Chapter 4: Transit Gaps and Overlaps

All chapters prior to this were providing the context in which the regional coordinated plan was formed. This chapter now begins to address the findings and recommendations from that research. It begins with a review of the RTAG adopted goals and objectives.

Legislative Background

The legislative foundation upon which the RTAG's coordinated plan is laid can be found in House Bill 3588, Article 13: Statewide Coordination of Public Transportation, Section 461.003:

> Public transportation services are provided in this state by many different entities, both public and private. The multiplicity of public transportation providers and services, coupled with a lack of coordination between state oversight agencies, has generated inefficiencies, overlaps in service, and confusion for consumers. It is the intent of this chapter:
>
> 1. To eliminate waste in the provision of public transportation services;
> 2. To generate efficiencies that will permit increased levels of service; and
> 3. To further the state's efforts to reduce air pollution.

This is further defined in Public Transportation Code, Section 461.004(a):

> The plan shall consider and address separately:
>
> 1. Overlaps and gaps in the provision of public transportation services;
> 2. Underused equipment owned by public transportation providers; and
> 3. Inefficiencies in the provision of public transportation services.

Goals and Objectives

The goals and objectives adopted by the RTAG are aligned with the legislative intent and are outlined in the following table.

Table 4.1: Panhandle Goals and Objectives for Coordinated Transit

Goals	Objective
1. Improve delivery of service	Improve financial capacity of ACT and PT to meet current and future demand and fill critical gaps in service.
2. Generate efficiencies in operations	Increase utilization of existing services. Reduce or eliminate duplicative services.
3. Enhance customer satisfaction	Develop new mobility options to fill critical gaps that are not met by existing services.
4. Encourage cooperation and coordination	Reduce and remove barriers to coordination in order to improve future planning efforts.

Transit Gaps: Unmet Demand

A transit gap is an area, time, or market that is not being satisfactorily served by existing transportation services. This unmet demand will later be the focus of coordinated strategies.

Unmet demand was examined on two levels: program-related and general.[1] In order to understand unmet demand from a program perspective, Panhandle Transportation Coordination Survey asked: Approximately how many trips were unmet each month? Of the 21 agencies responding, over half represent less than 10 trips per month as unmet. Agencies that indicated higher rates of unmet demand include:

- The Health and Human Services Commission: estimate of 300 missed trips;
- Amarillo Area YMCA: estimate of 150 missed trips;
- Amarillo Senior Citizen Association: estimate of 75 missed trips; and

[1] A distinction is made here between program-related demand – demand that would not occur but for the existence of specific social service programs and general demand – demand for all other general trips.

- Panhandle Worksource: estimate of 30 missed trips.

Using only the estimates given by the survey respondents, there is an unmet program demand of approximately 6,700 trips in the Panhandle. However, given that the survey did not reflect all agencies, it is believed that this figure may be significantly under-estimated.)

Rural Demand

Demand for services in the rural areas was estimated using a methodology developed by the Transit Cooperative Research Program. The methodology is intended to assist organizations that need to assess ridership under alternative service plans, including the effects of coordination. It is to be applied only to rural areas that are defined as places outside of a MSA (i.e., not a suburb of a major city) and have a population density of less than 1,000 people per square mile (most counties in the Panhandle have less than 20 people per square mile). The methodology relates the number of trips expected given the demographic composition of the service area and the amount of transportation service available. It measures both program-related trips – trips that would not be made but for the existence of a specific social service program – and non-program related demand that includes all other trips.

The methodology presents two alternatives to estimation. The first alternative requires the collection and compilation of agency-level data on a county-by-county basis. The second alternative relies on census data as a proxy for agency-level data. Demand is then derived from the data using an equation that is based on an extensive dataset taken from rural areas across the country. The equation used to estimate the demand is:

$$D = R_eE\ (1/\ 1+k_ee^{-U_e}) + R_mE\ (1/\ 1+k_me^{-U_m}) + R_pE\ (1/\ 1+k_pe^{-U_p})$$

Where:

D = annual demand for one-way trips for non-program related transportation
R_e = 1,200
R_m = 1,200
R_p = 1,200
E = number of persons age sixty or over

Definitions, continued
M = number of mobility limited persons age 16 to 64
P = number of persons, age 64 or less, in families with incomes below the poverty level
$k_e = e^{6.38}$
$k_m = e^{6.41}$
$k_p = e^{6.63}$
U_e = 0.000510 * (Annual Vehicle Miles Available to Elderly Market / Area of County)
U_m = 0.000400 * (Annual Vehicle Miles Available to Mobility Limited / Area of County)
U_e = 0.000490 * (Annual Vehicle Miles Available to Low Income / Area of County)[2]
e = natural logarithm with a value of approximately 2.71828.

