. They allow passenger trip information to be stored on the card, but the extra time taken to read data stored on the card can cause delays roughly equivalent to a cash payment. Systems costs for magnetic strip cards are approximately $300,000 plus $10,000 per on-board reader. The cards themselves are low-cost at about $0.05 each, but are generally made of coated paper which can be easily damaged. The ease of damaging these cards makes them harder to use for longer periods of time and may not be suitable for multi-ride tickets or monthly passes.

Smart Cards or TAP cards use an RFID chip that can be read without direct contact. These cards are similar to those used for secure building entry. Smart cards have embedded dynamic logic that can process complex fare rules, including time-sensitive fares or transfer discounts and distance-based fares. Smart cards are also more durable than paper cards and can be reloaded for extended longevity. Some systems (such as the Biddeford-Saco-Old Orchard Transit peer system) incorporate RFID tokens which can be pre-loaded with a single one-way fare and deposited in a turn style for reuse. System costs for Smart Cards are approximately $500,000 plus $15,000 per RFID reader. The system would also require additional verification machines at exits if distance-based fares are utilized. Each fare card may cost between $1.00 and $2.00 depending on the complexity of the fare structure, but can be reused. Many systems implementing smart card technology require the passenger to pay a one-time card fee to encourage riders to keep and reload their fare cards.

Mobile payment is among the newest technologies to emerge for fare payment. Mobile payment apps are typically managed by third party vendors, and can have much lower up-front capital costs as compared to an RFID or magnetic strip system. Readers may cost approximately $10,000, but may be included as part of a third party package. However, maintenance or support payments made monthly or annually range may add between $80,000 and $200,000 to annual operating costs. Alternatively some vendors may add a percentage based fee on all fare transactions. Mobile payment systems have the

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1 Florida Department of Transportation, Assessment of Mobile Fare Payment Technology for Future Deployment in Florida. [http://www.fdot.gov/transit/Pages/FinalReportMobileFarePayment20160331.pdf](http://www.fdot.gov/transit/Pages/FinalReportMobileFarePayment20160331.pdf), Accessed March 2016.
benefit of allowing passengers to purchase tickets from any location without requiring costly vending machines at low-activity stops. This could help to improve the use of day and monthly pass options. Currently passes are sold at four physical locations which may be near destinations and transfer points, but may not be convenient for a passenger first boarding a bus from their home. Data tracking is available for app-based payments, but often relies on proprietary software and may require additional fees as compared to an operator owned RFID system.

Fare Policy Conclusions
The first phase of fare policy implementation must include adjustment of one-way base and/or reduced fares to achieve compliance with FTA half-fare regulations. This would ideally be timed with adjustment of the paratransit fare and a marketing effort promoting daily and monthly passes as not changing in price. This analysis recommends an initial roll out of $1.50 base fare and $3.00 paratransit fare with no other changes to reduced, student, or military fares or pass prices. These changes could generate net positive revenue of up to $12,000 annually.

Other potential changes, including a $1.00 student fare, or implementation of new fare media also have the potential to increase total revenue, but are not recommended as part of this first phase. Student fare adjustments have a lower upside and risk long term ridership losses and should only be considered after documenting the response to the initial fare adjustments which can help to define the price sensitivity of Vista Transit customers. One-way student fare changes may be more appropriate if part of a larger strategy to incentivize a semester pass or partnership with local schools.

Implementation Plan
- Phase 1: Adjust one-way base and/or reduced fares to achieve FTA compliance
  - Recommendation: Change to $1.50 base fare and $3.00 paratransit fare, no changes to $0.75 reduced fare
- Phase 2: Implementation of new fare media with purchase of new fareboxes

3.0 Paratransit Analysis
Vista Transit currently provides paratransit service throughout the city limits of Sierra Vista, which is outside of the mandated three-quarter mile zone from fixed route services. This task developed two technical memorandums based on service area cost/benefit analysis, and a fare policy and service evaluation.

1. Service Area Cost/Benefit Analysis
   a. A cost/benefit analysis was performed based on restricting paratransit services to the minimum ADA mandated service area, which is three-quarter mile from fixed route services.
   b. Results documented in Appendix C, Service Area Cost/Benefit Analysis Technical Memorandum.

2. Fare Policy and Service Evaluations
a. Evaluated the current ADA eligibility determination process and suggested options for improving the accuracy of determining ADA eligibility with a shift to the idea of the transportation assessment focus on ability and the range of mobility options available in the region.
b. Provided options for improving cost savings for paratransit services. Cost savings presented for fare policy changes, and partnership with Lyft or another Transportation Network Company (TNC).
c. Results documented in Appendix D, Paratransit Service Evaluation Technical Memorandum.

Service Area Cost/Benefit Analysis
Using information from current paratransit service statistics, a cost/benefit analysis was conducted to help understand the potential impact of restricting the ADA paratransit service area to the mandated three-quarter mile of fixed routes (18 square miles). Currently the service area includes all of the City of Sierra Vista (153 square miles). Paratransit service is operated by Vista Transit within Sierra Vista city limits during the same span as Vista Transit fixed routes, Monday through Friday 7:00 am to 4:00 pm. Paratransit service is only open to eligible, registered customers with disabilities. Trip requests need to be made at least 24 hours in advance. The fare per one-way trip is $2.00. For the complete analysis, refer to Appendix C for the Technical Memorandum, Paratransit Cost/Benefit Analysis.

Ridership on the paratransit service has been decreasing since 2012 when annual ridership totaled more than 10,000 riders – a 31% reduction in ridership over the 5-year period. This compares to a 14% reduction in ridership during the same period on the fixed-route services. During the same period, the cost to operate the fixed-route service increased by 34%, while the cost to operate paratransit service decreased by 48%. In 2012, as in 2017, Vista Transit carried 2.2 passengers per revenue hour on the paratransit service, but the cost per passenger has decreased by 24%.

In 2017, the cost to operate the paratransit service was $201,7352. Vista Transit collected $14,776 in farebox revenue. The cost to operate the service per passenger trip was $27.95. When the fares collected are removed, the remaining subsidy per passenger required to cover the cost of the trip was $25.90. Farebox recovery was 7.3%.

In order to calculate the concentration of trip origins, a month (October 2017) of paratransit service data was used in conjunction with addresses for pick-up and drop-off locations for each trip and entered into a database. The information was geocoded onto a map using Geographic Information System (GIS) software. Of the 1,571 pick-up and drop-off locations for trips logged in the database for the month, 96, or 6% were located outside of the three-quarter mile zone mandated by the ADA. In order to retain anonymity of riders, regions of concentration of trip origins and destinations are included in Figure 2 rather than specific addresses.

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2 Vista Transit Performance Measures, 2017
The trip origins and destinations outside the three-quarter mile zone for the month of October 2017 translated into nine discrete locations in southern Sierra Vista and 1 location on Fort Huachuca. Of the riders traveling outside the three-quarter mile zone, there were 4 regular riders and the other 6 were less frequent riders.

**Figure 2: Locations of Paratransit Origins/Destinations Outside ¾ Mile of Vista Transit Fixed Routes (October 2017)**

Cost/Benefit Analysis
This analysis is built using the 2017 statistics from Vista Transit for the operation of paratransit service and the following assumptions:

- 6% of paratransit service trips occur outside the three-quarter mile ADA mandated zone; 6% is used as an approximation to calculate system wide changes associated with passenger trips occurring outside the three-quarter mile ADA mandated zone
- The current fare is $2.00 per one-way trip
- The 2017 paratransit service operating statistics are shown in Table 3
Table 3: 2017 Paratransit Operating Statistics

<table>
<thead>
<tr>
<th></th>
<th>2017 Total</th>
<th>6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Miles</td>
<td>35,090</td>
<td>2,105</td>
</tr>
<tr>
<td>Revenue Hours</td>
<td>3,250</td>
<td>195</td>
</tr>
<tr>
<td>Operating Costs (Budget)</td>
<td>$201,735</td>
<td>$12,102</td>
</tr>
<tr>
<td>Farebox Revenue</td>
<td>$14,776</td>
<td>$866</td>
</tr>
<tr>
<td>Farebox Recovery</td>
<td>7.3%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

Source: Vista Transit 2017

If the paratransit service area was restricted to the three-quarter mile ADA mandated zone, then 6% of the trips would not be operated, resulting in a savings of $11,236 (operating cost minus farebox revenue) in operating costs and a reduction of 195 hours of service. However, restricting the area would not improve the farebox recovery rate. Using the daily hours of service (11 hours), the 195 hours of savings equates to approximately 18 days of service saved annually or about 45 minutes per day\(^3\). The results are shown in Table 4.

Fares outside the ADA mandated zone do not need to follow the ADA policy of no more than double the fixed route fare, so a premium fare for the longer distance trips can be used. To illustrate the possible impact of a fare increase, double current paratransit fare ($4) and $2 increments to $10 per one-way trip. As can be seen in Table 4, with each $2 increment in fare increase, the farebox recovery rate increases by approximately 0.4%. Additionally, the areas outside the ADA mandated zone where paratransit passengers are traveling are higher income areas, so a fare increase may be considered a feasible option.

Table 4: Operating Statistics based on Paratransit Operational/Fare Change Scenarios

<table>
<thead>
<tr>
<th>Not Operating to Locations Outside the ADA Mandated ¾ Mile</th>
<th>Double Fare ($4)</th>
<th>$6 Fare</th>
<th>$8 Fare</th>
<th>$10 Fare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Cost ($27.95 per passenger trip)</td>
<td>$12,102</td>
<td>$12,102</td>
<td>$12,102</td>
<td>$12,102</td>
</tr>
<tr>
<td>Fare Revenue</td>
<td>-$866</td>
<td>$1,732</td>
<td>$2,598</td>
<td>$3,464</td>
</tr>
<tr>
<td><strong>Net Cost Savings</strong></td>
<td><strong>$11,236</strong></td>
<td><strong>$866</strong></td>
<td><strong>$1,732</strong></td>
<td><strong>$2,598</strong></td>
</tr>
<tr>
<td>Farebox Recovery</td>
<td>7.3%</td>
<td>7.8%</td>
<td>8.2%</td>
<td>8.6%</td>
</tr>
<tr>
<td><strong>Revenue Hours Savings</strong></td>
<td>195</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: AECOM, Vista Transit 2017

The values are illustrative only and do not use elasticity to estimate the impact of ridership loss due to a fare increase. Restricting the paratransit service to the three-quarter mile ADA-mandated zone would save only 195 hours of revenue service annually and would not impact the farebox recovery rate. It would save $11,000 in operating costs annually but may result in political challenges to overcome and additional public outreach required that may negatively impact the agency. Doubling the fare outside

\(^3\) Assuming 255 weekdays in a year.
the three-quarter mile ADA-mandated zone would increase the farebox recovery rate by a half a percent, and moving to a premium fare of five times the current fare would increase the farebox recovery rate by a little less than two percent and would result in cost savings of $900 and $3,500 annually, respectively.

Paratransit Fare and Service Evaluation
A review of peer paratransit fares revealed no agencies charge more than the ADA-mandated maximum of double the fixed route fare for paratransit services regardless of service area. Some, however, operate deviated fixed route service to limit the need for paratransit services. For the complete fare and service evaluation, refer to Appendix D for the Technical Memorandum, Paratransit Service Evaluation.

ADA Eligibility Determination
Vista Transit has a written detailed application process to determine ADA eligibility along with the requirement of a doctor’s professional verification. The application clearly explains the idea of functional ability to independently perform tasks necessary for bus use. Applications are submitted to Vista Transit.

There are some options that Vista Transit could consider in order to more accurately determine ADA eligibility for complementary paratransit service in conjunction with a shift to the idea of the transportation assessment focus on ability and the range of mobility options available in the region:

- Vista Transit could partner with a human or social service agency to complete in-person interviews to determine ADA eligibility in addition to the paper application and doctor approval. This partnership could be an in-kind arrangement or a paid service. Local agencies that may have the expertise needed to conduct in-person interviews include:
  - Easter Seals Blake Foundation
  - Horizon Health and Wellness
  - Wellness Connections
- Vista Transit could hire a behavioral specialist on an as-needed basis, maybe one day per month, to conduct scheduled interviews to determine ADA eligibility. This option would likely cost around $10,000 annually.

Other types of operational changes to reduce the amount of paratransit service operated that Vista Transit could consider are included in the following sections.

Paratransit Service Alternatives

TNC or Taxi Subsidy
Taxis or Transportation Network Companies (TNCs) offer a potential partnership opportunity for service outside the three-quarter mile ADA-mandated zone. Vista Transit could offer a subsidy for part of the trip cost associated with a paratransit trip outside the three-quarter mile ADA-mandated zone with a taxi service or TNC (such as Lyft, for example). In Sierra Vista, taxi services are limited, so TNCs may offer a more reliable opportunity. This type of program may require a phased implementation based on the type of riders needing service and the accessibility of taxi or TNC vehicles. For example, the service may
need to begin with ambulatory riders only and then grow to include riders with mobility devices such as wheelchairs as private companies procure accessible vehicles.

In Boston, the Massachusetts Bay Transportation Authority (MBTA) is currently piloting a program with Uber and Lyft with approved paratransit (RIDE) riders\(^4\). In the MBTA program, the rider pays the first $2 of the trip fare to the TNC (either Uber or Lyft), then the MBTA pays the next up to $40, and the rider is responsible for anything over a $42 fare\(^5\). The pilot program has recently been expanded to include UberPOOL (the rider pays only the first $1 of fare and anything over a $41 fare); prior iterations of the pilot program included the rider paying the first $2, the MBTA paying the next $11, and the rider paying anything over a $13 fare.

In Dallas, Uber is used as a ‘first mile/last mile’ connection option from Dallas Area Rapid Transit (DART) services. Using DART’s GoPass Mobile Ticketing Application\(^6\), riders can access the Uber app to schedule a first mile or last mile connection. Uber is offering a free first ride (up to $20) to new customers.

**Deviated Fixed Route Service**

In order to limit the operation of paratransit services, Vista Transit could potentially operate the five current fixed-routes as deviated fixed-routes. The operation of deviated fixed route service would add time to the current runs, but it would mean that no separate paratransit service would need to be operated. The operation of separate paratransit service would be by agency choice only, would not be subject to the ADA maximum of double the fixed route fare (so a premium fare could be charged), and would not be subject to any of the ADA policies.

If deviated fixed route service were to be operated, deviations would need to be scheduled in advance, and only those deviations that would still allow the route to meet its fixed stops on schedule would be allowed. In order to maintain current headways on fixed routes, a second vehicle per route, likely a current paratransit vehicle converted to deviated fixed route service, would be needed. A second vehicle could also be split between Routes 1 and 2 and operated as an interline to reduce the number of vehicles needed to convert to deviated fixed route service to 3. Conversion to a deviated fixed route system would increase the overall efficiency of the system when taking into consideration current fixed route and complementary paratransit services and would improve overall performance, but may not be a good fit for the community.

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\(^4\) The MBTA has a travel training facility and operates a variety of travel training options for seniors and persons with disabilities (https://mbta.com/accessibility/travel-instruction-training) and conducts in-person interviews with mobility coordinators to determine ADA eligibility, which includes verification of disability and tests of balance, strength, coordination, and range of motion (https://mbta.com/accessibility/the-ride/how-apply-the-ride).


Conclusions and Implementation Plan

Several options were presented which would improve the cost effectiveness of the paratransit service being provided. These options do not need to be stand-alone options. Vista Transit could, for example, develop a subsidy program with a TNC for trips outside the three-quarter mile ADA-mandated zone and work with a local agency to develop a transportation assessment program to determine ADA-eligibility. Vista Transit could also, for example, work towards developing a philosophical change in ADA eligibility determination as part of a larger regional mobility model and build both public and private partnerships. It is usually a combination of options that end up being the ‘right fit’ for an agency and their philosophy and operational goals; there is no ‘one size fits all’ solution.

The following tables present annual savings if Vista Transit implemented a fare increase, or agreed to pay a subsidy to a TNC, such as Lyft. The difference between Tables 6 and 7 is the max subsidy Vista would pay to a TNC. Table 6 is capped at $10 and Table 7 is capped at $14. Beyond the cap, the paratransit rider would pay the remaining balance.

Table 5: Paratransit Fare Increase (Outside 3/4 Mile Zone Only)

<table>
<thead>
<tr>
<th>Paratransit Fare</th>
<th>$2.00</th>
<th>$2.50</th>
<th>$3.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare Revenue</td>
<td>$866</td>
<td>$1,083</td>
<td>$1,299</td>
</tr>
<tr>
<td>Vista Transit Cost</td>
<td>$12,106</td>
<td>$12,106</td>
<td>$12,106</td>
</tr>
<tr>
<td>Vista Transit Subsidy</td>
<td>$11,240</td>
<td>$11,023</td>
<td>$10,807</td>
</tr>
<tr>
<td>Annual Savings</td>
<td>--</td>
<td>$217</td>
<td>$433</td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

Table 6: TNC Subsidy (Outside 3/4 Mile Zone Only; $10 max)

<table>
<thead>
<tr>
<th>Paratransit fare</th>
<th>$2.00</th>
<th>$2.50</th>
<th>$3.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare Revenue</td>
<td>$866</td>
<td>$1,083</td>
<td>$1,299</td>
</tr>
<tr>
<td>Vista Transit Cost (10 max)</td>
<td>$4,331</td>
<td>$4,331</td>
<td>$4,331</td>
</tr>
<tr>
<td>Annual Savings</td>
<td>$6,909</td>
<td>$6,692</td>
<td>$6,692</td>
</tr>
<tr>
<td>Cost Savings per Day</td>
<td>$27.09</td>
<td>$26.24</td>
<td>$26.24</td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

Table 7: TNC Subsidy (Outside 3/4 Mile Zone Only; $14 max)

<table>
<thead>
<tr>
<th>Paratransit fare</th>
<th>$2.00</th>
<th>$2.50</th>
<th>$3.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare Revenue</td>
<td>$866</td>
<td>$1,083</td>
<td>$1,299</td>
</tr>
<tr>
<td>Vista Transit Cost (14 max)</td>
<td>$6,064</td>
<td>$6,064</td>
<td>$6,064</td>
</tr>
<tr>
<td>Annual Savings</td>
<td>$5,176</td>
<td>$4,959</td>
<td>$4,743</td>
</tr>
<tr>
<td>Cost Savings per Day</td>
<td>$20.30</td>
<td>$19.45</td>
<td>$18.60</td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.
Implementation

- Work with Easter Seals, Blake Foundation, Horizon Health and Wellness or Wellness Connections to assist with ADA eligibility determination.
  
  - Cost: No Cost

- Do an inventory of existing registered riders to determine who is still using the service

- Partner with TNC/taxis to provide trips to paratransit riders outside of the three-quarter mile ADA-mandated zone. Vista Transit could provide a partial subsidy for the service.
  
  - Cost savings: $4,700 to 6,700, assuming a fare increase to $3.00. The low range is based on a $10 maximum subsidy. The high subsidy is based on a $14 maximum subsidy.
  
  - If partnership with TNCs or taxi is successful, consider extending the partnership to some ambulatory rider paratransit trips.

4.0 Fixed Route Service Evaluation

The last task focused on finding service efficiency improvement for Routes 4 and 5, and Route 7 to Fort Huachuca. There were two parts of this task: an existing conditions review and alternative analysis.

1. Existing Conditions

   a. Summary of existing plans and surveys

   b. Documented Vista Transit fixed route performance to use as a baseline for the alternative analysis, including revenue hours and ridership.

   c. The task also consisted of stakeholder involvement, which included meetings at Fort Huachuca, with the Transit Technical Advisory Committee, and with Vista Transit staff.

   d. Results documented in Appendix E, Technical Memorandum, Existing Conditions.

2. Alternative Analysis

   a. Evaluated the potential costs for changing the span of service for Routes 4 and 5 to match the schedule of the other weekday fixed routes (7:00 am to 6:00 pm).

   b. Provided four alternatives for service enhancements to Fort Huachuca based on stakeholder involvement and existing ridership patterns.

Routes 4 and 5

Route 4 serves parts of northern Sierra Vista, while Route 5 serves parts of Sierra Vista to the south and southeast. Route 4 operates clockwise from the transit center and Route 5 operates in a counterclockwise direction. Compared to the other routes in the system, the schedule for Routes 4 and 5 starts later in the morning, and ends earlier in the evening. Route 4 starts operations at 8:30 am and takes approximately 25 minutes to return to the Sierra Vista Transit Center. Departing the transit center at 9:00 am, the route becomes Route 5 and serves South Sierra Vista. The route operates with 60 minute frequencies, and continues to switch between Routes 4 and 5 when the bus reaches the transit center until 4:30 pm.
No-Build Alternative
The No-Build Alternative for Routes 4 and 5 would use current operations. Route 4 would continue to operate with 60-minute frequency from 8:30 am to 4:00 pm and Route 5 would continue to operate with 60-minute frequency from 9:00 am to 4:30 pm.

Alternative 1: Expand Span of Service
This alternative would expand the span of service for Routes 4 and 5 to operate from 7:00 am to 6:00 pm, which would require three additional daily revenue hours and approximately 760 additional annual revenue hours, as shown in Table 8. Expanding the span of service for Routes 4 and 5 was the most frequent comment received in the Vista Transit Rider Survey, completed in April 2017. Additional comments from drivers relaying messages from customers indicated the schedule should be expanded:

1. Customers need to schedule medical appointments earlier or later in the day along Route 5
2. PPEP Tech High School students are arriving late or leaving early from school because of the shorter schedule
3. Some customers are not able to get to their destinations because they can’t transfer to Routes 4 or 5 from 7:00 am to 8:30 am, and 4:30 pm to 6:00 pm.

Refer to the Existing Plans Review section in the Existing Conditions report, located in Appendix E, for a summary of the Vista Transit Rider Survey and stakeholder comments.

The cost of increasing the span of service would be approximately $50,000 to $55,000 annually (Table 9). A part-time driver would likely be required to cover the extra service hours. Additionally, increasing the span of service would require additional paratransit services within three-quarter mile from Routes 4 and 5 while they are in-service. As shown in Table 9, the service change would add approximately 21 boardings daily, and 5,000 additional boardings annually. The added boardings would provide approximately $3,100 in fare revenue.

