

AMARILLO CITY TRANSIT

AMARILLO CITY TRANSIT FARE STUDY

DRAFT FINAL REPORT

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I: HISTORY AND EXISTING CONDITIONS

Amarillo City Transit (ACT) is a department of the City of Amarillo that operates fixed-route and demand-response transit service within Amarillo’s city limits. In 2018, ACT contracted with Nancy R. Edmonson, Transportation Consulting to study alternatives for new fare products, pricing levels, and payment options, and to recommend rational short- and long-term fare structures. ACT’s primary goals are to:

- Streamline and improve cash handling and ridership data collection
- Identify innovative solutions for fare collection and payment options
- Consider fare structure options that can increase ridership
- Improve its fare recovery ratio

This document is the result of the study. Chapter 1 summarizes ACT’s fare policy and fare revenue history. Chapter 2 reviews fare policy at eight transit agencies similar in size and geography to ACT. Chapters 3, 4, and 5 develop and evaluate three different scenarios of fare changes that ACT could pursue. And chapters 6 and 7 recommend a set of fare changes and supporting actions that will improve ACT’s revenue and service.

DEPARTMENT OVERVIEW

In order to determine where ACT can improve its fare structure and fare revenue generation, a thorough understanding of its current condition is required. The following section summarizes ACT’s current service, fare structure, and fare collection procedures.

Fixed-Route and Spec-Trans Services

After recently redesigning its route structure, ACT now operates thirteen fixed bus routes on weekdays (and twelve on Saturdays) from 6:20 a.m. to 7:00 p.m. One of these routes, Route 13, is an on-call service serving the medical center and Westgate Mall. This route has several designated pick-up points, but riders can request where they would like to be dropped off. Riders not boarding at one of the pick-up points can call to request a ride. ACT also operates the demand-response paratransit service Spec-Trans, which provides door-to-door service for qualified disabled passengers to destinations within the City of Amarillo and west of Lakeside Drive. It also operates Monday through Saturday from 6:20 a.m. to 7:00 p.m.

Fare Structure

ACT currently has three fare levels on its fixed-route service: a full fare of \$0.75; a youth fare of \$0.60 for children ages 6–12 and students holding ACT student ID cards; and a reduced fare of \$0.35 for seniors (age 65 and over) and people with disabilities holding ACT ID cards as well as riders holding Medicare or Spec-Trans cards.¹ Children ages 0–5 ride free. ACT has no

¹ The FTA requires that transit agencies charge seniors 65 and over, people with disabilities, and Medicare cardholders no more than half their base fare during off-peak hours. ACT is in compliance with these regulations.

form of time-based transit pass (such as a daily or monthly pass) and offers no discounts to frequent riders.

A one-way fare on ACT’s Spec-Trans service is \$1.50. One personal care attendant may accompany the rider for free.² The fare for additional adult guests is \$1.50; for guests ages 6–18, \$0.75; and for guests ages 5 and under, free. Spec-Trans riders may also purchase tickets in books of twenty for \$30.00, an option not available to riders of fixed-route service. Table 1.1 summarizes the current fare structure.

**Table 1.1
Summary of Fare Structure**

Fare Type	Fixed-Route/On-Call Price	Spec-Trans Price
Full	\$0.75	\$1.50 (includes one personal attendant)
K-12 Student	\$0.60 (all children ages 6–12; others require student ID)	\$0.75
Senior/Disabled/Medicare	\$0.35	\$1.50
Children under 5	Free	Free
Paper Transfers	Yes	No
Tickets	Face value	Face value

Fare Collection Procedures

ACT collects its fares in simple drop box-style fareboxes on both its fixed-route and Spec-Trans services. Passengers drop the fare in the top, and the money, ticket, or transfer falls onto a plate, so that the operator can see what was paid. Once the operator verifies the fare, he or she presses a lever to release the money into a vault. Operators are supposed to ask passengers paying reduced fares, whether by cash or ticket, for ACT-issued ID cards to prove their eligibility for the reduced fares.

Passengers needing to transfer between routes request paper transfer slips from operators. Operators punch transfer slips to denote the day of the month, the route, and the expiration time of the transfer (two hours after issuance). So that operators can readily recognize invalid transfers, ACT uses different colored transfer slips every day—eight colors are available, and they are randomly assigned to each day of the month by ACT’s management analyst. Transfers may be used at the downtown transfer center and at other locations where routes meet. Passengers may not use transfers to reboard the same route.

² The FTA requires that an agency’s paratransit fare not exceed double that agency’s base fare and states that a personal care attendant accompanying a paratransit rider must be allowed to ride for free. ACT is in compliance with these regulations.

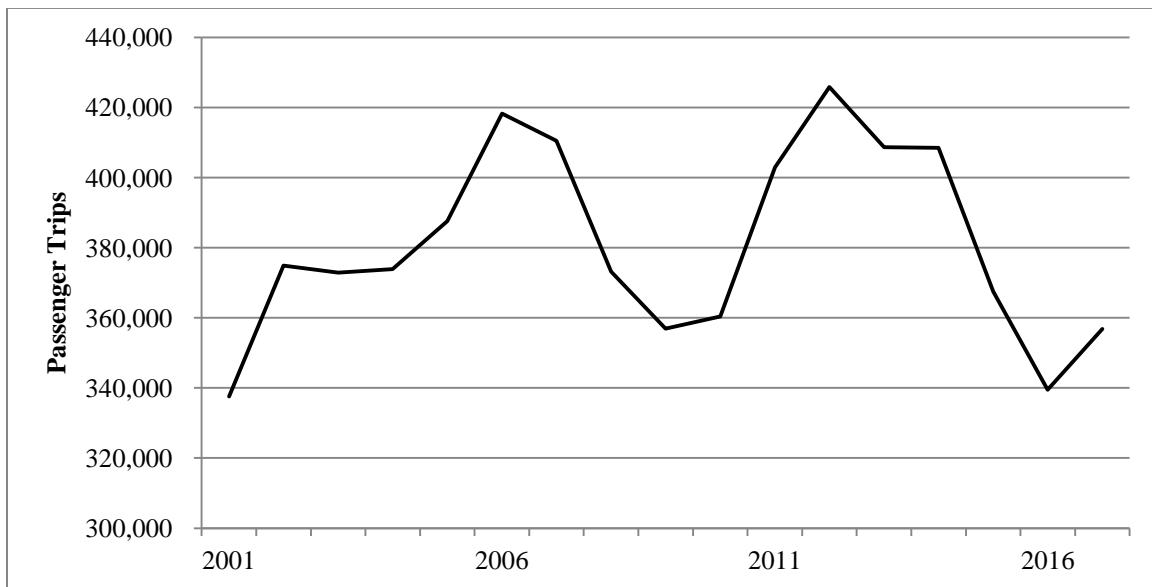
Fare Media Sales

About 80 percent of ACT riders pay their fares in cash on the bus. The remainder use tickets, which may be purchased at face value at City Hall or the ACT transit office. Tickets bought at City Hall may be purchased with cash, check, credit card, or debit card; tickets bought at the transit office may be purchased with cash or check only. Revenues received at City Hall are processed at City Hall and credited to the transit department through the city's accounting system; revenues received at the transit office are processed daily at the transit office along with cash fares from buses. Finally, some social service agencies buy tickets in bulk for distribution to their clients. These agencies can buy full or reduced fares, but any rider using a reduced fare ticket obtained from an agency must be eligible for that fare.

RIDERSHIP

Fare levels and fare structure influence ridership. Therefore, understanding recent ridership trends at ACT is necessary to developing and evaluating the impact of new fare structures. ACT riders took approximately 359,000 trips on fixed-route and Spec-Trans services combined in 2017. This figure is approximately the same as in 2001, when riders took 338,000 trips, but it is down 16 percent from 2012, when riders took 426,000 trips (see figure 1.1).

Figure 1.1
ACT Ridership, 2001–2017



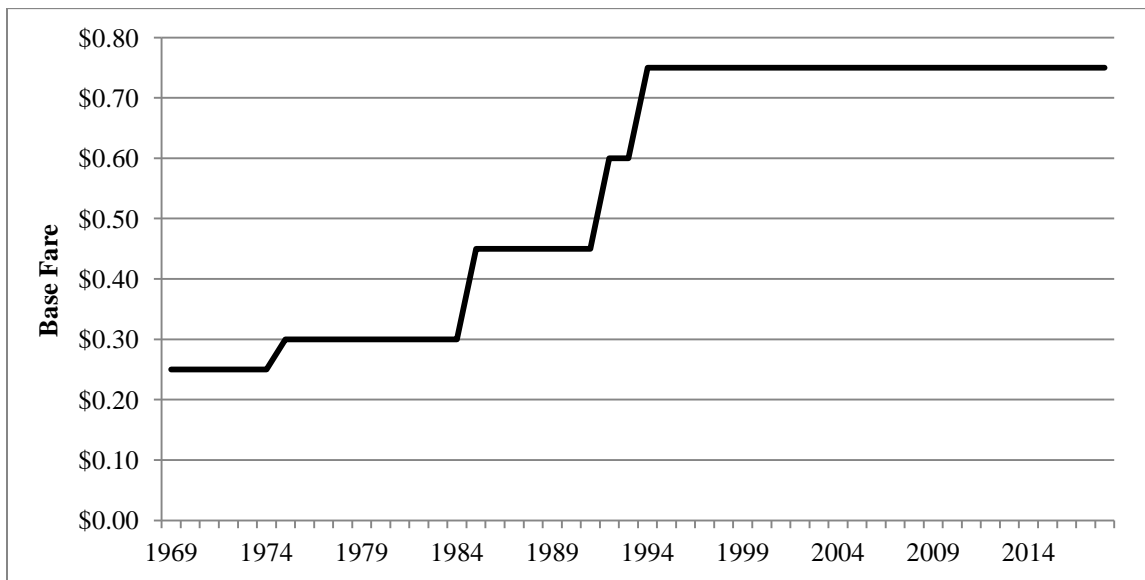
FARE REVENUE TRENDS

Fare revenue is a comparatively small but important source of operating funds at most small transit properties. Understanding how fare revenue has changed for ACT in recent years will help guide future fare policy decisions.

Historical Base Fare Levels and Fare Revenue

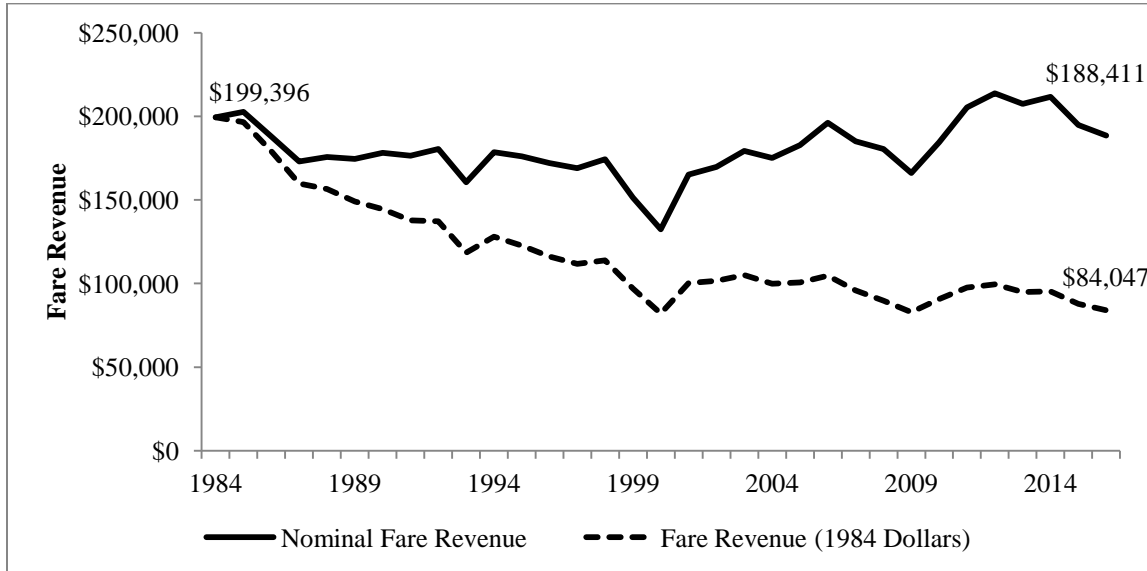
Figure 1.2 shows base fares on ACT's fixed-route service from 1969 (the most recent year for which data are available) to the present. The graph shows that after years of regular increases in the last third of the twentieth century, ACT's base fare has remained flat in the twenty-first. In the twenty-five years between 1969 and 1994, ACT increased its base fare four times; since 1994, it has not increased its base fare at all.

Figure 1.2
ACT Base Fare On Fixed-Route Service



ACT's total fare revenue has, with the exception of a decline in the late 1990s, remained between \$150,000 and \$200,000 since 1984 (the first year for which revenue figures are available). Steady inflation, however, means that ACT's fare revenue has declined by more than half in real terms, as figure 1.3 shows.

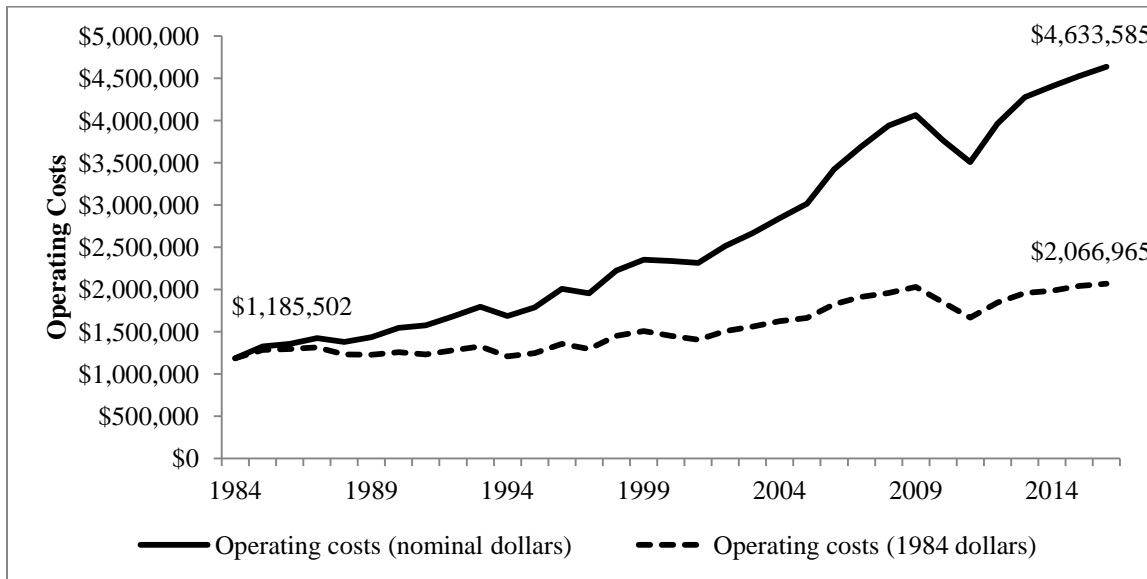
**Figure 1.3
Nominal and Inflation-Adjusted Fare Revenue, 1984–2016**



Operating Costs and Fare Recovery

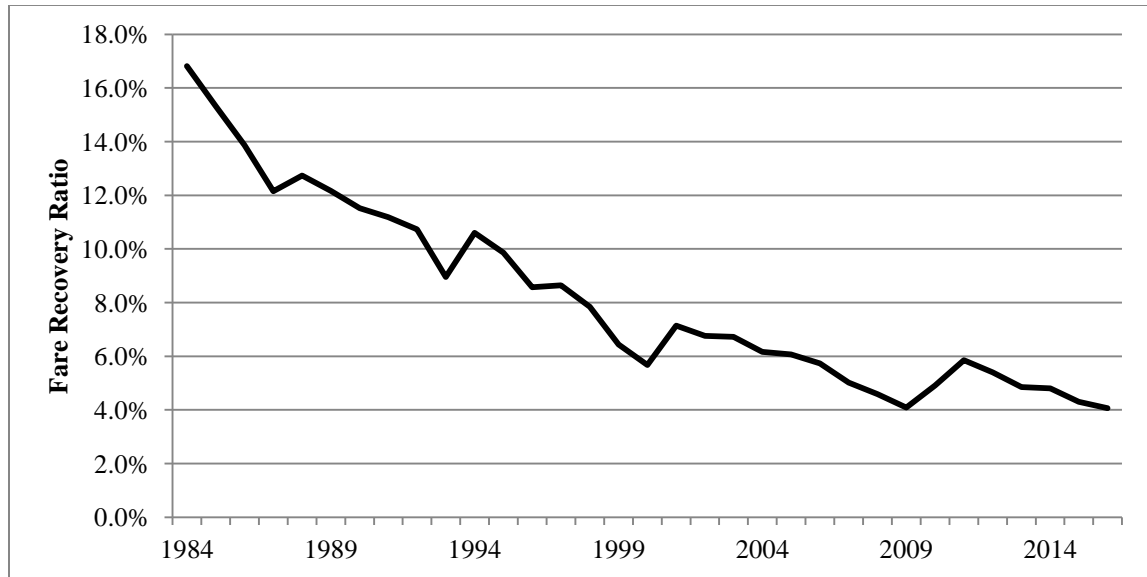
Over the same period, meanwhile, ACT’s operating costs have increased fourfold, from \$1.2 million in 1984 to \$4.6 million in FY 2015/2016, and its inflation-adjusted operating costs have doubled (see figure 1.4). One cause of the large increase in operating costs was the addition of paratransit service (Spec-Trans), as required by the Americans with Disabilities Act of 1990.

