



# Go COMO Bus Service Evaluation – Final Report

*July 24<sup>th</sup>, 2017*





# Go COMO Bus Service Evaluation

## Table of Contents

### Contents

Table of Contents.....	i
Executive Summary .....	ES.1
Chapter 1 Market Analysis .....	1
Chapter 2 Active Transportation Access to Transit.....	51
Chapter 3 Existing Services .....	64
Chapter 4 Route Performance .....	102
Chapter 5 Assessment.....	140
Chapter 6 Service Design Guidelines.....	146
Chapter 7 Service Standards .....	159
Chapter 8 Service Evaluation.....	164
Chapter 9 Recommended Service Standards .....	178
Chapter 10 Alternatives.....	192
Chapter 11 Preferred Transit Alternative.....	212
Appendix A: Stakeholder Meeting Notes	
Appendix B: Visioning Session Summary	
Appendix C: Transit Scenario Engagement Summary	
Appendix D: Final Preferred Individual Routes	
Appendix E – Agency Flex Brochures	





# COMO Bus Service Evaluation

## Executive Summary

In 2016, the city of Columbia, Missouri, began a transit service evaluation study to ensure the COMO bus system provided efficient service and met the needs of community members. The outcome of this study is an updated transit vision for the Columbia area reflecting community input, population changes, technical analysis, and other supporting documentation.

This effort included a market and peer analysis, community visioning process, development of service design guidelines and service standards. System alternatives were presented to the bus riders and the public at a series of mobile meetings held at bus stops, and a public open house. From this, a preferred short-term, medium-term, and long-term preferred plan was developed. The preferred plan transforms the transit system from the current loop system, to one of bi-directional linear routes that would bring routes to the Wabash Station at 10<sup>th</sup> Street and Ash Street to facilitate transfers, while also continuing to serve the University of Missouri campus.

To address the neighborhood areas with relatively low population density and low transit ridership, the preferred plan utilize general public demand response transit service, also known as “zonal flex” or “flex” service. Flex service has a service area boundary in areas of Columbia with low population, low employment density, and low levels of existing transit ridership. Customers needing transit service within the flex zone make a reservation with Go COMO, and a vehicle will pick the passenger up curbside. The customer takes a trip either within the flex zone, or transfers to the fixed route service. Within that zone, the flex service provides curb-to-curb transportation and as such, passengers of the flex service are typically charged a higher fare than fixed route transit service. This type of service allows the transit agency to continue providing transit service in low demand areas, while only operating vehicles when a ride is requested. Should transit demand increase in these areas, the transit agency utilizes the collected ridership data to implement fixed route service.

The preferred transit package for Columbia, shown in Figure ES-1, includes in the near-term:

- Replacing the current Black Route #1 with two north-south routes that both serve the University of Missouri campus and Wabash Station.
  - A new Route #2 that would serve the retail on Providence and Nifong, before connecting through campus to the Wabash Station. It would then continue to Business Loop 70 and then extend north along Garth Avenue to terminate at Blue Ridge Road.
  - The eastern portion of the existing Route #1 would be served by a new Route #1 that would connect Rock Quarry Road and Grindstone Parkway in the southeast of the city, to Wabash Station through the University of Missouri Campus, to Brown School Road via Rangline Street.
- The current Gold Route #2 would be split into three separate routes. A new Route #3 would connect the Wabash Station to retail on Fairview using Ash Street, Garth Avenue, Business Loop 70, Wooley, and Bernadette. A new



## COMO Bus Service Evaluation

Route #4 would primarily serve Broadway between Wabash Station and Fairview. A revised Route #5 would extend service from St. Charles Road and Clark Lane to Wabash Station via Paris Road, while also serving the retail and medical services on Conley Road and Keene Street. Battle High School would continue to be served before and after the school day.

- A new Route #6 would link the retail and medical services on Conley Road and Keene Street to the Wabash Station via Broadway and the campus.
- The areas served by Dark Green Route #7, Light Green Route #8, Purple Route #9, and Pink Route #6 would turn into a flex zone allowing passengers to either circulate within the zone, or deliver to a point where they can access fixed route transportation.
- Flex would be introduced in areas served by the current Brown Route #3 and Orange Route #4.
- Modify the service span to start at 6:00 am, rather than 6:30 am, on weekdays. Evening service would end at 7:30 pm.

The preferred transit packages incorporate changes made after public comments were received through public input. The new Route #1 was initially proposed to terminate at Smiley Lane, but was extended to Brown School Road after public comments were received. This would capture additional riders at relatively little additional cost.

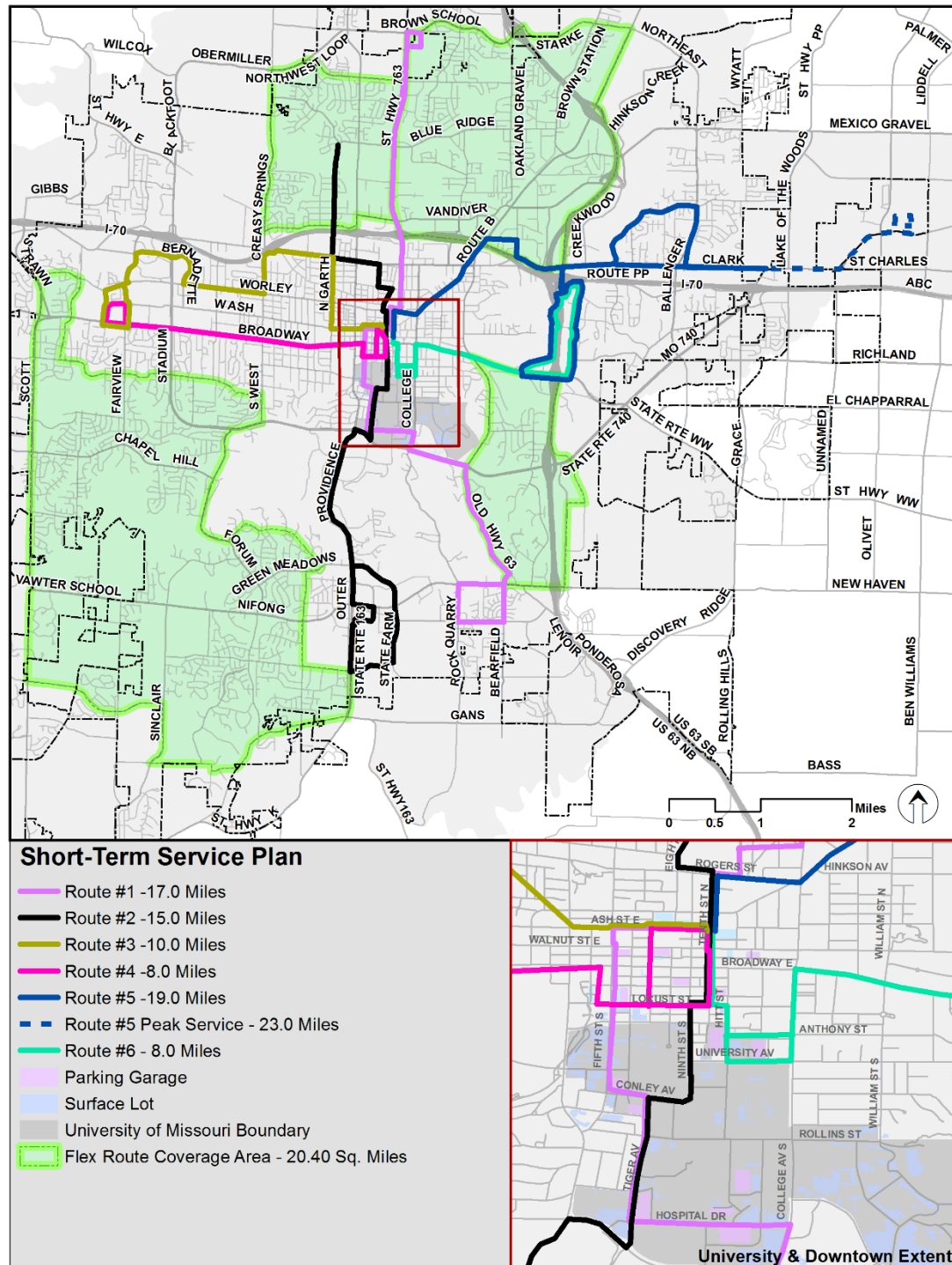
The off-peak Route #5 was extended from terminating at Ballenger Lane and Clark Lane, to terminating at St. Charles Road and Clark Lane instead. This would extend service to within walking distance for low income residents living in the area.

The medium term service plan would extend the evening service hours to 11 pm. The long-term service plan introduces Sunday service, and increases weekday evening frequency to 30 minutes.

The preferred plan alignments are shown in Figure ES-1. Service plan costs and characteristics are presented in Table ES-1.



Figure ES-1: Preferred Short-Term Alternative







## COMO Bus Service Evaluation

Table ES-1: Summary of Short-, Medium-, and Long-Term Plan

Preferred Plan	Peak Frequency	Service Span (Hrs)	Buses	Annual Operating Cost
Short Term				
Weekday Service	30	13.5	14	\$3,689,264
Saturday Service	60	10	9	\$398,970
Paratransit <sup>1</sup>	N/A	N/A	N/A	\$1,266,583
	Total			\$5,354,817
	Net Change Over Existing			\$(365,635)
Medium Term				
Weekday Service	30	13.5	16	\$4,244,195
Evening Service	60	3	10	\$616,590
Saturday Service	60	10	10	\$443,300
Paratransit <sup>1</sup>	N/A	N/A	N/A	\$1,730,820
	Total			\$7,034,904
	Net Change Over Existing			\$1,314,452
Long Term				
Weekday Service	20	13.5	22	\$6,104,241
Evening Service	30	3	15	\$924,885
Saturday Service	60	10	10	\$443,300
Sunday Service	60	7	10	\$310,310
Paratransit <sup>1</sup>	N/A	N/A	N/A	\$1,861,801
	Total			\$9,644,537
	Net Change Over Existing			\$3,924,085

Notes: <sup>1</sup>Paratransit costs were calculated by multiplying the system-wide cost per service hour by the annual service span of each service plan, factored for the amount of city population included in flex service areas.



# Go COMO Bus Service Evaluation

## Chapter 1 Market Analysis

### Introduction

In 2016, the city began a transit service evaluation study to ensure the COMO bus system provides efficient service and meets the needs of community members. The outcome is an updated transit vision for the Columbia area reflecting community input, population changes, technical analysis, and other supporting documentation.

This effort builds upon earlier work that the city of Columbia has completed to ensure it is a livable and healthy community for future generations. In 2013, the city adopted a new comprehensive plan “Columbia Imagined: The Plan for How We Live and Grow”. Included in the plan were several goals and objectives that focused on mobility, via transit, that are listed below:

#### Mobility, Connectivity, and Accessibility

**Goal 1:** Columbia is a fully accessible and efficient community for all modes and abilities.

*Objective:* Promote a good public transit system with extended hours

**Goal 4:** Ensure that public transit fits the needs of all people who do or could use it.

*Objective:* Consider a looped/interconnected system with three or four hubs, not just one— Wabash Station (downtown), south end of MU campus (hospitals, etc.), east and west sides of city

**Goal 5:** Promote public transportation system expansion with regional considerations.

*Objective:* Create partnerships between regional stakeholders to produce an integrated transportation system

*Objective:* Focus on developing a transit system between Columbia and Jefferson City including the Columbia Regional Airport and Jefferson City Amtrak Station

The City of Columbia unveiled a redesigned transit system in 2013 with the goal of changing how public transportation options were delivered in the community. The transit network unveiled in 2013 streamlined transit service within Columbia with routes circulating in the periphery of the city that fed into the core routes. The purpose of this Comprehensive Operational Analysis (COA) is to review and analyze the current routes, looking at where the transit network is working well, and where the new network may have opportunities for additional efficiencies.



## Go COMO Bus Service Evaluation

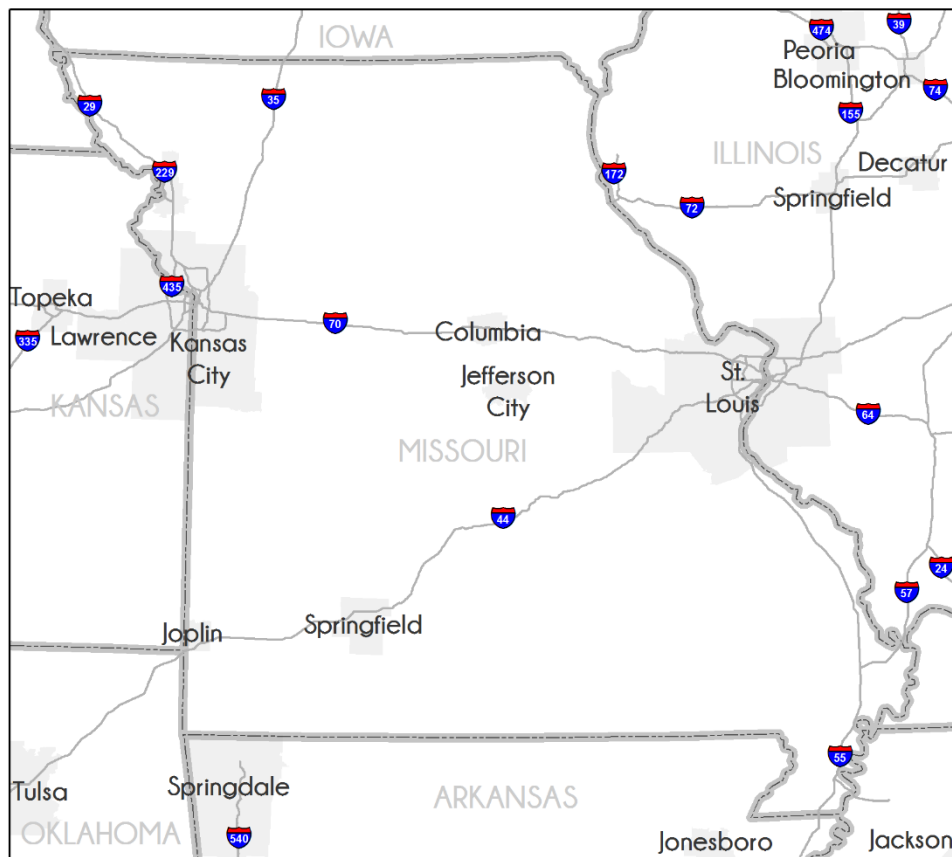
### Study Area

The city of Columbia, Missouri is the county seat of Boone County and is 100 miles from both the St. Louis and Kansas City metropolitan areas and 29 miles north of the state capital Jefferson City. Columbia is the home of the University of Missouri, Stephens College and Columbia College.

The city is located near the Missouri River Valley in northcentral Missouri where the Ozark Mountains begin transitioning to plains and savannah. Nearby are Rock Bridge Memorial State Park, Mark Twain National Forest, and Big Muddy National Fish and Wildlife Refuge, which form a greenbelt around the city.

The study area incorporates the area within the current city limits and has a total area of 63 square miles. Two major highways intersect in Columbia – Interstate 70, which runs east/west, and State Highway 63, which runs north/south.

*Figure 1-1: Study Area Context*



### Land Use Overview

The City of Columbia includes several thousand acres of developable land.<sup>1</sup> Included in this area is approximately 6.5 square miles of land bounded by Stadium Boulevard,

<sup>1</sup> City of Columbia, Columbia Imagined: The Plan for How We Live and Grow, 2013 pg.105

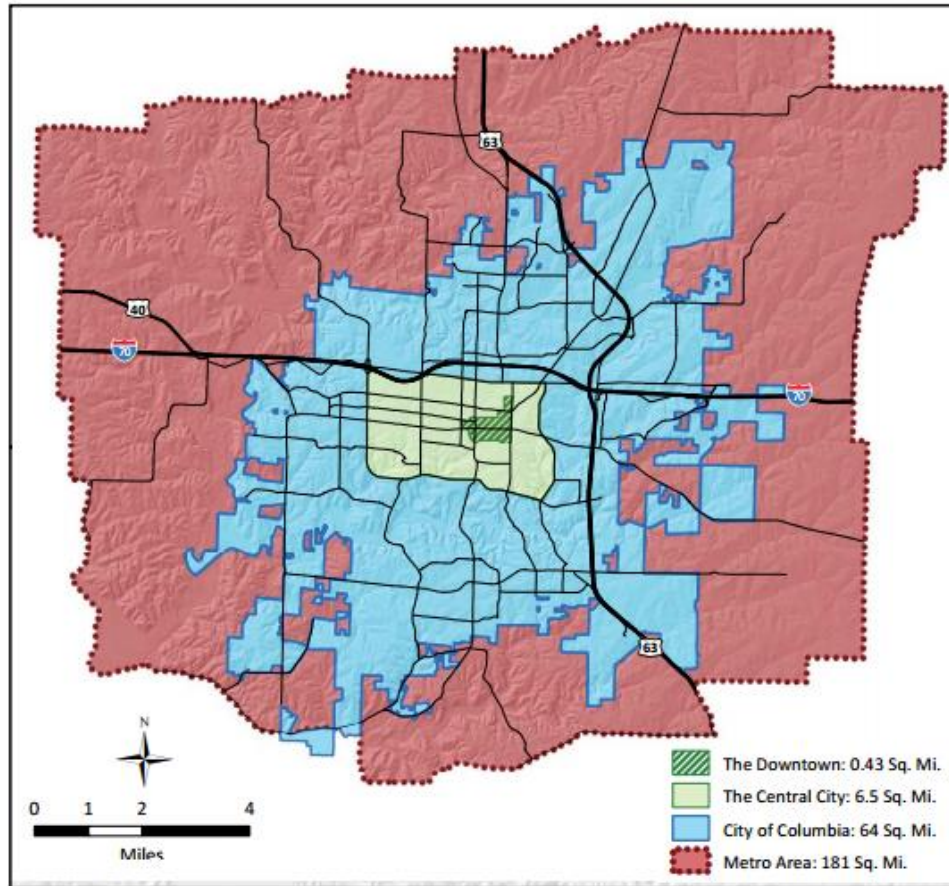




## Go COMO Bus Service Evaluation

Old 63, and Business Loop 70 that comprises the central city and surrounding neighborhoods, which offer several infill redevelopment opportunities. The downtown is a 0.43-square mile area is bordered by College Avenue, Elm Street, Garth Avenue, Park Avenue, 10th Street, Rogers Street, Pannell Street, and Wilkes Boulevard. Downtown is defined by commercial, industrial, and residential areas bordered by the University of Missouri, Stephens College, and Columbia College, and are either established or transitioning towards higher-density, mixed-use, and pedestrian-oriented development.<sup>2</sup> **Figure 1-2** shows the areas described above.

*Figure 1-2: City of Columbia Comprehensive Plan Areas and Sub-Areas*



Source: *Columbia Imagined: The Plan for How We Live and Grow*, 2013

### **Current Land Use Designations and Major Activity Centers**

Columbia's land use patterns reflect the changing nature of development over the course of the city's history, from a traditional street grid pattern with small commercial nodes and a greater mixture of land uses, to a more suburban development pattern, with a greater separation of land uses and a greater reliance on arterial roadways as high-volume commercial corridors. The University of Missouri campus and the historic downtown comprise the city's central city and downtown and play a significant role in

<sup>2</sup> Ibid.



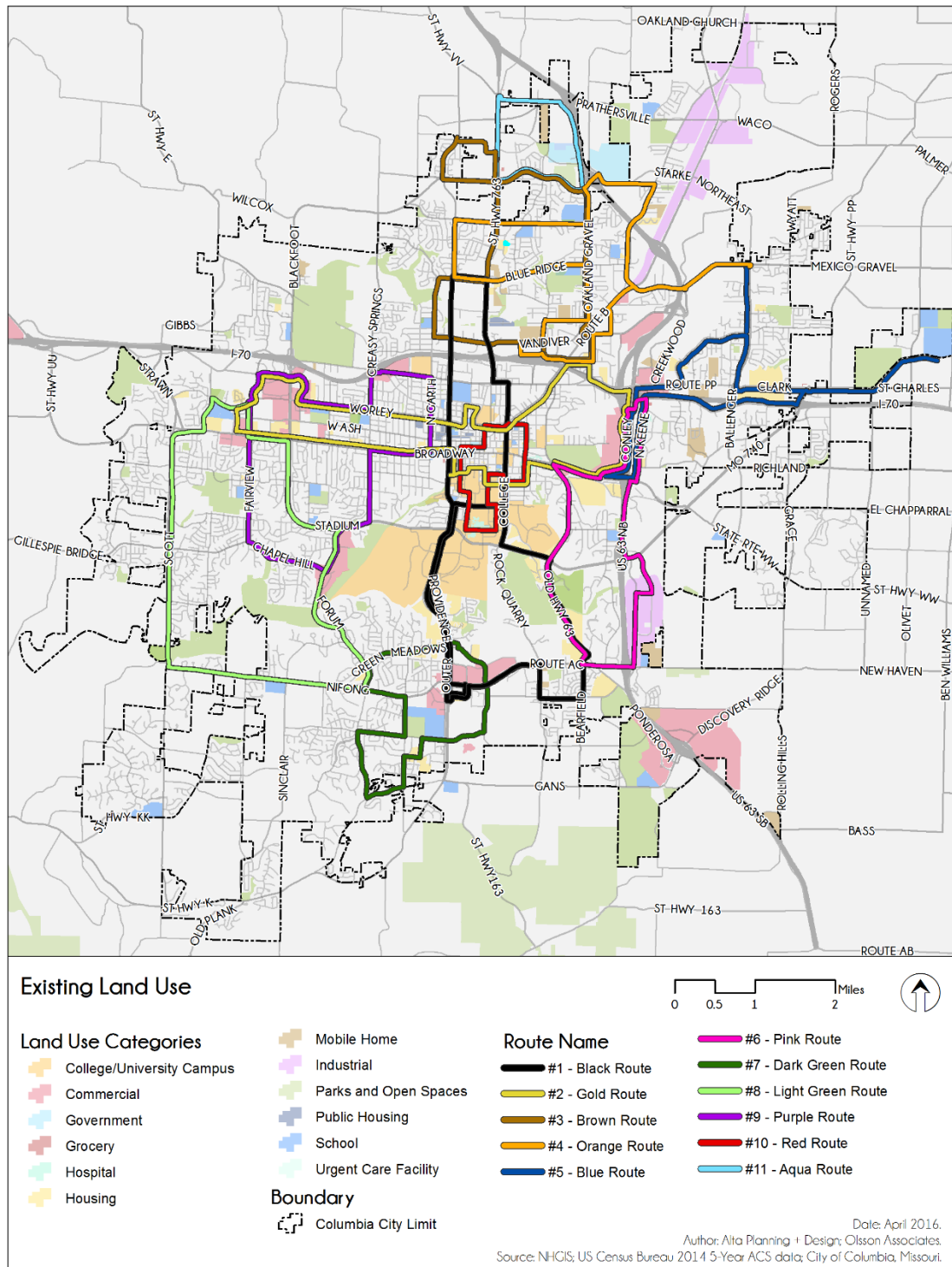
## Go COMO Bus Service Evaluation

shaping the community's character and identity. Commercial and industrial land uses radiate from the urban core along arterial corridors and cluster at major intersections. As **Figure 1-3** on the following page shows, growth and development in Columbia radiate outwards from the city center and the University of Missouri Campus immediately to the south. Interstate 70 bisects the community. While most commercial, institutional, and cultural land uses are located south of the interstate, the northern half of Columbia consists primarily of residential and industrial land uses. In addition, several city parks and recreational amenities are located north of Interstate 70, including Cosmo Park, Albert-Oakland Park, Indian Hills Park, and the Bear Creek Trail. The grey areas in **Figure 1-3** represent residential and undeveloped or agricultural land uses in the area.