Table 8: Routes 4/5 Proposed Service Characteristics

<table>
<thead>
<tr>
<th>Route</th>
<th>Existing Span of Service</th>
<th>Proposed Span of Service</th>
<th>Existing Daily Revenue Hours</th>
<th>Existing Annual Revenue Hours</th>
<th>Proposed Daily Revenue Hours</th>
<th>Proposed Annual Revenue Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>8:30 am – 4:00 pm</td>
<td>7:00 am – 5:30 pm</td>
<td>4</td>
<td>1,012</td>
<td>5.5</td>
<td>1,392</td>
</tr>
<tr>
<td>5</td>
<td>9:00 am – 4:30 pm</td>
<td>7:30 am – 6:00 pm</td>
<td>4</td>
<td>1,012</td>
<td>5.5</td>
<td>1,392</td>
</tr>
</tbody>
</table>

Table 9: Proposed Routes 4/5 Estimates

<table>
<thead>
<tr>
<th></th>
<th>Additional Annual Cost^1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Average Daily Ridership</td>
<td>54</td>
</tr>
<tr>
<td>Estimated Average Daily Ridership^2</td>
<td>75</td>
</tr>
<tr>
<td>Existing Annual Ridership</td>
<td>13,662</td>
</tr>
<tr>
<td>Estimated Annual Ridership^2</td>
<td>18,975</td>
</tr>
<tr>
<td>Additional Fare Revenue (Annual)^3</td>
<td>$3,100</td>
</tr>
</tbody>
</table>

^1 Cost does not include subtracting fare revenue
^2 Estimated ridership: 7 boardings per hour (as reported in the Existing Conditions)
^3 Assumes fare increase to $1.50.

Route 7: Fort Huachuca Alternatives
This section describes the service alternatives for Route 7 to Fort Huachuca. The alternatives are based on recommendations from stakeholders and discussions with Vista Transit staff. In the past, Vista Transit has operated two vehicles to serve Fort Huachuca. If ridership increases to over 15 passengers per hour, Vista Transit should consider adding a vehicle using the same operating plan used in the past.

No-Build Alternative
Service would remain as-is on Saturday only, from 9:30 am to 6:00 pm, with 60-minute frequency. The route would continue to operate as a deviated fixed route on-post.

Alternative 1: Saturday Service Adjustment
An adjustment to Saturday service would include extending the schedule an extra 1.5 hours on Saturday evenings. Service would end at 7:30 pm in order to provide later evening service for soldiers wanting to reach entertainment destinations. The frequency would remain 60 minutes and the route would continue to operate as a deviated fixed route on-post. This alternative would add 520 annual revenue hours, as shown in Table 10.

As shown in Table 11, the additional annual cost to provide extra Saturday hours would be between $3,000 and $7,000. The change in span of service is estimated to produce 48 new daily boardings and provide an additional $1,400 in annual fare revenue.
Table 10: Route 7 Alternative 1 Saturday Service Characteristics

<table>
<thead>
<tr>
<th>Existing Span of Service</th>
<th>Proposed Span of Service</th>
<th>Existing Daily Hours</th>
<th>Existing Annual Hours</th>
<th>Proposed Daily Hours</th>
<th>Proposed Annual Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 am – 6:00 pm</td>
<td>9:30 am – 7:30 pm</td>
<td>8.5</td>
<td>442</td>
<td>10</td>
<td>520</td>
</tr>
</tbody>
</table>


Table 11: Route 7 Alternative 1 Estimates

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Annual Cost $^1$</td>
<td>$3,000 - $7,000</td>
</tr>
<tr>
<td>Existing Average Daily Ridership</td>
<td>102150-1</td>
</tr>
<tr>
<td>Estimated Average Daily Ridership $^2$</td>
<td>150</td>
</tr>
<tr>
<td>Existing Annual Ridership</td>
<td>5,512</td>
</tr>
<tr>
<td>Estimated Annual Ridership $^2$</td>
<td>7,800</td>
</tr>
<tr>
<td>Additional Fare Revenue (Annual)</td>
<td>$1,400</td>
</tr>
</tbody>
</table>


$^1$Cost does not include subtracting fare revenue

$^2$Estimated ridership: 15 riders per hour (assuming a bump in ridership after marketing efforts)

Ridership should be analyzed by time of day on a regular basis. If demand for the service on Saturday is not until later in the morning, the schedule could start at 11:00 am and no additional revenue hours would be required. Paratransit service would be required unless the route limited the service to a “special service”, which would include limited or commuter service. An alternative for Route 7 to operate as a special service is described in Alternative 2.

On March 31, 2018, the Route 7 driver reported over 80 passengers during the morning shift, which equates to 19 boardings per hour. This amount of passengers would indicate the 17-, or 18-seat Arboc Cutaway vehicle is at capacity during an average hour of revenue service. However, boarding data provided by Vista Transit for September 2017 reveal an average of 12 passengers per hour. Assuming increased ridership based on new Vista Transit marketing efforts, a second vehicle, and/or larger vehicle, may be required for Saturday service for Fort Huachuca. The second vehicle could be used solely on-post to handle deviated fixed route service (see Alternative 2).

Alternative 2: On-Post Circulator

Alternative 2 would provide an on-post circulator, as shown in Figure 3. This service is based on stakeholder comments and ridership patterns of soldiers using the service to get to different places on-post, such as the movie theater near the Post Exchange (P/X). Additionally, reports from drivers indicate there may be a potential need for a second bus on the route. A report from a driver on March 31, 2018, stated at least 10 calls were missed and one caller indicated there were 15 others who were with them needing transportation. The cause for the missed pickups happens when soldiers call for the bus and the bus is off-post the wait time is too long for the soldier and they find another transportation solution. The maximum wait time is estimated to be 30 minutes before soldiers will choose other options.
The circulator would operate from 9:30 am to 6:00 pm with 30 minute frequencies, as shown in Table 12. This alternative does not include the expanded span of service as shown in Alternative 1. The P/X and the Commissary stops would be served bi-directionally. As a result of the circulator, Route 7 would change its alignment and work as a shuttle between Fort Huachuca and Sierra Vista Transit Center making stops at Weinstein Village and the Sierra Vista Transit Center (Figure 4).

Three of the stops shown in the figure are currently recognized stops on-post, Weinstein Village, the Commissary, and the P/X. The Mini Mall and IHG Army Hotel stops were added based on recommendations from Fort Huachuca’s Public Works Department. Stakeholders suggested only a 15-seat van would be needed for use as a circulator based on their knowledge of soldiers moving around the base during down-time; however, reports from Vista Transit drivers indicate the 17-, or 18-seat buses are nearing capacity.

The cost of the circulator would be approximately $30,000 to $35,000 annually, as shown in Table 13. The cost would include at least one additional driver. Dispatching would continue to be handled via cell phones and Bluetooth radios between the drivers. Vista Transit could use a spare 17-, or 18-seat Arboc Cutaway bus instead of purchasing a new vehicle. The new service would produce approximately 26 boardings daily, which would result in $800 in additional fare revenue annually. Ridership is based on an estimated 20% of Route 7 passengers using the service to circulate around the post, as reported by Vista Transit bus drivers.

### Table 12: Route 7 Alternative 2 On-Post Circulator Service Characteristics

<table>
<thead>
<tr>
<th>Proposed Span of Service</th>
<th>Frequency (minutes)</th>
<th>Existing Daily Revenue Hours</th>
<th>Proposed Daily Revenue Hours</th>
<th>Proposed Annual Revenue Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 am – 6:00 pm</td>
<td>30</td>
<td>0</td>
<td>8.5</td>
<td>442</td>
</tr>
</tbody>
</table>


### Table 13: Route 7 Alternative 2 Estimates

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Annual Cost&lt;sup&gt;1&lt;/sup&gt;</td>
<td>$30,000 - $35,000</td>
</tr>
<tr>
<td>Average Daily Ridership&lt;sup&gt;2&lt;/sup&gt;</td>
<td>26</td>
</tr>
<tr>
<td>Annual Ridership&lt;sup&gt;2&lt;/sup&gt;</td>
<td>1,352</td>
</tr>
<tr>
<td>Additional Fare Revenue (Annual)</td>
<td>$800</td>
</tr>
</tbody>
</table>


<sup>1</sup>Cost does not include subtracting fare revenue
<sup>2</sup>Estimated ridership: 3 riders per hour (20% of 12 boardings per hour as reported in the Existing Conditions memo)
Figure 3: Proposed On-Post Circulator

Source: AECOM, April 2018.
Figure 4: Proposed Route 7 and On-Post Circulator Interaction

Source: AECOM, April 2018.
Alternative 3: Limited Friday Evening Service

This alternative would provide limited Friday evening service. Comments from stakeholders mentioned trainees are released for the weekend on Fridays at 6:00 pm. Alternative 3 would provide two trips leaving in the evening starting at 6:30 pm, as shown in Table 14. The cost to provide the limited service would be approximately $5,000 to $8,000 annually, as shown in Table 15. A new vehicle would not be needed to provide the service. One of the regular weekday routes would travel to Fort Huachuca from the Sierra Vista Transit Center after completing the last trip at 6:00 pm. This would require a driver for at least an extra two hours on Fridays. The additional service is estimated to produce 30 boardings daily, and result in $900 in additional fare revenue annually. The new fare revenue would help offset a majority of the estimated operating costs.

Table 14: Route 7 Alternative 3 Limited Friday Evening Service Characteristics

<table>
<thead>
<tr>
<th>Proposed Span of Service</th>
<th>Frequency (minutes)</th>
<th>Existing Daily Revenue Hours</th>
<th>Proposed Daily Revenue Hours</th>
<th>Proposed Annual Revenue Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 pm; 7:30 pm</td>
<td>2 trips</td>
<td>0</td>
<td>2</td>
<td>104</td>
</tr>
</tbody>
</table>


Table 15: Route 7 Alternative 3 Estimates

<table>
<thead>
<tr>
<th></th>
<th>Additional Annual Cost¹</th>
<th>Average Daily Ridership²</th>
<th>Annual Ridership²</th>
<th>Additional Fare Revenue (Annual)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$5,000 - $8,000</td>
<td>30</td>
<td>1,560</td>
<td>$900</td>
</tr>
</tbody>
</table>


¹Cost does not include subtracting fare revenue
²Estimated ridership: 15 riders per hour (assuming a bump in ridership after marketing efforts)

Alternative 4: Limited Sunday Service

This alternative would provide limited Sunday service from Sierra Vista to Fort Huachuca’s Weinstein Village. Stakeholders suggested providing a trip back to the post before 6:00 pm might be popular with soldiers. Soldiers are required to be back on-post by 6:00 pm. The proposed service would provide two trips leaving in the afternoon (Table 16) to get soldiers back on post by 6:00 pm. The cost to provide the limited service would be approximately $5,000 to $8,000 annually, as shown in Table 17. Vista Transit could use an existing Arboc Cutaway 17-, or 18-seat vehicle; however, a driver would be required for at least an extra two hours on Sundays. The additional service is estimated to produce 30 boardings daily, and result in $900 in additional fare revenue annually. The new fare revenue would help offset a majority of the estimated operating costs.

It should be noted there are significant challenges to starting service on a day where no other transit service is offered. The driver would likely need to provide routine maintenance checks of the vehicle before starting service and after ending service. The cost of providing transit service, even limited service, may not be effective for Vista Transit when there are other modes of transportation for soldiers to return to post on Sunday, such as taxis or TNCs.
**Table 16: Route 7 Alternative 4 Limited Sunday Service Characteristics**

<table>
<thead>
<tr>
<th>Proposed Span of Service</th>
<th>Frequency (minutes)</th>
<th>Existing Daily Revenue Hours</th>
<th>Proposed Daily Revenue Hours</th>
<th>Proposed Annual Revenue Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00 pm; 5:00 pm</td>
<td>2 trips</td>
<td>0</td>
<td>2</td>
<td>104</td>
</tr>
</tbody>
</table>


**Table 17: Route 7 Alternative 4 Estimates**

<table>
<thead>
<tr>
<th></th>
<th>Additional Annual Cost¹</th>
<th>Average Daily Ridership²</th>
<th>Annual Ridership²</th>
<th>Additional Fare Revenue (Annual)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$5,000 - $8,000</td>
<td>30</td>
<td>1,560</td>
<td>$900</td>
</tr>
</tbody>
</table>


¹Cost does not include subtracting fare revenue
²Estimated ridership: 15 riders per hour (assuming a bump in ridership after marketing efforts)

**Summary of Route 7 Alternatives**

Table 18 provides a summary of the key characteristics for each of the four alternatives for Route 7.

**Table 18: Summary of Route 7 Alternatives Estimates**

<table>
<thead>
<tr>
<th>Estimates</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Alternative 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Annual Cost¹</td>
<td>$3,000 - $7,000</td>
<td>$30,000-$35,000</td>
<td>$5,000 - $8,000</td>
<td>$5,000 - $8,000</td>
</tr>
<tr>
<td>Existing Average Daily Ridership</td>
<td>106</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Estimated Average Daily Ridership</td>
<td>150²</td>
<td>26³</td>
<td>30²</td>
<td>30²</td>
</tr>
<tr>
<td>Existing Annual Ridership</td>
<td>5,512</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Estimated Annual Ridership</td>
<td>7,800</td>
<td>1,352</td>
<td>1,560</td>
<td>1,560</td>
</tr>
<tr>
<td>Additional Fare Revenue (Annual)</td>
<td>$1,400</td>
<td>$800</td>
<td>$900</td>
<td>$900</td>
</tr>
</tbody>
</table>


¹Cost does not include subtracting fare revenue
²Estimated ridership: 15 riders per hour (assuming a bump in ridership after marketing efforts)
³Estimated ridership: 3 riders per hour (20% of 12 boardings per hour as reported in the Existing Conditions memo)
5.0 Combined Options:
This section provides four scenarios which include different operational changes as recommended by the three primary tasks in the Efficiency Study. The first two scenarios are guided by making service changes which provide an annual cost savings for Vista Transit. The last two scenarios would implement additional fixed route service which would result in additional annual costs for Vista Transit. It should be noted that Vista Transit can mix and match the various service changes within each scenario. For example, all of the Route 7 alternatives may not be necessary to implement at one-time under Scenario 3. Additionally, service changes to Routes 4/5 can be added to any scenario and do not have to be restricted to Scenario 4.

Scenario 1: Update Fares and Partnership with TNC
This scenario includes increasing the base- and paratransit-fares and working with a local agency to set a plan for ADA eligibility. There would be no changes to Fort Huachuca service. The base fare would increase to $1.50, and the paratransit fare would increase to $2.50 for the Low Scenario and $3.00 for the High Scenario. Table 19 illustrates estimated revenues and annual savings.

Scenario 1 includes:

- Change to $1.50 base fare and $3.00 paratransit fare
  - Generate approximately $6,000 revenue annually
- Partner with social service agencies to assist with in-person eligibility interviews for ADA service
  - No cost
- Partner with TNC/taxis for ambulatory paratransit trips outside of three-quarter mile of fixed route
  - Approximately $5,500 in savings annually

<table>
<thead>
<tr>
<th>Table 19: Scenario 1 Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
</tr>
<tr>
<td>Fare Revenue</td>
</tr>
<tr>
<td>Paratransit/TNC</td>
</tr>
<tr>
<td>Annual Budget Impact</td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

Scenario 2: Additional Revenue - TNC/Taxi and Limited Service to Fort Huachuca
This scenario includes increasing the base- and paratransit-fares and work with local agency to set a plan for ADA eligibility. The base fare would increase to $1.50, and the paratransit fare would increase to $2.50 for the Low Scenario and $3.00 for the High Scenario. Additional service to Fort Huachuca would include limited service on Friday evenings. Two trips, at 6:30 and 7:30, would leave from Weinstein Village and drop-off at Sierra Vista Transit Center, as shown in Figure 4. Table 20 illustrates estimated revenues and annual savings.
Scenario 2 includes:

- Change to $1.50 base fare and $3.00 paratransit fare
  - Generate $6,000 revenue annually
- Partner with social service agencies to assist with in-person eligibility interviews for ADA service
  - No cost
- Partner with TNC for ambulatory paratransit trips outside of three-quarter mile of fixed route
  - Approximately $5,500 in savings annually
- Add Friday evening trips to Fort Huachuca
  - Cost = $5,000 - $8,000 per year

<table>
<thead>
<tr>
<th>Scenario 2</th>
<th>Low</th>
<th>High</th>
<th>Budgeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare Revenue (Existing Service)</td>
<td>$1,000</td>
<td>$12,000</td>
<td>$6,000</td>
</tr>
<tr>
<td>Paratransit/TNC</td>
<td>$4,700</td>
<td>$6,700</td>
<td>$5,500</td>
</tr>
<tr>
<td>Fort Huachuca (Friday limited)</td>
<td>($8,000)</td>
<td>($5,000)</td>
<td>($6,500)</td>
</tr>
<tr>
<td>Fare Revenue (Added Service)</td>
<td>$900</td>
<td>$1,000</td>
<td>$900</td>
</tr>
<tr>
<td><strong>Annual Budget Impact</strong></td>
<td><strong>($1,400)</strong></td>
<td><strong>$14,700.00</strong></td>
<td><strong>$4,900</strong></td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

Scenario 3: Additional Revenue, TNC/Taxi and Monthly ADA Eligibility Assistance

This scenario includes increasing the base- and paratransit-fares and work with local agency to set a plan for ADA eligibility (one-time meeting). The base fare would increase to $1.50, and the paratransit fare would increase to $3.00. Additional service to Fort Huachuca would include all alternatives presented in Section 5.0, limited service on Friday evenings, additional Saturday evening hours, limited Sunday evening trips, and adding an on-post circulator. Table 21 illustrates estimated revenues and annual costs.

<table>
<thead>
<tr>
<th>Scenario 3</th>
<th>Low</th>
<th>High</th>
<th>Budgeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare Revenue (Existing Service)</td>
<td>$1,000</td>
<td>$12,000</td>
<td>$6,000</td>
</tr>
<tr>
<td>Paratransit/TNC</td>
<td>$4,700</td>
<td>$6,700</td>
<td>$5,500</td>
</tr>
<tr>
<td>Fort Huachuca (Saturday hours)</td>
<td>($7,000)</td>
<td>($3,000)</td>
<td>($5,000)</td>
</tr>
<tr>
<td>Fort Huachuca (Friday limited)</td>
<td>($8,000)</td>
<td>($5,000)</td>
<td>($6,500)</td>
</tr>
<tr>
<td>Fort Huachuca (Sunday limited)</td>
<td>($8,000)</td>
<td>($5,000)</td>
<td>($6,500)</td>
</tr>
<tr>
<td>Fort Huachuca (circulator)</td>
<td>($35,000)</td>
<td>($30,000)</td>
<td>($32,500)</td>
</tr>
<tr>
<td>Fare Revenue (Added service)</td>
<td>$4,000</td>
<td>$4,100</td>
<td>$4,000</td>
</tr>
<tr>
<td><strong>Annual Budget Impact</strong></td>
<td><strong>($48,300)</strong></td>
<td><strong>($20,200)</strong></td>
<td><strong>($35,000)</strong></td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

\footnote{Low estimate based on new ridership times existing revenue per boarding. Higher fare revenue could result from the recommended fare policy changes, but were not assumed due to the majority of the new riders being eligible for the military discount.}
Scenario 4: Additional Revenue, TNC/Taxi, and Expanded Service Hours for Routes 4/5

This scenario includes increasing the base- and paratransit-fares and work with local agency to set a plan for ADA eligibility (one-time meeting). The base fare would increase to $1.50, and the paratransit fare would increase to $3.00. There would be no changes to Fort Huachuca service. The span of service for Routes 4 and 5 would be extended to match the span of service of the other weekday routes, from 7:00 am to 6:00 pm. Table 22 illustrates estimated revenues and annual costs.

<table>
<thead>
<tr>
<th>Scenario 4</th>
<th>Low</th>
<th>High</th>
<th>Budgeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare Revenue (Existing Service)</td>
<td>$1,000</td>
<td>$12,000</td>
<td>$6,000</td>
</tr>
<tr>
<td>Paratransit/TNC</td>
<td>$4,700</td>
<td>$6,700</td>
<td>$5,500</td>
</tr>
<tr>
<td>Extend service on Routes 4/5</td>
<td>($55,000)</td>
<td>($50,000)</td>
<td>($53,000)</td>
</tr>
<tr>
<td>Fare Revenue (Added service)</td>
<td>$3,100</td>
<td>$3,300</td>
<td>$3,200</td>
</tr>
<tr>
<td><strong>Annual Cost</strong></td>
<td>($46,200)</td>
<td>($28,000)</td>
<td>($38,500)</td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

---

8 Low estimate based on new ridership times existing revenue per boarding. High estimate based on new ridership times expected revenue per boarding after fare policy changes.
Appendix A – Fare Policy Peer Review

To: Richard Cayer and Michael Normand, City of Sierra Vista
From: Kristen Lueken and Andrew Ittigson, AECOM
Date: April 13, 2018
Re: Fare Analysis (Task 2) – Peer Review

This analysis provides a peer review of 25 transit providers, documenting fare revenue and performance metrics for comparison against transit services in the City of Sierra Vista. The purpose of this peer review is to provide insight into the fare structures and policies being used locally and nationally among similar transit providers, to establish fare-related benchmarks, and to identify best practices. This analysis uses data from the 2016 National Transit Database (NTD) and as made available by individual transit providers.

The findings established through this peer analysis will be used alongside a predictive fare revenue model to develop potential fare policy recommendations. Each potential fare policy recommendation will be assessed for its potential impact on ridership, revenue and implementation cost in a subsequent technical memo.

Peer Selection Methodology

This analysis compares two categories of peer transit providers. The first category includes geographic peers selected from the state of Arizona based on a local understanding of system comparability. The purpose of the geographic peer set is to help illuminate any statewide or regional trends shaping fare policy and to better understand local expectations around fare pricing.

The second category includes national peers that were derived by applying service level and structural filters to 2016 National Transit Database (NTD) data in order to find the most comparable transit providers. The filters used to generate these peer candidates are as follows:

- To reflect Vista Transit’s structure:
  - Organization type must be city, county or local government; department of transportation; or independent public agency or transit authority. (Excludes tribes, universities, other private non-profits, for-profit companies and charter services.)
  - Fixed route services must generate positive fare revenue.
- To reflect Vista Transit’s size and level of service:
  - UZA Density is within 20% (1,400 – 2,100 persons per square mile).
  - Service area population does not exceed 200% (90,000 persons).
  - Service area size does not exceed 200% (300 square miles).
  - Total system O&M Cost does not exceed 200% ($2.2 million).
  - Directly operated peak vehicles (VOMS) for all modes are between 4 and 40.
  - Directly operated peak vehicles for fixed route service does not exceed 20.
  - System provides fewer than 1,000,000 annual linked trips on fixed route.
In addition to the above criteria, the peer analysis also excludes single organizations reporting under multiple NTD IDs or multiple organizations operating in the same service area whose combined services would otherwise exceed the established filters. One NTD-identified transit provider, the Municipality of Yauco, Puerto Rico, was also screened out due to a lack of comparable fare structure information.

