Rethinking Transit:

Improving the Reliability of Tulsa's Public Bus System

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Spring 2016

The University of Oklahoma

Graduate College

Rethinking Transit: Improving the Reliability of Tulsa's Public Bus System

A Professional Project

Submitted to the Graduate Faculty

In partial fulfillment of the requirements for the degree of

Master of Science in Architectural Urban Studies

By

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Tulsa, Oklahoma

2016

A Professional Project approved for the

College of Architecture

Urban Design Studio

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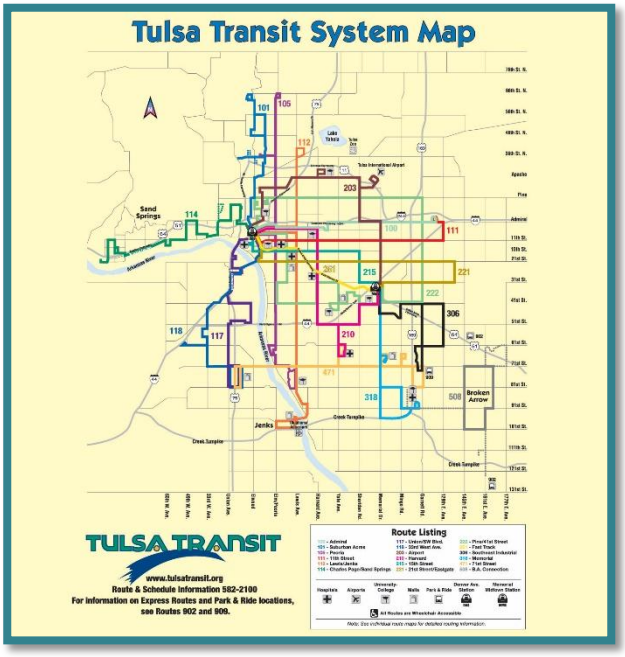
Appendix includes detailed peer city data, Tulsa Transit route profiles, newly proposed routes, and supporting plans/documents

Abstract

The current public bus system in Tulsa, Oklahoma has several key issues that negatively impact the numbers of citizens using the system. The network is difficult to understand, the low -frequency service is often a barrier, and the public perception of the system leads individuals to choose other modes of transportation, primarily personal vehicles. In order to shift the paradigm and attract additional ridership, the city must work to improve current route and schedule options to better suit the needs of the city. It is time for Tulsa to re-evaluate the current network by considering alternate approaches to route configurations, schedules, educating the public, and encouraging the use of public transit over personal vehicles. By increasing the use of public transit, the city will see less traffic congestion, better air quality, and overall improvements in public health and quality of life. Through a comparison of peer cities and a detailed analysis of existing route conditions, this project develops recommendations for immediate, low to no cost improvements that could be implemented to address those issues facing Tulsa Transit. In addition, a list of long-term items for consideration is provided.

Introduction

Public transit is an integral piece of every major city. In order for the city to receive any benefit from providing a public system, the system must be used regularly. Ridership is key when designing a citywide system so the city must work to promote the use of public transit. The system must be designed so that it is easy to navigate and accessible by key areas of the city. The system must also remain affordable so that it does not exclude lower income individuals who rely on public transit daily.



At this time, Tulsa's bus transit system can be described as a hub-and-spoke network with all routes converging on two central stations. The primary "hubs" for Tulsa are the Denver Avenue Station downtown and the Memorial Midtown Station located at 33rd & Memorial. The current configuration consists of unusual routes that divert off primary arterial streets and into neighborhood and secondary streets which leads to problems with schedules, frequency, and general understanding of the network. As the city sees growth and development, it is important to be proactive regarding transportation solutions. This includes consideration for alternate routes and networks that can better service the city in the short-term with additional things to consider moving forward. In addition to the network design, it is also important to rebrand the system to the general public in order to encourage new ridership and an overall change in perception regarding public transit.

Cities are continuing to make the transition from planning for the automobile to planning for public transit and pedestrians. Investment in public transit has shown to reduce costs due to road maintenance and public safety by reducing wear on public infrastructure while also preventing traffic accidents. In addition to the immediate effects seen by improving public transit, there are a number of secondary effects such as improvements in public health through increased physical activity and improved air quality. (J.Walker, *Human Transit*) As the city looks to update the transit system, it must also plan for providing access and connectivity throughout the city by means of additional infrastructure improvements such as sidewalks, crossings, and station enhancements.

Goals of the Project

This project will provide recommendations for alternative route configurations by assessing the current conditions and identifying areas in which the routes could be improved. All recommendations will meet the following criteria:

- Improve identified performance measures
    - Ridership
    - Bus Frequency
- Align Tulsa Transit with peer city data on public transit
- Provide simplified route configurations
- Work within existing and planned operating expenses for Tulsa Transit

The major objective of this project is to illustrate where immediate improvements could be made without the need for additional resources. Additional recommendations will be made for future improvements that assume additional funds and revenue could be obtained.

Methodology

In order to better understand what Tulsa needs in terms of a transit system, it is important to start by looking at the existing conditions including ridership, buses available, current routes, population density, and existing plans and studies that have been put in place including the Tulsa Comprehensive Plan and the Fast Forward Transit Plan. Once the existing data is collected, key performance measures are identified and calculated in order to compare the existing system with identified peer cities. (Transportation Research Board, *Guidebook for Developing a Transit Performance-Measurement System*)

Peer cities were identified with a specific set of criteria to ensure those that were chosen share key characteristics with Tulsa. It was important to identify cities of similar size both geographically and by population. It was also important to identify cities with similar transit service areas and systems to guarantee a relevant performance measure comparison.

Once the existing condition data is collected, it can be used to identify where improvements can be made and adapt the existing system to fit Tulsa's needs. Some basic alternatives could include a smaller coverage area, streamlined routes that follow primary arterial streets, and additional buses to improve frequency and reliability of the system. A study of existing fixed-routes and their utilization could produce results that lead to the elimination of certain under-utilized routes in order to re-allocate resources to routes in key areas. (Diab, Badami. *Bus Transit Improvement Strategies*)

Finally, once set of alternate configurations is made, it is necessary to form a plan for implementing the changes. An implementation plan is crucial and must include a schedule for transitioning the system while continuing to provide necessary service to the public. Recommendations for improvement will be made in two phases:

1. Immediate to near-term
    - Little to no-cost improvements that can begin implementation without any additional resources, but will continue to enhance the system as new funding becomes available
2. Long-Term
    - 20 year items for consideration for Tulsa Transit

Tulsa Transit Today

At this time, Tulsa Transit operates 95 vehicles while at maximum service. Those vehicles make up a collection of fixed-routes and demand-responsive paratransit service called "The Lift". A collection of local, state, and federal funds comprise the current 20 million dollar budget afforded to the Metropolitan Transit Authority in Tulsa. Through two main stations, the system operates as a primarily "hub-and-spoke" configuration. In 2013, Tulsa Transit ran 3,155,745 trips and 17,923,512 passenger miles. Transit service in Tulsa operates 6 days a week with primary hours of 5 A.M. to 8 P.M. Monday through Friday, 7 A.M. to 7 P.M. on Saturday, and limited nightline service of 5 routes from the end of normal operating hours until midnight Monday through Saturday. Currently, Tulsa Transit does not operate any service on Sundays. There are 18 all-day fixed routes that serve the Tulsa Metro area (See map on next page). The Lift service provides a point-to-point trip at a higher cost and is limited to members of the community with disability. In order to qualify for lift service, individuals must complete an application and verification process. Once the application is approved, the individual must buy Lift service passes at a slightly more expensive rate than normal fixed-route service.

Costs for transit passes vary and depend on length of time, number of trips, age, and military status. Standards costs for transit service in Tulsa are provided by Tulsa Transit and listed in the table below:

Fixed Route	Fare Option	Adult	Reduced and Military	Youth	Adult Express	Reduced Express	Per-Trip Express Upcharge	WHERE TO BUY PASSES			
								On Bus	Stations	Website	Quik Trip
1	2-Hour U2 Pass	$ 1.75	$ 0.85	$ 1.50	$ 2.00	$ 1.00		x			
2	One-Way / One-Bus Discount Fare*	$ 1.50	$ 0.75	$ 1.00				x			
3	1-day pass	$ 3.75	$ 1.85	$ 1.85	$ 3.75	$ 1.85	$ 0.25	x	x	x	x
4	7-day pass	$ 14.00	$ 7.00	$ 7.00	$ 14.00	$ 7.00	$ 0.25	x	x	x	x
5	10-ride pass	$ 14.00	$ 7.00	$ 11.00	$ 17.00	$ 8.50			x	x	x
6	31-day pass	$ 45.00	$ 22.50	$ 22.50	$ 45.00	$ 22.50	$ 0.25		x	x	x
Lift	Fare Option	Adult									
1	10-Ride Lift Regular Booklet	$ 35.00							x	x	
2	10-Ride Lift Short Trip Booklet**	$ 30.00							x	x	x

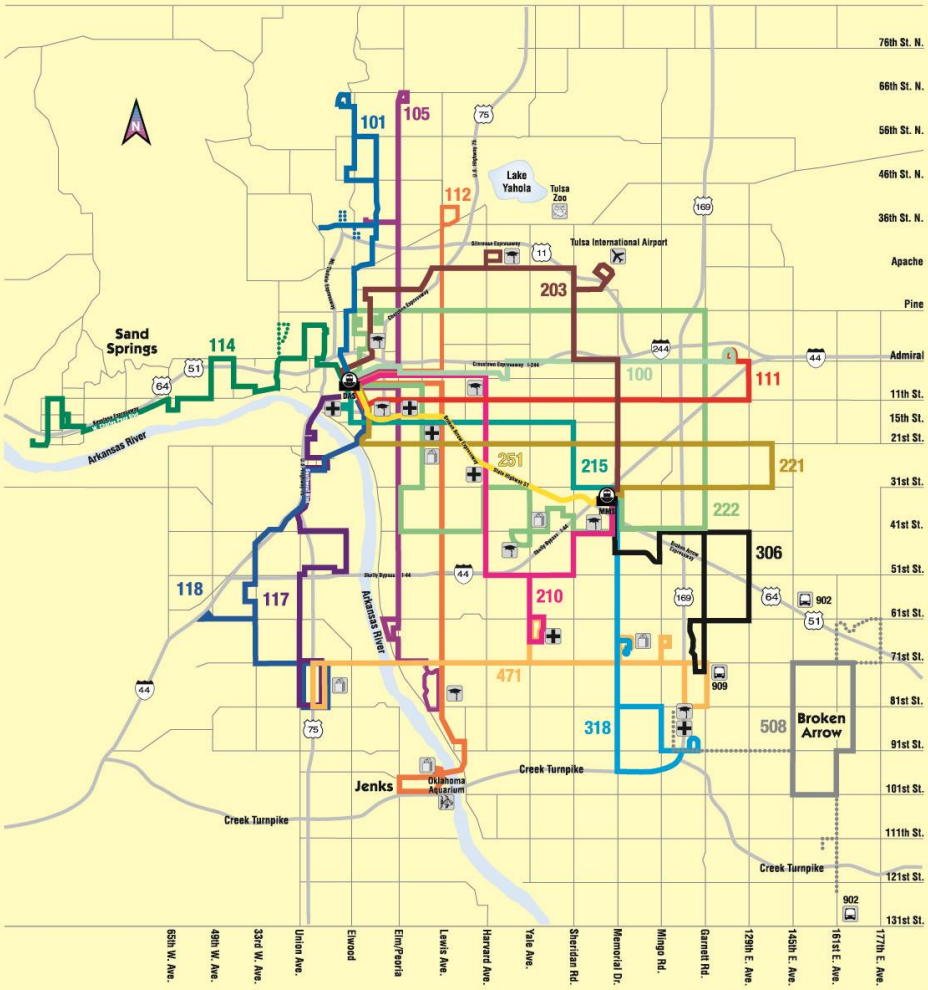
* The $1.50 one-way/one-bus discounted fare option will not allow transfers to other buses. This discount fare type is not available on the Broken Arrow Route 508.

** Discounted Lift Program fare for trips of six or fewer miles in length.

Within the year 2013 Tulsa Transit earned $2,961,860 in fare revenue from transit service; making up 16.8% of their $17,670,274 in operating expenses.

Tulsa Transit's funding comes from several different sources including local and federal funds.

Tulsa Transit System Map



TULSA TRANSIT

www.tulsatransit.org

Route & Schedule Information 582-2100

For information on Express Routes and Park & Ride locations, see Routes 902 and 909.

Route Listing

100 - Admiral	117 - Union/SW Blvd.	222 - Pine/41st Street
101 - Suburban Acres	118 - 33rd West Ave.	251 - Fast Track
105 - Peoria	203 - Airport	306 - Southeast Industrial
111 - 11th Street	210 - Harvard	318 - Memorial
112 - Lewis/Jenks	215 - 15th Street	471 - 71st Street
114 - Charles Page/Sand Springs	221 - 21st Street/Eastgate	508 - B.A. Connection

Hospitals	Airports	University-College	Malls	Park & Ride	Denver Ave. Station	Memorial Midtown Station
					DAS	MMS

All Routes are Wheelchair Accessible

Note: See individual route maps for detailed routing information.

Determining Performance Measures

Every year, transit agencies that receive federal funding are legally required to report specific statistics regarding the operation of service to the Federal Transit Administration. The data is then used to apportion over 5 billion dollars of FTA funds to transit agencies in urbanized areas. These statistics are tracked in the National Transit Database and available to the public.

Using the data provided by the National Transit Database, it becomes possible to calculate key performance measures developed by the Federal Transit Administration that can help identify areas that need improvement. For this project, service efficiency measures and service quality measures will be as follows for Tulsa Transit:

- Annual Ridership – 3,155,745
- Service Efficiency
    - Farebox recovery - 16.8%
    - Operating expense per capita - $44.18
        - (Operating Expenses/Population)
    - Operating expense per passenger trip - $5.60
        - (Operating Expenses/Passenger Trips)
    - Operating expense per passenger mile - $0.99
        - (Operating Expense/Revenue Miles)
    - Passenger trips per capita - 7.89
        - (Passenger Trips/Population)
- Service Quality
    - Average trip length – 5.68 miles
    - Revenue miles per revenue hour – 15.72

Using just Tulsa Transit performance measures, it isn't easy to understand where improvement is needed. Therefore, it is important to begin a peer city comparison in order to relate Tulsa Transit to comparable agencies around the U.S.

Peer City Selection

Performance measures alone do not provide a clear picture for areas that need extra improvement or changes. It is necessary to identify peer cities in order to establish a standard for performance measures. Peer cities were selected based on similarities between transit modes and service area statistics. Specifically, the following:

1. Service area size
2. Service area population
3. Passenger miles
4. Operating expenses

Given that criteria, four peer cities were established for the purposes of this project:

1. **Akron, Ohio**
2. **Colorado Springs, Colorado**
3. **Sarasota, Florida**
4. **Tucson, Arizona**

Performance Analysis of Peer Cities

For each of the four peer cities that were determined, performance measures were calculated by obtaining data from the National Transit Database through the Federal Transit Authority. Each of the eight performance measures calculated for Tulsa Transit were calculated for the peer agencies for the purpose of comparison. Detailed data sheets are included in the appendix.

Akron, Ohio

- Annual Ridership – 5,427,929
- Service Efficiency
    - Farebox recovery – 12.8%
    - Operating expense per capita - $72.19
    - Operating expense per passenger trip - $7.22
    - Operating expense per passenger mile - $1.78
    - Passenger trips per capita - 10
- Service Quality
    - Average trip length – 4.06 miles
    - Revenue miles per revenue hour – 13.78

Colorado Springs, Colorado

- Annual Ridership – 2,991,715
- Service Efficiency
    - Farebox recovery – 20.3%
    - Operating expense per capita - $31.69
    - Operating expense per passenger trip - $5.26
    - Operating expense per passenger mile - $0.80
    - Passenger trips per capita – 6.02
- Service Quality
    - Average trip length – 6.60
    - Revenue miles per revenue hour – 15.95

Sarasota, Florida

- Annual Ridership – 3,002,258
- Service Efficiency
    - Farebox recovery – 11.2%
    - Operating expense per capita - $55.79
    - Operating expense per passenger trip - $7.22
    - Operating expense per passenger mile - $1.28
    - Passenger trips per capita – 7.73
- Service Quality
    - Average trip length – 5.64 miles
    - Revenue miles per revenue hour – 14.91

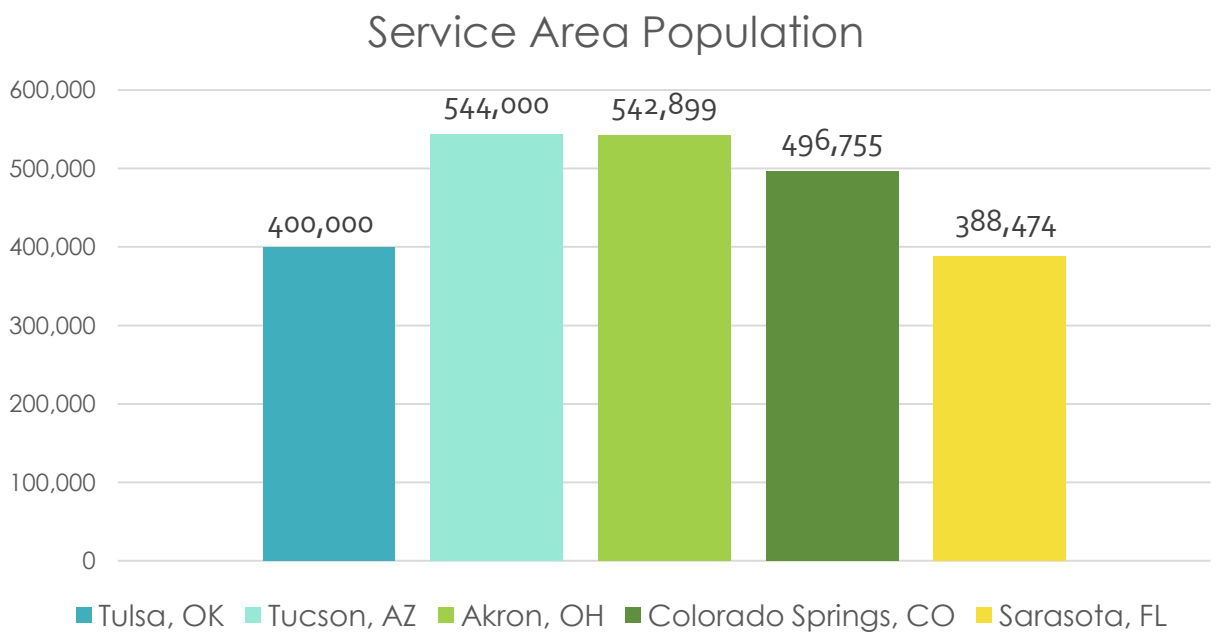
Tucson, Arizona

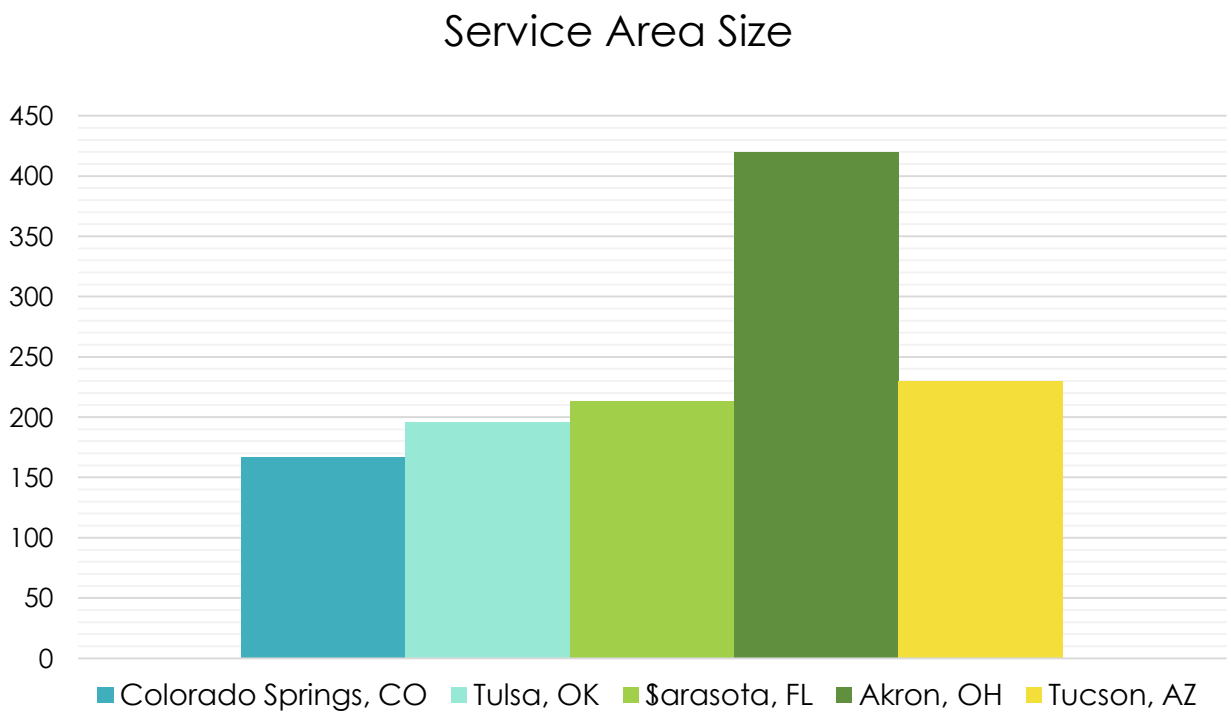
- Annual Ridership – 20,873,221
- Service Efficiency
    - Farebox recovery - 19%
    - Operating expense per capita - $130.37
    - Operating expense per passenger trip - $3.40
    - Operating expense per passenger mile - $0.86
    - Passenger trips per capita – 38.37
- Service Quality
    - Average trip length – 3.95 miles
    - Revenue miles per revenue hour – 12.69

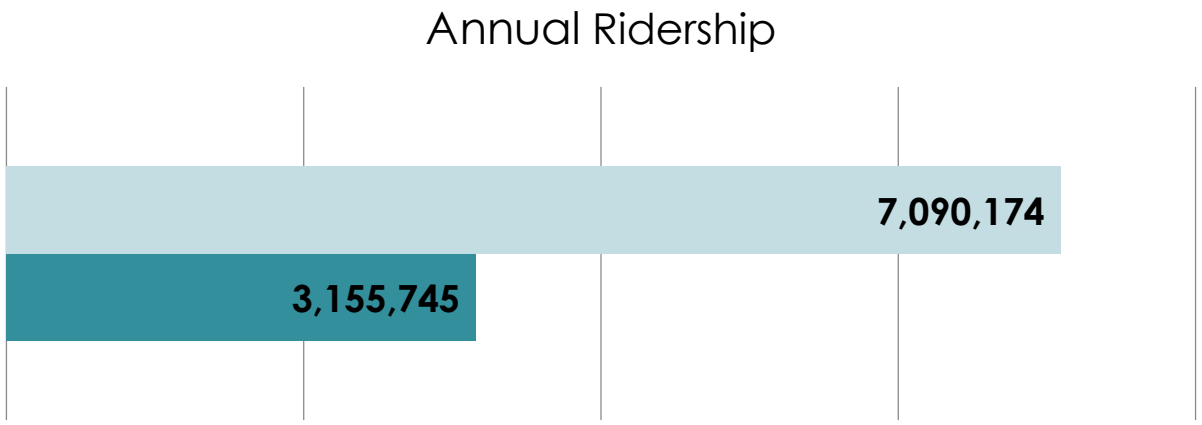
Peer City Analysis

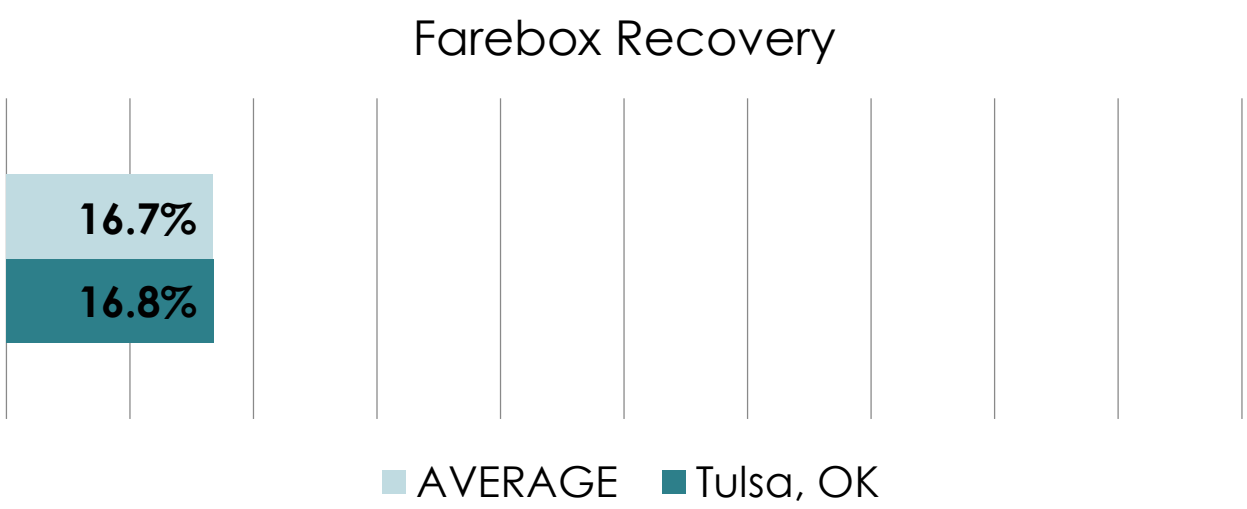
Now that the performance measures for all of the peer cities have been calculated, they can be charted and compared to the performance measures calculated for Tulsa Transit.