**Figure 1.4
Nominal and Inflation-Adjusted Operating Costs, 1984–2016**



Stagnant or declining fare revenue coupled with rising operating costs means that ACT's fare recovery ratio, the percentage of its operating costs covered by fare revenue, has declined from 17 percent in 1984 to 4 percent today (see figure 1.5). As with the increase in operating costs, this decrease in fare recovery owes partly to the introduction of paratransit service, which in nearly all systems has a lower fare recovery ratio than fixed-route service. Furthermore, demand for this service has grown more rapidly than for traditional bus service.

Figure 1.5
Percent of Operating Costs Covered by Fare Revenue, 1984–2016



SUMMARY

The following summarizes some of the key points of this background review of ACT and its fare structure:

- ACT operates fixed-route and paratransit service and is in compliance with federal regulations regarding fares.
- ACT has a three-tiered fare structure consisting of full, youth, and reduced fares on its fixed-route service and a two-tiered structure of full and reduced fares on its paratransit service.
- ACT has not raised its base fare since 1994.
- ACT data from 2017 show a modest uptick in passenger trips, but ridership has been essentially flat over the last twenty years.
- ACT's fare recovery ratio, the amount of operating costs covered by fare revenue, has been steadily declining for the last thirty years.

II: PEER REVIEW

INTRODUCTION

In order to provide a better understanding of the strengths and weaknesses of ACT's fare policy, this chapter reviews the practices of peer agencies in the region. The peer agencies selected for this study are similar to ACT in terms of their size and service offerings. They are:

- | | |
|----------------------------|--|
| • Abilene, Texas | CityLink Transit |
| • Grand Junction, Colorado | Grand Valley Transit |
| • Las Cruces, New Mexico | Las Cruces Area Transit (RoadRUNNER) |
| • Lincoln, Nebraska | StarTran |
| • Lubbock, Texas | City Transit Management Co., Inc. (Citibus) |
| • Midland-Odessa, Texas | Midland-Odessa Urban Transit District (EZ-Rider) |
| • Topeka, Kansas | Topeka Metropolitan Transit Authority |
| • Waco, Texas | Waco Transit System, Inc. |

Agencies in Abilene, Las Cruces, Lincoln, Lubbock, Topeka, and Waco are city-operated; Grand Valley Transit is operated by Mesa County, Colorado; and the Midland-Odessa Urban Transit District is governed by a board comprised of representatives from both cities. For the sake of expediency, the names of cities and their agencies are used interchangeably throughout this report, except where an explicit distinction is drawn.

Data for 2016 on service population, service area, operating costs, and ridership were collected from the National Transit Database (NTD) and agency profiles produced by the Federal Transit Administration (FTA). Information on fare pricing, fare structure, student discounts, and retail partners was drawn from agency websites and Internet research. And information on fare collection technology and partnerships with local colleges comes from email correspondence with staff at peer agencies.

AGENCY CHARACTERISTICS

The following discussion and associated figures place Amarillo in relation to its peers in terms of size, ridership, and service efficiency and effectiveness. Table 2.1, at the end of this section, contains detailed data for the measures addressed in the figures.

Size and Budget

The agencies reviewed here serve areas with populations of between 100,000 and 300,000 people and areas of 55 to 110 square miles, and have annual operating costs of \$3.5 million to \$12 million. ACT ranks fourth among its peers in terms of service area population, sixth in service area size, and fifth in annual operating costs (see figures 2.1, 2.2, and 2.3).

Figure 2.1
Service Area Population of Peer Agencies

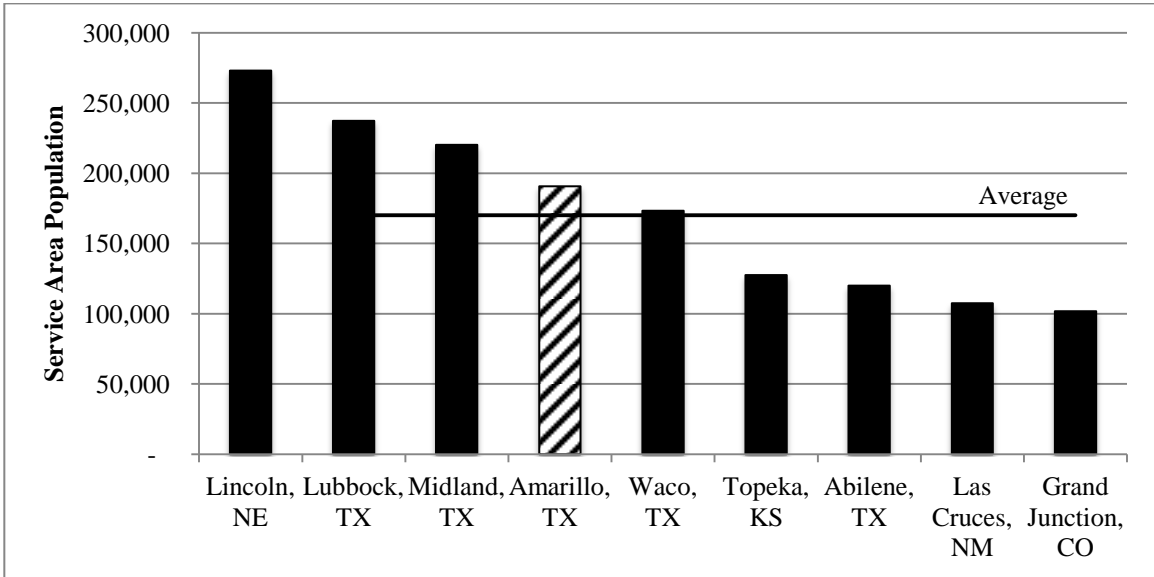


Figure 2.2
Service Area Size of Peer Agencies

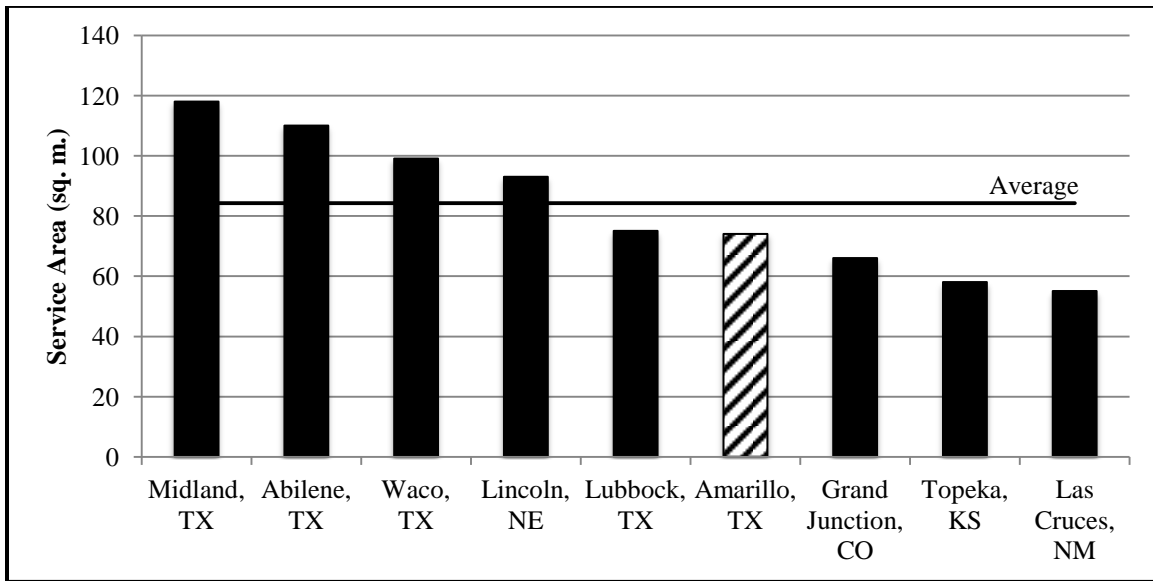
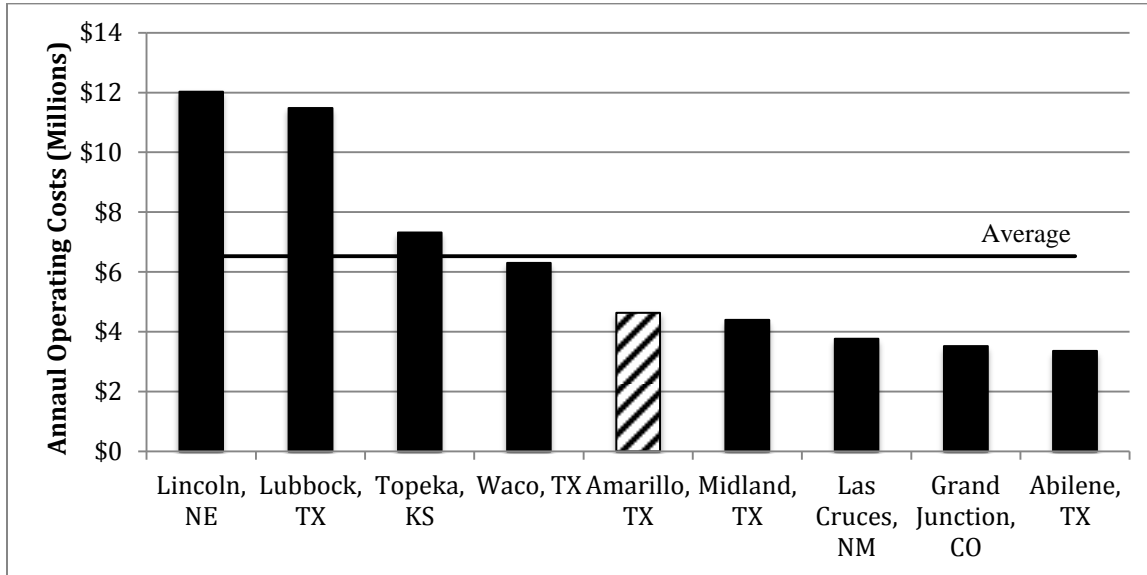


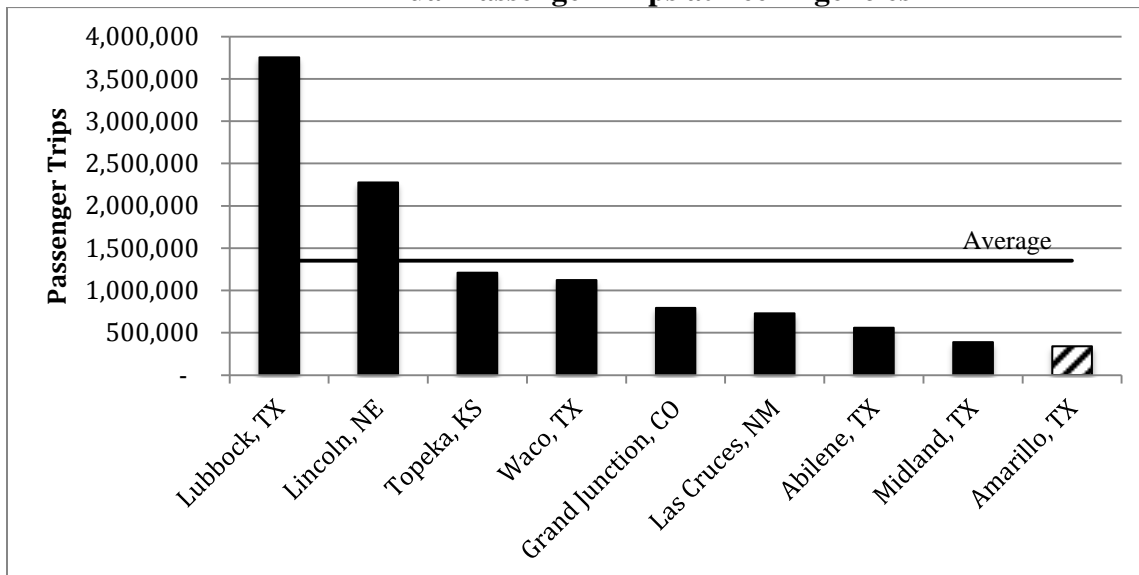
Figure 2.3
Annual Operating Costs of Peer Agencies



Ridership

Amarillo has the lowest ridership among its peers, coming in closely behind Midland-Odessa. High ridership in Lincoln and Lubbock can partly be explained by the cities' large university populations—University of Nebraska-Lincoln has about 26,000 students and Texas Tech University about 37,000 (see figure 2.4).

Figure 2.4
Annual Passenger Trips at Peer Agencies



Service Efficiency and Effectiveness

ACT ranks near or at the bottom of its peer group in terms of several measures of service efficiency and effectiveness. ACT has the lowest fare recovery ratio of its peers, meaning that it has the lowest fare revenue relative to operating costs. (See figure 2.5. Note that Lincoln and Lubbock's high fare recovery ratios are due in part to the significant revenues they receive through their agreements with local colleges, which they treat as fare revenue.) ACT's operating cost per revenue hour, meanwhile, is the second highest among its peer group, trailing only Topeka, and its cost per passenger trip is the highest, edging Midland-Odessa (see figures 2.6 and 2.7.)