**Table 1** provides a summary of system and service characteristics of the geographic and national peers selected for the peer fare analysis. The City of Tucson represents a larger, metropolitan-area system with a greater ridership than Vista Transit. The Northern Arizona Intergovernmental Public Transportation Authority (IPTA) in Flagstaff and the Yuma County IPTA represent small urban area reduced reporters of a similar size to Vista Transit. Although Yuma County IPTA does not provide directly operated (DO) fixed route service, it does supply a purchased (PT) service with comparable fares. The cities of Coolidge, Benson, and Kingman are rural reporters, with reduced reporting requirements.

The 19 national peers identified in **Table 1** are distributed fairly evenly geographically, with the exception of Federal Transit Administration (FTA) Region 5 in the upper Midwest. Four peers are located in the Northeast/Mid-Atlantic (FTA Regions 1, 2, and 3), four are located in the Southeast (FTA region 4), six are located in the lower Midwest/Gulf Coast (FTA Regions 6 and 7), two are located in the Mountain West (FTA Region 8), and three are located in the Northwest (FTA Region 10). Three national peers stand out for sharing even greater similarity with Vista Transit and are highlighted in the tables that follow. Fort Smith Transit in Arkansas, Rapid Transit in South Dakota, and the City of Cheyenne Transit in Wyoming are each city-run transit agencies with service to a military installation.

Although it was not required, the selection criteria above resulted in a national peer set consisting of only urban reports with reduced reporting requirements. All national peers reported a local/general fund revenue source similar to Vista Transit.
### Table 1: System and Service Statistic Comparison

<table>
<thead>
<tr>
<th>Transit Provider</th>
<th>City, State</th>
<th>Service Area Square Miles</th>
<th>Service Area Population</th>
<th>Reporting Module /Reporter Type</th>
<th>Utilizes a Local Fund</th>
<th>Total O&amp;M (All Modes)</th>
<th>Revenue Hours (DO Fixed Route)</th>
<th>Revenue Miles (DO Fixed Route)</th>
<th>Pl. Vehicles (DO Fixed Route)</th>
<th>Unlinked Trips (DO Fixed Route)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vista Transit</td>
<td>Sierra Vista, AZ</td>
<td>152</td>
<td>45,166</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,094,648</td>
<td>13,304</td>
<td>163,860</td>
<td>5</td>
<td>148,408</td>
</tr>
<tr>
<td>Fort Smith Transit</td>
<td>Fort Smith, AR</td>
<td>65</td>
<td>86,209</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,956,590</td>
<td>21,239</td>
<td>297,759</td>
<td>7</td>
<td>236,309</td>
</tr>
<tr>
<td>Rapid Transit System</td>
<td>Rapid City, SD</td>
<td>42</td>
<td>67,956</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$2,096,273</td>
<td>19,755</td>
<td>289,699</td>
<td>9</td>
<td>295,060</td>
</tr>
<tr>
<td>The City of Cheyenne Transit Program</td>
<td>Cheyenne, WY</td>
<td>18</td>
<td>59,466</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,469,359</td>
<td>26,665</td>
<td>328,221</td>
<td>8</td>
<td>237,218</td>
</tr>
<tr>
<td>Lewiston Transit System</td>
<td>Lewiston, ID</td>
<td>17</td>
<td>50,058</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$730,273</td>
<td>6,630</td>
<td>94,904</td>
<td>2</td>
<td>45,062</td>
</tr>
<tr>
<td>Aosin County PTA</td>
<td>Clarkston, WA</td>
<td>20</td>
<td>21,888</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,054,354</td>
<td>9,738</td>
<td>151,602</td>
<td>3</td>
<td>54,877</td>
</tr>
<tr>
<td>Josephine County</td>
<td>Grants Pass, OR</td>
<td>80</td>
<td>48,000</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,586,552</td>
<td>12,123</td>
<td>182,335</td>
<td>4</td>
<td>163,428</td>
</tr>
<tr>
<td>South Portland Bus Service</td>
<td>South Portland, ME</td>
<td>14</td>
<td>25,200</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,046,639</td>
<td>12,428</td>
<td>200,557</td>
<td>8</td>
<td>246,931</td>
</tr>
<tr>
<td>Biddeford-Saco-Old Orchard Beach Transit Committee Shuttle Bus</td>
<td>Biddeford, ME</td>
<td>90</td>
<td>67,302</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$2,168,285</td>
<td>23,150</td>
<td>363,495</td>
<td>11</td>
<td>188,944</td>
</tr>
<tr>
<td>Greater Glen's Falls Transit System</td>
<td>Queensbury, NY</td>
<td>57</td>
<td>61,090</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,594,874</td>
<td>18,595</td>
<td>331,818</td>
<td>5</td>
<td>349,587</td>
</tr>
<tr>
<td>Allegany County Transit</td>
<td>Cumberland, MD</td>
<td>131</td>
<td>68,780</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,879,530</td>
<td>16,988</td>
<td>214,057</td>
<td>6</td>
<td>268,957</td>
</tr>
<tr>
<td>Ashland Bus System</td>
<td>Ashland, KY</td>
<td>17</td>
<td>23,540</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$964,689</td>
<td>10,794</td>
<td>136,035</td>
<td>6</td>
<td>138,074</td>
</tr>
<tr>
<td>Owensboro Transit System</td>
<td>Owensboro, KY</td>
<td>19</td>
<td>57,265</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$2,050,018</td>
<td>33,372</td>
<td>482,496</td>
<td>9</td>
<td>294,432</td>
</tr>
<tr>
<td>Greenville Area Transit</td>
<td>Greenville, NC</td>
<td>35</td>
<td>84,554</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$2,186,392</td>
<td>21,501</td>
<td>299,598</td>
<td>6</td>
<td>468,922</td>
</tr>
<tr>
<td>Community Action of Southern Kentucky (CASOKY)</td>
<td>Bowling Green, KY</td>
<td>15</td>
<td>63,616</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,393,768</td>
<td>15,016</td>
<td>185,698</td>
<td>6</td>
<td>102,988</td>
</tr>
<tr>
<td>Port Arthur Transit</td>
<td>Port Arthur, TX</td>
<td>39</td>
<td>57,755</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$2,095,216</td>
<td>15,798</td>
<td>254,925</td>
<td>5</td>
<td>102,554</td>
</tr>
<tr>
<td>Pine Bluff Transit</td>
<td>Pine Bluff, AR</td>
<td>15</td>
<td>49,083</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,409,796</td>
<td>12,480</td>
<td>208,461</td>
<td>7</td>
<td>67,055</td>
</tr>
<tr>
<td>Terrebonne Parish Consolidated Government</td>
<td>Houma, LA</td>
<td>57</td>
<td>82,803</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,912,306</td>
<td>19,545</td>
<td>359,137</td>
<td>8</td>
<td>163,588</td>
</tr>
<tr>
<td>San Marcos Urban Transit District</td>
<td>Austin, TX</td>
<td>23</td>
<td>54,076</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$1,396,581</td>
<td>14,751</td>
<td>211,250</td>
<td>7</td>
<td>53,999</td>
</tr>
<tr>
<td>Bettendorf Transit System</td>
<td>Bettendorf, IA</td>
<td>22</td>
<td>35,716</td>
<td>Urban/Reduced</td>
<td>Yes</td>
<td>$2,101,377</td>
<td>17,608</td>
<td>346,963</td>
<td>10</td>
<td>126,227</td>
</tr>
<tr>
<td>City of Tucson</td>
<td>Tucson, AZ</td>
<td>239</td>
<td>636,499</td>
<td>Urban/Full</td>
<td>Yes</td>
<td>$75,617,106</td>
<td>603,187</td>
<td>7,399,193</td>
<td>207</td>
<td>15,743,501</td>
</tr>
<tr>
<td>Yuma County IPTA</td>
<td>Yuma, AZ</td>
<td>78</td>
<td>195,751</td>
<td>Urban/Full</td>
<td>Yes</td>
<td>$4,103,880</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Northern Arizona IPTA</td>
<td>Flagstaff, AZ</td>
<td>29</td>
<td>65,760</td>
<td>Urban/Full</td>
<td>Yes</td>
<td>$6,757,142</td>
<td>71,559</td>
<td>851,565</td>
<td>18</td>
<td>1,928,797</td>
</tr>
<tr>
<td>City of Coolidge</td>
<td>Coolidge, AZ</td>
<td>-</td>
<td>-</td>
<td>Rural/Rural</td>
<td>Yes</td>
<td>$594,111</td>
<td>10,402</td>
<td>92,159</td>
<td>6</td>
<td>33,466</td>
</tr>
<tr>
<td>City of Benson</td>
<td>Benson, AZ</td>
<td>-</td>
<td>-</td>
<td>Rural/Rural</td>
<td>Yes</td>
<td>$203,955</td>
<td>4,517</td>
<td>67,768</td>
<td>4</td>
<td>16,458</td>
</tr>
<tr>
<td>City of Kingman</td>
<td>Kingman, AZ</td>
<td>-</td>
<td>-</td>
<td>Rural/Rural</td>
<td>Yes</td>
<td>$753,578</td>
<td>13,508</td>
<td>190,403</td>
<td>11</td>
<td>120,254</td>
</tr>
</tbody>
</table>

Source: AECOM, FTA 2016 National Transit Database
Figure 1 compares key fixed route service statistics for Vista Transit to the 19 selected national peers. Geographic peers have greater variation and are not included in the distribution below. As shown in blue, Vista Transit ranks towards the middle of the distribution for all categories except service area size. While Vista Transit is an outlier here due to that large expanse of Fort Huachuca, the bus system only travels into the fort on Saturdays. A large portion of the fort’s geographic area is less developed, extending several miles beyond the main buildings, and well beyond the extent of transit service. A peer group better reflecting Vista Transit’s service area would be less representative across all other criteria.

A closer look at funding sources for geographic peers is presented in Figure 2. NTD does not record revenue from a dedicated taxing authority for any of the geographic peers; however, the Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA) is the indirect recipient of a 0.295% transit sales tax collected by the City of Flagstaff. Only the City of Tucson (the largest of the peer group) reported a state revenue source. Directly generated funds, a category made up of primarily fare revenue made up about 10% of revenue for the average geographic peer. In addition to fares, the City of Tucson generates about 1.5% of its revenue through concessions, advertising and other directly generated sources. Yuma County IPTA generates about 1% through advertising and other directly generated sources.

Most geographic peers had between 20% and 40% of revenue from local funds. The city of Glendale Transit (not a selected peer agency) is also included in Figure 2 to provide context as an organization with a similar total revenue as Vista Transit, but that relies almost exclusively on local fare revenue.
Fare Structure Comparison

A standard one-way fixed route fare ranges from $1.00 to $2.00 for national and geographic peers. The average standard fare for national peers was $1.23, as compared to $1.25 for Vista Transit and $1.42 for geographic peers, as shown in Table 2. The majority of peers offer a ticket multipack, punch card, or stored fare card that allows riders to purchase multiple one-way fares for a single price, sometimes at a discount. Approximately half (48%) of peers offer a discount on the purchase of multiple fares. Discounts range in value from $0.09 (on a $1.00 fare) to $0.89 (on a $2.00 fare), and typically require purchase of 10 or more one-way fares.

Most peers offer a monthly pass for unlimited fixed route service. Monthly pass prices among national peers ranges from $20 to $45, with an average price of $35, as compared to $40 for Vista Transit. Due to the wider variety in geographic peer selection, monthly pass prices for Arizona-based transit providers encompass a wider range from $10 to $65 and average $41. For eight peers, the monthly pass is equivalent in value to 30 single ride tickets. Nine peers value their monthly pass at a value less than 30 single ride tickets, and four transit providers including Vista Transit have a monthly pass valued at more than 30 single rider tickets.

Figure 2: Revenue Sources for Arizona Transit Providers

Source: AECOM, FTA 2016 National Transit Database
Table 2: Fare Structure Comparison

<table>
<thead>
<tr>
<th>Transit Provider</th>
<th>City, State</th>
<th>Standard Fare</th>
<th>Bulk Discount</th>
<th>Monthly Pass Price</th>
<th>Monthly Pass to Standard Fare Ratio**</th>
<th>Medicare 50% (SD)</th>
<th>Disability 25% (SD)</th>
<th>Disabled Veteran</th>
<th>Military</th>
<th>60 &amp; up</th>
<th>65 &amp; up</th>
<th>Student</th>
<th>Child</th>
<th>Low Income</th>
<th>Reduced Fare</th>
<th>Free Rides for Children Under</th>
<th>Other Free Fares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vista Transit</td>
<td>Sierra Vista, AZ</td>
<td>$ 1.25</td>
<td>N/A</td>
<td>$ 40.00</td>
<td>32 X X X X</td>
<td>X X X X X</td>
<td>X X X</td>
<td>X X X X X</td>
<td>$ 0.75 - $ 1.00</td>
<td>6</td>
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<td></td>
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</tr>
<tr>
<td>Fort Smith Transit</td>
<td>Fort Smith, AR</td>
<td>$ 1.25</td>
<td>13%</td>
<td>$ 35.00</td>
<td>28 X X X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.50 - $ 0.75</td>
<td>8</td>
<td>Personal Care Attendant, Disabled Veteran</td>
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<td>Rapid Transit System</td>
<td>Rapid City, SD</td>
<td>$ 1.50</td>
<td>N/A</td>
<td>$ 30.00</td>
<td>20 X X</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 0.75 - $ 1.25</td>
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<td></td>
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<td>City of Cheyenne</td>
<td>Cheyenne, NY</td>
<td>$ 1.50</td>
<td>9%</td>
<td>$ 45.00</td>
<td>30 X X</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 0.75 - $ 1.25</td>
<td>6</td>
<td></td>
<td></td>
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<tr>
<td>Lewiston Transit System</td>
<td>Lewiston, ID</td>
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<td>N/A</td>
<td>$ 30.00</td>
<td>30 X X</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 0.50 - $ 0.75</td>
<td>7</td>
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<td>Assiniboine County PTBA</td>
<td>Clarkston, WA</td>
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<td>N/A</td>
<td>$ 20.00</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.35 - $ 0.50</td>
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<td>Josephine County*</td>
<td>Grants Pass, OR</td>
<td>$ 1.00</td>
<td>N/A</td>
<td>$ 30.00</td>
<td>30 X X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.50 - $ 0.75</td>
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<td>South Portland Bus Service</td>
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<td>10%</td>
<td>N/A</td>
<td>N/A</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 0.75 - $ 1.25</td>
<td>7</td>
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<td>Biddeford-Saco-Old Orchard Beach Transit</td>
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<td>N/A</td>
<td>$ 30.00</td>
<td>20 X X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.75 - $ 1.25</td>
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<tr>
<td>Greater Glen Falls Transit System</td>
<td>Queensbury, NY</td>
<td>$ 1.00</td>
<td>12%</td>
<td>$ 50.00</td>
<td>50 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.75 - $ 1.25</td>
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<td>Allegany County Transit</td>
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<td>$ 2.00</td>
<td>8%</td>
<td>$ 50.00</td>
<td>25 X X</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 1.00 - $ 1.25</td>
<td>6</td>
<td>FSU faculty and students</td>
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<td>Ashland Bus System</td>
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<td>17%</td>
<td>$ 30.00</td>
<td>40 X X</td>
<td>X</td>
<td>X X</td>
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<td>$ 0.35 - $ 0.50</td>
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<td>Owensboro Transit System</td>
<td>Owensboro, KY</td>
<td>$ 1.00</td>
<td>N/A</td>
<td>$ 30.00</td>
<td>30 X X</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 0.50 - $ 0.75</td>
<td>6</td>
<td>Trolley</td>
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<td>Greenville Area Transit</td>
<td>Greenville, NC</td>
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<td>9%</td>
<td>$ 40.00</td>
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<td>$ 0.50 - $ 0.75</td>
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<td>Community Action of Southern Kentucky</td>
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<td>X X</td>
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<td>$ 1.00 - $ 1.25</td>
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<td>$ 45.00</td>
<td>30 X X</td>
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<td>X</td>
<td>X</td>
<td>$ 0.75 - $ 1.25</td>
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<td>$ 0.55 - $ 0.75</td>
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<td>Houma, LA</td>
<td>$ 1.00</td>
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<td>X</td>
<td>$ 0.50 - $ 0.75</td>
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<td>Personal Care Attendant</td>
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<td>San Marcos Urban Transit District</td>
<td>Austin, TX</td>
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<td>N/A</td>
<td>$ 30.00</td>
<td>30 X X</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 0.50 - $ 0.75</td>
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<tr>
<td>Bettendorf Transit System</td>
<td>Bettendorf, IA</td>
<td>$ 1.00</td>
<td>23%</td>
<td>$ 30.00</td>
<td>30 X X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.75 - $ 1.25</td>
<td>6</td>
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<tr>
<td>City of Tucson</td>
<td>Tucson, AZ</td>
<td>$ 1.75</td>
<td>9%</td>
<td>$ 48.00</td>
<td>22 X X</td>
<td>X</td>
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<td>X</td>
<td>$ 0.75 - $ 1.25</td>
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<td>Yuma County IPTA</td>
<td>Yuma, AZ</td>
<td>$ 2.00</td>
<td>13%</td>
<td>$ 60.00</td>
<td>30 X X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 1.00 - $ 1.25</td>
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<td>Northern Arizona IPTA</td>
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<td>$ 34.00</td>
<td>27 X X</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 0.60 - $ 0.80</td>
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<td>City of Coolidge</td>
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<td>N/A</td>
<td>$ 30.00</td>
<td>30 X X</td>
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<td>X</td>
<td>$ 0.50 - $ 0.75</td>
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<td>City of Benson</td>
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<td>N/A</td>
<td>$ 10.00</td>
<td>10 X X</td>
<td>X</td>
<td>X X</td>
<td>X</td>
<td>$ 0.50 - $ 0.75</td>
<td>5</td>
<td></td>
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<tr>
<td>City of Kingman</td>
<td>Kingman, AZ</td>
<td>$ 1.50</td>
<td>N/A</td>
<td>$ 65.00</td>
<td>65 X X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.75 - $ 1.25</td>
<td>6</td>
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<tr>
<td>National Peer Average</td>
<td></td>
<td>$ 1.23</td>
<td>15%</td>
<td>$ 35.36</td>
<td>X X X X X X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.50 - $ 0.75</td>
<td>7</td>
<td></td>
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<tr>
<td>Geographic Peer Average</td>
<td></td>
<td>$ 1.42</td>
<td>11%</td>
<td>$ 41.17</td>
<td>X X X X X X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>$ 0.68 - $ 0.80</td>
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</tbody>
</table>

*Josephine County, Pine Bluff Transit, and the City of Kingman did not list reduced fare categories online. This analysis assumes a reduced fare equal to half the base fare for FTA specified categories where other information is not available.

**The Greater Glen Falls Transit System charges an additional $0.50 fee for transfers, making a similar comparison between standard fare and monthly pass prices incompatible.

Source: National Transit Database, 2016 Tables, Individual Transit Provider website and customer service lines.
As summarized in Table 2, a variety of discounts for specific customer categories are made available across the peer group. Peers typically advertised a discounted fare for Medicare recipients, those with a qualifying disability, and seniors over the age of 65. Where not advertised, this analysis assumes compliance with FTA policy requiring reduced fares for these 3 passenger categories. In addition, a majority of peers also offered a discount for students or children, with specific age and eligibility requirements varying widely. Vista Transit was the only transit provider within the peer group to offer a discount for active-duty military personnel; however three others did offer a discount or free fare for disabled veterans.

In addition to reduced single-ride fares, Vista Transit and four of the six geographic peers advertise a reduced monthly pass for similar eligible categories. Only two of the 19 national peers advertise a discounted monthly pass.

As shown in Figure 3, paratransit fares ranged from $1.50 to $4.00 for the peer group. The average paratransit fare was $2.35 for national peers and $2.39 for geographic peers, as compared to $2.00 for Vista Transit. More detailed information regarding paratransit fares and eligibility requirements will be included in subsequent technical memoranda.

![Figure 3: Comparison of One-way Fares](image)

Note: Greenville Area Transit and Yuma County IPTA did not list paratransit fares and are not included in the above table. Josephine County and the City of Kingman did not list reduced fare categories online. This analysis assumes a reduced fare equal to half the base fare where other information is not available.
Although Vista Transit’s fares are near the median, it stands out for having one of the narrowest ranges of potential customer fares. The majority of national and geographic peers had a paratransit fare that was two times the standard fare and at least four times the lowest available reduced fare, while Vista Transit’s paratransit fare was only 1.6 times the base fare and 2.7 times greater than the reduced fare.

Farebox Performance Metrics

According to 2016 NTD data, Vista Transit generated approximately 11% of its 2016 fixed route operating expenses directly from farebox revenue. The average farebox recovery (fare revenue expressed as a percentage of total operating costs) across the national peer group was also 11%, compared to a farebox recovery of 14% for geographic peers. Vista Transit maintains an average farebox recovery despite collecting below-average fare revenue due to its lean operating cost per passenger. Average fixed route operating cost per passenger was $9.08 for national peers, $8.60 for geographic peers, and $5.75 for Vista Transit.

The systems with the highest farebox recovery typically achieved this by holding operating costs low. Two exceptions, the Biddeford-Saco-Old Orchard Beach Transit Committee (20% FBR) and the City of Kingman (24% FBR) had a higher operating cost per passenger than Vista Transit, but still achieved high fare box recovery through a much higher revenue per boarding, as shown in Figure 4.

![Figure 4: Fare Box Recovery](https://via.placeholder.com/150)

Source: AECOM, FTA 2016 National Transit Database
The average fare revenue collected per unlinked passenger trip was $0.75 for national and geographic peers, compared to $0.68 for Vista Transit. This is despite Vista Transit’s one-way standard fare being just above average. Figure 5 highlights the ratio between the average revenue generated per linked trip and the standard one-way fare. This fare revenue capture ratio is essentially a measurement of the extent to which transfer activity, discounted fares, and promotions are influencing the effective average revenue potential of each trip.

