Regional Transit System Plan

Bus Operations Plan

October 2011

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TULSA REGIONAL TRANSIT SYSTEM PLAN AND ALTERNATIVES ANALYSES

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TULSA TRANSIT

Bus System Evaluation and Service Plan

Technical Memorandum #1: Existing Services Evaluation

(Updated Draft)

March 2011

Submitted by Connetics Transportation Group

CTG Connetics Transportation Group

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Abbreviations

Federal Transit Administration (FTA)
National Transit Database (NTD)
Fixed Route (FR)
Demand Responsive (DR)
Farebox Recovery Ratio (FRR)
General Farebox Incorporated (GFI)
Traffic Analysis Zone (TAZ)
Denver Avenue Station (DAS)
Memorial Midtown Station (MMS)

1 Overview

The Tulsa Regional Transit System Plan and Alternatives Analyses is a first-of-its-kind long-range public transportation plan for the communities in the Indian Nations Council of Governments (INCOG), including Tulsa, Broken Arrow, Bixby, Jenks, Owasso, and Sand Springs. The Plan is the first step to identify a financially-viable public transportation program for the greater Tulsa area, and represents an extremely important opportunity for the Tulsa region to compete for federal grants which are increasingly moving toward public transportation.

The system plan will explore options including conventional buses, express buses, bus rapid transit, street cars, commuter rail transit, and light rail transit. Traffic corridors will be ranked and prioritized and the draft plan will be circulated for further review by the public. After the plan is finalized and approved, a subsequent Alternatives Analysis will occur in a specific traffic corridor in a defined geographic area.

As part of the system plan, a thorough evaluation of existing bus operations and identification of future bus service opportunities is being completed. General public transit service within the region is currently provided by the Metropolitan Tulsa Transit Authority (MTTA, or Tulsa Transit). This system provides weekday and Saturday bus service in Tulsa, Jenks, Broken Arrow, and Sand Springs. In FY2009, it operated nearly 300,000 revenue hours and 5 million revenue miles of service on a budget of around $20 million, providing almost 3 million annual transit rides.

This analysis of Tulsa Transit will be used as the means to understand current transit service needs, which in turn will provide the ability to assess the extent to which the bus component of the RTSP can address those needs. Tasks include a review of existing fixed route bus service, a general assessment of Tulsa Transit in comparison to peer bus systems in other locations, and preparation of near-term and long-range future service plans. The evaluation and service plan will build upon previous studies, references, and resources produced by Tulsa Transit and INCOG (such as the Tulsa Transit Needs Assessment, January 2010).

This report, Technical Memorandum #1, conducts a system and route level evaluation of Tulsa Transit's current services. Analysis is based on data provided by Tulsa Transit and other sources, and includes:

- Historical ridership data (2001-2010), provided by Tulsa Transit
- GFI farebox data (October 2010), provided by Tulsa Transit
- Fixed route operating statistics (October 2010), provided by Tulsa Transit
- Historical operating data (2002-2009), provided by NTD
- On-board rider survey results (January/February 2010), provided by INCOG

1.1 Description of Services

Tulsa Transit operates local bus service in Tulsa, Jenks, Broken Arrow, and Sand Springs. Regular service runs from 5:00 a.m. to 8:00 p.m. Monday through Friday and 7:00 a.m. to 7:00 p.m. on Saturday. Limited late-night route deviation service (Nightline) is offered on weekdays and Saturdays, which operates until 12:00 midnight. There is no service on Sundays. Complementary ADA paratransit service (the Lift Program) is offered concurrent with regular service.

The fixed route system is based on a modified grid network. While routes primarily serve either east-west or north-south arterials, some routes may cover more than one corridor. Tulsa Transit operates 18 all-day routes, five Nightline routes, and two weekday express routes. Tulsa Transit also operates a few special event shuttles in connection with major events at the BOK Center, as well as a seasonal once-a-month service to the Tulsa Air & Space Museum and Tulsa Zoo.

Service frequencies for daily routes range from 25 minutes to over 60 minutes. In many cases headways are based on being able to provide the most frequent service given the route's cycle time, which may lead to limited ability to coordinate connections.

Tulsa Transit operates two major transit centers: the Denver Avenue Station (DAS) in downtown Tulsa, and the Memorial Midtown Station (MMS) near the junction of Broken Arrow Expressway and I-44. All but two routes connect to one or both of these transit centers. Fourteen of the 18 daily bus routes serve DAS, as well as both express routes and all nightline routes. Eight routes serve MMS.

The DAS facility at 319 S. Denver consists of 10 bus bays and includes a customer service desk, restroom facilities, and an indoor passenger waiting area. The MMS facility at 7952 E. 33rd Street is designed with 12 bays (9 of which are currently active), and also includes a customer service desk, restroom facilities and an indoor waiting area. Three Park-N-Ride lots serve the two express routes and are located in Broken Arrow at the Church at Battle Creek, Indian Springs Baptist Church, and Union Intermediate High School. Additionally, Tulsa Transit has arrangements to provide free parking for transit users at 13 "park and save" locations along local routes, usually churches or community facilities.

Table 1.1 presents a listing of routes, span of service and each route's service frequency by day of the week and time of day. Figure 1.1 illustrates daily routes, while Figure 1.2 shows Nightline service.

Table 1.1: Tulsa Transit Fixed Route Services

Route	Route Name	Transit Stations Served	Weekday				Saturday		
			Span of Service	Peak	Midday	Night	Span of Service	Day	Night
Local									
100	Admiral	DAS	5:20 am - 7:15 pm	40	40	--	7:00 am - 6:15 pm	80	--
101	Suburban Acres	DAS	4:50 am - 7:30 pm	30	45	--	6:58 am - 6:55 pm	45	--
105	Peoria	DAS	5:25 am - 8:06 pm	30	30	--	6:57 am - 6:02 pm	50	--
111	11th Street	DAS	5:25 am - 6:55 pm	45	45	--	6:51 am - 6:00 pm	90	--
112	Lewis/Jenks	DAS	5:20 am - 7:43 pm	60	60	--	7:12 am - 5:46 pm	80	--
114	Charles Page/Sand Springs	DAS	5:08 am - 7:52 pm	55	55	--	6:27 am - 6:40 pm	114	--
117	Union/Southwest Blvd	DAS	5:10 am - 6:40 pm	45	90	--	7:50 am - 6:20 pm	90	--
118	33rd West Ave	DAS	4:50 am - 7:30 pm	55	110	--	7:05 am - 6:57 pm	110	--
203	Airport	DAS and MMS	4:56 am - 7:07 pm	65.5	65.5	--	6:58 am - 6:54 pm	70	--
210	Harvard	DAS and MMS	5:14 am - 7:13pm	45	67.5	--	7:00 am - 5:50 pm	130	--
215	15th Street	DAS and MMS	5:15 am - 7:11 pm	38	76	--	7:00 am - 6:16 pm	76	--
221	21st St/Eastgate	DAS and MMS	5:25 am - 7:58 pm	45	67.5	--	7:20 am - 5:43 pm	70	--
222	Pine/41st Street	DAS and MMS	5:17 am - 7:30 pm	70	70	--	7:05 am - 5:55 pm	65	--
251	Fast Track	DAS and MMS	5:15 am - 7:45 pm	25	50	--	7:10 am - 6:20 pm	50	--
306	Southeast Industrial	MMS	6:40 am - 7:45pm	60	60	--	--	--	--
318	Memorial	MMS	5:30 am - 7:45 pm	45	90	--	6:30 am - 5:35 pm	90	--
471	71st Street	none	6:05 am - 7:25 pm	100	100	--	7:00 am - 5:50 pm	100	--
508	Broken Arrow Connection	none	5:55 am - 6:20 pm	85	240	--	--	--	--
Express									
902	Broken Arrow Express	DAS	6:20-8:33 am / 4:06-6:03 pm	4 trips	--	--	--	--	--
909	Union Express	DAS	6:50-7:37 am / 4:47-5:45 pm	1 trip	--	--	--	--	--
Nightline									
840	North Nightline	DAS	8:15 pm - 12:59 am	--	--	5 trips	7:30 pm - 12:10 am	--	5 trips
860	East Nightline	DAS	8:05 pm - 12:06 am	--	--	4 trips	7:45 pm - 12:08 am	--	5 trips
870	South Nightline	DAS	8:00 pm - 12:13am	--	--	8 trips	7:30 pm - 12:08 am	--	8 trips
880	Southeast Nightline	DAS	8:00 pm - 11:15pm	--	--	4 trips	7:30 pm - 11:00 pm	--	4 trips
890	West Nightline	DAS	8:00 pm - 12:02 am	--	--	5 trips	7:30 pm - 11:43 pm	--	5 trips

Figure 1.1: Tulsa Transit Fixed Route System Map

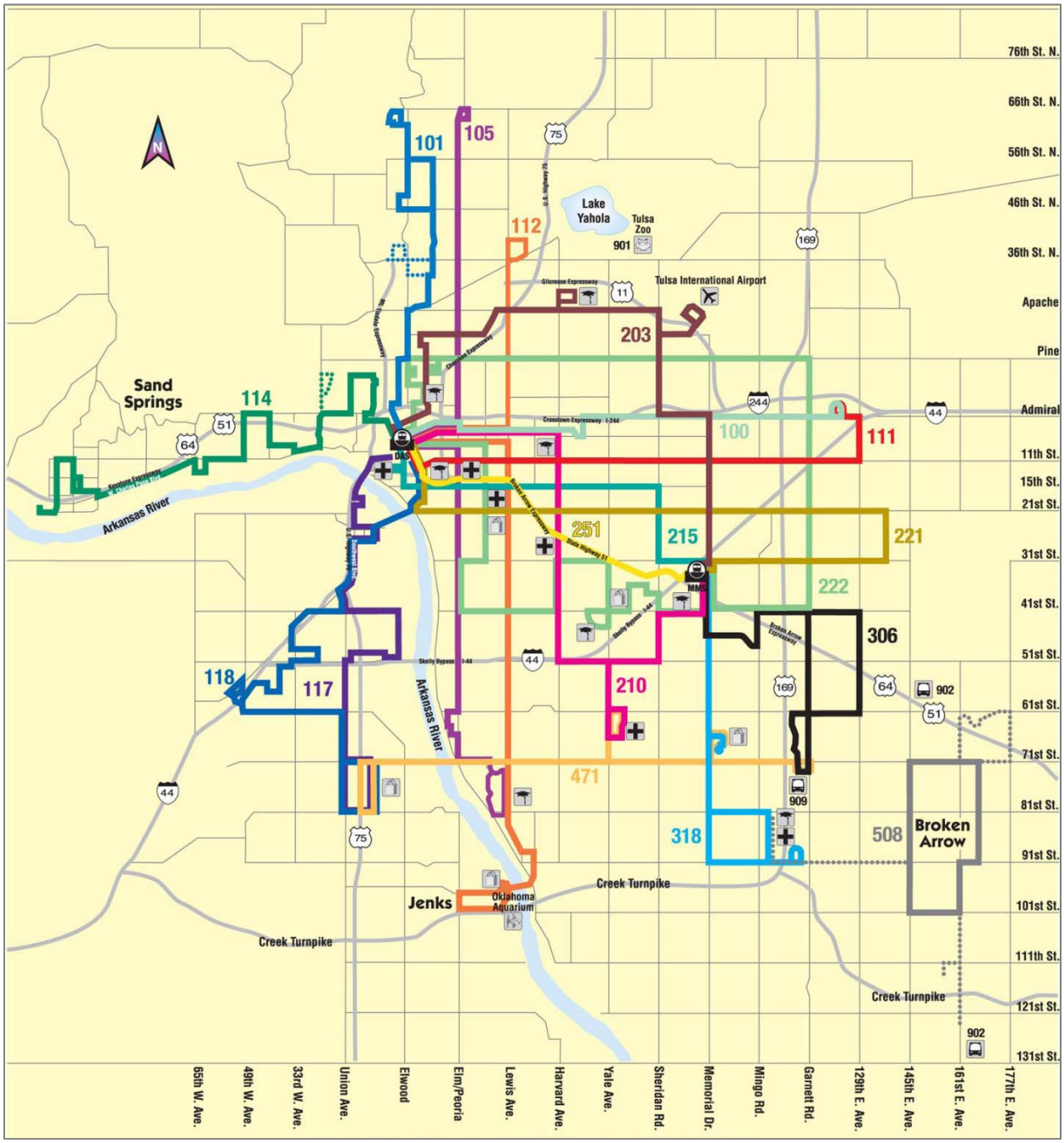
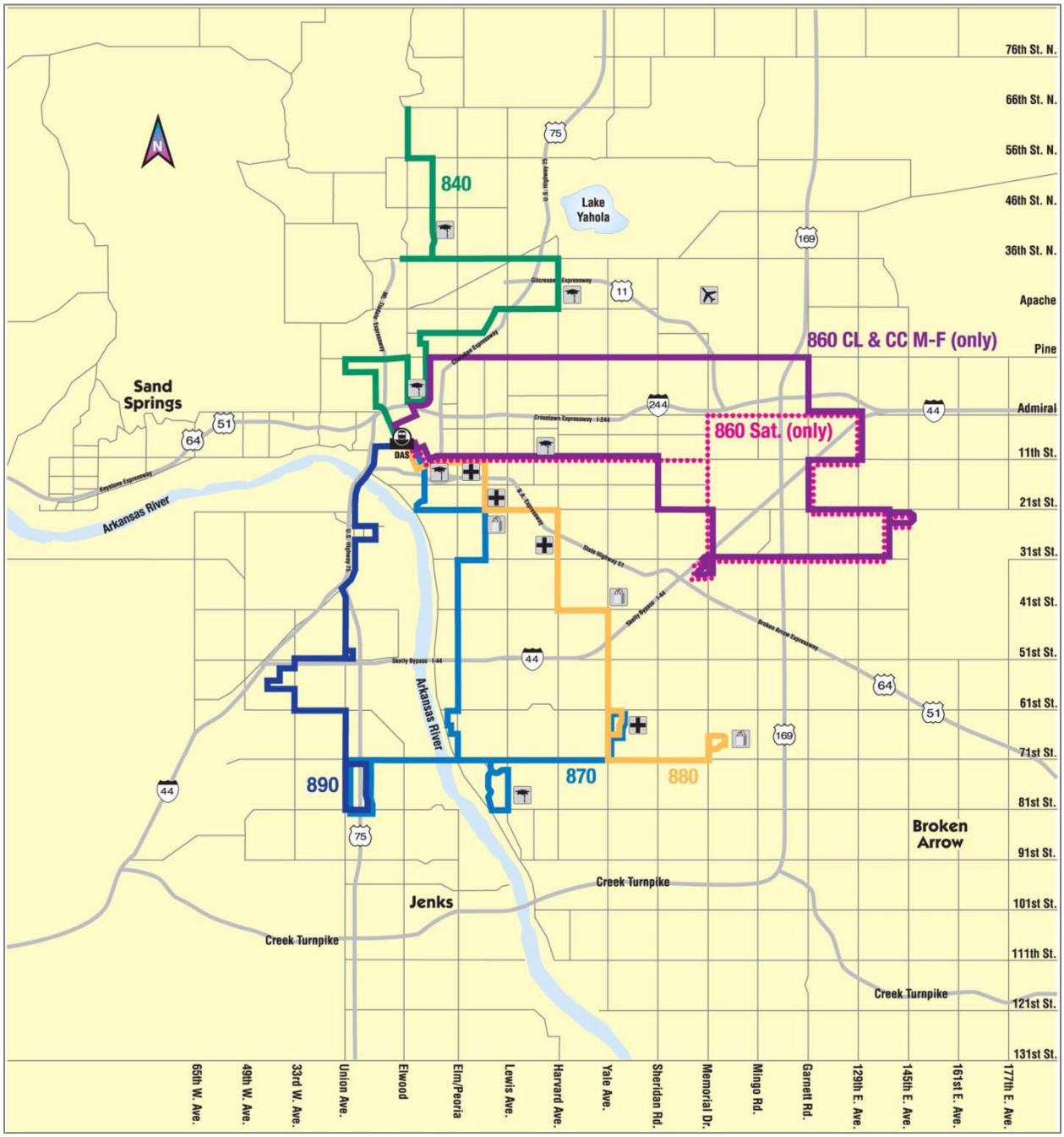


Figure 1.2: Tulsa Transit Nightline System Map



1.2 Key Findings

Several key findings were drawn forth from this evaluation. They describe a picture of a transit agency that has suffered massive cuts to fixed route service in the past decade, resulting in deep ridership losses that only recently have rebounded. Strapped by a lack of funding, Tulsa Transit has not evolved with time. Service spans on the core routes are limited to daylight hours only, with no Sunday service. Only one of eighteen local routes has a frequency less than thirty minutes. The route structure has not been adjusted for changes in trip patterns or travel times, leaving many headways off clock-cycles and timed transfers rare, both a deterrent to new and choice riders. This is confirmed by survey results that show that only the most transit-dependent of Tulsa citizens use the fixed route system.

Over the same time (and perhaps as a result of fixed route cuts), the complementary ADA program has grown rapidly both in service levels and costs, making demand-responsive service a larger part of Tulsa Transit's operations than in the past, or at other transit agencies. A summary of key results derived in the sections below include:

- **Fixed route ridership has still not recovered from massive service cuts within the past ten years.** Significant cuts of more than 20 percent to fixed route (FR) service from 2002-2004 stunted ridership, but it has come back somewhat without an increase to service levels. Service productivities have not significantly changed in that time, while cost efficiencies have decreased slightly.

  Over the last three years, ridership has been stabilizing at 2.5 million annually, with a weekday average just under 10,000 riders and a Saturday average of around 3,000. With an average of 17.6 riders per hour and 1.15 riders per mile, local routes perform lower than national averages for midsize urban cities. On the other hand, the two express routes perform well for their functional mode, averaging 22.7 riders per hour and almost 20 riders per trip.

- **Ridership demographics and travel patterns reflect a highly transit dependent base.** Three out of five riders have no driver's license or auto availability, and four out of five riders are in households earning under $25,000 annually. A large segment of riders takes advantage of deep-discounted multiuse fare products in order to utilize the system.

  Ridership is spread fairly evenly across the day, and by trip purpose. It is geographically concentrated in north Tulsa, along the Admiral corridor, the Peoria corridor, and the area around Promenade Mall. Not surprisingly, these areas correspond to the most productive routes in the system (Routes 105, 101, 100, and 222).

- **Riders often utilize transfers despite onerous transfer conditions.** About one in three riders require a transfer to complete his or her trip, with the most common patterns occurring between Routes 105, 101, 222, and 251. While the transfer facilities themselves are quite welcoming with good passenger amenities, timetables are not synched to allow timed transfers or clock headways, making transferring a time-intensive activity.

- **Transit system walk accessibility is limited.** While a majority of people and jobs within the City of Tulsa limits have quarter-mile access to transit on weekdays and Saturdays, large portions of the city, and further across the region, do not. In addition, evening coverage is severely limited across the service area. This is reflected in walk access and egress times that each average over five minutes, the typical time for a quarter-mile walk. In the future, the situation is exacerbated as more population and employment is projected to develop in areas that do not currently have transit service.

- **While fixed route service levels have stagnated, demand responsive service has increased considerably.** Demand responsive (DR) service and ridership have increased steadily since 2005, possibly a result of passengers shifting from fixed route to demand responsive service, or as a result of institutional policies for demand responsive customers. As such, costs for this service have increased by 26 percent, while service productivities have decreased.

  As a result of the increases in demand responsive service over time, DR costs in 2009 made up 29 percent of the overall operating budget, up from 24 percent in 2002. This 5 percent shift translates to almost a million dollars moving from FR operations to DR operations, or a loss of more than 20,000 annual FR revenue hours (11 percent). It is worth noting that since July 2009, Tulsa Transit has made efforts toward more efficient paratransit operations, including fare changes, tighter eligibility requirements, and modifications to a variety of service policies. These changes are likely to lead to appreciable reductions to the operating budget as well as improved service efficiency.

2 Operations Analysis

National Transit Database (NTD) information was collected for Tulsa Transit for the past eight years (FY 2002 through FY 2009) to determine pertinent trends in service characteristics and performance measures. Cuts in the fixed route operating budget from 2002 through 2004 resulted in a severe decrease in service provided, which had the effect of depleting fixed route ridership by 2005. From 2005 through 2009, budget has been restored, and with it service levels and ridership have trended back up, though not reaching 2002 levels. Over the eight-year period, fixed route service productivities have increased, as have unit costs to provide services.

Demand responsive operating budget and service levels have increased significantly over the same period, with ridership growing as well. Service productivity trends have been mixed since 2002, with riders per hour decreasing and riders per mile increasing slightly. Likewise, cost measures have shown some unit costs increasing while some remained constant. In total, demand responsive service has grown from 24 to 29 percent of Tulsa Transit's overall budget, and from 29 to 39 percent of total service hours.

All operating costs reported in this section reflect year of expenditure dollars.

2.1 Fixed Route Service

Table 2.1 presents basic ridership, service, and operating statistics for Tulsa Transit fixed routes between the years 2002 and 2009. Over that time, the number of passenger trips provided by Tulsa Transit's fixed route service has generally decreased with a major decrease of nearly 20 percent between 2002 and 2005 and an overall decrease of 5 percent from 2002 to 2009. Since 2005, however, ridership has seen yearly increases and has increased 18 percent. This recent increase in ridership with little change in operating budget is a highly positive trend even with socioeconomic conditions that have been favorable to transit growth.

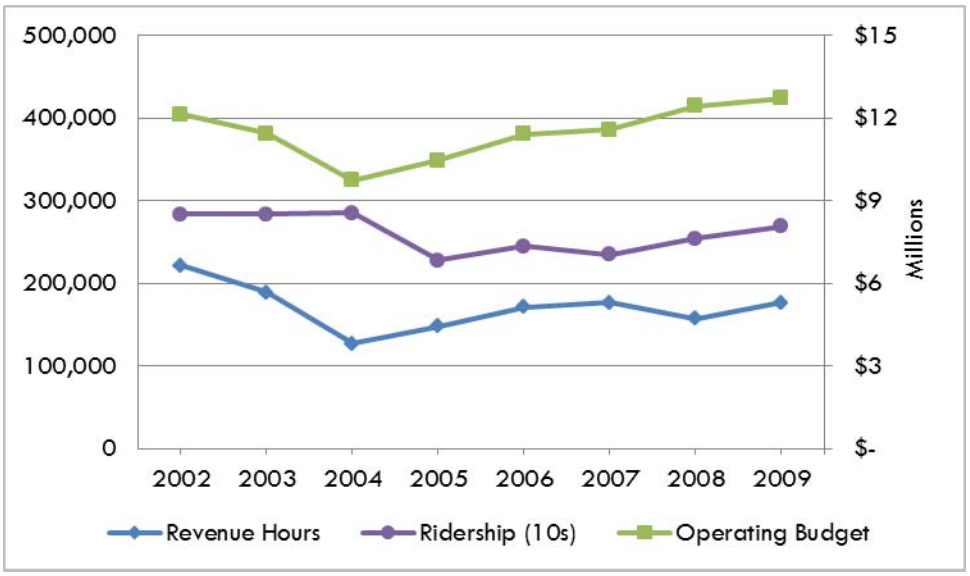
Table 2.1. Historical Fixed Route Service and Operating Statistics (2002 - 2009)

Year	Ridership	Revenue Hours	Revenue Miles	Operating Budget	Farebox Recovery Ratio
2002	2,836,180	221,346	3,734,300	$ 12,143,788	14.4%
2003	2,840,421	189,189	2,963,674	$ 11,440,404	13.1%
2004	2,850,504	127,184	2,032,804	$ 9,754,259	14.4%
2005	2,281,375	147,789	2,474,711	$ 10,476,846	13.7%
2006	2,451,742	171,532	2,609,750	$ 11,417,024	14.6%
2007	2,351,145	176,762	2,802,348	$ 11,584,359	15.7%
2008	2,543,514	157,494	2,611,001	$ 12,440,902	15.1%
2009	2,688,967	176,352	2,781,349	$ 12,731,837	15.6%
Change '02 - '09	-5.2%	-20.3%	-25.5%	4.8%	7.6%

Revenue hours between 2002 and 2009 fell more than 20 percent from 220,000 hours to 176,000 hours and revenue miles fell more than 25 percent from 3.7 million miles to 2.7 million miles. Operating expenses remained relatively stable, only increasing 5 percent in the seven year horizon. Likewise, the farebox recovery ratio saw an increase of nearly 8 percent.

Looking at the data a bit closer, the major decreases in ridership – and its partial rebound – can be traced to similar trends in operating budget and revenue hours over the same time (Figure 2.1). As operating budget decreased from 2002-2004 (and with it revenue hours), ridership held steady until 2005, where it felt the shock of the over 40 percent cut in service. As budget and service hours have been restored to some degree, ridership has begun to return as well.

Figure 2.1. Historical Fixed Route Trends in Key Statistics (2002 - 2009)



Service Effectiveness

Service effectiveness relates to how successful an agency is at moving passengers based on the amount of service they are providing. Measures used to evaluate service effectiveness include passengers per revenue hour (Figure 2.2), and passengers per revenue mile (Figure 2.3). Both measures saw increases in 2004 before decreasing and stabilizing through 2009. The sharp increase in 2004 corresponds with the highest ridership levels of over 2.85 million passengers, corresponding to 22.4 passengers per revenue hour and 1.4 passengers per revenue mile. Stabilized rates hover around 15 passengers per hour and 1 passenger per mile.

Figure 2-2. Passengers per Revenue Hour

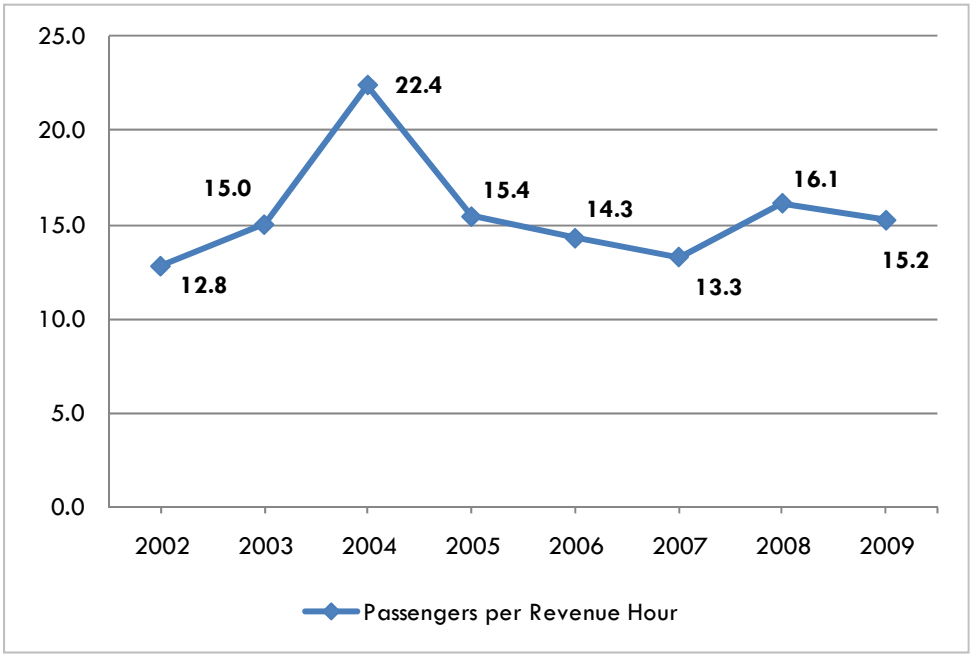
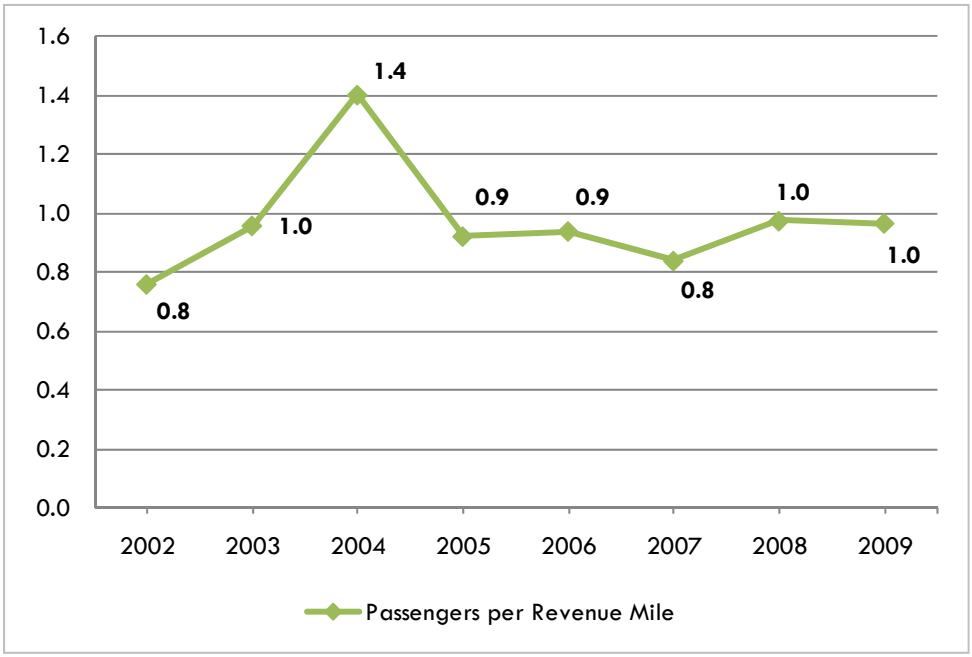


Figure 2-3. Passengers per Revenue Mile

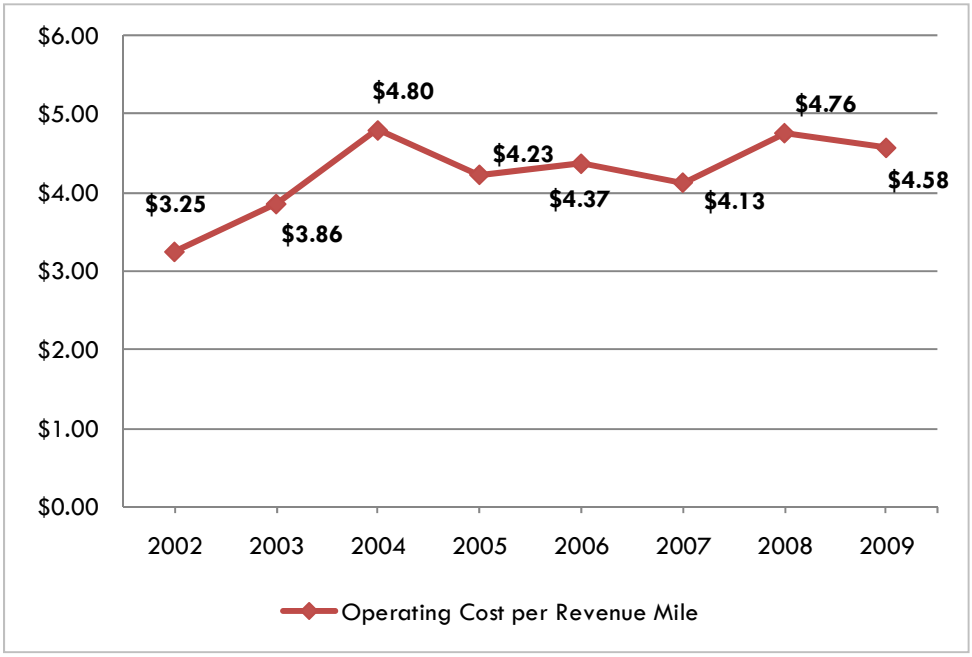


Service Efficiency

Operating costs per revenue hour and per revenue mile provide measures of how cost efficiently an agency provides its service. Overall, Tulsa Transit's cost per revenue hour (Figure 2.4) and cost per revenue mile (Figure 2.5) both increased between 2002 and 2009. Cost per revenue hour increased nearly 32 percent while cost per revenue mile increased more than 41 percent. The change between 2003 and 2004 saw the highest increase in both metrics, approaching nearly a 27 percent increase for cost per hour and a 24 percent increase for cost per mile.

Figure 2.4. Operating Cost per Revenue Hour

Figure 2.5. Operating Cost per Revenue Mile



Cost Effectiveness

Cost effectiveness is an amalgamation of service effectiveness and service efficiency, measuring how effective an operator is at moving passengers based on the amount of money it costs to operate service. It is measured in terms of operating cost per passenger trip (Figure 2.6).

Figure 2.6. Operating Cost per Passenger Trip

The operating cost per passenger trip generally increased 10 percent between 2002 and 2009 with a sharp decrease in 2004 due to higher passenger levels. Decreasing ridership after 2004 resulted in slightly higher costs per trip, ranging between $4.60 and $4.90 from 2005 to 2009.

2.2 Demand Responsive Service

Table 2.2 presents basic ridership, service, and operating statistics for Tulsa Transit's demand responsive service between years 2002 and 2009. The number of passenger trips has increased more than 12 percent during the previous seven years, with a slight 4 percent decrease in 2005 and an increase of nearly 16 percent between 2005 and 2009.

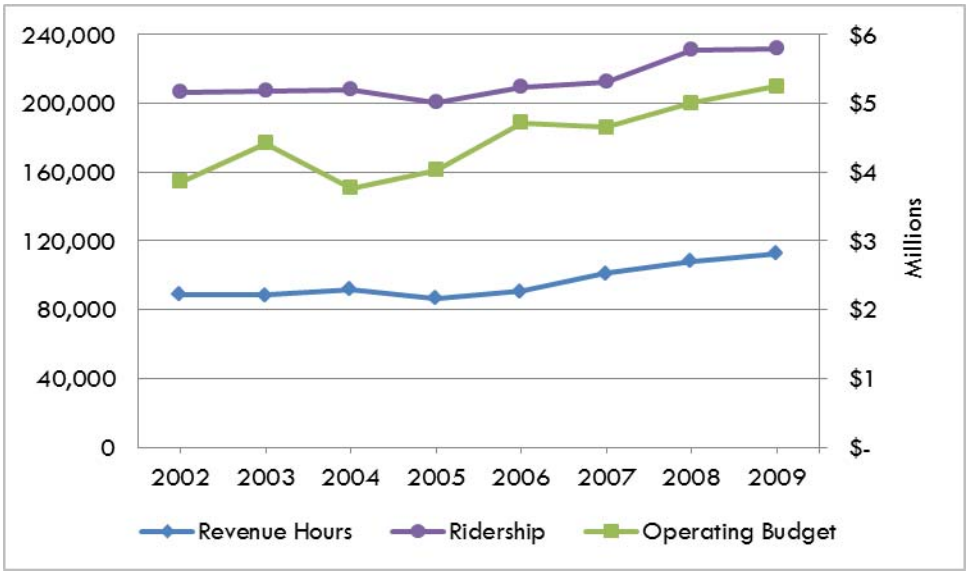
Table 2.2. Historical Demand Responsive Service and Operating Statistics (2002 - 2009)

Year	Ridership	Revenue Hours	Revenue Miles	Operating Budget	Farebox Recovery Ratio
2002	206,640	88,860	1,885,386	$ 3,857,624	23.5%
2003	207,404	88,402	1,278,934	$ 4,423,216	7.1%
2004	208,168	91,748	1,592,984	$ 3,767,675	10.2%
2005	200,696	86,498	1,516,641	$ 4,032,592	10.4%
2006	209,503	90,750	1,620,693	$ 4,717,227	9.0%
2007	212,426	101,244	1,920,192	$ 4,655,661	11.1%
2008	231,312	108,350	1,946,012	$ 5,009,174	10.7%
2009	231,979	112,692	1,988,589	$ 5,244,565	10.7%
Change '02 - '09	12.3%	26.8%	5.5%	36.0%	-54.4%

The operating expense between 2002 and 2009 has increased by 36 percent but the farebox recovery ratio has seen its rate cut by more than half. Revenue hours saw nearly a 27 percent increase while revenue miles saw modest growth. Both revenue service indicators for fixed route service were significantly negative (20 percent and nearly 26 percent, respectively).

Identifying trends in demand responsive service is slightly different than with fixed route service, since the nature of the service means that ridership demand drives service levels (and to a degree, costs) as opposed to fixed routes, where first a level of service is offered, which subsequently leads to a given demand to ride. Nonetheless, ridership trends track with similar trends in operating budget and revenue hours (Figure 2.7). Except for a spike in ridership in 2003, demand responsive operating costs, revenue hours, and boardings remained steady through about 2005, from where increases in revenue hours and operating expenses mirrored a jump in ridership lasting through 2009.

Figure 2.7. Historical Demand Responsive Trends in Key Statistics (2002 - 2009)



Service Effectiveness

Measures used to evaluate demand responsive service effectiveness include passengers per revenue hour (Figure 2.8), and passengers per revenue mile (Figure 2.9). Passengers per revenue hour saw an 11 percent decline due to years of slight increases followed by years of large decreases with the largest decrease in 2007 of 9 percent. Passengers per revenue mile grew by a modest 6 percent from 2002 to 2009 helped largely by a large bump in 2003 of 48 percent followed by consecutive modest decreases.

Figure 2.8. Passengers per Revenue Hour

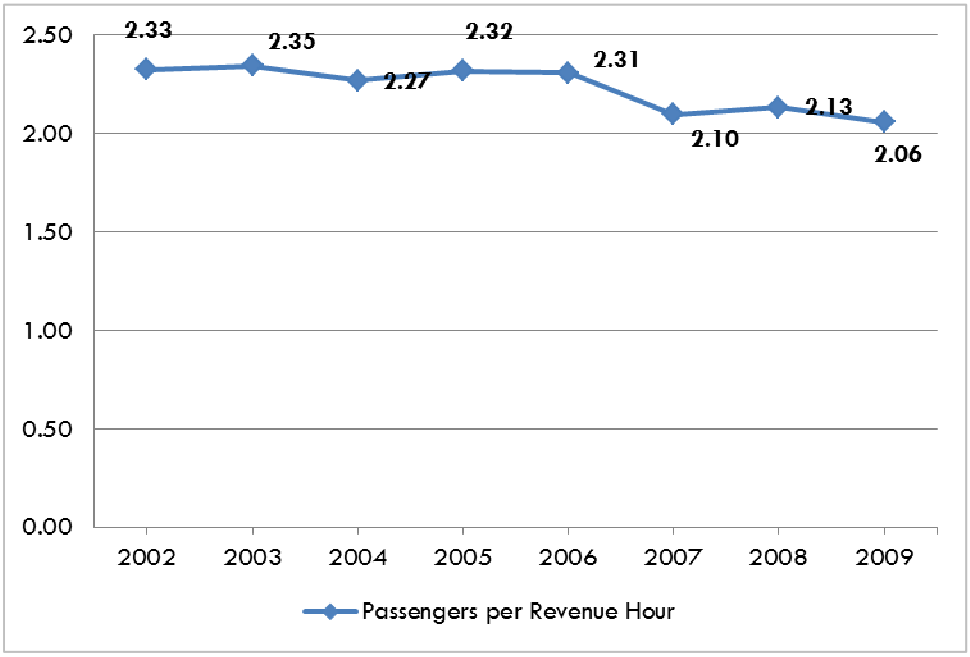
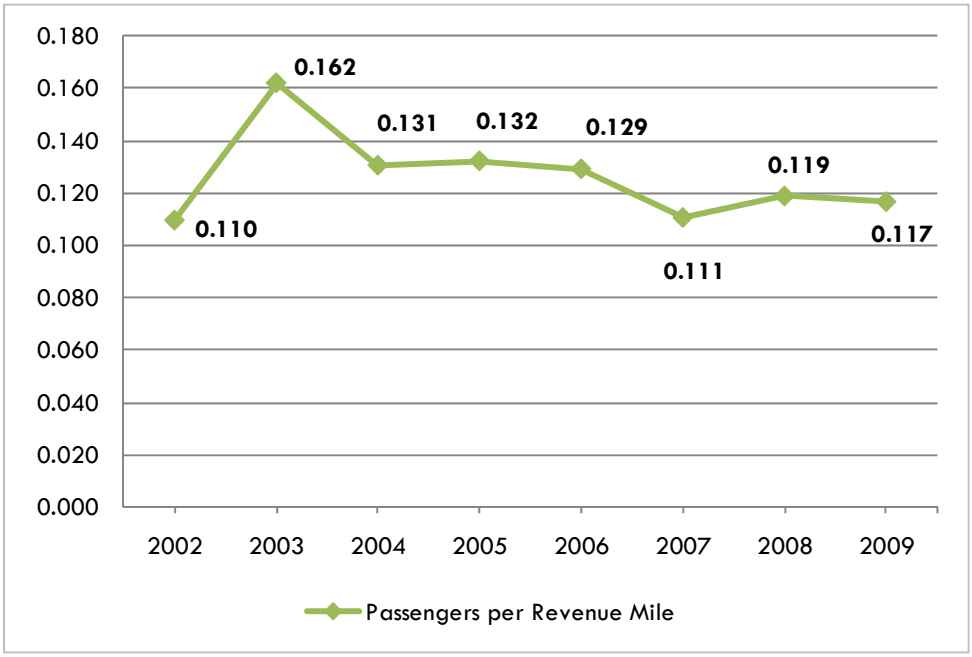


Figure 2.9. Passengers per Revenue Mile

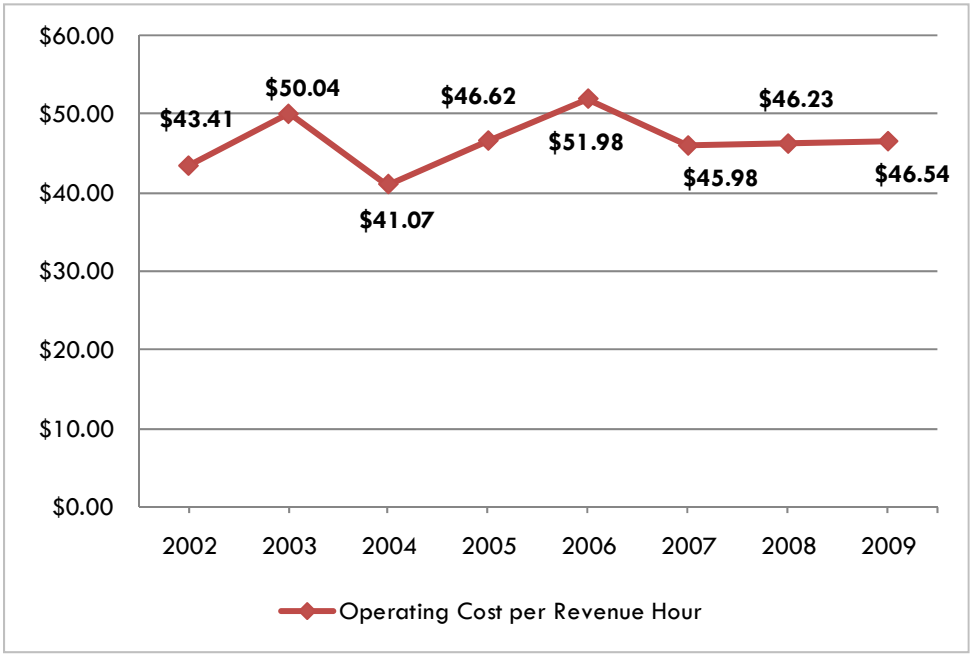


Service Efficiency

Overall Tulsa Transit's demand responsive cost per revenue hour (Figure 2.10) and cost per revenue mile (Figure 2.11) have been generally stable between 2002 and 2009 with some oscillations in the middle years. Operating cost per revenue hour saw a decline of 18 percent in 2004 followed by a 27 percent

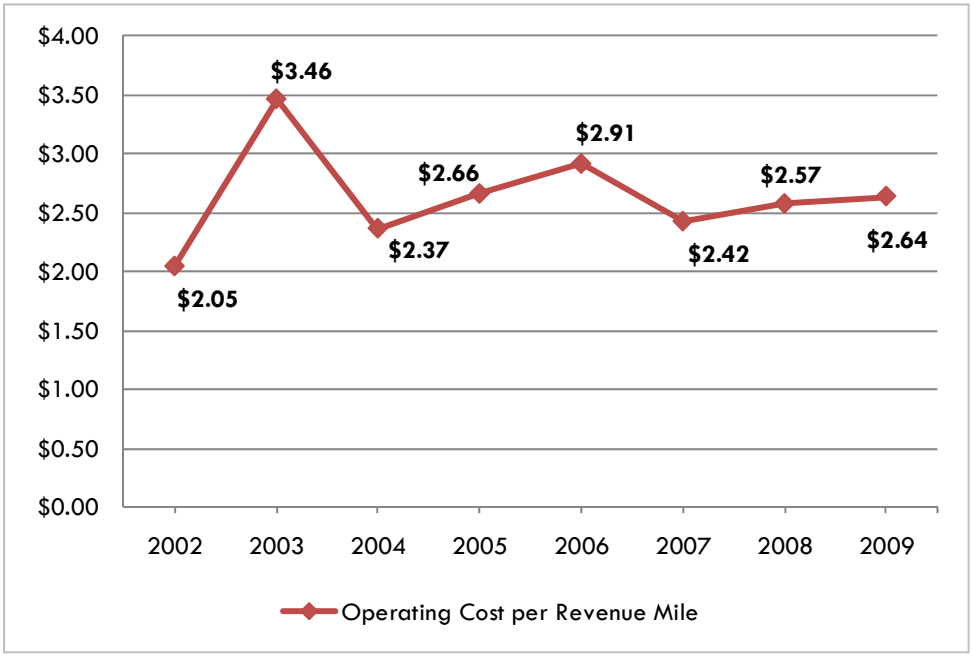
increase through 2006, wavering between $41 and $52 during the years 2002 to 2009. It has now stabilized around $46 per hour.

Figure 2.10. Operating Cost per Revenue Hour



Operating cost per revenue mile saw similar oscillations as cost per revenue hour. The highest change was an increase of 70 percent in 2003 followed by a 32 percent tumble in 2004. Since then the rate has hovered around $2.60 per mile.

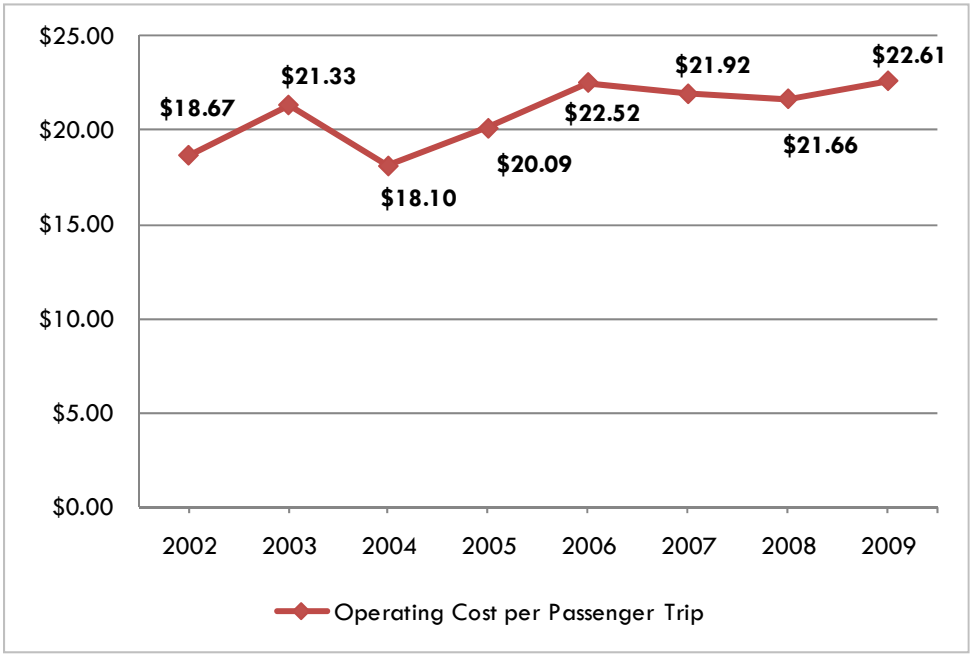
Figure 2.11. Operating Cost per Revenue Mile



Cost Effectiveness

The operating cost per passenger trip generally increased between 2002 and 2006 before leveling off to around $22 per trip. Overall, operating cost per passenger trip increased 21 percent from 2002 to 2009.

Figure 2.12. Operating Cost per Passenger Trip



3 Ridership Analysis

This section begins with a wide view of systemwide Tulsa Transit ridership from a historical perspective, then gradually zooms down to a snapshot of existing ridership by route. It draws primarily from historical systemwide ridership data, GFI farebox ridership data from October 2010, and results of the on-board rider survey conducted in January/February 2010.

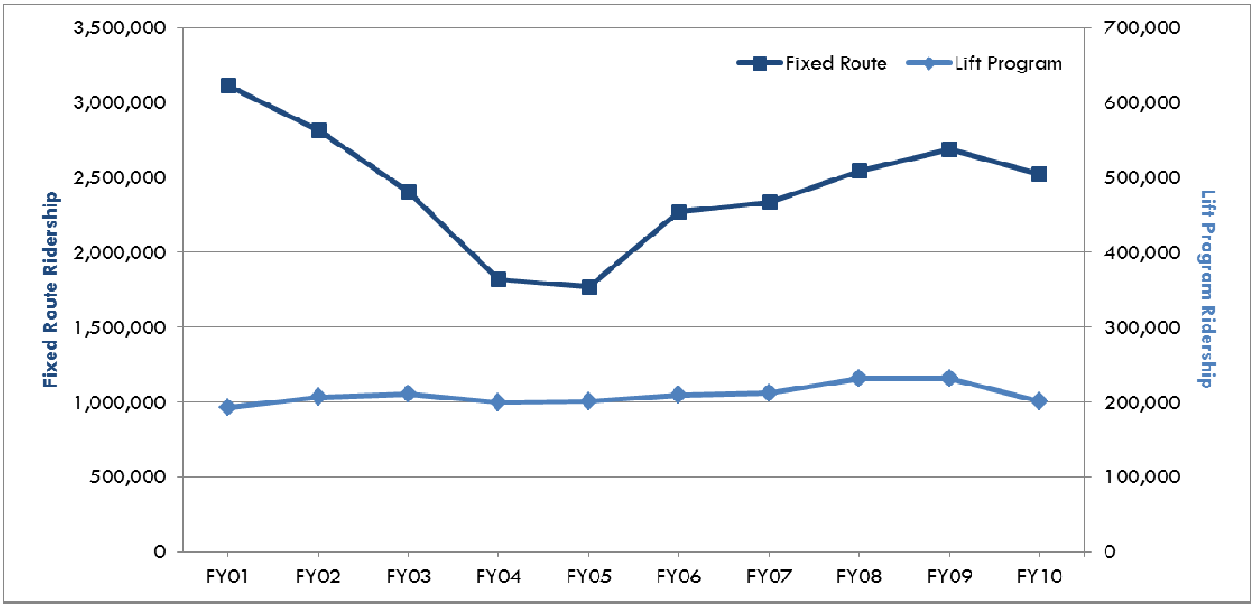
Tulsa Transit ridership has been rebounding for the past several years from drastic service cuts between 2001 and 2005 that severely depleted ridership. Over the last three years, ridership has been stabilizing at 2.5 million annually, with a weekday average just under 10,000 riders and a Saturday average of around 3,000. Routes 105, 101, and 100 stand out as the most productive in the system, while Routes 471, 118, and 203 are among the least productive.

A large segment of the ridership base takes advantage of deep-discounted multiuse fare products in order to utilize the system. About 1 in 3 riders makes a transfer to complete his or her trip, with the most common patterns occurring between Routes 105, 101, 222, and 251. Riders reported that on average they spend over 30 minutes of their one-way trip walking to or from or waiting at the bus stop, not including transfer waiting time.

3.1 Historical Trends

Fixed route and Lift Program ridership data from Tulsa Transit was analyzed over the last ten years to understand a long term view of how ridership has changed over time (Figure 3.1). From 2001 to 2005, fixed route ridership plunged from over 3 million annually to 1.8 million, a staggering loss of 44 percent over four years.

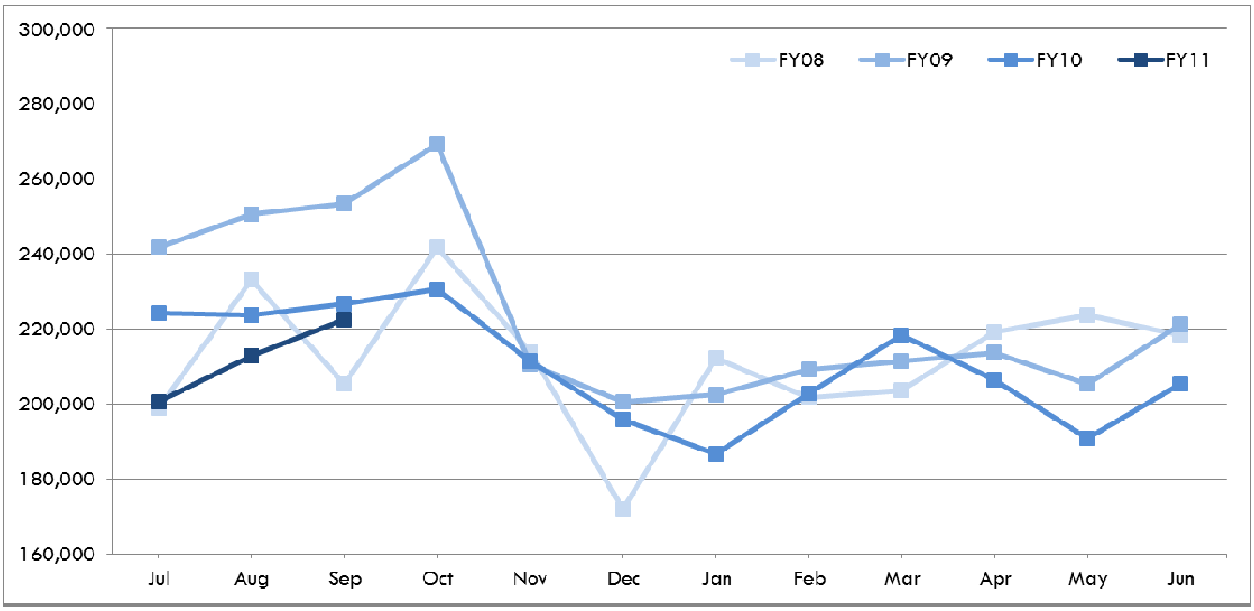
Figure 3.1: Annual Ridership, FY01-FY10



As shown in Section 1, this drop in ridership correlated to large cuts in revenue service over this time. Since 2005, fixed route ridership has steadily rebounded, averaging a gain of over 8 percent annually and topping 2.5 million riders for the last three years. Ridership on the Lift Program has remained far more stable, hovering around 200,000 annual riders over the past ten years.

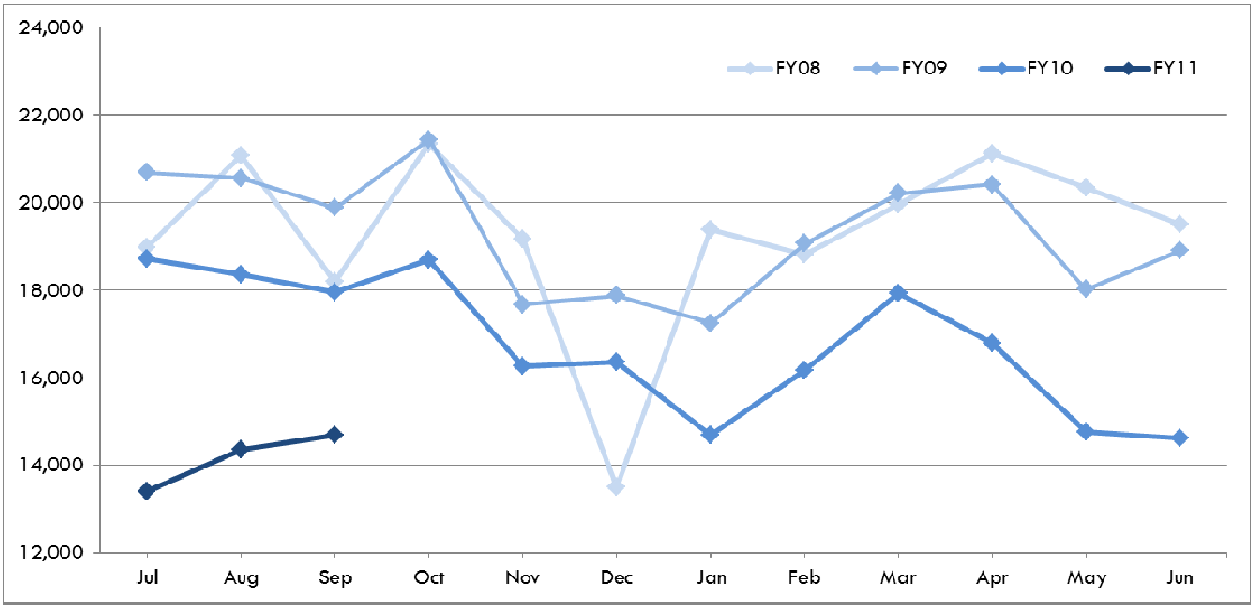
Next, ridership was analyzed with a finer lens for the last three fiscal years to observe seasonal trends in the data. On the fixed-route system, October tends to be the strongest month for ridership, with December and January being the lowest (Figure 3.2), with variations of over 60,000 riders between the highest and lowest months in any given year. Summer and fall in general (July through October) seem to generate higher ridership than other seasons.

Figure 3.2: Fixed Route Riders by Month, FY08-FY11



On the Lift Program, July through October also tends to be the strongest period, with November through January being the lowest (Figure 3.3). FY2010 begins a downward trend in Lift Program ridership that continues into the beginning of FY2011, which records some of the lowest monthly ridership totals for the three-year period. This trend coincides with stronger measures put in place by Tulsa Transit to control equitable and reasonable use of the demand responsive system.

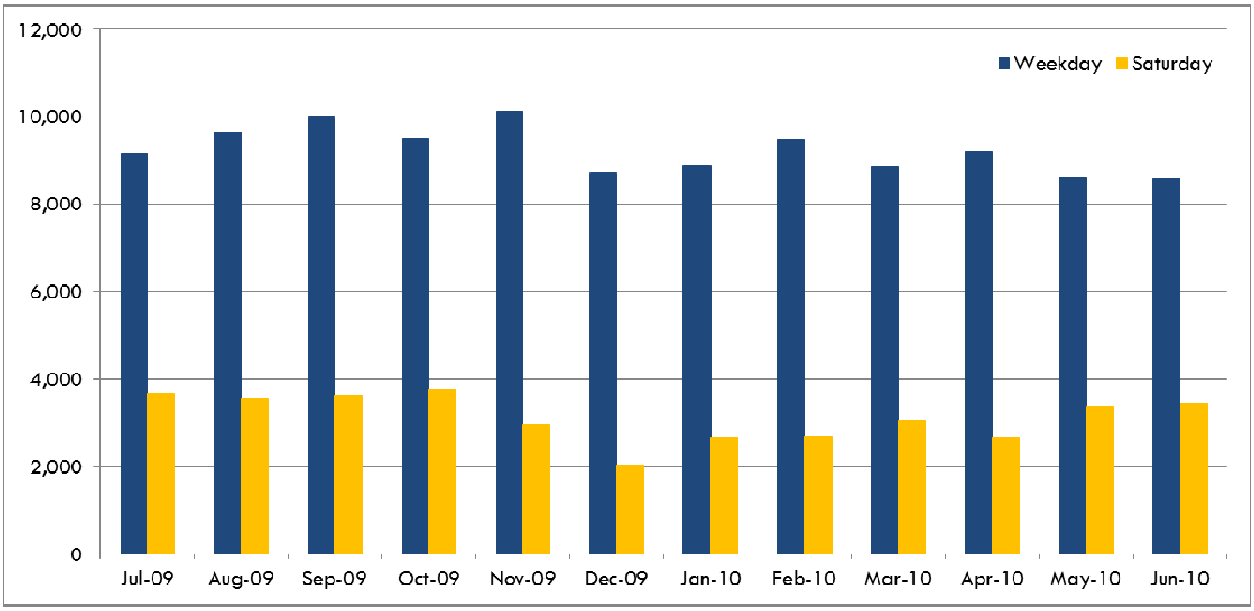
Figure 3.3: Lift Program Riders by Month, FY08-FY11



Finally, average daily ridership on the fixed route system was analyzed by month for the last fiscal year (Figure 3.4). For the year, Tulsa Transit averaged 9,225 riders on a weekday, with November and

September 2009 recording the highest averages at around 10,000 daily riders and May and June 2010 reporting the lowest at around 8,500 daily riders. On Saturdays, the fixed route system averaged 3,119 daily riders, about one third of the weekday average. October and July 2009 saw the highest usage (around 3,700 riders) and December 2009 saw the lowest (about 2,000 riders).

Figure 3.4: Average Daily Fixed Route Riders, FY10



3.2 Ridership by Fare Type

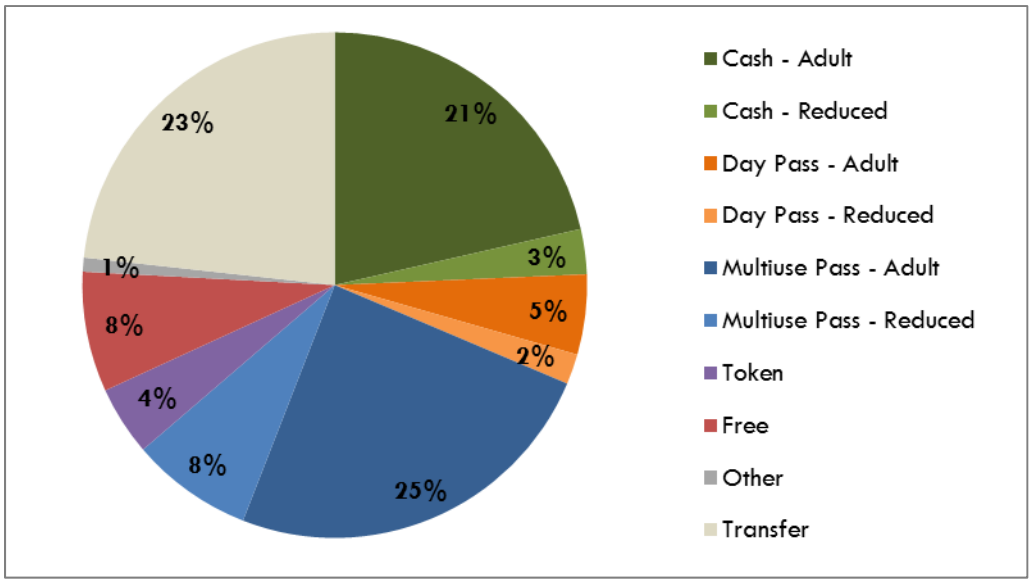
Daily GFI farebox data was broken down for a one-month period (October 2010) to understand ridership patterns by fare type. Tulsa Transit offers a wide range of full and reduced fare products to its customers. These include a regular cash fare of $1.50, with lower fares available based on age or disability, and a host of discounted passes valid for either a number of days or number of trips. Table 3.1 displays the various fare types accepted on Tulsa Transit fixed routes.

Table 3.1: Tulsa Transit Fixed Route Fare Classes

Fare Class	Adult	Youth (5-17)	Senior (62-74) and Disabled	Super Seniors (75 and over)	Children (Under 5)
Cash Fare	$1.50	$1.25	$0.75	Free	Free
1-Day Pass	$3.25	$1.60	$1.60		
7-Day Pass	$12.00	$6.00	$6.00		
31-Day Pass	$40.00	$20.00	$20.00		
10-Ride Fare Cards	$12.00	$9.50	$6.00		
Tokens	50 for $60				
One-way Transfers	Free				

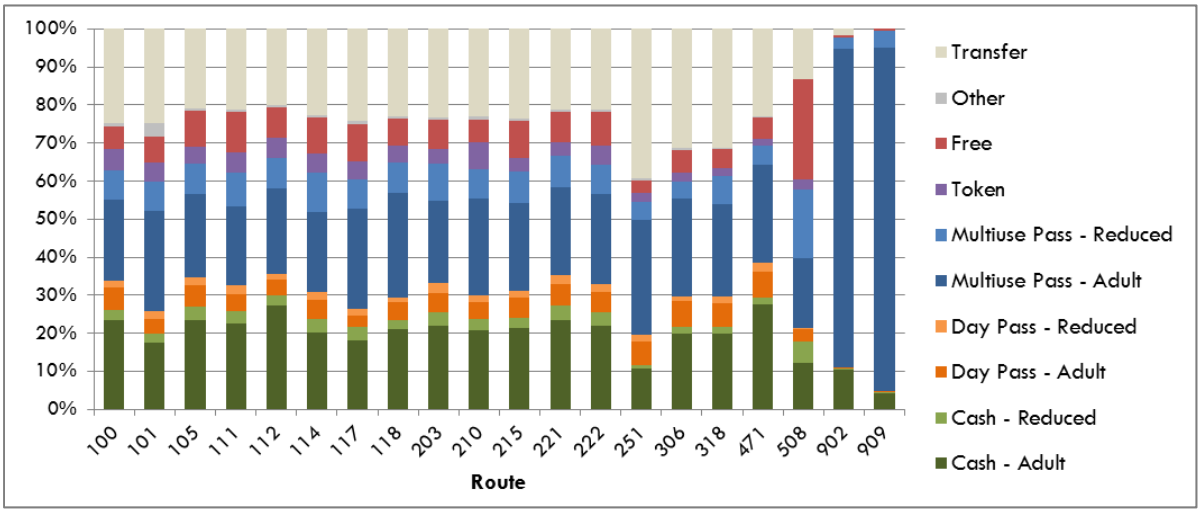
These nineteen fare classes were aggregated into eight generalized fare types and analyzed by relative contribution to total ridership (Figure 3.5). About one quarter of all riders pay for their trip with cash, and about one third paid with a multiuse pass (10-trip, 7-day, or 31-day pass). 8 percent of riders rode free, and almost one quarter rode on a transfer pass, translating to a systemwide transfer rate of 1.33. Almost 20 percent of riders paid with a reduced fare class (Senior/Disabled or Youth) for their trip.

Figure 3.5: Systemwide Ridership by Fare Type, Oct 2010



Ridership by fare type was broken down to see how fare usage changed by route (Figure 3.6). Express routes are dominated by multiuse passes, while Route 508 skews more toward free and reduced fares and less toward transfers and full fares. Fitting its role as a high-speed connection between DAS and MMS, Route 251 receives 40 percent of its riders from transfers and a smaller than average number from reduced fares. Routes 306 and 318 also both exhibit higher than average ridership from transfers.

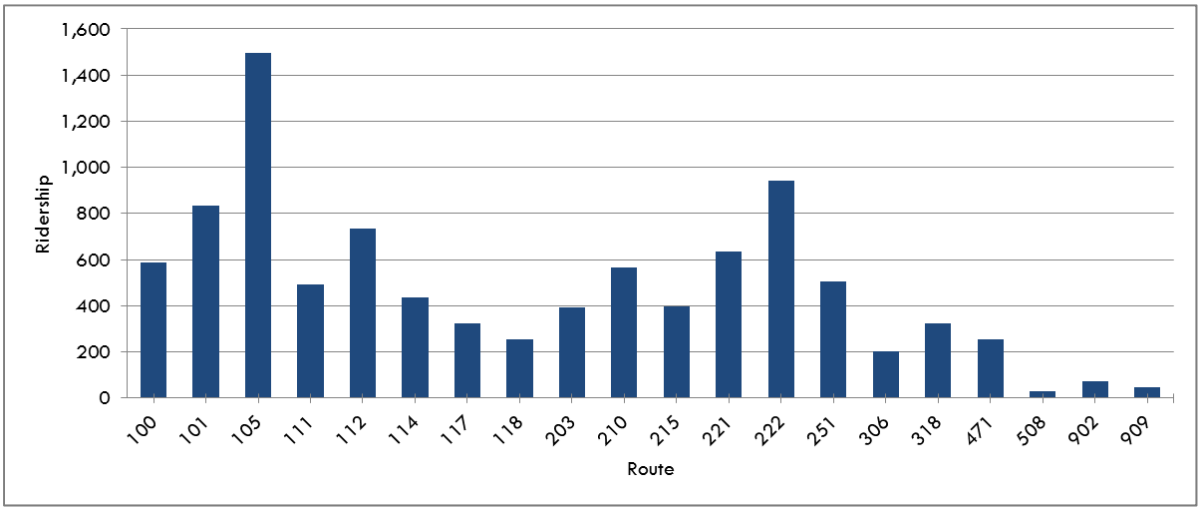
Figure 3.6: Ridership by Fare Type by Route, Oct 2010



3.3 Route Productivities

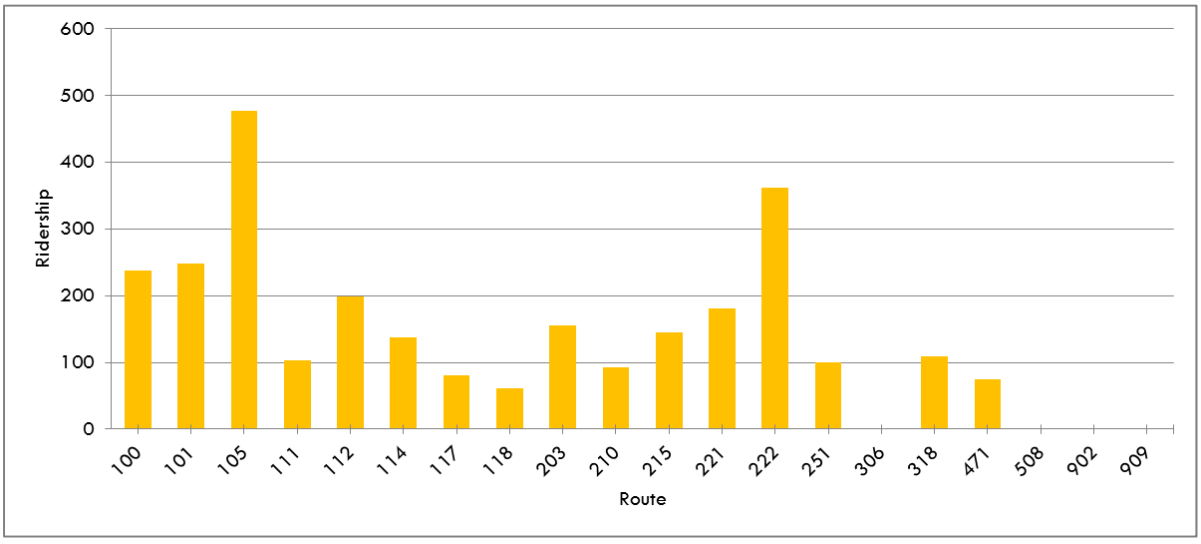
Route level ridership data from October 2010 was examined by day of week to understand how routes compare from the standpoint of service efficiency. Eighteen local and two express routes operate on weekdays, with average weekday ridership ranging from about 1,500 on Route 105 to 29 on Route 508 (Figure 3.7). On average, Tulsa Transit carried 9,401 weekday riders for the month.

Figure 3.7: Average Weekday Ridership by Route, Oct 2010



On Saturdays, an average of 2,765 people rode fixed route, following the same relative frequency by route as on weekdays. Once again, Route 105 carried the most riders (477), while Route 118 carried the fewest (62), as seen in Figure 3.8. Two local routes (306 and 508) and the two express routes do not operate on Saturdays.

Figure 3.8: Average Saturday Ridership by Route, Oct 2010



Three common measures used to evaluate route productivity are riders per trip, riders per revenue-hour and riders per revenue-mile. Table 3.2 presents route productivity rankings for Tulsa Transit's weekday routes. It also identifies local routes that fall within the top quartile (numbers shown in green) and the bottom quartile (numbers shown in red) for each measure.

While ranking route productivities is a valuable tool to understand relative performance, it is important to note that often routes are performing different roles that may be naturally more or less productive. For example, Route 508 operates as a flex route circulator providing lifeline service across the less dense Broken Arrow community. Based on service area and design, it will naturally be less productive than the rest of the local system.

Table 3.2: Weekday Ridership Productivity, Oct 2010

Rank	Route	Riders/ Trip
Local		
1	222	39.28
2	105	28.19
3	112	22.25
4	221	20.41
5	101	17.78
6	210	17.68
7	203	15.74
8	306	15.69
9	100	14.30
10	111	13.62
11	114	13.62
12	117	11.91
13	215	11.70
14	318	11.13
15	118	10.14
16	251	9.92
17	471	9.78
18	508	1.71
Average		**16.32**
Express		
1	909	22.40
2	902	18.60
Average		**19.87**
SYSTEM AVERAGE		**16.36**

Rank	Route	Riders/ Rev.-Hr.
Local		
1	101	24.43
2	251	24.10
3	105	23.41
4	100	21.62
5	215	18.70
6	111	18.29
7	221	18.28
8	112	17.69
9	222	17.64
10	117	16.09
11	210	16.07
12	306	15.79
13	318	15.01
14	114	14.86
15	203	14.42
16	471	11.81
17	118	11.08
18	508	1.46
Average		**17.59**
Express		
1	909	25.61
2	902	21.25
Average		**22.70**
SYSTEM AVERAGE		**17.64**

Rank	Route	Riders/ Rev.-Mi.
Local		
1	101	1.83
2	105	1.54
3	100	1.54
4	318	1.31
5	215	1.28
6	111	1.28
7	221	1.27
8	222	1.18
9	251	1.17
10	112	1.09
11	210	1.08
12	117	1.00
13	306	0.91
14	114	0.90
15	203	0.86
16	471	0.69
17	118	0.66
18	508	0.10
Average		**1.15**
Express		
1	909	1.15
2	902	0.92
Average		**0.99**
SYSTEM AVERAGE		**1.14**

These performance measures are illustrated in Figures 3.9 through 3.11 to give a clear picture of how routes perform in relation to each other and the systemwide average. Conclusions from the weekday performance rankings are as follows:

- Routes 105, 101, and 100 are the highest performing routes. Route 105 ranked in the top quartile for all three measures, while Route 101 ranked first in two categories and just out of the top quartile for the third and Route 100 ranked in the top quartile for two categories.

- As expected, Route 508 ranks at the bottom of all productivity rankings. Routes 471 and 118 also rank in the bottom quartile for all three measures, and Route 203 ranks in the bottom quartile for two measures.
- With an average of 17.59 riders per hour and 1.15 riders per mile, local routes perform lower than national averages for midsize urban cities. On the other hand, the two express routes perform well for their functional mode, averaging 22.70 riders per hour and almost 20 riders per trip.

Figure 3.9: Weekday Riders per One-Way Trip, Oct 2010

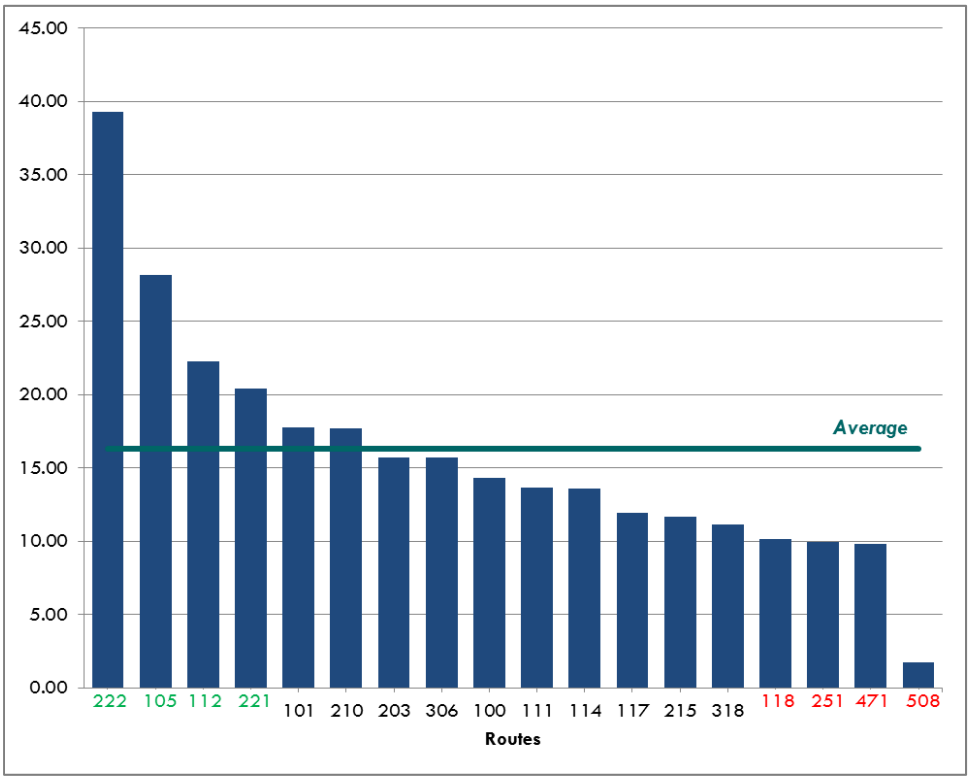


Figure 3.10: Weekday Riders per Revenue Hour, Oct 2010

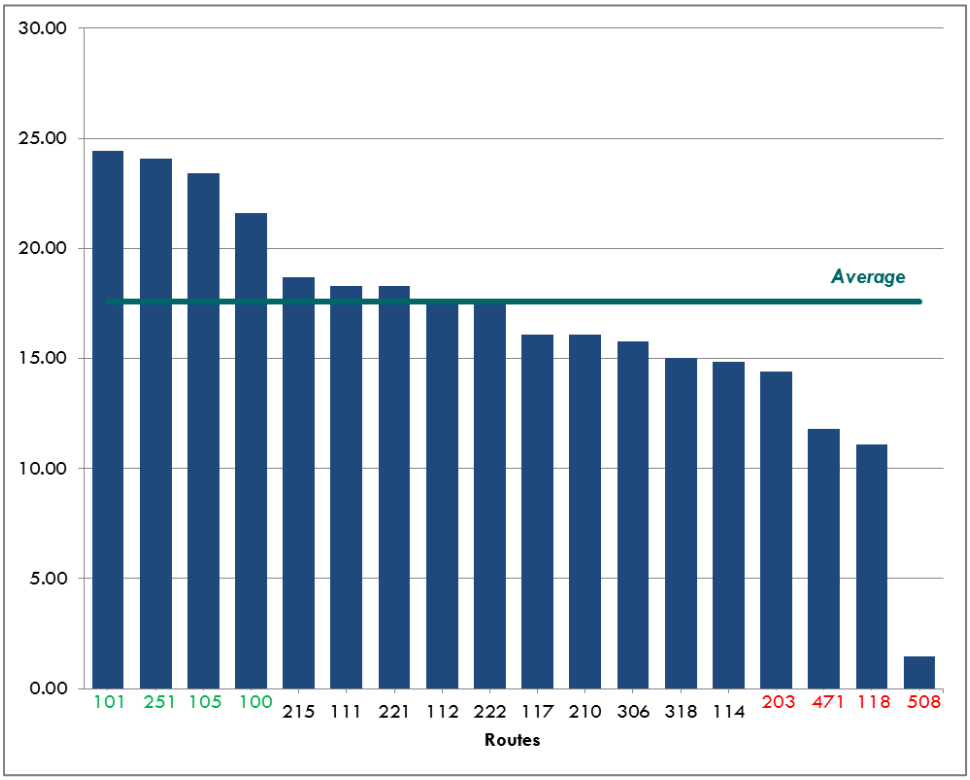


Figure 3.11: Weekday Riders per Revenue Mile, Oct 2010

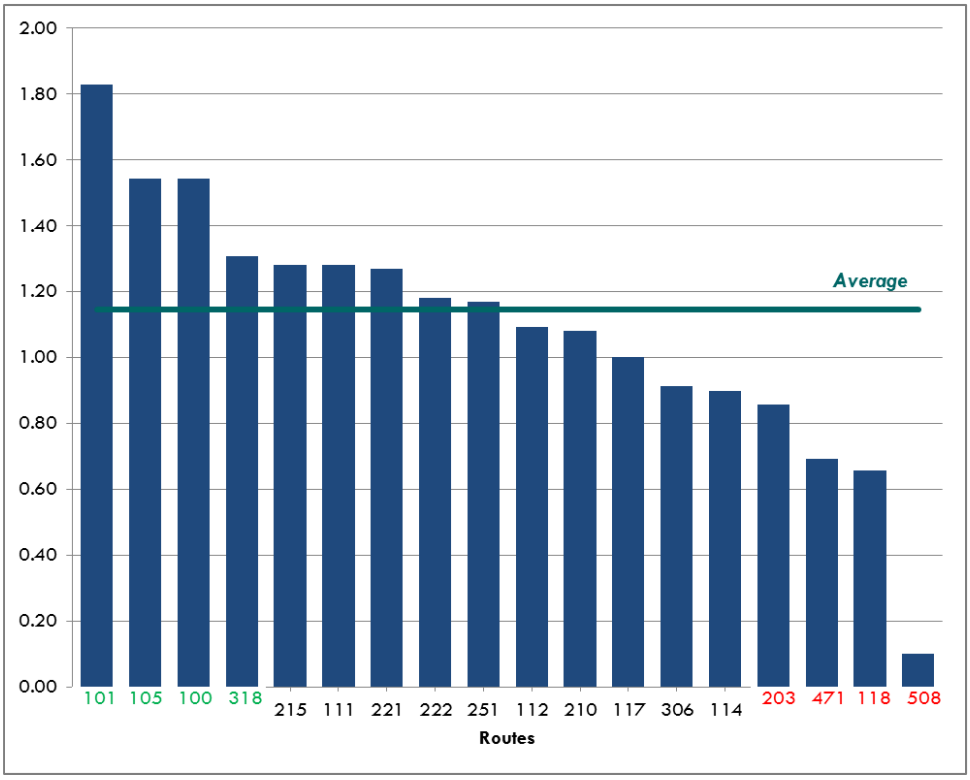


Table 3.3 presents the same route productivity rankings for Tulsa Transit's Saturday service, followed by figures depicting ranked route performance for each measure (Figures 3.12 – 3.14).

Table 3.3: Saturday Ridership Productivity, Oct 2010

Rank	Route	Riders/ Trip
Local		
1	105	18.35
2	222	18.09
3	100	13.98
4	112	12.45
5	114	10.60
6	221	10.03
7	210	9.20
8	215	8.08
9	101	8.01
10	203	7.44
11	318	7.27
12	111	6.88
13	117	5.74
14	471	5.74
15	118	4.74
16	251	3.70
Average		**9.63**
SYSTEM AVERAGE		**9.63**

Rank	Route	Riders/ Rev.-Hr.
Local		
1	100	21.12
2	105	15.24
3	215	12.91
4	114	11.28
5	101	10.80
6	318	9.83
7	112	9.66
8	111	9.26
9	251	8.94
10	222	8.83
11	221	8.70
12	210	8.49
13	117	7.66
14	471	6.89
15	203	6.84
16	118	5.19
Average		**10.18**
SYSTEM AVERAGE		**10.18**

Rank	Route	Riders/ Rev.-Mi.
Local		
1	100	1.51
2	105	1.00
3	215	0.89
4	318	0.85
5	101	0.80
6	114	0.71
7	111	0.65
8	221	0.63
9	112	0.60
10	222	0.57
11	210	0.56
12	117	0.48
13	251	0.44
14	203	0.41
15	471	0.40
16	118	0.31
Average		**0.66**
SYSTEM AVERAGE		**0.66**

Conclusions from the Saturday performance rankings are as follows:

- Routes 105 and 100 continue to be the strongest performers, ranking in the top quartile for all three measures. Route 215 ranks in the top for two out of three categories.
- Routes 118 and 471 continue to be the weakest performers, ranking in the bottom quartile for all three measures. Routes 203 and 117 rank in the bottom quartile for two measures.
- As a system, Tulsa Transit averages of 10.18 riders per hour and 0.66 riders per mile on Saturdays.

Figure 3.12: Saturday Riders per One-Way Trip, Oct 2010

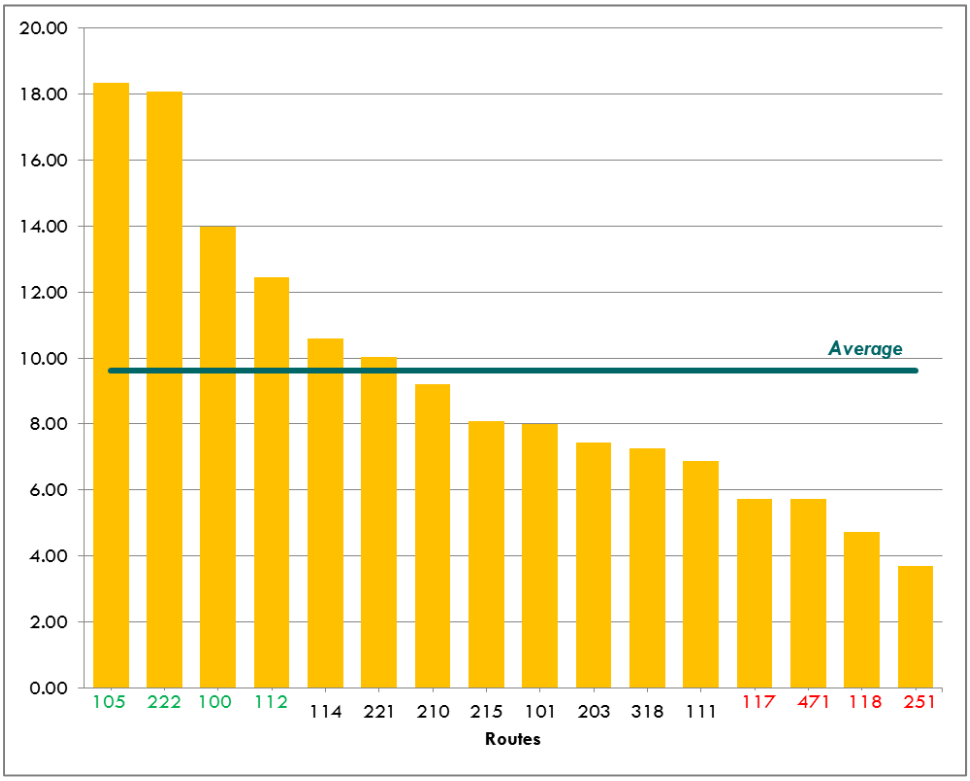


Figure 3.13: Saturday Riders per Revenue Hour, Oct 2010

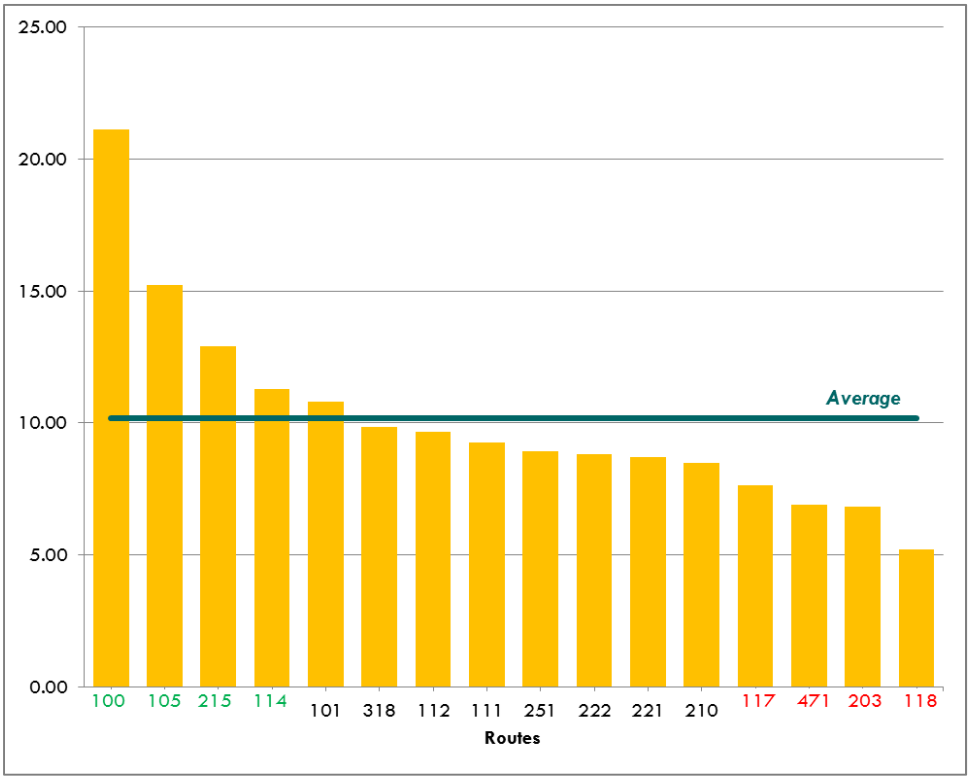
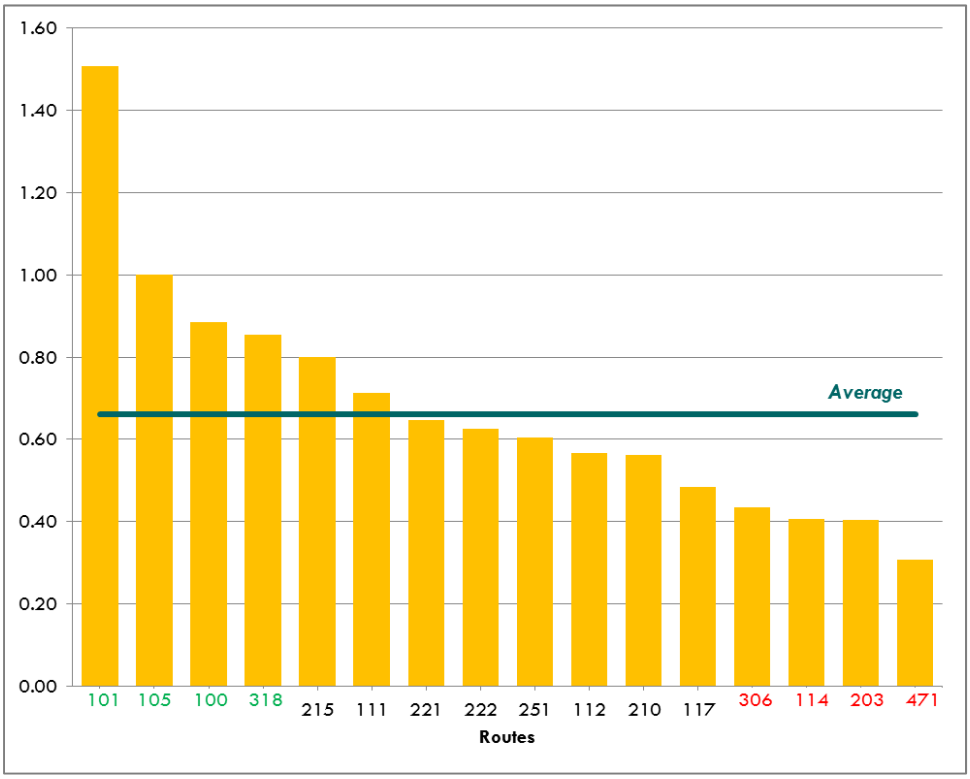


Figure 3.14: Saturday Riders per Revenue Mile, Oct 2010



3.4 Route Transfers and Auxiliary Measures

Transfer data was culled from two sources to understand the rate of transferring by route in the system as well as the routes and route pairs most likely to generate or receive transfer riders. This data can help a transit agency to understand which routes may be strong candidates for through-routing, interlining, pulsing, or similar in order to facilitate riders' travel patterns.

As presented above, GFI farebox data from October 2010 allows for an understanding of how much of a route's ridership is generated by riders transferring to a given route. Table 3.4 lists total monthly boardings by route and the number and percentage resulting from transfers. Befitting of its nature, Route 251 has the highest percentage of riders transferring to the route at 39 percent, for a transfer rate of 1.65. It is followed by Routes 306 and 318 as routes most likely to have a transfer rider.

Typically, the two express routes, Routes 902 and 909 have nearly no transfers, and Route 508, on the periphery of the route system, has the third lowest total. The rest of the routes have from 20 to 25 percent of their boardings from transfers, for a system average transfer rate of 1.33. This means that for roughly every 3 riders, 2 riders complete their one-way trip on one bus, while 1 rider requires a transfer to complete his or her trip.

Table 3.4: Transfers by Route, Oct 2010

Route	Total Boardings	Transfer Boardings	Percent Transfers	Transfer Rate
100	13,797	3,407	25%	1.33
101	19,187	4,755	25%	1.33
105	34,494	7,168	21%	1.26
111	10,922	2,303	21%	1.27
112	16,672	3,341	20%	1.25
114	9,983	2,279	23%	1.30
117	7,319	1,774	24%	1.32
118	5,692	1,307	23%	1.30
203	9,179	2,144	23%	1.30
210	12,453	2,866	23%	1.30
215	9,301	2,183	23%	1.31
221	14,440	3,055	21%	1.27
222	22,068	4,684	21%	1.27
251	11,229	4,415	39%	1.65
306	4,079	1,271	31%	1.45
318	7,463	2,325	31%	1.45
471	5,814	1,331	23%	1.30
508	612	81	13%	1.15
902	1,455	24	2%	1.02
909	941	0	0%	1.00
TOTAL	**217,100**	**50,713**	**25%**	**1.33**

The transit on-board rider survey conducted by INCOG in January/February 2010 also requested surveyed riders to report the transfer activity – by route – for their given trip. From this data, a proxy transfer matrix (Table 3.5) can be generated to understand the relative frequency of transfers from and to particular routes, and more importantly, prevalent route-to-route transfer patterns. It should be noted that Routes 471 and 508 were not included in the survey, so their results below will be undoubtedly dampened.

The most common routes riders cited that they TRANSFERRED FROM were Routes 105, 101, 222, 251, and 221. The most common routes riders TRANSFERRED TO were Routes 105, 222, 101, 210, and 112. Given the generally higher ridership on these routes, it makes sense they are generating the highest number of transfers. The most dominant route-to-route transfer movements were between routes:

- 105 and 222
- 105 and 101
- 105 and 112
- 251 and 318

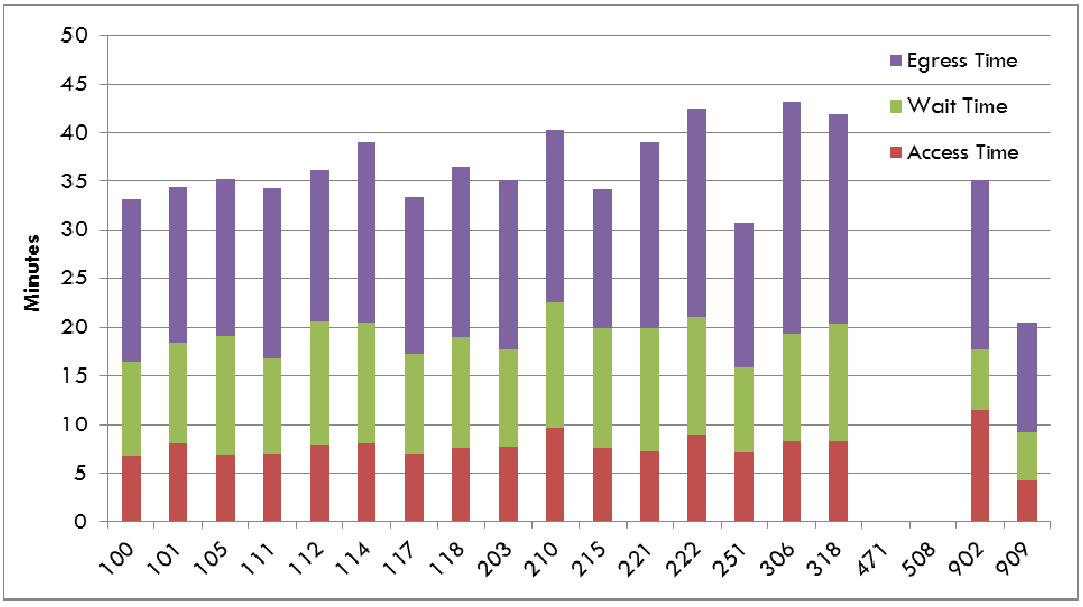
To a lesser degree, Route 101 to 222 and Route 251 to 105 were also common.

Table 3.5: Route-to-Route Transfer Frequency, Jan/Feb 2010

To: / From:	100	101	105	111	112	114	117	118	203	210	215	221	222	251	306	318	471	508	902	909	TOTAL FROM ROUTE
100	-	1.2%	0.5%	0.1%	0.4%	0.6%	0.2%	0.1%	0.4%	0.9%	0.1%	0.1%	0.7%	0.1%	-	0.2%	-	-	0.0%	-	5.6%
101	1.1%	-	2.4%	0.9%	1.2%	0.7%	0.2%	0.6%	0.6%	1.0%	0.6%	0.9%	1.3%	0.6%	0.1%	0.2%	0.1%	-	-	-	12.5%
105	0.7%	1.8%	-	0.7%	1.7%	0.8%	0.4%	0.4%	0.7%	0.9%	0.5%	0.9%	2.3%	0.5%	0.1%	0.2%	0.3%	0.1%	-	-	12.9%
111	0.3%	0.9%	1.2%	-	0.4%	0.2%	0.3%	0.1%	0.3%	0.5%	0.2%	0.4%	0.8%	0.2%	-	-	-	-	-	-	5.8%
112	0.4%	0.9%	1.3%	0.1%	-	0.3%	0.4%	0.2%	0.3%	0.5%	0.3%	0.1%	0.9%	0.1%	-	-	-	-	0.0%	-	5.8%
114	0.1%	0.5%	0.8%	0.3%	0.5%	-	-	-	0.1%	0.4%	-	0.2%	0.5%	0.3%	0.1%	0.1%	-	-	-	-	3.9%
117	0.4%	0.1%	0.8%	0.2%	0.2%	0.2%	-	0.5%	0.1%	0.3%	0.2%	0.1%	0.3%	0.2%	0.0%	-	0.1%	-	-	-	3.9%
118	0.1%	0.5%	0.2%	0.2%	0.1%	0.1%	0.6%	-	-	0.3%	0.1%	0.2%	0.5%	-	-	0.1%	-	-	-	-	3.0%
203	0.3%	0.2%	0.4%	0.1%	0.2%	0.1%	0.1%	-	-	0.3%	0.1%	0.3%	0.5%	0.9%	0.6%	0.3%	-	-	-	-	4.5%
210	0.5%	0.6%	0.7%	0.4%	0.3%	0.2%	0.4%	0.0%	0.4%	-	0.3%	0.5%	0.6%	0.4%	0.1%	0.0%	0.1%	-	-	-	5.7%
215	0.1%	0.5%	0.5%	0.2%	0.4%	0.1%	0.2%	0.1%	-	0.4%	-	0.6%	0.4%	-	-	0.0%	-	-	-	-	3.5%
221	0.2%	0.9%	1.2%	0.4%	0.4%	0.1%	0.2%	0.2%	0.3%	0.8%	0.5%	-	0.8%	0.3%	0.1%	0.3%	-	-	-	-	6.7%
222	0.6%	1.2%	2.8%	0.5%	1.1%	0.4%	0.5%	0.3%	0.7%	0.8%	0.3%	0.8%	-	0.8%	0.3%	0.6%	-	-	-	-	11.7%
251	0.1%	0.4%	1.3%	0.6%	0.2%	0.3%	0.0%	0.0%	0.5%	0.5%	0.0%	0.6%	0.4%	-	0.8%	1.5%	-	-	-	-	7.2%
306	-	0.1%	0.0%	-	-	-	-	-	0.1%	0.0%	0.1%	0.1%	0.4%	1.1%	-	0.1%	-	-	-	-	2.1%
318	-	-	-	-	-	0.0%	-	-	0.4%	-	0.3%	0.4%	0.7%	1.4%	0.1%	-	0.3%	-	-	-	3.5%
471	-	0.0%	0.4%	-	0.1%	-	0.1%	0.0%	0.0%	0.2%	0.0%	-	0.0%	0.1%	0.0%	0.5%	-	-	-	-	1.6%
508	-	-	-	-	-	-	-	-	-	0.0%	-	-	-	-	-	-	-	-	-	-	0.0%
902	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
909	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL TO ROUTE	5.0%	9.9%	14.5%	4.7%	7.1%	4.2%	3.6%	2.5%	4.7%	8.1%	3.7%	6.4%	11.4%	6.9%	2.4%	4.0%	0.8%	0.1%	0.1%	-	100.0%

The on-board survey also offered an opportunity to analyze the amount of time riders perceived they spent travelling from their trip origin to the bus stop, waiting at their first bus stop, and then travelling from the bus stop to their destination (Figure 3.9).

Figure 3.9: Trip Segment Times by Route



On average across the system, riders said they spent 7.76 minutes to access their first stop and another 11.42 minutes waiting for the bus once they got there. On the other end of the trip, they said they

spent 17.39 minutes in egress time from the point they got off their last bus till they reached their final destination.

Riders on routes on the farthest reaches of the system, like Routes 306, 318 and 222, had the highest overall times, due mostly to longer egress times. Express Route 909 had by far the lowest reported total time to access, wait, and egress, followed not surprisingly by the express-like Route 251. Routes 101 and 105, which have strong neighborhood penetration, had the lowest access times. Routes 112, 210, and 221 had the longest wait times at nearly 13 minutes on average.

4 Demographic Analysis

Demographic analyses were conducted for both the general Tulsa Transit service area as well as Tulsa Transit riders. A variety of other reports and tasks for the Tulsa RTSP have undertaken a thorough examination of service area demographics; therefore, the study here focused simply on the number and percentage of people and jobs that have walk accessibility to the existing system. To that end, it was determined that while a majority of current people and jobs within the City of Tulsa limits have access to transit on weekdays and Saturdays, large portions of the city, and further across the region, do not. In addition, evening coverage is severely limited across the service area. In the future, the situation is exacerbated, as more population and employment is projected to develop in areas that do not currently have transit service.

Next, a detailed look at demographics within the actual ridership base was conducted with results of INCOG's on-board rider survey conducted January/February 2010. From that data, it was determined that while a quarter of trips were of the home-to-work variety (or reverse), a full 30 percent were home-to-other. Ridership was spread fairly evenly across the day, and was geographically concentrated in north Tulsa, along the Admiral corridor, the Peoria corridor, and the area around Promenade Mall. To no surprise, the ridership based skewed very transit dependent, with 3 out of 5 riders having no driver's license or auto availability, and 4 out of 5 riders in households earning under $25,000 annually.

4.1 Service Area Demographics

Based on estimations produced by the Indian Nations Council of Governments (INCOG) for 2005, about 746,000 people and 421,000 jobs are currently contained in the MPO planning area which includes the cities of Tulsa, Broken Arrow, Bixby, Jenks, Owasso, and Sand Springs. About 393,000 of those people and 296,000 of those jobs were within Tulsa city limits.

Demographic information was available at the traffic analysis zone (TAZ) layer. Current weekday, weeknight, and Saturday route service was overlaid on the TAZ layer to determine how many people and jobs had accessibility to transit. For these purposes, accessibility was defined to include all areas that were within a ¼-mile radius of a fixed transit route. For weeknights, a ¾-mile radius was used to define accessibility for the route-deviated Nightline service. Table 4.1 presents a summary of the number and percentage of total population and employment within ¼-mile of a transit route on weekdays and Saturdays and within 3/4 –mile of a transit route on weeknights.

Table 4-1. 2005 Population and Employment Accessible to Transit

	Tulsa Population		MPO Population		Tulsa Employment		MPO Employment	
TOTAL	393,194		746,311		296,197		421,387	
Within 1/4-Mile of Fixed Routes (3/4-Mile for Weeknights)								
On Weekdays	228,398	58.1%	262,693	35.2%	205,916	69.5%	222,223	52.7%
On Weeknights	267,353	68.0%	272,948	36.6%	194,498	65.7%	198,334	47.1%
On Saturdays	222,578	56.6%	232,734	31.2%	191,282	64.6%	198,531	47.1%

The weekday transit network provides service to approximately 228,000 people (58 percent) living within Tulsa's limits and about 263,000 people (35 percent) across the MPO area. In addition, it is serving roughly 206,000 jobs (70 percent) within the city and about 222,000 jobs (53 percent) across the MPO area. Even if at low frequencies, Tulsa Transit is reaching the majority of city residents and jobs. To effectively serve the entire region, service would have to expand beyond city boundaries.

Transit coverage on weeknights (and Saturday nights) is significantly reduced, with 5 route-deviated services taking the place of 18 regular routes. Nightline service is estimated to reach 68 percent of Tulsa residents (37 percent across the region), and 66 percent of city jobs (47 percent across the region).

The Saturday transit network retains most of the same coverage as weekday service, reaching 57 percent of Tulsa residents (31 percent across the region), and 65 percent of city jobs (47 percent across the region).

INCOG demographic projections for 2035 were also compared to the current system to assess how well the existing route structure would access future growth. According to INCOG forecasts, city and regional population will steadily increase over the next thirty years (24 percent and 38 percent, respectively). Employment is expected to see similar, but slightly smaller, increases (16 percent and 35 percent, respectively). As seen in Table 4.2 and Table 4.3, analysis indicates that while the projected number of people and jobs with transit access would see 15 to 23 percent increases in 2035 compared to 2005, as a share of total people and jobs (Table 4.3), they would actually decrease up to 7 percent.

Table 4.2. Projected 2035 Population and Employment Accessible to Transit

	Tulsa Population		MPO Population		Tulsa Employment		MPO Employment	
TOTAL	489,287		1,030,471		343,082		568,194	
Within 1/4-Mile of Fixed Routes (3/4-Mile for Weeknights)								
On Weekdays	268,560	54.9%	306,045	29.7%	230,409	67.2%	260,144	45.8%
On Weeknights	322,154	65.8%	328,272	31.9%	224,392	65.4%	229,811	40.4%
On Saturdays	262,274	53.6%	273,145	26.5%	214,983	62.7%	228,620	40.2%

Table 4.3: Percent Change from 2005 to 2035

	Tulsa Population	MPO Population	Tulsa Employment	MPO Employment
Percent Change	24.4%	38.1%	15.8%	34.8%
Within 1/4-Mile of Fixed Routes (as a share of total population, 2005 compared to 2035)				
On Weekdays	-3.2%	-5.5%	-2.4%	-7.0%
On Weeknights	-2.2%	-4.7%	-0.3%	-6.6%
On Saturdays	-3.0%	-4.7%	-1.9%	-6.9%

Figures 4.1 through 4.3 illustrate the areas of the region within ¼-mile of Tulsa Transit fixed route bus service on weekdays and Saturdays and ¾-miles on weeknights and Saturday nights. While most of the City of Tulsa area can access the fixed route system on weekdays and Saturdays, large portions of Tulsa to the north and northeast, east, and south are not within ¼-mile of transit. Additionally, a significant number of tracts within the central city are not walk accessible to transit.

Figure 4.1. Weekday (Without Express Routes) Accessibility to Transit

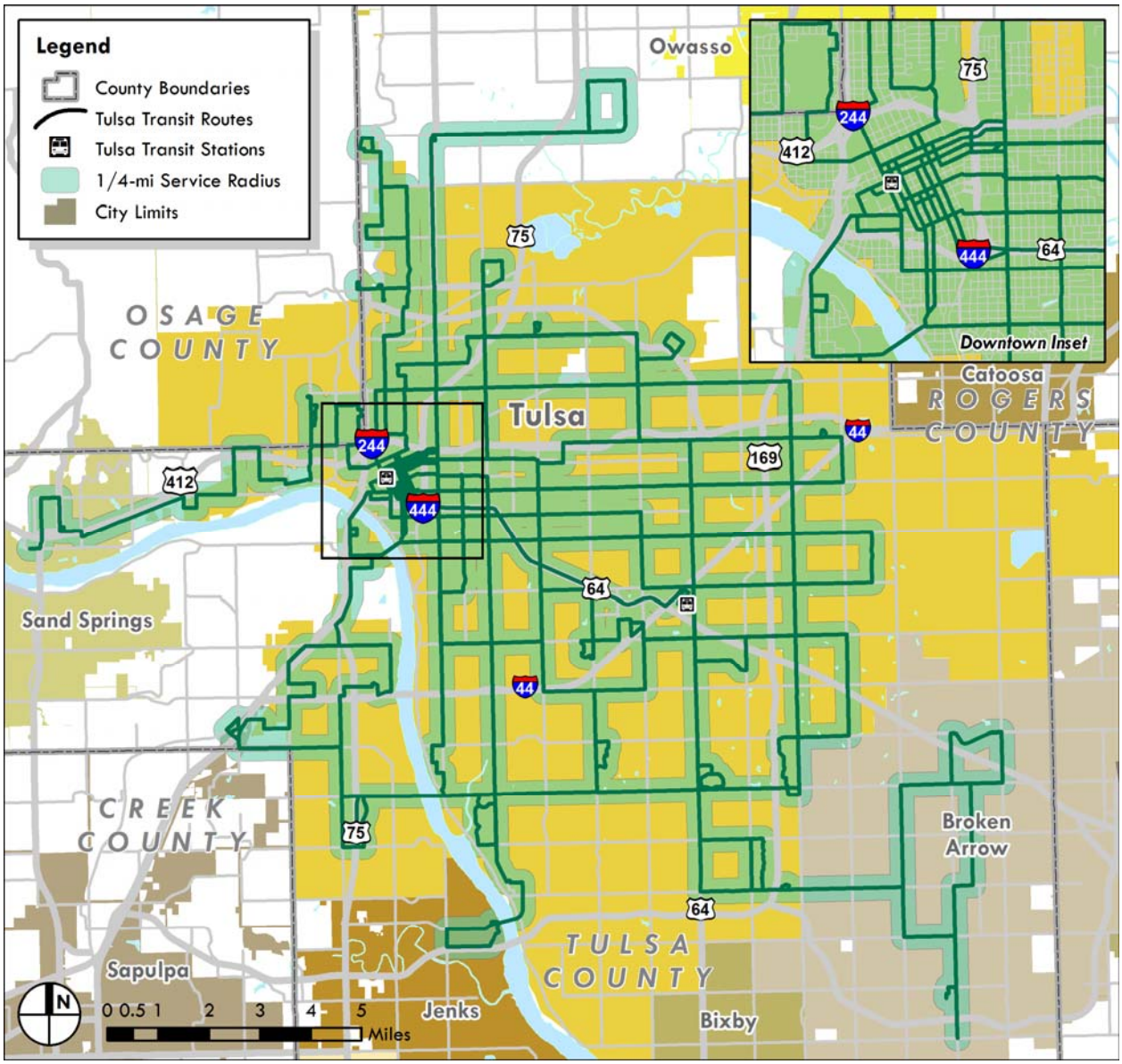


Figure 4.2. Weeknight Accessibility to Transit

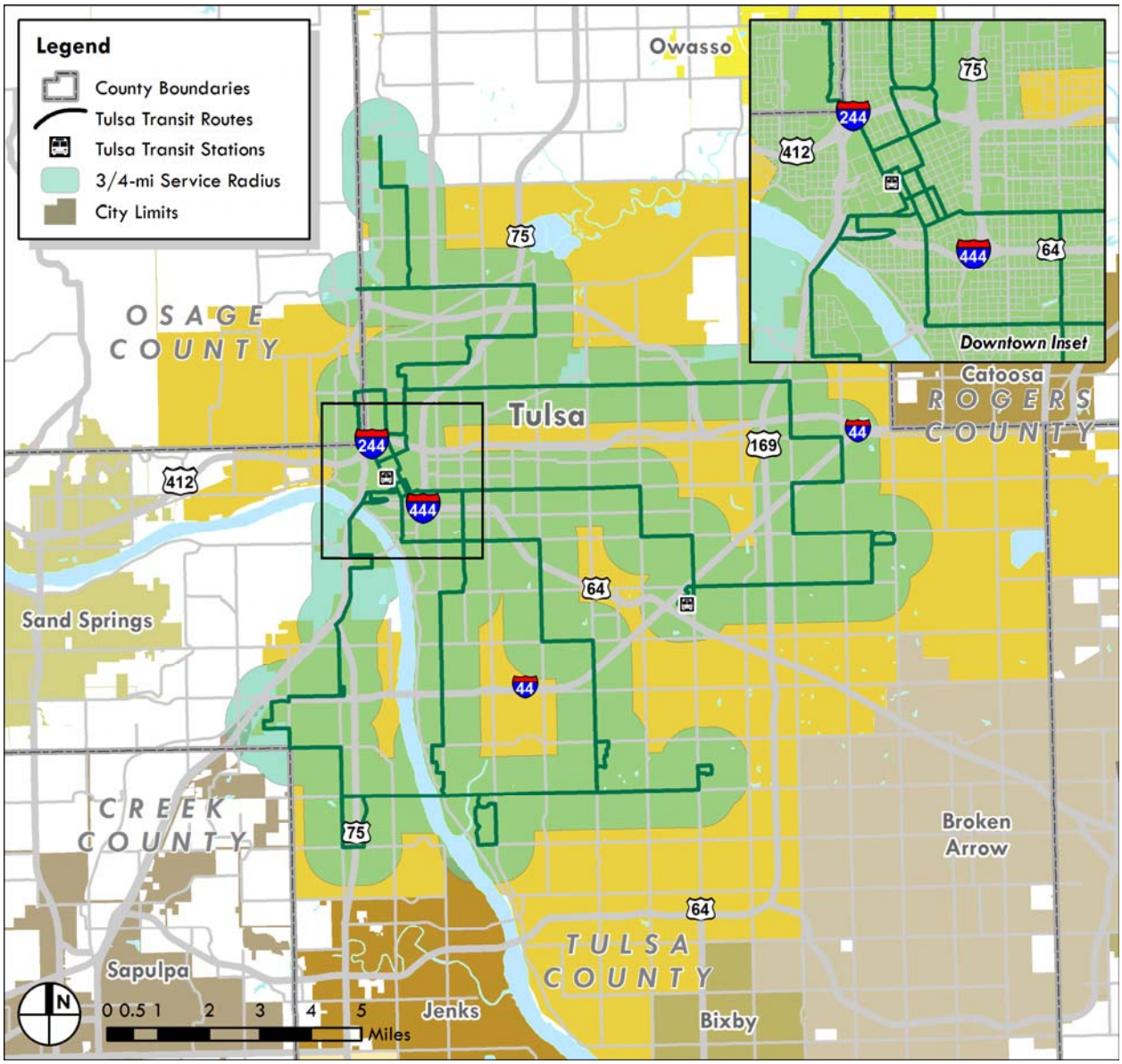
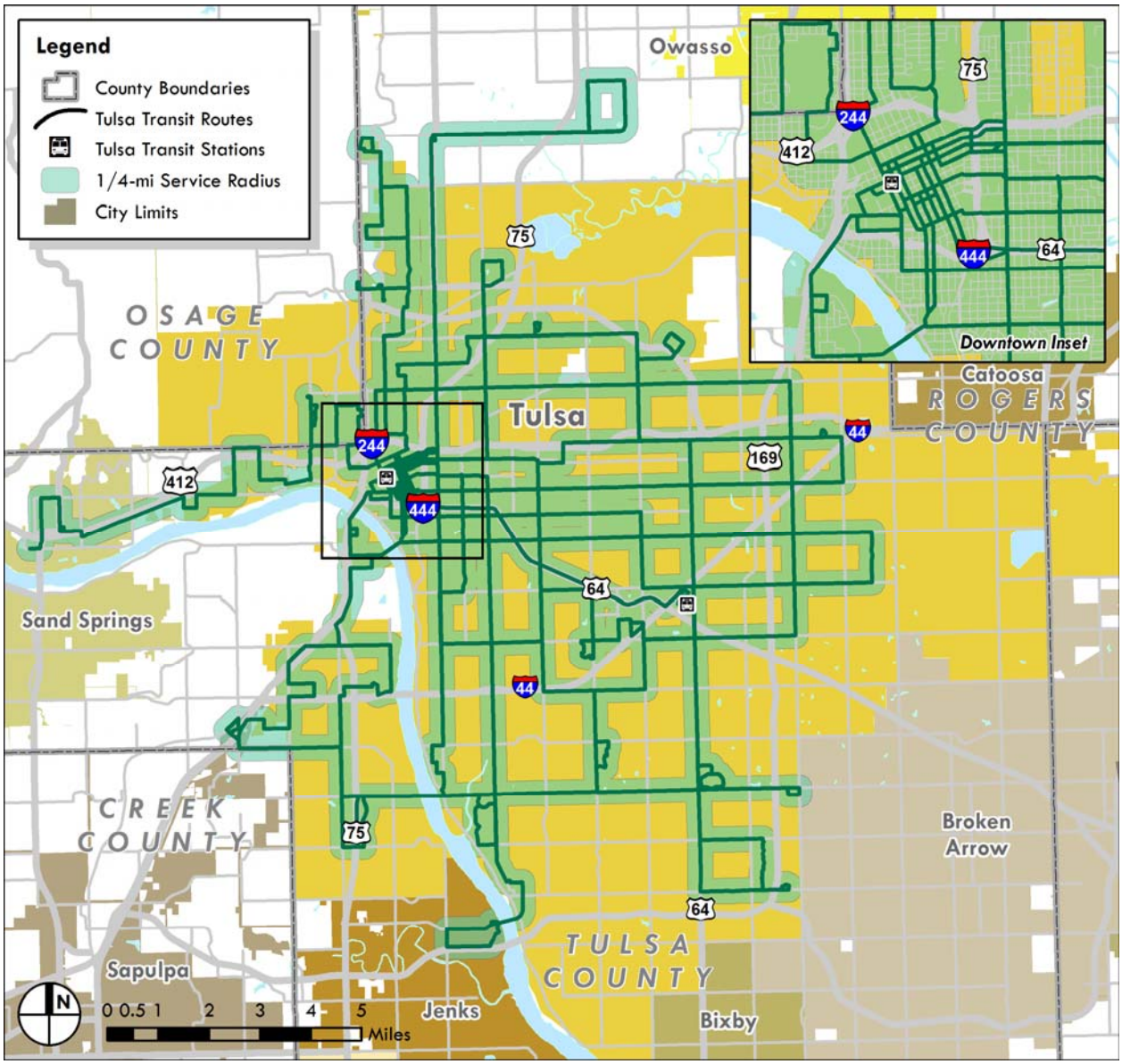


Figure 4.3. Saturday Accessibility to Transit



4.2 Rider Demographics

The on-board rider survey conducted by INCOG in January/February 2010 provides a strong basis for understanding the travel behaviors, trip purposes, and general characteristics of Tulsa Transit's ridership base. 3,771 surveys were completed and expanded to represent the entire ridership base of nearly 10,000 weekday riders.