Figure 2.5
Fare Recovery Ratio at Peer Agencies

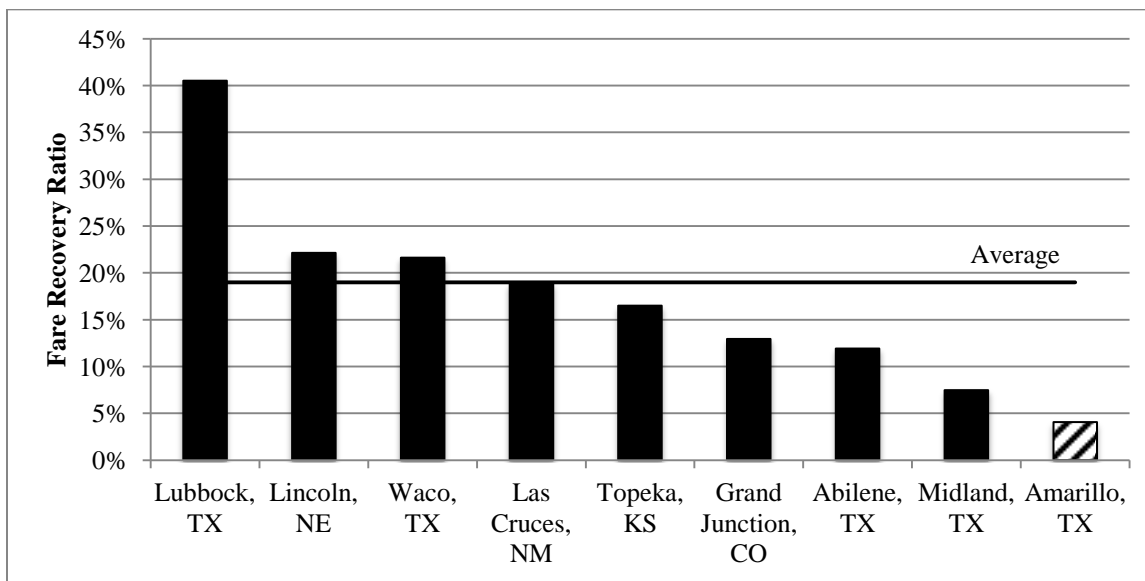


Figure 2.6
Operating Cost Per Revenue Hour at Peer Agencies

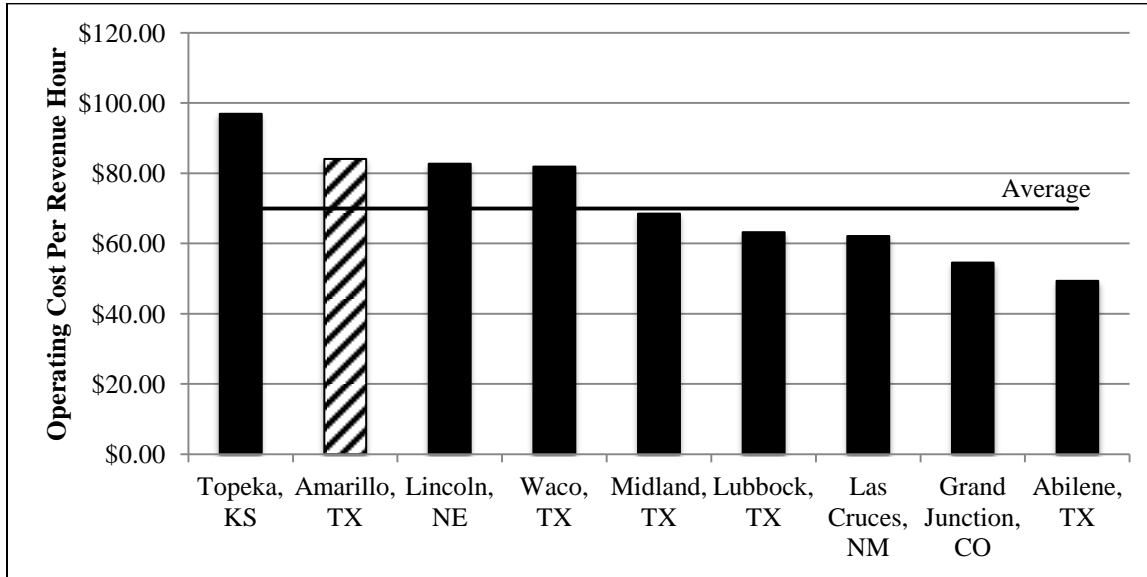
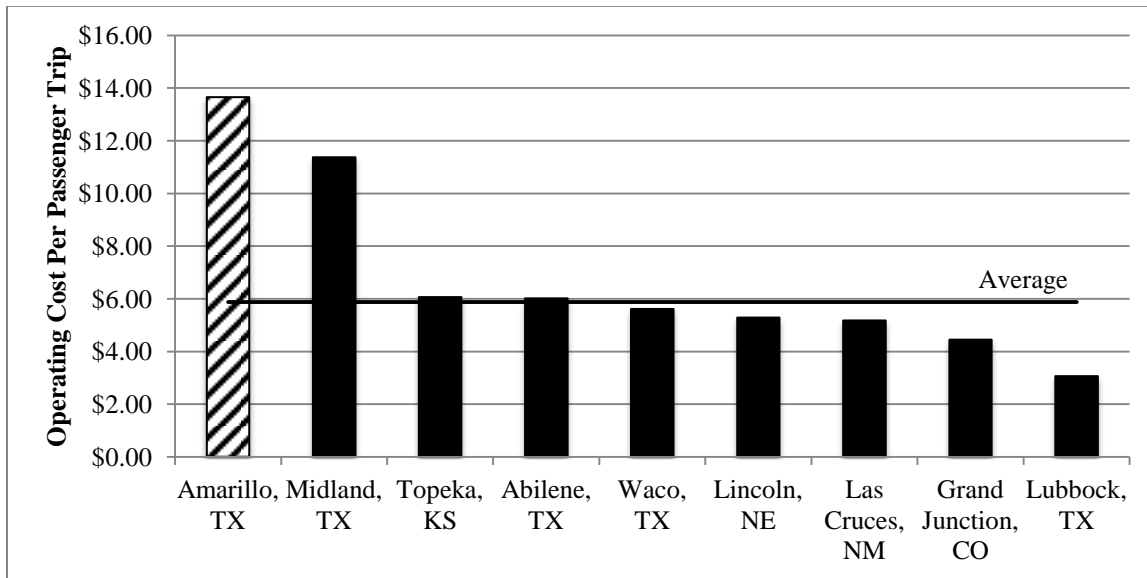


Figure 2.7
Operating Cost Per Passenger Trip at Peer Agencies



**Table 2.1
Comparison of Peers by Key Measures**

Service Area Population		Service Area Size (sq. miles)		Annual Operating Costs		Annual Ridership	
Lincoln, NE	272,996	Midland, TX	118	Lincoln, NE	\$12,031,635	Lubbock, TX	3,753,921
Lubbock, TX	237,356	Abilene, TX	110	Lubbock, TX	\$11,480,313	Lincoln, NE	2,275,495
Midland, TX	220,126	Waco, TX	99	Topeka, KS	\$7,319,248	Topeka, KS	1,208,851
Amarillo, TX	190,695	Lincoln, NE	93	Waco, TX	\$6,307,311	Waco, TX	1,123,084
Waco, TX	173,192	Lubbock, TX	75	Amarillo, TX	\$4,633,585	Grand Junction, CO	792,946
Topeka, KS	127,473	Amarillo, TX	74	Midland, TX	\$4,395,810	Las Cruces, NM	727,137
Abilene, TX	120,099	Grand Junction, CO	66	Las Cruces, NM	\$3,764,978	Abilene, TX	558,645
Las Cruces, NM	107,419	Topeka, KS	58	Grand Junction, CO	\$3,526,055	Midland, TX	386,854
Grand Junction, CO	101,846	Las Cruces, NM	55	Abilene, TX	\$3,357,875	Amarillo, TX	339,459

Base Fare		Fare Recovery		Cost/Revenue Hour (low to high)		Cost/Trip (low to high)	
Topeka, KS	\$2.00	Lubbock, TX	40.5%	Abilene, TX	\$49.39	Lubbock, TX	\$3.06
Lincoln, NE	\$1.75	Lincoln, NE	22.1%	Grand Junction, CO	\$54.57	Grand Junction, CO	\$4.45
Lubbock, TX	\$1.75	Waco, TX	21.6%	Las Cruces, NM	\$62.15	Las Cruces, NM	\$5.18
Abilene, TX	\$1.50	Las Cruces, NM	18.8%	Lubbock, TX	\$63.20	Lincoln, NE	\$5.29
Grand Junction, CO	\$1.50	Topeka, KS	16.5%	Midland, TX	\$68.49	Waco, TX	\$5.62
Waco, TX	\$1.50	Grand Junction, CO	12.9%	Waco, TX	\$81.93	Abilene, TX	\$6.01
Midland, TX	\$1.25	Abilene, TX	11.9%	Lincoln, NE	\$82.75	Topeka, KS	\$6.05
Las Cruces, NM	\$1.00	Midland, TX	7.5%	Amarillo, TX	\$84.06	Midland, TX	\$11.36
Amarillo, TX	\$0.75	Amarillo, TX	4.1%	Topeka, KS	\$96.92	Amarillo, TX	\$13.65

FARE STRUCTURE

Base Fares

ACT's base fare of \$0.75 is lower than that of any of its peers. In the peer group, Las Cruces has the lowest base fare, \$1.00, and Topeka has the highest, \$2.00. The most common fare is \$1.50, and the average fare is \$1.53. Table 2.2 summarizes the price of full, reduced, senior, and paratransit fares at ACT and its peers and notes whether transfers are included in the price of single-ride tickets.

Note that the Americans with Disabilities Act (ADA) allows transit systems to charge no more than double the fixed-route full fare for their paratransit services. Two peer agencies charge for service outside the required three-quarters of a mile service area required by the ADA, and one system offers premium same-day service at a higher fare.

**Table 2.2
Comparison of Single-Ride Fares at Peer Agencies**

City	Full Fare	Youth Fare (with eligible age)	Senior/Disabled/Medicare Fare (with eligible age for seniors)	Paratransit Fare	Transfer included?
Abilene, TX	\$1.50	\$1.00 (5–18)	\$0.65 (65+)	\$2.00 in regular service area; \$3.00 in extended service area	Yes
Amarillo, TX	\$0.75	\$0.60 (6–12)	\$0.35 (65+)	\$1.50	Yes
Grand Junction, CO	\$1.50	—	\$0.75 (65+, only during off-peak)	\$3.00	No
Las Cruces, NM	\$1.00	\$0.50 (6–18)	\$0.50 (60+)	\$2.00	Yes
Lincoln, NE	\$1.75	—	\$0.85 (62+)	\$3.50	Yes
Lubbock, TX	\$1.75	\$1.25 (6–12)	\$0.85 (65+)	\$3.50 in regular service area; \$11.50 in extended service area	No
Midland, TX	\$1.25	\$1.00 (6–18)	\$0.60 (60+)	\$2.50 in regular service area; \$5.00 in extended service area	No
Topeka, KS	\$2.00	\$1.50 (5–18)	\$1.00 (65+)	\$4.00	No
Waco, TX	\$1.50	—	\$0.50 (65+)	\$3.00 for regular service, \$4.00 for premium same-day	No

Evening Services

Abilene, Lubbock, and Waco also offer demand-response evening service to all residents of their service areas (see table 2.3). All three agencies require patrons to register for the service and to schedule rides in advance.

Table 2.3
Demand-Response Evening Services at Peer Agencies

City	Hours of Operation	Single-Ride Price
Abilene, TX	6:15 p.m. – 12:00 a.m.	\$6.00
Lubbock, TX	6:45 p.m. – 10:30 p.m.	\$4.50 for regular service; \$7.50 for same-day notice
Waco, TX	8:30 p.m. – 11:45 p.m.	\$3.00

Fixed-Route Passes and Ticket Books

Most of Amarillo’s peers have some form of time-period pass. Amarillo is one of two agencies in this study, along with Lincoln, that does not have a day pass allowing riders unlimited use of the system at one price for the entire day. It is the only such agency not to have such a monthly pass. But while most peer agencies offer passes, they differ significantly in the types of passes they offer, ranging from Waco, which sells only day passes and monthly passes, to Grand Junction, which sells four time-based passes and one ticket book to the public, as well as a further time-based pass to students.

Given this variety, the present study will focus on day passes and monthly passes, and then summarize ticket book offerings. Tables 2.4 and 2.5 compare how day passes and monthly passes are priced at peer agencies by calculating each pass’s break-even number, the number of rides after which it becomes economical for a customer to buy a pass. Most agencies price their day passes at double their base fare, meaning customers taking more than two rides in a day have incentive to buy day passes. There is greater variation in the pricing of monthly passes—Lincoln’s in particular is unusually low-priced³—but the most common price is thirty times the base fare, meaning that customers who take more than thirty one-way rides per month have incentive to buy monthly passes.

³ Lincoln’s StarTran reduced its monthly pass from \$45 to \$17 in 2012. StarTran offers an \$8 monthly pass to low-income riders, but it does not require income verification to purchase it. Prior to 2012, more than 75 percent of monthly passes sold were low-income passes. StarTran therefore decreased the price of its regular monthly pass in an attempt to increase sales and capture more revenue from non-low-income riders.

Table 2.4
Day Pass Pricing at Peer Agencies

City	Day Pass Price	Single-Ride Price	Break-Even Number
Abilene, TX	\$3.00	\$1.50	2
Amarillo, TX	—	\$0.75	—
Grand Junction, CO	\$3.75	\$1.50	2.5
Las Cruces, NM	\$2.25	\$1.00	2.25
Lincoln, NE	—	\$1.75	—
Lubbock, TX	\$3.50	\$1.75	2
Midland, TX	\$3.00	\$1.25	2.4
Topeka, KS	\$4.00	\$2.00	2
Waco, TX	\$3.00	\$1.50	2

Table 2.5
Monthly Pass Pricing at Peer Agencies

City	Monthly Pass Price	Single-Ride Price	Break-Even Number
Abilene, TX	\$45.00	\$1.50	30
Amarillo, TX	—	\$0.75	—
Grand Junction, CO	\$45.00	\$1.50	30
Las Cruces, NM	\$30.00	\$1.00	30
Lincoln, NE	\$17.00	\$1.75	9.7
Lubbock, TX	\$50.00	\$1.75	28.6
Midland, TX	\$37.00	\$1.25	29.6
Topeka, KS	\$50.00	\$2.00	25
Waco, TX	\$40.00	\$1.50	26.7

In addition to selling daily and monthly passes, five out of eight of ACT's peers sell books of tickets. Nearly all of these fare products are discounted from the base fare (see table 2.6), but the ways in which they are marketed differ. Grand Junction and Midland-Odessa both market their 11-ride books as 10-ride books plus bonus rides. Lincoln and Topeka, on the other hand, call their ticket books by the number of tickets included. Las Cruces does both: its 12-token package is marketed as a 10-token package with two bonus rides, while its 30-ride book is in fact thirty rides, with no discount.

**Table 2.6
Ticket Book Products at Peer Agencies**

City	Ticket Book	Ticket Book Price	Discount Off Full Fare
Grand Junction, CO	11-ride book	\$15.00	9%
Las Cruces, NM	12-pack of tokens	\$10.00	17%
	30-ride book	\$30.00	None
Lincoln, NE	20-ride book	\$33.00	6%
Midland, TX	11-ride book	\$12.50	9%
Topeka, KS	10-ride book	\$18.00	10%

Paratransit Passes and Ticket Books

Few transit agencies offer monthly passes for paratransit services. Among Amarillo’s peers, Lincoln is the one exception: it offers a \$34, 31-day pass to paratransit riders—paratransit riders using the pass break even after 9.7 rides. Lincoln also sells a 20-ride book for \$66, which amounts to a 6 percent discount off the base fare. Grand Junction is the only other peer agency to discount paratransit tickets: it offers an 11-ride book for \$30, a 9 percent discount off the base fare. Table 2.7 summarizes the ticket books and passes offered to paratransit riders by ACT and its peers.

**Table 2.7
Paratransit Ticket Books and Passes at Peer Agencies**

City	Bulk Paratransit Fare Media	Price	Notes
Abilene, TX	10-ride book	\$25.00	No discount
Amarillo, TX	20-ride book	\$30.00	No discount
Grand Junction, CO	11-ride book	\$30.00	9% discount
Las Cruces, NM	—	—	—
Lincoln, NE	31-day pass	\$34.00	Break even after 9.7 rides
	20-ride book	\$66.00	6% discount
Lubbock, TX	10-ride book	\$35.00	No discount
	20-ride book	\$70.00	No discount
Midland, TX	—	—	—
Topeka, KS	10-ride book	\$40.00	No discount
Waco, TX	10-ride book	\$30.00	No discount

Fare Media Sales Options

In addition transit offices, many large transit agencies sell tickets through local grocery stores and other retail partners. Such programs are less common in midsize cities, but several of Amarillo’s peers have them (see table 2.8). Riders in Grand Junction, Las Cruces, Lincoln,

Midland-Odessa, and Topeka can purchase some or all fare products at local grocery stores. Additionally, riders in Lincoln can purchase passes via mail, at a local bank, or at one of several social services organizations; riders in Midland-Odessa can purchase passes at Midland College and Odessa College; and riders in Topeka can purchase passes online. Agencies in Waco, Lubbock, and Abilene are more similar to ACT—they have no local retail partners, and riders can only purchase fare products at transit offices.