Three transit providers have a fare revenue capture ratio greater than one, meaning they collect on average more revenue for a single unlinked trip than the advertised base fare. The Biddeford-Saco-Old Orchard Beach Transit Committee offers several premium services including a Flex option on local routes, express routes, and commuter routes with sliding fares above the base fare. The City of Kingman, AZ has the highest cost monthly pass (equivalent in value to 44 base fares) out of all national and geographic peers. Customers underutilizing Kingman’s monthly passes may contribute to higher revenue capture there. The San Marcos Urban Transit District has a relatively low base fare of $1.00 and offers several deep discounts including a $15 reduced fare monthly pass and free rides for Texas State University students. Per FTA guidance, revenue generated under the contract with the University should be classified as a fare. Any amount paid on a per student basis for students who opt not to ride transit would boost the system’s fare revenue per linked trip and the calculated revenue capture. The Greater Glen Falls Transit system, with a revenue capture ratio just below one, implements a $0.50 transfer fee on the first transfer associated with a trip and has an above average monthly pass price.

![Figure 5: Fare Revenue Capture](image-url)
At the other end of the fare revenue capture spectrum, Cheyenne is the only peer to offer reduced fares based on SSI/SSD status and Tucson is the only peer to offer reduced fare for low-income individuals. Allegany County Transit advertises a free fare for Frostburg State University students and faculty.

Two systems with a fare revenue capture ratio similar to Vista Transit, Rapid Transit System and Community Action of South Kentucky are generating more revenue per boarding which is worth examining. Both systems offer an above average standard fare coupled with a lower-price monthly pass, such that the discount on a monthly pass kicks in after only 20 rides. Although neither system is generating revenue reflecting the base fare, they have circumvented the traditional conflict between higher fares and ridership retention by offering the ability for riders to select alternate ticketing options that echo willingness to pay.

Best Practices

**High Base Fares with Deep Discounts – Rapid Transit**

Rapid City, SD is a mid-size town in western South Dakota, located approximately 20 miles northeast and serving as a key transportation node for the Mount Rushmore National Monument. Base fares on local routes are $1.50, but can be discounted for as low as $0.67 for eligible riders when purchased in books of ten. In addition, frequent riders may purchase a monthly pass for $30. Commuters utilizing a monthly pass to make one round trip every weekday (for a total of 40 trips per month) would pay the equivalent of $0.75 per trip.

**Benefits:**
- Encourages frequent riders.
- Unlimited pass riders reduce cash handling and ticket processing fee, resulting in faster passenger loading and reduced overhead.
- Reduces equity concerns - low upfront cost of ticket books for regular and reduced fare riders reduce the barriers for obtaining discounted fares.

**Challenges:**
- Perceived value of a monthly pass will vary with customer’s usage which can cause it to be more difficult to pinpoint an ideal price.
- Potential for unlimited monthly riders to overwhelm service capabilities.
- Increased pass use can add unpredictability to short term revenue streams.

**Applicability:**
- Vista Transit starts with a fairly high monthly pass price relative to base fares.
- Holding monthly pass prices constant could help reduce customer anxiety through a potential base fare increase.
- Potential to combine with new fare collection technology for a more streamlined boarding process that reduces cash handling errors.
Supplemental Revenue for Reduced Fare Categories – San Marcos Urban Transit District

The San Marcos Urban Transit District offers free fares for university students, working in partnership with the local university to supplement the cost of these free fares. The extent to which this kind of arrangement can benefit the transit agency depends on the ability to negotiate a price per eligible rider that adequately covers the ridership potential of the target group. Often with large group sales, not every member of the eligible group will choose to ride transit, or may not ride transit as often as a typical self-paying customer. When this happens, even a discounted price per eligible rider can result in higher revenue per boarding than a typical.

Benefits:
- Costs of free or discounted fares are shared with local employers or service providers
- Revenue stability regardless of group’s usage

Challenges:
- Service coordination.
- Price negotiations with private entities.

Applicability:
- Potential partnerships with Fort Huachuca or local schools.

Premium Fares and Zone-based fares - Biddeford-Saco-Old Orchard Beach Transit Committee

The Biddeford-Saco-Old Orchard Beach Transit Committee serves a small coastal community approximately 18 miles southeast of Portland, ME. The system provides a local shuttle with a base fare of $1.50 for travel around Biddeford-Saco-Old Orchard Beach and a transfer point in Old Orchard Beach to the greater Portland bus system. Flex service is available for areas within three-quarters of a mile from the local shuttle with advance scheduling for two times the base fare. In addition, express bus service on the Zoom connects park-and-ride lots in Biddeford and Saco to downtown Portland for a one-way fare of $5.00. Intercity service between Biddeford-Saco and Portland with more interim stops than the express routes is structured with a zone-based fare, ranging from $1.50 to $5.00 depending on the length of the trip.
Benefits:
- More targeted way to recover some of the expenses associated with costly services.
- Doesn't require system-wide fare increase.
- Helps address equity concerns – preserves lower cost option for transportation disadvantaged while offering premium option for choice riders.
- FLEX service combines ADA paratransit requirements with scheduled routes to increase usage of limited resources.

Challenges:
- Higher O&M cost associated with premium services.
- Requires more customer knowledge about differing service types.
- Additional purchase associated with transfers from base to premium services may add to driver responsibilities and/or slow passenger load times.
- FLEX service requires additional recovery time and strict scheduling policies.

Applicability:
- Potential Future Service expansions into more remote or difficult to access areas.
- Zone-based structure for paratransit outside of three-quarter mile area.
- FLEX service can be difficult to implement in areas with high paratransit usage.

Targeted Strategies and Next Steps

As shown in the analysis above, Vista Transit has a very healthy level of ridership relative to the O&M cost incurred by the system. Whether this is a result of strategic operational efficiencies or a larger natural transit market, it is a great starting point and results in an average farebox recovery as compared to similarly sized peers. However, Vista Transit does have capacity for an even higher farebox recovery through optimization of ticket prices and a streamlined revenue collection system.

Looking to peers, one general strategy that may work well for Vista Transit would be to diversify available fares. By increasing the premium between the lowest available fare and a traditional single ride ticket, Vista Transit can create a stronger incentive structure towards more operationally efficient pass types. When this strategy is paired with a base fare increase and targeted marketing of lower cost fare options (such as monthly or multi-ride passes), it can reduce ridership losses normally associated with a fare increase. This diversification could also extend to paratransit fares, with a premium fare for services offered beyond Americans with Disabilities Act (ADA) requirements.

In the next phase of this analysis, a fare revenue model will be constructed for Vista Transit using detailed historic ridership, revenue, and fare type information. This model will help pinpoint key revenue generators and inefficiencies within the fare collection process, and this understanding will inform specific fare strategies. Each strategy will include a detailed fare structure which can be fed back into the model to estimate potential changes to ridership and revenue, as well as any policy changes or capital investments needed to implement the change. This will also allow Vista Transit to weigh the benefits and costs associated with any potential fare change relative to the existing system.
Appendix B – Fare Policy Analysis

To: Richard Cayer and Michael Normand, City of Sierra Vista
From: Kristen Lueken and Andrew Ittigson, AECOM
Date: April 3, 2018
Re: Fare Analysis (Task 2) – Fare Policy Analysis

This analysis combines the findings documented in Technical Memorandum #1, Fare Policy Peer Review, with a predictive fare revenue model to develop and assess potential fare policy recommendations for the Vista Transit system. Each potential fare policy recommendation will be assessed for its potential impact on ridership, revenue and implementation cost.

In addition to potential revisions to the fare structure, this analysis will also evaluate the potential of updated fare collection equipment, which may allow more capabilities in the use of fare media and more flexibility within its fare policy. New farebox equipment will potentially allow Vista Transit to reduce cash handling, enhance ridership data collection, reduce expenses associated with supporting different fare media and improve customer convenience.

The fare policy analysis was performed using farebox revenue and ridership information from Vista Transit for the year beginning October 1, 2015 and ending September 30, 2016. The results of this analysis will allow Vista Transit to:

- Establish ridership and revenue benchmarks for each existing fare category and ticket type,
- Use this information to price new fare products
- Forecast the fare revenue impact of potential fare policy changes

This memorandum provides information about Vista Transit’s existing fare structure and performance, national fare elasticity trends, and an assessment of potential fare policy changes.

Existing Fare Structure

The existing fare structure described in this report reflects the fares and policies in effect for FY 2016, and is consistent with the revenue and ridership data available. Vista Transit offers five weekday fixed bus routes operating between 7:00 a.m. and 6:00 p.m. Routes 1, 2, and 3 run every 30 minutes throughout the day, and Routes 4 and 5 are currently combined and provide 60 minute frequencies. These two routes also operate with a shorter schedule of service, from 8:30 am to 4:30 pm. Saturday service is offered hourly from 9:30 a.m. to 6:00 p.m. on two fixed routes. In addition, Vista Transit offers paratransit service for qualified passengers who are unable to use fixed route service due to disability. Paratransit must be scheduled a day in advance for a time consistent with fixed route hours of operation. The fares charged for each of these services, by fare category, are shown below in Table 1. Passengers must purchase fare media in person at the Vista Transit Station or one of three community center locations along Routes 2, 3, and 4.
Table 1: Fares by Category and Fare Media

<table>
<thead>
<tr>
<th>Fare Category</th>
<th>1-Way Cash Fare</th>
<th>20-Ticket Book</th>
<th>Day Pass</th>
<th>Monthly Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic/Adult</td>
<td>$1.25</td>
<td>$25.00</td>
<td>$3.00</td>
<td>$40.00</td>
</tr>
<tr>
<td>Military</td>
<td>$1.00</td>
<td>N/A</td>
<td>$3.00</td>
<td>$40.00</td>
</tr>
<tr>
<td>Student</td>
<td>$0.75</td>
<td>$15.00</td>
<td>$3.00</td>
<td>$24.00</td>
</tr>
<tr>
<td>Senior/Disabled</td>
<td>$0.75</td>
<td>$15.00</td>
<td>$3.00</td>
<td>$24.00</td>
</tr>
<tr>
<td>Paratransit Service</td>
<td>$2.00</td>
<td>$40.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>


The fares indicated above represent the amounts that passengers should expect to pay when boarding. However, those boarding with cash may occasionally overpay, as Vista Transit policy states that no change will be made on the bus for passengers not carrying the exact amount.

Currently, the discounted fare for students, riders with a disability and riders over 65 years of age represents 60% of the basic one-way fare. The Federal Transit Administration (FTA) requires any fixed route transportation service funded under Section 5307 to charge a half-fare or lower to Medicare cardholders, persons with a disability and persons over 65 who travel during off peak hours. Half fares are not required during peak hours of service or for daily or monthly pass options. Moreover, FTA half fare guidance requires that discounted fare be 50% or less as compared to the standard peak period cash fare. Additional discount options offered to the general public (such as off-peak fares or bulk purchase options) would not require additional discounts for qualified riders. The fare policy recommendations discussed below will assess options for compliance with this FTA policy.

Discounts for students, children or military personnel are not required and can be set at the transit agency’s discretion. Passengers do not receive a per-ride discount when purchasing books of 20-tickets. However, the ability to purchase in advance offers passengers using this fare media the benefit of not needing exact change when boarding and reduces their likelihood of overpayment.

Day passes are available for $3.00 for fixed route services. At this price, the pass would represent a discount for basic (non-discounted) passengers making three or more trips per day. Active military personnel, who pay $1.00 per one-way trip, would only receive a benefit from the day pass if making 4 or more trips in a day. Discounted senior, disabled, or student customers would need to make 5 or more transit trips in a day to receive a benefit from day pass use.

Monthly passes are also available for fixed route passengers. At the price points above, the passes result in an effective discount over the cash fare for anyone making more than 32 trips per month. A regular transit commuter making 40 trips per month (two daily one-way trips five days a week), would receive an approximate savings of 20% compared to the cash fare.

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No monthly passes or bulk discounts are available for paratransit service. However, Vista Transit’s paratransit fare of $2.00 is less than the FTA-maximum of two times the base fare, or $2.50.

Transfer Policies
Currently, Vista Transit offers weekday service on five fixed-route patterns and weekend service on two fixed routes. All routes provide service to the Vista Transit Center at Coronado Drive and Wilcox Drive. Buses are timed to arrive at the transfer center on the hour or 0:30 after the hour. Routes 1, 2 and 3 run every half hour throughout the day, so passengers transferring to one of these routes can do so at any time. Transfers can also be made to routes 4 and 5 alternately every half hour between 8:30 a.m. and 4:30 p.m.

FY 2015 Ridership and Revenue
Ridership was analyzed for October 2015 to September 2016. Total ridership was 153,914 with an average of 39% of unlinked trips being transfers. Twenty six percent (26%) of unlinked trips were base fare passengers, as shown in Table 2, with a similar percentage of discounted fare trips made by senior, student, and disabled passengers. Paratransit service accounted for 5.4% of unlinked trips.

Table 2: Unlinked Trips by Fare Category

<table>
<thead>
<tr>
<th>Fare Category</th>
<th>Unlinked Trips</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic/Adult</td>
<td>39,820</td>
<td>25.9%</td>
</tr>
<tr>
<td>Military</td>
<td>2,175</td>
<td>1.4%</td>
</tr>
<tr>
<td>Student</td>
<td>9,461</td>
<td>6.1%</td>
</tr>
<tr>
<td>Senior/Disabled</td>
<td>30,061</td>
<td>19.5%</td>
</tr>
<tr>
<td>Transfer</td>
<td>60,684</td>
<td>39.4%</td>
</tr>
<tr>
<td>Promotional (zero-fare)</td>
<td>3,379</td>
<td>2.2%</td>
</tr>
<tr>
<td>Paratransit Service</td>
<td>8,334</td>
<td>5.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>153,914</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Vista Transit

Revenue over this same period was approximately $100,000. However, revenue calculations in the Sierra Vista data recognized revenue for monthly pass trips equal to the total number of trips using a particular pass type times the standard one-way fare ($0.75 or $1.25). This analysis seeks to understand the revenue generated through pass sales and the average revenue per monthly pass boarding, accounting for how frequently passes are used. To account for this the fare revenue model created for this analysis recognizes a pass revenue equal to the average yearly pass sales times the price of an individual pass. Appendix B1 provides the methodology that guides the fare revenue model and describes how pass and fare revenue was allocated across customer categories and available fare media.

The primary source of revenue came through cash payments, which outnumbered all other fare media combined and represented over 60% of revenue generated. Monthly passes were more heavily utilized than tickets for all fixed route fare categories. Approximately 12% of revenue is estimated to come from
discounted monthly pass sales, followed by 11% from $2.00 paratransit tickets. One-day pass sales did not represent a substantial revenue source, generating only 2% of total receipts.

Table 3 summarizes the average revenue per unlinked trip by fare media and category, as determined by the fare revenue model. Transfers and promotional trips were distributed into these categories as described in Appendix B1, such that across all fare types, the average revenue generated per boarding was $0.64.

Table 3: Revenue per Boarding by Fare Media and Category

<table>
<thead>
<tr>
<th>Fare Category</th>
<th>Cash</th>
<th>Ticket</th>
<th>Day Pass</th>
<th>Monthly Pass</th>
<th>Weighted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic/Adult</td>
<td>$0.61</td>
<td>$0.59</td>
<td>$1.03</td>
<td>$1.12</td>
<td>$0.66</td>
</tr>
<tr>
<td>Military</td>
<td>$0.49</td>
<td>N/A</td>
<td>N/A</td>
<td>$1.12</td>
<td>$0.54</td>
</tr>
<tr>
<td>Student</td>
<td>$0.37</td>
<td>$0.36</td>
<td>N/A</td>
<td>$0.64</td>
<td>$0.44</td>
</tr>
<tr>
<td>Senior/Disabled</td>
<td>$0.37</td>
<td>$0.36</td>
<td>N/A</td>
<td>$0.64</td>
<td>$0.44</td>
</tr>
<tr>
<td>Paratransit Service</td>
<td>$2.09</td>
<td>$1.97</td>
<td>N/A</td>
<td>N/A</td>
<td>$2.02</td>
</tr>
<tr>
<td><strong>Weighted Average</strong></td>
<td><strong>$0.57</strong></td>
<td><strong>$0.80</strong></td>
<td><strong>$1.03</strong></td>
<td><strong>$0.76</strong></td>
<td><strong>$0.64</strong></td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

The FY 2015 average revenue per boarding for paratransit trips was $2.09 for those paying cash and $1.97 for ticketed trips. These fares are within a fraction of a percent of the advertised fare of $2.00. An occasional overpayment from a cash customer or personal care attendant who rides free with a ticketed customer could explain this level of variation, but neither are having a significant impact on revenue potential.

For fixed route trips, monthly passes can generate almost two times the revenue per trip as compared to cash and ticketed trips. The average revenue generated per unlinked trip for customers paying with cash or ticket is approximately half the advertised fare for all fare categories, presumably as a result of the high rate of transfer activity shown in Table 2 above.
Fare Strategies

The following section outlines the potential fare strategies that were identified for assessment. Each strategy was modeled for potential impacts to ridership and revenue in order to determine the most effective short-term solutions. The modeled ridership and revenue impacts are presented as a range. As discussed in Appendix B2, Vista Transit’s specific customer base may be more or less sensitive to price changes than national average elasticity for bus fares. The impacts presented are representative of a wide range of measured bus fare elasticities spanning large and small systems for a variety of rider and trip characteristics. Smaller or more conservative changes to the fare structure will produce a narrower range of potential outcomes. Other strategies may produce a range including both positive and negative impacts, indicating a higher-risk strategy that is more dependent on Vista Transit customers’ price sensitivity.

Set Reduced Fare at 50% of Base Fare

Regardless of other potential fare strategies pursued, it will be necessary to align Vista Transit’s reduced fare with FTA guidance. There are several ways to achieve the required ratio including:

- Increase base fare to $1.50 while holding reduced fare steady at $0.75.
- Hold base fare steady at $1.25 while decreasing reduced fare to $0.62 cents or less.
- Increase both the basic and reduced fares.

Any of the above strategies could be targeted to a particular time of day (for example $1.50 base fare during peak hours only) if a more conservative change is desired. However, variable pricing can introduce additional complications for drivers in communicating and enforcing different fares at different times of day. Therefore this strategy is not recommended unless payments are transitioned to a fully automated (cashless) system.

At this time, the ideal mechanism for achieving FTA compliance would be to increase the base fare to $1.50. As shown in Table 4, this is the only strategy that is predicted to result in net positive revenue impacts regardless of local fare elasticity. A reduction of the reduced fare to $0.62 results in a revenue loss even for the most price-sensitive riders, and transit dependent riders tend to be less price sensitive, which could result in revenue losses on the higher end of the range presented. Further, a cash fare of $0.62, requiring a minimum of five (5) coins, would require excessive cash handling as customers board the bus. The possibility of having to overpay when exact change is not available and the added time and energy required upon boarding may negate much of the ridership gains predicted from the fare decrease. A decrease in the reduced fare is not likely to spur a large ridership growth, but would negatively impact revenue and timely boarding.
Increasing both fares would have more mixed results. Although an increase in reduced fares could spur revenue gains for that fare category, any increase in reduced fare would require a corresponding increase in the base fare. As shown, net revenue resulting from higher fares across the board could be positive if Vista Transit customers are less sensitive to fare changes. However, higher sensitivity to prices not unreasonable in some other transit markets could lead to net losses. For this reason, the conservativ increase to $1.50 base fare is recommended at this time. The ridership impacts in Table 4 can be used as a benchmark to compare actual gains or losses resulting from any potential fare change in order to better understand local price sensitivity for Vista Transit.

Maximize Paratransit Revenues
Paratransit service has a higher operating cost than fixed route service and generally requires a higher subsidy per passenger than fixed route service, even at higher fares. For this reason FTA allows paratransit fares for ADA-qualified customers to be up to double the basic one-way fare. Paratransit fares are not regulated for passengers that do not meet ADA criteria or live more than three-quarters of a mile from fixed route service. Currently, Vista Transit’s paratransit fare of $2.00 is only 1.6 times the base fare. This analysis examines the revenue impacts of potential paratransit fare adjustments including:

- Increase paratransit fare to $2.50 (maximum allowed with existing base fare)
- Increase paratransit fare to $3.00 (maximum allowed for base fare = $1.50)
- Establish higher fares for paratransit service beyond ADA requirements

As shown in Table 5, the revenue impact of a $2.50 paratransit fare is positive across all elasticities tested. The impact of $3.00 paratransit fares is similarly positive, with a potential for a very small revenue loss only under the most price sensitive scenario. Paratransit fares above $3.00 are not recommended because price-sensitive ridership could decline significantly enough to negatively impact revenue. Ultimately the decision between a $2.50 fare and a $3.00 fare will depend on broader system

Table 4: Revenue Impact of Reduced Fare Adjustments

<table>
<thead>
<tr>
<th>Fare Category</th>
<th>Adjusted Fare</th>
<th>Ridership Impact (Annual Unlinked Trips)</th>
<th>Revenue Impact (Annual $2016)</th>
<th>Net Revenue Impact of Basic &amp; Reduced Fare Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced</td>
<td>$0.50</td>
<td>3,200 to 11,100</td>
<td>($4,900) to ($3,000)</td>
<td>$(11,800) to $(6,600)</td>
</tr>
<tr>
<td>Basic</td>
<td>$1.00</td>
<td>2,700 to 9,600</td>
<td>($6,900) to ($3,600)</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$0.62</td>
<td>1,600 to 5,800</td>
<td>($2,400) to ($1,200)</td>
<td>$(2,400) to $(1,200)</td>
</tr>
<tr>
<td>Basic</td>
<td>$1.25</td>
<td>No change</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$0.75</td>
<td>No change</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>$1.50</td>
<td>-9,600 to -2,700</td>
<td>$1,300 to $6,200</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$1.00</td>
<td>-11,100 to -3,200</td>
<td>$400 to $4,100</td>
<td>$(2,600) to $20,800</td>
</tr>
<tr>
<td>Basic</td>
<td>$2.00</td>
<td>-29,900 to -8,200</td>
<td>($2,900) to $16,700</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$1.25</td>
<td>-22,100 to -6,300</td>
<td>($1,900) to $7,500</td>
<td>$(18,200) to $32,1800</td>
</tr>
<tr>
<td>Basic</td>
<td>$2.50</td>
<td>-48,100 to -13,700</td>
<td>($16,400) to $23,500</td>
<td></td>
</tr>
<tr>
<td>Reduced</td>
<td>$1.50</td>
<td>-33,200 to -9,500</td>
<td>($6,800) to $10,200</td>
<td>$(45,700) to $40,000</td>
</tr>
<tr>
<td>Basic</td>
<td>$3.00</td>
<td>-67,400 to -19,200</td>
<td>($38,900) to $29,800</td>
<td></td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.
performance goals. If there is a desire to reduce paratransit ridership (through stricter eligibility and incentives) in order to reduce operating costs, then a $3.00 paratransit fare, which has a bigger impact on ridership, may be preferred. If the goal is to provide as much service to customers as possible, then a $2.50 paratransit fare would be ideal.