- Service Area Size
- Service Area Population
- Ridership
- Farebox Recovery
- Revenue Hours/Revenue Miles
- Operating Expense per Capita
- Local Funds Invested

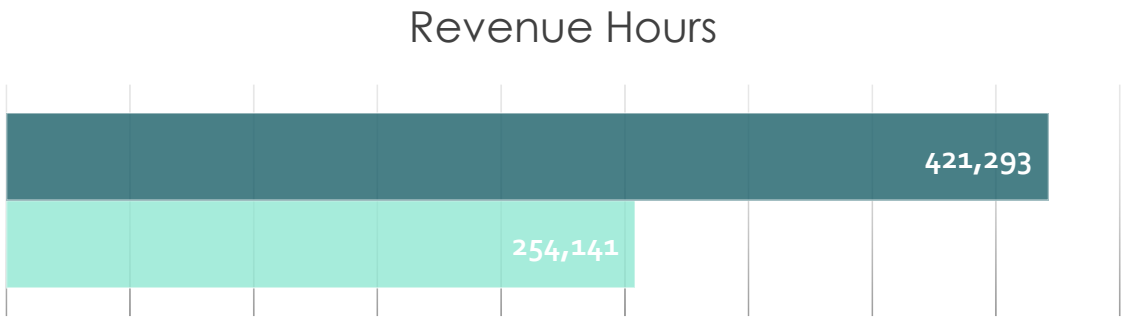

Service Area Population
600,000
500,000
400,000
300,000
200,000
100,000
0
400,000
544,000
542,899
496,755
388,474
Tulsa, OK
Tucson, AZ
Akron, OH
Colorado Springs, CO
Sarasota, FL

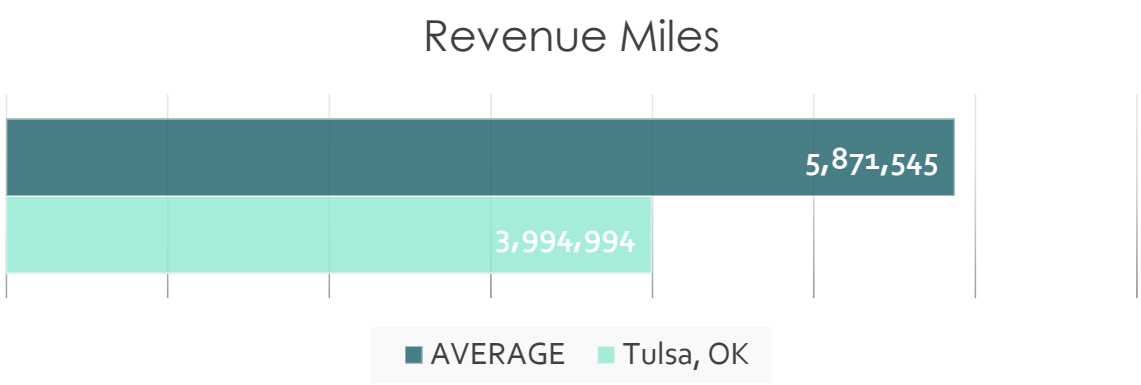

Service Area Size
450
400
350
300
250
200
150
100
50
0
Colorado Springs, CO
Tulsa, OK
$arasota, FL
Akron, OH
Tucson, AZ

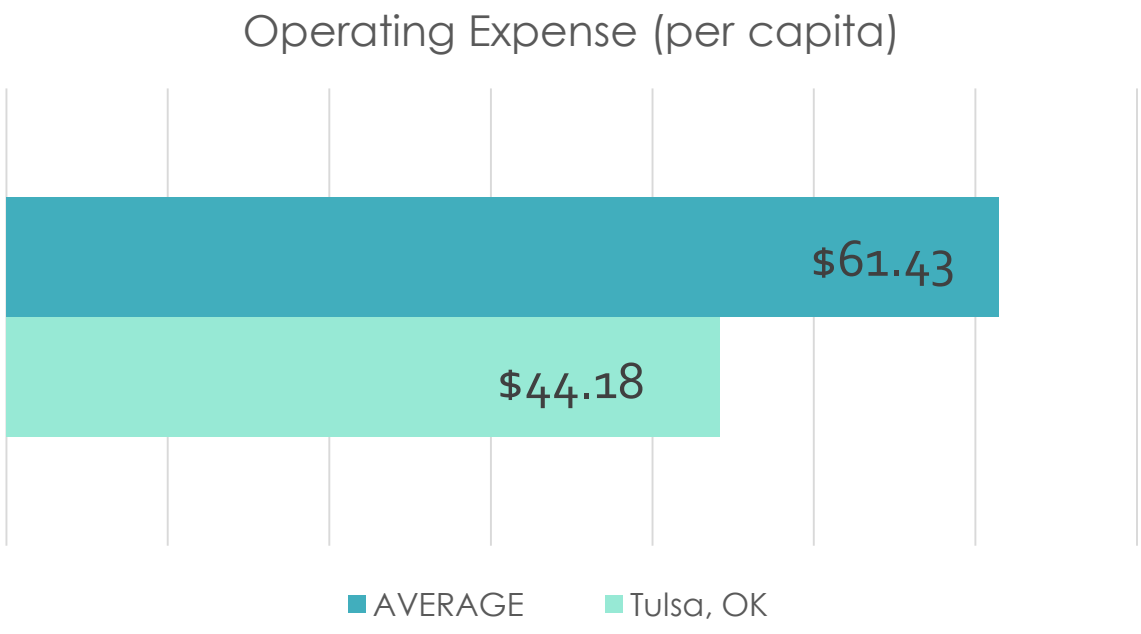


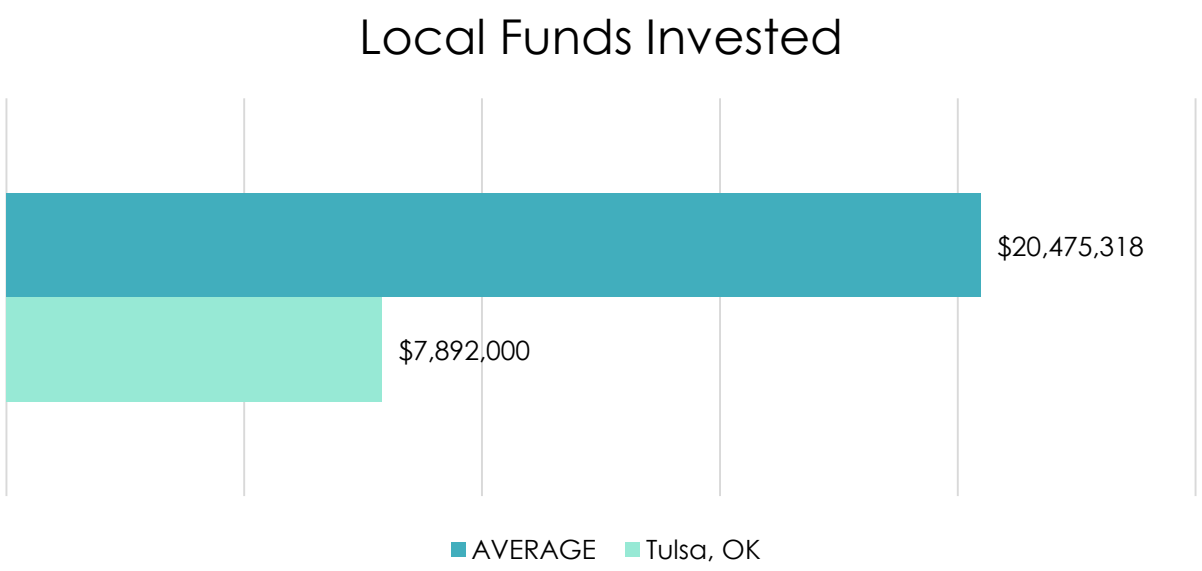


As evidenced by the graphics above, Tulsa ranks far below average in overall ridership; however, they continue to operate efficiently and recover just as much of their overall expenses as peer cities. This discrepancy can be explained by the following graphs which illustrate the overall *amount* of service being provided by Tulsa Transit compared to the average of peer cities.


Revenue Hours
421,293
254,141


Revenue Miles
5,871,545
3,994,994
AVERAGE
Tulsa, OK


Operating Expense (per capita)
$61.43
$44.18
AVERAGE
Tulsa, OK



Tulsa Transit ranks below average amongst peer cities in the amount of service that is provided and the numbers of riders each year. For cost efficiency, Tulsa Transit has been able to maintain a fairly average measure of expenditures for the service they currently provide; however, an expansion of the service would be required to meet peer city averages for quality and size of service.

Local investment in transit is low and the quality of transit overall has suffered because of it. Redesigning an entire transit network is a large project that would require participation from public and private entities. While the immediate costs may seem very high, it is the goal of this project to provide evidence that the initial investment will be earned back in the long-term through the many benefits public transit provides. One of the largest barriers to improving public transit is the availability of funding.

Now that it is understood where Tulsa stands among peer cities, the next step is to begin analyzing the system on a micro level in order to understand where improvements can be made that will affect the overall performance measures.

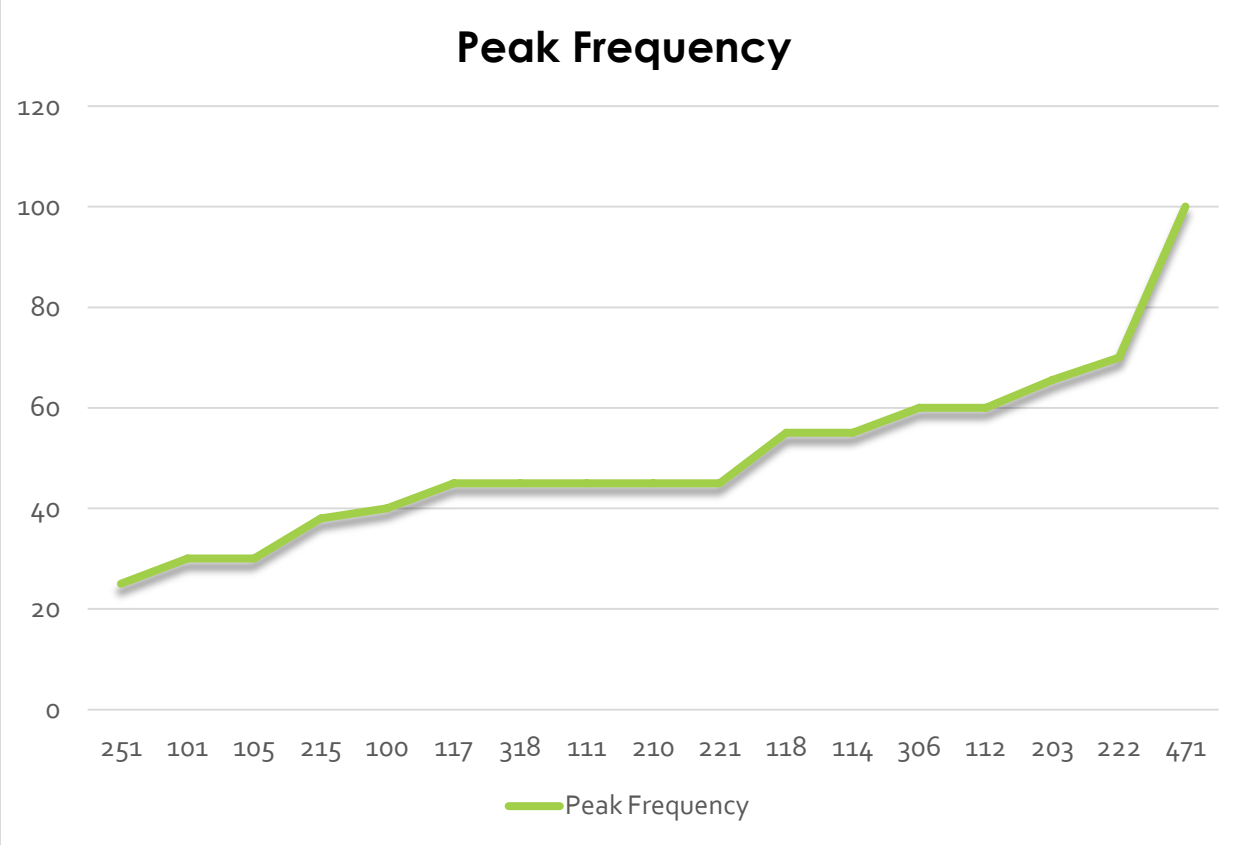
Route Analysis

For the purpose of analyzing each individual fixed route, Tulsa Transit data was collected on certain performance measures in order to understand which routes had the highest levels of utilization and which routes need improvement. The measures collected were:

- *Peak Frequency*
- *Weekday Boardings*
- *Estimated Potential Ridership*

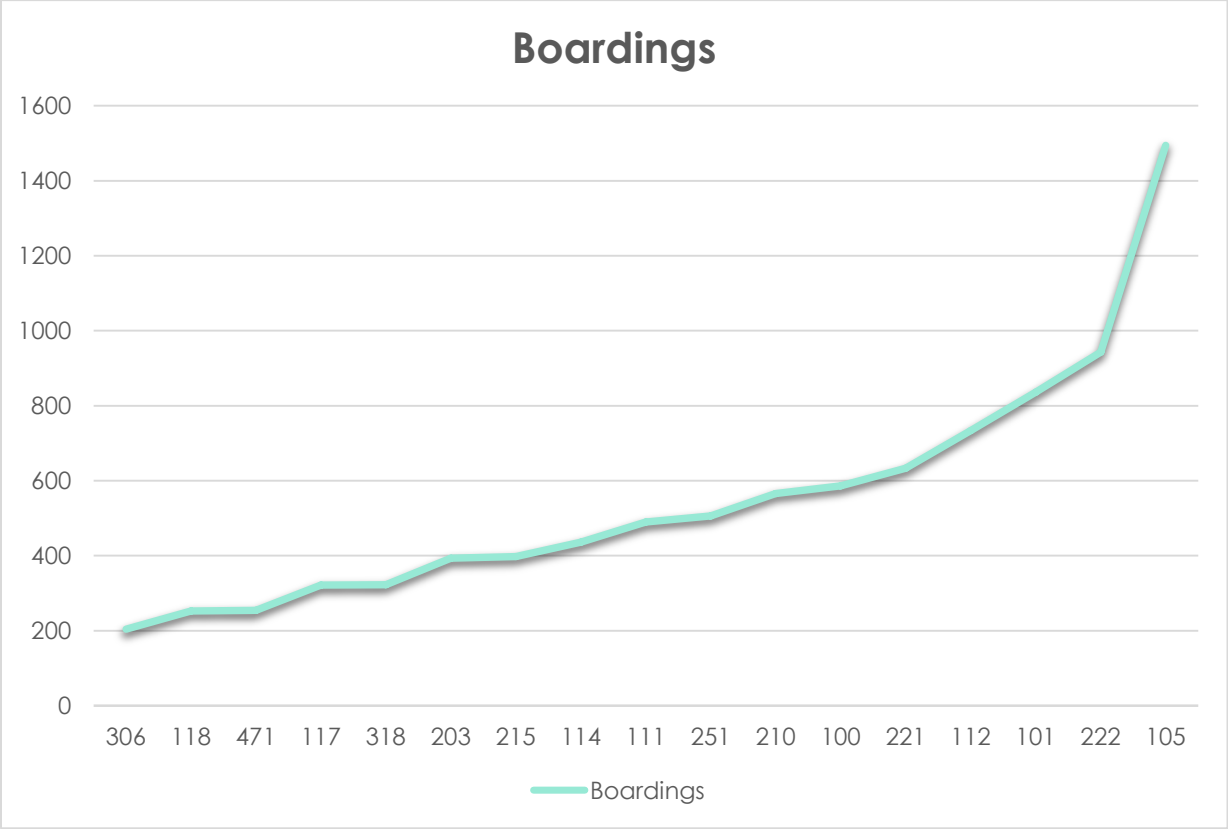
In addition to the performance measures, GIS analysis was conducted to better understand population density of the city and how each route interacted with areas of high density, shopping centers, employment areas, and other points of interest. Detailed profile sheets for each route are included within the appendix.

The first performance measure looked at was frequency of each route:



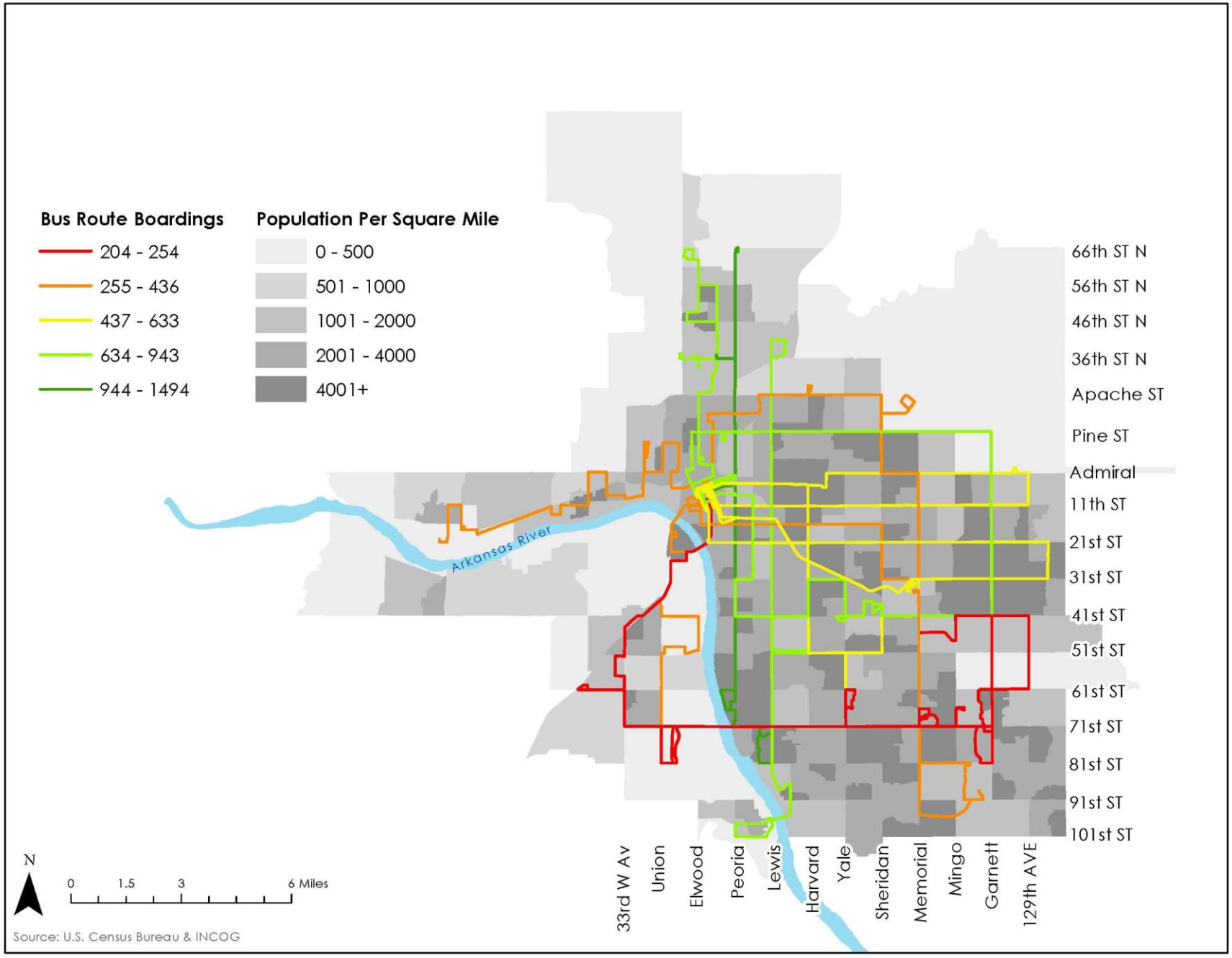
Currently, only 4 routes maintain a peak frequency of less than 40 minutes with 5 routes actually exceeding one hour in frequency. This indicates a severe problem that would take away most individuals ability to rely on the bus system as a primary mode of transportation.

The second performance measure that was looked at was the weekday boarding count:



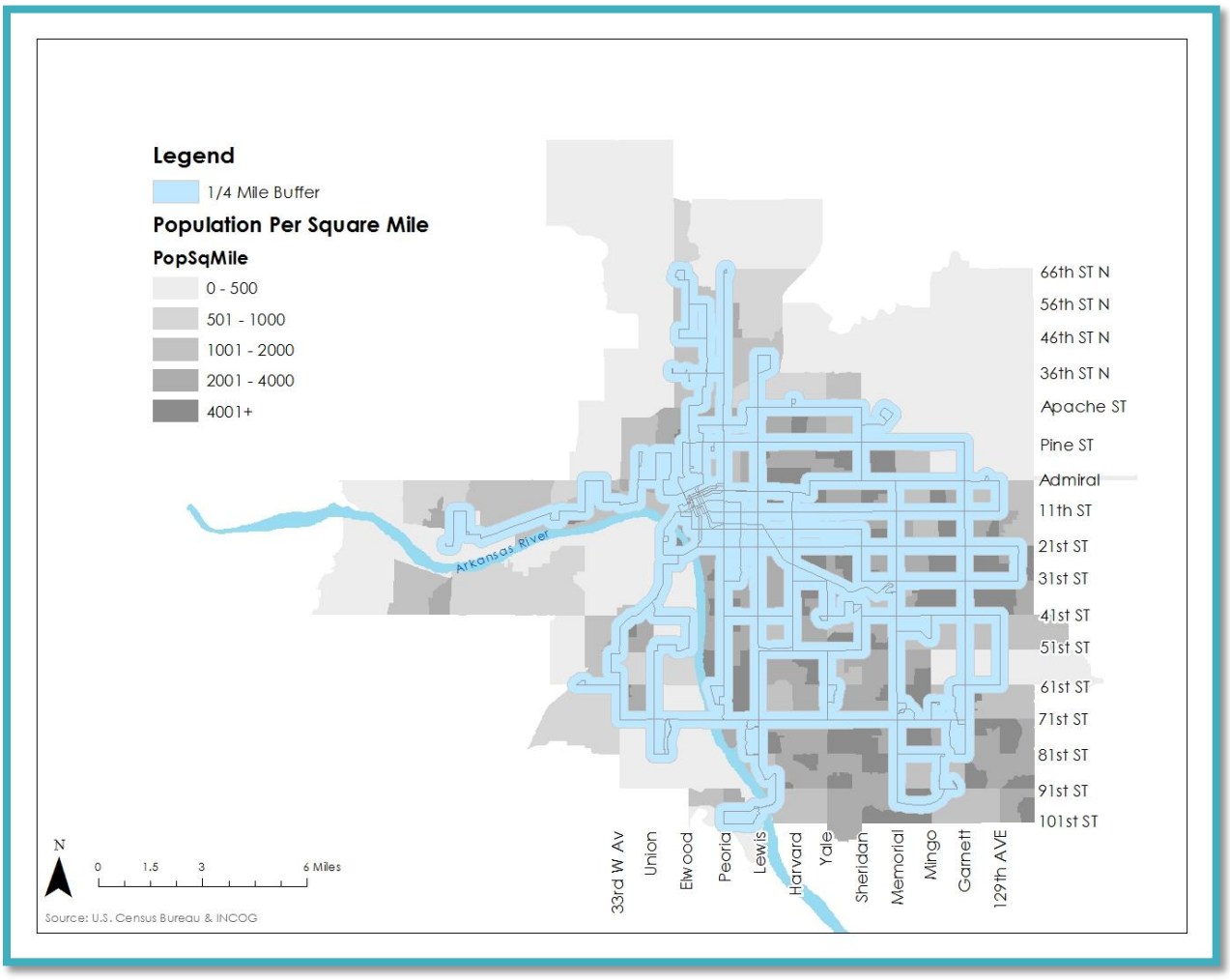
Several highly utilized routes suffer from a very low frequency. The 222, 112, 221, and the 210 all exceed average ridership numbers and show a very high demand for service. There are also a number of routes that have very low demand and low frequency. These routes consume valuable resources that could be used to improve those routes in higher demand.

The map on the next page takes the current route map for Tulsa Transit and illustrates which routes are highly utilized. To better understand potential ridership of each route, census information is show to illustrate population density throughout the city.


Bus Route Boardings
204 - 254
255 - 436
437 - 633
634 - 943
944 - 1494
Population Per Square Mile
0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+
Arkansas River
66th ST N
56th ST N
46th ST N
36th ST N
Apache ST
Pine ST
Admiral
11th ST
21st ST
31st ST
41st ST
51st ST
61st ST
71st ST
81st ST
91st ST
101st ST
33rd W Av
Union
Elwood
Peoria
Lewis
Harvard
Yale
Sheridan
Memorial
Mingo
Garnett
129th AVE
N
0
1.5
3
6 Miles
Source: U.S. Census Bureau & INCOG

It is clear from the map on the previous page that the routes being utilized the least are those that cover the fringe areas of Tulsa. These routes serve areas that have been developed over the years to be very car-oriented. Wide right-of-ways and lacking pedestrian infrastructure require personal vehicles to navigate safely and efficiently.

The final piece of route analysis involved looking at access to a bus route. In order to understand the current coverage, each route was buffered by 1/4 mile to indicate walking distance to a route.



Several observations can be made from the overall route analysis:

- Highest utilization occurs on Route 105 – Peoria Corridor
- Routes serving fringe areas of the city are underutilized
- Only three routes maintain a frequency of 30 minutes or less
    - 101
    - 105
    - 251
- 9 routes operate at a frequency of more than 60 minutes
- Deviation from primary arterial streets significantly add to cycle time and wait times for passenger
- Route deviations do not add significant coverage

Using these observations, recommendations for improvement can begin to develop.

Recommendations

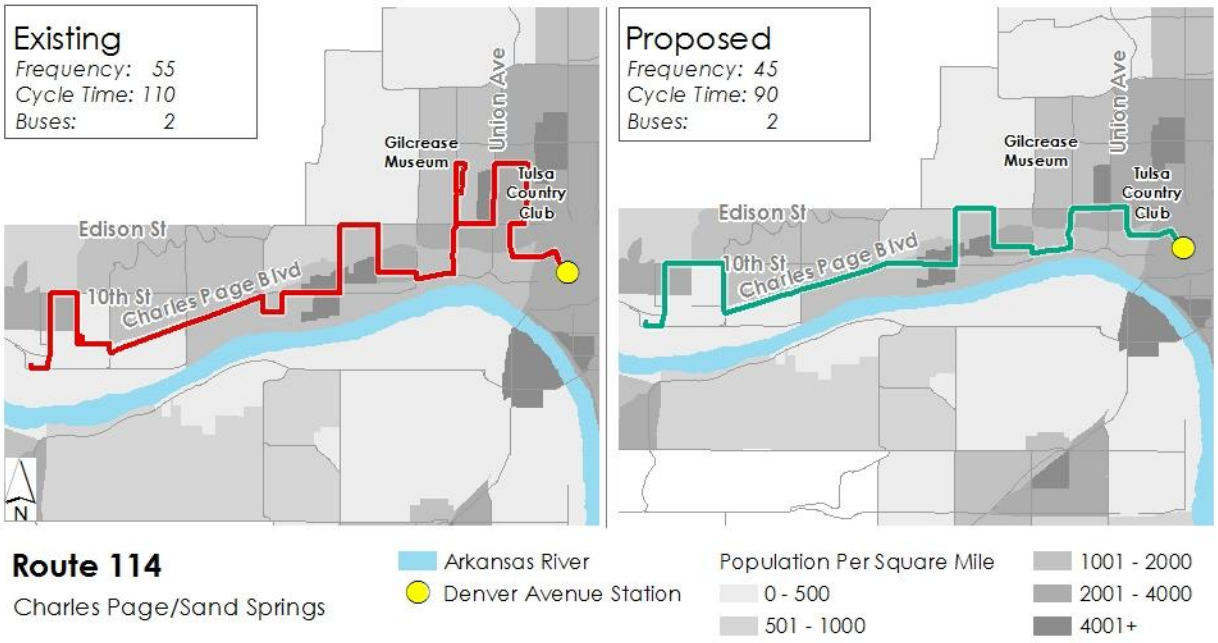
The primary object of this project is to provide recommendations that can be implemented within the existing budget for Tulsa Transit. These improvements could be implemented immediately without the need to acquire any additional funding. If implemented, the new route configurations could set the stage for planned future projects such as the Peoria Bus Rapid Transit and lead to an increase in ridership. In addition, there will be recommendations for further improvements in the future that will assume the acquisition of additional funding and increased revenue as time goes on. Finally, a list of items for consideration of further study and improvement will be provided at the end of this section.

Near to Immediate-Term Improvements

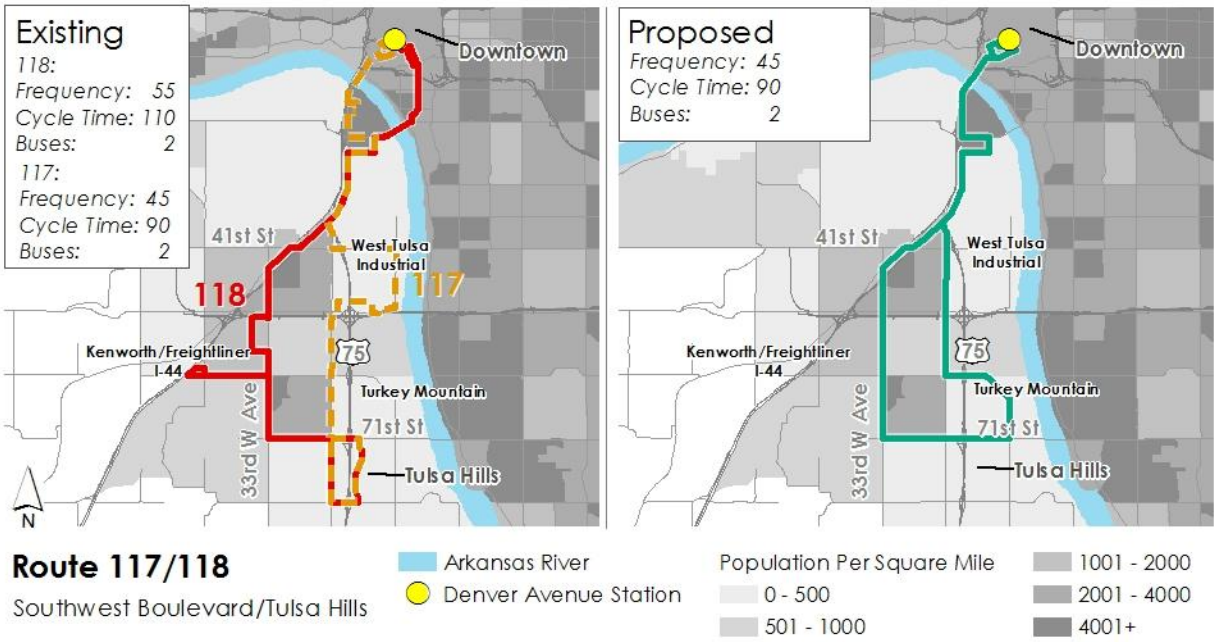
The first routes identified for immediate improvement are those routes that show high demand for service, but are currently very infrequent. By making adjustments to the route configurations, it becomes possible to address the frequency of those routes making them more reliable for the existing users and a better option for potential riders leading to an overall increase in ridership.