In applying this equation to the Panhandle region, "M" was defined as individuals who indicated a "go outside" disability in the U.S. Census. This disability is defined as one that prevents a person from attending to daily activities outside the home by him/her. Annual Vehicle Miles was defined as the miles of service that Panhandle Transit provided to each county during the FY04 – FY05 operating year and is the same figure for the elderly, mobility limited and low-income markets.

Using this methodology, it is estimated that there is demand for approximately 607,000 trips annually in the rural counties (excluding Potter and Randall counties). During FY04–FY05, Panhandle Transit provided 130,074 trips. This represents service to about 21 percent of the potential market for transit. In other words, there are about 477,000 trips annually for which there is potential demand. See Appendix H: Panhandle Transit Demand Estimate.

Urban Demand

Unlike rural systems, urban systems report their activities to the National Transit Database Project. This FTA research agency collects and reports on transit systems across the U.S. and can be used by operators and researchers to estimate the effectiveness and efficiency of peer systems. So unlike the equation-based methodology that was used to measure the latent in the Panhandle's rural counties, the estimate for demand for services in Amarillo is based on a peer comparison. Amarillo City Transit's performance was compared against six peers systems – Abilene (City Link), Hill Country Transit (The HOP), Port Arthur (PAT), and Waco (WTS), San Angelo

[2] TCRP Report 3: Workbook for Estimating Demand for Rural Passenger Transportation. SG Associates Inc., Leigh, Scott & Cleary Inc., and C.M. Research, Inc. National Academy Press. Washington D.C. 1995.

(SASRC), and Golden Crescent Transit (Victoria, Texas). These peers were chosen because they had similar operating environments to Amarillo. Total population and population density are similar. All peers receive Section 5307 Small Urban funding which is restricted to systems that serve populations under 200,000. Population densities range from 1,206 people/square mile to 2,696 people/square mile (compared to Amarillo's population of 2,423 people per square mile). Despite similar densities, the number of trips delivered per capita varies widely. Two significant peer differences include ownership/management structure and market. Abilene and Waco are operated by MacDonald Transit Associates, a private transit management company. Both Abilene and Waco host university campuses that can generate high levels of ridership.[3]

Table 4.2: Trips per Capita Peer Comparison

City	Square Miles	Population	Pop/Sq Miles	Trips	Trips/Pop
Amarillo	74	179,312	2423	373,847	2.08
Abilene	48	107,041	2230	580,389	5.42
Hill Country Transit	64	167,976	2625	377,741	2.25
Port Arthur	46	114,656	2493	146,145	1.27
Waco Transit	70	153,198	2189	634,089	3.43
San Angelo	46	87,969	1912	176,400	2.01
Victoria	51	61,529	1206	118,877	1.93
Average					2.62

In 2004, Amarillo City Transit delivered 2.08 trips per capita. This was slightly less than the average for the peer group, 2.73 trips. If the average is applied to Amarillo's population, the estimated demand for transit services is 471,078 trips. In other words, the estimated unmet demand for transit is approximately 97,000 trips.

Conclusions

This exercise in measuring demand is important because it supports one of the objectives listed above: Improve strength and capacity of Amarillo City Transit and Panhandle Transit to meet current and future demand.

[3] In follow-up discussions with Abilene Transit, the effect on ridership from its secondary-education campuses was reported to be minimal as these were primarily commuter campuses. Seventeen percent of Waco Transit's ridership is generated from Baylor University. Adjusting for this factor, they deliver 3.43 trips per capita instead of 4.14 trips as reported in the National Transit Database.

Currently, local offices of Panhandle Transit feel that they are meeting the demands of their service area. However, it may be that there is considerable latent demand that Panhandle Transit is unaware of. This could be due to potential riders being unaware that there is a transit service available to them, that they no longer contact Panhandle Transit because Panhandle Transit cannot meet their transit needs, or that they are receiving service from some other provider.