**Table 5: Net Revenue Impact of Paratransit Fare Adjustments**

<table>
<thead>
<tr>
<th>Adjusted Paratransit Fare</th>
<th>Ridership Impact (Annual Unlinked Trips)</th>
<th>Revenue Impact (Annual $2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 2.50</td>
<td>-1,500 to -400</td>
<td>$500 to $3,200</td>
</tr>
<tr>
<td>$ 3.00</td>
<td>-3,000 to -800</td>
<td>$(400) to $5,900</td>
</tr>
<tr>
<td>$ 4.00</td>
<td>-5,900 to -1,700</td>
<td>$(6,800) to $10,100</td>
</tr>
</tbody>
</table>

Source: AECOM, April 2018.

As discussed in the Task 1 paratransit memo, only 6% of paratransit trips originate outside of the three-quarter mile area required for ADA paratransit service. As a result, any fare adjustments for an extended service area are not likely to significantly impact net revenue. Stricter enforcements of the geographic requirement would likely lead to lower revenue, as most of these trips would not be possible using fixed route services.

**Maximize Student Revenues**

Currently students are priced similarly to customers with a disability and those over 65. This is not required by ADA, and many peer systems charge an alternate fare for student trips. Changes to student fares would have similar results as shown for all reduced fare trips in Table 4 above, but would only affect about a quarter of the trips and would not require corresponding adjustments to the base fare. For example, a student fare of $1.00 could lead to annual revenue gains between $100 and $1,100. This would come with a ridership loss of between 500 and 2,100 unlinked student trips. Students tend to be more price sensitive than a typical rider, so ridership losses may lean more towards the high end of the range. Although the net revenue impact would be positive other factors may warrant leaving the student fare at $0.75:

- Ability to grow longer-term ridership by familiarizing more students with transit
- Retain ability to adjust student one-way fare at a later time to help incentivize group sales or new fare media.
- Low-end of revenue impacts associated with a price sensitive student demographic are not significant enough to warrant change

Because the number of student trips affected is less impactful than other changes discussed above, student fare adjustments, if any, should be part of a longer-term strategy that reflects system-wide goals.
**Understand Ideal Pass Prices**

Under the current fare structure, day and monthly passes are generating the highest revenue per boarding of any fare media. Given a limited evening and weekend service schedule, it may be difficult for customers to utilize these passes enough to generate a per-trip discount over existing fares. In addition, passes do not require cash handling and can speed up the boarding time at stops. Monthly passes in particular have a lower production cost than single ride tickets, so incentivizing this fare media can help to reduce operating costs and increase overall efficiency of the system.

Because of bus fares’ natural inelasticity, reducing the price of passes is not likely to generate much additional ridership and can negatively impact revenues. However, increasing pass prices may push more riders to switch to one-ride tickets or cash. It is recommended that the price of passes is held constant while cash fares go up in order to incentivize this more efficient media.

**Streamline Fare Purchase and Payment Options**

A variety of new fare media equipment is available to streamline the fare payment and collection process. Some strategies other bus systems have used to speed up the boarding process and reduce cash handling errors include:

- Off-board fare collection
- Magnetic Strip Cards
- Smart Card/TAP card media
- Mobile payment apps

Off-board fare collection works by allowing customers to purchase their fare using cash or card at an off-board machine in exchange for a proof of payment receipt. The receipts are standardized and reduce the need for drivers to handle cash payments or verify correct amounts. While this system can speed up boarding time when the bus pulls up, it can add to a passenger’s over-all commute time to make the payment at a designated stop. Buses may still be delayed if waiting for a customer to finish an off-board transaction. Because the system is still primarily paper-based, there are no large capital costs associated with software or systems costs. Individual vending machines can cost approximately $15,000 per unit and printing costs can add a few cents per fare issued. This system of payment works best in areas with high stop volume or in combination with on-board fare collection equipment at low-volume stops. It would not be cost effective to include ticket vending machines at all boarding locations, so some other form of payment collection would still be required.

Magnetic fare cards use the same technology found in consumer credit cards, and require the passenger to swipe or insert the card upon boarding. They allow passenger trip information to be stored on the card, but the extra time taken to read data stored on the card can cause delays roughly equivalent to a cash payment. Systems costs for magnetic strip cards are approximately $300,000 plus $10,000 per on-board reader. The cards themselves are low-cost at about $0.05 each, but are generally made of coated paper which can be easily damaged. The ease of damaging these cards makes them harder to use for longer periods of time and may not be suitable for multi-ride tickets.
Smart Cards or TAP cards use an RFID chip that can be read without direct contact. These cards are similar to those used for secure building entry. Smart cards have embedded dynamic logic that can process complex fare rules, including time-sensitive fares or transfer discounts and distance-based fares. Smart cards are also more durable than paper cards and can be reloaded for extended longevity. Some systems (such as the Biddeford-Saco-Old Orchard Transit peer system) incorporate RFID tokens which can be pre-loaded with a single one-way fare and deposited in a turn style for reuse. System costs for Smart Cards are approximately $500,000 plus $15,000 per RFID reader. The system would also require additional verification machines at exits if distance-based fares are utilized. Each fare card may cost between $1.00 and $2.00 depending on the complexity of the fare structure, but can be reused. Many systems implementing smart card technology require the passenger to pay a one-time card fee to encourage riders to keep and reload their fare cards.

Mobile payment is among the newest technology to emerge for fare payment. Mobile payment apps are typically managed by third party vendors, and can have much lower up-front capital costs as compared to an RFID or magnetic strip system. Readers may cost approximately $10,000, but may be included as part of a third party package. However, maintenance or support payments made monthly or annually range may add between $80,000 and $200,000 to annual operating costs. Mobile payment systems have the benefit of allowing passengers to purchase tickets from any location without requiring costly vending machines at low-activity stops. This could help to improve the use of day and monthly pass options. Currently passes are sold at four (4) physical locations which may be near destinations and transfer points, but may not be convenient for a passenger first boarding a bus from their home. Data tracking is available for app-based payments, but often relies on proprietary software and may require additional fees as compare to an operator owned RFID system.

Conclusions/Next Steps
The first phase of fare policy implementation must include adjustment of one-way basic and/or reduced fares to achieve compliance with FTA half-fare regulations. This would ideally be timed with adjustment of the paratransit fare and a marketing effort promoting daily and monthly passes as not changing in price. This analysis recommends an initial roll out of $1.50 base fare and $3.00 paratransit fare with no other changes to reduced, student, or military fares or pass prices. These changes could generate net positive revenue of up to $12,000 annually.

Other potential changes, including a potential $1.00 student fare, and implementation of new fare media also have the potential to increase total revenue, but are not recommended as part of this first phase. Student fare adjustments have a lower upside and risk long term ridership losses and should only be considered after documenting the response to the initial fare adjustments which can help to define the price sensitivity of Vista Transit customers.

Appendix B1: Fare Revenue Model Methodology

The fare revenue model used to develop this analysis relies on a proportional understanding of unlinked trips and revenue generated across the spectrum of fare media and customer categories. Unlinked trips are based on a summary of Vista Transit data between October 2015 and September 2016, as shown in Table 2 in the body of the report. Revenue was allocated as shown in Table B-1 below. Ticket revenues are based on the total number of tickets used by boarding passengers times the value of each ticket. Monthly pass sales shown are for FY 2017 as FY 2016 information was not available. The revenue calculated using FY 2017 pass sales totaled $98,101, which is within 0.5% of the projected revenue reported by Vista Transit for FY 2016. Because this method of recognizing pass sales revenue is more conservative and does not result in a substantially difference in the reported total, a total revenue of $98,101 was used as the basis for modeled revenue projections.

Table B-1: Revenue by Fare Media

<table>
<thead>
<tr>
<th>Fare Media</th>
<th>Pass Sales 11</th>
<th>Unlinked Trips 12</th>
<th>Value</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>N/A</td>
<td>Not Reported</td>
<td>N/A</td>
<td>$60,102.50</td>
</tr>
<tr>
<td>$0.75 Tickets</td>
<td>N/A</td>
<td>5,133</td>
<td>$0.75</td>
<td>$3,849.75</td>
</tr>
<tr>
<td>$1.25 Tickets</td>
<td>N/A</td>
<td>3,143</td>
<td>$1.25</td>
<td>$3,928.75</td>
</tr>
<tr>
<td>$2.00 Tickets</td>
<td>N/A</td>
<td>5,214</td>
<td>$2.00</td>
<td>$10,428.00</td>
</tr>
<tr>
<td>No-fare</td>
<td>N/A</td>
<td>64,063</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sum of Basic Monthly Pass</td>
<td>163</td>
<td>5,569</td>
<td>$40.00</td>
<td>$6,520.00</td>
</tr>
<tr>
<td>Discount Monthly Pass</td>
<td>471</td>
<td>16,941</td>
<td>$24.00</td>
<td>$11,304.00</td>
</tr>
<tr>
<td>1-Day Pass</td>
<td>656</td>
<td>1,829</td>
<td>$3.00</td>
<td>$1,968.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$98,101.00</strong></td>
</tr>
<tr>
<td>Recognized Revenue (VT)</td>
<td></td>
<td></td>
<td></td>
<td><strong>$100,331.00</strong></td>
</tr>
<tr>
<td>Sum of Monthly Balance (VT)</td>
<td></td>
<td></td>
<td></td>
<td><strong>($1,709.00)</strong></td>
</tr>
<tr>
<td><strong>Projected Revenue (VT)</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$98,622.00</strong></td>
</tr>
<tr>
<td><strong>Margin of Error</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.5%</strong></td>
</tr>
</tbody>
</table>

Source: AECOM

Table B-2 shows the percentage of trips allocated to each fare media category. Unlinked trips for day passes were estimated assuming 2.79 rides per day, equivalent to two one way trips plus an average 39.4% transfer rate per trip. All trips generated by day pass usage were attributed to basic/adult riders, because those eligible for discounted fares are likely to find the purchase of single-ride fares more economical. Ticket sales and monthly passes were weighted proportionally to corresponding fare categories. Cash riders for each fare category were estimated by subtracting all other fare media from the total trips in an individual fare category.

---

11 Monthly Pass Sales are estimated based on FY 2017 pass sales data
12 Unlinked trips for day passes were estimated assuming 2.79 rides per day, equivalent to two one way trips plus an average 39.4% transfer rate per trip.
Table B-2: Percent Unlinked Trips by Fare Media and Category

<table>
<thead>
<tr>
<th>Fare Category</th>
<th>Cash</th>
<th>Ticket</th>
<th>Day Pass</th>
<th>Monthly Pass</th>
<th>Zero-fare</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic/Adult</td>
<td>19.3%</td>
<td>2.0%</td>
<td>1.2%</td>
<td>3.4%</td>
<td>N/A</td>
<td>25.9%</td>
</tr>
<tr>
<td>Military</td>
<td>1.1%</td>
<td>N/A</td>
<td>N/A</td>
<td>0.2%</td>
<td>N/A</td>
<td>1.4%</td>
</tr>
<tr>
<td>Student</td>
<td>2.7%</td>
<td>0.8%</td>
<td>N/A</td>
<td>2.6%</td>
<td>N/A</td>
<td>6.1%</td>
</tr>
<tr>
<td>Senior/Disabled</td>
<td>8.6%</td>
<td>2.5%</td>
<td>N/A</td>
<td>8.4%</td>
<td>N/A</td>
<td>19.5%</td>
</tr>
<tr>
<td>Transfer</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>39.4%</td>
<td>39.4%</td>
</tr>
<tr>
<td>Promotional</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Paratransit Service</td>
<td>2.0%</td>
<td>3.4%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A*</td>
<td>5.4%</td>
</tr>
<tr>
<td><strong>Percent of Total</strong></td>
<td><strong>33.8%</strong></td>
<td><strong>8.8%</strong></td>
<td><strong>1.2%</strong></td>
<td><strong>14.6%</strong></td>
<td><strong>41.6%</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Source: AECOM

In order to calculate average revenue per boarding that incorporates all trips, transfers and promotional trips were distributed across revenue-generating fare media. Promotional trips were distributed by weight across all fare media. Transfers were distributed across cash and ticket fare categories, as those using a pass would not require a transfer. The effective number of monthly trips for each fare type, including redistributed transfers and promotional trips are given in Table B-3. Table B-4 estimates the revenue generated for each fare type in FY 2016 dollars.

Table B-3: Effective Annual Trips by Fare Media and Category

<table>
<thead>
<tr>
<th>Fare Category</th>
<th>Cash</th>
<th>Ticket</th>
<th>Day Pass</th>
<th>Monthly Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic/Adult</td>
<td>62,124</td>
<td>6,604</td>
<td>1,904</td>
<td>5,496</td>
</tr>
<tr>
<td>Military</td>
<td>3,964</td>
<td>0</td>
<td>0</td>
<td>300</td>
</tr>
<tr>
<td>Student</td>
<td>8,776</td>
<td>2,582</td>
<td>0</td>
<td>4,221</td>
</tr>
<tr>
<td>Senior/Disabled</td>
<td>27,884</td>
<td>8,203</td>
<td>0</td>
<td>13,411</td>
</tr>
<tr>
<td>Paratransit Service</td>
<td>3,162</td>
<td>5,285</td>
<td>0</td>
<td>8,447</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>105,910</strong></td>
<td><strong>22,673</strong></td>
<td><strong>1,904</strong></td>
<td><strong>23,427</strong></td>
</tr>
</tbody>
</table>

Source: AECOM

Table B-4: Effective Revenue by Fare Media and Category

<table>
<thead>
<tr>
<th>Fare Category</th>
<th>Cash</th>
<th>Ticket</th>
<th>Day Pass</th>
<th>Monthly Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic/Adult</td>
<td>$38,081</td>
<td>$3,929</td>
<td>$1,968</td>
<td>$6,182</td>
</tr>
<tr>
<td>Military</td>
<td>$1,944</td>
<td>$0</td>
<td>$0</td>
<td>$338</td>
</tr>
<tr>
<td>Student</td>
<td>$3,228</td>
<td>$922</td>
<td>$0</td>
<td>$2,706</td>
</tr>
<tr>
<td>Senior/Disabled</td>
<td>$10,256</td>
<td>$2,928</td>
<td>$0</td>
<td>$8,598</td>
</tr>
<tr>
<td>Paratransit Service</td>
<td>$6,595</td>
<td>$10,428</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$60,103</strong></td>
<td><strong>$18,207</strong></td>
<td><strong>$1,968</strong></td>
<td><strong>$17,824</strong></td>
</tr>
</tbody>
</table>

Source: AECOM
Appendix B2: Fare Elasticity Implications

Elasticity measures the extent to which a change in price will impact demand for a good or service. The elasticity coefficient is formally defined as the percentage change in consumption for a one percent change in price. Elasticity may be positive or negative, with a positive elasticity representing a situation in which an increase in price causes an increase in demand. For example, an increase in the cost of gas might lead to an increase in transit ridership demand. Elasticities between transit fares and ridership are negative, meaning that an increase in fare will lead to a decrease in ridership. Consumers’ sensitivity to price is defined as “elastic” when the elasticity coefficient is greater than plus or minus one and a modest change in price can affect a disproportionally large change in consumption. An “inelastic” relationship is one with a coefficient less than plus or minus one, in which a disproportionally large change in price is required to affect a modest change in consumption.

Bus transit is often publicly subsidized such that the fare charged is low enough to not be a significant factor in a rider’s decision to use transit, relative to other factors such as travel time, access, ease of use, and personal comfort. As a result, the relationship between bus fare and transit ridership is almost always inelastic. A frequently cited meta-study of bus fare elasticities across the U.S found an average fare elasticity of -0.403, ranging from -0.117 to -0.855\(^\text{13}\). Subsequent analysis\(^\text{14}\) examining the large range in fare elasticity from one system to another has found that:

- Fare elasticities are lower for systems with a large percentage of transit dependent riders and higher for systems with more discretionary riders.
- Large urban areas (with population greater than one million) tend to be less elastic than smaller urbanized areas.
- Fare elasticities tend to be lower in the short term but can increase when examined in the long term, when sustained transit prices may affect a riders’ long term job, housing or automobile purchase decisions.
- Peak trips are less elastic than off-peak trips.

Because specific fare elasticity data is not available for Vista Transit or a closely comparable transit system, this analysis will use a range of possible elasticities based on national data in order to understand the best- and worst-case scenarios for potential fare adjustments. Table B-5 presents the elasticities used to define an estimate and range for Vista Transit revenue impacts resulting from potential fare changes.


Table B-5: Fare Elasticity Equivalents

<table>
<thead>
<tr>
<th>Elasticity Coefficient</th>
<th>Roughly Equivalent to Elasticities used for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-point Estimate</td>
<td>National Average for cities with population less than 1,000,000, off-peak average, car owners</td>
</tr>
<tr>
<td>Low end of Range</td>
<td>Work Trips, trips over 3 miles, short-term effects, low-income and senior riders.</td>
</tr>
<tr>
<td>High End of Range</td>
<td>Shopping trips, trips under 1 mile, long-term effects</td>
</tr>
</tbody>
</table>

At lower elasticities from -0.2 to -0.43, any fare decrease results in negative revenue impacts and modest increases to fares tend to result in increased revenues. However, at higher elasticities approaching -0.7, positive revenue impacts are limited to small fare increases. The effects of various fare adjustments on revenue are shown in Table B-6 for a range of fare elasticities. Positive revenue impacts are highlighted in green.

Table B-6: Ridership and Revenue Impact of Fare Adjustments

<table>
<thead>
<tr>
<th>Change in fare</th>
<th>-33%</th>
<th>-20%</th>
<th>20%</th>
<th>33%</th>
<th>67%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Elasticity (-0.2)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ridership Impact</td>
<td>6.7%</td>
<td>4.0%</td>
<td>-4.0%</td>
<td>-6.7%</td>
<td>-13.3%</td>
<td>-20.0%</td>
</tr>
<tr>
<td>Revenue Impact</td>
<td>-28.9%</td>
<td>-16.8%</td>
<td>15.2%</td>
<td>24.4%</td>
<td>44.4%</td>
<td>60.0%</td>
</tr>
<tr>
<td><strong>Mid Elasticity (-0.43)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ridership Impact</td>
<td>13.3%</td>
<td>8.0%</td>
<td>-8.0%</td>
<td>-13.3%</td>
<td>-26.7%</td>
<td>-40.0%</td>
</tr>
<tr>
<td>Revenue Impact</td>
<td>-23.8%</td>
<td>-13.1%</td>
<td>9.7%</td>
<td>14.2%</td>
<td>18.9%</td>
<td>14.0%</td>
</tr>
<tr>
<td><strong>High Elasticity (-0.7)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ridership Impact</td>
<td>20.0%</td>
<td>12.0%</td>
<td>-12.0%</td>
<td>-20.0%</td>
<td>-40.0%</td>
<td>-60.0%</td>
</tr>
<tr>
<td>Revenue Impact</td>
<td>-17.8%</td>
<td>-8.8%</td>
<td>3.2%</td>
<td>2.2%</td>
<td>-11.1%</td>
<td>-40.0%</td>
</tr>
</tbody>
</table>
Appendix C – Service Area Cost/Benefit Analysis

To: Richard Cayer and Michael Normand, City of Sierra Vista
From: Jill Cahoon and Andrew Ittigson, AECOM
Date: March 16, 2018
Re: Paratransit Service Evaluation (Task 3) – Service Area Cost/Benefit Analysis

Using information from current Paratransit service statistics, a cost/benefit analysis was conducted to help understand the potential impact of restricting the ADA paratransit service area to the mandated three-quarter mile of fixed routes (18 square miles). Currently the service area includes all of the City of Sierra Vista (153 square miles).

The next phase of this task will coordinate with the Fare Analysis (Task 2) to evaluate the feasibility of a tiered fare system.

Current Paratransit Services
Paratransit service is operated by Vista Transit within Sierra Vista city limits during the same span as Vista Transit fixed routes, Monday through Friday 7am to 4pm. Paratransit service is only open to eligible, registered customers with disabilities. Trip requests need to be made at least 24 hours in advance. The fare per one-way trip is $2.00.

ADA Requirements/Eligibility and Vista Transit Policies
The Americans with Disabilities Act (ADA) of 1990 requires that comparable service be provided to all individuals within the service area of a fixed route bus network. This means that individuals who are unable to access a fixed route bus stop or understand how to board and alight in the correct locations on a fixed route bus need to have access to complementary curb-to-curb service. ADA does not require that all disabled individuals have access to complementary paratransit service; however, in many organizations over the years, that has become a common practice despite the regulations and FTA guidelines on eligibility. In many cases, doctors do not understand that only specific disabilities qualify for ADA complementary paratransit service and sign-off on the eligibility forms for any disabled person.

“The goal of the process is to ensure that only people who meet the regulatory criteria, strictly applied, are regarded as ADA paratransit eligible.” USDOT ADA Regulation, Appendix D

Vista Transit has a written detailed application process to determine ADA eligibility along with the requirement of a doctor’s professional verification. The application clearly explains the idea of functional ability to independently perform tasks necessary for bus use. Applications are submitted to Vista Transit. There has been some recent discussion in the industry about the improvement in the accuracy of the process by simply requiring applications to be delivered in person rather than being mailed. The team is looking for some quantitative data to support this discussion.

**Potential Coordination Opportunities**

The South Eastern Arizona Governments Organization (SEAGO), the regional planning agency for the region, maintains the Regional Transportation Coordination Plan\textsuperscript{16}. Within the coordinated plan is a list of human and social services agencies that either provide or fund transportation services in the region. Within Cochise County, there are 16 organizations providing transportation services. Of those organizations, there are three organizations that may be able to coordinate with Vista Transit to determine eligibility for ADA complementary paratransit using in-person interviews with qualified staff instead of the current written application procedure.

**Ridership**

In 2017, Vista Transit provided 7,219 one-way paratransit trips. The average number of trips per month was 602, shown month-by-month in **Figure 1**.

![Figure 1: Paratransit Service Ridership by Month, 2017](image_url)

Source: Vista Transit 2017\textsuperscript{17}

Ridership on the paratransit service has been decreasing since 2012 when annual ridership totaled more than 10,000 riders; a 31% reduction in ridership over the 5-year period. This compares to a 14% reduction in ridership during the same period on the fixed route services. During the same period, the cost to operate the fixed route service increased by 34%, while the cost to operate the paratransit service decreased by 48%. In 2012 as in 2017, Vista Transit carried 2.2 passengers per revenue hour on the paratransit service, but the cost per passenger has decreased by 24%.