# Go COMO Bus Service Evaluation

Figure 1-3: Existing Land Use and Community Features







## Go COMO Bus Service Evaluation

The largest and most significant destination in Columbia is the University of Missouri, whose daytime population of students and full-time staff exceeds 48,000.<sup>3</sup>

Immediately north of the campus is the mixed-use downtown district, home to a diverse mixture of retail, restaurants, entertainment venues, professional offices, health care providers, single- and multi-family homes, and cultural amenities.

Together, the University of Missouri campus and dense, mixed-use downtown provide significant demand for transit services.

To the east of downtown, major destinations are clustered along US Highway 63 from Broadway north to Vandiver Drive. These include Walmart Supercenter, Sam's Club, MU Women's and Children's Hospital, Bass Pro Shop, and Menards. West of Downtown Columbia, commercial destinations line Stadium Boulevard from Interstate 70 south to West Broadway, including Columbia Mall, Dick's Sporting Goods, and Walmart Supercenter. Parks and open spaces are scattered throughout the city, with larger state parks and conservation areas on the city's periphery, including the Katy Trail, adding to Columbia's lengthy list of outdoor attractions. Many of these major destinations in Columbia are well-served by the existing Go COMO transit routes.

As a university town, Columbia has experienced the trend of converting single-family housing into rental housing for college students in areas surrounding the three college campuses. In Columbia, this has resulted in the central city having low home ownership rates compared to the other areas of the city. The recent comprehensive plan *Columbia Imagined: The Plan for How We Live and Grow, 2013* discusses past, present, and future trends in land use and the impacts on the city and its quality of life.

*"During public forums, concerns were expressed about the limited availability of affordable housing, access to public transit options, neighborhoods lacking character and connectivity, development sprawl, and the lack of transparency in government decision making."<sup>4</sup>*

### **Future Land Use Designations**

The vision for the future of land use and growth in the City of Columbia, as envisioned in the 2013 comprehensive plan, included the following "Land Use Principles and Policies – Livable and Sustainable Communities":

1. Support diverse and inclusive housing options
2. Support mixed use
3. Facilitate neighborhood planning
4. Promote community safety

Additionally, a number of "Principles of Livable and Sustainable Communities" are included in the plan that express a strong desire for the use of smart growth principles

<sup>3</sup> University of Missouri, Facts & Pride Points, accessed April 29, 2016, <https://owl.english.purdue.edu/owl/resource/717/05/>

<sup>4</sup> City of Columbia, *Columbia Imagined: The Plan for How We Live and Grow*, 2013 pg. 21



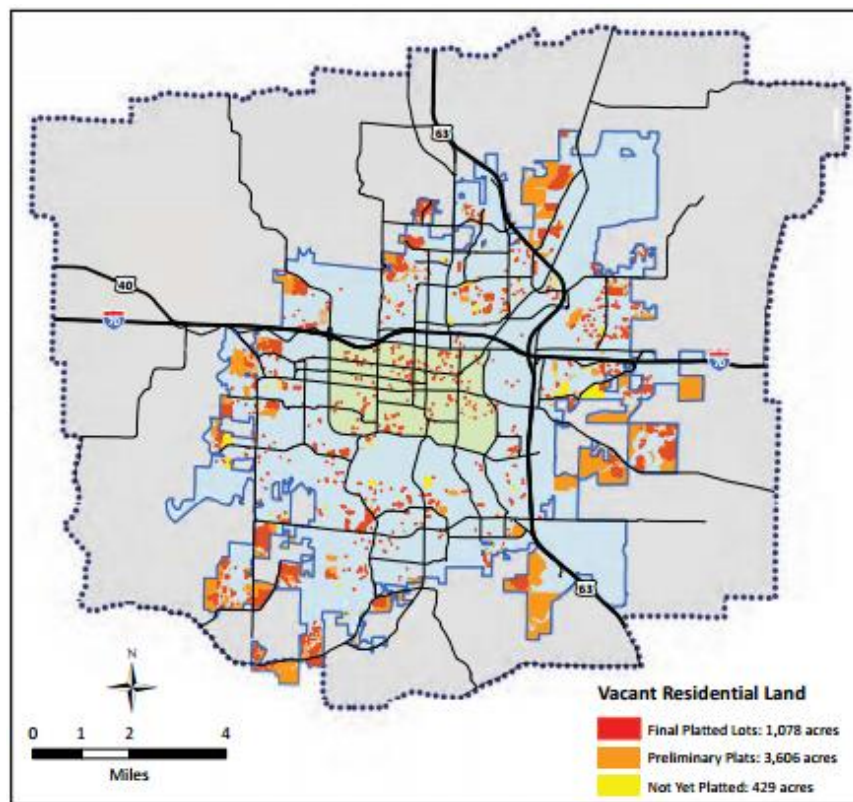
## Go COMO Bus Service Evaluation

that focus on reducing the need for automobile travel and that create walking, bicycling and transit supportive development:

*“Smart growth principles will be adopted to ensure that neighborhoods are livable and walkable. Development standards will encourage compact neighborhoods with access to work places, services and gathering places. Mixed-use neighborhoods with facilities and options to reduce the need for automobile travel will be supported. We will promote density and discourage sprawl.”<sup>5</sup>*

The location of land available for development can be seen in **Figure 1-4**, which shows vacant resident land as identified in the city's 2013 comprehensive plan. **Figure 1-5** depicts future land uses in and around the city of Columbia from the city's 2013 comprehensive plan. Residential land uses remain the largest land use type, and will continue to expand in all areas of the city, including the core. The comprehensive plan indicates that Columbia has several thousand acres of vacant and available land (platted and unplatted) available for new residential development.

*Figure 1-4: Vacant Residential Land*



Source: *Columbia Imagined: The Plan for How We Live and Grow, 2013*

<sup>5</sup> Ibid. pg. 120



Retail and commercial growth will continue as well, both in the city center and in surrounding commercial and industrial areas to the southeast, east, north, and northwest. These continued employment growth trends will depend on expansion of education and health care services, the city's core employment sectors, as well as commercial and service sectors, which also experienced growth during the previous decade. The city anticipates continued growth in these sectors will require land to be allocated to accommodate this intended growth.

[illegible]





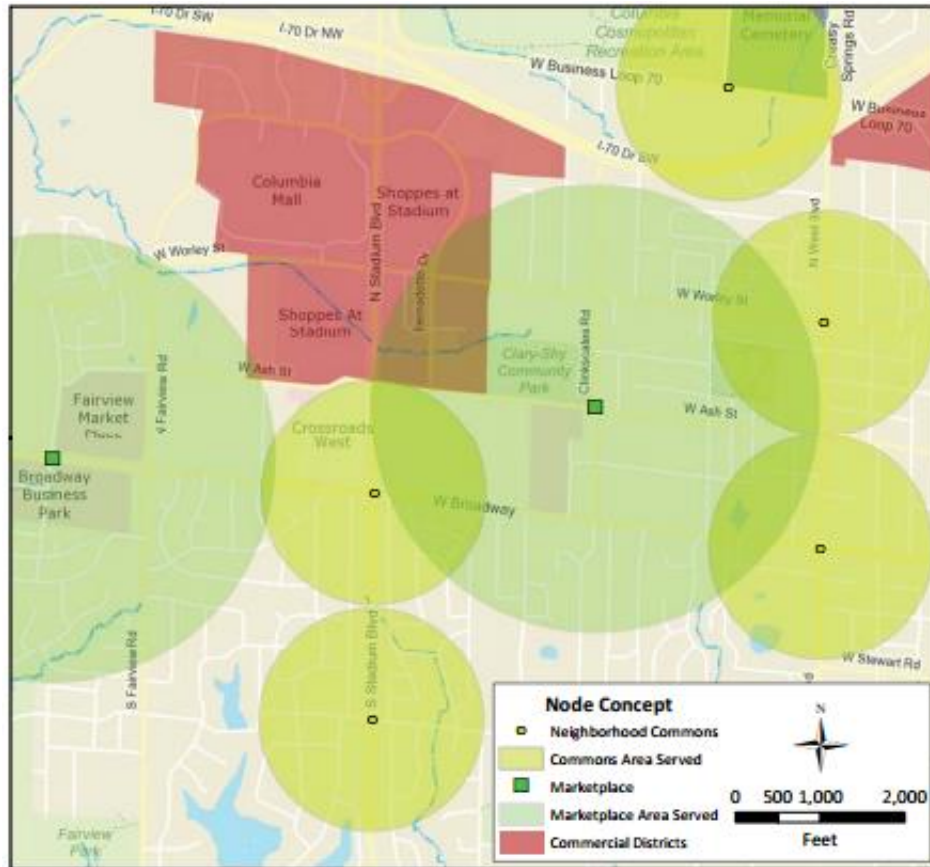
## Go COMO Bus Service Evaluation

Another concept included in the 2013 comprehensive plan is the use of nodes of development.

*"The node concept is a good way to think about how we can mix residential, employment, and commercial uses."*

**Figure 1-6** illustrates the node concept as developed in the comprehensive plan.

**Figure 1-6: The Node Concept**



Source: *Columbia Imagined: The Plan for How We Live and Grow, 2013*

### CATSO 2040 Long-Range Transportation Plan Overview

The 2040 Long-Range Transportation Plan (LRTP) was approved for the Columbia Metropolitan Area in February of 2014. The LRTP study area includes the City of Columbia and a portion of unincorporated Boone County.

The 2040 LRTP includes the following vision statement:

*"Columbia and central Missouri, a growing urban community, will have a modern transportation system, which allows its citizens to move about freely within the region using whatever means are desired – automobile, bus, bicycle, walking –*



## Go COMO Bus Service Evaluation

*and to do so safely, within a reasonable time frame, and without encountering needless congestion.”<sup>6</sup>*

The plan includes seven goals for transportation in the Columbia Metro Area and a number of objectives. The goals and objectives that address transit directly include:

**Goal 1:** The Columbia Metro Area will have a first class street, highway and non-motorized network that meets the short and long-term needs of the Metro Area

*Objective 1:* Design streets and highways that are safe and efficient to move vehicular traffic and accommodate transit, pedestrians and bicyclists with minimal environmental impacts

**Goal 2:** The Metro Area transportation system will integrate and connect all travel modes

*Objective 1:* Encourage convenient intermodal transfers to maximize travel efficiency

*Objective 2:* Encourage the use of the most efficient mode based upon the distance and characteristic of a particular trip

*Objective 3:* Reduce reliance on automobile travel and better serve those who do not or cannot own and drive an automobile

*Objective 4:* Improve and expand infrastructure for pedestrians, bicyclists and people with disabilities

**Goal 3:** The public transportation system will be a viable transportation option throughout the Metro Area

*Objective 1:* Promote a mobility management public transportation system whereby all providers of public transportation work together to maximize efficiency and resources

*Objective 2:* Support and promote the public transportation system

*Objective 3:* Expand and redesign the existing transit system to meet ridership needs

Chapter 7 of the plan includes future project plans. Transit Project needs identified included:

1. A comprehensive redesign of the bus route system (which was completed in 2014)
2. Development of a long-range transit master plan<sup>7</sup>

Additionally, the plan recognized the issues the transit system faces in funding for future services:

<sup>6</sup> 2040 Long-Range Transportation Plan - Columbia Area Transportation Study Organization (CATSO), pg. 7.

<sup>7</sup> Ibid. pgs. 49-51



## Go COMO Bus Service Evaluation

*The goals and objectives for this plan, as described in Chapter 6, show a disconnection between transit needs and transit funding over the plan horizon. Using fiscal constraint, transit revenues are shown as mostly flat year over year. In order to expand the system's routes, days and times to meet citizen expressed demand and increase efficiency, improve route amenities and intermodal transfer facilities, and other needs such as regional commuter options, the amount of funding and ways in which transit is funded will necessitate reconsideration and greater investment.<sup>8</sup>*

The CATSO 2040 LRTP included "Recommendations for Plan Implementation" that include one targeting transit:

5. Examine and support options for expanding public transportation services in the incorporated and unincorporated portions of the Metro Area

### Population Characteristics

#### Existing Population

The 2014 U.S. Census American Community Survey data for the city of Columbia was analyzed utilizing a series of maps that include the existing transit routes and roadways. **Figure 1-7** displays existing population density in the study area, which is primarily concentrated in the center of the city with areas to the west and north showing higher population densities near the surrounding fringe neighborhoods.

#### Future Population

**Figure 1-8** shows future population densities based on estimates derived from current plans and land uses. It is important to note the data this map is derived varies from **Figure 1-7: Existing Population Density**, in terms of both data source and data geography. The future population data uses employment projections based on decennial census data and other land use factors created by the city of Columbia and the Columbia Area Transportation Study Organization. As such, there may be minor discrepancies resulting from these differing data sources. Columbia is projected to experience continued concentration of higher density neighborhoods in and around the urban core. Population density is projected to increase in the north, northwest, northeast, and southeast areas of the city.

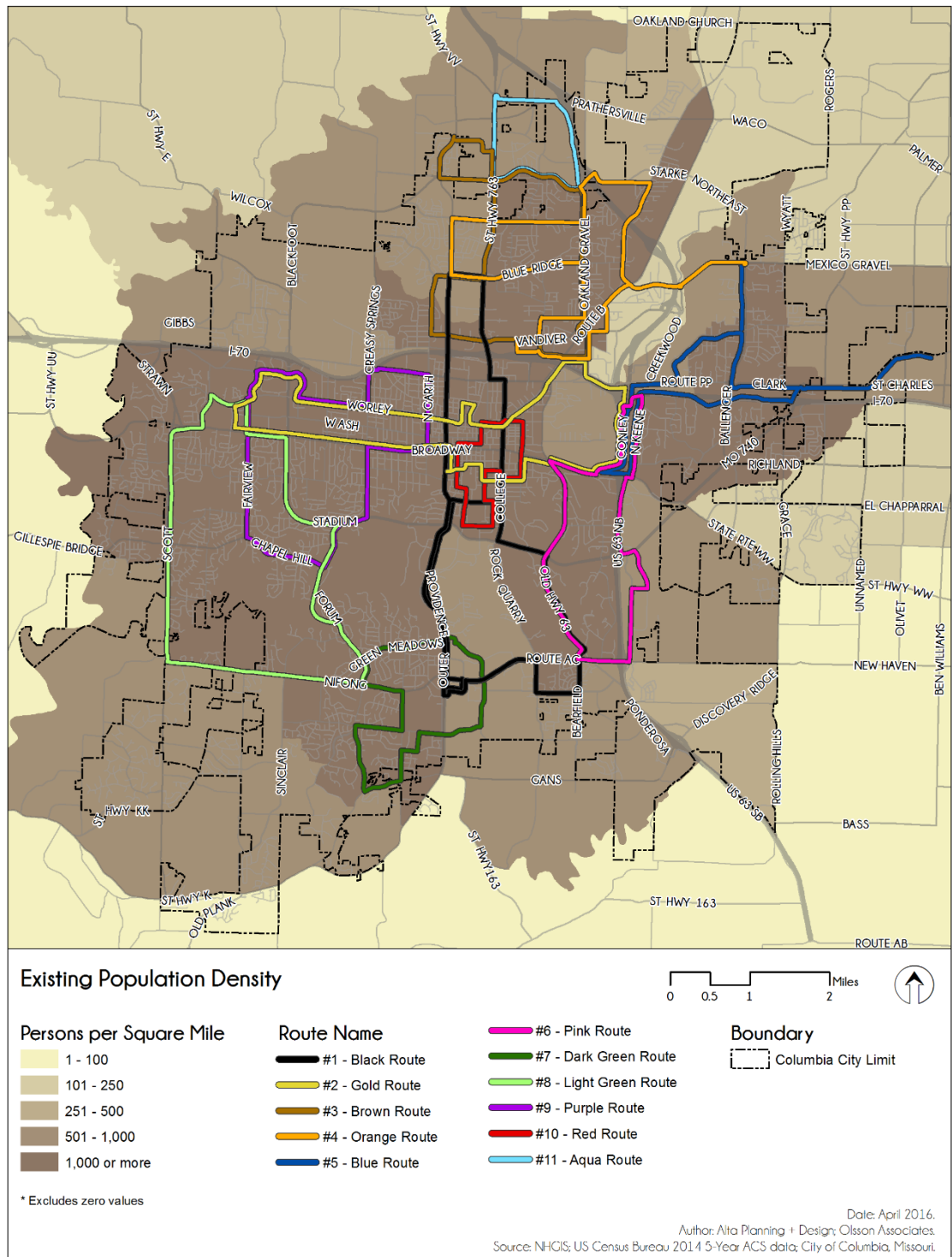
---

<sup>8</sup> Ibid, pg. 64



# Go COMO Bus Service Evaluation

Figure 1-7: Existing Population Density

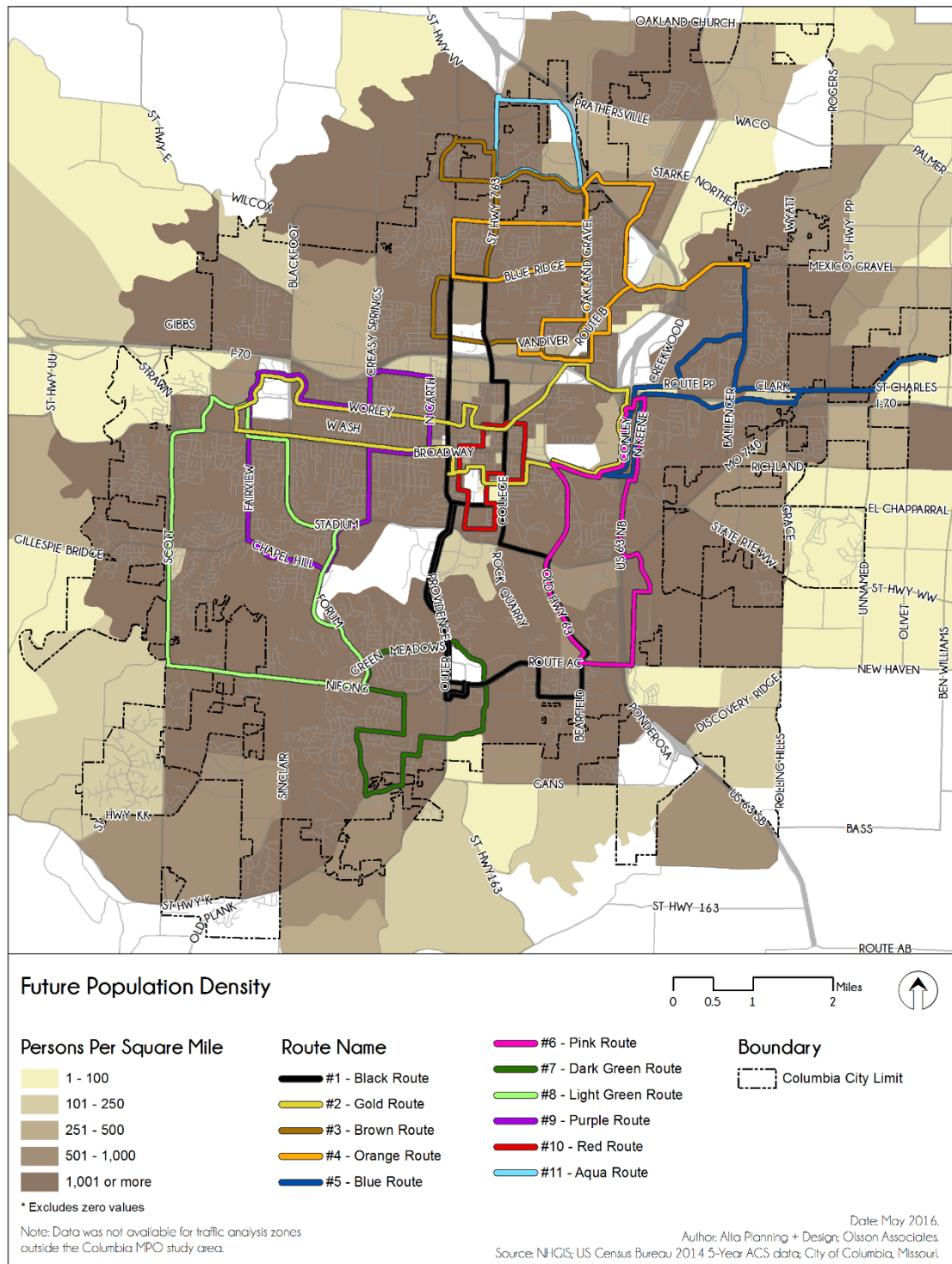






# Go COMO Bus Service Evaluation

Figure 1-8: Future Population Density





## Go COMO Bus Service Evaluation

### Employment Characteristics

#### *Current Employment Density*

The majority of jobs in the city of Columbia are concentrated in the core of the city, as can be seen in **Figure 1-9**. The green dots represent census block groups with at least 250 or more jobs, with larger dots representing larger concentrations of employees. As the map depicts, the greatest clustering of employees is located in Downtown Columbia and in the University of Missouri campus, immediately to the south. Many high concentrations of employees outside the city core correspond to major commercial centers like the Broadway Marketplace, near Broadway and State Highway 63, the Columbia Mall, and surrounding commercial developments to the west. Other large employment clusters correspond to major office buildings and medical facilities, including State Farm Federal Credit Union, University Hospital on MU's campus, and Boone Hospital at Broadway and William.