**Table 2.8
Fare Media Sales Options in Addition to Transit Offices**

City	Outlets for Fare Sales
Abilene, TX	None
Amarillo, TX	None
Grand Junction, CO	Grocery stores
Las Cruces, NM	Grocery stores
Lincoln, NE	Grocery stores, local bank, social services, mail
Lubbock, TX	None
Midland-Odessa, TX	Grocery stores, local colleges
Topeka, KS	Grocery stores, online
Waco, TX	None

Discounts for K–12 Student

All of the agencies studied here, including Amarillo, provide reduced or free fares for primary- and secondary-school students. Amarillo, along with Waco, currently offers reduced fares to middle- and high-school students. Abilene and Las Cruces offer reduced fares, and Lubbock and Grand Junction offer semester passes, to all children eighteen and under, regardless of their school enrollment status. Lincoln offers free passes to students of select Lincoln middle schools and high schools. And Topeka offers free passes to all high-school students enrolled in Topeka public schools. Lincoln, Lubbock, Midland, and Waco also offer summer passes for students.

FARE COLLECTION METHODS

All of ACT’s peers collect fares through electronic registering fareboxes equipped with magnetic stripe technology. In addition, Lincoln introduced mobile ticketing last year and reports that it is becoming increasingly popular among riders. Grand Junction is considering implementing mobile ticketing to meet demand from riders, but it has not done so because its fareboxes are not compatible with mobile technology. Topeka also reports that it is considering procuring mobile ticketing but does not describe it as a high priority.

ACT’s peers collect ridership data with their fareboxes. Lincoln supplements this method with automatic passenger counters.

Recent Changes to Fare Structure

At least three of ACT's peers have raised their fare levels within the last ten years. In 2008, Midland-Odessa raised its base fare from \$1.00 to \$1.25, and in 2011 it raised its daily and monthly passes by \$1.00. Also in 2008, Lincoln raised its base fare from \$1.25 to \$1.75 and its 31-day pass from \$35 to \$45 dollars. Then, in 2012, it reduced the price of its 31-day pass by over half, to \$17. More recently, Abilene raised its base fare from \$1.25 to \$1.50 in 2016.

One notable trend among ACT's peers is the elimination of transfers. Both Midland-Odessa and Topeka have eliminated transfers within the last five years. Riders in those cities must now either pay two full fares or purchase a day-pass. Las Cruces is also planning to eliminate transfers later this year. When it does so, it will lower the cost of a day pass to two times the base fare. The agency says it is implementing this change to reduce disputes about transfers and to eliminate the cost of printing transfer cards.

PROGRAMS WITH LOCAL COLLEGES

Many of ACT's peers have arrangements with local colleges to provide free or discounted rides to students, run special routes or services, or both. Detailed below are programs in Grand Junction and Topeka, which primarily provide university students use of the regular transit system at special prices; programs in Las Cruces and Waco, which primarily exist to operate special campus routes; and programs in Lincoln and Lubbock, which provide both use of the regular transit system at special prices and special service. In general, agencies discussed here consider revenue from their college programs to be fare revenue.

Special Prices: Grand Junction and Topeka

In Grand Junction, students of Colorado Mesa University (CMU) are eligible to obtain semester-long passes for unlimited use of Grand Valley Transit's (GVT's) regular service. CMU then pays GVT \$5.00 per pass obtained plus \$4.00 per semester. (Thus, if a pass is obtained in the fall, CMU will pay the agency \$17.00 total—an initial \$5.00 plus \$4.00 each for the fall, spring, and summer terms. If a pass is obtained in the summer, CMU will pay only \$9.00—the initial \$5.00 plus an additional \$4.00 for that term.) CMU pays for these passes out of student fees. GVT's revenue from this program for the 2016–17 school year was approximately \$9,000. A senior transportation planner with GVT describes the program with CMU as only “somewhat” successful, reporting that about 10 percent of students obtain transit passes. She explains that parking is plentiful, and congestion minimal, around the university, giving students little incentive to use transit.

Topeka Metro provides free rides to students, faculty, and staff of Washburn University, who can simply swipe their campus IDs in the farebox to board the bus. Unlike at CMU, they do not have to obtain a special pass. Washburn pays Topeka Metro out of its general fund \$1.00 per person per semester, which amounts to around \$18,000 per school year. Topeka Metro considers the program successful.

Special Service: Las Cruces and Waco

RoadRUNNER Transit, in Las Cruces, has agreements with New Mexico State University (NMSU) and Doña Ana Community College (DACC). Until last year, the agency had a U-Pass with NMSU that was similar to Grand Junction's arrangement with CMU, but the university discontinued it owing to weak student demand. As in Grand Junction, abundant, cheap parking on campus means that students have little incentive to use transit. NMSU continues to pay RoadRUNNER about \$245,000 per year to operate three free routes entirely within its campus. These routes are paid for by the Associated Students of NMSU, which assesses a general fee on enrolled students.

RoadRUNNER does retain a U-Pass program with DACC, in which DACC issues U-Passes to students it determines eligible. DACC then pays RoadRUNNER for those passes at a discounted monthly rate, with greater discounts for greater numbers of passes. DACC does not pay for any campus routes, but it does pay RoadRUNNER about \$143,000 per year to support a regular bus route that serves its campus. The college obtains this funding from student transportation fees, which also support parking development.

Unlike many other agencies, which offer student discounts only to primary- and secondary-school students, RoadRUNNER offers half-fare prices to riders holding college IDs as well. The agency's transit administrator describes RoadRUNNER's application of this policy as "liberal," noting that that the agency will accept IDs from colleges, universities, technical colleges, and even online universities.

Waco Transit, meanwhile, operates five free routes and one late-night route for Baylor University. These routes are branded Baylor University Shuttle, and they exist primarily to connect student apartment complexes to campus. Waco Transit also offers free park-and-ride services to the public for Baylor football and basketball games. Waco Transit does not offer Baylor students any discounts on its regular service.

Special Prices and Service: Lincoln and Lubbock

StarTran, in Lincoln, has an agreement with the University of Nebraska-Lincoln (UNL) to provide free transit to all students, faculty, and staff. To board the bus, riders present a UNL transit pass, which the university mails to everyone at the beginning of the academic year. StarTran also operates four routes serving UNL's campus. For these services, UNL pays StarTran approximately \$2.9 million per year, which it collects from a transit fee built into tuition. StarTran considers the program with UNL to be very successful. A transit planner with the agency reports that UNL ridership accounts for about 25 percent of overall ridership and that it is growing at a faster rate than overall ridership.

Citibus, in Lubbock, provides free rides across its system to students of Texas Tech University (TTU), who board by flashing their campus IDs. Citibus operates a number of services for TTU, including seven routes linking student apartment complexes to campus; three campus circulator routes; several late-night routes connecting downtown Lubbock, entertainment areas, and apartment complexes; and a late-night demand-response service. In addition, it runs charters for events such as football games. For these services, TTU pays Citibus approximately \$3.6–\$3.7 million per year. The agreement is technically administered by the TTU Student Government Association, which assesses a transit fee on students. Campus service is contracted by service hour, so the exact amount of money can vary from year to year. Citibus reports that the program is successful and essential to the agency. The revenue from the program subsidizes

its operations. Note that for students of universities other than TTU, Lubbock also offers a \$52.50 semester pass with unlimited rides.

SUMMARY

The following summarizes some of the key points from this peer review:

- ACT falls in the middle of its peer group in terms of service area population, service area size, and annual operating costs.
- ACT falls below its peers in terms of ridership, fare recovery, operating cost per revenue hour, and operating cost per passenger trip.
- ACT's \$0.75 base fare is half that of the average base fare of its peer group.
- ACT is alone in having neither a daily nor a monthly pass.
- Daily passes at peer agencies are commonly priced at two times base fare, monthly passes at thirty times.
- Many peer agencies offer riders the option to buy monthly passes at retail partners such as grocery stores.
- All peer agencies collect fares and ridership data using electronic registering fareboxes.
- Some agencies have recently, or will soon, eliminate transfers in favor of day passes.
- Many peer agencies offer some services to local colleges, including operating shuttles and offering free or discounted rides to students.
- There are three basic models of college program: free rides, extra service, and both.
- The success of college programs depends in part on the availability of parking on campus.

III: FARE SCENARIOS

INTRODUCTION

Based on fare policies at ACT and its peer agencies, as well as the goals of this fare study, three fare scenarios with different fare structures, pricing levels, and payment options were developed for evaluation.

Scenario 1 retains ACT's current fare structure, slightly increases the base fare, and introduces discounted tickets. Scenario 2 slightly increases the base fare, eliminates paper transfers in favor of passes, and introduces a lightly discounted monthly pass. Finally, scenario 3 steeply increases the base fare, eliminates paper transfers in favor of passes, and introduces a more heavily discounted monthly pass.

Some elements of these three scenarios cannot be mixed and matched. For example, ACT should either retain paper transfers or introduce a day pass. Other elements, however, such as the college program proposed in scenario 2 or the evening service proposed in scenario 3, could equally well be combined with other scenarios. And while some additions could be made to ACT's fare payment options, the agency has stated that its current fare collection equipment will remain in place under any scenario. Therefore, fare structure options must work within the constraints of the current equipment.

SCENARIO 1: IMPROVEMENTS TO CURRENT STRUCTURE

Scenario 1 retains ACT's current fare structure, slightly increases the base fare, offers discounts for bulk ticket sales, and expands student-fare eligibility. The following elements define this scenario:

Fixed-Route Fare Structure

- Increase base fare to \$1.00
- Increase student fare to \$0.80
- Increase senior/disabled/Medicare fare to \$0.50.
- Retain current paper transfer system
- Retain tickets, but sell them at a 10 percent discount in books of 10, 20, and 30 tickets. For example, a 10-ticket full-fare fixed-route book would cost \$9.00, and a 10-ticket student-fare fixed-route book would cost \$7.20.

On-Call Service Fare Structure

- Charge the fixed-route fare for on-call service
- Apply all fixed-route discount fares and ticket discounts to the on-call service

Spec-Trans Fare Structure

- Increase fare to \$2.00
- Eliminate student fare
- Retain current tickets but sell them at a 10 percent discount in books of 10, 20, and 30 tickets. For example, a 10-ticket Spec-Trans book would cost \$18.00.

- Maintain current geographic boundaries of the program (all of the City of Amarillo west of Lakeside Drive plus any additional areas within ¾ mile of fixed routes)

College Student Program

- Expand eligibility of student fare to college students
- Partner with local colleges by delegating sales of student ticket books and confirmation of enrollment status to participating colleges

**Table 3.1
Scenario 1: Fare Structure**

Fare Type	Fixed-Route Price	On-Call Price	Spec-Trans Price
Full	\$1.00	\$1.00	\$2.00
K-12 Student	\$0.80	\$0.80	\$2.00
College Student	\$0.80	\$0.80	\$2.00
Senior/Disabled/Medicare	\$0.50	\$0.50	\$2.00
Children under 5	Free	Free	Free
Paper Transfers	Yes	Yes	No
Tickets	10% Discount	10% Discount	10% Discount

SCENARIO 2: TIME PERIOD PASSES

Scenario 2 eliminates tickets and paper transfers, rewards regular riders by offering them discounted monthly passes, and introduces a new fare level for on-call service.

Fixed-Route Fare Structure

- Increase base fare to \$1.00
- Increase senior/disabled/Medicare fare to \$0.50
- Eliminate student fare category
- Eliminate paper transfers. If a cash passenger transfers to another bus, he or she must pay a second full fare.
- Eliminate tickets
- Introduce day pass priced at \$2.00
- Introduce monthly pass priced at \$30.00 (for a break-even number of thirty rides)

On-Call Service Fare Structure

- Charge \$2.00 per trip
- Charge \$1.00 per trip for senior/disabled/Medicare riders
- Introduce day pass priced at \$4.00, which could be used on on-call or fixed routes
- Introduce monthly pass priced at \$60.00 (for a break-even number of thirty rides), which could be used on on-call or fixed routes

Spec-Trans Fare Structure

- Increase fare to \$2.00
- Eliminate student fare
- Continue using tickets, and sell them at a 10 percent discount in books of 10, 20, and 30 tickets. For example, a 10-ticket Spec-Trans book would cost \$18.00
- Maintain service within the program’s current geographic boundaries (all of City of Amarillo west of Lakeside Drive plus any additional areas within ¾ mile of fixed routes)
- Charge \$4.00 for trips not required by the Americans with Disabilities Act (those outside of ¾ mile along the fixed routes)
- Offer ticket books at a 10 percent discount for non-ADA trips

College Student Program

- Offer a program to local college students offering them semester passes, similar to Topeka Metro’s arrangement with Washburn University
- In such a program, ACT would negotiate for participating colleges to pay \$1.00 per semester for passes for all of their students. Funding could come from either general funds or designated student fees.
- ACT would then allow college students to board buses for no fare with their student ID cards or with semester passes, depending on ACT’s preference

**Table 3.2
Scenario 2: Fare Structure**

Fare Type	Fixed-Route Price	On-Call Price	Spec-Trans Price
Full	\$1.00	\$2.00	\$2.00 in regular service area \$4.00 in extended service area
Senior/Disabled/Medicare	\$0.50	\$1.00	\$2.00/\$4.00
College student	Free	Free	\$2.00/\$4.00
Under 5	Free	Free	Free
Paper Transfers	No	No	No
Tickets	10% Discount	10% Discount	10% Discount
Day Pass	\$2.00	\$4.00	No
Monthly Pass	\$30.00	\$60.00	No

SCENARIO 3: PASSES AND DEEPER DISCOUNTS

Scenario 3 eliminates tickets and paper transfers in order to remove paper fare media from fareboxes, discourages the use of cash by applying deeper discounts to monthly passes, introduces a new fare level for on-call service, and proposes a pilot evening service aimed at local college students.

Fixed-Route Fare Structure

- Increase base fare to \$1.50
- Increase senior/disabled/Medicare fare to \$0.75
- Eliminate student fare category
- Eliminate paper transfers. If a cash passenger transfers to another bus, he or she must pay a second full fare.
- Eliminate tickets
- Introduce day pass priced at \$3.00
- Introduce monthly pass priced at \$30.00 (for a break-even number of twenty rides)

On-Call Service Fare Structure

- Charge \$3.00 per trip
- Charge \$1.50 per trip for senior/disabled/Medicare riders
- Introduce day pass priced at \$6.00, which could be used on on-call or fixed routes
- Introduce monthly pass at \$60.00 (for a break-even number of twenty rides), which could be used on on-call or fixed routes

Spec-Trans Fare Structure

- Increase fare to \$3.00
- Eliminate student fare
- Eliminate cash
- Continue using tickets, and sell them at a 20 percent discount in books of 10, 20, and 30 tickets. For example, a 10-ticket Spec-Trans book would sell for \$24.00
- Maintain service within the program's current geographic boundaries of the program (all of City of Amarillo west of Lakeside Drive plus any additional areas within $\frac{3}{4}$ mile of fixed routes once the new route structure is launched)
- Charge \$6.00 for trips not required by ADA (those outside of $\frac{3}{4}$ mile along the fixed routes)
- Offer ticket books at a 20 percent discount for non-ADA trips

Pilot On-Call Evening Service

- Introduce a pilot on-call evening service, aimed at local college students but open to anyone, which would accept advance reservations as well as on-demand trips, as space allows. ACT is considering offering such a service but does not currently have the funding for it.
- Offer the service between the hours of 5:00 p.m. and 10:30 p.m. Monday through Thursday

- Allow local college students to use the service for free with their student IDs or semester passes, depending on ACT’s preference
- Charge the general public for the service according to the same fare structure as ACT’s new on-call route in the medical center—\$3.00 for a base fare, \$1.50 for a senior fare, \$6.00 for a day pass, and \$60.00 for a monthly pass
- Negotiate for participating colleges to pay for the portion of this service attributable to their students. ACT estimates that an on-call evening service would cost up to about \$190,000 annually, depending on demand. So, if 50 percent of riders in a given year were, for example, Amarillo College students, the college would pay ACT \$95,000.