**Cost per Trip**

In 2017, the cost to operate the paratransit service was $201,735\textsuperscript{18}. Vista Transit collected $14,776 in farebox revenue. The cost to operate the service per passenger trip was $27.95. When the fares

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\textsuperscript{17} At the time of the study, only January 2017-October 2017 month-by-month data was available.
collected are removed, the remaining subsidy per passenger required to cover the cost of the trip was $25.90. Farebox recovery was 7.3%.

Service Area Analysis

Figure 3 below is a map of the Vista Transit fixed routes in solid black lines with the three-quarter mile region mandated by the ADA for complementary paratransit service shown in a dashed black line. As noted previously, this region includes 18 square miles, while the current Vista Transit paratransit service is available to registered individuals anywhere within City of Sierra Vista limits, a much larger 153-square mile region.

Figure 3: ¼ Mile of Vista Transit Fixed Routes (ADA Mandated Paratransit Service)

Methodology

Using a month (October 2017) of paratransit service data, addresses for pick-up and drop-off locations for each trip were entered into a database and geocoded onto a map using Geographic Information System (GIS) software. Of the 1,571 pick-up and drop-off locations for trips logged in the database for the month, 96, or 6% were located outside of the three-quarter mile zone mandated by the ADA. In order to retain anonymity of riders, regions of concentration of trip origins and destinations are included in Figure 4 rather than specific addresses.

Vista Transit Performance Measures, 2017
The trip origins and destinations outside the three-quarter mile zone for the month of October 2017 translated into 9 discrete locations in southern Sierra Vista and 1 location on Fort Huachuca. Of the riders traveling outside the three-quarter mile zone, there were 4 regular riders and the other 6 were less frequent riders.

**Socioeconomic Profile**

Using 2016 data from the US Census Bureau American Community Survey (ACS) 5-year estimates on percentage of population living below the poverty level by block group, an idea of the socioeconomic differences in the region was identified. Other socioeconomic characteristics are also important to understanding transit dependency and transit potential, but for this analysis, income/poverty is sufficient to identify differences between the smaller three-quarter mile ADA zone and the City as a whole. This analysis is especially interested in equity as it relates to fares and service coverage.

Trip origin and destination locations by frequency of occurrence are shown in Figure 5 in comparison to percentage of the population living below the poverty level. Because the map is zoomed out to show the entire City without detailed streets, individual locations are shown without compromising rider anonymity.
As can be seen in Figure 5, the trips occurring outside the three-quarter mile ADA zone are in areas of lower levels of poverty and thus, higher levels of income. All of the trips are occurring in areas of 10% or less of the population living below the poverty level. What can also be seen in Figure 5 is that the trips in southern Sierra Vista are some of the more frequent trips being taken on a monthly basis.

Cost/Benefit Analysis
This analysis is built using the 2017 statistics from Vista Transit for the operation of paratransit service and the following assumptions:

- 6% of paratransit service trips occur outside the three-quarter mile ADA mandated zone; 6% is used as an approximation to calculate system wide changes associated with passenger trips occurring outside the three-quarter mile ADA mandated zone
- The current fare is $2.00 per one-way trip
- The 2017 paratransit service operating statistics are shown in Table 1.
If the paratransit service area was restricted to the three-quarter mile ADA mandated zone, then 6% of the trips would not be operated, resulting in a savings of $11,236 (operating cost minus farebox revenue) in operating costs and a reduction of 195 hours of service. However, restricting the area would not improve the farebox recovery rate. Using the daily hours of service (11 hours), the 195 hours of savings equates to approximately 18 days of service saved annually or about 45 minutes per day\(^\text{19}\). The results are shown in Table 2.

Also shown in Table 2 is the impact of increased fares for service outside the three-quarter mile ADA mandated zone. Fares outside the ADA mandated zone do not need to follow the ADA policy of no more than double the fixed route fare, so a premium fare for the longer distance trips can be used. To illustrate the possible impact of a fare increase, double current Curbside fare ($4) and $2 increments to $10 per one-way trip are shown in Table 2. As can be seen in Table 2, with each $2 increment in fare increase, the farebox recovery rate increases by approximately 0.4%. As shown in Figure 5 (above), the areas outside the ADA mandated zone where Curbside passengers are traveling are higher income areas, so a fare increase may be considered a feasible option.

### Table 1: 2017 Curbside Operating Statistics

<table>
<thead>
<tr>
<th></th>
<th>2017 Total</th>
<th>6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Miles</td>
<td>35,090</td>
<td>2,105</td>
</tr>
<tr>
<td>Revenue Hours</td>
<td>3,250</td>
<td>195</td>
</tr>
<tr>
<td>Operating Costs (Budget)</td>
<td>$201,735</td>
<td>$12,102</td>
</tr>
<tr>
<td>Farebox Revenue</td>
<td>$14,776</td>
<td>$866</td>
</tr>
<tr>
<td>Farebox Recovery</td>
<td>7.3%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

Source: Vista Transit 2017

### Table 2: Operating Statistics based on Curbside Operational/Fare Change Scenarios

<table>
<thead>
<tr>
<th></th>
<th>Not Operating to Locations Outside the ADA Mandated ¾ Mile</th>
<th>Double Fare ($4)</th>
<th>$6 Fare</th>
<th>$8 Fare</th>
<th>$10 Fare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Cost ($27.95 per passenger trip)</td>
<td>$12,102</td>
<td>$12,102</td>
<td>$12,102</td>
<td>$12,102</td>
<td>$12,102</td>
</tr>
<tr>
<td>Fare Revenue</td>
<td>-$866</td>
<td>$1,732</td>
<td>$2,598</td>
<td>$3,464</td>
<td>$4,330</td>
</tr>
<tr>
<td>Net Cost Savings</td>
<td>$11,236</td>
<td>$866</td>
<td>$1,732</td>
<td>$2,598</td>
<td>$3,464</td>
</tr>
<tr>
<td>Farebox Recovery</td>
<td>7.3%</td>
<td>7.8%</td>
<td>8.2%</td>
<td>8.6%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Revenue Hours Savings</td>
<td>195</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: AECOM, Vista Transit 2017

\(^{19}\) Assuming 255 weekdays in a year.
The values in Table 2 are illustrative only and do not use elasticity to estimate the impact of ridership loss due to a fare increase. A more detailed fare analysis and the development of a possible tiered fare structure will be the focus of the second deliverable of Task 3.

ADA Eligibility Determination Guidance Documents

- [http://nationalrtap.org/adatoolkit/Resources](http://nationalrtap.org/adatoolkit/Resources)
- [https://dredf.org/ADAtg/elig.shtml](https://dredf.org/ADAtg/elig.shtml)
Appendix D — Paratransit Service Evaluation

To: Richard Cayer and Michael Normand, City of Sierra Vista
From: Jill Cahoon and Andrew Ittigson, AECOM
Date: April 9, 2018
Re: Paratransit Service Evaluation (Task 3) — Paratransit Fares/ADA Eligibility Determination

The first technical memorandum for Task 3 looked at current paratransit services, ridership inside and outside of the three-quarter mile ADA-mandated zone, socioeconomic characteristics of the service area population, and a cost/benefit analysis of restricting service to the three-quarter mile ADA-mandated zone or increasing fares outside of the three-quarter mile ADA-mandated zone.

From that analysis, it was determined that approximately 6% of paratransit service trips are occurring outside the three-quarter mile ADA-mandated zone, primarily in southern Sierra Vista in a higher income area of the City, and secondarily within Fort Huachuca. Based on the detailed data from October 2017 used for the analysis, the 6% of paratransit service trips outside the three-quarter mile ADA-mandated zone are primarily being taken by only 10 individuals; 4 very frequent riders and 6 less frequent riders.

Restricting the paratransit service to the three-quarter mile ADA-mandated zone would save only 195 hours of revenue service annually and would not impact the farebox recovery rate. It would save $11,000 in operating costs annually but may result in political challenges to overcome and additional public outreach required that may negatively impact the agency.

Doubling the fare outside the three-quarter mile ADA-mandated zone would increase the farebox recovery rate by a half a percent, and moving to a premium fare of 5 times the current fare would increase the farebox recovery rate by a little less than 2 percent and would result in cost savings of $900 and $3,500 annually, respectively.

This second memorandum for Task 3 will look at paratransit fares at peer agencies and alternatives to reduce paratransit operating costs beyond restricting service to the three-quarter mile ADA-mandated zone or charging a premium fare for paratransit service outside the three-quarter mile ADA-mandated zone because so few individuals would be impacted by these types of changes and the time/cost savings would be minimal²⁰.

Paratransit Fare Analysis

In conjunction with Task 2, the study team also collected paratransit fare information from peer agencies. Peer paratransit fares are shown in Table 1. None of the peers charge more than the ADA-

²⁰Regional Transportation Commission of Southern Nevada (RTC) is about to undertake a survey of the top 50 largest transit agencies in the country on this topic in 2018. The survey will ask if transit agencies operate only within the ¾ mile ADA-mandated zone or if they extend to metropolitan area or county boundaries, etc. The results of this survey may be of interest to Vista Transit later in 2018.
mandated maximum of double the fixed route fare for paratransit services regardless of service area. Some, however, operate deviated fixed route service to limit the need for paratransit services.
Table 1: Peer Analysis - Paratransit Fares

<table>
<thead>
<tr>
<th>Transit Provider</th>
<th>PT Fare</th>
<th>PT Fare Bulk Rate</th>
<th>Extended PT Fare</th>
<th>Extended PT Fare Bulk Rate</th>
<th>PT monthly</th>
<th>Ratio of PT Fare to Base Fare</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Sierra Vista</td>
<td>$2.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Fort Smith Transit</td>
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<td>$3.00</td>
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<tr>
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<tr>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Asotin County PTBA</td>
<td>$1.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Josephine County</td>
<td>$2.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$4 for non-medical trips or same day-trips</td>
</tr>
<tr>
<td>South Portland Bus Service</td>
<td>$2.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biddeford-Saco-Old Orchard Beach Transit Committee Shuttle Bus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Route operates flex service within 3/4 mile for double fare ($3)</td>
</tr>
<tr>
<td>Greater Glens Falls Transit System</td>
<td>$2.00</td>
<td></td>
<td>$3.00</td>
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<tr>
<td>Allegany County Transit</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Ashland Bus System</td>
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<td></td>
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</tr>
<tr>
<td>Owensboro Transit System</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Greenville Area Transit</td>
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<td></td>
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<td></td>
<td></td>
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<td>PT fare information only available on call-in for eligibility</td>
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<tr>
<td>Community Action of Southern Kentucky</td>
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<td></td>
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</tr>
<tr>
<td>Bettendorf Transit System</td>
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</tr>
<tr>
<td>Transit Provider</td>
<td>PT Fare</td>
<td>PT Fare Bulk Rate</td>
<td>Extended PT Fare</td>
<td>Extended PT Fare Bulk Rate</td>
<td>PT monthly</td>
<td>Ratio of PT Fare to Base Fare</td>
<td>Notes</td>
</tr>
<tr>
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<td>Northern Arizona IPTA</td>
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<tr>
<td>City of Coolidge</td>
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<td>PT needs accommodated through deviated fixed route $0.50 added to $1.00 base fare</td>
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<tr>
<td>City of Benson</td>
<td>$2.00</td>
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<tr>
<td>City of Kingman</td>
<td>$3.00</td>
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<td></td>
<td>2.0</td>
<td></td>
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</tbody>
</table>

*Source: AECOM, Spring 2018*
ADA Eligibility Determination

Vista Transit has a written detailed application process to determine ADA eligibility along with the requirement of a doctor’s professional verification. The application clearly explains the idea of functional ability to independently perform tasks necessary for bus use. Applications are submitted to Vista Transit.

The Transit Cooperative Research Program (TCRP) Report 163: Strategy Guide to Enable and Promote the Use of Fixed-Route Transit by People with Disabilities\(^{21}\) advises focusing on ability rather than disability in ADA eligibility determination, and calling the process a ‘transportation assessment’ rather than an ‘ADA paratransit eligibility assessment.’ This transportation assessment approach categorizes paratransit as only one option of many travel options (including fixed route service) in a region. A change to this transportation assessment approach requires an agency-wide philosophical shift with the associated modifications to mission statement, goals and objectives, practices and policies.

Potential Changes in ADA Eligibility Determination

There are some options that Vista Transit could consider in order to more accurately determine ADA eligibility for complementary paratransit service in conjunction with a shift to the idea of the transportation assessment focus on ability and the range of mobility options available in the region:

- Vista Transit could partner with a human or social service agency to complete in-person interviews to determine ADA eligibility in addition to the paper application and doctor approval. This partnership could be an in-kind arrangement or a paid service. Local agencies that may have the expertise needed to conduct in-person interviews include:
  - Easter Seals Blake Foundation
  - Horizon Health and Wellness
  - Wellness Connections
- Vista Transit could hire a behavioral specialist on an as-needed basis, maybe one day per month, to conduct scheduled interviews to determine ADA eligibility. This option would likely cost around $10,000 annually.

Other types of operational changes to reduce the amount of paratransit service operated that Vista Transit could consider are included in the following section.

Paratransit Operational Options
Both tried-and-true and new-and-innovative service models could be used by Vista Transit in order to reduce the dependence on the ADA complementary paratransit model.

TNC or Taxi Subsidy
Taxis or Transportation Network Companies (TNCs) offer a potential partnership opportunity for service outside the three-quarter mile ADA-mandated zone. Vista Transit could offer a subsidy for part of the trip cost associated with a paratransit trip outside the three-quarter mile ADA-mandated zone with a taxi service or TNC (such as Lyft, for example). In Sierra Vista, taxi services are limited, so TNCs may offer a more reliable opportunity. This type of program may require a phased implementation based on the type of riders needing service and the accessibility of taxi or TNC vehicles. For example, the service may need to begin with ambulatory riders only and then grow to include riders with mobility devices such as wheelchairs as private companies procure accessible vehicles.

In Boston, the Massachusetts Bay Transportation Authority (MBTA) is currently piloting a program with Uber and Lyft with approved paratransit (RIDE) riders. In the MBTA program, the rider pays the first $2 of the trip fare to the TNC (either Uber or Lyft), then the MBTA pays the next up to $40, and the rider is responsible for anything over a $42 fare. The pilot program has recently been expanded to include UberPOOL (the rider pays only the first $1 of fare and anything over a $41 fare); prior iterations of the pilot program included the rider paying the first $2, the MBTA paying the next $11, and the rider paying anything over a $13 fare.

In Dallas, Uber is used as a ‘first mile/last mile’ connection option from Dallas Area Rapid Transit (DART) services. Using DART’s GoPass Mobile Ticketing Application, riders can access the Uber app to schedule a first mile or last mile connection. Uber is offering a free first ride (up to $20) to new customers.

Deviated Fixed Route Service
In order to limit the operation of paratransit services, Vista Transit could potentially operate the five current fixed routes as deviated fixed routes. The operation of deviated fixed route service would add time to the current runs, but it would mean that no separate paratransit service would need to be operated. The operation of separate paratransit service would be by agency choice only, would not be subject to the ADA maximum of double the fixed route fare (so a premium fare could be charged), and would not be subject to any of the ADA policies.

If deviated fixed route service were to be operated, deviations would need to be scheduled in advance, and only those deviations that would still allow the route to meet its fixed stops on schedule would be

---

22 The MBTA has a travel training facility and operates a variety of travel training options for seniors and persons with disabilities (https://mbta.com/accessibility/travel-instruction-training) and conducts in-person interviews with mobility coordinators to determine ADA eligibility, which includes verification of disability and tests of balance, strength, coordination, and range of motion (https://mbta.com/accessibility/the-ride/how-apply-the-ride).
allowed. In order to maintain current headways on fixed routes, a second vehicle per route, likely a current paratransit vehicle converted to deviated fixed route service, would be needed. A second vehicle could also be split between Routes 1 and 2 and operated as an interline to reduce the number of vehicles needed to convert to deviated fixed route service to 3. Conversion to a deviated fixed route system would increase the overall efficiency of the system when taking into consideration current fixed route and complementary paratransit services and would improve overall performance, but may not be a good fit for the community.

Conclusion

Several options were presented in this memo that would improve the cost effectiveness of the paratransit service being provided. These options do not need to be stand-alone options. Vista Transit could, for example, develop a subsidy program with a TNC for trips outside the three-quarter mile ADA-mandated zone AND work with a local agency to develop a transportation assessment program to determine ADA-eligibility. Vista Transit could also, for example, work towards developing a philosophical change in ADA eligibility determination as part of a larger regional mobility model and build both public and private partnerships. It is usually a combination of options that end up being the ‘right fit’ for an agency and their philosophy and operational goals; there is no ‘one size fits all’ solution.
The following analysis provides a report of the existing conditions of the fixed route Vista Transit service. This report will serve as the baseline for the next phase of Task 4: Develop and Evaluate Alternative Transit Services. The primary purpose of Task 4 is to develop alternatives for service to Fort Huachuca, and Routes 4 and 5; however, the existing conditions report will provide an overview of the entire system.
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1.0 Introduction
This report documents the existing conditions of the Vista Transit service area. This report includes an overview of population, employment, select demographics, Vista Transit operations, and documentation of Vista Transit performance over recent years. The sections of this report will provide a baseline for the next phase of this study where alternatives will be analyzed to improve the efficiency of operations.

1.1 Study Area
The study area is within the Sierra Vista Metropolitan Planning Organization’s (MPO) boundary, which includes the City of Sierra Vista and Fort Huachuca. Fort Huachuca was annexed to the city in 1971. The City of Sierra Vista is located in southern Cochise County, approximately 75 miles southeast of Tucson, Arizona and 50 miles northwest of Agua Prieta, Sonora, Mexico. Sierra Vista is accessed via SR 90 from the north and east, and from SR 92 from the south. Fort Huachuca marks the border to the west.

1.2 Relevant Plans and Studies
This section summarizes regional plans and studies which may guide transit goals and recommendations.

Sierra Vista Short Range Transit Plan (SRTP)
The Sierra Vista SRTP was completed in July 2014. The purpose of the plan was to guide transit service operations for Vista Transit over a five-year period (2015-2020). As part of a program administered by the Arizona Department of Transportation (ADOT), the plan also provided a summary of changes and recommendations for transitioning from a Rural Area Program to an Urbanized Area (UZA) Program administered by the Federal Transit Administration (FTA).

The SRTP outlined several goals and objectives to help track and monitor service performance for Vista Transit. In addition, performance measures focused on tracking standards for efficiency, service quality, and service design. The measures were provided as baselines to begin monitoring system wide performance. Key operational recommendations in the near-term included:

- Introduce bi-directional linear routing without increasing existing revenue hours
- Interline routes to allow for more one-seat rides and cross town routes
- Discontinue fixed-route service on shopping center parking lots to improve travel time and reduce conflicts with cars and pedestrians
- Improve pedestrian enhancements to increase accessibility to bus stops
- Provide additional service on Saturdays

Long-term operational recommendations included:

- Add a weekday route to Fort Huachuca, a flex route in south Sierra Vista, and extending service hours on Saturdays
- Provide regional service to Douglas, Bisbee, and Benson
- Continue marketing efforts to remind the public about the Vista Transit brand and increase awareness of Vista transit services.

In addition to operational recommendations, the SRTP provided recommendations for increasing the awareness of Vista Transit to the general public. Strategies included:

- Develop a new website for Vista Transit to allow for mobile phone compatibility
- Expand public outreach efforts, including the development of Fort Huachuca outreach and with the United States Army installation to promote transit services and improve ridership over time, as several soldiers lack personal transportation vehicles.
- Conduct a rider satisfaction survey regularly to track how service changes are being received by the public

SVMPO 2015 – 2040 Regional Transportation Plan (RTP)

In March 2016, the Sierra Vista MPO produced its first Long Range Transportation Plan (LRTP) which identifies current and future transportation needs, and recommends a framework through projects and strategies for addressing needs through 2040. The goals of the 2040 RTP are focused on improving the transportation system for all users, increasing safety, and promoting transportation plans to enhance the environment and livability of the community. The plan evaluated the needs of multiple modes of transportation, including roadway, bicycle and pedestrian, and transit. The plan also provided policy recommendations for each transportation mode.

Some of the needs identified by the plan include:

- Automated passenger counter (APC) for vehicles so drivers do not have to record boardings manually.
- Additional bus shelters to provide more comfort and desirable places to wait for transit.
- Bus turnouts along major roads to reduce congestion behind stopped buses.

The plan recommended transit projects should be oriented to do the following:

- Increase the efficiency of routes and timed transfers
- Enhance access to the transit system
- Expand transit service to underserved areas

Five policy recommendations were made to focus regional transit planning efforts:

- Updated Routes
  - Route modifications could improve efficiency through introducing more direct routes instead of one-way loops. Projects should also analyze the benefits of using main streets to reduce travel times, and creating overlapping routes at key bus stops to reduce dependency on transfers at the Sierra Vista Transit Center.
- Passenger Amenities
- Enhanced station area amenities will help encourage more people to use transit regularly.

- **Bus Turnouts**
  - Constructing bus turnouts on main corridors will help improve efficiency and aid in developing transit-oriented streets.

- **Vista Transit App**
  - Developing a Vista Transit App would help encourage more people to use transit by providing a convenient and reliable technology to track bus locations. The technology would allow users to determine when buses would arrive at particular stops in order to plan their travel schedules.

- **Bus Stop Placement and Accessibility**
  - Implementing standards for stop placement and spacing would help create a more user-friendly system, as well as improving accessibility to stops without adequate pedestrian amenities.

**Vista Transit Rider Survey**
The Vista Transit Rider Survey was completed in April 2017 in order to assess travel patterns and rider characteristics, as well as gather information about the perception of Vista Transit service. Data was collected between March 1, 2017 and March 4, 2017 and produced 298 responses. The study describes a “typical” rider as:

- A full-time resident of Sierra Vista
- Pays with a cash fare
- Accesses transit for shopping or personal business
- Uses interline transfers on at least some trips during the week

The routes with the highest number of responses were Route 1, Route 7, Route 3, and Route 2. Almost half of the responses (44%) reported using transit for at least four or more trips per week. One in four passengers (27%) transfers on every trip, while over half of all passengers (58%) transfer at least every other trip. The most common trip purposes were shopping (78%), personal business (46%), healthcare (33%), and work (28%).

Responses indicated approximately 18 to 23 percent of riders were active military. Since Fort Huachuca only has one route on one day of the week (Saturday), this percentage indicates active military are using Vista Transit services. In addition, a written comment suggested providing limited weekday service to Fort Huachuca, in addition to the regular Saturday route.