Surveyed riders were asked to qualify their trip origins and destinations as either home-based, work-based, school-based, or other-based. The trip ends were charted to understand the relative frequencies of the possible trip purposes (Table 4.3). In total, 42 percent of riders reported home as the origin or destination of their transit trip. 30 percent reported a trip end as other, 19 percent as work, and 8 percent as school.

Table 4.3: Rider Trip Purposes

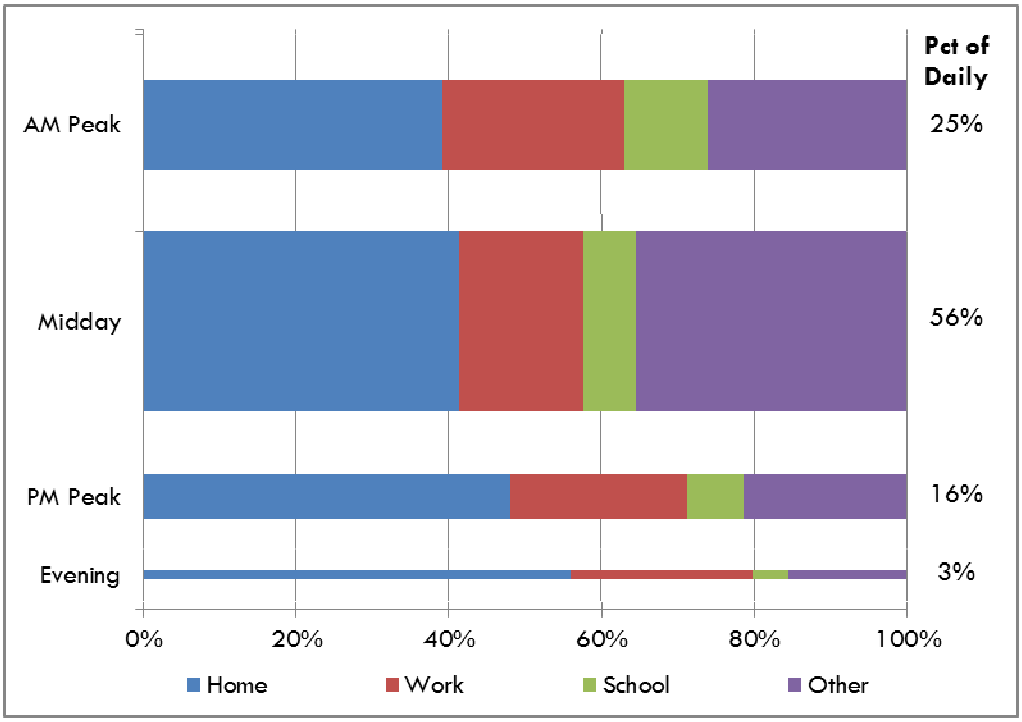
	Home	Work	School	Other
Home	9%			
Work	27%	3%		
School	11%	1%	1%	
Other	30%	5%	2%	12%
TOTAL	**42%**	**19%**	**8%**	**30%**

The home-other pattern (or its reverse) was most prevalent, accounting for 30 percent of all trips, followed closely by the home-work pattern at 27 percent. A significant portion of surveyed riders (25 percent) reported an origin and destination trip end as the same location. While some of these (like other-other trip patterns) may be valid, it is likely that many riders misinterpreted the question to relate to a round trip rather than a one-way trip.

Rider results were further distilled to understand trip purposes by time of day (Figure 4.4). Trips were subdivided into one of four time periods: AM Peak (5:00 am – 9:00 am), Midday (9:00 am – 3:00 pm), PM Peak (3:00 pm – 6:00 pm), or Evening (6:00 pm – 7:30 pm). Nightline routes were not included in the on-board survey. In total, one quarter of transit trips occurred in the four hours of the AM Peak, and more than half took place in the six hours of Midday service. The PM Peak and Evening periods combined for a total of 19 percent of trips in 4.5 hours.

As expected, AM Peak and PM Peak/Evening contained the bulk of the work trips. School trips were most prevalent in the AM Peak, and Other-based trips were strongest in the Midday period.

Figure 4.4: Riders by Trip Purpose and Time-of-Day



Survey origin and destination addresses had been geocoded and linked to traffic analysis zones (TAZ) across the city. These were grown based on the survey expansion to approximate the magnitude of transit riders with a trip origin or destination in each TAZ. From this, it is possible to draw conclusions about where Tulsa Transit riders live, work, go to school, and travel generally.

Figure 4.5 depicts all trip ends (both origins and destinations) for Tulsa Transit riders. The strongest ridership is being generated downtown, in the immediate vicinity of DAS. North Tulsa is also accounting for a large number of riders, which is reflected in the strong productivity of Routes 101 and 105. The Route 105 Peoria Avenue corridor in general is very strong, especially just east of downtown, the Inhofe Plaza area, and Walmart. The Route 100 Admiral Avenue corridor is also strong, from Yale Avenue to 129th Avenue, as is the retail area along 41st Street between Yale Avenue and Sheridan Road and the area around LaFortune Tower.

Figures 4.6 through 4.9 break out transit trip ends by purpose, so that it is possible to understand where riders live, work, and so on. For home origins and destinations, North Tulsa, Inhofe Plaza area, LaFortune Tower area, and East Central Village are all very strong. For work-based trip ends, downtown Tulsa, the area around Will Rogers High School, and the area around MMS – possible hotel workers – are all solid. School-based trip volumes are weaker in general, though TCC campuses, particularly the downtown location, prove to be well utilized. Other-based trips are very strong around DAS, likely due to the concentration of government services, and around major shopping destinations, like Walmarts and the Promenade shopping area. Several areas along the Peoria Avenue corridor are also solid.

Figure 4.5: Total Trip Ends by TAZ

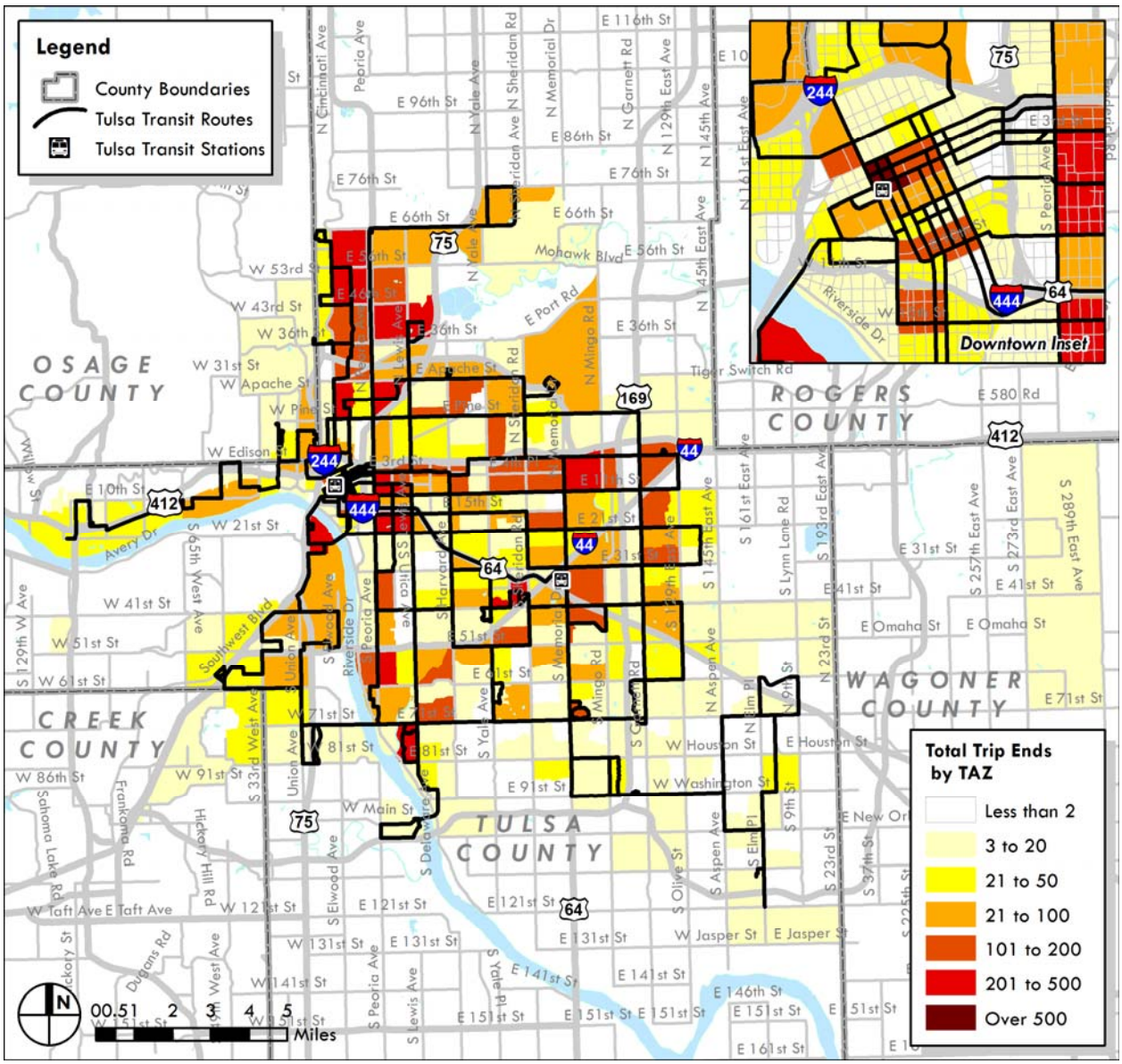


Figure 4.6: Home-Based Trip Ends by TAZ

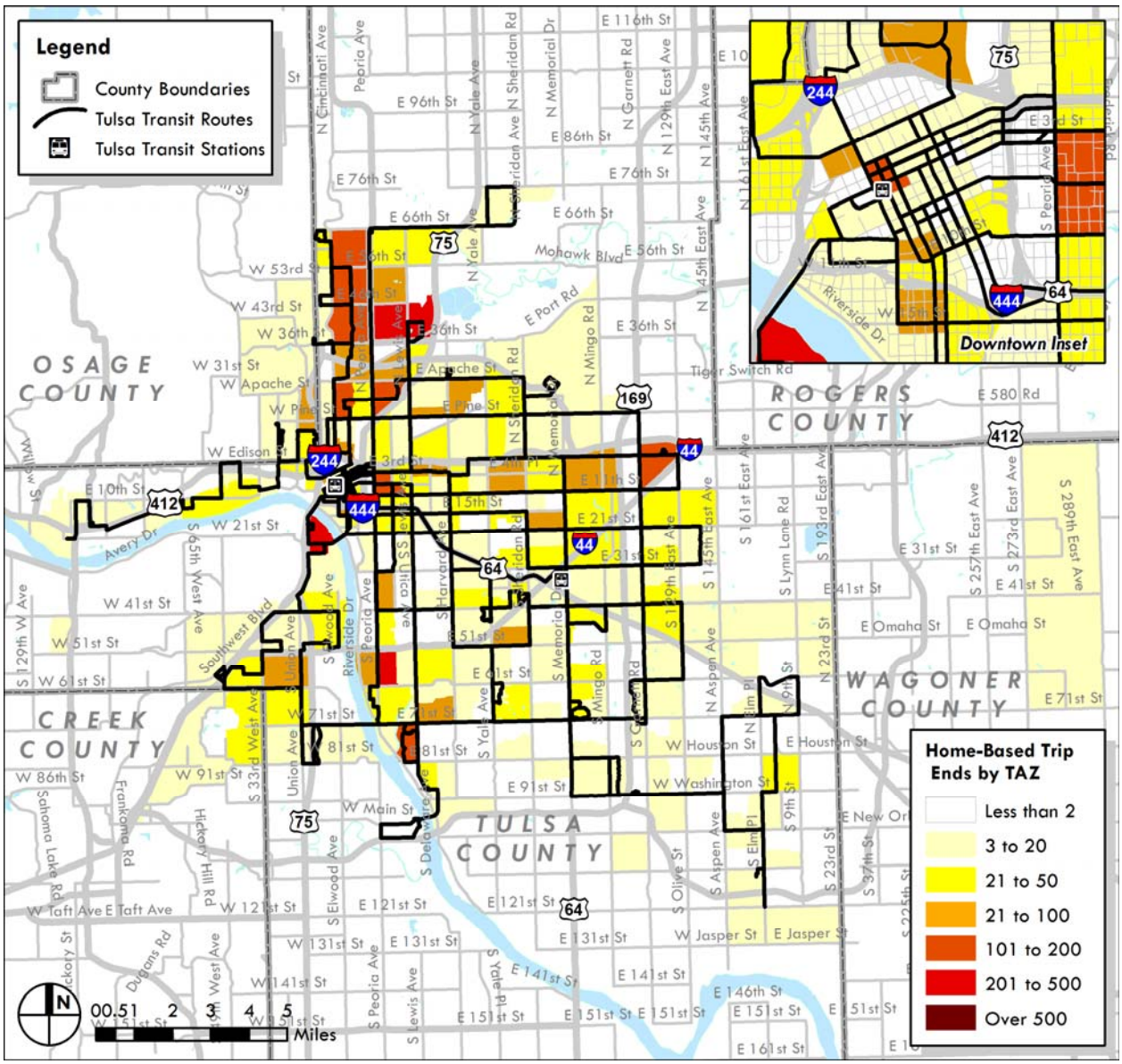


Figure 4.7: Work-Based Trip Ends by TAZ

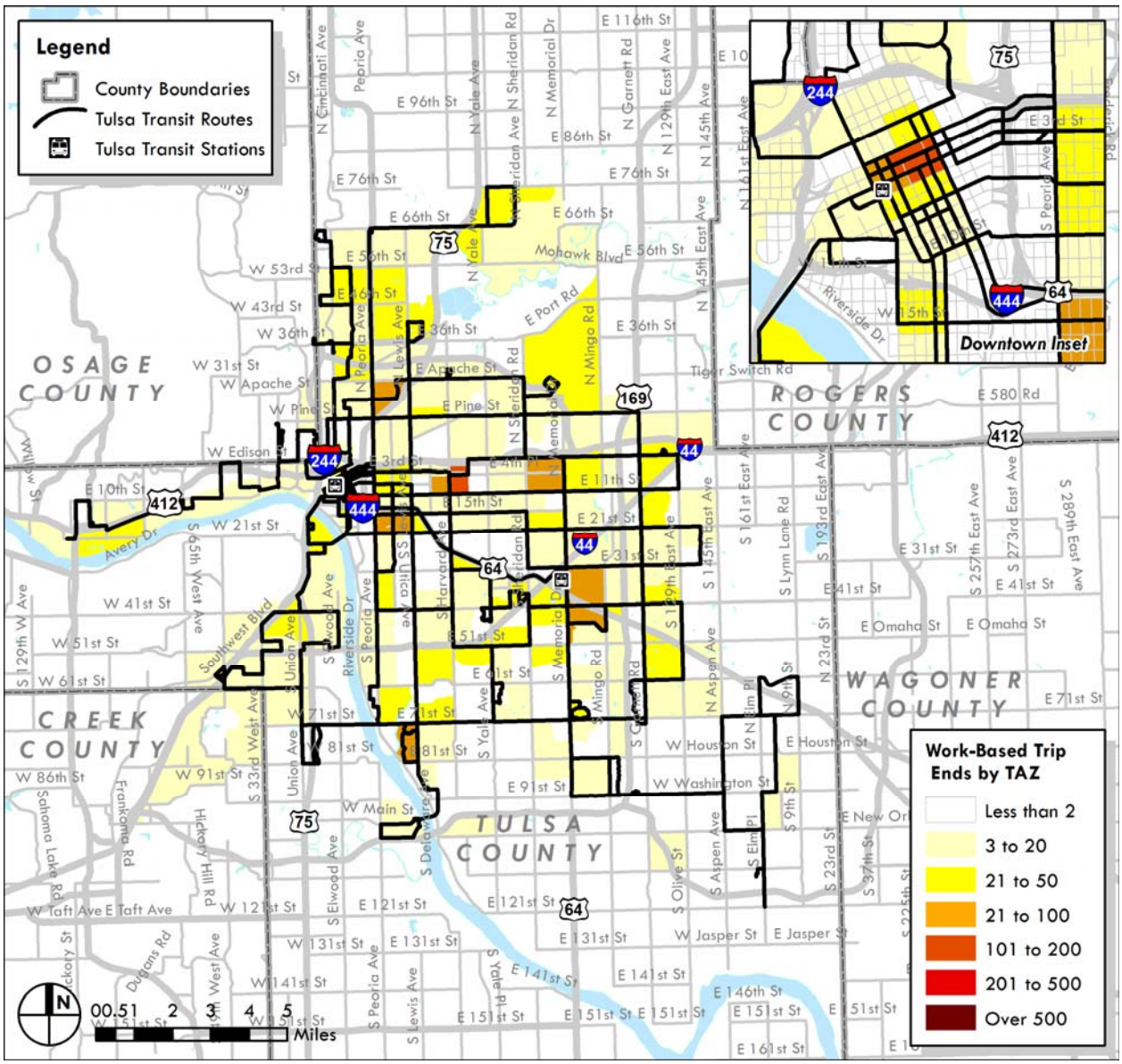


Figure 4.8: School-Based Trip Ends by TAZ

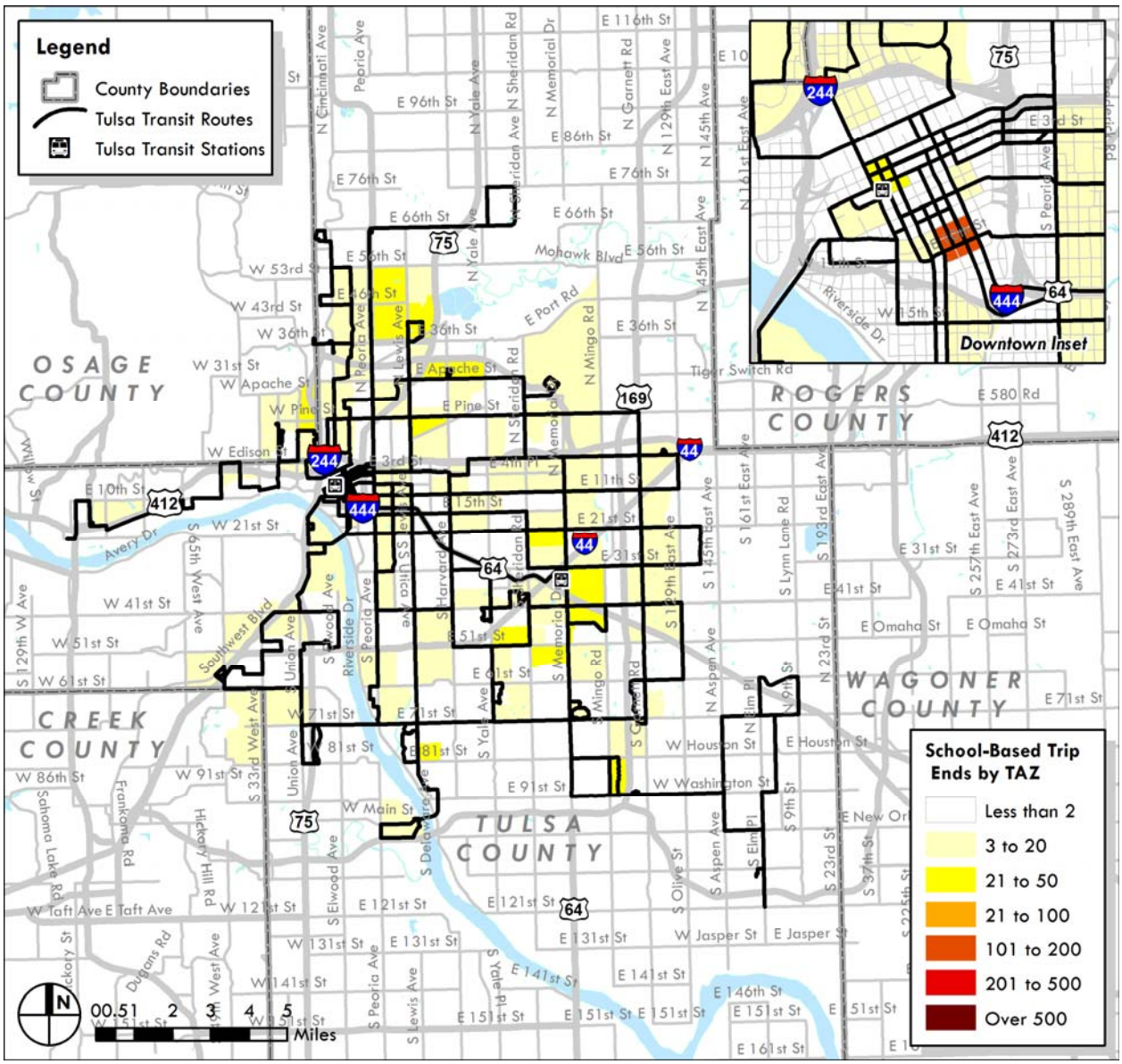
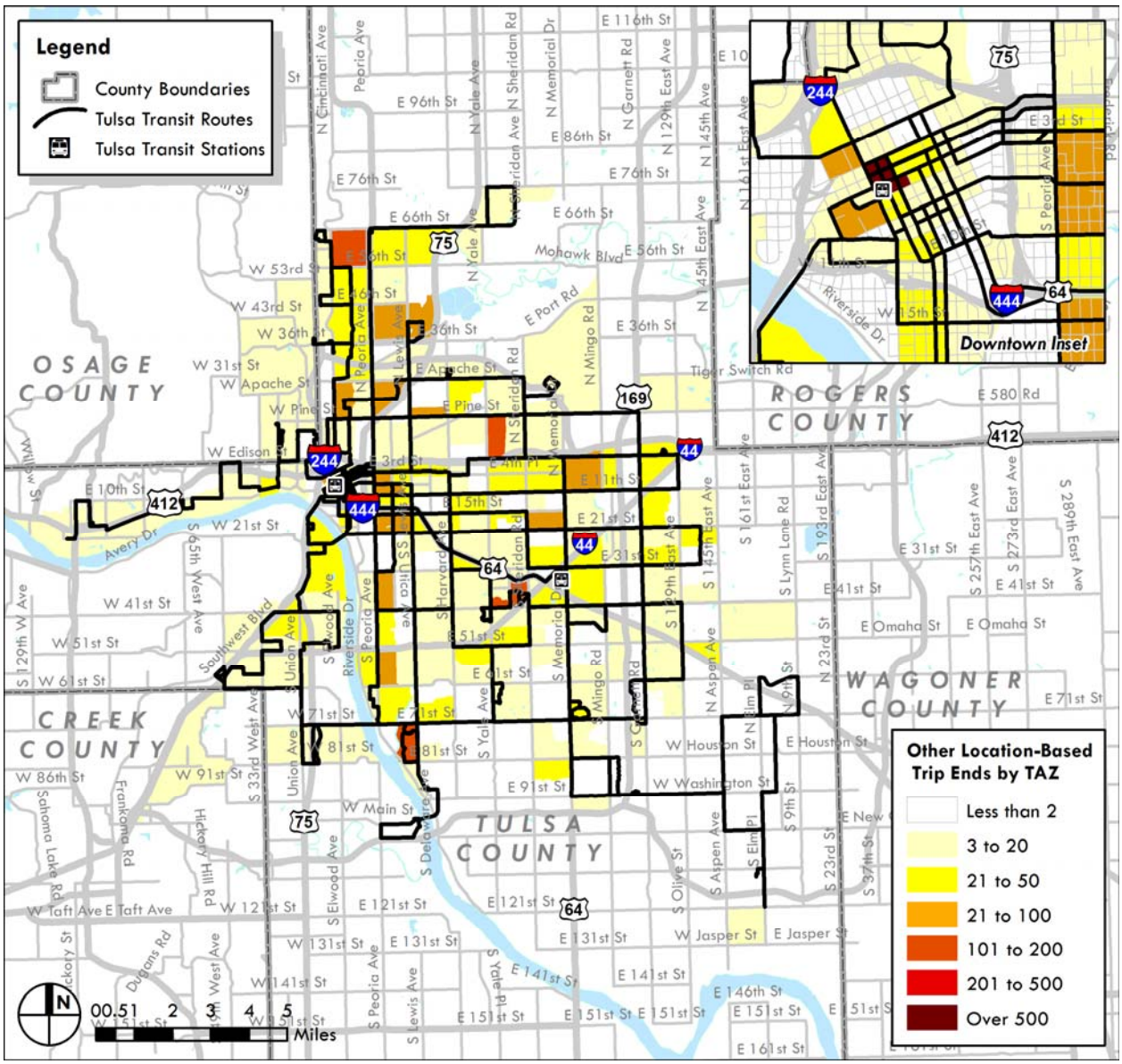
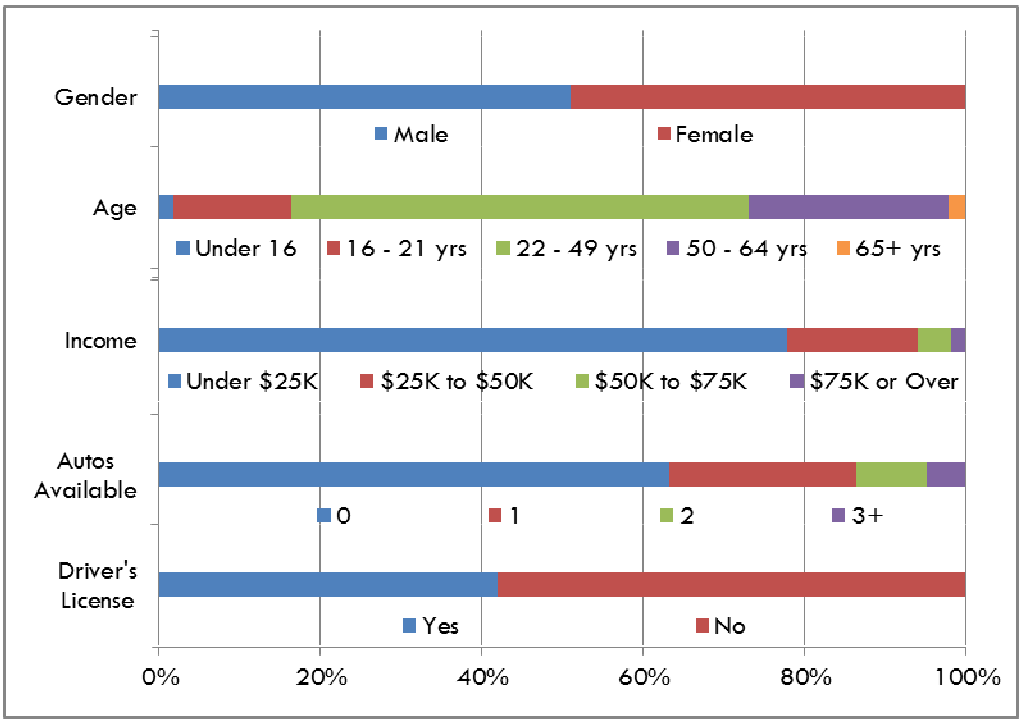


Figure 4.9: Other-Based Trip Ends by TAZ



Finally, several rider characteristics recorded from the survey were summarized to develop a profile of the "typical" Tulsa Transit rider (Figure 4.10). Riders are split 50/50 male and female, with the bulk of riders 22 to 49 years old. As expected, the vast majority of riders – nearly 80 percent – live in households earning less than $25,000 annually. 3 out of 5 riders have no auto available to them, and do not have a driver's license. Taken as a whole, the rider characteristics point to a highly transit dependent ridership base.

Figure 4.10: Rider characteristics



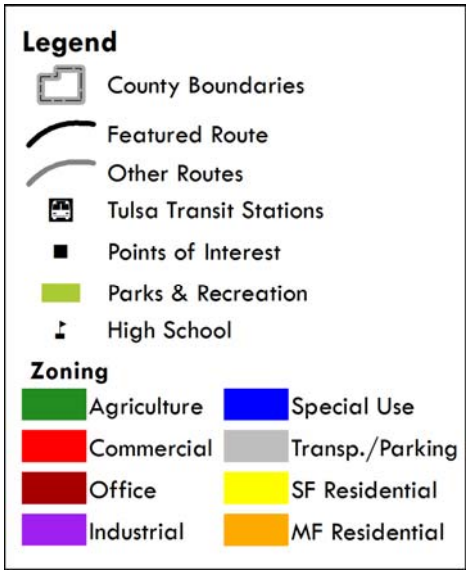
5 Route Profiles

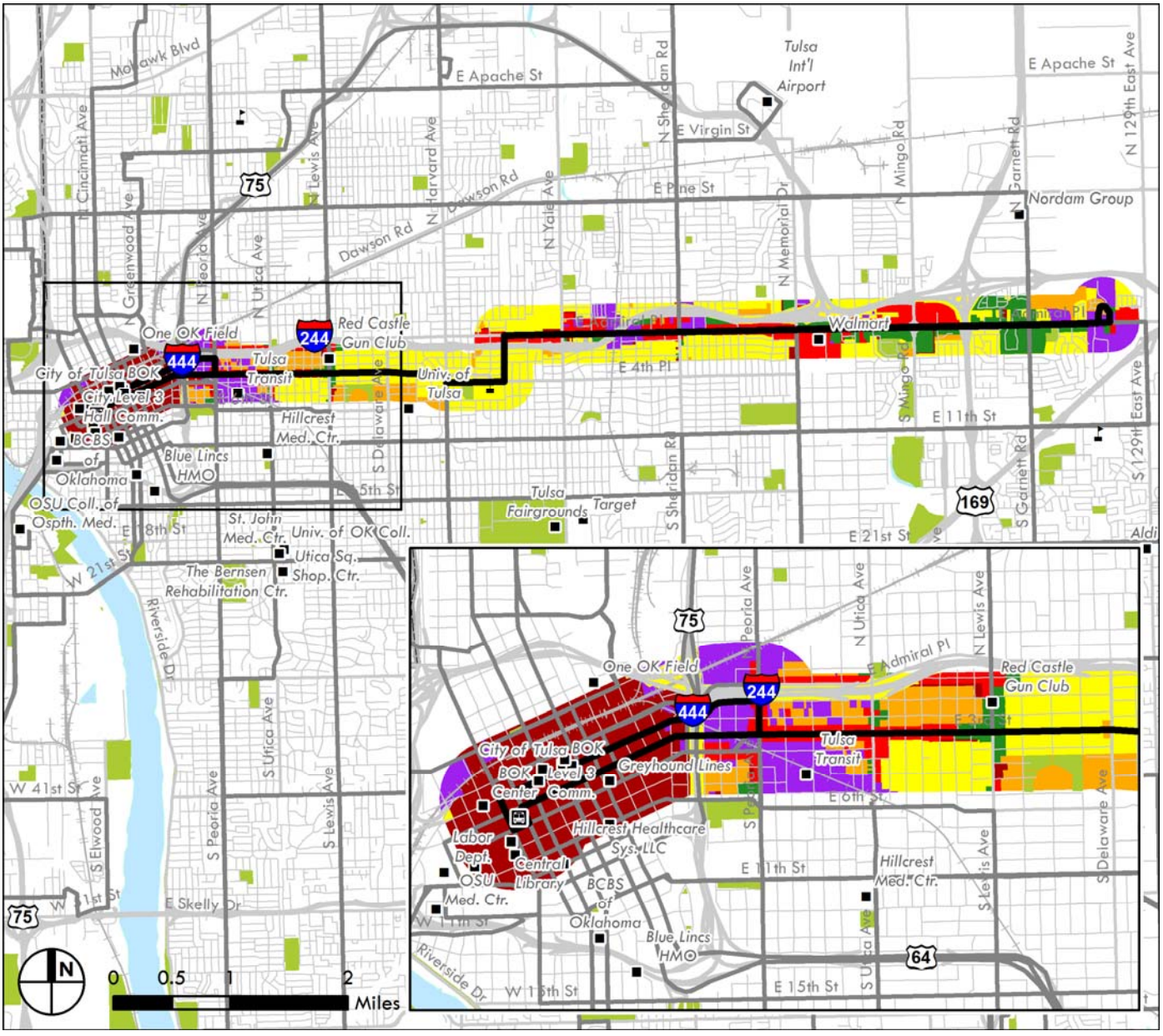
The following pages present detailed assessments of route characteristics, strengths and weaknesses for each Tulsa Transit fixed route. Each profile presents the following information:

- A "snapshot" of route service characteristics and productivity measures and a map of land use characteristics along the route alignment;
- A description of the existing route alignment and key route issues and observations from fieldwork and Tulsa Transit route information;
- Graphs of historical annual ridership (2005-2009) and current ridership by fare category for October 2010; and
- Rider demographics and travel behavior from the January/February 2010 on-board survey including:
  - A graph of weekday ridership by trip purpose and time-of-day
  - Graphs of rider socioeconomic characteristics
  - A map of origin and destination trip ends by traffic analysis zone (TAZ)
  - Overall transfer rate and route-to-route transfer activity

Route 100 - Admiral

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:20 am - 7:15 pm		7:00 am - 6:15 pm	
Frequency (Pk/Mid/Nite)	40/40/--		80/--	
Cycle Time (min)	80		80	
Layover Time (min)	8		8	
Route Statistics				
One-Way Trips	41		17	
Daily Revenue-Hours	27.1		11.3	
Daily Revenue-Miles	379.9		157.5	
Peak Buses	2.0		1.0	
Route Productivity				
Boardings	586		238	
Riders/Rev. Hr. (Rank)	21.6	*(4)*	21.1	*(1)*
Riders/Rev.-Mi. (Rank)	1.5	*(3)*	1.5	*(1)*
Riders/Trip (Rank)	14.3	*(9)*	14.0	*(3)*





General Description and Observations

From DAS in downtown Tulsa, Route 100 operates eastward using a couplet on 2nd Street and 3rd Street in downtown Tulsa, continues along 3rd Street and transitions to E. 4th Place. The route shifts onto Admiral Place at Pittsburgh Avenue, proceeding along Admiral until terminating in a loop at East Central Village. A Park and Save Lot is available along the route at Calvary Baptist Church at Admiral near S. 72nd Avenue.

Route 100 serves a range of uses, with mostly offices in the downtown Tulsa area, transitioning to industrial uses and multi-family residential, then largely single family residential uses for the remainder of the route along 3rd Street. Once on Admiral Place, the uses are largely commercial or industrial frontages with single family residential.

Major origins, destinations or points of interest along the route include:

- Hartford Building
- Tulsa City-County Health Department
- University of Tulsa (north end)
- Will Rogers High School
- Bell Elementary
- Eastgate Shopping Center
- Walmart Supercenter
- East Central Village

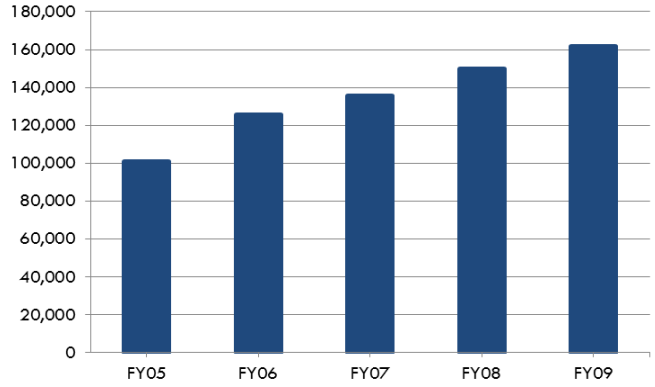
Observations regarding this route include the following:

- Route operates at 40-minute headways on weekdays, and 80-minute headways on Saturday. Service frequencies are out of synch with service frequencies of connecting routes; would be better integrated if 30- or 45-minute headways.
- Alignment is very direct, connecting a strong commercial and residential corridor to downtown Tulsa.
- Highest ridership activity is from Yale Avenue to 129th Avenue, and downtown Tulsa.
- Particularly strong generators from East Central Village, Walmart, Admiral & Yale (CSL Plasma Services and other businesses), and Will Rogers High School.

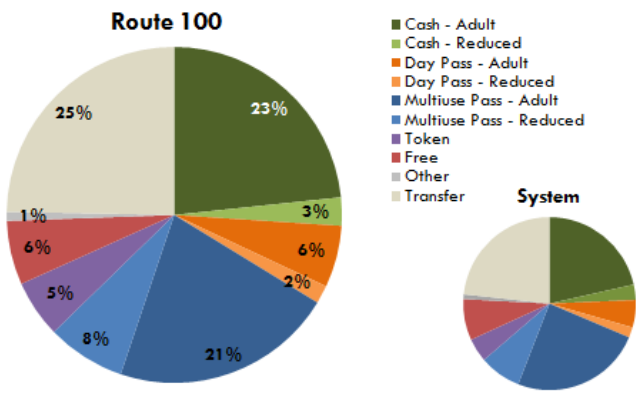
Ridership Trends and Productivity

- High-performing route is in the top quartile for weekday riders per revenue hour and riders per revenue mile. Average performer for riders per trip.
- Saturday ridership is in the top quartile under all productivity measures.
- Ridership has increased by about 60% in a five-year period.
- Riders by fare type are comparable to systemwide averages.

ANNUAL RIDERSHIP, FY05-FY09



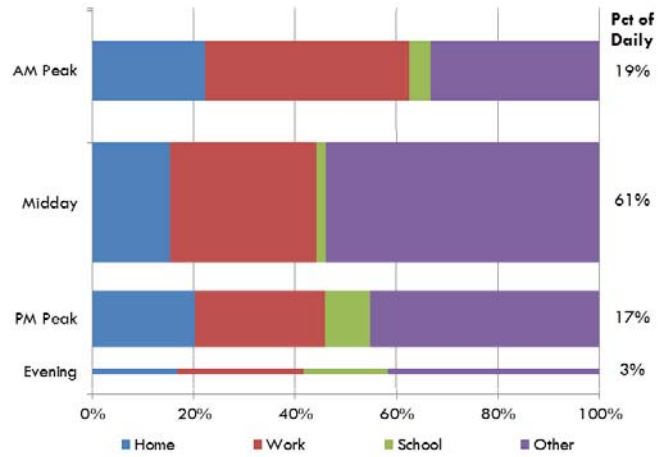
RIDERS BY FARE TYPE



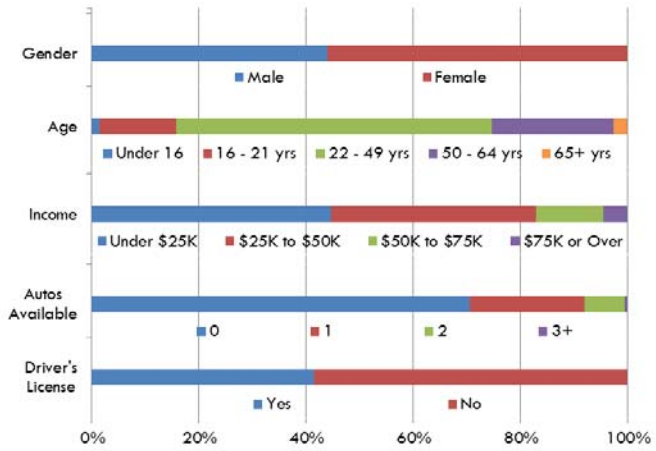
Rider Demographics and Travel Behavior

- Typical rider tends to be female between ages of 22-49, low to low-moderate income with no available automobile or drivers license.
- While this route has somewhat more work trips in the morning, in other times of day the route is more often used for non-work trips.
- Highest transfer activity is with Route 101; other significant transfers with Routes 105, 210 and 222.

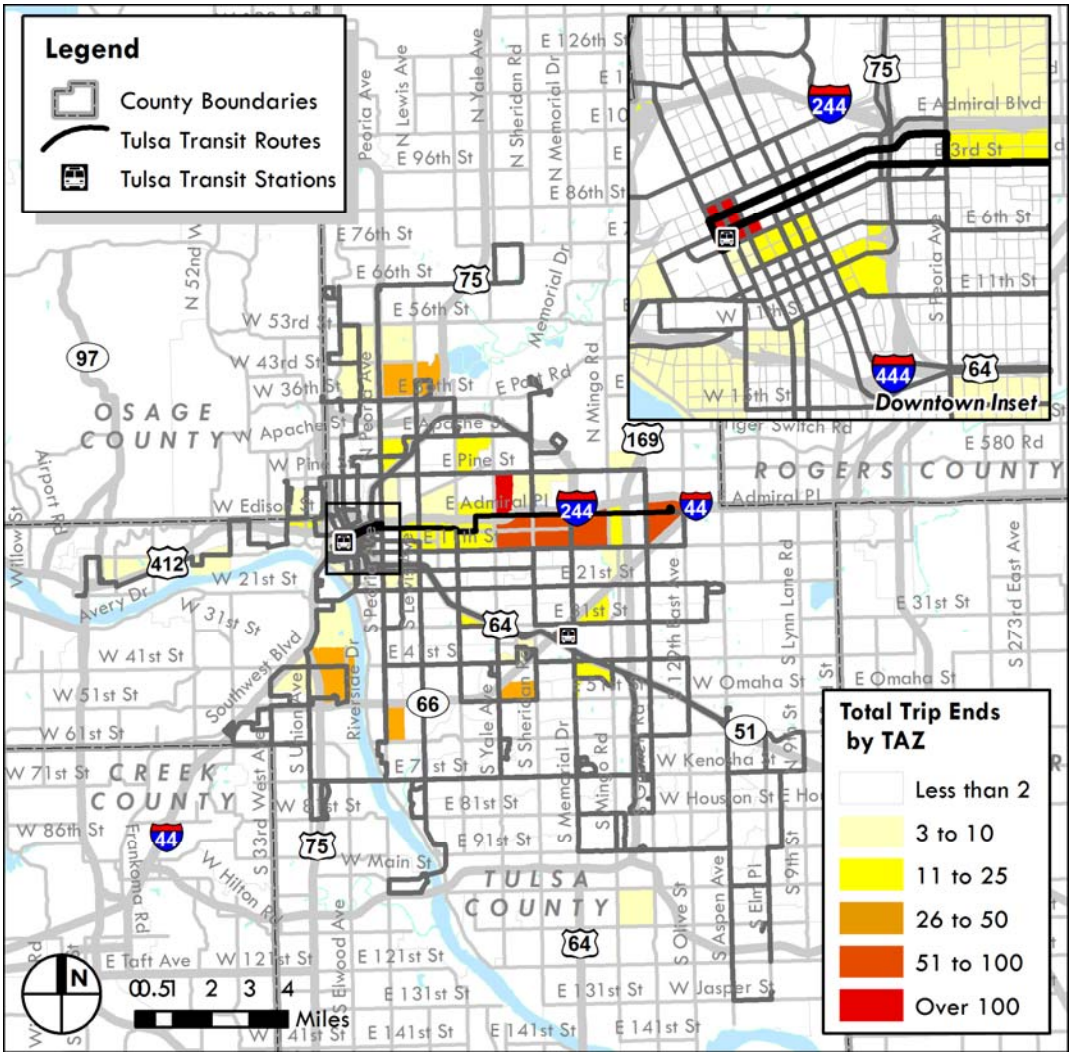
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

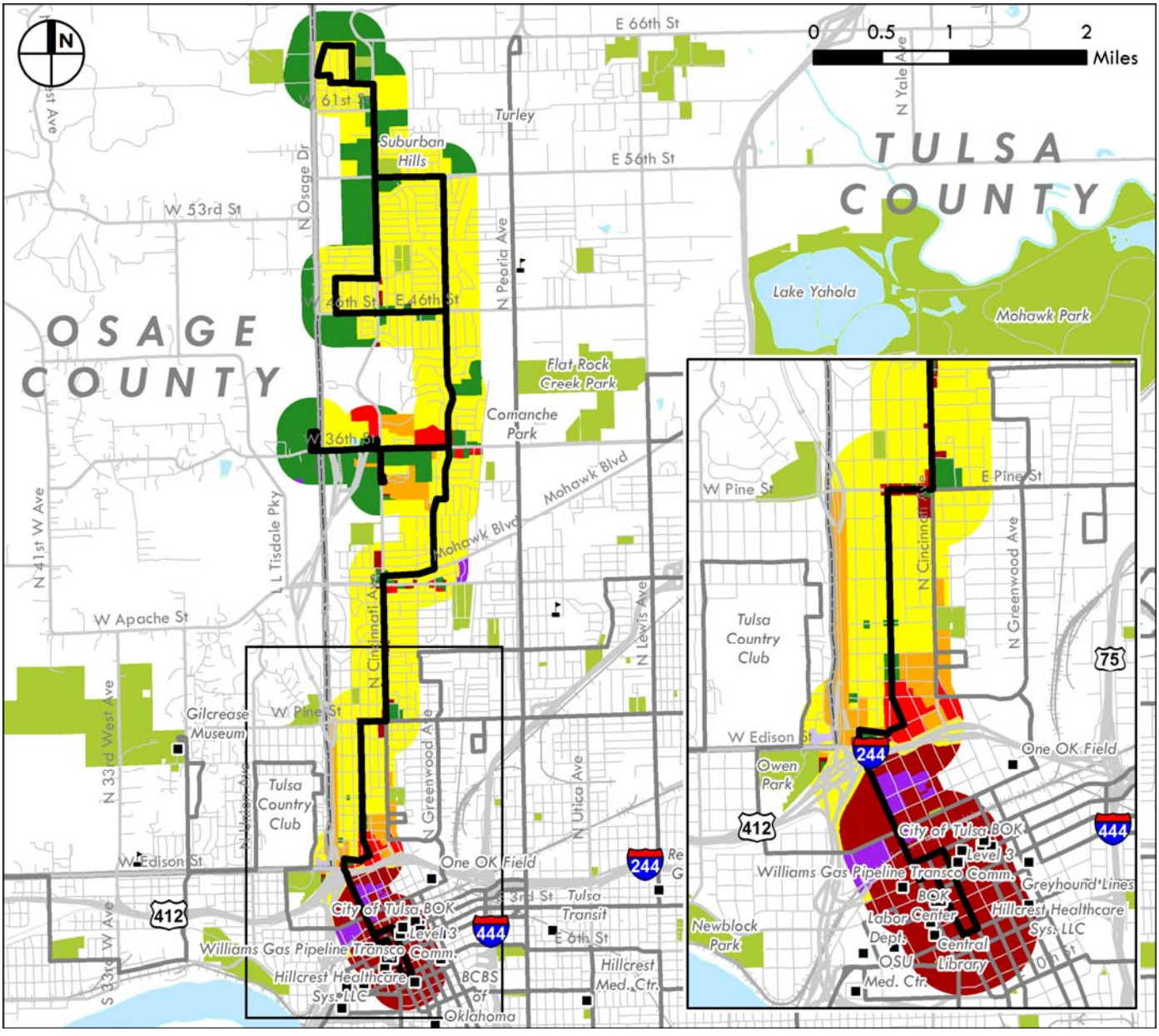


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 100		1.33
System Average		**1.30**
From	**Route**	**To**
-	100	-
23%	101	21%
15%	105	8%
5%	111	2%
9%	112	7%
3%	114	10%
9%	117	4%
3%	118	2%
5%	203	6%
11%	210	16%
2%	215	3%
4%	221	3%
11%	222	13%
1%	251	1%
-	306	-
-	318	3%
-	471	-
-	508	-
-	902	1%
-	909	-

Route 101 – Suburban Acres

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	4:50 am - 7:30 pm		6:58 am - 6:55 pm	
Frequency (Pk/Mid/Night)	30/45/--		45/--	
Cycle Time (min)	90		90	
Layover Time (min)	19		17	
Route Statistics				
One-Way Trips	47		31	
Daily Revenue-Hours	34.2		23.0	
Daily Revenue-Miles	456.8		310.4	
Peak Buses	3.0		2.0	
Route Productivity				
Boardings	836		248	
Riders/Rev. Hr. (Rank)	24.4	*(1)*	10.8	*(5)*
Riders/Rev.-Mi. (Rank)	1.8	*(1)*	0.8	*(5)*
Riders/Trip (Rank)	17.8	*(5)*	8.0	*(9)*



General Description and Observations

From DAS in downtown Tulsa, Route 101 proceeds northward using Boulder-1st Street outbound (and 2nd Street-Cheyenne inbound) in downtown Tulsa. The route continues north along Denver Avenue, jogging to Main Street and Cincinnati Avenue, then penetrates Suburban Acres via Garrison and Hartford to 46th Street. At this point, every other bus proceeds either north on Hartford and west on 56th Street to Cincinnati; or west on 46th Street to Denver Avenue, then jogging back to Cincinnati Avenue. North of 56th Street, both route patterns merge and proceed on Cincinnati until ending in a loop using 63rd Street, Main Street, 65th Street, and Elwood Avenue to terminate at Cincinnati/61st Street. Selected trips in the midday and evening serve the Westview Clinic (weekdays only) and the Osage Casino (weekdays and Saturday) off 36th Street. A Park and Save Lot is available at the Neighbor for Neighbor facility at 505 E. 36th Street N., west of Hartford.

Route 101 serves mostly offices and industries in the downtown Tulsa area, transitioning to largely single family residential uses with some segments of commercial frontage for the remainder of the route.

Major origins, destinations or points of interest along the route include:

- Salvation Army
- Tulsa County Election Board
- North Point Medicine
- Neighbor for Neighbor
- Crestview Duplexes
- Westview Medical Clinic
- Osage Million Dollar Elm Casino
- Suburban Acres Library
- Greeley Elementary School

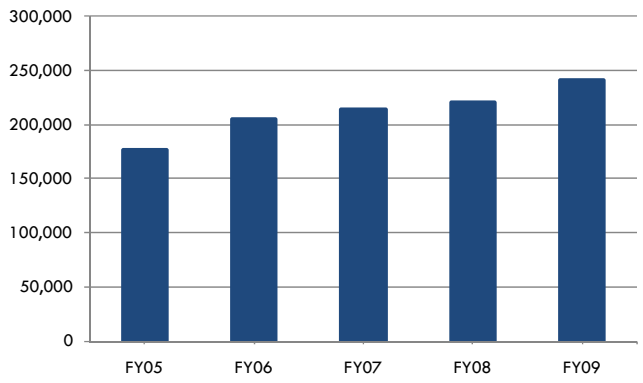
Observations regarding this route include the following:

- Route operates at aggregate 30-minute headways during weekday peak periods and 45-minutes on weekday midday and Saturday; however, weekday headway intervals are irregular, oscillating between 15, 30, and 45 minutes.
- Split pattern means some segments of route have 60 minute or 90 minute service frequencies and significant out-of-direction travel. Deviations serving Westview Clinic and the Osage Casino somewhat difficult to understand since they can occur with either of the two route patterns.
- Suburban Acres community generates substantial ridership through the majority of the route. Sometimes crowding observed.

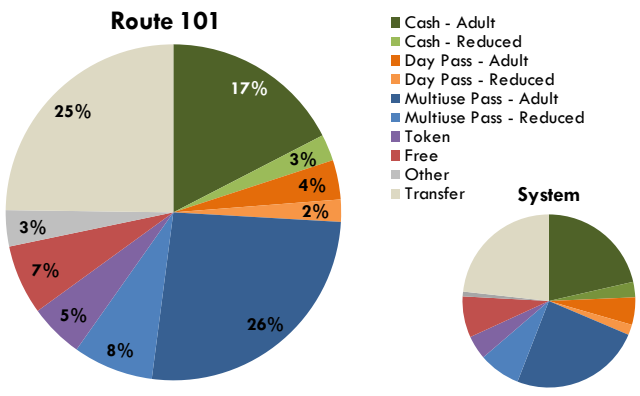
Ridership Trends and Productivity

- Top-ranking route in terms of weekday riders per revenue hour and riders per revenue mile. Strong performer for riders per trip.
- Solid Saturday ridership under all productivity measures, though none rank in top quartile.
- Ridership has increased by almost 40% in a five-year period.
- Riders pay with multi-use passes (7-day, 31-day, and 10-ride) at a greater frequency than the system average.

ANNUAL RIDERSHIP, FY05-FY09



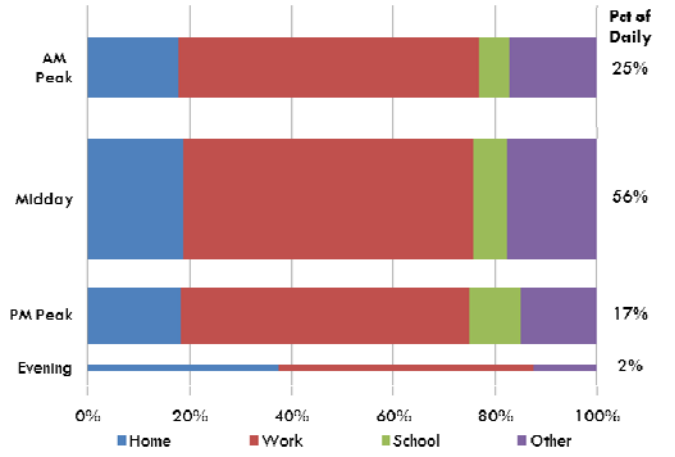
RIDERS BY FARE TYPE



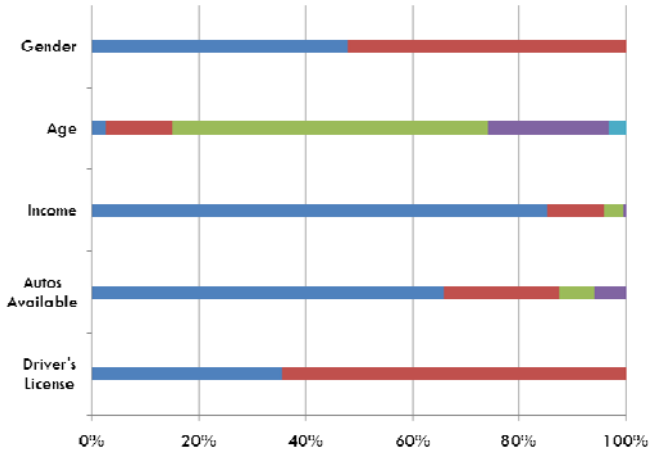
Rider Demographics and Travel Behavior

- Typical rider tends to be overwhelmingly low income between 22-49 years of age with no available automobile or drivers license.
- This route is used predominantly to get to work, though there are significant other purposes as well.
- Highest transfer activity is with Route 105; other significant transfers with Routes 100 and 222.

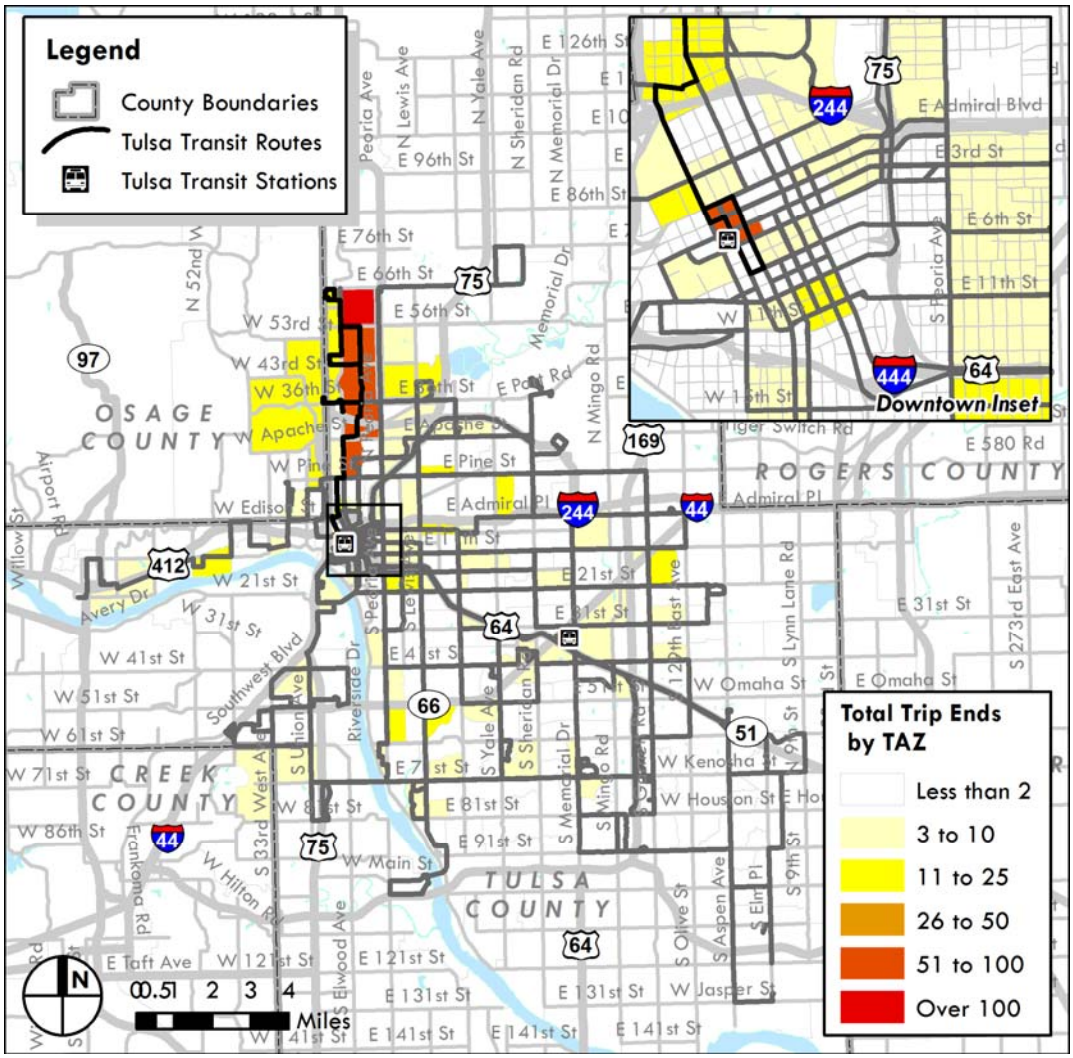
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

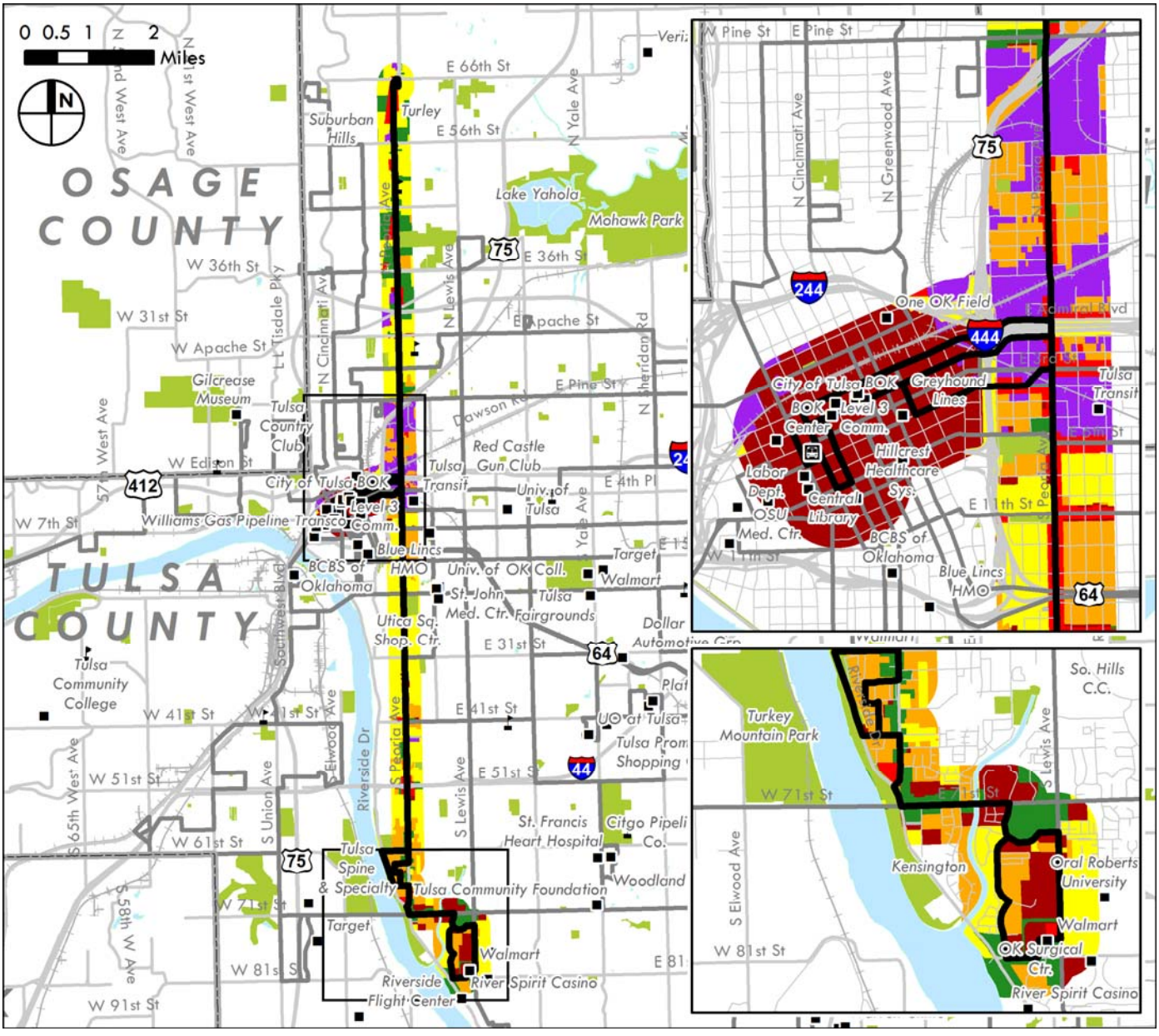


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 101		1.33
System Average		**1.30**
From	**Route**	**To**
12.0%	100	9.2%
-	101	-
17.7%	105	19.1%
9.0%	111	7.5%
9.1%	112	9.8%
5.3%	114	5.9%
1.4%	117	1.6%
4.6%	118	4.4%
2.2%	203	4.5%
6.1%	210	8.0%
5.3%	215	4.5%
9.2%	221	7.4%
12.2%	222	10.2%
4.2%	251	4.7%
1.2%	306	1.1%
-	318	1.4%
0.5%	471	0.7%
-	508	-
-	902	-
-	909	-

Route 105 - Peoria

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:25 am - 8:06 pm		6:57 am - 6:02 pm	
Frequency (Pk/Mid/Night)	30/30/--		50/--	
Cycle Time (min)	150		150	
Layover Time (min)	18		20	
Route Statistics				
One-Way Trips	53		26	
Daily Revenue-Hours	63.8		31.3	
Daily Revenue-Miles	967.3		476.5	
Peak Buses	5.0		3.0	
Route Productivity				
Boardings	1494		477	
Riders/Rev. Hr. (Rank)	23.4	*(3)*	15.2	*(2)*
Riders/Rev.-Mi. (Rank)	1.5	*(2)*	1.0	*(2)*
Riders/Trip (Rank)	28.2	*(2)*	18.4	*(1)*



General Description and Observations

Route 105 is a major north-south route generally following Peoria Avenue which diverts mid-route to serve downtown Tulsa. Starting from 65th Street/Quaker in Turley, the route loops onto 66th Street N. and then proceeds south along Peoria Avenue. To penetrate downtown Tulsa, buses use 1st Street and Cheyenne to get to DAS, then Cheyenne, 6th Street, Boulder and 2nd Street to head back out to continue southbound on S. Peoria. At 61st Street the route jogs westward, then southward to serve the St. Thomas Square community and Inhofe Plaza. At 66th Place it returns southbound on Peoria, east on 71st Street, then uses Wheeling Avenue and 73rd Street to proceed southbound on Lewis Avenue and westbound on 81st Street, terminating at the Walmart Supercenter. To proceed northbound, the route completes its loop at the southern terminus, using Wheeling to return to 71st Street. There is a Park & Save lot for transit riders on the south end of the route at Victory Christian Church, 7770 S. Lewis.

Route 105 serves mostly single family residential uses in Turley, interspersed with pockets of commercial frontage and fields. The approach into and out of downtown includes multifamily residential and industrial uses, with offices the predominant use in downtown Tulsa. South of I-64, uses are again largely single-family residential, with commercial frontage in the Brookside Commercial District. The southern portion of Peoria has multifamily residential and commercial uses and public housing; the terminus loop using Lewis and Wheeling serves a large hotel, Oral Roberts University and Walmart Supercenter.

Major origins, destinations or points of interest along the route include:

- *North Peoria:* McLain Village Shopping Center, McLain School of Science Technology, Tulsa Technology Center, Comanche Park, Department of Human Services, Hawthorne Elementary, Washington High School, Seminole Hills Shopping center
- *South Peoria:* Indian Health Care, Centennial Park, Woodward Park, Philbrook Museum, Brookside Commercial District, Marshall Elementary
- *South of E. 61st Street:* St. Thomas Square, Inhofe Plaza, Tulsa Marriott Southern Hills, Oral Roberts University, Walmart Supercenter

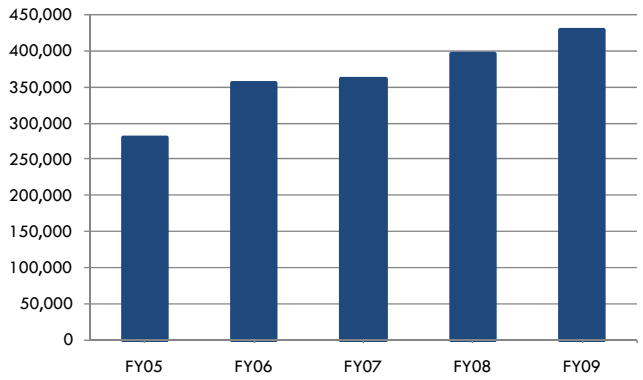
Observations regarding this route include the following:

- Only route offering consistent 30 minute all-day service on weekdays (45 minute all-day service on Saturdays).
- Alignment is very direct, connecting several strong commercial and residential corridors. Minor circuitous routing to penetrate St. Thomas/Inhofe Plaza communities.
- Considered top ridership route. Strongest ridership is said to be on the north segment to downtown; observed off-peak ridership appeared to be much stronger from downtown south to Walmart. Route 105 is route most likely to have crowding occur (standees observed).
- North Peoria (Suburban Acres, Turley) has transit-likely income levels, as does St. Thomas Square/Inhofe community. High amount of walk access observed at 66th/Peoria.
- Wheelchair activity slows down this route. Process is 5-min long, faster process would be helpful.
- Identified need for 1-2 more buses; schedule adherence issues.

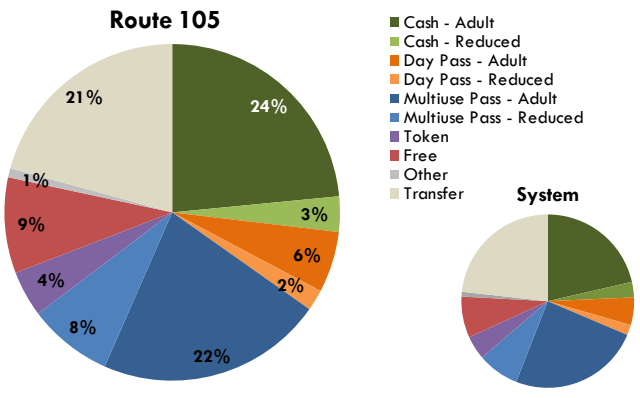
Ridership Trends and Productivity

- Route ranks in the top quartile for all ridership productivity measures (weekday and Saturday).
- Ridership has increased by over 50% in a five-year period.
- Riders by fare type are comparable to systemwide averages. Fewer overall transfers occur to Route 105 than other routes.

ANNUAL RIDERSHIP, FY05-FY09



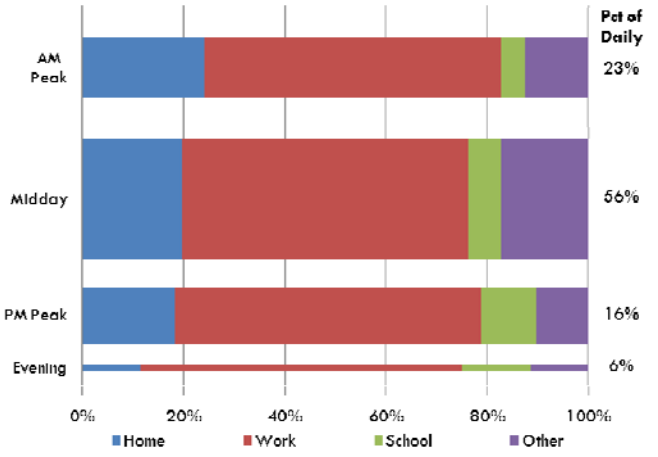
RIDERS BY FARE TYPE



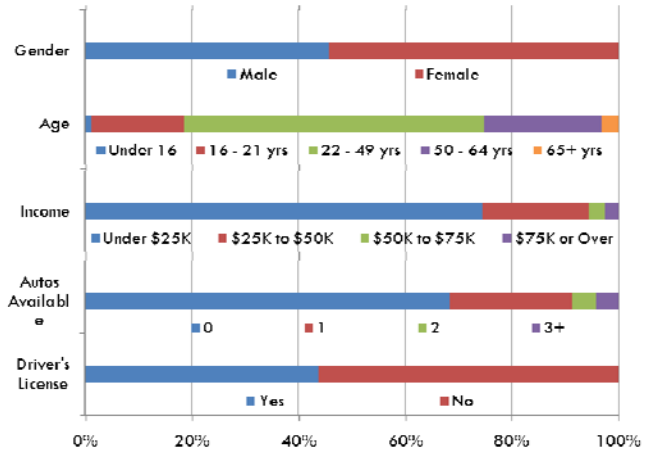
Rider Demographics and Travel Behavior

- Typical rider tends to be predominantly low income between 22-49 years old with no available automobile or drivers license.
- A large percentage of trips are work-related, though there are significant other purposes as well.
- Very strong transfer activity with Route 222 (highest in system); other significant transfers with Routes 101 and 112, and to a lesser degree Route 251.

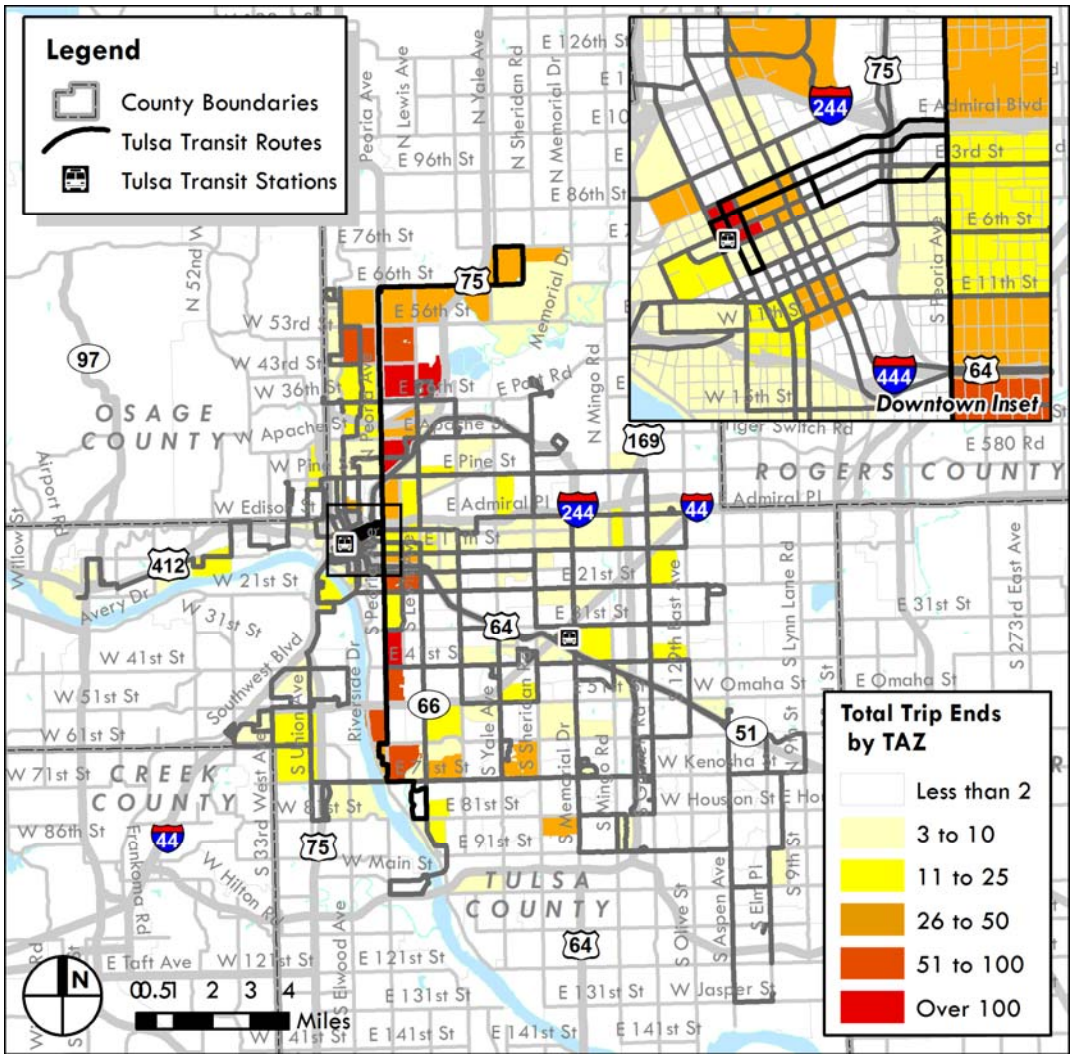
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

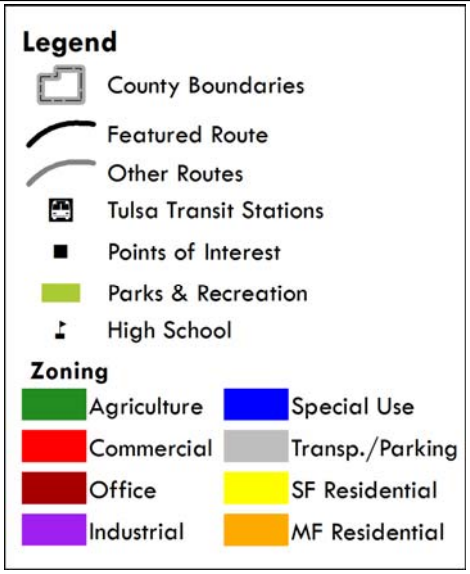


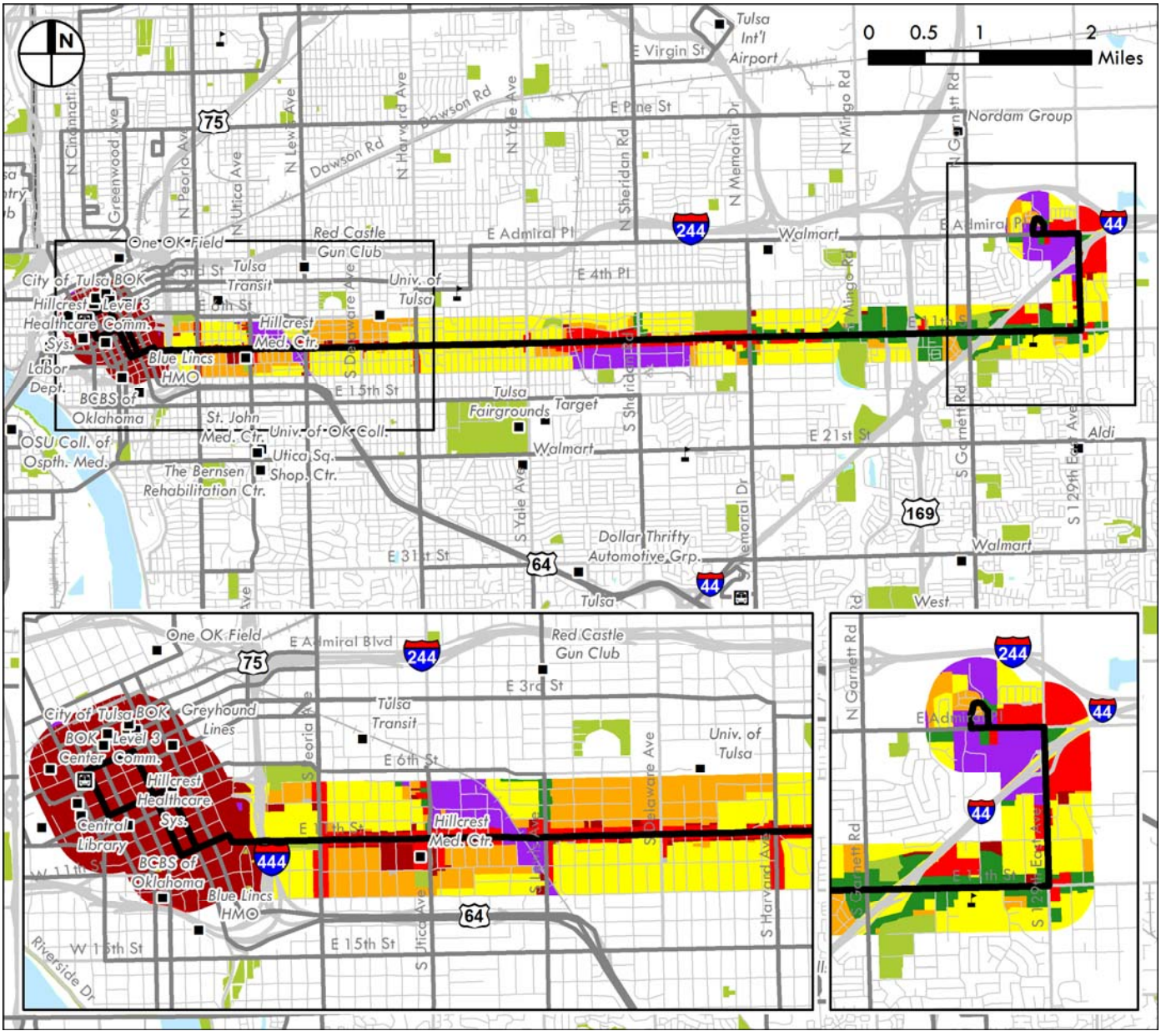
TRANSFER ACTIVITY

Overall Transfer Rate		
Route 105		1.26
System Average		**1.30**
From	**Route**	**To**
3.1%	100	5.7%
16.4%	101	13.6%
-	105	-
8.4%	111	5.6%
9.0%	112	12.9%
5.3%	114	6.2%
5.8%	117	3.1%
1.5%	118	2.8%
3.0%	203	5.5%
5.1%	210	7.1%
3.3%	215	3.6%
8.0%	221	6.8%
19.1%	222	18.2%
8.9%	251	3.8%
0.3%	306	1.0%
-	318	1.4%
3.0%	471	2.1%
-	508	0.7%
-	902	-
-	909	-

Route 111 – 11th Street

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:25 am - 6:55 pm		6:51 am - 6:00 pm	
Frequency (Pk/Mid/Nite)	45/45/--		90/--	
Cycle Time (min)	90		90	
Layover Time (min)	11		11	
Route Statistics				
One-Way Trips	36		15	
Daily Revenue-Hours	26.8		11.2	
Daily Revenue-Miles	382.7		159.5	
Peak Buses	2.0		1.0	
Route Productivity				
Boardings	490		103	
Riders/Rev. Hr. (Rank)	18.3	*(6)*	9.3	*(8)*
Riders/Rev.-Mi. (Rank)	1.3	*(6)*	0.6	*(7)*
Riders/Trip (Rank)	13.6	*(10)*	6.9	*(12)*





General Description and Observations

Route 111 is a major east-west route generally following 11th Street from downtown Tulsa to 129th E. Avenue. Starting from DAS, the route uses Cheyenne, 6th Street, and Cincinnati to 10th Street which converges to 11th Street (inbound to downtown from 10th Street, the route uses Boston, 3rd Street and Cheyenne to DAS). The route remains on 11th Street until 129th Avenue, where it proceeds north and then west on Admiral to terminate at East Central Village at 123rd Avenue/Archer. There is a Park & Save lot for transit riders mid-route at Eleventh Street Baptist Church, 3712 E. 11th Street.

Land uses along the route include office use in downtown Tulsa, followed by a mix of industrial, single and multifamily residential, and commercial frontage. Commercial frontage is particularly concentrated between Yale and Memorial, with a major industrial district on both sides of Memorial on the south side of the street.

Major origins, destinations or points of interest along the route include:

- Tulsa Community College (Metro Campus)
- Hillcrest Medical Center
- Murdock Villa
- Wilson Middle School
- University of Tulsa
- Skateland
- American Red Cross
- Redbud Shopping Center
- East Central High School
- East Central Village

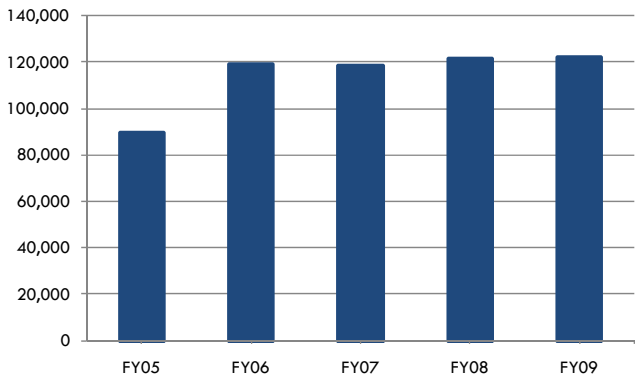
Observations regarding this route include the following:

- The 45-minute weekday headway and 90-minute Saturday headway is mostly not in synch with headways on connecting routes. Adding another bus would allow 30-minute service.
- Simple, easy to understand route structure. Alignment is very direct, connecting a mix of commercial and residential uses to downtown Tulsa.
- Decent generators along length of route are intermixed with low-density areas. East Central Village, 11th & Peoria, and 11th & Harvard (east of University of Tulsa) areas showed strongest rider concentrations.

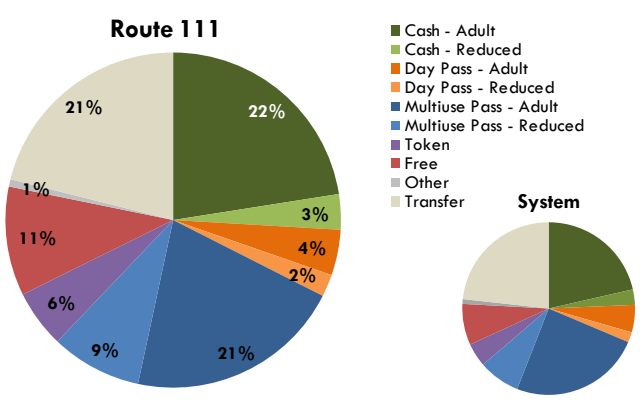
Ridership Trends and Productivity

- Solid performance in terms of weekday riders per revenue hour and riders per revenue mile. Average performance for weekday riders per trip.
- Average performance for Saturday ridership.
- Ridership has increased by about 35% in a five-year period.
- Riders by fare type are comparable to systemwide averages. Riders transfer to this route at a slightly lower rate than the system average.

ANNUAL RIDERSHIP, FY05-FY09



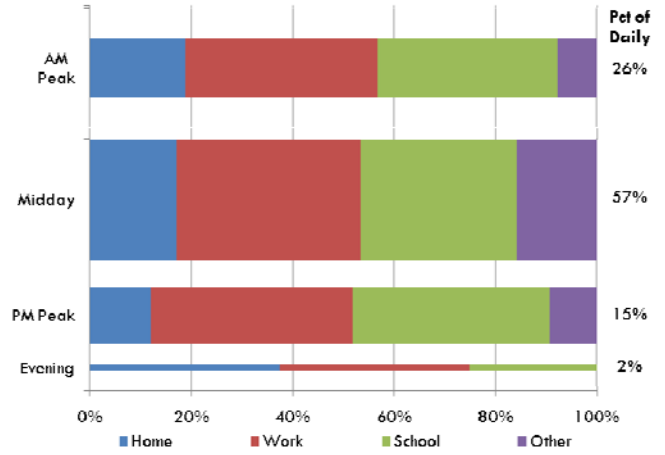
RIDERS BY FARE TYPE



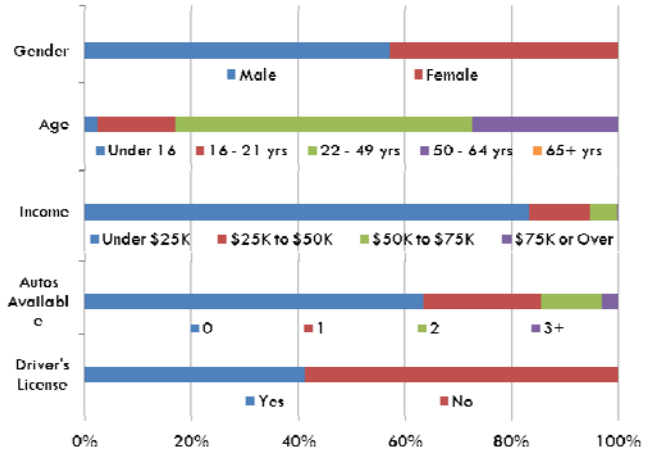
Rider Demographics and Travel Behavior

- Typical rider overwhelmingly low income between 22-49 years of age with no available automobile or drivers license; slightly more likely to be male.
- This route is used predominantly to get to work or school.
- Highest transfer activity is with Route 105; other significant transfers with Routes 101 and 222.

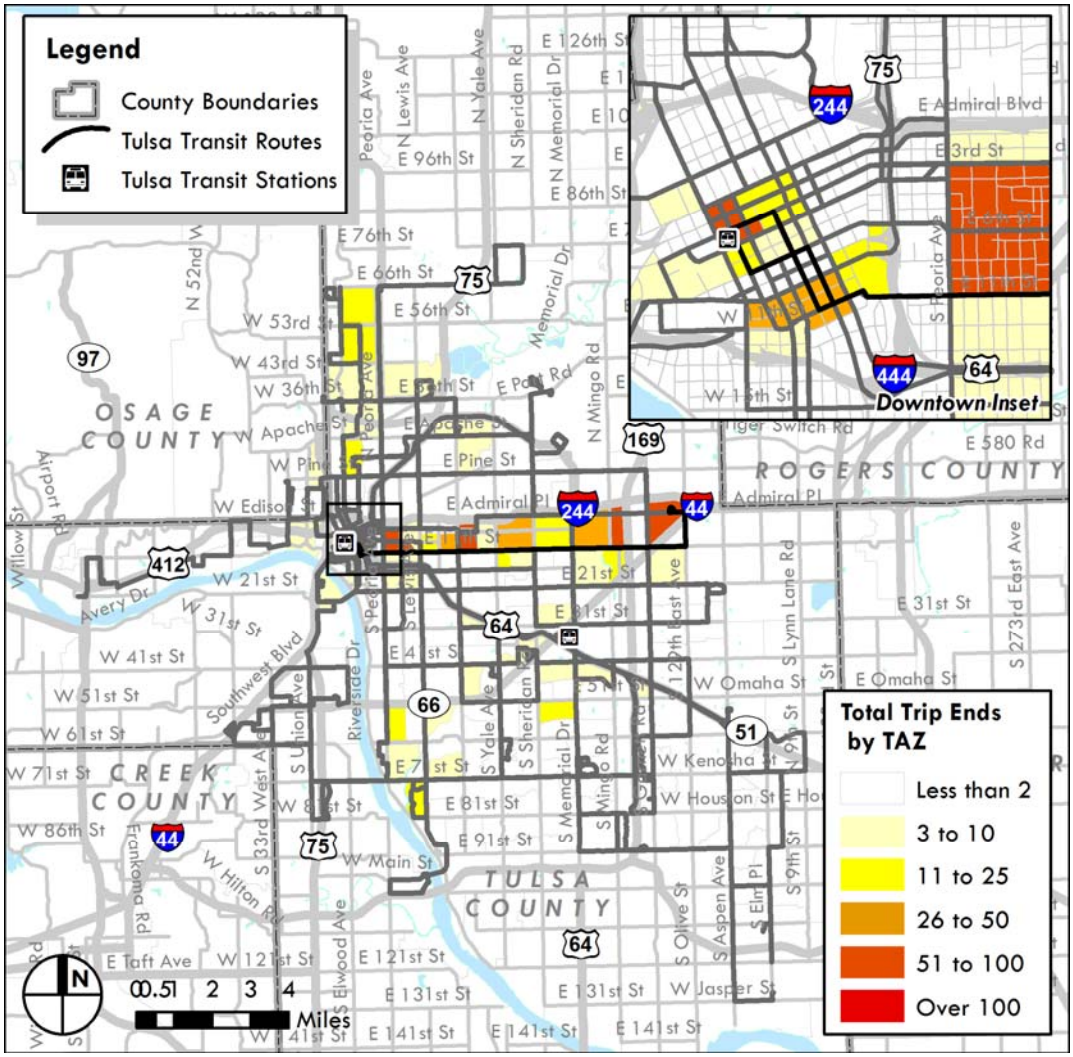
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

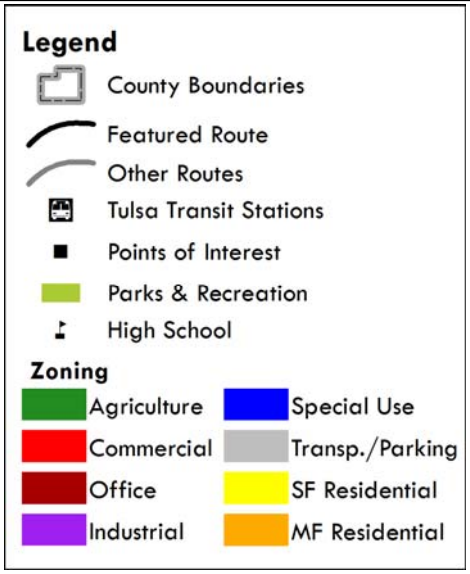


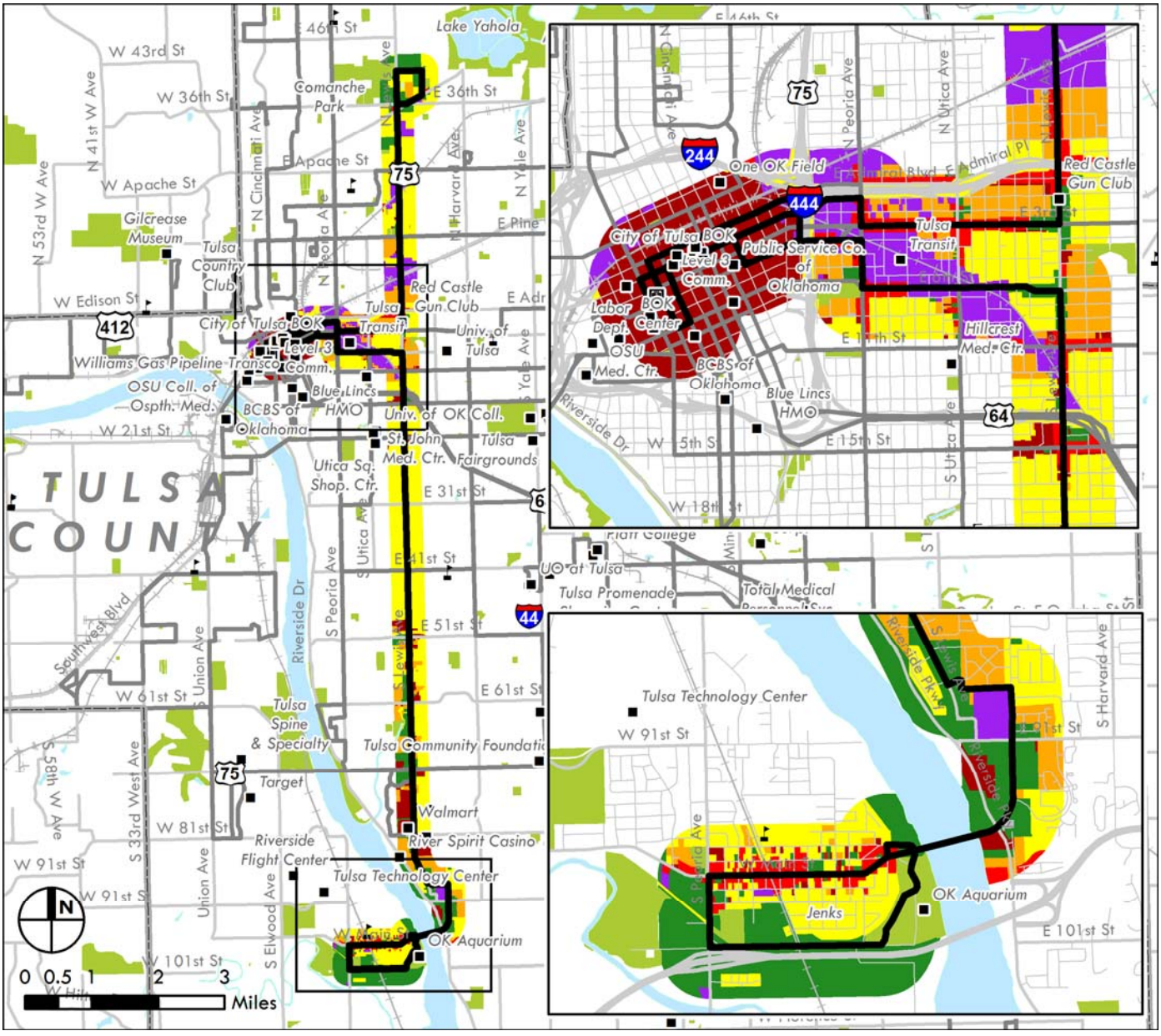
TRANSFER ACTIVITY

Overall Transfer Rate		
Route 111		1.27
System Average		**1.30**
From	**Route**	**To**
2.1%	100	4.5%
19.7%	101	15.3%
15.1%	105	21.0%
-	111	-
1.4%	112	6.4%
6.1%	114	3.9%
3.3%	117	5.1%
4.6%	118	1.8%
2.5%	203	5.3%
8.9%	210	8.8%
4.2%	215	3.3%
8.7%	221	7.3%
10.9%	222	14.2%
12.4%	251	3.1%
-	306	-
-	318	-
-	471	-
-	508	-
-	902	-
-	909	-

Route 112 – Lewis/Jenks

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:20 am - 7:43 pm		7:12 am - 5:46 pm	
Frequency (Pk/Mid/Night)	60/60/--		80/--	
Cycle Time (min)	180		160	
Layover Time (min)	14		18	
Route Statistics				
One-Way Trips	33		16	
Daily Revenue-Hours	41.5		20.6	
Daily Revenue-Miles	672.4		329.5	
Peak Buses	3.0		2.0	
Route Productivity				
Boardings	734		199	
Riders/Rev. Hr. (Rank)	17.7	*(8)*	9.7	*(7)*
Riders/Rev.-Mi. (Rank)	1.1	*(10)*	0.6	*(9)*
Riders/Trip (Rank)	22.3	*(3)*	12.5	*(4)*





General Description and Observations

Route 112 is a major north-south route generally following Lewis Avenue from Mohawk Manor to southern Tulsa, and into Jenks. There is a mid-route diversion to downtown Tulsa using 3rd Street and 6th Street, then 1st Street (toward DAS) and 2nd Street (coming from DAS). A Park & Save lot for transit riders is available near the south end of the route at Victory Christian Church, 7770 S. Lewis.

Much of the corridor serves single family residential uses, though in the vicinity of downtown Tulsa there are more industrial and multifamily uses, and offices in downtown Tulsa. South of 51st Street, uses become more intensified with more multifamily housing, commercial, industrial, and major developments. The route in Jenks provides access to Riverwalk and the Oklahoma Aquarium, then loops to provide access to commercial uses along Main Street.

Major origins, destinations or points of interest along the route include:

- *North Lewis:* Mohawk Manor, Springdale Shopping Center, Bama Pies, Tulsa Job Corps, Cleveland Middle School
- *South Lewis:* YWCA, Monte Cassino School, Spectrum Shopping Center, Tulsa Marriott Southern Hills, Oral Roberts University, Walmart Supercenter, Citiplex Towers, Riverlanes Bowling Center, Jenks, Oklahoma Aquarium

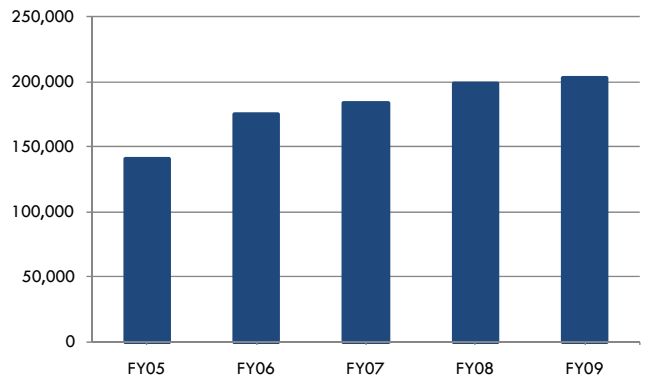
Observations regarding this route include the following:

- Ridership performance is solid, given that the route only provides a 60-minute weekday headway and 80-minute Saturday headway. Is a good candidate for improving service frequencies, either for a 30- or 45- minute weekday headway.
- Alignment is fairly direct, though the mid-route deviation to serve DAS is quite time-consuming, adding about 20 minutes to a one-way trip for through-riders.
- The layover time of 14 minutes is fairly minimal given the cycle time, providing only 8% of recovery time. Reports are this route is frequently behind schedule.
- Strongest ridership in vicinity of Mohawk Manor, Bama Pies, and Tulsa Job Corps to the north, and the multi-family and Walmart developments to the south. Route usage is minimal between downtown Tulsa and 51st Street, and in Jenks.

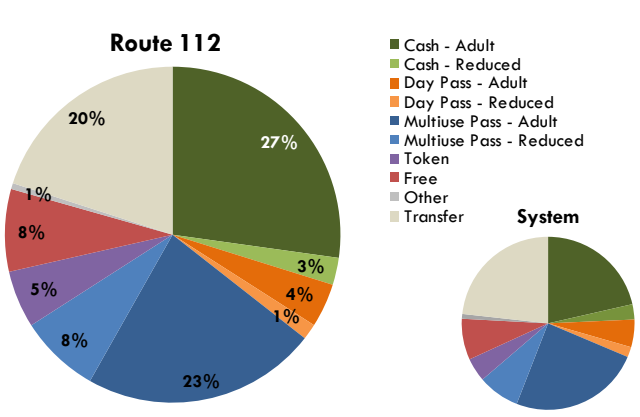
Ridership Trends and Productivity

- Average performance in terms of weekday and Saturday riders per revenue hour and riders per revenue mile.
- Top quartile for weekday and Saturday riders per trip, primarily due to its long route length.
- Ridership has increased by 44% in a five-year period.
- Riders are more likely to pay with cash and less likely to have transferred when compared to systemwide averages.

ANNUAL RIDERSHIP, FY05-FY09



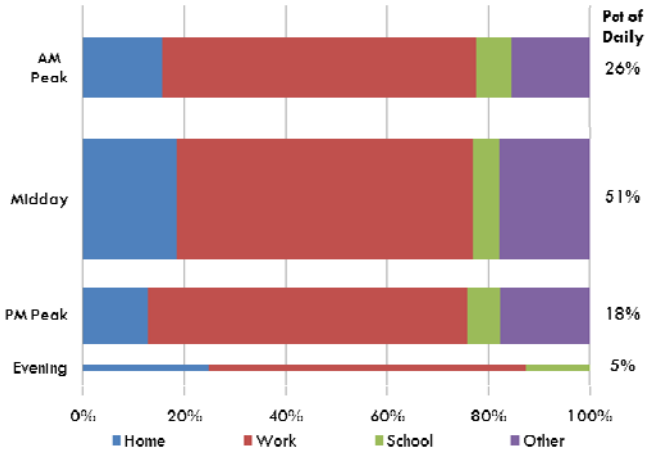
RIDERS BY FARE TYPE



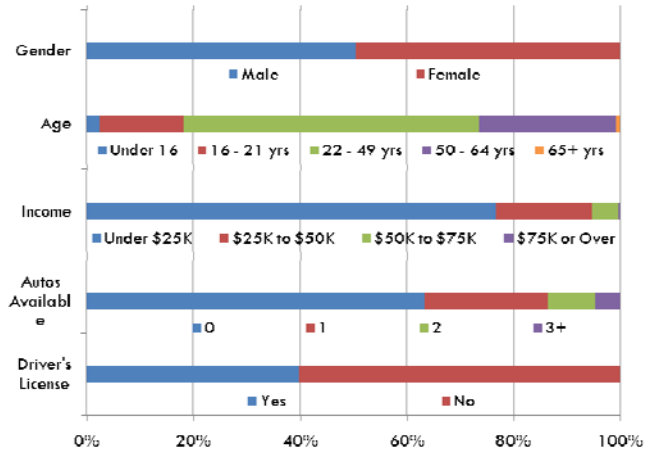
Rider Demographics and Travel Behavior

- Typical rider predominantly low income between 22-49 years of age with no available automobile or drivers license.
- This route is used predominantly to get to work.
- Highest transfer activity is with Route 105; other significant transfers with Routes 101 and 222.

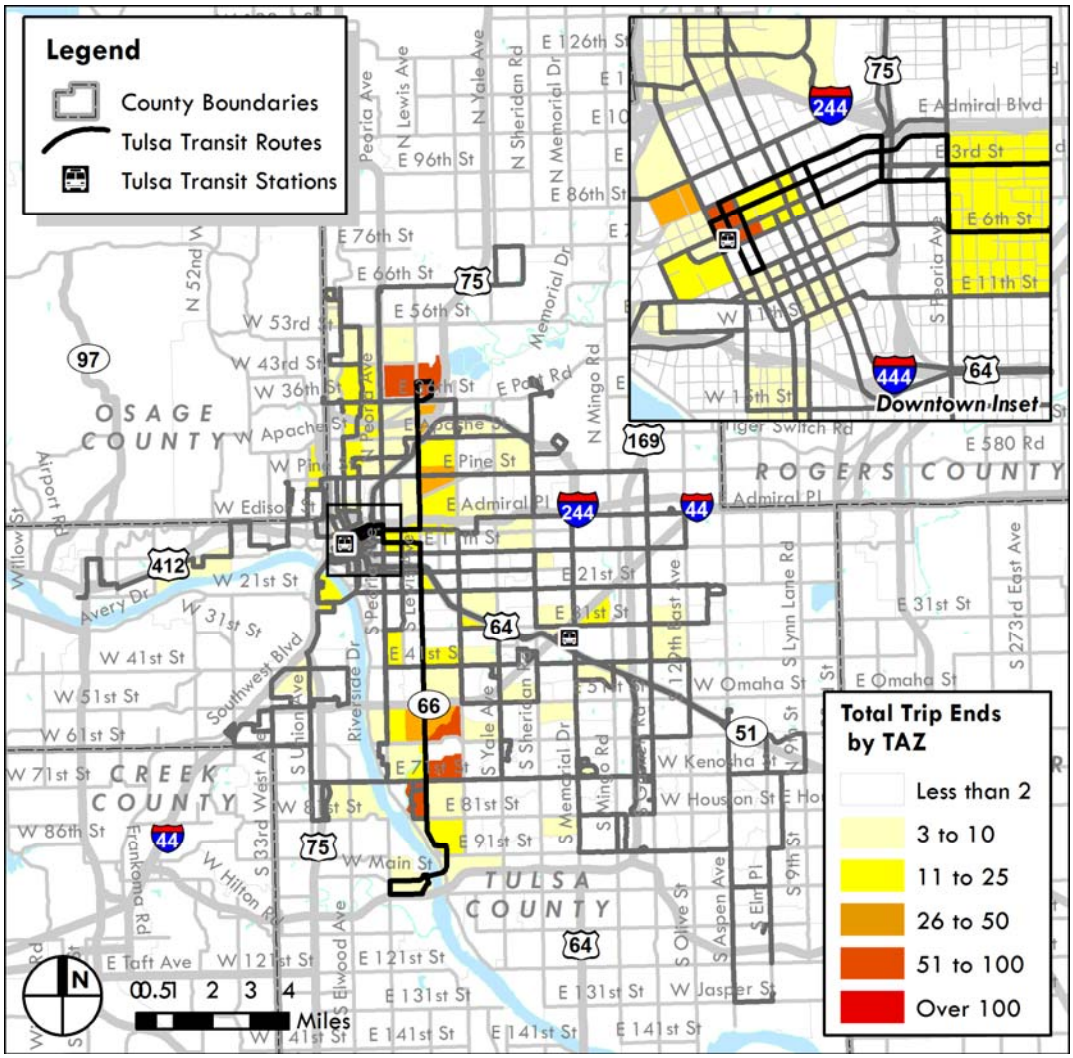
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

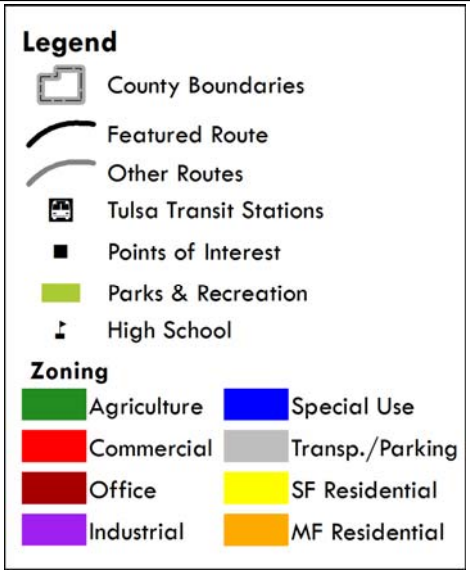


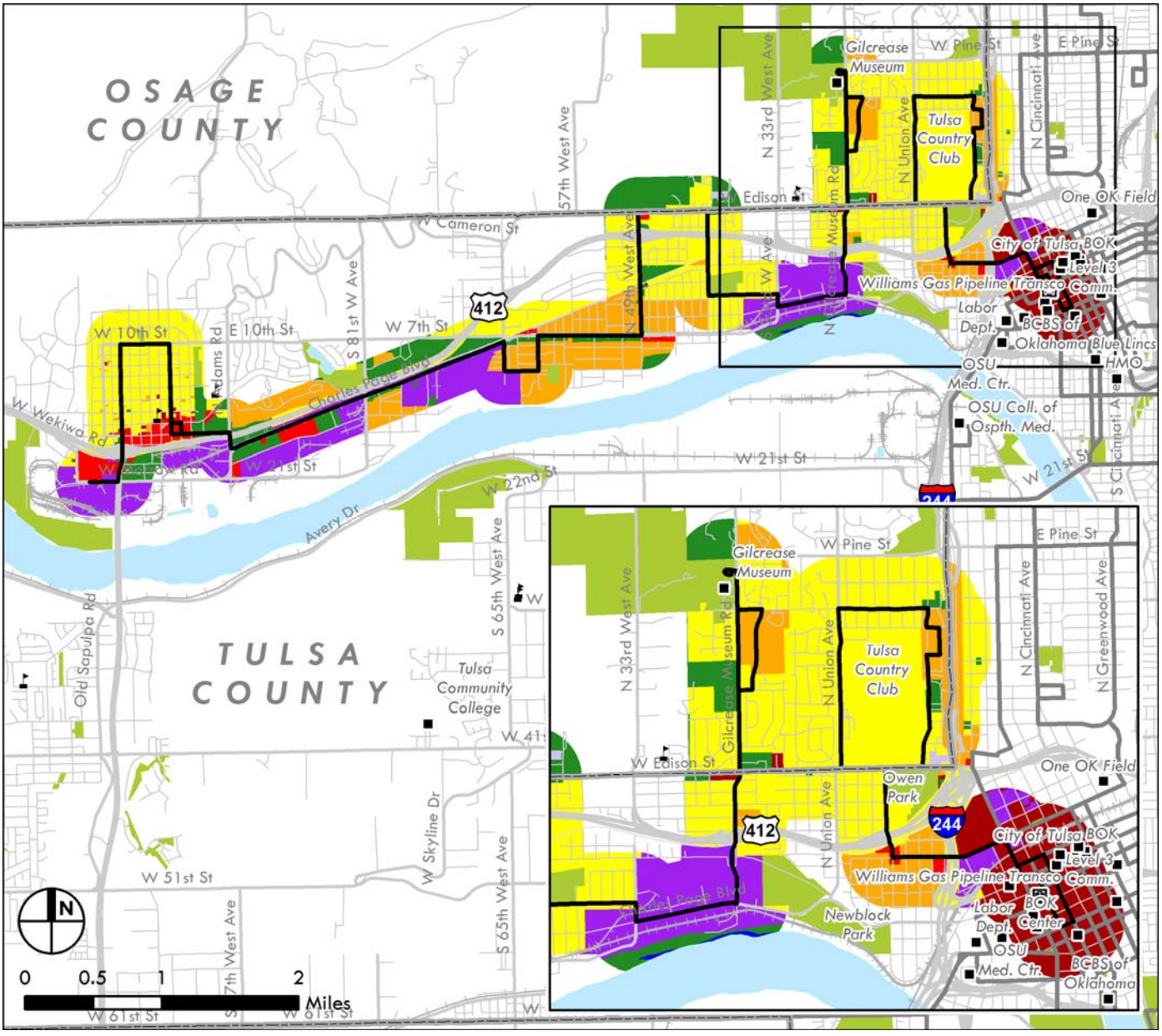
TRANSFER ACTIVITY

Overall Transfer Rate		
Route 112		1.25
System Average		1.30
From	Route	To
5.7%	100	7.4%
17.3%	101	15.4%
23.5%	105	22.3%
5.3%	111	1.1%
-	112	-
6.7%	114	5.1%
2.8%	117	6.3%
1.3%	118	3.4%
3.3%	203	4.9%
3.9%	210	8.2%
5.6%	215	5.6%
5.7%	221	2.6%
15.7%	222	15.2%
2.2%	251	1.8%
-	306	-
-	318	-
1.1%	471	-
-	508	-
-	902	0.8%
-	909	-

Route 114 – Charles Page/Sand Springs

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:08 am - 7:52 pm		6:27 am - 6:40 pm	
Frequency (Pk/Mid/Night)	*55/55/--*		114/--	
Cycle Time (min)	110		114	
Layover Time (min)	*7*		10	
Route Statistics				
One-Way Trips	32		13	
Daily Revenue-Hours	29.3		12.2	
Daily Revenue-Miles	485.2		193.0	
Peak Buses	2.0		1.0	
Route Productivity				
Boardings	436		138	
Riders/Rev. Hr. (Rank)	14.9	*(14)*	11.3	*(4)*
Riders/Rev.-Mi. (Rank)	0.9	*(14)*	0.7	*(6)*
Riders/Trip (Rank)	13.6	*(11)*	10.6	*(5)*





General Description and Observations

Route 114 is the sole route serving Sand Springs. From DAS, the route uses Commerce, 6th Street, Boulder, 1st Street and Denver to Archer Street. Once leaving downtown Tulsa, the route follows a circuitous path to serve Country Club Heights, Skyline Ridge, Easton Heights, West O'Main and Lake communities, then generally follows W. Charles Page Boulevard before circulating in Sand Springs. A Park & Save lot is available in Sand Springs, at the Sand Springs Church of God, 401 N. Grant Avenue. A few selected trips each weekday serve Gilcrease Estates near Country Club Heights.