Having the majority of the employment density located in the central city creates the opportunity for further use of transit as a viable means of mobility, particularly with younger workers who prefer to drive less and live closer to their places of employment.

#### *Future Employment Density*

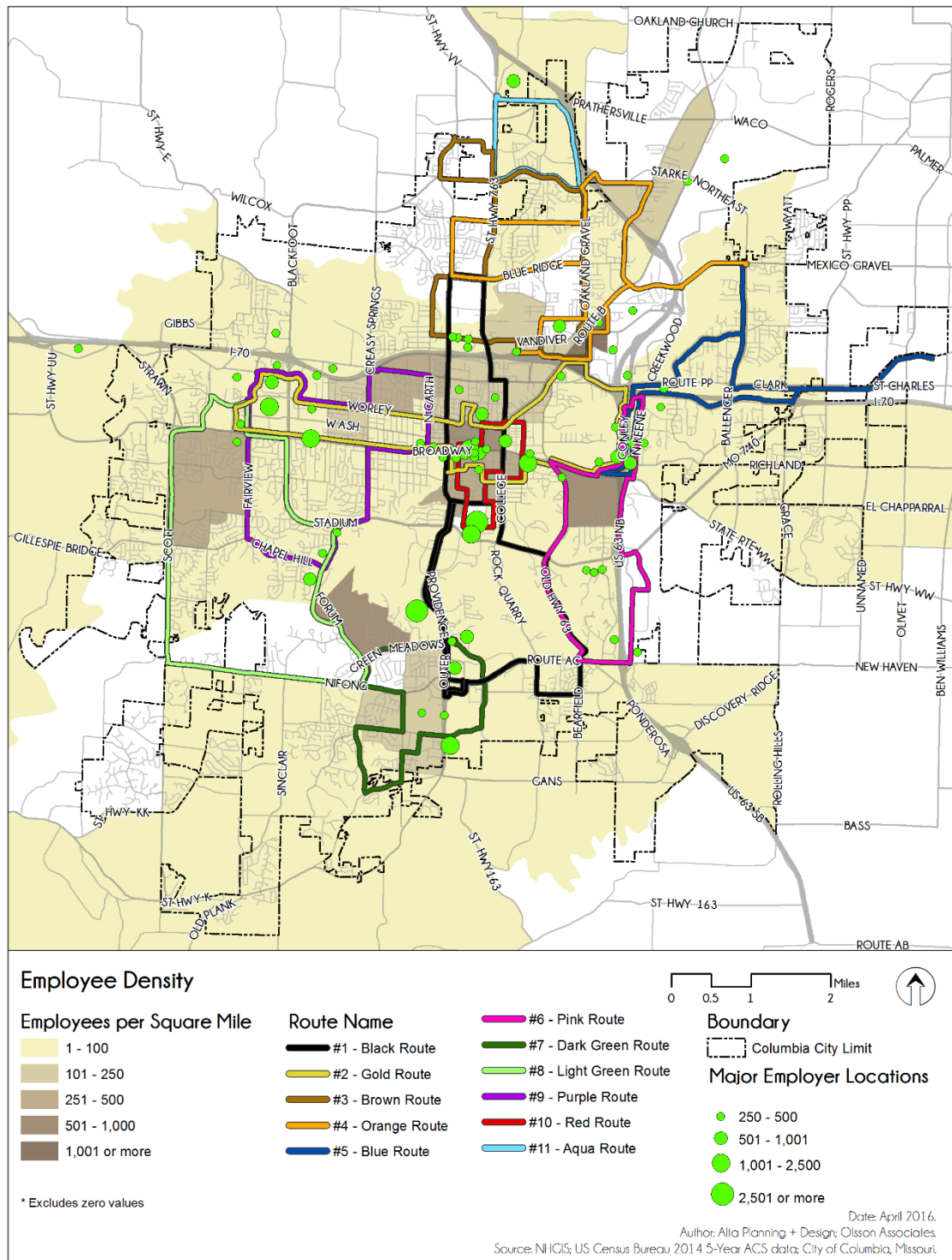
Projections of future employment density and the locations are based on the figures developed by the city of Columbia and the Columbia Area Transportation Study Organization. Like the future population figures described above, these future employment figures are calculated at the traffic analysis zone level, not the census block group level. As seen in **Figure 1-10**, employment is projected to be more widely dispersed by 2030, with large concentrations of employment being located north, south, east and west of the core of the community. Future employment is projected to be concentrated along existing major corridors and transit routes, except for two areas – one to the northeast of the City along Route B, and in the southeast along US 63, near Discovery Parkway – both of which currently have no transit access.

Based on these projections, expansion of transit services will need to be considered to project access for the workers traveling to the new employment destinations. Challenges related to increasing travel times and transit frequency will need to be addressed to maintain transit as a viable transportation mode for future workers.



# Go COMO Bus Service Evaluation

Figure 1-9: Current Employment Density

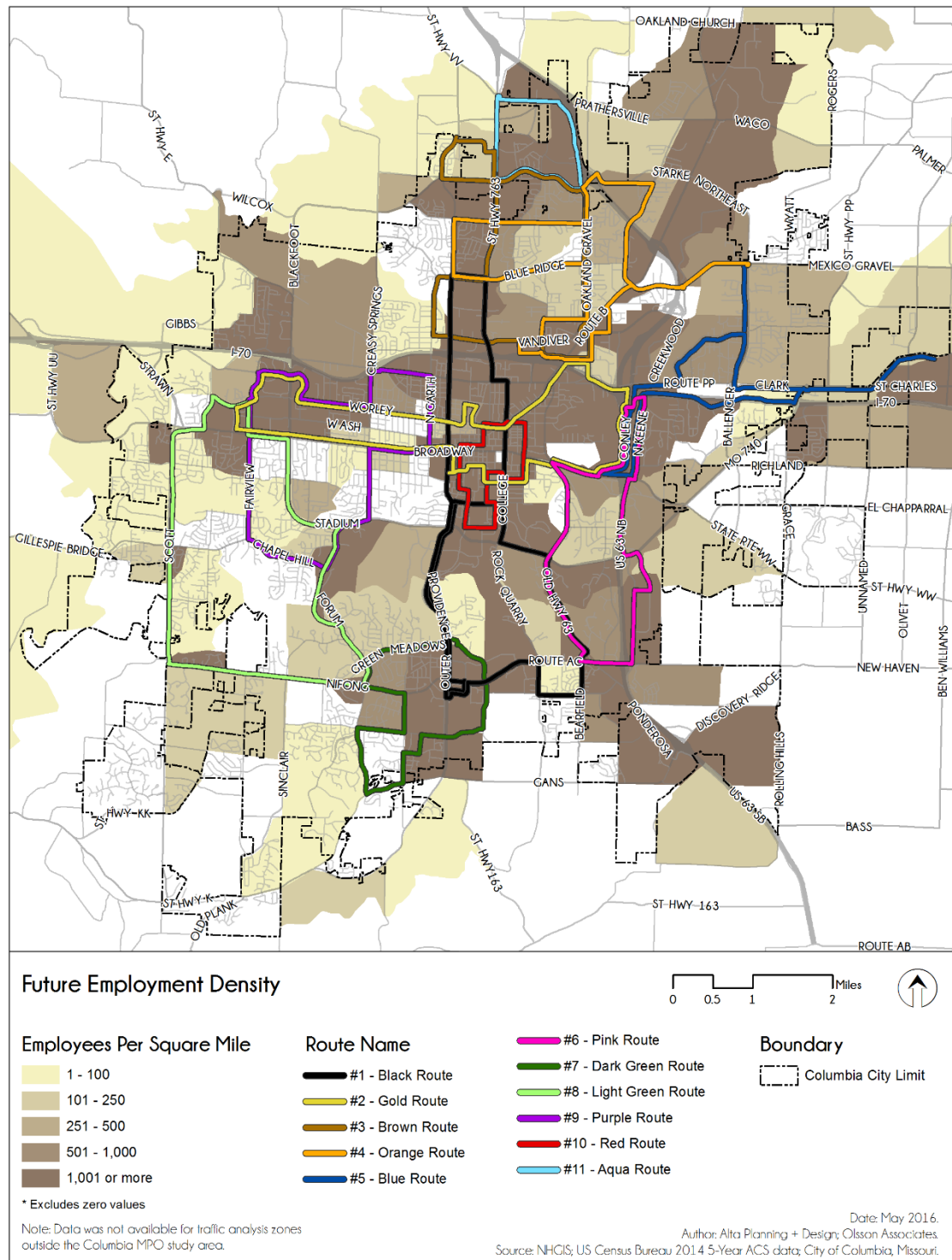






## Go COMO Bus Service Evaluation

Figure 1-10: Future Employment Density





## Employment Sectors

Employment industry composition in Columbia reflects the size and strength the city's education and health care sectors. Nearly four out of every ten employees in Boone County work in either sector. Both industries are geographically clustered, with a significant portion employed by major institutions, including the University of Missouri, Columbia College, Stevens College, Boone Hospital Center, MU Women's & Children's Hospital, and University Hospital. An additional 22 percent of employees work in the retail, accommodation, and food services sectors. Many businesses in these sectors are clustered in larger retail developments, including downtown, Columbia Mall, and Broadway Marketplace. These dense employment nodes provide opportunities to increase transit service.

*Table 1-1: Employment Industry Sectors*

NAICS Industry Sector	Count	Share
Health Care and Social Assistance	15,707	20.90%
Educational Services	13,318	17.80%
Retail Trade	8,396	11.20%
Accommodation and Food Services	8,085	10.80%
Professional, Scientific, and Technical Services	3,552	4.70%
Finance and Insurance	3,532	4.70%
Management of Companies and Enterprises	3,341	4.50%
Administration & Support, Waste Management and Remediation	3,213	4.30%
Public Administration	3,142	4.20%
Construction	1,970	2.60%
Manufacturing	1,947	2.60%
Other Services (excluding Public Administration)	1,812	2.40%
Wholesale Trade	1,618	2.20%
Information	1,572	2.10%
Arts, Entertainment, and Recreation	1,113	1.50%
Real Estate and Rental and Leasing	1,033	1.40%
Transportation and Warehousing	1,001	1.30%
Utilities	509	0.70%
Agriculture, Forestry, Fishing and Hunting	91	0.10%
Mining, Quarrying, and Oil and Gas Extraction	23	0.00%
<b>Total Jobs</b>	<b>74,975</b>	



## Go COMO Bus Service Evaluation

### Major Employers

The list of major employers shown below in **Table 1-2** emphasize education and health care as major employment sectors in the city of Columbia. While some larger employers like the University of Missouri, Boone Hospital Center, Columbia College, and US Department of Veterans Affairs (Harry S. Truman Memorial Hospital) are generally single-location or campus employers, other major employers, like the city of Columbia and Columbia Public Schools are dispersed among multiple locations throughout the city.

*Table 1-2: Major Employers in Columbia*

Employer	Employee Range
University of Missouri	5,000 & up
University Hospitals & Clinics	2,500 – 4,999
Boone Hospital Center	1,500 – 2,499
City of Columbia	1,000 – 1,499
Columbia Public Schools	1,500 – 2,499
Shelter Insurance Companies	1,000 – 1,499
State Farm Insurance	1,000 – 1,499
US Department of Veterans Affairs	1,000 – 1,499
Columbia College	750 – 999
Hubbell Power Systems	750 - 999
Joe Machens Dealerships	750 – 999
MBS Textbook Exchange	750 – 999
State of Missouri	750 – 999
Veterans United Home Loans	750 – 999
IBM	500 - 749

*Source: Missouri CORE nonprofit economic development agency.  
<http://missouricore.com/home/explore-the-core/largest-employers-by-county/>*

### Travel Patterns

#### Work Transportation Mode

The majority of employees in the city of Columbia get to and from work via private automobile. **Table 1-3** provides data on trips to work by transportation mode and shows that over 76 percent of workers drive to work alone. The next largest category is carpooling with close to 10 percent of the workers going to and from work by sharing a ride. People traveling to work by public transportation comprise just over 1 percent of the workforce in Columbia, compared to 1.5 percent in the State of Missouri and more than 5 percent in the United States.





## Go COMO Bus Service Evaluation

Table 1-3: Journey to Work by Mode of Transportation<sup>9</sup>

	City of Columbia		Boone County		State of Missouri		United States	
	Count	Share	Count	Share	Count	Share	Count	Share
Car, Truck, Van (Alone)	44,647	76.6%	67,669	78.4%	2,241,382	81.6%	107,990,698	76.4%
Car, Truck, Van (Carpool)	5,702	9.8%	8,946	10.4%	258,639	9.4%	13,554,363	9.6%
Public Transportation	650	1.1%	680	0.8%	40,785	1.5%	7,157,671	5.1%
Taxicab	112	0.2%	168	0.2%	1,893	0.1%	160,553	0.1%
Motorcycle	165	0.3%	245	0.3%	4,704	0.2%	294,635	0.2%
Bicycle	840	1.4%	866	1.0%	7,017	0.3%	832,750	0.6%
Walk	3,635	6.2%	4,026	4.7%	54,235	2.0%	3,932,118	2.8%
Other Means	193	0.3%	372	0.4%	21,468	0.8%	1,242,769	0.9%
Work from Home	2,313	4.0%	3,308	3.8%	116,894	4.3%	6,171,591	4.4%
Total	58,257		86,280		2,747,017		141,337,148	

### Commute Patterns (current and potential future)

Commuter travel patterns indicate the connection between where people live and where they work. These patterns were determined from the 2013 U.S. Census Longitudinal Employer-Household Dynamics (LEHD) program. The LEHD program produces public-use information combining federal, state, and Census Bureau data on employers and employees under the Local Employment Dynamics (LED) Partnership. The LEHD data provides a dataset describing geographic patterns of employees by their employment locations and residential locations as well as the connections between the two locations.

**Table 1-4** shows the counties in which persons employed in the city of Columbia live. Nearly 45,000 (60 percent) employees live in Boone County, of whom nearly 30,000 (67 percent) live in the city of Columbia. Approximately 40 percent of employees in Columbia live outside Boone County, primarily in the surrounding counties of Calloway, Cole, Cooper, Randolph, Audrain, and Howard. St. Louis County and St. Charles County to the east, as well as Jackson County to the west, also supply a considerable share of employees from the St. Louis and Kansas City Metropolitan Areas, respectively.

<sup>9</sup> As stated in the US Census Bureau's 2014 report *The Mode Less Traveled*, "Means of transportation to work refers to the principal mode of travel that the worker usually used to get from home to work during the reference week. People who used different means of transportation on different days of the week were asked to specify the one they used most often. People who used more than one means of transportation to get to work each day were asked to report the one used for the longest distance during the work trip."



## Go COMO Bus Service Evaluation

*Table 1-4: Where Employees in Columbia Live*

County	Population	Percent of Total Employees
Boone County, MO	44,911	59.9%
Callaway County, MO	2,709	3.6%
St. Louis County, MO	2,592	3.5%
Cole County, MO	2,447	3.3%
Cooper County, MO	1,719	2.3%
Jackson County, MO	1,663	2.2%
Randolph County, MO	1,291	1.7%
Audrain County, MO	1,058	1.4%
Howard County, MO	1,034	1.4%
St. Charles County, MO	956	1.3%
All Other Locations	14,595	19.5%

**Table 1-5** shows the major counties to which Columbia residents travel for employment. Two of every three employed residents work in Columbia, the remainder are working elsewhere in Boone County and in surrounding areas, particularly Cole County and Jefferson City.

*Table 1-5: Where Columbia Residents Work*

County	Population	Percent of Total Employees
Boone County, MO	32,188	72.2%
Cole County, MO	1,948	4.4%
St. Louis County, MO	1,523	3.4%
Jackson County, MO	1,117	2.5%
Callaway County, MO	901	2.0%
St. Louis city, MO	561	1.3%
St. Charles County, MO	462	1.0%
Greene County, MO	451	1.0%
Randolph County, MO	391	0.9%
Cooper County, MO	316	0.7%
All Other Locations	4,736	10.6%

The two tables above highlight long home-work distances for some Columbia residents and persons living outside Columbia that work in the city. These longer, inter-county commutes cannot be served by the current Go COMO system. However, they do present unique opportunities for potential inter-city routes between Columbia and neighboring cities and employment centers like Jefferson City, Boonville, and Moberly. More importantly, the tables show many people live *and* work in Columbia and in the immediate surrounding area. These daily work trips present the greatest opportunity for increases in transit ridership for work purposes.



## Go COMO Bus Service Evaluation

### Transit Dependent Population Characteristics

Transit dependent population characteristics utilized to identify those members of the community who depend upon transit for mobility and access to work, school, and shopping include the following:

- Elderly population
- Disability Population (those with mobility limitations)
- Low Income Population
- Youth Population (under 16)
- College Age Population (18-24)
- Minority Population
- Limited English Proficiency
- One or fewer Vehicle Households

Identifying the location of these populations in the following density maps shows those areas of the community that most need the transit services now and into the future.

### ***Elderly Population Characteristics***

Studies have shown older adults prefer to age in place, however, due to declining abilities related to vision, coordination, and reaction time as well as the cost of maintaining a personal vehicle, they are more dependent on transit for mobility. More than 20 percent of seniors age 65 and older do not drive.<sup>10</sup> Research by AARP has revealed that seniors are increasingly taking more of their trips on public transportation.<sup>11</sup> In 2009, seniors accounted for 9.6 percent of the more than 10.3 billion trips taken on public transportation in the United States.<sup>12</sup>

As seen in **Table 1-6: Elderly Population**, the presence of the University of Columbia and two other colleges, results in the city of Columbia having a lower percentage of the population who are classified as elderly at 9 percent than the State of Missouri at 15 percent.

<sup>10</sup> Rehabilitation Institute of Chicago (2003) "Baby Boomers Expect to Beat the Odds with More Active, Longer Lives" Available at, <http://www.ric.org/aboutus/mediacenter/press/2003/1210a.aspx>

<sup>11</sup> Lynott, Jana and Carlos Figueiredo (2011) "How the Travel Patterns of Older Adults Are Changing: Highlights from the 2009 National Household Travel Survey" AARP Public Policy Institute, Washington, D.C.

<sup>12</sup> Dickens, Matthew (2011) "2011 Public Transportation Fact Book," American Public Transportation Association, Washington, D.C.





*Table 1-6: Elderly Population*

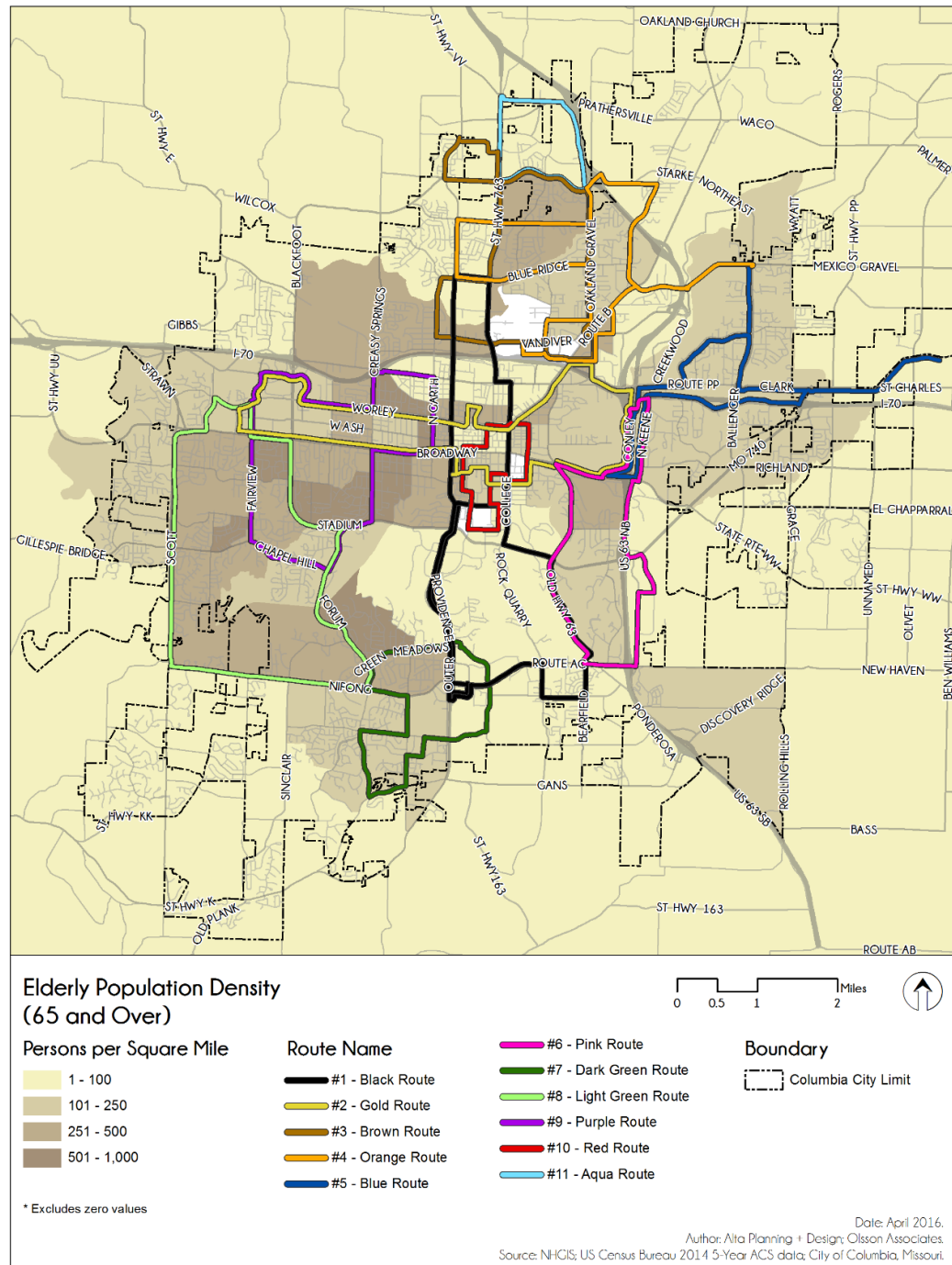
	Total Population	Population 65 and Older	Percent of Total Population
<b>City of Columbia</b>	113,155	10,082	9%
<b>Boone County</b>	168,268	16,458	10%
<b>State of Missouri</b>	6,028,076	882,552	15%
<b>United States</b>	314,107,084	43,177,961	14%

In **Figure 1-11**, the elderly population is not concentrated in the core, but do live in areas with existing transit routes. Nationally, the elderly population is anticipated to grow due to the aging of the Baby Boomer generation.