Other than general complimentary comments, the most frequent comment was related to Route 4 and 5 services. Thirteen comments suggested reverting back to the old schedules for Route 4 and Route 5. The old schedule provided a longer span of service in the morning and evening, as well as 30-minute frequency from 10:00 am to 3:00 pm.
Southeastern Arizona Governments Organization (SEAGO) Regional Transportation Coordination Plan
The SEAGO Regional Transportation Coordination Plan Update was adopted in January 2018, and is updated annually. SEAGO is a regional planning agency, or council of governments (COG) which assists local governments to coordinate solutions, provides a forum for regional policy development, and helps facilitate coordination between local, regional, state, and federal agencies. This plan’s purpose was to identify transportation needs for transit dependent populations and provide recommendations for meeting transportation needs. Transit dependent populations include the elderly, people with disabilities, and people with low incomes.

For Cochise County, the plan identified the need to connect Sierra Vista to several regional municipalities, including Douglas, Bisbee, Benson, Huachuca City, and Tombstone. The report cited the Origin/Destination Study completed by the Sierra Vista MPO in 2014 as evidence for the need to provide regional commuter service to and from Sierra Vista. The plan recommended developing an intercity bus service, which resulted in the creation of the Cochise Connection in 2017 after a feasibility study was completed. At the end of 2017, the Cochise Connection started providing public transportation from Douglas to Bisbee and Sierra Vista. The plan recommended efforts to stabilize and grow the system.

2.0 Existing Demographics
This section provides a summary of select demographics within the study area. The demographics include population, employment, and other characteristics traditionally associated with underserved populations. The data within this section represent counts from United States Census Bureau (USCB) decennial census, USCB 5-year estimates, Arizona State Department analysis, and the Cochise College Center for Economic Research.

2.1 Population
Since the last Census in 2010, Cochise County and Sierra Vista have shown diminished or stagnated growth in population, as shown in Table 1. Population forecasts reveal growth of between four percent and six percent through the year 2050 (Table 2).
Table 23: Regional Population Characteristics

<table>
<thead>
<tr>
<th>Year</th>
<th>Cochise County</th>
<th>Benson</th>
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<td>2000</td>
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<td>2010</td>
<td>131,346</td>
<td>5,105</td>
<td>5,575</td>
<td>17,378</td>
<td>1,853</td>
<td>43,888</td>
<td>52,410</td>
</tr>
<tr>
<td>2015</td>
<td>129,112</td>
<td>4,999</td>
<td>5,297</td>
<td>16,956</td>
<td>1,794</td>
<td>44,183</td>
<td>50,914</td>
</tr>
<tr>
<td>2017</td>
<td>128,383</td>
<td>4,994</td>
<td>5,320</td>
<td>16,588</td>
<td>1,783</td>
<td>43,824</td>
<td>50,937</td>
</tr>
</tbody>
</table>


Table 24: Population Forecasts

<table>
<thead>
<tr>
<th>Year</th>
<th>Cochise County</th>
<th>Sierra Vista</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>132,547</td>
<td>45,671</td>
</tr>
<tr>
<td>2030</td>
<td>141,122</td>
<td>48,271</td>
</tr>
<tr>
<td>2040</td>
<td>148,998</td>
<td>50,649</td>
</tr>
<tr>
<td>2050</td>
<td>157,897</td>
<td>53,229</td>
</tr>
</tbody>
</table>

Source: 2017 Sierra Vista Economic Outlook, Cochise College.

The densest areas of Sierra Vista are centrally located, south of the Sierra Vista Transit Center between Lenzner Avenue and Coronado Drive, and north of Busby Drive. Other denser areas are located within neighborhoods on either side of North 7th Street, and north of Fry Boulevard (Figure 1).
Figure 1: Population Density - ACS 2012-2016 Estimates

2.2 Employment

Employment data for Sierra Vista is provided by Cochise College Center for Economic Research (CER). This group provides economic analysis to assist public, private, and nonprofit sectors to make informed decisions. Data from CER reveal Sierra Vista and Cochise County have lower total employment counts over the past five years, compared to 10 percent job growth across Arizona, as shown in Table 3.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2016</th>
<th>5-Year Total Jobs Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra Vista</td>
<td>18,632 jobs (7.8% unemployment)</td>
<td>17,439 jobs (5.1% unemployment)</td>
<td>-6.4%</td>
</tr>
<tr>
<td>Cochise County</td>
<td>49,013 jobs (9.0% unemployment)</td>
<td>47,111 jobs (6.1% unemployment)</td>
<td>-3.9%</td>
</tr>
<tr>
<td>Arizona</td>
<td>2,768,514 jobs (8.3% unemployment)</td>
<td>3,065,148 jobs (5.2% unemployment)</td>
<td>10.7%</td>
</tr>
</tbody>
</table>


As shown in Table 4, the top employer in Cochise County, by a large margin, is Fort Huachuca. The other top employers located exclusively in Sierra Vista or Fort Huachuca are Sierra Vista Unified School District, Canyon Vista Medical Center, General Dynamics Information Technology, the City of Sierra Vista, and ManTech International Corporation.

<table>
<thead>
<tr>
<th>Employer</th>
<th>Total Fulltime Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fort Huachuca</td>
<td>7,956</td>
</tr>
<tr>
<td>Cochise County</td>
<td>816</td>
</tr>
<tr>
<td>Sierra Vista Unified School District</td>
<td>707</td>
</tr>
<tr>
<td>Walmart Stores, Inc.</td>
<td>643</td>
</tr>
<tr>
<td>General Dynamics Information Technology</td>
<td>623</td>
</tr>
<tr>
<td>Canyon Vista Medical Center</td>
<td>623</td>
</tr>
<tr>
<td>Cochise College</td>
<td>521</td>
</tr>
<tr>
<td>City of Sierra Vista</td>
<td>407</td>
</tr>
<tr>
<td>ManTech International Corporation</td>
<td>389</td>
</tr>
<tr>
<td>Safeway, Inc.</td>
<td>282</td>
</tr>
<tr>
<td>Engility Corporation</td>
<td>215</td>
</tr>
<tr>
<td>Lawley Automotive Group</td>
<td>191</td>
</tr>
</tbody>
</table>

Source: 2017 Sierra Vista Economic Outlook, Cochise College; Cochise College Top Employers, 2015.
2.3 Select Demographic Characteristics

This section provides demographic characteristics for traditionally underserved populations, which include zero and one-car households, and low income populations.

Zero and One Car Households

Data from the UCSB ACS 5-year surveys indicate the percentage of people with no vehicles is less than the County or State averages (Table 5). The total number of households with no vehicles in Sierra Vista has decreased since 2012, however, the total number of households with only one car in Sierra Vista has increased by over 200 households. The greatest percentages of households with no vehicle are primarily located west of 7th Street and east of Coronado Drive, as shown in Figure 2. These areas are provided transit service from Route 1 and Route 5.

Table 27: Zero and One Car Households

<table>
<thead>
<tr>
<th>Area</th>
<th>2012 ACS</th>
<th>2016 ACS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zero Car</td>
<td>% of Total</td>
</tr>
<tr>
<td>Sierra Vista</td>
<td>1,157</td>
<td>7%</td>
</tr>
<tr>
<td>Cochise County</td>
<td>3,373</td>
<td>7%</td>
</tr>
<tr>
<td>Arizona</td>
<td>159,247</td>
<td>7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area</th>
<th>Zero + One Car</th>
<th>% of Total</th>
<th>Zero + One Car</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra Vista</td>
<td>7,042</td>
<td>41%</td>
<td>7,272</td>
<td>43%</td>
</tr>
<tr>
<td>Cochise County</td>
<td>19,373</td>
<td>39%</td>
<td>19,129</td>
<td>39%</td>
</tr>
<tr>
<td>Arizona</td>
<td>1,052,627</td>
<td>45%</td>
<td>1,076,833</td>
<td>44%</td>
</tr>
</tbody>
</table>

Source: USCB ACS 2016 5-Year estimates, 2012 5-Year estimates
Figure 2: Percent No Vehicles Available

Median Income/Persons Below Poverty Level
As shown in Table 6, approximately 15 percent of the population in Sierra Vista is below the poverty level. Median incomes have decreased slightly, but the percentage of people below the poverty level has increased almost 50 percent in five years. The image in Figure 3 shows the largest densities of people under the poverty level are located along Fry Boulevard near the intersection of 7th Street and Coronado Drive. These areas are currently served by Vista Transit.

Table 28: Median Income and Percent Below Poverty Level

<table>
<thead>
<tr>
<th>Area</th>
<th>2012 ACS</th>
<th>2016 ACS</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sierra Vista</td>
<td>$56,433</td>
<td>$56,280</td>
<td>-0.3%</td>
</tr>
<tr>
<td>Cochise County</td>
<td>$45,505</td>
<td>$45,383</td>
<td>-0.3%</td>
</tr>
<tr>
<td>Arizona</td>
<td>$50,256</td>
<td>$51,340</td>
<td>2.2%</td>
</tr>
<tr>
<td></td>
<td>Percentage Below Poverty Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sierra Vista</td>
<td>10%</td>
<td>15%</td>
<td>49%</td>
</tr>
<tr>
<td>Cochise County</td>
<td>17%</td>
<td>19%</td>
<td>14%</td>
</tr>
<tr>
<td>Arizona</td>
<td>17%</td>
<td>18%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Source: USCB ACS 2016 5-Year estimates, 2012 5-Year estimates
Figure 3: Population Percentage Below Poverty Level

2.4 Fort Huachuca Characteristics
The following section offers a summary of demographic conditions for Fort Huachuca, as of January 2018. The data was provided by Fort Huachuca’s Public Affairs Office. On a daily basis, Fort Huachuca’s total populations is approximately 17,500. Key demographic characteristics for Fort Huachuca include:

- Full-time Military: 2,731
- Transient/Rotational Military
- Resident Population: 6,066
  - Military: 1,030
  - Family members: 2,572
  - Unmarried or unaccompanied Residing in Troop Billets (private quarters typically for temporary training): 2,464
- Contractors: 3,849
- Total Supported Population: 17,662
- Approximately 19 percent of riders surveyed in the Vista Transit Rider Survey indicated they were active military.

2.5 Land Use
The existing zoning in Sierra Vista is mostly dedicated to residential land use types, as shown in Table 7 and Figure 4. More than 50 percent of the land in Sierra Vista is zoned for residential, although nearly half of the residential areas come from one large undeveloped section in the east and southeastern part of the city boundaries. Special Planning areas, Commercial, and Multi-family compose the next highest ranked zoning types based on total acreage. Commercial areas are mostly concentrated along SR 90, Fry Boulevard, and SR 92. Multi-family areas, which tend to attract more transit ridership, are located adjacent to commercial zones, as well as along Buffalo Soldier Trail and N 7th Street.

<table>
<thead>
<tr>
<th>Zoning Type</th>
<th>Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>1,456</td>
</tr>
<tr>
<td>Industrial</td>
<td>512</td>
</tr>
<tr>
<td>Multi-Family</td>
<td>1,255</td>
</tr>
<tr>
<td>Office</td>
<td>103</td>
</tr>
<tr>
<td>Open Space</td>
<td>925</td>
</tr>
<tr>
<td>Residential</td>
<td>9,652</td>
</tr>
<tr>
<td>Specific Plan</td>
<td>2,733</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16,636</strong></td>
</tr>
</tbody>
</table>

Source: City of Sierra Vista, 2018.
3.0 Stakeholder Outreach

This section provides a summary of stakeholder outreach performed to determine issues and opportunities for improving the efficiency of Vista Transit operations. From March 21, 2018 to March 22, 2018, the study team met with stakeholders from Vista Transit, Sierra Vista, and Fort Huachuca. Stakeholders were informed of the purpose of the study and were provided an opportunity to make suggestions for improving transit service efficiency.

3.1 Operator Interviews

The study conducted interviews with Vista Transit operators and staff on March 21, 2018. Interviews were held during shift changes and breaks. Questions were asked related to improving service, identifying operations issues and opportunities, customer comments related to Routes 4 and 5, and service provided to Fort Huachuca. Overall, staff and drivers indicated the service provided was critical to many customers and customers had a positive opinion of Vista Transit. Comments from drivers and staff are summarized in the following sections.
**Routes 4 and 5**
- Customers would prefer the schedule for both routes to match the other routes, from 7:00 am to 6:00 pm. The following reasons were provided by drivers who received comments from customers:
  - There are several medical facilities along Route 5. Some customers would like to get to appointments earlier in the morning, or later in the evening.
  - Some PPEP TEC High School students dependent on public transit must arrive late to school due to the later start for the route. In addition, if students stay late for extra work they may miss the last trip. There are some students who no longer ride Vista Transit because of the schedule.
  - A few customers located along other routes cannot reach their destinations in the morning or evening because there is no transfer available due to the shortened schedule.
- Frequency to 30 minutes would be nice but not a higher priority than increasing the span of service.
- Route 4 timing is good. Route 5 has a lot of time in the front, but can be slow once it passes the Mall at Sierra Vista, especially if there are wheelchair passengers. Drivers may lose their layover at the end of Route 5, but will get a break at the end of Route 4.

**Improvements to Efficiency**
- Installing comment boxes on vehicles and at the transit center would provide feedback directly from the customer, rather than solely on messages relayed from the driver.
- Removing vehicles from parking lots would increase safety for the driver and vehicle, as well as the community. Direct access to Safeway was removed and customers have adjusted. A fatal accident was reported in one of the parking lots, although it did not include a Vista Transit vehicle.
  - The greatest challenge will be with customers wanting to reach Target. Route adjustment may be required.
- Vista Transit staff has provided a change to how the staff vehicle is operated to get drivers to and from their personal vehicles. The plan is provided in the Appendix of this report.
- The stop on Moorman can cause traffic to back up when a ramp is deployed. The travel lane is too narrow at this location.
- There are not many requests for bi-directional service.
- Look for ways to enforce the red curb parking areas in private lots. Private vehicles can block our stop.
- We need other transfer hubs around Sierra Vista.

**Service to Fort Huachuca**
- Several soldiers and companies on Fort Huachuca do not know about Vista Transit.
- A good day has over 100 passenger trips.
- Drivers receive calls for pickups and bundle the trips on-the-fly.
- We can get to the mall from the fort in about 15 minutes.
• The time spent at the Van Deman gate is approximately 5 minutes or less.
• The service ends too early on Saturday for many potential customers.
• A circulator for Fort Huachuca may be useful on the weekends.

3.2 Fort Huachuca Stakeholder Meeting
A meeting with stakeholders from Fort Huachuca was held on March 22, 2018 at the Army Community Service (ACS) building. A list of the attendees is included in the Appendix. A presentation was provided which explained the background of the study and existing Vista Transit services offered to Fort Huachuca. After the presentation, the attendees participated in a round-table discussion about issues and opportunities for Vista Transit to serve Fort Huachuca. Comments are summarized below:

Marketing
• Many soldiers are not aware of Vista Transit
• Target audience should be trainees
• Fort Huachuca can help market services if information is provided
  o Add Vista Transit logos to the maps
  o Vista Transit ads on the map and phone book
  o Add information to welcome packets
• Armed Forces Disciplinary Board requires review of businesses serving soldiers
  o Current challenges with some local livery services meeting inspections
• A tri-fold wallet schedule, or wallet-sized handout of key information would help
• A smart phone app could replace paper schedules

Service Characteristics
• Soldiers are released on Fridays after 18:00 and need to return prior to 18:00 on Sundays
• A central point on-post close to trainees (AIT) would be best
• Weekday service would not be pursued due to lack of demand
  o Low priority for transit service during the week
• On-post circulator on the weekends would only need about 15 seats
• Primary destinations on-post:
  o Post Exchange/Restaurant and Movie Theater
• Potential stops on-post
  o Regimental Troop Store/Mini Mall
  o Post Exchange
  o IHG Army Hotel

Zero-, or One-car Households
• Hard to quantify the number of soldiers, or families of soldiers, with zero or one vehicle.
• Several officers from other countries do not have cars
• Most trainees do not have a vehicle
3.3 Local and Regional Stakeholders

On March 22, 2018, the project team met with stakeholders at the Transit Advisory Committee (TAC) held at 10:30 am at the Public Works Department. Three committee members were in attendance. Comments received from the TAC included the following:

- Need to focus on the various markets at Fort Huachuca including soldier’s spouses, federal employees, soldiers and contractors
- Paratransit
  - Need to add another bus to the service
  - Sometimes wait times are 40 minutes or more
  - May need taxis to assist with service when not in operation
  - Extend service hours on weekdays
  - Need more weekend service
  - The paratransit service is very expensive to operate – should not go beyond the three-quarter mile zone
- There are no taxi companies in Sierra Vista with multiple vehicles, all the taxis are one person with a car
  - It can be challenging to find a reliable taxi
- Routes 4 and 5 need to have extended spans of service to match other routes
- Need to start thinking about the benefits of transit beyond just Fort Huachuca – transit can be instrumental in economic development
  - Transit is key to attracting businesses and millennials

4.0 Transit System Overview

This section of the Existing Conditions Analysis provides a summary of Vista Transit operations and an analysis of system performance. The data presented in this section will serve as the baseline data for the next phase of this study, the Alternatives Analysis.

4.1 Vista Transit History

Vista Transit started serving the City of Sierra Vista and Fort Huachuca in 1994 as an on-demand service. In 2007 the Sierra Vista Transit Center opened and the current fixed-route configuration was put into operation. Today, Vista Transit operates five weekday routes, and two Saturday routes with one Saturday route dedicated to Fort Huachuca. The following sections provide more detail into fixed route operations characteristics and performance.

4.2 Fixed Route Characteristics

This section describes fixed route operating characteristics such as route schedules and frequency, and includes a six-year summary of system performance, as reported to the National Transit Database (NTD). Currently, Vista Transit operates its weekday service from 7:00 am to 6:00 pm, and Routes 1, 2, and 3 operate with the 30 minute frequencies, as shown in Table 8. Routes 4 and 5 are currently combined and provide 60 minute frequencies. These two routes also operate with a shorter schedule of service,
from 8:30 am to 4:30 pm. Two routes operate on Saturday from 9:30 am to 6:00 pm, with 60 minute frequencies. Route 6 follows Route 1 entirely, and parts of Routes 3 and 5.

Routes begin at the Sierra Vista Transit Center and operate primarily in one-way loops from the centralized hub, as shown in Figure 5. There is bi-directional service for Route 1 along East Wilcox Drive between South 7th Street and South Coronado Drive. Some routes deviate off the loop to serve key locations, such as Cochise College, the University of Arizona South, the Sierra Vista public library, and the Canyon Vista Medical Center. At some stops, vehicles must enter parking lots to pick up and drop passengers.

During the weekday, there are 49 revenue hours per weekday required for the five fixed routes. Only four vehicles are typically needed because Routes 4 and 5 are interlined. There are 17 total revenue hours between the two routes on Saturdays. The weekday routes generally only require one bus to complete the approximately 25 minute route cycle time for each route. The existing transit network requires all weekday routes stop at the centrally located transit center for a timed transfer generally on the top and bottom of the hour.

Table 30: Vista Transit Fixed Route Operating Characteristics

<table>
<thead>
<tr>
<th>Rt. #</th>
<th>Route Name</th>
<th>Schedule</th>
<th>Frequency (minutes)</th>
<th>Trips per Day</th>
<th>Hours of Operation (Daily)</th>
<th>Vehicles in Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>West Side</td>
<td>7:00 am - 6:00 pm</td>
<td>30</td>
<td>22</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>East Side</td>
<td>7:00 am - 6:00 pm</td>
<td>30</td>
<td>22</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Central Shopper</td>
<td>7:00 am - 6:00 pm</td>
<td>30</td>
<td>22</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>4*</td>
<td>North</td>
<td>8:30 am - 4:00 pm</td>
<td>60</td>
<td>8</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>5*</td>
<td>South</td>
<td>9:00 am - 4:30 pm</td>
<td>60</td>
<td>8</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Saturday</td>
<td>9:30 am - 6:00 pm</td>
<td>60</td>
<td>8</td>
<td>8.5</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Saturday</td>
<td>9:30 am - 6:00 pm</td>
<td>60</td>
<td>8</td>
<td>8.5</td>
<td>1</td>
</tr>
</tbody>
</table>

*Routes 4 and 5 are interlined and share the same bus.

Source: City of Sierra Vista, Vista Transit, 2018.

Table 9 provides a six-year summary of operating data which can be analyzed to determine how Vista Transit has recently performed. Passenger trips peaked in 2015, after rebounding from a decline in 2013. Total ridership has since fallen 18 percent since the peak in 2015, however, operating costs have slightly risen since 2015 and are 34 percent higher than five year’s previous in 2012. This trend is similar for many transit agencies nationwide. Passengers per hour have reduced 25 percent from 2012, while cost performance per revenue hour has risen 17 percent. The farebox recovery ratio has dropped slightly to 10.6 percent (-5 percent growth). Despite farebox revenue increasing 27 percent, the subsidy per passenger also increased $2.06, or 56 percent, over the same six-year time period. The data shows cost effectiveness is being impacted, likely from the reduction in ridership over the past two years.
## Table 31: Fixed Route NTD Data 6-Year Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger Trips</td>
<td>154,842</td>
<td>143,274</td>
<td>161,552</td>
<td>163,271</td>
<td>148,408</td>
<td>133,741</td>
</tr>
<tr>
<td>Operating Costs (Budget)</td>
<td>$642,120</td>
<td>$675,471</td>
<td>$870,619</td>
<td>$858,355</td>
<td>$853,825</td>
<td>$860,028</td>
</tr>
<tr>
<td>Farebox Revenue</td>
<td>$71,352</td>
<td>$79,053</td>
<td>$96,399</td>
<td>$95,686</td>
<td>$92,107</td>
<td>$90,767</td>
</tr>
<tr>
<td>Revenue Miles</td>
<td>159,663</td>
<td>184,081</td>
<td>158,021</td>
<td>158,021</td>
<td>163,860</td>
<td>146,433</td>
</tr>
<tr>
<td>Revenue Hours</td>
<td>10,454</td>
<td>13,549</td>
<td>12,974</td>
<td>12,974</td>
<td>13,304</td>
<td>11,958</td>
</tr>
</tbody>
</table>

### Performance and Cost Effectiveness

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passengers per Revenue Hour</td>
<td>14.8</td>
<td>10.6</td>
<td>12.5</td>
<td>12.6</td>
<td>11.2</td>
<td>11.2</td>
</tr>
<tr>
<td>Passengers per Revenue Mile</td>
<td>0.97</td>
<td>0.78</td>
<td>1.02</td>
<td>1.03</td>
<td>0.91</td>
<td>0.91</td>
</tr>
<tr>
<td>Operating Costs per Passenger</td>
<td>$4.15</td>
<td>$4.71</td>
<td>$5.39</td>
<td>$5.26</td>
<td>$5.75</td>
<td>$6.43</td>
</tr>
<tr>
<td>Operating Costs per Revenue Hour</td>
<td>$61.42</td>
<td>$49.85</td>
<td>$67.10</td>
<td>$66.16</td>
<td>$64.18</td>
<td>$71.92</td>
</tr>
<tr>
<td>Operating Cost per Revenue Mile</td>
<td>$4.02</td>
<td>$3.67</td>
<td>$5.51</td>
<td>$5.43</td>
<td>$5.21</td>
<td>$5.87</td>
</tr>
<tr>
<td>Farebox Recovery Ratio</td>
<td>11.1%</td>
<td>11.7%</td>
<td>11.1%</td>
<td>11.1%</td>
<td>10.8%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Subsidy per Passenger*</td>
<td>$3.69</td>
<td>$4.16</td>
<td>$4.79</td>
<td>$4.67</td>
<td>$5.13</td>
<td>$5.75</td>
</tr>
</tbody>
</table>

*Subsidy per Passenger represents operating cost less fare revenue divided by total passenger trips.