Secondly, several routes were identified that showed both very low frequency and low ridership. These routes required more significant changes including a merger of two routes and the elimination of another in order to reallocate resources to higher performing routes.

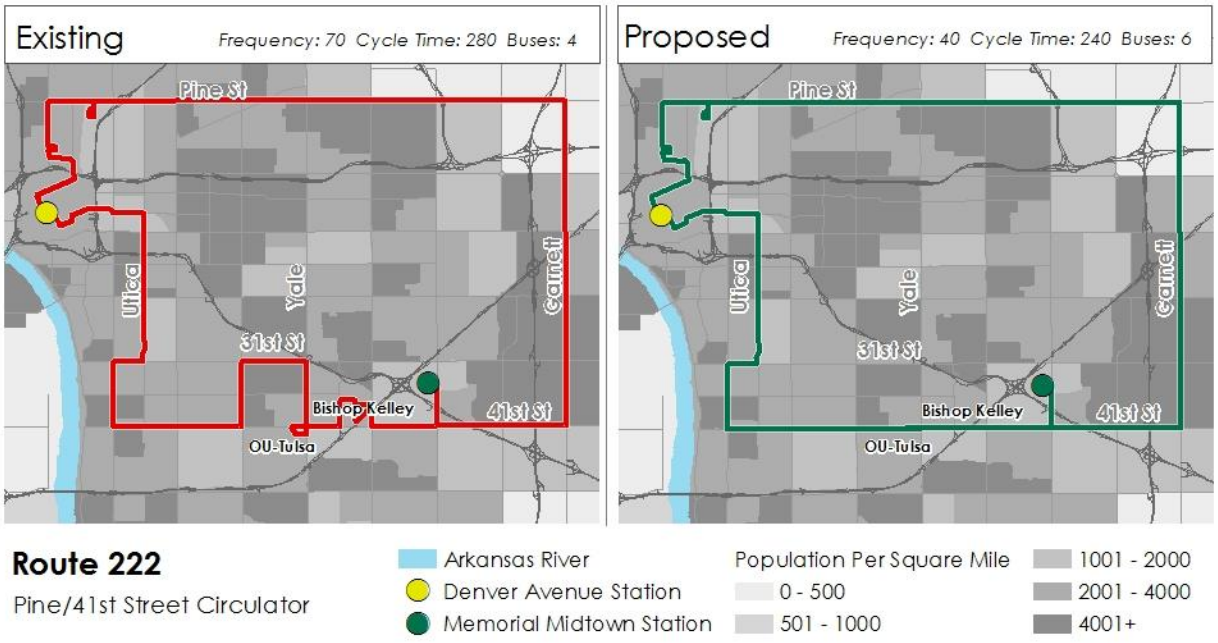
The primary routes identified for modification/elimination are the 114, 117, 118, 222, 306, and the 471. The following pages illustrate each route as it exists alongside a newly proposed configuration.



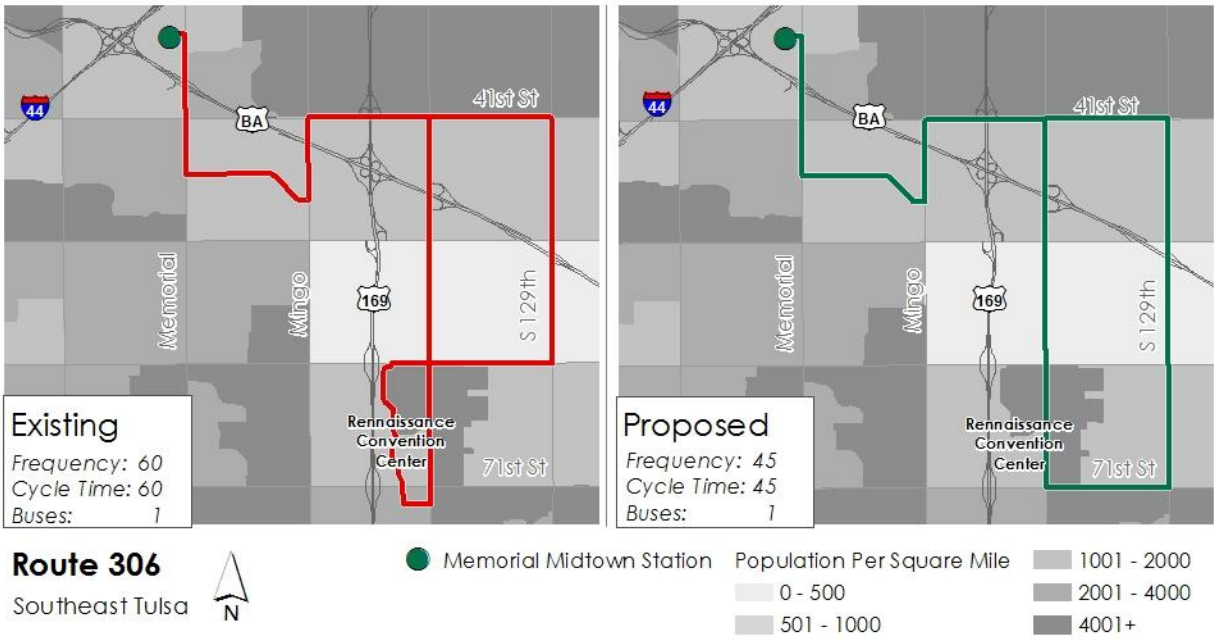
The 114 route currently deviates into single-family neighborhoods adding cycle time and increasing the time between buses. The newly proposed configuration shows a streamlined route that moves along arterial streets and reduces the total cycle time, in turn reducing the time between buses.



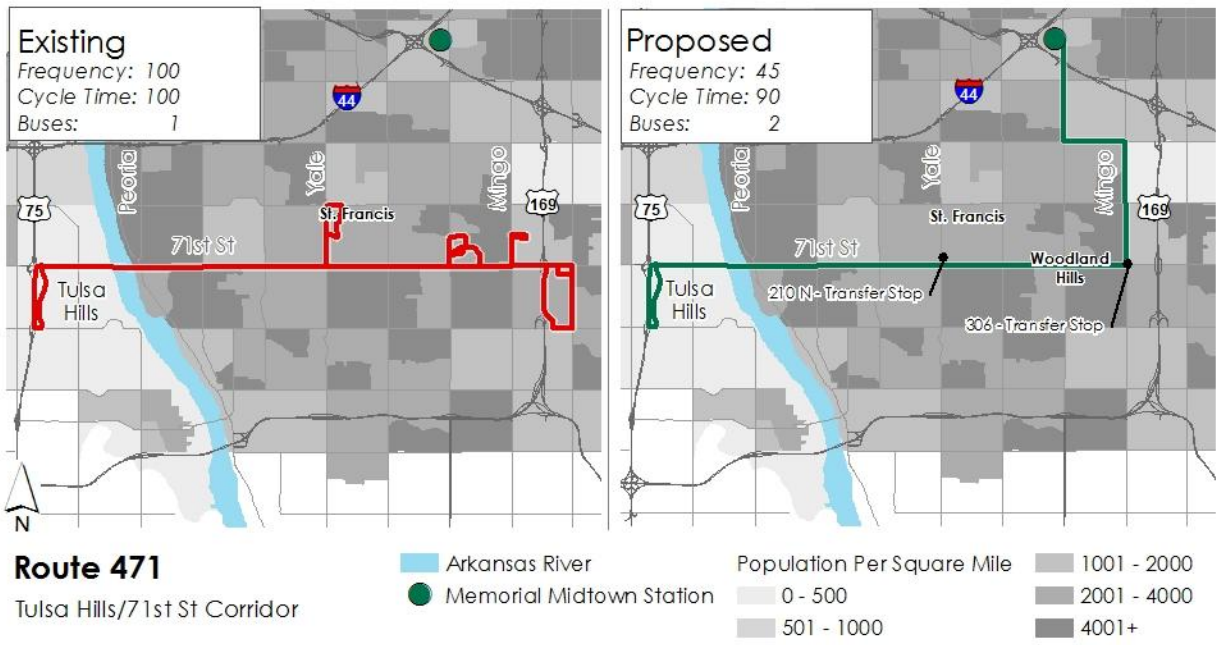
Major changes are proposed to the 117 and 118 route configurations. Both routes currently share similar coverage areas and low ridership. By eliminating the 118 and reconfiguring the 117, there will be improvements in frequency and an opportunity to reallocate buses to routes in higher demand such as the 222.



The 222 was updated to continue the current circulator pattern; however, deviations from primary arterial streets were eliminated and an additional 2 buses were added in order to accommodate more passengers and provide higher frequency service.

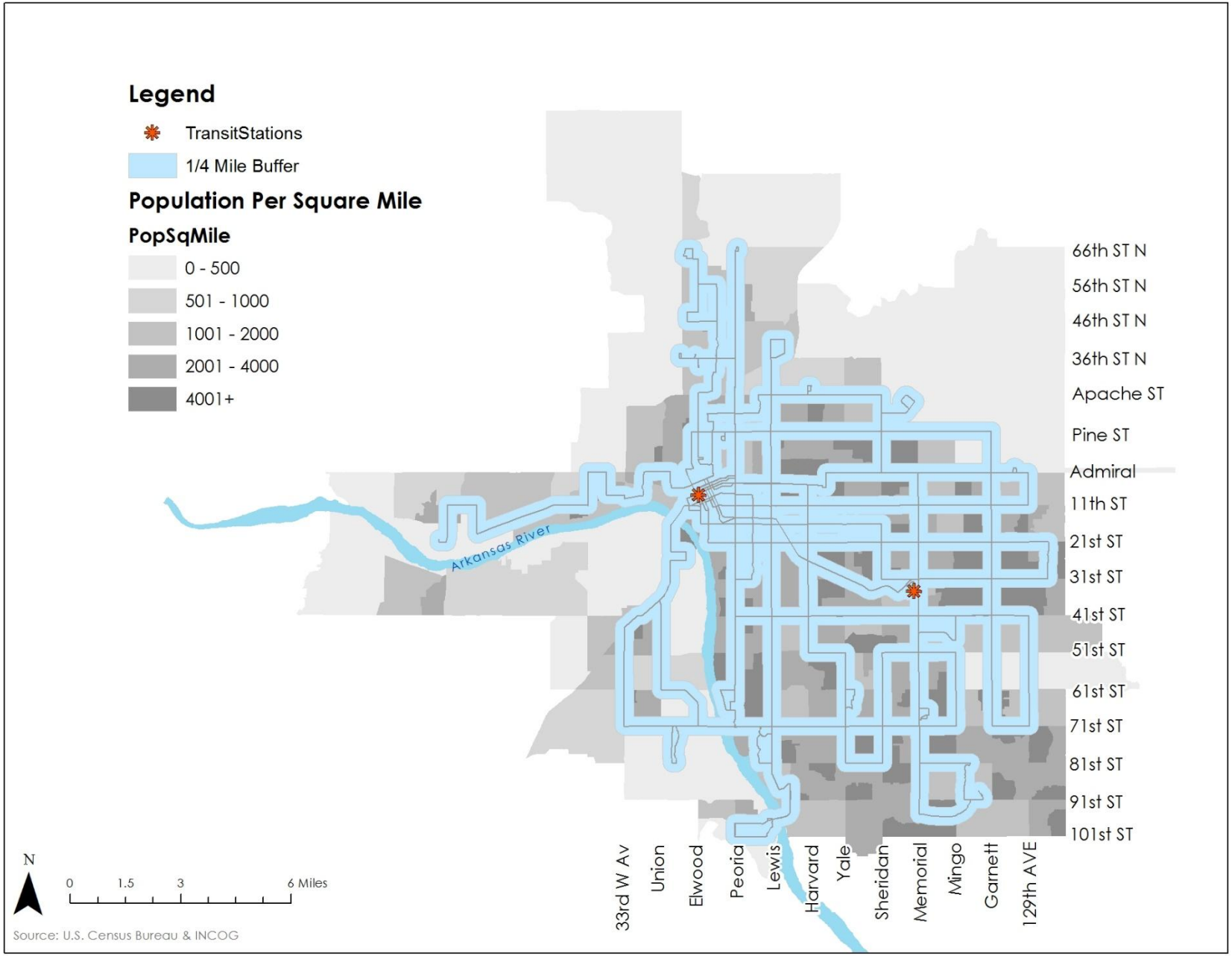


The 306 will be reconfigured to arterial streets and will continue to provide service to the U.S. Post Office, the Social Security Office, and the Tulsa Cancer Institute. By eliminating the deviation to the convention center, cycle time can be reduced by 15 minutes.



Currently, the 471 route is the poorest performing route in the entire system. Buses arrive every 100 minutes and the average weekday boardings barely breaks 200 riders. Data collected by Tulsa Transit indicates that nearly 70 percent of riders on the 471 route transfer to either the 105 on Peoria or the 318 on Memorial. In order to streamline the route and better cater to the needs of the users, route 471 was re-routed to the Memorial Midtown Station via Mingo and the extension to the east side of Highway 169 was removed.

In addition to these detailed modifications, other routes were updated to remove minor deviations into single-family residential areas and lower density areas to remain on arterial streets. The map on the following page illustrates the new system as well as the ¼ mile buffer in order to illustrate coverage. Each new route proposed is illustrated independently in the appendix.


Legend
TransitStations
1/4 Mile Buffer
Population Per Square Mile
PopSqMile
0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+
Arkansas River
66th ST N
56th ST N
46th ST N
36th ST N
Apache ST
Pine ST
Admiral
11th ST
21st ST
31st ST
41st ST
51st ST
61st ST
71st ST
81st ST
91st ST
101st ST
33rd W Av
Union
Elwood
Peoria
Lewis
Harvard
Yale
Sheridan
Memorial
Mingo
Garnett
129th AVE
N
0
1.5
3
6 Miles
Source: U.S. Census Bureau & INCOG

Long-Term Improvements

In April of 2016, the City of Tulsa voted to approve the Vision tax with an allocation of 57 million dollars over 20 years to Tulsa Transit. Those additional funds will be used to implement a Bus Rapid Transit system along the Peoria Corridor and in the longer term, the 11th Street Corridor. With the implementation of the near to immediate improvements recommended, the utilization of transit can be increased prior to the implementation of the BRT system. These long-term improvements could be used to increase interest in transit as that project becomes a reality.

- Rebrand system to create new public perception
- Purchase additional vehicles for fleet to add to route frequency
- Provide standard route service 7 days a week
- Expand nightline service
- Condense and upgrade stops and stations

Conclusion

Tulsa Transit ranks below average amongst peer cities in the amount of service that is provided and the numbers of riders each year. For cost efficiency, Tulsa Transit has been able to maintain a fairly average measure of expenditures for the service they currently provide; however, an expansion of the service would be required to meet peer city averages for quality and size of service.

The recommendations in this project provided two key improvements:

1. Increased frequency for fixed routes
2. Simplified routes

If implemented, the newly devised route system could lead to increases in ridership and increased fare revenue for investment in future improvements.

Local investment in transit is low and the quality of transit overall has suffered because of it. Redesigning an entire transit network is a large project that would require participation from public and private entities. This project shows that there are several ways to improve our existing bus system without needing additional funding. If implemented, the newly devised route system could lead to increases in ridership and increased fare revenue for investment in future improvements.

As Tulsa continues to grow, transit must be prioritized.

Bibliography

Belzer, Dena, and Gerald Autler. "Countering Sprawl With Transit-Oriented Development." *Issues In Science & Technology* 19.1 (2002): 51. *Academic Search Elite*. Web.

Besser, Lilah M., and Andrew L. Dannenberg. "Walking To Public Transit: Steps To Help Meet Physical Activity Recommendations." *American Journal Of Preventive Medicine* 29.4 (2005): 273-280. *Academic Search Elite*. Web.

DeVos, Jonas, Witlox, Frank. "Transportation Policy As Spatial Planning Tool; Reducing Urban Sprawl By Increasing Travel Costs And Clustering Infrastructure And Public Transportation" *Journal of Transport Geography* Vol. 33 (2013): 117-125. *Academic Search Elite.* Web.

Diab, Ehab I, Madhav G. Badami, and Ahmed M. El-Geneidy. "Bus Transit Service Reliability And Improvement Strategies: Integrating The Perspectives Of Passengers And Transit Agencies In North America." *Transport Reviews* 35.3 (2015): 292-328. *Academic Search Elite*. Web.

Lieberman, William. "Transit Networks" (2008) Web.

Lynch, Kevin. *The Image Of The City*. Cambridge, Mass.: M.I.T., 1960. Print.

Montgomery, Charles. *Happy City: Transforming Our Lives Through Urban Design*. Farrar, Straus, and Giroux: New York, 2013. Print.

National Association of City Transportation Officials. *Urban Street Design Guide*. 2013. National Association of City Transportation Officials. Web.

Saelens, Brian E., et al. "Relation Between Higher Physical Activity And Public Transit Use." *American Journal Of Public Health* 104.5 (2014): 854-860. *Academic Search Elite*. Web.

Walker, Jarrett. *Human Transit: How Clearer Thinking About Public Transit Can Enrich Our Communities and Our Lives*. Washington, DC: Island/Center for Resource Economics: Washington, DC, 2012. Print.

Wasfi, Rania A., Nancy A. Ross, and Ahmed M. El-Geneidy. "Achieving Recommended Daily Physical Activity Levels Through Commuting By Public Transportation: Unpacking Individual And Contextual Influences." *Health & Place* 23.(2013): 18-25. *Academic Search Elite*. Web.

Appendix:

- Tulsa Transit data sheet
- Peer city data sheets
- Route analysis spreadsheet
- Existing route profiles
- Proposed route profiles

Metropolitan Tulsa Transit Authority (MTTA)

ID Number: 6018
www.tulsatransit.org
510 South Rockford
Tulsa, OK 74120

General Manager: Mr. William Cartwright
(918) 560-5603

General Information

Urbanized Area (UZA) Statistics - 2010 Census

Tulsa, OK	
Square Miles	336
Population	655,479
Population Ranking out of 465 UZAs	62
Other UZAs Served	

Service Area Statistics

Square Miles	196
Population	400,000

Service Consumption

Annual Passenger Miles	17,923,512
Annual Unlinked Trips	3,155,745
Average Weekday Unlinked Trips	11,381
Average Saturday Unlinked Trips	5,327
Average Sunday Unlinked Trips	0

Service Supplied

Annual Vehicle Revenue Miles	3,994,994
Annual Vehicle Revenue Hours	254,141
Vehicles Operated in Maximum Service	95
Vehicles Available for Maximum Service	122
Base Period Requirement	47

Financial Information

Fare Revenues Earned		$2,961,860
Sources of Operating Funds Expended		
Fare Revenues	(17%)	$2,961,860
Local Funds	(45%)	$7,892,000
State Funds	(6%)	$1,050,741
Federal Assistance	(29%)	$5,100,868
Other Funds	(4%)	$664,805
Total Operating Funds Expended		$17,670,274
Sources of Capital Funds Expended		
Local Funds	(17%)	$635,236
State Funds	(1%)	$41,759
Federal Assistance	(81%)	$3,003,903
Other Funds	(1%)	$44,760
Total Capital Funds Expended		$3,725,658

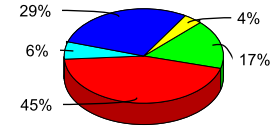
Summary Operating Expenses

Salary, Wages, Benefits	$9,906,650
Materials and Supplies	$2,813,615
Purchased Transportation	$2,889,668
Other Operating Expenses	$2,060,344
Total Operating Expenses	$17,670,277

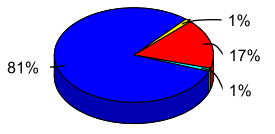
Vehicles Operated in Maximum Service and Uses of Capital Funds

Mode	Directly Operated	Purchased Transportation[1]	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	50	7	$2,104,355	$226,027	$1,395,276	$0	$3,725,658
Demand Response	0	38	$0	$0	$0	$0	$0
Total	50	45	$2,104,355	$226,027	$1,395,276	$0	$3,725,658

Sources of Operating Funds Expended



Sources of Capital Funds Expended



Modal Characteristics

Mode	Operating Expenses[1]	Fare Revenues[1]	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	$13,496,699	$2,527,490	$3,725,658	16,824,959	2,683,986	2,995,606	176,549	N/A	75	5.7	57	1.06	32%
Demand Response	$4,173,578	$434,370	$0	1,098,553	1,311,008	160,139	77,592	N/A	47	3.8	38	N/A	24%

Performance Measures

Service Efficiency

Mode	Operating Expense per Vehicle Revenue Mile	Operating Expense per Vehicle Revenue Hour
Bus	$5.03	$76.45
Demand Response	$3.18	$53.79

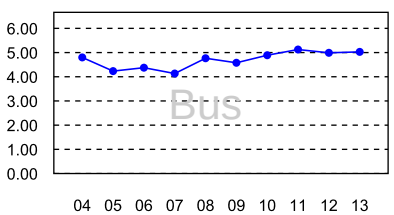
Service Effectiveness

Mode	Operating Expense per Passenger Mile	Operating Expense per Unlinked Passenger Trip
Bus	$0.80	$4.51
Demand Response	$3.80	$26.06

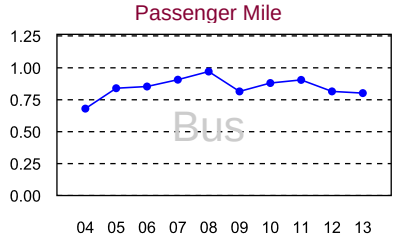
Service Effectiveness

Mode	Unlinked Passenger Trips per Vehicle Revenue Mile	Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	1.12	16.97
Demand Response	0.12	2.06

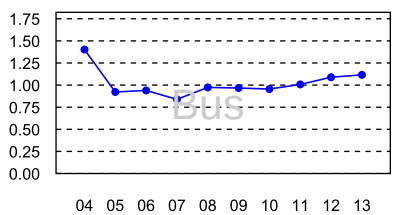
Operating Expense per Vehicle Revenue Mile



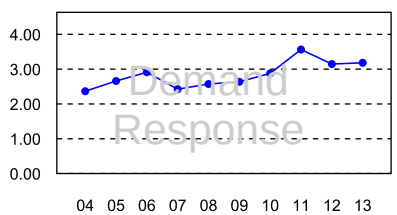
Operating Expenses per Passenger Mile



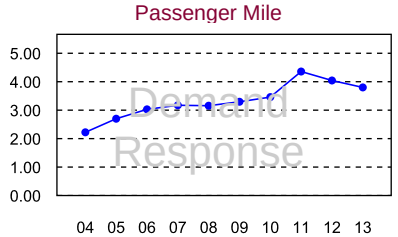
Unlinked Passenger Trips per Vehicle Revenue Mile



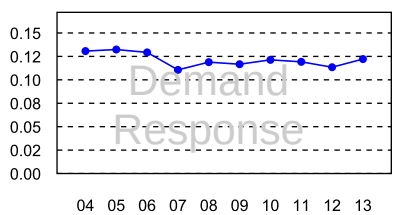
Operating Expense per Vehicle Revenue Mile



Operating Expenses per Passenger Mile



Unlinked Passenger Trips per Vehicle Revenue Mile



1 Excludes data for purchased transportation reported separately

METRO Regional Transit Authority (METRO)

ID Number: 5010
www.akronmetro.org
416 Kenmore Boulevard
Akron, OH 44301

Executive Director/Secretary-Treasurer: Mr. Richard Enty
(330) 762-7267

General Information

Urbanized Area (UZA) Statistics - 2010 Census

Akron, OH	
Square Miles	325
Population	569,499
Population Ranking out of 465 UZAs	71
Other UZAs Served	25, 135

Service Area Statistics

Square Miles	420
Population	542,899

Service Consumption

Annual Passenger Miles	22,038,020
Annual Unlinked Trips	5,427,929
Average Weekday Unlinked Trips	18,650
Average Saturday Unlinked Trips	8,589
Average Sunday Unlinked Trips	4,332

Service Supplied

Annual Vehicle Revenue Miles	5,683,623
Annual Vehicle Revenue Hours	412,305
Vehicles Operated in Maximum Service	187
Vehicles Available for Maximum Service	231
Base Period Requirement	88

Financial Information

Fare Revenues Earned		$5,034,876
Sources of Operating Funds Expended		
Fare Revenues	(13%)	$4,998,875
Local Funds	(72%)	$28,301,763
State Funds	(1%)	$218,943
Federal Assistance	(12%)	$4,719,805
Other Funds	(2%)	$950,162
Total Operating Funds Expended		$39,189,548
Sources of Capital Funds Expended		
Local Funds	(34%)	$4,843,066
State Funds	(0%)	$0
Federal Assistance	(66%)	$9,207,557
Other Funds	(0%)	$0
Total Capital Funds Expended		$14,050,623

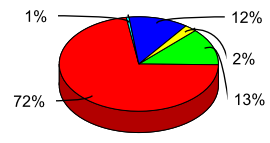
Summary Operating Expenses

Salary, Wages, Benefits	$27,711,074
Materials and Supplies	$5,841,779
Purchased Transportation	$0
Other Operating Expenses	$5,136,204
Total Operating Expenses	$38,689,057
Reconciling Cash Expenditures	$500,491

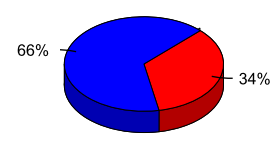
Vehicles Operated in Maximum Service and Uses of Capital Funds

Mode	Directly Operated	Purchased Transportation[1]	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	101	0	$9,150,520	$271,141	$1,406,108	$84,234	$10,912,003
Demand Response	79	0	$3,215,373	$0	$100,220	$0	$3,315,593
Commuter Bus	7	0	$0	$0	$0	$0	$0
Total	187	0	$12,365,893	$271,141	$1,506,328	$84,234	$14,227,596

Sources of Operating Funds Expended



Sources of Capital Funds Expended



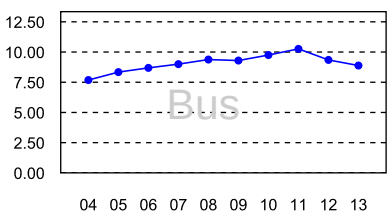
Modal Characteristics

Mode	Operating Expenses[1]	Fare Revenues[1]	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	$30,658,288	$4,009,495	$10,912,003	17,601,659	3,451,204	5,082,892	292,088	N/A	125	3.9	101	1.14	24%
Demand Response	$7,048,963	$778,354	$3,315,593	1,515,778	1,965,950	238,834	109,913	N/A	98	2.0	79	N/A	24%
Commuter Bus	$981,806	$211,026	$0	2,920,583	266,469	106,203	10,304	N/A	8	6.0	7	N/A	14%

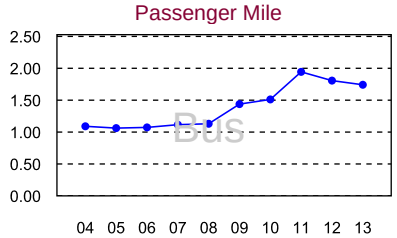
Performance Measures

Mode	Service Efficiency: Operating Expense per Vehicle Revenue Mile	Service Efficiency: Operating Expense per Vehicle Revenue Hour	Service Effectiveness: Operating Expense per Passenger Mile	Service Effectiveness: Operating Expense per Unlinked Passenger Trip	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Mile	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	$8.88	$104.96	$1.74	$6.03	1.47	17.40
Demand Response	$3.59	$64.13	$4.65	$29.51	0.12	2.17
Commuter Bus	$3.68	$95.28	$0.34	$9.24	0.40	10.31

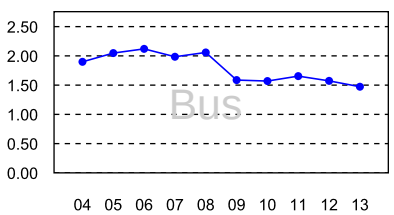
Operating Expense per Vehicle Revenue Mile



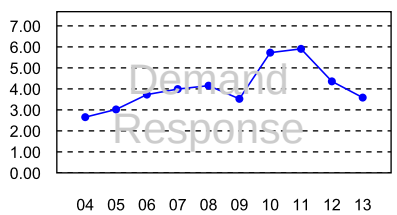
Operating Expenses per Passenger Mile



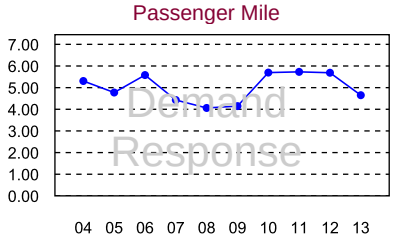
Unlinked Passenger Trips per Vehicle Revenue Mile