Additional College Benefits

- Allow local college students to use fixed-route service for no fare with their student ID cards or with a semester pass, depending on ACTs preference.
- Do not charge participating colleges for these passes—the colleges will already be contributing financially through the evening service payments discussed above.

**Table 3.3
Scenario 3: Fare Structure**

Fare Type	Fixed-Route Price	On-Call Price	Spec-Trans Price
Full	\$1.50	\$3.00	\$3.00 in regular service area \$6.00 in extended service area
Senior/Disabled/Medicare	\$0.75	\$1.50	\$3.00
College Student	Free	Free for evening service	\$3.00
Under 5	Free	Free	Free
Paper Transfers	No	No	No
Tickets	No	No	20% discount
Day Pass	\$3.00	\$6.00	No
Monthly Pass	\$30.00	\$60.00	No

SUMMARY

The following summarizes the characteristics of each scenario and ACT’s options for expanding college service and updating its fare media policies.

- All scenarios aim to address the goals of this study: to improve fare recovery, to increase ridership, to improve cash handling, and to identify innovative solutions for fare collection and payment options
- Scenario 1 is mostly closely aligned with ACT’s current policies, retaining the current fare structure while slightly raising fares and offering discounts on tickets
- Scenario 2 makes a stronger break with current practice, eliminating paper transfers in favor of passes and offering discounts on both ticket books and passes

- Scenario 3 differs the most from current practice, doubling the base fare, discouraging cash use on fixed-route service through heavy discounting of passes, and eliminating cash use on paratransit
- ACT has several options to serve local college students depending on what it can negotiate with the colleges, ranging from offering discounted passes to college students to operating an on-call evening service aimed at college students. These options are potentially interchangeable among the three scenarios

IV: FARE ELASTICITY MODEL

INTRODUCTION

In order to estimate how changes in fare level and fare structure would affect ridership and revenue at ACT, a spreadsheet-based elasticity model was developed. This spreadsheet was developed specifically for ACT and reflects its service types and rider profile. The model uses the concept of fare elasticity—the ratio of percentage change in ridership to the percentage change in fares—to estimate how transit riders respond to fare changes. This chapter describes the structure of this model as well as the sources of the data and elasticities used, and chapter 5 presents the results of the evaluation.

MODEL STRUCTURE

The ACT Fare Elasticity Model was developed to estimate the effect on ridership and revenue of the various proposed changes outlined in scenarios 1, 2, and 3 in chapter 3. And in addition to addressing overall ridership, the model estimates the effect of fare policy changes on different service types (e.g., fixed route, on-call, Spec-Trans ADA service, Spec-Trans non-ADA service), customer types (e.g., adult, senior/disabled, K–12 student, college student), and payment types (e.g., cash, passes, tickets). The elasticities applied to each market are drawn from industry research. Ridership changes are estimated by multiplying percentage changes in specific fares by the appropriate fare elasticity. Revenue changes are then calculated from the ridership changes.

ELASTICITIES

The elasticities used in the ACT Fare Elasticity Model were based on a literature review and on experience at other transit agencies.

Literature Review

When no other data are available for estimating the effect of fare changes on ridership, the transit industry has relied on the Simpson-Curtin Rule, which recommends fare elasticity of -0.33 . This means that for every 10 percent increase in fares, ridership falls by 3.3 percent.

In August 1991, The American Public Transit Association (APTA) published a study that applied an advanced econometric model to data from fifty-two transit agencies.⁴ The study results were quite robust and generally found higher fare elasticities than implied by the Simpson-Curtin Rule. Key findings include:

- Average elasticity across all systems was -0.40
- Off-peak riders are more price-sensitive than peak riders

⁴ American Public Transit Association, “Fare Elasticity and its Application to Forecasting Demand” (Washington, D.C.: 1991).

- Riders in large cities (urbanized areas greater than one million people) are less price-sensitive than those in small cities (urbanized areas under one million people). Large cities have an average fare elasticity of -0.36 , while small cities have an average fare elasticity of -0.43
- Nevertheless, the study found wide variation among small cities. Sample elasticities for cities then similar in size to Amarillo include:
 - Binghamton, NY (population 161,000): -0.70
 - South Daytona, FL (population 171,000): -0.42
 - Lincoln, NE (population 174,000): -0.5
 - Eugene, OR (population 182,000): -0.18
 - Madison, WI (population 214,000): -0.40
 - South Bend, IN (population 226,000): -0.26

Thirteen years later, in 2004, Todd Litman, of the Victoria Transport Policy Institute summarized several other studies of fare elasticity.⁵ Key findings from this source include:

- Non-commuters tend to be more price-sensitive than commuters, resulting in off-peak elasticities of 1.5 to 2 times higher than peak-period elasticities (because peak-period riders are mainly commuters)
- Large cities tend to have lower price elasticities than suburbs and smaller cities, because they have higher populations of transit-dependent users
- Transit fares, service quality (e.g., speed, frequency, coverage, and comfort), and parking pricing tend to have the greatest impact on transit ridership. Elasticities appear to increase somewhat as fare levels increase (i.e., when the starting point of a fare increase is relatively high).
- Fare elasticity is usually ranges from -0.2 to -0.5 range in the short run (first year), and increases to -0.6 to -0.9 over the long run (five to ten years). Elasticity increases over time because consumers gradually find more options.
- Demand is more price-sensitive at higher fare levels

A 2007 study by the Transportation Research Board on elasticities in paratransit looked at various factors affecting demand for ADA service, including population, poverty levels, and fares.⁶ The study found that ADA paratransit demand is highly sensitive to fares, possibly even more so than general public transit demand. After applying an econometric model to data from 28 cities, the study concluded that ADA service has a base fare elasticity of -0.77 .

One other study of interest, by Georges Bresson et al. (2003), used data from British and French cities and a dynamic model to calculate transit price elasticities.⁷ Like other researchers,

⁵ Todd Litman, "Transit Price Elasticities and Cross-Elasticities," *Journal of Public Transportation* 7, no. 2 (2004): 37–58.

⁶ Transportation Research Board, "Improving ADA Complementary Paratransit Demand Estimation," TCRP Report 119 (Washington, D.C.: 2007).

⁷ Georges Bresson et al., "The Main Determinants of the Demand for Public Transport: A Comparative Analysis of England and France Using Shrinkage Estimators," *Transportation Research A* 37, no. 7 (2003): 605–627.

the authors found that transit ridership is relatively price sensitive, with fare elasticities of -0.3 to -0.5 in the short-run, and -0.6 to -0.7 in the long run. But they also found that transit ridership is sensitive to service quality, so fare increases may be offset by improved service. This fact may be particularly relevant to ACT given that the any fare increase will follow its planned route restructuring, which should improve travel times and access for many ACT riders.

In sum, these studies allow for the following conclusions regarding user type, trip type, mode, geography, and fare level:

- *User type*: Transit-dependent riders (often low-income, disabled, students, and seniors) are generally less price-sensitive than those who have the option of using an automobile for the trip.
- *Trip type*: Noncommuters tend to be one to two times as price-sensitive as commuters.
- *Mode*: Bus service generally has substantially higher fare elasticity than rapid rail and slightly higher fare elasticity than commuter rail. Demand for ADA paratransit service, meanwhile, is highly sensitive to fare changes.
- *Geography*: Large cities tend to see lower price elasticities than smaller cities, mostly because the ridership tends to be more transit-dependent.
- *Fare Level*: When the starting point of a fare increase is relatively low, the elasticity is relatively low.

Fare Elasticities for ACT Model

Based on the literature, the types of service provided by ACT and the department's current low fare levels, the following preliminary elasticities were chosen for the model:

- Fixed-Route: -0.40
- On-Call: -0.40
- Spec-Trans, ADA Service: -0.60
- Spec-Trans, Non-ADA Service: -0.60

Note that in cases where riders do not pay for transit service directly, such as the college programs in scenarios 2 and 3, fare elasticity is zero, because riders do not see a change in fares either as they ride or in the way that they pay for transit. Note also that elasticity models handle smaller changes in fares better than large ones. Therefore, change in ridership for scenarios with larger fare changes is calculated in multiple steps rather than all at once. Despite being apparently unrepresentative of a sudden fare change, this method of calculation in fact better mimics the arced shape of a true elasticity and yields more accurate results.

BASE DATA

Actual ridership and revenue data from FY 2017—ACT’s last complete fiscal year—were used for the base data for the model.

Rider Survey

Some of the data needed to segment ridership by market were not available from current sources. Therefore, a five-question verbal survey of fixed-route riders was conducted over three days in June 2018. The survey covered one inbound and one outbound trip on all eight fixed routes operating at the time. Additional riders were surveyed at ACT’s downtown transfer center. In total, seventy-eight surveys were completed, for a statistical accuracy of +/-10 percent at the 90 percent confidence level. The survey yielded the following results:

- *Payment Method:* 70.5 percent of riders pay with cash versus 29.5 percent with tickets.
- *Fare Type:* 42.3 percent of riders pay the full fare, 3.8 percent the student fare, and 53.6 percent the half fare.
- *Frequency of Transit Use:* 1.3 percent of passengers ride the bus less than once per week, 19.2 percent ride one to two days per week, 29.5 percent ride three to four days per week, and 50 percent ride five or more days per week.
- *Transfer Activity:* 79.5 percent of trips require a transfer versus 20.5 percent that do not.
- *Amarillo College Student Use:* 11.5 percent of riders are currently Amarillo College students.

On-Call Service

ACT recently restructured its routes, converting much of the former Route 8 into Route 13, an on-call route. When the model was developed, ridership data for Route 13 was not available, so data from a portion of Route 8 was used as the base data for on-call service. The elasticity model assumes that two-thirds of the ridership on the former Route 8 will be served by the new Route 13, or about 13 percent of current fixed-route ridership.

Scenario 3 includes an additional on-call service: an evening service oriented toward Amarillo College students. Since this service does not yet exist, ridership of eight passengers per hour is used as the base on which to estimate the impacts of any fare changes that affect the service.

Spec-Trans Service

For this model, Spec-Trans service was split into two services: ADA service and non-ADA service. Non-ADA service comprises those trips that begin or end outside of the service area required by ADA, i.e., $\frac{3}{4}$ miles on all sides of fixed routes. Based on data provided by ACT, 76.5 percent of ACT’s Spec-Trans ridership and revenue were allocated to the ADA service and 23.5 percent to the non-ADA service.

V: EVALUATION OF FARE SCENARIOS

INTRODUCTION

As outlined in chapter 1, ACT's primary goals for this Transit Fare Study are to:

- Streamline and improve cash handling and ridership data collection
- Identify innovative solutions for fare collection and payment options
- Consider fare structure options that can increase ridership
- Improve its fare recovery ratio

In order to determine whether and how the three scenarios described in chapter 3 address these goals, clearly demarcated criteria for assessment are needed. Across the industry, fare policies are often evaluated for their effects on:

- Ridership
- Revenue
- Recovery
- Equity
- Simplicity
- Efficiency

This chapter assesses the three scenarios for efficiency in order to address ACT's first goal; for simplicity and efficiency to address its second; for ridership to address its third; and for revenue and recovery to address its fourth. The final criterion, equity, does not directly address any one of the study goals, but it should always be considered by a public agency, which must balance the needs of various constituencies.

Fare policy strategies aim to strike a balance among sometimes competing considerations. For example, some policies that enhance ridership may decrease revenue and fare recovery. Likewise, some policies that enhance equity may conflict with the need for simplicity. Operating costs can also be affected. Some of the scenarios evaluated, for example, reduce ridership on demand-response service, resulting in fewer hours of service and, therefore, reduced operating costs. Others, such as the on-call evening service outlined in scenario 3, require additional hours of service and, therefore, increased operating costs. Ultimately, creating a balance among these considerations—for example, the trade-off between ridership and revenue—will require policy decisions by ACT and the Amarillo City Council. To support understanding of the scenario evaluations in this chapter, the following section describes each criterion and how it is relevant to ACT.

CRITERIA FOR EVALUATION

Ridership

ACT would like to increase its ridership by changing its fare structure, which requires understanding how pricing affects ridership. Recall from chapter 4 that the degree of ridership change from a given fare change is called the fare elasticity. Overall, the transit market is inelastic (where average fare elasticity is less than -1.0), which means that raising prices will increase total revenue despite lost ridership. In other words, when fares go up, the revenue lost from declining ridership is smaller than the revenue gained on remaining riders. Conversely, when fares go down, the revenue gained from increasing ridership is smaller than the revenue lost on remaining riders.

All three scenarios include some form of fare increase, which means that all scenarios show some ridership loss. Yet, because the transit market is inelastic, decreasing fares is generally not a cost-effective way to increase ridership. The lost revenue is simply too large to offset the added revenue from new riders. The best scenarios and fare change components will result in the least ridership loss for the most improvement in the other five criteria.

Revenue

As demonstrated in chapter 1, ACT has not focused on generating revenue for many years. ACT's revenues are low primarily because of its low fares, which are the lowest among its peer group. Indeed, as table 5.1 shows, ACT's adult base fare of \$0.75 is less than half the average of base fares at peer agencies.

Table 5.1
Base Bus Fare at Peer Agencies, 2018

City	Base Fare
Abilene, TX	\$1.50
Grand Junction, CO	\$1.50
Las Cruces, NM	\$1.00
Lincoln, NE	\$1.75
Lubbock, TX	\$1.75
Midland, TX	\$1.25
Topeka, KS	\$2.00
Waco, TX	\$1.50
Peer Average	\$1.53
Amarillo, TX	\$0.75

Fare evasion could be reducing revenues as well. Likely points of fare evasion on the current system include:

- *Transfers*: operators may be accepting invalid transfers.
- *Half-price fare abuse*: Over half of ACT's riders pay half-price fares. This proportion is very high compared with most other transit agencies, which may indicate abuse of the half-price fares. One documented issue is that, until recently, operators were not asking for required ACT-issued reduced-fare identification cards when riders used half-price tickets.

Recovery

Some transit agencies set goals for fare recovery to ensure the financial stability of the system. ACT has no such goal, but it recovers only 4.1 percent of its operating expenses from fares, compared with an average of 19 percent and a median of 17.7 percent at peer agencies.

Fare recovery has two components: fare revenue and operating costs. Fare revenue must rise in tandem with operating costs in order to keep fare recovery constant, which requires regular fare increases. Increasing fare recovery may require even more aggressive changes in fare policy. ACT has not raised its fares in over twenty years, and its operating costs have increased steadily over the same period. The result has been declining fare recovery.

Equity

Equity can be defined from different perspectives. For example, one narrow definition of an equitable fare structure is one in which riders pay in proportion to the benefits they receive. Achieving equity could be accomplished, for example, by adopting a fare structure that equalizes fare recovery across service types. But such a fare structure necessarily ignores the different abilities of different populations to afford transit services. Defining equity according to ability to pay would result in a very different fare structure. This study will evaluate equity across service types, across customer types, and between transit users and non-users.

Service Types

One way of evaluating the equity of a system is by comparing the fares paid for different service types. An equitable system with regard to service type would be one in which fares are priced according to the value of the service received. Attributes used to establish service equity include distance, speed, comfort, and convenience. For example, charging higher fares for demand-response service could be considered equitable because riders receive door-to-door service and the cost to the agency of providing the service is higher.

Assessing the fare recovery of different services types, such as fixed-route and demand-response, is one means of evaluating the equity of a system. If higher-cost services have lower fare recovery, the system could be inequitable. Unfortunately, ACT does not calculate fare recovery separately for its fixed-route and Spec-Trans services. Although revenues for the two services are compiled separately, costs are not allocated between the two in such a way as to allow for an accurate assessment of fare recovery by service type.

Achieving parity in fare recovery across all service types may be difficult and is perhaps not desirable. But comparing the cost of providing each service could provide some guidance on where inequities in fare levels may exist.

Customer Types

Another way of evaluating equity is by customer type. For example, customers can be distinguished by the price they pay for service. Federal law requires that half-price fares for fixed-route transportation be given to seniors, the disabled, and Medicare cardholders during off-peak travel periods. ACT goes beyond this legal requirement by offering the half-price fares for all hours of service. The Americans with Disabilities Act (ADA), meanwhile requires that complementary paratransit service cost no more than twice the base fare paid by non-disabled passengers on a fixed route, a standard to which ACT adheres.