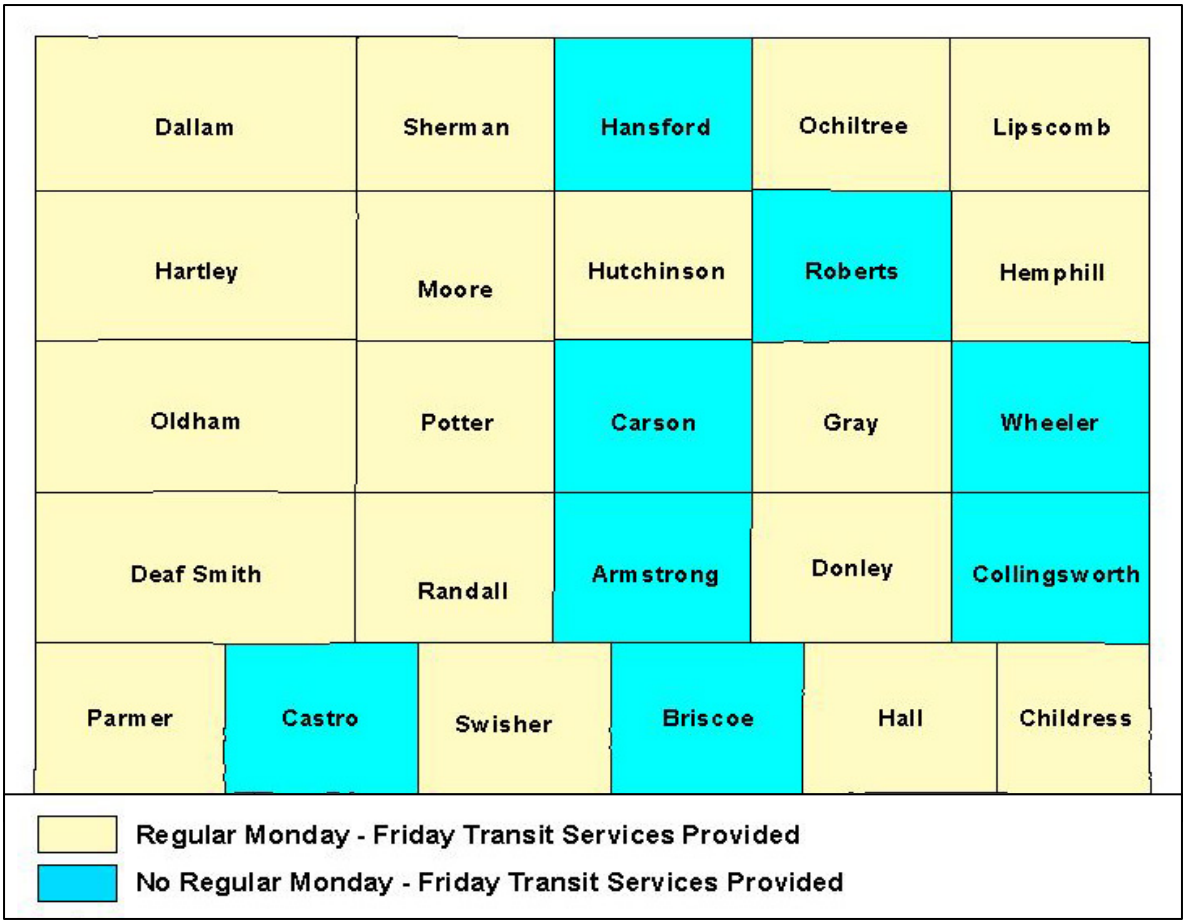
Conversely, ACT is aware of the need for more service within the City of Amarillo. In this context, the definition of "more" includes: extended service area, extended hours, and short headways. However, ACT is limited in its ability to meet these needs due to funding constraints. As discussed in Chapter 5: Strategies to Address Gaps and Needs, ACT is facing a significant decrease in funding, thus limiting its ability to fill unmet demand. Part of this plan will assist ACT as it investigates strategies to meet this challenge.

Transit Gaps: Areas with No Service

There are no rural areas throughout the 26-counties without access to some transit services through Panhandle Transit. It provides in-county service Monday through Friday, from 8:00 am to 5:00 pm in the following 17 counties: Childress, Dallam, Deaf Smith, Donley, Gray, Hall, Hartley, Hemphill, Hutchinson, Lipscomb, Moore, Ochiltree, Oldham, Parmer, Potter, Randall, and Swisher counties.

Counties that do not have regular Monday through Friday service include: Armstrong, Brisco, Carson, Castro, Collingsworth, Hansford, Roberts, and Wheeler. However service from these counties to Amarillo or adjacent counties is available either Monday, Wednesday, Friday or Tuesday, Thursday. See Figure 4.1: Panhandle Transit Days of Service by County.