While the portion of the route in downtown Tulsa predictably serves office and industrial uses, the remainder of the corridor serves a mix of multi- and single family residences, with major pockets of industrial and commercial use.

Major origins, destinations or points of interest along the route include:

- Day Center for the Homeless
- Tulsa Country Club
- Country Club Gardens
- Country Club Heights/Project 12
- Central High School
- Gilcrease Museum (select trips only)
- Madison Middle School
- Warehouse Market (Tulsa)
- Sandy Park Apartments
- Hampton Inn
- Warehouse Market (Sand Springs)
- Walmart Supercenter

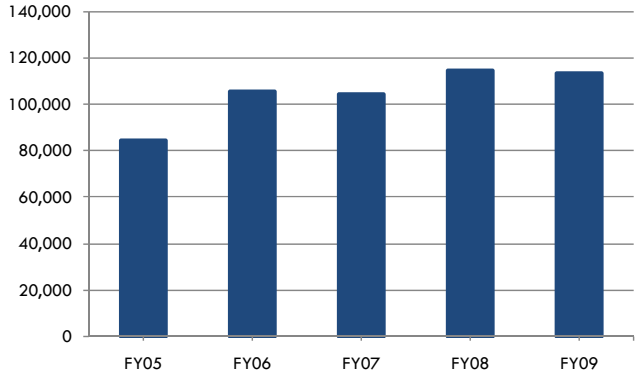
Observations regarding this route include the following:

- The 55-minute weekday headway and 114-minute Saturday headway may benefit from being simplified to 60 minutes on weekdays, and either 90 minutes or 120 minutes on Saturdays to provide simpler scheduling for users.
- Meandering route slows travel time substantially. Simplification of route would allow better speeds, while still providing access to at least as many neighborhoods.
- The layover time of 7 minutes is extremely minimal given the cycle time, providing only 6% of recovery time.
- Ridership performance seems like it should be better, given the high-density modest income neighborhoods that are being served along the route. No one route segment or attractor dominates ridership demand.

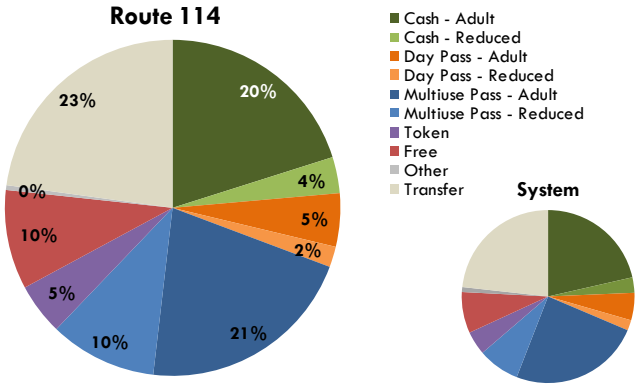
Ridership Trends and Productivity

- Below average performer for weekday productivity measures, but Saturday performance is stronger.
- Ridership has increased by about 34% in a five-year period.
- Riders by fare type are mostly comparable to systemwide averages. Reduced fares appear in slightly greater demand than other routes.

ANNUAL RIDERSHIP, FY05-FY09



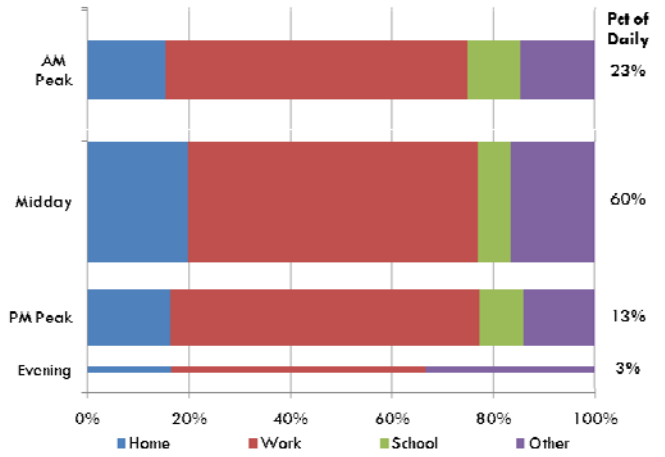
RIDERS BY FARE TYPE



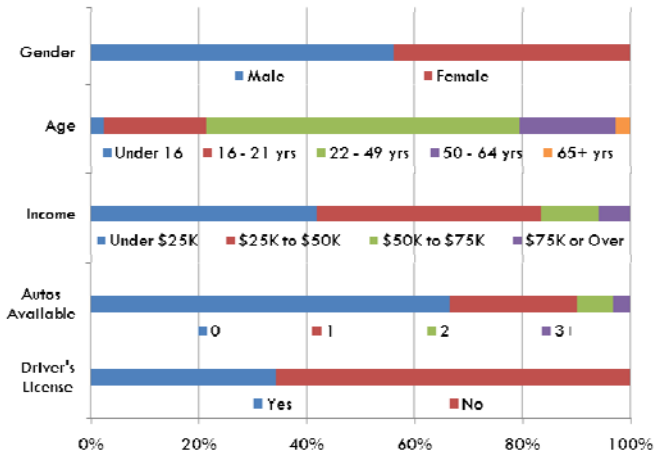
Rider Demographics and Travel Behavior

- Typical rider between 22-49 years of age with no available automobile or drivers license; slightly more likely to be male. Income is low to low-moderate.
- This route is used predominantly to get to work.
- Highest transfer activity is with Route 105; other significant transfers with Routes 101 and 222.

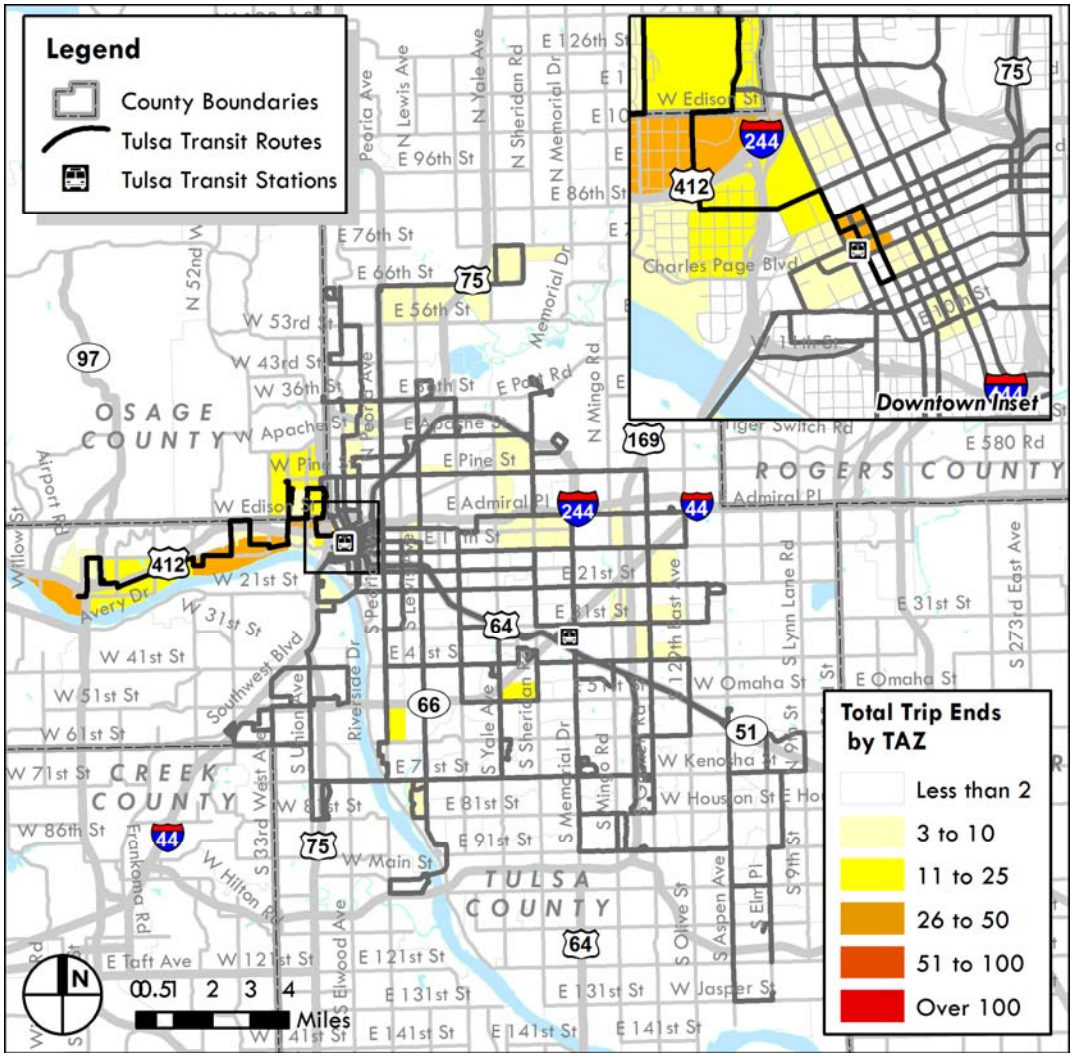
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

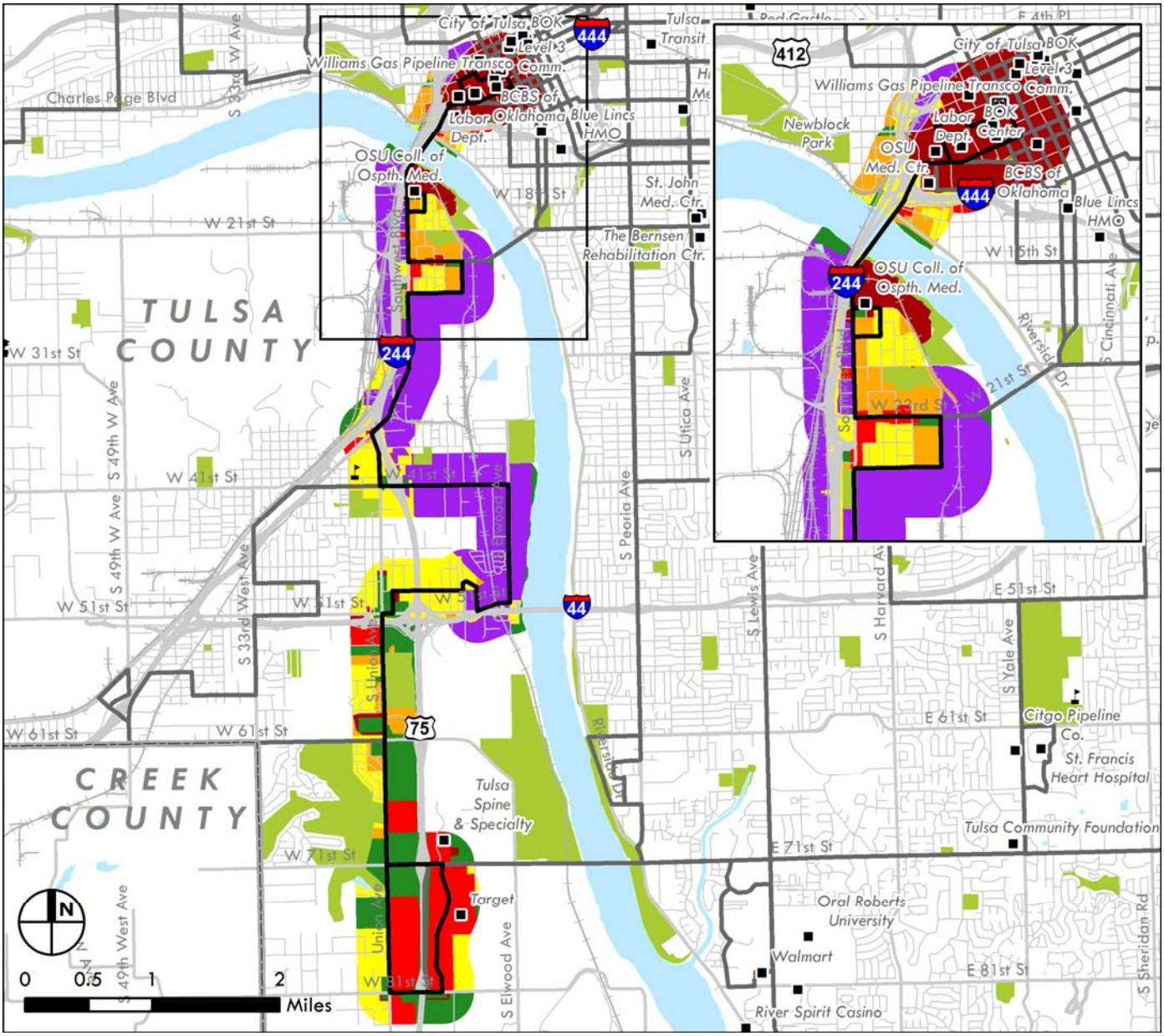


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 114		1.30
System Average		**1.30**
From	**Route**	**To**
13.5%	100	3.3%
17.6%	101	13.7%
19.1%	105	19.9%
5.4%	111	7.4%
7.0%	112	12.2%
-	114	-
5.3%	117	-
2.6%	118	-
2.5%	203	1.7%
4.7%	210	10.7%
2.2%	215	-
2.7%	221	5.8%
10.6%	222	12.5%
6.1%	251	8.1%
-	306	2.3%
0.5%	318	2.3%
-	471	-
-	508	-
-	902	-
-	909	-

Route 117 – Union/Southwest Boulevard

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:10 am - 6:40 pm		7:50 am - 6:20 pm	
Frequency (Pk/Mid/Nite)	45/90/--		90/--	
Cycle Time (min)	90		90	
Layover Time (min)	13		13	
Route Statistics				
One-Way Trips	27		14	
Daily Revenue-Hours	20.0		10.5	
Daily Revenue-Miles	321.3		166.2	
Peak Buses	2.0		1.0	
Route Productivity				
Boardings	322		80	
Riders/Rev. Hr. (Rank)	16.1	*(10)*	7.7	*(13)*
Riders/Rev.-Mi. (Rank)	1.0	*(12)*	0.5	*(12)*
Riders/Trip (Rank)	11.9	*(12)*	5.7	*(13)*



General Description and Observations

Route 117 generally follows Southwest Boulevard and Union Avenue southward to a final loop serving the Tulsa Hills area. From DAS, the route uses Cheyenne to 6th Street westbound to head out of downtown Tulsa (and Houston and 4th Street to head into downtown Tulsa); from 6th Street the route transitions to 7th Street, then turns south on N. 31st Street - Southwest Boulevard. The route makes several major deviations to serve the West Tulsa community between 23rd and 25th Streets, and an industrial area between 41st and 51st Streets. A Park & Save lot is available mid-route at Crossroads Full Gospel Tabernacle, 1310 W. 49th Street S.

While the route in downtown Tulsa serves office uses, the remainder of the corridor serves a substantial amount of industrial use, as well as multi- and single family residences, with minor commercial use until the terminus at Tulsa Hills Shopping Center. Development de-intensifies further south, and is very sparse south of 61st Street.

Major origins, destinations or points of interest along the route include:

- OSU Medical Center
- River Parks
- Hewgley Terrace
- Brightwater Apartments
- LaFortune Tower
- Webster High School
- Westwood Apartments
- Parkview Terrace
- Tulsa Hills

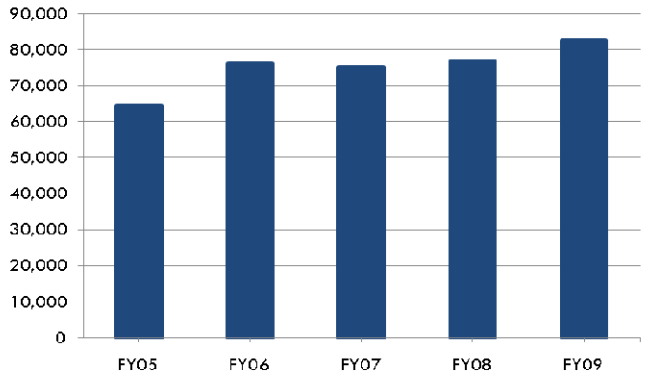
Observations regarding this route include the following:

- The 45-minute weekday peak headway and 90-minute headway in the offpeak and Saturday can afford to be improved for the more productive segment of the route.
- The alignment is somewhat direct. The major deviation serving Elwood Avenue doesn't appear productive.
- Route 117 is strong along Southwest Boulevard from public housing areas in West Tulsa (LaFortune Tower) and through 61st/Union. Not much ridership past Goodwill or even south of the 21st Street area.
- The portion of the route south of 61st Street overlaps with Route 118, where ridership is lightest.

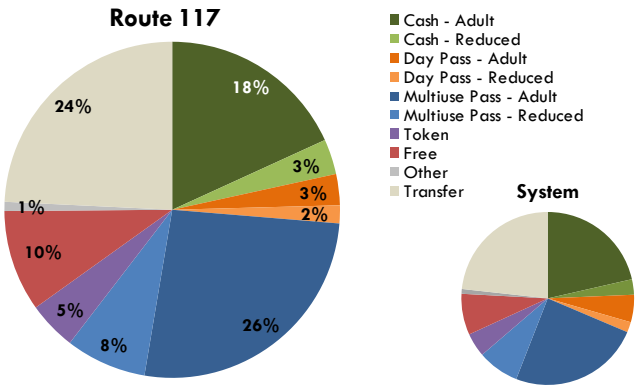
Ridership Trends and Productivity

- Average performer for weekday productivity measures.
- Saturday performance is fairly weak.
- Ridership has increased by about 28% in a five-year period.
- Riders skew heavily toward multi-use passes (7-day, 31-day, and 10-ride) in comparison to system averages.

ANNUAL RIDERSHIP, FY05-FY09



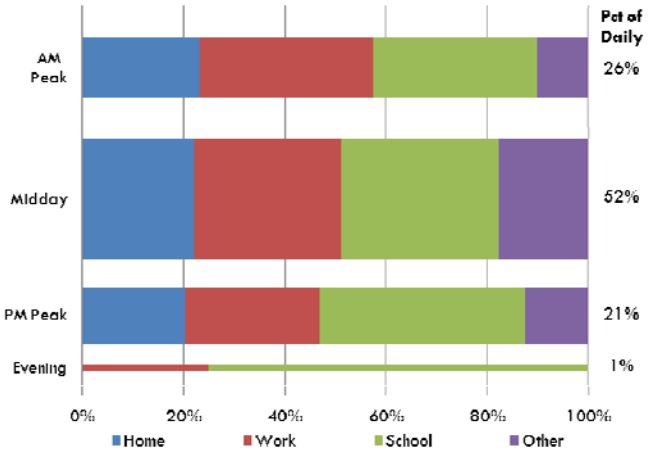
RIDERS BY FARE TYPE



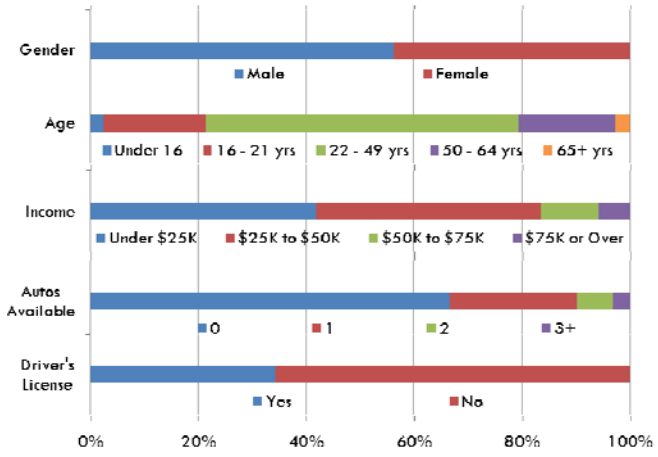
Rider Demographics and Travel Behavior

- Typical rider between 22-49 years of age with no available automobile or drivers license; slightly more likely to be male. Income is low to low-moderate.
- This route is used predominantly to get to school, then work.
- Highest transfer activity is with Route 105; other significant transfers with Routes 118, then 222 and 210.

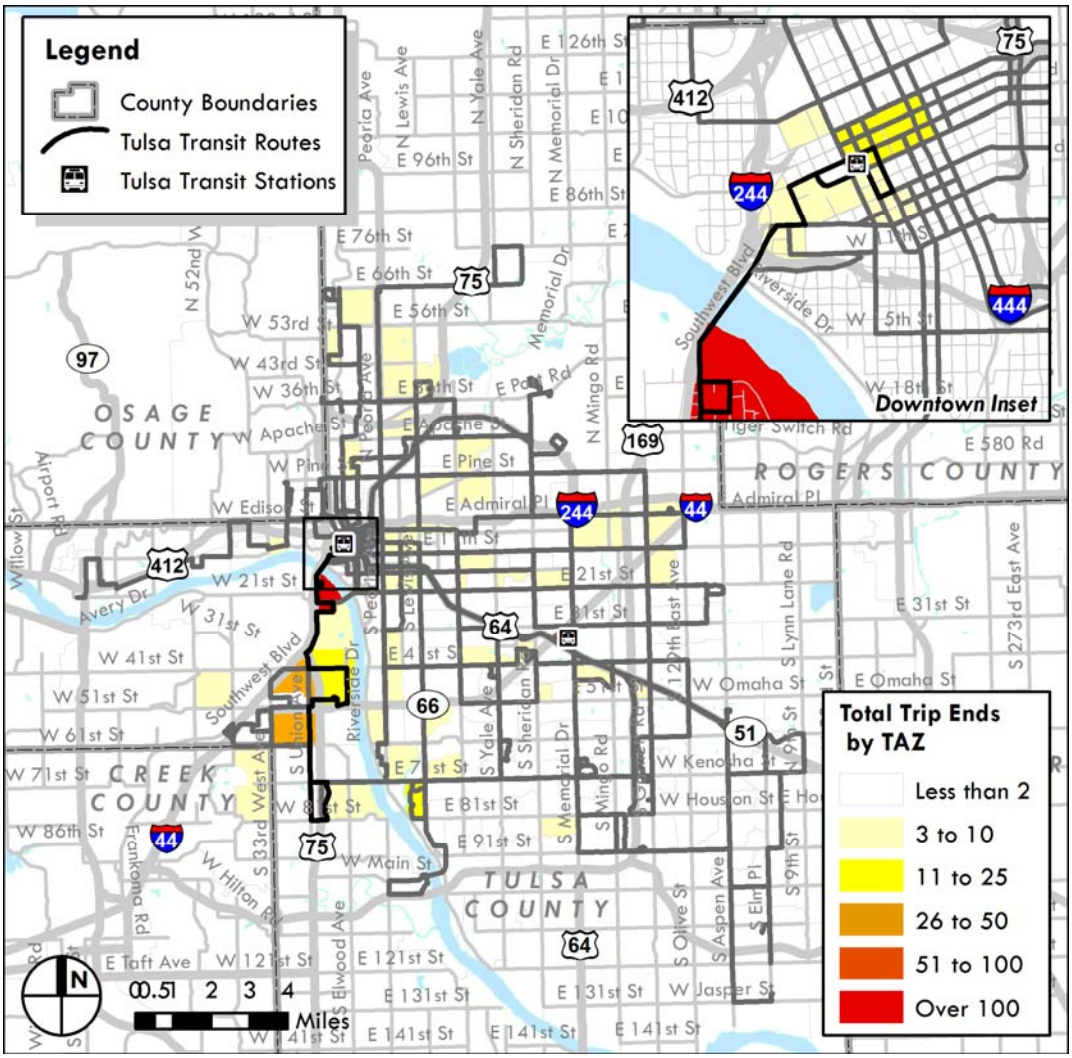
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ



TRANSFER ACTIVITY

Overall Transfer Rate		
Route 117		1.32
System Average		**1.30**
From	**Route**	**To**
5.5%	100	11.2%
5.4%	101	3.5%
11.0%	105	21.6%
8.1%	111	4.1%
10.2%	112	5.0%
-	114	5.8%
-	117	-
16.2%	118	12.3%
2.5%	203	1.4%
12.3%	210	8.8%
5.8%	215	6.2%
5.4%	221	3.7%
14.5%	222	8.6%
1.1%	251	5.1%
-	306	0.5%
-	318	-
2.1%	471	2.3%
-	508	-
-	902	-
-	909	-

Route 118 – 33rd West Avenue

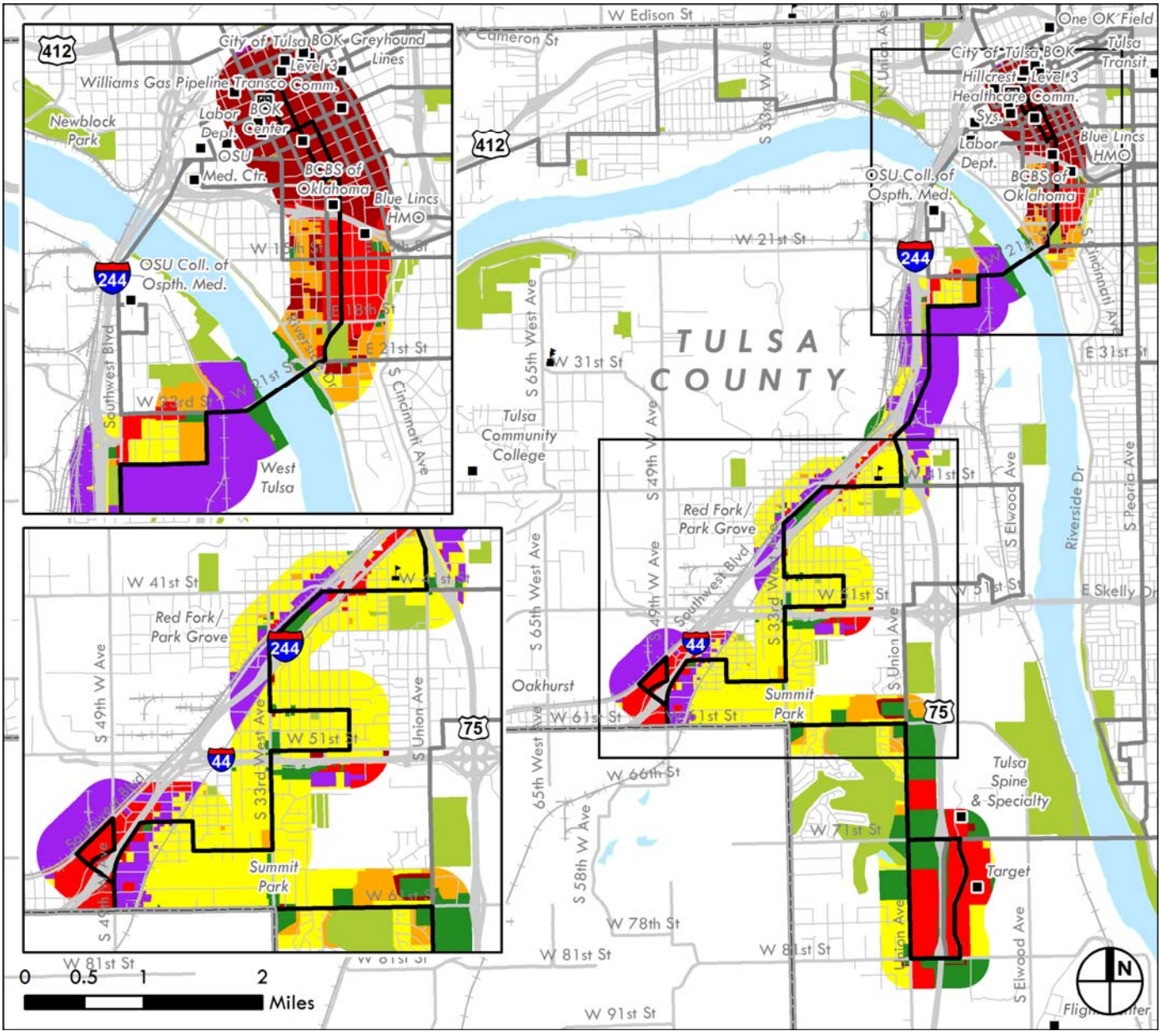
	Weekday		Saturday	
Route Characteristics				
Hours of Operation	4:50 am - 7:30 pm		7:05 am - 6:57 pm	
Frequency (Pk/Mid/Night)	55/110/--		110/--	
Cycle Time (min)	110		110	
Layover Time (min)	10		10	
Route Statistics				
One-Way Trips	25		13	
Daily Revenue-Hours	22.9		11.9	
Daily Revenue-Miles	385.7		200.9	
Peak Buses	2.0		1.0	
Route Productivity				
Boardings	253		62	
Riders/Rev. Hr. (Rank)	11.1	*(17)*	5.2	*(16)*
Riders/Rev.-Mi. (Rank)	0.7	*(17)*	0.3	*(16)*
Riders/Trip (Rank)	10.1	*(15)*	4.7	*(15)*

Legend

- County Boundaries
- Featured Route
- Other Routes
- Tulsa Transit Stations
- Points of Interest
- Parks & Recreation
- High School

Zoning

- Agriculture
- Commercial
- Office
- Industrial
- Special Use
- Transp./Parking
- SF Residential
- MF Residential



General Description and Observations

Route 118 generally serves the same corridor as Route 117, but uses a different downtown routing and deviates from Southwest Boulevard and Union Avenue to serve communities to the west between 41st and 61st Streets. Like Route 117, the route ends in a final loop serving the Tulsa Hills area. From DAS, the route uses Cheyenne, Boulder and Main Streets to head southward out of downtown Tulsa, transitioning to 23rd Street and onto Southwest Boulevard and Union Avenue. At W. 41st Street the route proceeds westward and circulates the area west of Union, going as far west as 49th W. Avenue until heading back eastward on W. 61St Street back onto Union Avenue. The route completes its loop at Tulsa Hills Shopping Center. Two Park & Save lots are available mid-route: at Carbondale Church of Christ (3210 W. 51st Street), and Epworth United Methodist Church (4811 S. 25th W. Avenue).

While the route in downtown Tulsa serves office uses, south of downtown the route serves commercial and multifamily residential uses. Once across the river, there are multifamily and industrial uses; south of 41st Street uses are largely single family housing with some commercial and industrial. The final loop serving Tulsa Hills is largely commercial use. Development de-intensifies further south, and is very sparse south of 61st Street.

Major origins, destinations or points of interest along the route include:

- Webster High School
- Reed Park
- Crystal City Shopping Center
- South Haven Manor
- Town West Shopping Center
- Tulsa Hills

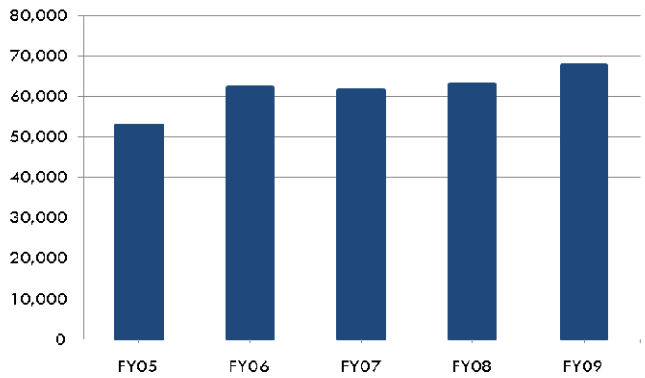
Observations regarding this route include the following:

- The 55-minute weekday peak headway and 110-minute headway in the offpeak and Saturday would better synch with other bus routes if changed to 60 and 120 minutes.
- The alignment is very circuitous, with several difficult turning movements and stop locations. As a result, speeds are slow and this route is one of the least productive in the system.
- The layover time of 10 minutes is fairly minimal given the cycle time, providing only 9% of recovery time.
- Route 118's ridership is strongest north of 61st Street.
- The portion of the route south of 61st Street overlaps with Route 117, where ridership is lightest.

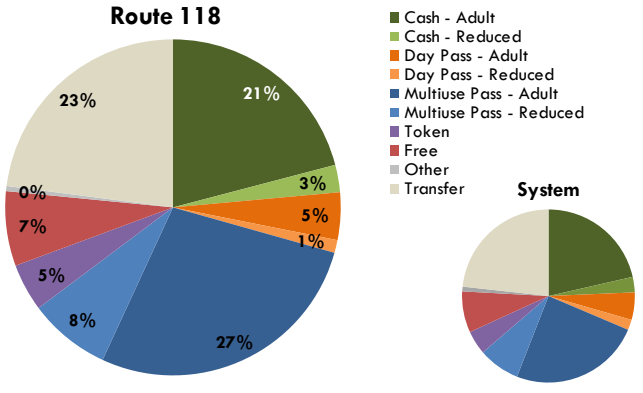
Ridership Trends and Productivity

- Very low performer for weekday and Saturday productivity measures.
- Among lowest performing routes in system.
- Ridership has increased by about 28% in a five-year period.
- Riders skew heavily toward multi-use passes (7-day, 31-day, and 10-ride) in comparison to system averages.

ANNUAL RIDERSHIP, FY05-FY09



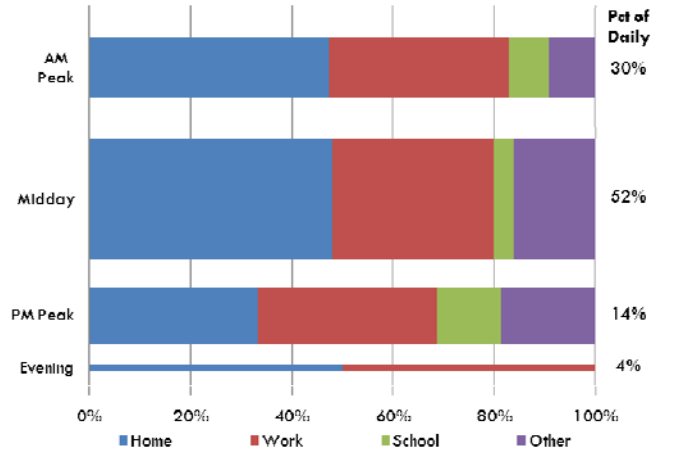
RIDERS BY FARE TYPE



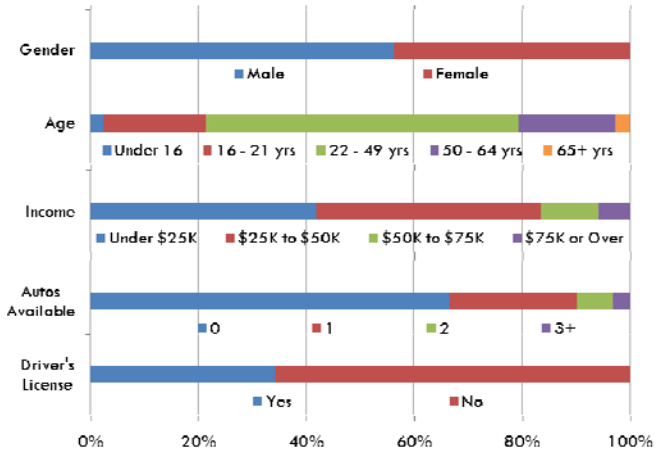
Rider Demographics and Travel Behavior

- Typical rider between 22-49 years of age with no available automobile or drivers license; slightly more likely to be male. Income is low to low-moderate.
- This route is used predominantly to get home and to work.
- Highest transfer activity is with Routes 117 and 101; other significant transfers with Route 222 and then 105.

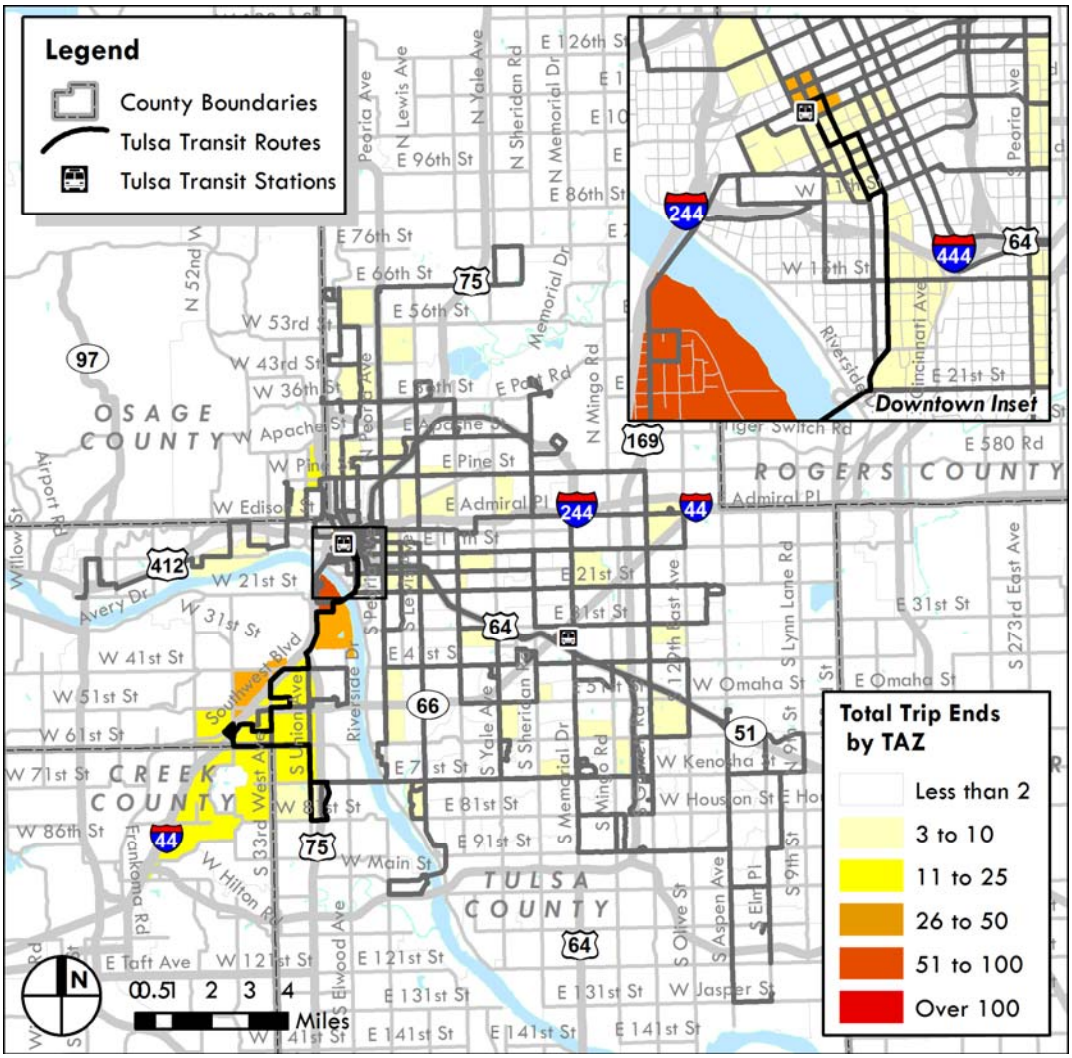
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ



TRANSFER ACTIVITY

Overall Transfer Rate		
Route 118		1.30
System Average		**1.30**
From	**Route**	**To**
4.1%	100	4.4%
22.3%	101	15.3%
14.5%	105	7.2%
4.2%	111	7.4%
7.9%	112	3.1%
-	114	3.7%
19.3%	117	19.8%
-	118	-
-	203	-
1.2%	210	10.2%
2.4%	215	2.0%
7.1%	221	6.1%
14.0%	222	16.5%
1.5%	251	-
-	306	-
-	318	4.2%
1.5%	471	-
-	508	-
-	902	-
-	909	-

Route 203 – Airport

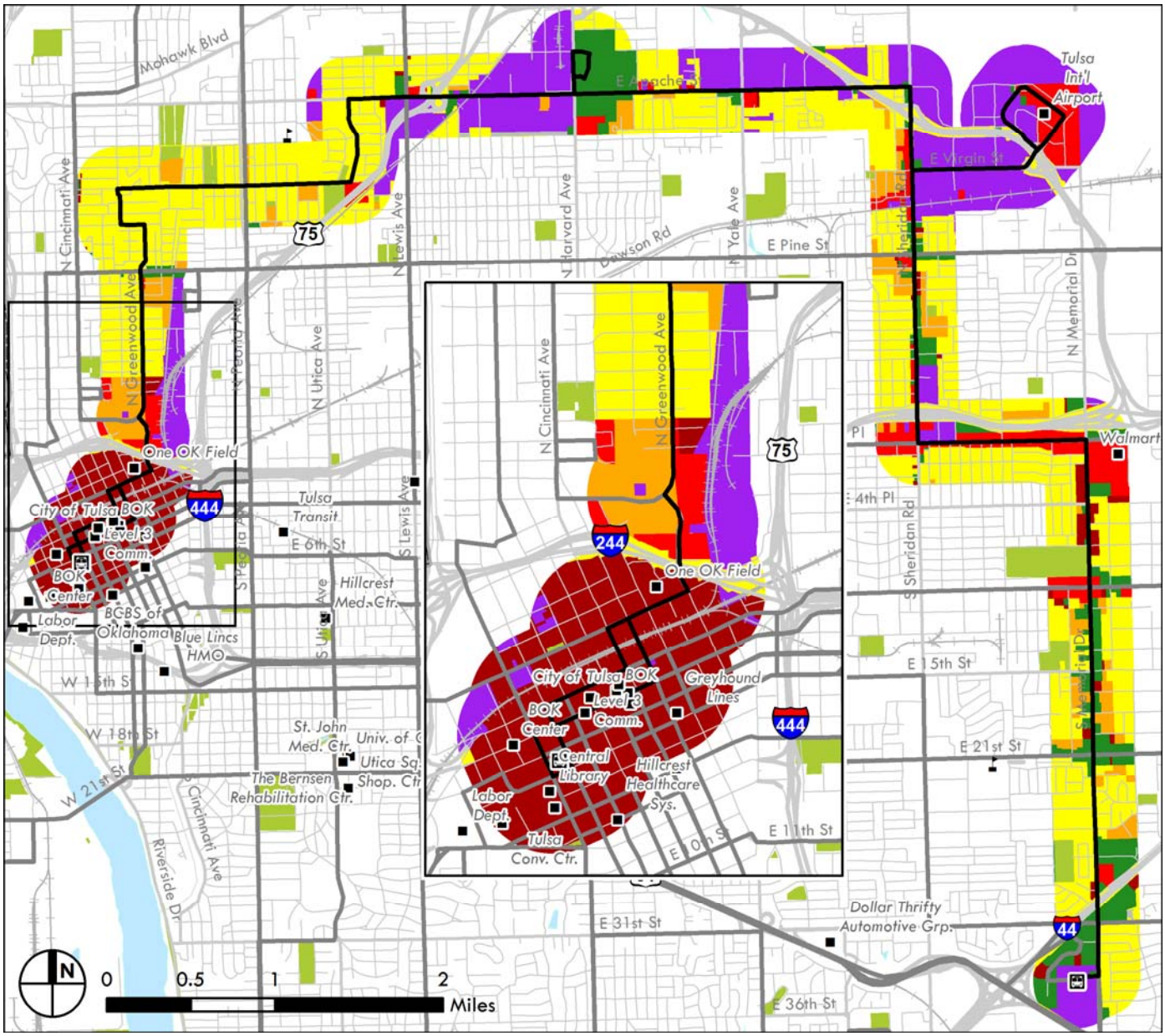
	Weekday		Saturday	
Route Characteristics				
Hours of Operation	4:56 am - 7:07 pm		6:58 am - 6:54 pm	
Frequency (Pk/Mid/Nite)	65.5/65.5/--		70/--	
Cycle Time (min)	131		140	
Layover Time (min)	5		5	
Route Statistics				
One-Way Trips	25		21	
Daily Revenue-Hours	27.3		22.9	
Daily Revenue-Miles	458.9		385.3	
Peak Buses	2.0		2.0	
Route Productivity				
Boardings	393		156	
Riders/Rev. Hr. (Rank)	14.4	*(15)*	6.8	*(15)*
Riders/Rev.-Mi. (Rank)	0.9	*(15)*	0.4	*(14)*
Riders/Trip (Rank)	15.7	*(7)*	7.4	*(10)*

Legend

- County Boundaries
- Featured Route
- Other Routes
- Tulsa Transit Stations
- Points of Interest
- Parks & Recreation
- High School

Zoning

- Agriculture
- Commercial
- Office
- Industrial
- Special Use
- Transp./Parking
- SF Residential
- MF Residential



General Description and Observations

Route 203 is a "U"-shaped route that once out of downtown follows Greenwood Avenue northward, Virgin Street - Apache Street eastward, and Sheridan Road – Memorial Drive southward to terminate at MMS. Deviations serve the TCC Northeast Campus and Tulsa International Airport. Two Park & Save lots are available mid-route: at Calvary Baptist Church (7216 E. Admiral Place) and International Gospel Center (555 S. Memorial).

While the route in downtown Tulsa serves office uses, once leaving downtown there is a mix of commercial and multifamily use, followed by predominantly single family residential. Once on Apache Street, these uses become mixed with industrial use through to the airport area. South of the airport along Sheridan and Memorial is a mix of multi- and single-family residential, along with commercial strip uses.

Major origins, destinations or points of interest along the route include:

- OSU-Tulsa
- Morton Health Clinic
- Morning Star Apartments
- Seminole Hills Apartments
- Washington High School
- TCC Northeast Campus
- Apache Manor Apartments
- Oak Creek Village
- Zebco
- Bryant Elementary School
- Tulsa International Airport
- Eastgate Shopping Center
- Walmart Supercenter

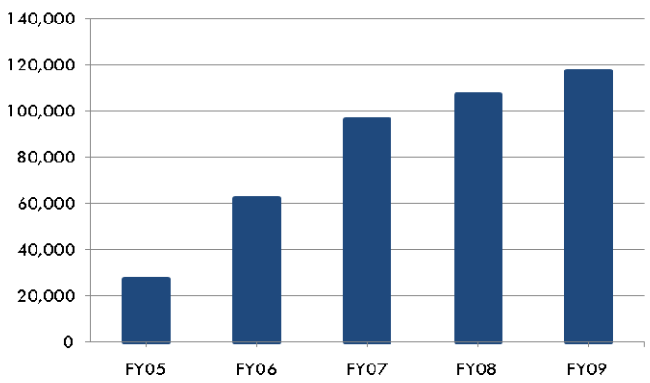
Observations regarding this route include the following:

- The current headway on this route is awkward: 65.5-minute weekday and 70-minute Saturday. Getting to a 60-minute headway would greatly improve coordination with other routes as well as user friendliness. This may potentially be reached if there is no deviation penetrating TCC, and if there is less backtracking once leaving the airport area (perhaps using Memorial instead of returning to Sheridan).
- The route alignment is very indirect, seeking to serve several corridors from beginning to end.
- The layover time of 5 minutes is extremely minimal given the cycle time, providing only 4% of recovery time.
- Strongest rider demand appears to occur in the middle of the route, from TCC through the airport to Walmart.

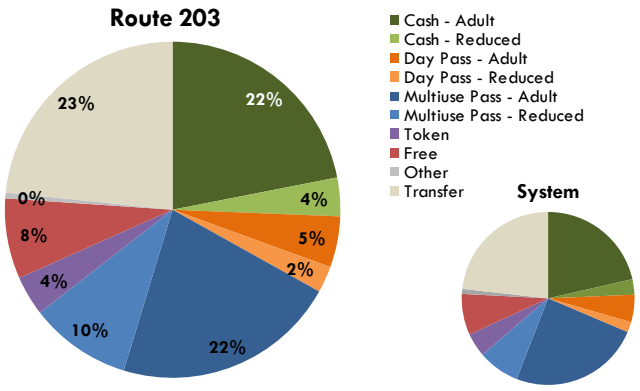
Ridership Trends and Productivity

- Solid performance for weekday riders per trip due to the long trip length, but generally poor performance for weekday riders per revenue hour and weekday riders per revenue mile.
- Saturday performance is also fairly weak.
- Ridership has increased dramatically, more than tripling in a five-year period.
- Riders by fare type are comparable to systemwide averages.

ANNUAL RIDERSHIP, FY05-FY09



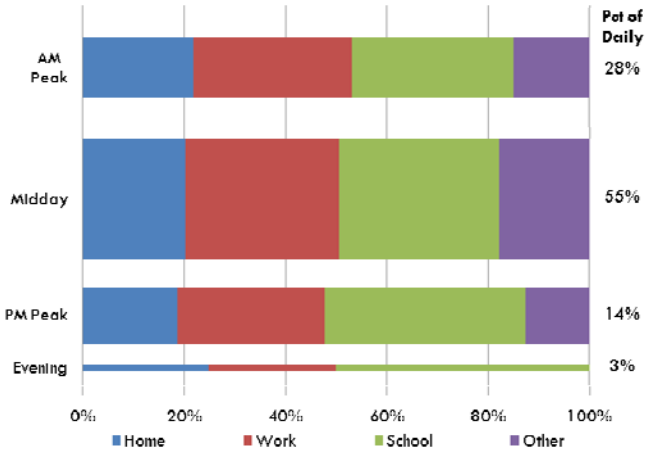
RIDERS BY FARE TYPE



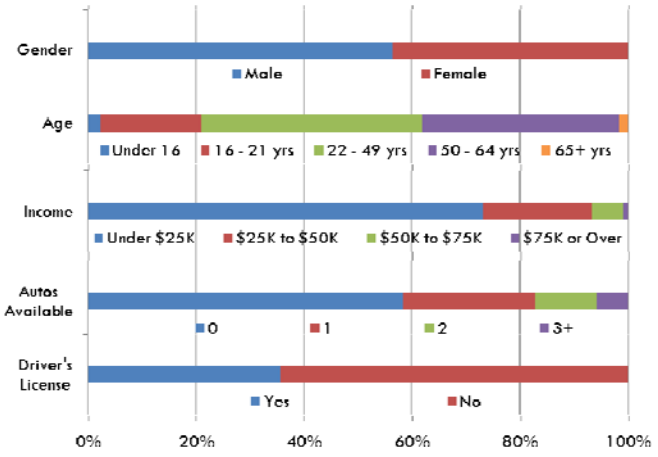
Rider Demographics and Travel Behavior

- Typical rider is predominantly low income, with no available automobile or drivers license; slightly more likely to be male. Age is mostly 22-49 years but also substantial segment is 50-64 years.
- This route is used predominantly to get to school, and also to work.
- Highest transfer activity is with Route 251; other significant transfers with Routes 222 and 105.

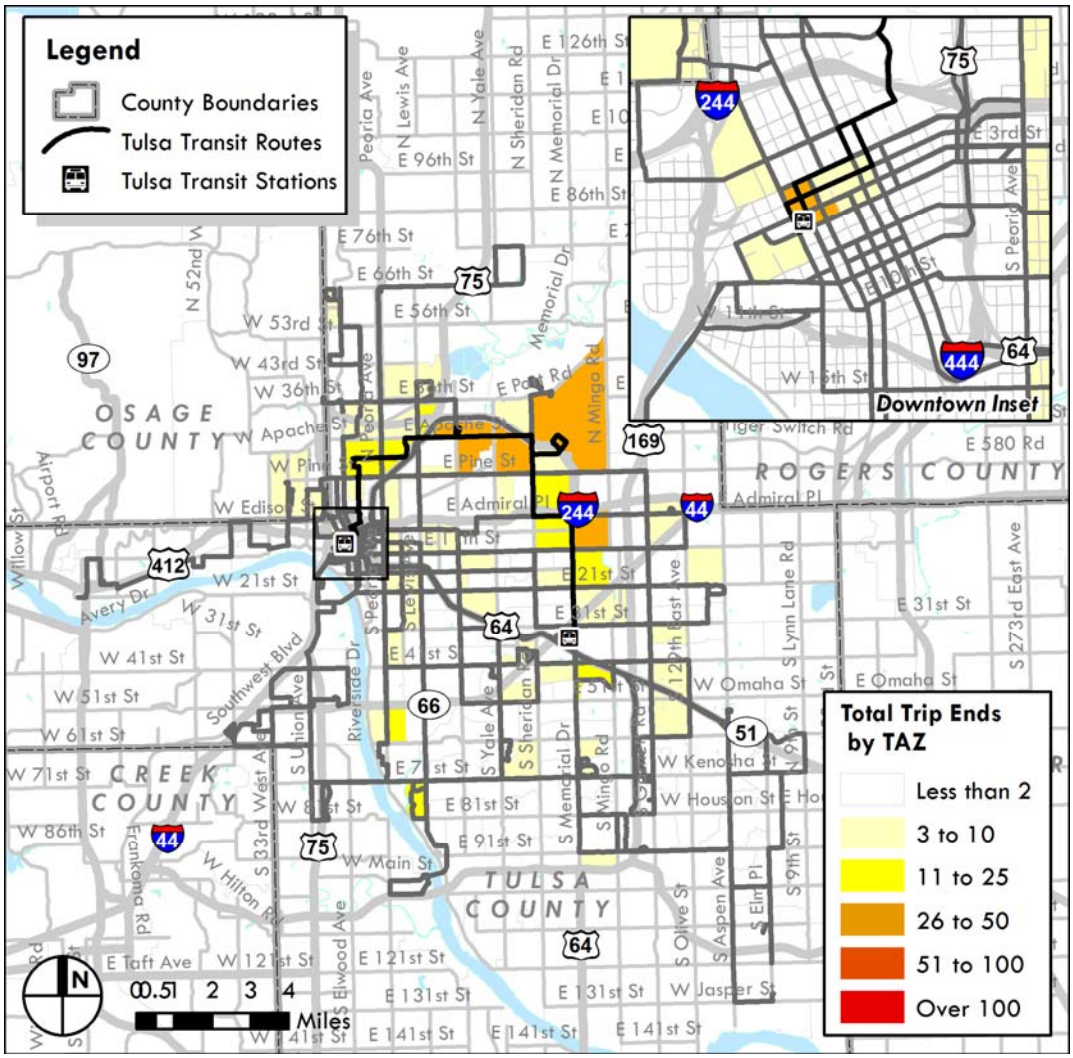
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

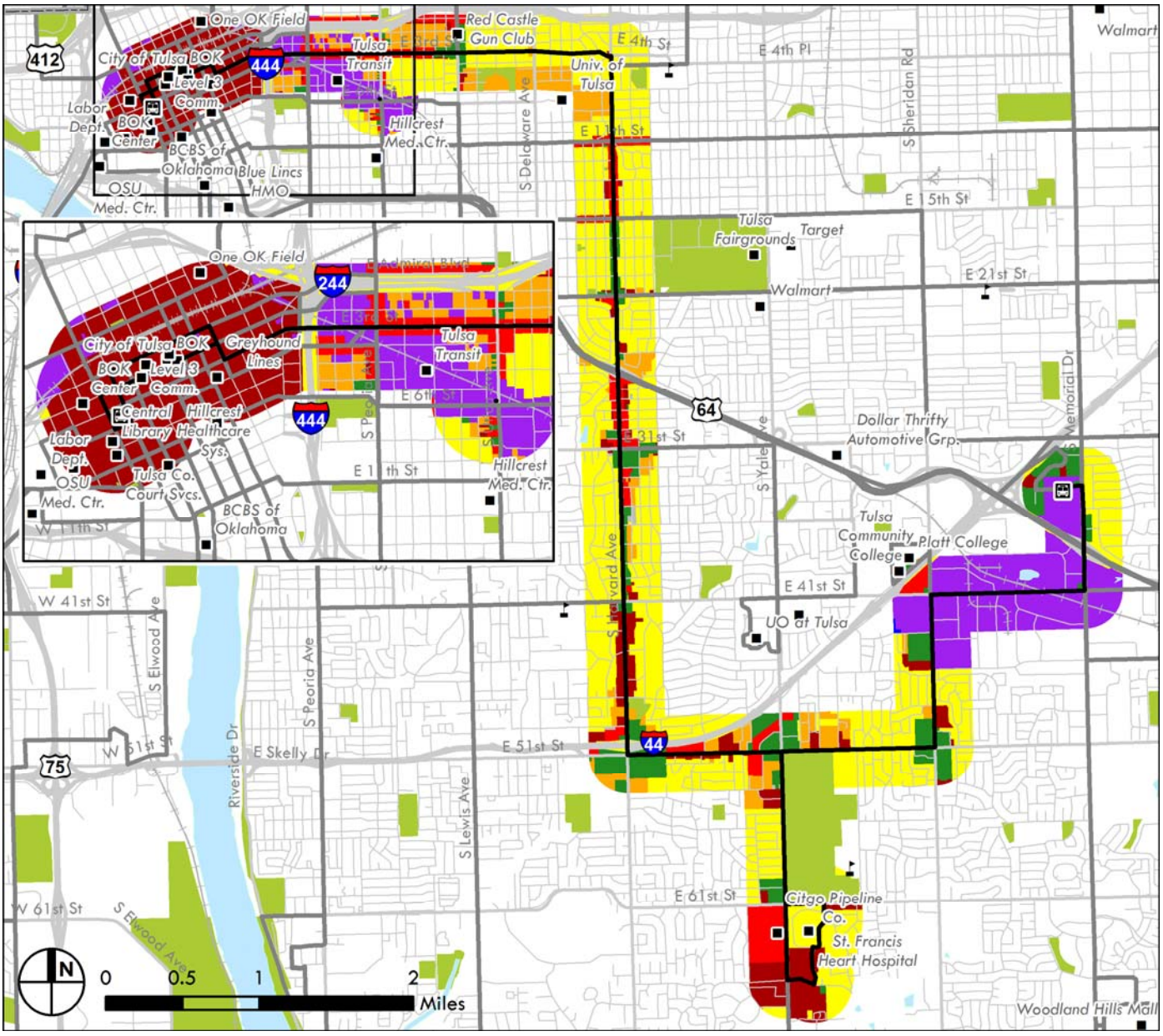


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 203		1.30
System Average		**1.30**
From	**Route**	**To**
7.6%	100	5.9%
12.0%	101	4.9%
15.1%	105	9.5%
6.6%	111	2.6%
6.1%	112	5.1%
1.4%	114	2.3%
1.2%	117	2.0%
-	118	-
-	203	-
8.2%	210	5.9%
-	215	3.2%
6.2%	221	7.4%
14.3%	222	12.0%
11.3%	251	19.4%
1.5%	306	14.1%
7.7%	318	5.6%
0.8%	471	-
-	508	-
-	902	-
-	909	-

Route 210 – Harvard

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:14 am - 7:13pm		7:00 am - 5:50 pm	
Frequency (Pk/Mid/Nite)	45/67.5/--		130/--	
Cycle Time (min)	135		130	
Layover Time (min)	16		11	
Route Statistics				
One-Way Trips	32		10	
Daily Revenue-Hours	35.2		10.8	
Daily Revenue-Miles	522.8		163.4	
Peak Buses	3.0		1.0	
Route Productivity				
Boardings	566		92	
Riders/Rev. Hr. (Rank)	16.1	*(11)*	8.5	*(12)*
Riders/Rev.-Mi. (Rank)	1.1	*(11)*	0.6	*(11)*
Riders/Trip (Rank)	17.7	*(6)*	9.2	*(7)*



General Description and Observations

Route 210 is a hook-shaped route connecting DAS with MMS. Once out of downtown the route follows 3rd Street, proceeds south on Harvard Avenue, east on 51st Street, deviating via Yale Avenue to serve St. Francis Medical Center, then returns to 51st Street and heads northward on Sheridan and east on 41st Street to Memorial Drive, terminating at MMS. A Park & Save lot is located at Park Plaza Church of Christ at 5925 E. 51st Street.

While the route in downtown Tulsa serves office uses, once leaving downtown there is a mix of industrial, commercial and multifamily use, followed by predominantly single family residential with strip commercial and pockets of multifamily residential. Uses become largely industrial and commercial as the route approaches MMS.

Major origins, destinations or points of interest along the route include:

- University of Tulsa
- Lanier Elementary School
- Ranch Acres Shopping Center
- Edison High School (walking distance)
- Nimitz Middle School (walking distance)
- Grimes Elementary School (walking distance)
- St. Francis Medical Center
- LaFortune Park & Golf Course
- The Farm Shopping Center
- Community Care College

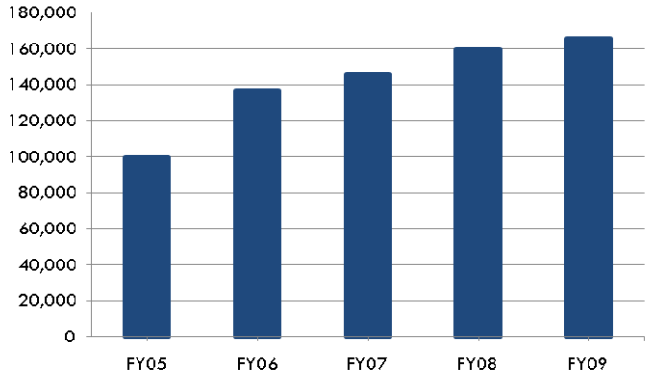
Observations regarding this route include the following:

- Service frequencies are not straightforward: 45-minute weekday peak headways, 67.5-minute weekday midday headways, and 130-minute headways on Saturdays. These are not conducive to user-ease or transfer opportunities.
- Would allow better coordination to get weekday peak headway to 30 minutes, and midday and Saturday headways to 60 minutes and 120 minutes respectively.
- Route alignment is very indirect, with significant out-of-direction travel for through riders seeking to move from Harvard Avenue to MMS.
- Most activity is along Harvard (north of 31st Street), 51st Street and Yale.

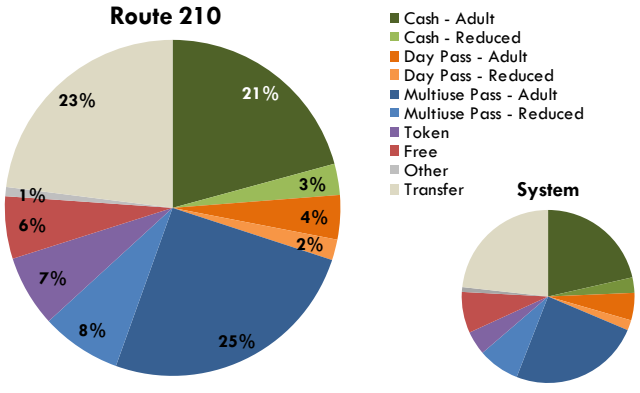
Ridership Trends and Productivity

- Solid performance for riders per trip due to its long trip length; average performance for riders per revenue hour and riders per revenue mile (weekdays and Saturdays).
- Ridership has increased dramatically, by about two-thirds in a five-year period.
- Rider fare types skew slightly toward multi-use passes (7-day, 31-day, and 10-ride) but are otherwise average compared to system norms.

ANNUAL RIDERSHIP, FY05-FY09



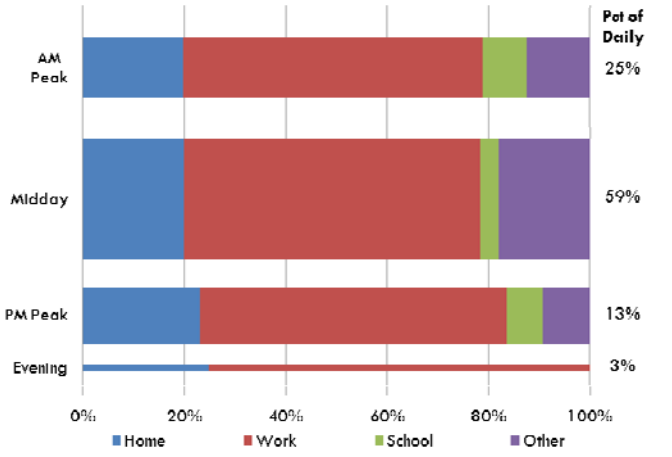
RIDERS BY FARE TYPE



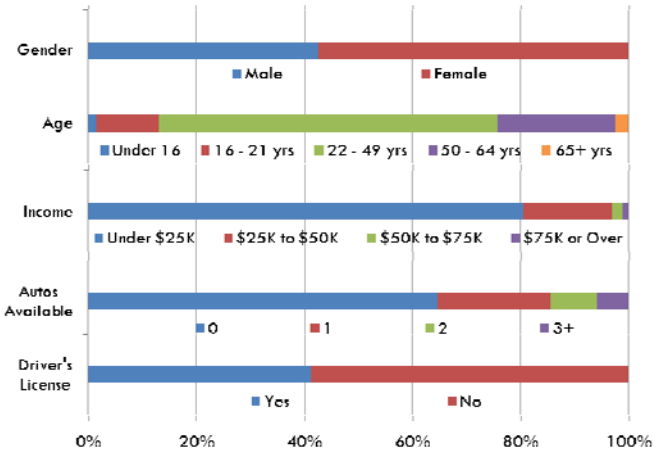
Rider Demographics and Travel Behavior

- Typical rider is overwhelmingly income, mostly 22-49 years of age with no available automobile or drivers license; slightly more likely to be female.
- This route is used predominantly to get to work.
- Highest transfer activity is with Routes 105 and 101; other significant transfers with Routes 222, 100 and 221.

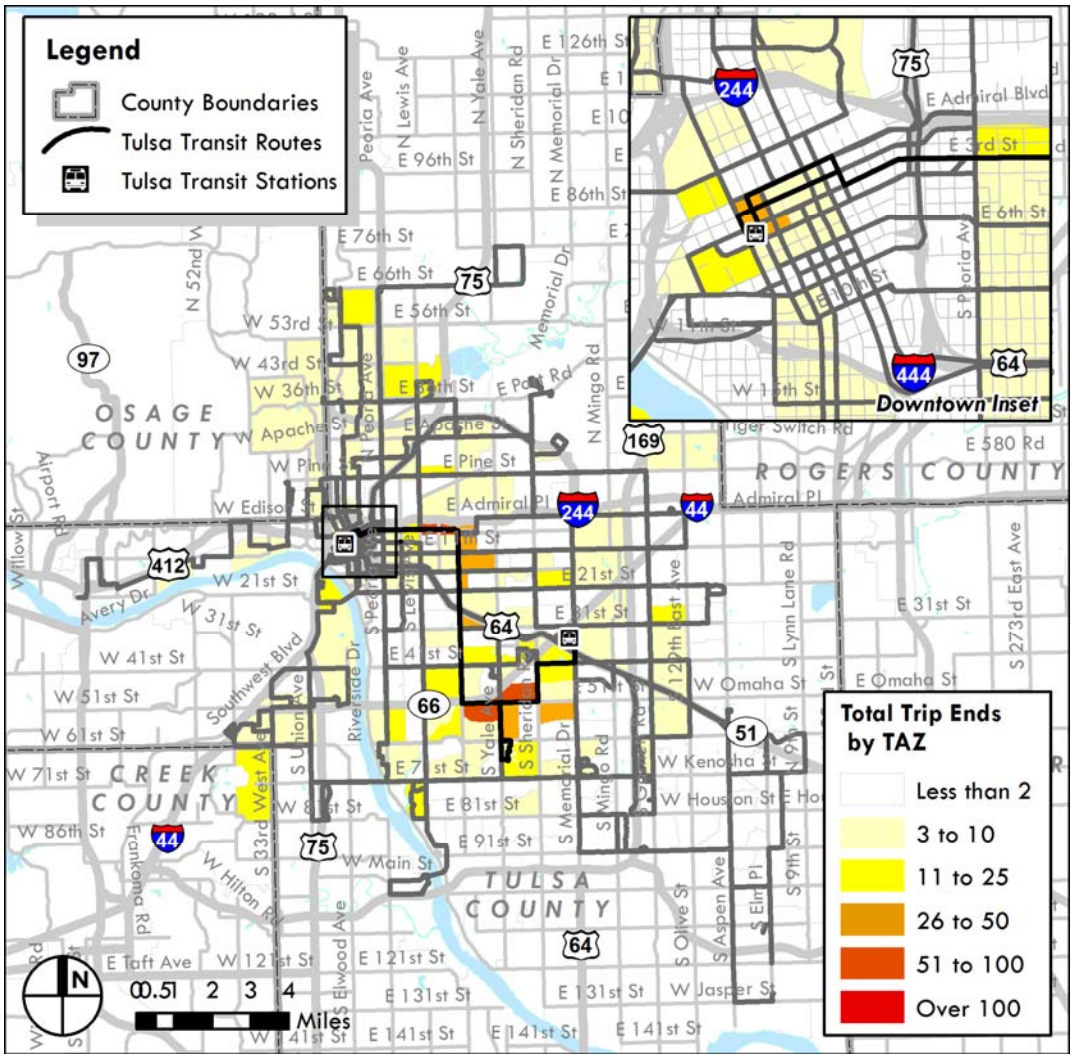
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

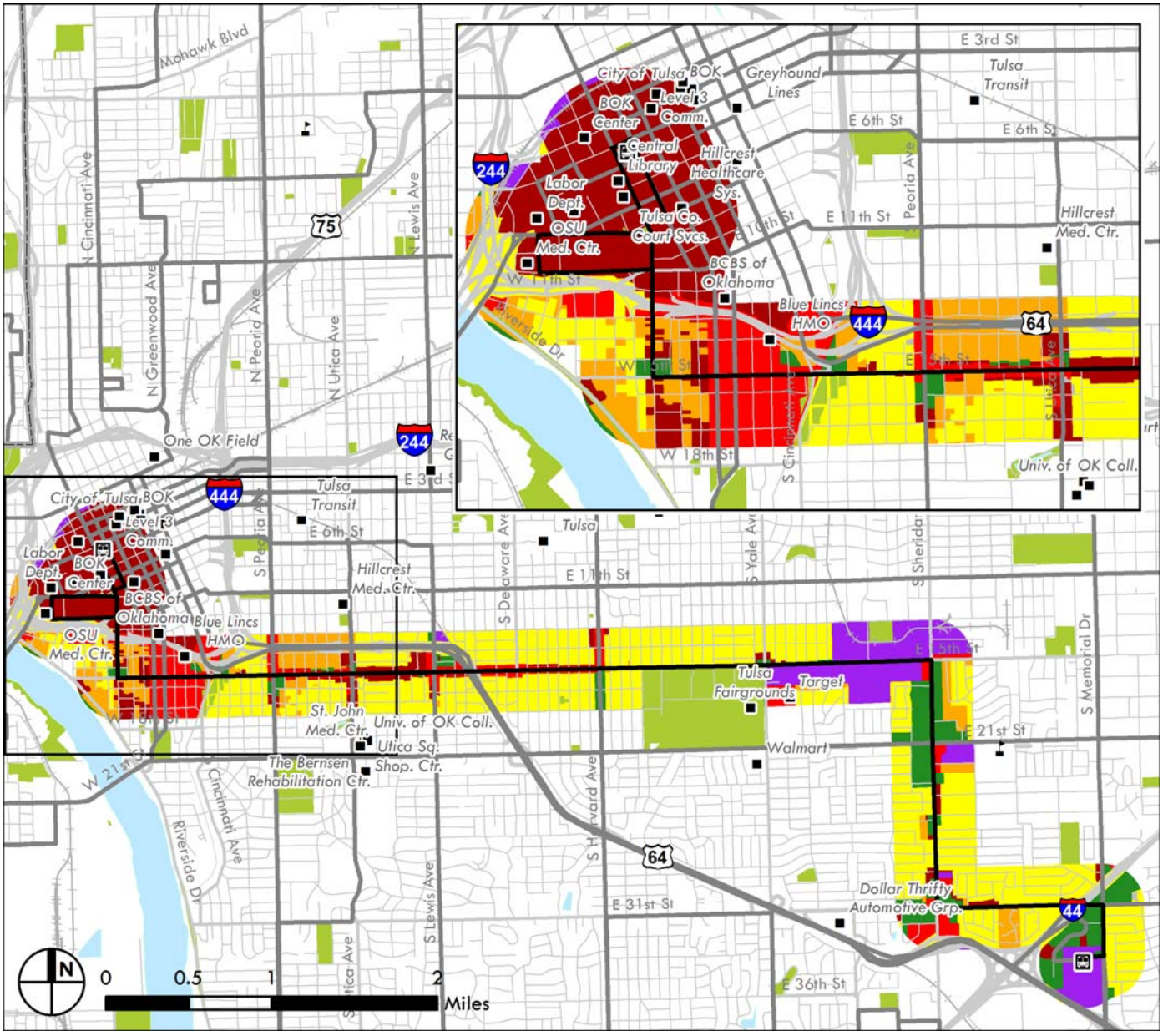


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 210		1.30
System Average		**1.30**
From	**Route**	**To**
11.4%	100	9.5%
12.4%	101	10.6%
11.3%	105	12.9%
6.3%	111	7.4%
5.9%	112	4.8%
5.1%	114	3.5%
4.2%	117	7.8%
3.8%	118	0.5%
3.3%	203	6.7%
-	210	-
5.3%	215	5.7%
10.4%	221	8.2%
10.0%	222	11.2%
6.8%	251	7.2%
0.4%	306	1.7%
-	318	0.5%
3.0%	471	1.8%
0.4%	508	-
-	902	-
-	909	-

Route 215 – 15th Street

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:15 am - 7:11 pm		7:00 am - 6:16 pm	
Frequency (Pk/Mid/Night)	38/76/--		76/--	
Cycle Time (min)	76		76	
Layover Time (min)	8		8	
Route Statistics				
One-Way Trips	34		18	
Daily Revenue-Hours	21.3		11.3	
Daily Revenue-Miles	310.2		164.2	
Peak Buses	2.0		1.0	
Route Productivity				
Boardings	398		145	
Riders/Rev. Hr. (Rank)	18.7	*(5)*	12.9	*(3)*
Riders/Rev.-Mi. (Rank)	1.3	*(5)*	0.9	*(3)*
Riders/Trip (Rank)	11.7	*(13)*	8.1	*(8)*



General Description and Observations

Route 215 connects DAS with MMS primarily using 15th Street. Once out of downtown Tulsa the route follows 15th Street, turns south on Sheridan Road, east on 31st Street, then Memorial Drive to MMS. Currently no Park & Save lot is identified along this route.

While the route in downtown Tulsa serves office uses, once leaving downtown there is a mix of industrial, commercial and multifamily use, followed by predominantly single family residential with strip commercial. A major industrial area is served in the vicinity of 15th Street/Sheridan, as well as approaching MMS.

Major origins, destinations or points of interest along the route include:

- OSU Medical Center
- Expo Square
- Tulsa City-County Health Department
- Target
- DirecTV
- University of Oklahoma Medical Center
- Warehouse Market

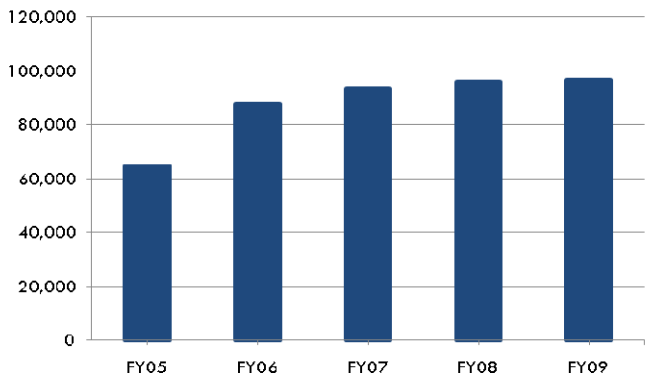
Observations regarding this route include the following:

- The 38-minute weekday peak headway and 76-minute weekday offpeak and Saturday headway is awkward; converting to an easier to understand headway (such as 30 or 45 minutes in peak and 60 or 90 minutes in offpeak and Saturdays) would help with connections and with user-friendliness.
- The route provides a fairly direct local connection between DAS and MMS.
- High use serving apartments along 15th Street (between Peoria and Utica).
- Extra wheelchair activity observed (Sheridan and 15th).

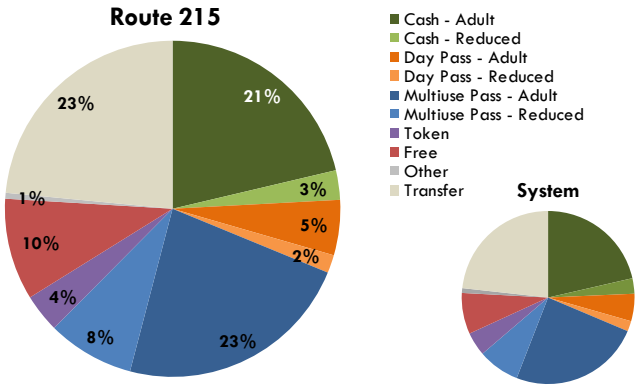
Ridership Trends and Productivity

- Strong performance for weekday riders per revenue hour and weekday riders per revenue mile; lower performance for weekday riders per trip.
- Very strong performance for Saturday riders per revenue hour and Saturday riders per revenue mile; average performance for Saturday riders per trip.
- Ridership has increased by about 50% in a five-year period.
- Riders by fare type are comparable to systemwide averages.

ANNUAL RIDERSHIP, FY05-FY09



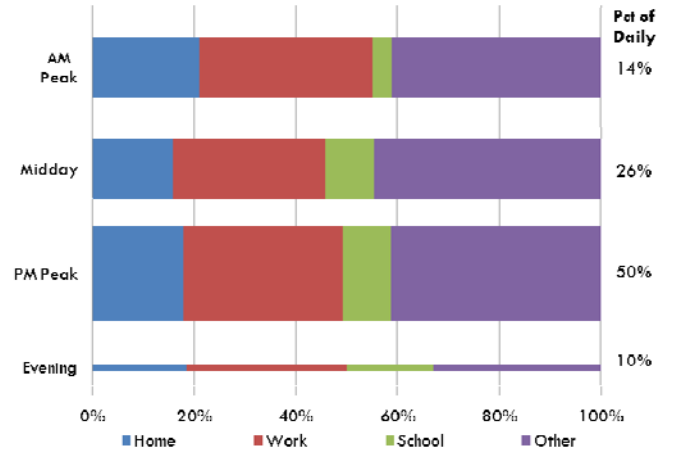
RIDERS BY FARE TYPE



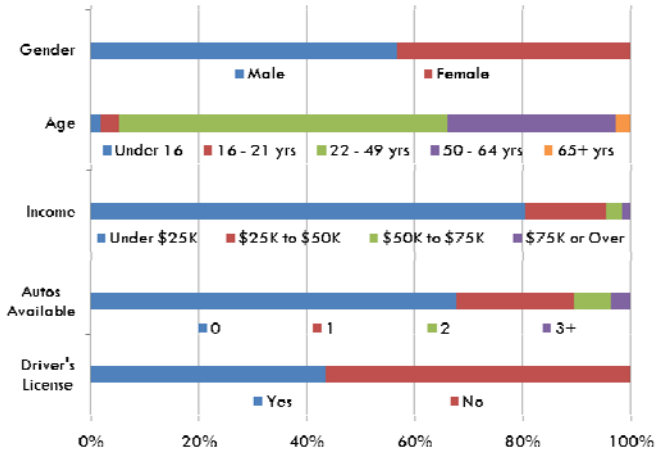
Rider Demographics and Travel Behavior

- Typical rider is overwhelmingly low income, mostly 22-49 years of age with no available automobile or drivers license; slightly more likely to be male.
- This route is used mostly for non-work purposes, possibly related to medical-related trips.
- Highest transfer activity is with Routes 221 and 101; other significant transfers with Routes 105, 212 and 222.

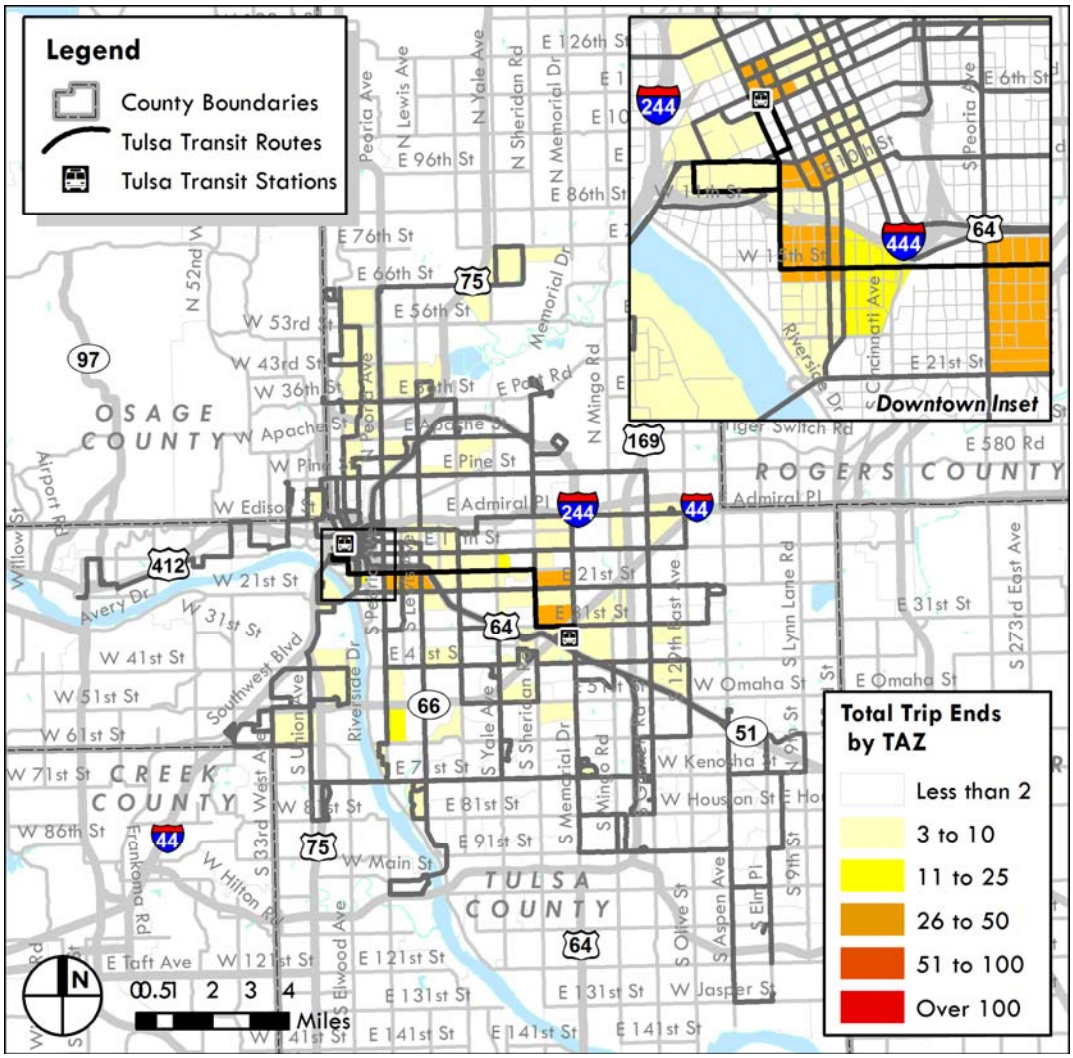
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

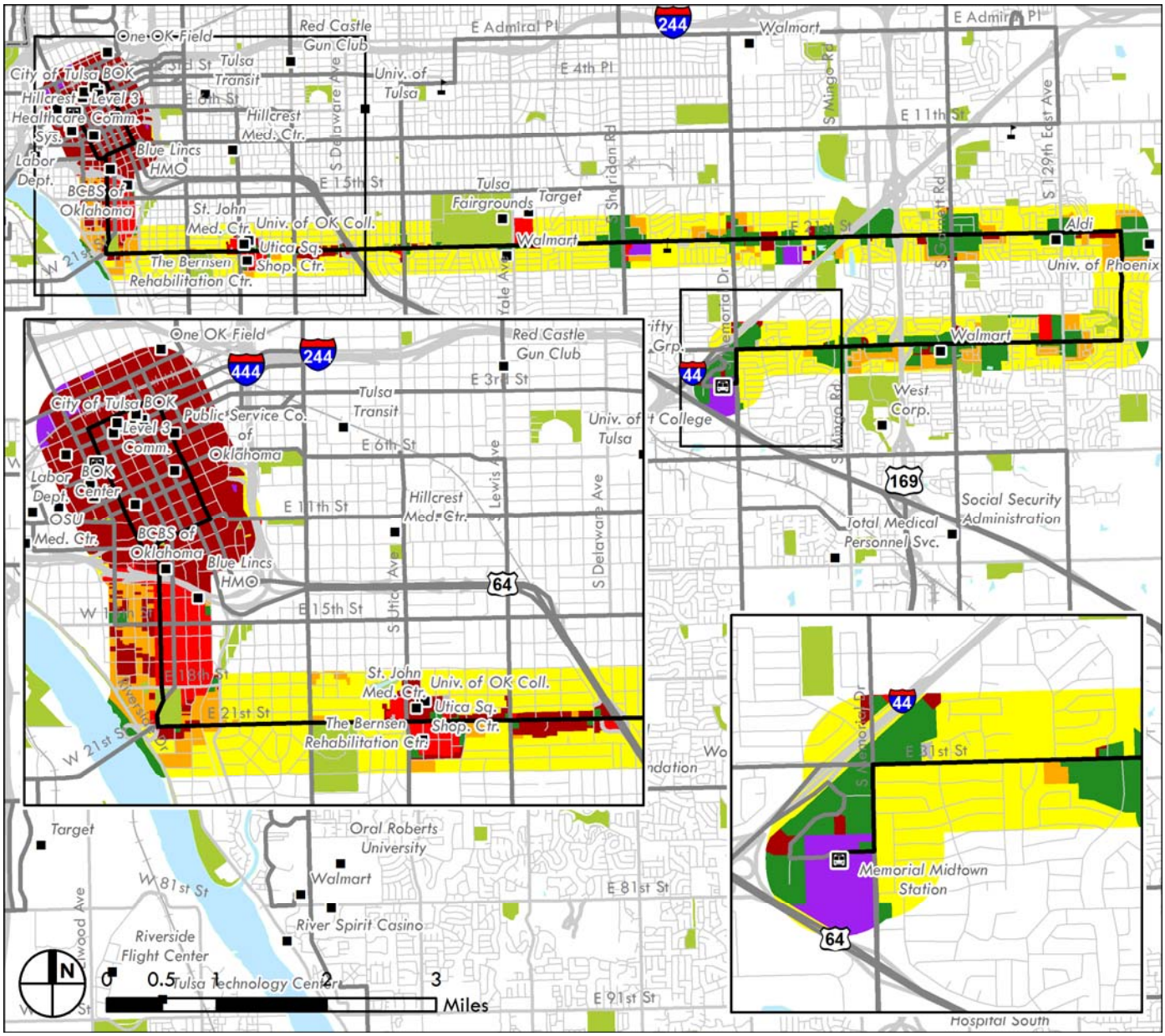


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 215		1.31
System Average		**1.30**
From	**Route**	**To**
4.1%	100	3.0%
15.3%	101	14.9%
12.6%	105	13.5%
5.2%	111	5.7%
8.9%	112	11.2%
-	114	2.7%
6.6%	117	6.0%
1.6%	118	1.7%
4.0%	203	-
8.9%	210	12.1%
-	215	-
14.0%	221	16.5%
8.9%	222	11.5%
0.6%	251	-
1.9%	306	-
6.9%	318	1.2%
0.6%	471	-
-	508	-
-	902	-
-	909	-

Route 221 – 21st Street/Eastgate

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:25 am - 7:58 pm		7:20 am - 5:43 pm	
Frequency (Pk/Mid/Night)	45/67.5/--		70/--	
Cycle Time (min)	135		140	
Layover Time (min)	9		14	
Route Statistics				
One-Way Trips	31		18	
Daily Revenue-Hours	34.6		20.8	
Daily Revenue-Miles	498.9		288.8	
Peak Buses	3.0		2.0	
Route Productivity				
Boardings	633		181	
Riders/Rev. Hr. (Rank)	18.3	*(7)*	8.7	*(11)*
Riders/Rev.-Mi. (Rank)	1.3	*(7)*	0.6	*(8)*
Riders/Trip (Rank)	20.4	*(4)*	10.0	*(6)*



General Description and Observations

Route 221 connects DAS with MMS primarily using 21st and 31st Streets. The route makes a broad loop downtown, then proceeds on Boulder to 21st Street heading east. It turns south at 137th Avenue, then west on 31st Street, jogging at Memorial Drive to get to MMS. A Park & Save lot is available at Green Country Event Center, 12000 E. 31st Street.

While the route in downtown Tulsa serves office uses, once leaving downtown there is a mix of commercial and multifamily use, followed by predominantly single family residential with pockets of commercial and industrial activity. Development de-intensifies east of Memorial Drive.

Major origins, destinations or points of interest along the route include:

- *West of MMS*: Tulsa Community College (Metro Campus), Blue Cross & Blue Shield, Boulder Plaza Apartments, Utica Square, St. John Medical Center, Expo Square, Big Splash, DirecTV, Hale High School, Whitney Middle School, MacArthur Elementary School
- *East of MMS*: Department of Human Services, Kmart, Cherokee Village, Foster Middle School, Eastgate Metro Plex, The Meadows

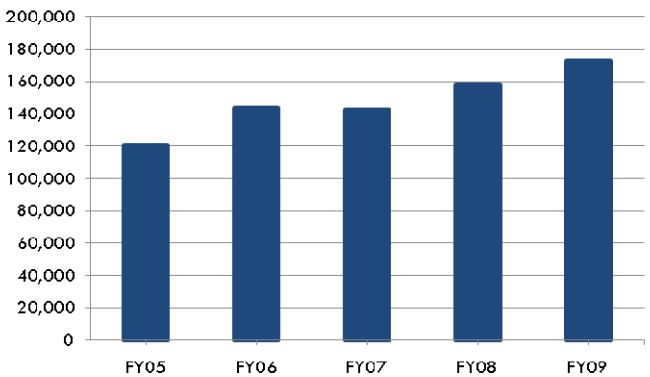
Observations regarding this route include the following:

- The 45-minute weekday peak headway should ideally move to 30-minute peak. The 70-minute offpeak and Saturday headway is difficult to remember for a user; perhaps move to 90 minutes until able to improve to 45 minutes.
- The alignment provides a direct routing along the length of 21st Street before circling back to MMS on 31st Street.
- The layover time of 9 minutes is fairly minimal given the cycle time, providing only 7% of recovery time.
- Serves notable Hispanic population on eastern end of 21st Street (Eastgate Metro Plex area). Ridership is strongest within this route segment and around 21st & Sheridan.
- Greater wheelchair activity observed near Sheridan can slow down performance.

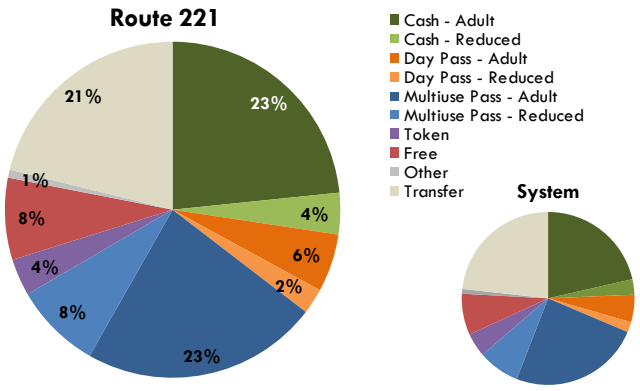
Ridership Trends and Productivity

- Strong performance for weekday performance measures; particularly high weekday riders per trip as a result of the long trip length.
- Solid to average performance for Saturday performance measures; particularly high Saturday riders per trip.
- Ridership has increased by nearly 45% in a five-year period.
- Rider fare types skew slightly toward cash fares but are otherwise average compared to system norms.

ANNUAL RIDERSHIP, FY05-FY09



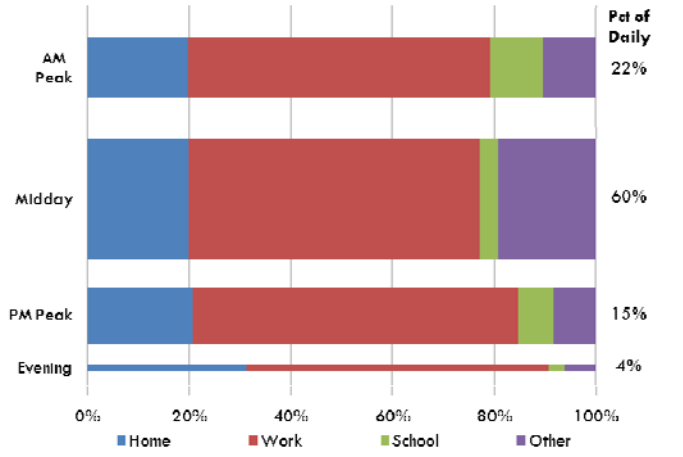
RIDERS BY FARE TYPE



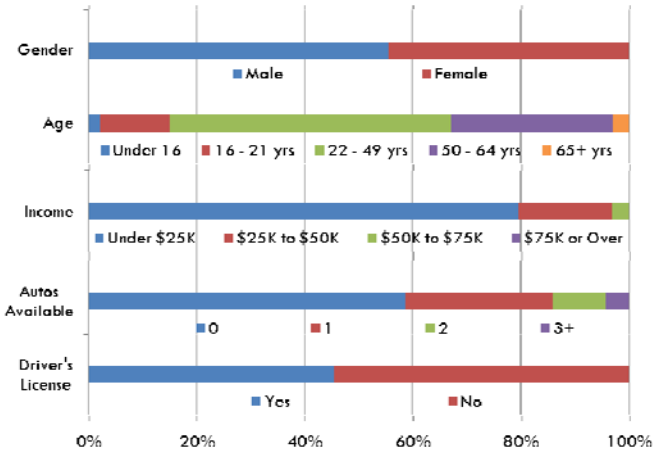
Rider Demographics and Travel Behavior

- Typical rider is predominantly low income, mostly 22-49 years of age with no available automobile or drivers license; slightly more likely to be male.
- This route is used overwhelmingly for work purposes.
- Highest transfer activity is with Routes 105 and 101; other significant transfers with Route 222.

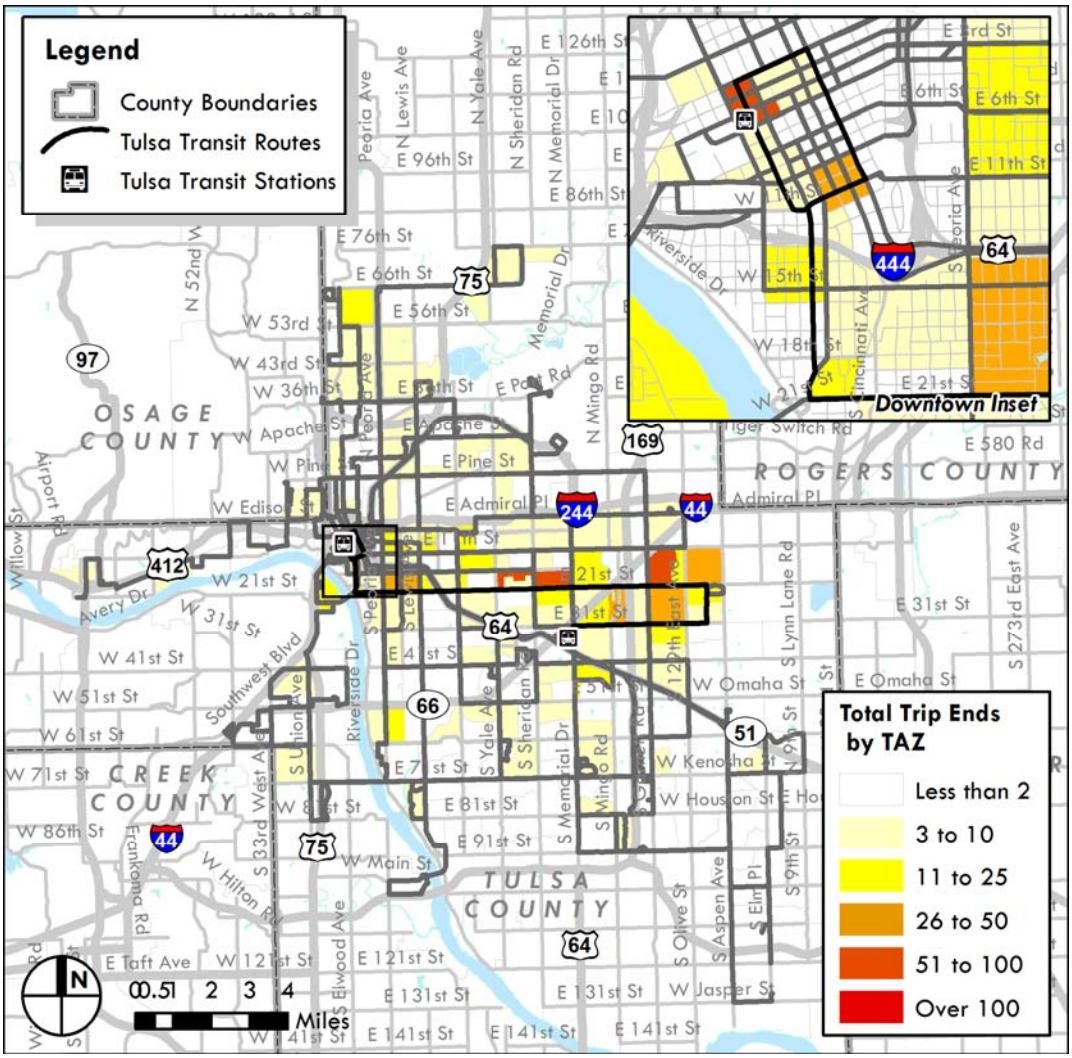
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

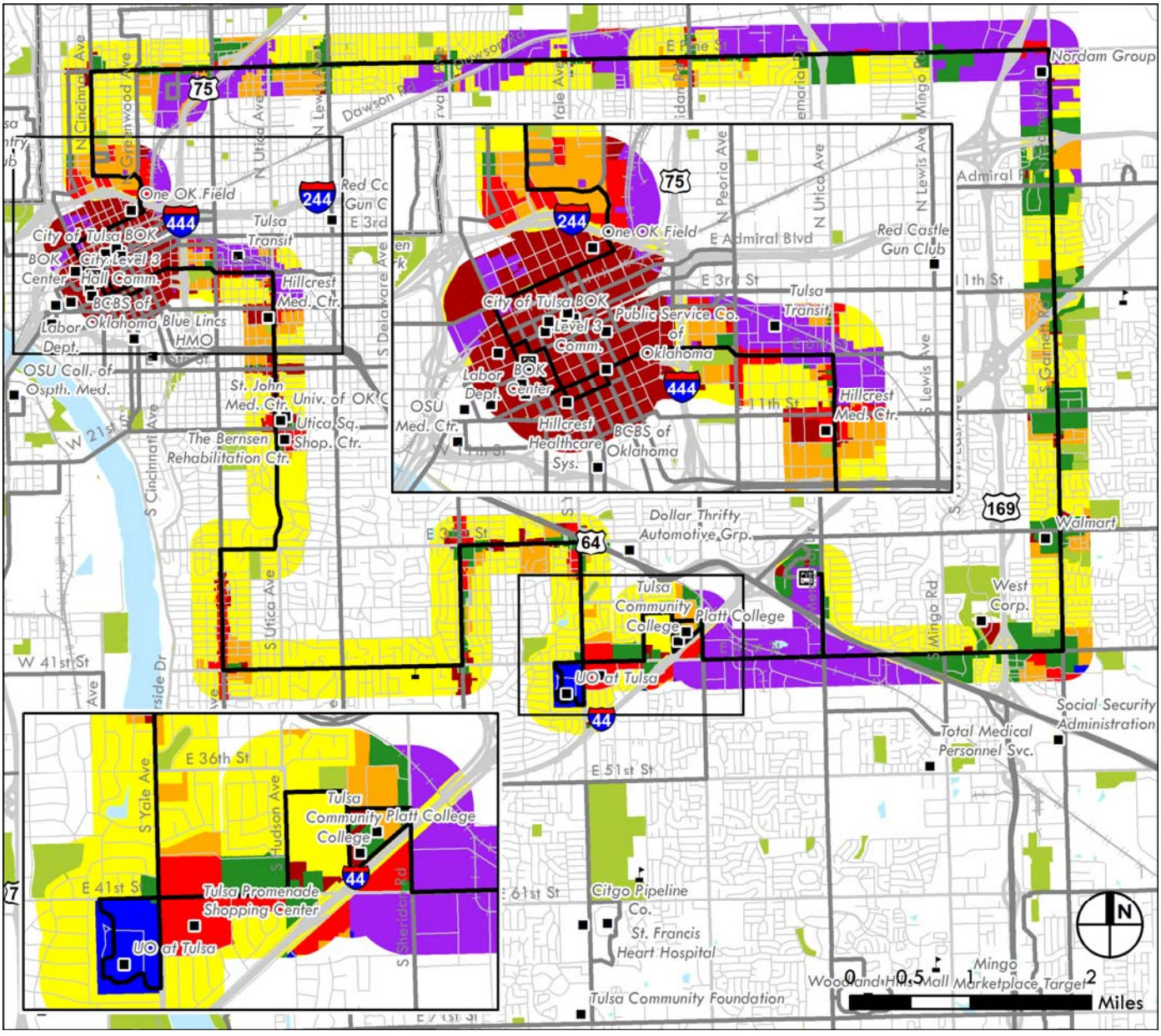


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 221		1.27
System Average		**1.30**
From	**Route**	**To**
2.3%	100	2.9%
14.4%	101	13.6%
13.6%	105	17.2%
6.7%	111	6.2%
2.3%	112	6.0%
3.5%	114	1.7%
2.2%	117	2.9%
2.8%	118	2.6%
5.2%	203	4.3%
7.4%	210	12.5%
9.1%	215	7.6%
-	221	-
11.9%	222	11.4%
9.3%	251	4.2%
2.3%	306	2.2%
6.9%	318	4.6%
-	471	-
-	508	-
-	902	-
-	909	-

Route 222 – Pine/41st Street

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:17 am - 7:30 pm		7:05 am - 5:55 pm	
Frequency (Pk/Mid/Night)	70/70/--		65/--	
Cycle Time (min)	280		260	
Layover Time (min)	29		24	
Route Statistics				
One-Way Trips	24		20	
Daily Revenue-Hours	53.4		41.0	
Daily Revenue-Miles	798.0		638.8	
Peak Buses	4.0		4.0	
Route Productivity				
Boardings	943		362	
Riders/Rev. Hr. (Rank)	17.6	*(9)*	8.8	*(10)*
Riders/Rev.-Mi. (Rank)	1.2	*(8)*	0.6	*(10)*
Riders/Trip (Rank)	39.3	*(1)*	18.1	*(2)*



General Description and Observations

Route 222 is a large two-way loop connecting DAS with MMS primarily using Pine Street, Garnett Road, 41st Street and Utica Avenue. The north and east boundaries of the loop are fairly straightforward, following Pine and Garnett Road. The south boundary of the route is particularly circuitous, shifting onto portions of 38th Street, 36th Place, and 31st Street while generally returning to 41st Street. The western border of the route uses portions of Cincinnati Avenue (on the north end), Utica Avenue, and Peoria Avenue (on the south end). The route penetrates downtown Tulsa via Archer and 6th Streets.

The route serves largely single family residential with significant stretches of industrial use. There are pockets of multi-family residential uses and some major commercial activity. Notably, the route serves the Utica corridor which has a concentration of medical-related developments and the 41st Street corridor which has a mixture of retail and education uses.

Major origins, destinations or points of interest along the route include:

- *Pine Street (north) corridor*: Carver Middle School, Morton Health Center, Springdale Shopping Center, Spartan School of Aeronautics
- *Garnett Road (east) corridor*: Lewis & Clark Middle School, The Meadows, Boy Scouts
- *41st Street (south) corridor:* Veterans Administration, Community Care College, Department of Human Services, Bishop Kelley High School, Promenade Shopping Center, University of Oklahoma – Tulsa, Southroads Shopping Center, Education Service Center, Edison High School
- *Peoria-Utica-Cincinnati (west) corridor*: (south of downtown) Utica Square Shopping Center, St. John Health System, Hillcrest Medical Center; (north of downtown) Pioneer Plaza, Tulsa Housing Authority, OSU Tulsa

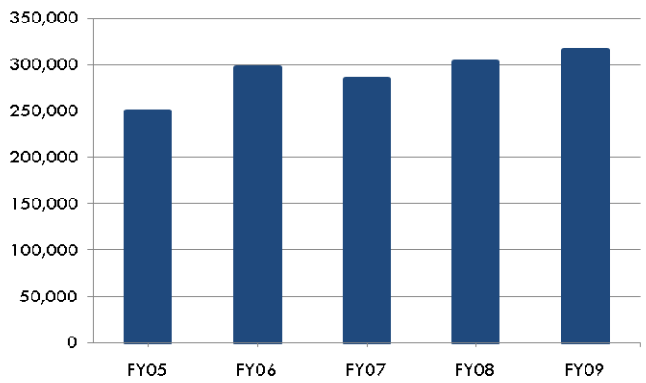
Observations regarding this route include the following:

- The 70-minute weekday headway and 65-minute Saturday headway appear insufficient. The route would be better served by moving to a regular 60-minute clock headway to ease connections and user-friendliness.
- The route is extremely indirect, servicing multiple corridors and trip patterns along its length. The southern portion of the route is very circuitous, creating significant out-of-direction travel for riders. Good candidate to consider restructuring route to something more manageable so that improved headways are achievable on the more productive segments.
- Southern portion of route particularly affected by traffic, which along with circuitousness routing contributes to slow speeds.
- Drivers noted that Route 222 ridership plummeted when buses pulled off, though demand is there. North end is stronger than south, though Promenade Mall area is good attraction.
- Cycle time of 260-280 minutes is by far the longest in the system.
- Transfer with Route 105 most dominant route-to-route movement in entire system.
- Ridership demand appears to concentrate in the section of 41st Street from OU Tulsa and Promenade Shopping Center to TCC, along with western end of Pine.

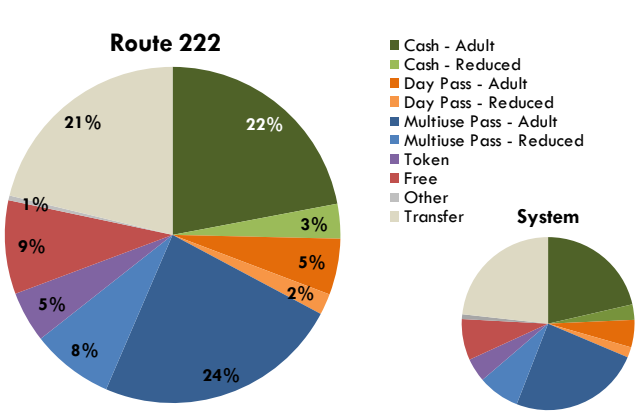
Ridership Trends and Productivity

- Solid performance for weekday performance measures; due to extremely long trip length this route is the top performer for weekday riders per trip.
- Solid to average performance for Saturday performance measures; particularly high Saturday riders per trip.
- Ridership has increased by over 25% in a five-year period.
- Rider fare types skew slightly toward cash fares but are otherwise average compared to system norms.

ANNUAL RIDERSHIP, FY05-FY09



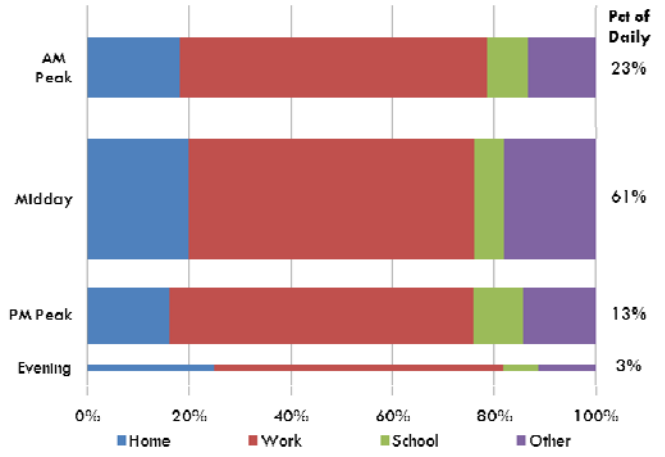
RIDERS BY FARE TYPE



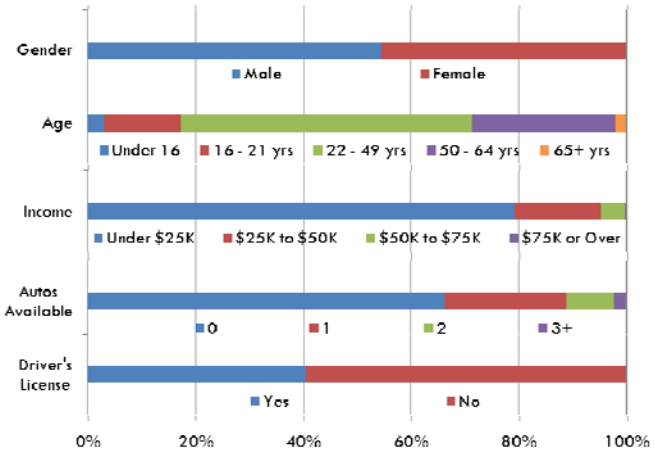
Rider Demographics and Travel Behavior

- Typical rider is predominantly low income, mostly 22-49 years of age with no available automobile or drivers license; slightly more likely to be male.
- This route is used mostly for work purposes.
- Highest transfer activity is with Route 105 (strongest transfer movement in the system); other significant transfers with Route 101.