# Go COMO Bus Service Evaluation

Figure 1-11: Population Density of Elderly





## Go COMO Bus Service Evaluation

### *Disabled Population Characteristics*

Since 2008, the United State Census Bureau's American Community Survey has acknowledged six disability types: hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, and independent living difficulty. The dataset used for this study identifies only individuals with disabilities between the ages of 20 and 64 years old. As can be seen in **Table 1-7**, an estimated 8 percent of the city's population in this age group has one or more of these disabilities. This percentage is lower than county, state and national figures.

*Table 1-7: Population with a Disability*

	Population 20 to 64 years for whom poverty status is determined	Population with Disability	Percent of Total
City of Columbia	70,945	5,509	8%
Boone County	105,364	9,372	9%
State of Missouri	3,493,895	443,233	13%
United States	184,561,535	19,199,473	10%

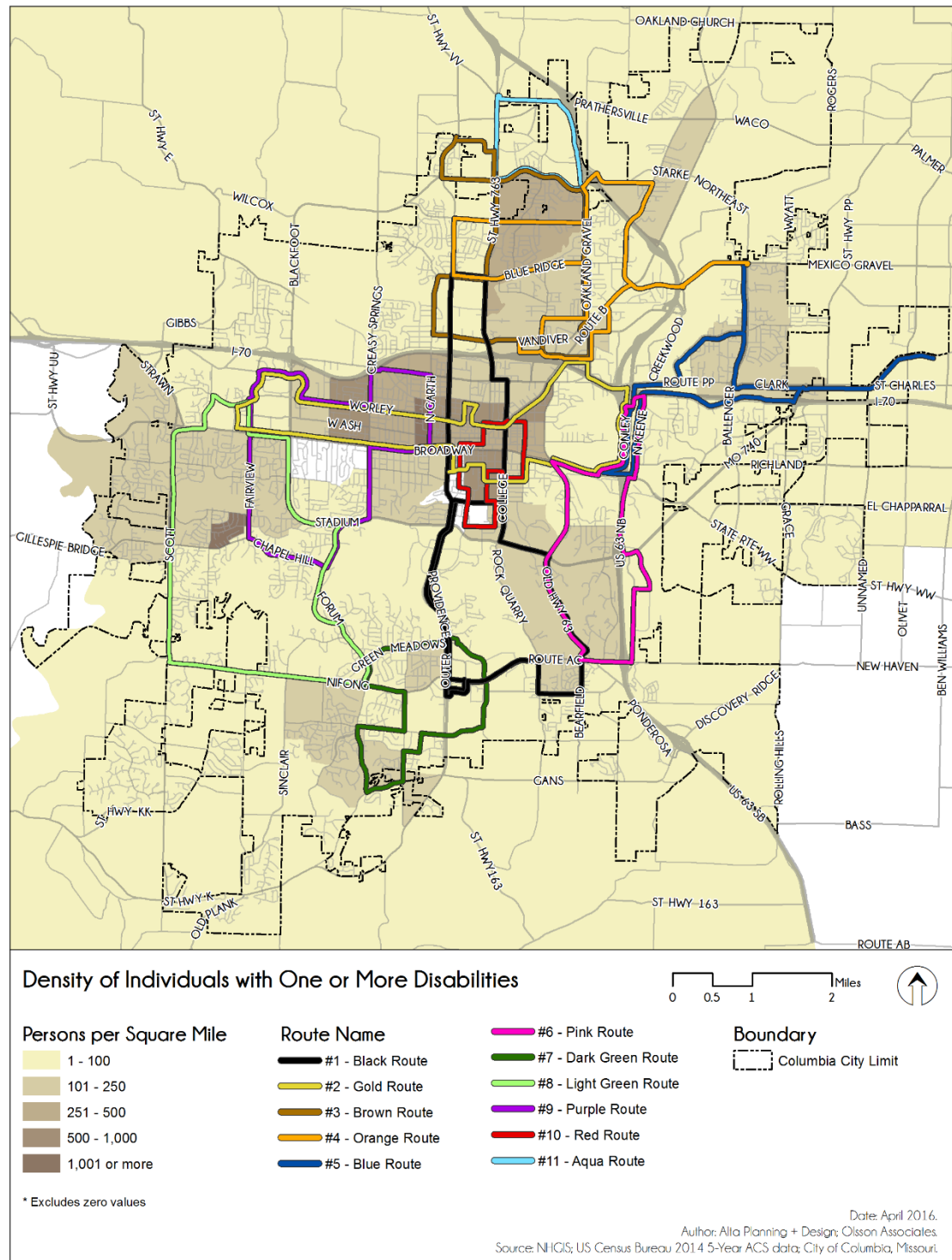
**Figure 1-12** depicts population densities of individuals with disabilities for census block groups in and around the city of Columbia. There is a higher density of this population located in the core of the community, particularly in the area bound by Clinkscales Road to the west, I-70 to the north, Old Highway 63 to the east, and Broadway to the south. Additional concentrations of individuals with disabilities are located in census block groups between downtown Columbia and the University of Missouri campus to the south; in the southwest of Columbia near Fairview Road and Chapel Hill Road; and in the north area of the city surrounding Smiley Lane.





## Go COMO Bus Service Evaluation

Figure 1-12: Population Density of Individuals with Disabilities





## Poverty Characteristics

Maintaining a vehicle has become a larger portion of household income in many U.S. households sometimes exceeding the portion of household income spent for housing. In 2014, the ACS estimated nearly 25 percent of the city of Columbia's population was classified as living below the federal poverty level within the last 12 months. This percentage is significantly greater than both state and national figures, which are both estimated at 16 percent, as shown in **Table 1-8**. The city of Columbia's rate is impacted by the student population, many of whom work only part time or not at all; however, students are equally effected by the cost of transportation or motor vehicle ownership while trying to pay for college. Since 1980, the number of persons in poverty has increased by six percent in Boone County and nine percent in the City.<sup>13</sup>

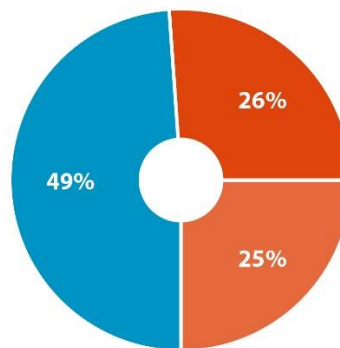
*Table 1-8: Population with Income below Poverty Level*

	Total Population	Population with Income in the Past 12 Months below Poverty Level	Percent of Total Population
City of Columbia	104,086	25,942	25%
Boone County	158,839	31,958	20%
State of Missouri	5,847,086	912,291	16%
United States	306,226,394	47,755,606	16%

According to the "Housing + Transportation Affordability Index" by the Center for Neighborhood Technology, the average household in Columbia spends 26 percent of its income on housing and 25 percent on transportation. The average spent per household on transportation annually is \$11,977.00, and the average household drives 21,549 miles per year.

*Figure 1-13: Housing + Transportation Affordability Index, Columbia*

- Housing
- Transportation
- Remaining Income



**Figure 1-14** illustrates the density of individuals living below the federal poverty line. The areas with higher levels of poverty are located not only in the core of the community, but also further out on the periphery, thereby making commuting more of

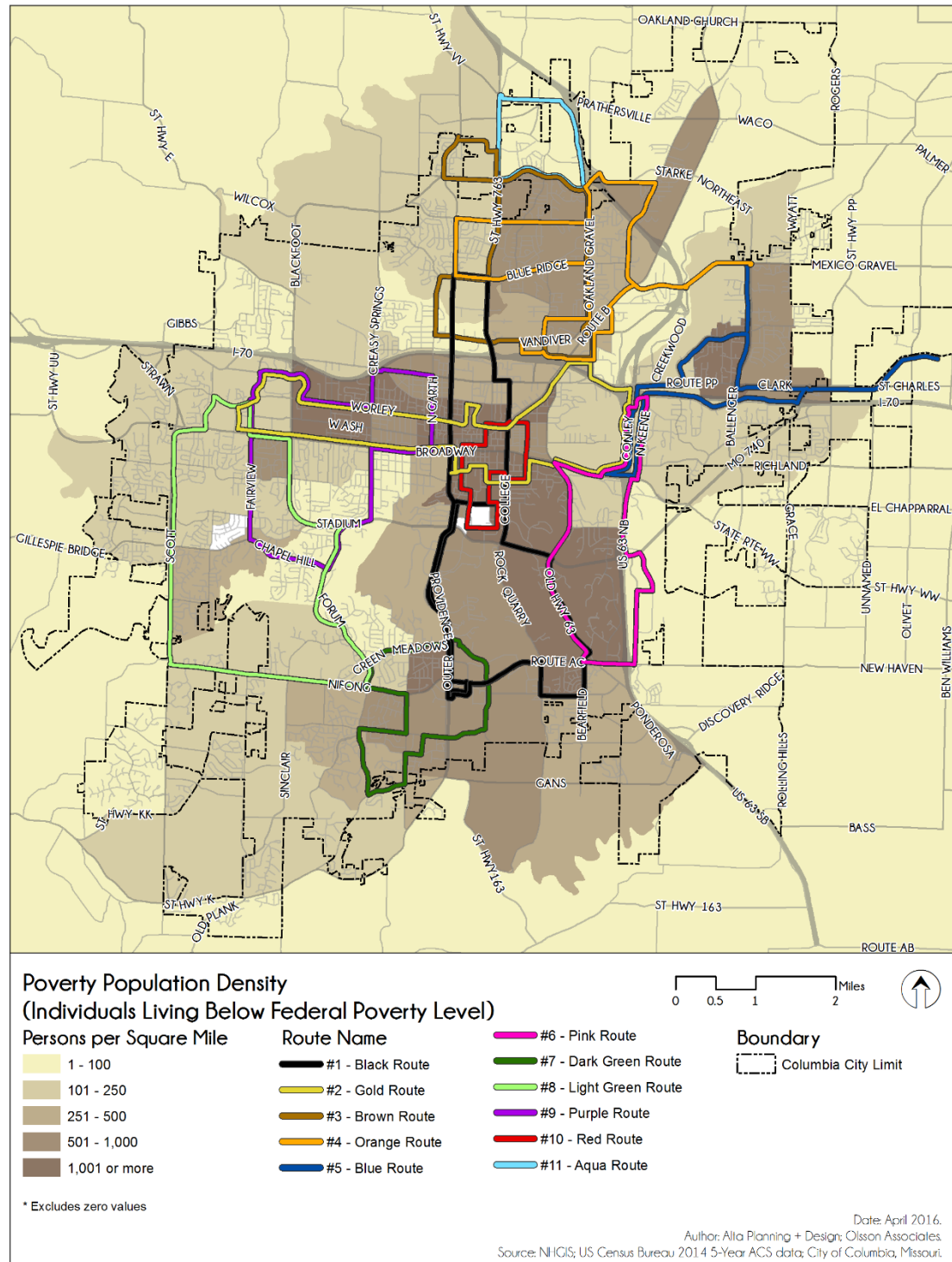
<sup>13</sup> City of Columbia, Columbia Imagined: The Plan for How We Live and Grow, 2013 pg. 54.



## Go COMO Bus Service Evaluation

a challenge without access to transit. Current transit routes do serve these areas with regular service.

**Figure 1-14: Population Density of Individuals Living Below the Federal Poverty Level**







## Go COMO Bus Service Evaluation

### *Youth Population Characteristics (under 18)*

The population under the age of 18 who do not have a driver's license depend on walking, bicycling, public transit or rides from family or friends to get to school, events, and other activities. At 19 percent, the city of Columbia has a slightly lower percentage of younger individuals than the county and state, as shown below in **Table 1-9**.

Giving this population the ability to make daily trips by walking, bicycling and/or using transit decreases household costs and reduces public expenditures for public school transportation via buses. Additionally, concerns about the increase in childhood obesity has refocused the need to provide more access to active transportation choices – walking, bicycling, and transit. The Journal of the American Medical Association reported obesity has doubled among children and quadrupled among adolescents over the last 30 years, and more than one-third of children or adolescents in 2012 were overweight or obese (Ogden et al., 2014). Being able to walk or bicycle to access public transportation can contribute to increasing activity levels for this population.

*Table 1-9: Population under the age of 18*

	Total Population	Population 17 and Under	Percent of Total Population
City of Columbia	113,155	21,462	19%
Boone County	168,268	34,923	21%
State of Missouri	6,028,076	1,406,494	23%
United States	314,107,084	73,777,658	23%

As can be seen in **Figure 1-15**, youth population density is fairly dispersed throughout the city. Many of the higher density areas are currently served by the Purple and Gold Routes to the west and the Blue, Orange, and Brown Routes to the north and east.





## Go COMO Bus Service Evaluation

### *College-Age Population Characteristics (18-24 yrs.)*

The college-age population of Columbia has a significant impact on the local economy and culture with thousands of students living in the community. The enrollment for the University of Missouri in 2015 was 35,441. An additional 3,223 students attend Columbia College, and another 1,000 students attend Stephens College. As a result, 27 percent of the total population of Columbia are in the 18 to 24 age group. For the State of Missouri, the 18-24 age group constitutes just 10 percent of the population, as can be seen in **Table 1-10** below.

*Table 1-10: College-Age Population (18-24)*

	Total Population	Population 18 - 24	Percent of Total Population
<b>City of Columbia</b>	113,155	30,995	27%
<b>Boone County</b>	168,268	35,552	21%
<b>State of Missouri</b>	6,028,076	592,652	10%
<b>United States</b>	314,107,084	31,273,297	10%

The college-age population is concentrated in the core of the community as can be seen in **Figure 1-16** with a large area in the eastern periphery of the community also having a high college-age population. Many of the students living in apartment complexes are being provided with transportation to and from the campus by private shuttle services. Based on information from stakeholder meetings, 40 to 60 percent of the residents use these shuttles. Stakeholder meetings also indicated some students pay up to \$150 per semester for the shuttle service.

While many Columbia residents age 18 to 24 travel to and from work or school by private motor vehicle, this younger demographic includes many college students new to the Columbia area who may be more receptive to walking, bicycling, and transit for daily trips. The University of Missouri-Columbia and Go COMO offer amenities to support both transit and private automobile transportation.

Go COMO offers a semester pass for unlimited rides on all routes to students over the age of 18. Students at the University of Missouri-Columbia pay a semester fee of \$17.86 for transit services, which fund the operation and maintenance of the Tiger Line, the University's student shuttle system operated in partnership with Go COMO. Some of the Tiger Line shuttles operate seven days a week during the fall and winter semesters and connect riders to multiple services and amenities on and around campus.

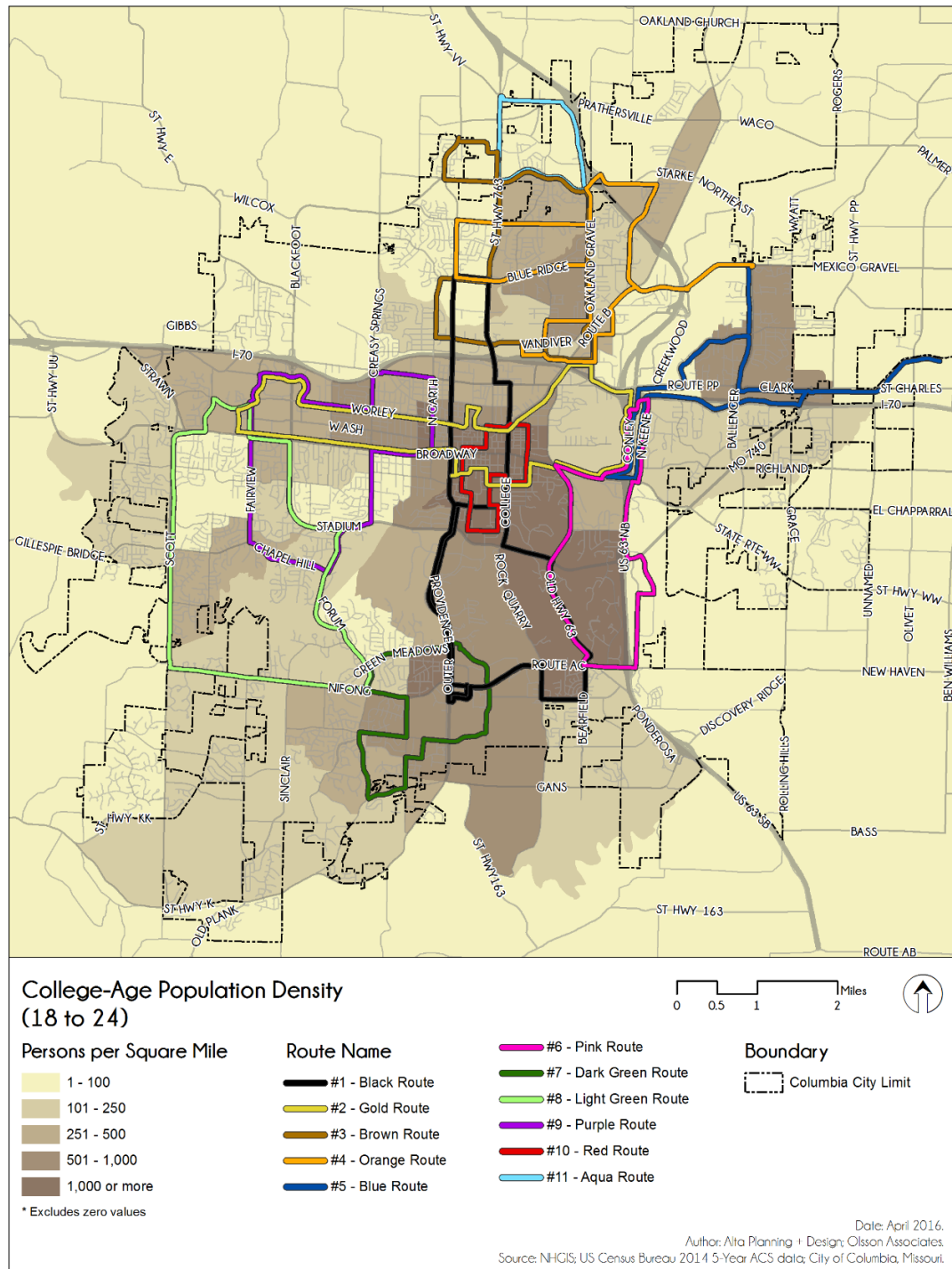
The University of Missouri-Columbia offers paid parking for students, faculty, and staff on surface lots and in parking garages on campus. Student parking permits range in price from \$120 to \$168 for fall and spring semesters, and \$54 to \$63 during the summer.





# Go COMO Bus Service Evaluation

Figure 1-16: Population Density of College-Age Individuals





## Go COMO Bus Service Evaluation

### Minority Population Characteristics

Minority populations are often correlated with a higher propensity to use transit. As can be seen in **Table 1-11**, the city of Columbia has a higher percentage of its population classified as minority than the state, with 21 percent classified as minority in the city of Columbia and 17 percent in the State of Missouri. The minority population in Columbia is closer to the national average of 26 percent and represents a more diverse population base.