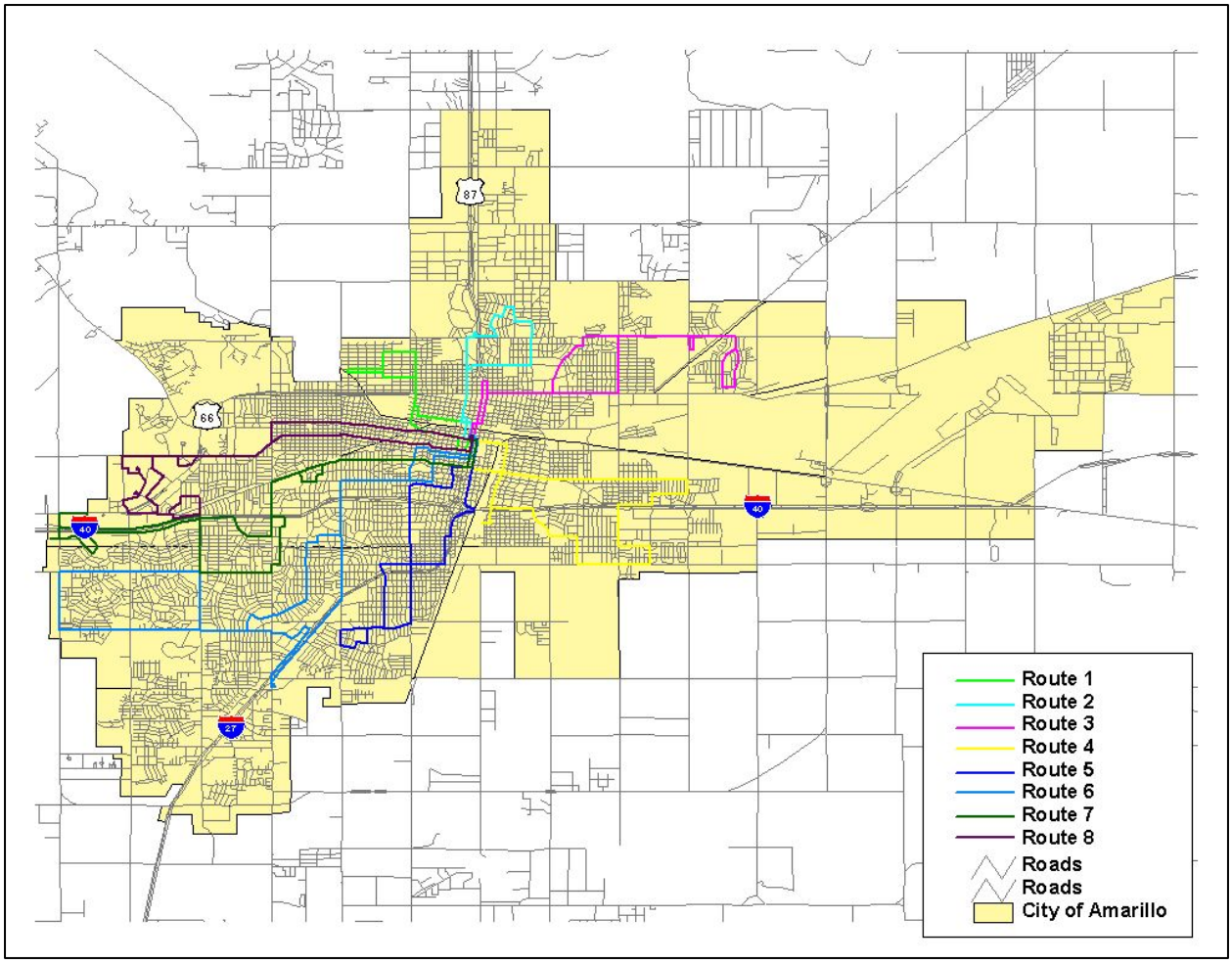
Figure 4.1: Panhandle Transit Days of Service by County



In Amarillo, there is a gap in service for those areas that lie within the city limits (and thus, cannot be served by Panhandle Transit), yet outside of Amarillo City Transit's service area.

Some destinations that are outside the service area yet of interest to riders are the Amarillo International Airport and the East Campus of the Amarillo City College. See Figure 4.2: Amarillo City Transit Routes and Amarillo City Limits.