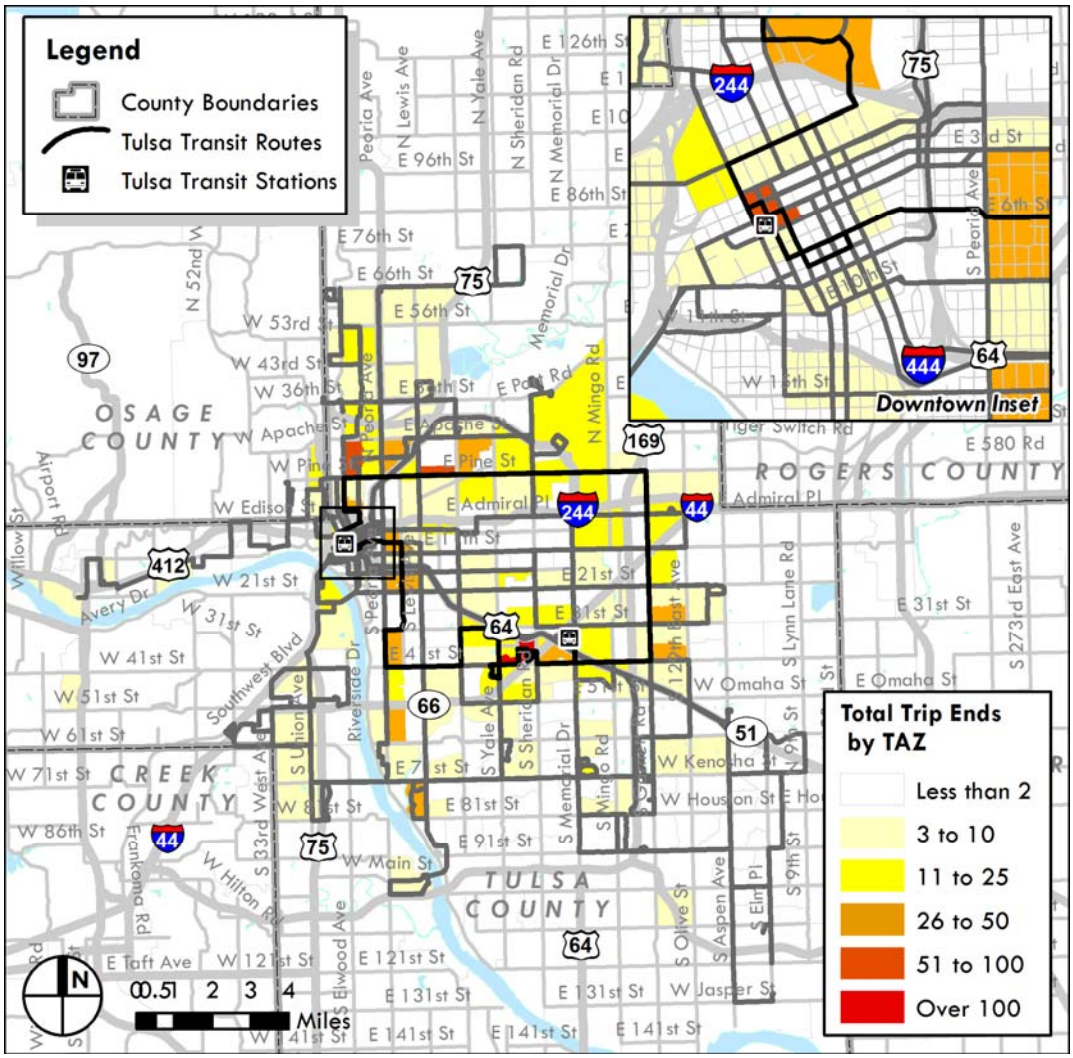
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

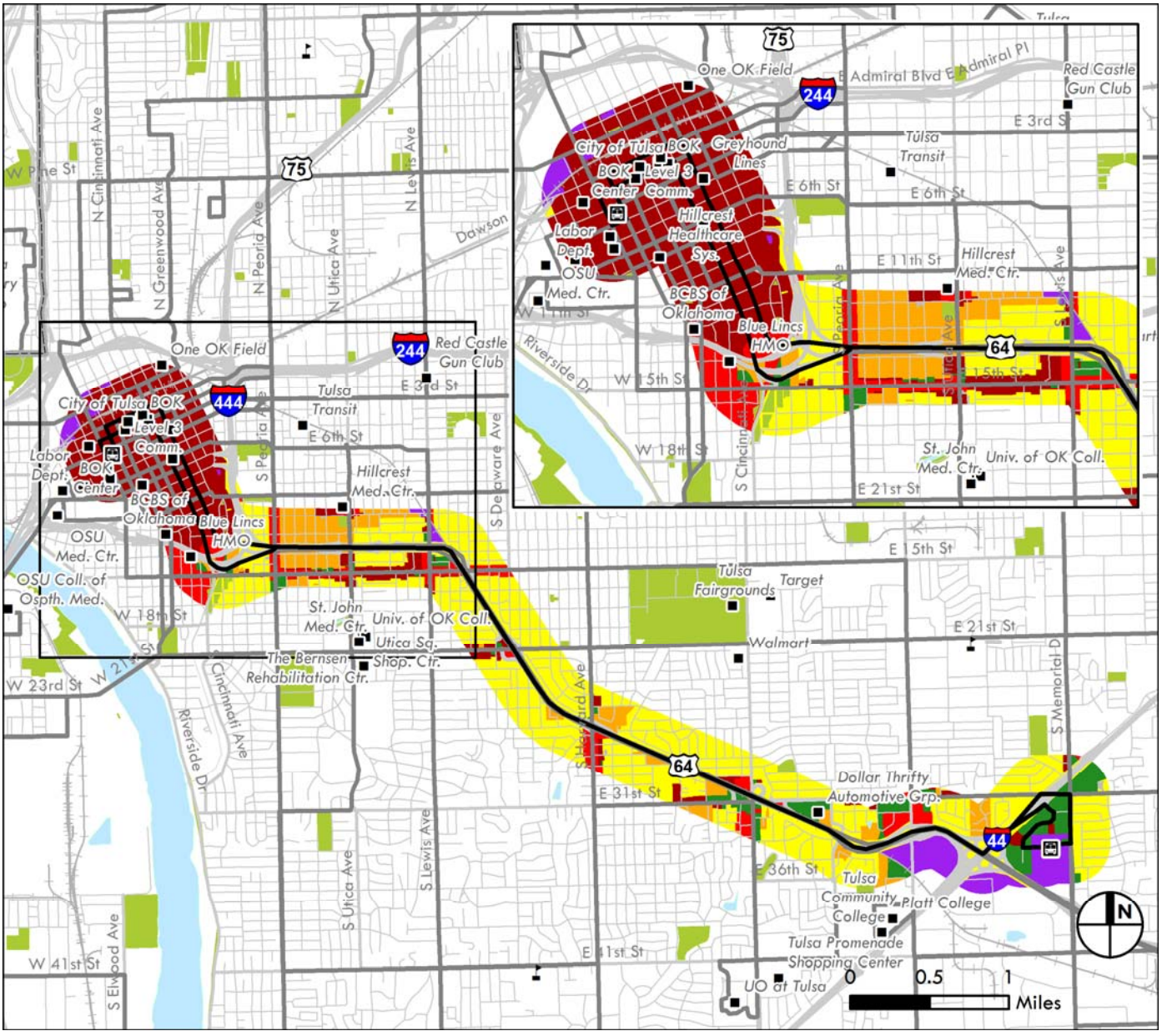


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 222		1.27
System Average		**1.30**
From	**Route**	**To**
6.5%	100	4.8%
11.2%	101	10.3%
20.6%	105	23.7%
7.3%	111	4.4%
7.8%	112	9.5%
4.3%	114	3.8%
2.9%	117	4.5%
4.3%	118	3.0%
4.8%	203	5.7%
5.7%	210	6.9%
3.6%	215	2.8%
6.7%	221	6.5%
-	222	-
3.8%	251	7.1%
3.9%	306	2.2%
6.2%	318	4.9%
0.3%	471	-
-	508	-
-	902	-
-	909	-

Route 251 – Fast Track

	Weekday	Saturday
Route Characteristics		
Hours of Operation	5:15 am - 7:45 pm	7:10 am - 6:20 pm
Frequency (Pk/Mid/Night)	25/50/--	50/--
Cycle Time (min)	50	50
Layover Time (min)	10	10
Route Statistics		
One-Way Trips	51	27
Daily Revenue-Hours	21.0	11.2
Daily Revenue-Miles	433.3	229.4
Peak Buses	2.0	1.0
Route Productivity		
Boardings	506	100
Riders/Rev. Hr. (Rank)	24.1 (2)	8.9 (9)
Riders/Rev.-Mi. (Rank)	1.2 (9)	0.4 (13)
Riders/Trip (Rank)	9.9 (16)	3.7 (16)



General Description and Observations

Route 251 connects DAS with MMS primarily using Broken Arrow Expressway (State Highway 51). Downtown routing involves Detroit to 1st Street to DAS (inbound), or 2nd Street to Cincinnati (outbound). There are no interim stops on Broken Arrow Expressway.

The route in downtown Tulsa serves office uses, and industrial and hotel uses near MMS.

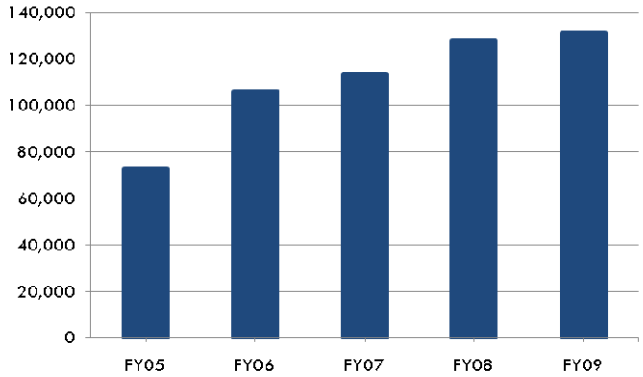
Observations regarding this route include the following:

- At 25-minute weekday peak headways and 50-minute offpeak and Saturday headways, service is fairly frequent but at a different service multiple than connecting routes. May improve connections if headways are adjusted to match headways on other routes (e.g., 30 minute peak, 60 minute off-peak).
- The route provides a fast, direct freeway connection between DAS and MMS, travelling from one to the other in around 10 minutes.
- Particularly high transfer activity (highest transfer rate in system), with double transfers observed. Strong transfer activity with Routes 318 and 306 (both at south end of route).
- There is a flow in rider origins and destinations on this route from North Tulsa, then down the Broken Arrow corridor. Possible opportunity to create select trips interlining either Route 101 or Route 105 with Route 251.
- Observed need to improve service between Broken Arrow and Tulsa, especially Saturday service. Worth considering future extension of Route 251 to Broken Arrow.

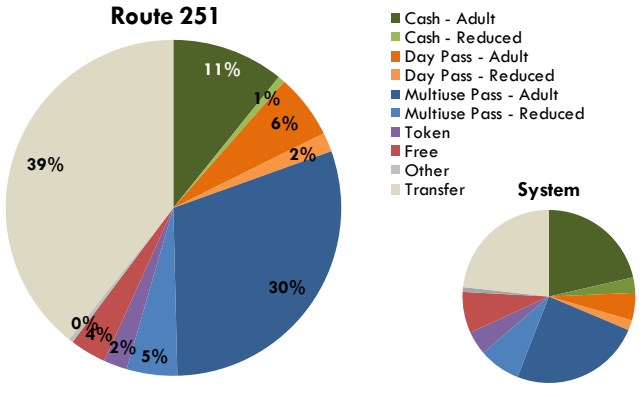
Ridership Trends and Productivity

- Performance varies greatly for weekday measures: very strong riders per revenue hour, average riders per revenue mile, low riders per trip.
- Average to low performance for Saturday performance measures.
- Ridership has increased by about 80% in a five-year period.
- Rider fare types skew slightly toward cash fares but are otherwise average compared to system norms.

ANNUAL RIDERSHIP, FY05-FY09



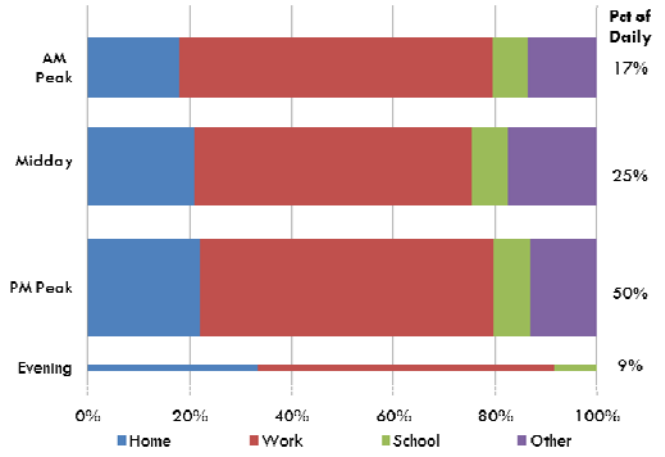
RIDERS BY FARE TYPE



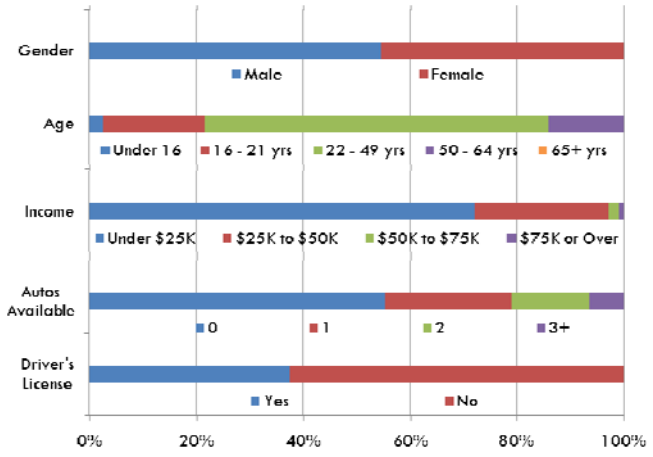
Rider Demographics and Travel Behavior

- Typical rider is predominantly low income, mostly 22-49 years of age with no available automobile or drivers license; slightly more likely to be male.
- This route is used mostly for work purposes.
- This route has a particularly high transfer rate. Highest transfer activity is with Route 318, followed by Route 306 (both connecting with Route 251 at MMS); other significant transfers with Routes 105, 203 and 222.

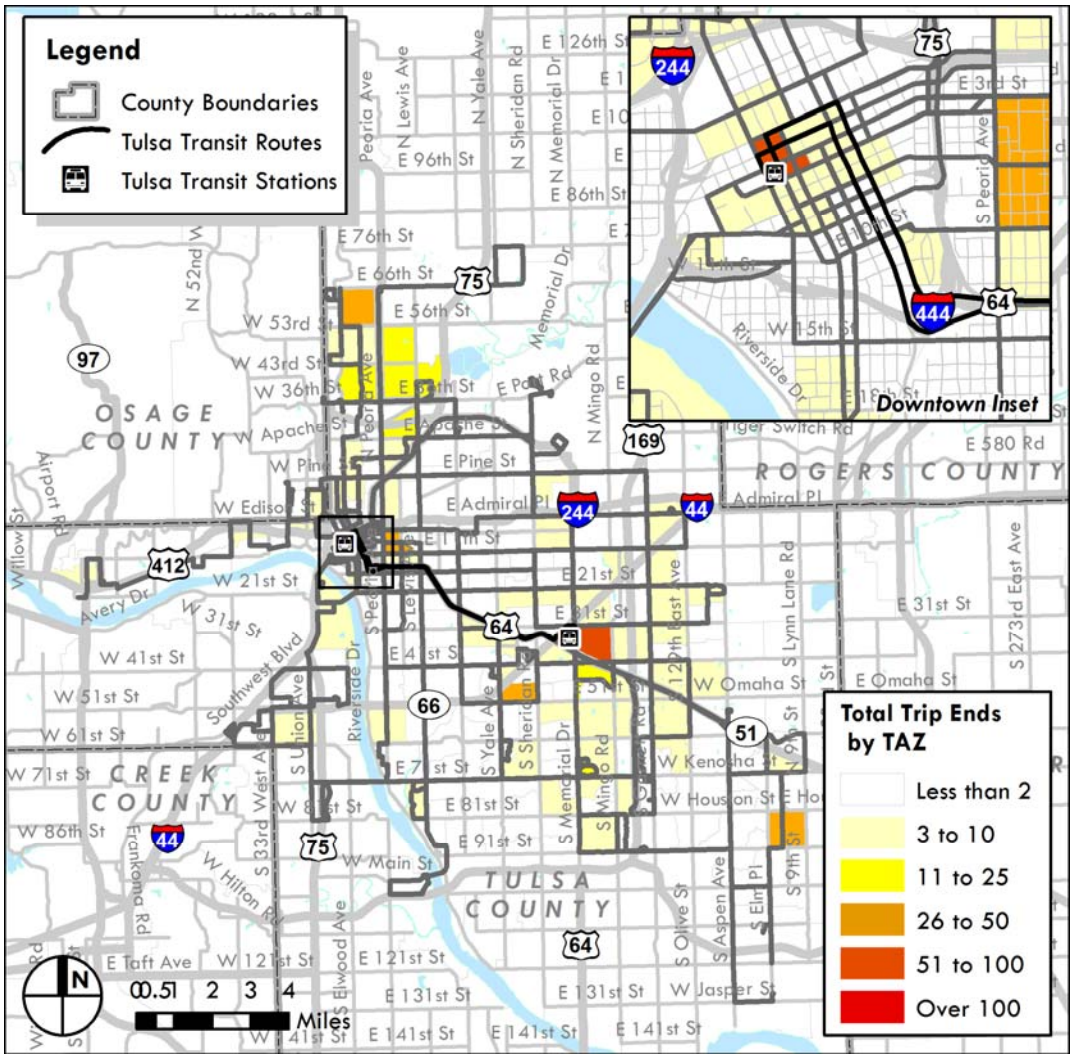
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

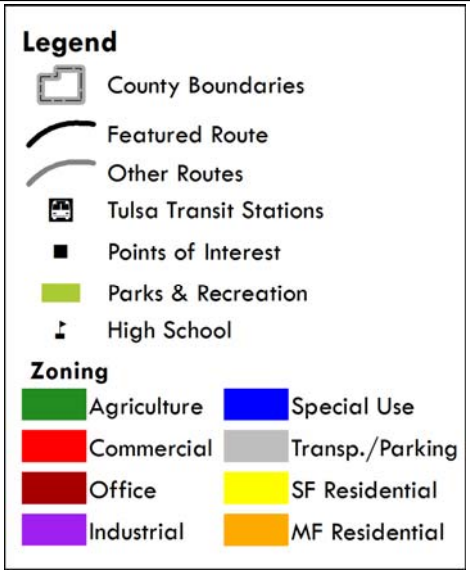


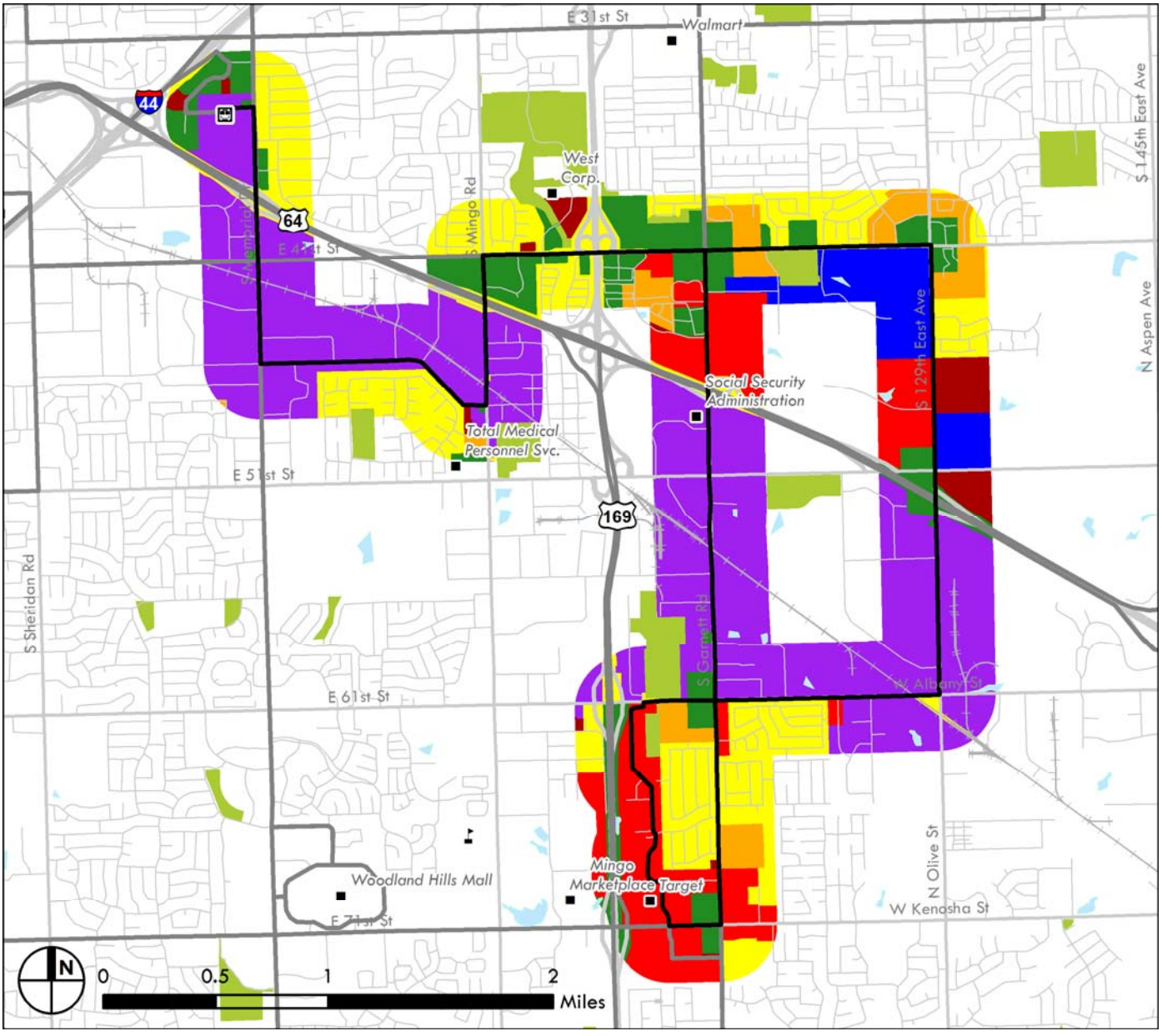
TRANSFER ACTIVITY

Overall Transfer Rate		
Route 251		1.65
System Average		1.30
From	Route	To
0.8%	100	0.8%
8.6%	101	5.8%
7.1%	105	18.0%
2.7%	111	8.2%
1.5%	112	2.1%
4.5%	114	3.5%
2.9%	117	0.6%
-	118	0.5%
12.8%	203	7.3%
6.0%	210	7.6%
-	215	0.3%
4.1%	221	8.2%
12.1%	222	6.0%
-	251	-
16.4%	306	10.8%
19.7%	318	20.5%
0.8%	471	-
-	508	-
-	902	-
-	909	-

Route 306 – Southeast Industrial

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	6:40 am - 7:45pm		--	
Frequency (Pk/Mid/Night)	60/60/--		--/--	
Cycle Time (min)	60		n/a	
Layover Time (min)	5		n/a	
Route Statistics				
One-Way Trips	13		n/a	
Daily Revenue-Hours	12.9		n/a	
Daily Revenue-Miles	223.3		n/a	
Peak Buses	1.0		n/a	
Route Productivity				
Boardings	204		n/a	
Riders/Rev. Hr. (Rank)	15.8	*(12)*	n/a	*n/a*
Riders/Rev.-Mi. (Rank)	0.9	*(13)*	n/a	*n/a*
Riders/Trip (Rank)	15.7	*(8)*	n/a	*n/a*





General Description and Observations

Route 306 serves as a circulator connecting MMS (near I-44 & Broken Arrow Expressway) with southeast Tulsa's industrial area. From MMS, the route heads south on Memorial Drive, east on 46th Street, jogging on Mingo Road to head east on 41st Street, then south on Garnett Road, west on 73rd Street, north on 109th and 107th Avenues, east on 61st Street, and north on 129th Avenue, looping back onto 41st Street to complete the route back to MMS.

The route serves industrial and commercial areas, with some areas of single-family or multi-family housing.

Major origins, destinations or points of interest along the route include:

- Veterans Administration
- Oklahoma Wesleyan University
- University of Phoenix
- Crossbow Shopping Center
- Exchange Center East
- Union Pines
- Department of Human Services
- Social Security Administration
- Tulsa City-County Health Department
- Various corporations and hotels

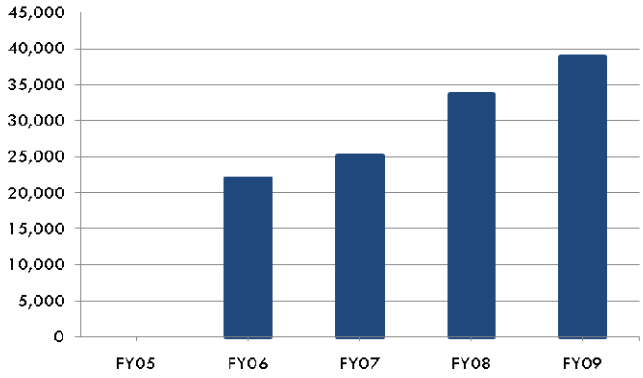
Observations regarding this route include the following:

- This route offers 60-minute weekday service only; no Saturday service.
- Routing is fairly circuitous with significant out-of-direction travel. Large one-way loop gives it the nature of acting as more of a shuttle that is fed by Route 251 at MMS.
- The layover time of 5 minutes is fairly minimal given the cycle time, providing only 8% of recovery time.
- Opportunity to examine how Route 306, 318, 471 and 508 relate to each other to potentially improve connections (in terms of routing as well as service frequency).

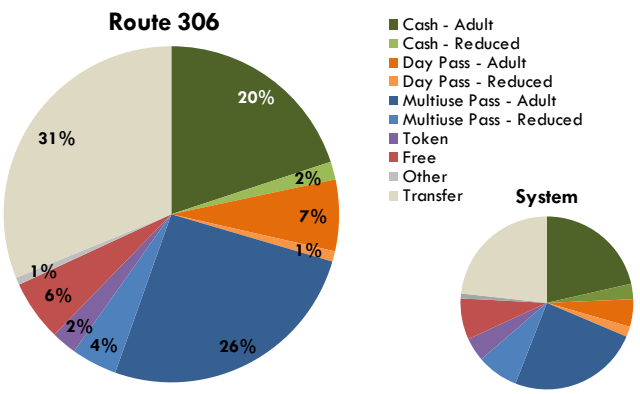
Ridership Trends and Productivity

- Average to low average performance for weekday performance measures.
- Ridership has increased by over 75% in a four-year period.
- Riders by fare type show a higher propensity to use day passes, along with a lower likelihood of using a reduced fare class, when compared to systemwide averages. Transfer activity to this route is significantly higher than normal.

ANNUAL RIDERSHIP, FY05-FY09



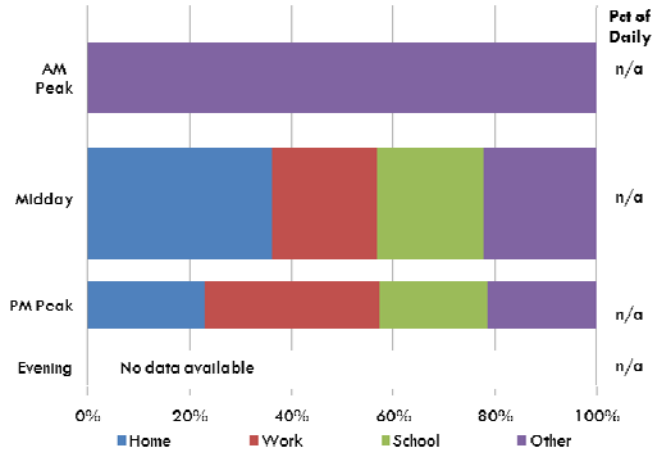
RIDERS BY FARE TYPE



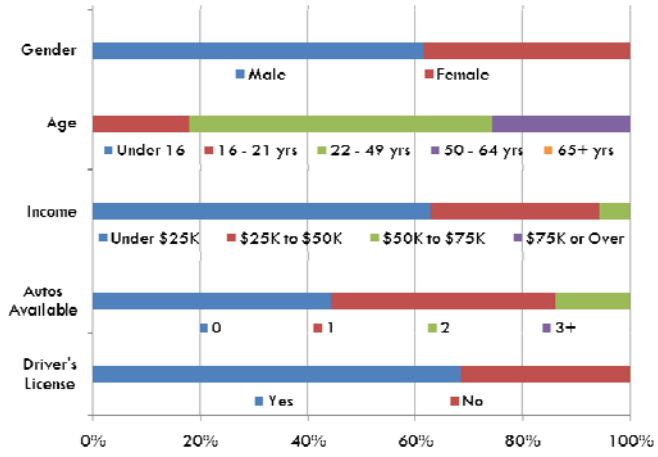
Rider Demographics and Travel Behavior

- Typical rider is lower income, mostly 22-49 years of age, more likely to be male. More likely to have a drivers license and may have 0 or 1 car available.
- Oddly, survey data indicated that this route is used mostly for non-work purposes during the morning, with no particular predominant purpose during other times of day. This may be a function of sample size for this route.
- Substantial transfer activity with Route 251; other significant transfers with Routes 222 and 203.

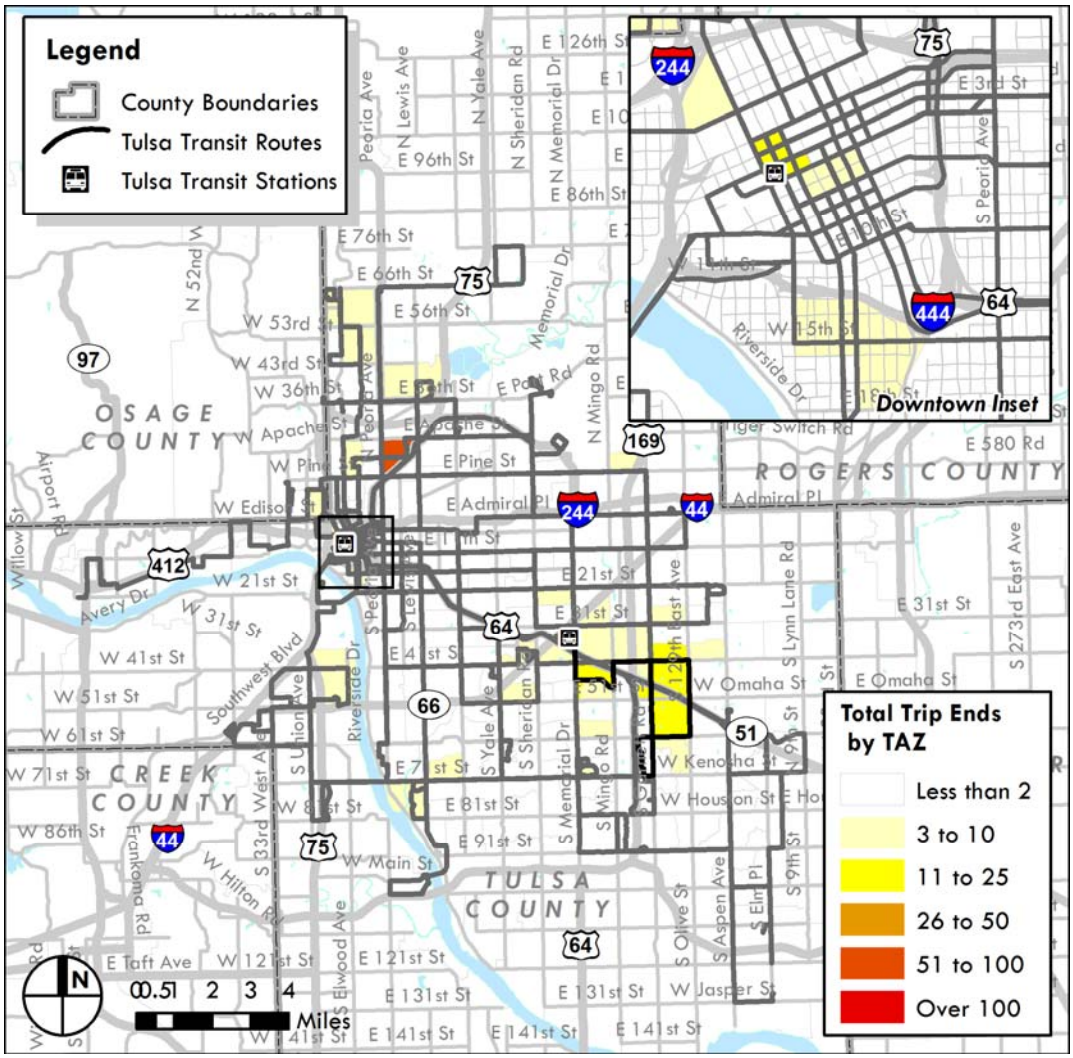
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

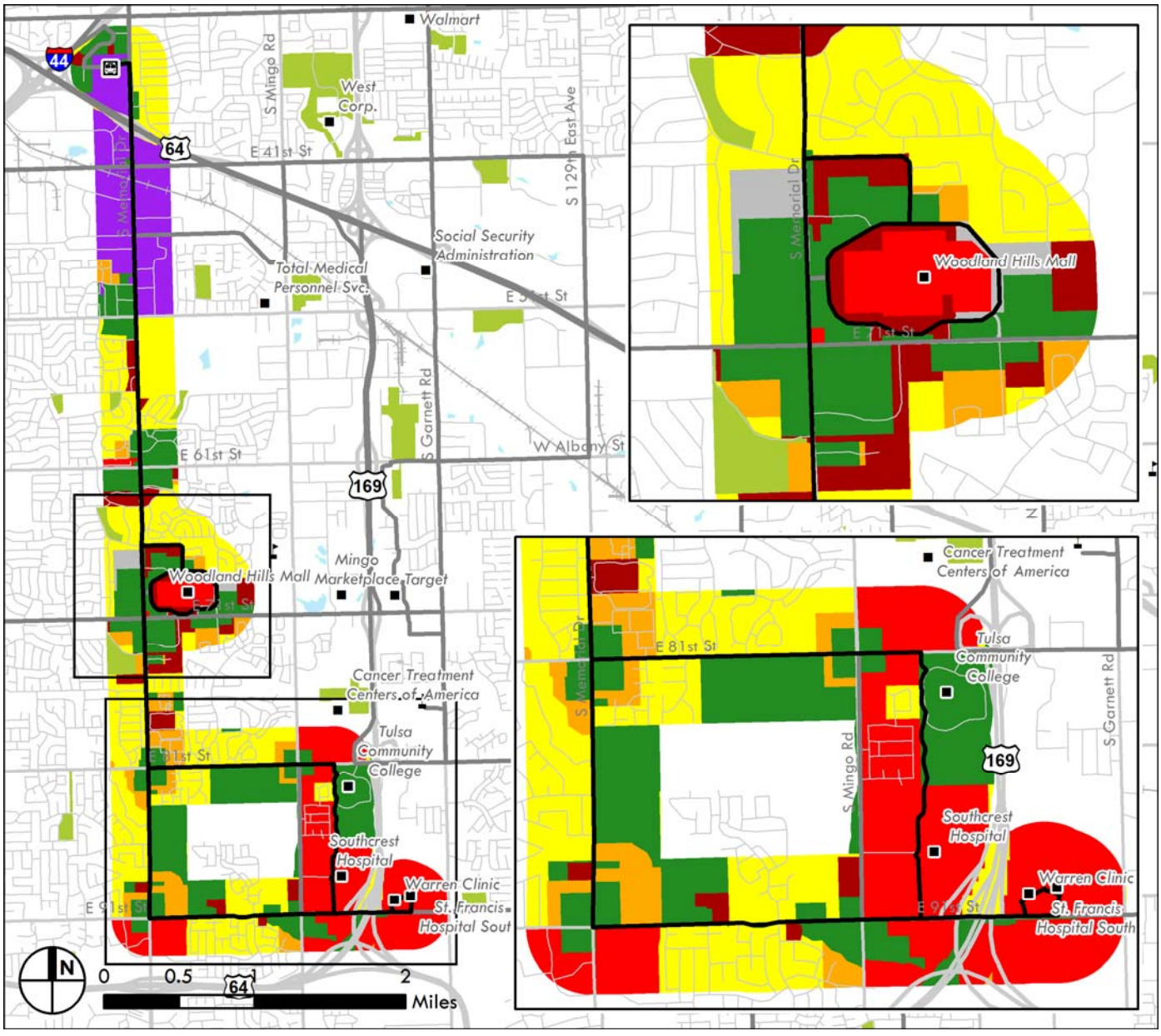


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 306		1.45
System Average		1.30
From	Route	To
-	100	-
5.7%	101	5.5%
5.2%	105	1.7%
-	111	-
-	112	-
3.7%	114	-
0.8%	117	-
-	118	-
26.6%	203	3.4%
4.1%	210	1.6%
-	215	3.4%
6.2%	221	6.9%
10.5%	222	20.9%
32.5%	251	53.3%
-	306	-
3.0%	318	3.4%
1.5%	471	-
-	508	-
-	902	-
-	909	-

Route 318 - Memorial

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:30 am - 7:45 pm		6:30 am - 5:35 pm	
Frequency (Pk/Mid/Night)	45/90/--		90/--	
Cycle Time (min)	90		90	
Layover Time (min)	6		8	
Route Statistics				
One-Way Trips	29		15	
Daily Revenue-Hours	21.5		11.1	
Daily Revenue-Miles	247.2		127.6	
Peak Buses	2.0		1.0	
Route Productivity				
Boardings	323		109	
Riders/Rev. Hr. (Rank)	15.0	*(13)*	9.8	*(6)*
Riders/Rev.-Mi. (Rank)	1.3	*(4)*	0.9	*(4)*
Riders/Trip (Rank)	11.1	*(14)*	7.3	*(11)*



General Description and Observations

Route 318 serves the Memorial Drive corridor south of MMS (near I-44 & Broken Arrow Expressway). From MMS, the route heads south on Memorial Drive and makes a diversion around Woodland Hills Mall before continuing on Memorial Drive. The route turns east on 81st Street, south on 101st Avenue, then east on 91st Street to terminate at St. Francis Hospital South, just east of US 169. On the return trip from St. Francis, the route follows 91st Street westward, then turns north onto Memorial Drive.

The route serves industrial and commercial areas, with some areas of single-family or multi-family housing. Tulsa Community College, Southcrest Hospital and St. Francis South are all located near or at the route's terminus.

Major origins, destinations or points of interest along the route include:

- Tulsa Technology Center
- Woodland Hills Mall
- Walmart Supercenter
- Tulsa Community College Southeast Campus
- Southcrest Hospital
- St. Francis South
- Hardesty Library

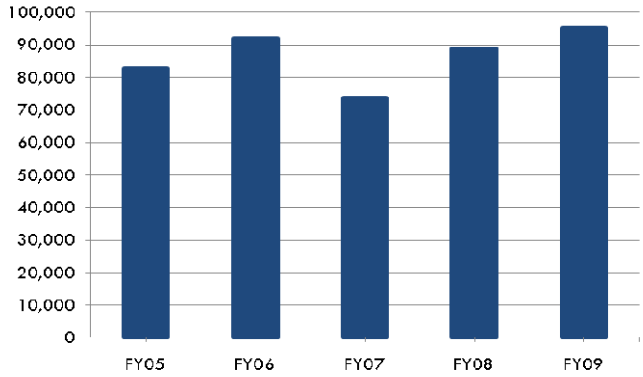
Observations regarding this route include the following:

- The route offers 45-minute weekday peak headway and 90-minute headway in the offpeak and Saturday.
- Routing is fairly direct along Memorial, however mall circulation adds some time to the route. The route ends with a large one-way loop, meaning some out-of-direction travel for certain riders.
- Highest activity at Woodland Hills Mall area.
- Route 318 and Route 508 only connect 3 times/day.
- Opportunity to examine how Route 306, 318, 471 and 508 relate to each other to potentially improve connections (in terms of routing as well as service frequency).

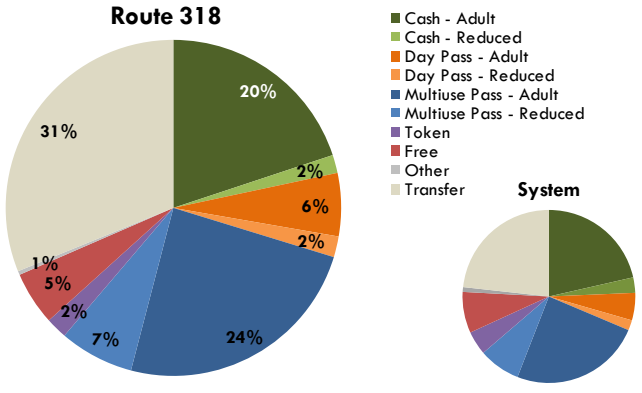
Ridership Trends and Productivity

- Average to low average performance for riders per revenue hour and riders per trip (weekdays and Saturdays).
- Strong riders per revenue mile for weekdays and Saturdays.
- Ridership has fluctuated, increasing perhaps 15% over a five-year period.
- Rider fare types mostly reflect systemwide norms; however, transfers to this route far outpace averages.

ANNUAL RIDERSHIP, FY05-FY09



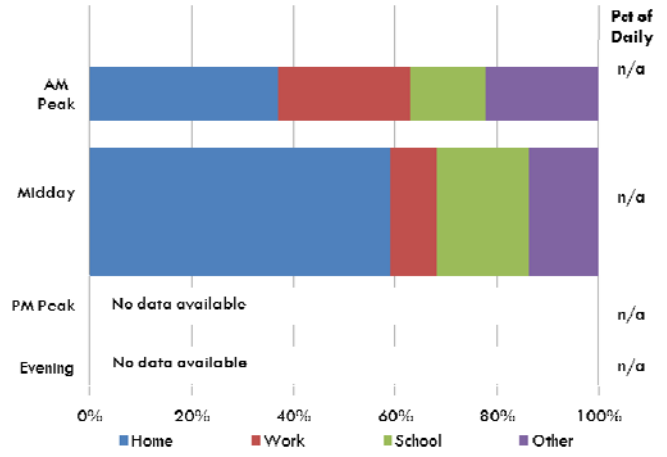
RIDERS BY FARE TYPE



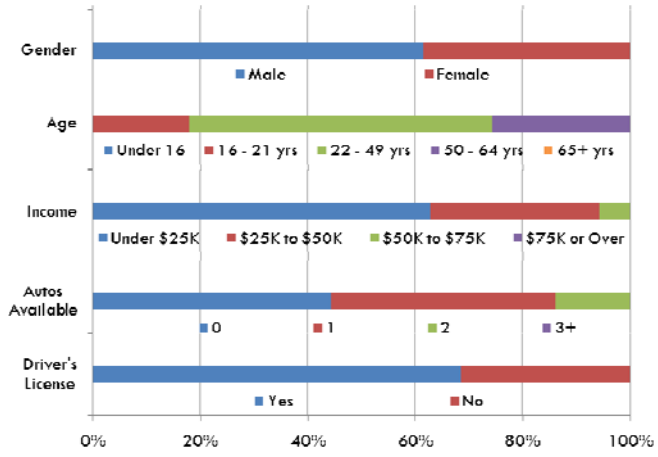
Rider Demographics and Travel Behavior

- Typical rider is lower income, mostly 22-49 years of age, more likely to be male. More likely to have a drivers license and may have 0 or 1 car available.
- This route is used mostly for home-related trips.
- Substantial transfer activity with Route 251; other significant transfers with Route 222 followed by Route 471.

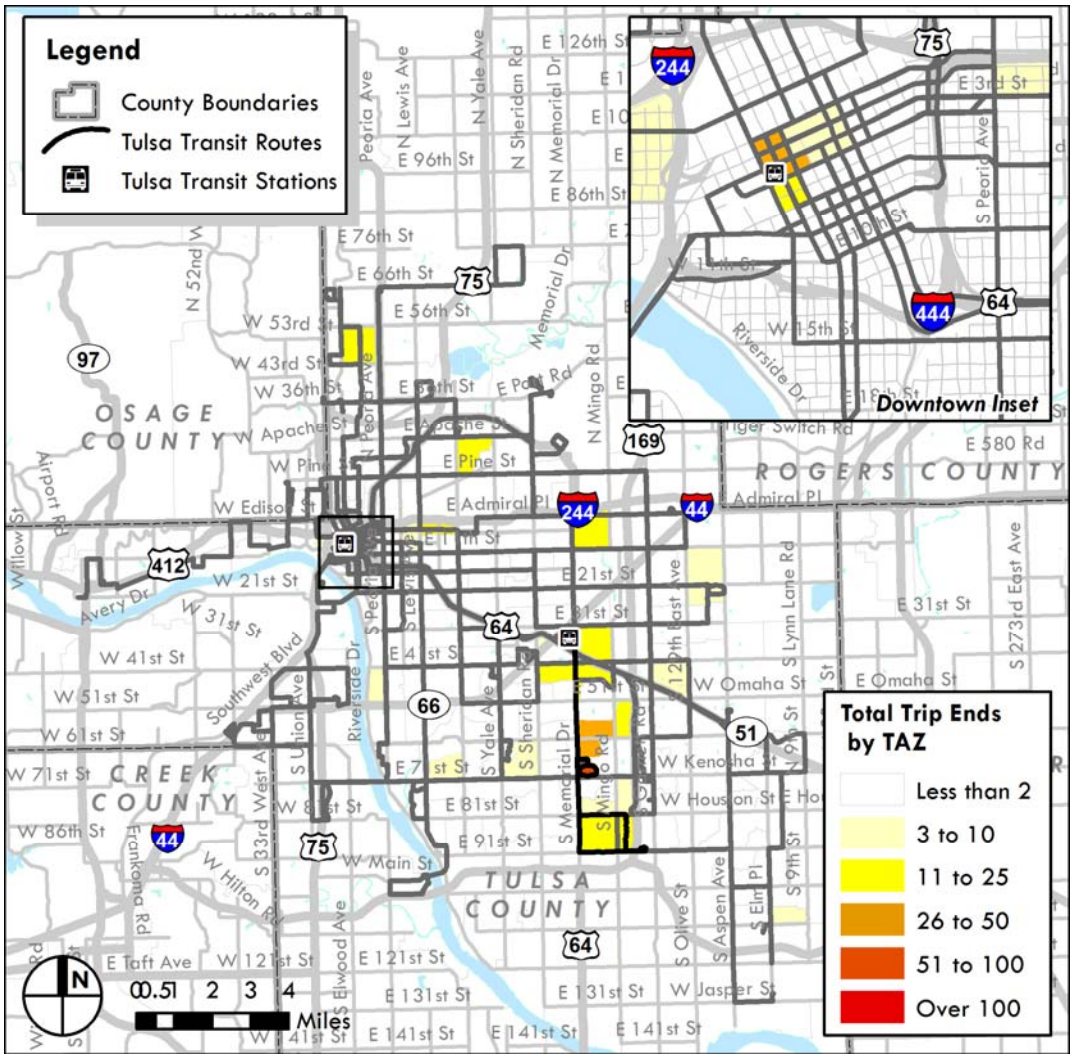
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ



TRANSFER ACTIVITY

Overall Transfer Rate		
Route 318		1.45
System Average		1.30
From	Route	To
4.3%	100	-
4.3%	101	-
4.4%	105	-
-	111	-
-	112	-
2.2%	114	0.6%
-	117	-
3.1%	118	-
6.4%	203	10.4%
0.7%	210	-
1.1%	215	7.2%
7.7%	221	12.7%
14.3%	222	20.3%
36.8%	251	39.1%
1.8%	306	2.1%
-	318	-
13.0%	471	7.5%
-	508	-
-	902	-
-	909	-

Route 471 – 71st Street

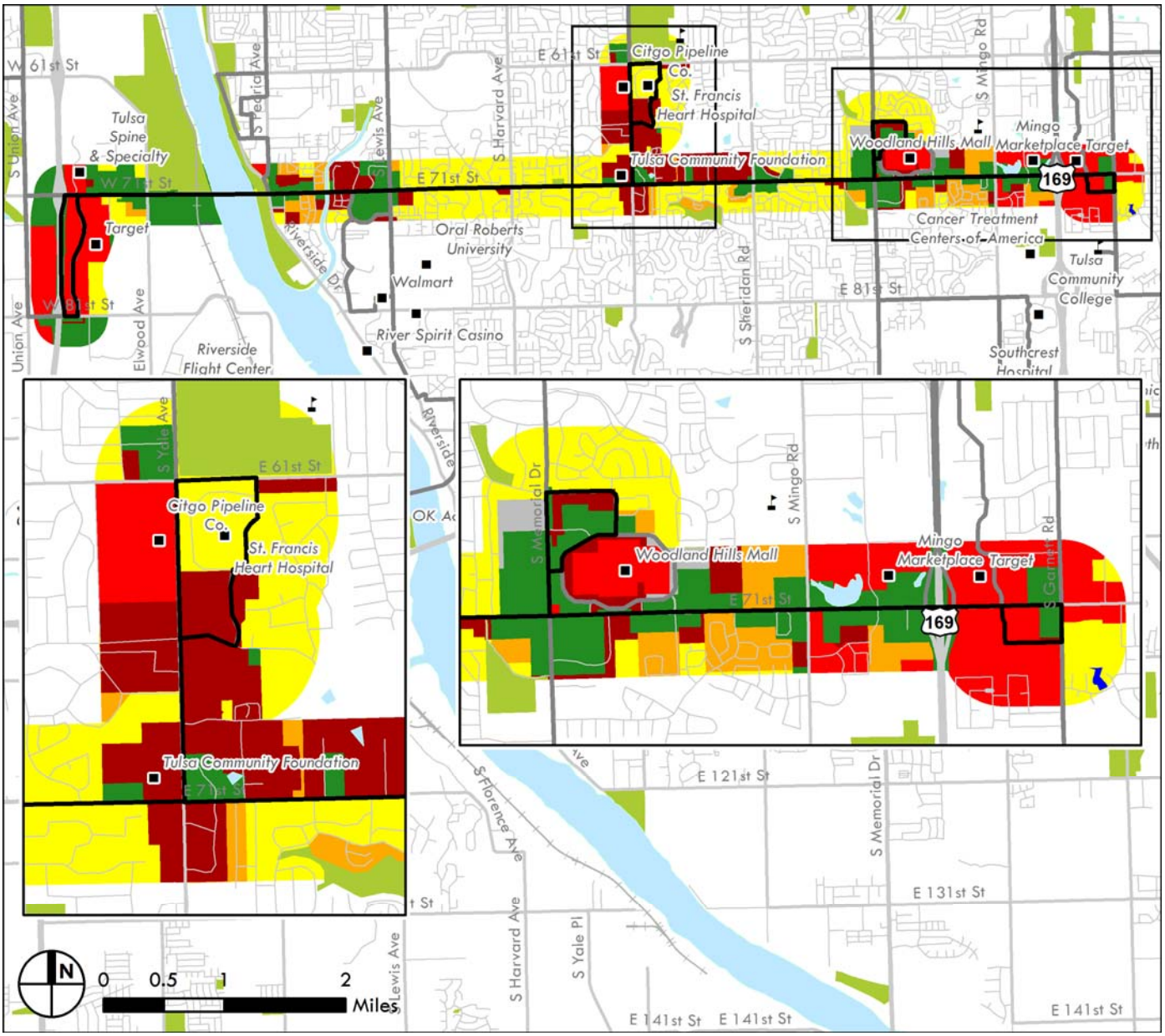
	Weekday		Saturday	
Route Characteristics				
Hours of Operation	6:05 am - 7:25 pm		7:00 am - 5:50 pm	
Frequency (Pk/Mid/Night)	100/100/--		100/--	
Cycle Time (min)	100		100	
Layover Time (min)	8		8	
Route Statistics				
One-Way Trips	26		13	
Daily Revenue-Hours	21.5		10.8	
Daily Revenue-Miles	367.7		184.8	
Peak Buses	2.0		1.0	
Route Productivity				
Boardings	254		75	
Riders/Rev. Hr. (Rank)	11.8	*(16)*	6.9	*(14)*
Riders/Rev.-Mi. (Rank)	0.7	*(16)*	0.4	*(15)*
Riders/Trip (Rank)	9.8	*(17)*	5.7	*(14)*

Legend

- County Boundaries
- Featured Route
- Other Routes
- Tulsa Transit Stations
- Points of Interest
- Parks & Recreation
- High School

Zoning

- Agriculture
- Commercial
- Office
- Industrial
- Special Use
- Transp./Parking
- SF Residential
- MF Residential



General Description and Observations

Route 471 is the sole route that does not connect to either of Tulsa Transit's transit centers, operating as a crosstown route along 71st Street. From Tulsa Hills, the route follows 71st Street to Garnett Road, with deviations to St. Francis Heart Hospital (using Yale Avenue to 61st Street) and Woodland Hills Mall (off Memorial Drive).

The route serves significant commercial and some multi-family areas at each end of the route, with the highest concentration of commercial development at the eastern portion of the route. Uses are predominantly single-family housing in between the ends of the route.

Major origins, destinations or points of interest along the route include:

- Tulsa Hills
- St. Francis Heart Hospital
- Thoreau Demonstration Academy
- Cinemark
- Woodland Hills Mall
- Renaissance Hotel

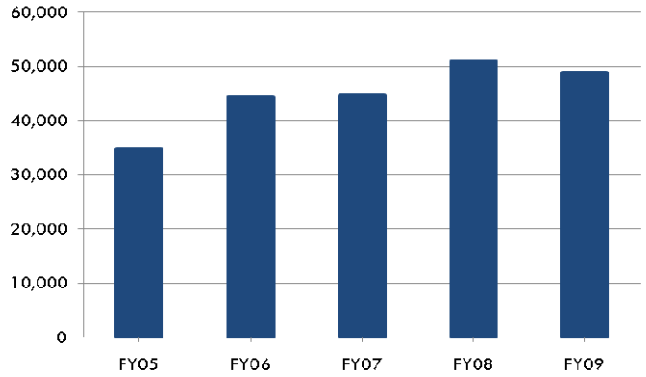
Observations regarding this route include the following:

- The 100-minute headway is too infrequent and too irregular to generate much ridership, leading to one of the lowest-performing routes in system. Ideally restructure route to allow improving headways to 60 or 90 minutes.
- The layover time of 8 minutes is fairly minimal given the cycle time, providing only 8% of recovery time.
- Reasonable activity observed at Woodland Hills and Hospital, especially at peak times – mostly transferring. Tulsa Hills is observed to be particularly thin. The route connects many trip attractors, but few trip generators.
- Notable transfer activity with Route 105 (Peoria) and Route 318 (Memorial).
- Opportunity to examine how Route 306, 318, 471 and 508 relate to each other to potentially improve connections (in terms of routing as well as service frequency).

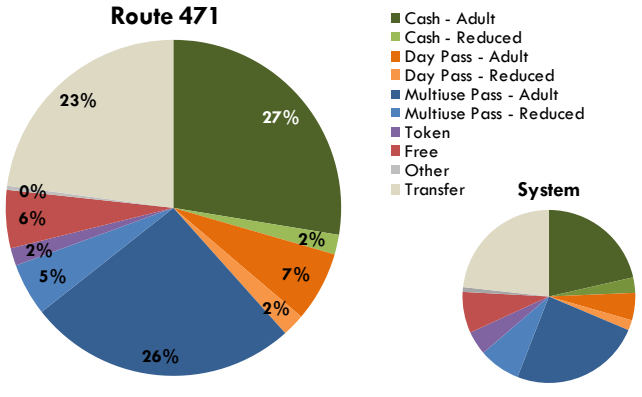
Ridership Trends and Productivity

- Low productivity on all measures for both weekdays and Saturdays.
- Among lowest performing routes in system.
- Ridership has increased about 40% over a five-year period.
- Rider fare types skew more to cash and adult fare classes and less toward reduced fare classes and transfers.

ANNUAL RIDERSHIP, FY05-FY09



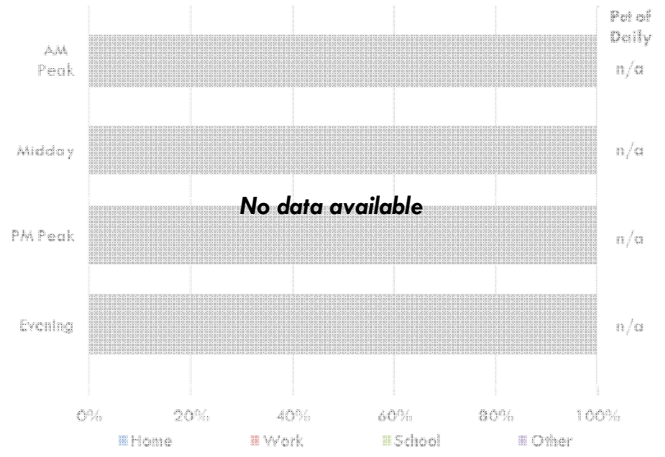
RIDERS BY FARE TYPE



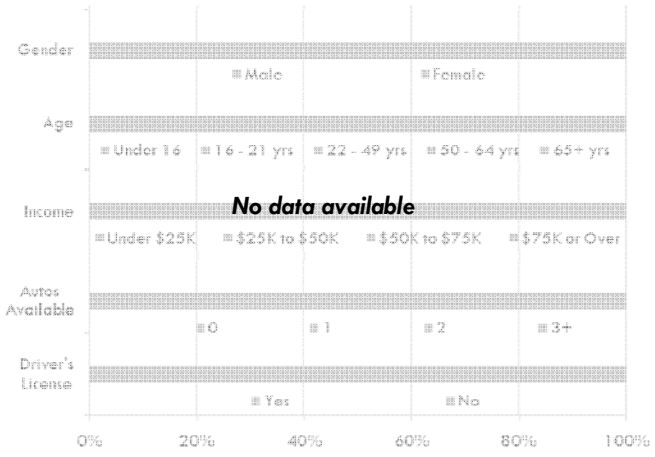
Rider Demographics and Travel Behavior

- On-board rider survey data was not available for this route. Transfer activity reported comes from surveys completed on other routes that referenced Route 471.
- Substantial transfer activity with Routes 318 and 105, followed by Route 210.

TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



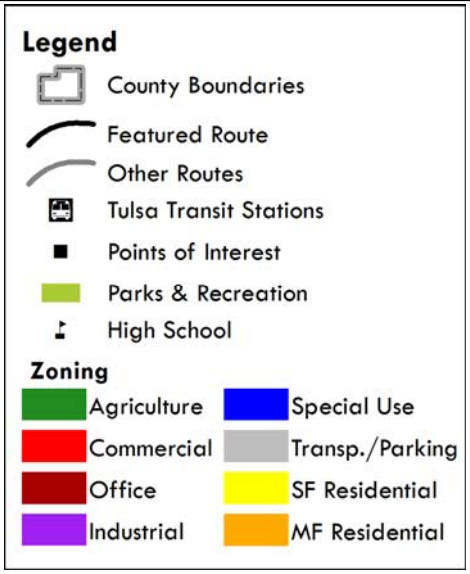
ORIGIN AND DESTINATION TRIP ENDS BY TAZ

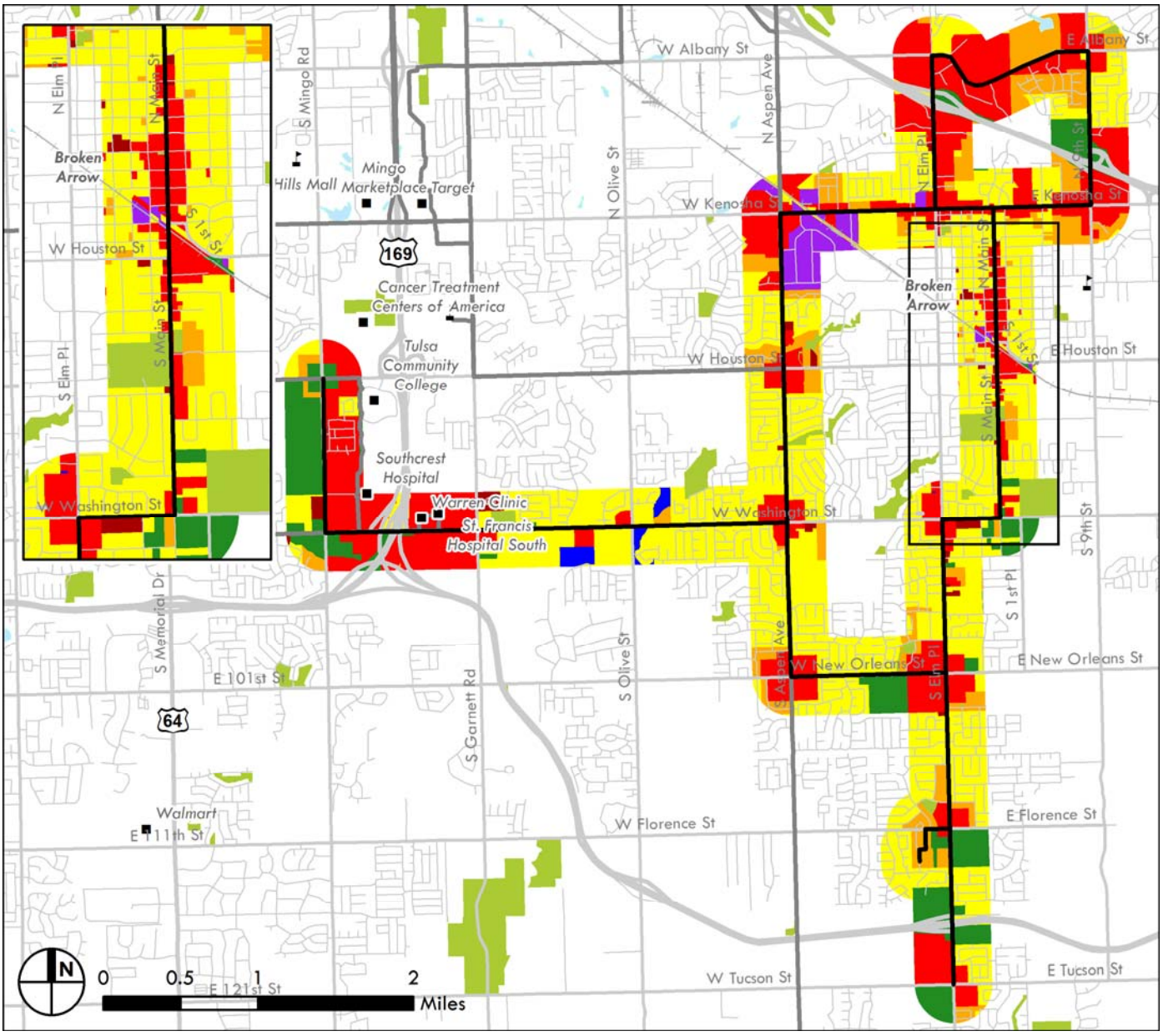
TRANSFER ACTIVITY

Overall Transfer Rate		
Route 471		1.30
System Average		**1.30**
From	**Route**	**To**
-	100	-
10.9%	101	2.8%
33.5%	105	26.8%
-	111	-
-	112	4.8%
-	114	-
10.9%	117	4.7%
-	118	2.3%
-	203	2.2%
12.7%	210	14.8%
-	215	1.3%
-	221	-
-	222	2.4%
-	251	3.4%
-	306	2.3%
32.0%	318	32.2%
-	471	-
-	508	-
-	902	-
-	909	-

Route 508 – Broken Arrow Connection

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	5:55 am - 6:20 pm		--	
Frequency (Pk/Mid/Night)	85/240/--		--/--	
Cycle Time (min)	170		n/a	
Layover Time (min)	53		n/a	
Route Statistics				
One-Way Trips	17		n/a	
Daily Revenue-Hours	19.9		n/a	
Daily Revenue-Miles	292.4		n/a	
Peak Buses	2.0		n/a	
Route Productivity				
Boardings	29		n/a	
Riders/Rev. Hr. (Rank)	1.5	*(18)*	n/a	*n/a*
Riders/Rev.-Mi. (Rank)	0.1	*(18)*	n/a	*n/a*
Riders/Trip (Rank)	1.7	*(18)*	n/a	*n/a*





General Description and Observations

Route 508 is a flexible fixed route operating in Broken Arrow. The fixed route loop generally follows Kenosha, Main Street jogging to Elm/161st Avenue, New Orleans, and Aspen, operating both clockwise and counter-clockwise service, with three fixed stops along the route. Three spurs from the main route allow selected travel to other destinations: SouthCrest/Tulsa Community College via Washington-91st Street; Tree Top Apartments, South Walmart, and Indian Springs Church Park & Ride via Elm; or Bass Pro extending from the northeast end of the loop. With advance reservations, passengers can travel to any destination in a larger zone, generally bounded by Omaha-51st Street, County Line-193rd Avenue, Jasper-131st Street, and Garnett Road.

The route serves mostly commercial and single-family uses along the main loop, with spurs tapping into more dense commercial development.

Major origins, destinations or points of interest along the route include:

- Walmart North
- Rhema Bible College
- Bass Pro Shop
- St. Francis Medical Center
- Vandever House
- Tree Top Apartments
- Walmart South
- Indian Springs park & ride
- SouthCrest
- Tulsa Community College

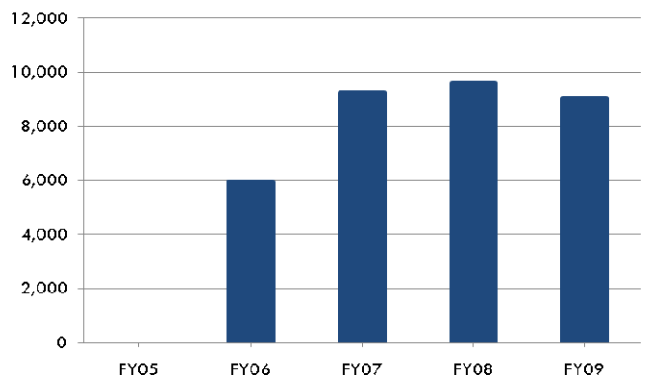
Observations regarding this route include the following:

- Very infrequent service (9 clockwise trips, 8 counter-clockwise trips per weekday). Service is not anchored to any particular clock headway, making general route usage, including transfers, cumbersome.
- Alignment is circuitous, even for a demand-responsive circulator. Route deviations are irregular in occurrence, further complicating user-friendliness on this route. Selected service on extensions along 91st Street, Elm, and service to Bass Pro Shop difficult to follow.
- No Saturday service.
- Two-way loop requires operating a minimum of two vehicles. These vehicles may be better used going back and forth on two separate routes, rather than both being assigned to a single loop.
- Opportunity to examine how Route 306, 318, 471 and 508 relate to each other to potentially improve connections (in terms of routing as well as service frequency).

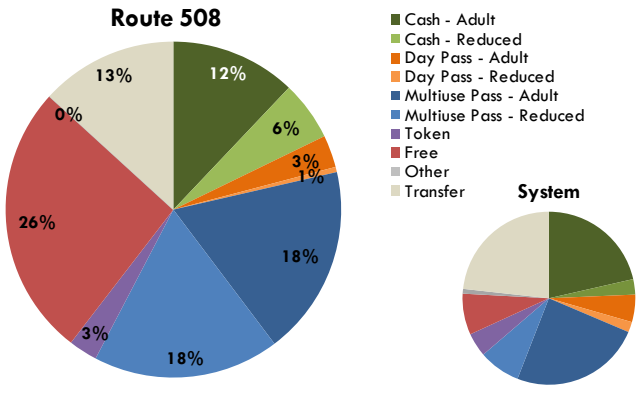
Ridership Trends and Productivity

- Low productivity on all measures. Lowest performing route in system. This is partly attributable to the route's usage as a flexible fixed- and demand-responsive route.
- Ridership has increased about 50% over a four-year period.
- Riders more likely to pay no fare or reduced multiuse pass compared to system average. Less likely to use full cash fare.

ANNUAL RIDERSHIP, FY05-FY09



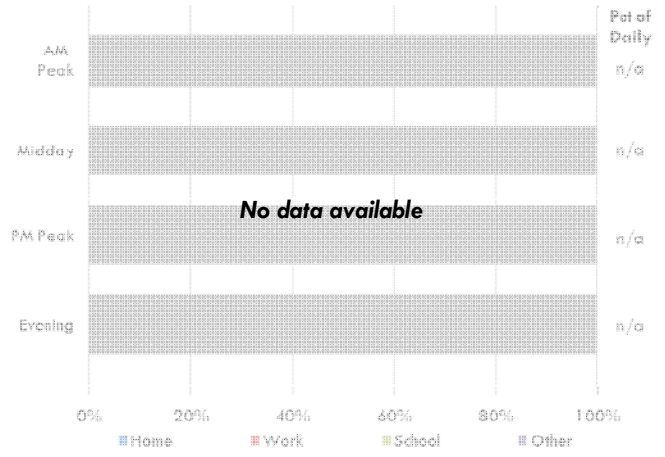
RIDERS BY FARE TYPE



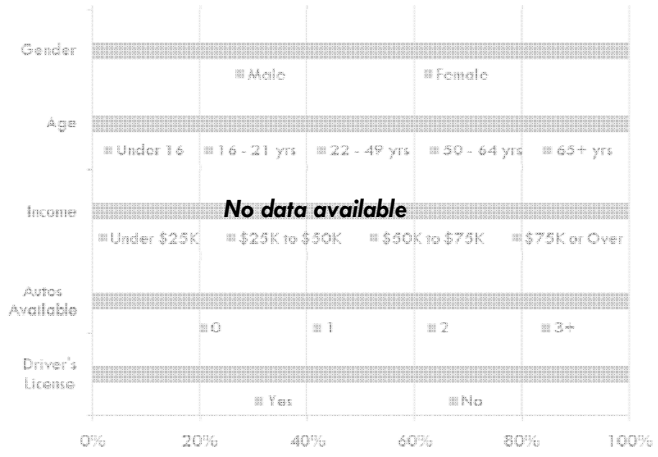
Rider Demographics and Travel Behavior

- On-board rider survey data was not available for this route. Transfer activity reported comes from surveys completed on other routes that referenced Route 508.
- Only transfer activity with Route 508 was reported on Routes 105 and 210.

TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



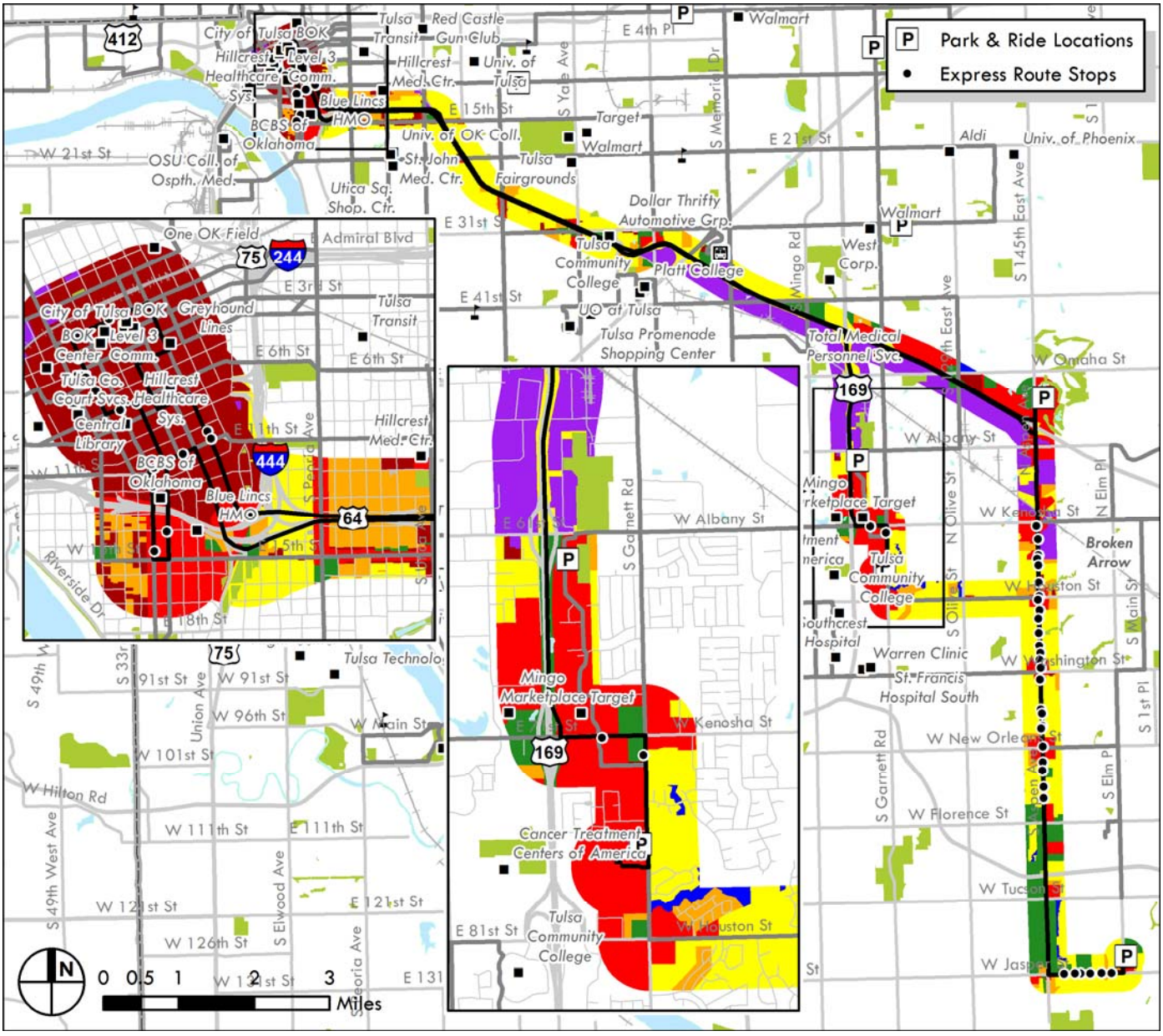
ORIGIN AND DESTINATION TRIP ENDS BY TAZ

TRANSFER ACTIVITY

Overall Transfer Rate		
Route 508		1.15
System Average		1.30
From	Route	To
-	100	-
-	101	-
100.0%	105	-
-	111	-
-	112	-
-	114	-
-	117	-
-	118	-
-	203	-
-	210	100.0%
-	215	-
-	221	-
-	222	-
-	251	-
-	306	-
-	318	-
-	471	-
-	508	-
-	902	-
-	909	-

Route 902 – Broken Arrow Express

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	6:20-8:33 am / 4:06-6:03 pm		--	
Frequency (Pk/Mid/Nite)	3 trips/--/--		--/--	
Cycle Time (min)	48		n/a	
Layover Time (min)	0		n/a	
Route Statistics				
One-Way Trips	4		n/a	
Daily Revenue-Hours	3.5		n/a	
Daily Revenue-Miles	81.1		n/a	
Peak Buses	2.0		n/a	
Route Productivity				
Boardings	74		n/a	
Riders/Rev. Hr. (Rank)	21.3	(2)	n/a	n/a
Riders/Rev.-Mi. (Rank)	0.9	(2)	n/a	n/a
Riders/Trip (Rank)	18.6	(2)	n/a	n/a



General Description and Observations

Route 902 is an express route connecting downtown Tulsa with Broken Arrow, primarily using Broken Arrow Expressway (State Highway 51). Downtown routing involves Detroit to 1st Street to DAS (inbound), or 2nd Street to Cincinnati (outbound). There are no interim stops on Broken Arrow Expressway. The route serves the Battle Creek Church Park & Ride at 3025 N. Aspen adjacent to the expressway. One roundtrip daily also serves the Park & Ride at Indian Springs Baptist Church (7815 Elm Place) via 145th Avenue and 131st Street.

Observations regarding this route include the following:

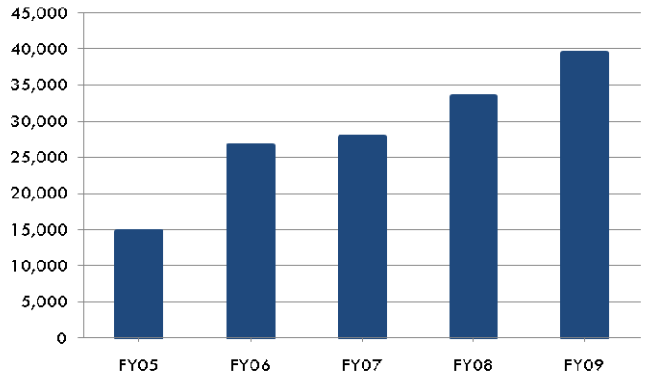
- Solid ridership for an express route.
- Dramatic growth in ridership over a 5-year period suggests this is a high-growth corridor that may warrant additional service in the future.
- Park-and-Ride signage was minimal, which may make finding the lot difficult for new riders.

Note: Current Route 902 schedules and timetables reflect 3 peak-direction trips per period, which includes 1 peak-direction trip per period that has been designated separately as Route 909 (via Hwy 169/81st Street).

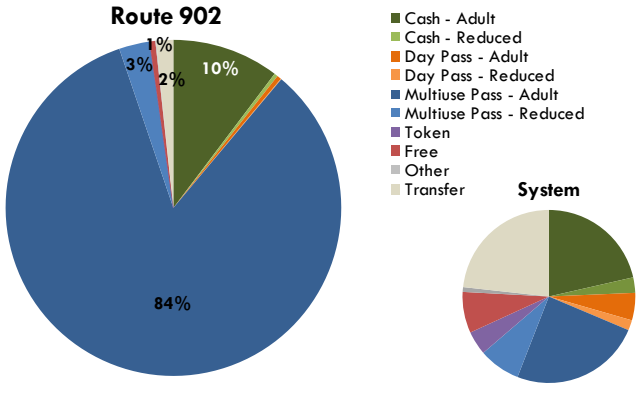
Ridership Trends and Productivity

- Reasonable performance for weekday riders per trip and weekday riders per revenue hour. Ranks second of two express route in terms of productivities.
- Ridership has dramatically increased by over 2.5 times over a five-year period.
- Rider fare types are overwhelmingly adult multi-use passes (7-day, 31-day, and 10-ride), followed by adult cash fares. These are expected results for an express route.

ANNUAL RIDERSHIP, FY05-FY09



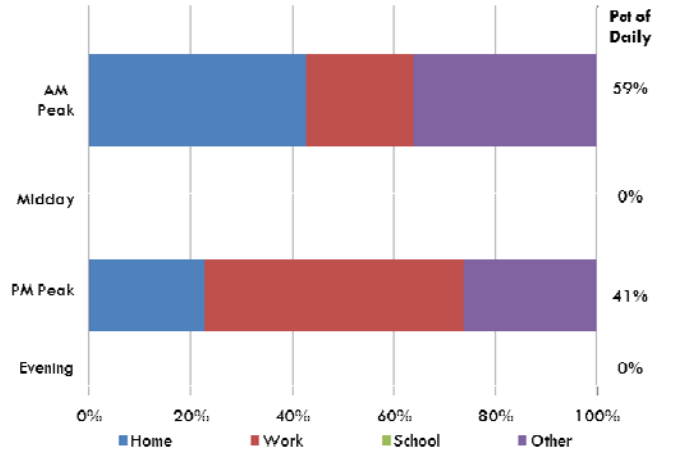
RIDERS BY FARE TYPE



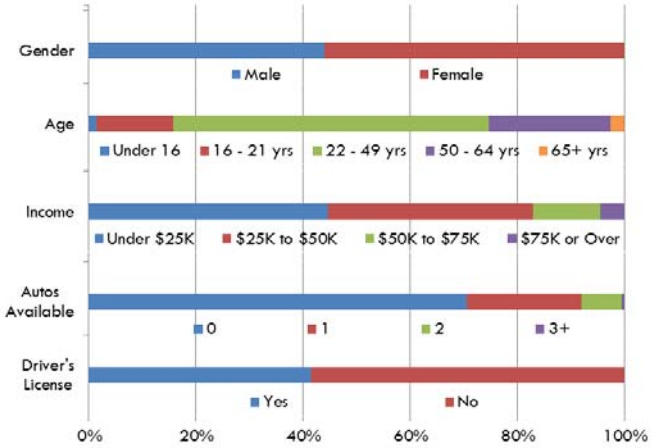
Rider Demographics and Travel Behavior

- Typical rider 22-49 years of age, low to low-moderate income, likely to not have a car available and no drivers license. Slightly more likely to be female.
- According to survey, morning trips more likely to be home-related or other; afternoon trips more likely to be work trips. In reality, trip purposes are likely more balanced between periods.
- Almost no transfer activity present, not unusual for an express route.

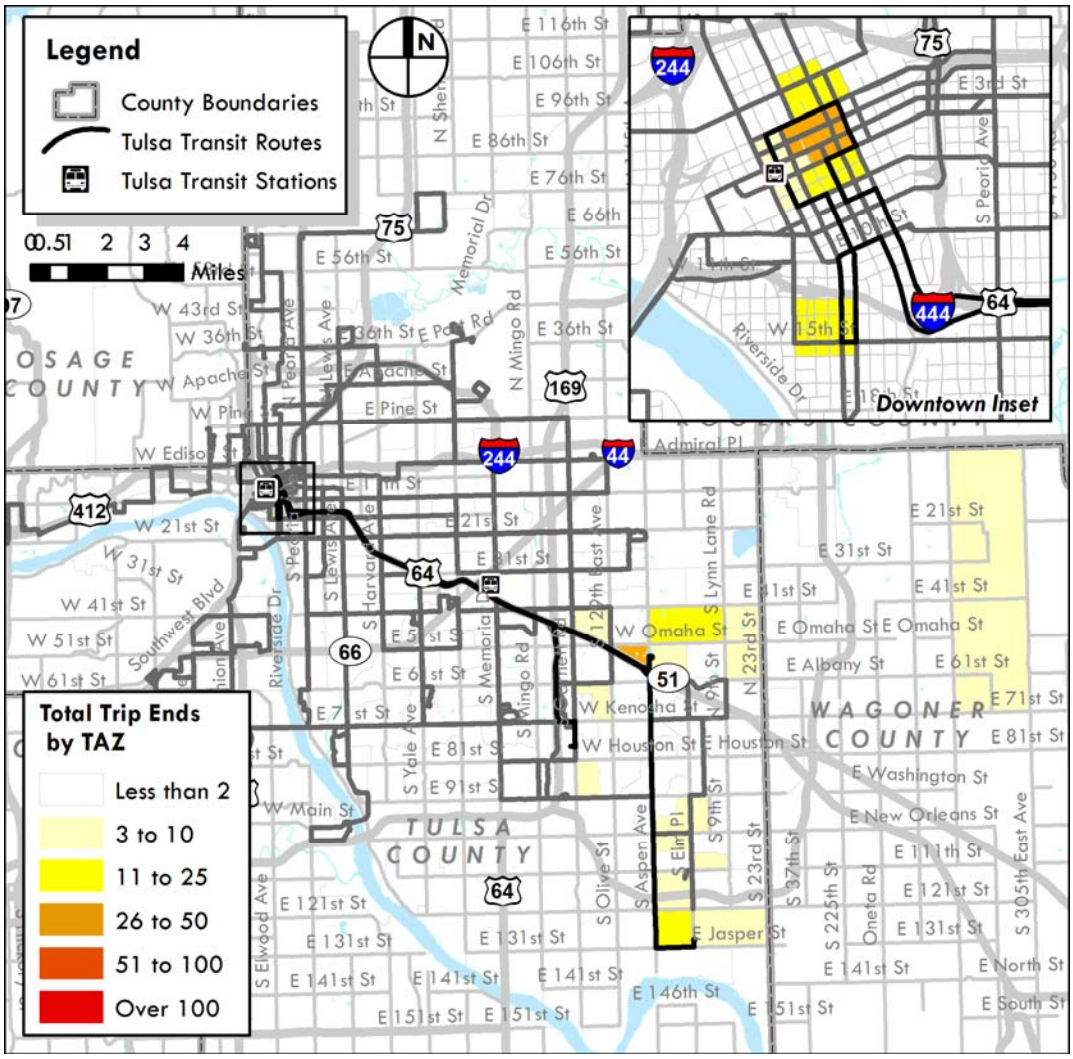
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ

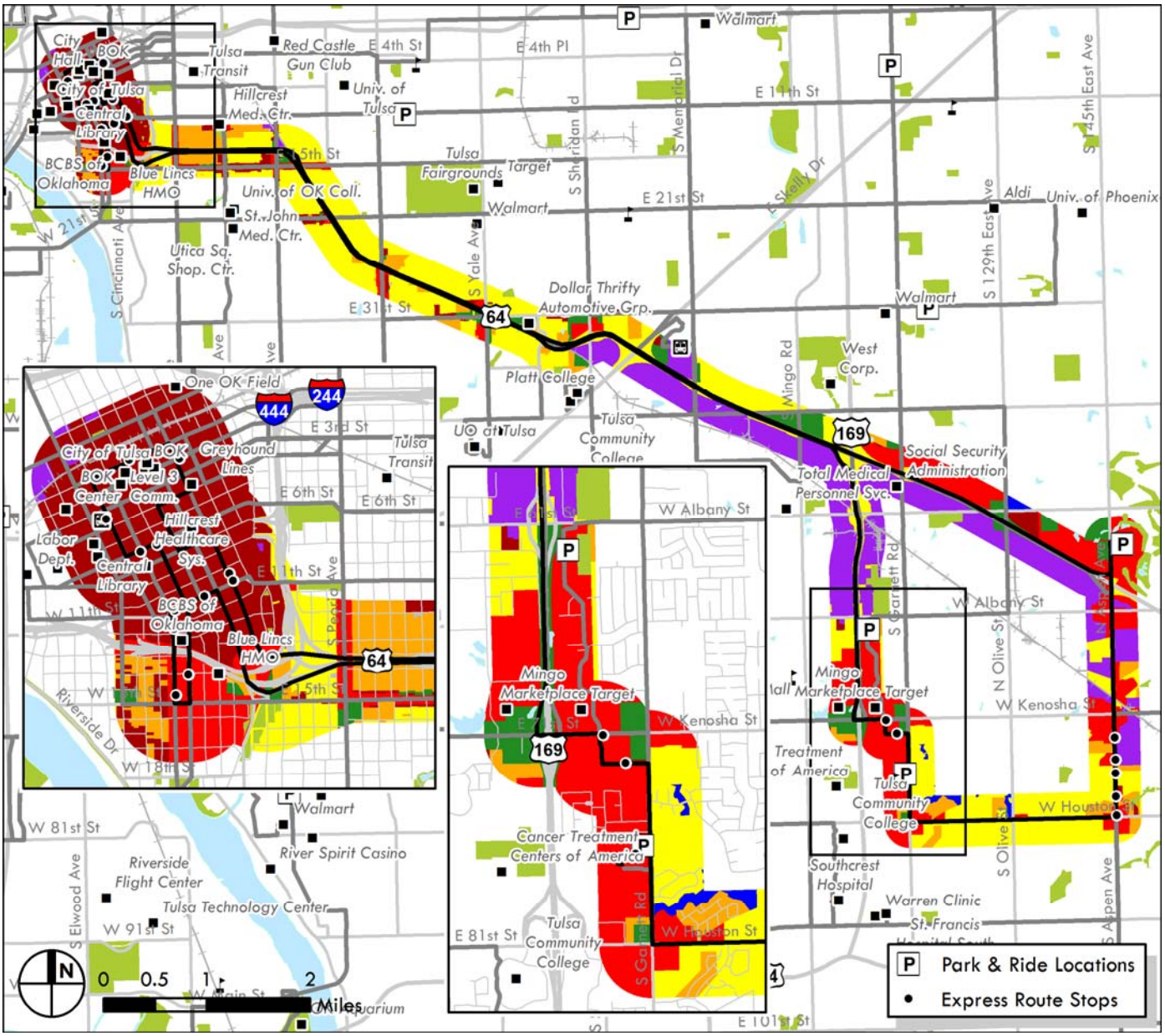


TRANSFER ACTIVITY

Overall Transfer Rate		
Route 902		1.02
System Average		1.30
From	Route	To
50.0%	100	-
-	101	-
-	105	-
-	111	-
50.0%	112	-
-	114	-
-	117	-
-	118	-
-	203	-
-	210	-
-	215	-
-	221	-
-	222	-
-	251	-
-	306	-
-	318	-
-	471	-
-	508	-
-	902	-
-	909	-

Route 909 – Union Express

	Weekday		Saturday	
Route Characteristics				
Hours of Operation	6:50-7:37 am / 4:47-5:45 pm		--	
Frequency (Pk/Mid/Nite)	1 trip/--/--		--/--	
Cycle Time (min)	53		n/a	
Layover Time (min)	0		n/a	
Route Statistics				
One-Way Trips	2		n/a	
Daily Revenue-Hours	1.8		n/a	
Daily Revenue-Miles	38.8		n/a	
Peak Buses	1.0		n/a	
Route Productivity				
Boardings	45		n/a	
Riders/Rev. Hr. (Rank)	25.6	*(1)*	n/a	n/a
Riders/Rev.-Mi. (Rank)	1.2	*(1)*	n/a	n/a
Riders/Trip (Rank)	22.4	*(1)*	n/a	n/a



General Description and Observations

Route 909 is an express route connecting downtown Tulsa with southeast Tulsa and Broken Arrow, primarily using Broken Arrow Expressway (State Highway 51). Downtown routing involves Detroit to 1st Street to DAS (inbound), or 2nd Street to Cincinnati (outbound). There are no interim stops on Broken Arrow Expressway. In the vicinity of Broken Arrow, the route serves the Battle Creek Church Park & Ride at 3025 N. Aspen, as well as Union Intermediate High School at 7616 S. Garnett.

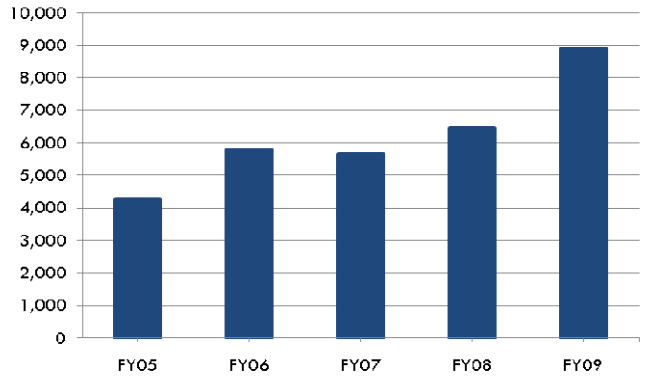
Observations regarding this route include the following:

- Solid ridership for an express route.
- Dramatic growth in ridership over a 5-year period suggests this is a high-growth corridor that may warrant additional service in the future.
- Park-and-Ride signage was minimal, which may make finding the lot difficult for new riders.

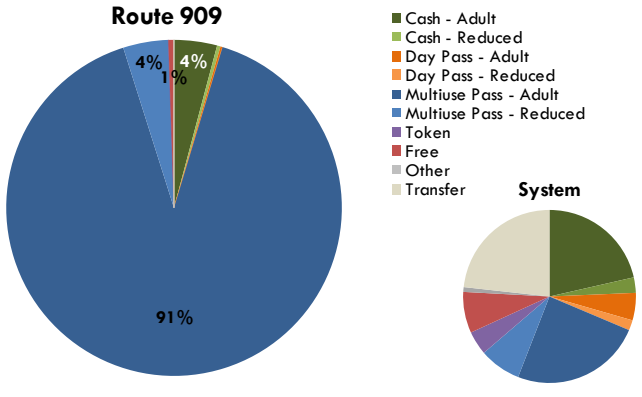
Ridership Trends and Productivity

- Reasonable performance for weekday riders per trip and weekday riders per revenue hour. Ranks first of two express route in terms of productivities.
- Ridership has more than doubled over a five-year period.
- Rider fare types are overwhelmingly adult multi-use passes (7-day, 31-day, and 10-ride), followed by adult cash fares and reduced multi-use passes. These are expected results for an express route.

ANNUAL RIDERSHIP, FY05-FY09



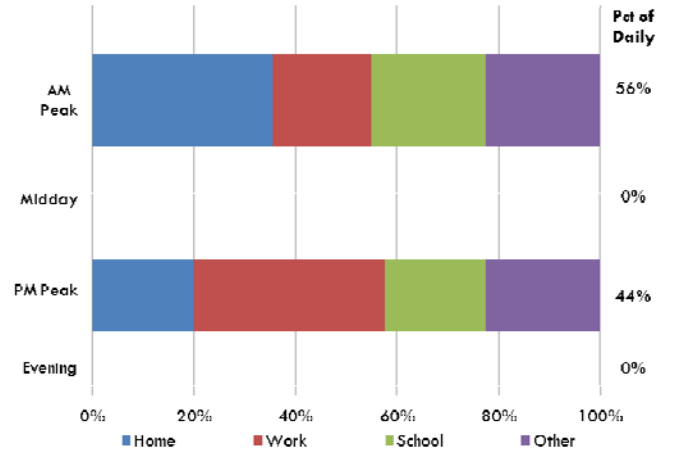
RIDERS BY FARE TYPE



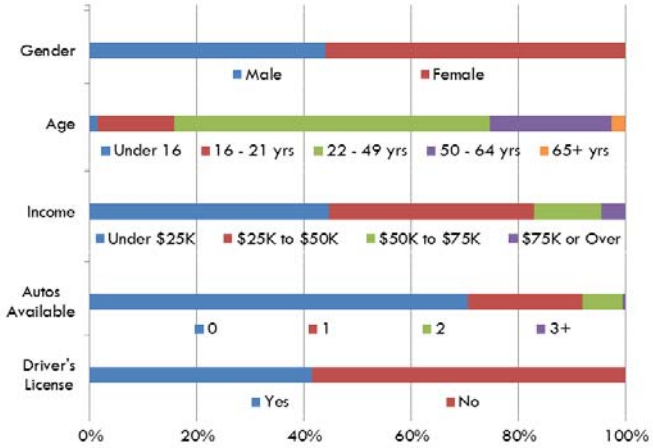
Rider Demographics and Travel Behavior

- Typical rider 22-49 years of age, low to low-moderate income, likely to not have a car available and no drivers license. Slightly more likely to be female.
- According to survey, morning trips more likely to be home-related or other; afternoon trips more likely to be work trips. In reality, trip purposes are likely more balanced between periods.
- No transfer activity identified, not unusual for an express route.

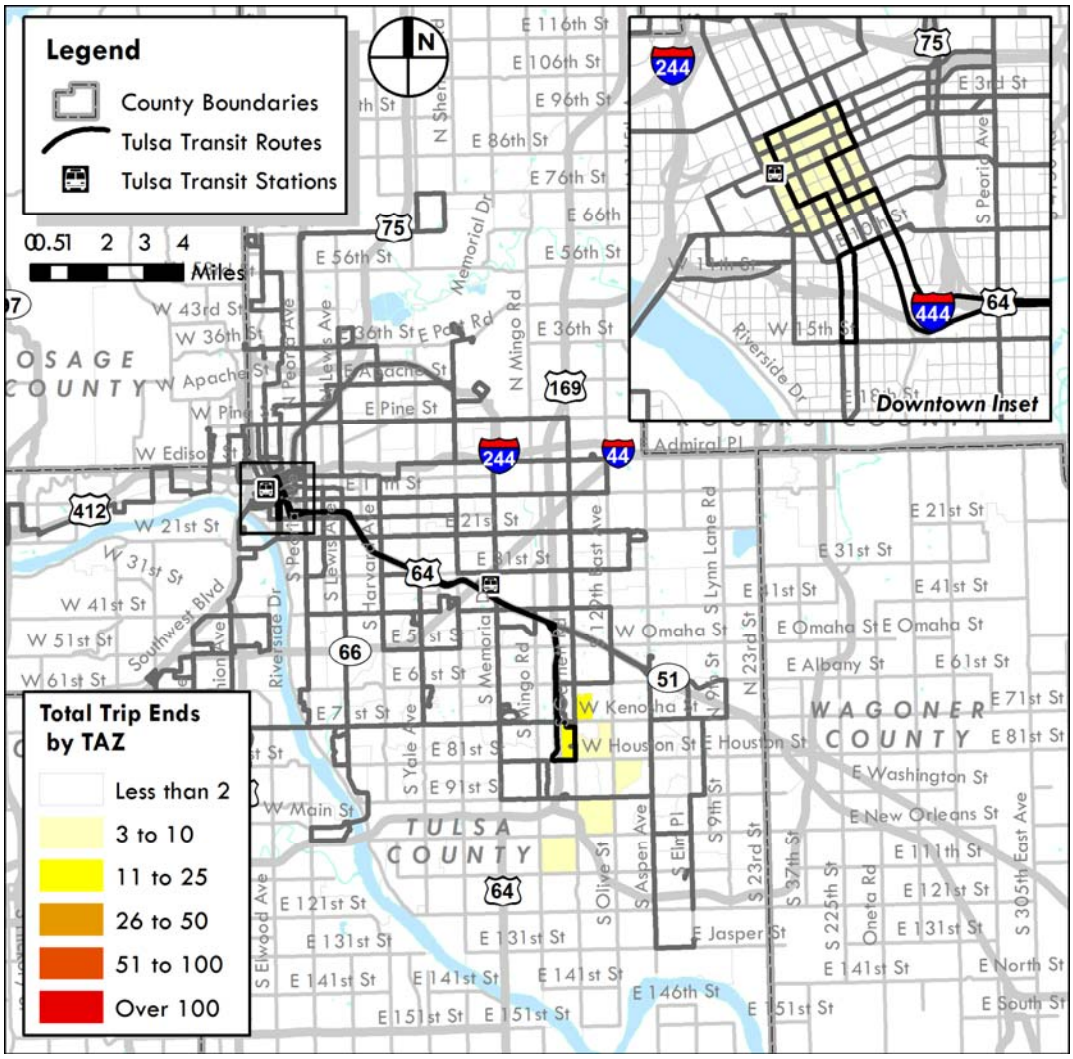
TRIPS BY PURPOSE AND TIME OF DAY



RIDER CHARACTERISTICS



ORIGIN AND DESTINATION TRIP ENDS BY TAZ



TRANSFER ACTIVITY

Overall Transfer Rate	
Route 909	1.00
System Average	1.30

From	Route	To
-	100	-
-	101	-
-	105	-
-	111	-
-	112	-
-	114	-
-	117	-
-	118	-
-	203	-
-	210	-
-	215	-
-	221	-
-	222	-
-	251	-
-	306	-
-	318	-
-	471	-
-	508	-
-	902	-
-	909	-

FAST FORWARD

TULSA REGIONAL TRANSIT SYSTEM PLAN AND ALTERNATIVES ANALYSES

INCOG Regional Partners - Regional Solutions

TULSA TRANSIT

Bus System Evaluation and Service Plan

Technical Memorandum #2: Peer Agency Review

January 2011

Submitted by Connetics Transportation Group

CTG Connetics Transportation Group

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Abbreviations

Federal Transit Administration (FTA)
National Transit Database (NTD)
Demand Responsive (DR)
Fixed Route (FR)
Farebox Recovery Ratio (FRR)
Vehicles Available for Maximum Service (VAMS)
Vehicles Operated in Maximum Service (VOMS)

1 Overview

The Tulsa Regional Transit System Plan and Alternatives Analyses is a first-of-its-kind long-range public transportation plan for the communities in the Indian Nations Council of Governments (INCOG), including Tulsa, Broken Arrow, Bixby, Jenks, Owasso, and Sand Springs. The Plan is the first step to identify a financially-viable public transportation program for the greater Tulsa area, and represents an extremely important opportunity for the Tulsa region to compete for federal grants which are increasingly moving toward public transportation.

The system plan will explore options including conventional buses, express buses, bus rapid transit, street cars, commuter rail transit, and light rail transit. Traffic corridors will be ranked and prioritized and the draft plan will be circulated for further review by the public. After the plan is finalized and approved, a subsequent Alternatives Analysis will occur in a specific traffic corridor in a defined geographic area.

As part of the system plan, a thorough evaluation of existing bus operations and identification of future bus service opportunities is being completed. General public transit service within the region is currently provided by the Metropolitan Tulsa Transit Authority (MTTA, or Tulsa Transit). This system provides weekday and Saturday bus service in Tulsa, Jenks, Broken Arrow, and Sand Springs. In FY2009, it operated nearly 300,000 revenue hours and 5 million revenue miles of service on a budget of around $20 million, providing almost 3 million annual transit rides.

This analysis of Tulsa Transit will be used as the means to understand current transit service needs, which in turn will provide the ability to assess the extent to which the bus component of the RTSP can address those needs. Tasks include a review of existing fixed route bus service, a general assessment of Tulsa Transit in comparison to peer bus systems in other locations, and preparation of near-term and long-range future service plans. The evaluation and service plan will build upon previous studies, references, and resources produced by Tulsa Transit and INCOG (such as the Tulsa Transit Needs Assessment, January 2010).

This report, Technical Memorandum #2, conducts an analysis of Tulsa Transit as it compares to peer transit agencies both within Oklahoma and outside of the state.

1.1 Introduction

A peer analysis provides the means to compare various performance measures of a transit agency to other transit agencies of similar size and operating characteristics. Transit agencies report such information to the Federal Transit Administration (FTA), which records the information annually in the National Transit Database (NTD). NTD has strict requirements regarding the manner in which cost and service characteristics are reported by agencies. Thus, NTD provides a consistent set of measurable data that can be used in a peer systems analysis.

While a peer analysis based on NTD data provides operational service and financial information, it is important to consider other aspects of service quality that are not reported in NTD, such as passenger satisfaction, vehicle cleanliness and comfort, schedule adherence and route connectivity. Likewise, unique operating and financial characteristics that may be associated with a particular transit agency are also important unreported factors.

FTA's NTD is the only comprehensive source of validated operating and financial data reported by transit agencies nationwide. This database is updated annually with information submitted by each transit system. FTA reviews and confirms the accuracy of the information received and publishes a final report after a reporting transit system successfully responds to all comments and inquiries. NTD is used by FTA and other federal, state, and local agencies as a resource to help guide public investment decisions, shape public policy, and develop planning initiatives. NTD reports various standard measures of performance that allow decision makers and other stakeholders to determine the efficiency and effectiveness of transit services on a local, regional and national basis.

For this technical memorandum, several sources of information from NTD were required to compile a comprehensive overview of the peer agencies comparison. Additionally, various data was obtained from the individual peer agencies.

Farebox recovery was obtained from *Table 26: Fares per Passenger and Recovery Ratio*, and service area population was obtained from *Agency Information*, both from the *2009 NTD Database*. Fares data, information on fixed route and demand responsive service, and operational characteristics were obtained directly from each individual agency. All other information was obtained from the *2009 NTD Transit Profile*. Changes to the service area coverage and total population within the urbanized area were compared against the *2008 NTD Data Tables, Appendix C: Transit Agency Identification*.

1.2 Peer Selection Process

Select criteria were used to identify transit agencies that had similar service area characteristics to Tulsa Transit. Primary criteria included:

- Service area population
- Service area population density
- Urbanized area population
- Service area size

Consideration was also given to potential peers' geography and modes of service operated, as well as recommendations made by Tulsa Transit staff. Fourteen peer cities and their respective transit agencies were identified for comparison. After a thorough comparison, the screening process yielded a selection of eight peer cities and their respective transit agencies for the final peer agency comparison. The cities and respective agencies emerging from the screening are listed below and the cities are shown in Figure 1.1.

- Akron, OH: Metro Regional Transit Authority (Metro)
- Baton Rouge, LA: Capital Area Transit System (CATS)
- Colorado Springs, CO: Mountain Metropolitan Transit (MMT)
- Dayton, OH: Greater Dayton Regional Transit Authority (RTA)
- Grand Rapids, MI: Interurban Transit Partnership (The Rapid)
- Oklahoma City, OK: Central Oklahoma Transportation and Parking Authority (COTPA)
- Sarasota, FL: Sarasota County Area Transit (SCAT)
- Tucson, AZ: SunTran

Figure 1.1: Peer Agency locations

The cities that were removed from the list because of dissimilar population characteristics or operated more vehicle modes than the other peers included:

- Birmingham, AL
- Little Rock, AR
- Des Moines, IA
- Omaha, NE
- Albuquerque, NM
- Toledo, OH

Figure 1.2 illustrates the scale of the service areas of each of the peer cities. Akron's Metro covers the largest area at 420 square miles due to its express service to Cleveland approximately 40 miles to the north. NTD's reporting system allows agencies to report areas of service, so portions of downtown Cleveland may contribute to the total service area. Grand Rapid's The Rapid covers the smallest area at 185 square miles. Tulsa Transit covers an area just slightly larger than the average service area.

Figure 1.2: Service area comparison for peer cities

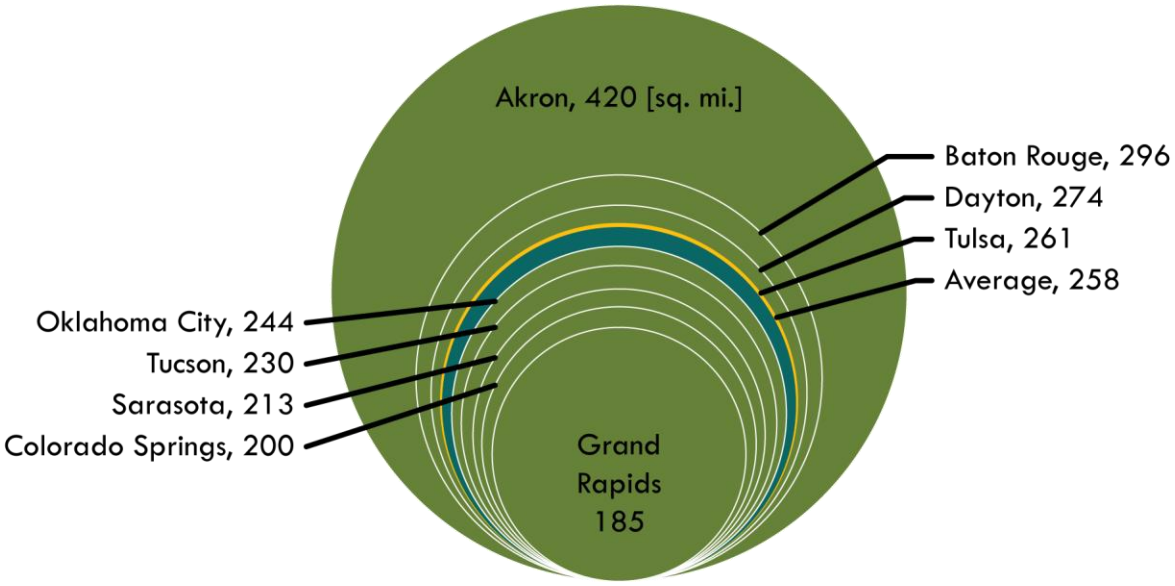


Table 1-1 summarizes urbanized area population, service area population, square mileage of the service area, and population density for the peer transit systems selected for analysis. Tulsa has approximately the same population density as the peer average of 1,962 persons per square mile. Although Metro has a larger service area, Akron's population density falls below Tulsa's by nearly 34% and is in fact the lowest of the peers; Oklahoma City has a 36% higher density. Metro has the highest service area coverage of just over 95%, followed by Colorado Springs's MMT at 94%. Tulsa Transit covers almost 92% of its urbanized area, 6% higher than the peer average, while Sarasota covers the least at 71%. Service area populations have about a 25% range from Tulsa Transit's service area population of 512,645 people. Oklahoma City has both the largest urbanized area and service area population while Colorado Springs has the smallest urbanized area population and Sarasota is ranked last for service area population.

In addition to population data, Table 1.2 compares the operational data (such as revenue miles and hours, fleet size and ridership) of the peer agencies to Tulsa Transit. Table 1.3 lists financial information such as operating expense, sources of income, and fare data.

Table 1.4 lists the service characteristics of each agency that were compared in this analysis. Analysis was organized into four additional major categories: service in terms of service area population, service effectiveness and service efficiency of each agency, and cost effectiveness. Each of these categories of analysis had a number of cross-analysis measures included within them, such as operating cost per revenue mile or local subsidy per rider. Fixed route service was analyzed separately from demand responsive service for each agency and results are profiled and compared for each agency. Locations of these individual analyses are also listed in Table 1.4. A summary of findings of key indicators are presented in the next section.

Table 1.1: Peer agency listing with comparative data

Service Area						
City	Transit Agency Name	UZA Population	Service Area Population	Service Area [sq. mi.]	Population Density [pers./sq. mi.]	Svc. Area Coverage
Akron, OH	Metro Regional Transit Authority (Metro)	570,215	542,899	420	1,293	95.2%
Baton Rouge, LA	Capital Area Transit System (CATS)	479,019	430,317	296	1,454	89.8%
Colorado Springs, CO	Mountain Metropolitan Transit (MMT)	466,122	438,000	200	2,190	94.0%
Dayton, OH	Greater Dayton Regional Transit Authority (RTA)	703,444	559,062	274	2,040	79.5%
Grand Rapids, MI	Interurban Transit Partnership (The Rapid)	539,080	482,740	185	2,609	89.5%
Oklahoma City, OK	Central Oklahoma Transportation and Parking Authority (METRO Transit)	747,003	650,221	244	2,665	87.0%
Sarasota, FL	Sarasota County Area Transit (SCAT)	559,229	398,854	213	1,873	71.3%
Tucson, AZ	Sun Tran	720,425	544,000	230	2,365	75.5%
	Peer Average	**598,067**	**505,762**	**258**	**1,962**	**86.6%**
TULSA, OK	**TULSA TRANSIT**	**558,329**	**512,645**	**261**	**1,964**	**91.8%**
	Difference from Peer Average	**-6.6%**	**1.4%**	**1.3%**	**0.1%**	**6.0%**

Table 1.2: Operating characteristics data

Service Area					Operating Data				
City	Transit Agency Name	Service Area Population	Service Area [sq. mi.]	Pop. Density [pers./sq. mi.]	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Total Fleet (VAMS)	Peak Fleet (VOMS)	Ridership (Annual UPT)
Akron, OH	Metro	542,899	420	1,293	4,645,909	344,139	275	212	5,023,042
Baton Rouge, LA	CATS	430,317	296	1,454	2,849,793	198,515	94	67	3,799,779
Colorado Springs, CO	MMT	438,000	200	2,190	5,267,538	308,170	217	159	3,436,385
Dayton, OH	RTA	559,062	274	2,040	8,678,679	592,397	245	207	10,390,103
Grand Rapids, MI	The Rapid	482,740	185	2,609	7,466,633	548,923	281	238	9,336,708
Oklahoma City, OK	METRO Transit	650,221	244	2,665	3,333,554	204,342	111	74	2,743,675
Sarasota, FL	SCAT	398,854	213	1,873	4,037,912	282,229	132	100	2,729,968
Tucson, AZ	Sun Tran	544,000	230	2,365	10,969,765	846,154	327	269	22,044,269
Peer Average		**505,762**	**258**	**1,962**	**5,906,223**	**415,609**	**210**	**166**	**7,437,991**
TULSA, OK	**TULSA TRANSIT**	**512,645**	**261**	**1,964**	**4,769,938**	**289,044**	**157**	**122**	**2,920,946**
Difference from Peer Average		**1.4%**	**1.3%**	**0.1%**	**-19.2%**	**-30.5%**	**-25.3%**	**-26.4%**	**-60.7%**

Table 1.3: Financial characteristics data

Service Area		Financial Data						
City	Transit Agency Name	Operating Expense	Local Funds	State Funds	Federal Assistance	Other Funds	Fare Revenues	Fare Revenue (% of Budget)
Akron, OH	Metro	$ 33,811,097	$ 24,738,890	$ 1,003,295	$ 3,655,202	$ 620,875	$ 3,832,667	11%
Baton Rouge, LA	CATS	$ 13,792,380	$ 5,183,137	$ 808,912	$ 4,701,563	$ 158,027	$ 3,226,893	23%
Colorado Springs, CO	MMT	$ 22,431,263	$ 13,063,199	$ 269,040	$ 4,758,467	$ 186,059	$ 4,154,498	19%
Dayton, OH	RTA	$ 55,884,908	$ 28,779,070	$ 388,141	$16,491,391	$1,337,659	$ 8,888,647	16%
Grand Rapids, MI	The Rapid	$ 35,227,655	$ 16,777,328	$10,235,988	$ 2,528,292	$ 357,548	$ 5,343,687	15%
Oklahoma City, OK	METRO Transit	$ 21,299,527	$ 11,018,581	$ 863,087	$ 7,142,537	$ 217,308	$ 2,118,497	10%
Sarasota, FL	SCAT	$ 18,778,856	$ 14,880,597	$ 1,537,161	$ 704,787	$ 184,984	$ 1,471,327	8%
Tucson, AZ	Sun Tran	$ 61,968,610	$ 41,421,415	$ 3,273,738	$ 6,042,439	$ 461,599	$ 10,769,419	17%
	Peer Average	**$32,899,287**	**$19,482,777**	**$ 2,297,420**	**$ 5,753,085**	**$ 440,507**	**$ 4,975,704**	**15.1%**
TULSA, OK	**TULSA TRANSIT**	**$17,976,402**	**$ 8,680,664**	**$ 993,435**	**$ 4,933,724**	**$ 619,607**	**$ 2,541,089**	**14.1%**
Difference from Peer Average		**-45.4%**	**-55.4%**	**-56.8%**	**-14.2%**	**40.7%**	**-48.9%**	**-6.5%**

Table 1.4: Characteristics and Measures that were analyzed

Route Characteristics	Service Per Capita	Service Effectiveness	Service Efficiency	Cost Effectiveness
(FR): Pgs. 15 - 20 *(DR): Pgs. 32 - 37*	*(FR): Pgs. 21 - 23* *(DR): 38 - 40*	*(FR): Pgs. 23, 24* *(DR): 40, 41*	*(FR): Pgs. 25, 26* *(DR): 42, 43*	*(FR): Pgs. 26 - 29* *(DR): Pgs. 43 - 45*
Ridership Revenue Hours Revenue Miles VAMS & VOMS Operating Budget Local Subsidy Farebox Ratio Base Fare	Trips Per Capita Revenue Hours Per Capita Operating Cost Per Capita Local Subsidy Per Capita	Riders Per Revenue Hour Riders Per Revenue Mile	Operating Cost Per Revenue Hour Operating Cost Per Revenue Mile	Operating Cost Per Passenger Trip Operating Cost Per Passenger Mile Local Subsidy Per Rider Average Fare Per Rider

1.3 Key Findings

The findings that result from this analysis show that Tulsa Transit has a considerably lower level of service and investment in its fixed route (FR) system as compared to its peers, but a roughly average level of demand responsive (DR) service. As a result, total FR riders and riders per unit of service (hours or miles) are significantly lower for Tulsa Transit than the peer average. On the bright side, costs per unit of service and per rider are notably better than peers, for both FR and DR services. This indicates that despite operating far less FR service than its peers, Tulsa Transit has been able to maintain a cost efficient operation, which bodes well for the economics of transit expansion.