*Table 1-11: Minority Population*

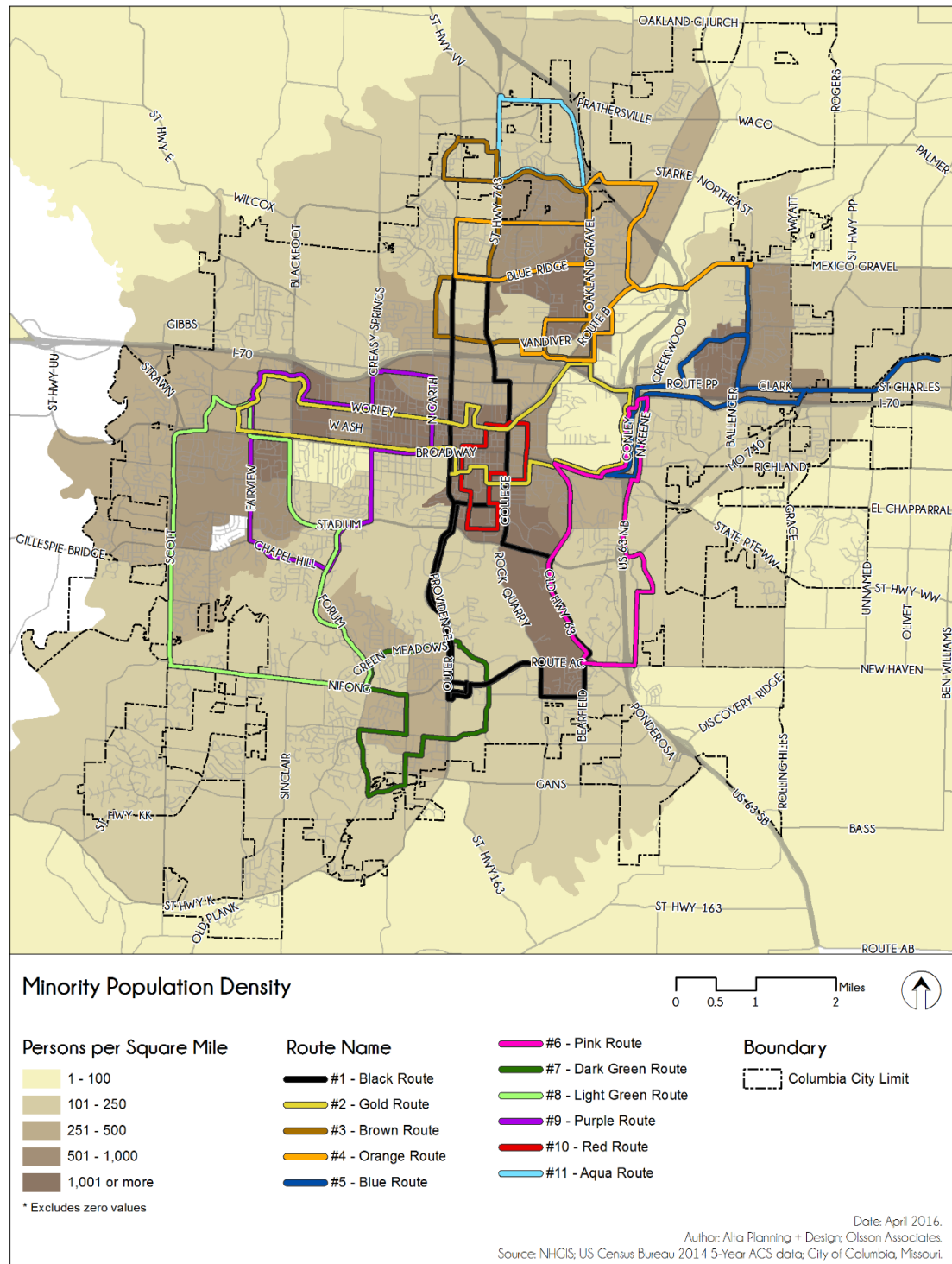
	Total Population	Non-White (Minority) Population	Percentage of Total Population
City of Columbia	113,155	23,833	21%
Boone County	168,268	29,419	17%
State of Missouri	6,028,076	1,036,162	17%
United States	314,107,084	82,257,371	26%

As displayed in **Figure 1-17**, minority population densities are greatest in the core of Columbia. Two census block groups surrounding Ballenger Lane in eastern Columbia have high minority population densities as well. This area also has high concentrations of college-age individuals, which may indicate a greater need for transit services.



## Go COMO Bus Service Evaluation

Figure 1-17: Population Density of Minority Individuals





### ***Limited English Proficiency Characteristics***

In many communities, limited English proficiency is correlated with lower incomes and higher transit usage. Language barriers can create transportation challenges for many households, including obtaining a driver's license and meeting other regulatory requirements communicated in English. Many individuals with limited English proficiency work in jobs that require minimal verbal communication skills, which often pay low-wages. As a result, they are likely to depend on public transportation because they cannot afford a car.<sup>14</sup> Many individuals with limited English proficiency also come from cultures in which public transit is the primary means of transportation.<sup>15</sup> Public transportation provides these persons and groups with the ability to live, work, plan and integrate into the community despite these barriers.

As **Table 1-12** shows, three percent of the population of the city of Columbia is classified as having limited English proficiency, compared to two percent state-wide and eight percent nationally.

***Table 1-12: Limited English Proficiency Population***

	Total Population	Limited English Proficiency Population	Percentage of Total Population
<b>City of Columbia</b>	113,155	3,732	3%
<b>Boone County</b>	168,268	4,277	3%
<b>State of Missouri</b>	6,028,076	124,579	2%
<b>United States</b>	314,107,084	25,021,891	8%

The areas with higher percentages of limited English proficiency residents overlap with higher rates of minority population, as can be seen in Figure 1-18.

<sup>14</sup> Community Transportation Association of America (2008), "Transportation for Persons with Limited English Proficiency", Senior Transportation, CTAA: 1-11.

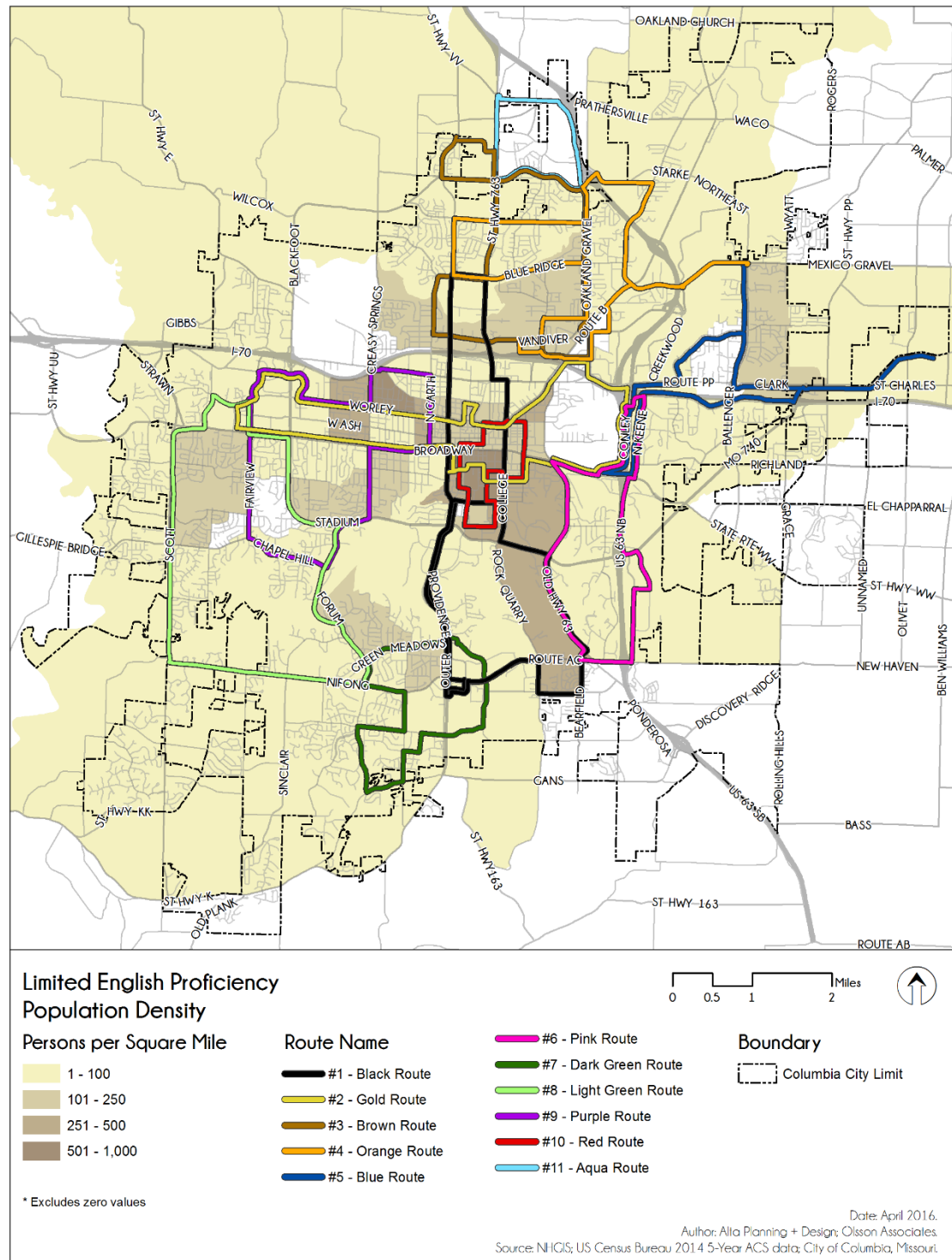
<sup>15</sup> Ibid. pg 1.





## Go COMO Bus Service Evaluation

Figure 1-18: Population Density of Limited English Proficiency Individuals





## Go COMO Bus Service Evaluation

### *One or fewer Vehicle Household Characteristics*

The average household in Columbia owns more than one vehicle according to the Housing + Transportation Affordability Index. **Table 1-13** shows the number of zero- and one-car households, compared to the city, county, state and nation.

Households without a vehicle or that have more limited access to a vehicle may depend on public transportation to get to work, school, or services – particularly if there are multiple people in the household. Limited vehicle access often overlaps with lower income households that may have limited options if their one vehicle breaks down. The number of households with 0-1 vehicles in Columbia is close to 20,000 as shown in **Table 1-13**.

*Table 1-13: Vehicles Per Household*

	Total Households	0 Car Households		1 Car Households		Combined 0 and 1 Car Households	
		Total	%	Total	%	Total	%
City of Columbia	70,945	3,264	5%	16,019	23%	19,283	27%
Boone County	105,364	3,609	3%	21,916	21%	25,525	24%
State of Missouri	3,493,895	173,776	5%	789,883	23%	963,659	28%
United States	184,561,535	10,594,153	6%	39,277,554	21%	49,871,707	27%

Households with limited access to vehicles are mostly located in the core of the community as seen in **Figure 1-19**. However, there is a significant area in the eastern part of the community with low vehicle ownership.





### Transit Propensity / Analysis of Service

When combined, the demographic characteristics described above provide a composite snapshot of Columbia residents' likelihood to use public transit. This likelihood, or *transit propensity*, can be used to analyze the current network's coverage area and to identify areas in need of transit services. The methodology by which this transit propensity analysis was conducted is described below, followed by the results of this analysis.

#### **Methodology**

The Transit Propensity Analysis provides a general understanding of expected transit use by combining individual spatial analyses representative of various demographic characteristics into a composite sketch of demand for transit services throughout Columbia. Densities for each of these demographic sub-groups at the block group level constitute the base values for the analysis:

- Elderly population
- Disability Population
- Low Income Population
- Youth Population (under 18)
- College Age Population (18-24 yrs.)
- Minority Population
- Limited English Proficiency
- One or fewer Vehicle Households

These values were joined to a grid of equidistant points covering the study area. Each point assumes the values of the census block group in which it is located. Spatial analysis of this point grid yields a heat density map for each of the eight demographic categories, which are weighted equally and combined to create the composite transit propensity map seen in Figure 1-20.

#### **Transit Propensity Analysis Results**

The analysis of the transit use propensity shows the demographic, land use, trip generation, and travel flow data relative to the existing transit system and identifies how the current transit system coverage matches current needs. In Figure 1-20, it is evident the populations most likely to be dependent upon transit currently have access to existing transit routes. It should be noted geographical coverage does not necessarily equate to the level of perceived transit service. Some of the COMO routes have characteristics such as one-way looping, or uneven headways that may affect a person's ability or desirability to use the route closest to where they live, work, or go see the doctor. Some routes do extend into areas with much lower transit propensity, such as the Aqua Route and the Light Green Route. Information obtained in the Key Stakeholder interviews suggests adjustments to some routes may provide needed access while providing more efficient transit services.





## Go COMO Bus Service Evaluation

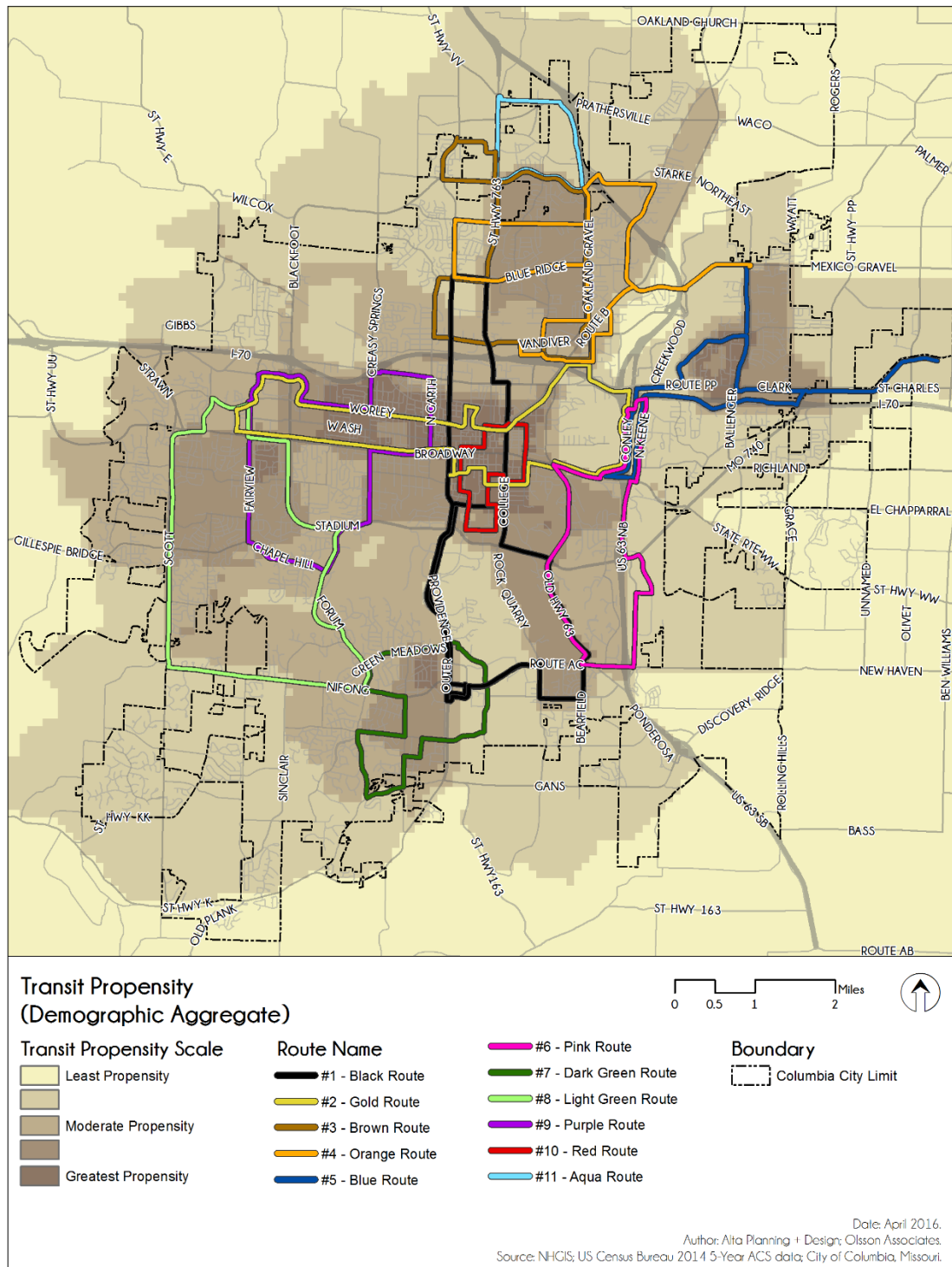
Considering the remaining questions regarding the efficiency of service allocation across the city, further analysis evaluates the level of transit service provision compared to the amount of community transit need.





## Go COMO Bus Service Evaluation

Figure 1-20: Transit Propensity





### Congruency/Adequacy

In the previous section, population groups most likely to be dependent upon transit were found to currently have access to existing transit routes. Geographical proximity to transit routes does not necessarily correlate with level of transit service received. With that in mind, a congruency, or adequacy, analysis was performed to better understand how the current level of transit service investments compared with the level of transit propensity for the same area. The methodology by which this transit congruency was conducted is described below, followed by the results of this analysis.

### Methodology

The Transit Congruency Analysis provides an understanding of how adequate the current transit services are distributed across the city, relative to the percent of the city's total transit propensity. Results from the analysis will help in determining how the supply of transit corresponds with transit need. The analysis began with identifying the average weekday revenue hours of transit serve for each route segment of the fixed route bus system. For each segment with multiple routes operating along the same alignment, revenue hours were aggregated and shown as a percent of the system's total average daily revenue hours. After creating a quarter-mile buffer around each route segment, the transit service factor was normalized by dividing by the percent of total area surrounding each route segment's buffer. In order to relate the service level to the level of transit propensity in the same area, the buffer zones were joined to the closest census block group used to determine transit propensity. Finally, the ratio of revenue hours per square mile was divided by the transit propensity of the closest block group. The transit propensity factor was modified from the previous section by also incorporating the normalized population and employment density of each area.

The final congruency ratio was found by dividing the revenue service hours per square mile ratio by the transit propensity of the same area. Buffered segments with a ratio less than **1.0** currently have a lower proportion of service than the proportion of city-wide transit propensity, or an area with a transit service deficit. Segments with a ratio greater than **1.0** currently have a higher proportion of service than the proportion of city-wide transit propensity, or an area with a transit service surplus.

It should be noted that this analysis does not determine what is "sufficient" or "insufficient" transit service. The analysis only compares how the current distribution of transit service compares to the distribution of transit need.

### Transit Congruency Analysis Results

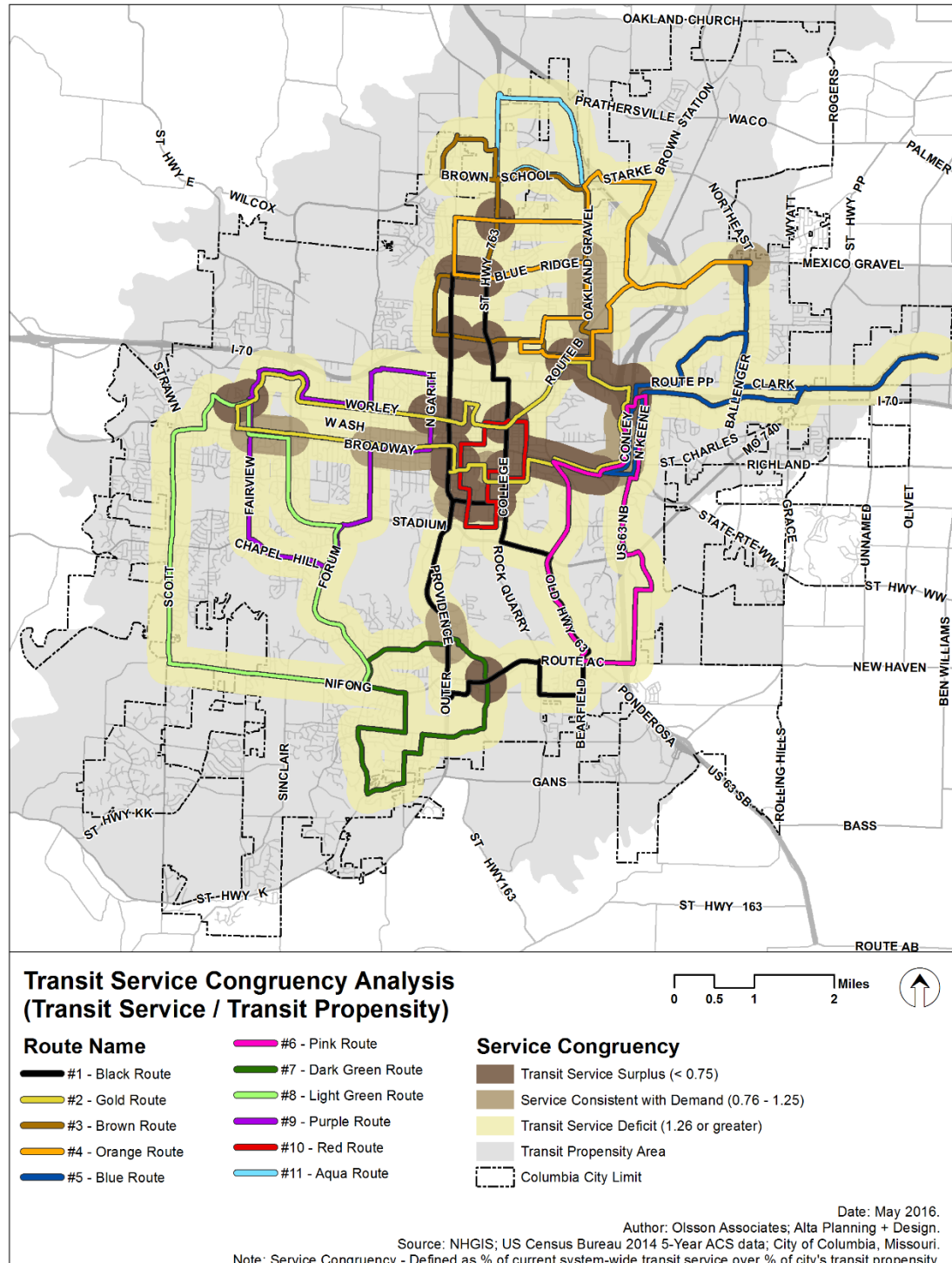
The analysis of transit congruency measures the efficiency of the current transit system by demonstrating if the level of investment in transit service is proportionate to the level of transit propensity relative to the community as a whole. As shown on **Figure 1-21**, the majority of areas with less transit service than need occur in the southern and northeastern areas of Columbia. The areas with a greater concentration of transit service corresponding with transit need are found mostly in the core of the



## Go COMO Bus Service Evaluation

city, near the University of Missouri campus and along segments of Broadway, Providence Street, College Avenue, Blue Ridge Road and Vandiver Drive, as well as the area near the Interstate 70 and US-63 interchange.

**Figure 1-21: Transit Congruency**







## Go COMO Bus Service Evaluation

### Comparative Analysis (Peer Review)

As part of the Market Analysis, a peer review of transit agencies around the country similar in size and service to Go COMO was conducted. This will assess how well Go COMO is performing compared to comparable systems. The following is a list of peer agencies that have been selected for review. Throughout this review the transit agencies will be referred to by the city they are located in.