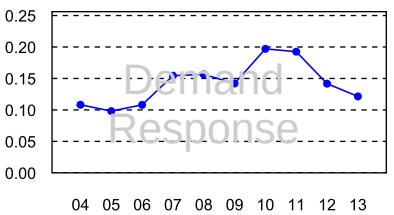
Operating Expense per Vehicle Revenue Mile



Operating Expenses per Passenger Mile



Unlinked Passenger Trips per Vehicle Revenue Mile



1 Excludes data for purchased transportation reported separately

Mountain Metropolitan Transit (MMT)

ID Number: 8005
www.springsgov.com
1015 Transit Drive
Colorado Springs, CO 80903

Mountain Metropolitan Transit Director: Mr. Craig Blewitt
(719) 385-5428

General Information

Urbanized Area (UZA) Statistics - 2010 Census

Colorado Springs, CO	
Square Miles	188
Population	559,409
Population Ranking out of 465 UZAs	73
Other UZAs Served	18, 236

Service Area Statistics

Square Miles	167
Population	496,755

Service Consumption

Annual Passenger Miles	19,744,703
Annual Unlinked Trips	2,991,715
Average Weekday Unlinked Trips	10,863
Average Saturday Unlinked Trips	3,734
Average Sunday Unlinked Trips	329

Service Supplied

Annual Vehicle Revenue Miles	3,804,902
Annual Vehicle Revenue Hours	238,519
Vehicles Operated in Maximum Service	147
Vehicles Available for Maximum Service	190
Base Period Requirement	30

Financial Information

Fare Revenues Earned		$3,193,161
Sources of Operating Funds Expended		
Fare Revenues	(20%)	$3,193,161
Local Funds	(53%)	$8,299,602
State Funds	(0%)	$16,932
Federal Assistance	(24%)	$3,759,215
Other Funds	(3%)	$475,116
Total Operating Funds Expended		$15,744,026
Sources of Capital Funds Expended		
Local Funds	(15%)	$292,474
State Funds	(4%)	$74,741
Federal Assistance	(81%)	$1,564,895
Other Funds	(0%)	$1,278
Total Capital Funds Expended		$1,933,388

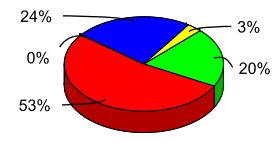
Summary Operating Expenses

Salary, Wages, Benefits	$2,018,350
Materials and Supplies	$2,848,677
Purchased Transportation	$10,165,920
Other Operating Expenses	$711,078
Total Operating Expenses	$15,744,025

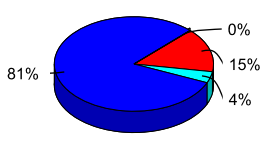
Vehicles Operated in Maximum Service and Uses of Capital Funds

Mode	Directly Operated	Purchased Transportation[1]	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	0	30	$97,618	$439,489	$311,521	$734,398	$1,583,026
Demand Response	0	85	$34,087	$223,667	$92,608	$0	$350,362
Vanpool	32	0	$0	$0	$0	$0	$0
Total	32	115	$131,705	$663,156	$404,129	$734,398	$1,933,388

Sources of Operating Funds Expended



Sources of Capital Funds Expended



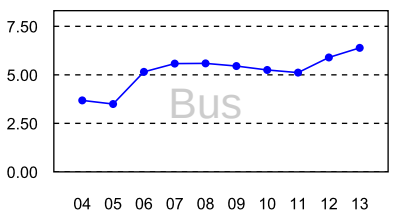
Modal Characteristics

Mode	Operating Expenses[1]	Fare Revenues[1]	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	$9,737,624	$2,390,730	$1,583,026	14,697,332	1,523,837	2,669,265	108,441	N/A	43	6.8	30	1.00	43%
Demand Response	$5,264,651	$520,118	$350,362	1,584,524	1,544,956	271,562	117,124	N/A	106	4.2	85	N/A	25%
Vanpool	$741,750	$282,313	$0	3,462,847	736,109	50,888	12,954	N/A	41	2.0	32	N/A	28%

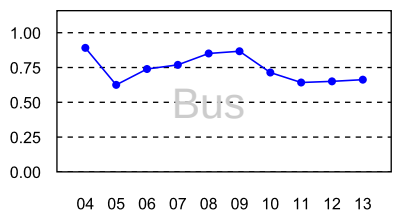
Performance Measures

Mode	Service Efficiency: Operating Expense per Vehicle Revenue Mile	Service Efficiency: Operating Expense per Vehicle Revenue Hour	Service Effectiveness: Operating Expense per Passenger Mile	Service Effectiveness: Operating Expense per Unlinked Passenger Trip	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Mile	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	$6.39	$89.80	$0.66	$3.65	1.75	24.61
Demand Response	$3.41	$44.95	$3.32	$19.39	0.18	2.32
Vanpool	$1.01	$57.26	$0.21	$14.58	0.07	3.93

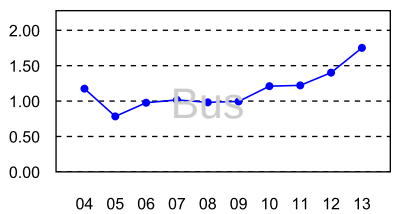
Operating Expense per Vehicle Revenue Mile



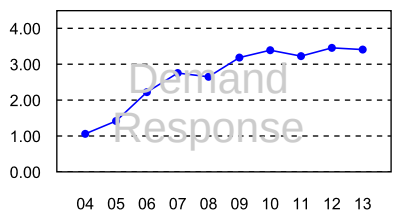
Operating Expenses per Passenger Mile



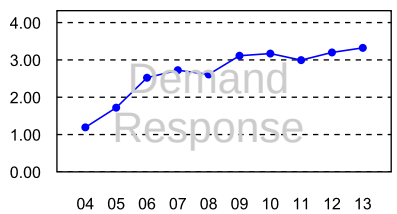
Unlinked Passenger Trips per Vehicle Revenue Mile



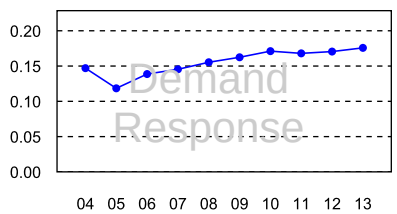
Operating Expense per Vehicle Revenue Mile



Operating Expenses per Passenger Mile



Unlinked Passenger Trips per Vehicle Revenue Mile



1 Excludes data for purchased transportation reported separately

Sarasota County Area Transit (SCAT)

ID Number: 4046
www.scgov.net/scat
5303 Pinkney Avenue
Sarasota, FL 34233-2421

Transit General Manager: Ms Glama Carter
(941) 861-1006

General Information

Urbanized Area (UZA) Statistics - 2010 Census

Sarasota-Bradenton, FL	
Square Miles	327
Population	643,260
Population Ranking out of 465 UZAs	64
Other UZAs Served	199

Service Area Statistics

Square Miles	213
Population	388,474

Service Consumption

Annual Passenger Miles	16,941,813
Annual Unlinked Trips	3,002,258
Average Weekday Unlinked Trips	9,862
Average Saturday Unlinked Trips	7,198
Average Sunday Unlinked Trips	1,964

Service Supplied

Annual Vehicle Revenue Miles	4,207,992
Annual Vehicle Revenue Hours	282,287
Vehicles Operated in Maximum Service	108
Vehicles Available for Maximum Service	142
Base Period Requirement	43

Financial Information

Fare Revenues Earned		$2,422,988
Sources of Operating Funds Expended		
Fare Revenues	(11%)	$2,422,988
Local Funds	(74%)	$15,937,736
State Funds	(11%)	$2,296,436
Federal Assistance	(4%)	$945,666
Other Funds	(0%)	$68,766
Total Operating Funds Expended		$21,671,592
Sources of Capital Funds Expended		
Local Funds	(36%)	$398,119
State Funds	(24%)	$266,591
Federal Assistance	(39%)	$430,976
Other Funds	(0%)	$0
Total Capital Funds Expended		$1,095,686

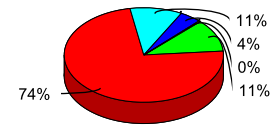
Summary Operating Expenses

Salary, Wages, Benefits	$11,899,918
Materials and Supplies	$4,052,009
Purchased Transportation	$2,016,826
Other Operating Expenses	$3,236,891
Total Operating Expenses	$21,205,644
Reconciling Cash Expenditures	$465,948

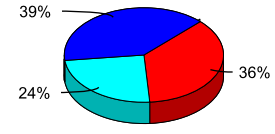
Vehicles Operated in Maximum Service and Uses of Capital Funds

Mode	Directly Operated	Purchased Transportation[1]	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	42	0	$0	$86,490	$4,999	$664,882	$756,371
Demand Response	27	35	$339,316	$0	$0	$0	$339,316
Commuter Bus	4	0	$0	$0	$0	$0	$0
Total	73	35	$339,316	$86,490	$4,999	$664,882	$1,095,687

Sources of Operating Funds Expended



Sources of Capital Funds Expended



Modal Characteristics

Mode	Operating Expenses[1]	Fare Revenues[1]	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	$14,220,748	$1,804,146	$756,371	14,353,556	2,737,889	2,803,414	182,438	N/A	56	7.6	42	0.98	33%
Demand Response	$6,253,867	$535,403	$339,316	1,775,178	1,295,912	169,799	94,877	N/A	78	2.9	62	N/A	26%
Commuter Bus	$731,029	$83,439	$0	813,079	174,191	29,045	4,972	N/A	8	1.8	4	4.00	100%

Performance Measures

Service Efficiency

Mode	Operating Expense per Vehicle Revenue Mile	Operating Expense per Vehicle Revenue Hour
Bus	$5.19	$77.95
Demand Response	$4.83	$65.92
Commuter Bus	$4.20	$147.03

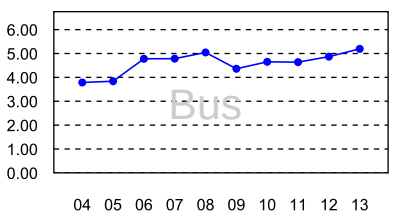
Service Effectiveness

Mode	Operating Expense per Passenger Mile	Operating Expense per Unlinked Passenger Trip
Bus	$0.99	$5.07
Demand Response	$3.52	$36.83
Commuter Bus	$0.90	$25.17

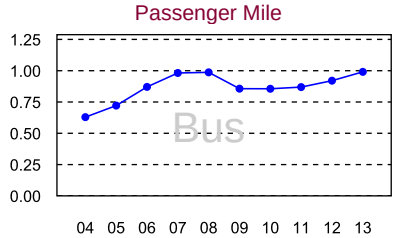
Service Effectiveness

Mode	Unlinked Passenger Trips per Vehicle Revenue Mile	Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	1.02	15.37
Demand Response	0.13	1.79
Commuter Bus	0.17	5.84

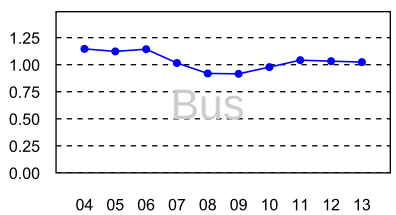
Operating Expense per Vehicle Revenue Mile



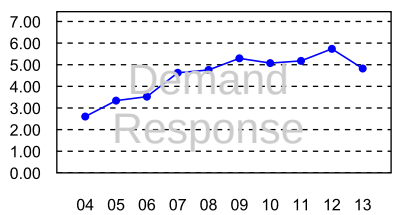
Operating Expenses per Passenger Mile



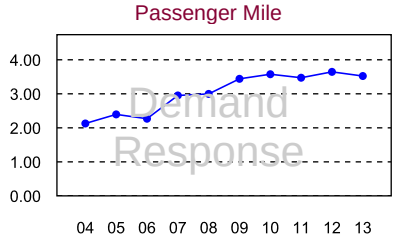
Unlinked Passenger Trips per Vehicle Revenue Mile



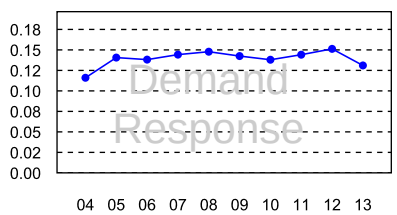
Operating Expense per Vehicle Revenue Mile



Operating Expenses per Passenger Mile



Unlinked Passenger Trips per Vehicle Revenue Mile



1 Excludes data for purchased transportation reported separately

City of Tucson (COT)

ID Number: 9033
www.ci.tucson.az.us
149 N Stone Ave - 2nd Floor, P.O. Box 27210
Tucson, AZ 85726-7210

Director of Transportation: Mr. Daryl Cole
(520) 837-6694

General Information

Urbanized Area (UZA) Statistics - 2010 Census

Tucson, AZ

Square Miles	353
Population	843,168
Population Ranking out of 465 UZAs	52

Other UZAs Served

Service Area Statistics

Square Miles	230
Population	544,000

Service Consumption

Annual Passenger Miles	82,521,179
Annual Unlinked Trips	20,873,221
Average Weekday Unlinked Trips	70,744
Average Saturday Unlinked Trips	31,604
Average Sunday Unlinked Trips	22,064

Service Supplied

Annual Vehicle Revenue Miles	11,666,215
Annual Vehicle Revenue Hours	919,215
Vehicles Operated in Maximum Service	325
Vehicles Available for Maximum Service	384
Base Period Requirement	149

Financial Information

Fare Revenues Earned		$13,459,155
Sources of Operating Funds Expended		
Fare Revenues	(19%)	$13,459,155
Local Funds	(59%)	$41,945,490
State Funds	(9%)	$6,445,285
Federal Assistance	(11%)	$7,500,669
Other Funds	(2%)	$1,573,068
Total Operating Funds Expended		$70,923,667
Sources of Capital Funds Expended		
Local Funds	(4%)	$3,680,113
State Funds	(24%)	$21,607,009
Federal Assistance	(72%)	$65,658,882
Other Funds	(0%)	$0
Total Capital Funds Expended		$90,946,004

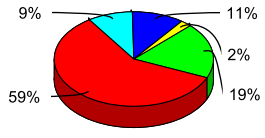
Summary Operating Expenses

Salary, Wages, Benefits	$44,897,462
Materials and Supplies	$15,867,169
Purchased Transportation	$0
Other Operating Expenses	$10,159,036
Total Operating Expenses	$70,923,667

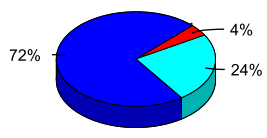
Vehicles Operated in Maximum Service and Uses of Capital Funds

Mode	Directly Operated	Purchased Transportation[1]	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	210	0	$21,362,927	$1,712,534	$1,934,305	$923,933	$25,933,699
Demand Response	115	0	$246,672	$0	$0	$135,277	$381,949
Light Rail	0	0	$4,572,769	$58,570,529	$222,426	$1,264,633	$64,630,357
Total	325	0	$26,182,368	$60,283,063	$2,156,731	$2,323,843	$90,946,005

Sources of Operating Funds Expended



Sources of Capital Funds Expended



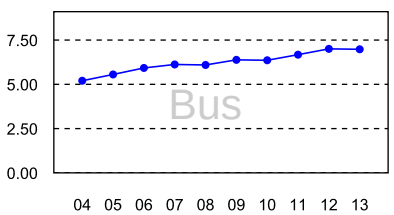
Modal Characteristics

Mode	Operating Expenses[1]	Fare Revenues[1]	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	$56,208,341	$12,709,343	$25,933,699	77,988,997	8,054,034	20,328,265	645,003	N/A	252	5.5	210	1.36	20%
Demand Response	$14,715,326	$749,812	$381,949	4,532,182	3,612,181	544,956	274,212	N/A	132	3.3	115	N/A	15%
Light Rail	$0	$0	$64,630,357	0	0	0	0	N/A	0	N/A	0	N/A	0%

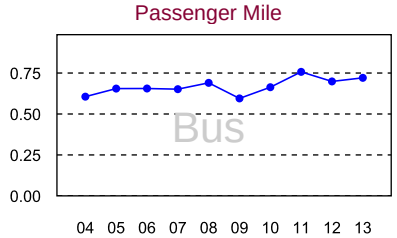
Performance Measures

Mode	Service Efficiency: Operating Expense per Vehicle Revenue Mile	Service Efficiency: Operating Expense per Vehicle Revenue Hour	Service Effectiveness: Operating Expense per Passenger Mile	Service Effectiveness: Operating Expense per Unlinked Passenger Trip	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Mile	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	$6.98	$87.14	$0.72	$2.77	2.52	31.52
Demand Response	$4.07	$53.66	$3.25	$27.00	0.15	1.99

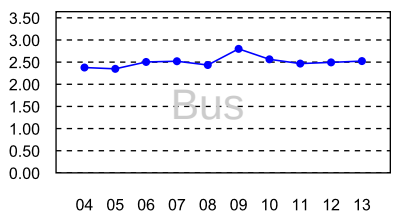
Operating Expense per Vehicle Revenue Mile



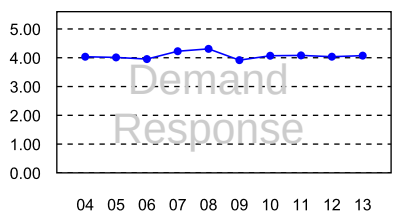
Operating Expenses per Passenger Mile



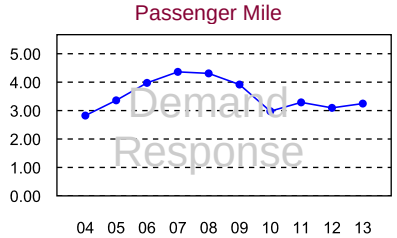
Unlinked Passenger Trips per Vehicle Revenue Mile



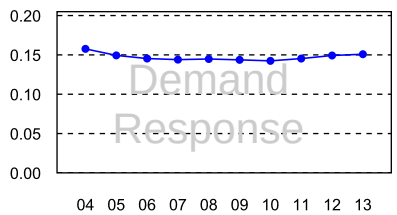
Operating Expense per Vehicle Revenue Mile



Operating Expenses per Passenger Mile



Unlinked Passenger Trips per Vehicle Revenue Mile

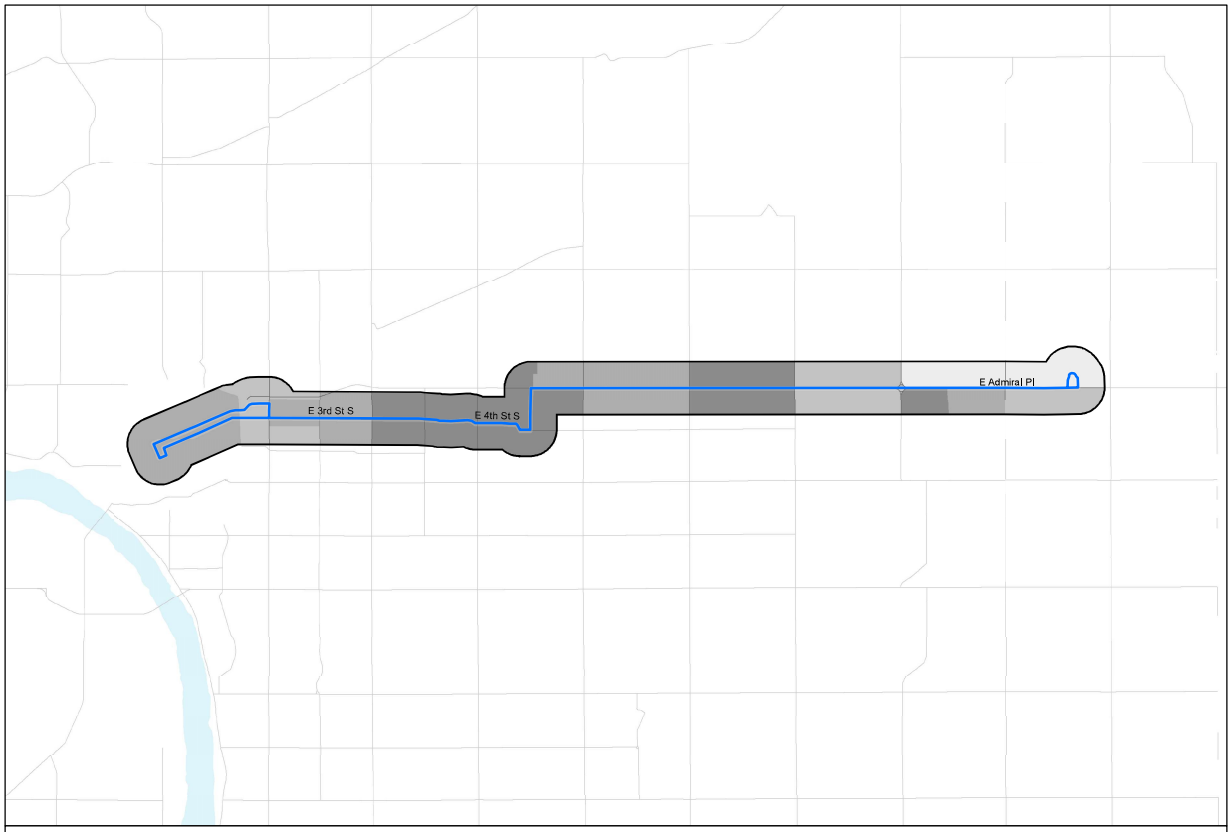


1 Excludes data for purchased transportation reported separately

Tulsa Transit Route Analysis

Route #	*Boardings*	*Peak Frequency*	*Cycle Time*	*Layover Time*	*One-Way Trips*	*Revenue Hours*	*Revenue Miles*	*Peak Bus Count*	*Extend to Night Line*	*Route Changes Proposed*
251	506	25	50	10	51	21	433.3	2		
101	836	30	90	19	47	34.2	456.8	3		
105	1494	30	150	18	53	63.8	967.3	5	X	
215	398	38	76	8	34	21.3	310.2	2		
100	586	40	80	8	41	27.1	379.9	2	X	
117	322	45	90	13	27	20	321.3	2	X	Adjust to accommodate 118 changes
318	323	45	90	6	29	21.5	247.2	2		
111	490	45	90	11	36	26.8	382.7	2		
210	566	45	135	16	32	35.2	522.8	3	X	
221	633	45	135	9	31	34.6	498.9	3	X	
118	253	55	110	10	25	22.9	385.7	2		Eliminate. Allocate 2 buses to 222. Provide coverage with 117 realignment
114	436	55	110	7	32	29.3	485.2	2		Align with Charles Page and eliminate deviation to increase frequency to 45 minutes
306	204	60	60	5	13	12.9	223.3	1		Align with arterials maintain connection to Social Security Office, Post Office, Cancer Institute
112	734	60	180	14	33	41.5	672.4	3		
203	393	65.5	131	5	25	27.3	458.9	2		
222	943	70	280	29	24	53.4	798	4		Add two buses from 118 to improve frequency
471	254	100	100	8	26	21.5	367.7	2		Rerouted via Mingo to MMS

Existing Routes



100 - Admiral

0 0.5 1 2 Miles

LEGEND

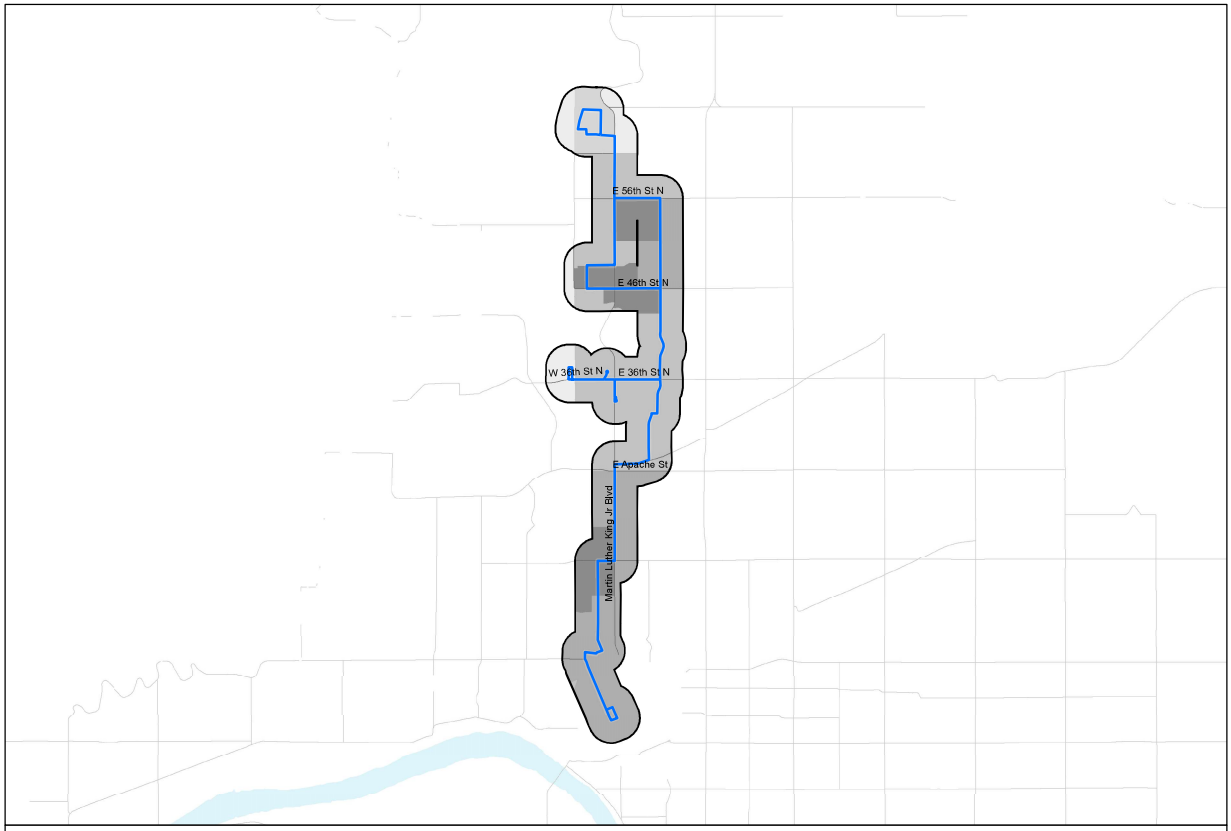
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



101 - Suburban Acres

0 0.5 1 2 Miles

LEGEND

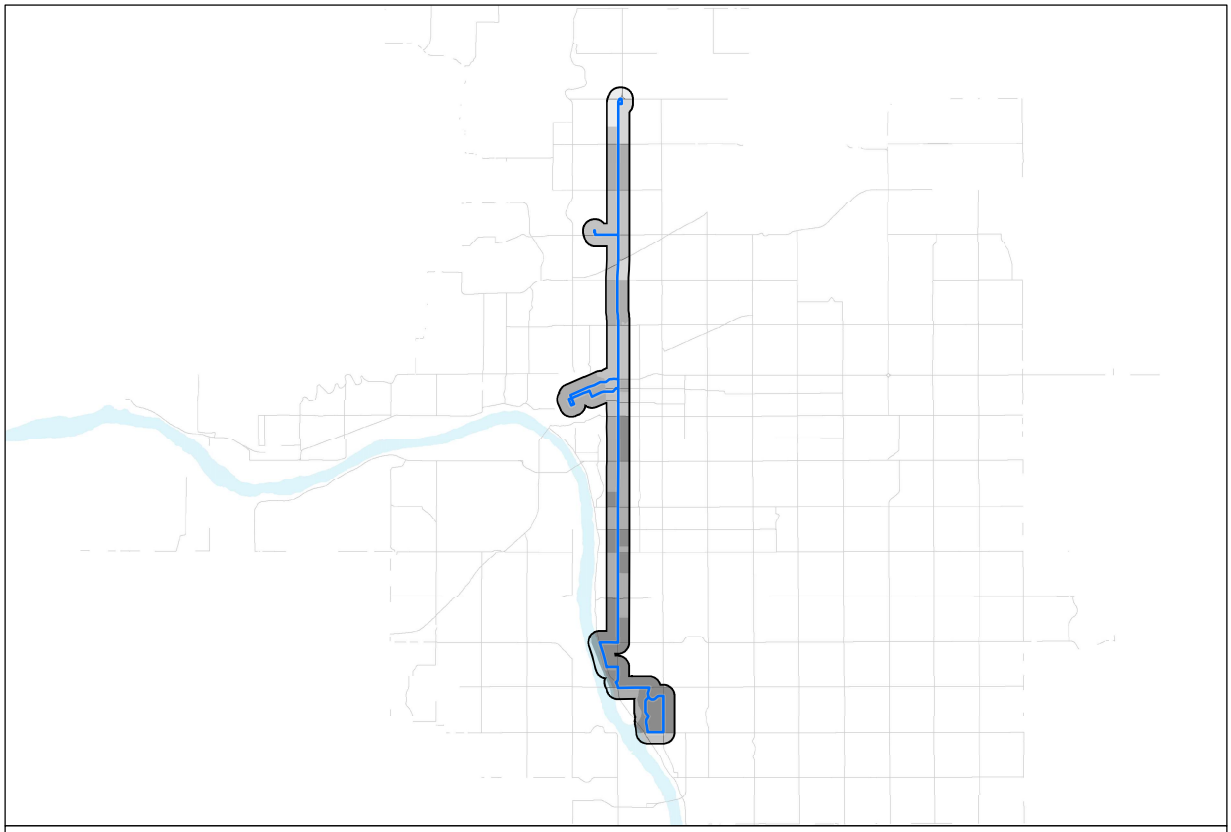
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