Figure 1.3 compares Tulsa Transit's performance to the peer average for some of the key measures analyzed for the FR system. Trends above the peer average are green while trends below are red. The review determined that, in comparison to the peer average for FR service, Tulsa Transit:

- ranks in the bottom third for level of service operated overall and per capita, with service indicators (such as hours, miles, or vehicles operated) typically 30-40% below average
- ranks in the bottom third for operating dollars spent and local subsidy provided overall and per capita – with indicators typically more than 50% below average, but is only slightly below average in regards to farebox recovery
- ranks in the bottom third for overall riders and riders per unit of service (hours and miles), with overall ridership more than 60% below average, and riders per unit of service 30-40% below average
- ranks in the top third for cost per revenue mile and revenue hour with indicators 20-30% lower than average, but ranks near average with other cost indicators such as subsidy per rider

Figure 1.3: Tulsa Transit FR service indicators compared to peer average

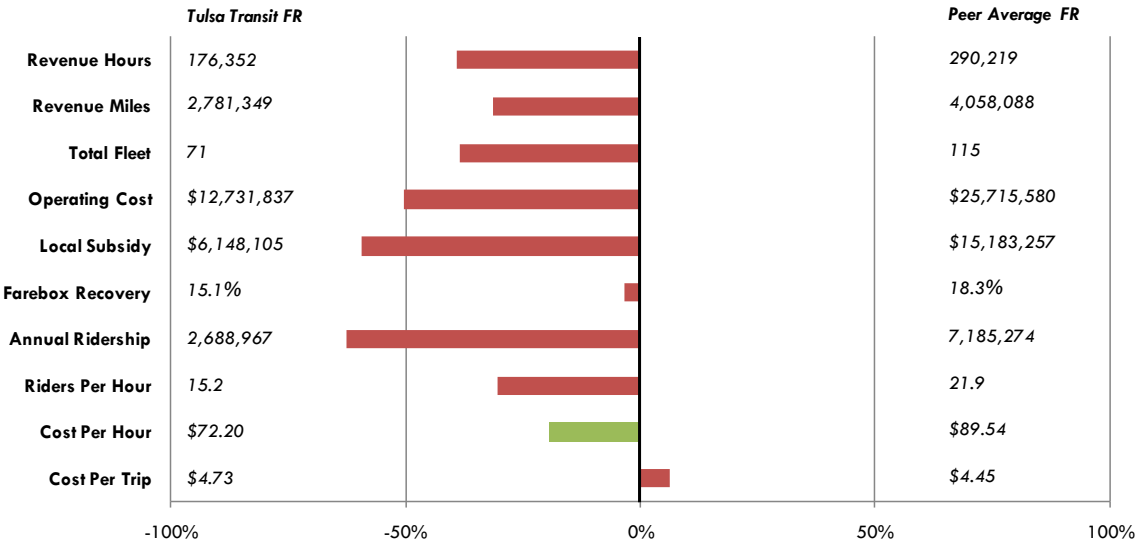
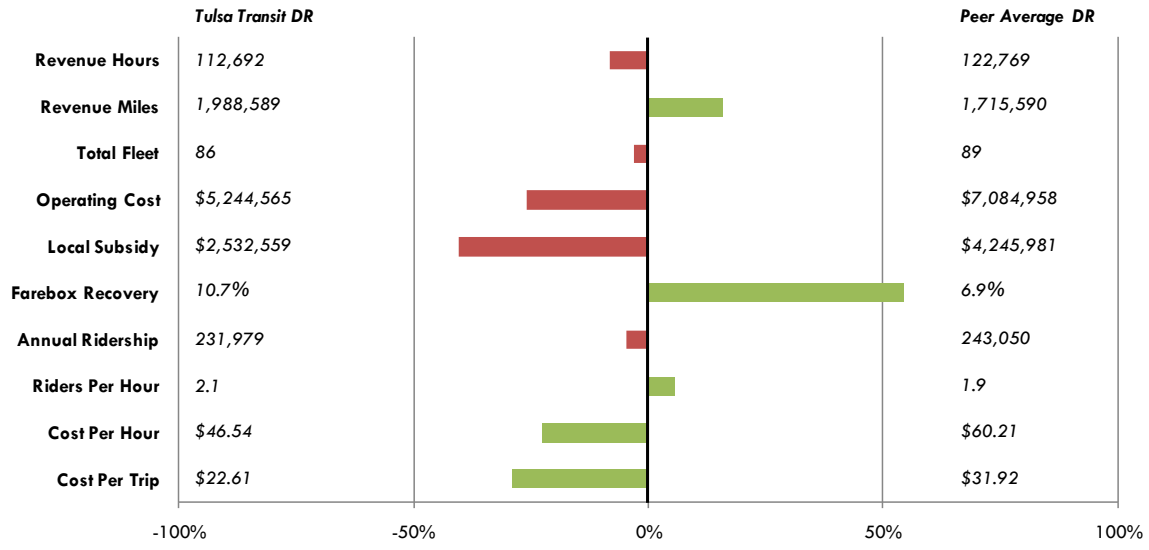


Figure 1.4 shows how Tulsa Transit's DR service stacks up to the same key performance measures. The review found the service had higher than average revenue miles, farebox recovery and riders per hour as well as lower than average operating cost per hour and trip. However, revenue hours were below average and major financing were well below average. Total fleet was also slightly smaller than the peer average.

Figure 1.4: Tulsa Transit DR service indicators compared to peer average

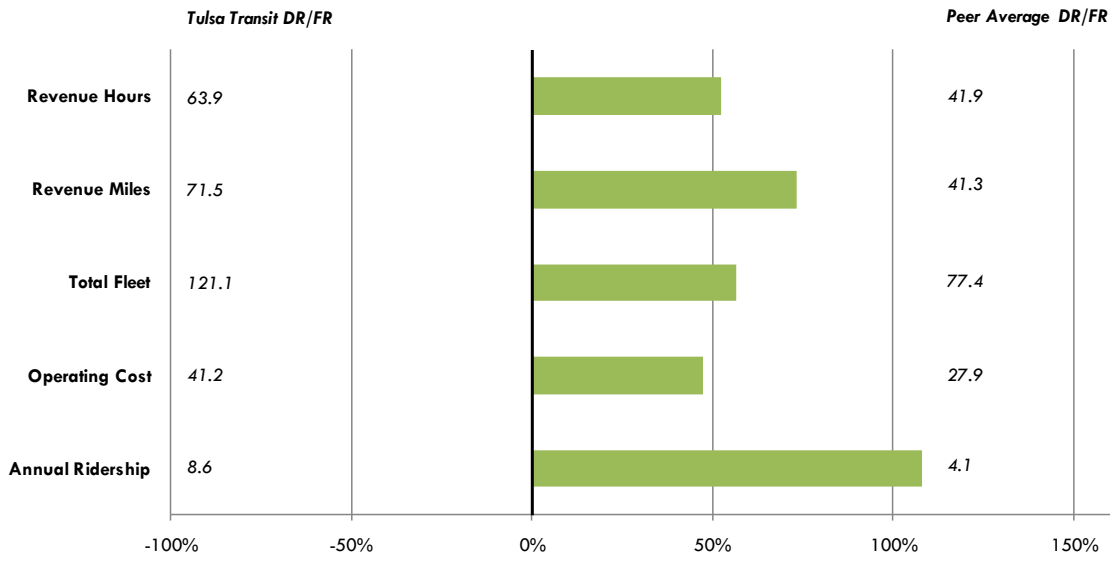


Meeting the average level of demand responsive measures despite limitations in overall service spans (no Sunday service, and limited evenings) indicates a complementary paratransit service that is quite rich. It could point to policies or service levels that encourage high demand responsive ridership and/or reflect the reality that demand responsive behavior is driven by a community's need, unlike fixed route ridership which is driven more by service levels.

To gain a fuller understanding of how the two service modes were related for Tulsa Transit and its peers, the amount of DR service compared to the amount of FR service provided by an agency was queried to determine how robust the DR service is in each community. Figure 1.5 shows the amount of Tulsa Transit's DR service, Lift Program, that was provided for every 100 units of Tulsa Transit's FR service. For example, for every 100 revenue hours of FR service Tulsa Transit provides, it is also providing 63.9 revenue hours of DR service (compared to the peer average, which is 42.3 DR hours for every 100 FR hours). Likewise, for every $100 spent on FR service, Tula Transit's DR service would spend $41.2, 47% higher than the peer average.

In nearly every category Lift Program appears to be well above average in terms of the DR service provided as a function of FR investment. For instance, revenue miles are 73% higher than average, and annual ridership for Lift Program is 108% higher than average.

Figure 1.5: Tulsa Transit DR service indicators (per 100 FR units) compared to peer average



The following three sections describe in further detail the findings of the peer agency analysis and separately analyze the fixed route and demand responsive portions of service in addition to the amount of demand responsive service compared to the amount of fixed route service.

2 Fixed Route Service

This chapter discusses findings of a comparison of the fixed route portion of service for each of the transit agencies. Fixed route service is the core operation of nearly every transit agency, making up the bulk of service provided, costs expended, and riders served. For this comparison fixed route service is that which has a regular service and does not deviate from a specified route. All peer agencies had fixed route service comprised of motorbus service. Colorado Springs and Grand Rapids each additionally have regular vanpool operations; however, these services were excluded from the analysis for purposes of consistency.

The following sections discuss the basic operational characteristics of the agencies, determine characteristics on a per capita basis, analyze service effectiveness and efficiency, and finally discuss cost effectiveness of the system. Table 2.1 lists some basic information about each transit agency's fixed route service, Tulsa Transit's service and the differences from the peer average.

Some key findings for the fixed route portion of service for Tulsa Transit are:

- Tulsa Transit has a significantly lower ridership compared to its peers even though its service area population and coverage is very similar
- Tulsa Transit is near last in both revenue hours and revenue miles operated
- All but one peer has both a larger total fleet and peak fleet (both VAMS and VOMS)
- Tulsa Transit has a significantly lower operating budget compared to its peers in addition to a significantly lower local subsidy dedicated to fixed route service
- In terms of fare, Tulsa Transit ranks about average with its farebox recovery and base fare charged
- Tulsa Transit ranks near or at last in every per capita measure, including ridership, revenue hours, operating cost, and subsidy per capita
- Riders per revenue mile and hour are both very low for Tulsa Transit
- Its operating cost per revenue hour and revenue mile are both lower compared to the peer average
- Tulsa Transit's operating cost per passenger trip is $4.73, and its cost per passenger mile is slightly below the peer average
- Estimated local subsidy per rider is slightly below the peer average, while average fare per rider is slightly above average

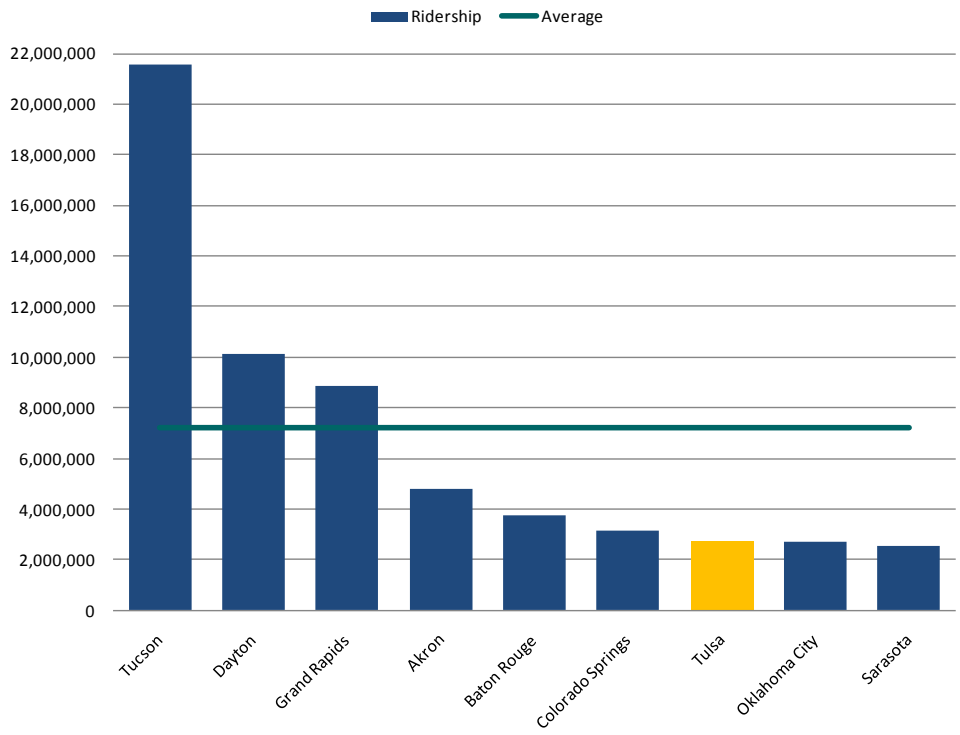
Table 2.1: Fixed route service information

Agency Information		Fixed Route Service											
City	Transit Agency Name	Operating Expense	Estimated Local Subsidy[3]	Fare Revenues	Passenger Miles	Annual Vehicle Revenue Miles	Ridership (Annual UPT)	Annual Vehicle Revenue Hours	Total Fleet (VAMS)	Peak Fleet (VOMS)	Farebox Recovery	Base Fare	Express Fare
Akron, OH	Metro	$ 28,078,346	$ 20,544,353	$ 3,255,262	19,519,863	3,020,176	4,792,127	240,854	125	107	13.8%	$ 1.25	$ 5.00
Baton Rouge, LA	CATS	$ 11,996,388	$ 4,508,208	$ 3,161,052	16,147,091	2,235,772	3,729,315	154,496	73	52	38.7%	$ 1.75	n/a
Colorado Springs, CO	MMT	$ 17,277,840	$ 10,062,022	$ 3,436,363	19,931,997	3,168,664	3,152,990	176,390	96	63	17.7%	$ 1.75	$5, $7, $11
Dayton, OH	RTA	$ 42,360,235	$ 21,814,265	$ 8,161,786	40,647,250	6,301,403	10,130,959	429,311	150	125	21.6%	$ 1.75	$ 1.75
Grand Rapids, MI	The Rapid	$ 26,302,105	$ 12,526,495	$ 4,283,127	32,891,699	4,458,613	8,865,687	366,246	125	104	15.3%	$ 1.50	n/a
Oklahoma City, OK	METRO Transit	$ 18,370,255	$ 9,503,222	$ 1,900,531	14,914,750	2,786,541	2,684,087	172,567	87	54	10.7%	$ 1.50	$ 2.25
Sarasota, FL	SCAT	$ 12,151,351	$ 9,628,880	$ 936,600	14,187,172	2,786,480	2,551,650	189,150	61	44	8.2%	$ 0.75	n/a
Tucson, AZ	Sun Tran	$ 49,188,121	$ 32,878,607	$ 10,208,497	82,650,154	7,707,057	21,575,374	592,737	206	170	20.3%	$ 1.35	$ 1.50
	Peer Average	**$ 25,715,580**	**$ 15,183,257**	**$ 4,417,902**	**30,111,247**	**4,058,088**	**7,185,274**	**290,219**	**115**	**90**	**18.3%**	**$ 1.45**	**$ 3.50**
Tulsa, OK	**Tulsa Transit**	**$ 12,731,837**	**$ 6,148,105**	**$ 1,980,227**	**15,617,339**	**2,781,349**	**2,688,967**	**176,352**	**71**	**57**	**15.1%**	**$ 1.50**	**$ 1.75**
Difference from Screened Peer Average		**-50.5%**	**-59.5%**	**-55.2%**	**-48.1%**	**-31.5%**	**-62.6%**	**-39.2%**	**-38.5%**	**-36.6%**	**-17.6%**	**3.4%**	**-50.0%**

2.1 Fixed route characteristics

As shown below in Figure 2.1, ridership on peer fixed route systems varies from Tucson's 21.6 million passenger trips to Sarasota's 2.6 million trips. Tulsa ranks in the bottom third of peer ridership at 2.7 million passenger trips, 63% lower than the peer average of 7.1 million trips. Because Tucson has such high ridership, the average is pulled strongly upward (for instance, without Tucson, the average is 4.8 million trips); however, even excluding Tucson, Tulsa Transit ridership would only be about half of the peer average.

Figure 2.1: Fixed route ridership



Tucson again ranks at the top of fixed route revenue hours with nearly 600,000 revenue hours while Baton Rouge ranks last with a little over 150,000 revenue hours. As shown in Figure 2.2, Tulsa Transit reported over 176,000 revenue hours, 40% less than the average of 290,000 revenue hours, again ranking in the bottom third of its peers.

Likewise, Figure 2.3 shows the comparison of fixed route revenue hours for Tulsa and its peers. At 2.8 million revenue miles, Tulsa Transit almost ranks last, just above Baton Rouge which is lowest with 2.2 million revenue miles. Tucson again ranks first with over 7.7 million miles of revenue service. Tulsa Transit ran 32% fewer revenue miles than the average of 4 million revenue miles.

Figure 2.2: Fixed route revenue hours

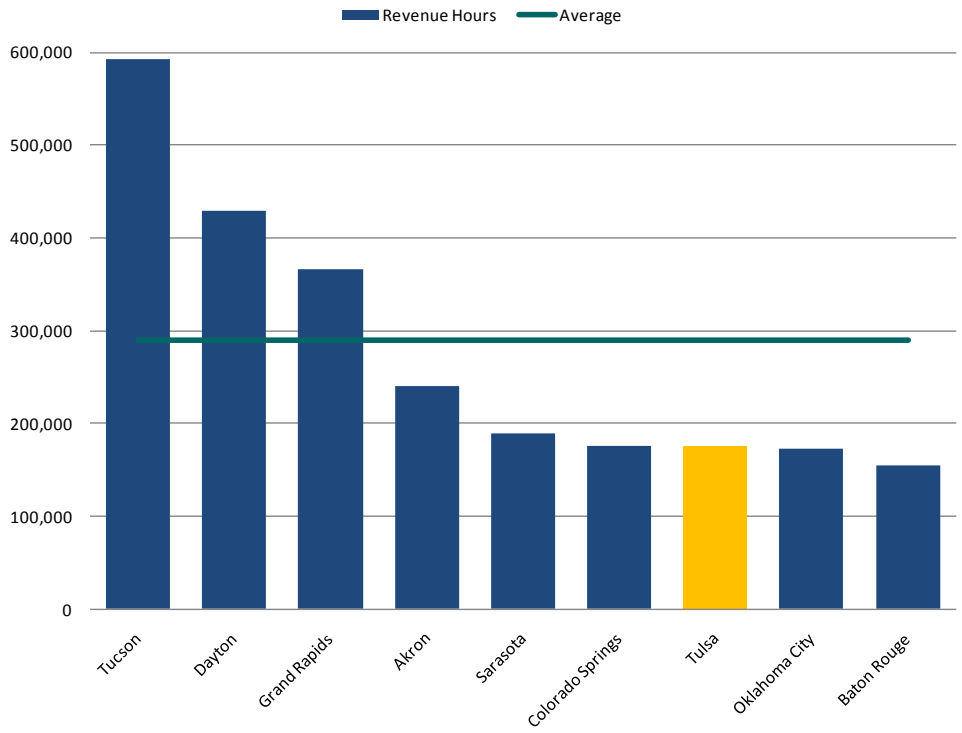
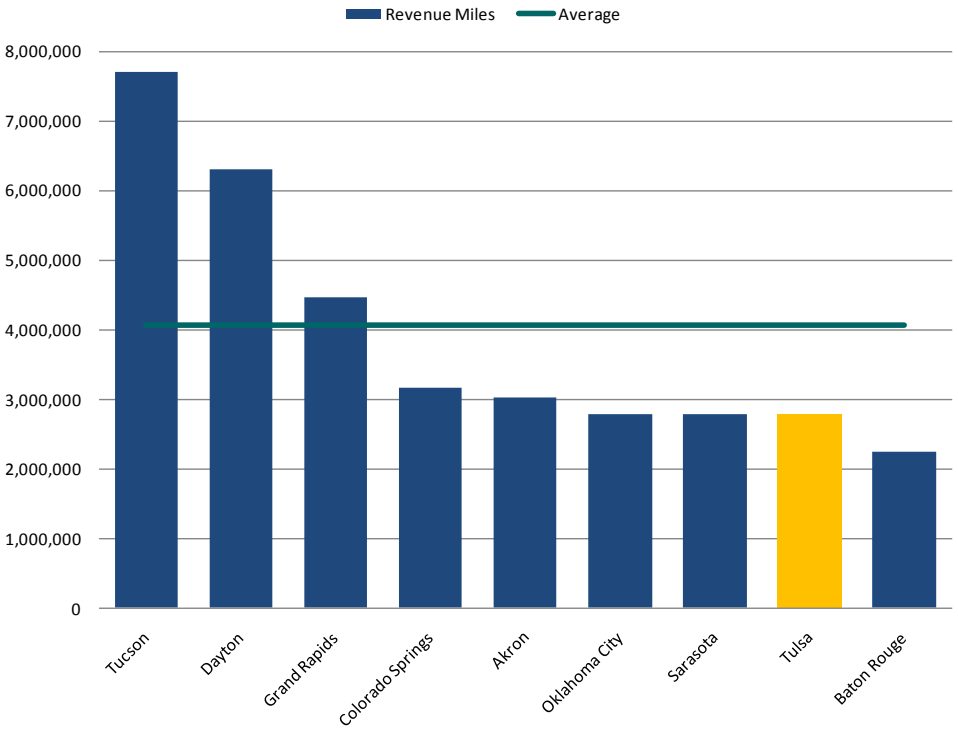


Figure 2.3: Fixed route revenue miles



Vehicles Available for Maximum Service (VAMS) and Vehicles Operated in Maximum Service (VOMS) are two metrics of fleet size which measure total number of vehicles and vehicles used during peak service periods, respectively. As Figure 2.4 illustrates, Tucson has the largest total fixed route fleet with 206 vehicles while Sarasota has the smallest total fleet of 61 fixed route vehicles. Tulsa has 10 more than Sarasota but falls 38% below the average of 115 vehicles, ranking second to last. The same characteristic occurs for VOMS: Tucson has the most while Sarasota has the fewest. Tulsa Transit has 42% fewer peak vehicles than the average of 90 vehicles.

Figure 2.4: VAMS & VOMS for fixed route service

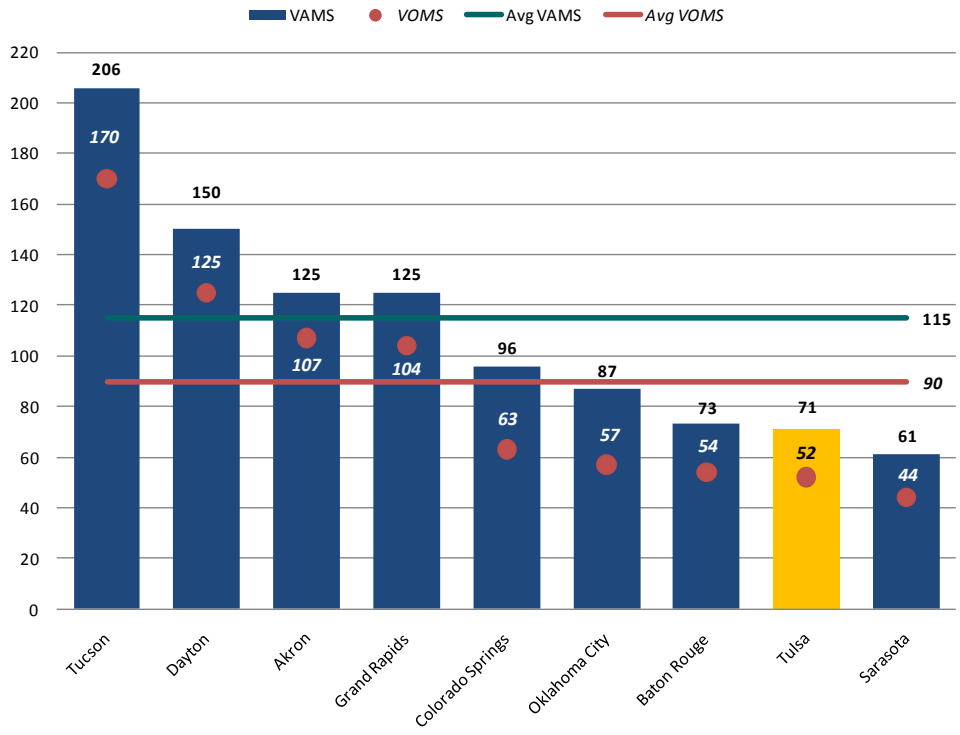
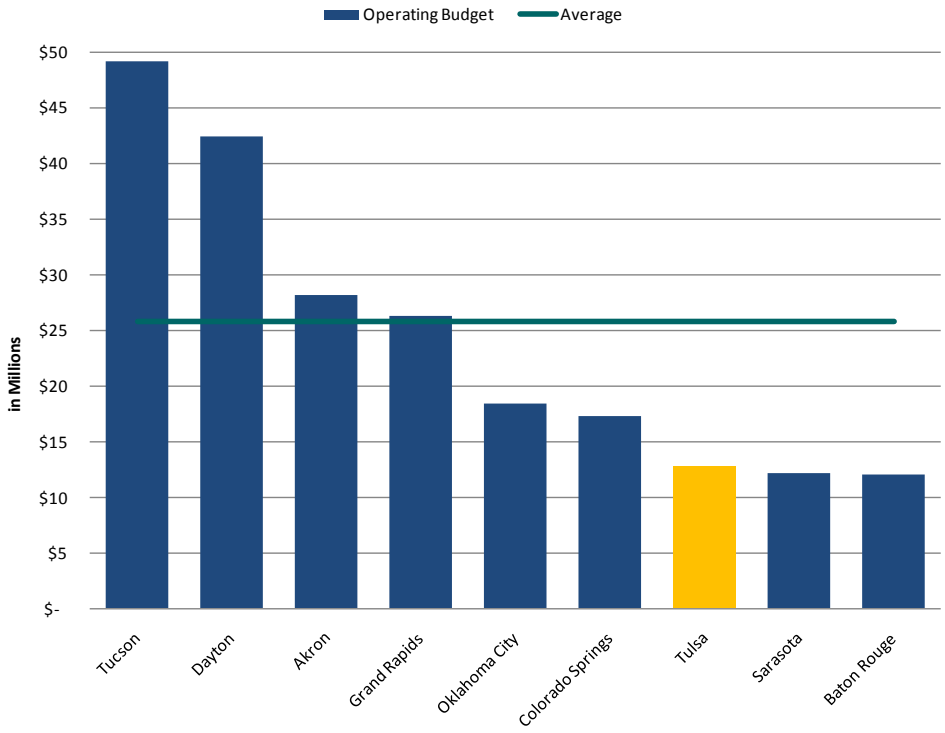


Figure 2.5 depicts the peer comparison of operating budget apportioned to fixed route service. Operating budgets range from Tucson's nearly $50 million budget to Baton Rouge's $12 million expenditure. Tulsa Transit ranks 51% below the average of $25.7 million and is below median with its $12.7 million operating budget.

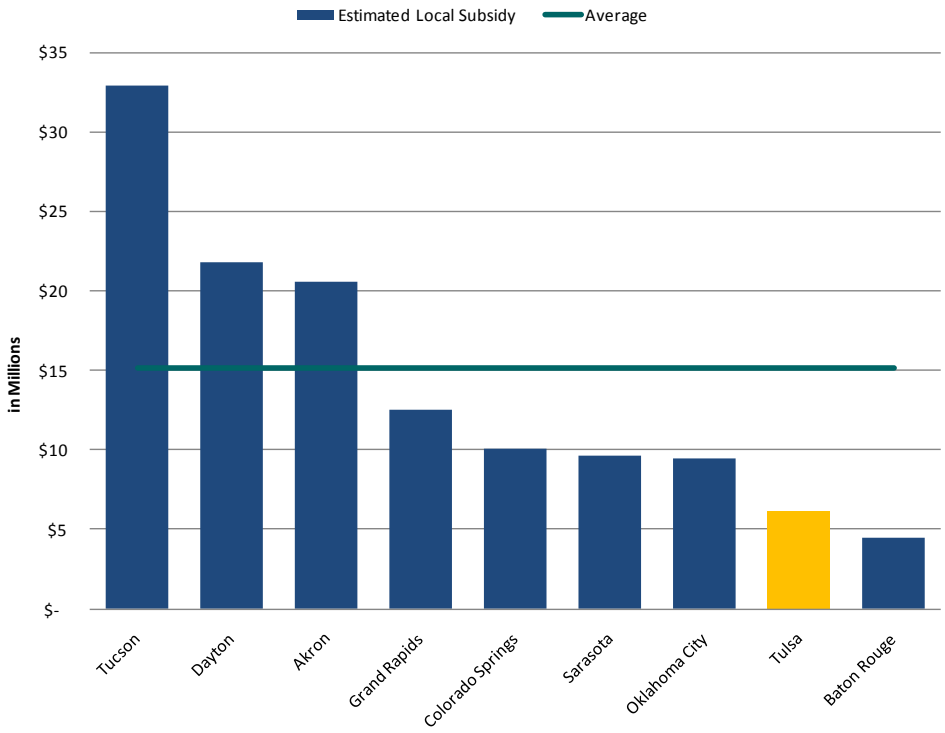
Figure 2.5: Fixed route operating budget



Transit agencies receive their operating funds from a variety of sources, chief among them federal assistance and funds derived at the state and local level. Federal and state operational assistance is often set through formulas and change little except in response to service area population, level of service provided, or local funding; but local subsidization can vary greatly from agency to agency and is a good bellwether for how supportive the local government and populace is towards transit. Local subsidies apportioned specifically for fixed route service is not a reporting measure collected by NTD. However, total local subsidy is collected. For this analysis, local subsidy dedicated to fixed route service was estimated by determining the percentage of total operating budget fixed route service utilizes, and applying that percentage to the total local subsidy. For instance, Tulsa Transit's fixed route operations utilized about 71% of the total operating budget, therefore the local subsidy dedicated to fixed route operations is $6.1 million.

Shown below in Figure 2.6, Tulsa Transit's local subsidy dedicated to fixed route service is 60% less than the peer average of $15.2 million. Tucson has a nearly $33 million portion of local subsidy just for its fixed route service, more than twice Tulsa Transit's total operating budget.

Figure 2.6: Estimated local subsidy for fixed route service



Farebox ratio (sometimes referred to as the farebox recovery ratio, or FRR) is the amount of operations budget funded by the collection of fares. Figure 2.7 shows the FRR for fixed route service only of Tulsa Transit and its peer agencies. Tulsa ranks near the middle of its peers with an average FRR of just over 15%, a little more than 3% less than the average of 18.3%. Baton Rouge has the highest FRR of nearly 39% while Sarasota ranks last at 8.2%.

Figure 2.8 shows that the base fare charged to riders is similar across peer agencies. By charging $1.50 per trip, Tulsa Transit ranks in the middle along with Grand Rapids and Oklahoma City. Baton Rouge, Colorado Springs and Dayton each charge a quarter more while Tucson, Akron and Sarasota each charge $1.35, $1.25 and 75 cents, respectively.

Figure 2.7: Fixed route farebox ratio

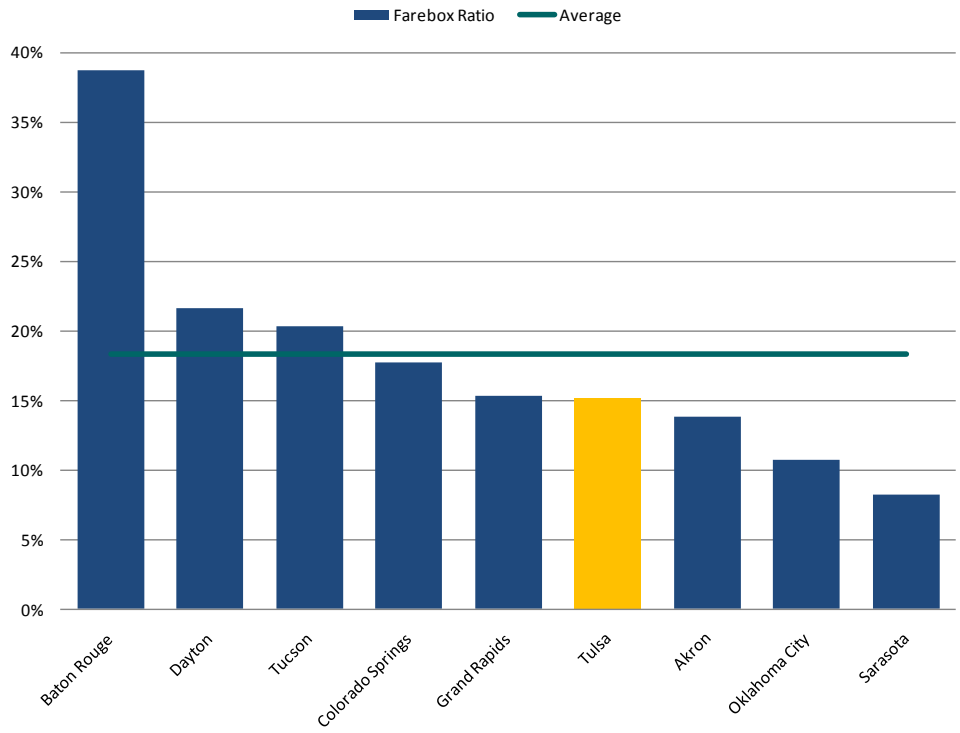
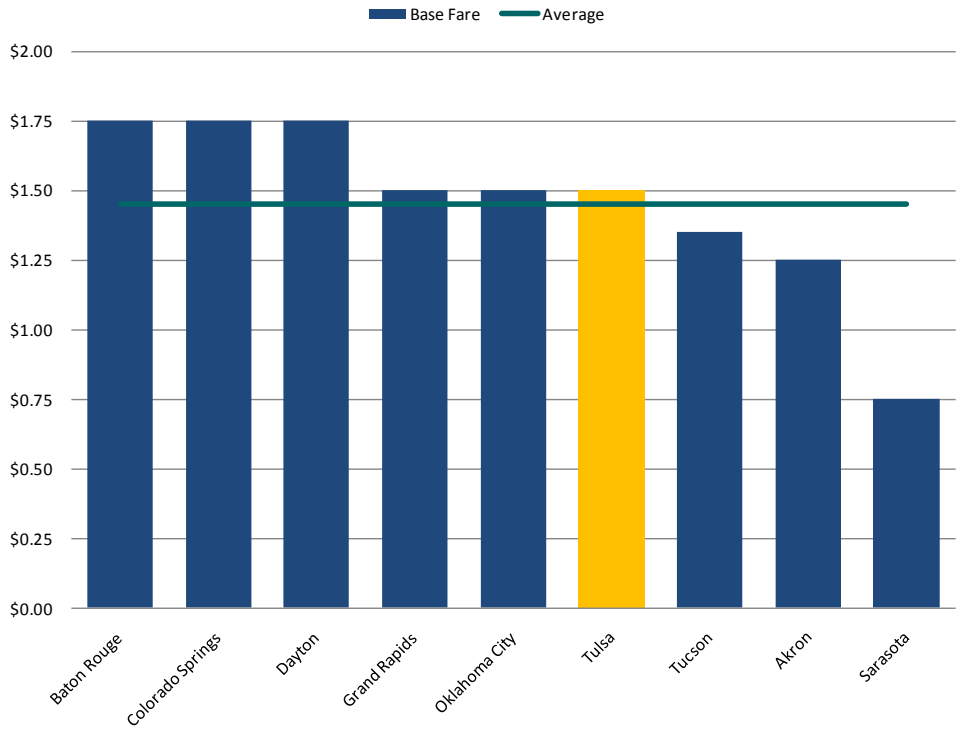


Figure 2.8: Base fare for fixed route service



2.2 Fixed route service per capita

One way to normalize an assessment of an agency's level of service versus its peers is by comparing key measures as a function of the service area population. While in general peers were selected based in part on having comparable populations and service areas, it is important to understand where Tulsa Transit continues to rank below most of its peers even when analyzing statistics on a per-capita basis.

Fixed route trips per capita was estimated using total transit ridership and service area population of each city. Tulsa Transit ranks near last in the number of transit trips made per capita as shown in Figure 2.9. At just over 5 trips per capita, Tulsa Transit falls more than 63% below the average of 14 trips per capita. Tucson saw the highest trips per capita in 2009 with nearly 40 trips per capita.

Figure 2.9: Trips per capita

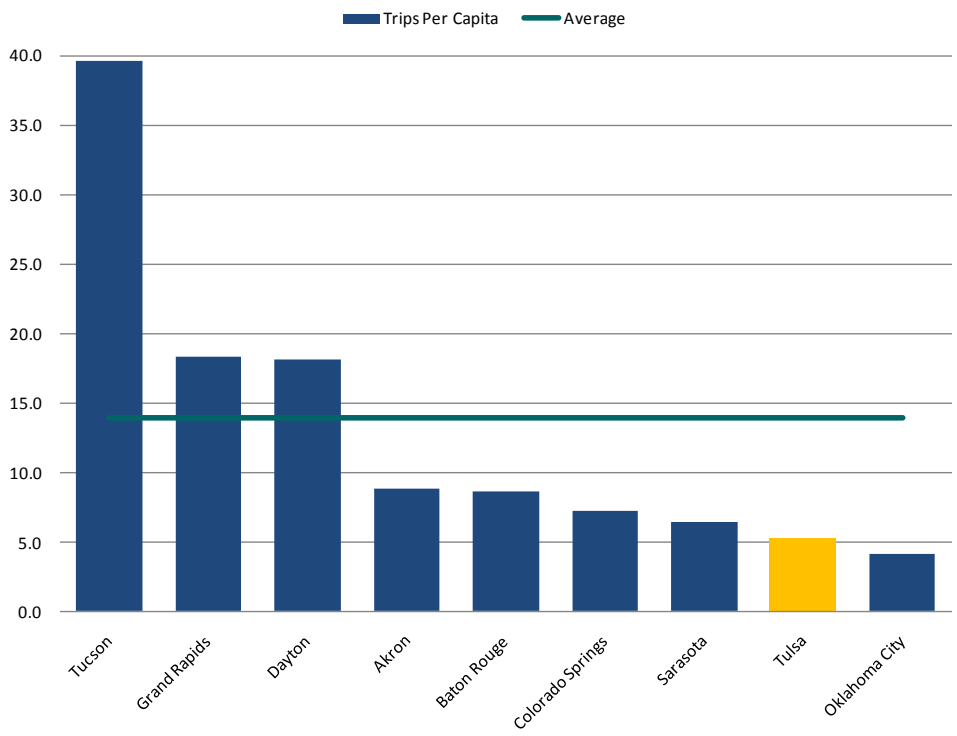


Figure 2.10 again shows that Tulsa Transit ranks near the last in terms of revenue hours per capita. At 0.34 hours, Tulsa Transit is 40% less than the average of nearly 0.6 hours per capita, and 68% below Tucson with 1.09 hours per capita. Oklahoma City was lowest with 0.27 hours per capita. Dayton and Grand Rapids had similar above average values around 0.77 hours. Baton Rouge was only slightly above Tulsa with 0.36 hours.

Operating cost per capita, shown below in Figure 2.11, indicates the operating burden shared among the service area population. Here, Tulsa Transit ranks lowest with a $24.84 cost per person, 51% below the average of nearly $51 per person. Tucson had the highest with $90.42.

Figure 2.10: Revenue hours per capita

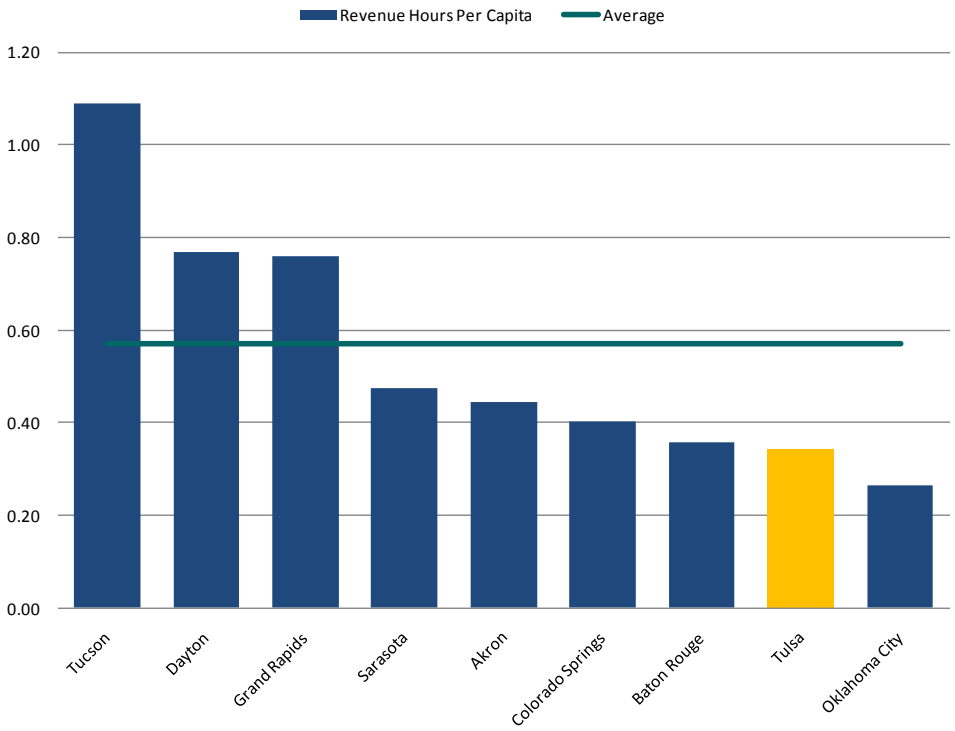
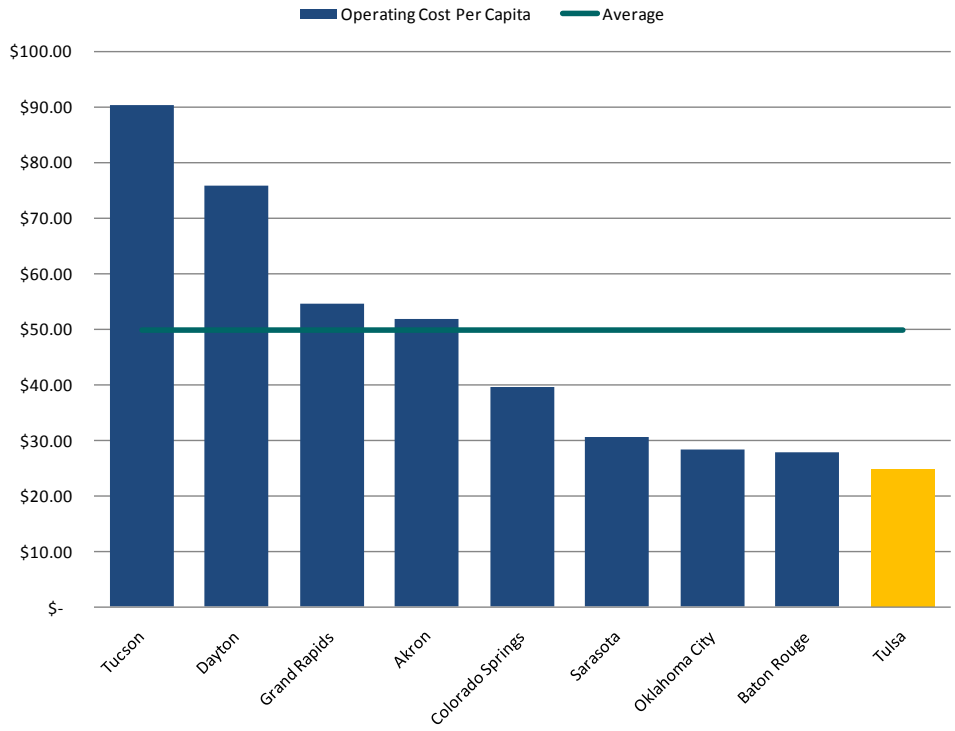
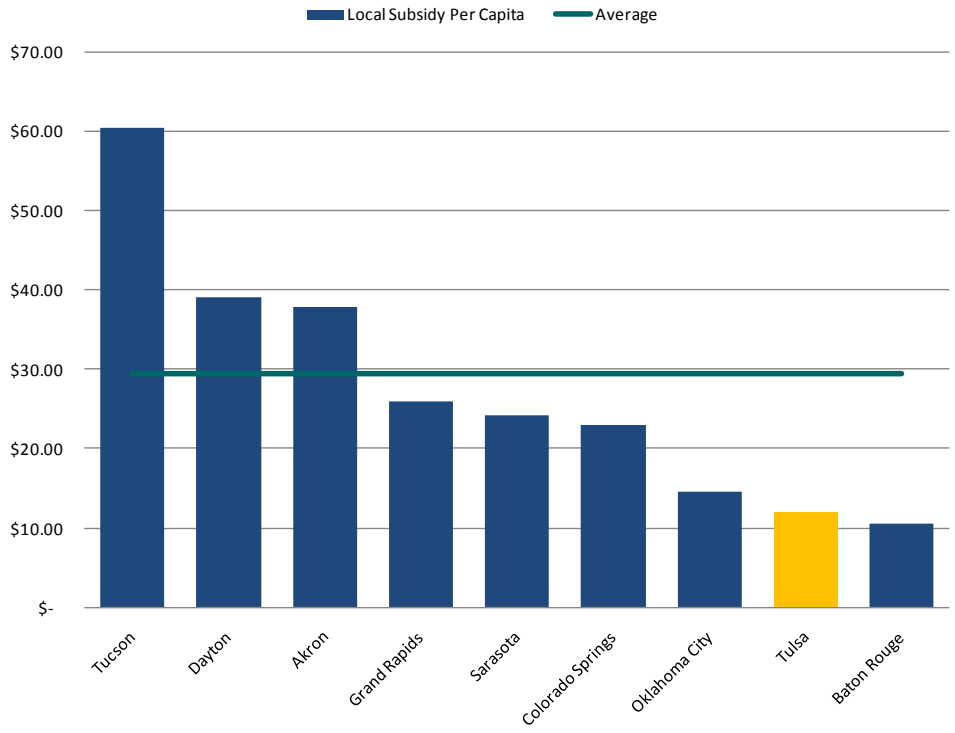


Figure 2.11: Operating cost per capita



Similarly, in terms of local subsidy per capita, shown in Figure 2.12, Tulsa has a very low rate of $12, 60% less than the average of $29.43. Tucson and Dayton had the highest cost per capita, while Oklahoma City and Baton Rouge (in addition to Tulsa) spent the least. Local subsidy per rider was highest in Tucson and lowest in Baton Rouge. Both Grand Rapids and Akron had similar subsidies per capita near $40.

Figure 2.12: Local subsidy per capita



2.3 Fixed route service effectiveness

Service effectiveness is a measure of how well the transit agency is providing its service, specifically measuring the throughput of its purpose, which is to move people. It is commonly measured as the number of riders for every hour or mile of revenue service the agency provides.

At 15 riders per revenue hour, Tulsa Transit ranks 30% below the average of 22 riders per hour, ranking only above Sarasota at less than 14 riders per hour. Tucson moves more than 36 riders per revenue hour. Figure 2.13 provides the number of riders per revenue hour for each transit agency.

Likewise, Figure 2.14 below shows the number of riders per revenue mile for each transit agency. With one rider per revenue mile, Tulsa Transit, along with Colorado Springs, Oklahoma City, and Sarasota, ranks 38% below the average of 1.6 riders per revenue mile. Tucson ranked the highest with 2.8 riders per revenue mile; Grand Rapids was also above the average with 2 riders per revenue mile. Baton Rouge, Dayton and Akron were each slightly below average with around 1.6 riders per revenue mile.

Figure 2.13: Riders per revenue hour

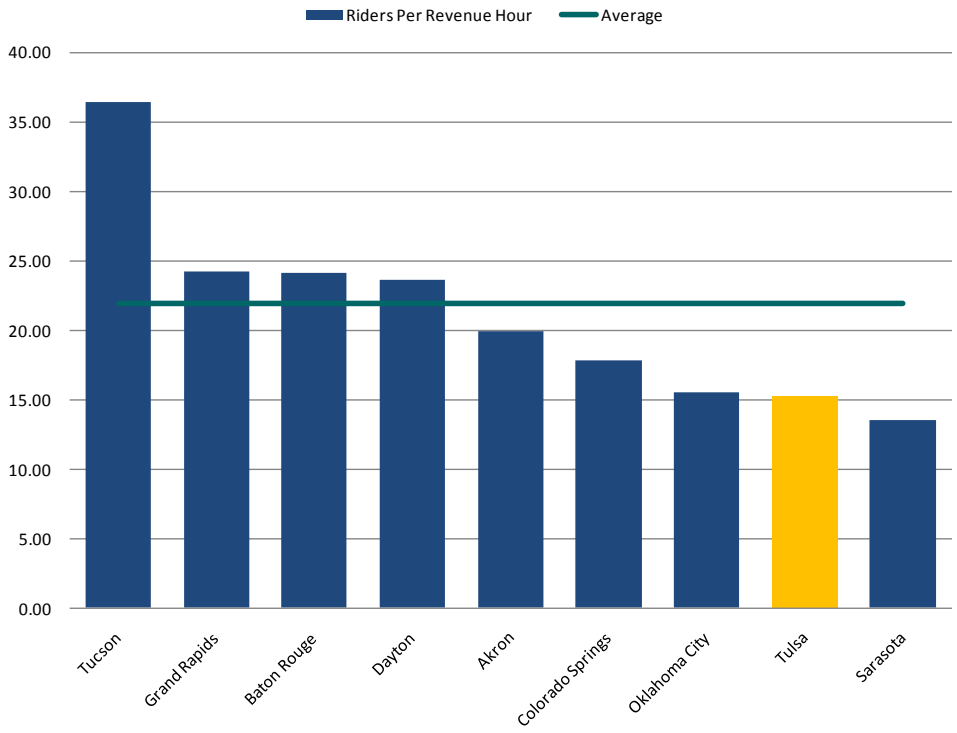
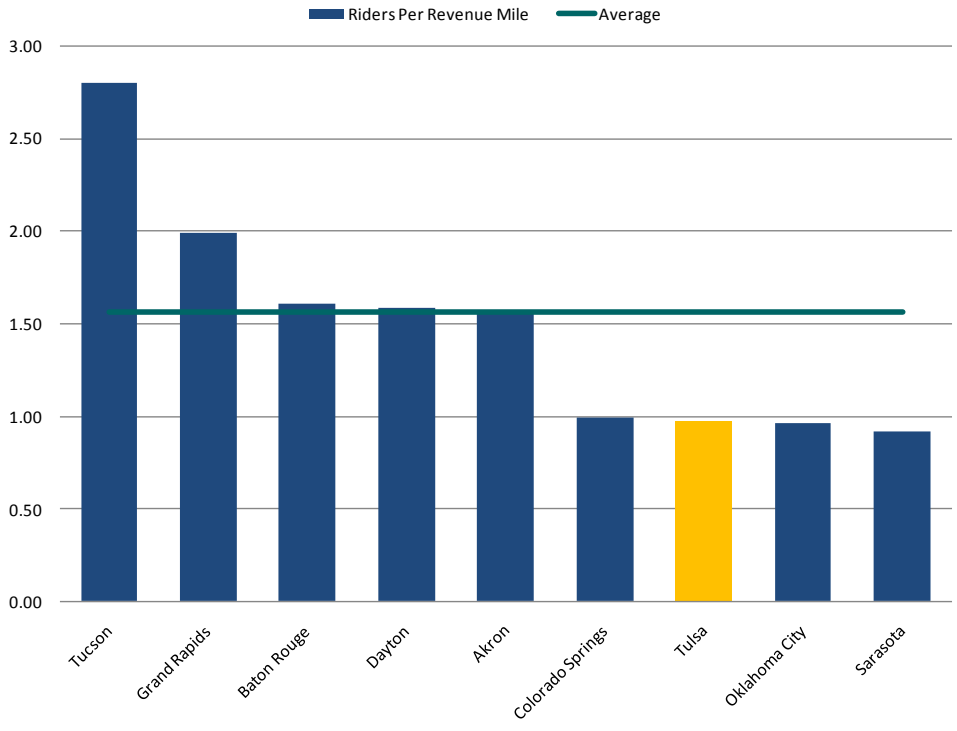


Figure 2.14: Riders per revenue mile



2.4 Fixed route service efficiency

Service efficiency measures the level of service provided based on the given operating budget, or in other words, the cost of providing the service each hour and mile of operation. In this section operating cost in terms of revenue hours and miles is analyzed.

In Figure 2.15, the operating cost per revenue hour for each agency is shown. Tulsa Transit ranks 19% below the average of $89.54 with a $72.20 cost per revenue hour, meaning that Tulsa Transit is able to provide its service more efficiently than most of its peers. Akron and Oklahoma City had the highest costs per hour to operating service, while Grand Rapids and Sarasota had the lowest.

Figure 2.15: Operating cost per revenue hour

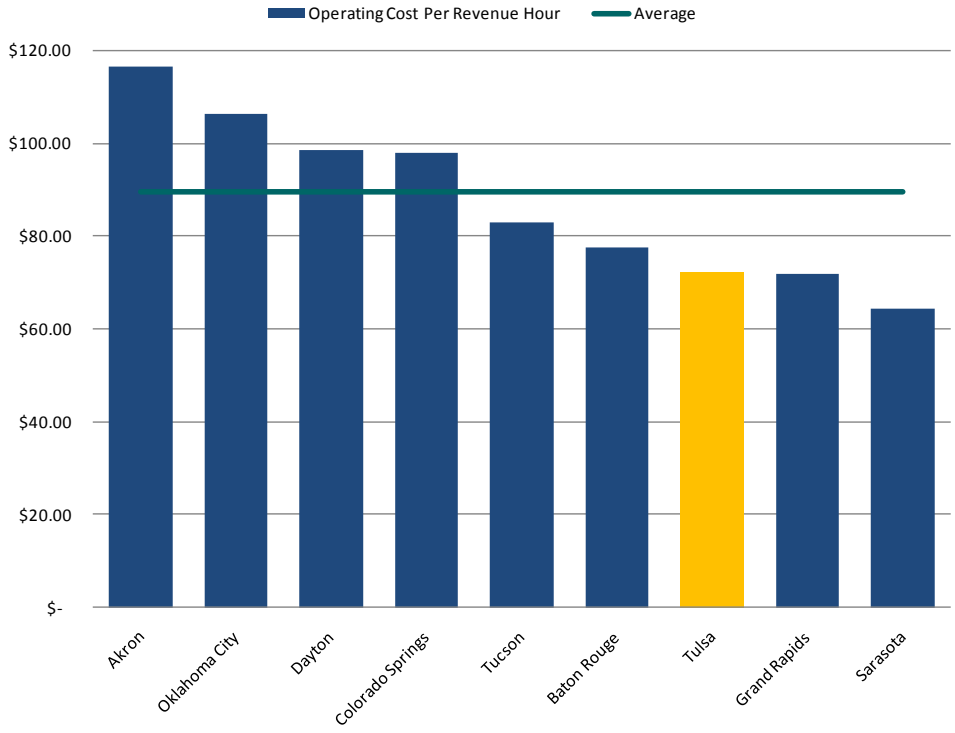
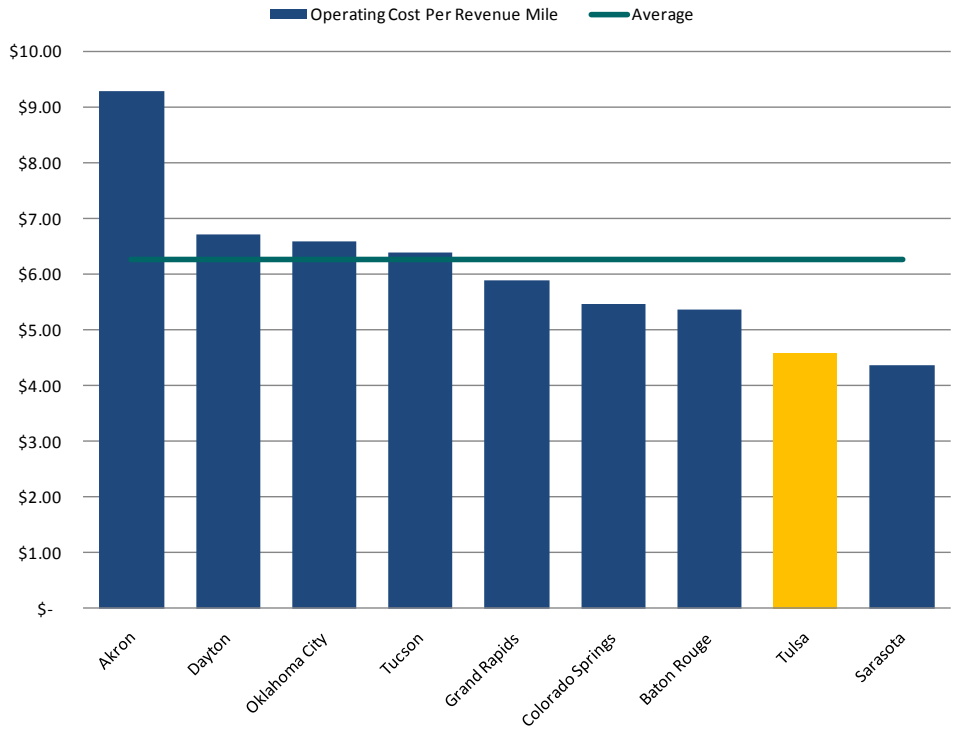


Figure 2.16 shows the operating cost per revenue mile. At $4.58, Tulsa Transit was 28% below the peer average of $6.26 per revenue mile, 51% below Akron's $9.30 cost per mile, and ranked only above Sarasota, which was lowest at $4.36 per revenue mile. Again, this result indicates that as related to its peers, Tulsa Transit is getting a good level of service in comparison to the cost to provide that service.

Figure 2.16: Operating cost per revenue mile



2.5 Fixed route cost effectiveness

Cost effectiveness is an amalgamation of service effectiveness and efficiency. Cost effectiveness measures track agency costs as a function of the ridership the system is generating. It is measured here in terms of operating cost per passenger and passenger mile, along with local subsidy and average fare paid per fixed route rider.

It costs Tulsa Transit $4.73 for each fixed route passenger trip it provides, 6.4% above the peer average of $4.45, landing it in the middle of its peers. Oklahoma City had the highest cost per trip of $6.84 while Tucson, due to its high ridership, had the lowest at $2.28. Baton Rouge, Grand Rapids and Tucson were all under the peer average. This figure is almost the inverse of ridership and trips per capita (Figures 2.1 and 2.9).

In terms of operating cost per passenger mile, Tulsa Transit ranks near the middle of its peer agencies, falling just 14% below the average of 95 cents per mile. As shown in Figure 2.18 below, only Akron, Oklahoma City and Dayton were above average, with Akron having the highest cost per mile of $1.44. Tucson had the lowest at $0.60 per mile.

Figure 2.17: Operating cost per passenger trip

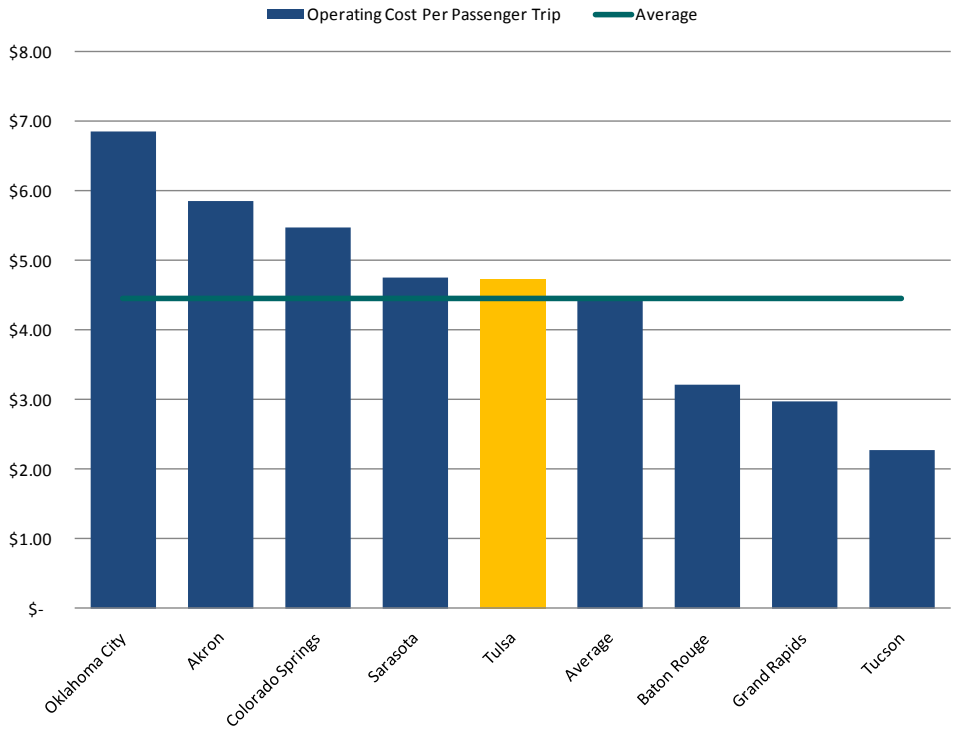
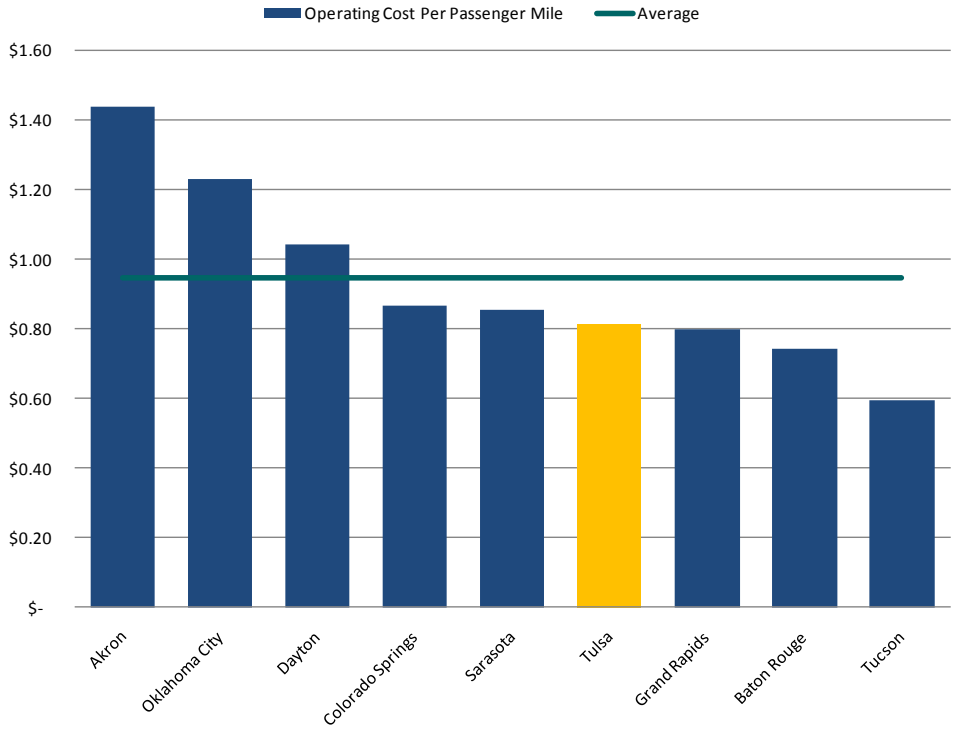
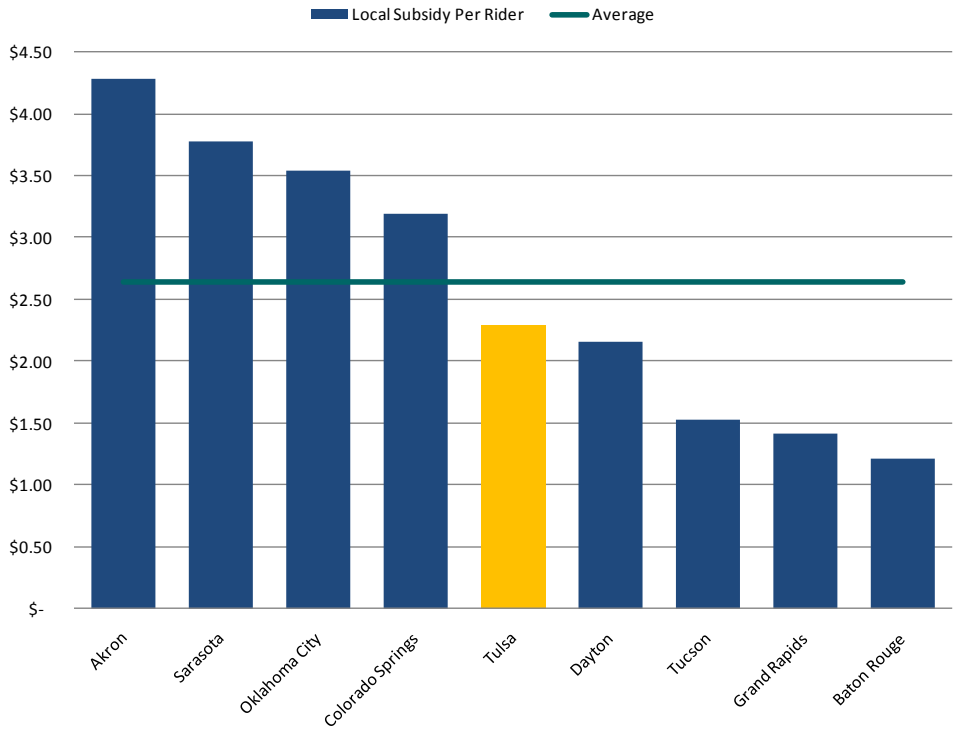


Figure 2.18: Operating cost per passenger mile



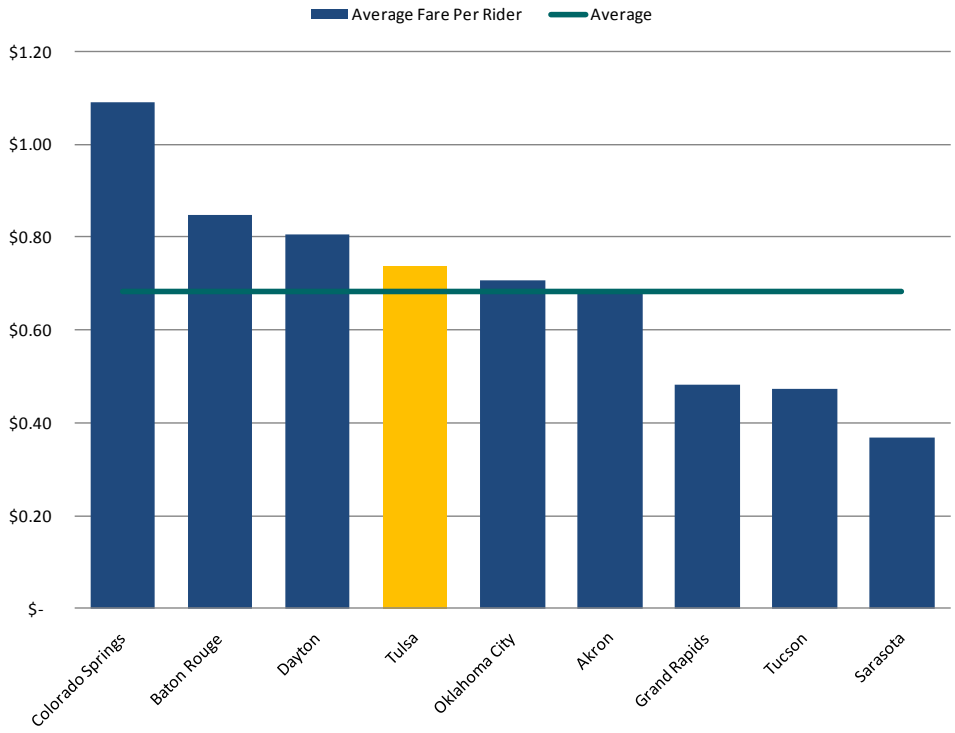
The local subsidy per rider is shown below in Figure 2.19. Although ranking 13% below the average of $2.64, Tulsa Transit's $2.29 subsidization per rider falls in the middle of its peers. Akron had the highest at $4.29 while Baton Rouge had the lowest at $1.21 per rider.

Figure 2.19: Local subsidy per rider



The average fare per rider is estimated by dividing the fare revenue for fixed route service by fixed route ridership. As shown below in Figure 2.20, Tulsa Transit's $0.74 ranks 8% above the average of $0.68. Colorado Springs has the highest rate at $1.09 while Sarasota has the lowest at just 37 cents per rider. Grand Rapids and Tucson had similar average fare per rider values of just below 50 cents per rider. Similarly, Oklahoma City and Akron were close to 70 cents per rider.

Figure 2.20: Average fare per rider



3 Demand Responsive Service

This chapter discusses findings of a comparison of the demand responsive portion of service for each of the transit agencies. For this comparison demand responsive service is that which could be partially or fully responsive, depending on the agency's policy. Some agencies have paratransit vans or contract with charter vehicles to pick up at certain times or locations or vehicles may deviate from a provided or suggested route to pick up passengers. An agency's demand responsive service may also be an on-call fully responsive service which travels from "curb-to-curb". In general though, demand responsive service for Tulsa Transit and its peers refers to complementary ADA paratransit service required by federal law to serve qualified individuals within at least three-quarters of a mile of fixed routes who cannot utilize the fixed route system due to disability.

The following sections discuss the basic operational characteristics of the agencies, determine characteristics on a per capita basis, analyze service effectiveness and efficiency, and finally discuss cost effectiveness of the system. Table 3.1 lists some basic information about each transit agency's demand responsive service, Tulsa Transit's service and the differences from the peer average.

Some key findings for the demand responsive portion of service for Tulsa Transit are:

- Ridership, revenue hours, and fleet size are about average while revenue miles are slightly above average
- Operating budget and estimated local subsidy are far lower than average, but base fare is nearly average and farebox recovery is above average
- Per capita measures show Tulsa Transit at about the median except for operating cost and local subsidy per capita where the agency ranks third from last
- Tulsa Transit has above average riders per revenue hour and slightly below average riders per revenue mile
- Tulsa Transit's operating cost per revenue hour is lower than average, while the agency ranks lowest for operating cost per revenue mile
- Operating cost per passenger trip for Tulsa is $22.61, nearly a quarter below average, and cost per passenger mile is well below average
- Estimated local subsidy per rider is well below average, while average fare charged per rider is about average amongst peers

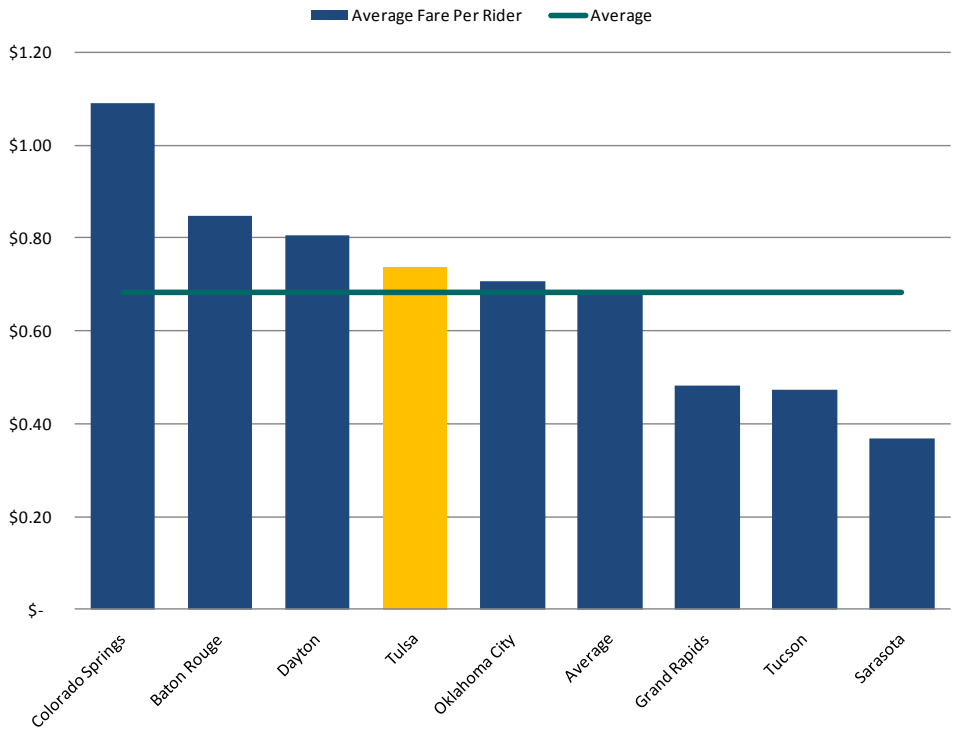
Table 3.1: Demand responsive service information

Agency Information		Demand Responsive Service										
City	Demand Responsive Service Name	Operating Expense	Estimated Local Subsidy[3]	Fare Revenues	Passenger Miles	Annual Vehicle Revenue Miles	Ridership (Annual UPT)	Annual Vehicle Revenue Hours	Total Fleet (VAMS)	Peak Fleet (VOMS)	Farebox Recovery	Base Fare
Akron, OH	SCAT	$ 5,732,751	$ 4,194,537	$ 577,405	1,382,249	1,625,733	230,915	103,285	150	105	8.3%	$ 2.00
Baton Rouge, LA	CATS On Demand	$ 1,795,992	$ 674,929	$ 65,841	445,900	614,021	70,464	44,019	21	15	2.9%	$ 1.75
Colorado Springs, CO	Metro Mobility	$ 4,662,637	$ 2,715,360	$ 494,684	1,498,448	1,463,898	237,805	119,577	95	74	10.5%	$ 3.00
Dayton, OH	Project Mobility	$ 13,524,673	$ 6,964,805	$ 726,861	1,993,878	2,377,276	259,144	163,086	95	82	5.2%	$ 3.50
Grand Rapids, MI	GO!Bus	$ 8,626,343	$ 4,108,334	$ 943,891	4,205,699	2,582,635	439,268	173,910	132	113	12.0%	$ 3.00
Oklahoma City, OK	METRO Lift	$ 2,929,272	$ 1,515,359	$ 217,966	437,838	547,013	59,588	31,775	24	20	6.8%	$ 3.00
Sarasota, FL	SCAT Plus	$ 6,627,505	$ 5,251,717	$ 534,727	1,926,391	1,251,432	178,318	93,079	71	56	6.3%	$ 1.50
Tucson, AZ	Sun Van	$ 12,780,489	$ 8,542,808	$ 560,922	3,262,708	3,262,708	468,895	253,417	121	99	3.3%	$ 2.50
	Peer Average	**$ 7,084,958**	**$ 4,245,981**	**$ 515,287**	**1,894,139**	**1,715,590**	**243,050**	**122,769**	**89**	**71**	**6.9%**	**$ 2.53**
Tulsa, OK	**Lift Program**	**$ 5,244,565**	**$ 2,532,559**	**$ 560,862**	**1,591,376**	**1,988,589**	**231,979**	**112,692**	**86**	**65**	**10.7%**	**$ 3.00**
Difference from Screened Peer Average		**-26.0%**	**-40.4%**	**8.8%**	**-16.0%**	**15.9%**	**-4.6%**	**-8.2%**	**-3.0%**	**-7.8%**	**54.8%**	**18.5%**

3.1 Demand responsive service characteristics

The ridership for Tulsa Transit's demand responsive service, Lift Program, is only 5% below average, placing the agency at the median of its peers. Figure 3.1 below shows the agency's rank amongst its peers. Sun Van, Tucson's demand responsive service, saw over 468,000 riders in 2009 while Oklahoma City's METRO Lift drove just fewer than 60,000 riders.

Figure 3.1: Demand responsive ridership



Tulsa Transit's Lift Program had 8% fewer revenue hours than the peer average. Figure 3.2 below shows that Tucson had the most with over 253,000 revenue hours while Oklahoma City had under 32,000 revenue hours. Again, Lift Program ranks at as the median of its peers.

Figure 3.3 shows that Lift Program saw 16% more revenue miles than the average of 1.7 million miles. Tucson drove 3.2 million revenue miles while Oklahoma City recorded just over half a million revenue miles in 2009.

Figure 3.2: Demand responsive revenue hours

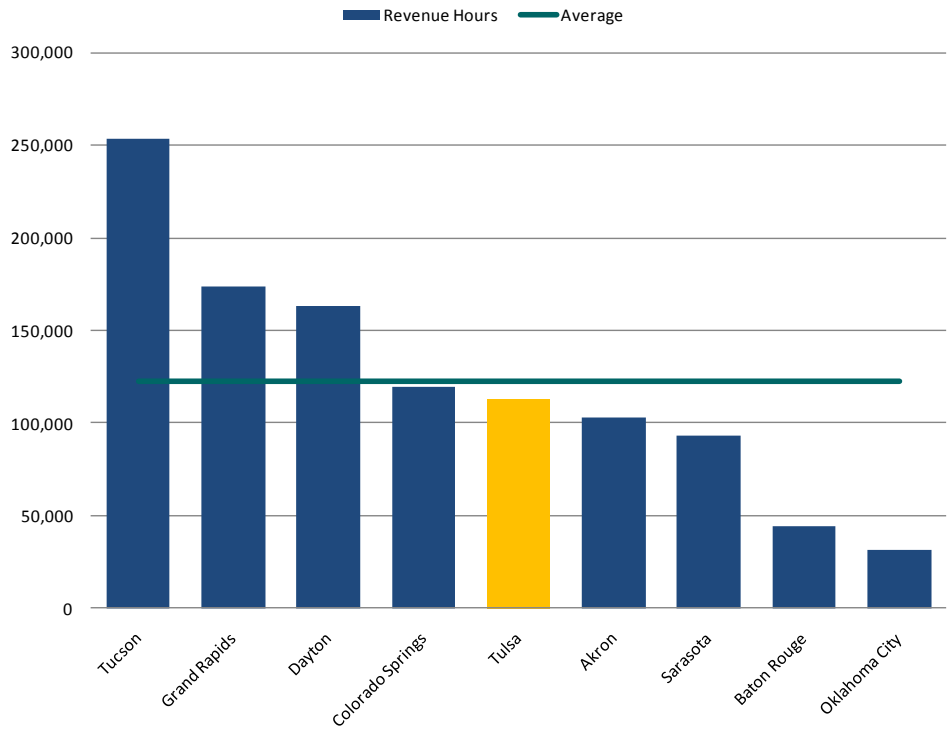
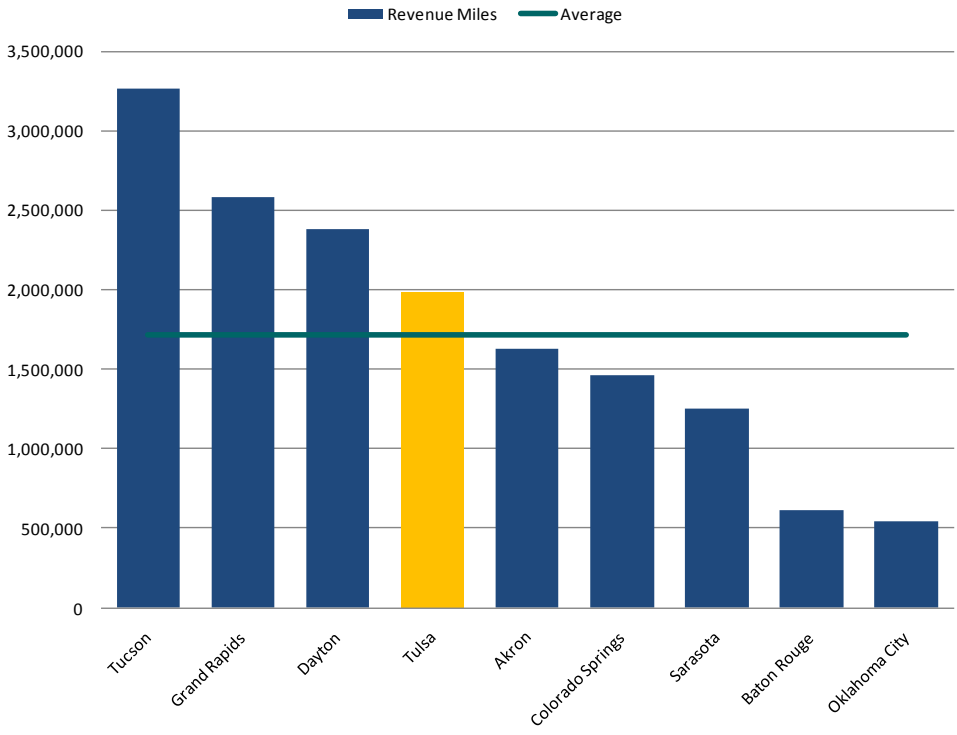
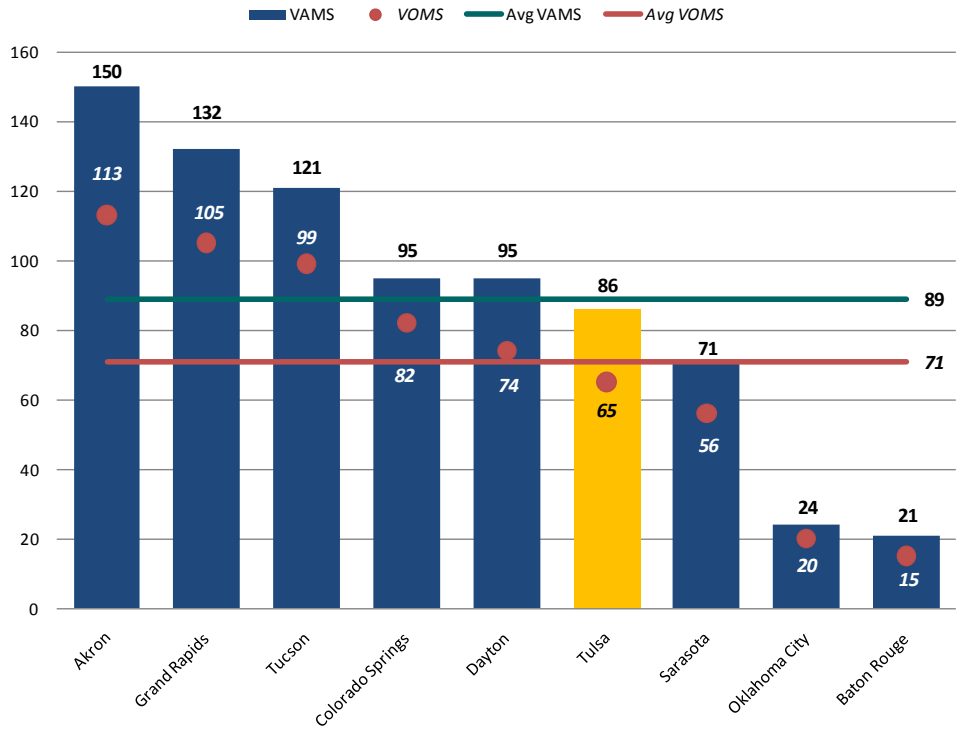


Figure 3.3: Demand responsive revenue miles



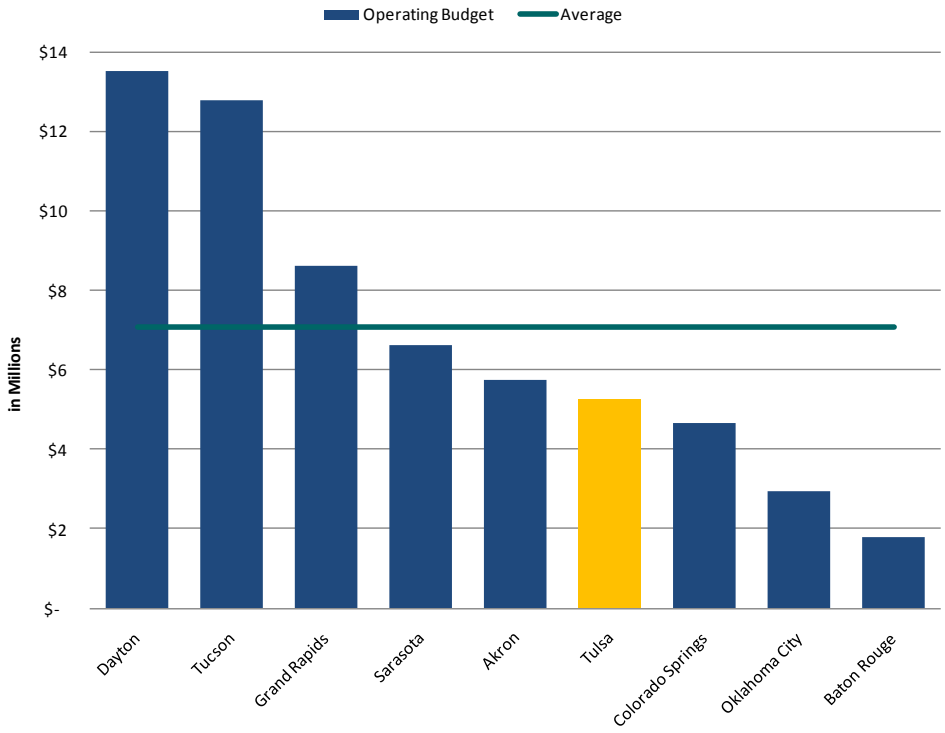
Lift Program also has a near average total and peek vehicle fleet. At 86 total vehicles, the agency is only 3% below average while its peak vehicles are 8% below average. Figure 3.4 shows the range of fleet size across peer agencies. Akron's Metro had the largest fleet with 150 vehicles, while Baton Rouge's CATS On Demand had the smallest at just 21 vehicles.

Figure 3.4: VAMS & VOMS for demand responsive service



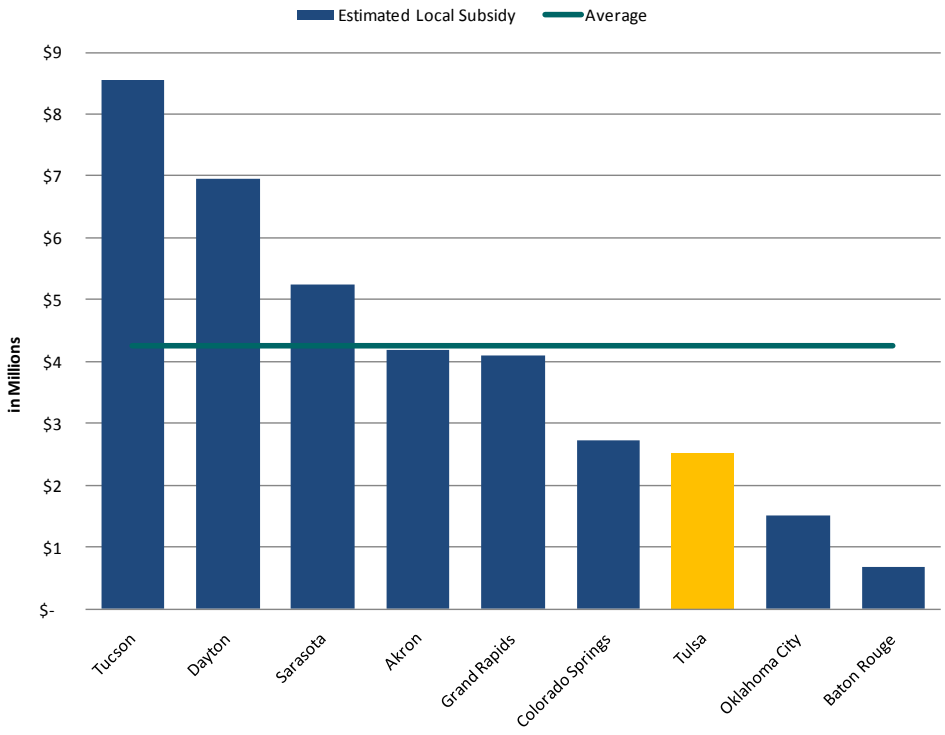
Lift Program's operating budget is shown below in Figure 3.5. In 2009 it was $5.2 million, 26% below the average of slightly above $7 million. By contrast, Dayton's RTA's 2009 operating budget for demand responsive service was $13.5 million, 91% higher than average, while Baton Rouge's budget was 75% smaller at $1.8 million.

Figure 3.5: Demand responsive operating budget



The estimated local subsidy spent solely on demand responsive service in 2009 is shown below in Figure 3.6. Lift Program's estimated local subsidy was 40% below average at $2.5 million while Tucson's subsidy was $8.5 million. Baton Rouge, by comparison, had the smallest subsidy at $676,000.

Figure 3.6: Estimated local subsidy for demand responsive service



Lift Program ranks almost first in terms of farebox ratio for its demand responsive services. Figure 3.7 depicts an agency that is 4% above average. Only Grand Rapids has a higher FRR of 12%, 1.3% more than Lift Program. This translates to $534,936 collected by Tulsa Transit's demand responsive service in 2009.

Lift Program's base fare in 2009, as well as the fare charged by peer agencies is shown below in Figure 3.8. The agency charges $3 per trip, and as such, ranks slightly above the average of about $2.50, due mostly in part to Sarasota's low fare of $1.50. Dayton charges the highest at $3.50. It was determined that Colorado Springs's demand responsive service, Metro Mobility, charges $30 for 10 trips at a time which translates to $3 per trip.

Figure 3.7: Demand responsive farebox ratio

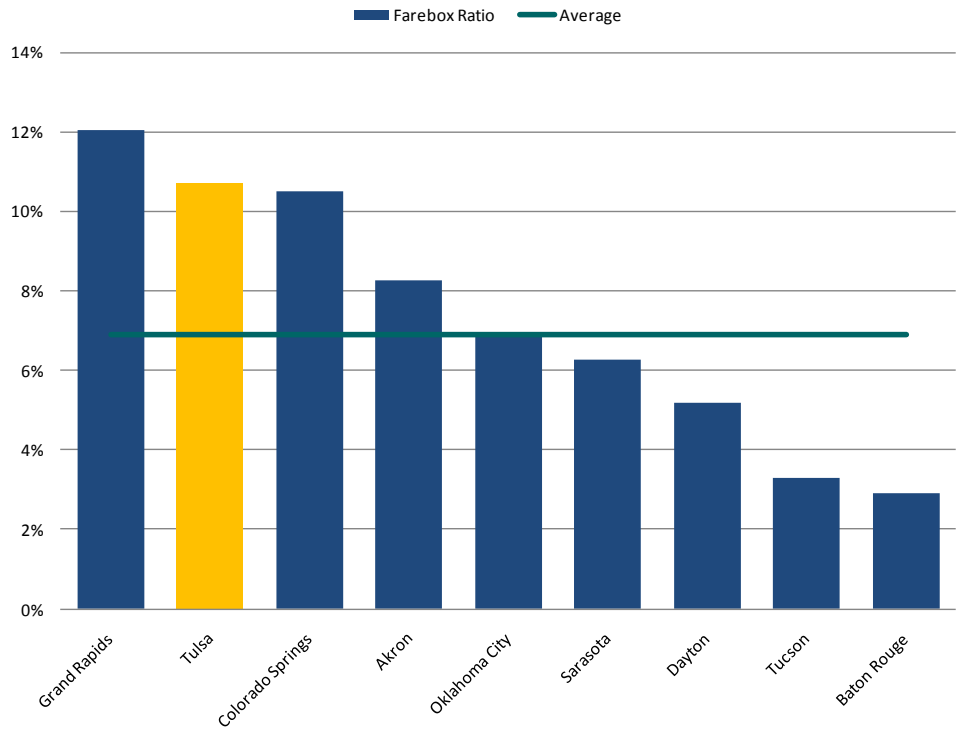
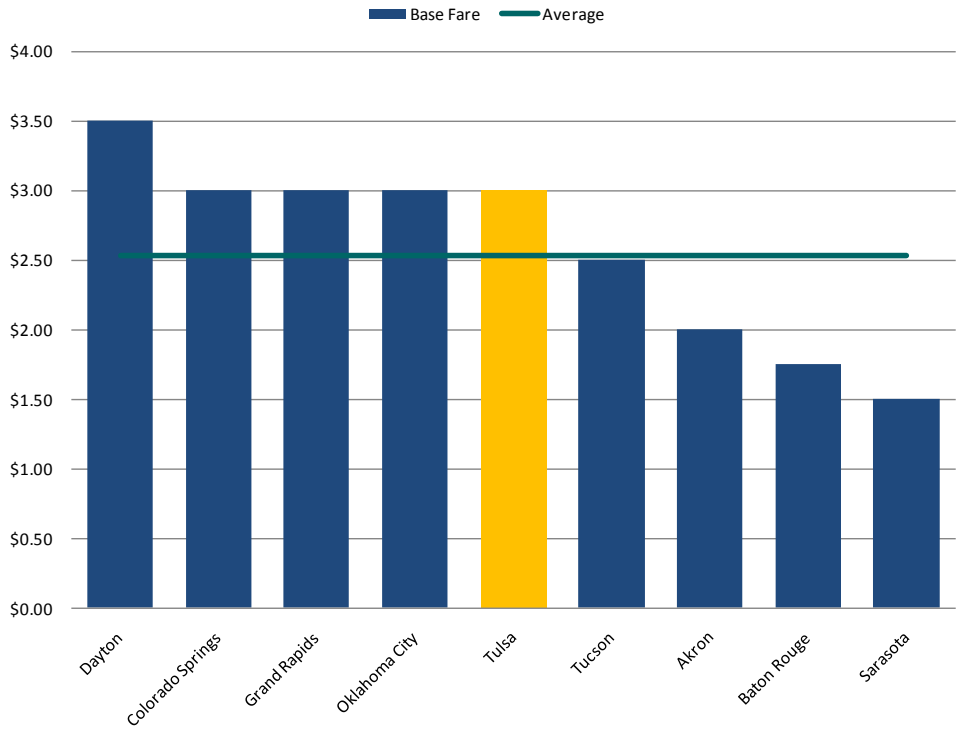


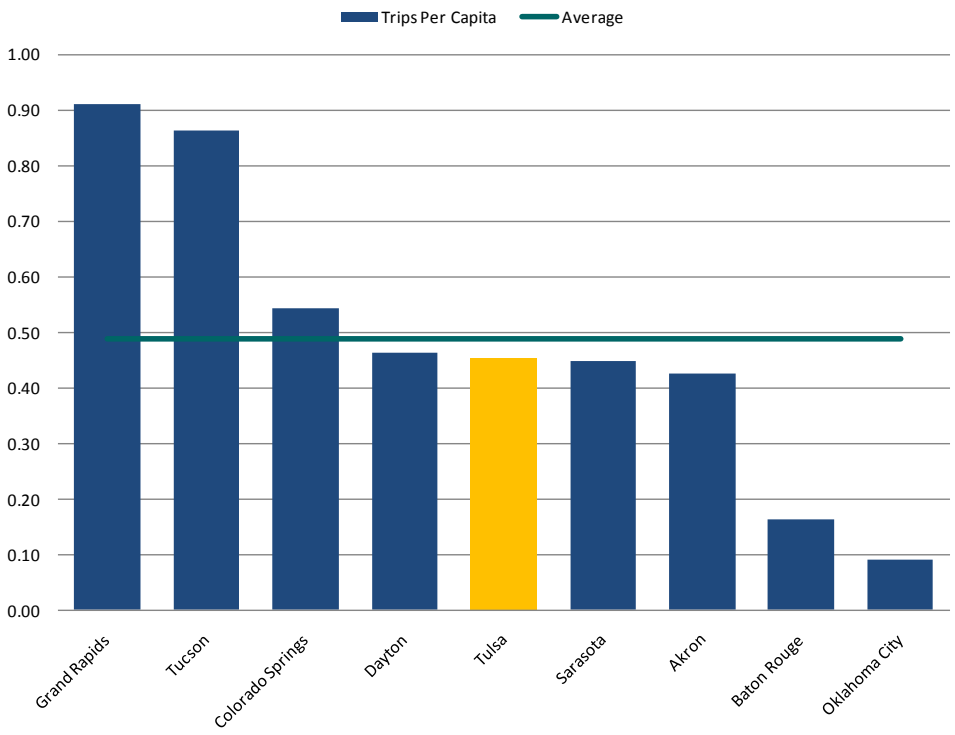
Figure 3.8: Base fare for demand responsive service



3.2 Demand responsive service per capita

As with fixed route service, demand response service was analyzed as a function of the service area population for Lift Program and its peers. Tulsa has a near average number of demand responsive transit trips per capita as shown below in Figure 3.9. At 0.45, it is only 7% below the average of 0.49. By comparison, however, Grand Rapids has 0.91 trips per capita while Oklahoma City has the lowest at 0.09 trips per capita. Trips per capita had a large range among peers, from 0.91 to 0.09.

Figure 3.9: Trips per capita



Lift Program's revenue hours per capita ranks near the average of 0.25 hours. As shown in Figure 3.10, Tulsa Transit's demand responsive service was only 10% below average, while by comparison, Tucson was nearly double the average and Oklahoma City was 80% below average.

Figure 3.11 shows that Lift Program, at $10.23, ranks near the bottom in terms of operating cost per capita. The service was 27% below the average of $14 per capita. Dayton had a cost of $24.19 per capita while Baton Rouge had a $4.17 cost.

Figure 3.10: Revenue hours per capita

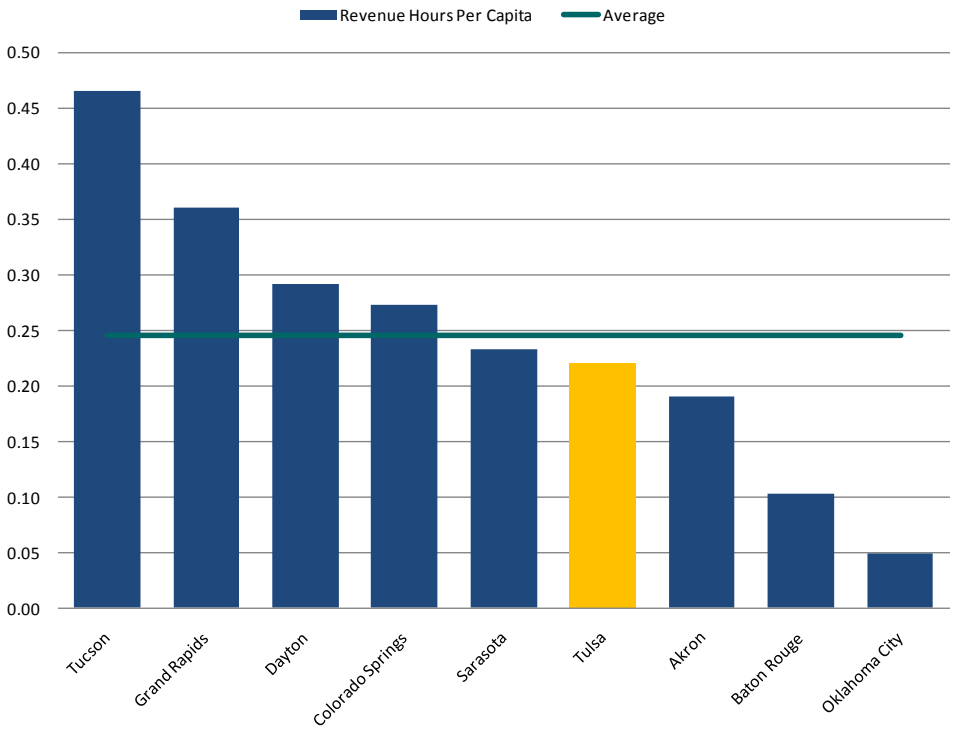
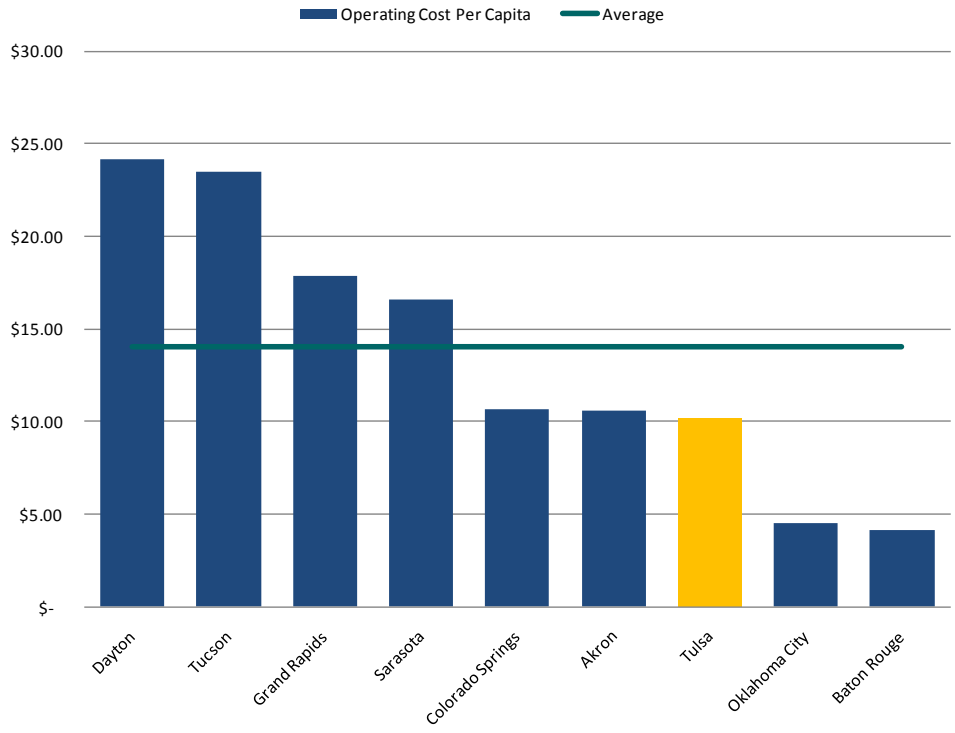
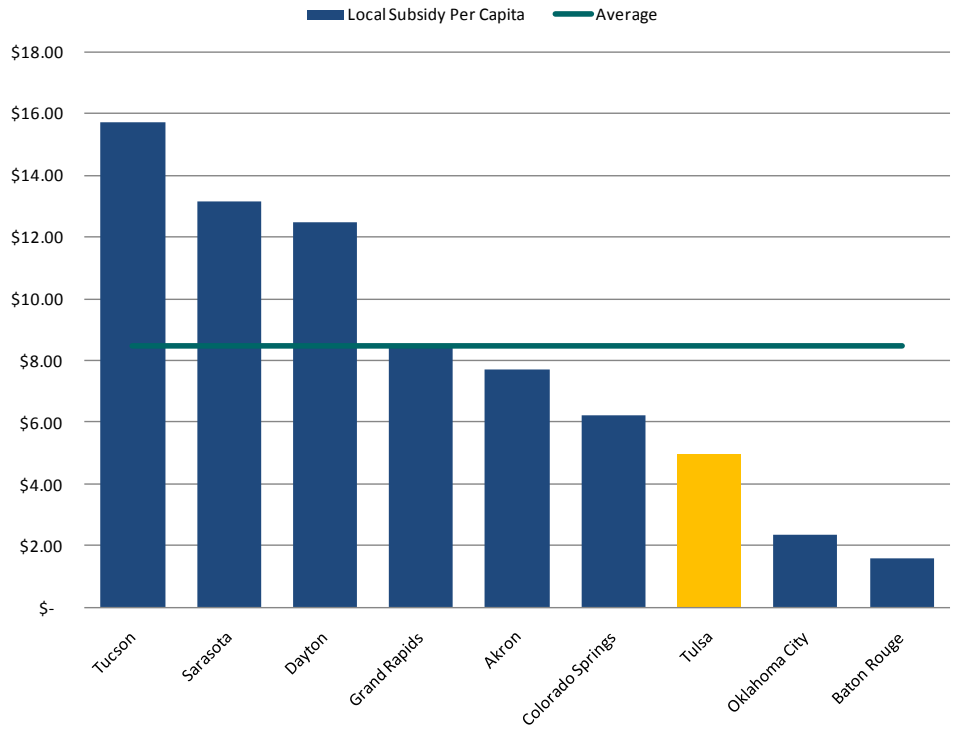


Figure 3.11: Operating cost per capita



The local subsidy per capita had a large range between nearly $16 and under $2. The local subsidy of Lift Program by the service area population is shown below in Figure 3.12. Again, Lift Program ranks near the bottom of the peer agency group with its $4.94 subsidy per capita which is 42% below average. Tucson's program has a $15.70 subsidy per capita amount. The average subsidy was $8.46.

Figure 3.12: Local subsidy per capita



3.3 Demand responsive service effectiveness

In terms of how many demand response riders are being moved per level of service provided, Lift Program's riders per revenue hour ranks third with 2.06 riders per revenue hour. Grand Rapids had 2.53 riders while Dayton had 1.59 riders per revenue hour. Figure 3.13 shows all peers were within 2.5 and 1.5 riders per revenue hour. The average was 1.95 riders per revenue hour.

By contrast, Figure 3.14 shows Lift Program slightly below median, ranking sixth, with 0.12 riders per revenue mile. Riders per revenue mile had only slight variation among peer agencies, with Grand Rapids reporting 0.17 riders per revenue mile while Oklahoma City had below 0.11 riders per revenue mile.

Figure 3.13: Riders per revenue hour

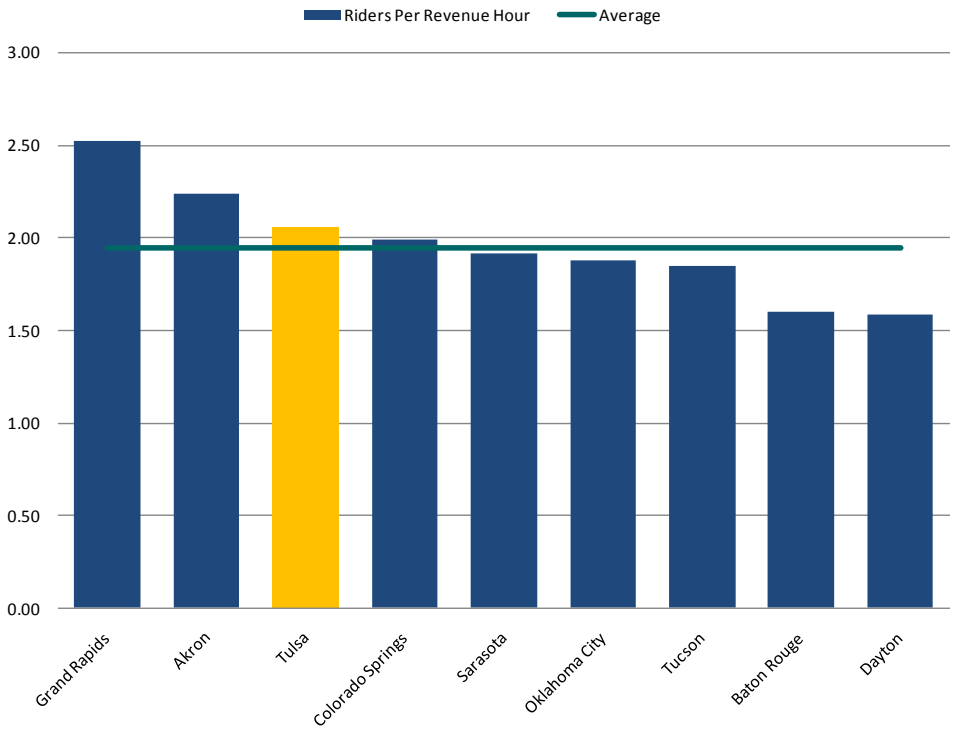
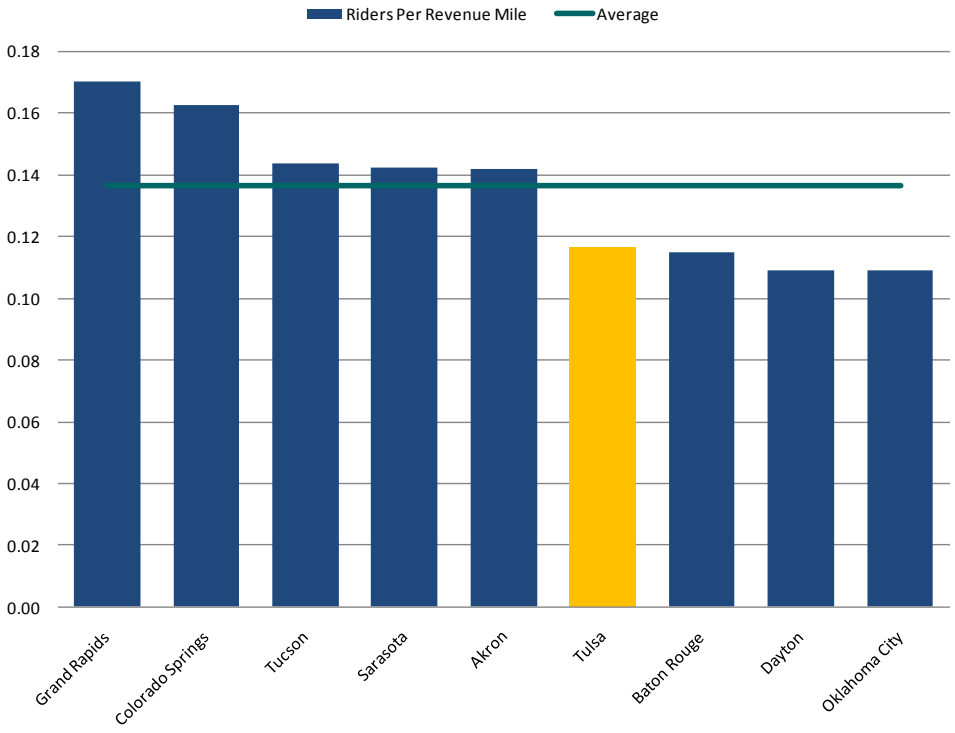


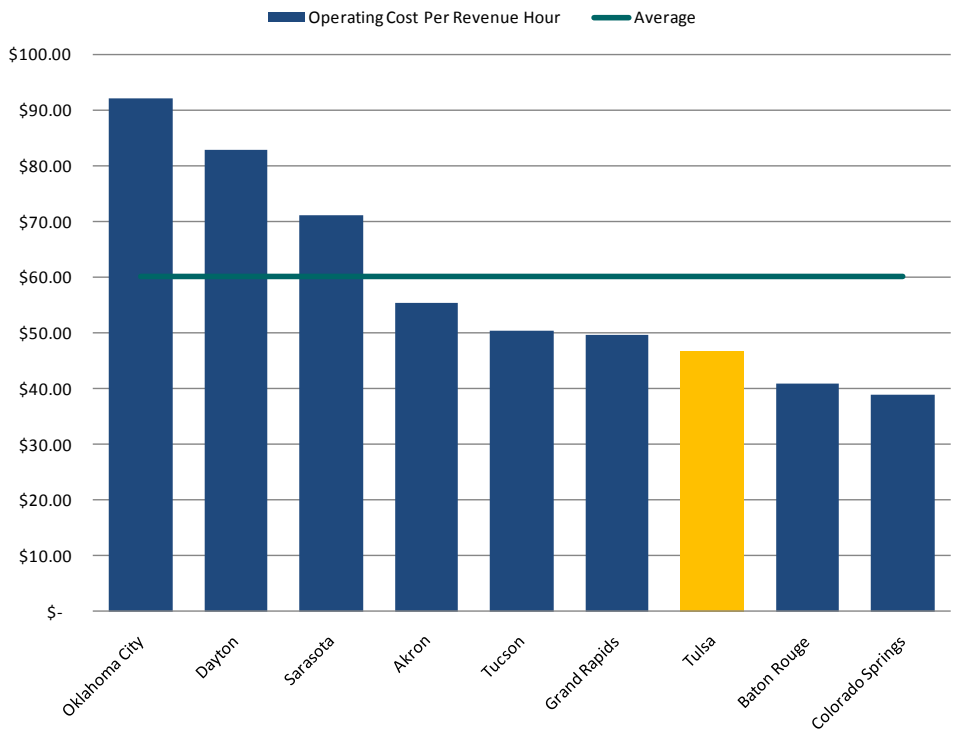
Figure 3.14: Riders per revenue mile



3.4 Demand responsive service efficiency

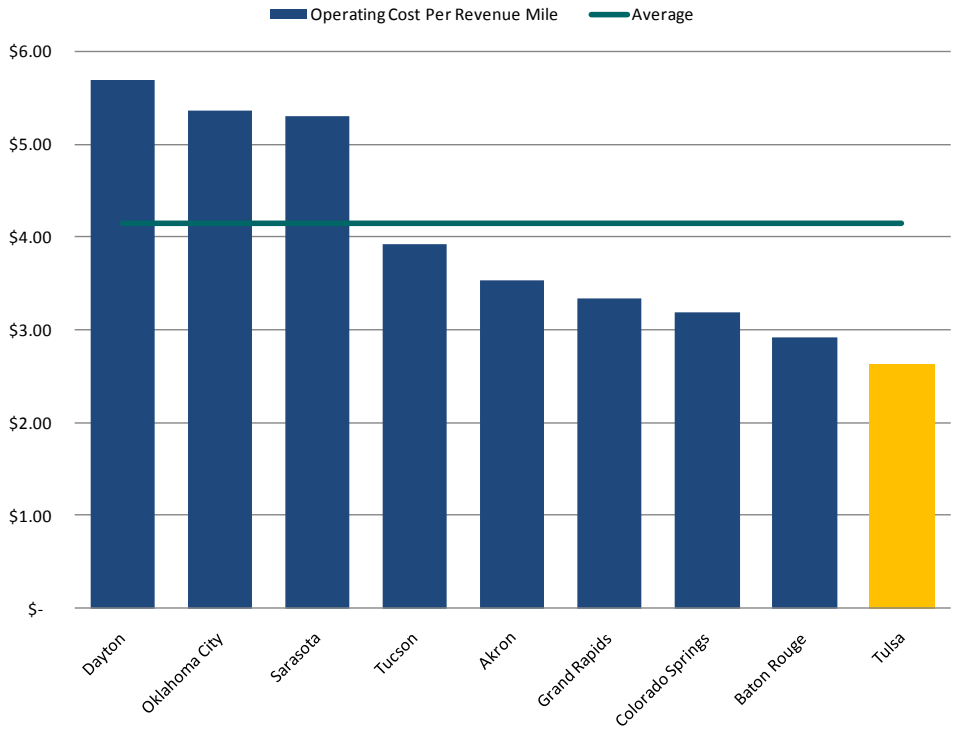
Next, measures charting how cost-efficiently demand response service is provided were analyzed. As shown below in Figure 3.15, Lift Program ranks in the lower third of its peers, 23% below the average of $60.21. Oklahoma City ranks highest with a $92.19 cost per revenue hour. Metro Mobility, in Colorado Springs, ranks lowest with a $39 operating cost per revenue hour. The majority of agencies rank below the average, with Oklahoma City, Dayton and Sarasota ranking higher than average.