*Table 1-14: Basic Characteristics*

Agency	City, State	City Population	City Size (square miles)
Go COMO	Columbia, Missouri	124,748	62
TCAT Bus	Ithaca, New York	53,661	25
Lawrence Transit	Lawrence, Kansas	88,053	30
Gainesville RTS	Gainesville, Florida	187,781	87
Bloomington Transit	Bloomington, Indiana	108,657	45
City Bus	Lafayette, Indiana	147,725	64
Transfort	Fort Collins, Colorado	264,465	110

*Source: NTD Transit Agency Profiles 2014*

Peers were selected based on a range of criteria including population, service area size, number of peak buses operated, and annual service hours and miles. While all seven of these peer agencies are not in the same geographical region they all contain regional elements that are similar with each other and Columbia, MO.

### Overview of Peer Agencies

#### Service Area

Three of the seven peer cities have a service area population greater than 125,000 with the city of Columbia, Missouri in the middle of the peer cities. In fact, Columbia, with a service population area of 117,381, is slightly below the average service area population of all peer agencies (118,195). Columbia also supports a service area that is comparable to many of the agencies because of the presence of large universities. It is important to note that many transit agencies have service areas that differ from the geographic boundaries of the city or cities they serve. In addition, the Federal Transit Administration uses multiple data sources to develop square mileage and population figures, including decennial census data and data supplied by local authorities. As a result, the service areas and service area populations listed in **Table 1-15** can differ from the city size and city populations shown in **Table 1-14** above. The most notable example is TCAT Bus, which serves an area and population far greater than the area and population of Ithaca itself.



# Go COMO Bus Service Evaluation

**Table 1-15: Peer City Operating Characteristics**

Agency	Service Area Population	Service Area (sq. miles)	Service Area Population Density	Annual Operating Funds	Enrolled Students Ages 18 to 24	Persons with Disabilities per Capita
Columbia, MO (University of Missouri)	117,381	62	2,012	\$6,419,850	24,486	0.089
Ithaca, NY (Cornell University)	103,617	476	217	\$13,099,935	15,893	0.022
Lawrence, KS (University of Kansas)	87,643	30	2,932	\$8,105,320	19,952	0.094
Gainesville, FL (University of Florida)	160,000	76	2,105	\$24,641,027	38,361	0.073
Bloomington, IN (Indiana University)	80,405	21	3,828	\$7,212,619	31,215	0.093
Lafayette, IN (Purdue University)	134,333	74	1,815	\$11,074,678	18,584	0.067
Fort Collins, CO (Colorado State University)	143,986	54	2,666	\$11,453,778	24,880.	0.076

Source: NTD Transit Agency Profiles 2014, 2014 American Community Survey 5 – Year Estimate

**Figure 1-22: Map of Peer Cities**



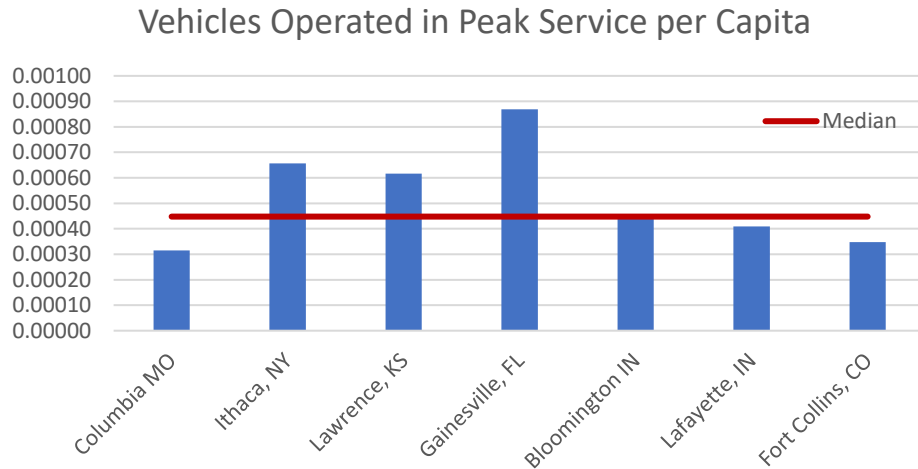


## Go COMO Bus Service Evaluation

### ***Peak Fleet per Capita***

Columbia operated a peak fleet of .00032 vehicles per capita, which is the lowest of all the other agencies. In fact, the closest agency to Columbia was Fort Collins, CO with a peak of about 0.00035 vehicles per capita. The peer agency with the highest peak fleet is Gainesville, FL with 0.00087 Vehicles per Capita.

***Figure 1-23: Vehicles Operated in Peak***



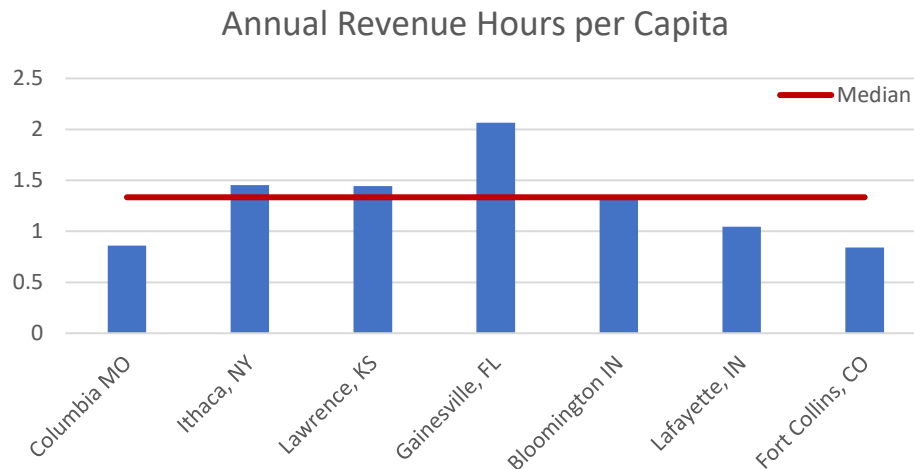


## Revenue Hours and Miles

### Annual Revenue Hours per Capita

Columbia operated 0.86 annual revenue hours per capita in 2014, which was the fewest of all the other peer agencies. Fort Collins, CO and Lafayette, IN were the closest agencies respectively recording 0.84 and 1.05 annual revenue hours per capita.

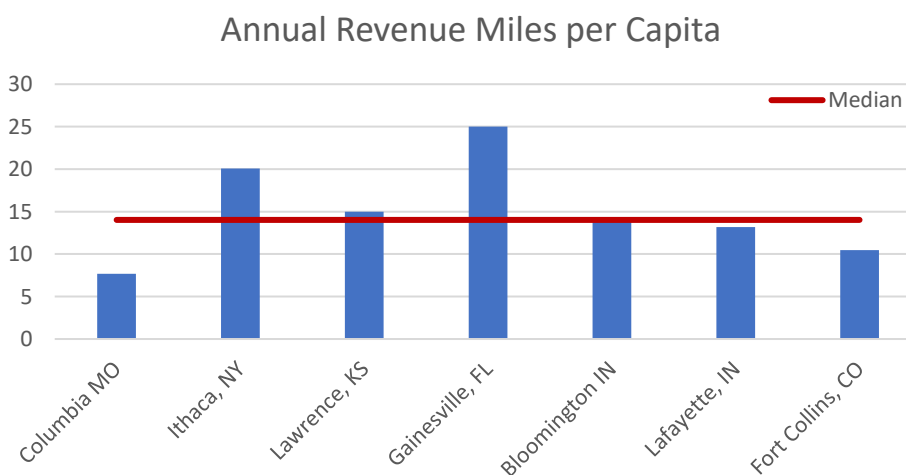
*Figure 1-24: Annual Revenue Hours*



### Annual Revenue Miles per Capita

Columbia recorded 7.68 annual revenue miles per capita which, like annual revenue hours, was the smallest amount recorded by any other peer agency. Among the agencies the median annual revenue miles per capita was 14.02, which was approximately seven revenue miles per capita more than Columbia.

*Figure 1-25: Annual Revenue Miles per Capita*





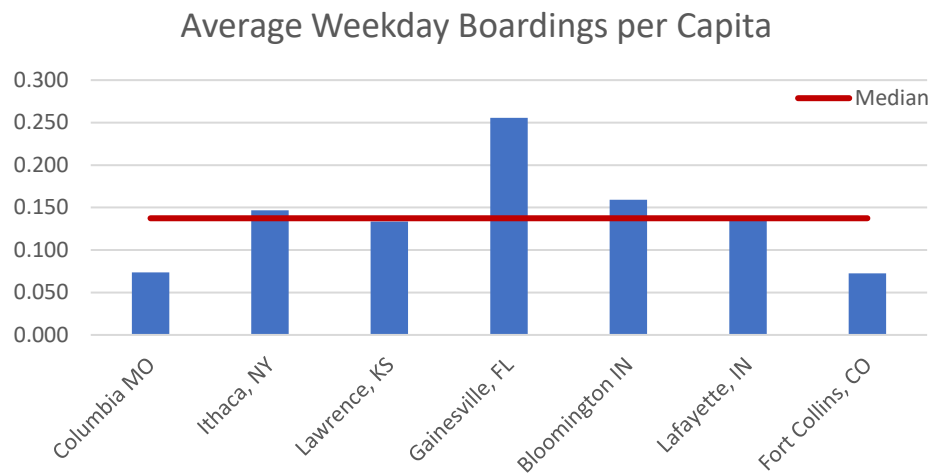


## Ridership

### Average Weekday Boardings per Capita

Columbia's average weekday boardings per capita was recorded as being 0.074. Columbia was once again lower than all other peer agencies. The two closest agencies were Fort Collins, CO with 0.073 and Lawrence, KS with 0.134 average weekday boardings per capita.

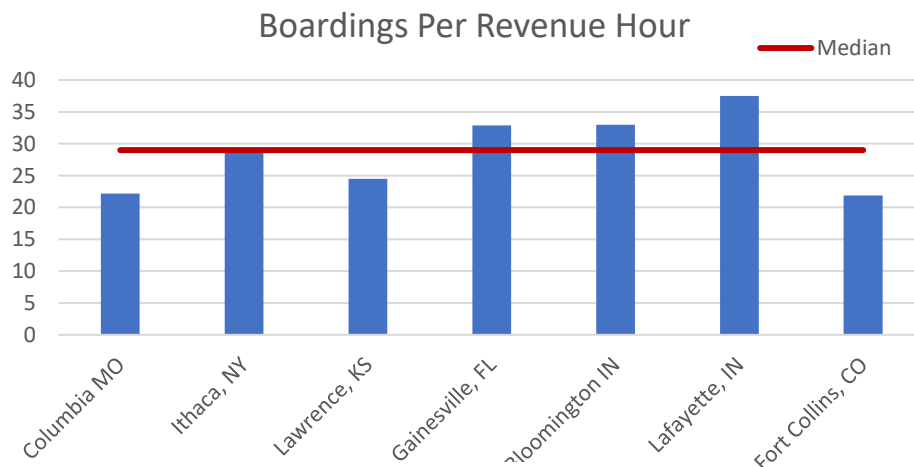
Figure 1-26: Average Weekday Boardings per Capita



### Boardings per Revenue Hour

Columbia recorded nearly 22 boardings per revenue hour in 2014 which was the second lowest of the peer agencies. Fort Collins, CO reported the lowest number with 21.9 boardings per revenue hour.

Figure 1-27: Boardings per Revenue Hour



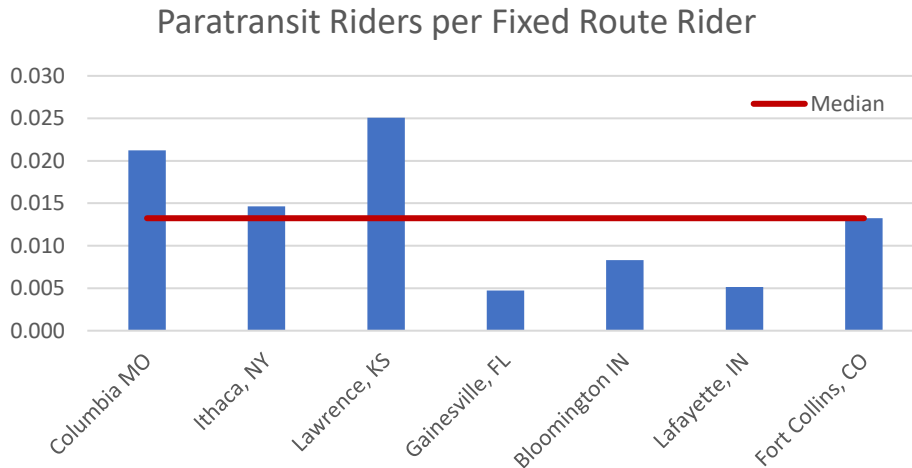


## Go COMO Bus Service Evaluation

### *Paratransit Riders per Fixed Route Rider*

Columbia has one of the highest paratransit riders per fixed route rider ratios of any of the agencies.

*Figure 1-28: Paratransit Riders per Fixed Route Rider*



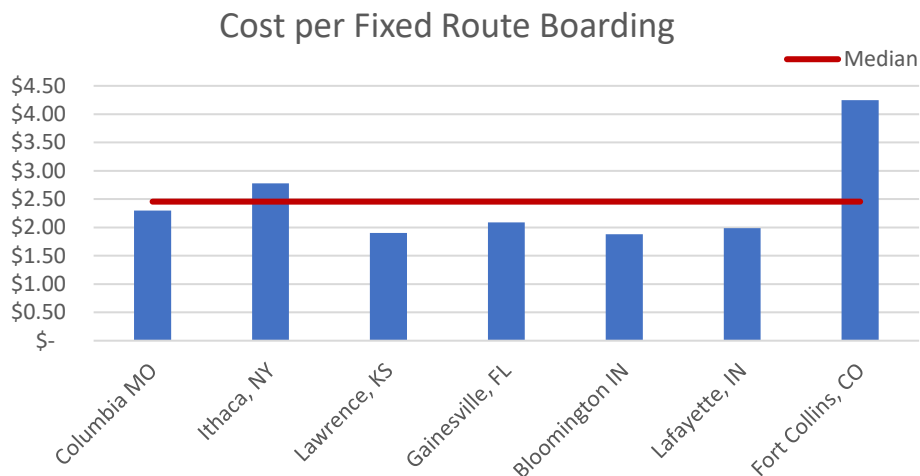
Source: NTD Transit Agency Profiles 2014

### Financial Assessment

#### *Cost per Fixed Route Boarding*

The median cost per fixed route boarding between the peer agencies is approximately \$2.46 which is slightly higher than what was reported from Columbia with \$2.30. Among all the other agencies, Fort Collins, CO reported the highest cost per fixed route boarding with \$4.25. Many of the other agencies cluster around the median.

*Figure 1-29: Cost per Fixed Route Boarding*



Source: NTD Transit Agency Profiles 2014

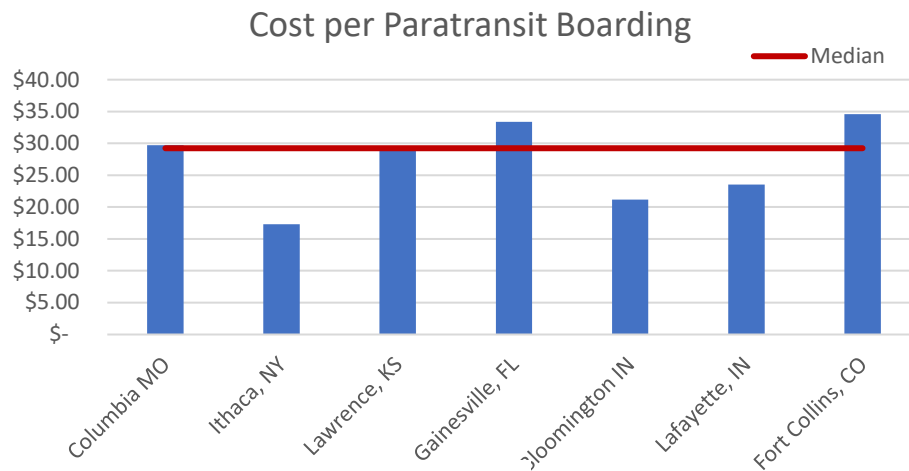


## Go COMO Bus Service Evaluation

### Cost per Paratransit Boarding

The median cost per paratransit boarding among all agencies was \$29.24 which is slightly lower than what was reported by Columbia, Gainesville, FL, and Fort Collins. Lawrence, KS represented the median while Ithaca, NY, Bloomington, IN, and Lafayette, IN all reported lower cost per paratransit boarding.

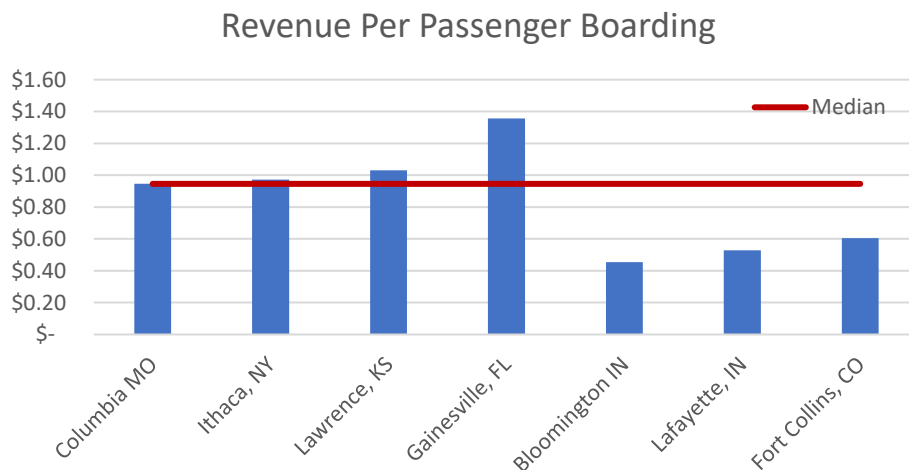
Figure 1-30: Cost per Paratransit Boarding



### Revenue per Passenger Boarding

The amount of revenue per passenger boarding collected by Columbia in 2014 was \$0.95, which also represents the median of all the peer agencies. The highest revenue per passenger boarding collected was Gainesville, FL with \$1.36.

Figure 1-31: Revenue per Passenger Boarding



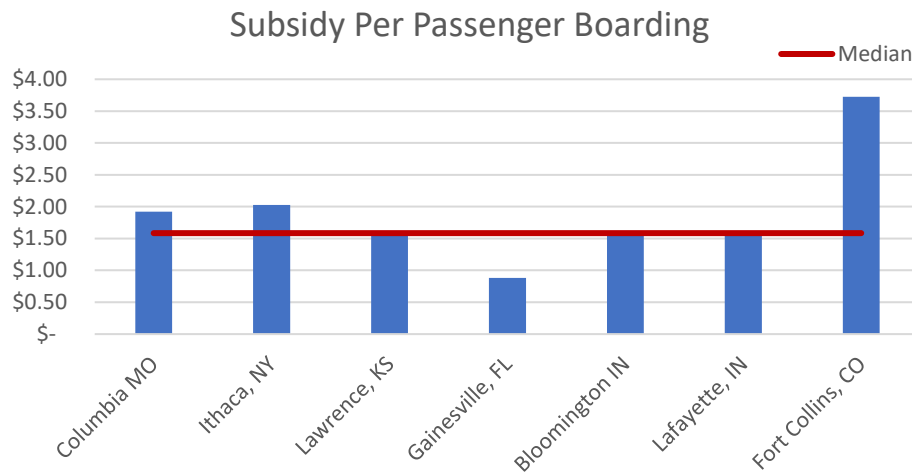


## Go COMO Bus Service Evaluation

### ***Subsidy per Passenger Boarding***

The median subsidy per passenger boarding reported in 2014 among the peer agencies was \$1.58, which is slightly lower than what was reported in Columbia. This median could be skewed upwards since Fort Collins, CO reported a subsidy per passenger boarding of \$3.73.

*Figure 1-32: Subsidy per Passenger Boarding*

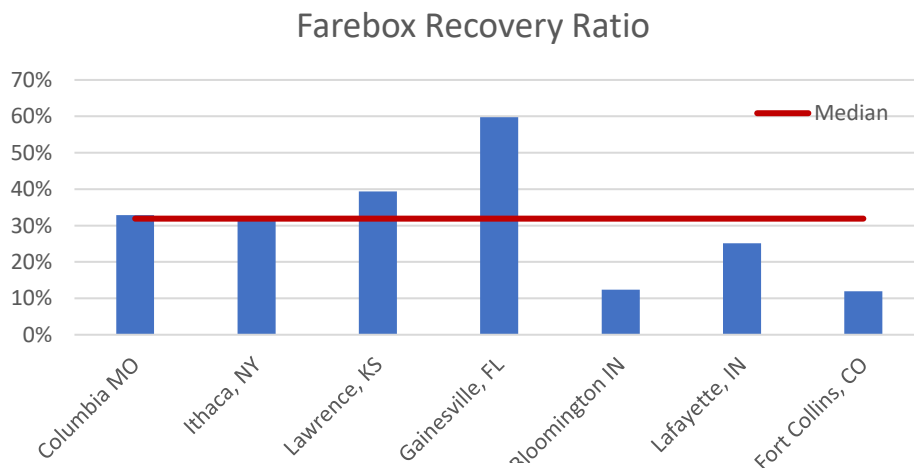


Source: NTD Transit Agency Profiles 2014

### ***Farebox Recovery Ratio***

Among all the peer agencies, only Lawrence, KS and Gainesville, FL had higher farebox recovery ratios than Columbia. Columbia's farebox recovery ratio is slightly higher than the median reported by all other agencies.