Figure 4.2: Amarillo City Transit Routes and Amarillo City Limits

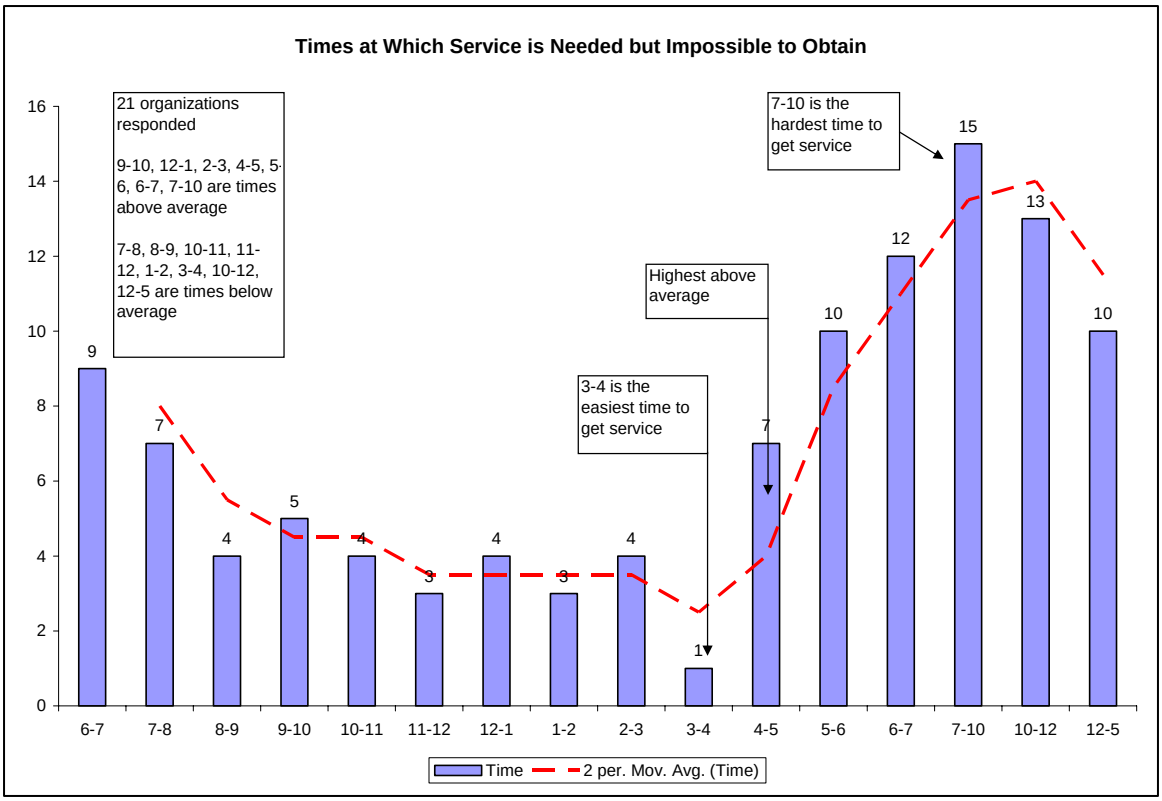


Transit Gaps: Times with No Service

In the rural areas, transit service is not available outside of Panhandle Transit's regular operating hours: Monday to Friday from 8:00 am to 5:00 pm. Likewise, there is no transit service in Amarillo outside of Amarillo City Transit's regular hours of Monday through Saturday, from 6:30 am to 6:30 pm. At present, there is no estimation of the unmet demand for service outside these hours. However, the Panhandle Coordination Survey indicates that there is a need for

transit beyond these hours, specifically to address workforce issues. See Figure 4.3: Times at Which Service is Needed but Impossible to Obtain.

Figure 4.3: Times at Which Service is Needed but Impossible to Obtain



More than half (54%) of the respondents to the Panhandle Transportation Coordination Survey indicated that there is a need for transportation after 5:00 pm. In particular, there is a need for transit services for people who are reliant on public transportation and have work hours that extend in the evening, after public transit is no longer available. This need has been reinforced during one-on-one meetings with the Panhandle Mental Health and Mental Retardation office and Workforce Development Centers and in public meetings.

Transit Gaps – Under Served Urban and Rural Markets

In addition to the need to extend transit into under served areas and beyond the existing schedule, there are specific gaps that are related to markets that are heavy transit users: the elderly, people with disabilities, and people with low-incomes. The following gaps in service may address only one, but in many cases, all these markets are addressed.