Figure 3.15: Operating cost per revenue hour



Lift Program performs even better in terms of operating cost per revenue mile, ranking lowest among its peers. Its $2.64 cost per mile is 37% lower than average and 54% lower than Dayton's cost per mile. Figure 3.16 below shows the ranking of the agencies. The peer average was $4.15 per revenue mile.

Figure 3.16: Operating cost per revenue mile



3.5 Demand responsive cost effectiveness

It costs Tulsa Transit $22.61 for each demand response passenger trip it provides through the Lift Program, 29% below the average of $31.92, and substantially less than Dayton's $52.19. Colorado Springs had the cheapest cost per trip of $19.61 though Grand Rapids was only 3 cents more.

Lift Program's operating cost per passenger mile in 2009 was $3.30, 23% less than the average of $4.27 as shown in Figure 3.18 below. Only Dayton, with its $6.78 cost per passenger mile, and Oklahoma City, with its $6.69 cost per passenger mile, ranked above the peer average. Sarasota, Baton Rouge and Tucson had similar, somewhat median costs of around $4 per passenger mile.

Local subsidy per rider ranged from $29.45 for Sarasota to $9.35 for Grand Rapids. Lift Program ranked in the bottom third as it reported $10.92 of subsidy per trip, 41% below the average of $18.56 per trip. As shown in Figure 3.19, local subsidy per trip appeared to hover around certain values; four agencies, including Tulsa Transit, centered around $10 per trip, and three agencies approached $30.

Average fare per rider ranged from Oklahoma City's $3.66 per rider to Baton Rouge's $0.93 per rider. Tulsa's Lift Program was at median and slightly above average with $2.42. As shown in Figure 3.20, average fare per rider was estimated to be $2.29 for the eight peer agencies.

Figure 3.17: Operating cost per passenger trip

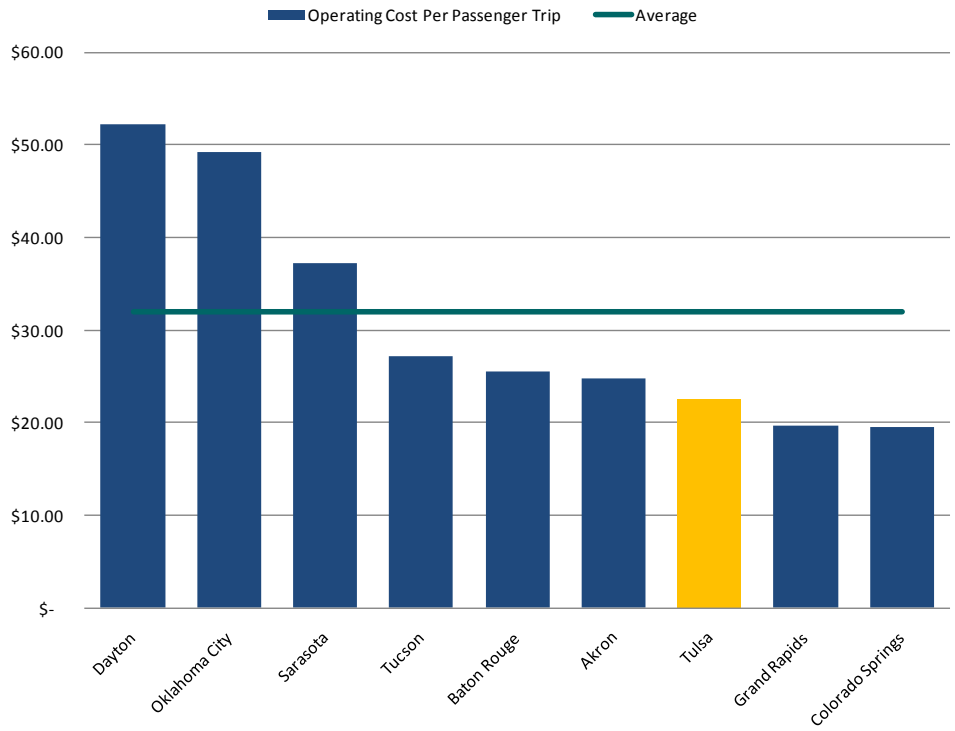


Figure 3.18: Operating cost per passenger mile

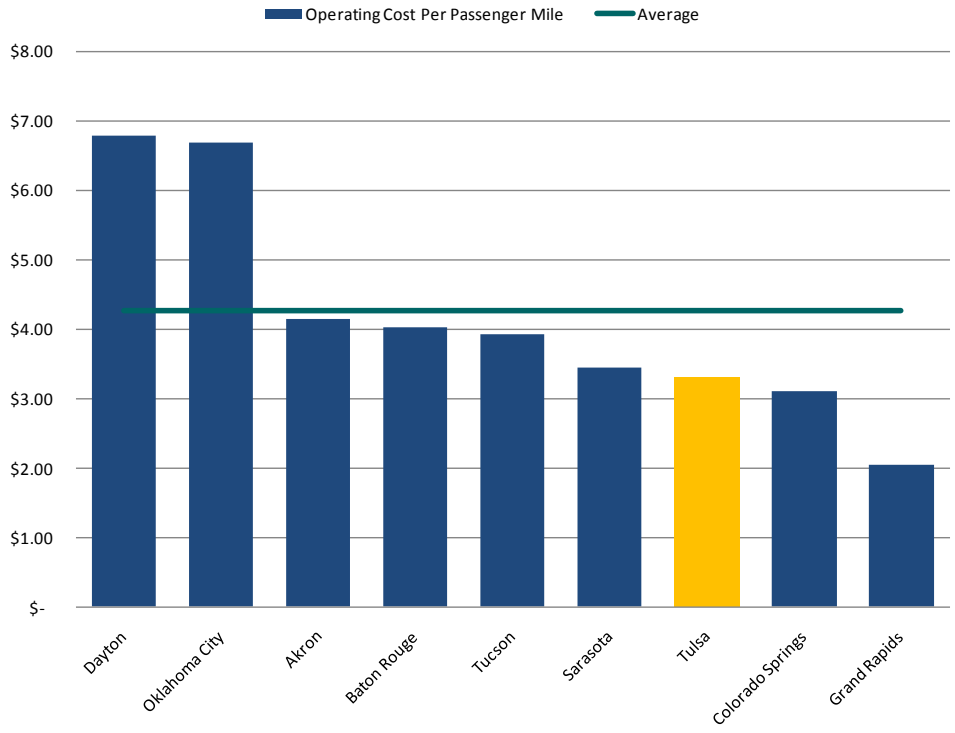


Figure 3.19: Local subsidy per rider

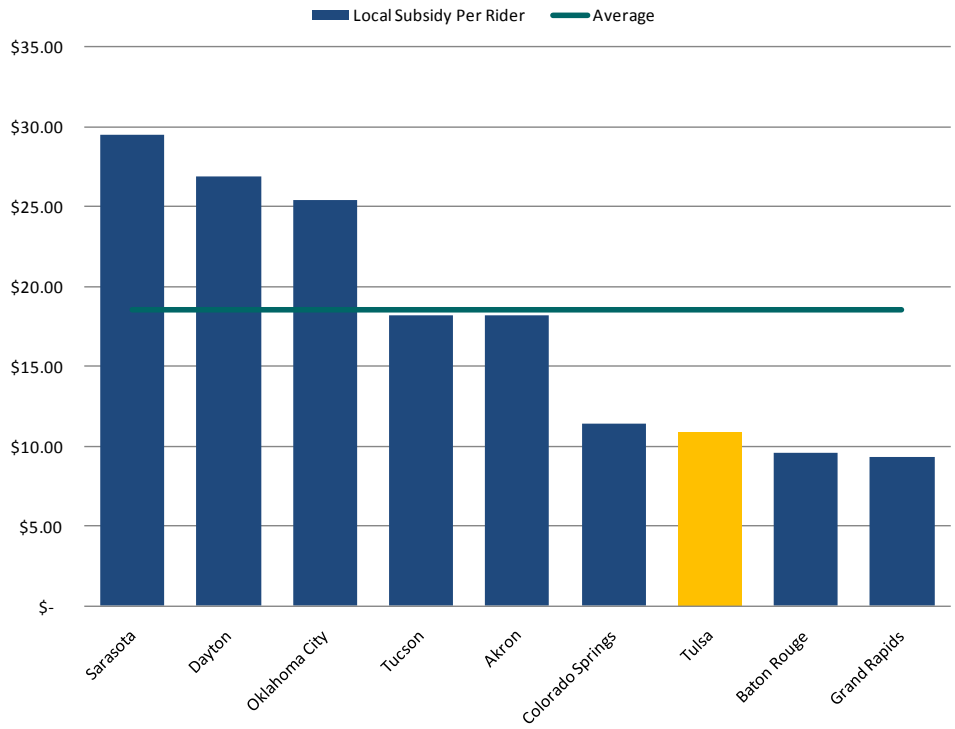
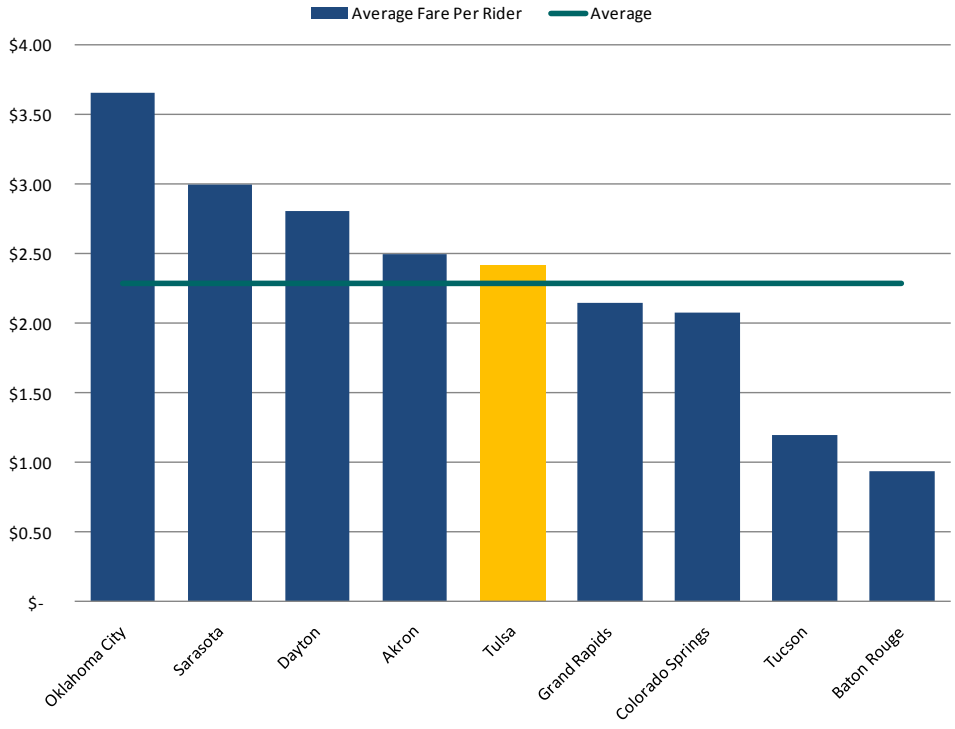


Figure 3.20: Average fare per rider



4 Fixed Route & Demand Responsive Ratios

The amount of demand responsive service compared to the amount of fixed route service was queried to determine how robust the demand responsive service was in each community. In doing so, it became clear that Tulsa Transit's Lift Program has a very strong level of service, ridership, and financial support when compared to the fixed route system than its peers, ranking first in three ratios of service, and second or third in every other.

As a reference, Table 4.1 is provided to show total values of operational and financial data for each agency, listing the combined values for both fixed route and demand responsive services.

Table 4.1: Total agency information

Agency Information		Total Service								
City	Transit Agency Name	Operating Expense	Fare Revenues	Annual Vehicle Revenue Miles	Ridership (Annual UPT)	Annual Vehicle Revenue Hours	FR Op Expense (%)	DR Op Expense (%)	Total Fleet (VAMS)	Peak Fleet (VOMS)
Akron, OH	Metro	$ 33,811,097	$ 3,832,667	4,645,909	5,023,042	344,139	83.0%	17.0%	275	212
Baton Rouge, LA	CATS	$ 13,792,380	$ 3,226,893	2,849,793	3,799,779	198,515	87.0%	13.0%	94	67
Colorado Springs, CO	MMT	$ 22,431,263	$ 4,154,498	5,267,538	3,436,385	308,170	77.0%	20.8%	217	159
Dayton, OH	RTA	$ 55,884,908	$ 8,888,647	8,678,679	10,390,103	592,397	75.8%	24.2%	245	207
Grand Rapids, MI	The Rapid	$ 35,227,655	$ 5,343,687	7,466,633	9,336,708	548,923	74.7%	24.5%	281	238
Oklahoma City, OK	METRO Transit	$ 21,299,527	$ 2,118,497	3,333,554	2,743,675	204,342	86.2%	13.8%	111	74
Sarasota, FL	SCAT	$ 18,778,856	$ 1,471,327	4,037,912	2,729,968	282,229	64.7%	35.3%	132	100
Tucson, AZ	Sun Tran	$ 61,968,610	$ 10,769,419	10,969,765	22,044,269	846,154	79.4%	20.6%	327	269
	Peer Average	**$ 32,899,287**	**$ 4,975,704**	**5,906,223**	**7,437,991**	**415,609**	**78.5%**	**21.1%**	**210**	**166**
Tulsa, OK	**Tulsa Transit**	**$ 17,976,402**	**$ 2,541,089**	**4,769,938**	**2,920,946**	**289,044**	**70.8%**	**29.2%**	**157**	**122**
Difference from Screened Peer Average		**-45.4%**	**-48.9%**	**-19.2%**	**-60.7%**	**-30.5%**	**-9.8%**	**38.0%**	**-25.3%**	**-26.4%**

For every 100 fixed route riders, Tulsa Transit's Lift Program could expect nearly 9 riders, and in real terms has almost 10% of its total ridership. By comparison, every other transit agency had fewer demand responsive riders in comparison to their overall system ridership. Baton Rouge saw the fewest demand responsive riders of its overall system ridership with fewer than 2 riders. The average demand responsive to fixed route ridership ratio was slightly higher than 4 riders as shown below in Figure 4.1.

Figure 4.1: Demand responsive ridership (per 100 FR riders)

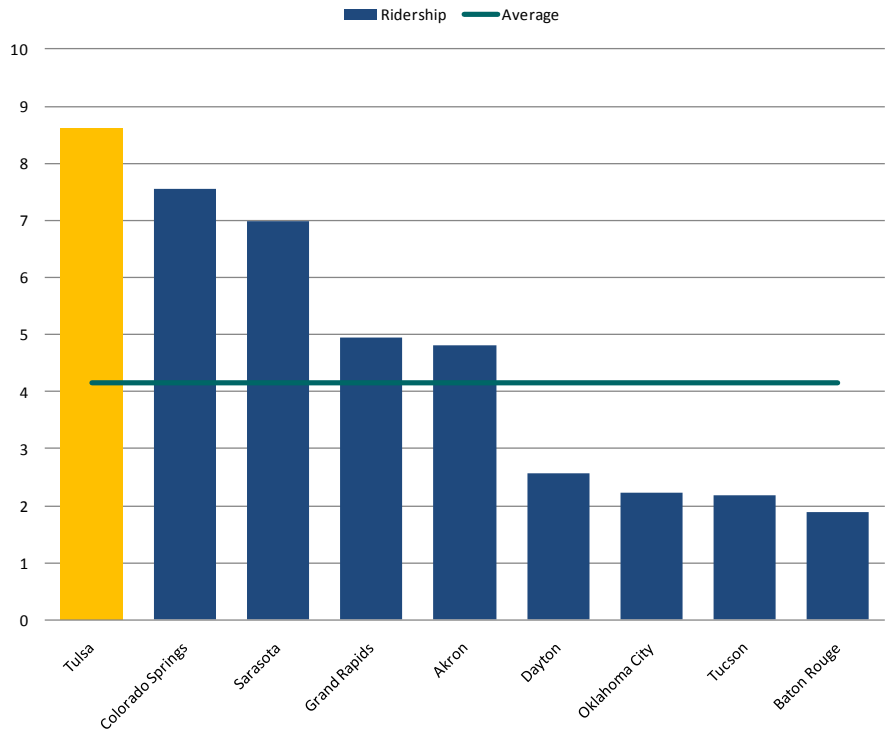


Figure 4.2 shows the ratio of revenue hours. For every 100 hours of fixed route revenue service, Lift Program ran nearly 64 hours of revenue service, higher than all other peers besides Colorado Springs which had 68 hours. Tulsa Transit's Lift Program comprises more than 40% of Tulsa Transit's total revenue hours. Oklahoma City's METRO Lift ranks last with 18.4 hours per 100 hours of fixed route service. The average revenue hour ratio was slightly less than 42.

Similarly, for every 100 revenue miles of fixed route service, Tulsa ranked first with nearly 72 miles of demand responsive service. As shown in Figure 4.3, Oklahoma City's METRO Lift again ranked last with 19.6 miles of demand responsive service as a ratio of fixed route service. The average ratio was just over 41 miles of demand responsive service to fixed route service.

Figure 4.2: Demand responsive revenue hours (per 100 FR revenue hours)

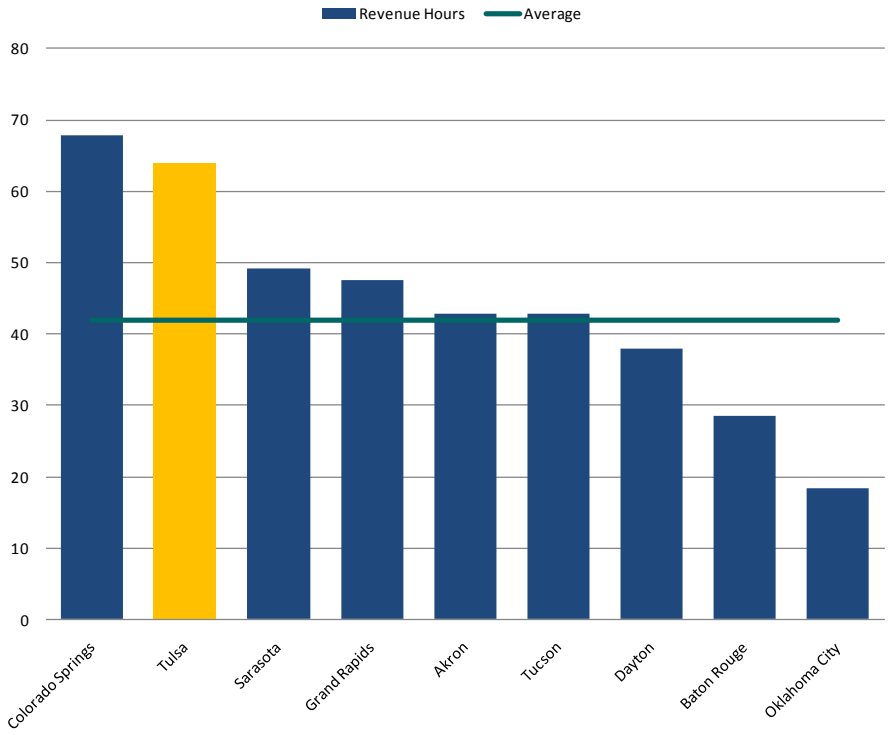


Figure 4.3: Demand responsive revenue miles (per 100 FR revenue miles)

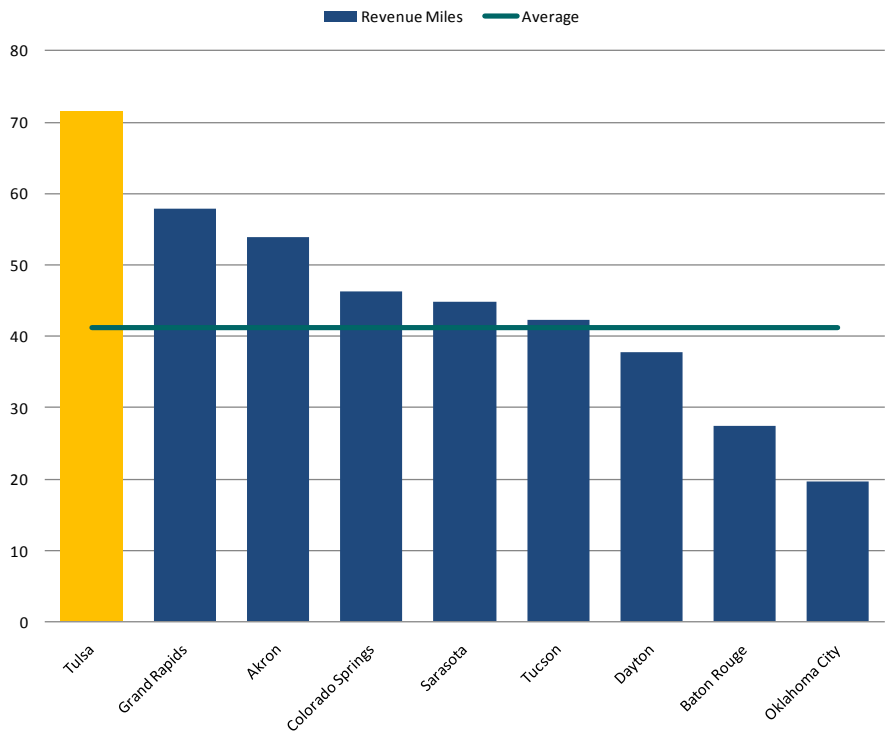
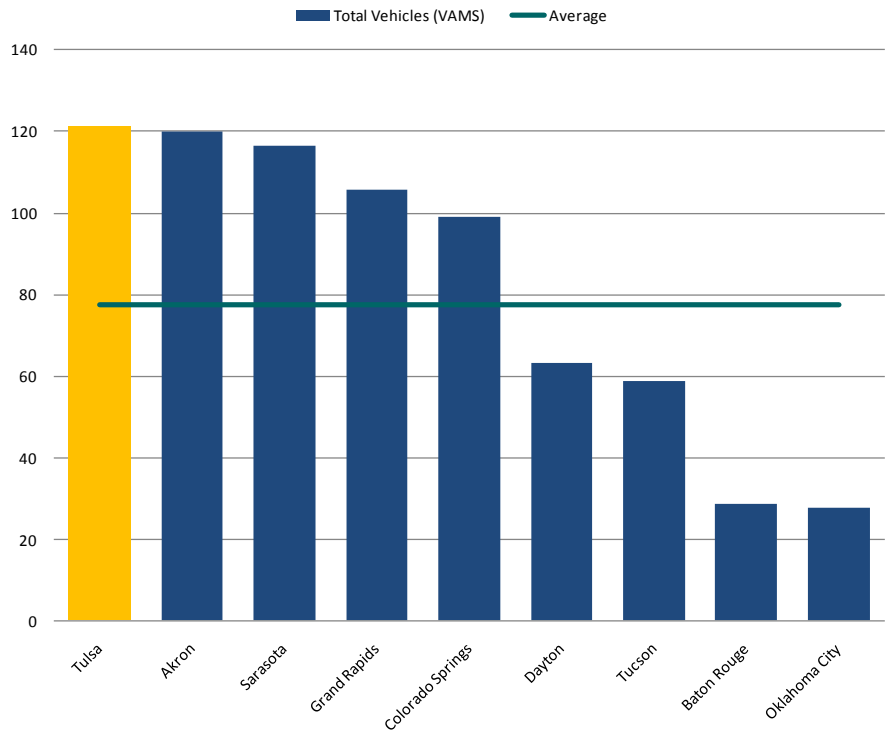


Figure 4.4 shows that for every 100 total fixed route vehicles, Lift Program would have 121 total vehicles for demand responsive use. Every other transit agency has smaller ratios, though four agencies have ratios higher than the average of 77 demand responsive vehicles to 100 fixed route vehicles. Akron and Sarasota were close behind at 120 and 116 vehicles, respectively.

Figure 4.4: Demand responsive total vehicles (VAMS) (per 100 FR total vehicles)



Similarly, for every 100 peak fixed route vehicles, Tulsa could expect a higher than average VOMS value of 114. The average ratio value was 80 demand responsive vehicles to 100 fixed route vehicles. Only Sarasota and Colorado Springs had ratios higher than Tulsa Transit's Lift Program with 127 and 117 respectively. Baton Rouge had the lowest ratio at 29 vehicles.

Finally, Figure 4.6 shows that for every $100 of fixed route expenditure, $41 would be spent on Tulsa's Lift Program. Only Sarasota had a higher rate of $54.54. Every other transit agency ranked below these two. The average expenditure ratio was roughly $28 of demand responsive expenditure to fixed route expenditure. The operating expense ratio had a nearly $40 range between Sarasota and Baton Rouge whose $15 ratio ranked last.

Figure 4.5: Demand responsive peak vehicles (VOMS) (per 100 FR peak vehicles)

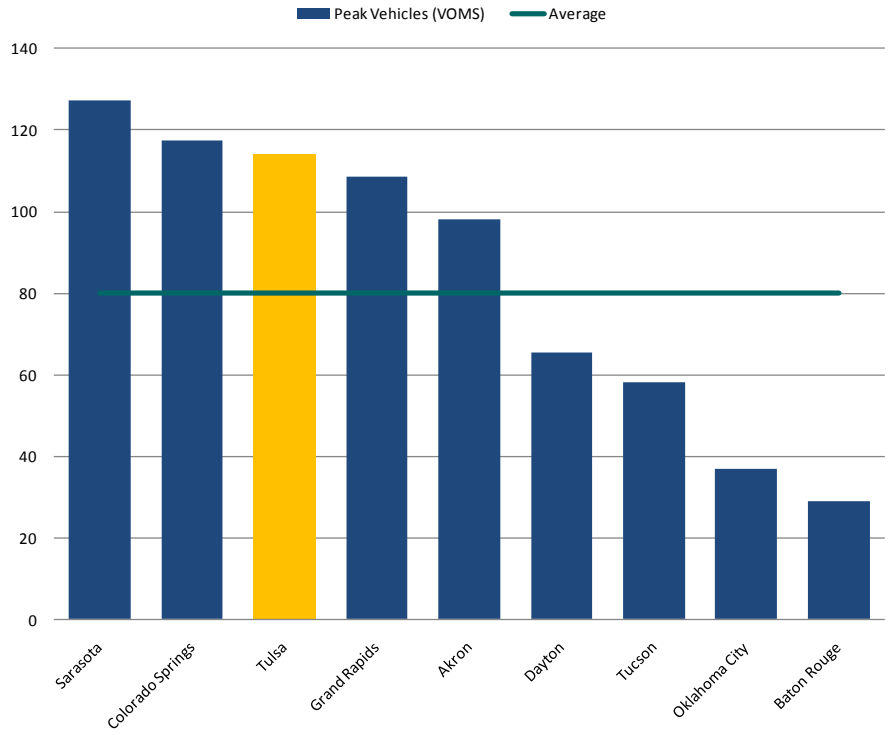
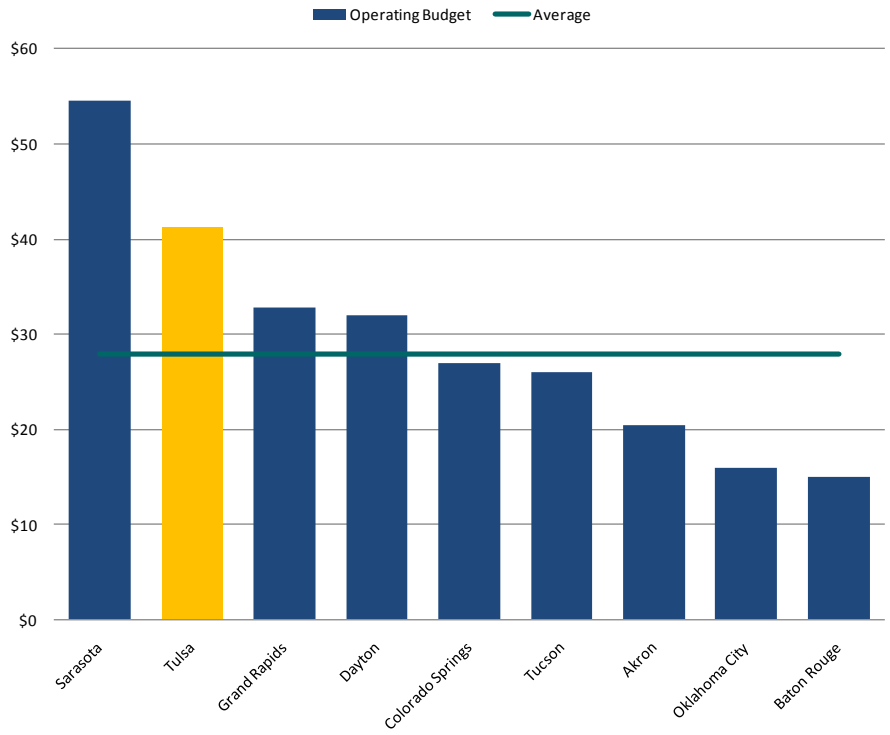


Figure 4.6: Demand responsive operating expenses (per $100 of FR operating expenses)



FAST FORWARD

TULSA REGIONAL TRANSIT SYSTEM PLAN AND ALTERNATIVES ANALYSES

INCOG Regional Partners - Regional Solutions

TULSA TRANSIT

Bus System Evaluation and Service Plan

Technical Memorandum #3: Future Service Plan Recommendations

(Draft)

August 2011

Submitted by Connetics Transportation Group

CTG Connetics Transportation Group

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Abbreviations

Denver Avenue Station (DAS)
Memorial Midtown Station (MMS)
Regional Transit System Plan (RTSP)
Immediate-Term (IT)
Near-Term (NT)
Mid-Term (MT)
Long-Term (LT)
Operating and Maintenance (O&M)
Year 2011 Dollars ($2011)
Year of Expenditure Dollars ($YOE)

1 Overview

The Tulsa Regional Transit System Plan (RTSP) and Alternatives Analyses is a first-of-its-kind long-range public transportation plan for the communities in the Indian Nations Council of Governments (INCOG), including Tulsa, Broken Arrow, Bixby, Jenks, Owasso, and Sand Springs. The Plan is the first step to identify a financially-viable public transportation program for the greater Tulsa area, and represents an extremely important opportunity for the Tulsa region to compete for federal grants which are increasingly moving toward public transportation.

The RTSP institutes a comprehensive, long range, realistic system of transit corridors to help meet the region's transportation need over the next 25 years. The plan defines corridor priorities for the region and defines policy needs for feasible development. As part of the RTSP, a thorough evaluation of existing bus operations and identification of future bus service opportunities is being completed. General public transit service within the region is currently provided by the Metropolitan Tulsa Transit Authority (MTTA, or Tulsa Transit). This system provides weekday and Saturday bus service in Tulsa, Jenks, Broken Arrow, and Sand Springs. In FY2009, it operated nearly 300,000 revenue hours and 5 million revenue miles of service on a budget of around $20 million, providing almost 3 million annual transit rides.

This analysis of Tulsa Transit will be used as the means to understand current transit service needs, which in turn will provide the ability to assess the extent to which the bus component of the RTSP can address those needs. Tasks include a review of existing fixed route bus service, a general assessment of Tulsa Transit in comparison to peer bus systems in other locations, and preparation of near-term and long-range future service plans. The evaluation and service plan builds upon previous studies, references, and resources produced by Tulsa Transit and INCOG (such as the Tulsa Transit Needs Assessment, January 2010).

This report, Technical Memorandum #3, presents future service recommendations for Tulsa Transit, phased to be completed in the Near-Term (0 to 5 years), Mid-Term (5-15 years) and Long-Term (15+ years). Recommendations are based on analysis conducted in Technical Memorandum #1 (Existing System Analysis) and Technical Memorandum #2 (Peer Agency Review) and data provided by Tulsa Transit and other sources, and includes:

- Historical ridership data (2001-2010), provided by Tulsa Transit
- GFI farebox data (October 2010), provided by Tulsa Transit
- Fixed route operating statistics (October 2010), provided by Tulsa Transit
- Historical operating data (2002-2009), provided by NTD
- On-board rider survey results (January/February 2010), provided by INCOG

1.1 Outcomes of the Existing Service Evaluation

Tulsa Transit operates local bus service in Tulsa, Jenks, Broken Arrow, and Sand Springs. Regular service runs daytime Monday through Saturday with limited route-deviation service (Nightline) till midnight. There is no service on Sundays. Complementary ADA paratransit service (the Lift Program) is offered concurrent with regular service.

The fixed route system is based on a hub and spoke philosophy integrated within a modified grid network. While routes primarily serve east-west or north-south arterials, some routes may cover more than one corridor. Tulsa Transit operates 18 all-day routes, five Nightline routes, and two weekday express routes, along with some seasonal and special event service. Daytime service frequencies range from 25 minutes to over 60 minutes. In many cases headways are based on being able to provide the most frequent service given the route's cycle time, which can lead to limited ability to coordinate connections.

Tulsa Transit operates two major transit centers: the Denver Avenue Station (DAS) in downtown Tulsa, and the Memorial Midtown Station (MMS) near the junction of Broken Arrow Expressway and I-44. Three Park-N-Ride lots serve the two express routes and are located in Broken Arrow at the Church at Battle Creek, Indian Springs Baptist Church, and Union Intermediate High School. Table 1.1 presents a listing of routes, span of service, and each route's service frequency by day of the week and time of day. Figure 1.1 illustrates daily routes, while Figure 1.2 shows Nightline service.

Several key findings related to existing service were presented in detail in *Technical Memorandum #1: Existing Services Evaluation* and are summarized below:

- **Fixed route ridership has still not recovered from massive service cuts within the past ten years.** Significant cuts of more than 20 percent to fixed route service from 2002-2004 stunted ridership. Over the last three years, ridership has been stabilizing at 2.5 million annually, with a weekday average just under 10,000 riders and a Saturday average of around 3,000.
- **Ridership demographics and travel patterns reflect a highly transit dependent base.** 3 out of 5 riders have no driver's license or auto availability, and 4 out of 5 riders live in households earning under $25,000 annually. Trips are geographically concentrated in north Tulsa, along the Admiral corridor, the Peoria corridor, and the area around Promenade Mall.
- **Riders often utilize transfers despite onerous transfer conditions.** About 1 in 3 riders require a transfer to complete his or her trip. While the transfer facilities themselves are quite welcoming and capable, timetables are not synched to allow timed transfers or clock headways, making transferring a time-intensive activity.
- **Transit system walk accessibility is limited.** While a majority of people and jobs within the City of Tulsa limits have quarter-mile access to transit, large portions of the city, and further across the region, do not. Evening coverage is also severely limited across the service area. In the future, the situation is exacerbated as more population and employment is projected to develop in areas that do not currently have transit service.

- **While fixed route service levels have stagnated, demand responsive service has increased considerably.** Demand responsive service and ridership have increased steadily since 2005, possibly a result of passengers shifting from fixed route to demand responsive service, or as a result of institutional policies for demand responsive customers. As such, costs for this service have increased by 26 percent, while service productivities have decreased.

Strapped by a lack of funding, Tulsa Transit has not evolved with time. Service spans on the core routes are limited to daylight hours only, with no Sunday service. Only three of eighteen local routes have a frequency of thirty minutes or less. The route structure has not been adjusted for changes in trip patterns or travel times, leaving many headways off clock-cycles and timed transfers rare, both a deterrent to new and choice riders. This is confirmed by survey results that show that only the most transit-dependent of Tulsa citizens use the fixed route system. Recommendations should seek to restore these deficiencies and provide for a bus system that serves the entire regional area, attracts both dependent and choice riders, and supports future growth in populace and infrastructure.

Table 1.1: Tulsa Transit Fixed Route Services

Route	Route Name	Transit Stations Served	Weekday				Saturday		
			Span of Service	Peak	Midday	Night	Span of Service	Day	Night
Local									
100	Admiral	DAS	5:20 am - 7:15 pm	40	40	--	7:00 am - 6:15 pm	80	--
101	Suburban Acres	DAS	4:50 am - 7:30 pm	30	45	--	6:58 am - 6:55 pm	45	--
105	Peoria	DAS	5:25 am - 8:06 pm	30	30	--	6:57 am - 6:02 pm	50	--
111	11th Street	DAS	5:25 am - 6:55 pm	45	45	--	6:51 am - 6:00 pm	90	--
112	Lewis/Jenks	DAS	5:20 am - 7:43 pm	60	60	--	7:12 am - 5:46 pm	80	--
114	Charles Page/Sand Springs	DAS	5:08 am - 7:52 pm	55	55	--	6:27 am - 6:40 pm	114	--
117	Union/Southwest Blvd	DAS	5:10 am - 6:40 pm	45	90	--	7:50 am - 6:20 pm	90	--
118	33rd West Ave	DAS	4:50 am - 7:30 pm	55	110	--	7:05 am - 6:57 pm	110	--
203	Airport	DAS and MMS	4:56 am - 7:07 pm	65.5	65.5	--	6:58 am - 6:54 pm	70	--
210	Harvard	DAS and MMS	5:14 am - 7:13pm	45	67.5	--	7:00 am - 5:50 pm	130	--
215	15th Street	DAS and MMS	5:15 am - 7:11 pm	38	76	--	7:00 am - 6:16 pm	76	--
221	21st St/Eastgate	DAS and MMS	5:25 am - 7:58 pm	45	67.5	--	7:20 am - 5:43 pm	70	--
222	Pine/41st Street	DAS and MMS	5:17 am - 7:30 pm	70	70	--	7:05 am - 5:55 pm	65	--
251	Fast Track	DAS and MMS	5:15 am - 7:45 pm	25	50	--	7:10 am - 6:20 pm	50	--
306	Southeast Industrial	MMS	6:40 am - 7:45pm	60	60	--	--	--	--
318	Memorial	MMS	5:30 am - 7:45 pm	45	90	--	6:30 am - 5:35 pm	90	--
471	71st Street	none	6:05 am - 7:25 pm	100	100	--	7:00 am - 5:50 pm	100	--
508	Broken Arrow Connection	none	5:55 am - 6:20 pm	85	240	--	--	--	--
Express									
902	Broken Arrow Express	DAS	6:20-8:33 am / 4:06-6:03 pm	4 trips	--	--	--	--	--
909	Union Express	DAS	6:50-7:37 am / 4:47-5:45 pm	1 trip	--	--	--	--	--
Nightline									
840	North Nightline	DAS	8:15 pm - 12:59 am	--	--	5 trips	7:30 pm - 12:10 am	--	5 trips
860	East Nightline	DAS	8:05 pm - 12:06 am	--	--	4 trips	7:45 pm - 12:08 am	--	5 trips
870	South Nightline	DAS	8:00 pm - 12:13am	--	--	8 trips	7:30 pm - 12:08 am	--	8 trips
880	Southeast Nightline	DAS	8:00 pm - 11:15pm	--	--	4 trips	7:30 pm - 11:00 pm	--	4 trips
890	West Nightline	DAS	8:00 pm - 12:02 am	--	--	5 trips	7:30 pm - 11:43 pm	--	5 trips

Figure 1.1: Tulsa Transit Fixed Route System Map

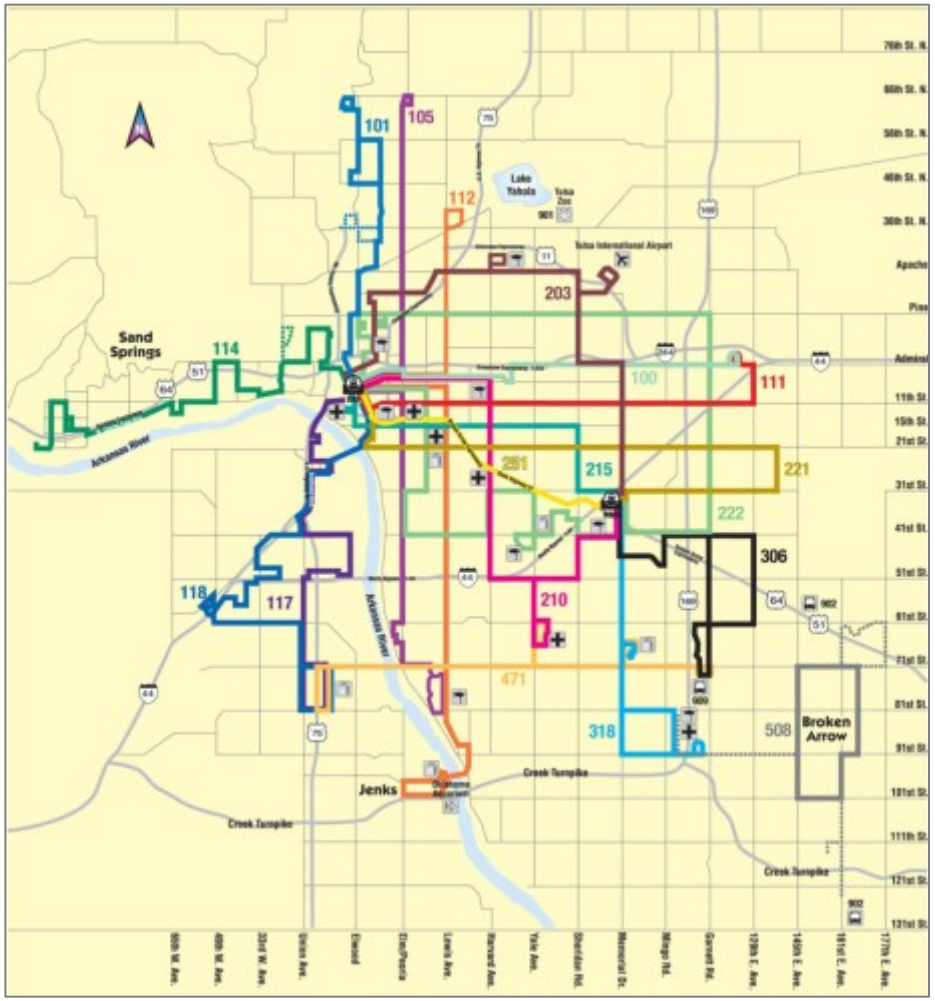
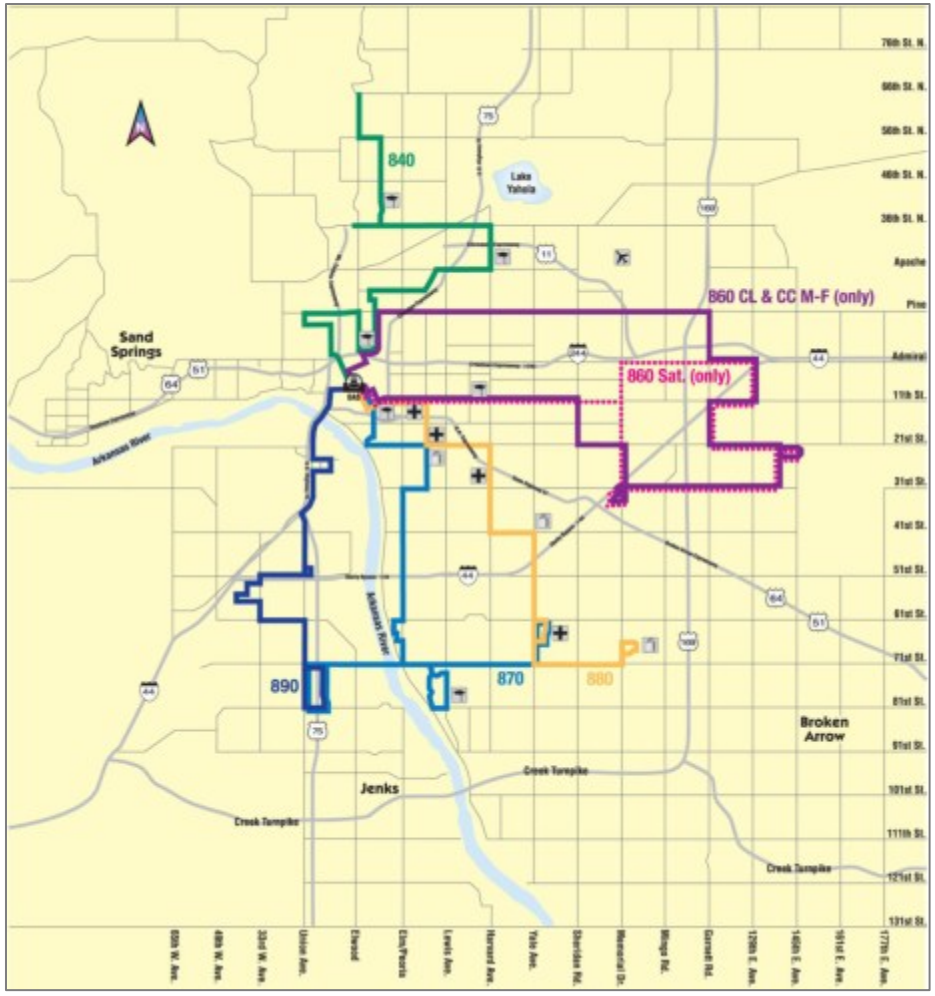


Figure 1.2: Tulsa Transit Nightline System Map



1.2 Summary of Recommendations

Recommendations for the future fixed route system represent a phased approach to rebuilding and reimagining Tulsa Transit as both a vital service as well as an economic engine within the region. Initially, focus would be given to changes that are easily implemented and possible within Tulsa Transit's current funding levels. Over time, service would be modified and expanded to improve route coverage, decrease travel times, and increase service frequency and operating hours. These types of changes would require both a significant financial investment along with a dramatic expansion to fleet, facility, and agency staff.

Growth phases defined within the Fast Forward Regional Transit System Plan (RTSP) identify a Near-Term (0-5 years), a Mid-Term (5-15 years), and a Long-Term (15+ years). Each of these phases is associated with a projected level of increased revenue available for regional transit. The recommendations below additionally propose a subset of Near-Term changes, dubbed Immediate-Term, that could be implemented within the next year and require no substantial new resources to be completed.

Cultivating a visionary transit system in the Tulsa regional area can be likened to how a plant matures. Each phase of growth would accomplish key incremental steps in that process:

Immediate-Term (0-1 Years): TILLING

The first year of the plan would involve preparing the ground in which transit can flourish. Without new funds, new service cannot be added in this phase, but several measures can be put in place to create an environment that will improve current riders' experience and attract new riders.

- Standardize bus frequencies to clock headways (such as every half hour, every 45-minutes, or every hour)
- Time transfers at DAS so riders can transfer from one route to another with minimal waiting time
- Make minor simplifications to daytime routes and replace Nightline service with a core set of regular routes extended into evenings

Near-Term (1-5 Years): PLANTING

Over the next five years, "seeds" of new service modes and technologies would be introduced to the community. While many efforts focus on attracting choice travel markets, significant new resources would be used to raise service frequencies on the existing core route system closer to levels at peer agencies. Accompanying this new beginning would be an aggressive marketing and rebranding of Tulsa Transit and the availability of real-time bus arrival data at transit centers and on mobile devices.

- Introduce express service to five new suburban communities and vanpool service across the region
- Pilot "rapid bus" service (limited stops, traffic signal priority) on Peoria Avenue
- Develop a network of "super stops" containing enhanced passenger amenities at high volume stops
- Increase weekday and Saturday route frequencies to operate a minimum of hourly, and every half-hour on high ridership routes

Mid-Term (5-15 Years): GROWING

This phase marks the most dramatic expansion to regional bus service in the entire plan. Local, rapid, and express bus networks are all grown in frequency, coverage, and operating days and hours, representing a more than doubling of service from existing levels. To accomplish this service expansion, fleet and facility needs and agency organization and staffing will likewise need to be enhanced.

- Increase suburban express route frequencies and introduce suburban flex-route circulators
- Expand rapid bus network to four corridors
- Expand and restructure local route network and introduce downtown circulator
- Extend weekday and Saturday service hours and introduce Sunday service
- Build three new transit centers and upgrade amenities and route information available at all stops

Long-Term (15+ Years): BLOOMING

As the underlying bus system matures into one that is at the top of its peer class, high-capacity corridor projects are introduced across the region. Further study will determine the precise alignment and technology to be utilized in each of these corridors. General route coverage and frequencies continue to be improved, especially at the fringes of the service area.

- Introduce high-capacity corridor projects on four urban corridors
- Develop six new rapid bus corridors
- Extend local route service and improve some weekday and Saturday route frequencies

The recommendations contained herein describe what could roughly be implemented at each of the funding levels projected in the RTSP; however, they do not represent the result of a comprehensive financial analysis of all transit projects within the region. Further analysis will be required to refine associated operating and capital costs, update local and federal funding assumptions, and integrate these bus plans with high-capacity corridor projects. For this reason, proposed changes have been parceled into "packets" that can be adjusted, shifted between phases, or deleted altogether as cost and funding projections meet reality.

Table 1.2 presents a summary of the annual operating statistics and costs associated with each plan level described above. Following that, Table 1.3 lists the strategy, specifics, and required resources of each individual packet of changes that are recommended. Costs cited are in current year dollars and are for operations only (not including capital requirements). As a reference, average annual fixed route operating costs for Tulsa Transit's peer agencies is $25.7 million.

Table 1.2: Annual Fixed Route Operating Statistics by Phase

	PEAK BUSES	Percent Change	REVENUE HOURS	Percent Change	REVENUE MILES	Percent Change	OPERATING COSTS*	Percent Change
Existing	46	n/a	160,068	n/a	2,353,892	n/a	$12.0 M	n/a
Immediate-Term	46	0%	163,607	2%	2,284,454	-3%	$12.3 M	3%
Near-Term	64	39%	218,930	37%	3,028,426	29%	$16.4 M	37%
Mid-Term	107	133%	427,366	167%	5,908,918	151%	$32.1 M	168%
Long-Term	136	196%	565,411	253%	7,741,199	229%	$42.4 M	253%

** Operating Costs are express in current year (2011) dollars.*

Table 1.3: Recommended Strategies by Phase

Timing	Strategy	Specifics	Additional Annual Operating Resources (above previous plan)
Immediate 0-1 Years *Negligible Growth in Operating Resources*	*Route Services*		
	Standardize frequencies to clock headways	Adjust peak headways on 8 routes and offpeak headways on 11 routes to 30, 45, 60, 90, or 120 minutes	2,000 revenue hours / 0 peak vehicles / $148,000
	Timed transfers at DAS	All routes pulsed to leave DAS at 0, 15, 30, or 45 minutes after the hour	0 revenue hours / 0 peak vehicles / $0
	Minor route modifications	Changes suggested for 8 routes	-300 revenue hours / 0 peak vehicles / $-23,000
	Replace nightline service with fixed route service	100 (Admiral), 105 (Peoria), 110 (Harvard/Yale), 117 (Southwest/Union), and 221 (21st)	1,900 revenue hours / 0 peak vehicles / $141,000
	Other (Marketing, Technology, Etc)		
	Develop downtown route detail map	Allow potential riders to navigate system around downtown upon arrival at DAS	none
Near Term 1-5 Years *40% Growth in Operating Resources*	*Route Services*		
	Introduce new express "seeds" to suburban communities	1 AM and 1 PM weekday trip to/from Jenks/Bixby, Sapulpa, Sand Springs, Owasso, and US169 corridor	1,700 revenue hours / 5 peak vehicles / $129,000
	Pilot "rapid bus" service on Peoria	Limited stop service with partial signal priority and branded buses and stops in weekday peak periods	8,000 revenue hours / 4 peak vehicles / $602,000
	Improve weekday headways and standardize at 30 or 60 minutes	adjust peak headways on 7 routes and offpeak headways on 10 routes to 30 or 60 minutes	31,000 revenue hours / 9 peak vehicles / $2,325,000
	Expand and improve night service	Expand to 9 routes, establish 60 minute headways	10,200 revenue hours / 0 peak vehicles / $765,000
	Improve Saturday service	All routes set to 60 minutes	4,400 revenue hours / 0 peak vehicles / $328,000
	Facilities		
	Expand and improve regional park and ride network	Establish/enhance lots in Broken Arrow (2), Union HS, Bixby (2), Jenks, Sapulpa, Sand Springs, and Owasso	minimal
	Develop a network of super-stops (sub-hubs)	Additional amenities such as shelters, kiosks, improved passenger information provided at Woodland Hills Mall, St. Francis Heart Hospital, Memorial/Admiral, 81st/Lewis, 41st/Peoria, Tulsa Hills, Pine/Cincinnati, 21st/Sheridan, Promenade Mall, University of Tulsa	minimal
	Provide additional amenities and route information at key intercept bus stops	Stops to be determined based on ridership activity, route interactions, and geographic diversity	minimal
	Other (Marketing, Technology, Etc)		
	Aggressive rebranding/marketing	Redevelop agency brand and stratify look of local, express, and rapid buses; target marketing strategies to various market segments	neglible
	Introduce vanpool services	Agency supplies branded vans to commuter, human service, and other eligible groups to use for group travel	to be determined
	Implement systemwide AVL program	Integrate real-time passenger information on monitors at transit centers and via web or text for all system stops	possible cost savings
Mid Term 5-15 Years *175% Growth in Resources*	*Route Services*		
	Improve service frequencies for express bus service to suburban communities	Increase to 4 AM and 4 PM weekday trips to/from Union HS, Jenks/Bixby, Sapulpa, Sand Springs, Owasso, and US169 corridor *(would be replaced with high capacity alternatives upon completion)*	8,200 revenue hours / 5 peak vehicles / $617,000
	Implement rapid bus network on 4 corridors	30-minute weekday peak and 60-minute midday and weekend service on Peoria, Admiral, Yale, and 21st	48,800 revenue hours / 12 peak vehicles / $3,660,000
	Expand/restructure some core route coverage	Introduce direct routings along Harvard, Yale, Sheridan, Memorial, Garnett, 41st, 71st, and 91st	40,500 revenue hours / 11 peak vehicles / $3,038,000
	Expand Broken Arrow route services	Introduce fixed route service on Elm and connect to core route structure via 71st, 81st, and 91st; *extend Fast Track to downtown Broken Arrow and double express service (italicized would be replaced with high capacity alternative upon completion)*	29,600 revenue hours / 6 peak vehicles / $2,218,000
	Improve downtown circulation	Introduce downtown circulator at 15 minutes weekdays and 30 minutes Friday/Saturday nights *(would be replaced with fixed guideway alternative upon completion)*	16,000 revenue hours / 4 peak vehicles / $1,199,000
	Suburban circulation	Introduce flex route circulators in Sapulpa and Owasso; expand local service in Jenks and Bixby	15,700 revenue hours / 5 peak vehicles / $1,181,000
	Expand weekday and Saturday service hours	Extend more routes into evening and run late night service to 1:00 a.m.	22,200 revenue hours / 0 peak vehicles / $1,664,000
	Introduce Sunday service	Base 60-minute service	27,500 revenue hours / 0 peak vehicles / $2,059,000
	Facilities		
	Build 3 new transit centers	South Tulsa (81st/Lewis), St Francis South (91st/Garnett), Broken Arrow (81st/Main)	minimal
	Upgrade administrative and maintenance facility	Expanded or new facility required to support massive expansion to service	minimal
	Expand amenities and route information available at all bus stops	Improve basic stop experience to include route information and expand amenties available at medium-usage stops	minimal
	Other (Marketing, Technology, Etc)		
	Restructure agency organization	Additional staff and redefined organizational structure required to plan and operate massive expansion to service	to be determined
	Expand AVL program	Integrate real-time passenger information on monitors at super stops	possible cost savings
Long Term 15+ Years *Over 250% Growth in Resources*	*Route Services*		
	Introduce high capacity corridor projects on 4 urban corridors	15-minute weekday peak and 30-minute midday and weekend service on Peoria, Admiral, Yale, and 21st *(subject to high capacity project completion)*	57,300 revenue hours / 16 peak vehicles / $4,300,000
	Expand rapid bus network to 6 more corridors	60-minute weekday and weekend service on Pine, 41st, 71st, Southwest/Union, Memorial, and Garnett	38,100 revenue hours / 9 peak vehicles / $2,858,000
	Extend local route service area	Extend service to Catoosa and New Tulsa	23,500 revenue hours / 2 peak vehicles / $1,763,000
	Improve some weekday and Saturday headways	Adds targeted additional service on some routes	19,000 revenue hours / 2 peak vehicles / $1,425,000
	Facilities		
	Expand park and ride network	New lots in Turley and Admiral/129th	minimal

2 Future Service Plans

Recommendations for future service have been developed as a three-phase plan coinciding with the timeline identified in the Fast Forward RTSP for Near-Term (0-5 years), Mid-Term (5-15 years), and Long-Term (15+ years) phases. Each of these phases is associated with a projected level of increased revenue available for regional transit. A subset of Near-Term changes possible for little to no additional costs are dubbed Immediate-Term and designed to be implemented within the next year.

Each phase includes modifications and additions to the local and express bus networks, along with offering new modes of transit such as rapid bus, flex- and fixed-route circulators, and vanpool. Fleet and facility requirements and other needs (such as marketing, technology, or administrative) are also described that would be required or advisable in order to make the service recommendations a success. While it is anticipated that future high-capacity corridors identified in the RTSP will be developed, without knowing the specifics of technology, stations, or alignment those would entail, these plans maintain a transit network strictly of street-running buses. In reality, several routes identified within would be replaced or supplemented by a high-capacity corridor project sometime in the future.

Each service phase has been developed in great detail, down to the specifics of route alignments by turn and headway assumptions by time of day and day of the week. This section describes the contents of each plan on a systemwide level. Section 3 details the overall operating statistics and costs required to implement each phase, and Section 4 presents phase-by-phase changes in alignment and headway for each route. Detailed route level operating statistics and sample schedules are available in the appendices.

2.1 Near-Term Service Plan

The proposed Near-Term (NT) service plan would begin the process of returning service frequencies and hours of operation to a functional level for a mid-size city such as Tulsa. It would introduce several measures to improve route efficiency and ease rider comprehension, including standardizing frequencies to clock headways, timing transfers between routes, and improving rider amenities at stops, such as real-time bus arrival times at transit centers and on mobile devices.

Additionally, the plan would establish the seeds for new transit modes and service areas by introducing new express routes, installing vanpool services, and piloting a “rapid bus” corridor. To introduce these new services to the public and begin the process of shifting perceptions about public transit, an aggressive marketing and rebranding effort would accompany these changes.

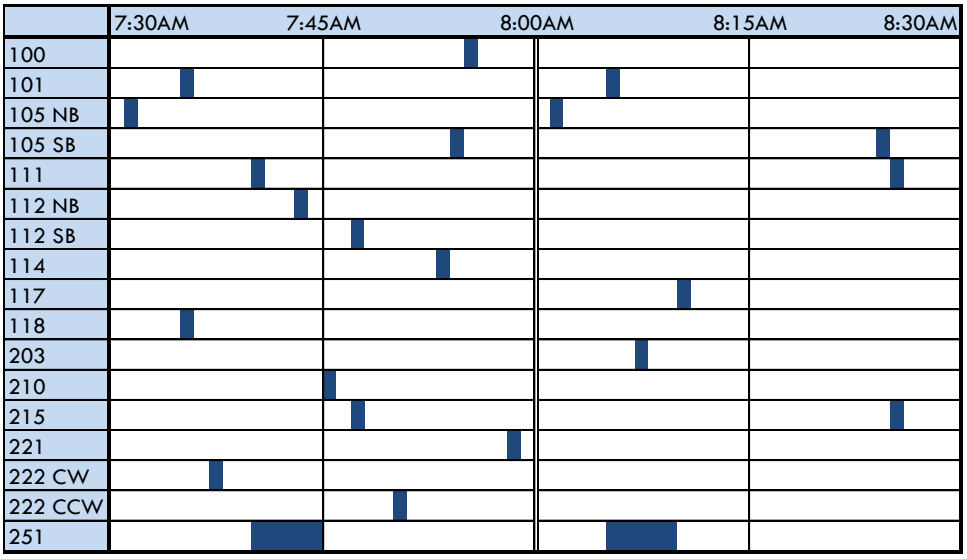
The Near-Term Plan is designed to occur over the next five years and would require a 40 percent growth in operating resources. Annual operating costs would increase by about $4.4 million (37 percent) to make these improvements. A subset of Near-Term changes has been designated to occur within the first year of the plan. These Immediate-Term changes would greatly enhance the existing system with

little additional operating resources required. Recommendations for immediate implementation are indicated with an [I] below.

Service Recommendations

- **Improve local route frequencies.** Only 3 of 18 local routes operate at frequencies of 30-minutes or less, and half operate at a frequency of more than 60-minutes for at least part of the day. This not only makes trip-making onerous for dependent riders, but also deters choice riders from using a system so infrequent. Frequencies would be increased so that all local routes operate at a minimum of 60-minutes on weekdays and Saturdays, with almost half the routes operating at 30-minute intervals during weekday peaks.
- **Standardize route frequencies to clock intervals [I].** Many local routes operate at off-clock intervals (e.g., a route arrives at a stop at 10:02, then at 11:18, then at 12:34, etc). Off-clock frequencies are cumbersome for existing riders and a deterrent for new riders, both of whom must work to understand when their next bus is due. Starting immediately, all schedules would be standardized to clock intervals (e.g., a route arrives at a stop at 10:02, then at 11:02, then at 12:02, etc).
- **Time all route transfers out of DAS [I].** Currently, routes lay over at the outbound end-of-line rather than at DAS, and are not timed to arrive to the transfer center concurrently (Figure 2.1). For a hub-and-spoke system where 1 in 3 riders required a transfer, this can mean long wait times between connections, especially when route delays occur.

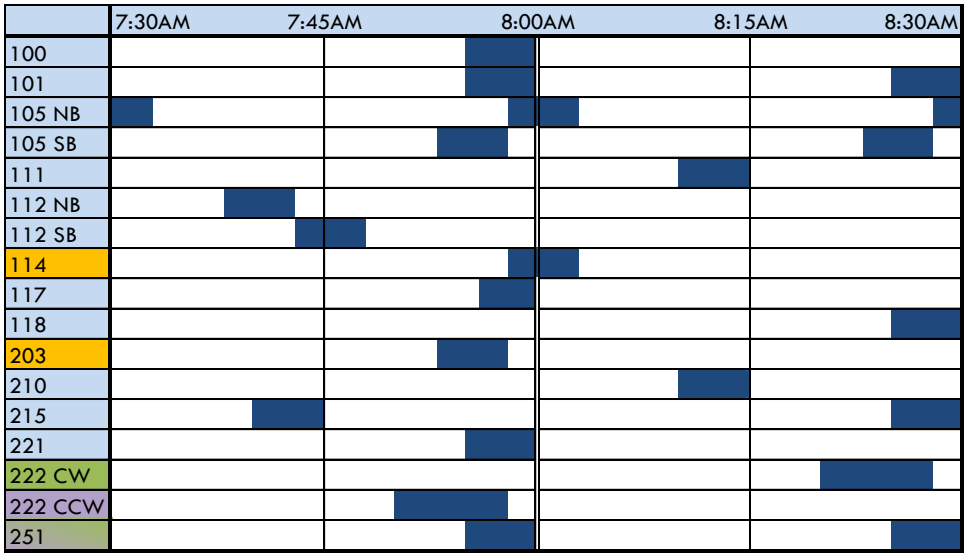
Figure 2.1: Existing Route Layover Time at DAS, Weekdays 7:30AM – 8:30AM



Starting immediately, schedules would be adjusted so that routes spend a portion of their lay over (about 5 minutes) at DAS. In conjunction with the recommendation above to standardize frequencies to clock intervals, routes would be scheduled to arrive and depart from DAS around 0-, 15-, 30-, or 45-minutes after the hour (Figure 2.2). Timing transfers allows most riders to make near-instantaneous connections, even when routes are a few minutes late, and serves to

maximize trip-making even on infrequent routes. Appendix A contains sample schedules developed for the Immediate-Term plan to demonstrate the mechanics of timed transfers.

Figure 2.2: Near-Term Route Layover Time at DAS, Weekdays 7:30AM – 8:30AM



Color-coding indicates routes that are interlined.

- **Make minor route modifications and simplifications [I].** Route modifications are suggested for eight local routes in the NT plan: 101, 114, 117, 118, 203, 210, 222, and 471. Most are minor changes proposed to help routes with off-clock frequencies fit into a clock interval (e.g., a route with a current interval of 70-minutes is modified to fit into a 60-minute interval), or to afford more layover time to a tight route. The West Tulsa routes (117 and 118) are reconfigured to give more service to the high activity LaFortune Towers area and less to the low activity Tulsa Hills area.

  The most significant alignment change occurs for 210 and 471. It is proposed to swap the eastern ends of these routes (at St. Francis) so that 471 (renamed to 371) would continue to MMS while 210 (renamed to 110) would continue to Woodland Hills Mall and 71st/Garnett. The change allows a connection from mid- and eastern Tulsa down to Tulsa Hills, and from DAS direct to Woodland Hills Mall and other retail along 71st Street. Current 471 ridership is very sparse due to low frequencies and the lack of connection to potential riders. This change addresses that deficiency without sacrificing coverage. Route-by-route detail of all changes appears below in Section 4.

- **Replace Nightline routes with regular fixed routes [I].** The existing Nightline system is used sparingly. While part of this is due to low frequencies and the time of day, part of it can also be attributed to the fact that it is an entire separate route network, uses circuitous alignments with flex-deviations, and often starts one to two hours after regular service ends. It is proposed to discontinue the Nightline service and in its place extend regular fixed routes into the evening hours. In the Immediate-Term, five routes would be extended at 90-minute intervals (100, 105,

110 (former 210), 117, and 221). By the end of the NT plan, four more routes would be added (101, 215, 222, and 318) and frequencies would be increased to 60-minutes.

- **Introduce new express "seeds" to suburban communities.** Express services, currently limited to the Broken Arrow corridor, would be reintroduced to five more suburban communities: Bixby, Jenks, Sapulpa, Sand Springs, and Owasso. Service would commence with one morning trip and one afternoon trip between these communities and downtown Tulsa, and service along the US-169 corridor.
- **Pilot "rapid bus" service.** Across the transit industry, "rapid bus" has several different connotations. As described herein, it would consist of street-running buses given partial traffic signal priority by means of a transponder allowing the bus to extend green-light cycles and shorten red-light cycles to decease travel time. It also would involve limited stops in high activity areas, with significant signage and amenities, and a specially-branded vehicle. Parallel local route service is assumed to continue operating underneath rapid routes. On average, rapid buses see speed improvements of 15-20 percent over conventional buses and are a great way to improve both the quality and image of transit service with minimal capital investment. The dense Peoria Avenue corridor is suggested as the first corridor to pilot rapid bus in Tulsa, with others to follow in later phases.

Facilities Recommendations

- **Expand and improve regional park-and-ride network.** As part of the effort to capture the express commuter market, the park-and-ride network must be expanded so that each express route has one or two lots serving it for choice riders. In addition, all park-and-ride lots, including the three existing, should be upgraded with clear signage, improved lighting, defined parking and waiting areas, and other amenities that enhance the rider experience.
- **Develop a network of super-stops (sub-hubs).** Super-stops (or sub-hubs) are typically high activity transit nodes where two or more routes intersect. While not prominent enough to warrant a transit center, they tend to offer a range of amenities above a regular stop, such as multiple shelters, ticket kiosks, and extensive route information. Where possible, super-stops should afford curb cuts or pull-out areas for passenger loading. Super-stops give passengers a level of comfort that they can safely and easily wait and transfer for their buses across the entire system. Super-stops are proposed at the following locations: Woodland Hills Mall, St. Francis Heart Hospital, Memorial/Admiral, 81st/Lewis, 41st/Peoria, Tulsa Hills, Pine/Cincinnati, 21st/Sheridan, Promenade Mall, and University of Tulsa.
- **Provide additional amenities and route information at key intercept bus stops.** A thorough inventory of all transit stops should be developed that assesses ridership activity at every stop in the system, along with criteria determining what level of rider activity warrants a given level of passenger amenities (e.g., stops with at least 25 weekday riders will have a bench). Using this framework, stops with either high ridership, significant route interactions, or geographic diversity (including all super-stops) should be targeted for a consistent and refurbished look that includes amenities like shelters and benches and accurate route information.

Other Recommendations

- **Introduce vanpool services.** Coordinating a robust vanpool program from within Tulsa Transit accomplishes several goals. First, it provides a needed "gap service" to riders for whom bus services may not be feasible. Second, like all transit it improves regional mobility and benefits the environment. Third, it engenders the transit agency to more of the community, making citizens more likely to try other transit modes and support transit-friendly political measures. Fourth, it can provide an alternative that reduces the number of high-cost paratransit trips an agency provides.

  Vanpools vehicles would be purchased through the federal grant process by the agency, which would then coordinate usage for eligible groups desiring to operate the vehicles. Vanpools are often attractive to commuter groups working for the same employer, and churches, senior centers, and similar organizations whose members regularly engage in group travel.

- **Implement a systemwide Automatic Vehicle Locator (AVL) program.** While AVL technology can obviously bring internal efficiencies to an agency's dispatching unit, operators are beginning to fully utilize it as a tool that customers can use as well. Riders with access to real-time arrival and departure information are able to navigate the system with more comfort and plan trips more efficiently, both important ingredients for new and choice riders. At minimum, this means real-time arrival information available on electronic monitors at DAS and MMS. A robust program would allow riders to monitor bus locations online and receive on-time information for any stop in the system via web or text on their mobile devices.
- **Aggressively market and rebrand the "new" Tulsa Transit.** In order to attract new riders to this burgeoning vision, perceptions about what public transit is, and what Tulsa Transit is, must be changed. An aggressive effort to rebrand the agency should take place conveying that Tulsa Transit offers a mode for every class and community, that it is safe and reliable, fast and convenient, green and contemporary, and part of the region's fabric. Local buses, rapid buses, express buses, paratransit vehicles, and vans should be distinctive and modern in design. Stops, park-and-rides, and transit centers should be clean and attractive. Marketing should reach both English- and Spanish-speaking communities and target seniors, college students, downtown commuters, and other subgroups who could naturally be attracted to transit.
- **Develop a downtown route detail map [I].** Riders currently travelling downtown may know which streets their current route takes to DAS, but not those of the whole system. A downtown route detail map would allow them to navigate all of downtown's offerings, from OSU Tulsa and the Brady District to TCC Downtown and the OSU Medical Center. Combined with the timed transfer recommendation, riders will be more willing to try trip-making that involves them reaching DAS on their primary route, then effortlessly transferring to a second route carrying them to a final destination.

Recommendations for Immediate Implementation

As noted by the [I] above, several NT recommendations have been designated as immediately implementable given the low to no capital and operating investment they require. Taken as a whole,

these recommendations alone could greatly improve the service Tulsa Transit operates. Additional operating resources required are less than $300,000, or 3 percent of current operations. In summary, these include:

- Standardizing route frequencies to clock intervals
- Timing all route transfers out of DAS
- Making minor route modifications and simplifications
- Replacing Nightline routes with regular fixed routes
- Developing a downtown route detail map

Figure 2.3 below presents a system map for the Near-Term plan, with Table 2.1 describing the Near-Term changes for each route. Section 3 presents operating statistics and costs for both the Near-Term plan and the subset of Immediate-Term changes. Section 4 details specific Near-Term updates on a route-by-route basis. Finally, Appendices B and C present complete, detailed operating statistics for each route and route pattern as they existing in the Immediate-Term and Near-Term plans, respectively.

Figure 2.3: Proposed Near-Term System Map

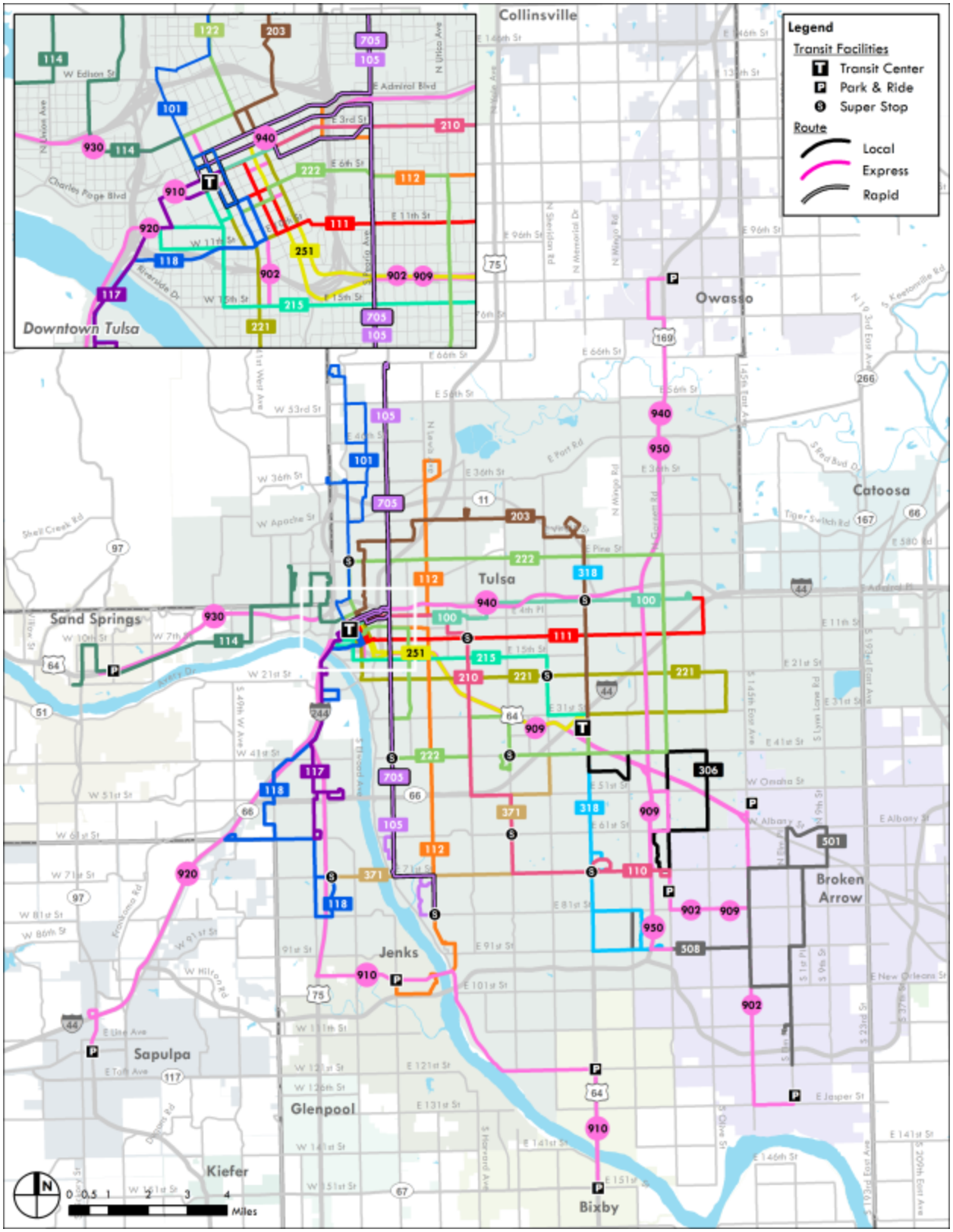


Table 2.1: Proposed Near-Term Route Updates

							Immediate Term Concept							
							Transition from immediate to near term concept							
							Near Term Concept							
Route	Route Name	Existing Weekday			Existing Saturday		Weekday				Saturday			Near Term
		Peak	Midday	Night	Day	Night	Peak	Midday	Eve	Night	Day	Eve	Night	Proposed Route Changes[2]
Local														
100	Admiral	40	40	--	80	--	45-30	45-30	90-60	90-60	60	90-60	90-60	
101	Suburban Acres	30	45	--	45	--	30	30	60	60	60	60	60	Proposed modification to 49th/Denver pattern
105	Peoria	30	30	--	50	--	30	30	90-60	90-60	60	90-60	90-60	
705 new	Peoria Rapid						30	--	--	--	--	--	--	Rapid bus pilot (Ltd stop of Rte 105)
111	11th Street	45	45	--	90	--	30	30	--	--	60	--	--	
112	Lewis/Jenks	60	60	--	80	--	60	60	--	--	60	--	--	
114	Charles Page/Sand Springs	55	55	--	114	--	60	60	--	--	120-60	--	--	Simplify route
117	Union/Southwest Blvd	45	90	--	90	--	60	60	90-60	--	60	90-60	--	Truncate route ending with loop at 61st/Southwest (118 serves south end)
118	33rd West Ave	55	110	--	110	--	60	120-60	--	--	120-60	--	--	Route recently modified; additional revision to serve LaFortune Tower
203	Airport	65.5	65.5	--	70	--	60	60	--	--	90-60	--	--	Shave 5 minutes off rte; possibly use Memorial instead of Sheridan exiting airport
210 *(rename 110)*	Harvard	45	67.5	--	130	--	30	45-30	90-60	--	90-60	90-60	--	Swap end of route with 471
215	15th Street	38	76	--	76	--	45-30	90-60	0-60	--	90-60	60	--	
221	21st St/Eastgate	45	67.5	--	70	--	30	45-30	90-60	90-60	60	90-60	90-60	
222	Pine/41st Street (Pine/Garnett)	70	70	--	65	--	60	60	0-120	--	60	120	--	Simplify portions of route (shave 5 minutes)
251	Fast Track	25	50	--	50	--	30	60	--	--	60	--	--	
306	Southeast Industrial	60	60	--	--	--	60	60	--	--	--	--	--	
318	Memorial	45	90	--	90	--	30	60	60	--	90-60	60	--	
471 *(rename 371)*	71st Street	100	100	--	100	--	60	120-60	--	--	120-60	--	--	From Tulsa Hills, reroute to MMS via Yale (swap segment with 210)
508	Broken Arrow Connection	85	240	--	--	--	60	120	--	--	--	--	--	
Express														
902	Broken Arrow Express	2 trips	--	--	--	--	3 trips	--	--	--	--	--	--	
909	Union Express	1 trip	--	--	--	--	1 trip	--	--	--	--	--	--	
910 new	Bixby-Jenks-Tulsa	--	--	--	--	--	1 trip	--	--	--	--	--	--	DAS to Bixby
920 new	Sapulpa-Tulsa	--	--	--	--	--	1 trip	--	--	--	--	--	--	DAS to Sapulpa via I-244 and I-44
930 new	Sand Springs-Tulsa	--	--	--	--	--	1 trip	--	--	--	--	--	--	DAS to Sand Springs via US-412
940 new	Owasso-Tulsa	--	--	--	--	--	1 trip	--	--	--	--	--	--	DAS to Owasso via I-44 and US-169
950 new	US 169	--	--	--	--	--	1 trip	--	--	--	--	--	--	Owasso to St. Francis South via US-169
Nightline														
840	North Nightline	--	--	5 trips	--	5 trips	--	--	--	--	--	--	--	
860	East Nightline	--	--	4 trips	--	5 trips	--	--	--	--	--	--	--	
870	South Nightline	--	--	8 trips	--	8 trips	--	--	--	--	--	--	--	
880	Southeast Nightline	--	--	4 trips	--	4 trips	--	--	--	--	--	--	--	
890	West Nightline	--	--	5 trips	--	5 trips	--	--	--	--	--	--	--	

2.2 Mid-Term Service Plan

The Mid-Term (MT) service plan would dramatically expand upon the changes introduced in the Near-Term. In ten years' time, Tulsa Transit would grow from being near the bottom in level of service among its peers to an organization above-average in its peer class. Service frequencies, route coverage, and days and hours of operation would all be improved for the local bus, rapid bus, and express bus networks. Circulator service would be offered in downtown Tulsa and suburban communities. Three new transit centers would be constructed.

The proposed Mid-Term growth would more than double the size of operations at Tulsa Transit. To support this profound evolution, a considerable upgrade to the agency fleet and administrative and maintenance facility will be required, along with an expansion and restructuring of the organization as a whole. By the end of the Mid-Term Plan in 2026, operating resources will have grown almost 175 percent over 2011 levels. Annual operating costs must increase by over $20 million (168 percent) in current year 2011 dollars to make these improvements.

Service Recommendations

- **Expand and restructure core Tulsa route coverage.** With the influx of new resources comes the ability to introduce direct routings in several corridors that previously had no coverage or shared a route with another corridor, including: Harvard, Yale, Sheridan, Memorial, Garnett, 41st, 71st, and 91st. This necessitates splitting a handful of existing routes (210, 222, 318, and 471) into two routes or patterns and modifying the alignment of 203.

  The number of local routes offering 30-minute peak weekday service increases from 8 in the NT to 14 in the MT, with several routes also moving to 30-minute frequencies in the midday and early evenings. Riders in corridors that also have rapid service see a net frequency of 15-minutes.

- **Expand rapid bus network to four corridors.** The rapid bus network piloted on Peoria Avenue in the NT is expanded to also include Admiral Place, Yale Avenue, and 21st Street. Rapid bus service is offered at 30-minutes in the weekday peaks and a minimum of 60-minutes on weekday middays and weekends. Combined with underlying local route service, riders experience 15-minute frequencies in these corridors during peak periods.
- **Improve express bus service frequencies.** Express bus services introduced with one morning and afternoon trip in the NT are expanded to make four morning and four afternoon trips in the MT in anticipation of growing demand for commuter service. Broken Arrow Express is increased to 30-minute peak service with 2 midday trips added. As many of these express bus routes run along corridors identified in the RTSP for high-capacity projects, service levels on these may be reduced or eliminated in response to a new project.
- **Improve downtown Tulsa circulation.** With the influx of commuter routes now reaching downtown Tulsa, providing circulation from DAS becomes a plausible option. Bidirectional loop service is anticipated to run weekdays, Friday and Saturday nights, and during special events,

targeting the following destinations: BOK Center, The Brady District, OneOK Field, OSU Tulsa, Tulsa Performing Arts Center, Tulsa City Hall, Main/Boston corridor, TCC Downtown, OSU Medical Center, Tulsa Convention Center, Tulsa County Courthouse, and Tulsa City-County Library. Service is currently designed as a rubber-tire trolleybus distinct in design from the local and express bus network. Should a streetcar or other fixed guideway alternative be constructed downtown, that service would likely replace the circulator described here.

- **Enhance Broken Arrow route services.** Broken Arrow is currently served by only one local circulator route (508) with limited connectivity to the rest of the Tulsa Transit route network. In the MT, 508 would be majorly redesigned as a north-south arterial route (renamed 501) serving Elm Street, downtown Broken Arrow, and the SR-51 retail centers, while still retaining its flex-route status. East-west service through Broken Arrow would be accomplished by redesigning existing routes along 71st (471), Olive and 81st, (306), and 91st (318) to meet in downtown Broken Arrow.

  Finally, the Fast Track route (251) connecting downtown Tulsa to MMS via the Broken Arrow Expressway would be extended from MMS along the expressway to downtown Broken Arrow, providing a fast connection between the two downtowns and the midtown area. It is anticipated that the redesigned Fast Track could be curtailed or eliminated should a high-capacity project evolve in the Broken Arrow corridor.

- **Introduce route service in new suburban communities.** As suburban communities grow more familiar with transit thanks to new express services, new local suburban services are introduced. Different solutions are proposed for different communities. In Bixby, local service would mean extending Tulsa routes along Memorial (318) and Peoria (Rapid 705) into the community. In Jenks, service currently provided via Lewis (112) would be replaced with service via Peoria (Rapid 705) and Harvard (410). Sapulpa and Owasso, which are further removed from the core route system, would each have flex-route circulators similar to the current 508.
- **Expand days and hours of operation.** Sunday service, long out of reach for cash-strapped Tulsa Transit and a key sign of a vibrant transit system, is finally put in place, with most routes running at 60-minutes during daytime only. Additionally, weekday and Saturday service hours are extended from midnight to 1:00 a.m., and more routes are extended into the early evenings and nighttime.

Facilities Recommendations

- **Construct three new transit centers.** With the route system maturing and more service introduced, the need for three new transit centers develops in the MT. One of these would be in downtown Broken Arrow, connecting and consolidating those bus services, and perhaps serving as a rail station sometime in the future. The other two would both be located in south Tulsa serving large attractors where multiple routes meet: 81st/Lewis (Walmart and Oral Robert University) and 91st/Garnett (St Francis South). All three of these centers would be about half the size of DAS or MMS, with space to accommodate 4-6 buses at a time.
- **Upgrade administrative and maintenance facility.** With the fleet size more than doubling, the addition of new vehicle types, and the need for a significantly larger operations, maintenance,

and administrative staff, the currently outdated facility Tulsa Transit occupies would undoubtedly need to be either refurbished and expanded or, more likely, relocated to a new building and grounds.

- **Expand amenities and route information available at all bus stops.** The effort begun in the NT to achieve a consistent and refurbished look at high activity stops that includes amenities like shelters and benches and accurate route information is now expanded to include medium-usage stops as well. Further, updates to the basic stop experience are completed at all agency stops, completing the transformation of what essentially is the "front door" of a transit system.

Other Recommendations

- **Expand and restructure agency organization.** Accomplishing the massive expansion of Tulsa Transit envisioned by the RTSP requires a very different organization than the lean team currently in place. Beyond just expanding staff, Tulsa Transit will need to consider a wholesale reorganization of agency functions to undertake a new set of goals and route services, and be prepared for a makeover into a broader entity should a regional authority or other multi-jurisdictional model be put in place.
- **Expand AVL program.** In the MT phase, real-time arrival information available on electronic monitors is expanded to not only transit centers but also super-stops. Enhancements to the web and text information available for all stops continues as well.

Figure 2.4 below presents a system map for the Mid-Term Plan, with Table 2.2 describing the Mid-Term changes for each route. Section 3 presents operating statistics and costs for the plan, and Section 4 details specific updates on a route-by-route basis. Finally, Appendix D presents complete, detailed operating statistics for each route and route pattern as they existing in the Mid-Term.

Figure 2.4: Proposed Mid-Term System Map

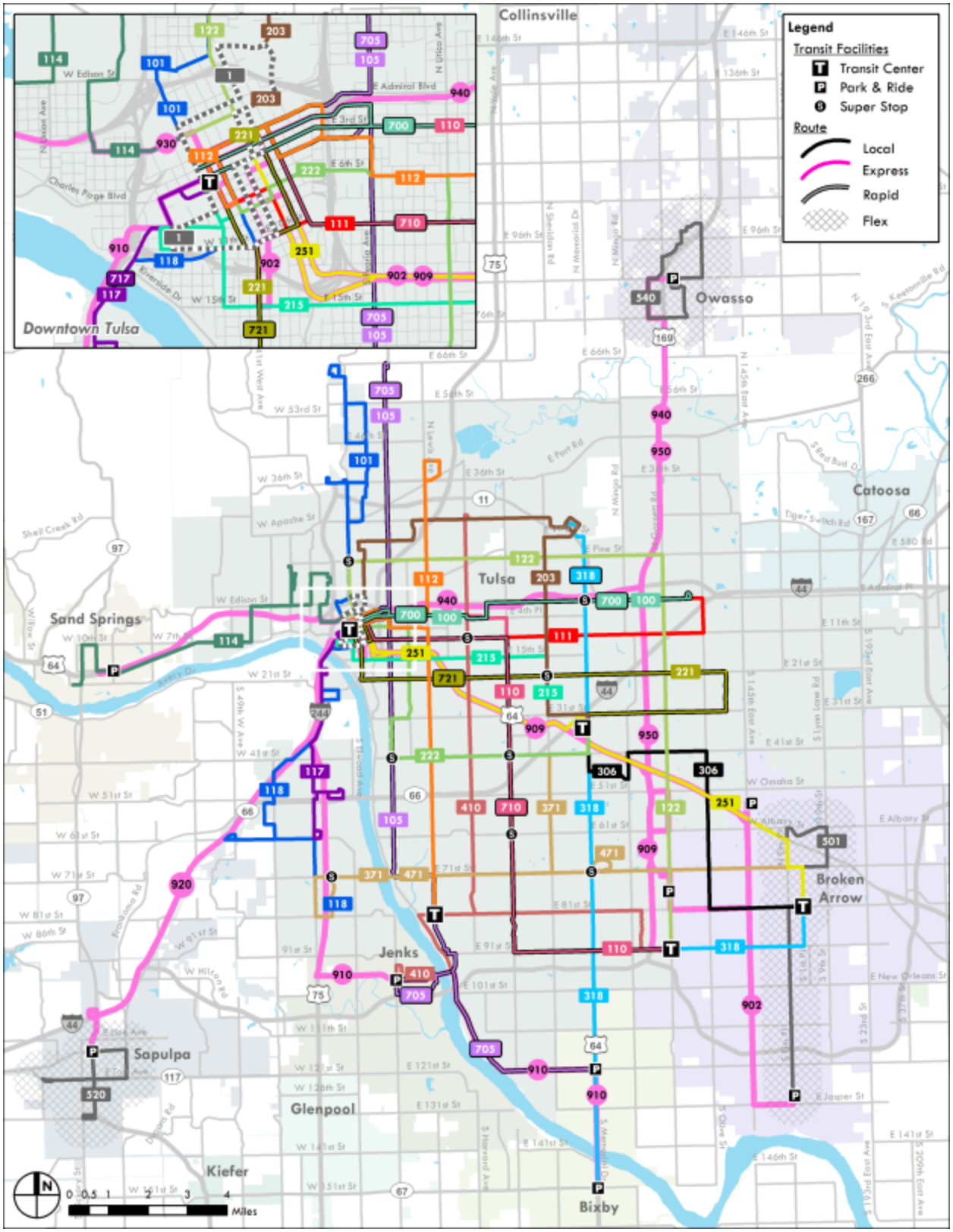


Table 2.2: Proposed Mid-Term Route Updates

Route	Route Name	Existing Weekday			Existing Saturday		Mid Term Concept								
							Weekday				Saturday			Sunday	Mid Term
		Peak	Midday	Night	Day	Night	Peak	Midday	Eve	Night	Day	Eve	Night	Day Only	Proposed Route Changes[2]
Local															
100	Admiral	40	40	--	80	--	30	30	30	60	60	60	60	60	
700 new	Admiral Rapid						30	30	--	--	60	--	--	60	Rapid bus (Ltd stop of Rte 100)
101	Suburban Acres	30	45	--	45	--	30	30	60	60	60	60	60	60	Proposed modification to 49th/Denver pattern
105	Peoria	30	30	--	50	--	30	30	30	60	60	60	60	60	
705 new	Peoria Rapid						30	30	--	--	60	--	--	60	Rapid bus; alternating buses extend to either Jenks or Bixby.
111	11th Street	45	45	--	90	--	30	30	--	--	60	--	--	60	
112	Lewis/Jenks	60	60	--	80	--	30	30	--	--	60	--	--	60	Truncate at 81st/Lewis
114	Charles Page/Sand Springs	55	55	--	114	--	60	60	--	--	60	--	--	60	Simplify route
117	Union/Southwest Blvd	45	90	--	90	--	60	60	60	--	60	60	--	60	Truncate route ending with loop at 61st/Southwest (118 serves south end)
118	33rd West Ave	55	110	--	110	--	60	60	--	--	60	--	--	60	Route recently modified; additional revision to serve LaFortune Tower
203	Airport	65.5	65.5	--	70	--	60	60	--	--	60	--	--	60	Revert to using Sheridan when exiting airport, head south on Sheridan to MMS.
210 *(rename 410)*	Harvard	45	67.5	--	130	--	30	30	60	--	60	--	--	60	Restructured. Begins at TCC loop (Apache/Harvard), proceeds south on Harvard. Alternating buses proceed either eastward to St. Francis South (via 81st Street) or west and southward to Jenks.
210 *(rename 110)*	Yale						30	60	--	--	60	--	--	60	Restructured. Begins at DDS, leaves downtown Tulsa via 3rd Street, south on Yale, diverts to serve St. Francis Med Ctr, continues down Yale to 91st, east on 91st to St. Francis South.
710 new	Yale Rapid						30	60			60	--	--	60	Rapid bus (Ltd stop of Rte 110)
215	15th Street	38	76	--	76	--	30	60	60	--	60	60	--	60	
221	21st St/Eastgate	45	67.5	--	70	--	30	30	30	60	60	60	60	60	
721 new	21st St Rapid						30	30	--	--	60	--	--	60	Rapid bus (Ltd stop version of Rte 221)
222 *(rename 122)*	Pine/41st Street (Pine/Garnett)	70	70	--	65	--	30	60	60	--	60	60	--	60	Retain alignment on Pine (based on near term); turn south on Garnett, continue to 91st/Garnett, turn into St. Francis South and terminate.
222	41st Street						30	30	60	--	60	60	--	60	portion of existing Rte 222 that proceeds from DDS south to 41st Street; east on 41st, divert to MMS, continue on 41st to New Tulsa.
251	Fast Track	25	50	--	50	--	30	60	--	--	60	--	--	60	placeholder for high capacity project
306	Southeast Industrial	60	60	--	--	--	60	60	--	--	--	--	--	--	MMS to 41st/Garnett unchanged; continue east on 41st, south on 129th, east on 81st, terminate at Broken Arrow TC.
318	Memorial	45	90	--	90	--	60	60	60	--	120	60	--	120	Begin at airport loop; south on Memorial, divert to MMS, continue via Memorial and turn eastward on 91st Street to Broken Arrow TC (divert to St. Francis South).
	Memorial to Bixby pattern						60	--	--	--	120	--	--	120	MMS via Memorial to Bixby
471 *(rename 371)*	71st Street	100	100	--	100	--	60	60	--	--	60	--	--	60	From Tulsa Hills, reroute to MMS via Yale (swap segment with 210)
471	71st Street - Broken Arrow pattern						60	60	60	--	60	60	--	60	Tulsa Hills to Broken Arrow via 71st, south on Main St to Broken Arrow TC
508 *(rename 501)*	Broken Arrow Connection	85	240	--	--	--	60	60	60		60	--	--	60	Restructure: Elm/131st (Indian Springs P&R) to Broken Arrow TC via Elm, 81st St and Main; continue north on Main, west on 81st, north on Elm, east on 61st serving Bass Pro
520 new	Sapulpa Connection						60	60	--	--	--	--	--	--	Circulator on Main, Dewy, Mission, Taft
540 new	Owasso Connection						60	60	--	--	--	--	--	--	Loop using 76th, 96th, 129th, Main
new	Downtown circulator						15	15	30			30	30		See RTSP alignment
Express															
902	Broken Arrow Express	2 trips	--	--	--	--	30	180	--	--	--	--	--	--	placeholder for high capacity project
909	Union Express	1 trip	--	--	--	--	60	--	--	--	--	--	--	--	
910 new	Bixby-Jenks-Tulsa	--	--	--	--	--	60	--	--	--	--	--	--	--	DAS to Bixby
920 new	Sapulpa-Tulsa	--	--	--	--	--	60	--	--	--	--	--	--	--	DAS to Sapulpa via I-244 and I-44
930 new	Sand Springs-Tulsa	--	--	--	--	--	60	--	--	--	--	--	--	--	DAS to Sand Springs via US-412
940 new	Owasso-Tulsa	--	--	--	--	--	60	--	--	--	--	--	--	--	DAS to Owasso via I-44 and US-169
950 new	US 169	--	--	--	--	--	60	--	--	--	--	--	--	--	Owasso to St. Francis South via US-169
Nightline/Flex Route service															
840	North Nightline	--	--	5 trips	--	5 trips	--	--	--	--	--		--	--	
860	East Nightline	--	--	4 trips	--	5 trips	--	--	--	--	--		--	--	
870	South Nightline	--	--	8 trips	--	8 trips	--	--	--	--	--		--	--	
880	Southeast Nightline	--	--	4 trips	--	4 trips	--	--	--	--	--		--	--	
890	West Nightline	--	--	5 trips	--	5 trips	--	--	--	--	--		--	--	

2.3 Long-Term Service Plan

By the Long-Term (LT) Plan, Tulsa Transit is running a state-of-the-art transit system that is more than three times the size of the current operation and is near the top of its peer class. Minor improvements continue to be made to local route coverage and frequencies and the express bus network. The rapid bus system is doubled in size to create a complete grid of rapid services. Most significantly, the Long-Term service plan anticipates the conversion or replacement of bus services on urban corridors with high-capacity projects identified in follow-up phases to the RTSP.

By ten years in to the Long-Term Plan (circa 2036), operating resources will have grown about 250 percent over 2011 levels. Annual operating costs must increase by over $30 million (253 percent) in current year 2011 dollars to make these improvements.

Service Recommendations

- **Introduce high-capacity corridor projects on four urban corridors.** The initial four corridors for which rapid bus was implemented in the MT (Peoria, Admiral, Yale, and 21st) are identified as candidate high-capacity corridors in the RTSP. While the technology for each is unknown at this time (light rail, bus rapid transit, or rapid bus would be the most likely options), some level of dedicated right-of-way is assumed. Frequencies in urban high-capacity corridors are set to be 15-minutes during weekday peaks, 30-minutes during weekday middays, weekday evenings, and Saturdays, and 60-minutes on Saturday evenings and Sundays. Underlying local route service is assumed to remain in place.
- **Expand rapid bus network to six more corridors.** The rapid bus system expands to six new corridors in the LT to create a grid of rapid services that crisscrosses the region. East-west rapid buses (or high-capacity service) would run on Pine, Admiral, 21st, 41st, and 71st, and north-south rapid buses would run on Union/Southwest, Peoria, Yale, Memorial, and Garnett. Key portions of Cincinnati, Utica, 11th, 31st, and 91st would also have rapid service.
- **Extend local route service area.** Local route service is provided to the smaller outlying Tulsa communities of Catoosa and New Tulsa with new patterns for Route 100 and 222, respectively.
- **Improve some weekday and Saturday headways.** A handful of local routes experience minor headway improvements in the weekday midday, weekday evening, and on Saturdays.

Facilities Recommendations

- **Expand park-and-ride network.** Two new park-and-ride lots are proposed along high-capacity urban corridors in Turley and at Admiral/129th to coincide with results derived from the RTSP. Additional park-and-ride facilities along high capacity corridors are probable with the progression of individual corridor studies.

Figure 2.5 below presents a system map for the Long-Term Plan, with Table 2.3 describing the Long-Term changes for each route. Section 3 presents operating statistics and costs for the plan, and Section 4 details specific updates on a route-by-route basis. Finally, Appendix E presents complete, detailed operating statistics for each route and route pattern as they existing in the Long-Term.

Figure 2.5: Proposed Long-Term System Map

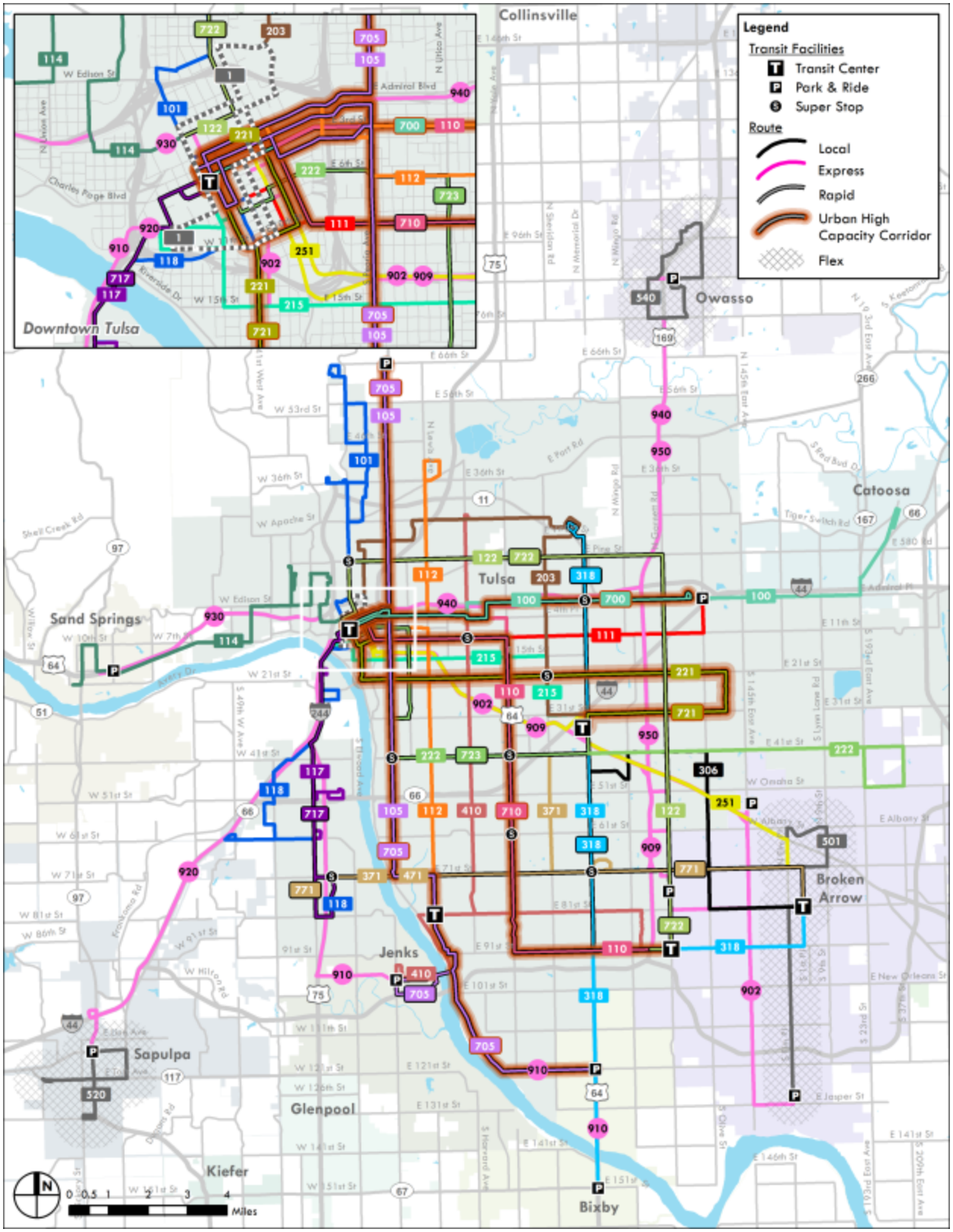


Table 2.3: Proposed Long-Term Route Updates

Route	Route Name	Existing Weekday			Existing Saturday		Long Term Concept								
							Weekday				Saturday			Sunday	Long Term
		Peak	Midday	Night	Day	Night	Peak	Midday	Eve	Night	Day	Eve	Night	Day Only	Proposed Route Changes[2]
Local															
100	Admiral	40	40	--	80	--	30	30	30	60	60	60	60	60	Extend to Catoosa
700 new	Admiral Rapid						15	30	30	--	30	60	--	60	High capacity project
101	Suburban Acres	30	45	--	45	--	15	30	30	60	30	60	60	60	Proposed modification to 49th/Denver pattern
105	Peoria	30	30	--	50	--	30	30	30	60	60	60	60	60	
705 new	Peoria Rapid						15	30	30	--	30	60	--	60	High capacity project; alternating buses extend to either Jenks or Bixby.
111	11th Street	45	45	--	90	--	30	30	30	--	60	60	--	60	
112	Lewis/Jenks	60	60	--	80	--	30	30	30	--	60	60	--	60	Truncate at 81st/Lewis
114	Charles Page/Sand Springs	55	55	--	114	--	60	60	60	--	60	60	--	60	Simplify route
117	Union/Southwest Blvd	45	90	--	90	--	60	60	60	--	60	60	--	60	Truncate route ending with loop at 61st/Southwest (118 serves south end)
717 new	Union/Southwest Rapid						60	60	--	--	60	--	--	--	Rapid bus (Ltd stop of Rte 117)
118	33rd West Ave	55	110	--	110	--	60	60	--	--	60	--	--	60	Route recently modified; additional revision to serve LaFortune Tower
203	Airport	65.5	65.5	--	70	--	60	60	--	--	60	--	--	60	Revert to using Sheridan when exiting airport, head south on Sheridan to MMS.
210 *(rename 410)*	Harvard	45	67.5	--	130	--	15	30	60	60	60	60	--	60	Restructured. Begins at TCC loop (Apache/Harvard), proceeds south on Harvard. Alternating buses proceed either eastward to St. Francis South (via 81st Street) or west and southward to Jenks.
210 *(rename 110)*	Yale						30	60	60	60	60	60	--	60	Restructured. Begins at DDS, leaves downtown Tulsa via 3rd Street, south on Yale, diverts to serve St. Francis Med Ctr, continues down Yale to 91st, east on 91st to St. Francis South.
710 new	Yale Rapid						15	30	30	--	30	60	--	60	Portion of route on Yale may incorporate high capacity improvements that improve runtimes.
215	15th Street	38	76	--	76	--	30	60	60	--	60	60	--	60	
221	21st St/Eastgate	45	67.5	--	70	--	30	30	30	60	60	60	60	60	
721 new	21st St Rapid						15	30	30	--	30	60	--	60	High capacity project
222 *(rename 122)*	Pine/41st Street (Pine/Garnett)	70	70	--	65	--	30	60	60	--	60	60	--	60	Retain alignment on Pine (based on near term); turn south on Garnett, continue to 91st/Garnett, turn into St. Francis South and terminate.
722 new	Pine/Garnett Rapid						60	60	--	--	60	60	--	--	
222	41st Street						30	30	30	60	60	60	--	60	portion of existing Rte 222 that meanders south and east from DAS to MMS.
723 new	41st Street Rapid						60	60	--	--	60	60	--	--	
251	Fast Track	25	50	--	50	--	30	30	60	--	60	60		60	placeholder for high capacity project
306	Southeast Industrial	60	60	--	--	--	30	60	--	--	--	--	--	--	MMS to 41st/Garnett unchanged; continue east on 41st, south on 129th, east on 81st, terminate at Broken Arrow TC.
318	Memorial	45	90	--	90	--	60	60	60	60	120	60	--	120	Begin at airport loop; south on Memorial, divert to MMS, continue via Memorial and turn eastward on 91st Street to Broken Arrow TC (divert to St. Francis South).
	Memorial to Bixby pattern						60	60	60	--	120	--	--	120	MMS via Memorial to Bixby
718 new	Memorial Rapid						60	60	--	--	60	60	--	--	Possible high capacity project; Ltd stop version of Rte 318 to Broken Arrow
471 *(rename 371)*	71st Street	100	100	--	100	--	60	60	60	--	60	--	--	60	From Tulsa Hills, reroute to MMS via Yale (swap segment with 210)
471	71st Street - Broken Arrow pattern						60	60	60	--	60	60	--	60	Tulsa Hills to Broken Arrow via 71st, south on Main St to Broken Arrow TC
771 new	71st Street Rapid						60	60	--	--	60	60	--	--	Possible high capacity project; Ltd stop version of Rte 471 to Broken Arrow
508 *(rename 501)*	Broken Arrow Connection	85	240	--	--	--	60	60	60	--	60	60	--	60	Elm/131st (Indian Springs P&R) to Broken Arrow TC via Elm, 81st St and Main; continue north on Main, west on 81st, north on Elm, east on 61st serving Bass Pro
520 new	Sapulpa Connection						60	60	--	--	60	--	--	--	
540 new	Owasso Connection						60	60	--	--	60	--	--	--	
new	Downtown circulator						15	15	30	--	--	30	30	--	See RTSP alignment
Express															
902	Broken Arrow Express	2 trips	--	--	--	--	30	180	--	--	--	--	--	--	placeholder for high capacity project
909	Union Express	1 trip	--	--	--	--	60	--	--	--	--	--	--	--	placeholder for high capacity project
910 new	Bixby-Jenks-Tulsa	--	--	--	--	--	60	--	--	--	--	--	--	--	placeholder for high capacity project
920 new	Sapulpa-Tulsa	--	--	--	--	--	60	--	--	--	--	--	--	--	placeholder for high capacity project
930 new	Sand Springs-Tulsa	--	--	--	--	--	60	--	--	--	--	--	--	--	placeholder for high capacity project
940 new	Owasso-Tulsa	--	--	--	--	--	60	--	--	--	--	--	--	--	placeholder for high capacity project
950 new	US 169	--	--	--	--	--	60	--	--	--	--	--	--	--	placeholder for high capacity project
Nightline/Flex Route service															
840	North Nightline	--	--	5 trips	--	5 trips	--	--	--	--	--	--	--	--	
860	East Nightline	--	--	4 trips	--	5 trips	--	--	--	--	--	--	--	--	
870	South Nightline	--	--	8 trips	--	8 trips	--	--	--	--	--	--	--	--	
880	Southeast Nightline	--	--	4 trips	--	4 trips	--	--	--	--	--	--	--	--	
890	West Nightline	--	--	5 trips	--	5 trips	--	--	--	--	--	--	--	--	

3 Future Service Requirements

Operating statistics for the future service plans developed for the Near-Term (and Immediate-Term), Mid-Term, and Long-Term were calculated using an operating statistics model calibrated and validated to Tulsa Transit's existing service parameters. This model inputs route information (headways, in-vehicle time, layover time, route distance) for every route pattern by time of day for weekdays, Saturdays, and Sundays. From this data, the model calculates in-service hours, revenue-hours, revenue-miles, and vehicles required. Layover percentages, average speeds, and interline requirements are also tracked.

Operating results produced at the route and time of day level are rolled up into systemwide weekday, Saturday, and Sunday statistics, and finally to annual levels. The projected operating requirements were then used to assess operating and maintenance (O&M) costs for each plan phase. Appendices B through E detail the weekday, Saturday, and Sunday operating statistics for each phase of the future service recommendations.

3.1 Operating Statistics

Future service analysis begins with the weekday system (Table 3.1). In the Immediate-Term, care was taken to add little to no new resource needs to Tulsa Transit. Daily trips and peak buses remain the same as Existing, while daily hours increase slightly (2 percent) and daily miles decrease slightly (3 percent). Anticipated future financial resources allow for more robust service plans starting in the Near-Term, where weekday service levels increase by about a third from Existing. In the Mid-Term, service has grown about two and a half times, and in the Long-Term by more than three times.