Customers can also be distinguished by fare payment method, which may include cash, tickets, and passes. Many transit agencies try to encourage passengers to buy prepaid fare media such as passes and tickets because:

- Use of prepaid fare media reduces the time it takes for passengers to board the bus (no searching for change; less frequent operator-customer disputes)
- Purchase of prepaid fare media encourages more frequent use of the system
- Agencies receive revenue in advance of trips
- Cost of collecting, counting, and processing cash is reduced
- Opportunity for theft of cash is reduced

The three scenarios under consideration all offer some type of discount for the purchase of tickets and passes, which is not a feature of ACT's current system. There are many advantages to introducing and encouraging the use of prepaid fare media, but the practice can raise equity issues. Because they require upfront payment, discounted tickets and passes may favor those who are most able to pay. Social equity implies that fares should be priced according to need and ability to pay. As a public service agency, ACT does have some obligation to provide lower fares to transit-dependent patrons: the question is, how much of a discount should be provided and to whom? There is no simple answer, but keep in mind that any discount provided to one group—however needy—must be ultimately compensated for by charging higher fares to another group.

Riders versus Non-Riders

A final way to examine the equity of a system is to look at the balance in financial contributions between transit riders and non-riders. In a partially tax-supported system, riders pay for a portion of service and taxpayers cover the remainder. The question here is, how much should riders pay? And how can this type of equity be assessed?

Fare recovery can help measure this type of equity, in this case by measuring the relative contribution of riders. If fare recovery is low, then riders are contributing comparatively little to the system and taxpayers are picking up the rest. As seen above, ACT's fare recovery is very low, indicating a possible source of inequity between riders and non-riders in Amarillo.

Simplicity

ACT's current fare structure is simple in most ways—there are very few ways to pay fares and very few discounts. This makes for a system that, while not always convenient for customers, is simple to administer. Transfers are the one complication in ACT's system. Issuing, handling, and controlling paper transfers is a burdensome process for both the department and its operators and provides opportunities for fare evasion. In addition, riders may not fully understand when transfers can and cannot be used.

Efficiency

Costs associated with the collection and processing of revenue include the capital cost of fareboxes, the cost of printing tickets and transfers, and the cost of counting cash fares. The simplicity of the current fare structure means that the costs of administering the system are quite low.

Adding new fare media such as passes would increase the cost of printing and sales. And as the number of fare levels increases, whether by customer type or by service type, the number of fare media needed can grow very quickly. In this study, the negative impact on administrative efficiency that additional fare media can bring will be weighed against potential positive impacts on the other five evaluation criteria.

EVALUATION

Evaluations of the three scenarios based on the above six criteria follow. Each evaluation contains four parts:

- A review of the component fare changes
- An evaluation matrix in which each component is evaluated against each criterion to determine whether it has a positive, neutral, or negative impact. The impacts for the fare change components are then summed according to the following system: positive impacts equal 1 point, neutral impacts equal zero points, and negative impacts equal -1 point. Keep in mind that the summation assumes that all criteria are weighted equally. If some criteria were deemed more important than others, the score for each fare change component would change.
- An explanation of the evaluations presented in the matrix, as needed.
- Estimated changes in ridership and revenue produced by the ACT elasticity model.

Note that the impact scores found at the end of each row in the evaluation matrices are not summed, for two reasons. First, all fare change components are not equal in importance or impact. Summing the impact of the components would imply that each is weighted equally, which is not valid. Second, the ultimate goal of these evaluations is not to pick one scenario of the three but to determine which fare change components make the most sense.

SCENARIO 1: IMPROVEMENTS TO CURRENT STRUCTURE

Component Fare Changes

For scenario 1, the following component fare changes are evaluated separately:

Fare Increases

- Increase fixed-route and on-call base fares to \$1.00 (with concurrent increases in the student fare to \$0.80 and the senior/disabled/Medicare fare to \$0.50)
- Increase Spec-Trans base fare to \$2.00

Prepaid Fare Instruments

- Sell tickets on all services at a 10 percent discount in books of 10, 20, and 30

Students

- Eliminate Spec-Trans student fare
- Expand eligibility of fixed-route/on-call student fare to college students

Table 5.2
Scenario 1: Evaluation

Fare Change/ Criterion	Ridership	Revenue	Recovery	Equity	Simplicity	Efficiency	Total
Increase fixed-route/ on-call base fare to \$1.00	Negative	Positive	Positive	Positive	Neutral	Neutral	+2
Increase Spec-Trans base fare to \$2.00	Negative	Positive	Positive	Positive	Neutral	Neutral	+2
Implement 10% discounts on all tickets	Positive	Negative	Negative	Neutral	Neutral	Neutral	-1
Eliminate Spec-Trans student fare	Neutral	Neutral	Neutral	Negative	Positive	Positive	+1
Offer student fare on fixed-route/ on-call services to college students	Positive	Negative	Negative	Positive	Neutral	Neutral	0

Scenario 1: Explanation of Criteria Evaluation

The values assigned in table 5.2 are explained as needed below:

Ridership

- In general, raising fares will reduce ridership and lowering fares will promote ridership. Because fares rise in scenario 1, ridership falls.
- The change in ridership from eliminating the Spec-Trans student fare is so small that it is considered a neutral impact here.

Revenue and Recovery

- In general, raising fares will increase revenue and recovery and lowering fares will decrease revenue and recovery. Because fares rise in scenario 1, so do revenue and recovery.
- The change in revenue from eliminating the Spec-Trans student fare is so small that it is considered a neutral impact here.

Equity

- Increasing base fares is considered to have a positive impact on equity because it helps achieve greater equity between riders, who pay to ride, and non-riders, who support ACT through taxes. In other words, riders pay closer to their fair share.
- Offering ticket discounts is considered to have a neutral on equity—with the positive impact of rewarding passengers for paying for the service ahead of time offset by the potential negative impact of the poorest passengers missing out on the discount because they cannot afford the upfront cost of the ticket booklets.
- Eliminating the student fare on Spec-Trans may be considered inequitable for the very few students who use the service.
- Expanding the student fare to college students may promote equity because it offers a discount to a group with little disposable income.

Simplicity and Efficiency

- Overall, the component fare changes evaluated do not greatly simplify or complicate the system for riders or operators, nor do they increase the cost of administering the system.
- The exception is the elimination of the Spec-Trans student fare. This change simplifies the system—because all Spec-Trans patrons pay the same fare—and reduces the number of types of tickets that must be printed and sold.

Table 5.3
Scenario 1: Ridership and Revenue Changes

Service Type		Change in Annual Boardings	% Change in Annual Boardings	Change in Annual Revenue	% Change in Annual Revenue
Fixed Route/ On-Call	Fixed-Route	-32,428	-11.4%	+\$9,968	+10.1%
	On-Call	-4,846	-11.4%	+\$1,489	+10.1%
	Subtotal: Fixed-Route and On-Call	-37,273	-11.4%	+\$11,457	+10.1%
Spec-Trans	ADA Spec-Trans	-6,608	-17.0%	+\$3,338	+5.8%
	Non-ADA Spec-Trans	-2,030	-17.0%	+\$1,026	+5.8%
	Subtotal: All Spec-Trans	-8,638	-17.0%	+\$4,364	+5.8%
Total System		-45,911	-12.1%	+\$15,821	+8.3%

SCENARIO 2: TIME PERIOD PASSES

Scenario 2 includes the following fare changes or components:

Fare Increases

- Increase fixed-route base fare to \$1.00 (with concurrent increase in the senior/disabled/Medicare fare to \$0.50)
- Increase on-call base fare to \$2.00 (with concurrent increase in the senior/disabled/Medicare fare to \$1.00)
- Increase ADA Spec-Trans base fare to \$2.00
- Increase non-ADA Spec-Trans fare to \$4.00 for trips not required by ADA (those outside of $\frac{3}{4}$ mile along the fixed routes)

Prepaid Fare Instruments

- Introduce day pass on fixed-route and on-call services (priced at \$2.00 and \$4.00) and eliminate paper transfers
- Introduce monthly pass on fixed-route and on-call services (priced at \$30.00 and \$60.00) and eliminate tickets
- Sell tickets for Spec-Trans services at a 10-percent discount in books of 10, 20, and 30

Students

- Eliminate student fare on all services
- Allow college students to board buses for no fare with their student ID cards or with semester passes. In such a program, participating colleges would pay ACT \$1.00 per semester for passes for all of their students.

Table 5.4
Scenario 2: Evaluation

Fare Change/Criterion	Ridership	Revenue	Recovery	Equity	Simplicity	Efficiency	Total
Increase fixed-route base fare to \$1.00	Negative	Positive	Positive	Positive	Neutral	Neutral	+2
Increase on-call base fare to \$2.00	Negative	Positive	Positive	Neutral	Negative	Negative	-1
Increase ADA Spec-Trans base fare to \$2.00	Negative	Positive	Positive	Positive	Neutral	Neutral	+2
Increase non-ADA Spec-Trans base fare to \$4.00	Negative	Negative	Positive	Positive	Neutral	Negative	-1
Introduce fixed-route/ on-call day pass and eliminate paper transfers	Positive	Neutral	Neutral	Neutral	Positive	Positive	+3
Introduce fixed-route/on-call monthly pass and eliminate tickets	Positive	Neutral	Neutral	Neutral	Positive	Positive	+3
Implement 10% discounts on all Spec-Trans tickets	Positive	Negative	Negative	Neutral	Neutral	Neutral	-1
Eliminate student fare on all services	Neutral	Neutral	Neutral	Negative	Positive	Positive	+1
Introduce college student program in partnership with colleges	Positive	Neutral	Neutral	Positive	Positive	Neutral	+3

Scenario 2: Explanation of Criteria Evaluation

The values assigned in table 5.4 are explained as needed below:

Ridership

- As in scenario 1, raising fares has a negative impact on ridership, but ridership of on-call and non-ADA Spec-Trans services will decline more sharply than that of fixed-route and ADA Spec-Trans services in scenario 2 because the fare increases on those services are larger.
- The change in ridership from eliminating the student fare is so small that it is considered a neutral impact here.
- Introducing day passes and monthly passes has a positive impact on ridership because it makes all rides over the breakeven point free to riders, encouraging them to ride more.
- Similarly, partnering with local colleges to make passes available to college students will increase college student ridership. All students will have passes, encouraging greater use of the system, and students who were already riders will continue to ride.

Revenue

- Because transit prices are generally inelastic, raising the base fares of fixed-route, on-call, and ADA Spec-Trans services has a positive effect on revenue, because the increase in fare receipts outweighs the decrease in ridership. The fare increase on non-ADA Spec-Trans trips is so large, however, that the increased revenue it brings does not compensate for decreased ridership, yielding a negative impact.
- The revenue gained from the sale of day and monthly passes is about the same as the cash and ticket sales they would replace, yielding a neutral impact.
- The change in revenue from eliminating the student fare is so small that it is considered a neutral impact here.
- The estimated revenue from the college program is about the same as existing college student fares and is assessed as a neutral impact. Note, however, that this estimate of revenue is contingent on agreement from participating colleges.

Recovery

- In general, fare recovery increases as fare revenue increases, and fare recovery declines as fare revenue declines. Thus, raising the base fare on fixed-route, on-call, and ADA Spec-Trans services produces a positive impact on recovery because it produces a positive impact on revenue.
- Raising the base fare for non-ADA Spec-Trans service, however, proves an exception to the rule. Because this fare change reduces ridership so much, ACT would be able to reduce operating costs as it operates fewer long trips. So, despite having a negative impact on revenue, raising non-ADA Spec-Trans fares would in fact have a positive impact on recovery.

Equity

- Increasing base fares on fixed-route and ADA Spec-Trans services is considered to have a positive impact on equity because it achieves greater equity between riders, who pay to ride, and non-riders, who support ACT through taxes. In other words, riders pay closer to their fair share.
- Charging double the fixed-route fare for on-call service is considered to have a neutral impact on equity. The positive impact of riders paying more of their share is offset by the negative impact of charging riders double for what would be very short trips.
- Charging double the ADA Spec-Trans fare for non-ADA service is considered positive, because the higher base fare more equitably reflects the higher cost of providing those longer trips.
- The elimination of transfers and introduction of day passes is considered neutral with respect to equity, because almost all ACT passengers ride at least twice per day on days in which they ride the bus. Therefore, the ability to cost-effectively purchase a day pass would prevent passengers from having to pay to board a second bus to complete the trip.
- Offering Spec-Trans ticket discounts is considered to have a neutral on equity—with the positive impact of rewarding passengers for paying for the service ahead of time offset by the potential negative impact of the poorest passengers missing out on the discount because they cannot afford the upfront cost of the ticket booklets.
- Eliminating the student fare on all services may be inequitable for the very few students who use this fare category.
- Offering a special program to college students at participating colleges may increase equity by offering a discount to a group with little disposable income.

Simplicity

- Raising base fares on fixed-route and Spec-Trans services does not complicate or simplify the system for riders or operators.
- Charging higher fares for on-call service greatly increases the complexity of the fare structure to the riders. Most ACT riders transfer at some point during their trip; in scenario 2, those riders transferring to on-call service from a fixed-route service would need to pay one fare on the first part of the trip and then pay an upgrade for the second. Alternatively, they could purchase a higher-priced daily or monthly on-call pass to use on all trips.
- Creating a two-tiered Spec-Trans fare, in contrast does not complicate the system, because Spec-Trans riders do not transfer between vehicles.
- Introducing day and monthly passes for all riders, and semester passes for college students, simplifies the system for riders, especially when transfers are also eliminated. Riders generally find passes easy to use, while the current transfer system can be difficult to understand and enforce.
- Eliminating student fares simplifies the system for operators and riders because it reduces the number of possible fares to two: full and half.

Efficiency

- Raising base fares on fixed-route and ADA Spec-Trans services has no impact on efficiency.
- Adding a new fare level for on-call service would add four new passes—full- and half-fare day passes and full- and half-fare monthly passes—which would have to be printed, distributed, and sold. Only a small number of riders would buy these products, so this fare change would be a highly inefficient way to increase revenue.
- Similarly, adding a non-ADA Spec-Trans fare category would require additional tickets to be printed, distributed and sold, and it would require ACT to keep track of which customers should be paying which fare.
- Eliminating transfers reduces printing costs and reduces opportunities for fare evasion. Likewise, eliminating student fares reduces the number of different types of passes that must be printed and sold. Both changes would make the fare collection system more efficient.
- The introduction of monthly passes decreases the amount of cash collected on the system, which can reduce cash counting costs and provide ACT with fare revenues up front.

Table 5.5
Scenario 2: Ridership and Revenue Changes

Service Type		Change in Annual Boardings	% Change in Annual Boardings	Change in Annual Revenue	% Change in Annual Revenue
Fixed-Route/On-Call	Fixed-Route (excl. college students)	-11,681	-4.6%	+\$7,695	+8.8%
	On-Call (excl. college students)	-11,063	-29.4%	+\$3,233	+25.7%
	College Students	+9,414	+25.0%	+\$11,821	+89.7%
	Subtotal Fixed-Route and On-Call	-13,330	-4.1%	+\$22,748	+20.0%
<hr/>					
Spec-Trans	ADA Spec-Trans	-6,586	-16.9%	+\$3,378	+5.8%
	Non-ADA Spec-Trans	-7,965	-66.7%	-\$2,328	-13.1%
	Subtotal All Spec-Trans	-14,551	-28.6%	+\$1,050	-1.4%
<hr/>					
Total System		-27,881	-7.4%	+\$23,798	+12.6%

SCENARIO 3: PASSES AND DEEPER DISCOUNTS

Scenario 3 includes the following fare changes or components:

Fare Increases

- Increase fixed-route base fare to \$1.50 (with concurrent increase in the senior/disabled/Medicare fare to \$0.75)
- Increase on-call base fare to \$3.00 (with concurrent increase in the senior/disabled/Medicare fare to \$1.50)
- Increase ADA Spec-Trans base fare to \$3.00
- Increase non-ADA Spec-Trans fare to \$6.00 for trips not required by ADA (those outside of $\frac{3}{4}$ mile along the fixed routes)

Fare Payment

- Introduce day pass on fixed-route and on-call services (priced at \$3.00 and \$6.00) and eliminate paper transfers
- Introduce monthly pass on fixed-route and on-call services (priced at \$30.00 and \$60.00) and eliminate tickets
- Sell tickets for Spec-Trans services at a 20-percent discount in books of 10, 20, and 30
- Eliminate cash payments on Spec-Trans services

Students

- Eliminate student fare on all services
- Introduce a pilot on-call evening service, aimed at local college students but open to anyone, which would accept advance reservations as well as on-demand trips, as space allows. Local college students could use this service, along with all fixed-route services, for free with their student IDs or semester passes, depending on ACT's preference. The general public would pay for this service according to the same fare structure as ACT's new on-call route in the medical center. This fare change would require negotiating for participating colleges to pay for the portion of this service attributable to their students.