Limited ability to fill short-term trip needs: Agencies that serve disabled and senior citizens cited difficulty in addressing trip needs with less than a 24-hour advance notice concern. One result of this is unmet demand is trips are being pushed to emergency transportation services at a much higher cost.

Limited ability to fill trip needs that require a higher level of service: Agencies that serve disabled or senior citizens may be reluctant to rely on existing transit services because the level of assistance that may be offered is inadequate for their client's needs or there is the perception that the level of service is inadequate.

Limited ability to serve job training and employment trips: Job opportunities for shift-work employment are located off the fixed route in Amarillo. For example, employment centers with shift-work and a large number of workers, such as the Tyson meat packing plant, the Pantex Nuclear Plant, and electric generation plants, are located on the outskirts of town. Other employment-related transit gaps include a need for transit services after 6:30 pm; difficulty in accessing child care when the parent is transit-dependent; and transportation to Amarillo City College East Campus for job training.

Limited capacity on public transportation to provide wheel-chair accessible transportation to the Amarillo International Airport: There is no wheel-chair accessible taxi in Amarillo.

Limited ability to serve trips for youth programs in Amarillo: The YMCA, Maverick's Boys and Girls Club, and Region 16 Head Start/Early Head Start Program each cited a need for more transit support for special programs.

Transit Overlap

Vehicles

Little to no transit vehicle overlap was identified outside of Amarillo. In the rural regions, there is no public transportation provider besides Panhandle Transit, including taxis. Excluding Potter County, Panhandle Transit operates 40 vehicles to serve the remaining 25 counties and only 19 additional vehicles were identified through the Panhandle Transportation Inventory as being operated by other agencies.

There is a higher concentration of resources within the City of Amarillo. This is expected as the city is the headquarters for many agencies and has the highest population. Fifteen of the organizations which responded to the survey or a phone call provided some level of social services transportation. Table 4.3 below outlines the number of vehicles by organization for Amarillo.

Table 4.3: Demand Response-type Vehicles in Amarillo

Organization	Number of Vehicles based in Amarillo
Amarillo City Transit (ACT)	23
Panhandle Transit (PT)	19 (Note: Estimate of vehicles making scheduled MWF trips; trips T,Th as needed for Medicaid.)
Jan Werner Transportation	29
ASC Industries	15
LeFleur Transportation (Medicaid Subcontractor)	7 (five active/wheelchair , with two spare)
TaxiPro (Medicaid Subcontractor)	5 (no vehicles are wheelchair accessible)
Baptist Community / Park Central	7
Maverick Boys and Girls Club	4
Panhandle Independent Living	2
Wesley Senior Program	2
Opportunity School	1
Palo Duro Nursing, Seville Estates, Kirklands Court, Martha's Home	1 each

Other

Other sources of duplicated transportation resources include maintenance facilities, driver training, and reservation/scheduling/dispatch software. Where duplication exists, there may exist a potential to share resources; however in order to do so will require additional resources in-and-of themselves in order to upgrade, expand, and/or hire additional personnel.

- Maintenance: Several agencies manage maintenance centers to service their vehicles. However, each system currently lacks the capacity to expand maintenance operations to include other agency's vehicles. For example, ACT is constrained by the lack of space and the number of qualified mechanics that can be hired given its payscale.[4] The Texas Panhandle MHMR operates a maintenance center that is sufficient to handle their vehicle load as does Jan Werner Transportation; however, in each case, there is no excess capacity.
- Software: ACT uses Trapeze and Jan Werner Transportation and Panhandle Transit use Shaw software. Migration to a common software platform may facilitate future ride-sharing. Of the two packages, the Trapeze software is more powerful. However, at this time, ACT's license is at its maximum and any establishment of a common platform would require additional resources.[5]
- Driver Training: Each program maintains its own driver training program that is tailored to their specific market. For example, Jan Werner Transportation drivers also serve as personal care attendants and their training reflects a higher level of service from that of ACT or Panhandle Transit.
- Travel Training: Texas Panhandle MHMR, Goodwill, and the Panhandle Independent Living Center, and ACT are just a few of the agencies that provide travel training to their clients.

[4] The ACT starts their mechanics at $9.50 per hour or $19,760 annually. The estimated starting salary for auto mechanics is $16.90 or about $33,700.
[5] Annual license fee for Trapeze is $32,000.