105N - Peoria North

0 0.5 1 2 Miles

LEGEND

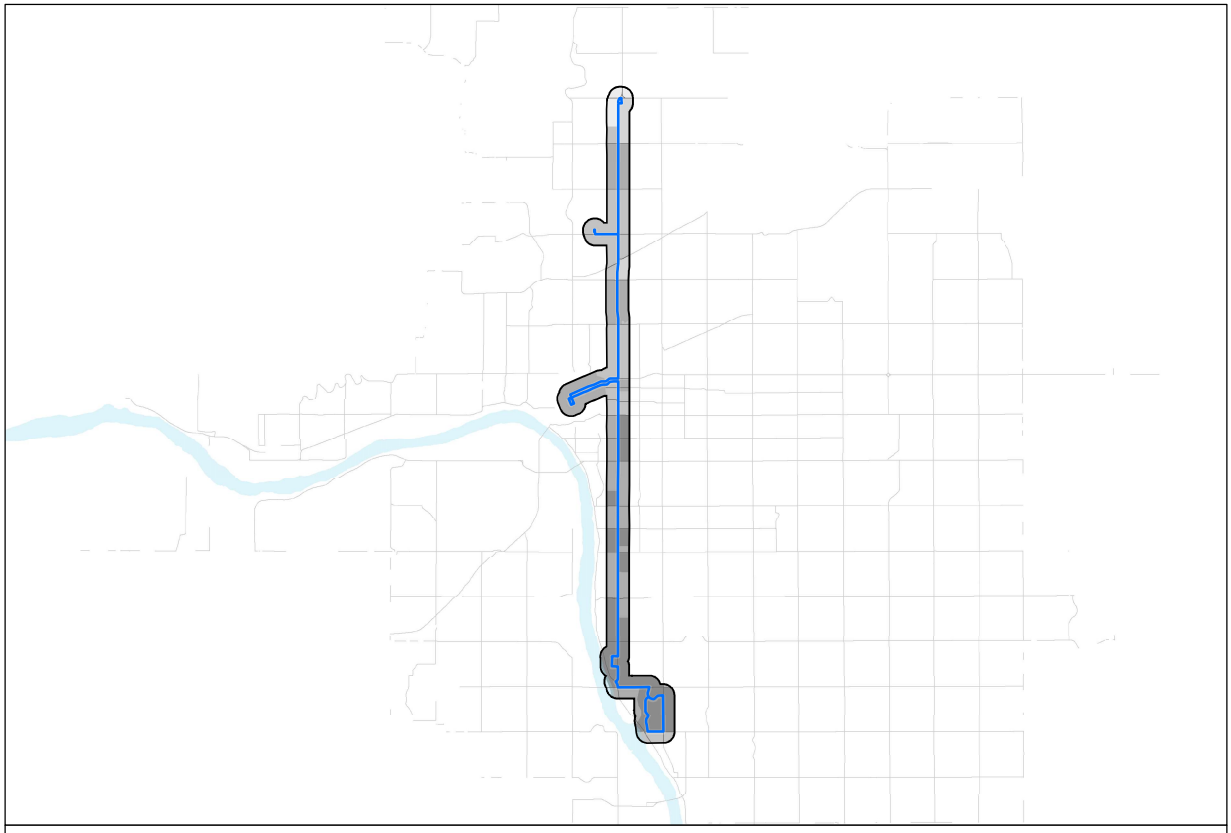
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



105S - Peoria South

0 0.5 1 2 Miles

LEGEND

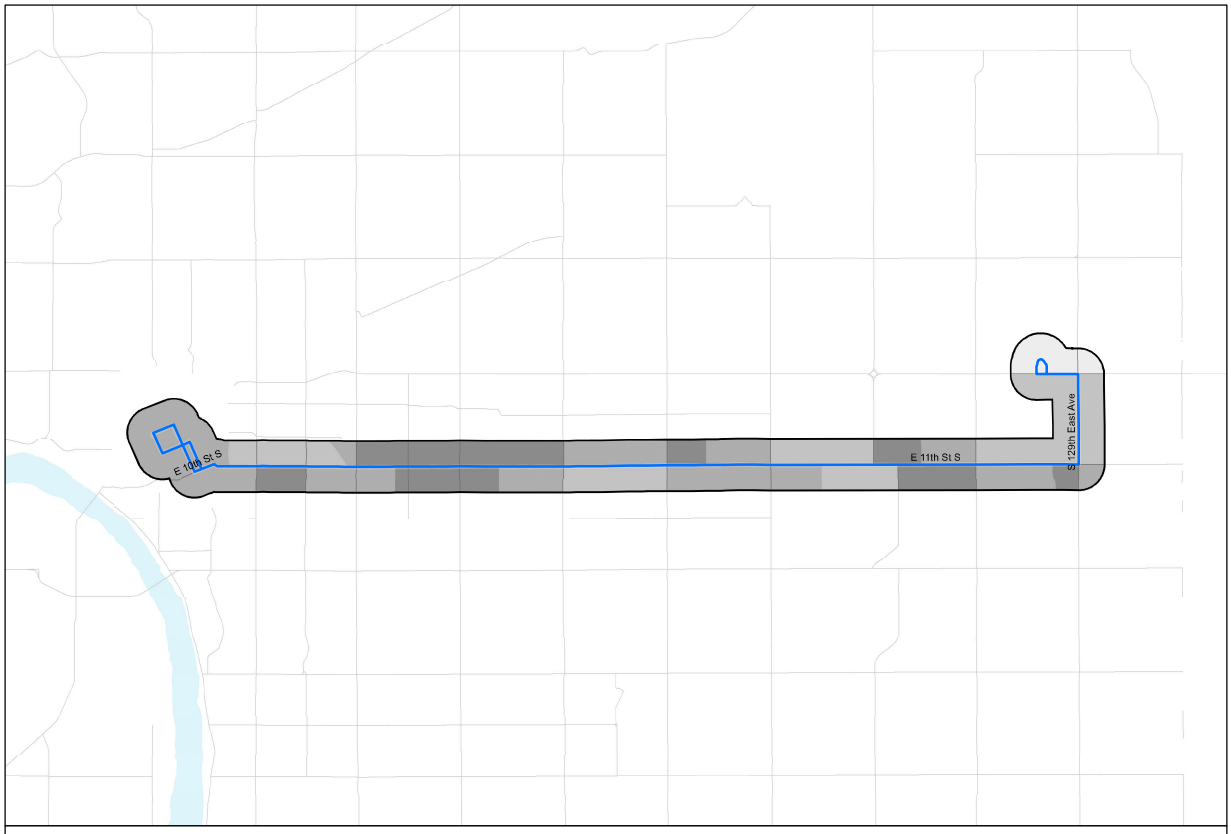
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



111 - 11th Street

0 0.5 1 2 Miles

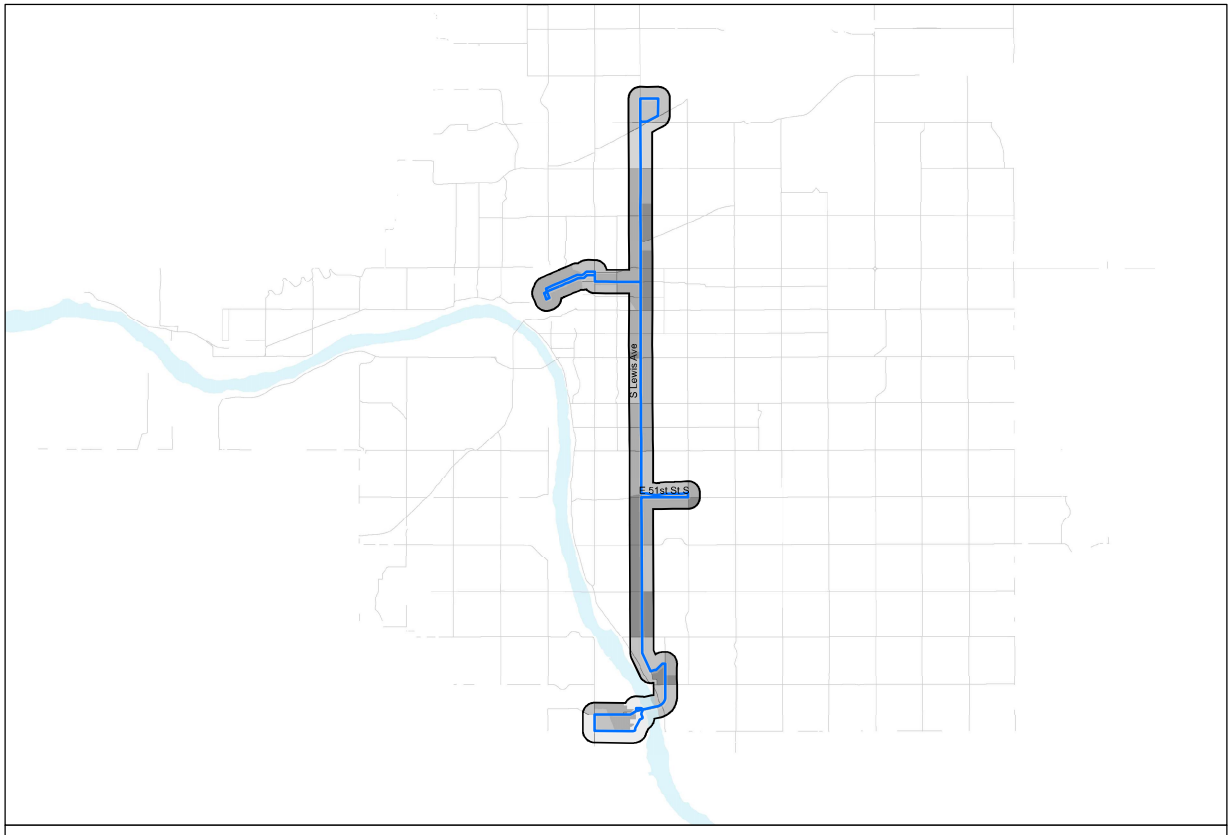
LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

Source: U.S. Census Bureau & INCOG



112N - Lewis/Jenks

0 0.5 1 2 Miles

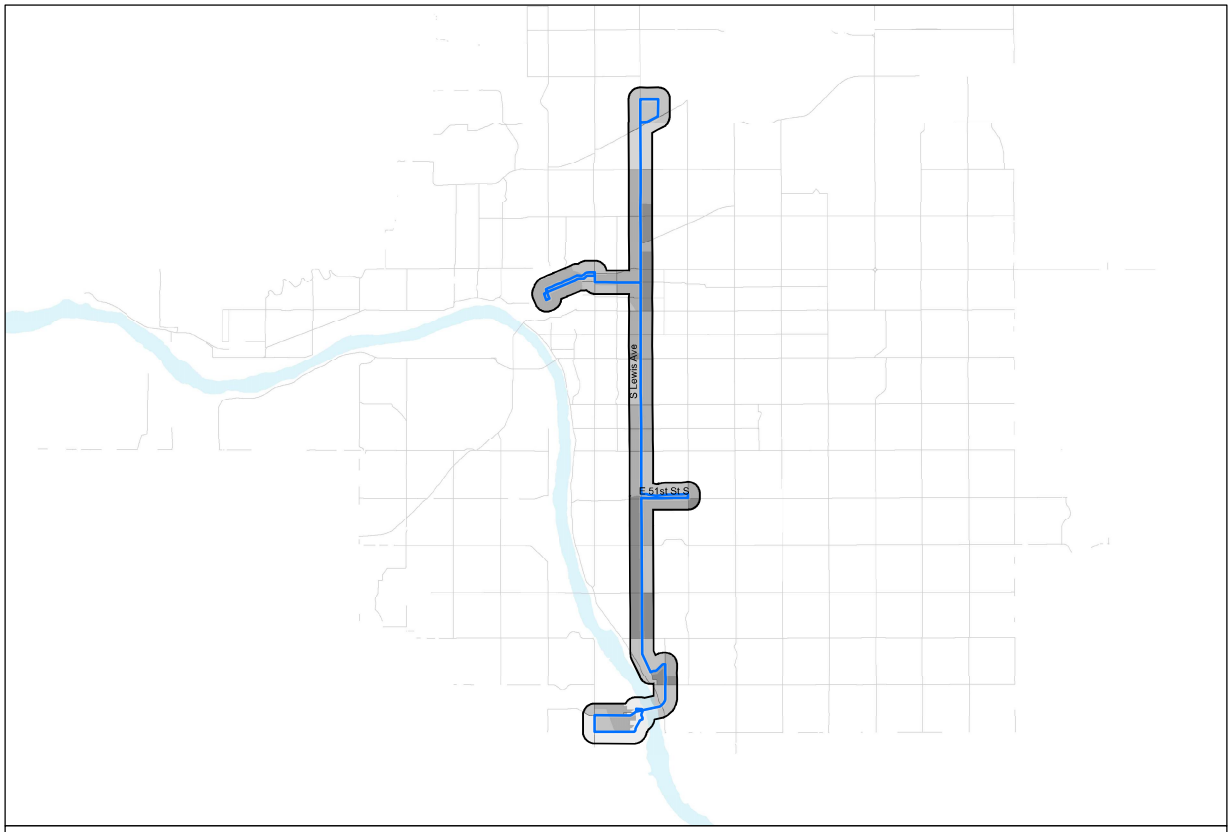
LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

Source: U.S. Census Bureau & INCOG



112S - Lewis/Jenks

0 0.5 1 2 Miles

LEGEND

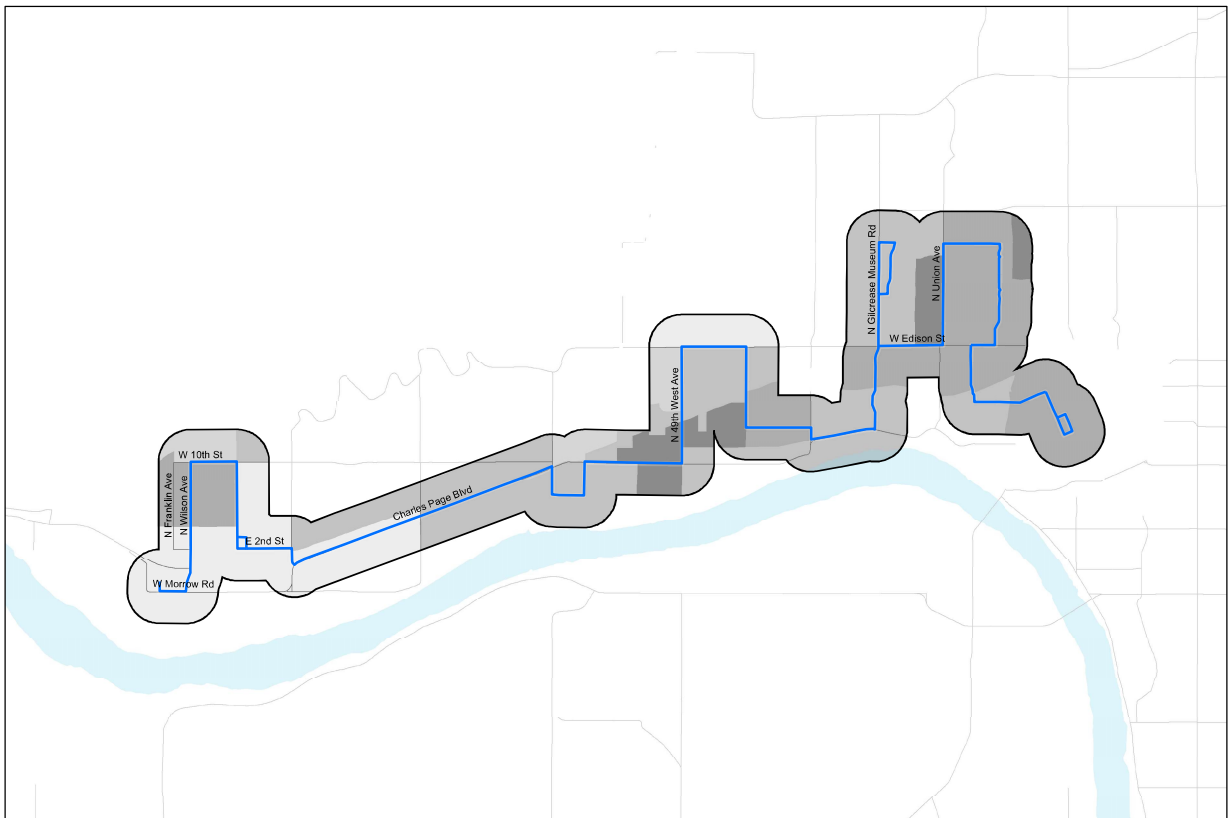
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



114 - Charles Page/Sand Springs

0 0.5 1 2 Miles

LEGEND

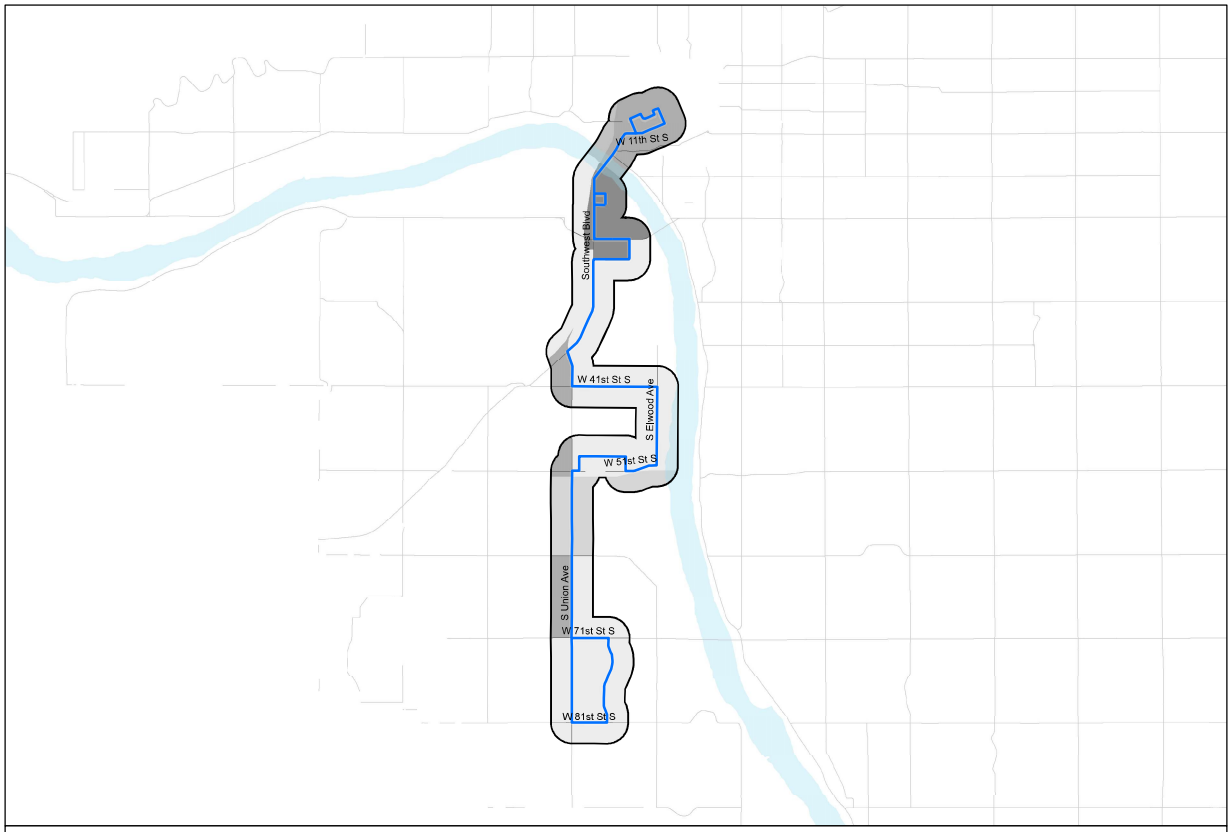
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



117 - Union/Southwest Blvd

0 0.5 1 2 Miles

LEGEND

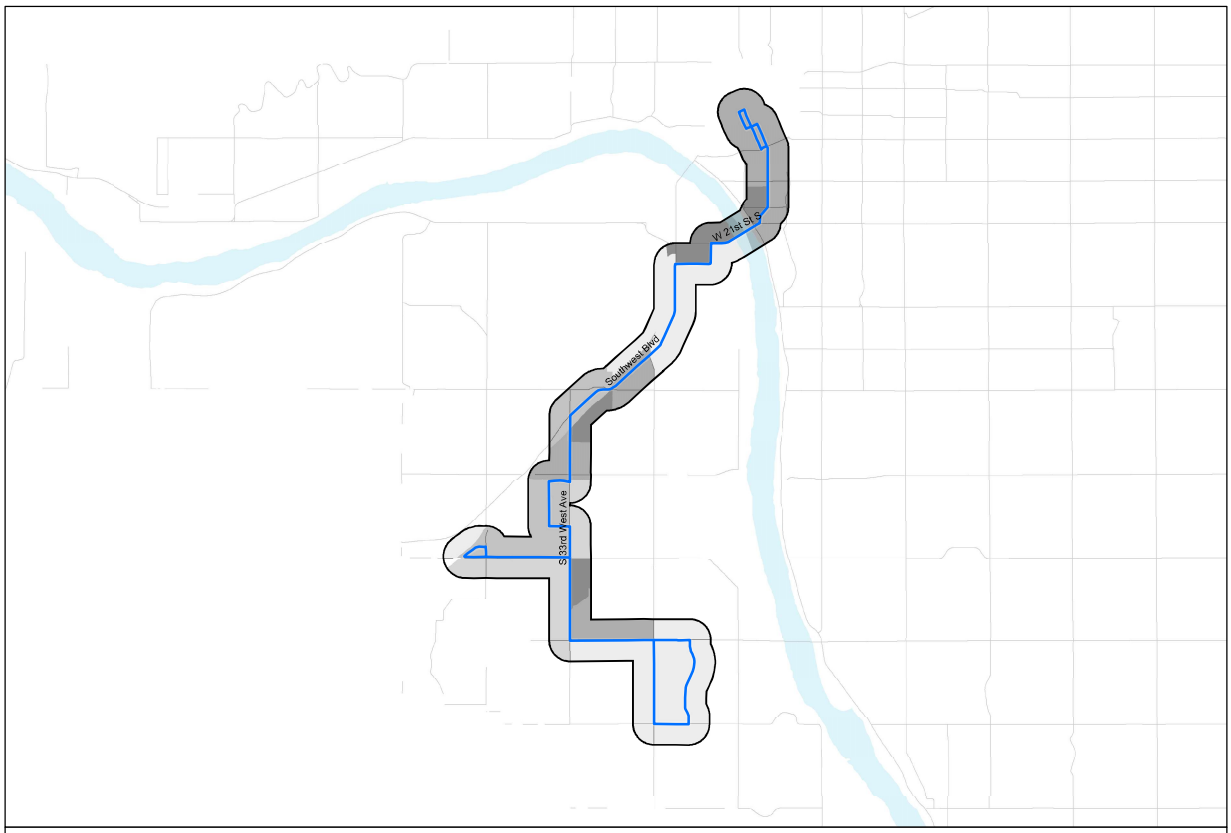
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



118 - 33rd West Avenue

0 0.5 1 2 Miles

LEGEND

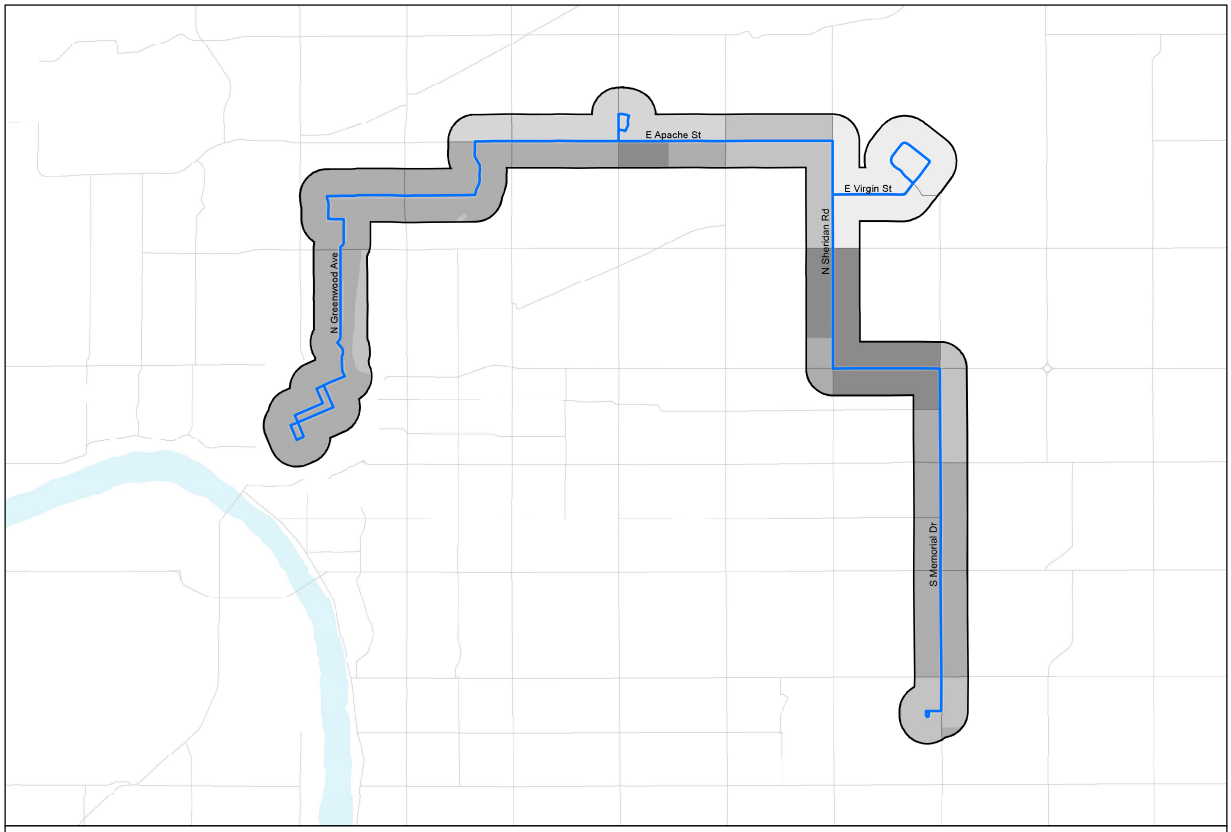
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