**Table 5.6
Scenario 3: Evaluation**

Fare Change/Criterion	Ridership	Revenue	Recovery	Equity	Simplicity	Efficiency	Total
Increase fixed-route base fare to \$1.50	Negative	Positive	Positive	Positive	Neutral	Neutral	+2
Increase on-call (including new evening service) base fare to \$3.00	Negative	Positive	Positive	Neutral	Negative	Negative	-1
Increase ADA Spec-Trans base fare to \$3.00	Negative	Neutral	Positive	Positive	Neutral	Neutral	+1
Increase non-ADA Spec-Trans base fare to \$6.00	Negative	Negative	Positive	Positive	Neutral	Negative	-1
Introduce fixed-route/ on-call day pass and eliminate transfers	Positive	Neutral	Neutral	Neutral	Positive	Positive	+3
Introduce deeply discounted fixed-route/on-call monthly pass and eliminate tickets	Positive	Neutral	Neutral	Negative	Positive	Positive	+2
Implement 20% discounts on all Spec-Trans tickets	Positive	Negative	Negative	Positive	Neutral	Neutral	0
Eliminate cash on all Spec-Trans services	Negative	Neutral	Neutral	Negative	Neutral	Positive	-1
Eliminate student fare on all services	Neutral	Neutral	Neutral	Negative	Positive	Positive	+1
Add evening service and allow college students to ride fixed-route and on-call services for free	Positive	Positive	Neutral	Positive	Positive	Negative	+3

Scenario 3: Explanation of Criteria Evaluation

The values assigned in table 5.6 are explained as needed below:

Ridership

- As in scenarios 1 and 2, raising fares has a negative impact on ridership, but ridership of on-call and non-ADA Spec-Trans services will decline more sharply than that of fixed-route and ADA Spec-Trans services because the fare increases on those services are larger.
- The change in ridership from eliminating the student fare is so small that it is considered a neutral impact here.
- Introducing day passes and monthly passes has a positive impact on ridership because it makes all rides over the breakeven point free to riders, encouraging them to ride more.
- Eliminating cash on Spec-Trans could have a negative impact on ridership if ACT does not add more locations at which passengers can buy tickets. This negative impact is not quantified in the fare elasticity model but is included in the evaluation matrix.
- The change in ridership from eliminating the student fare is so small that it is considered a neutral impact here.
- Partnering with local colleges to help fund evening service and passes for college students increase college student ridership. All students will have passes, encouraging greater use of the system, and students who were already riders will continue to ride.

Revenue

- Because transit prices are generally inelastic, raising the base fares of fixed-route and on-call services has a positive effect on revenue, because the increase in fare receipts outweighs the decrease in ridership. The fare increase on ADA Spec-Trans service is large enough, however, that the increased revenue it brings is offset by decreased ridership, yielding a neutral impact. The fare increase on non-ADA Spec-Trans trips is so large that the increased revenue it brings does not compensate for decreased ridership, also yielding a negative impact.
- The revenue gained from the sale of day and monthly passes is about the same as the cash and ticket sales they would replace, yielding a neutral impact.
- The change in revenue from eliminating cash on Spec-Trans is so small that it is considered a neutral impact here.
- The change in revenue from eliminating the student fare is so small that it is considered a neutral impact here.
- The estimated revenue from the college program is much higher than existing college student fares and is assessed as positive. Note, however, that this estimate of revenue is contingent on agreement from participating colleges to pay for a portion of the new evening service.

Recovery

- As noted in scenario 2, fare recovery generally increases as fare revenue increases, and fare recovery falls as fare revenue falls. Thus, raising the base fare on fixed-route and on-call services produces a positive impact on recovery because it produces a positive impact on revenue. And though in scenario 3 raising the base fare for ADA and non-ADA Spec-Trans services has neutral and negative impacts, respectively, it has a positive effect on recovery because ACT could reduce operating costs as it operates fewer trips, especially long trips outside the ADA service area.
- The anticipated revenues from scenario 3's college program are significant, but because the program requires additional operating costs, its impact on recovery is neutral.

Equity

- Increasing base fares on fixed-route and ADA Spec-Trans services is considered to have a positive impact on equity because it achieves greater equity between riders, who pay to ride, and non-riders, who support ACT through taxes. In other words, riders pay closer to their fair share.
- Charging double the fixed-route fare for on-call service is considered to have a neutral impact on equity. The positive impact of riders paying more of their share is offset by the negative impact of charging riders double for what could be very short trips.
- Charging double the ADA Spec-Trans fare for non-ADA service is considered positive, because the higher base fare more equitably reflects the higher cost of providing those longer trips.
- Offering deeply discounted monthly passes could create equity issues, because such passes are only available to those riders who can afford to buy a whole month of rides up front. Thus, scenario 3's monthly passes are considered to have a negative impact on equity.
- Offering larger Spec-Trans ticket discounts is considered positive regarding equity—with the positive impact of rewarding passengers for paying for the service ahead of time offsetting at least some of the negative impact of eliminating cash. Unlike scenario 2, even the poorest passengers will get the discount because they cannot pay cash.
- Eliminating cash fares from Spec-Trans could have a negative equity impact because even the poorest passengers will have to have enough money to buy at least 10 tickets (smallest ticket booklet at a time) and must visit a ticket outlet to purchase their fares.
- Eliminating the student fare on all services may be inequitable for the very few students who use this fare category.
- Partnering with local colleges to pay for a portion of the proposed evening service is equitable, because the colleges' students would account for a large portion of ridership.

Simplicity

- Raising base fares on fixed-route and Spec-Trans services does not complicate or simplify the system for riders or operators.
- Charging higher fares for on-call service greatly increases the complexity of the fare structure to the riders. Most ACT riders transfer at some point during their trip; in scenario 3, as in scenario 2, those riders transferring to on-call service from a fixed-route

service would need to pay one fare on the first part of the trip and then pay an upgrade for the second. Alternatively, they could purchase a higher-priced daily or monthly on-call pass to use on all trips.

- Creating a two-tiered Spec-Trans fare does not complicate the system, because Spec-Trans riders do not transfer between vehicles.
- Introducing day and monthly passes for all riders, and semester passes for college students, simplifies the system for riders, especially when transfers are also eliminated. Riders generally find passes easy to use, while the current transfer system can be difficult to understand and enforce.
- Eliminating cash on Spec-Trans is neutral—limiting fare media simplifies fare collection for ACT but complicates fare purchasing for passengers.
- Eliminating student fares simplifies the system for operators and riders because it reduces the number of possible fares to two: full and half.

Efficiency

- Raising base fares on fixed-route and ADA Spec-Trans services has no impact on efficiency.
- Adding a new fare level for on-call service would add four new passes—full- and half-fare day passes and full- and half-fare monthly passes—which would have to be printed, distributed, and sold. Only a small number of riders would buy these products, so this fare change would be a highly inefficient way to increase revenue.
- Similarly, adding a non-ADA Spec-Trans fare category would require additional tickets to be printed, distributed and sold, and it would require ACT to keep track of which customers should be paying which fare.
- Eliminating transfers reduces printing costs and reduces opportunities for fare evasion, eliminating cash on Spec-Trans services reduces the number of vaults that must be emptied and counted each day, and eliminating student fares reduces the number of different types of passes that must be printed and sold. All make the fare collection system more efficient.
- The introduction of monthly passes decreases the amount of cash collected on the system, which reduces cash counting costs and provides ACT with fare revenues up front.
- Introducing evening service in partnership with colleges would require ACT to count the number of college students on the evening service in order to charge colleges their proportion of operating costs. Having funding partners for the new evening service may be desirable, but it would create new challenges.

Table 5.7
Scenario 3: Ridership and Revenue Changes

Service Type		Change in Annual Boardings	% Change in Annual Boardings	Change in Annual Revenue	% Change in Annual Revenue
Fixed-Route/On-Call/Evening	Fixed-Route (excl. college students)	-22,363	-8.9%	+\$15,767	+18.0%
	On-Call (excl. college students)	-15,297	-40.6%	+\$34,540	+34.7%
	Evening (excl. college students)	+3,696	—	+\$3,128	—
	College Students	+13,110	+34.8%	+\$95,000	+620.8%
	Subtotal: Fixed-Route, On-Call, Evening	-20,854	-6.4%	+\$105,256	+92.4%
<hr/>					
Spec-Trans	ADA Spec-Trans	-14,052	-36.1%	+\$7,483	+12.9%
	Non-ADA Spec-Trans	-8,384	-70.2%	+\$1,108	+6.2%
	Subtotal: All Spec-Trans	-22,436	-44.1%	+\$8,590	+11.4%
<hr/>					
Total System		-43,290	-11.4%	+\$113,896	+60.0%

VI: RECOMMENDATIONS

Chapter 3 outlined three scenarios according to which ACT could modify its fare structure. Chapter 4 explained how a model was developed to assess the impacts of these scenarios on ridership and revenue. And chapter 5 evaluated these scenarios more subjectively for their broader impact on six service criteria. In this chapter, the best elements of each scenario are combined into a set of recommendations for ACT. The component fare changes are numerous, but they can be briefly summarized as follows: raise fares, introduce more prepaid fare instruments, and introduce new student discounts and programs. The recommended fare changes are:

Raise Fares

- Increase fixed-route and on-call base fares to \$1.00 (with concurrent increase in the senior/disabled/Medicare fare to \$0.50)
- Increase ADA Spec-Trans base fare to \$2.00
- Increase non-ADA Spec-Trans fare to \$4.00 for trips not required by ADA (those outside of $\frac{3}{4}$ mile along the fixed routes)

Introduce Prepaid Fare Instruments

- Introduce day passes on fixed-route and on-call services (priced at \$2.00) and eliminate paper transfers
- Introduce monthly passes on fixed-route and on-call services (priced at \$30.00) and eliminate tickets
- Sell tickets for Spec-Trans services at a 10-percent discount in books of 10, 20, and 30

Introduce New Student Programs and Discounts

- Charge students ages 6–18 the same half fare as elderly and disabled passengers—rather than a separate fare—on fixed-route and on-call services
- Eliminate student fare on Spec-Trans services
- Allow Amarillo College students to board buses for no fare with their student ID cards, subject to approval and funding from Amarillo College and ACT

RAISE FARES

Given ACT's goal of improving its fare recovery ratio, all three scenarios evaluated included some fare increase; the difference was in degree. This study recommends raising the base fare on fixed-route and on-call services to \$1.00, with a concurrent increase in the reduced fare to \$0.50. Scenarios 1 and 2 show that raising the base fare by twenty-five cents will have positive impacts on fare revenue and recovery without harming ridership too greatly. The \$1.50 fare proposed in scenario 3 is not in itself a poor choice. But, given the number of fare changes likely to go into effect at once, combined with the recent route restructuring, this study prefers an incremental approach to raising fares. Scenarios 2 and 3 also included a separate,

higher fare for on-call service such as ACT's current Route 13. Such a fare would indeed raise revenue, but at the expense of simplicity and efficiency. The resulting system would be difficult for passengers to understand and for ACT to administer. Even one of its apparent virtues—charging riders more for door-to-door service—is offset by the inequity of charging riders for what could be very short trips.

If ACT charges \$1.00 for fixed-route and on-call services, it should charge \$2.00 for Spec-Trans service, which is consistent with FTA's requirement for pricing ADA complementary paratransit services. But, in addition to raising the Spec-Trans fare in tandem with the base fare, this study recommends introducing a new fare, priced at \$4.00, for Spec-Trans trips not within the ADA service area. ADA requires that transit agencies provide demand-response service to locations within three quarters of a mile of fixed-routes—not to any location within a city or region. Spec-Trans trips that begin or end outside the ADA service area are likely to be long and costly for ACT to operate. Charging higher fares for such trips will help improve fare recovery and reflect their nature as a premium service.

INTRODUCE PREPAID FARE INSTRUMENTS

In addition to raising revenue, ACT would also like to improve its cash handling and consider new payment options. Of the various combinations of tickets, day passes, and monthly passes evaluated in scenarios 1, 2 and 3, day passes and monthly passes were found to be desirable as was eliminating paper transfers and paper tickets on fixed-route and on-call services. Tickets should be retained on Spec-Trans, since time-based passes are not commonly used on ADA paratransit service.

Day passes and monthly passes have many advantages. They encourage ridership, because all rides over the breakeven point become free to riders. They are simple to use, making for satisfied customers. And they reduce cash collected on the system, moderating cash counting costs and minimizing opportunities for theft. Implementing day passes also allows for the elimination of paper transfers, which clog fare boxes, confuse riders, and are easy to counterfeit. Monthly passes, meanwhile, reward regular users of the system and provide ACT with more fare revenue up front.

If paper transfers are eliminated, so should be paper tickets. There will then be no paper in fare boxes, simplifying cash counting and potentially allowing it to be outsourced to a local bank. Furthermore, as ACT introduces day passes and monthly passes, it will have to print more fare media. There is no upside to continuing to offer a fare medium like paper tickets that does not improve ridership or simplify fare collection. This being said, ACT should retain paper tickets on Spec-Trans, but sell them at a 10-percent discount to reward regular riders. Pass systems are rare on paratransit—of Amarillo's peers, only Lincoln offers one—and the small amount of labor that would be saved from eliminating paper from Spec-Trans fare boxes does not offset the complication of introducing yet more fare media for a very limited customer base.

ACT currently sells tickets to various social service agencies for distribution to their clients. Once tickets are eliminated from the fixed-route system and day and monthly passes introduced, ACT will need some method by which social service agencies can distribute transit fare media to their customers. One option is that ACT sell to the social service agencies paper vouchers that are redeemable for day passes. A customer using a voucher would hand it to the bus operator in exchange for a day pass good for that day's travel.

INTRODUCE NEW STUDENT DISCOUNTS AND PROGRAMS

With its new fare category for non-ADA Spec-Trans trips and multiple new passes, the fare structure recommended by this study is more complex than what ACT currently has. Therefore, changes that mitigate this complexity are desirable. Two elements of the current fare structure concerning students can be eliminated without significant harm to ridership or revenue. ACT currently charges students 6–18 riding its fixed and on-call routes a fare equal to approximately three quarters of the base fare. This fare category should be eliminated in favor of charging students the same half fare as other discount groups, such as seniors and disabled passengers, pay. Doing so will simplify ACT’s fare structure and obviate the need for day passes or monthly passes priced specially for students. It could potentially improve ridership at only a modest cost to revenue as well.

On Spec-Trans service, meanwhile, ACT should eliminate its student fare entirely. This fare is lightly used at best. Its removal is unlikely to significantly affect ridership or revenue, and ACT will benefit because it will not have to print special tickets or administer different fare categories on Spec-Trans service.

This report’s final recommendation concerning students is more ambitious. ACT has expressed interest in better serving students at local colleges and has discussed students’ needs with the colleges. To that end, scenarios 1, 2, and 3 tested different ways of increasing college-student ridership. The evaluations in chapter 5 show that any fare change aimed at college students, whether it be offering discounts directly or arranging for colleges to pay for rides, encourages ridership and promotes equity. Options that include payments by colleges to ACT have the added benefit of increasing revenue. Broadly speaking, ACT should pursue partnerships with local colleges in which the colleges pay ACT to provide free rides, and potentially special service, to their students.