Table 3.1: Weekday Fixed Route Service Statistics by Phase

	Daily Trips	In-Serv. Hours	Rev. Hrs.	Rev. Miles	Peak Buses	Midday Buses	Evening Buses	Night Buses	Percent Layover	Avg Speed
Existing	595	506.7	569.8	8,342	46	34	0	7	11.1%	16.5
Immediate-Term	595	517.7	583.0	8,125	46	36	6	4	11.2%	15.7
Near-Term	793	678.2	775.9	10,723	64	46	16	8	12.6%	15.8
Mid-Term	1,501	1224.3	1442.0	19,868	107	83	32	8	15.1%	16.2
Long-Term	2,005	1617.3	1898.3	26,056	136	99	73	11	14.8%	16.1
CHANGE FROM EXISTING										
Immediate-Term	0%	2%	2%	-3%	0	2	6	-3	0.1%	-5%
Near-Term	33%	34%	36%	29%	18	12	16	1	1.5%	-4%
Mid-Term	152%	142%	153%	138%	61	49	32	1	4.0%	-1%
Long-Term	237%	219%	233%	212%	90	65	73	4	3.7%	-2%

It was observed that Tulsa Transit's existing layover percentage (11.1 percent) is a bit low while its average speed (16.5 mph) is a bit high. Typical layover percentages for local bus range from 12-15 percent, with speeds typically slower than 15 mph. Reducing these margins leaves bus running late from nearly any impediment (traffic, construction, weather, wheelchair boardings, etc.), with little opportunity to recover at the end-of-line. In an effort to improve system reliability, care was taken to reduce the average speed starting in the IT and continuing throughout the plan (systemwide speeds begin creeping upward again in the out-years due to the introduction of more rapid and express

services). Likewise, layover percentages begin to improve in the NT (to 12.6 percent) and get up to around 15 percent in the MT and LT. It is especially important to maintain this cushion going further into the future since travel times tend to degrade over time due to increased congestion.

Saturday service levels (Table 3.2) show similar trends to the weekday progression. The IT maintains comparable operating statistics as the Existing on Saturdays, while the NT sees growth at a slightly faster pace than on weekdays. MT growth on Saturdays is a bit lower compared to weekdays, but LT growth occurs at a greater clip. As with weekdays, average speeds are allowed to decrease while layover percentages allowed to increase on Saturdays.

Table 3.2: Saturday Fixed Route Service Statistics by Phase

	Daily Trips	In-Serv. Hours	Rev. Hrs.	Rev. Miles	Peak Buses	Midday Buses	Evening Buses	Night Buses	Percent Layover	Avg Speed
Existing	316	270.7	304.4	4,643	n/a	25	6	6	11.1%	17.2
Immediate-Term	311	272.8	308.5	4,375	n/a	25	6	4	11.6%	16.0
Near-Term	436	381.1	432.0	6,015	n/a	32	16	8	11.8%	15.8
Mid-Term	690	585.9	678.0	9,502	n/a	48	22	10	13.6%	16.2
Long-Term	1,083	915.2	1082.8	14,566	n/a	73	54	10	15.5%	15.9
CHANGE FROM EXISTING										
Immediate-Term	-2%	1%	1%	-6%	n/a	0	0	-2	0.5%	-6%
Near-Term	38%	41%	42%	30%	n/a	7	10	2	0.7%	-8%
Mid-Term	118%	116%	123%	105%	n/a	23	16	4	2.5%	-5%
Long-Term	243%	238%	256%	214%	n/a	48	48	4	4.4%	-7%

Sunday service is initiated in the MT (Table 3.3) at levels slightly below MT Saturday service. The MT Sunday service level is more or less maintained moving forward into the LT.

Table 3.3: Sunday Fixed Route Service Statistics by Phase

	Daily Trips	In-Serv. Hours	Rev. Hrs.	Rev. Miles	Peak Buses	Midday Buses	Evening Buses	Night Buses	Percent Layover	Avg Speed
Existing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Immediate-Term	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Near-Term	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mid-Term	528	458.2	528.0	7,502	n/a	48	0	n/a	13.2%	16.4
Long-Term	528	470.3	544.5	7,413	n/a	50	0	n/a	13.6%	15.8
CHANGE FROM EXISTING										
Immediate-Term	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Near-Term	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mid-Term	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Long-Term	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Weekday, Saturday, and Sunday forecasts were aggregated to an annual level (Table 3.4). The IT results in the same number of peak vehicles, with a 2 percent increase in revenue-hours and a 3 percent decrease in revenue-miles. Annual statistics in the NT rise anywhere from about 30-40 percent. In the MT gains are between 130-170 percent over existing levels, and in the LT they jump by 200-250 percent.

Table 3.4: Annual Fixed Route Service Statistics by Phase

	PEAK BUSES	Percent Change	REVENUE HOURS	Percent Change	REVENUE MILES	Percent Change
Existing	46	n/a	160,068	n/a	2,353,892	n/a
Immediate-Term	46	0%	163,607	2%	2,284,454	-3%
Near-Term	64	39%	218,930	37%	3,028,426	29%
Mid-Term	107	133%	427,366	167%	5,908,918	151%
Long-Term	136	196%	565,411	253%	7,741,199	229%

3.2 Operating and Maintenance Costs

O&M costs for each project phase were first calculated in current year (2011) dollars as a straight cost per hour based on revenue-hours. From here, costs were inflated at 3 percent annually to determine approximate O&M costs for each phase in the anticipated year of complete operation. In reality, the future cost per hour (in $2011) could potentially decrease due to efficiencies possible in a larger system; conversely, the annual inflation of O&M costs would potentially be greater than 3 percent should recent trends hold. On top of that, the plans currently do not assume any new technologies or fixed guideway projects, which would have an entirely different cost structure. For these reasons, the straight cost per hour methodology was determined to be the most common sense at this level of planning. Based on consultation with Tulsa Transit and review of recent NTD data, a cost per hour of $75 ($2011) was used in the calculations.

Annual O&M costs by phase are presented below (Table 3.5). As expected, costs in current year dollars grow in step with revenue-hour growth, from $12 million for the existing fixed route system all the way to $42 million to pay for the Long-Term Plan. Accounting for inflation doubles the total costs for the LT in 2036.

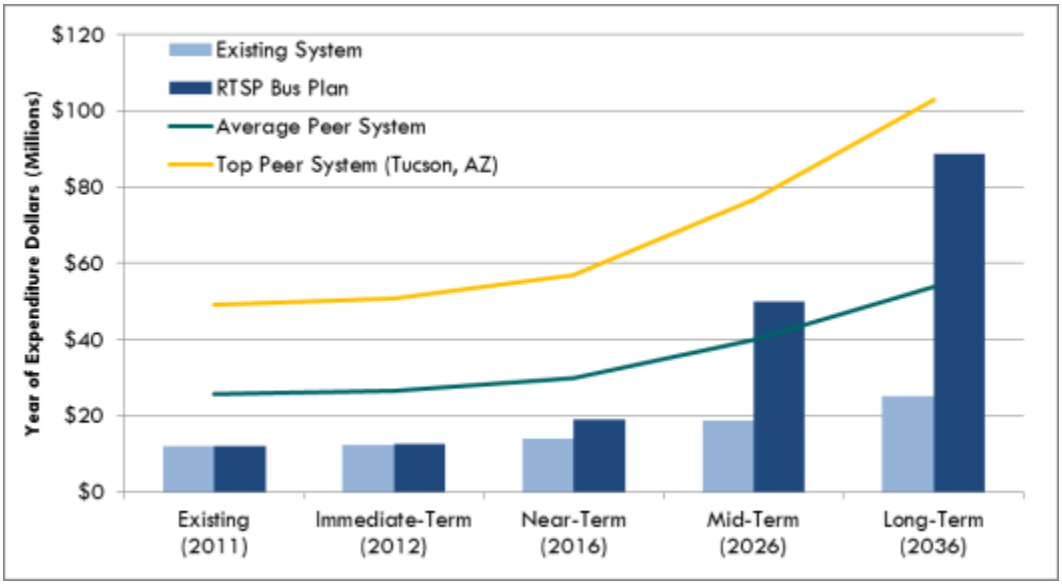
Table 3.5: Annual Fixed Route Operating Costs by Phase

	YEAR OF OPERATION	OPERATING COSTS ($2011)	Percent Change	OPERATING COSTS ($YOE)*	Percent Change
Existing	2011	$12.0 M	n/a	$12.0 M	n/a
Immediate-Term	2012	$12.3 M	3%	$12.6 M	5%
Near-Term	2016	$16.4 M	37%	$19.0 M	58%
Mid-Term	2026	$32.1 M	168%	$49.9 M	316%
Long-Term	2036	$42.4 M	253%	$88.8 M	640%

** Year-of-expenditure costs are expressed for the year of full operation for each phase*

To a get a clearer understanding of how the growth projected over time for Tulsa Transit translates into actual costs, it helps to compare the potential costs to operate the *existing* system over the next 25 years with the cost to implement the RTSP bus plan over that time (Figure 3.1). In 2012, O&M costs for the IT plan are about the same as the existing system would be. By 2016, it becomes evident that the NT plan would require a larger financial commitment (by almost 40 percent) than just maintaining the existing system. By 2026, the MT plan represents a more than doubling of costs compared to existing, and in 2036 the LT plans represents a more than tripling of operating costs.

Figure 3.1: Projected Future Fixed Route Operating Costs



For comparative purposes, trends for Tulsa Transit's peer system average and top peer system (Tucson, AZ) are also shown. It becomes clear from this data that even in the NT, Tulsa Transit badly trails its peers in financial investment. Only in the MT does the system grow to be above average, and by the LT the system is finally approaching the top peers in its class.

4 Individual Route Recommendations

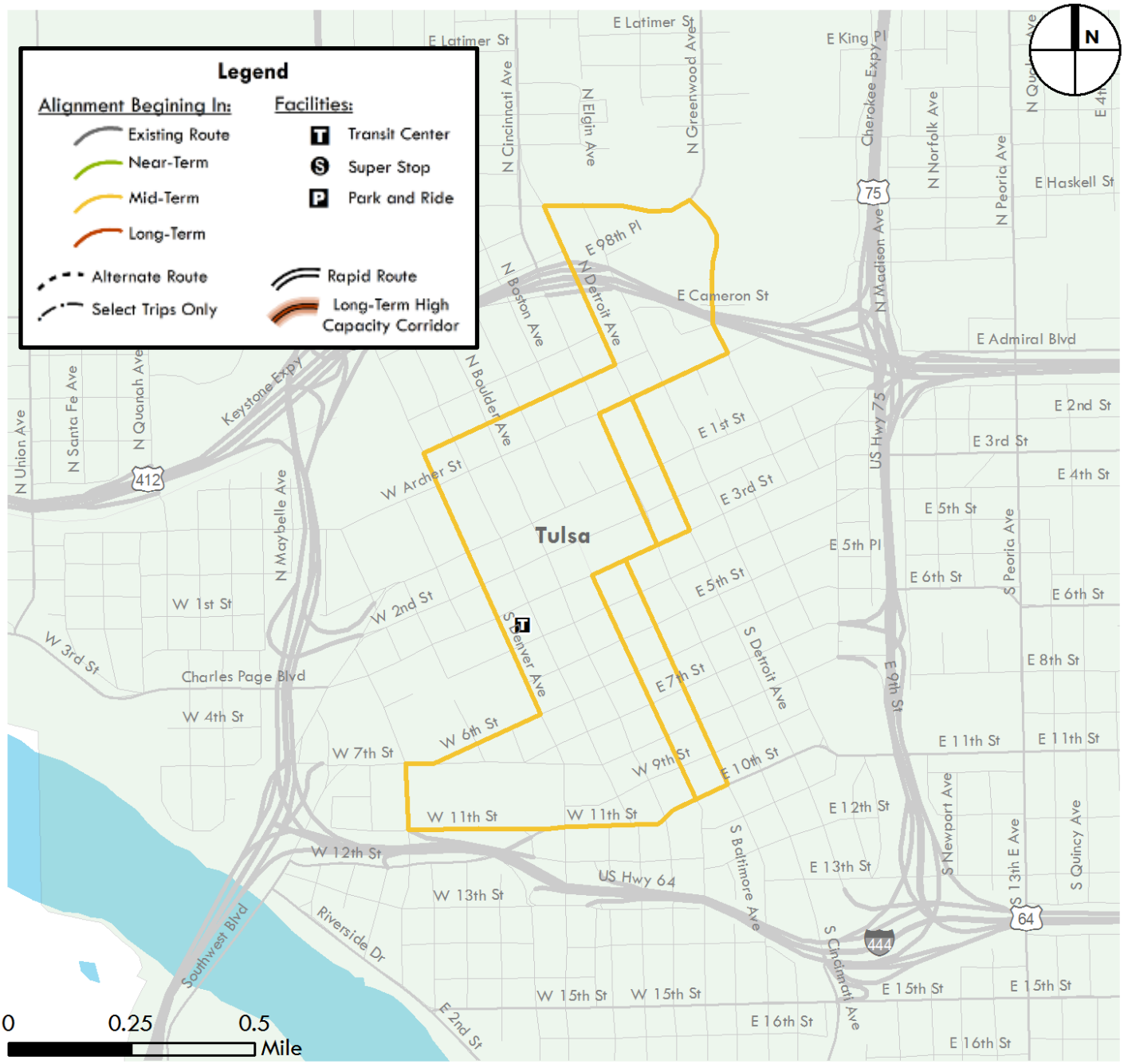
Route-by-route recommendations corresponding to each phase of the RTSP bus plan are presented below. Data for each route shows the progression in route frequencies and alignments from Existing, to Immediate-Term, to Near-Term, to Mid-Term, to Long-Term. Route alignments in the maps below only show when modifications to a route are made. For example, if an existing route does not change until the Mid-Term, the Near-Term alignment is assumed to match existing service, and a line is shown only for the existing alignment and the new alignment beginning in the Mid-Term.

Route 1 – Downtown Circulator

The Downtown Connector is a pair of routes introduced in the Mid-Term. Clockwise service begins at the Denver Avenue Station, travels north to the OSU Tulsa Campus, returns past ONEOK Field, through the core of downtown, and services the OSU Medical Center before repeating. Counter-clockwise service is similar but travels on Detroit and Boston instead of Cincinnati and Main. Weekday headways are 15 peak, 30 base, and 30 on Friday and Saturday nights.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	n/a	15	15
Midday	n/a	n/a	n/a	15	15
Evening	n/a	n/a	n/a	30	30
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	30	30
Night	n/a	n/a	n/a	30	30
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

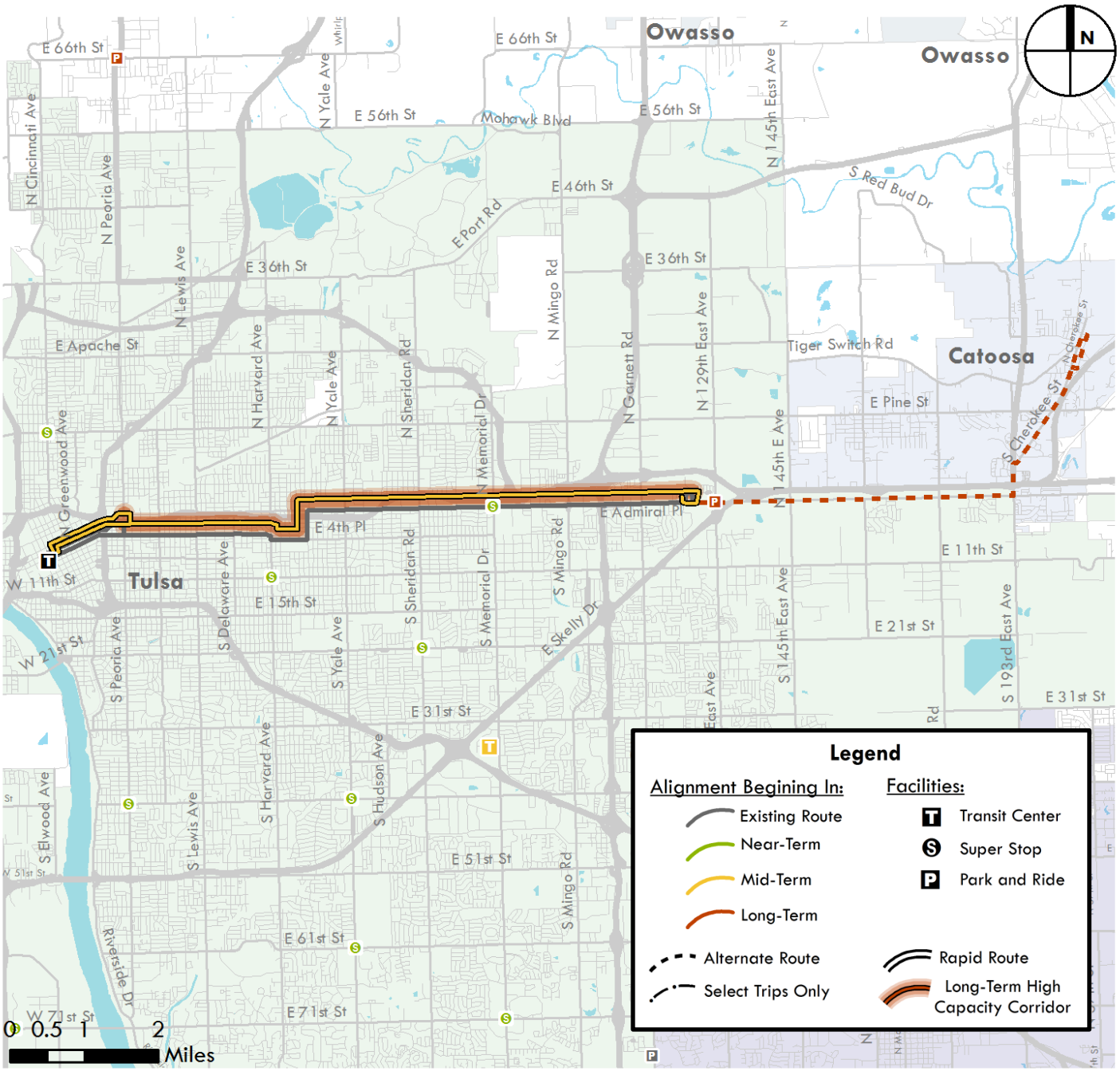


Route 100/700 - Admiral

In the Near-Term, evening service is introduced and headways are standardized, first at 45/90 peak/base, then at 30/60. Rapid pattern 700 is added to local service in the Mid-Term, along with Sunday service. The local route is extended along Admiral to Catoosa in the Long-Term, and the rapid pattern is planned to operate as an urban high-capacity corridor.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	40	45	30	15 (30/30)	10 (30/15)
Midday	40	45	30	15 (30/30)	15 (30/30)
Evening	n/a	90	60	30	15 (30/30)
Night	n/a	90	60	60	60
Saturday					
Day	80	60	60	30 (60/60)	20 (60/30)
Evening	n/a	90	60	60	30 (60/60)
Night	n/a	90	60	60	60
Sunday					
Day	n/a	n/a	n/a	30 (60/60)	30 (60/60)

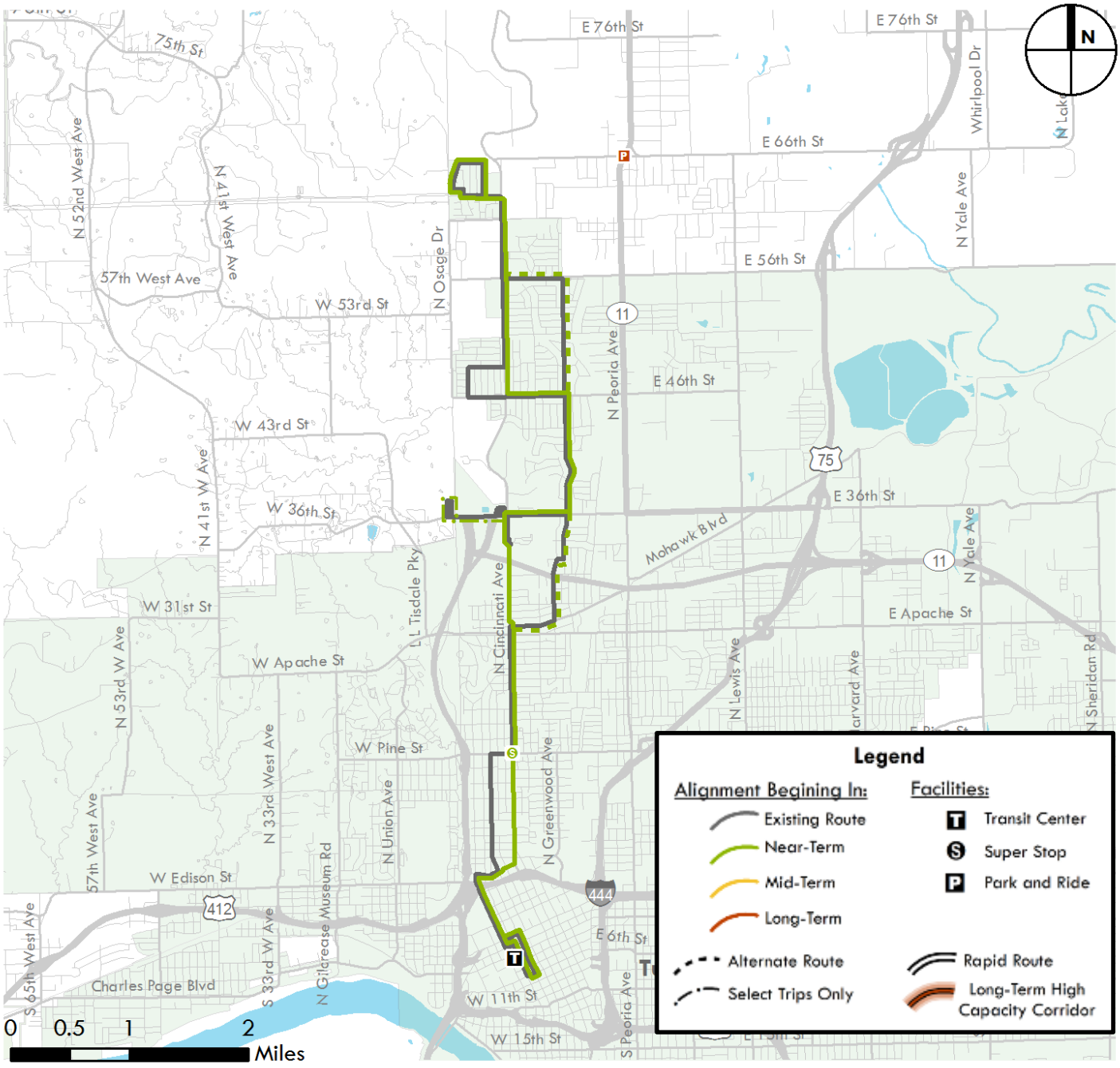


Route 101 – Suburban Acres

Route 101 is streamlined in the Near-Term, with one alignment remaining on Cincinnati until 36th Street and returning to Cincinnati at 46th Street, and the second using Mohawk/Garrison and Hartford/56th on every other trip. The casino continues to be served on every other midday and afternoon trip. Headways are 30/45 peak/base immediately, transitioning to 30/60 peak/base in the Near- and Mid-Terms, with more frequent service Long-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	30	30	30	30	15
Midday	45	45	30	30	30
Evening	n/a	n/a	60	30	30
Night	n/a	n/a	60	60	60
Saturday					
Day	45	60	60	60	30
Evening	45	n/a	60	60	60
Night	n/a	n/a	60	60	60
Sunday					
Day	n/a	n/a	n/a	60	60

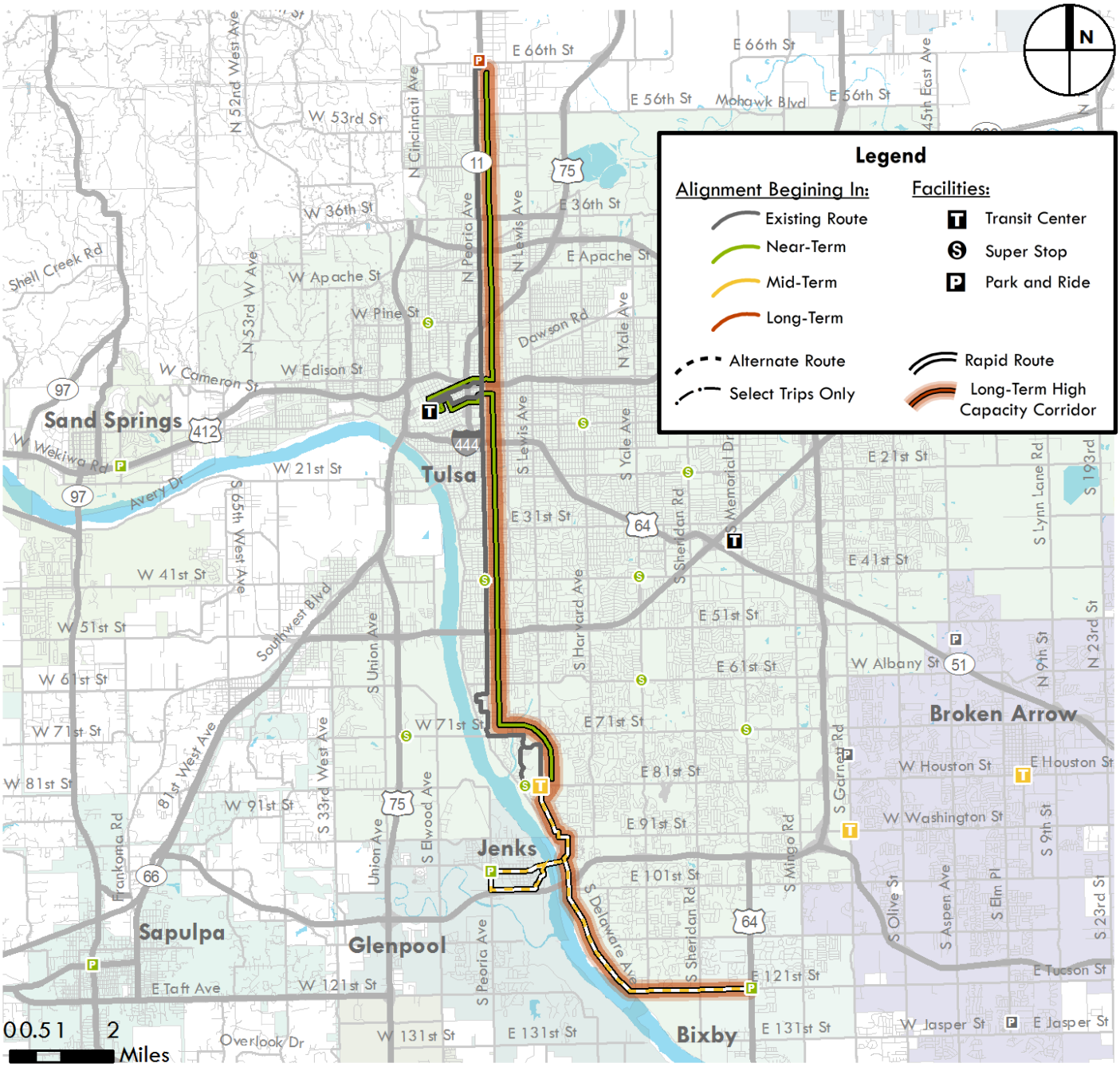


Route 105/705 - Peoria

Route 105 sees a few streamlining changes in the southern extension, remaining on Peoria, 71st, and Lewis. Headways are upgraded to 15/30/60 peak/base/evening with increasingly frequent headways. Rapid Route 705 begins in the Near-Term with alternating extensions to Bixby or Jenks added in the Mid-Term. 705 is upgraded to an urban high-capacity corridor in the Long-Term and will extend to Bixby.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	30	30	15 (30/30)	15 (30/30)	10 (30/15)
Midday	30	30	30	15 (30/30)	15 (30/30)
Evening	n/a	90	60	30	15 (30/30)
Night	n/a	90	60	60	60
Saturday					
Day	50	60	60	30 (60/60)	20 (60/30)
Evening	n/a	90	60	60	30 (60/60)
Night	n/a	90	60	60	60
Sunday					
Day	n/a	n/a	n/a	30 (60/60)	30 (60/60)

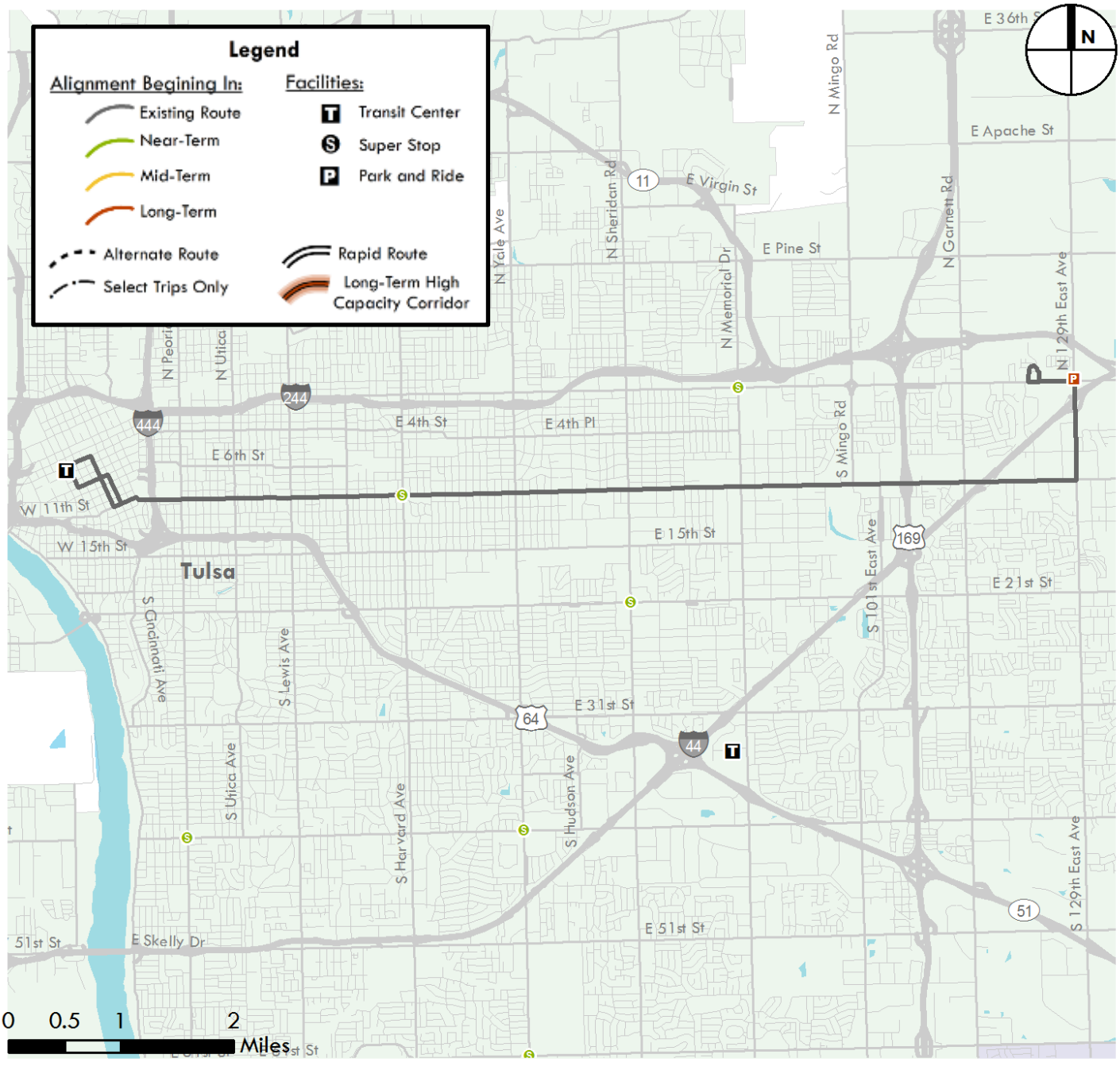


Route 111 – 11th Street

Route 111 from the Denver Avenue Station to 129th Street and the East Central Village apartments will continue its alignment in all phases of recommended improvements. However, headways will decrease to 30/30 peak base and hourly Saturday service in the Near-Term, added evening service in the Long-Term and Sunday service in the Mid-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	45	45	30	30	30
Midday	45	45	30	30	30
Evening	n/a	n/a	n/a	n/a	30
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	90	90	60	60	60
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

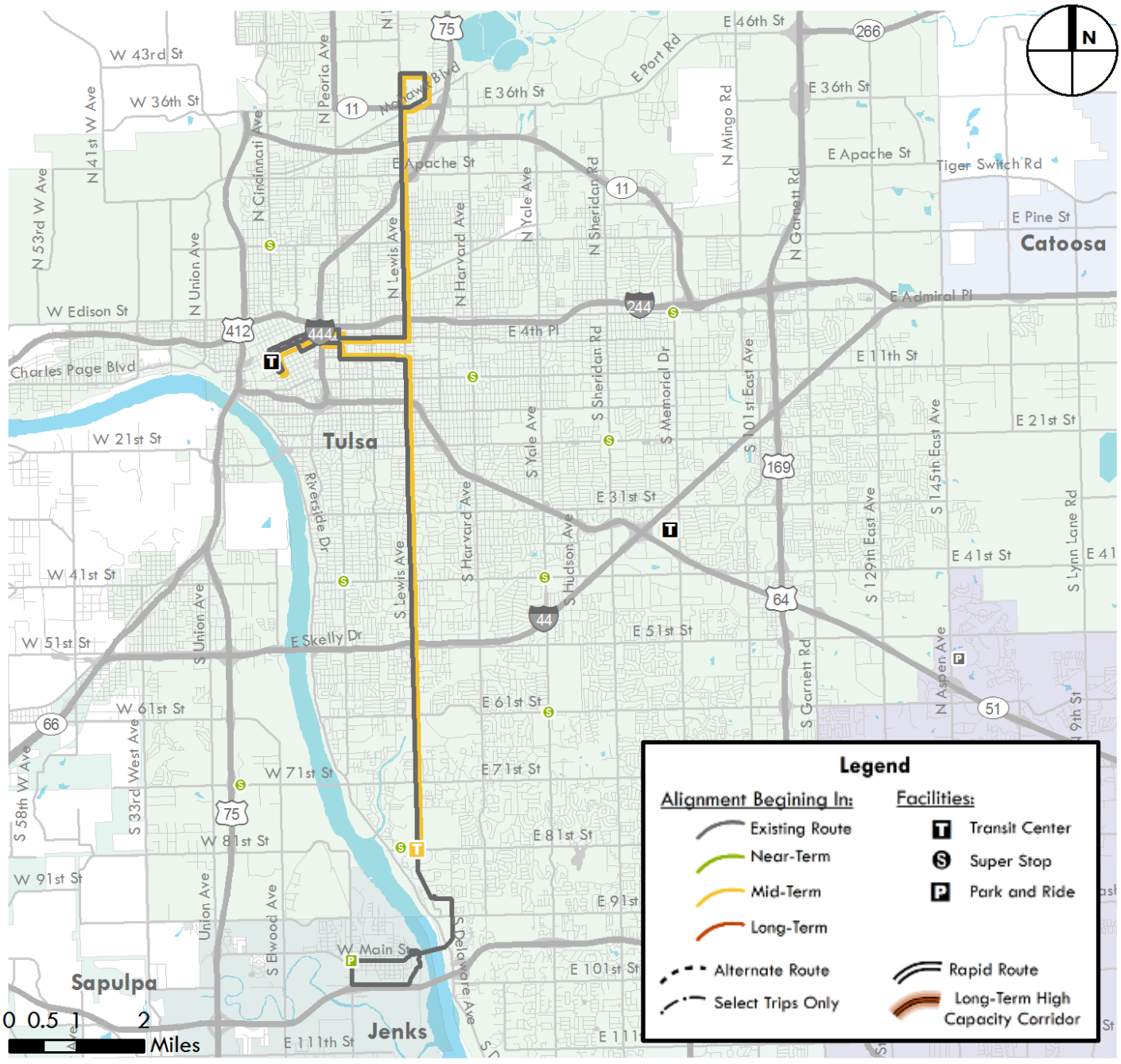


Route 112 – Lewis

Route 112 continues to have the same alignment on Lewis in all recommended phases. However, Route 112 will terminate at the new South Peoria Station (81st/Lewis) in the Mid-Term, with Jenks service transferred to Routes 705 and 410. Headways will improve from 60/60 to 30/30 peak/base; hourly Sunday service is added in the Mid-Term with additional evening service added in the Long-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	60	60	60	30	30
Midday	60	60	60	30	30
Evening	n/a	n/a	n/a	n/a	30
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	80	90	60	60	60
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

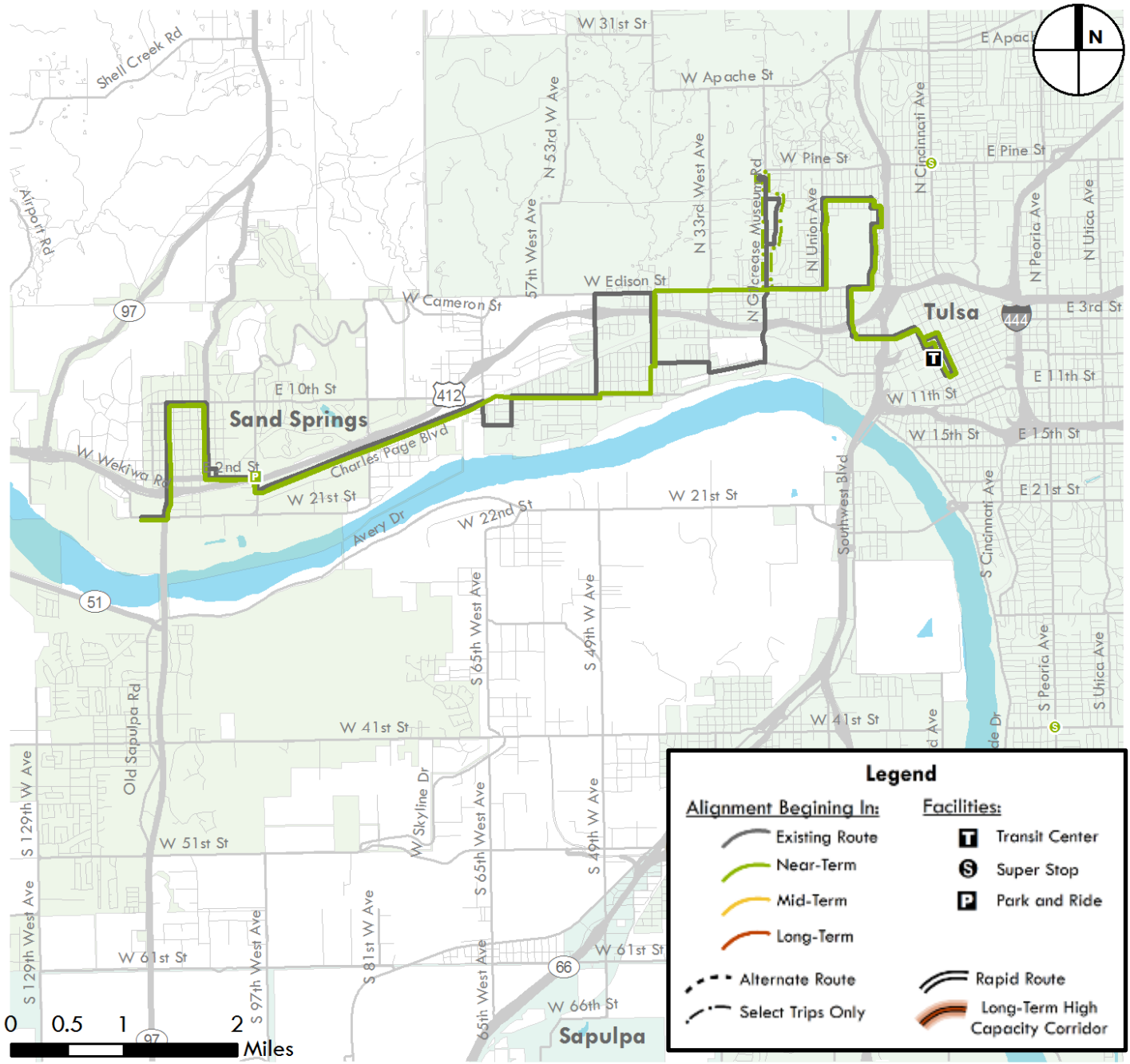


Route 114 – Charles Page/Sand Springs

Streamlining improvements occur in the Near-Term with selected trips still servicing Gilcrease Museum. Sand Springs will benefit from hourly clock headways during all periods, decreased Saturday headways in the Near-Term, with additional Sunday and evening service added in the Mid- and Long-Term, respectively.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	55	60	60	60	60
Midday	55	60	60	60	60
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	114	120	60	60	60
Evening	114.0	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

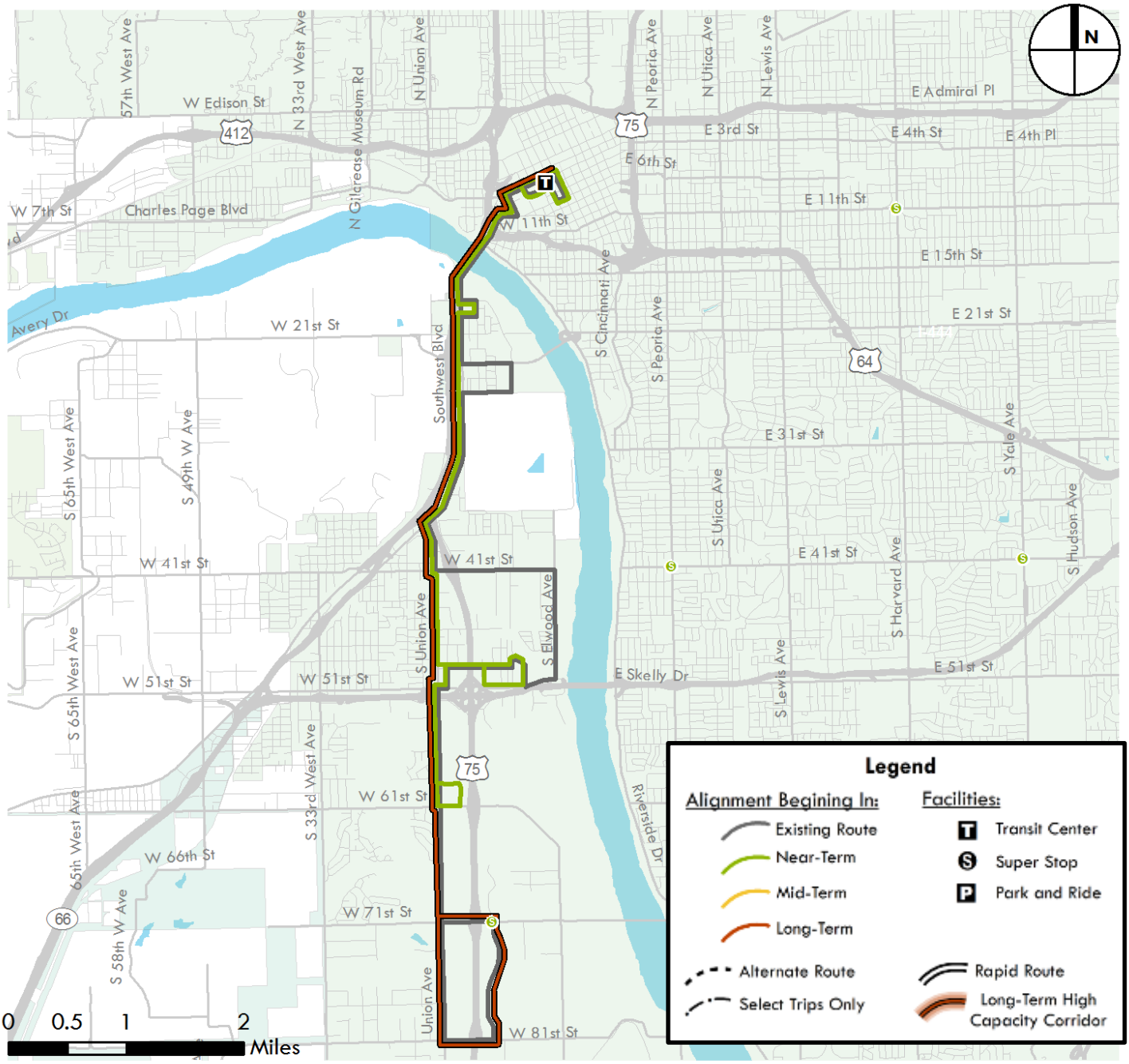


Route 117/717 – Union/Southwest

Route 117 will see streamlining improvements along Southwest Boulevard at 23rd St and again at 41st Street, terminating at 61st Street. Headways will be 60-minutes with weekday and Saturday evening service beginning immediately. Sunday service will be added in the Mid-Term. Rapid service 717 from downtown to Tulsa Hills is planned in the Long-Term, also at 60 minute headways, for a combined headway of 30 minutes in the corridor.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	45	60	60	60	30 (60/60)
Midday	90	60	60	60	30 (60/60)
Evening	n/a	90	60	60	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	90	60	60	60	30 (60/60)
Evening	n/a	90	60	60	60
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

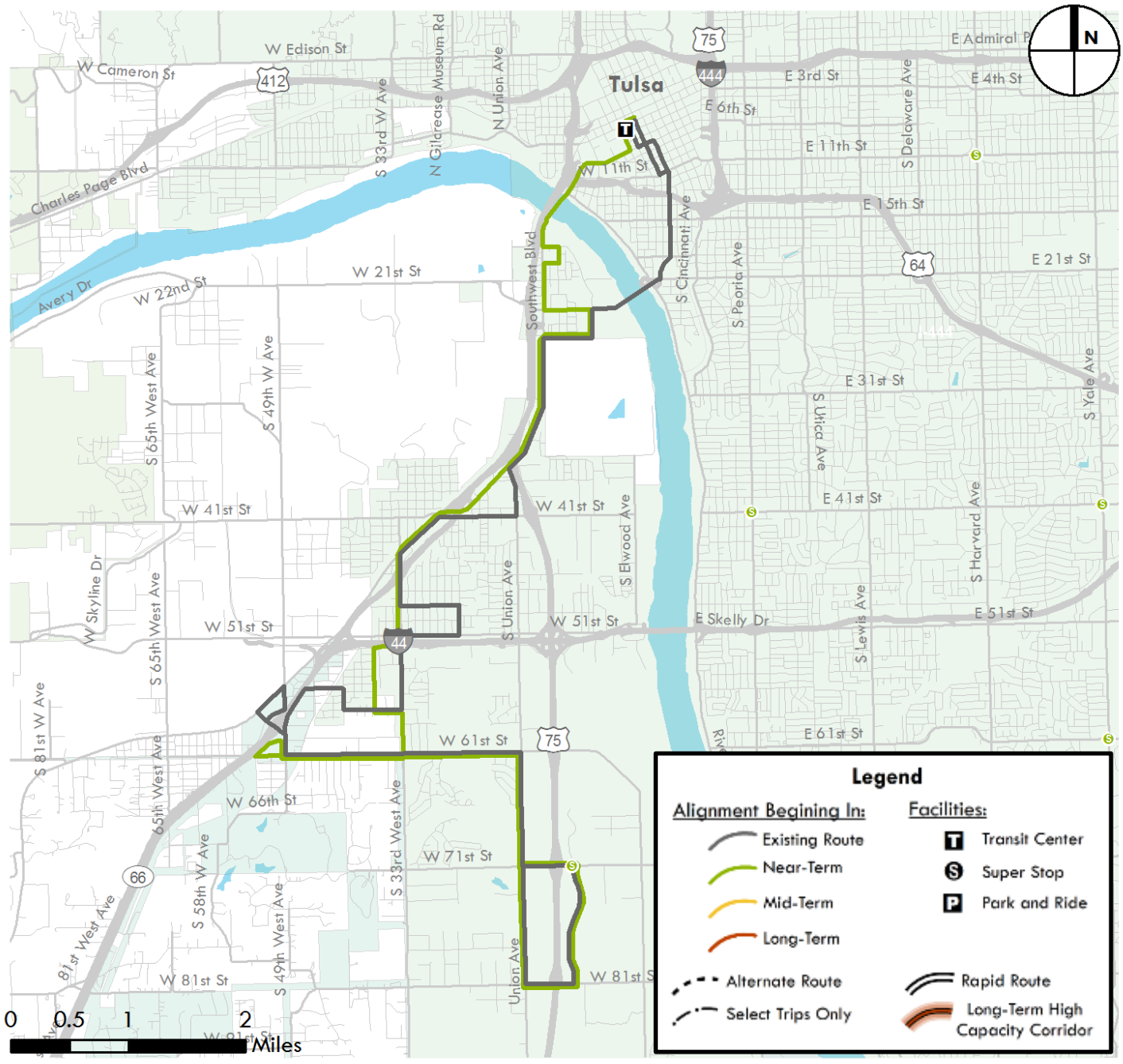


Route 118 – 33rd West/Southwest

Near-Term alignments will match Route 117 along Southwest Boulevard and streamlining will occur along the middle and westernmost portions of Route 118. Headways will be hourly immediately with decreased base headways initiated in the Near-Term. Sunday service is added in the Mid-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	55	60	60	60	60
Midday	110	120	60	60	60
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	110	120	60	60	60
Evening	110.0	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

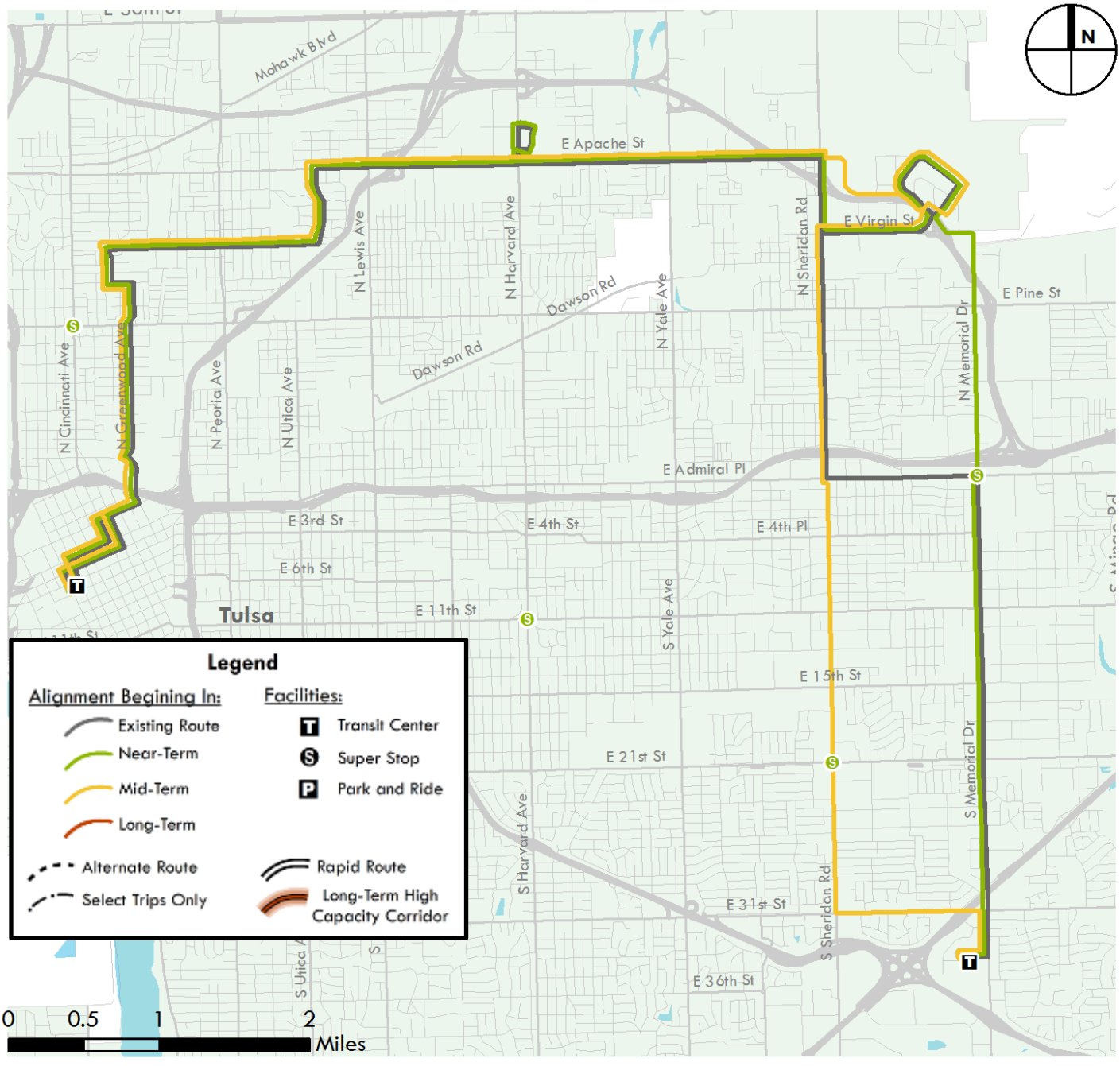


Route 203 – Apache/Sheridan

Tulsa's Airport Route will see a full Memorial Drive alignment in the Near-Term, switching to a Sheridan Road alignment in the Mid-Term and a more direct Airport connection, with both improvements terminating at the Memorial Midtown Station. Headways immediately improve to hourly service all day and Sunday service is added in the Mid-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	65.5	60	60	60	60
Midday	65.5	60	60	60	60
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	70	90	60	60	60
Evening	70.0	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

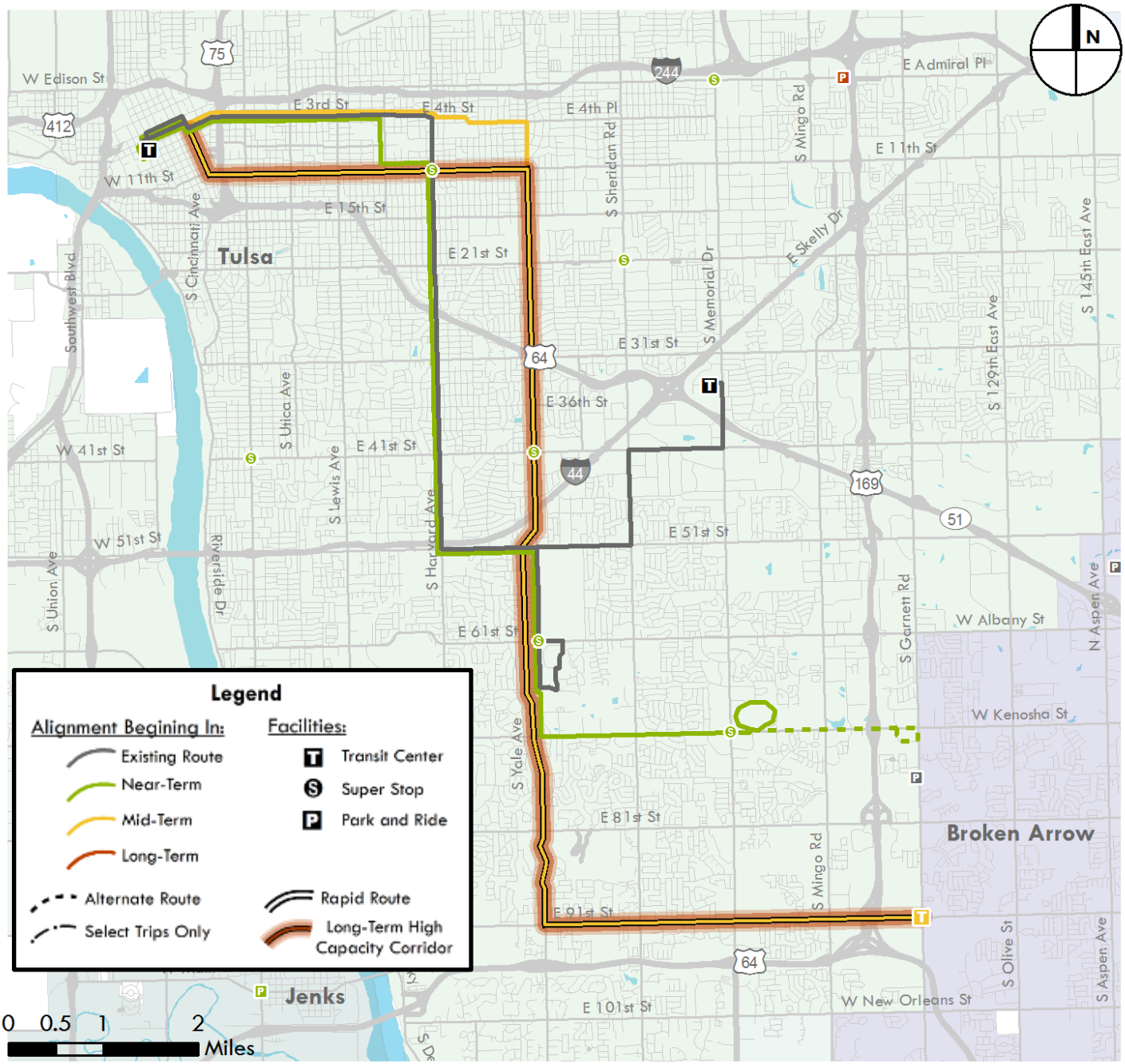


Route 110/710 – Yale *(split from 210 – Harvard)*

In the Near-Term, existing 210 alignment is modified to head southeast from St. Francis to 71st/Garnett, with a modified 471 assuming the segment from St. Francis to MMS. Evening service is added. The local route is further modified in the Mid-Term to serve only Yale and reach 91st/Garnett (with new route 410 serving Harvard), and rapid pattern 710 is added. By the Long-Term, the rapid pattern is planned to operate as an urban high-capacity corridor.

Service Frequencies

	Existing (as 210)	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	45	45	30	15 (30/30)	10 (30/15)
Midday	67.5	45	30	30 (60/60)	20 (60/30)
Evening	n/a	90	60	n/a	20 (60/30)
Night	n/a	n/a	n/a	n/a	60
Saturday					
Day	130	90	60	30 (60/60)	20 (60/30)
Evening	n/a	90	60	n/a	30 (60/60)
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	30 (60/60)	30 (60/60)

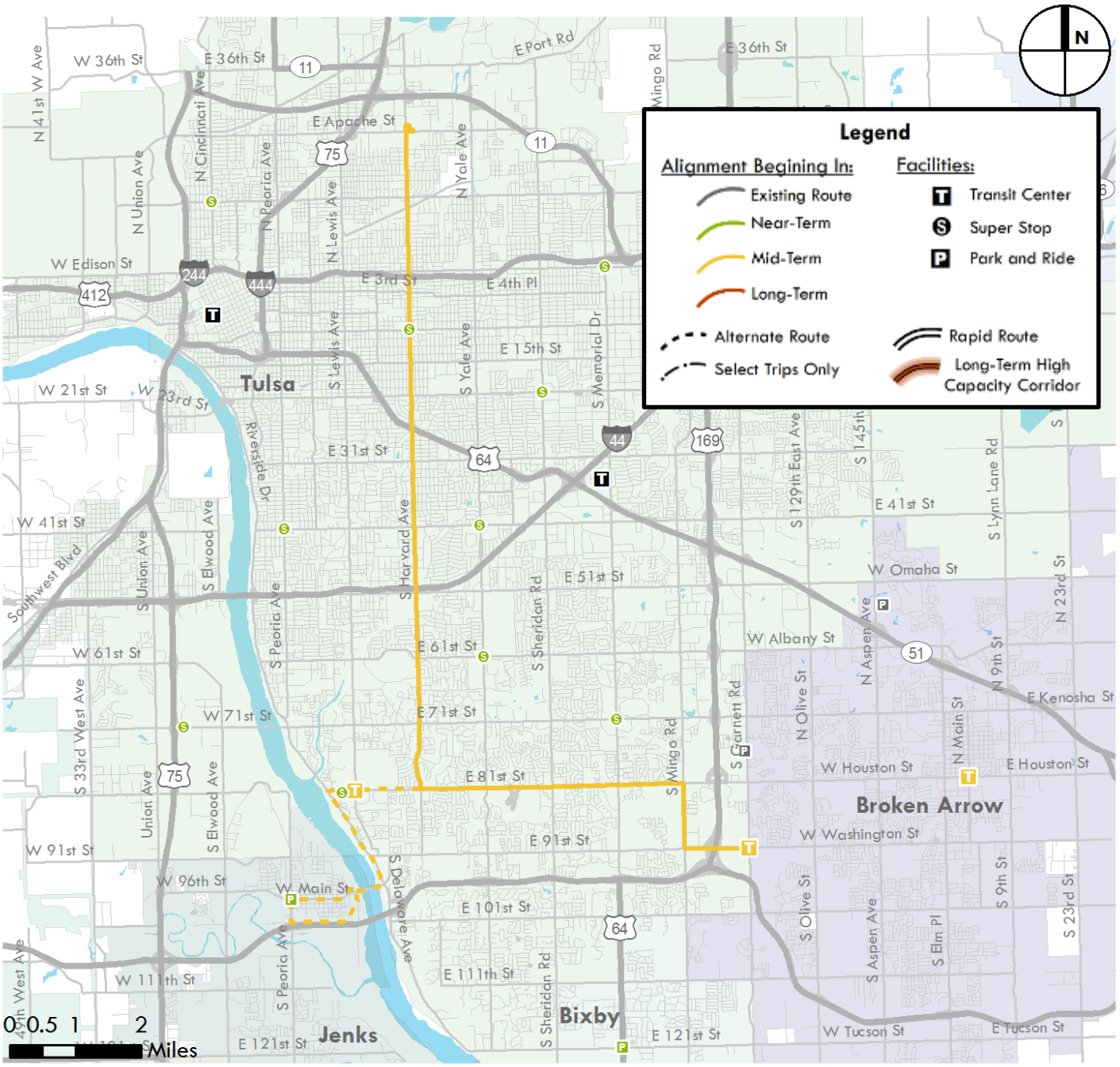


Route 410 – Harvard *(split from 210 – Harvard)*

Route 410 is a new segment assuming the Harvard Avenue portions of Route 210 from the Mid-Term onward. Route 410 travels from Tulsa Community College south on Harvard, with trips alternating east or west on 81st to serve either the new 81st/Lewis and Jenks or the St. Francis South transit center. Initial headways are 30/30 peak/base and hourly on weekends, improving to 15/30/60 peak/base/evening.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	n/a	30	15
Midday	n/a	n/a	n/a	30	30
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	60	60
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

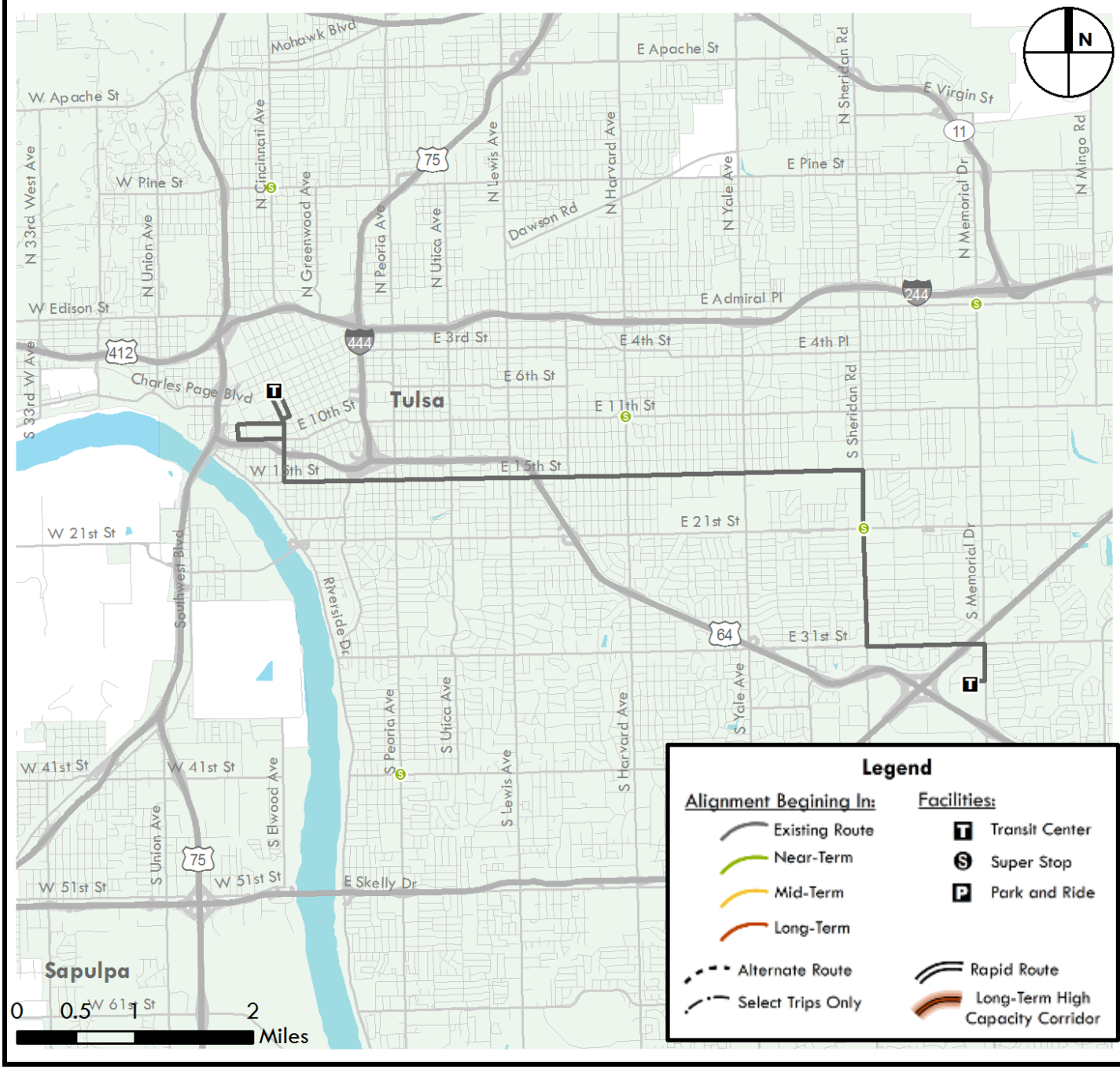


Route 215 – 15th Street

Route 215 continues its alignment in all recommended terms though headway improvements occur immediately. Clock headways are initiated as 45/60 peak/base, improving to 30/60 onward. Saturday evening service is added in the Near-Term and Sunday service is added in the Mid-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	38	45	30	30	30
Midday	76	90	60	60	60
Evening	n/a	n/a	60	60	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	76	90	60	60	60
Evening	n/a	n/a	60	60	60
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

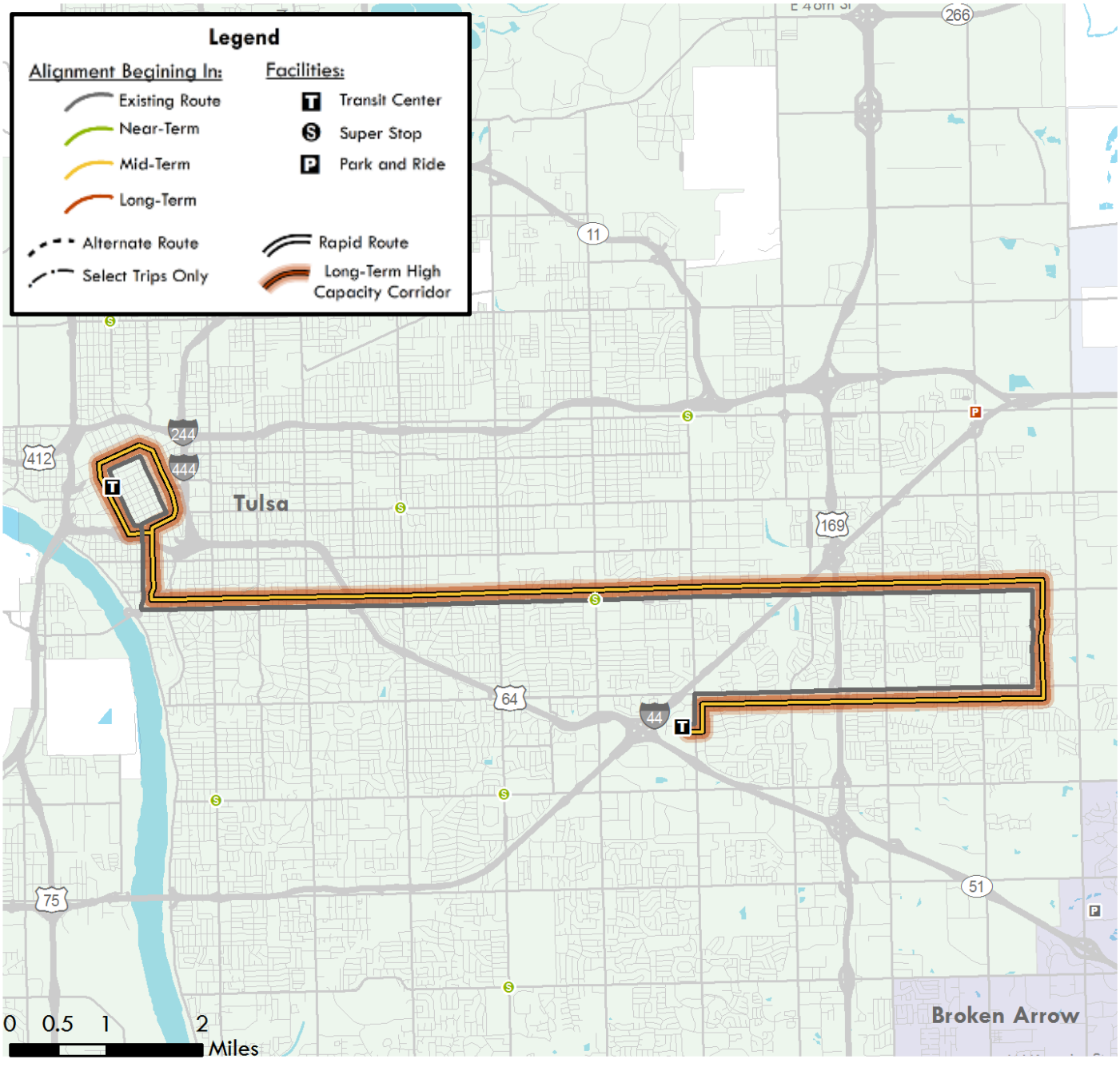


Route 221/721 – 21st Street/Eastgate

Route 221 continues its alignment in all terms but a rapid 721 pattern is added in the Mid-Term and an urban high-capacity corridor along the same alignment in the Long-Term. Evening and night service is added immediately with decreasing headways occurring in the Mid- and Long-Terms. Sunday service is added in the Mid-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	45	45	30	15 (30/30)	10 (30/15)
Midday	67.5	45	30	15 (30/30)	15 (30/30)
Evening	n/a	90	60	30	15 (30/30)
Night	n/a	90	60	60	60
Saturday					
Day	70	60	60	30 (60/60)	20 (60/30)
Evening	n/a	90	60	60	30 (60/60)
Night	n/a	90	60	60	60
Sunday					
Day	n/a	n/a	n/a	30 (60/60)	30 (60/60)

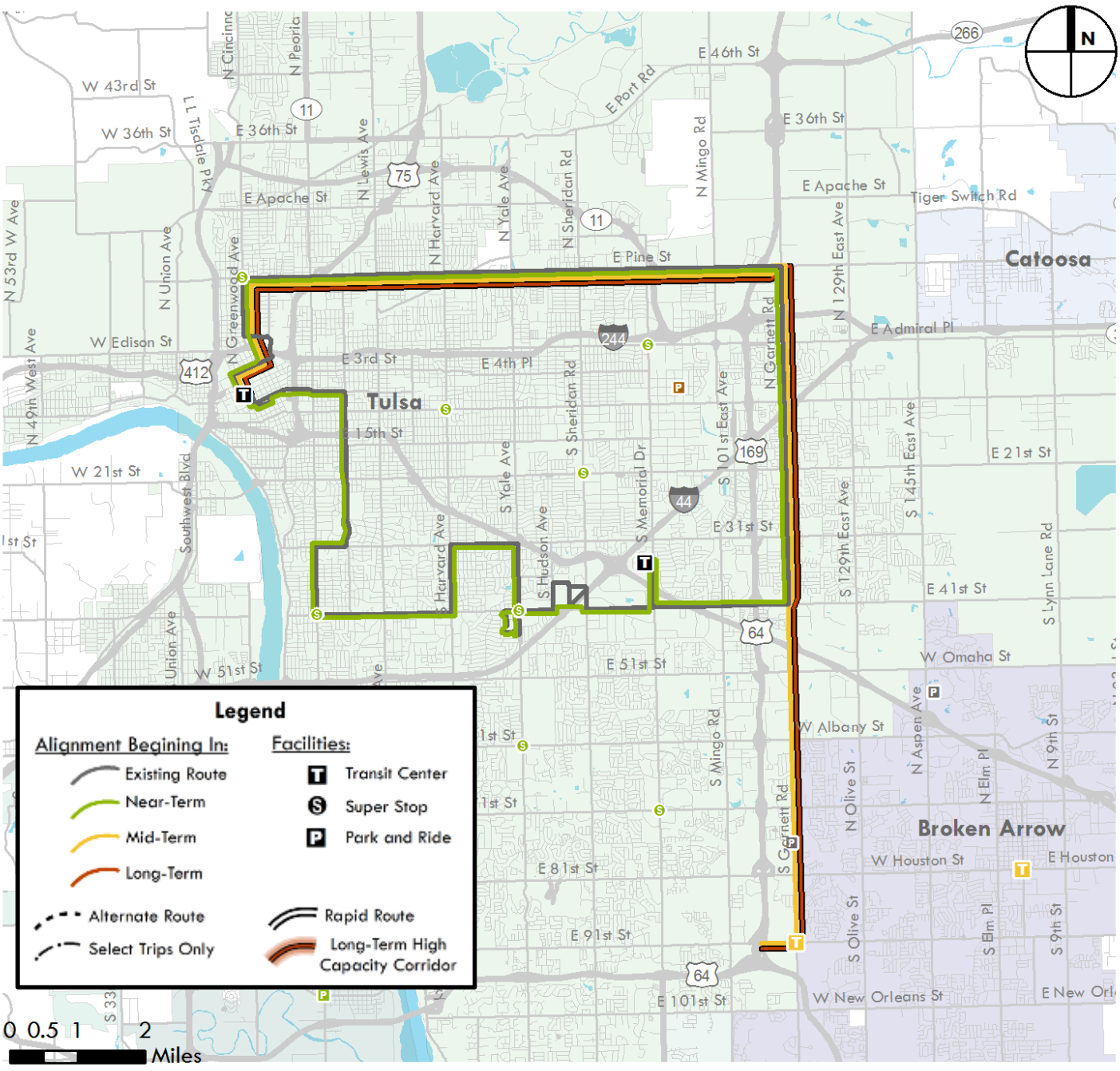


Route 122/722 – Pine/Garnett *(split from 222 – Pine/41st)*

Route 122 stems from Route 222 in the Mid-Term, assuming the northern portion of the route along Pine and Garnett. The route travels east along Pine Street from DAS and south along Garnett to the St. Francis South Station introduced in the Mid-Term. Headways are 30/60 peak/base. Route 722, a rapid route, is introduced in the Long-Term at hourly headways for a combined headway of 20/30.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	70	60	60	30	20 (30/60)
Midday	70	60	60	60	30 (60/60)
Evening	n/a	n/a	120	60	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	65	60	60	60	30 (60/60)
Evening	n/a	n/a	120	60	30 (60/60)
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

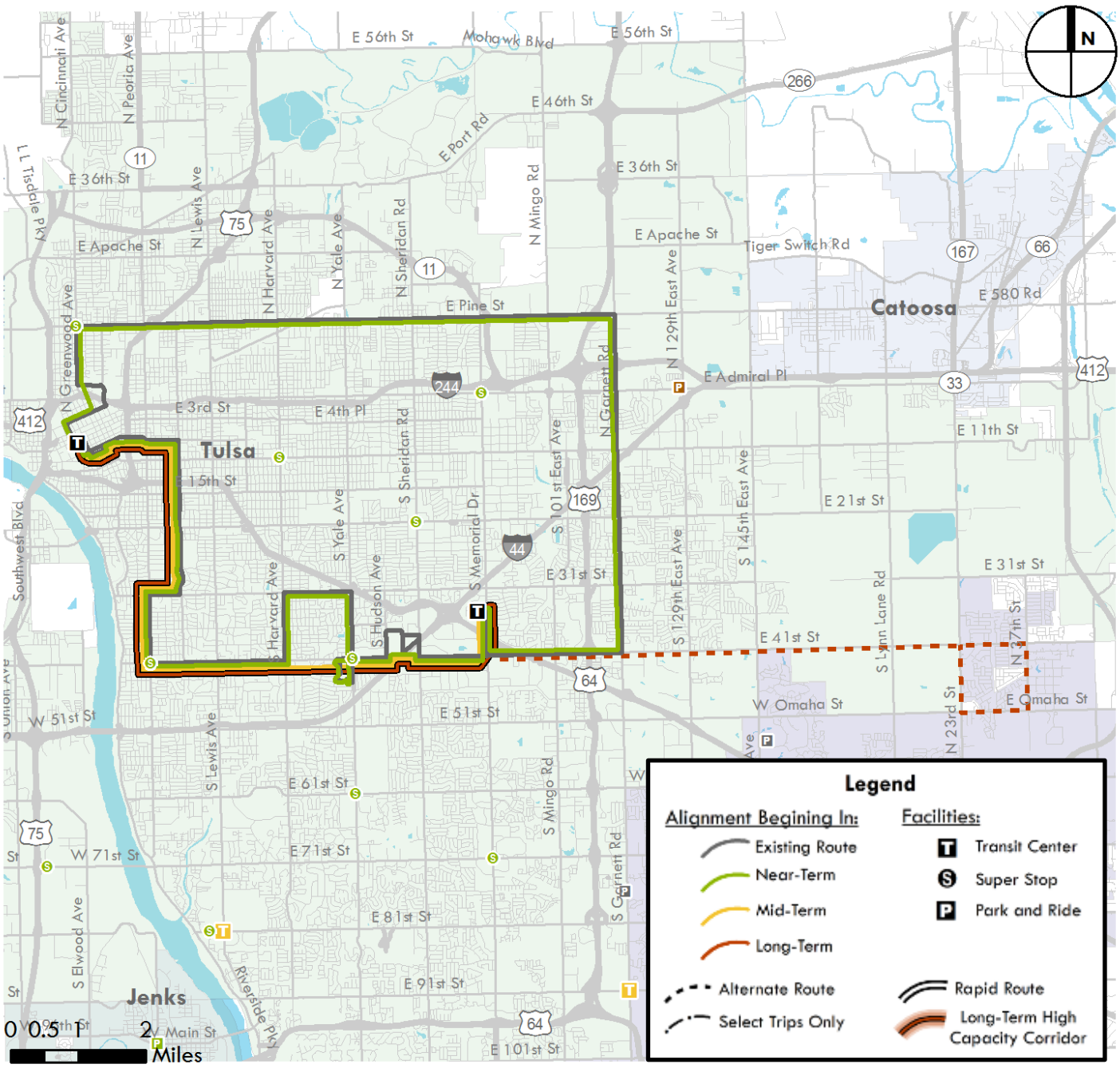


Route 222/723 – 41st Street *(split from 222 – Pine/41st)*

Route 222 sees immediate headway reductions to hourly service. In the MT, the route splits into two with Route 222 assuming the southern portion of the route along Utica and 41st. Headways decrease to 30/60 peak/base. In the LT, rapid route 723 connecting DAS to MMS is introduced along with alternate trips continuing east of MMS along 41st into New Tulsa. Combined local and rapid headways are 20/30 and include evening and night service as well.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	70	60	60	30	20 (30/60)
Midday	70	60	60	30	20 (30/60)
Evening	n/a	n/a	120	60	30
Night	n/a	n/a	n/a	n/a	60
Saturday					
Day	65	60	60	60	30 (60/60)
Evening	n/a	n/a	120	60	30 (60/60)
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

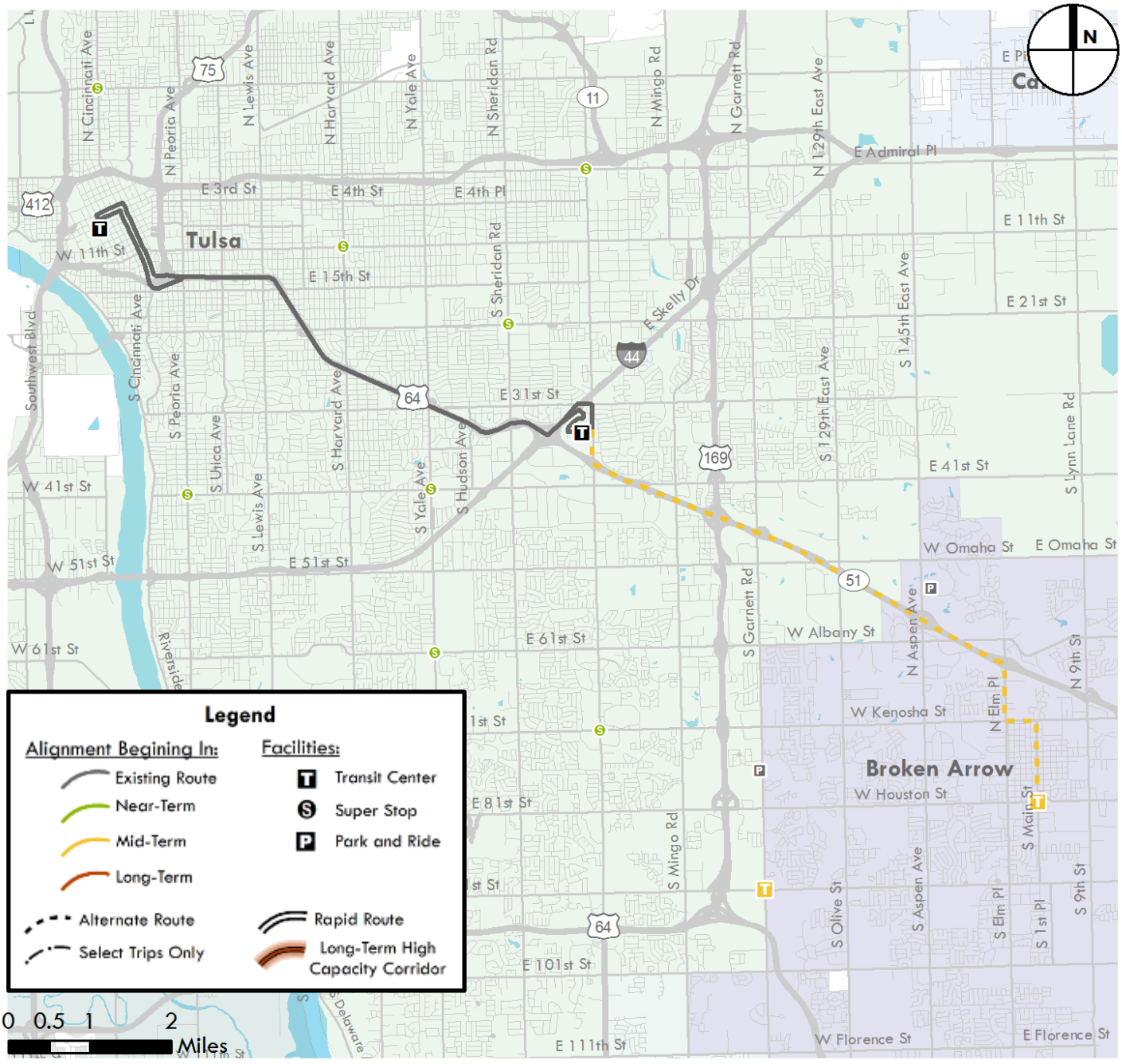


Route 251 – Fast Track

Route 251 sees regular half-hour and hourly headway changes immediately, followed by an extension to Broken Arrow in the Mid-Term on every other trip. Sunday service is added in the Mid-Term and Monday through Saturday evening service is added in the Long-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	25	30	30	30	30
Midday	50	60	60	60	30
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	50	60	60	60	60
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

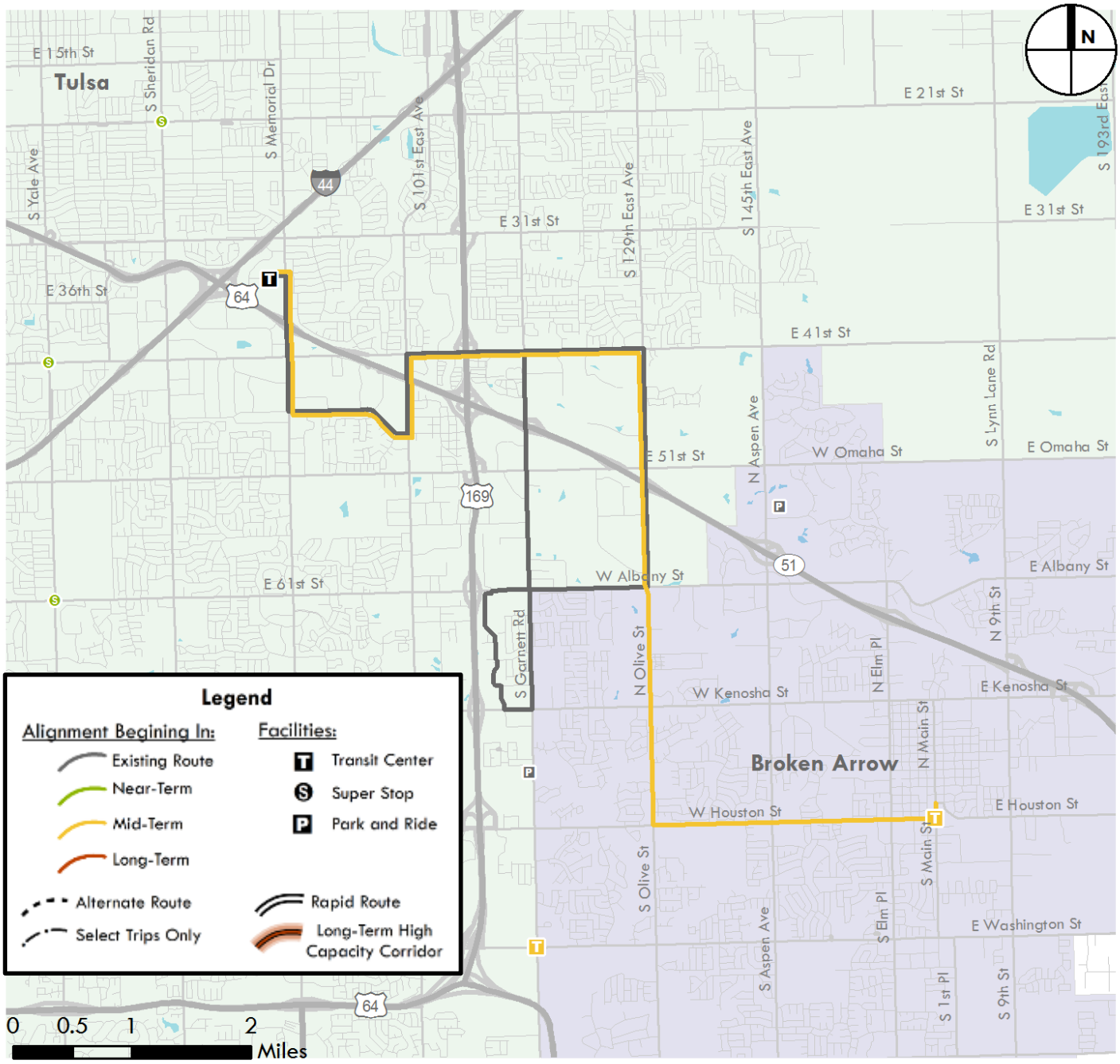


Route 306 – Southeast Industrial

Route 306 sees major changes in the Mid-Term. Alignment between the MMS and the proposed Broken Arrow Station shifts to bidirectional service on 129th Street rather than loop service on Garnett Road. Hourly headways will continue through the Mid-Term, with peak headways decreasing to 30 minutes in the Long-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	60	60	60	60	30
Midday	60	60	60	60	60
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

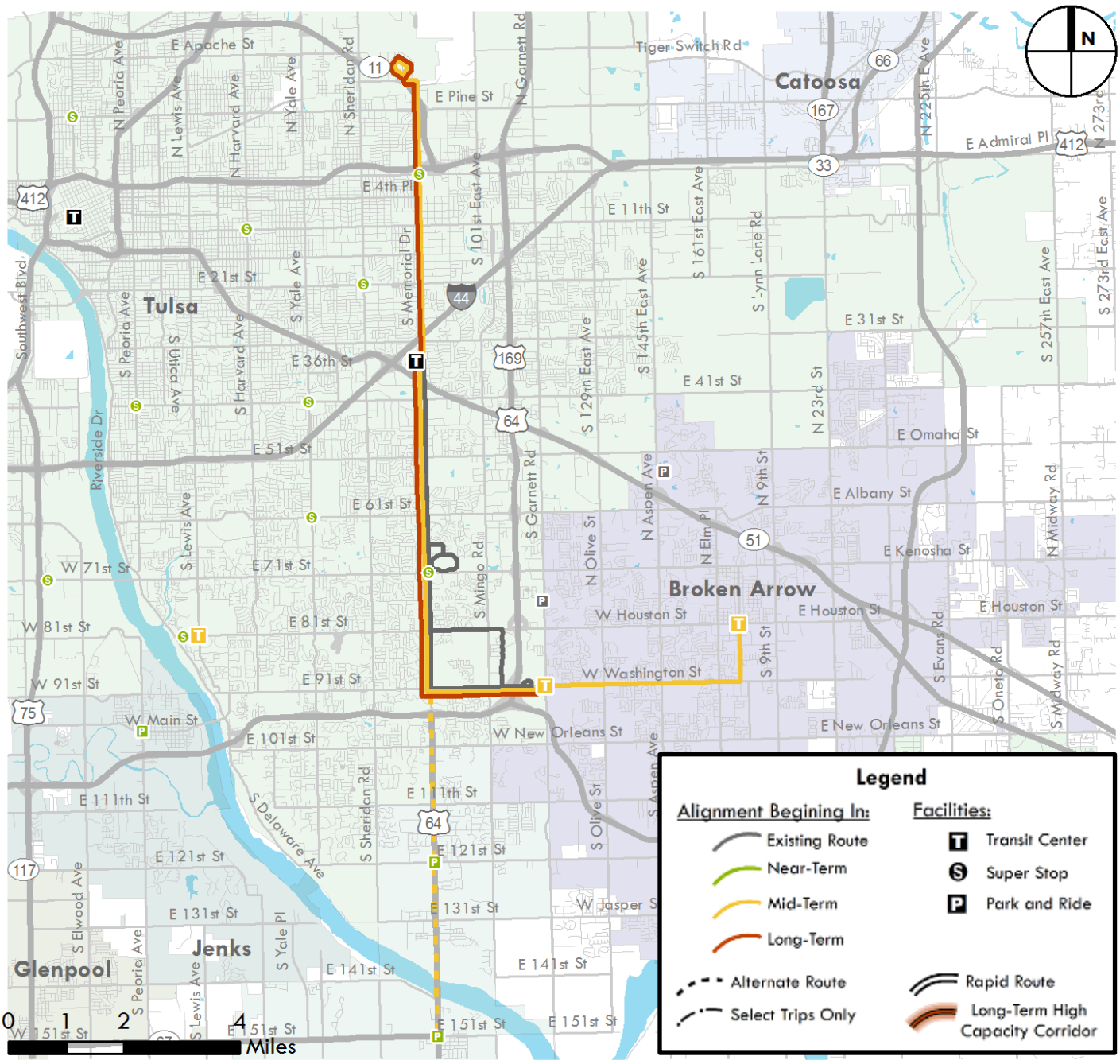


Route 318/718 - Memorial

Route 318 splits into two patterns in the MT: one will run along Memorial from the Airport and east along 91st to the new Broken Arrow Station, while a second will run from MMS south into Bixby. Combined headways between MMS and 91st will decrease to 30/60 peak/base in the NT and again to 20/30 in the LT with new rapid route 718 and additional hour evening and night service. Saturday evening service is added in the NT and Sunday service is added in the MT.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	45	45	30	30	20 (30/60)
Midday	90	90	60	60	20 (30/60)
Evening	n/a	n/a	60	60	30
Night	n/a	n/a	n/a	n/a	60
Saturday					
Day	90	90	60	60	30 (60/60)
Evening	n/a	n/a	60	60	30 (60/60)
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

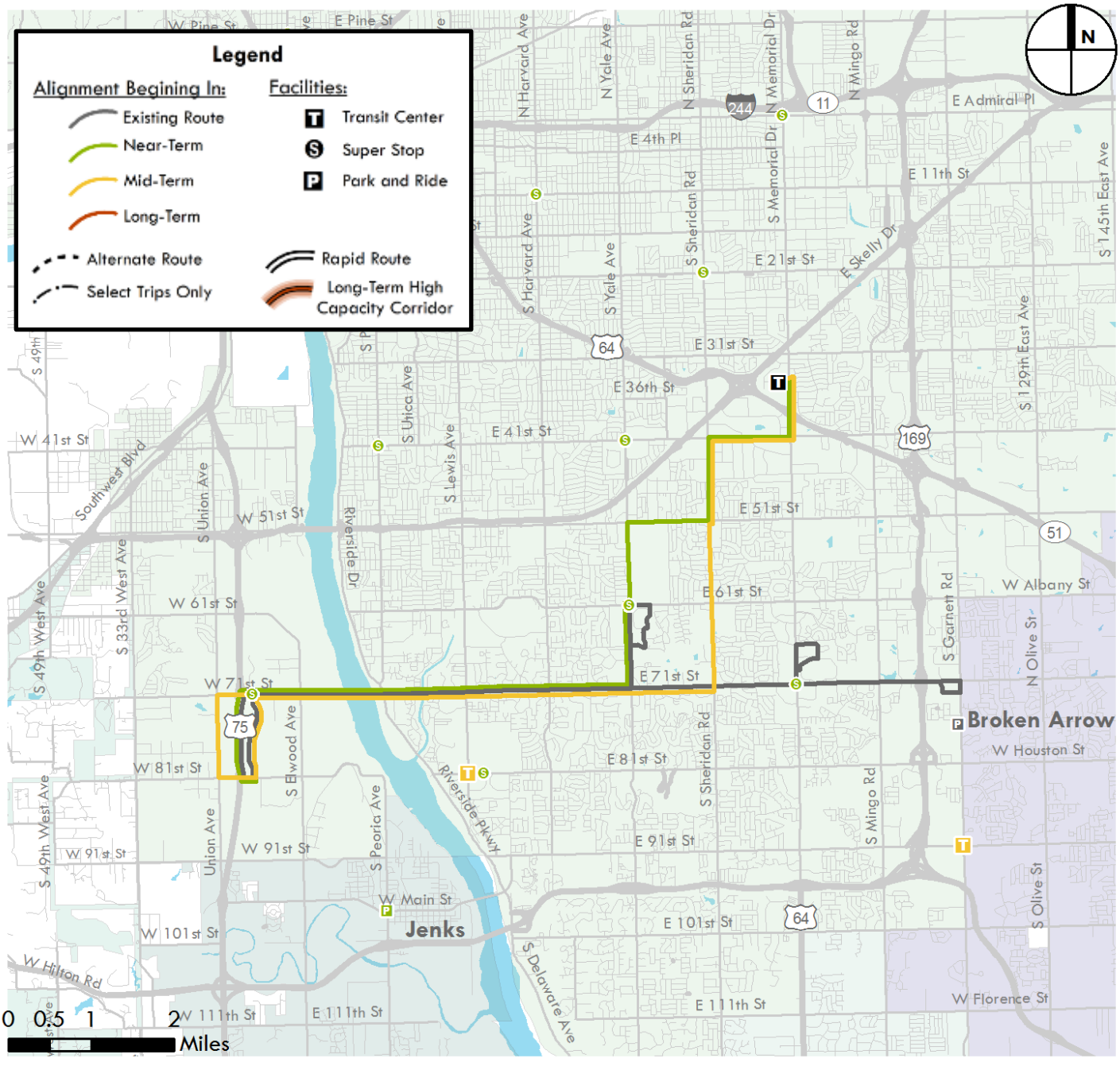


Route 371– 71st/Sheridan *(split from 471 – 71st)*

Route 371 is an offshoot of existing Route 471, servicing MMS to Tulsa Hills in the Near-Term via zig-zags along 41st Street, Sheridan Road, 51st Street, Yale Avenue, and 71st Street. Mid-Term improvements shift 371 to Sheridan Road to 71st Street. Sunday service is added in the Mid-Term and weekday evening service is added in the Long-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	60	60	60	60
Midday	n/a	120	60	60	60
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	120	60	60	60
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

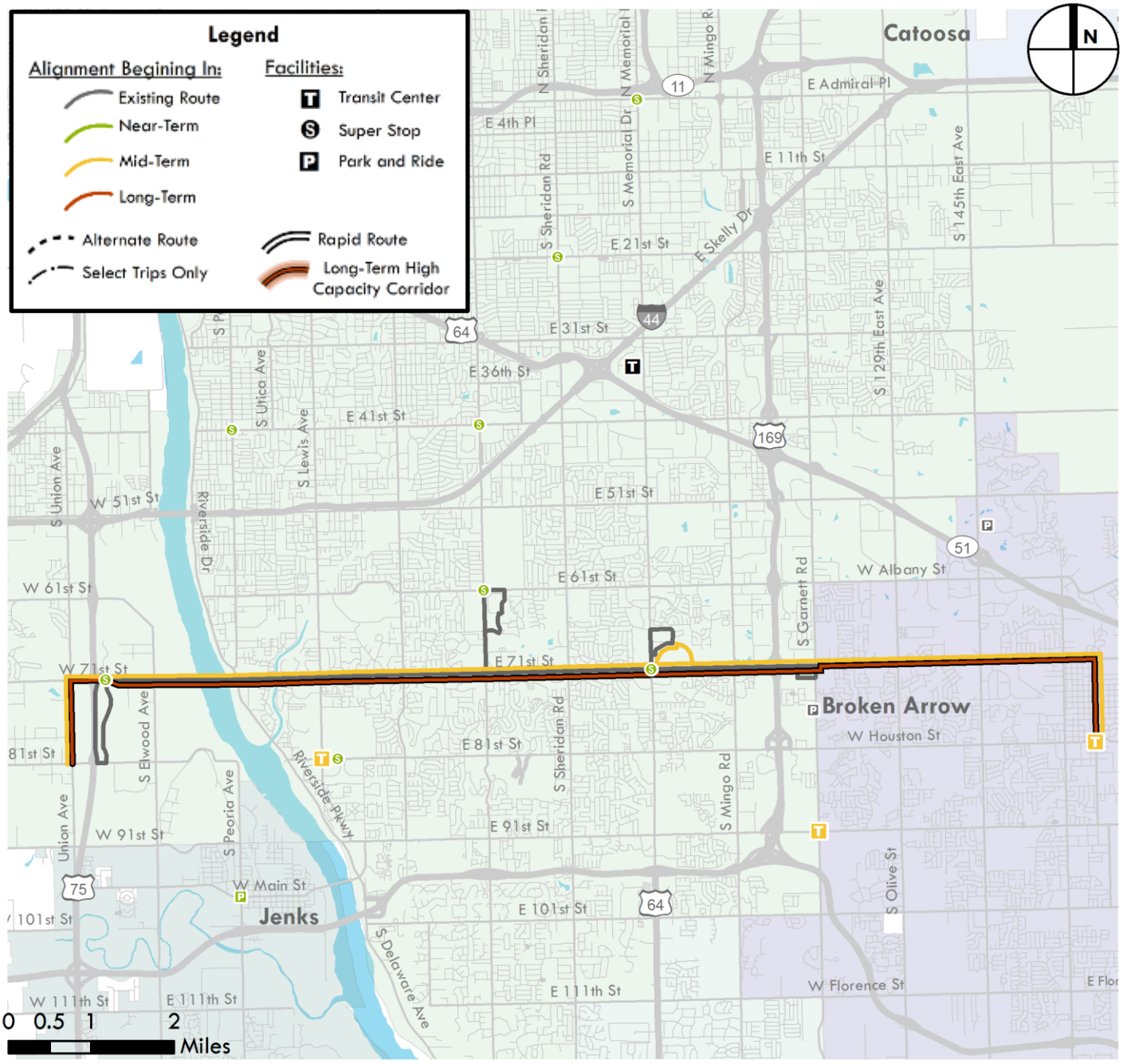


Route 471/771 – 71st Street

Route 471 extends into Broken Arrow and makes connections at the new Broken Arrow Station in the Mid-Term. Headways decrease to hourly service with additional evening and weekend service then. Long-Term plans include rapid route 771 between Tulsa Hills and BAS with no deviations along 71st Street. Rapid headways are hourly to make for a combined headway of 30/30/60 in the Long-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	100	n/a	n/a	60	30 (60/60)
Midday	100	n/a	n/a	60	30 (60/60)
Evening	n/a	n/a	n/a	60	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	100	n/a	n/a	60	30 (60/60)
Evening	n/a	n/a	n/a	60	30 (60/60)
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

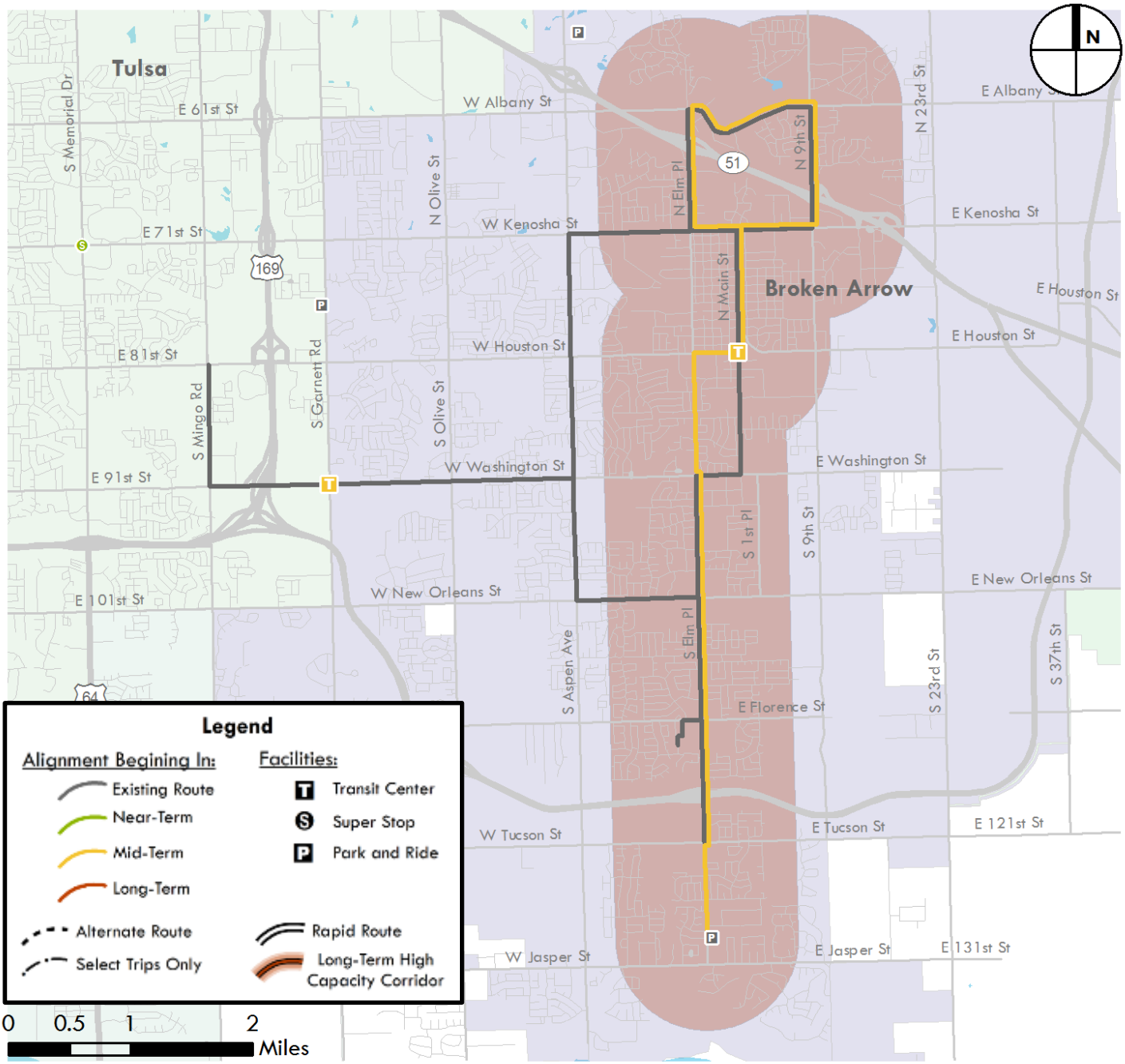


Route 501 – Elm/Broken Arrow Flex *(replaces 508)*

Route 501, formerly 508, is streamlined in the Mid-Term to have a more north-south pattern along Main Street and Elm Place. Headways decrease to 60/120 peak/base in the Near-Term and 60/60 onward, and Sunday service is added in the Mid-Term. Route 501 also provides Flex service for Broken Arrow up to ¾-mi from its normal route.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	85	85	60	60	60
Midday	240	240	120	60	60
Evening	n/a	n/a	n/a	60	60
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	60	60
Evening	n/a	n/a	n/a	n/a	60
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	60	60

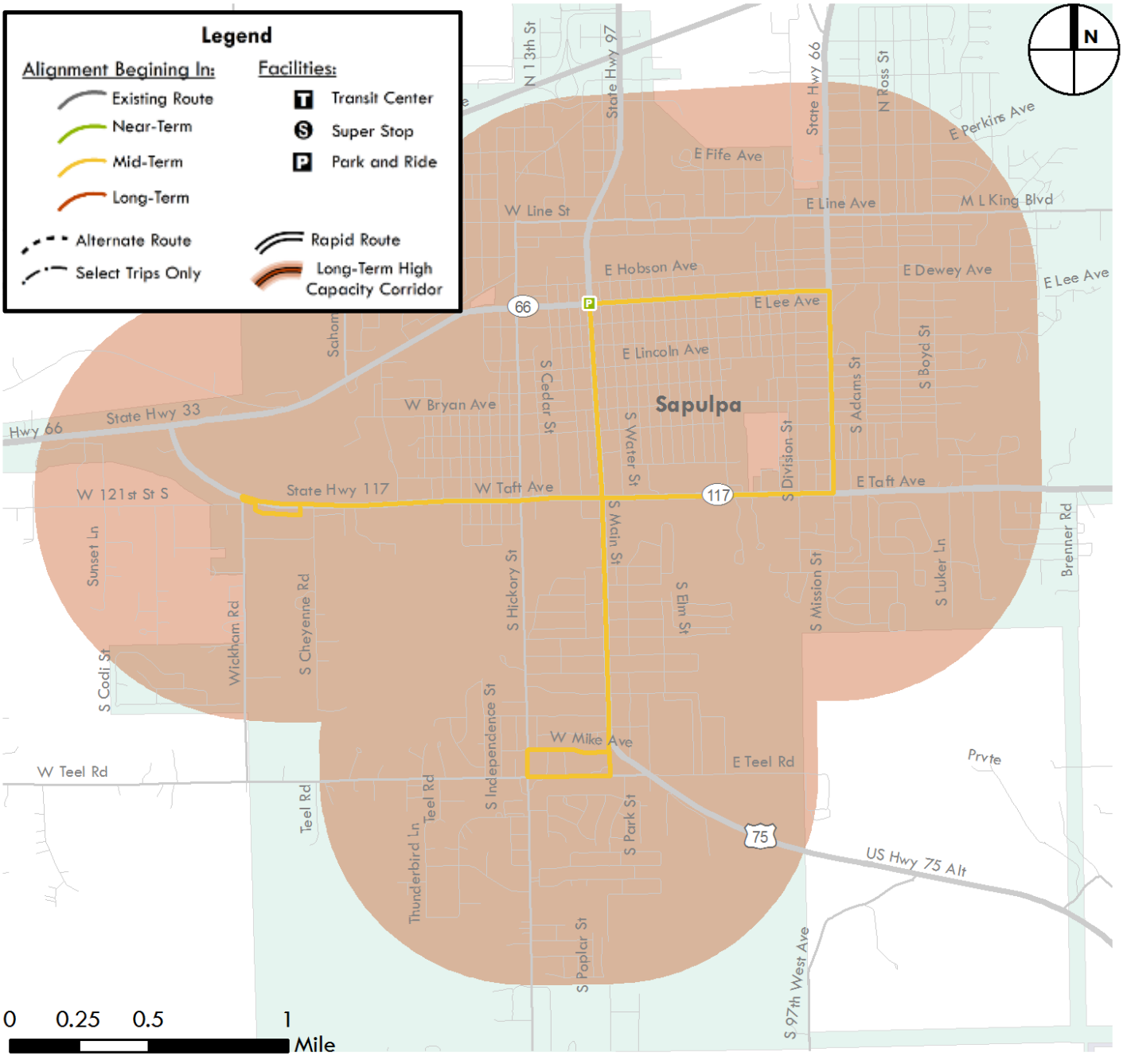


Route 520 – Sapulpa Flex

Sapulpa gains new Flex Service in the Mid-Term, circulating around downtown and along Taft Avenue and Main Street with hourly service. Saturday hourly service is added in the Long-Term. Route 520 will service downtown, St. John Hospital, grocery stores, and the Wal-Mart west of downtown Sapulpa on 117.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	n/a	60	60
Midday	n/a	n/a	n/a	60	60
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	60
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a



Route 540 – Owasso Flex

Route 540 services Owasso on an hourly schedule beginning in the Mid-Term. Saturday service is added in the Long-Term. The Flex route will serve downtown Owasso, the 96th Street Wal-Mart, St. John Hospital, Owasso High School, and numerous neighborhoods and retail areas. This will mark the start of service for the first time in Owasso.