*Figure 1-33: Farebox Recovery Ratio*



Source: NTD Transit Agency Profiles 2014





## Go COMO Bus Service Evaluation

### Chapter 2 Active Transportation Access to Transit

#### Introduction

Go COMO customers access transit service in many ways, including walking, bicycling, riding in a car and being dropped off, and directly boarding Columbia Para-Transit services from a designated pick up location. Unlike a trip by car, which begins at the trip origin and ends at the final destination, a trip by transit usually involves one or more non-motorized connections in order to reach the final destination. For example, a trip may begin with a walk or bike ride to the bus stop, then end with walk or bike ride to the final destination. These two legs at the beginning and end of the trip are often referred to as the “first mile” and “last mile”.

Go COMOs’ future success is reliant on safe, accessible and convenient connections for people walking and bicycling. The presence, quality, and connectivity of sidewalks, crosswalks, on-street bicycle facilities, and shared use paths impact people’s ability to use these travel modes to reach the transit system. This section of the report documents current conditions for walking and bicycling as they relate to transit access.

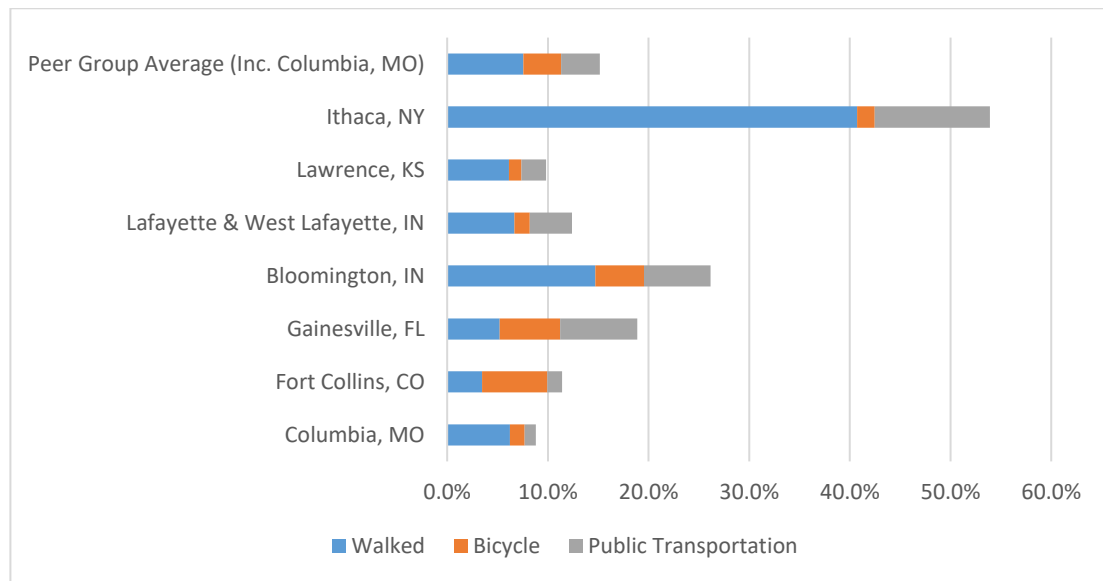
#### Current Conditions

The existing active transportation infrastructure in the city of Columbia supports modest commute mode shares for walking and bicycling at 6.2 percent and 1.4 percent, respectively. Public transit supports an additional 1.1 percent. Compared to peer cities, these figures are relatively low. Columbia’s combined 8.8 percent mode share for walking, bicycling, and public transit is just over half of the combined 15.2 percent for the peer group average (including Columbia). Public transit mode share in particular is lower than all other peer cities, and bicycling mode share is lower than all but one peer city.



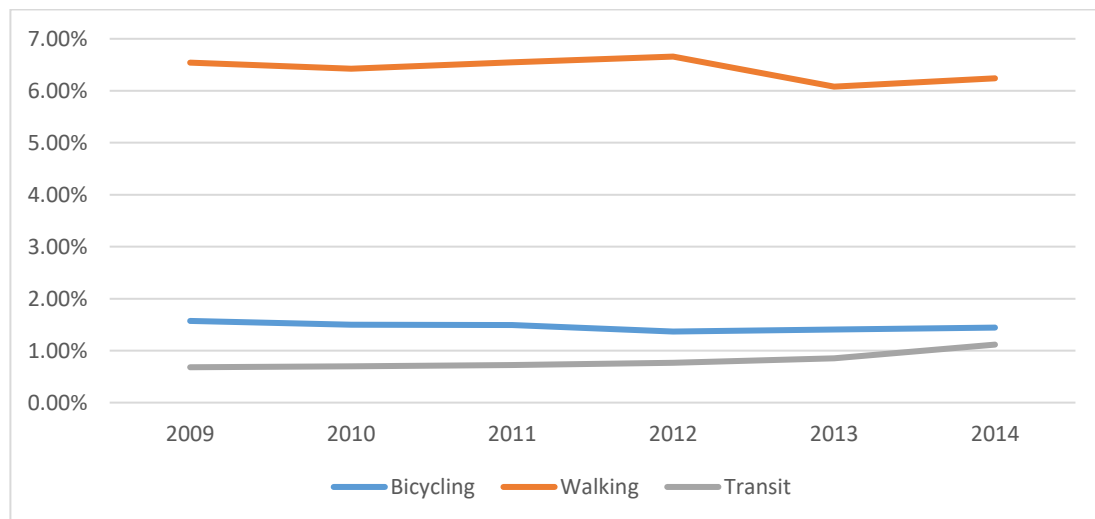
## Go COMO Bus Service Evaluation

**Figure 2-1: Walk, Bicycle, and Transit mode Share, 2014 (ACS 5-Year Estimate)**



While mode shares for walking and bicycling held relatively constant from 2009 to 2014, transit mode share in Columbia experienced modest gains, from 0.68 percent to 1.12 percent. These trends are shown below in **Figure 2-2**. Each of these modes of transportation is heavily dependent on the infrastructure in place to support it.

**Figure 2-2: Active Transportation & Transit Commute Mode Share, 2009-2014**



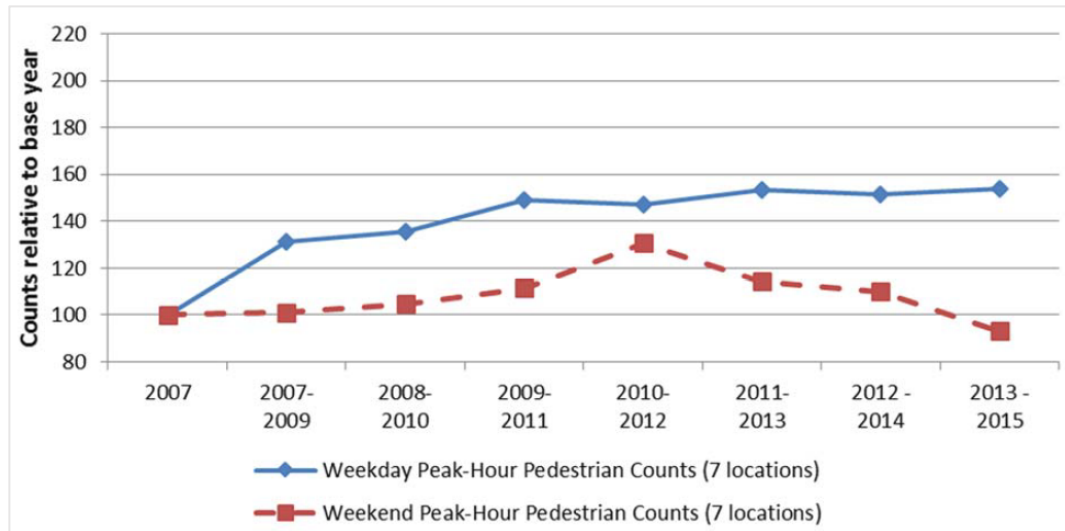
While these figures show minimal change for bicycling and walking mode shares, data collected annually for the Non-Motorized Transportation Pilot Program show modest growth for active transportation from 2007 through 2015. **Figure 2-3** and **Figure 2-4** below are taken from the city of Columbia's *Nonmotorized Transportation Pilot Program Summary of 2007-2015 Bicycle and Pedestrian Counts and Surveys, December 2015*. The results are derived from data collected manually at seven unique locations. Unlike commute mode share data, these manual counts collect data on all trip types, including utilitarian and recreation trips. Week-day pedestrian counts



## Go COMO Bus Service Evaluation

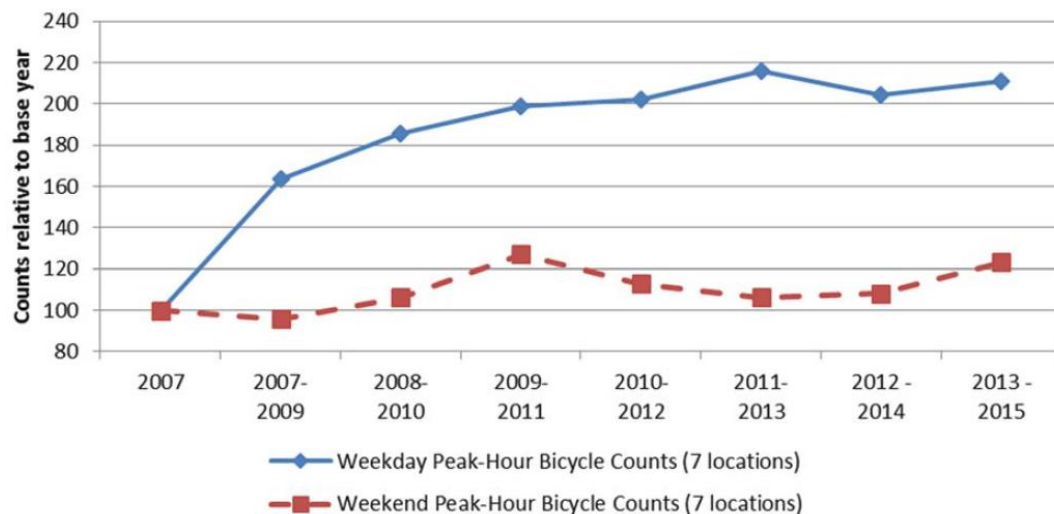
grew by almost 60 percent, while weekend pedestrian counts decreased by seven percent.

*Figure 2-3: Columbia Pedestrian Activity Growth, 2007-2015*



Bicycling activity grew considerably between 2007 and 2015, with week-day bicycling activity more than doubling (111 percent), and weekend bicycling growing by 23 percent.

*Figure 2-4: Columbia Bicycle Activity Growth, 2007-2015*



There is a positive correlation between the growth in bicycling activity and the city of Columbia's investment in active transportation infrastructure. In particular, the growth of the on-street bikeway and shared use path network has provided safer, more accessible connections for people to bicycle to work, to school, to transit, and to other community destinations.



## Go COMO Bus Service Evaluation

### ***Pedestrian Facilities***

The existing network of sidewalks, crosswalks, shared use paths, and other pedestrian transportation facilities in Columbia provides many residents with adequate access to Go COMO's existing routes. As Figure 2-5 displays, most streets in the city offer sidewalks to support pedestrian travel. Downtown Columbia, the University of Missouri campus, and many of the arterial and collector roadways radiating outward from the city core, provide sidewalks ranging from four to ten feet or more in width. Many local neighborhood streets surrounding Downtown Columbia and the UM-Columbia campus lack sidewalks, a reflection of typical development patterns at the time of construction and the lack of subdivision regulations requiring sidewalks in new developments.

In recent decades, however, a more proactive approach to sidewalk development in new subdivisions has been responsible for much of the sidewalk network's growth, and as a result many suburban communities are fitted with complete sidewalk networks that connect to arterial roads and, in many cases, nearby bus routes. Current subdivision regulations require sidewalks on both sides of new streets in conjunction with adjacent development. In addition, a *2012 Master Sidewalk Plan* adopted by the City Council guides the development of sidewalk infill and replacement along existing roadways to address major gaps, increase access to transit, and provide safer routes to school.

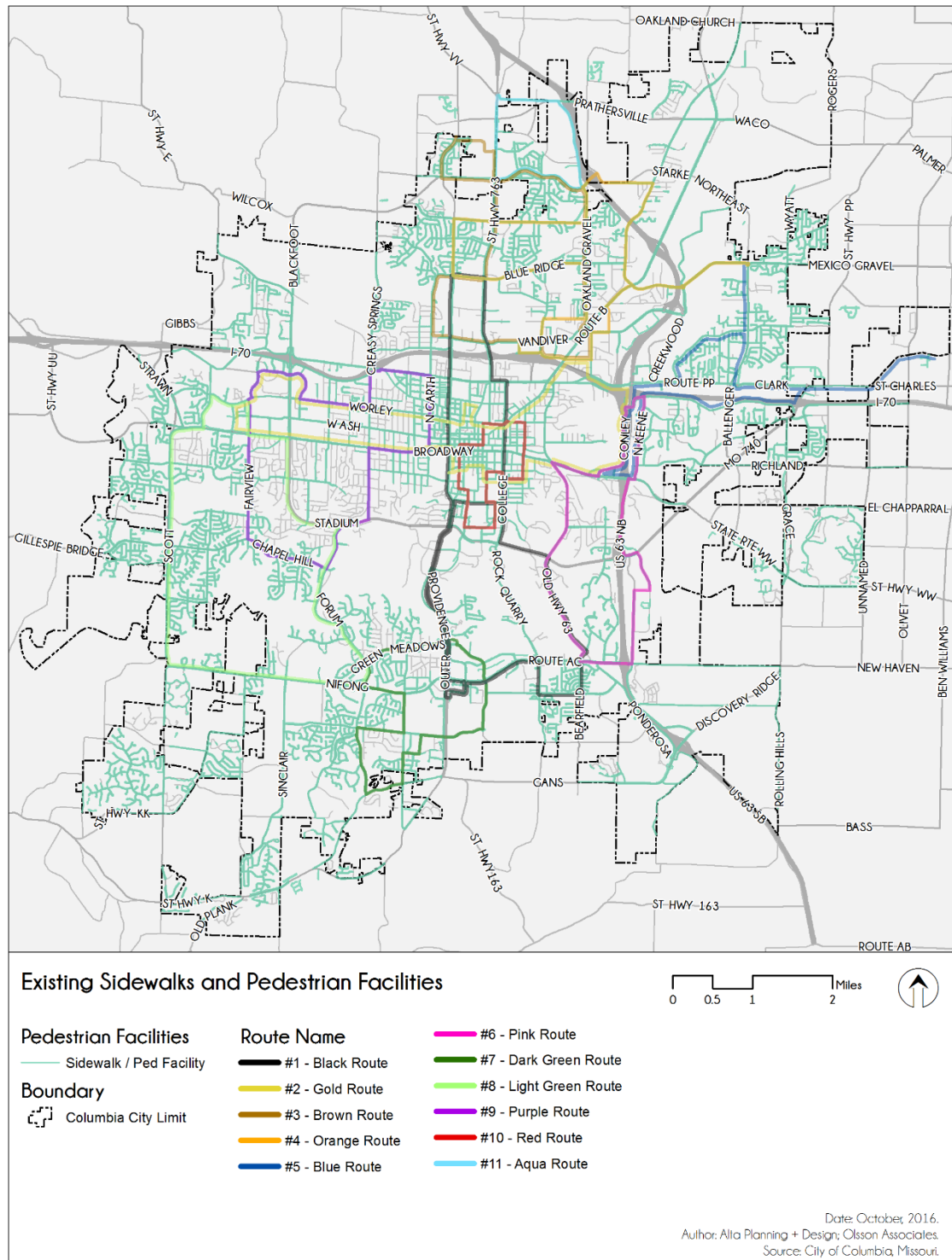
Safe and accessible street crossings are a critical element of a complete pedestrian network. It is imperative that pedestrians be able to access bus stops and land uses on both sides of the street. Without safe crossings, access to destinations, or even bus stops, is limited. Crossings vary in context and size, ranging from short crosswalks across a local neighborhood street, to larger, more complex crossings at major arterial roads. Many crossings at signalized intersections in the city of Columbia incorporate crosswalk markings, pedestrian signal heads, and ADA-accessible curb ramps. Some intersections also include pedestrian refuge islands, push button activation, and countdown timers. In order to increase pedestrian activity and access to transit, it will be important for the city of Columbia to continue to invest in upgrades to pedestrian infrastructure, particularly at intersections and bus stops where mid-block crossings are needed along key transit corridors.





## Go COMO Bus Service Evaluation

Figure 2-5: Existing Pedestrian Facilities



### Bicycle Facilities

The city of Columbia has made great strides over the last decade to improve conditions for bicycling. The \$25M Non-Motorized Transportation Pilot Program grant



## Go COMO Bus Service Evaluation

awarded to Columbia in 2007 was a major catalyst for developing new bikeways and supporting programs to encourage more people to walk and bike. Currently, all fixed route buses are equipped with bike racks that hold two bikes each. Future bus purchases, including electric buses will be feature bike racks with capacity for three bikes.

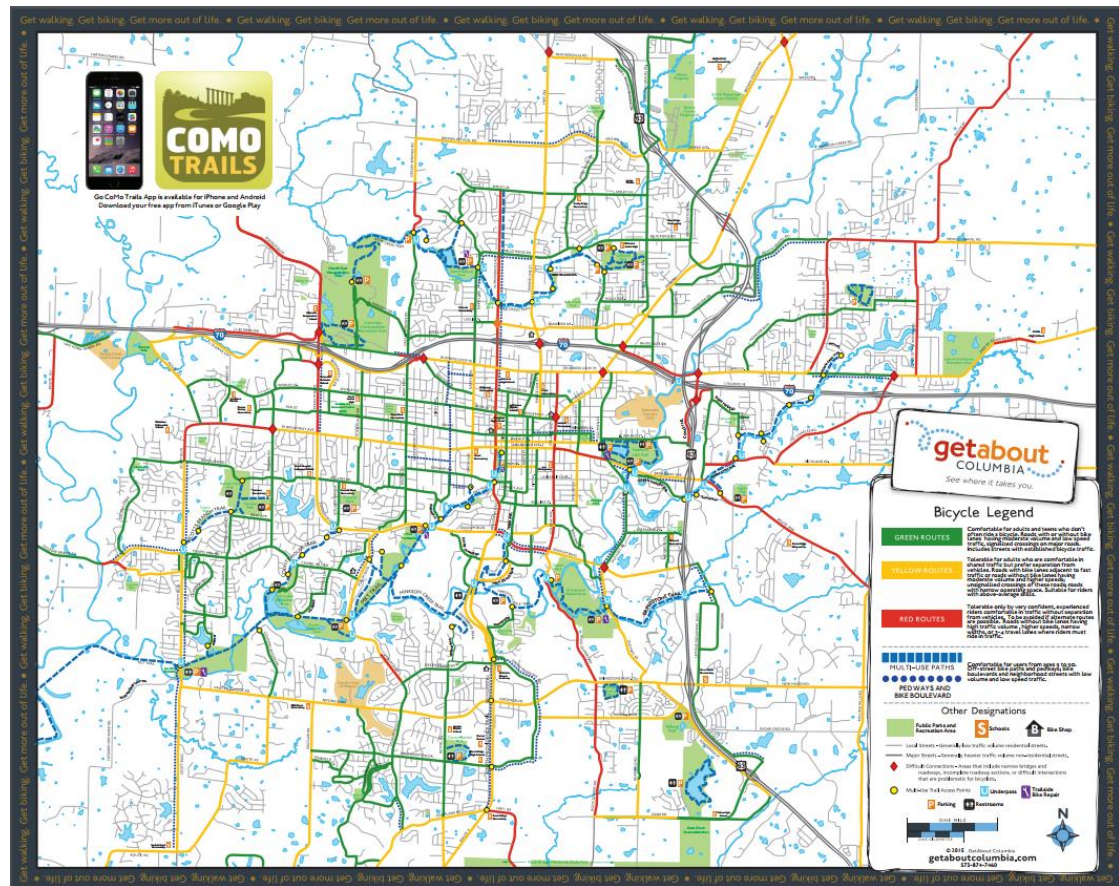
The city maintains an extensive network of bikeways, as shown in the 2017 *Get About Columbia Bike Map (Figure 2-6)*. This user map categorizes bikeways by degree of comfort and corresponding user type. Green routes are generally located on low-volume, low-speed roadways and are intended for use by most adults and teens with little bicycling experience. Yellow routes are located

along roadways with moderate speeds and traffic volumes and are intended for adult riders who are comfortable sharing the road but prefer separation from motor vehicles. Red routes are tolerable only for very confident, experienced riders and are recommended to be generally avoided if alternate routes are available. While low-stress green routes provide accessible connections to most areas of Columbia, there are gaps in the network that can present challenges to access and mobility for the majority of bicyclists. For example, there are few green routes that cross Interstate 70, and none east of Garth Avenue. Density and connectivity of green routes decrease in many suburban areas in the north, south and east, mirroring changes in the roadway network and land use contexts.