As of this writing, ACT is in the process of negotiating such a program with Amarillo College (AC) and hopes to begin a demonstration in 2019. Under the proposed agreement, AC will pay ACT \$100,000 per year. In exchange, ACT will allow AC students to ride fixed routes for free with their student IDs and will provide a new, demand-response evening service reserved for AC students four nights per week. This program is forecast to increase ridership and passenger miles, which are important to receiving federal grants. The \$100,000 per year will cover the cost of operating the new evening service and the fare revenues lost from AC students who currently pay to ride, and it will have a positive impact on fare recovery as well.

SUMMARY

Table 6.1 summarizes the recommended fare structure. Table 6.2 presents the above recommendations as an evaluation matrix, as in chapter 5. And table 6.3 shows the projected changes in ridership and revenue that will result from implementing the recommended fare structure.

Table 6.1
Summary of Recommended Fare Structure

Fare Type	Fixed-Route/On-Call Price	Spec-Trans Price
Full	\$1.00	\$2.00 in ADA service area \$4.00 in non-ADA service area
Senior/Disabled/Medicare/ K-12 Student	\$0.50	\$2.00/\$4.00
College student	Free for AC students	\$2.00/\$4.00
Under 5	Free	Free
Paper Transfers	No	No
Tickets	No	10% Discount
Day Pass	\$2.00	No
Monthly Pass	\$30.00	No

Table 6.2
Evaluation of Recommended Fare Changes

Fare Change/Criterion	Ridership	Revenue	Recovery	Equity	Simplicity	Efficiency	Total
Increase fixed-route/on-call base fare to \$1.00	Negative	Positive	Positive	Positive	Neutral	Neutral	+2
Increase ADA Spec-Trans base fare to \$2.00	Negative	Positive	Positive	Positive	Neutral	Neutral	+2
Increase non-ADA Spec-Trans base fare to \$4.00	Negative	Negative	Positive	Positive	Neutral	Negative	-1
Introduce fixed-route/ on-call day pass and eliminate paper transfers	Positive	Neutral	Neutral	Neutral	Positive	Positive	+3
Introduce fixed-route/on-call monthly pass and eliminate tickets	Positive	Neutral	Neutral	Neutral	Positive	Positive	+3
Implement 10% discounts on all Spec-Trans tickets	Positive	Negative	Negative	Neutral	Neutral	Neutral	-1
Eliminate Spec-Trans student fare	Neutral	Neutral	Neutral	Negative	Positive	Positive	+1
Charge students half-price fare and eliminate separate student fare on fixed-route/on-call services	Positive	Negative	Negative	Neutral	Positive	Positive	+1
Introduce college student program in partnership with AC	Positive	Positive	Positive	Positive	Positive	Neutral	+5

Table 6.3
Recommended Scenario: Ridership and Revenue Changes

Service Type		Change in Annual Boardings	% Change in Annual Boardings	Change in Annual Revenue	% Change in Annual Revenue
Fixed-Route/On-Call	Fixed-Route (excl. college students)	-10,347	-4.1%	+\$7,284	+8.3%
	On-Call (excl. college students)	-1,546	-4.1%	+\$1,088	+8.3%
	College Students	+9,414	+658.8%	+86,821	+89.7%
	Subtotal Fixed-Route and On-Call	-2,497	-.8%	+\$95,194	+83.6%
Spec-Trans	ADA Spec-Trans	-6,586	-16.9%	+\$3,378	+5.8%
	Non-ADA Spec-Trans	-7,965	-66.7%	-\$2,328	-13.1%
	Subtotal All Spec-Trans	-14,551	-28.6%	+\$1,050	-1.4%
Total System		-17,030	-4.5%	+\$96,243	+50.8%

VII: SUPPORTING RECOMMENDATIONS AND PUBLIC FEEDBACK

Changing ACT's fare structure alone will not guarantee the financial health of the department. To ensure the success of the new fare structure, as well as to further address ACT's second study goal—identifying innovative solutions for fare collection and payment options—this study recommends that the department take the following additional steps:

- Expand network of sales outlets for prepaid fare media
- Improve fare media design
- Investigate mobile ticketing
- Establish a regular schedule for fare increases

EXPAND NETWORK OF SALES OUTLETS FOR PREPAID FARE MEDIA

As it encourages riders to move away from cash toward preprinted fare media, ACT must make it easier to buy such fare media. Currently, paper tickets can only be purchased at City Hall and ACT's office. The City currently accepts payments for water bills online and at several retail locations, including through Western Union for a \$1.00 fee at Fiesta Foods, Taylor Furniture, Mr. Payroll (located inside select Toot'n Totum stores), and United Supermarkets; and through Fidelity Express for a \$1.50 fee at Grand Discount and K&T Discount stores. Since these payment systems are already in place, ACT should investigate whether transit fare media could be added to the City's online payment system and retail locations.

When additional sales outlets become available, ACT should discontinue fare media sales at its office. The Transit Office is not convenient for most customers, and fare sales there are low. Moreover, delegating cash handling to venues better designed for secure handling of cash and fare media will reduce the risk of mishandled monies.

IMPROVE FARE MEDIA DESIGN

ACT currently prints tickets through the City's print shop. The costs are quite low—less than \$2,000 in FY 2017. Under the recommended fare structure, however, more and more riders will use preprinted fare media such as day and monthly passes, which will increase ACT's printing costs. It will also increase incentive for riders to counterfeit fare media. ACT's operators have to visually validate passes, meaning that riders seeking to evade fares can produce and use counterfeit tickets with relative ease. All transit systems using paper fare media must contend with the threat of counterfeiting, and several printing companies now offer technologies designed to reduce counterfeiting transit tickets. Anti-counterfeit measures currently on the market include serial numbers, photocopier-resistant inks, ultraviolet-sensitive inks, holographic foil, embossed images or text, and glitter.

Weighing the benefits of using anti-counterfeiting measures against the costs is difficult. As a report prepared for King County Metro in Washington State notes, “counterfeit passes and transfers are hard to detect” and, “as hard as it is to measure the *number* of fare evaders, it is

even more difficult to measure of the *cost* of fare evasion.”⁸ Anecdotal evidence from Boston and northern Virginia suggests that fare evasion through counterfeiting is rare but real.⁹ A 2009 study at the San Francisco Municipal Transportation Agency, meanwhile, found that counterfeit passes accounted for only 1 percent of that agency’s fare evasion.¹⁰

Even given the uncertainty surrounding the incidence of counterfeiting, ACT should know its options. It should ask the City’s print shop to price its new products with a couple of different anti-counterfeiting measures to determine if any one of them makes financial sense. It could also look into outsourcing printing to a third party. This route could prove more costly than keeping printing in house, but it could also allow expand the range of possible anti-counterfeiting technologies.

INVESTIGATE MOBILE TICKETING

In addition to adding preprinted fare media, ACT should investigate mobile ticketing, which would allow ACT to a further payment option without having to invest in new fare collection equipment. Mobile ticketing has the potential to reduce operating costs, because it reduces demand for preprinted fare media, and it would also support ACT’s new pass system, because riders would be able to purchase passes on their phones rather than at retail outlets. A number of mobile ticketing vendors are now active in the market, and ACT should issue a Request for Proposals to assess what product might best fit its needs and budget.

Definition and Assessment

Mobile ticketing refers to any technology in which riders use their smartphones to buy, store, and use tickets and passes for transit. Such technologies are rapidly being adopted by transit agencies across the country. To date, most of these agencies serve cities larger than Amarillo. Only one of Amarillo’s peer agencies—StarTran, in Lincoln—currently has mobile ticketing technology, and a transit planner there reports that the technology is growing in popularity. Agencies in Grand Junction and Topeka are considering introducing mobile ticketing as well.

Mobile ticketing is attractive to transit agencies because it requires few capital expenditures and reduces demand for printed fare media while offering customers a convenient way to pay. In a report prepared for Florida Department of Transportation (FDOT) in 2016,

⁸ “Report on Fare Evasion on Metro Transit,” King County Department of Transportation (April 2010), accessed August 9, 2018, <https://kingcounty.gov/~media/depts/transportation/metro/accountability/reports/2010/FareEvasion04-10.pdf>

⁹ “MBTA on watch for train fare evaders,” *Boston Globe*, October 8, 2010, http://archive.boston.com/news/local/massachusetts/articles/2010/10/08/mbta_on_watch_for_train_fare_evaders; “VRE seeks increased fines for fare evaders,” *fredericksburg.com*, February 1, 2012, accessed August 9, 2018, https://www.fredericksburg.com/news/transportation/vre-seeks-increased-fines-for-fare-evaders/article_981f23fa-ba69-5394-a7cd-5e73038f9cfa.html.

¹⁰ “Off-Board Fare Payment Using Proof-of-Payment Verification,” TCRP Synthesis 96 (Washington, D.C.: Transportation Research Board, 2012).

many transit agencies cited improving the customer experience and reducing cash handling expenses as reasons for procuring mobile ticketing.¹¹ Furthermore, the Transportation Research Board notes that mobile ticketing has the potential to be integrated with special transit offers, trip-planning applications, and payment for non-transit services or events.¹² Compared with other changes in fare collection, moreover, mobile ticketing can be implemented quickly—one vendor advertises being able to deploy mobile ticketing six weeks after signing a contract—and adapted more readily to future changes in technology.

Early adopters of mobile ticketing faced a steep learning curve. Now, agencies looking to procure mobile ticketing can learn from the experiences of others. The FDOT report recommends that interested agencies determine how much ridership data they want to collect in order to determine the best technology for their needs and to take all steps possible to avoid interruption or failure of service. It also cautions that mobile ticketing requires extensive marketing in order to be successful and encourages agencies to account for such costs in their budgets. Still, broadly speaking, most agencies with mobile ticketing deem the technology useful and believe it is beneficial to both agencies and customers.

Forms of Mobile Ticketing

The flash pass is the simplest form of mobile ticketing to implement and is the most common form of so-called “lightweight” mobile ticketing, in which mobile ticketing technology is not integrated into existing fare collection technology. To use flash passes, riders activate the tickets on their phones and show them to the operator, who validates them visually. Many agencies add animation or countdown clocks to their tickets to indicate that a ticket is activated and to hinder counterfeiting. Flash passes are attractive to many agencies because they require no additional onboard technology and are quick and easy to verify.

Mobile tickets with QR codes are common as well. With this technology, riders either scan their tickets at fareboxes or have their tickets scanned by operators or conductors. Tickets with QR codes require investing in the technology to read the codes, but they also offer more data on when and where riders are using transit than flash passes do. Several other technologies, including text messaging, near field communication, and Bluetooth, have also been applied to mobile ticketing, but they have limited relevance to ACT’s needs because of their complexity and cost.

Vendors

There are a number of mobile ticketing vendors on the market, and the following discussion represents only a small sample of what is available. Token Transit, which operates StarTran’s program, specializes in bus passes. Its primarily serves small to midsize agencies, and its clients include Big Blue Bus (Santa Monica, CA), Beaumont Pass Transit (Beaumont, TX), Embark (Oklahoma City, OK), and The Bus (Springfield, MO).

¹¹ “Assessment of Mobile Fare Payment Technology for Future Deployment in Florida (Center for Urban Transportation Research, March 2016).

¹² “Preliminary Strategic Analysis of Next Generation Fare Payment Systems for Public Transportation,” TCRP Report 177 (Washington, D.C.: Transportation Research Board, 2015.)

Other vendors include Passport, which offers mobile solutions for parking and tolling in addition to transit; moovel, which allows riders to plan trips end-to-end in addition to purchasing tickets; and Masabi, which offers more products geared toward rail and serves larger cities such as Las Vegas, New York, Athens, and London. All vendors tout their ability to collect and analyze data to help agencies better understand how riders are using transit, though as mentioned above, collecting ridership data requires using QR code scanners or similar technology.

Costs

Two examples drawn from the FDOT report—one from Long Island and one from South Carolina—provide an idea of the cost of mobile ticketing. Nassau Inter-County Express (NICE), which serves Nassau County, New York, procured a lightweight mobile ticketing from Masabi several years ago. The agency reports that operating costs are about \$7,000 per month. After conducting a pilot program with mobile ticket scanners, NICE decided not to buy them, because they cost about \$10,000 apiece.

COMET, which serves the Columbia, South Carolina, metro area contracts with Passport for mobile ticketing. Passport initially offered the agency a six-month pilot program free of charge. It then charged a start-up fee of \$15,000 and it collects 10 percent of gross mobile app sales. Dallas Area Rapid Transit (DART) and Chicago Transit Authority (CTA) also both pay their vendors by transaction. Start-up costs and transaction fees for these agencies were not available for this report.

ESTABLISH SCHEDULE FOR FARE INCREASES

To guarantee a lasting impact, ACT should also now plan for the future. As noted above, the \$0.25 fare increase recommended in this report is conservative. It sends an important message—that fares must rise to maintain current levels of service—but it does not drastically increase fare revenue. It is not this study's intention, however, that fare levels remain constant for another twenty-five years. ACT should therefore set a regular schedule by which it considers fare increases.

In setting policies for fare increases, transit agencies must weigh the cost and difficulty of raising fares incrementally and frequently against public backlash that infrequent large fare changes may engender. This study recommends that ACT raise its base fare by \$0.25 (with proportional increases in all other fare categories and instruments) every other year until its base fare is at least equal to the median base fare of its peer group. A biannual schedule is preferable to an annual one because fare increases are burdensome: each requires hearings, reprinted fare media, updated printed materials, and other tasks. But every-other-year fare increases are frequent enough that they have positive financial impacts and create public expectation for gradually rising fares. Assuming that the median base fare of ACT's peer group continues to rise, ACT will likely have to raise fares three more times over the next six years to equal that figure.

In the future, ACT may want to set a fare recovery goal as well. Fare recovery can be improved not only by raising fares but also by increasing ridership and reducing operating costs. Once the financial impact of the fare structure, the permanence of the college program, and the ridership gains from the new route structure are known, ACT may then be able to determine what a reasonable, achievable fare recovery goal could be.

PUBLIC FEEDBACK ON RECOMMENDATIONS

To introduce and gauge reaction to the proposed fare changes, ACT held four public meetings at Amarillo libraries between September 15th and September 19th, 2018. A total of nine people attended the four meetings. All attendees were all positive toward the proposed fare changes, recognizing that fares have not increased in a long time and welcoming the idea of using a day pass in lieu of paper transfers. ACT received one comment by phone opposing the proposed fare changes: a disabled rider of fixed-route service stated that she has difficulty affording the current discounted fare of \$0.35 and disapproves of any fare increase.

CONCLUSION

From the outset, ACT had four goals for this study: to streamline and improve cash handling and ridership data collection, to identify innovative solutions for fare collection and payment options, to consider fare structure options that can increase ridership, and to improve its fare recovery ratio. The recommendations presented here directly address these goals. Day passes and monthly passes will reduce the amount of cash ACT handles and processes, and along with mobile ticketing, they will offer customers new ways to pay and ride the bus. Passes will also promote greater ridership, as will lower student fares and ACT's agreement with AC. Finally, raising fares and instituting the program with AC will bring in more revenue, thus improving ACT's low fare recovery ratio.

ACT has also expressed interest in developing a long-term fare strategy. This should be the focus of its efforts once the new fare changes are in place. As explained above, scheduling fare increases and setting goals for fare recovery help make for a healthy financial future. Lastly, ACT has requested recommendations regarding data collection for NTD reporting, which is essential to receiving federal grants. These recommendations are currently being developed and will be submitted in a separate memorandum.

As a City department, fare changes by ACT require approval by Amarillo's City Council. This study hopes that the Council will review and act on the recommendations contained in this report soon. The fare changes and supporting recommendations proposed here will help bring ACT more in line with its peers in terms of fare levels, ridership, and fare recovery, and they will make ACT's operations more efficient. Most importantly, they will help ACT provide maintain and improve transit service for the citizens of Amarillo.