203 - Airport

0 0.5 1 2 Miles

LEGEND

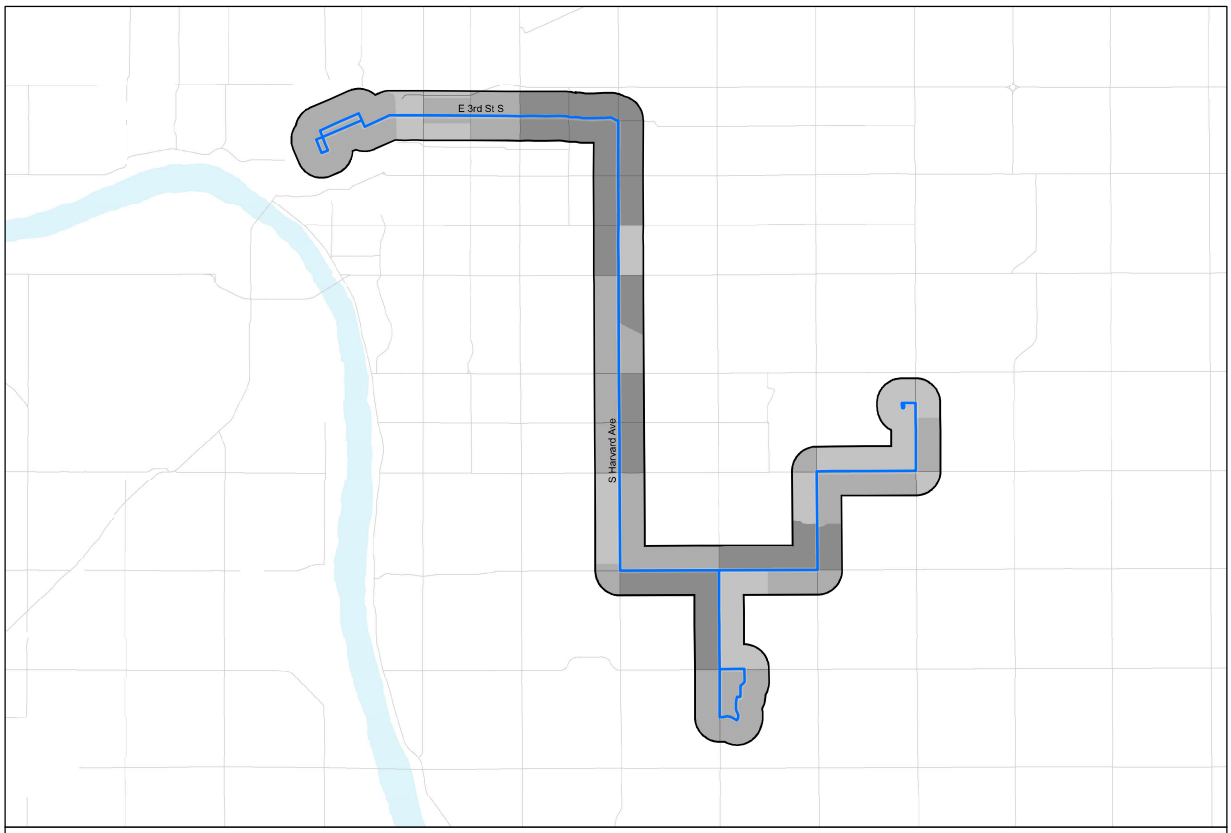
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



210 - Harvard

0 0.5 1 2 Miles

LEGEND

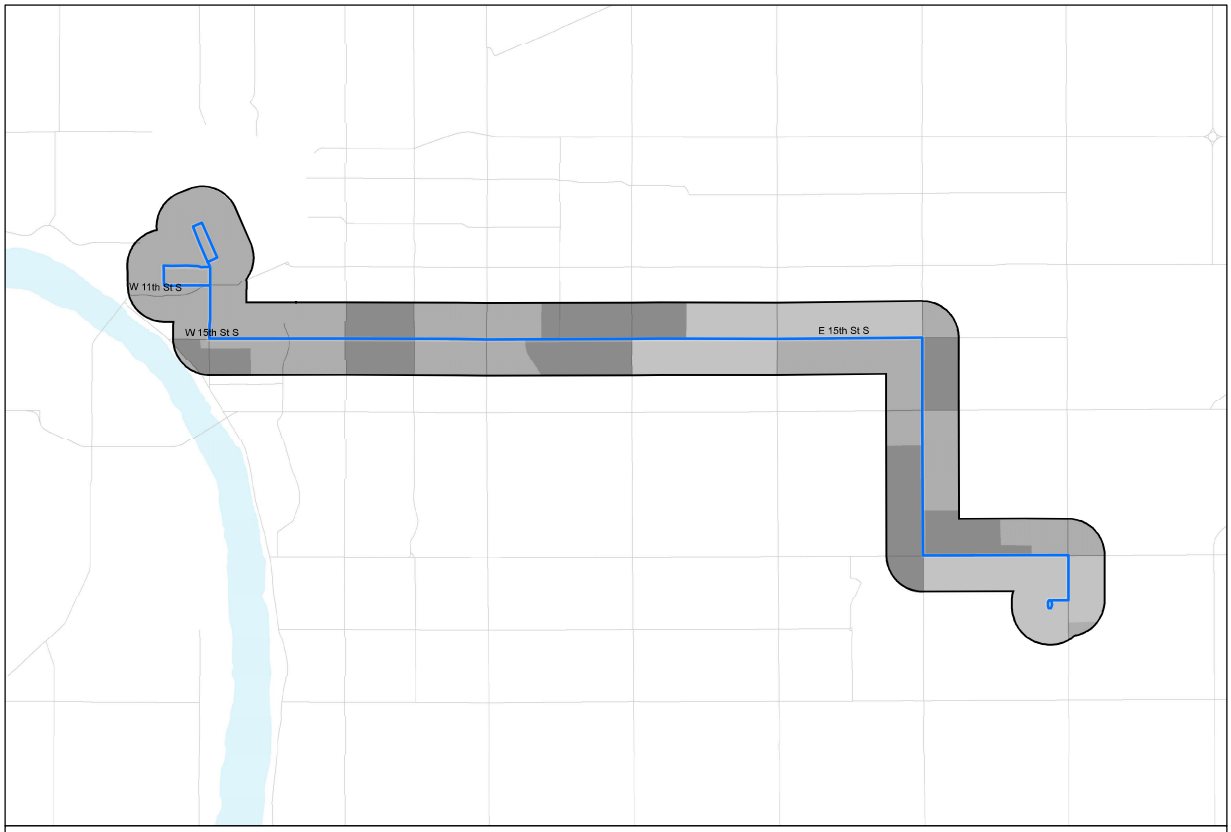
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



215 - 15th Street

0 0.5 1 2 Miles

LEGEND

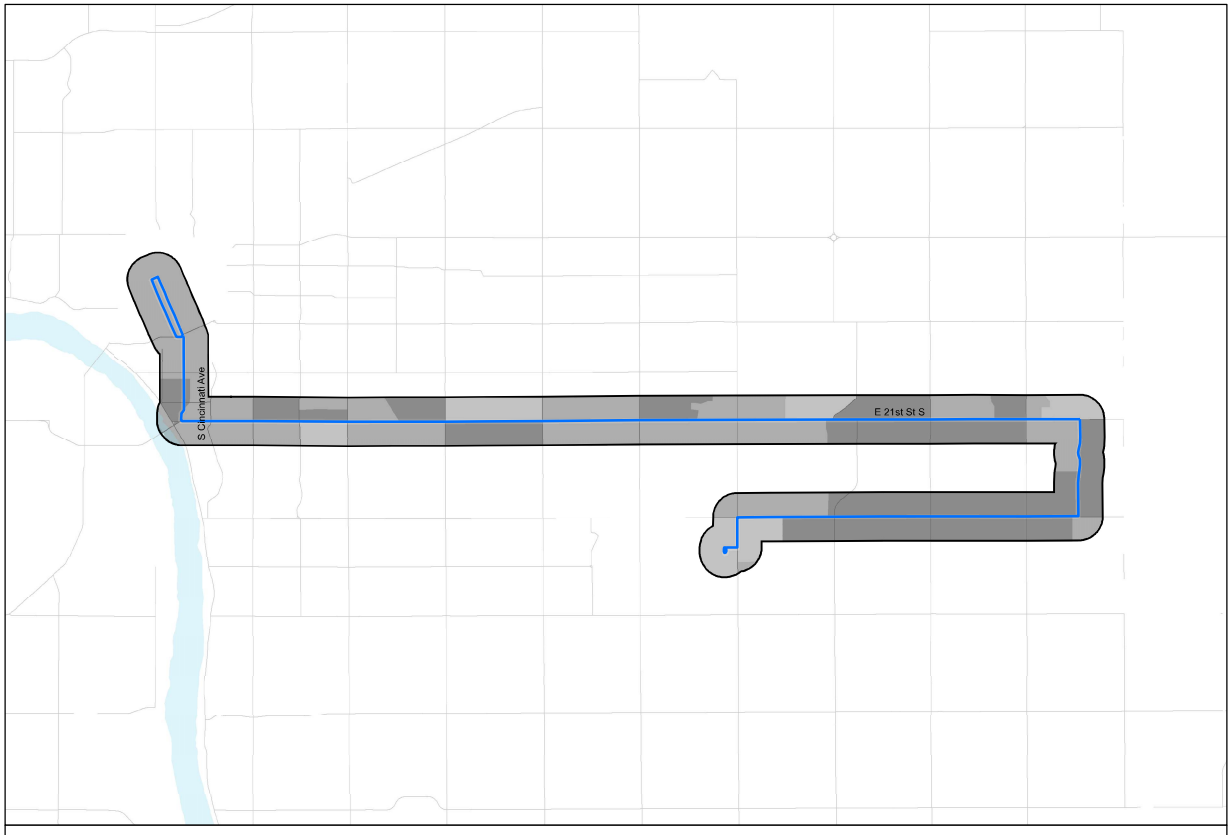
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



221 - 21st Street/Eastland

0 0.5 1 2 Miles

LEGEND

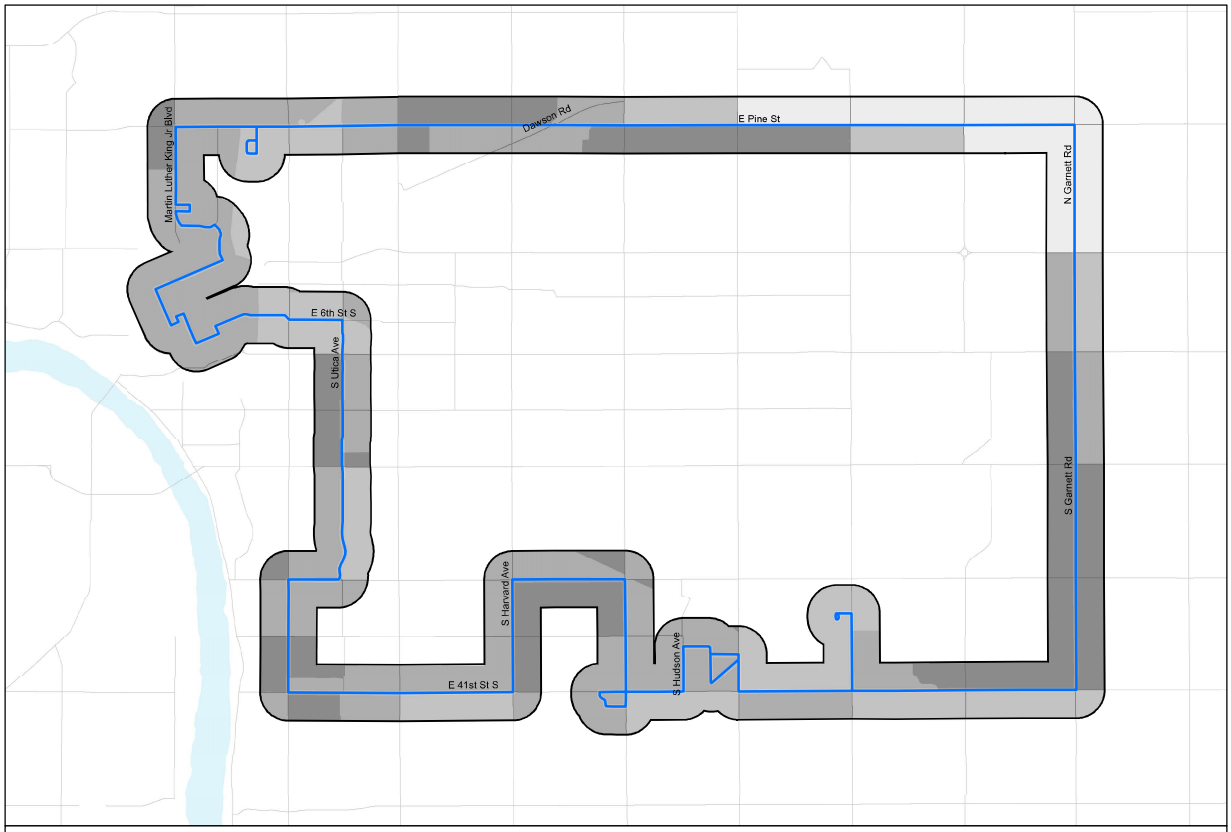
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



222 - Pine/41st Street

0 0.5 1 2 Miles

LEGEND

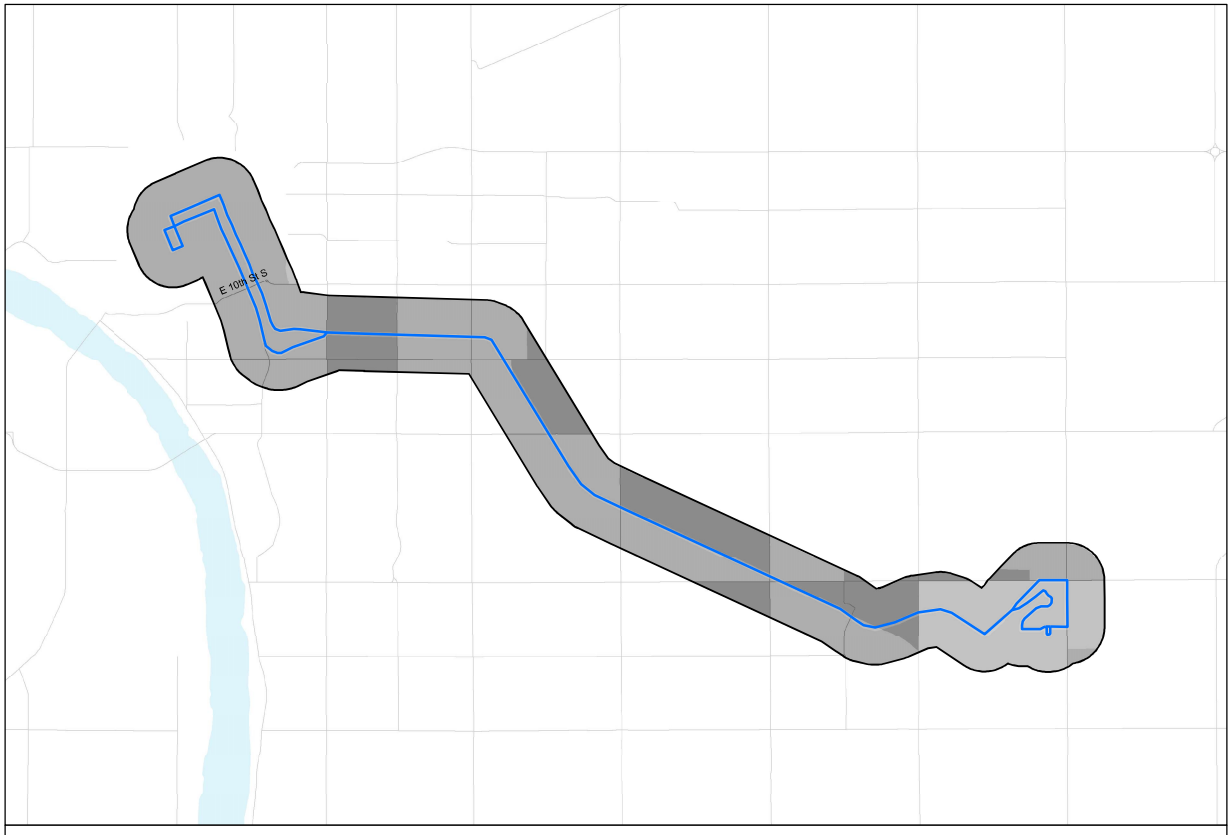
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



251 - Fast Track

0 0.5 1 2 Miles

LEGEND

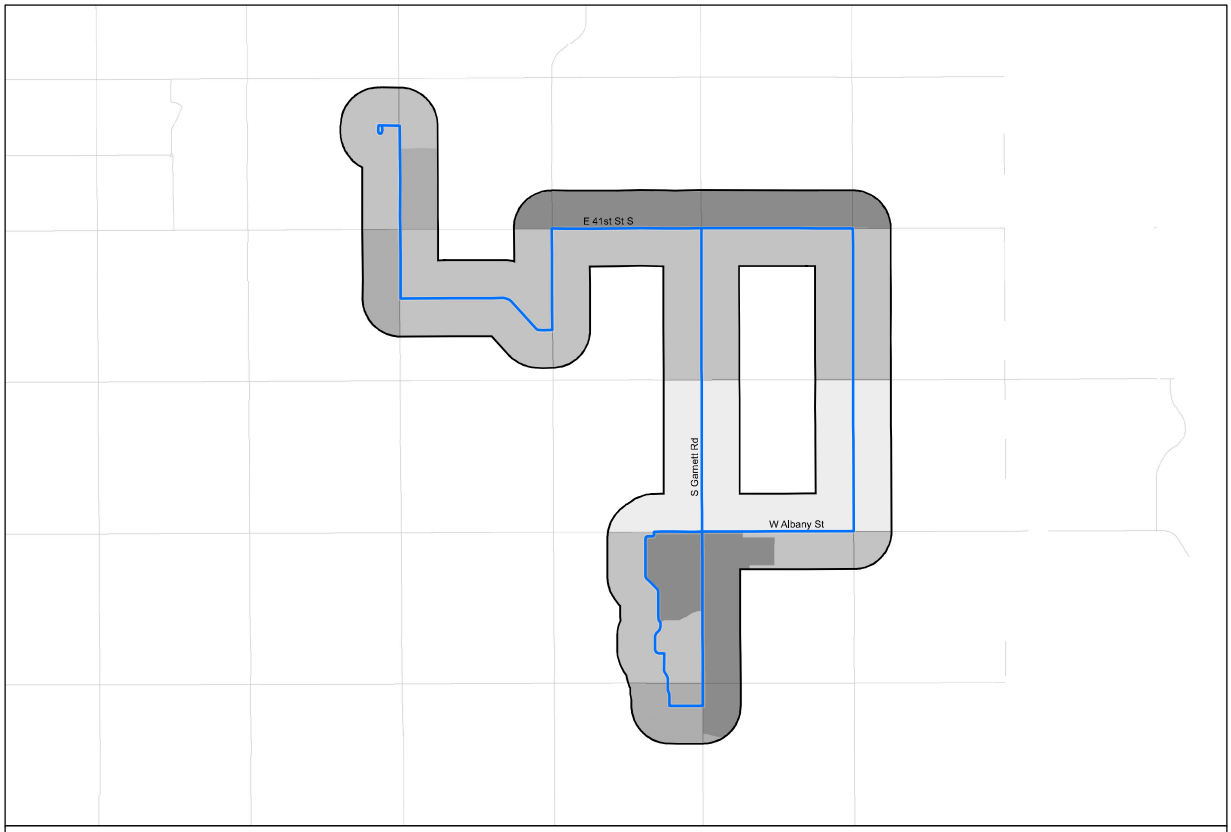
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



306 - Southeast Industrial

0 0.5 1 2 Miles

LEGEND

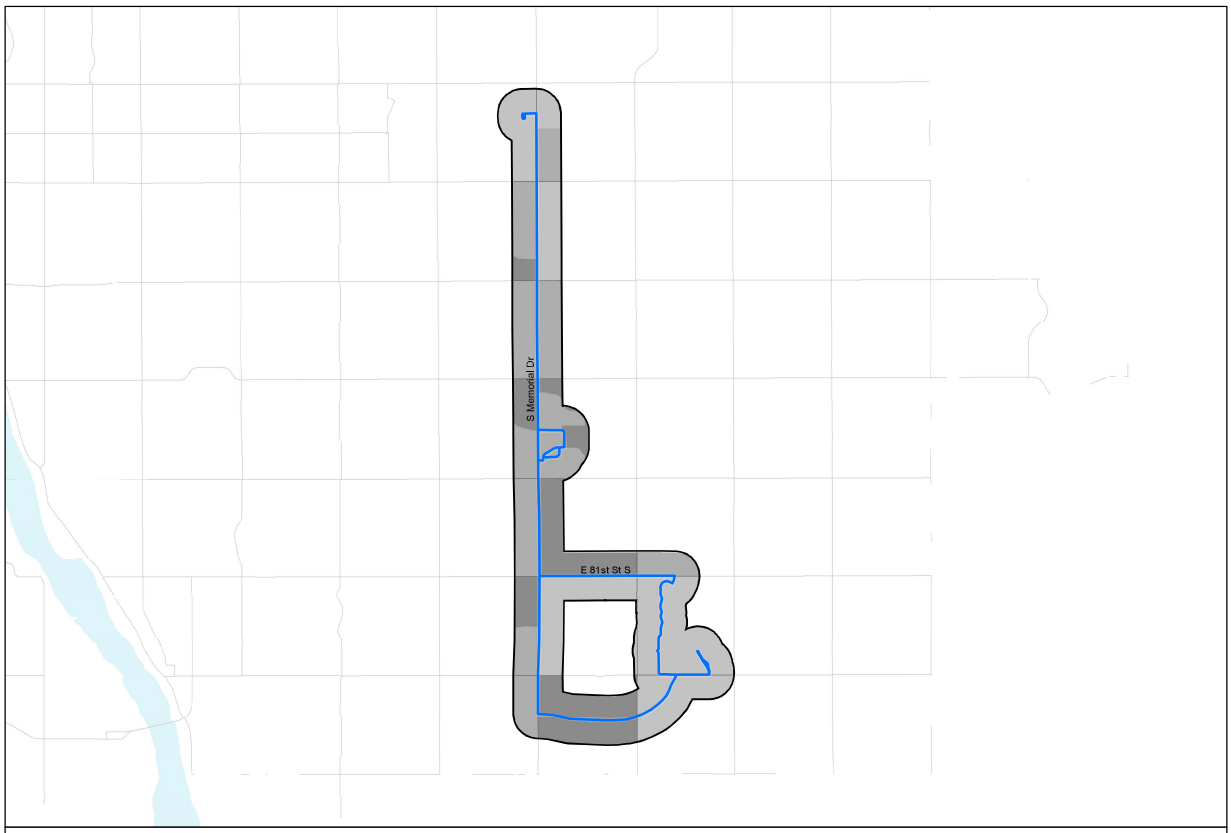
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



318 - Memorial

0 0.5 1 2 Miles

LEGEND

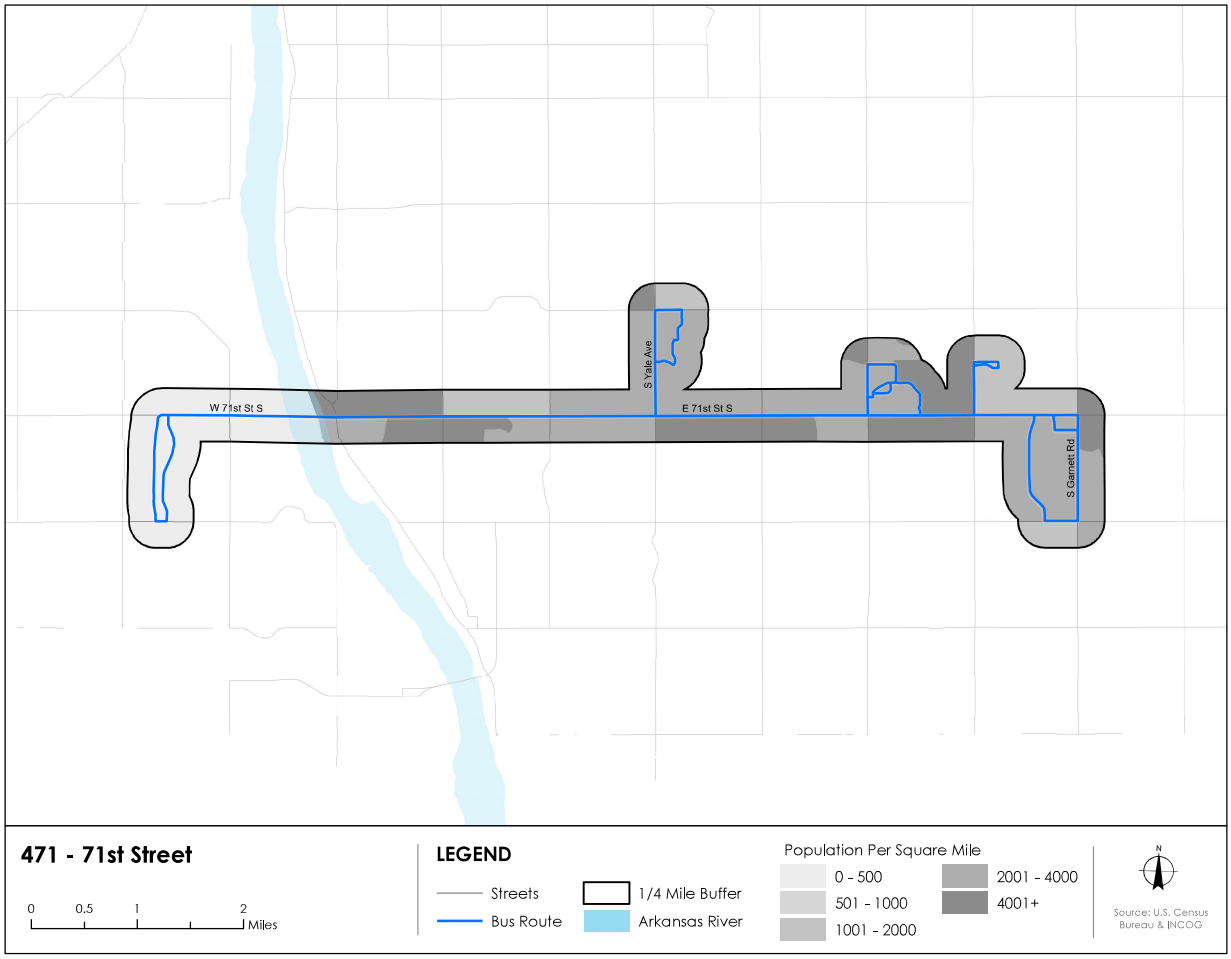
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



471 - 71st Street

0 0.5 1 2 Miles

LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

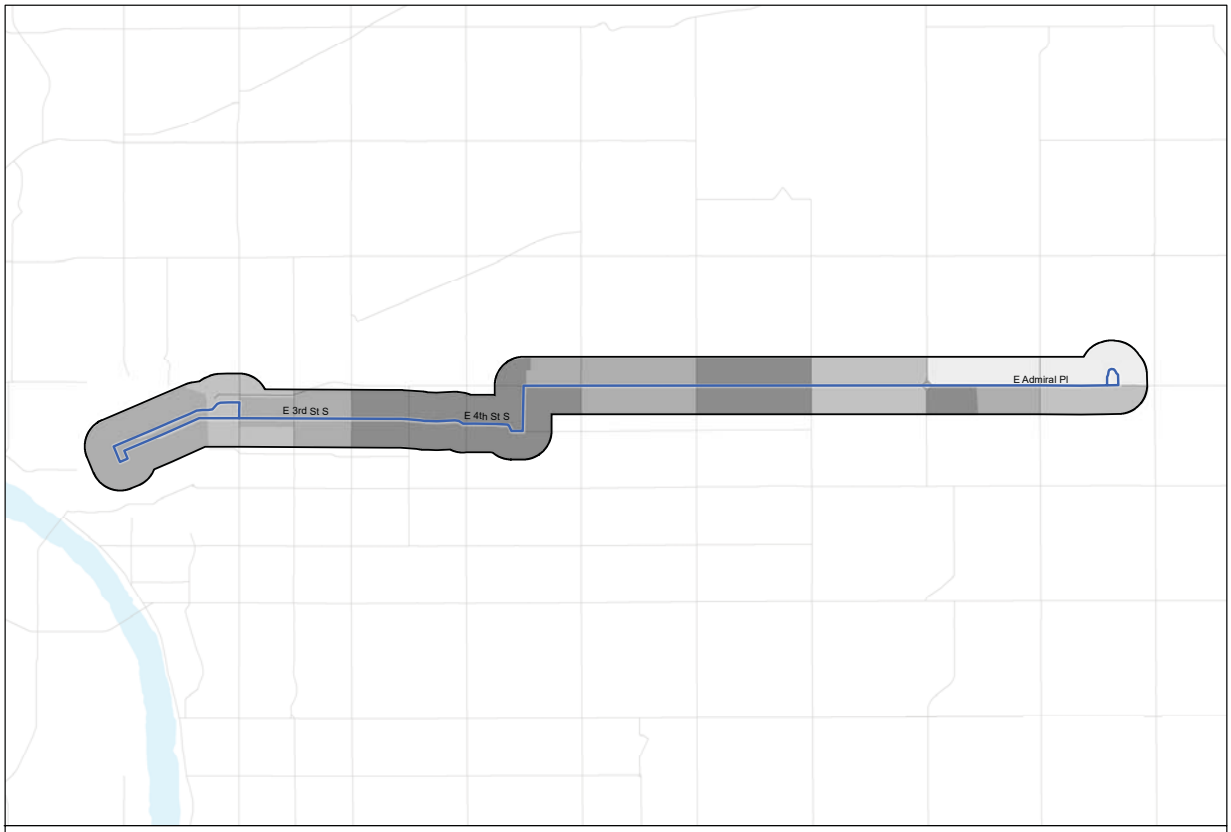
Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG

Proposed Routes



100 - Admiral

0 0.5 1 2 Miles

LEGEND

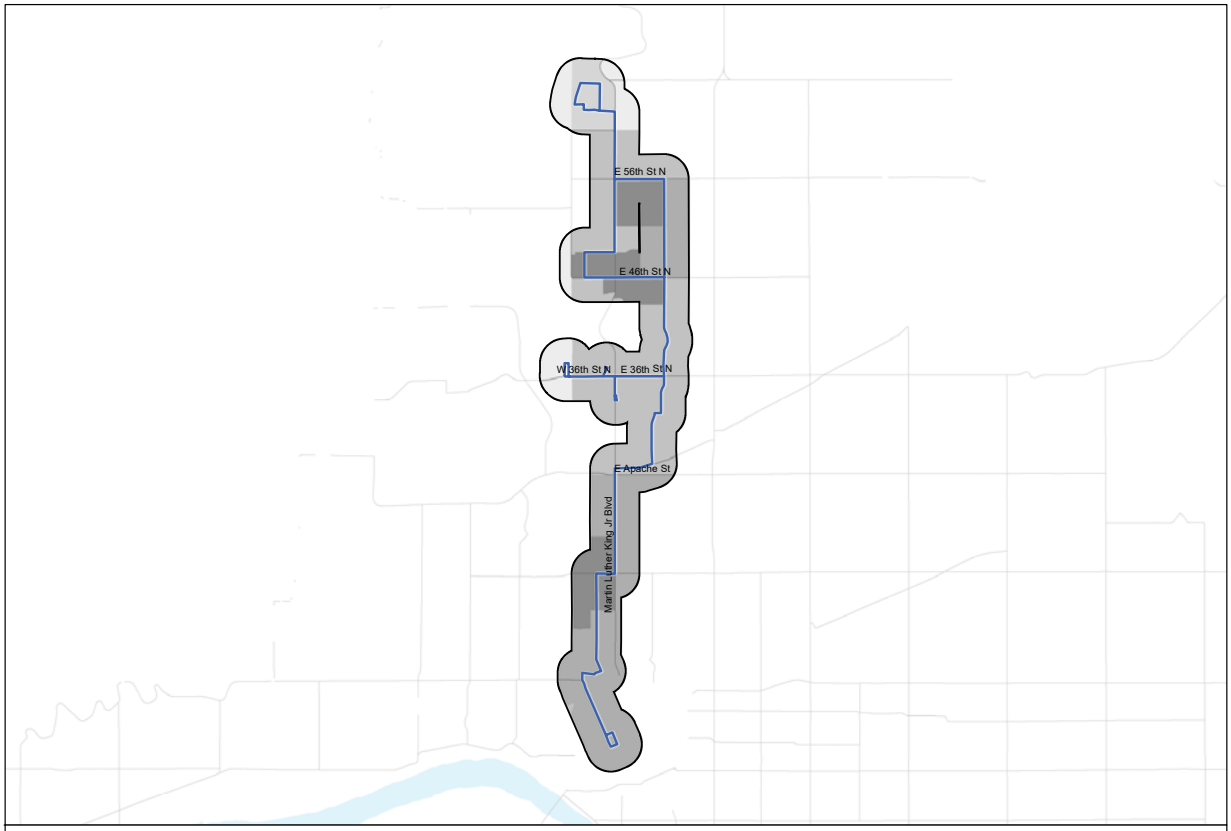
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



101 - Suburban Acres

0 0.5 1 2 Miles

LEGEND

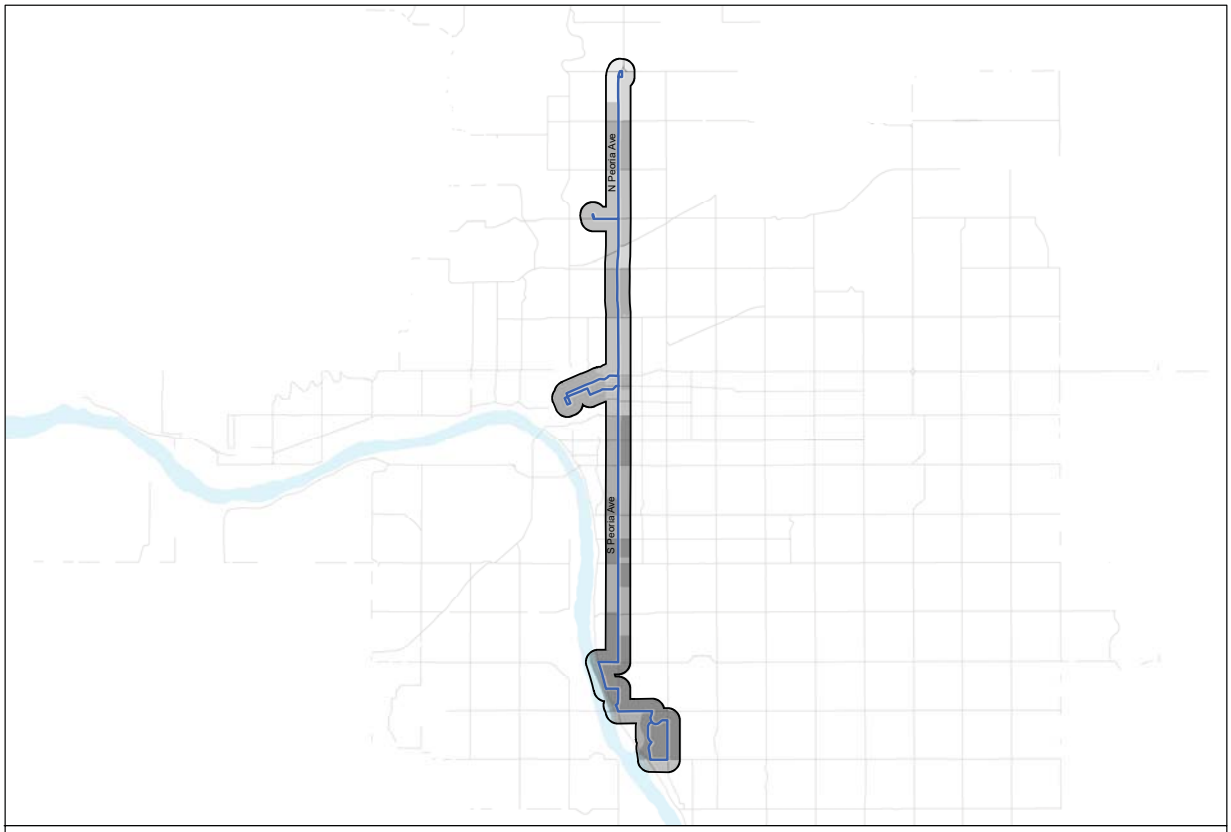
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



105N - Peoria North

0 0.5 1 2 Miles

LEGEND

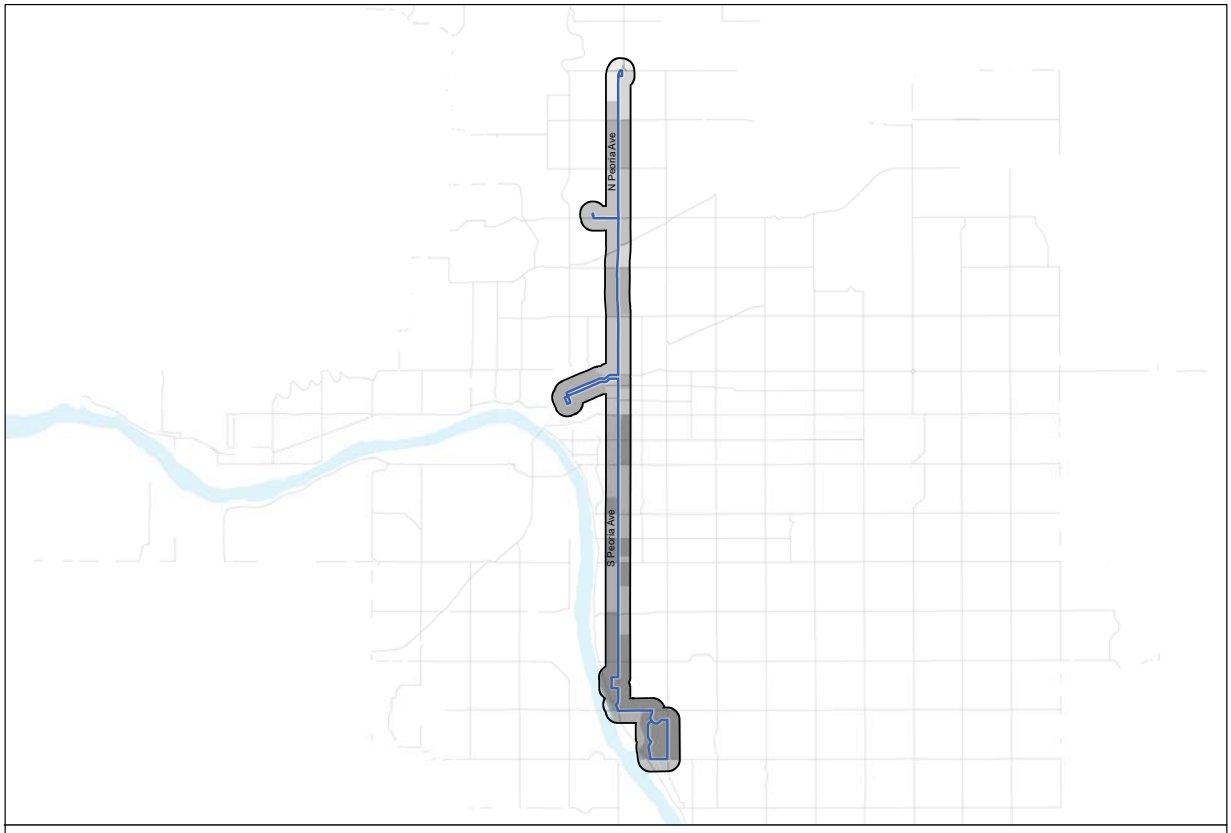
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



105S - Peoria South

0 0.5 1 2 Miles

LEGEND

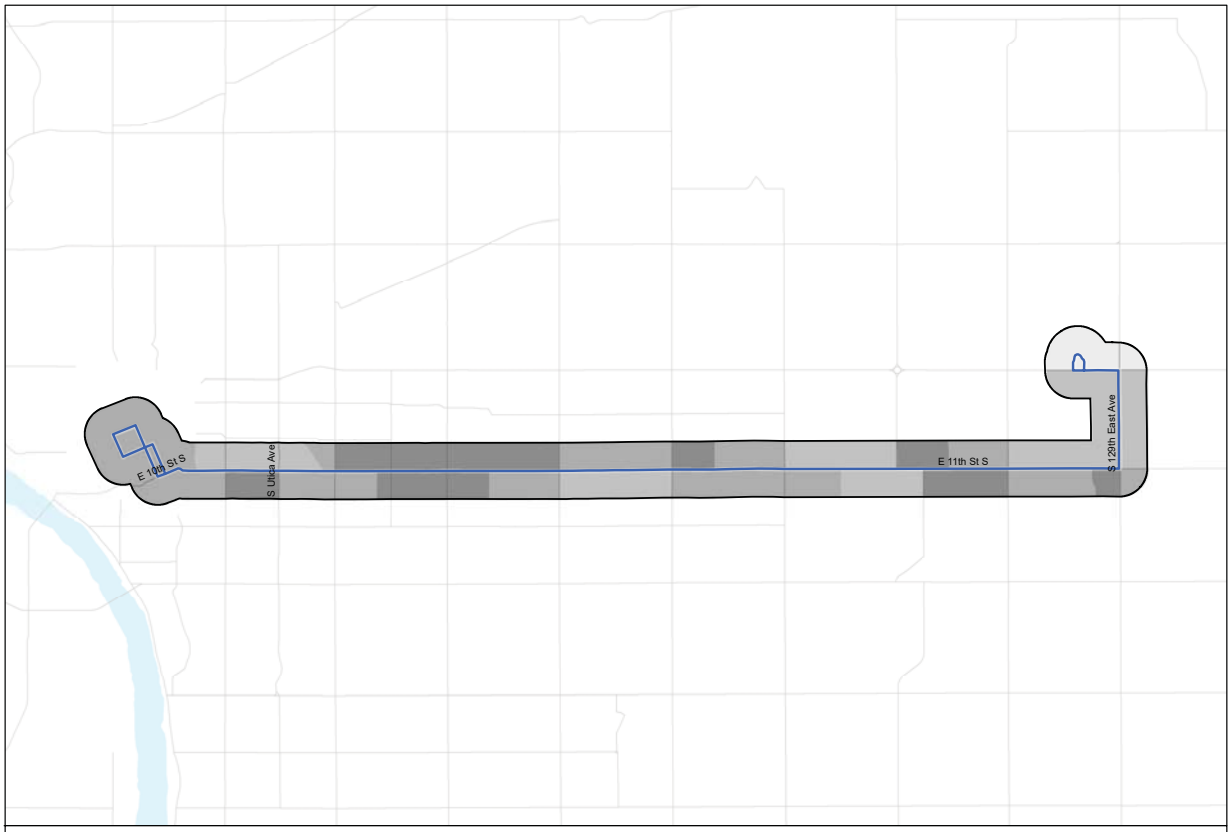
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



111 - 11th Street

0 0.5 1 2 Miles

LEGEND

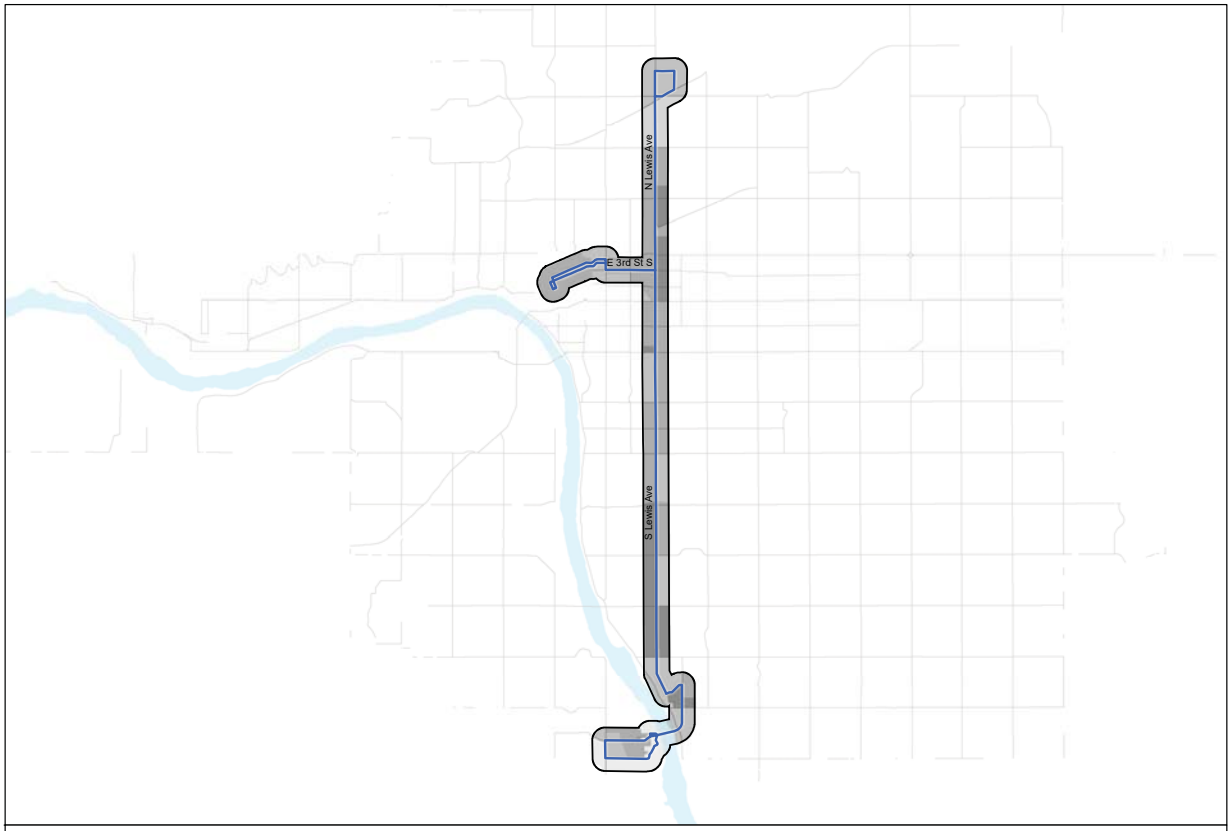
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



112N - Lewis/Jenks

0 0.5 1 2 Miles

LEGEND

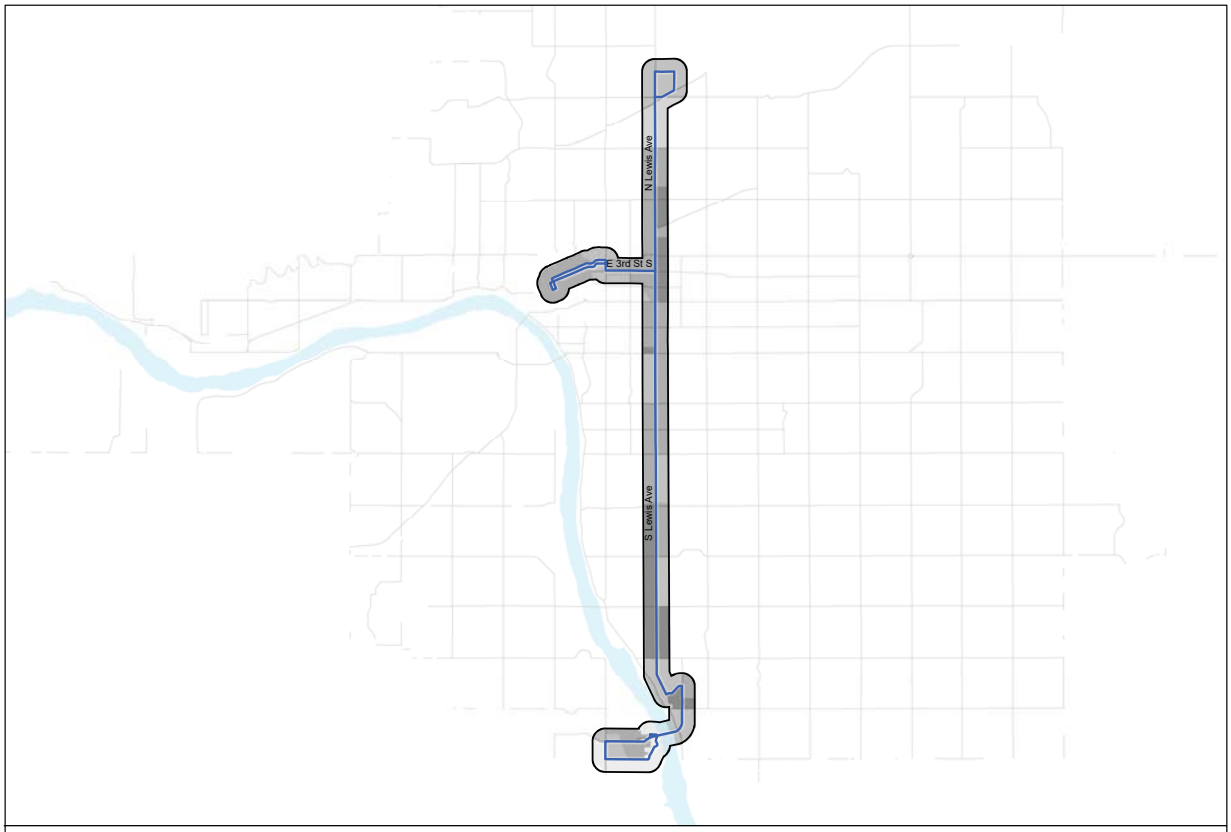
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



112S - Lewis/Jenks

0 0.5 1 2 Miles

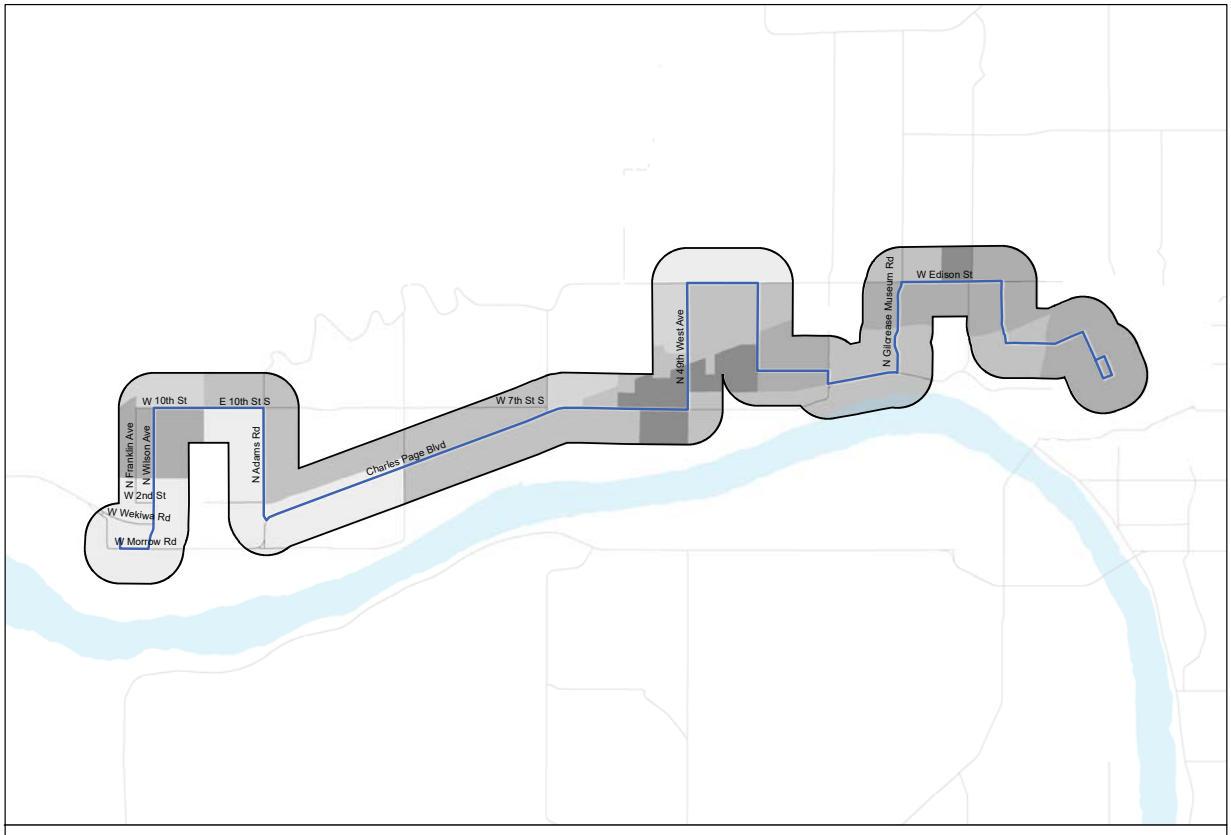
LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

Source: U.S. Census Bureau & INCOG



114 - Charles Page/Sand Springs

0 0.5 1 2 Miles

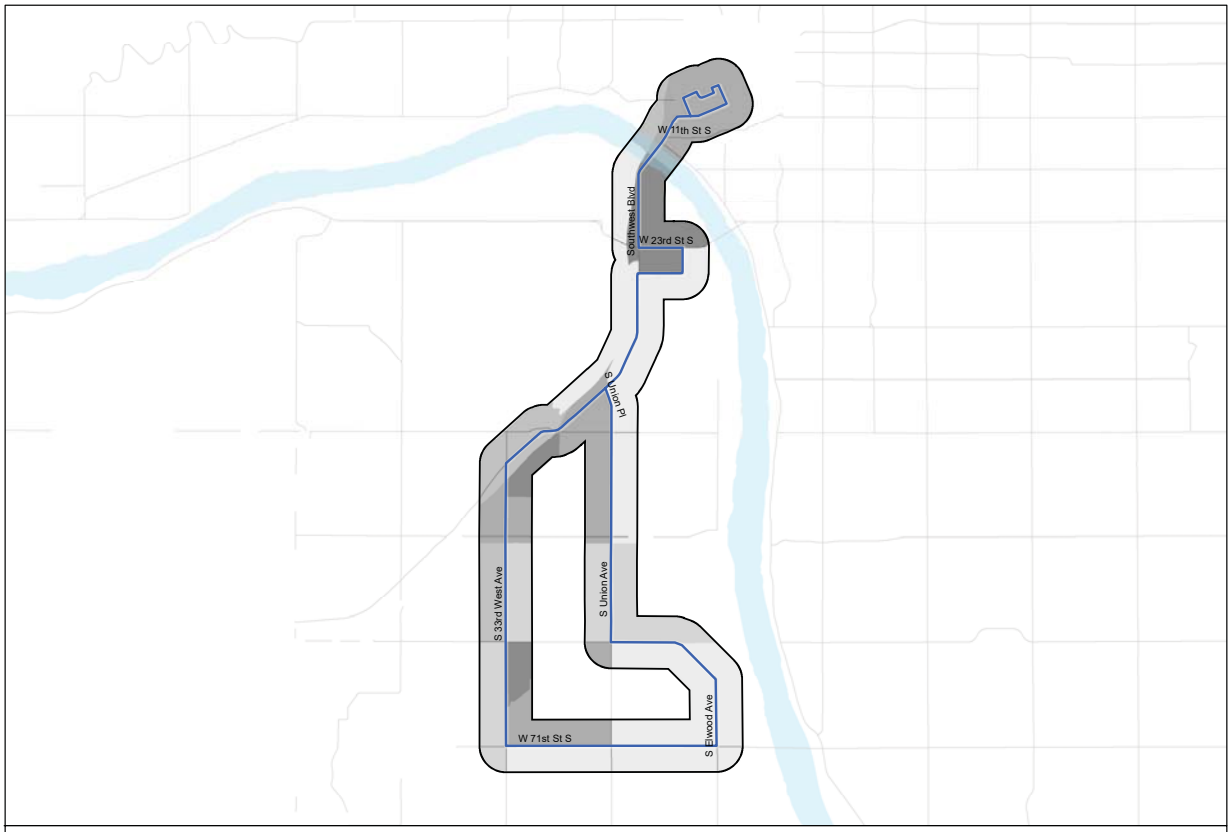
LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