Source: City of Sierra Vista, Vista Transit, National Transit Database, 2018.
Figure 5: Vista Transit Route Map

Source: City of Sierra Vista, Vista Transit, 2018.
4.3 Fleet
Vista Transit maintains a fleet of 15 vehicles, described in Table 10. The majority of vehicles are Cutaway with a seating capacity of 17 to 22. Vista Transit also has three Eldorado 35-foot buses with a seating capacity of 30.

Table 32: Vista Transit Fixed Route Fleet

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Manufacture</th>
<th>Body Type</th>
<th>Manufacture Year</th>
<th>Vehicle Length</th>
<th>Seating Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutaway #350</td>
<td>International</td>
<td>Bus</td>
<td>2007</td>
<td>31</td>
<td>22</td>
</tr>
<tr>
<td>Cutaway #351</td>
<td>International</td>
<td>Bus</td>
<td>2007</td>
<td>31</td>
<td>22</td>
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<td>2009</td>
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<td>2010</td>
<td>35</td>
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<td>2013</td>
<td>27</td>
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<td>Arboc</td>
<td>2014</td>
<td>29</td>
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<tr>
<td>Cutaway #2122</td>
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<td>Arboc</td>
<td>2014</td>
<td>29</td>
<td>18</td>
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<tr>
<td>Van #2066</td>
<td>Dodge</td>
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<td>2010</td>
<td>17</td>
<td>7</td>
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<tr>
<td>Cutaway #2187</td>
<td>Chevrolet</td>
<td>Arboc</td>
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<tr>
<td>Cutaway #2188</td>
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<td>2017</td>
<td>28</td>
<td>18</td>
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</table>

Source: City of Sierra Vista, Vista Transit, 2018.

4.4 Route Profiles
Table 11 provides data on ridership performance for each of the five weekday routes and the two Saturday routes. Route 1 is the strongest performer with an average of 129 boardings per day. Routes 4 and 5 were the weakest performer with an average of 54 daily boardings per hour, almost 30 less boardings per day than the weekday average. Data did not provide the ridership split between Route 4 and Route 5 so it cannot be determined at this time how the routes compare. On Saturdays, approximately 56 percent of the ridership comes from Route 7 servicing Fort Huachuca.
Table 33: Vista Transit Fixed Route Ridership (September 2017)

<table>
<thead>
<tr>
<th>Rt. #</th>
<th>Route Name</th>
<th>Revenue Hours</th>
<th>Total Boardings</th>
<th>AVG Daily Boardings</th>
<th>Boardings per Hour</th>
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<tbody>
<tr>
<td>1</td>
<td>West Side</td>
<td>11</td>
<td>2,569</td>
<td>129</td>
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<tr>
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<td>East Side</td>
<td>11</td>
<td>1,209</td>
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<tr>
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<td>Central Shopper</td>
<td>11</td>
<td>1,754</td>
<td>88</td>
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<tr>
<td>4/5</td>
<td>North/South</td>
<td>8</td>
<td>1,061</td>
<td>54</td>
<td>7</td>
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**Weekday Summary**

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<tr>
<td></td>
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<td>Revenue Hours</td>
<td>Total Boardings</td>
<td>AVG Daily Boardings</td>
</tr>
<tr>
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<td>2,569</td>
<td>129</td>
<td>12</td>
<td></td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
<td>1,754</td>
<td>88</td>
<td>8</td>
<td></td>
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<tr>
<td>4/5</td>
<td>1,061</td>
<td>54</td>
<td>7</td>
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<td>6</td>
<td>Saturday</td>
<td>8.5</td>
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<td>83</td>
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<td>7</td>
<td>Saturday</td>
<td>8.5</td>
<td>526</td>
<td>106</td>
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**Saturday Summary**

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<tr>
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<th>AVG Daily Boardings</th>
<th>Boardings per Hour</th>
</tr>
</thead>
<tbody>
<tr>
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<td>17</td>
<td>939</td>
<td>95</td>
<td>11</td>
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</tr>
</tbody>
</table>

Source: City of Sierra Vista, Vista Transit, 2018.

**Route 1 – West Side**

Route 1 serves the west side of Sierra Vista. The route operates in a counter-clockwise direction once it turns north on 7th Street from Wilcox Drive. These are the stops for Route 1:

1. Sierra Vista Transit Center
2. D.E.S
3. 7th Street and Quail Hollow Drive
4. Hegge Drive
5. Taylor Drive and Brockbank Place
6. Taylor Drive and North Avenue
7. Garden Avenue and Whitton Street
8. Carmichael Avenue at Las Palomas Apartments
9. Carmichael Avenue and Busby Drive
10. Carmichael Avenue and Timothy Lane
11. Busby Drive and 7th Street

**Service Characteristics**

Route 1 operates 30-minute frequency service which originates at the Sierra Vista Transit Center. The schedule of service is from 7:00 am to 6:00 pm. This results in 22 runs per day and 11 hours of service for one vehicle.

**Key Locations Served**

- West End Neighborhood
- Department of Economic Security
Ridership Analysis
Route 1 has the most ridership of all the weekday routes. Other than the Sierra Vista Transit Center, Stop 3, 8, and 10 provide the most amount of boardings at a particular stop, as shown in Figure 6 and Figure 7. Stops 4 through 7 are all below the route daily boarding average.

Figure 6: Route 1 Boarding Map – September 2017

Source: AECOM, 2018; Vista Transit, 2018.
Figure 7: Route 1 – Average Daily Boardings

Source: AECOM, 2018; Vista Transit, 2018.

Route 2 – East Side

Route 2 serves parts of Sierra Vista to the east and northeast. The route operates in a counter-clockwise direction from the transit center. The following stops are served by Route 2:

1. Sierra Vista Transit Center
2. Wilcox Drive and El Camino Real
3. Bank of America at Fry Boulevard
4. Cloud 9
5. Canyon Vista Medical Center/Justice Court Complex
6. Sierra Vista Department of Public Works
7. Giulio Cesare Avenue and Charleston Road
8. Cochise College and University of Arizona South
9. San Pedro Apartments

Service Characteristics

Route 2 operates 30-minute frequency service which originates at the Sierra Vista Transit Center. The schedule of service is from 7:00 am to 6:00 pm. This results in 22 runs per day and 11 hours of service for one vehicle.

Key Locations Served

- Commercial centers along SR 90
- Cochise College and University of Arizona South
- Canyon Vista Medical Center/Justice Court Complex
Ridership Analysis

Ridership data for Route 2 reveal stronger ridership from the transit center to Canyon Vista Medical Center/Justice Court Complex (Figure 8 and Figure 9); however, the stop with the best ridership comes from stop 9 at Cochise College and University of Arizona South. This stop has almost double the ridership of the next highest stop.

Figure 8: Route 2 Boarding Map – September 2017

Route 3 – Central Shopper
Route 3 operates along a similar counter-clockwise path as Route 2, but focuses serving more retail stores and parts of Central Sierra Vista. The stop list for Route 3 is as follows:

1. Sierra Vista Transit Center
2. Sonic (along Fry Boulevard, east of Avenida Escuela)
3. Food City
4. Fry’s Food and Drug
5. Target
6. Plaza Vista Mall
7. Walmart

Service Characteristics
Route 3 operates 30-minute frequency service which originates at the Sierra Vista Transit Center. The schedule of service is from 7:00 am to 6:00 pm. This results in 22 runs per day and 11 hours of service for one vehicle.

Key Locations Served
- Food City
- Fry’s Food and Drug
- Target
- Walmart
- Plaza Vista Mall
Ridership Analysis

The data for Route 3 ridership, as shown in Figure 10 and Figure 11, show more passengers prefer to use Route 3 to reach Walmart (stop 7). The ridership at this stop is almost as much as stops 2 through 6 combined. Ridership at Target (stop 5) is the lowest of all stops which serve customers on private parking lots.

Figure 10: Route 3 Boarding Map – September 2017

Routes 4 and 5 – North and South
Route 4 serves parts of northern Sierra Vista, while Route 5 serves parts of Sierra Vista to the south and southeast. Route 4 operates clockwise from the transit center, but Route 5 operates in a counter-clockwise direction. The route begins with Route 4 and changes to Route 5 at the transit center. The following stops are served by Routes 4 and 5:

1. Sierra Vista Transit Center
2. Bonita Vista Apartments (Coronado Drive and Santa Rosa Drive)
3. Vista De La Sierra Apartments (South Lenzner Avenue)
4. Montego Bay (South Lenzner Avenue)
5. Mobile home park on South Lenzner Avenue
6. North Lenzner Avenue and Belle Vista Drive
7. North Lenzner Avenue and Cottonwood Drive (Bella Vista Elementary)
8. Las Brisas Apartments
9. Sierra Vista Public Library
10. Community Centers
11. Coronado Drive and Martin Luther King Jr Pkwy
12. Moorman Avenue and Wilcox Drive
13. Sierra Vista Transit Center (route changes to Route 5)
14. Coronado Drive and Crestwood Drive
15. Coronado Drive and Sunburst Drive
16. Rodeo Drive
17. The Mall at Sierra Vista
18. PPEP Tech High School
19. General Dental (Paseo San Luis south of Snyder Boulevard)
20. Paseo San Luis and Snyder Boulevard (north of Snyder Boulevard)
21. Foothills Drive and Paseo Las Palmas
22. Sierra Vista WIC (Foothills Drive and SR 92)
23. Foothills Drive and Verde Drive (Village Meadows)
Service Characteristics
Combined Route 4/5 operates 60-minute frequency service which originates at the Sierra Vista Transit Center. The schedule of service is from 8:30 am to 4:30 pm. This results in 8 runs per day and 8 hours of service for one vehicle.

Key Locations Served
Route 4, called “North,” operates a loop that serves the areas immediately west and north of the Vista Transit Center including the city government complex. Route 5, called “South,” serves the area southeast of the Sierra Vista Transit Center including the Mall at Sierra Vista.

- The Mall at Sierra Vista
- Government Complex
  - Sierra Vista Public Library
  - City Hall

Ridership Analysis
Figure 12 and Figure 13 illustrate the ridership performance for Routes 4 and 5. Route 4 makes a stop back at the transit center at stop 13. Stop 14 is the first stop for Route 5 after departing the transit center. As shown in the images, Route 4 has stronger daily ridership than Route 5.

Figure 12: Routes 4 and 5 - Average Daily Boardings

Route 6 – Saturday
Route 6 provides coverage of several of the weekday routes, including Route 1, 3, and 5, by performing two loops which depart from the Sierra Vista Transit Center. The following stops are served by Route 6:

1. Sierra Vista Transit Center
2. D.E.S
3. 7th Street and Quail Hollow Drive
4. Hegge Drive
5. Taylor Drive and Brockbank Place
6. Taylor Drive and North Avenue
7. Garden Avenue and Whitton Street
8. Carmichael Avenue at Las Palomas Apartments
9. Carmichael Avenue and Busby Drive
10. Carmichael Avenue and Timothy Lane
11. Busby Drive and 7th Street
12. Sierra Vista Transit Center
13. Coronado Drive and Crestwood Drive
14. Rodeo Drive
15. The Mall at Sierra Vista
16. Food City
17. Fry’s Food and Drug
18. Target
19. Plaza Vista Mall
20. Walmart
Service Characteristics
Route 6 operates 60-minute frequency service which originates at the Sierra Vista Transit Center. The schedule of service is from 9:30 am to 6:00 pm. This results in 22 runs per day and 11 hours of service with one vehicle.

Key Locations Served
- Department of Economic Security
- The Mall at Sierra Vista
- Food City
- Fry's Food and Drug
- Target
- Plaza Vista Mall
- Walmart

Ridership Analysis
Ridership data for Route 6, as shown in Figure 14 and Figure 15, shows most of the ridership occurs on the weekday Route 1 path on the west side of Sierra Vista. Retail stores at the end of the route on the east side, served by weekday Route 3, also provide ridership near the route daily average.
Figure 14: Route 6 Boarding Map – September 2017

Figure 15: Route 6 - Average Daily Boardings


Route 7 – Saturday (Fort Huachuca)
Route 7 provides service to Fort Huachuca, and is the only route which is offered to the base. The route enters the post from the Van Deman Gate. The followings stops are provided on-post:

1. Military Intelligence Village (MIV)/Weinstein Barracks
2. Post Exchange
3. Commissary
4. Clothing Sales
5. Non-designated flex-route stops

Service Characteristics
Route 7 operates 60-minute frequency service which originates at Fort Huachuca. The schedule of service is from 9:30 am to 6:00 pm. This results in 8 runs per day and 8.5 hours of service with one vehicle.

Key Locations Served
- Fort Huachuca
- Sierra Vista Transit Center

Ridership Analysis
As shown in Figure 16 and Figure 17, ridership data for Route 7 reveals the majority of passengers are boarding at the Military Intelligence Village (MIV) or being picked-up at non-designated stops on-post (Stop 5). Stop 2 is the Post Exchange, Stop 3 is the Commissary, and Stop 4 is Clothing Sales.
Figure 16: Route 7 Boarding Map – September 2017

4.5 Other Transit Providers in Sierra Vista

There are several private taxi services operating within Sierra Vista. Lyft is providing on-demand services within Sierra Vista. An Uber car was spotted during field work on March 22, 2018, but no cars were available when searching on the Uber app. This could be a result of no available drivers, or available drivers preferring to use Lyft, because there are instances across the United States of several drivers working for both Uber and Lyft.

**Cochise Connection**

The Cochise Connection is a public bus service operated by the City of Douglas and funded by SEAGO, ADOT, Cochise County, the Legacy Foundation of Southeast Arizona, and Freeport McMoran. The Cochise Connection provides regional connections to the cities of Bisbee, Douglas, Sierra Vista, Huachuca City, and Benson. The service makes three northbound trips and three southbound trips each day; morning, midday, and afternoon.

Within Sierra Vista, the Cochise Connection makes stops at Canyon Vista Medical Center, Cochise College (main campus), and the Sierra Vista Transit Center, illustrated in Figure 18. Ridership data for February 2018, as shown in Table 12, reveals approximately 351 trips were made between Douglas and Sierra Vista (D-SV), or Bisbee and Sierra Vista (BB-SV), or Benson and Sierra Vista (BN-SV). The majority of the trips were between Douglas and Sierra Vista (258 trips) and Bisbee and Sierra Vista (86 trips). There were only seven trips between Benson and Sierra Vista in the month of February.
Table 34: Cochise Connection Ridership – February 2018

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<thead>
<tr>
<th>Date</th>
<th>Trips</th>
<th>D-BB</th>
<th>D-SV</th>
<th>BB-SV</th>
<th>D-BN</th>
<th>SV-BN</th>
<th>BB-BN</th>
<th>BN-BB</th>
<th>BN-SV</th>
<th>BN-D</th>
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<th>SV-D</th>
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<td>36</td>
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Figure 18: Cochise Connection – Regional Service Stops

5.0 Issues, Opportunities, and Next Steps
This section provides a summary of Issues and Opportunities, as well as next steps, based on the findings of the Existing Conditions. These issues and opportunities will provide a starting place for the next phase of Task 4.

5.1 Issues and Opportunities
- Comments received in the Vista Transit Rider Survey indicated Routes 4 and 5 should go back to the old routes. Stakeholder input revealed the primary sentiment from passengers was the schedule on Routes 4 and 5 should match the other routes (7:00 am to 6:00 pm), rather than go back to independent routes. Frequencies at 60-minutes are acceptable for now. Further review of the performance of Routes 4 and 5, as well as potential service options, will be conducted in the Alternative Analysis.
- Review routing of Route 5 to make sure the routes are serving areas with ridership demand and not spending too much time traveling in areas with little to no demand for transit.
- Fort Huachuca provides consistent ridership for Saturday. One comment in the rider survey indicated select weekday trips should be considered. An evaluation of new service delivery to Fort Huachuca will be conducted in the Alternative Analysis, which will include a review of limited potential weekday service, commuter service to regional markets, and extended weekend service hours.
- Stakeholder input for Route 7 revealed increased marketing of the service could see immediate increases to ridership. Extending the schedule on Saturdays, as well as offering Friday evening service, could provide needed service for trainees. The target audience should be trainees, who are allowed off-base from Friday at 6:00 pm to Sunday at 6:00 pm.
  - If demand warrants, an on-post circulator may provide consistent ridership on the weekends. A 15-seat vehicle would be the appropriate size.

5.2 Next Steps
The next step in Task 4 is to complete an Alternative Analysis for service to Fort Huachuca, as well as determine if there are areas to improve efficiency for Routes 4 and 5. Alternatives selected to be carried forward will include a Financial Plan, as well as an Implementation Plan.
Appendix E1

Vista Transit Work Shift and Staff Car Proposal
VISTA TRANSIT WORK SHIFT AND STAFF CAR PROPOSAL

2 Jun 17

Currently the Vista Transit drivers are required to begin and conclude their work day at the PCC while performing their duties at the Transit Center. During the drivers’ lunch break, while they are off the clock, the drivers have no access to their personal vehicles, nor any means of leaving the Transit Center to conduct any personal business. This has been a point of contention for nearly two years as of this date.

A simple solution to rectify this situation is as follows:

The AM Shift drivers arrive at the Transit Center and park their personal vehicles. At 5:30am, they take the staff car to the yard as a group, park in the south lot and begin their morning routines. This gives the AM drivers 90 minutes to travel to the yard, conduct pre-trip inspections, clean and prepare the bus for the day, and return to the Transit Center with the bus. During their individual lunch breaks, drivers will have access to their personal vehicles. At the conclusion of their shifts, at 2:30pm, the drivers turn over the routes to the relief crew and are able to leave directly from the Transit Center.

The PM shift would likewise arrive at the Transit Center to begin their shifts and take over driving at 2:30pm. At the conclusion of the day, the buses would ferry back to the PCC as they currently do, where the drivers will complete the evening fueling and cleaning details. The drivers would return to the Transit Center with the staff car by 6:30 pm and leave for the day.

The lunch relief driver would arrive at the Transit Center with his/her personal vehicle and at 9:30am begin the relief duties and the PM shift as currently assigned. The lunch relief driver would conclude his/her shift at 6:30pm with the other PM drivers.

The Saturday shifts will work in the same manner as the weekday shifts.

The paratransit drivers would not be included in this arrangement as their shifts start and end at different times with no relief drivers. Paratransit drivers would be able to stop en route to purchase lunch if so desired, in accordance with City policy, or take their break at the TC as they currently do. They would have the additional option of returning the bus to the PCC, taking their personal vehicle from there to lunch and returning to the PCC at the end of their break.

Additionally, by expanding the service hours of route 4/5 from an 8.5 hour route to an 11 hour route, all AM and PM drivers would be on the same work schedule. This will avoid confusion in recording work shifts on the time sheet and reduce errors in reporting hours worked. Expanding the
north and south routes in this manner will be a great boon to the passengers and improve public perception of Vista Transit.

There are several personnel related benefits to this plan, and also a significant financial benefit to the City, as well. By realigning the PM work schedule from the current 2:15 to 6:45 to a proposed 2:30 to 6:30, Vista Transit would be saving 40 man hours of payroll per month, or 480 hours per year. This equates to a savings of approximately $6,720 per year, which may in turn be used to help offset the costs of expanding route 4/5 from an 8.5 hour route to an 11 hour route.

MONDAY through FRIDAY
- AM drivers in at TC at 5:30, take staff car to yard as group, begin morning routines.
- AM drivers have access to POV during lunch breaks
- PM drivers arrive at TC to begin shift at 2:30
- AM drivers conclude shift at 2:30
- PM drivers return buses to yard at conclusion of shift, conduct PM duties, take staff car to TC as group and leave by 6:30
- TAG 1 / TAG 2 maintain same routine as currently organized

SATURDAY
- AM drivers in at TC at 8:30, take staff car together to yard, begin morning routines
- PM drivers in at TC to take over routes at 2:00
- AM drivers conclude shift at TC at 2:00
- PM drivers return buses to yard at conclusion of shift, conduct PM duties, take staff car to TC together and leave by 6:30
Fort Huachuca Stakeholder Meeting Sign-in Sheet

Vista Transit Study - Fort Huachuca Stakeholder Meeting
22 March 2018

<table>
<thead>
<tr>
<th>Name</th>
<th>Unit</th>
<th>Email Address</th>
<th>Telephone #</th>
</tr>
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<td>McCoy Jason N. CSM</td>
<td>64TH ESB</td>
<td><a href="mailto:jason.mccoy.mil@mail.mil">jason.mccoy.mil@mail.mil</a></td>
<td>520-532-9323</td>
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<tr>
<td>Fox Eston R.</td>
<td>DPW, REAL PROPERTY</td>
<td><a href="mailto:eston.rfox.civ@mail.mil">eston.rfox.civ@mail.mil</a></td>
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<tr>
<td>Nisie Normand</td>
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<td>michael.normand@mil</td>
<td>520-417-1888</td>
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<td>Durance Cameron</td>
<td>PAC</td>
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Additional attendees included:

1. Richard Cayer, City of Sierra Vista, Vista Transit
2. Cheri Weber, Fort Huachuca, Army Community Service
3. Josh Shane, AECOM
4. Andrew Ittigson, AECOM
About AECOM

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