Service Frequencies

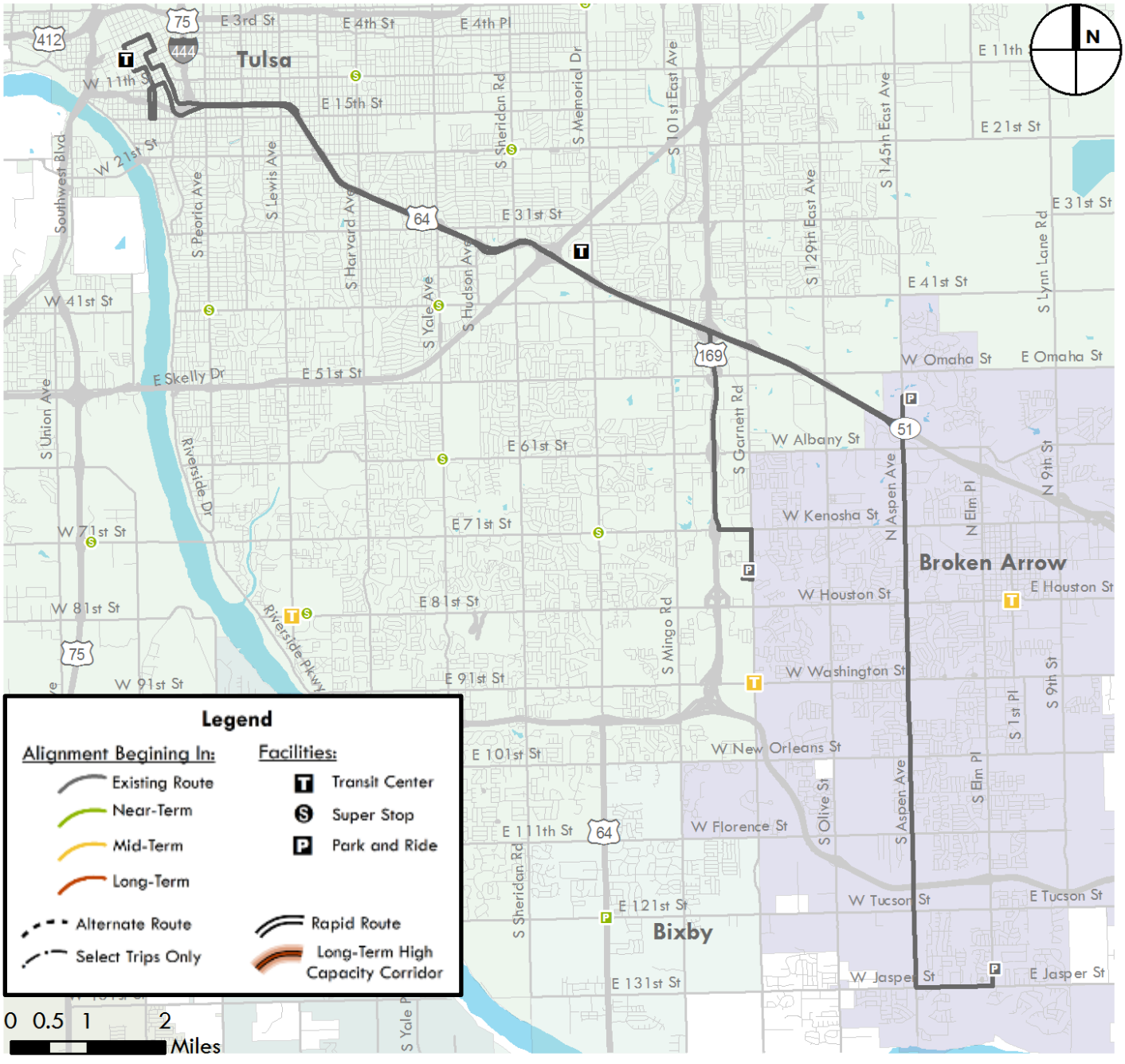
	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	n/a	60	60
Midday	n/a	n/a	n/a	60	60
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	60
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

Route 902 – Broken Arrow Express

Route 902, between DAS and numerous Broken Arrow park-and-ride lots, will continue with no changes to alignment or service until the midterm when service will shift from 3 daily trips to 30/180 peak/base service in the Mid-Term and Long-Term. MT and LT services levels would be reduced or eliminated with the commencement of a high-capacity project in the Broken Arrow corridor.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	3 trips	3 trips	3 trips	30	30
Midday	n/a	n/a	n/a	180	180
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

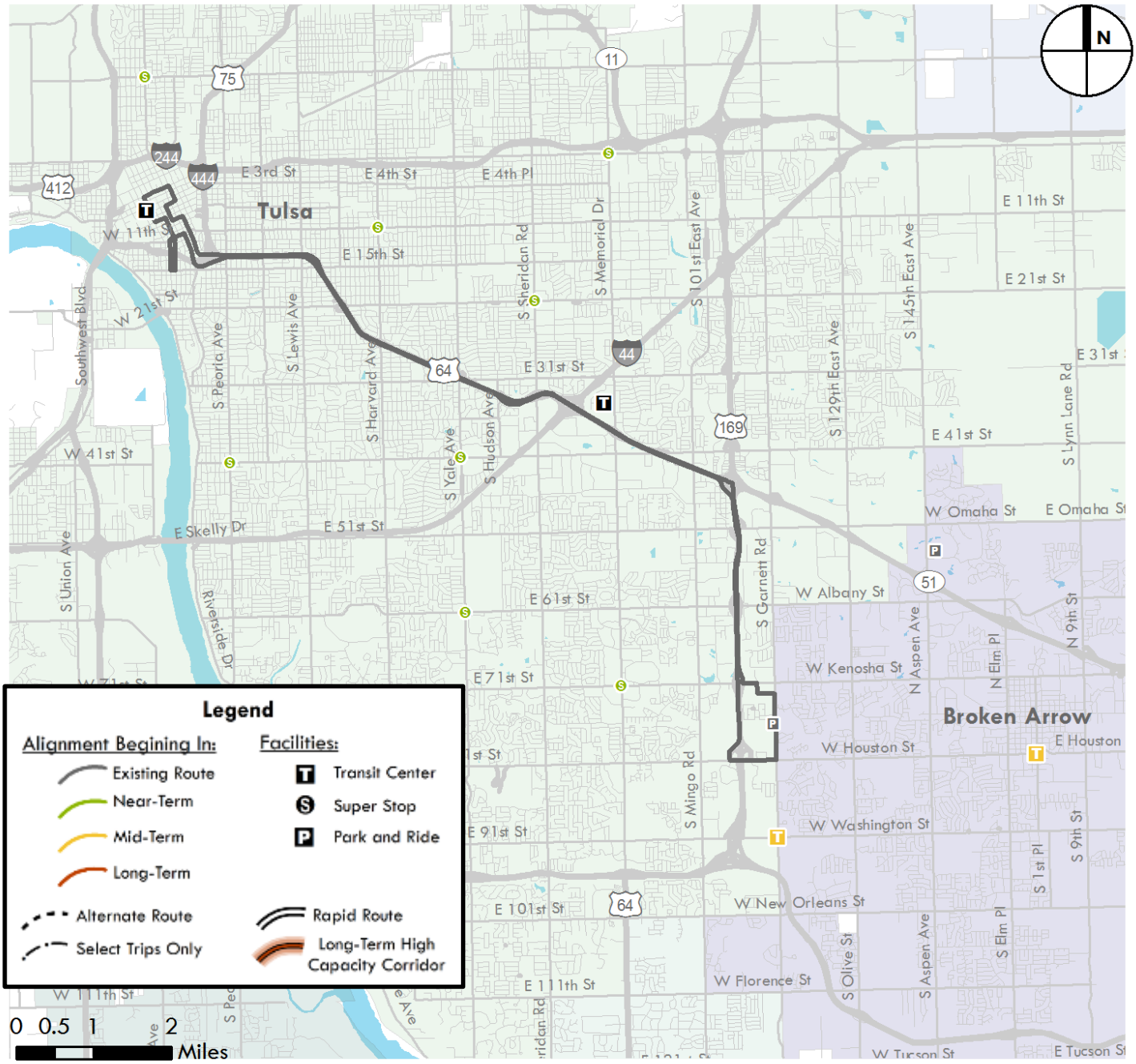


Route 909 – Union Express

Route 909, between DAS and Broken Arrow, will see no alignment changes but will benefit from hourly service beginning in the Mid-Term and continuing into the Long-Term.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	1 trip	1 trip	1 trip	60	60
Midday	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

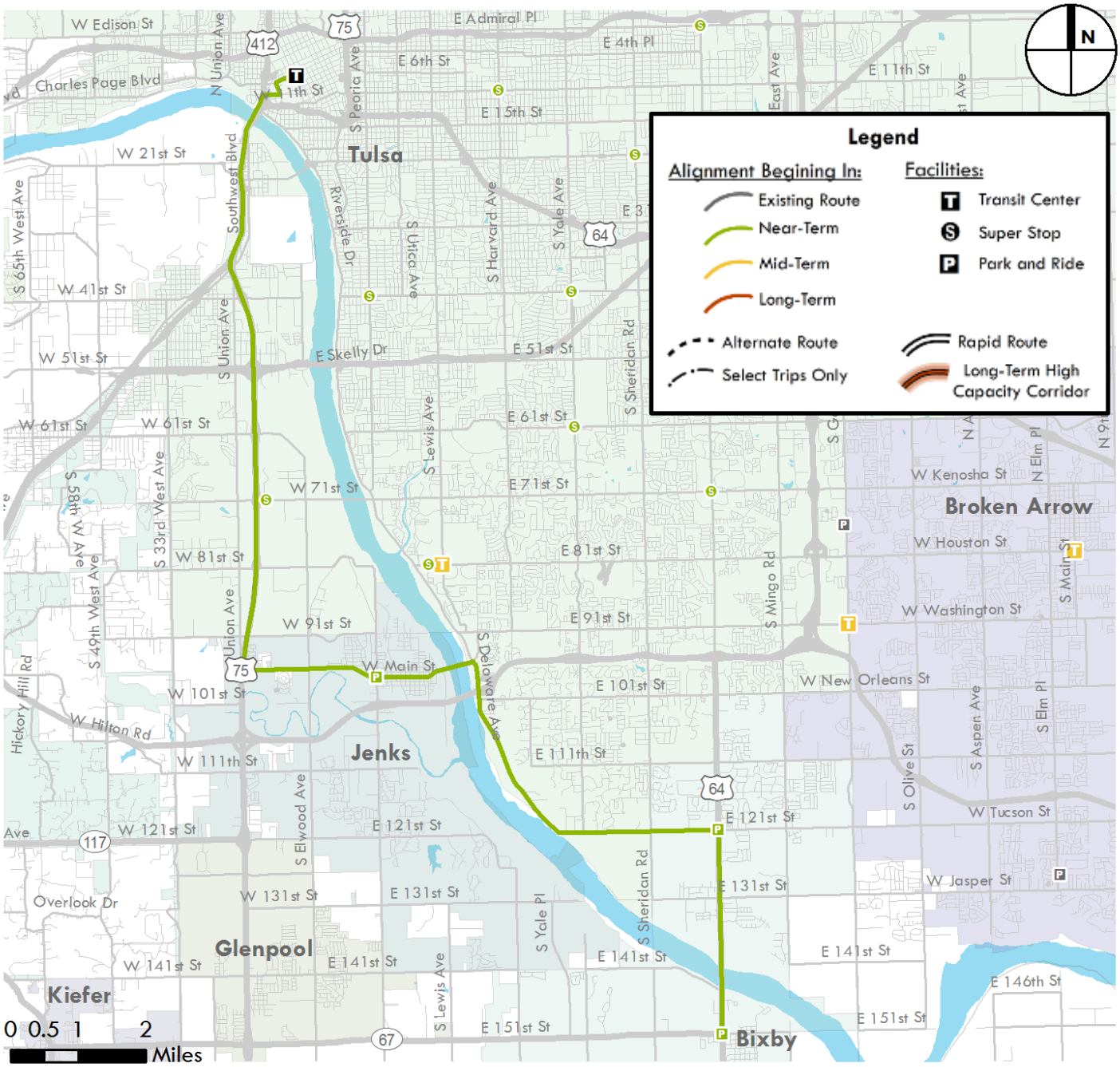


Route 910 – Bixby/Jenks Express

Route 910 is new service which will begin in the Near-Term with one daily trip in both directions between downtown Tulsa and Bixby and Jenks. Service will increase to hourly service beginning in the Mid-Term, continuing into the Long-Term. Alignment follows the Red Fork Expressway out of downtown, south along the Okmulgee Expressway, along 96th Street through Jenks and along Riverside Parkway/Delaware Ave to Memorial Drive.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	1 trip	60	60
Midday	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

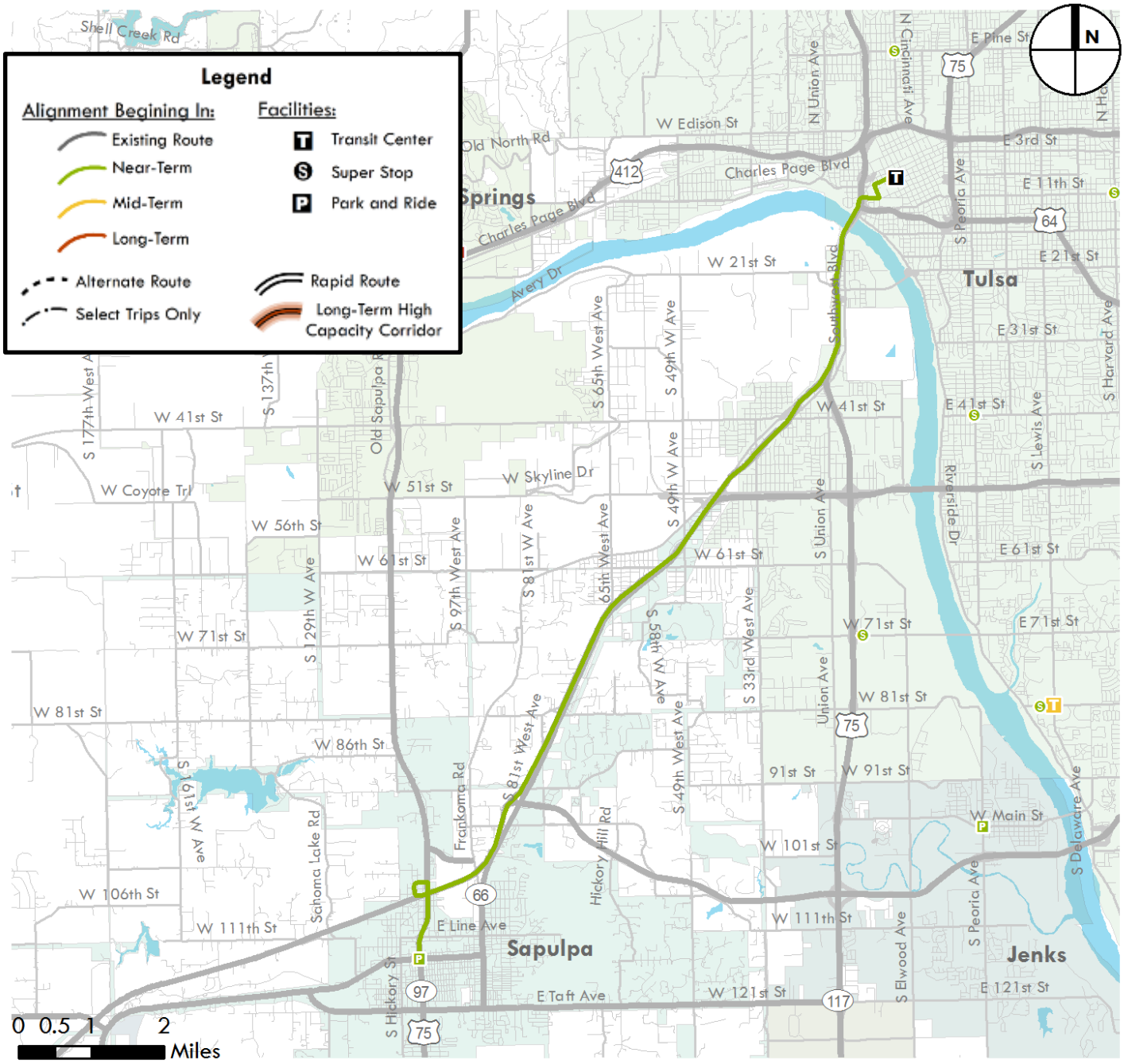


Route 920 – Sapulpa Express

Route 920 is new express service between downtown Tulsa and the new Sapulpa park-and-ride lot via I-244 and I-44. Service will initiate in the Near-Term with one trip each way, increasing to hourly service in the Mid- and Long-Terms.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	1 trip	60	60
Midday	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

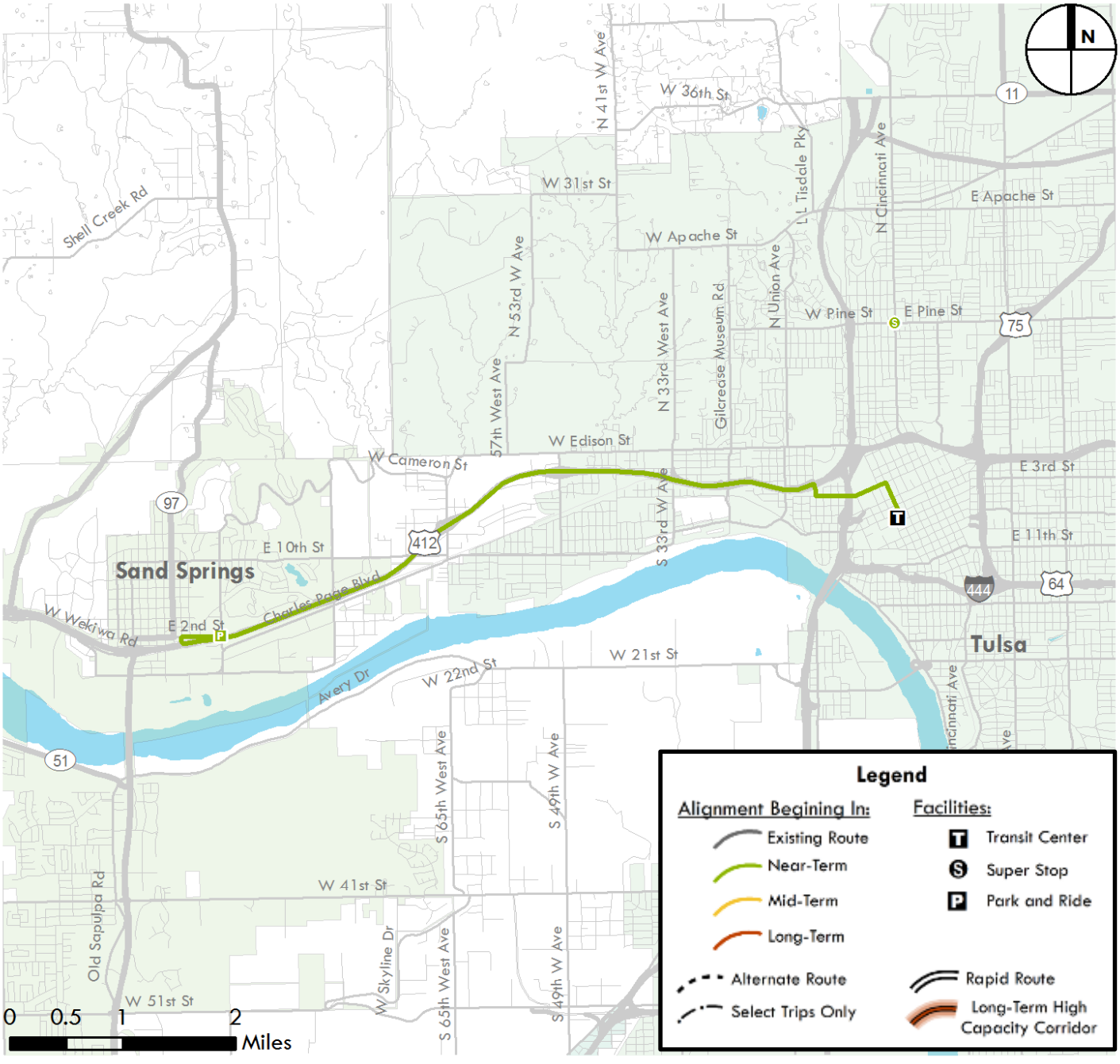


Route 930 – Sand Springs Express

Sand Springs will gain new express service Route 930 in the Near-Term with one daily trip each way increasing to hourly service in the Mid- and Long-Terms. Route alignment follows US-64/Sand Springs Expressway west of downtown Tulsa to the new park-and-ride lot in Sand Springs.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	1 trip	60	60
Midday	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

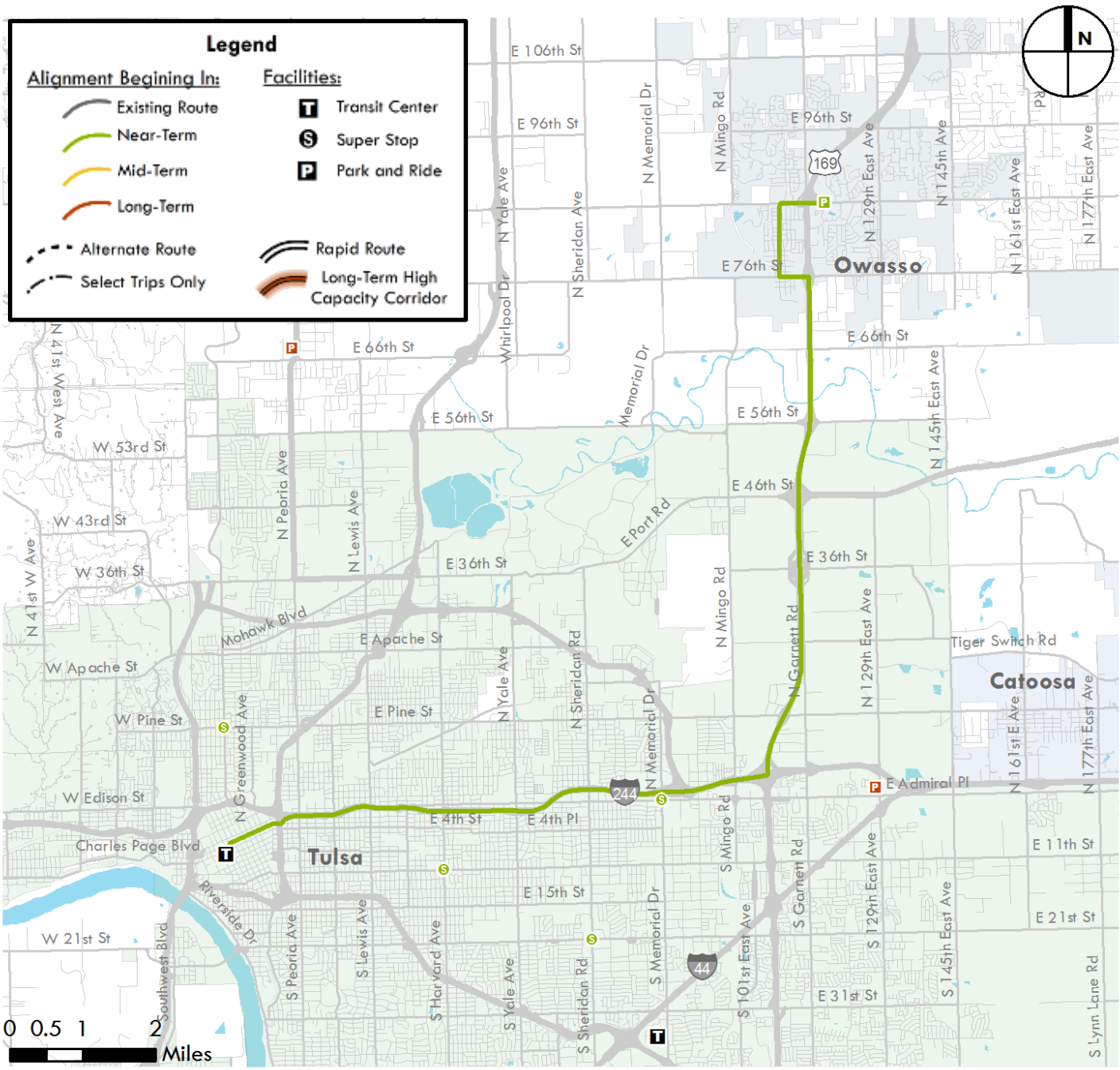


Route 940 – Owasso Express

Beginning in the Near-Term, Owasso will have express service with one trip each way increasing to hourly service in the Mid- and Long-Term. Trips will follow US-169 south to I-244 into downtown Tulsa.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	1 trip	60	60
Midday	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a

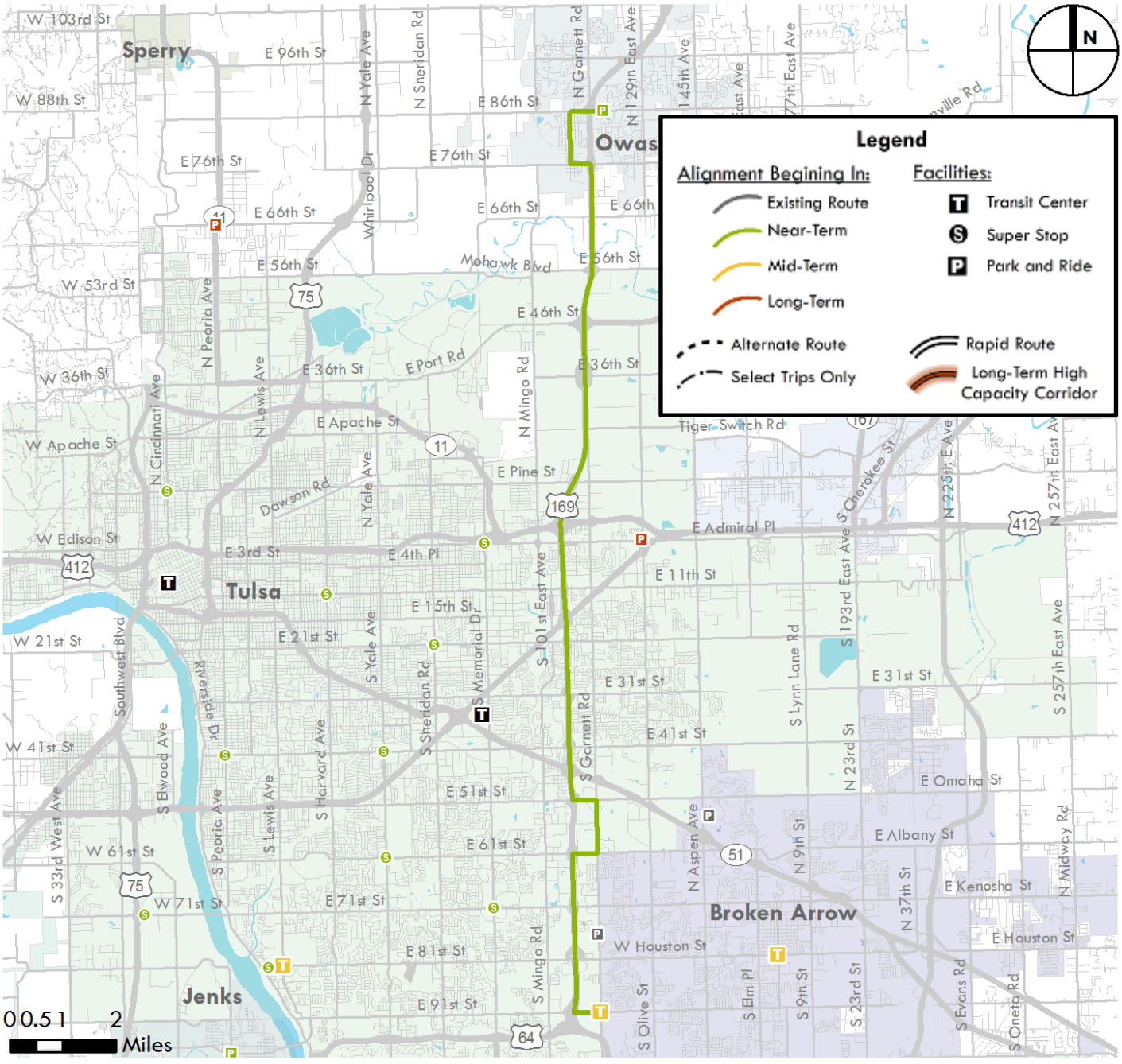


Route 950 – US-169 Express

Owasso and Broken Arrow will be linked with express route 950 along US-169 beginning in the Near-Term with one trip daily in each direction. Hourly service will then initiate in the Mid-Term continuing into the Long-Term. Deviations from US-169 occur through downtown Owasso and along Garnett through the industrial district between 51st and 61st Streets.

Service Frequencies

	Existing	Immediate Term	Near Term	Mid Term	Long Term
	For routes with rapid patterns, expressed as: aggregate (local/rapid)				
Weekday					
Peak	n/a	n/a	1 trip	60	60
Midday	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Saturday					
Day	n/a	n/a	n/a	n/a	n/a
Evening	n/a	n/a	n/a	n/a	n/a
Night	n/a	n/a	n/a	n/a	n/a
Sunday					
Day	n/a	n/a	n/a	n/a	n/a



Appendix A
Sample Immediate-Term Schedules

The following sample schedules were developed to show how timed-transfers could occur out of DAS for a variety of route conditions: a non-interlined route terminating at DAS (100), a non-interlined route with a mid-route stop at DAS (105), interlined routes with matching headways terminating at DAS (114/203), and interlined routes without matching headways terminating at DAS (222/251). The arrival and departure times from DAS on these schedules correspond to Figure 2.2 above.

Figure A.1: Sample Immediate-Term Schedules

	100				
	ARR	DEP	**ARR**	**DEP**	ARR
Bus#	123d/Arch	123d/Arch	**DAS**	**DAS**	123d/Arch
1				5:45 AM	6:26 AM
2		5:46 AM	6:25 AM	6:30 AM	7:11 AM
1	6:26 AM	6:31 AM	7:10 AM	7:15 AM	7:56 AM
2	7:11 AM	7:16 AM	7:55 AM	8:00 AM	8:41 AM
1	7:56 AM	8:01 AM	8:40 AM	8:45 AM	9:26 AM
2	8:41 AM	8:46 AM	9:25 AM	9:30 AM	10:11 AM
1	9:26 AM	9:31 AM	10:10 AM	10:15 AM	10:56 AM
2	10:11 AM	10:16 AM	10:55 AM	11:00 AM	11:41 AM

	105 N					105 S			
	ARR	DEP	**ARR**	**DEP**	ARR	DEP	**ARR**	**DEP**	ARR
Bus#	WalM/81st	WalM/81st	**DAS**	**DAS**	65th/Quak	65th/Quak	**DAS**	**DAS**	WalM/81st
1						5:29 AM	5:53 AM	5:58 AM	6:40 AM
2						5:59 AM	6:23 AM	6:28 AM	7:10 AM
3						6:29 AM	6:53 AM	6:58 AM	7:40 AM
4		5:44 AM	6:28 AM	6:33 AM	6:55 AM	6:59 AM	7:23 AM	7:28 AM	8:10 AM
5		6:14 AM	6:58 AM	7:03 AM	7:25 AM	7:29 AM	7:53 AM	7:58 AM	8:40 AM
1	6:40 AM	6:44 AM	7:28 AM	7:33 AM	7:55 AM	7:59 AM	8:23 AM	8:28 AM	9:10 AM
2	7:10 AM	7:14 AM	7:58 AM	8:03 AM	8:25 AM	8:29 AM	8:53 AM	8:58 AM	9:40 AM
3	7:40 AM	7:44 AM	8:28 AM	8:33 AM	8:55 AM	8:59 AM	9:23 AM	9:28 AM	10:10 AM
4	8:10 AM	8:14 AM	8:58 AM	9:03 AM	9:25 AM	9:29 AM	9:53 AM	9:58 AM	10:40 AM
5	8:40 AM	8:44 AM	9:28 AM	9:33 AM	9:55 AM	9:59 AM	10:23 AM	10:28 AM	11:10 AM

	114			203				114	
	ARR	DEP	**ARR**	**DEP**	ARR	DEP	**ARR**	**DEP**	ARR
Bus#	WalM	WalM	**DAS**	**DAS**	MMS	MMS	**DAS**	**DAS**	WalM
1						6:01 AM	6:58 AM	7:03 AM	7:52 AM
2						7:01 AM	7:58 AM	8:03 AM	8:52 AM
3		5:58 AM	6:53 AM	6:58 AM	7:59 AM	8:01 AM	8:58 AM	9:03 AM	9:52 AM
4		6:58 AM	7:53 AM	7:58 AM	8:59 AM	9:01 AM	9:58 AM	10:03 AM	10:52 AM
1	7:52 AM	7:58 AM	8:53 AM	8:58 AM	9:59 AM	10:01 AM	10:58 AM	11:03 AM	11:52 AM
2	8:52 AM	8:58 AM	9:53 AM	9:58 AM	10:59 AM	11:01 AM	11:58 AM	12:03 PM	12:52 PM
3	9:52 AM	9:58 AM	10:53 AM	10:58 AM	11:59 AM	12:01 PM	12:58 PM	1:03 PM	1:52 PM
4	10:52 AM	10:58 AM	11:53 AM	11:58 AM	12:59 PM	1:01 PM	1:58 PM	2:03 PM	2:52 PM

	251			222 CW				251	
	ARR	DEP	**ARR**	**DEP**	ARR	DEP	**ARR**	**DEP**	ARR
Bus#	MMS	MMS	**DAS**	**DAS**	MMS	MMS	**DAS**	**DAS**	MMS
1								5:30 AM	5:50 AM
2						5:33 AM	6:25 AM	6:30 AM	6:50 AM
3		5:00 AM	5:20 AM	5:28 AM	6:31 AM	6:33 AM	7:25 AM	7:30 AM	7:50 AM
1	5:50 AM	6:00 AM	6:20 AM	6:28 AM	7:31 AM	7:33 AM	8:25 AM	8:30 AM	8:50 AM
2	6:50 AM	7:00 AM	7:20 AM	7:28 AM	8:31 AM	8:33 AM	9:25 AM	9:30 AM	9:50 AM
3	7:50 AM	8:00 AM	8:20 AM	8:28 AM	9:31 AM	9:33 AM	10:25 AM	10:30 AM	10:50 AM
1	8:50 AM	9:00 AM	9:20 AM	9:28 AM	10:31 AM	10:33 AM	11:25 AM	11:30 AM	11:50 AM
2	9:50 AM	10:00 AM	10:20 AM	10:28 AM	11:31 AM	11:33 AM	12:25 PM	12:30 PM	12:50 PM
3	10:50 AM	11:00 AM	11:20 AM	11:28 AM	12:31 PM	12:33 PM	1:25 PM	1:30 PM	1:50 PM

	251			222 CCW				251	
	ARR	DEP	**ARR**	**DEP**	ARR	DEP	**ARR**	**DEP**	ARR
Bus#	MMS	MMS	**DAS**	**DAS**	MMS	MMS	**DAS**	**DAS**	MMS
1								6:00 AM	6:20 AM
2						5:52 AM	6:55 AM	7:00 AM	7:20 AM
3		5:30 AM	5:50 AM	5:58 AM	6:50 AM	6:52 AM	7:55 AM	8:00 AM	8:20 AM
1	6:20 AM	6:30 AM	6:50 AM	6:58 AM	7:50 AM	7:52 AM	8:55 AM	9:00 AM	9:20 AM
2	7:20 AM	7:30 AM	7:50 AM	7:58 AM	8:50 AM	8:52 AM	9:55 AM	10:00 AM	10:20 AM
3	8:20 AM	8:30 AM	8:50 AM	8:58 AM	9:50 AM	9:52 AM	10:55 AM	11:00 AM	11:20 AM
1	9:20 AM	9:30 AM	9:50 AM	9:58 AM	10:50 AM	10:52 AM	11:55 AM	12:00 PM	12:20 PM
2	10:20 AM	10:30 AM	10:50 AM	10:58 AM	11:50 AM	11:52 AM	12:55 PM	1:00 PM	1:20 PM
3	11:20 AM	11:30 AM	11:50 AM	11:58 AM	12:50 PM	12:52 PM	1:55 PM	2:00 PM	2:20 PM

Appendix B
Immediate-Term Operating Statistics Tables

The tables below are from the Tulsa Transit Operating Statistics Model. They provide route-by-route detail for Immediate-Term weekday and Saturday service. Headways, running time, layover time, .and route distance are input by time of day, from which number of trips, in-service hours, revenue-hours, revenue-miles, and vehicles are calculated. Proposed route interlines have been assigned where indicated, and changes from the previous plan phase are highlighted in yellow. Due to space limitations, repetitive columns are not shown.

Table B.1: IT Weekday Operating Statistics

Rte. #	Route Name	Interline	Service Frequency					Daily Trips	AM Peak Period				One-Way Distance (Miles)	Average Weekday			AM Peak Buses	Midday Buses	PM Peak Buses	Evening Buses	Night Buses
			AM Peak Period	Midday Period	PM Peak Period	Evening Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles					
Local																					
100	Admiral		45	45	45	90	90	44	40.0	10	11%	90	9.60	29.33	33.00	422.4	2.00	2.00	2.00	1.00	1.00
101	Suburban Acres		30	45	30	n/a	n/a	47	36.5	17	19%	90	9.5	30.02	35.25	446.5	3.00	2.00	3.00	-	-
	via 49th/Denver		*60*	*n/a*	*n/a*	*n/a*	*n/a*	*8*	*38.0*	*14*	*16%*	*90*	*9.40*	*5.07*	*6.00*	*75.2*	*1.50*	-	-	-	-
	via 49th/Denver & Casino		*n/a*	*90*	*60*	*n/a*	*n/a*	*16*	*43.0*	*4*	*4%*	*90*	*10.70*	*11.47*	*12.00*	*171.2*	-	*1.00*	*1.50*	-	-
	via Hartford/56th		*60*	*90*	*60*	*n/a*	*n/a*	*23*	*35.0*	*20*	*22%*	*90*	*8.70*	*13.42*	*17.25*	*200.1*	*1.50*	*1.00*	*1.50*	-	-
	via Hartford/56th & Casino		*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-	-	-	-
105	Peoria	(221)	30	30	30	90	90	61	66.0	18	12%	150	18.40	66.63	75.38	1,122.4	5.00	5.00	5.00	1.50	1.50
111	11th Street		45	45	45	n/a	n/a	37	39.5	11	12%	90	10.70	24.36	27.75	395.9	2.00	2.00	2.00	-	-
112	Lewis/Jenks		60	60	60	n/a	n/a	27	83.0	14	8%	180	20.60	37.35	40.50	556.2	3.00	3.00	3.00	-	-
114	Charles Page/Sand Springs	203	60	60	60	n/a	n/a	27	52.0	16	13%	120	13.1	23.57	27.00	354.6	2.00	2.00	2.00	-	-
	base route		*60*	*60*	*60*	*n/a*	*n/a*	*25*	*52.0*	*16*	*13%*	*120*	*13.00*	*21.67*	*25.00*	*325.0*	*2.00*	*2.00*	*2.00*	-	-
	via Gilcrease Estates		*n/a*	*1 trip*	*1 trip*	*n/a*	*n/a*	*2*	*57.0*	*6*	*5%*	*120*	*14.80*	*1.90*	*2.00*	*29.6*	-	-	-	-	-
117	Union/Southwest Blvd	(210)	60	60	60	90	n/a	31	28.0	4	7%	60	8.00	14.47	15.50	248.0	1.00	1.00	1.00	0.67	-
118	33rd West Ave		60	120	60	n/a	n/a	22	50.0	20	17%	120	14.20	18.33	22.00	312.4	2.00	1.00	2.00	-	-
203	Airport	114	60	60	60	n/a	n/a	27	59.0	2	2%	120	16.50	26.55	27.00	445.5	2.00	2.00	2.00	-	-
110	Harvard	(117)	45	45	45	90	n/a	41	63.0	9	7%	135	15.7	41.45	45.63	641.9	3.00	3.00	3.00	1.33	-
	base route to Garnett/71st		*45*	*90*	*45*	*n/a*	*n/a*	*29*	*63.0*	*9*	*7%*	*135*	*16.30*	*30.45*	*32.63*	*472.7*	*3.00*	*1.50*	*3.00*	-	-
	short pattern to Memorial/71st		*n/a*	*90*	*n/a*	*90*	*n/a*	*12*	*55.0*	*25*	*19%*	*135*	*14.10*	*11.00*	*13.00*	*169.2*	-	*1.50*	-	*1.33*	-
215	15th Street		45	90	45	n/a	n/a	29	40.0	10	11%	90	8.70	19.33	21.75	252.3	2.00	1.00	2.00	-	-
221	21st St/Eastgate	(105)	45	45	45	90	90	44	63.0	9	7%	135	16.10	46.20	49.50	708.4	3.00	3.00	3.00	1.50	1.50
222	Pine/41st Street	251	60	60	60	n/a	n/a	27	115.0	10	4%	240	31.5	51.75	54.00	850.5	4.00	4.00	4.00	-	-
	Clockwise		*60*	*60*	*60*	*n/a*	*n/a*	*14*	*115.0*	*5*	*4%*	*120*	*31.50*	*26.83*	*28.00*	*441.0*	*2.00*	*2.00*	*2.00*	-	-
	Counterclockwise		*60*	*60*	*60*	*n/a*	*n/a*	*13*	*115.0*	*5*	*4%*	*120*	*31.50*	*24.92*	*26.00*	*409.5*	*2.00*	*2.00*	*2.00*	-	-
251	Fast Track	222	30	60	30	n/a	n/a	43	20.0	20	33%	60	8.60	14.33	21.50	369.8	2.00	1.00	2.00	-	-
306	Southeast Industrial		60	60	60	n/a	n/a	14	53.0	7	12%	60	8.50	12.37	14.00	119.0	1.00	1.00	1.00	-	-
318	Memorial		45	90	45	n/a	n/a	29	42.0	6	7%	90	9.10	20.30	21.75	263.9	2.00	1.00	2.00	-	-
371	71st Street		60	120	60	n/a	n/a	22	52.0	16	13%	120	12.20	19.07	22.00	268.4	2.00	1.00	2.00	-	-
508	Broken Arrow Connection		85	240	85	n/a	n/a	15	58.3	53	31%	170	14.4	15.73	22.98	216.0	2.00	1.00	2.00	-	-
	Clockwise		*85*	*120*	*85*	*n/a*	*n/a*	*9*	*63.3*	*22*	*25%*	*85*	*14.40*	*9.58*	*14.50*	*129.6*	*1.00*	*1.00*	*1.00*	-	-
	Counterclockwise		*85*	*n/a*	*85*	*n/a*	*n/a*	*6*	*53.3*	*32*	*37%*	*85*	*14.40*	*6.17*	*8.50*	*86.4*	*1.00*	-	*1.00*	-	-
Local Service Weekday Statistics								***587***		***252***	***12%***	***2120***		**511.14**	**576.48**	**7,994.1**	**43.00**	**36.00**	**43.00**	**6.00**	**4.00**
Express																					
902	Broken Arrow Express		3 trips	n/a	3 trips	n/a	n/a	6	47.7	0	0%	48	15.9	4.77	4.77	95.4	2.00	-	2.00	-	-
	base route		*2 trips*	*n/a*	*2 trips*	*n/a*	*n/a*	*4*	*45.5*	*0*	*0%*	*91*	*13.00*	*3.03*	*3.03*	*52.0*	*1.00*	-	*1.00*	-	-
	via Indian Springs		*1 trip*	*n/a*	*1 trip*	*n/a*	*n/a*	*2*	*52.0*	*0*	*0%*	*52*	*21.70*	*1.73*	*1.73*	*43.4*	*1.00*	-	*1.00*	-	-
909	Union Express		1 trip	n/a	1 trip	n/a	n/a	2	52.5	0	0%	53	17.90	1.75	1.75	35.8	1.00	-	1.00	-	-
Express Service Weekday Statistics								***8***		***0***	***0%***	***100***		**6.52**	**6.52**	**131.2**	**3.00**	**-**	**3.00**	**-**	**-**
TOTAL WEEKDAY								***595***		***315***	***11%***	***2837***		**517.65**	**582.99**	**8,125.3**	**46.00**	**36.00**	**46.00**	**6.00**	**4.00**

Note: Some columns are hidden due to space limitations

Table B.2: IT Saturday Operating Statistics

Rte. #	Route Name	Interline	Rnd Trip?	Service Frequency			Daily Trips	Day Period				One-Way Distance (Miles)	Average Saturday			Day Buses	Evening Buses	Night Buses
				Day Period	Evening Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles			
Local																		
100	Admiral	101	N	60	90	90	30	40.0	10	11%	90	9.60	20.00	22.50	288.0	1.50	1.00	1.00
101	Suburban Acres	100	N	60	n/a	n/a	22	38.5	13	14%	90	9.50	14.13	16.50	209.0	1.50	-	-
	via 49th/Denver		*N*	*2 trips*	*n/a*	*n/a*	*2*	*38.0*	*14*	*16%*	*90*	*9.40*	*1.27*	*1.50*	*18.8*	-	-	-
	via 49th/Denver & Casino		*N*	*120*	*n/a*	*n/a*	*9*	*43.0*	*4*	*4%*	*90*	*10.70*	*6.45*	*6.75*	*96.3*	*0.75*	-	-
	via Hartford/56th		*N*	*120*	*n/a*	*n/a*	*11*	*35.0*	*20*	*22%*	*90*	*8.70*	*6.42*	*8.25*	*95.7*	*0.75*	-	-
	via Hartford/56th & Casino		*N*	*n/a*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-	-
105	Peoria	221	N	60	90	90	30	66.0	18	12%	150	18.40	32.47	36.50	552.0	2.50	1.50	1.50
111	11th Street		N	90	n/a	n/a	15	39.5	11	12%	90	10.70	9.88	11.25	160.5	1.00	-	-
112	Lewis/Jenks		N	90	n/a	n/a	15	83.0	14	8%	180	20.60	20.75	22.50	309.0	2.00	-	-
114	Charles Page/Sand Springs		N	120	n/a	n/a	11	52.0	16	13%	120	13.13	9.53	11.00	144.5	1.00	-	-
117	Union/Southwest Blvd	(210)	N	60	90	n/a	27	28.0	4	7%	60	8.00	12.60	13.50	216.0	1.00	0.67	-
118	33rd West Ave		N	120	n/a	n/a	11	50.0	20	17%	120	14.20	9.17	11.00	156.2	1.00	-	-
203	Airport	110	N	90	n/a	n/a	15	59.0	17	13%	135	16.50	14.75	16.88	247.5	1.50	-	-
110	Harvard	203 (117)	N	90	90	n/a	20	63.0	9	7%	135	16.30	20.33	21.88	326.0	1.50	1.33	-
215	15th Street		N	90	n/a	n/a	15	40.0	10	11%	90	8.70	10.00	11.25	130.5	1.00	-	-
221	21st St/Eastgate	105	N	60	90	90	30	63.0	24	16%	150	16.10	31.50	36.50	483.0	2.50	1.50	1.50
222	Pine/41st Street		N	60	n/a	n/a	22	110.0	20	8%	240	31.50	40.33	44.00	693.0	4.00	-	-
	Clockwise		*Y*	*60*	*n/a*	*n/a*	*11*	*110.0*	*10*	*8%*	*120*	*31.50*	*20.17*	*22.00*	*346.5*	*2.00*	-	-
	Counterclockwise		*Y*	*60*	*n/a*	*n/a*	*11*	*110.0*	*10*	*8%*	*120*	*31.50*	*20.17*	*22.00*	*346.5*	*2.00*	-	-
251	Fast Track		N	60	n/a	n/a	22	20.0	20	33%	60	8.60	7.33	11.00	189.2	1.00	-	-
318	Memorial		N	90	n/a	n/a	15	42.0	6	7%	90	9.10	10.50	11.25	136.5	1.00	-	-
371	71st Street		N	120	n/a	n/a	11	52.0	16	13%	120	12.20	9.53	11.00	134.2	1.00	-	-
Local Service Weekday Statistics							***311***		***228***	***12%***	***1920***		**272.81**	**308.50**	**4,375.1**	**25.00**	**6.00**	**4.00**
TOTAL SATURDAY							***311***		***292***	***12%***	***2419***		**272.81**	**308.50**	**4,375.1**	**25.00**	**6.00**	**4.00**

Note: Some columns are hidden due to space limitations

Appendix C
Near-Term Operating Statistics Tables

The tables below are from the Tulsa Transit Operating Statistics Model. They provide route-by-route detail for Near-Term weekday and Saturday service. Headways, running time, layover time, .and route distance are input by time of day, from which number of trips, in-service hours, revenue-hours, revenue-miles, and vehicles are calculated. Proposed route interlines have been assigned where indicated, and changes from the previous plan phase are highlighted in yellow. Due to space limitations, repetitive columns are not shown.

Table C.1: NT Weekday Operating Statistics

Rte. #	Route Name	Interline	Service Frequency					Daily Trips	AM Peak Period				One-Way Distance (Miles)	Average Weekday			AM Peak Buses	Midday Buses	PM Peak Buses	Evening Buses	Night Buses
			AM Peak Period	Midday Period	PM Peak Period	Evening Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles					
Local																					
100	Admiral	(101)	30	30	30	60	60	64	40.0	10	11%	90	9.60	42.67	48.00	614.4	3.00	3.00	3.00	1.50	1.50
101	Suburban Acres	(100)	30	30	30	60	60	64	36.5	17	19%	90	9.5	40.93	48.00	610.4	3.00	3.00	3.00	1.50	1.50
	via 49th/Denver		*60*	*n/a*	*n/a*	*n/a*	*n/a*	*8*	*38.0*	*14*	*16%*	*90*	*9.40*	*5.07*	*6.00*	*75.2*	*1.50*	-	-	-	-
	via 49th/Denver & Casino		*n/a*	*60*	*60*	*120*	*120*	*24*	*43.0*	*4*	*4%*	*90*	*10.70*	*17.20*	*18.00*	*256.8*	-	*1.50*	*1.50*	*0.75*	*0.75*
	via Hartford/56th		*60*	*60*	*60*	*120*	*120*	*32*	*35.0*	*20*	*22%*	*90*	*8.70*	*18.67*	*24.00*	*278.4*	*1.50*	*1.50*	*1.50*	*0.75*	*0.75*
	via Hartford/56th & Casino		*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-	-	-	-
105	Peoria	(222)	30	30	30	60	60	64	66.0	18	12%	150	18.40	70.40	80.00	1,177.6	5.00	5.00	5.00	2.50	2.50
705	Peoria Rapid		30	n/a	30	n/a	n/a	32	55.0	10	8%	120	18.40	29.33	32.00	588.8	4.00	-	4.00	-	-
111	11th Street		30	30	30	n/a	n/a	54	39.5	11	12%	90	10.70	35.55	40.50	577.8	3.00	3.00	3.00	-	-
112	Lewis/Jenks		60	60	60	n/a	n/a	27	83.0	14	8%	180	20.60	37.35	40.50	556.2	3.00	3.00	3.00	-	-
114	Charles Page/Sand Springs	203	60	60	60	n/a	n/a	27	52.0	16	13%	120	13.1	23.57	27.00	354.6	2.00	2.00	2.00	-	-
	base route		*60*	*60*	*60*	*n/a*	*n/a*	*25*	*52.0*	*16*	*13%*	*120*	*13.00*	*21.67*	*25.00*	*325.0*	*2.00*	*2.00*	*2.00*	-	-
	via Gilcrease Estates		*n/a*	*1 trip*	*1 trip*	*n/a*	*n/a*	*2*	*57.0*	*6*	*5%*	*120*	*14.80*	*1.90*	*2.00*	*29.6*	-	-	-	-	-
117	Union/Southwest Blvd		60	60	60	60	n/a	33	28.0	4	7%	60	8.00	15.40	16.50	264.0	1.00	1.00	1.00	1.00	-
118	33rd West Ave		60	60	60	n/a	n/a	27	50.0	20	17%	120	14.20	22.50	27.00	383.4	2.00	2.00	2.00	-	-
203	Airport	114	60	60	60	n/a	n/a	27	59.0	2	2%	120	16.50	26.55	27.00	445.5	2.00	2.00	2.00	-	-
110	Harvard	221	30	30	30	60	n/a	60	63.0	9	7%	135	15.7	60.73	66.75	939.4	4.50	4.50	4.50	2.00	-
	base route to Garnett/71st		*30*	*60*	*30*	*n/a*	*n/a*	*43*	*63.0*	*9*	*7%*	*135*	*16.30*	*45.15*	*48.38*	*700.9*	*4.50*	*2.25*	*4.50*	-	-
	short pattern to Memorial/71st		*n/a*	*60*	*n/a*	*60*	*n/a*	*17*	*55.0*	*25*	*19%*	*135*	*14.10*	*15.58*	*18.38*	*239.7*	-	*2.25*	-	*2.00*	-
215	15th Street	318	30	60	30	60	n/a	49	40.0	10	11%	90	8.70	32.67	36.75	426.3	3.00	1.50	3.00	1.50	-
221	21st St/Eastgate	110 (105)	30	30	30	60	60	64	63.0	9	7%	135	16.10	67.20	73.25	1,030.4	4.50	4.50	4.50	2.50	2.50
222	Pine/41st Street	251	60	60	60	120	n/a	28	115.0	10	4%	240	31.5	53.58	56.00	882.0	4.00	4.00	4.00	2.00	-
	Clockwise		*60*	*60*	*60*	*120*	*n/a*	*15*	*115.0*	*5*	*4%*	*120*	*31.50*	*28.67*	*30.00*	*472.5*	*2.00*	*2.00*	*2.00*	*1.00*	-
	Counterclockwise		*60*	*60*	*60*	*120*	*n/a*	*14*	*115.0*	*5*	*4%*	*120*	*31.50*	*26.75*	*28.00*	*441.0*	*2.00*	*2.00*	*2.00*	*1.00*	-
251	Fast Track	222	30	60	30	n/a	n/a	43	20.0	20	33%	60	8.60	14.33	21.50	369.8	2.00	1.00	2.00	-	-
306	Southeast Industrial		60	60	60	n/a	n/a	14	53.0	7	12%	60	8.50	12.37	14.00	119.0	1.00	1.00	1.00	-	-
318	Memorial	215	30	60	30	60	n/a	49	42.0	6	7%	90	9.10	34.30	36.75	445.9	3.00	1.50	3.00	1.50	-
371	71st Street		60	60	60	n/a	n/a	27	52.0	16	13%	120	12.20	23.40	27.00	329.4	2.00	2.00	2.00	-	-
508	Broken Arrow Connection		60	120	60	n/a	n/a	22	60.0	120	50%	240	14.4	22.00	44.00	316.8	4.00	2.00	4.00	-	-
	Clockwise		*60*	*120*	*60*	*n/a*	*n/a*	*11*	*60.0*	*60*	*50%*	*120*	*14.40*	*11.00*	*22.00*	*158.4*	*2.00*	*1.00*	*2.00*	-	-
	Counterclockwise		*60*	*120*	*60*	*n/a*	*n/a*	*11*	*60.0*	*60*	*50%*	*120*	*14.40*	*11.00*	*22.00*	*158.4*	*2.00*	*1.00*	*2.00*	-	-
Local Service Weekday Statistics								***775***		***329***	***14%***	***2310***		**664.83**	**762.50**	**10,431.7**	**56.00**	**46.00**	**56.00**	**16.00**	**8.00**
Express																					
902	Broken Arrow Express		3 trips	n/a	3 trips	n/a	n/a	6	47.7	0	0%	48	15.9	4.77	4.77	95.4	2.00	-	2.00	-	-
	base route		*2 trips*	*n/a*	*2 trips*	*n/a*	*n/a*	*4*	*45.5*	*0*	*0%*	*91*	*13.00*	*3.03*	*3.03*	*52.0*	*1.00*	-	*1.00*	-	-
	via Indian Springs		*1 trip*	*n/a*	*1 trip*	*n/a*	*n/a*	*2*	*52.0*	*0*	*0%*	*52*	*21.70*	*1.73*	*1.73*	*43.4*	*1.00*	-	*1.00*	-	-
909	Union Express		1 trip	n/a	1 trip	n/a	n/a	2	52.5	0	0%	53	17.90	1.75	1.75	35.8	1.00	-	1.00	-	-
910	Bixby/Jenks Express		1 trip	n/a	1 trip	n/a	n/a	2	55.0	0	0%	55	21.40	1.83	1.83	42.8	1.00	-	1.00	-	-
920	Sapulpa Express		1 trip	n/a	1 trip	n/a	n/a	2	40.0	0	0%	40	15.40	1.33	1.33	30.8	1.00	-	1.00	-	-
930	Sand Springs Express		1 trip	n/a	1 trip	n/a	n/a	2	20.0	0	0%	20	7.40	0.67	0.67	14.8	1.00	-	1.00	-	-
940	Owasso Express		1 trip	n/a	1 trip	n/a	n/a	2	40.0	0	0%	40	16.50	1.33	1.33	33.0	1.00	-	1.00	-	-
950	US169 Express		1 trip	n/a	1 trip	n/a	n/a	2	50.0	0	0%	50	19.60	1.67	1.67	39.2	1.00	-	1.00	-	-
Express Service Weekday Statistics								***18***		***0***	***0%***	***305***		**13.35**	**13.35**	**291.8**	**8.00**	**-**	**8.00**	**-**	**-**
TOTAL WEEKDAY								***793***		***392***	***12%***	***3233***		**678.18**	**775.85**	**10,723.5**	**64.00**	**46.00**	**64.00**	**16.00**	**8.00**

Note: Some columns are hidden due to space limitations

Table C.2: NT Saturday Operating Statistics

Rte. #	Route Name	Interline	Rnd Trip?	Service Frequency			Daily Trips	Day Period				One-Way Distance (Miles)	Average Saturday			Day Buses	Evening Buses	Night Buses
				Day Period	Evening Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles			
Local																		
100	Admiral	101	N	60	60	60	34	40.0	10	11%	90	9.60	22.67	25.50	326.4	1.50	1.50	1.50
101	Suburban Acres	100	N	60	60	60	34	38.5	13	14%	90	9.50	21.84	25.50	323.0	1.50	1.50	1.50
	via 49th/Denver		*N*	*2 trips*	*n/a*	*n/a*	*2*	*38.0*	*14*	*16%*	*90*	*9.40*	*1.27*	*1.50*	*18.8*	-	-	-
	via 49th/Denver & Casino		*N*	*120*	*120*	*120*	*15*	*43.0*	*4*	*4%*	*90*	*10.70*	*10.75*	*11.25*	*160.5*	*0.75*	*0.75*	*0.75*
	via Hartford/56th		*N*	*120*	*120*	*120*	*17*	*35.0*	*20*	*22%*	*90*	*8.70*	*9.92*	*12.75*	*147.9*	*0.75*	*0.75*	*0.75*
	via Hartford/56th & Casino		*N*	*n/a*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-	-
105	Peoria	221	N	60	60	60	34	66.0	18	12%	150	18.40	37.40	42.50	625.6	2.50	2.50	2.50
705	Peoria Rapid		N	n/a	n/a	n/a	0	55.0	10	8%	120	18.40	-	-	-	-	-	-
111	11th Street	110	N	60	n/a	n/a	22	39.5	11	12%	90	10.70	14.48	16.50	235.4	1.50	-	-
112	Lewis/Jenks		N	60	n/a	n/a	22	83.0	14	8%	180	20.60	30.43	33.00	453.2	3.00	-	-
114	Charles Page/Sand Springs	203	N	60	n/a	n/a	22	52.0	16	13%	120	13.13	19.07	22.00	288.9	2.00	-	-
117	Union/Southwest Blvd		N	60	60	n/a	30	28.0	4	7%	60	8.00	14.00	15.00	240.0	1.00	1.00	-
118	33rd West Ave		N	60	n/a	n/a	22	50.0	20	17%	120	14.20	18.33	22.00	312.4	2.00	-	-
203	Airport	114	N	60	n/a	n/a	22	59.0	2	2%	120	16.50	21.63	22.00	363.0	2.00	-	-
110	Harvard	111	N	60	60	n/a	30	63.0	24	16%	150	16.30	30.43	35.50	489.0	2.50	2.00	-
215	15th Street	318	N	60	60	n/a	30	40.0	10	11%	90	8.70	20.00	22.50	261.0	1.50	1.50	-
221	21st St/Eastgate	105	N	60	60	60	34	63.0	24	16%	150	16.10	35.70	42.50	547.4	2.50	2.50	2.50
222	Pine/41st Street		N	60	120	n/a	26	110.0	20	8%	240	31.50	47.67	52.00	819.0	4.00	2.00	-
	Clockwise		*Y*	*60*	*120*	*n/a*	*13*	*110.0*	*10*	*8%*	*120*	*31.50*	*23.83*	*26.00*	*409.5*	*2.00*	*1.00*	-
	Counterclockwise		*Y*	*60*	*120*	*n/a*	*13*	*110.0*	*10*	*8%*	*120*	*31.50*	*23.83*	*26.00*	*409.5*	*2.00*	*1.00*	-
251	Fast Track		N	60	n/a	n/a	22	20.0	20	33%	60	8.60	7.33	11.00	189.2	1.00	-	-
318	Memorial	215	N	60	60	n/a	30	42.0	6	7%	90	9.10	21.00	22.50	273.0	1.50	1.50	-
371	71st Street		N	60	n/a	n/a	22	52.0	16	13%	120	12.20	19.07	22.00	268.4	2.00	-	-
Local Service Weekday Statistics							***436***		***238***	***12%***	***2040***		**381.06**	**432.00**	**6,014.9**	**32.00**	**16.00**	**8.00**
TOTAL SATURDAY							***436***		***302***	***12%***	***2539***		**381.06**	**432.00**	**6,014.9**	**32.00**	**16.00**	**8.00**

Note: Some columns are hidden due to space limitations

Appendix D
Mid-Term Operating Statistics Tables

The tables below are from the Tulsa Transit Operating Statistics Model. They provide route-by-route detail for Mid-Term weekday, Saturday, and Sunday service. Headways, running time, layover time, .and route distance are input by time of day, from which number of trips, in-service hours, revenue-hours, revenue-miles, and vehicles are calculated. Proposed route interlines have been assigned where indicated, and changes from the previous plan phase are highlighted in yellow. Due to space limitations, repetitive columns are not shown.

Table D.1: MT Weekday Operating Statistics

Rte. #	Route Name	Interline	Service Frequency					Daily Trips	AM Peak Period				One-Way Distance (Miles)	Average Weekday			AM Peak Buses	Midday Buses	PM Peak Buses	Evening Buses	Night Buses
			AM Peak Period	Midday Period	PM Peak Period	Evening Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles					
Local																					
1	Downtown Circulator		15	15	15	30	n/a	122	25.0	10	17%	60	4.30	50.83	61.00	524.6	4.00	4.00	4.00	2.00	-
100	Admiral	(101)	30	30	30	30	60	73	40.0	10	11%	90	9.60	48.67	54.75	700.8	3.00	3.00	3.00	3.00	1.50
700	Admiral Rapid		30	30	30	n/a	n/a	54	34.0	22	24%	90	9.60	30.60	40.50	518.4	3.00	3.00	3.00	-	-
101	Suburban Acres	(100)	30	30	30	30	60	73	36.5	17	19%	90	9.7	46.78	54.75	707.4	3.00	3.00	3.00	3.00	1.50
	via 49th/Denver		*60*	*n/a*	*n/a*	*n/a*	*n/a*	*8*	*38.0*	*14*	*16%*	*90*	*9.40*	*5.07*	*6.00*	*75.2*	*1.50*	-	-	-	-
	via 49th/Denver & Casino		*n/a*	*60*	*60*	*60*	*120*	*29*	*43.0*	*4*	*4%*	*90*	*10.70*	*20.78*	*21.75*	*310.3*	-	*1.50*	*1.50*	*1.50*	*0.75*
	via Hartford/56th		*60*	*60*	*60*	*60*	*120*	*37*	*35.0*	*20*	*22%*	*90*	*8.70*	*21.58*	*27.75*	*321.9*	*1.50*	*1.50*	*1.50*	*1.50*	*0.75*
	via Hartford/56th & Casino		*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-	-	-	-
105	Peoria	(222)	30	30	30	30	60	73	66.0	18	12%	150	18.40	80.30	91.25	1,343.2	5.00	5.00	5.00	5.00	2.50
705	Peoria Rapid		30	30	30	n/a	n/a	54	68.0	14	9%	150	23.6	61.20	67.50	1,274.4	5.00	5.00	5.00	-	-
	to Bixby		*60*	*60*	*60*	*n/a*	*n/a*	*27*	*70.0*	*10*	*7%*	*150*	*25.00*	*31.50*	*33.75*	*675.0*	*2.50*	*2.50*	*2.50*	-	-
	to Jenks		*60*	*60*	*60*	*n/a*	*n/a*	*27*	*66.0*	*18*	*12%*	*150*	*22.20*	*29.70*	*33.75*	*599.4*	*2.50*	*2.50*	*2.50*	-	-
111	11th Street		30	30	30	n/a	n/a	54	39.5	11	12%	90	10.70	35.55	40.50	577.8	3.00	3.00	3.00	-	-
112	Lewis		30	30	30	n/a	n/a	54	66.0	18	12%	150	16.40	59.40	67.50	885.6	5.00	5.00	5.00	-	-
114	Charles Page/Sand Springs	203	60	60	60	n/a	n/a	27	52.0	16	13%	120	13.1	23.57	27.00	354.6	2.00	2.00	2.00	-	-
	base route		*60*	*60*	*60*	*n/a*	*n/a*	*25*	*52.0*	*16*	*13%*	*120*	*13.00*	*21.67*	*25.00*	*325.0*	*2.00*	*2.00*	*2.00*	-	-
	via Gilcrease Estates		*n/a*	*1 trip*	*1 trip*	*n/a*	*n/a*	*2*	*57.0*	*6*	*5%*	*120*	*14.80*	*1.90*	*2.00*	*29.6*	-	-	-	-	-
117	Union/Southwest Blvd		60	60	60	60	n/a	34	28.0	4	7%	60	8.00	15.87	17.00	272.0	1.00	1.00	1.00	1.00	-
118	33rd West Ave		60	60	60	n/a	n/a	27	50.0	20	17%	120	14.20	22.50	27.00	383.4	2.00	2.00	2.00	-	-
203	Apache/Sheridan	114	60	60	60	n/a	n/a	27	59.0	2	2%	120	16.60	26.55	27.00	448.2	2.00	2.00	2.00	-	-
410	Harvard		30	30	30	n/a	n/a	54	62.5	25	17%	150	15.9	56.25	67.50	858.6	5.00	5.00	5.00	-	-
	to 91st/Garnett		*60*	*60*	*60*	*n/a*	*n/a*	*27*	*65.0*	*20*	*13%*	*150*	*16.40*	*29.25*	*33.75*	*442.8*	*2.50*	*2.50*	*2.50*	-	-
	to Jenks		*60*	*60*	*60*	*n/a*	*n/a*	*27*	*60.0*	*30*	*20%*	*150*	*15.40*	*27.00*	*33.75*	*415.8*	*2.50*	*2.50*	*2.50*	-	-
110	Yale	215	30	60	30	n/a	n/a	43	65.0	20	13%	150	16.80	46.58	53.75	722.4	5.00	2.50	5.00	-	-
710	Yale Rapid		30	60	30	n/a	n/a	43	55.0	10	8%	120	16.00	39.42	43.00	688.0	4.00	2.00	4.00	-	-
215	15th Street	110 (222)	30	60	30	60	n/a	50	40.0	10	11%	90	8.70	33.33	37.50	435.0	3.00	1.50	3.00	1.50	-
221	21st St/Eastgate	(105)	30	30	30	30	60	73	66.0	18	12%	150	16.10	80.30	91.25	1,175.3	5.00	5.00	5.00	5.00	2.50
721	21st Street Rapid		30	30	30	n/a	n/a	54	53.0	14	12%	120	16.10	47.70	54.00	869.4	4.00	4.00	4.00	-	-
122	Pine/Garnett		30	60	30	60	n/a	50	80.0	20	11%	180	20.40	66.67	75.00	1,020.0	6.00	3.00	6.00	3.00	-
222	41st Street	(215)	30	30	30	60	n/a	61	50.0	20	17%	120	11.9	49.90	59.25	725.9	4.00	4.00	4.00	1.50	-
	base route to MMS		*30*	*30*	*30*	*60*	*n/a*	*61*	*50.0*	*20*	*17%*	*120*	*11.90*	*49.90*	*59.25*	*725.9*	*4.00*	*4.00*	*4.00*	*1.50*	-
	long pattern to 41st/209th		*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*0*	*80.0*	*20*	*11%*	*180*	*21.70*	-	-	-	-	-	-	-	-
251	Fast Track		30	60	30	n/a	n/a	43	32.5	25	28%	90	13.5	25.58	35.00	580.4	3.00	2.00	3.00	-	-
	short pattern to MMS		*60*	*n/a*	*60*	*n/a*	*n/a*	*16*	*20.0*	*20*	*33%*	*60*	*8.60*	*5.33*	*8.00*	*137.6*	*1.00*	-	*1.00*	-	-
	long pattern to Broken Arrow		*60*	*60*	*60*	*n/a*	*n/a*	*27*	*45.0*	*30*	*25%*	*120*	*16.40*	*20.25*	*27.00*	*442.8*	*2.00*	*2.00*	*2.00*	-	-
306	Southeast Industrial		60	60	60	n/a	n/a	27	53.0	14	12%	120	11.30	23.85	27.00	305.1	2.00	2.00	2.00	-	-
318	Memorial		30	60	30	60	n/a	50	65.0	20	13%	150	16.9	58.67	67.00	842.8	5.00	3.00	5.00	3.00	-
	to Broken Arrow		*60*	*60*	*60*	*60*	*n/a*	*34*	*80.0*	*20*	*11%*	*180*	*19.00*	*45.33*	*51.00*	*646.0*	*3.00*	*3.00*	*3.00*	*3.00*	-
	to Bixby		*60*	*n/a*	*60*	*n/a*	*n/a*	*16*	*50.0*	*20*	*17%*	*120*	*12.30*	*13.33*	*16.00*	*196.8*	*2.00*	-	*2.00*	-	-
371	71st Street/Sheridan	471	60	60	60	n/a	n/a	27	52.0	16	13%	120	11.80	23.40	27.00	318.6	2.00	2.00	2.00	-	-
471	71st Street/Broken Arrow	371	60	60	60	60	n/a	34	57.0	6	5%	120	15.50	32.30	34.00	527.0	2.00	2.00	2.00	2.00	-
501	Elm/Broken Arrow Flex		60	60	60	60	n/a	34	34.0	52	43%	120	8.60	19.27	34.00	292.4	2.00	2.00	2.00	2.00	-
520	Sapulpa Flex		60	60	60	n/a	n/a	27	26.0	68	57%	120	5.90	11.70	27.00	159.3	2.00	2.00	2.00	-	-
540	Owasso Flex		60	60	60	n/a	n/a	27	34.0	52	43%	120	7.90	15.30	27.00	213.3	2.00	2.00	2.00	-	-
Local Service Weekday Statistics								***1369***		***552***	***17%***	***3330***		**1,132.03**	**1,335.00**	**17,723.9**	**94.00**	**82.00**	**94.00**	**32.00**	**8.00**
Express																					
902	Broken Arrow Express		30	180	30	n/a	n/a	36	39.3	12	13%	90	15.9	23.55	27.00	572.4	3.00	1.00	3.00	-	-
	base route		*40*	*180*	*40*	*n/a*	*n/a*	*28*	*35.0*	*10*	*13%*	*80*	*13.00*	*16.33*	*18.67*	*364.0*	*2.00*	*1.00*	*2.00*	-	-
	via Indian Springs		*120*	*n/a*	*120*	*n/a*	*n/a*	*8*	*52.0*	*16*	*13%*	*120*	*21.70*	*6.93*	*8.00*	*173.6*	*1.00*	-	*1.00*	-	-
909	Union Express		60	n/a	60	n/a	n/a	16	52.5	15	13%	120	17.90	14.00	16.00	286.4	2.00	-	2.00	-	-
910	Bixby/Jenks Express		60	n/a	60	n/a	n/a	16	55.0	10	8%	120	21.40	14.67	16.00	342.4	2.00	-	2.00	-	-
920	Sapulpa Express	940	60	n/a	60	n/a	n/a	16	40.0	10	11%	90	15.40	10.67	12.00	246.4	1.50	-	1.50	-	-
930	Sand Springs Express		60	n/a	60	n/a	n/a	16	20.0	20	33%	60	7.40	5.33	8.00	118.4	1.00	-	1.00	-	-
940	Owasso Express	920	60	n/a	60	n/a	n/a	16	40.0	10	11%	90	16.50	10.67	12.00	264.0	1.50	-	1.50	-	-
950	US169 Express		60	n/a	60	n/a	n/a	16	50.0	20	17%	120	19.60	13.33	16.00	313.6	2.00	-	2.00	-	-
Express Service Weekday Statistics								***132***		***97***	***14%***	***690***		**92.22**	**107.00**	**2,143.6**	**13.00**	**1.00**	**13.00**	**-**	**-**
TOTAL WEEKDAY								***1501***		***711***	***15%***	***4637***		**1,224.25**	**1,442.00**	**19,867.5**	**107.00**	**83.00**	**107.00**	**32.00**	**8.00**

Note: Some columns are hidden due to space limitations

Table D.2: Saturday Operating Statistics

Rte. #	Route Name	Interline	Rnd Trip?	Service Frequency			Daily Trips	Day Period				One-Way Distance (Miles)	Average Saturday			Day Buses	Evening Buses	Night Buses
				Day Period	Evening Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles			
Local																		
1	Downtown Circulator		N	n/a	30	30	24	25.0	10	17%	60	4.30	10.00	12.00	103.2	-	2.00	2.00
100	Admiral	101	N	60	60	60	36	40.0	10	11%	90	9.60	24.00	27.00	345.6	1.50	1.50	1.50
700	Admiral Rapid	705	N	60	n/a	n/a	24	34.0	22	24%	90	9.60	13.60	18.00	230.4	1.50	-	-
101	Suburban Acres	100	N	60	60	60	36	38.6	13	14%	90	9.69	23.35	27.00	348.9	1.50	1.50	1.50
	via 49th/Denver		*N*	*2 trips*	*n/a*	*n/a*	*2*	*38.0*	*14*	*16%*	*90*	*9.40*	*1.27*	*1.50*	*18.8*	-	-	-
	via 49th/Denver & Casino		*N*	*120*	*120*	*120*	*16*	*43.0*	*4*	*4%*	*90*	*10.70*	*11.47*	*12.00*	*171.2*	*0.75*	*0.75*	*0.75*
	via Hartford/56th		*N*	*120*	*120*	*120*	*18*	*35.0*	*20*	*22%*	*90*	*8.70*	*10.50*	*13.50*	*156.6*	*0.75*	*0.75*	*0.75*
	via Hartford/56th & Casino		*N*	*n/a*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-	-
105	Peoria	112 (221)	N	60	60	60	36	66.0	18	12%	150	18.40	39.60	45.00	662.4	2.50	2.50	2.50
705	Peoria Rapid	700	N	60	n/a	n/a	24	66.0	18	12%	150	23.60	26.40	30.00	566.4	2.50	-	-
	to Bixby		*N*	*n/a*	*n/a*	*n/a*	*0*	*70.0*	*10*	*7%*	*150*	*25.00*	-	-	-	-	-	-
	to Jenks		*N*	*60*	*n/a*	*n/a*	*24*	*66.0*	*18*	*12%*	*150*	*22.20*	*26.40*	*30.00*	*532.8*	*2.50*	-	-
111	11th Street	410	N	60	n/a	n/a	24	39.5	11	12%	90	10.70	15.80	18.00	256.8	1.50	-	-
112	Lewis	105	N	60	n/a	n/a	24	66.0	18	12%	150	16.40	26.40	30.00	393.6	2.50	-	-
114	Charles Page/Sand Springs		N	60	n/a	n/a	24	52.0	16	13%	120	13.13	20.80	24.00	315.2	2.00	-	-
117	Union/Southwest Blvd		N	60	60	n/a	31	28.0	4	7%	60	8.00	14.47	15.50	248.0	1.00	1.00	-
118	33rd West Ave		N	60	n/a	n/a	24	50.0	20	17%	120	14.20	20.00	24.00	340.8	2.00	-	-
203	Apache/Sheridan		N	60	n/a	n/a	24	59.0	2	2%	120	16.60	23.60	24.00	398.4	2.00	-	-
410	Harvard	111	N	60	n/a	n/a	24	62.5	25	17%	150	15.90	25.00	30.00	381.6	2.50	-	-
	to 91st/Garnett		*N*	*120*	*n/a*	*n/a*	*12*	*65.0*	*20*	*13%*	*150*	*16.40*	*13.00*	*15.00*	*196.8*	*1.25*	-	-
	to Jenks		*N*	*120*	*n/a*	*n/a*	*12*	*60.0*	*30*	*20%*	*150*	*15.40*	*12.00*	*15.00*	*184.8*	*1.25*	-	-
110	Yale	221	N	60	n/a	n/a	24	65.0	20	13%	150	16.80	26.00	30.00	403.2	2.50	-	-
710	Yale Rapid		N	60	n/a	n/a	24	55.0	10	8%	120	16.00	22.00	24.00	384.0	2.00	-	-
215	15th Street	318 (222)	N	60	60	n/a	31	40.0	10	11%	90	8.70	20.67	23.25	269.7	1.50	1.50	-
221	21st St/Eastgate	110 (105)	N	60	60	60	36	66.0	18	12%	150	16.10	39.60	45.00	579.6	2.50	2.50	2.50
721	21st Street Rapid		N	60	n/a	n/a	24	53.0	14	12%	120	16.10	21.20	24.00	386.4	2.00	-	-
122	Pine/Garnett		N	60	60	n/a	31	80.0	20	11%	180	20.40	41.33	46.50	632.4	3.00	3.00	-
222	41st Street		N	60	60	n/a	31	25.0	10	17%	60	11.90	14.90	17.25	368.9	1.00	1.50	-
	base route to MMS	*(215)*	*N*	*120*	*60*	*n/a*	*19*	*50.0*	*20*	*17%*	*120*	*11.90*	*14.90*	*17.25*	*226.1*	*1.00*	*1.50*	-
	long pattern to 41st/209th		*N*	*n/a*	*n/a*	*n/a*	*0*	*80.0*	*20*	*11%*	*180*	*21.70*	-	-	-	-	-	-
251	Fast Track		N	60	n/a	n/a	24	45.0	30	25%	120	16.40	18.00	24.00	393.6	2.00	-	-
	short pattern to MMS		*N*	*n/a*	*n/a*	*n/a*	*0*	*20.0*	*20*	*33%*	*60*	*8.60*	-	-	-	-	-	-
	long pattern to Broken Arrow		*N*	*60*	*n/a*	*n/a*	*24*	*45.0*	*30*	*25%*	*120*	*16.40*	*18.00*	*24.00*	*393.6*	*2.00*	-	-
318	Memorial		N	60	60	n/a	31	65.0	20	13%	150	16.86	35.33	40.50	522.5	2.50	3.00	-
	to Broken Arrow	*215*	*N*	*120*	*60*	*n/a*	*19*	*80.0*	*20*	*11%*	*180*	*19.00*	*25.33*	*28.50*	*361.0*	*1.50*	*3.00*	-
	to Bixby		*N*	*120*	*n/a*	*n/a*	*12*	*50.0*	*20*	*17%*	*120*	*12.30*	*10.00*	*12.00*	*147.6*	*1.00*	-	-
371	71st Street/Sheridan		N	60	n/a	n/a	24	52.0	16	13%	120	11.80	20.80	24.00	283.2	2.00	-	-
471	71st Street/Broken Arrow		N	60	60	n/a	31	57.0	6	5%	120	15.50	29.45	31.00	480.5	2.00	2.00	-
501	Elm/Broken Arrow Flex		N	60	n/a	n/a	24	34.0	52	43%	120	8.60	13.60	24.00	206.4	2.00	-	-
Local Service Weekday Statistics							***690***		***413***	***14%***	***2940***		**585.90**	**678.00**	**9,501.7**	**48.00**	**22.00**	**10.00**
TOTAL SATURDAY							***690***		***477***	***14%***	***3439***		**585.90**	**678.00**	**9,501.7**	**48.00**	**22.00**	**10.00**

Note: Some columns are hidden due to space limitations

Table D.3: MT Sunday Operating Statistics

Rte. #	Route Name	Interline	Rnd Trip?	Service Frequency		Daily Trips	Day Period				One-Way Distance (Miles)	Average Sunday			Day Buses	Night Buses
				Day Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles		
Local																
100	Admiral	101	N	60	n/a	22	40.0	10	11%	90	9.60	14.67	16.50	211.2	1.50	-
700	Admiral Rapid	705	N	60	n/a	22	34.0	22	24%	90	9.60	12.47	16.50	211.2	1.50	-
101	Suburban Acres	100	N	60	n/a	22	38.5	13	14%	90	9.69	14.13	16.50	213.2	1.50	-
	via 49th/Denver		*N*	*2 trips*	*n/a*	*2*	*38.0*	*14*	*16%*	*90*	*9.40*	*1.27*	*1.50*	*18.8*	-	-
	via 49th/Denver & Casino		*N*	*120*	*n/a*	*9*	*43.0*	*4*	*4%*	*90*	*10.70*	*6.45*	*6.75*	*96.3*	*0.75*	-
	via Hartford/56th		*N*	*120*	*n/a*	*11*	*35.0*	*20*	*22%*	*90*	*8.70*	*6.42*	*8.25*	*95.7*	*0.75*	-
	via Hartford/56th & Casino		*N*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-
105	Peoria	221	N	60	n/a	22	66.0	18	12%	150	18.40	24.20	27.50	404.8	2.50	-
705	Peoria Rapid	700	N	60	n/a	22	68.0	14	9%	150	23.60	24.93	27.50	519.2	2.50	-
	to Bixby		*N*	*120*	*n/a*	*11*	*70.0*	*10*	*7%*	*150*	*25.00*	*12.83*	*13.75*	*275.0*	*1.25*	-
	to Jenks		*N*	*120*	*n/a*	*11*	*66.0*	*18*	*12%*	*150*	*22.20*	*12.10*	*13.75*	*244.2*	*1.25*	-
111	11th Street	112	N	60	n/a	22	39.5	11	12%	90	10.70	14.48	16.50	235.4	1.50	-
112	Lewis	111	N	60	n/a	22	66.0	18	12%	150	16.40	24.20	27.50	360.8	2.50	-
114	Charles Page/Sand Springs		N	60	n/a	22	52.0	16	13%	120	13.13	19.07	22.00	288.9	2.00	-
117	Union/Southwest Blvd		N	60	n/a	22	28.0	4	7%	60	8.00	10.27	11.00	176.0	1.00	-
118	33rd West Ave		N	60	n/a	22	50.0	20	17%	120	14.20	18.33	22.00	312.4	2.00	-
203	Apache/Sheridan		N	60	n/a	22	59.0	2	2%	120	16.60	21.63	22.00	365.2	2.00	-
410	Harvard	110	N	60	n/a	22	62.5	25	17%	150	15.90	22.92	27.50	349.8	2.50	-
	to 91st/Garnett		*N*	*120*	*n/a*	*11*	*65.0*	*20*	*13%*	*150*	*16.40*	*11.92*	*13.75*	*180.4*	*1.25*	-
	to 81st/Lewis		*N*	*120*	*n/a*	*11*	*60.0*	*30*	*20%*	*150*	*15.40*	*11.00*	*13.75*	*169.4*	*1.25*	-
110	Yale	410	N	60	n/a	22	65.0	20	13%	150	16.80	23.83	27.50	369.6	2.50	-
710	Yale Rapid		N	60	n/a	22	55.0	10	8%	120	16.00	20.17	22.00	352.0	2.00	-
215	15th Street	371	N	60	n/a	22	40.0	10	11%	90	8.70	14.67	16.50	191.4	1.50	-
221	21st St/Eastgate	105	N	60	n/a	22	66.0	18	12%	150	16.10	24.20	27.50	354.2	2.50	-
721	21st Street Rapid		N	60	n/a	22	53.0	14	12%	120	16.10	19.43	22.00	354.2	2.00	-
122	Pine/Garnett		N	60	n/a	22	80.0	20	11%	180	20.40	29.33	33.00	448.8	3.00	-
222	41st Street	318	N	60	n/a	22	44.0	2	2%	90	11.90	16.13	16.50	261.8	1.50	-
	base route to MMS		*N*	*60*	*n/a*	*22*	*44.0*	*2*	*2%*	*90*	*11.90*	*16.13*	*16.50*	*261.8*	*1.50*	-
	long pattern to 41st/209th		*N*	*n/a*	*n/a*	*0*	*80.0*	*20*	*11%*	*180*	*21.70*	-	-	-	-	-
251	Fast Track		N	60	n/a	22	45.0	30	25%	120	16.40	16.50	22.00	360.8	2.00	-
	short pattern to MMS		*N*	*n/a*	*n/a*	*0*	*20.0*	*20*	*33%*	*60*	*8.60*	-	-	-	-	-
	long pattern to Broken Arrow		*N*	*60*	*n/a*	*22*	*45.0*	*30*	*25%*	*120*	*16.40*	*16.50*	*22.00*	*360.8*	*2.00*	-
318	Memorial		N	60	n/a	22	65.0	20	13%	150	16.86	23.83	27.50	370.8	2.50	-
	to Broken Arrow	*222*	*N*	*120*	*n/a*	*11*	*80.0*	*20*	*11%*	*180*	*19.00*	*14.67*	*16.50*	*209.0*	*1.50*	-
	to Bixby		*N*	*120*	*n/a*	*11*	*50.0*	*20*	*17%*	*120*	*12.30*	*9.17*	*11.00*	*135.3*	*1.00*	-
371	71st Street/Sheridan	215	N	60	n/a	22	42.0	6	7%	90	11.80	15.40	16.50	259.6	1.50	-
471	71st Street/Broken Arrow		N	60	n/a	22	57.0	6	5%	120	15.50	20.90	22.00	341.0	2.00	-
501	Elm/Broken Arrow Flex		N	60	n/a	22	34.0	52	43%	120	8.60	12.47	22.00	189.2	2.00	-
Local Service Weekday Statistics						***528***		***381***	***13%***	***2880***		**458.17**	**528.00**	**7,501.6**	**48.00**	**-**
TOTAL Sunday						***528***		***445***	***13%***	***3379***		**458.17**	**528.00**	**7,501.6**	**48.00**	**-**

Note: Some columns are hidden due to space limitations

Appendix E
Long-Term Operating Statistics Tables

The tables below are from the Tulsa Transit Operating Statistics Model. They provide route-by-route detail for Long-Term weekday, Saturday, and Sunday service. Headways, running time, layover time, .and route distance are input by time of day, from which number of trips, in-service hours, revenue-hours, revenue-miles, and vehicles are calculated. Proposed route interlines have been assigned where indicated, and changes from the previous plan phase are highlighted in yellow. Due to space limitations, repetitive columns are not shown.

Table E.1: LT Weekday Operating Statistics

Rte. #	Route Name	Interline	Service Frequency					Daily Trips	AM Peak Period				One-Way Distance (Miles)	Average Weekday			AM Peak Buses	Midday Buses	PM Peak Buses	Evening Buses	Night Buses
			AM Peak Period	Midday Period	PM Peak Period	Evening Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles					
Local																					
1	Downtown Circulator		15	15	15	30	n/a	122	25.0	10	17%	60	4.30	50.83	61.00	524.6	4.00	4.00	4.00	2.00	-
100	Admiral		30	30	30	30	60	73	52.0	16	13%	120	12.5	63.27	73.00	915.0	4.00	4.00	4.00	4.00	2.00
	base route to 129th		*60*	*60*	*60*	*60*	*60*	*39*	*40.0*	*10*	*11%*	*90*	*9.60*	*26.00*	*29.25*	*374.4*	*1.50*	*1.50*	*1.50*	*1.50*	*1.50*
	long pattern to Catoosa		*60*	*60*	*60*	*60*	*n/a*	*34*	*64.0*	*22*	*15%*	*150*	*15.90*	*36.27*	*42.50*	*540.6*	*2.50*	*2.50*	*2.50*	*2.50*	-
700	Admiral High Speed Corridor		15	30	15	30	n/a	100	34.0	22	24%	90	9.60	56.67	75.00	960.0	6.00	3.00	6.00	3.00	-
101	Suburban Acres		15	30	15	30	60	105	18.3	9	19%	45	6.7	57.18	66.75	707.4	3.00	3.00	6.00	3.00	1.50
	via 49th/Denver		*60*	*n/a*	*n/a*	*n/a*	*n/a*	*8*	*38.0*	*14*	*16%*	*90*	*9.40*	*5.07*	*6.00*	*75.2*	*1.50*	-	-	-	-
	via 49th/Denver & Casino		*n/a*	*60*	*60*	*60*	*120*	*29*	*43.0*	*4*	*4%*	*90*	*10.70*	*20.78*	*21.75*	*310.3*	-	*1.50*	*1.50*	*1.50*	*0.75*
	via Hartford/56th		*60*	*60*	*60*	*60*	*120*	*37*	*35.0*	*20*	*22%*	*90*	*8.70*	*21.58*	*27.75*	*321.9*	*1.50*	*1.50*	*1.50*	*1.50*	*0.75*
	via Hartford/56th & Casino		*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-	-	-	-
105	Peoria		30	30	30	30	60	73	66.0	18	12%	150	18.40	80.30	91.25	1,343.2	5.00	5.00	5.00	5.00	2.50
705	Peoria High Speed Corridor		15	30	15	30	n/a	90	68.0	14	9%	150	23.6	102.00	112.50	2,124.0	10.00	5.00	10.00	5.00	-
	to Bixby		*30*	*60*	*30*	*60*	*n/a*	*45*	*70.0*	*10*	*7%*	*150*	*25.00*	*52.50*	*56.25*	*1,125.0*	*5.00*	*2.50*	*5.00*	*2.50*	-
	to Jenks		*30*	*60*	*30*	*60*	*n/a*	*45*	*66.0*	*18*	*12%*	*150*	*22.20*	*49.50*	*56.25*	*999.0*	*5.00*	*2.50*	*5.00*	*2.50*	-
111	11th Street		30	30	30	30	n/a	68	39.5	11	12%	90	10.70	44.77	51.00	727.6	3.00	3.00	3.00	3.00	-
112	Lewis		30	30	30	30	n/a	58	66.0	18	12%	150	16.40	63.80	72.50	951.2	5.00	5.00	5.00	5.00	-
114	Charles Page/Sand Springs	203	60	60	60	60	n/a	34	52.0	16	13%	120	13.1	29.63	34.00	445.6	2.00	2.00	2.00	2.00	-
	base route		*60*	*60*	*60*	*60*	*n/a*	*32*	*52.0*	*16*	*13%*	*120*	*13.00*	*27.73*	*32.00*	*416.0*	*2.00*	*2.00*	*2.00*	*2.00*	-
	via Gilcrease Estates		*n/a*	*1 trip*	*1 trip*	*n/a*	*n/a*	*2*	*57.0*	*6*	*5%*	*120*	*14.80*	*1.90*	*2.00*	*29.6*	-	-	-	-	-
117	Union/Southwest Blvd		60	60	60	60	n/a	34	28.0	4	7%	60	8.00	15.87	17.00	272.0	1.00	1.00	1.00	1.00	-
717	Union/Southwest Rapid		60	60	60	n/a	n/a	27	24.0	12	20%	60	8.30	10.80	13.50	224.1	1.00	1.00	1.00	-	-
118	33rd West Ave		60	60	60	n/a	n/a	27	50.0	20	17%	120	14.20	22.50	27.00	383.4	2.00	2.00	2.00	-	-
203	Apache/Sheridan	114	60	60	60	n/a	n/a	27	59.0	2	2%	120	16.60	26.55	27.00	448.2	2.00	2.00	2.00	-	-
410	Harvard		15	30	15	60	n/a	93	31.3	13	17%	75	10.5	63.83	76.25	973.4	5.00	5.00	5.00	2.50	-
	to 91st/Garnett		*60*	*60*	*60*	*60*	*n/a*	*34*	*65.0*	*20*	*13%*	*150*	*16.40*	*36.83*	*42.50*	*557.6*	*2.50*	*2.50*	*2.50*	*2.50*	-
	to Jenks		*60*	*60*	*60*	*n/a*	*n/a*	*27*	*60.0*	*30*	*20%*	*150*	*15.40*	*27.00*	*33.75*	*415.8*	*2.50*	*2.50*	*2.50*	-	-
110	Yale		30	60	30	60	60	55	65.0	20	13%	150	16.80	59.58	68.75	924.0	5.00	2.50	5.00	2.50	2.50
710	Yale High Speed Corridor		15	30	15	30	n/a	100	55.0	10	8%	120	16.00	91.67	100.00	1,600.0	8.00	4.00	8.00	4.00	-
215	15th Street		30	60	30	60	n/a	50	40.0	10	11%	90	8.70	33.33	37.50	435.0	3.00	1.50	3.00	1.50	-
221	21st St/Eastgate		30	30	30	30	60	73	66.0	18	12%	150	16.10	80.30	91.25	1,175.3	5.00	5.00	5.00	5.00	2.50
721	21st Street High Speed Corridor		15	30	15	30	n/a	100	53.0	14	12%	120	16.10	88.33	100.00	1,610.0	8.00	4.00	8.00	4.00	-
122	Pine/Garnett		30	60	30	60	n/a	50	80.0	20	11%	180	20.40	66.67	75.00	1,020.0	6.00	3.00	6.00	3.00	-
722	Pine/Garnett Rapid	723	60	60	60	n/a	n/a	27	67.0	16	11%	150	20.40	30.15	33.75	4.0	2.50	2.50	2.50	-	-
222	41st Street		30	30	30	30	60	73	65.0	20	13%	150	15.6	73.67	85.00	1,142.4	5.00	5.00	5.00	5.00	-
	base route to MMS		*60*	*60*	*60*	*60*	*n/a*	*34*	*50.0*	*20*	*17%*	*120*	*11.90*	*28.33*	*34.00*	*404.6*	*2.00*	*2.00*	*2.00*	*2.00*	-
	long pattern to 41st/209th		*60*	*60*	*60*	*60*	*n/a*	*34*	*80.0*	*20*	*11%*	*180*	*21.70*	*45.33*	*51.00*	*737.8*	*3.00*	*3.00*	*3.00*	*3.00*	-
723	41st Street Rapid	722	60	60	60	n/a	n/a	27	40.0	10	11%	90	11.90	18.00	20.25	321.3	1.50	1.50	1.50	-	-
251	Fast Track		30	30	30	60	n/a	61	32.5	25	28%	90	12.1	31.58	44.00	735.2	3.00	3.00	3.00	1.00	-
	short pattern to MMS		*60*	*60*	*60*	*60*	*n/a*	*34*	*20.0*	*20*	*33%*	*60*	*8.60*	*11.33*	*17.00*	*292.4*	*1.00*	*1.00*	*1.00*	*1.00*	-
	long pattern to Broken Arrow		*60*	*60*	*60*	*n/a*	*n/a*	*27*	*45.0*	*30*	*25%*	*120*	*16.40*	*20.25*	*27.00*	*442.8*	*2.00*	*2.00*	*2.00*	-	-
306	Southeast Industrial		30	60	30	n/a	n/a	43	53.0	14	12%	120	11.30	37.98	43.00	485.9	4.00	2.00	4.00	-	-
318	Memorial		30	30	30	30	60	73	65.0	20	13%	150	14.6	73.67	85.00	1,064.2	5.00	5.00	5.00	5.00	-
	to Broken Arrow		*60*	*60*	*60*	*60*	*n/a*	*34*	*80.0*	*20*	*11%*	*180*	*19.00*	*45.33*	*51.00*	*646.0*	*3.00*	*3.00*	*3.00*	*3.00*	-
	to Bixby		*60*	*60*	*60*	*60*	*n/a*	*34*	*50.0*	*20*	*17%*	*120*	*12.30*	*28.33*	*34.00*	*418.2*	*2.00*	*2.00*	*2.00*	*2.00*	-
718	Memorial Rapid		60	60	60	n/a	n/a	27	50.0	20	17%	120	14.20	22.50	27.00	383.4	2.00	2.00	2.00	-	-
371	71st Street/Sheridan	471	60	60	60	60	n/a	34	52.0	16	13%	120	11.80	29.47	34.00	401.2	2.00	2.00	2.00	2.00	-
471	71st Street/Broken Arrow	371	60	60	60	60	n/a	34	57.0	6	5%	120	15.50	32.30	34.00	527.0	2.00	2.00	2.00	2.00	-
771	71st Street Rapid		60	60	60	n/a	n/a	27	48.0	24	20%	120	15.50	21.60	27.00	418.5	2.00	2.00	2.00	-	-
501	Elm/Broken Arrow Flex		60	60	60	60	n/a	34	34.0	52	43%	120	8.60	19.27	34.00	292.4	2.00	2.00	2.00	2.00	-
520	Sapulpa Flex		60	60	60	n/a	n/a	27	26.0	68	57%	120	5.90	11.70	27.00	159.3	2.00	2.00	2.00	-	-
540	Owasso Flex		60	60	60	n/a	n/a	27	34.0	52	43%	120	7.90	15.30	27.00	213.3	2.00	2.00	2.00	-	-
Local Service Weekday Statistics								***1873***		***619***	***16%***	***3810***		**1,525.07**	**1,791.25**	**23,912.1**	**123.00**	**98.00**	**126.00**	**72.50**	**11.00**
Express																					
902	Broken Arrow Express		30	180	30	n/a	n/a	36	39.3	12	13%	90	15.9	23.55	27.00	572.4	3.00	1.00	3.00	-	-
	base route		*40*	*180*	*40*	*n/a*	*n/a*	*28*	*35.0*	*10*	*13%*	*80*	*13.00*	*16.33*	*18.67*	*364.0*	*2.00*	*1.00*	*2.00*	-	-
	via Indian Springs		*120*	*n/a*	*120*	*n/a*	*n/a*	*8*	*52.0*	*16*	*13%*	*120*	*21.70*	*6.93*	*8.00*	*173.6*	*1.00*	-	*1.00*	-	-
909	Union Express		60	n/a	60	n/a	n/a	16	52.5	15	13%	120	17.90	14.00	16.00	286.4	2.00	-	2.00	-	-
910	Bixby/Jenks Express		60	n/a	60	n/a	n/a	16	55.0	10	8%	120	21.40	14.67	16.00	342.4	2.00	-	2.00	-	-
920	Sapulpa Express	940	60	n/a	60	n/a	n/a	16	40.0	10	11%	90	15.40	10.67	12.00	246.4	1.50	-	1.50	-	-
930	Sand Springs Express		60	n/a	60	n/a	n/a	16	20.0	20	33%	60	7.40	5.33	8.00	118.4	1.00	-	1.00	-	-
940	Owasso Express	920	60	n/a	60	n/a	n/a	16	40.0	10	11%	90	16.50	10.67	12.00	264.0	1.50	-	1.50	-	-
950	US169 Express		60	n/a	60	n/a	n/a	16	50.0	20	17%	120	19.60	13.33	16.00	313.6	2.00	-	2.00	-	-
Express Service Weekday Statistics								***132***		***97***	***14%***	***690***		**92.22**	**107.00**	**2,143.6**	**13.00**	**1.00**	**13.00**	**-**	**-**
TOTAL WEEKDAY								***2005***		***778***	***15%***	***5117***		**1,617.28**	**1,898.25**	**26,055.7**	**136.00**	**99.00**	**139.00**	**72.50**	**11.00**

Note: Some columns are hidden due to space limitations

Table E.2: LT Saturday Operating Statistics

Rte. #	Route Name	Interline	Rnd Trip?	Service Frequency			Daily Trips	Day Period				One-Way Distance (Miles)	Average Saturday			Day Buses	Evening Buses	Night Buses
				Day Period	Evening Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles			
Local																		
1	Downtown Circulator		N	n/a	30	30	24	25.0	10	17%	60	4.30	10.00	12.00	103.2	-	2.00	2.00
100	Admiral	(101)	N	60	60	60	36	52.0	16	13%	120	12.5	31.07	35.75	451.2	2.00	2.29	1.50
	base route to 129th		*N*	*120*	*120*	*60*	*21*	*40.0*	*10*	*11%*	*90*	*9.60*	*14.00*	*15.75*	*201.6*	*0.75*	*0.75*	*1.50*
	long pattern to Catoosa		*N*	*120*	*120*	*n/a*	*16*	*64.0*	*22*	*15%*	*150*	*15.90*	*17.07*	*20.00*	*254.4*	*1.25*	*1.25*	-
700	Admiral High Speed Corridor	(705)	N	30	60	n/a	55	34.0	22	24%	90	9.60	31.17	41.25	528.0	3.00	1.50	-
101	Suburban Acres	(100)	N	30	60	60	60	38.8	12	14%	90	6.7	39.95	46.29	404.2	3.00	1.71	1.71
	via 49th/Denver		*N*	*2 trips*	*n/a*	*n/a*	*2*	*38.0*	*14*	*16%*	*90*	*9.40*	*1.27*	*1.50*	*18.8*	-	-	-
	via 49th/Denver & Casino		*N*	*60*	*120*	*120*	*28*	*43.0*	*4*	*4%*	*90*	*10.70*	*20.07*	*21.00*	*299.6*	*1.50*	*0.75*	*0.75*
	via Hartford/56th		*N*	*60*	*120*	*120*	*31*	*35.0*	*20*	*22%*	*90*	*8.70*	*18.08*	*23.25*	*269.7*	*1.50*	*0.75*	*0.75*
	via Hartford/56th & Casino		*N*	*n/a*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-	-
105	Peoria	(221)	N	60	60	60	36	66.0	18	12%	150	18.40	39.60	45.00	662.4	2.50	2.50	2.50
705	Peoria High Speed Corridor	(700)	N	30	60	n/a	55	68.0	14	9%	150	23.6	62.37	68.75	1,298.0	5.00	2.50	-
	to Bixby		*N*	*60*	*120*	*n/a*	*28*	*70.0*	*10*	*7%*	*150*	*25.00*	*32.67*	*35.00*	*700.0*	*2.50*	*1.25*	-
	to Jenks		*N*	*60*	*120*	*n/a*	*27*	*66.0*	*18*	*12%*	*150*	*22.20*	*29.70*	*33.75*	*599.4*	*2.50*	*1.25*	-
111	11th Street	(112)	N	60	60	n/a	31	39.5	11	12%	90	10.70	20.41	23.25	331.7	1.50	1.50	-
112	Lewis	(111)	N	60	60	n/a	31	66.0	18	12%	150	16.40	34.10	38.75	508.4	2.50	2.50	-
114	Charles Page/Sand Springs		N	60	60	n/a	31	52.0	16	13%	120	13.1	26.87	31.00	406.3	2.00	2.00	-
117	Union/Southwest Blvd		N	60	60	n/a	31	28.0	4	7%	60	8.00	14.47	15.50	248.0	1.00	1.00	-
717	Union/Southwest Rapid		N	60	n/a	n/a	24	24.0	12	20%	60	8.30	9.60	12.00	199.2	1.00	-	-
118	33rd West Ave		N	60	n/a	n/a	24	50.0	20	17%	120	14.20	20.00	24.00	340.8	2.00	-	-
203	Apache/Sheridan		N	60	n/a	n/a	24	59.0	2	2%	120	16.60	23.60	24.00	398.4	2.00	-	-
410	Harvard	(110)	N	60	60	n/a	31	62.5	25	17%	150	10.5	32.58	38.75	324.5	2.50	2.50	-
	to 91st/Garnett		*N*	*120*	*60*	*n/a*	*19*	*65.0*	*20*	*13%*	*150*	*16.40*	*20.58*	*23.75*	*311.6*	*1.25*	*2.50*	-
	to Jenks		*N*	*120*	*n/a*	*n/a*	*12*	*60.0*	*30*	*20%*	*150*	*15.40*	*12.00*	*15.00*	*184.8*	*1.25*	-	-
110	Yale	(410)	N	60	60	n/a	31	65.0	20	13%	150	16.80	33.58	38.75	520.8	2.50	2.50	-
710	Yale High Speed Corridor		N	30	60	n/a	55	55.0	10	8%	120	16.00	50.42	55.00	880.0	4.00	2.00	-
215	15th Street		N	60	60	n/a	31	40.0	10	11%	90	8.70	20.67	23.25	269.7	1.50	1.50	-
221	21st St/Eastgate	(105)	N	60	60	60	36	66.0	18	12%	150	16.10	39.60	45.00	579.6	2.50	2.50	2.50
721	21st Street High Speed Corridor		N	30	60	n/a	55	53.0	14	12%	120	16.10	48.58	55.00	885.5	4.00	2.00	-
122	Pine/Garnett		N	60	60	n/a	31	80.0	20	11%	180	20.40	41.33	46.50	632.4	3.00	3.00	-
722	Pine/Garnett Rapid	723	N	60	60	n/a	31	67.0	16	11%	150	20.40	34.62	38.75	632.4	2.50	2.50	-
222	41st Street		N	60	60	n/a	31	65.0	20	13%	150	15.6	31.83	37.00	485.1	2.50	2.00	-
	base route to MMS		*N*	*120*	*60*	*n/a*	*19*	*50.0*	*20*	*17%*	*120*	*11.90*	*15.83*	*19.00*	*226.1*	*1.00*	*2.00*	-
	long pattern to 41st/209th		*N*	*120*	*n/a*	*n/a*	*12*	*80.0*	*20*	*11%*	*180*	*21.70*	*16.00*	*18.00*	*260.4*	*1.50*	-	-
723	41st Street Rapid	722	N	60	60	n/a	31	40.0	10	11%	90	11.90	20.67	23.25	368.9	1.50	1.50	-
251	Fast Track		N	60	60	n/a	31	45.0	30	25%	120	12.1	20.33	27.50	373.6	2.00	1.00	-
	short pattern to MMS		*N*	*n/a*	*60*	*n/a*	*7*	*20.0*	*20*	*33%*	*60*	*8.60*	*2.33*	*3.50*	*60.2*	-	*1.00*	-
	long pattern to Broken Arrow		*N*	*60*	*n/a*	*n/a*	*24*	*45.0*	*30*	*25%*	*120*	*16.40*	*18.00*	*24.00*	*393.6*	*2.00*	-	-
318	Memorial		N	60	60	n/a	31	65.0	20	13%	150	14.6	35.33	40.50	451.9	2.50	3.00	-
	to Broken Arrow		*N*	*120*	*60*	*n/a*	*19*	*80.0*	*20*	*11%*	*180*	*19.00*	*25.33*	*28.50*	*361.0*	*1.50*	*3.00*	-
	to Bixby		*N*	*120*	*n/a*	*n/a*	*12*	*50.0*	*20*	*17%*	*120*	*12.30*	*10.00*	*12.00*	*147.6*	*1.00*	-	-
718	Memorial Rapid		N	60	60	n/a	31	50.0	20	17%	120	14.20	25.83	31.00	440.2	2.00	2.00	-
371	71st Street/Sheridan		N	60	n/a	n/a	24	52.0	16	13%	120	11.80	20.80	24.00	283.2	2.00	-	-
471	71st Street/Broken Arrow		N	60	60	n/a	31	57.0	6	5%	120	15.50	29.45	31.00	480.5	2.00	2.00	-
771	71st Street Rapid		N	60	60	n/a	31	48.0	24	20%	120	15.50	24.80	31.00	480.5	2.00	2.00	-
501	Elm/Broken Arrow Flex		N	60	60	n/a	31	34.0	52	43%	120	8.60	17.57	31.00	266.6	2.00	2.00	-
520	Sapulpa Flex		N	60	n/a	n/a	24	26.0	68	57%	120	5.90	10.40	24.00	141.6	2.00	-	-
540	Owasso Flex		N	60	n/a	n/a	24	34.0	52	43%	120	7.90	13.60	24.00	189.6	2.00	-	-
Local Service Weekday Statistics							***1083***		***626***	***16%***	***3840***		**915.19**	**1,082.79**	**14,566.5**	**72.50**	**53.50**	**10.21**
TOTAL SATURDAY							***1083***		***691***	***16%***	***4339***		**915.19**	**1,082.79**	**14,566.5**	**72.50**	**53.50**	**10.21**

Note: Some columns are hidden due to space limitations

Table E.3: LT Sunday Operating Statistics

Rte. #	Route Name	Interline	Rnd Trip?	Service Frequency		Daily Trips	Day Period				One-Way Distance (Miles)	Average Sunday			Day Buses	Night Buses
				Day Period	Night Period		Time (Min.)	Layover Time	% Layover	Cycle Time		In-Serv. Hours	Rev. Hrs.	Rev. Miles		
Local																
100	Admiral		N	60	n/a	22	52.0	16	13%	120	12.5	19.07	22.00	275.8	2.00	-
	base route to 129th		*N*	*120*	*n/a*	*11*	*40.0*	*10*	*11%*	*90*	*9.60*	*7.33*	*8.25*	*105.6*	*0.75*	-
	long pattern to Catoosa		*N*	*120*	*n/a*	*11*	*64.0*	*22*	*15%*	*150*	*15.90*	*11.73*	*13.75*	*174.9*	*1.25*	-
700	Admiral High Speed Corridor	705	N	60	n/a	22	34.0	22	24%	90	9.60	12.47	16.50	211.2	1.50	-
101	Suburban Acres		N	60	n/a	22	38.5	13	14%	90	6.7	14.13	16.50	148.2	1.50	-
	via 49th/Denver		*N*	*2 trips*	*n/a*	*2*	*38.0*	*14*	*16%*	*90*	*9.40*	*1.27*	*1.50*	*18.8*	-	-
	via 49th/Denver & Casino		*N*	*120*	*n/a*	*9*	*43.0*	*4*	*4%*	*90*	*10.70*	*6.45*	*6.75*	*96.3*	*0.75*	-
	via Hartford/56th		*N*	*120*	*n/a*	*11*	*35.0*	*20*	*22%*	*90*	*8.70*	*6.42*	*8.25*	*95.7*	*0.75*	-
	via Hartford/56th & Casino		*N*	*n/a*	*n/a*	*0*	*41.5*	*7*	*8%*	*90*	*11.60*	-	-	-	-	-
105	Peoria	221	N	60	n/a	22	66.0	18	12%	150	18.40	24.20	27.50	404.8	2.50	-
705	Peoria High Speed Corridor	700	N	60	n/a	22	68.0	14	9%	150	23.6	24.93	27.50	519.2	2.50	-
	to Bixby		*N*	*120*	*n/a*	*11*	*70.0*	*10*	*7%*	*150*	*25.00*	*12.83*	*13.75*	*275.0*	*1.25*	-
	to Jenks		*N*	*120*	*n/a*	*11*	*66.0*	*18*	*12%*	*150*	*22.20*	*12.10*	*13.75*	*244.2*	*1.25*	-
111	11th Street	112	N	60	n/a	22	39.5	11	12%	90	10.70	14.48	16.50	235.4	1.50	-
112	Lewis	111	N	60	n/a	22	66.0	18	12%	150	16.40	24.20	27.50	360.8	2.50	-
114	Charles Page/Sand Springs	203	N	60	n/a	22	52.0	16	13%	120	13.1	19.07	22.00	288.3	2.00	-
117	Union/Southwest Blvd		N	60	n/a	22	28.0	4	7%	60	8.00	10.27	11.00	176.0	1.00	-
717	Union/Southwest Rapid		N	n/a	n/a	0	24.0	12	20%	60	8.30	-	-	-	-	-
118	33rd West Ave		N	60	n/a	22	50.0	20	17%	120	14.20	18.33	22.00	312.4	2.00	-
203	Apache/Sheridan	114	N	60	n/a	22	59.0	2	2%	120	16.60	21.63	22.00	365.2	2.00	-
410	Harvard	110	N	60	n/a	22	62.5	25	17%	150	10.5	22.92	27.50	230.3	2.50	-
	to 91st/Garnett		*N*	*120*	*n/a*	*11*	*65.0*	*20*	*13%*	*150*	*16.40*	*11.92*	*13.75*	*180.4*	*1.25*	-
	to Jenks		*N*	*120*	*n/a*	*11*	*60.0*	*30*	*20%*	*150*	*15.40*	*11.00*	*13.75*	*169.4*	*1.25*	-
110	Yale	410	N	60	n/a	22	65.0	20	13%	150	16.80	23.83	27.50	369.6	2.50	-
710	Yale High Speed Corridor		N	60	n/a	22	55.0	10	8%	120	16.00	20.17	22.00	352.0	2.00	-
215	15th Street	371	N	60	n/a	22	40.0	10	11%	90	8.70	14.67	16.50	191.4	1.50	-
221	21st St/Eastgate	105	N	60	n/a	22	66.0	18	12%	150	16.10	24.20	27.50	354.2	2.50	-
721	21st Street High Speed Corridor		N	60	n/a	22	53.0	14	12%	120	16.10	19.43	22.00	354.2	2.00	-
122	Pine/Garnett		N	60	n/a	22	80.0	20	11%	180	20.40	29.33	33.00	448.8	3.00	-
722	Pine/Garnett Rapid	723	N	n/a	n/a	0	67.0	16	11%	150	20.40	-	-	-	-	-
222	41st Street	318	N	60	n/a	22	65.0	20	13%	150	15.6	23.83	27.50	344.3	2.50	-
	base route to MMS		*N*	*120*	*n/a*	*11*	*50.0*	*20*	*17%*	*120*	*11.90*	*9.17*	*11.00*	*130.9*	*1.00*	-
	long pattern to 41st/209th		*N*	*120*	*n/a*	*11*	*80.0*	*20*	*11%*	*180*	*21.70*	*14.67*	*16.50*	*238.7*	*1.50*	-
723	41st Street Rapid	722	N	n/a	n/a	0	40.0	10	11%	90	11.90	-	-	-	-	-
251	Fast Track		N	60	n/a	22	45.0	30	25%	120	16.4	16.50	22.00	360.8	2.00	-
	short pattern to MMS		*N*	*n/a*	*n/a*	*0*	*20.0*	*20*	*33%*	*60*	*8.60*	-	-	-	-	-
	long pattern to Broken Arrow		*N*	*60*	*n/a*	*22*	*45.0*	*30*	*25%*	*120*	*16.40*	*16.50*	*22.00*	*360.8*	*2.00*	-
318	Memorial		N	60	n/a	22	65.0	20	13%	150	14.6	23.83	27.50	320.7	2.50	-
	to Broken Arrow	*222*	*N*	*120*	*n/a*	*11*	*80.0*	*20*	*11%*	*180*	*19.00*	*14.67*	*16.50*	*209.0*	*1.50*	-
	to Bixby		*N*	*120*	*n/a*	*11*	*50.0*	*20*	*17%*	*120*	*12.30*	*9.17*	*11.00*	*135.3*	*1.00*	-
718	Memorial Rapid		N	n/a	n/a	0	50.0	20	17%	120	14.20	-	-	-	-	-
371	71st Street/Sheridan	215	N	60	n/a	22	42.0	6	7%	90	11.80	15.40	16.50	259.6	1.50	-
471	71st Street/Broken Arrow		N	60	n/a	22	57.0	6	5%	120	15.50	20.90	22.00	341.0	2.00	-
771	71st Street Rapid		N	n/a	n/a	0	48.0	24	20%	120	15.50	-	-	-	-	-
501	Elm/Broken Arrow Flex		N	60	n/a	22	34.0	52	43%	120	8.60	12.47	22.00	189.2	2.00	-
520	Sapulpa Flex		N	n/a	n/a	0	26.0	68	57%	120	5.90	-	-	-	-	-
540	Owasso Flex		N	n/a	n/a	0	34.0	52	43%	120	7.90	-	-	-	-	-
Local Service Weekday Statistics						***528***		***607***	***16%***	***3750***		**470.27**	**544.50**	**7,413.4**	**49.50**	**-**
TOTAL Sunday						***528***		***671***	***16%***	***4249***		**470.27**	**544.50**	**7,413.4**	**49.50**	**-**

Note: Some columns are hidden due to space limitations