Source: U.S. Census Bureau & INCOG



117 - Union/Southwest Blvd

0 0.5 1 2 Miles

LEGEND

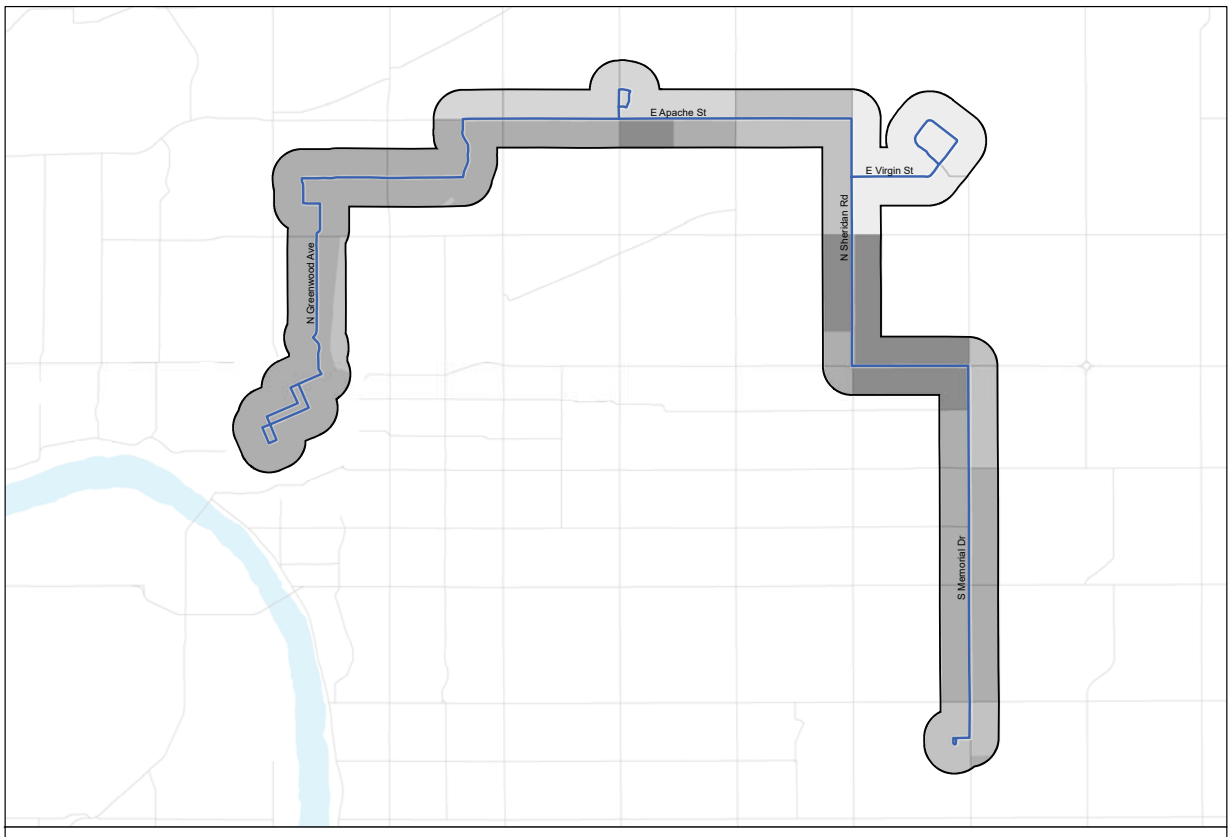
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



203 - Airport

0 0.5 1 2 Miles

LEGEND

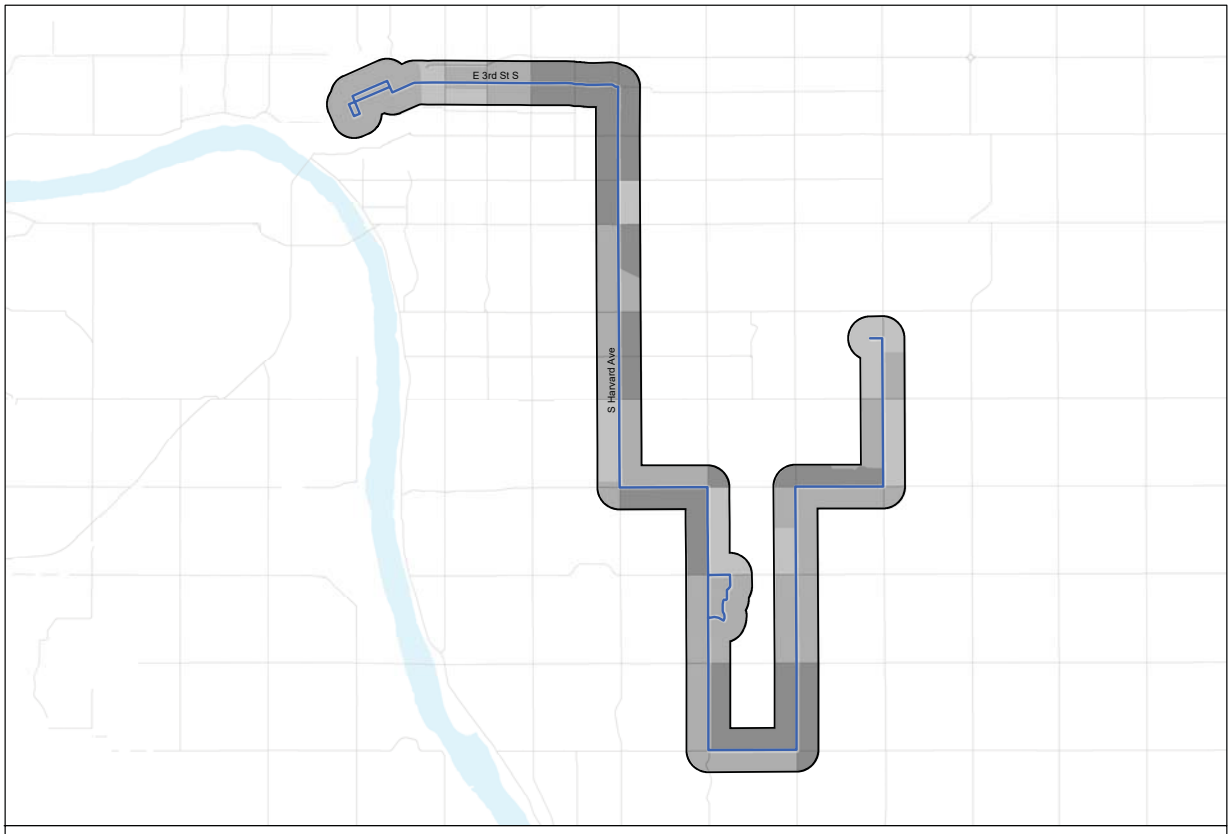
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



210 - Harvard

0 0.5 1 2 Miles

LEGEND

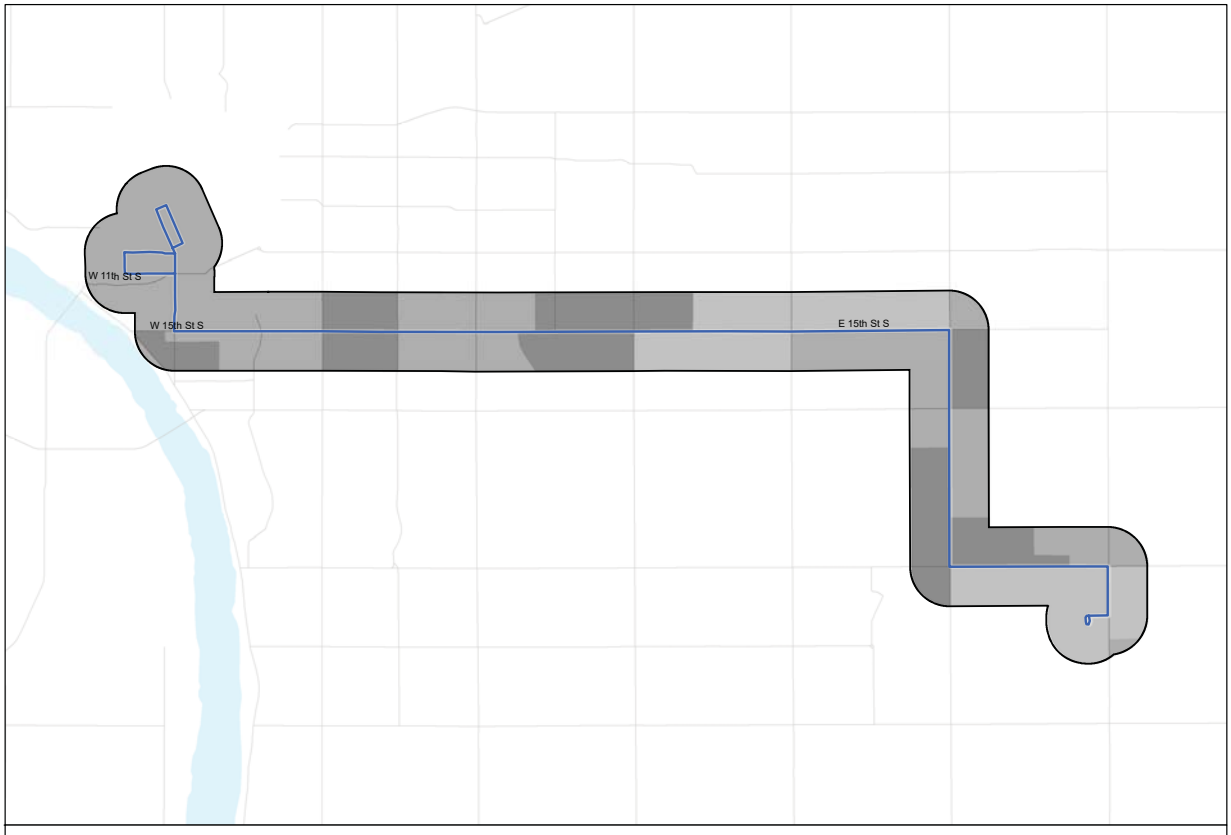
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



215 - 15th Street

0 0.5 1 2 Miles

LEGEND

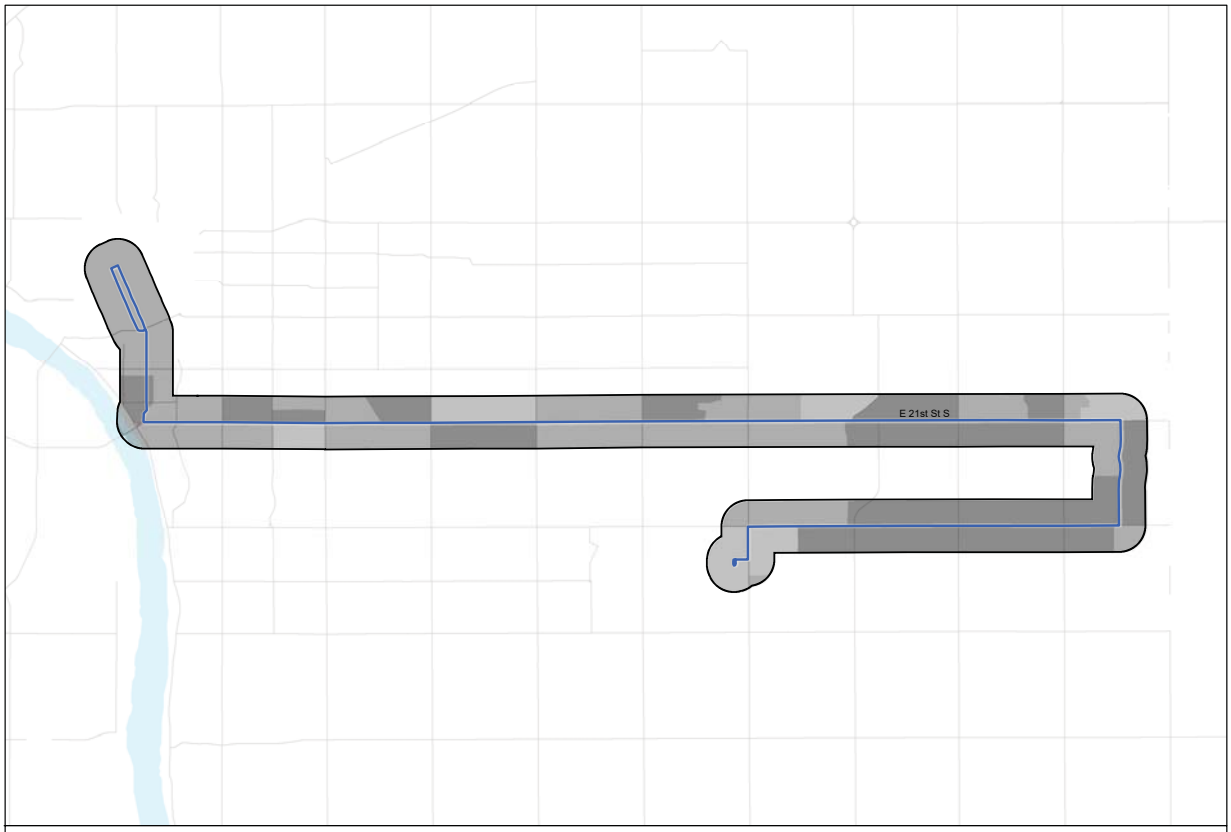
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



221 - 21st Street/Eastland

0 0.5 1 2 Miles

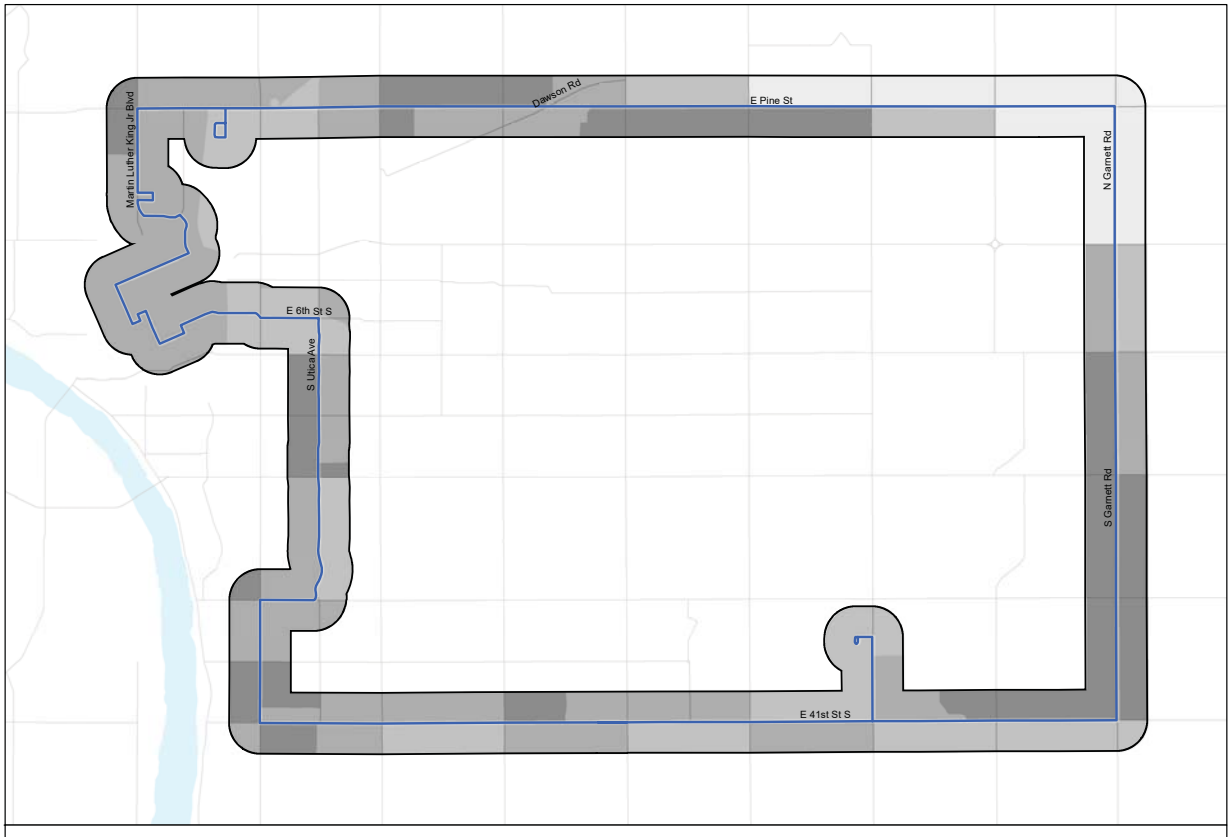
LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

Source: U.S. Census Bureau & INCOG



222 - Pine/41st Street

0 0.5 1 2 Miles

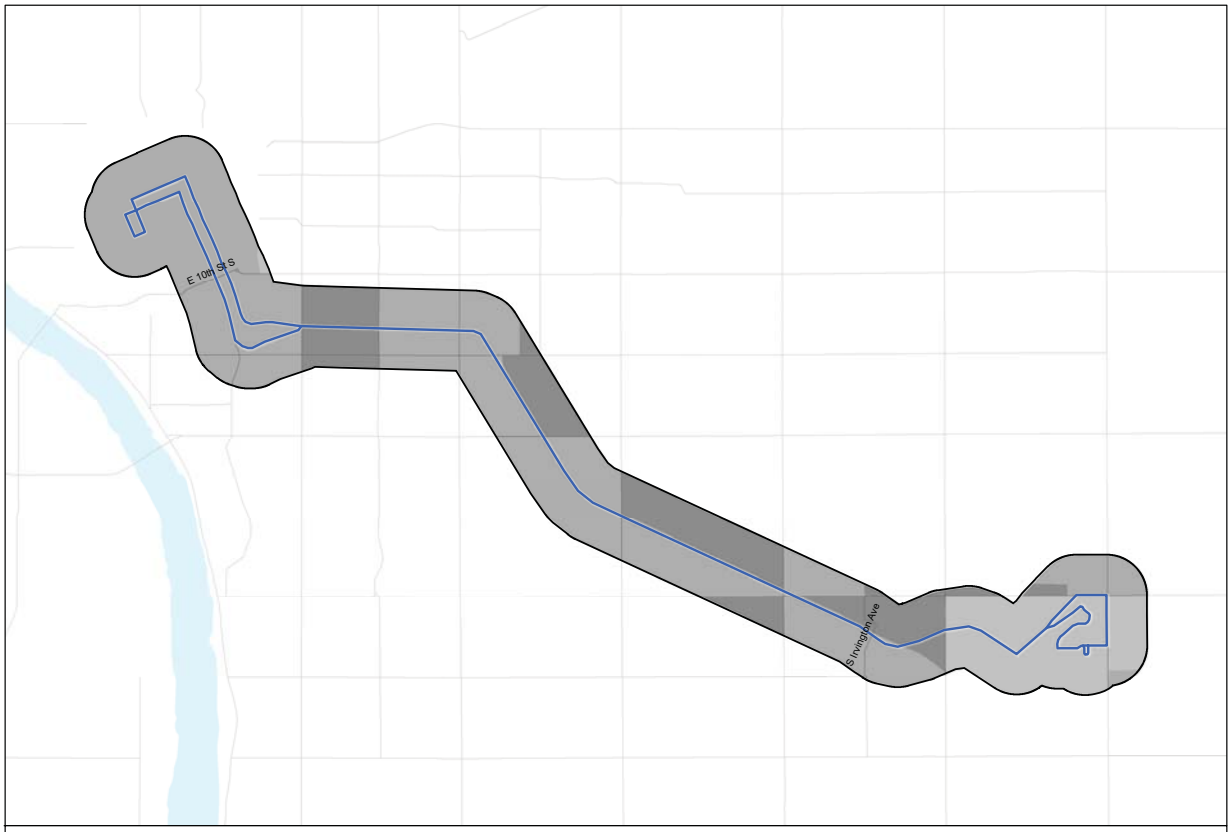
LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

Source: U.S. Census Bureau & INCOG



251 - Fast Track

0 0.5 1 2 Miles

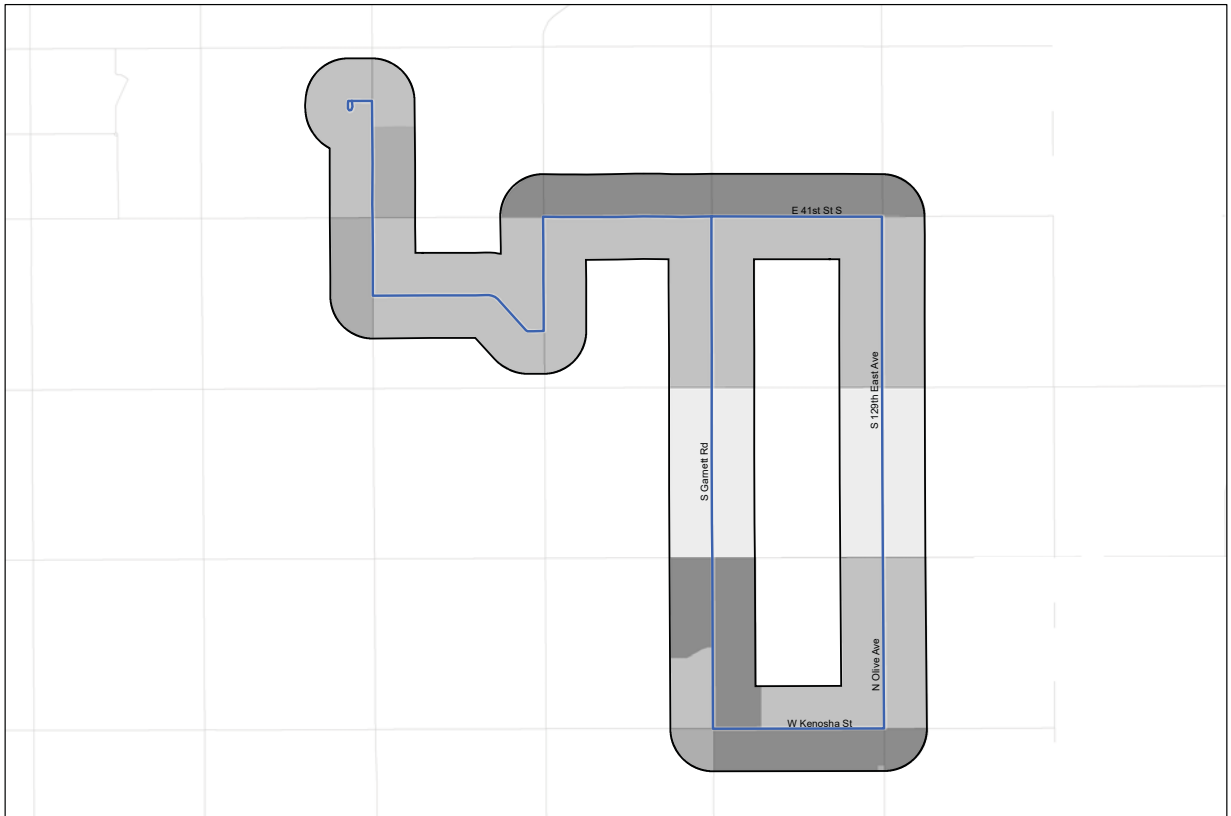
LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

Source: U.S. Census Bureau & INCOG



306 - Southeast Industrial

0 0.5 1 2 Miles

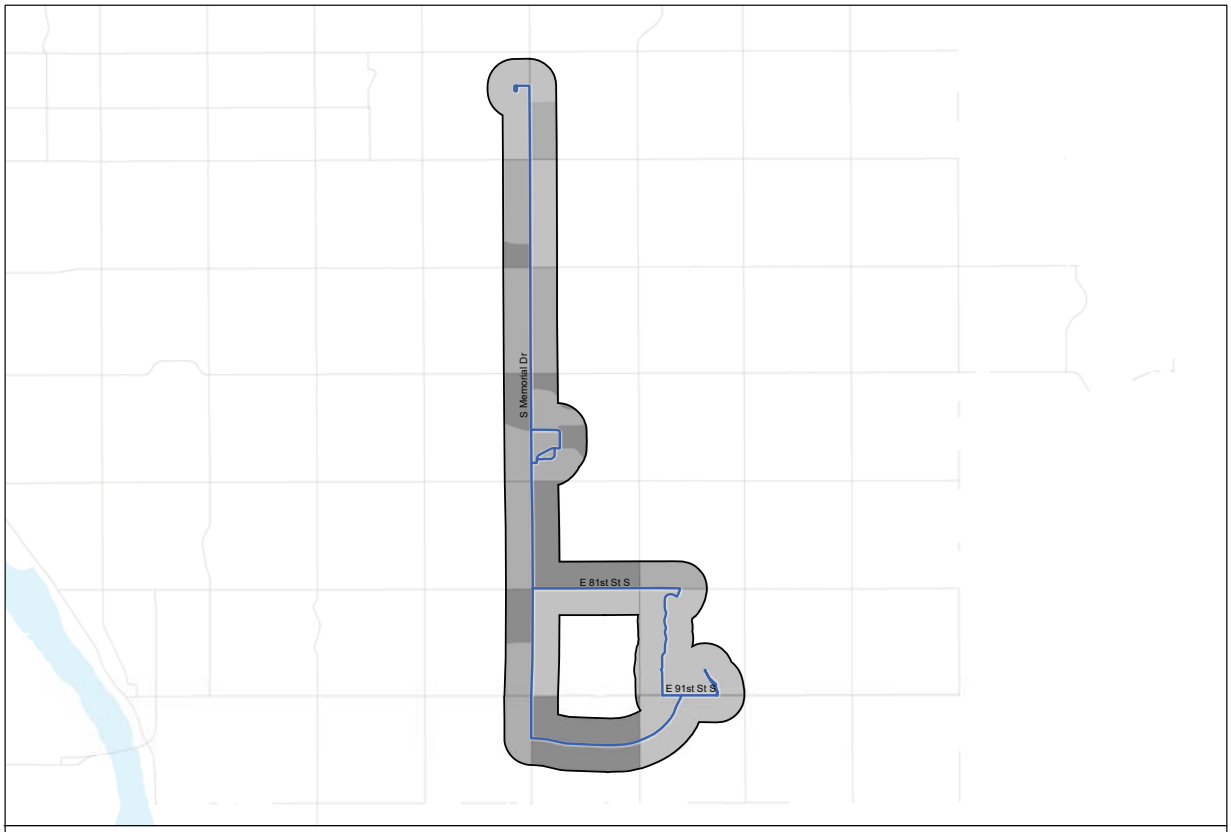
LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

Source: U.S. Census Bureau & INCOG



318 - Memorial

0 0.5 1 2 Miles

LEGEND

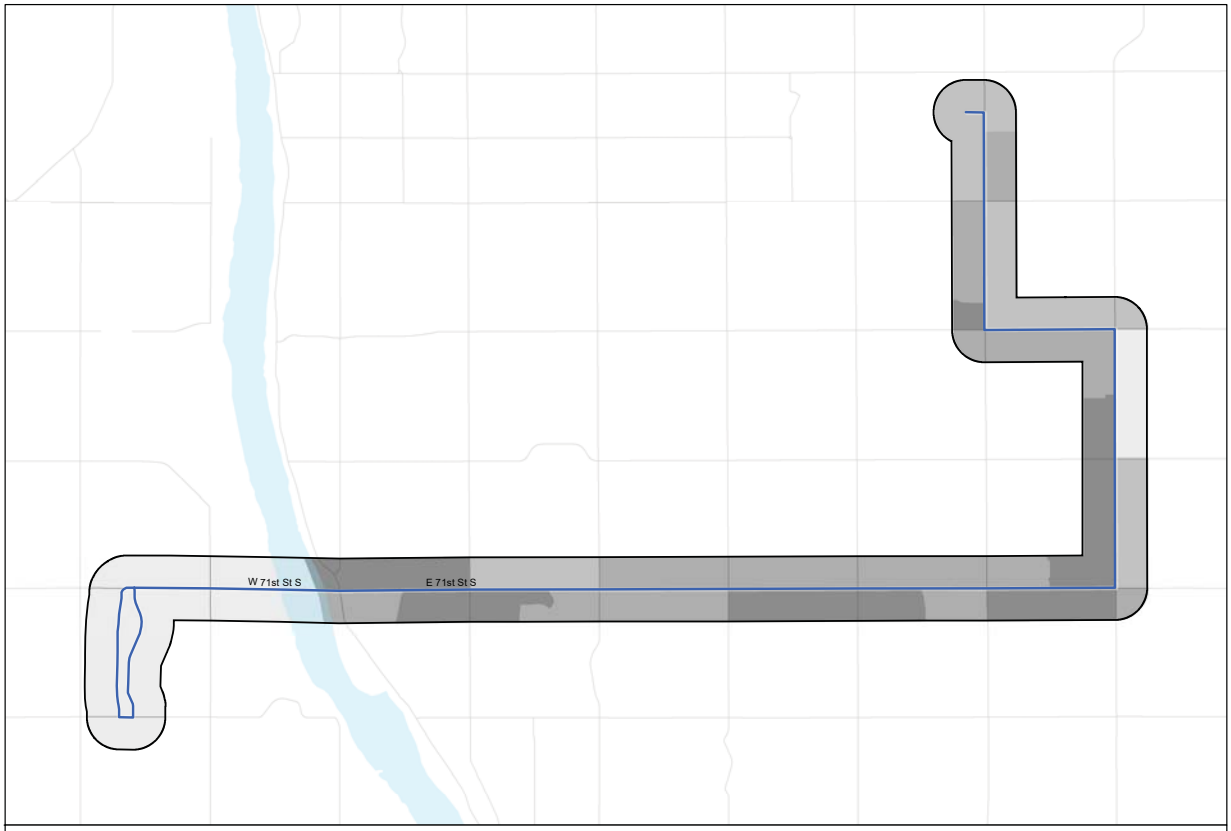
Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG



471 - 71st Street

0 0.5 1 2 Miles

LEGEND

Streets
Bus Route
1/4 Mile Buffer
Arkansas River

Population Per Square Mile

0 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001+

N

Source: U.S. Census Bureau & INCOG