## Go COMO Bus Service Evaluation

Figure 2-6: 2017 Get About Columbia Bike Map



Source: <https://www.como.gov/publicworks/biking/>

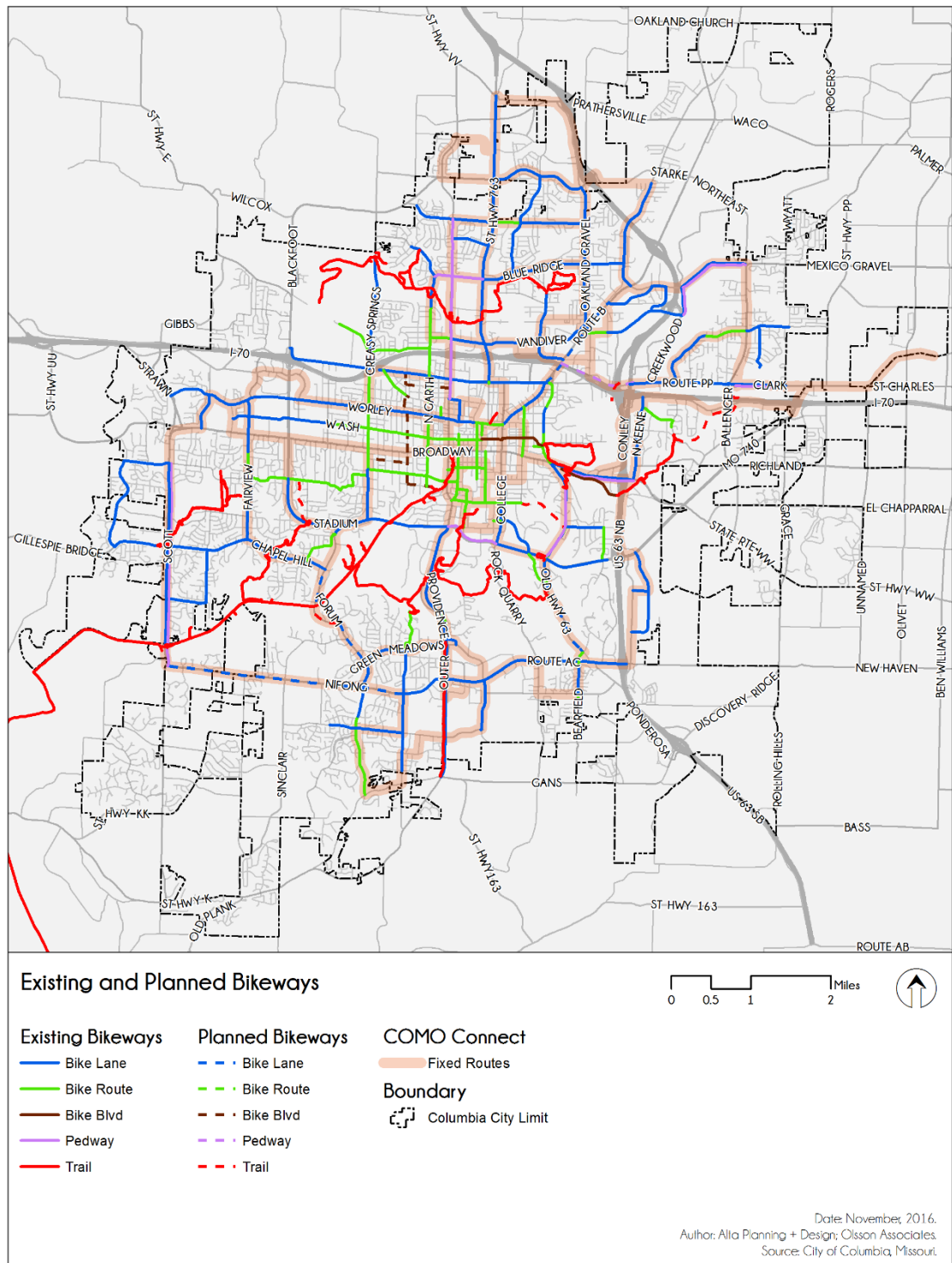
**Figure 2-7** below shows the various facility types that comprise the bikeway network, which includes signed bike routes, bike lanes, and shared use paths. The colors representing each facility type are not color-coded by level of stress like the previous map. Instead, each color represents a different bicycle facility type.





## Go COMO Bus Service Evaluation

Figure 2-7: City of Columbia Bicycle Facilities, 2015



In an effort to increase connectivity between bicycling and transit modes, Go COMO has equipped all fixed-route buses with fold-down bicycle racks capable of supporting two bicycles. These bike racks allow people bicycling to extend their trip and access destinations outside their typical bicycling range.





### Enhancing Active Transportation

A safer, more connected, and more accessible active transportation network can have significant impacts on transit access and ridership. Targeted investments in bicycle and pedestrian infrastructure along major arterial roadways that serve fixed transit routes can address transit user safety, access, and comfort issues.

One corridor whose current conditions present significant challenges for transit access is Providence Road, a major north-south corridor owned and operated by MoDOT with adjacent commercial, residential, and university land uses. Lack of pedestrian facilities and poor conditions at bus stops, many of which are not ADA-compliant, create access challenges for transit users. In addition, heavy pedestrian traffic and few designated, high-visibility crosswalks presents additional safety and on-time performance issues for buses, particularly through campus. A considerable number of major land uses along the corridor lack pedestrian connections to the roadway or to bus stops. Many of these conditions are illustrated in the corridor pictures show in **Figure 2-8** through **Figure 2-11**.

Through the provision of continuous sidewalks, safe and well-marked crosswalks, shared use paths (like the South Providence Trail south of Green Meadows Road), ADA-compliant bus stops, pedestrian facilities connecting directly to adjacent land uses, and similar improvements, the city of Columbia and MoDOT can transform major thoroughfares to better support walking, bicycling, and transit use. While Providence Road is just one of many corridors in need of increased transit access and non-motorized transportation improvements, many of the typical access, safety, and connectivity countermeasures are applicable to other corridors in Columbia.

*Figure 2-8: Pedestrian along Providence Road*



*Figure 2-9: Departing transit passengers walking to Wal-Mart at Conley Road*



*Figure 2-10: Bus stop along Providence Road*



*Figure 2-11: Bus stop on Providence Road at I-70*





# Go COMO Bus Service Evaluation

As owners and operators of many critical links in the roadway system, MoDOT will be an important partner in addressing gaps and deficiencies in the active transportation network. While many state highways in and around the city of Columbia were not initially intended or designed for bicycle or pedestrian traffic, continued residential, commercial, and industrial growth further from the urban core has changed the way Columbians use these roadways. MoDOT has been responsive to these changes and has worked to support bicycle and pedestrian travel through the provision of bike lanes, sidewalks, wide shoulders, and bus stops along bus routes. Recent improvements to shoulders and bus stops along Providence Road, like those shown in the “before” and “after” pictures below, have created safer, more accessible conditions for people walking, bicycling, and using transit.

*Figure 2-12: Improved roadway shoulders on Providence Road (Before and After)*



**Table 2-1** displays all MoDOT routes within the city of Columbia.



## Go COMO Bus Service Evaluation

Table 2-1: MoDOT Routes in the City of Columbia

Street Name	From	To
ABC Lane		
Ballenger		
Broadway	Stadium	Wales
Business Loop 70	East Blvd	I-70
College Ave	Business Loop 70	Stadium Blvd
Grindstone Pkwy	Lemone Industrial Blvd	Providence Road
Highway 63		
Highway 163		
I-70		
I-70 Dr NW	Sorrels Overpass	Stadium Blvd
I-70 Dr SE		
I-70 Dr SW	Strawn Rd	West Blvd
Mexico Gravel Rd		
Providence Rd	I-70	163 Rock Bridge Elementary
Rangeline	Business Loop 70	Highway 63
Route B	Ammonette St	Business Loop 70
Route E	I-70	City Limits
Route K		
Route KK	Barksdale Mall Dr	Route K
Route PP	Highway 63 Connector	City Limits
Route WW	Highway 63	East City Limits
Stadium	Highway 63	I-70
Strawn Road	Broadway	I-70 Dr WS

Through previous planning efforts, the city of Columbia has already identified strategies to improve walking and bicycling conditions. Each of these strategies are listed below and should be pursued as opportunities to enhance access to transit and improve multi-modal connections.

### 2012 Sidewalk Master Plan Update

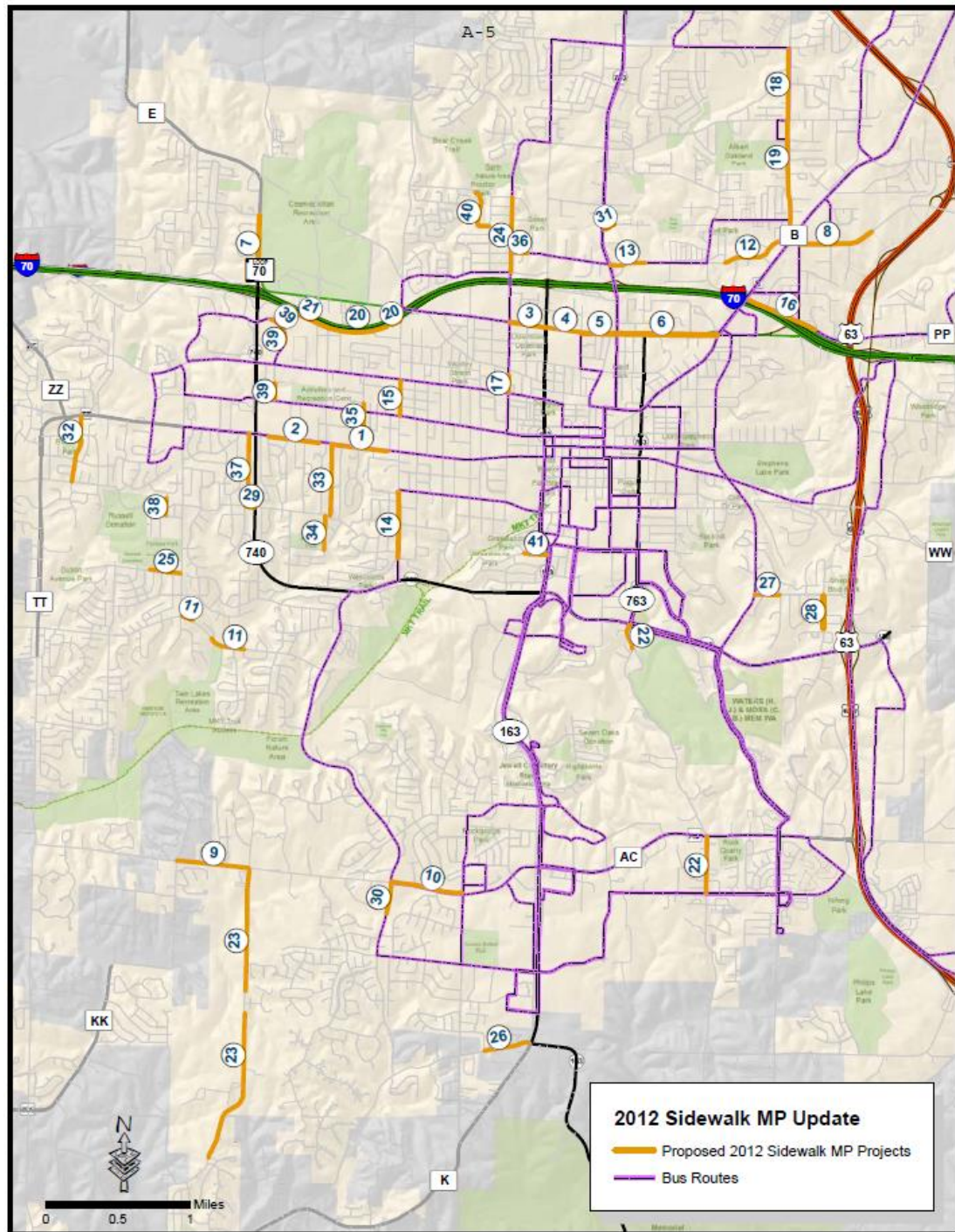
Approved by the City Council in 2013, the *2012 Sidewalk Master Plan Update* provides a framework for prioritizing sidewalk projects to reduce network gaps, with a specific focus on addressing roads in the Major Roadway Plan. These roads provide connectivity between neighborhoods, commercial districts, employment centers, and other important community destinations. Many of these roads also support transit routes as well. Corridors identified for connecting sidewalks and additional pedestrian improvements include Broadway Boulevard, Business Loop 70, Stadium Boulevard, Vandiver Drive, Nifong Boulevard, Chapel Hill Road, West Boulevard, Clark Lane, Garth Avenue, Oakland Gravel Road, and Rock Quarry Road. **Figure 2-13** from the Sidewalk Master Plan Update below depicts the recommended sidewalk projects in relation to the fixed-route bus system.





## Go COMO Bus Service Evaluation

Figure 2-13: Recommended Projects from the 2012 Sidewalk Master Plan Update



### *A Vision Zero Policy for Columbia, 2016*

Completed in March of 2016 by the Mayor's Task Force on Pedestrian Safety, the Vision Zero Policy for Columbia includes a diversity of encouragement, education, and engineering recommendations to reduce traffic fatalities. Sparked by the death of four pedestrians in a seven-month period from late 2014 to early 2015, the Task Force was established to bring together community stakeholders to evaluate





## Go COMO Bus Service Evaluation

available resources and provide recommendations to reduce collisions between automobiles and pedestrians. While no specific infrastructure improvements are included in the document, it does recommend road safety audits and changes to roadway design and engineering standards to improve safety.

In addition to the recommendations in the plans referenced above, the city of Columbia should consider the following improvements to better integrate walking, bicycling, and public transit into the total transportation system:

- Develop a prioritization and implementation plan that specifically improves pedestrian and bicycle infrastructure access to transit stops with particular focus on safe crossing facilities, universal design, and accessibility.
- Enhance bus stop amenities at bus stops to provide transit customers with safe and comfortable waiting areas.
- Address gaps in the green route network of bicycle facilities as shown in the 2015 Get About Columbia Bike Map.
- Develop a comprehensive bicycle wayfinding plan to direct bicyclists to nearby destinations and to transit service in order to reach destinations.
- Create a comprehensive bicycle master plan to guide future investments in bicycling infrastructure and further strengthen the connections between bicycling and transit.
- Provide secure bicycle parking at transit access locations identified as high priority.

Guidelines and reference materials include:

- APTA SUDS-RP-UD-005-12, *Design of On-street Transit Stops and Access from Surrounding Areas*  
<http://www.apta.com/resources/hottopics/sustainability/Documents/APTA%20SUDS-RP-UD-005-12%20On%20Street%20Transit%20Stops.pdf>
- National Association of City Transportation Officials, *Transit Street Design Guide*  
<http://nacto.org/publication/transit-street-design-guide/>
- Transit Cooperative Research Program (TCRP) Report 153: *Guidelines for Providing Access to Public Transportation Stations*  
<http://www.trb.org/Publications/Blurbs/166516.aspx>



# Go COMO Bus Service Evaluation

## Chapter 3 Existing Services

### Introduction

This chapter reviews the existing Go COMO services and assesses route performance.

This COA discusses two route categories.

- The first category is the Go COMO routes. This service comprises 11 routes named by number and color.
- The second category of routes are the University of Missouri-Columbia (MU) Tiger Line routes, which are also named by number and color. While the Go COMO routes provide general public transportation service throughout the city of Columbia, the Tiger Line routes provide public transportation focused on the MU campus. The Tiger Line routes transport students to popular destinations around the campus, to large student residential centers, and to a few destinations off campus.

Public transit relies on the efficiency and effectiveness of all parts of the system to succeed. Successful businesses understand this concept and take steps to understand the markets in which they operate, the needs and wants of their customers, and how well their services are meeting these expectations in the market. To understand and evaluate their performances, many businesses use statistics and other data about the goods and services they provide. In this same respect, Go COMO must use details and characteristics of each trip to better evaluate the service it provides as a whole. Variables such as trip origins, destinations, fare box recovery ratios, and passengers per revenue hours are used to evaluate how well the transit service is doing in matching the needs and wants of the markets in which they operate. All of these variables and pieces of information must be collected and studied in order to make helpful conclusions.

The basis of the subsequent analysis for Go COMO relies heavily on the understanding of existing services and discussions with the community, staff, and policy makers. In this chapter, the different services, including paratransit and Tiger Line, are described. Paratransit services refer to the origin to destination transportation for citizens who are certified as unable to ride the Go COMO fixed-route bus system, while the Tiger Line refers to the MU campus routes.

The detailed analysis of existing Go COMO transit routes is based upon data received from the city of Columbia and the National Transit Database. The following sections provide different transit variables that allow the agency to determine how the transit system and individual routes interacts with the markets in which they operate. Identifying these characteristics informs citizens and policy makers about Go COMO and will be used to develop practical route modifications for improving the efficiency and effectiveness of the transit system.



## Go COMO Bus Service Evaluation

### Overall Services

Go COMO operates 11 fixed-routes within the city of Columbia, and six Tiger Line routes oriented toward transporting students around the MU campus. In addition to the Tiger Line and Go COMO fixed-routes, the city also operates paratransit services. Additional routes, not included in this analysis, are offered during MU home football games. The following text provides further description of the routes.

### Span of Service

The Go COMO system operates 11 fixed-routes within the city of Columbia, Missouri. Two of the 11 routes, the Black Route and Gold Route, are core connector routes offering frequent service and travelling in two directions. The remaining nine routes connect outlying residential areas into the core connector routes and offer less frequent service in one-directional loops. Fixed-route service operates Monday through Friday, generally from 6:30 a.m. to 8:00 p.m. Nine routes operate on Saturday, generally between 10:00 a.m. to 8:00 p.m. The routes not operating on Saturday include the Dark Green Route #7 and the Aqua Route #11. Currently, no Go COMO transit service is offered on Sundays or when city offices are closed.

Paratransit services are also offered to eligible individuals within ¾-mile from any point along the Go COMO system. This service is a curb-to-curb shared-ride program that complements the fixed-route service period, offering trips weekdays from 6:25 a.m. to 7:30 p.m. and Saturdays from 10:00 a.m. to 7:30 p.m. Paratransit is not available on Sundays.

The Tiger Line campus shuttle operates during the fall and spring semesters. Four routes are marketed as “daytime routes.” Daytime service operates Monday through Friday from approximately 6:00 to 6:00 p.m. Three routes are Nighttime Routes and operate Monday through Saturday from 6:00 p.m. to either 11:00 p.m. or 1:30 a.m., depending on the route. The West Loop route and the Campus Loop route operate on Sunday from noon to 1:30 a.m. No other services or shuttles operate on Sundays.

Go COMO provides additional scheduled service during MU home football games. For every MU home football game, either six or seven home games per year, additional routes operate every 10 minutes from either downtown or elsewhere around the city. Two downtown routes connect several pre-game destinations that eventually drop fans off at Memorial Stadium for the game. The same service is offered on the other routes around town as well. These five other routes transport fans to the game from several hotels, restaurants, and shopping destinations. The football routes begin two hours prior to the start of the game and begin departing from the stadium 30 minutes after the game ends. Trips to the stadium are available every 10 minutes. Fares are the same as for any other Go COMO route.

### Service Frequencies

**Table 3-1** and **Table 3-2** outline the headway of each Go COMO fixed-route. The Go COMO routes offer 30 to 40-minute service during the weekday peak hour, and 30 to 60-minutes headways during off peak hours. The Tiger Lines which focus on the University campus provide more frequent service with 10 to 30 minute headways.



## Go COMO Bus Service Evaluation

*Table 3-1: Go COMO Headways by Route*

Route Name	Route Type	Peak Headway	Non-Peak Headway	Saturday Headway
<b>Black Route #1A</b>	Connector	30 minute	60 minute	60 minute
<b>Black Route #1B</b>	Connector	30 minute	60 minute	60 minute
<b>Gold Route #2A</b>	Connector	30 minute	60 minute	60 minute
<b>Gold Route #2B</b>	Connector	30 minute	60 minute	60 minute
<b>Brown Route #3</b>	Neighborhood	40 minute	40 minute	40 - 80 minute
<b>Orange Route #4</b>	Neighborhood	40 minute	40 minute	40 - 80 minute
<b>Blue Route #5</b>	Neighborhood	35 minute	35 minute	35 - 70 minute
<b>Pink Route #6</b>	Neighborhood	35 minute	35 minute	35 - 70 minute
<b>Dark Green Route #7</b>	Neighborhood	30 minute	30 minute	No service
<b>Light Green Route #8</b>	Neighborhood	40 minute	40 minute	40 - 80 minute
<b>Purple Route #9</b>	Neighborhood	40 minute	40 minute	40 - 80 minute
<b>Red Route #10</b>	Downtown	30 minute	30 minute	30 minute
<b>*Aqua Route #11</b>	Commuter	40 minute	40 minute	No service

*Notes: (\*) Aqua Route #11 offers four trips per day, weekdays only.*

*Table 3-2: Tiger Lines Headways by Route*

Route Name	Route Type	Days of Service	Morning Headway	Afternoon Headway
<b>Hearnes Loop #401</b>	Day Route	Mon. – Fri.	10 minute	15 minute
<b>Trowbridge Loop #402</b>	Day Route	Mon. – Fri.	10 minute	15 minute
<b>Reactor Field Loop #403</b>	Day Route	Mon. – Fri.	10 minute	10 minute
<b>Mizzou North Loop #404</b>	Day Route	Mon. – Fri.	30 minute	30 minute
<b>Reactor Field Loop #403</b>	Night Route	Mon. – Fri.	15 minute	15 minute
<b>Campus Loop #405</b>	Night Route	Mon. – Sun.	30 minute	30 minute
<b>West Loop #406</b>	Night Route	Mon. – Sun.	60 minute	60 minute





## Go COMO Bus Service Evaluation

### Go COMO Facilities

#### Grissum Building

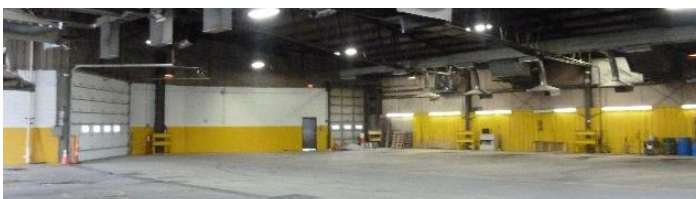
Go COMO, under the purview of the Public Works Department, shares daily operations and storage facilities with other departments within Public Works at the Grissum Building, which is located at 1313 Lakeview Avenue, near Business Loop and Interstate 70 (I-70). The building was built in the early 1960s and houses most of Public Works Department's equipment, including the Go COMO buses. Other departmental equipment includes that for sewer, solid waste, streets, fleet operations, and traffic operations.

Recent proposed upgrades, projected at \$4.5 million, include roof repairs and fueling facilities for electric and natural gas vehicles. Currently, Go COMO fuels the natural gas vehicles offsite at 1900 Lake Ridgeway Road. The city has a partnership with Clean Energy, where two pumps are available for city use and one pump for public use. The natural gas station is not staffed.

All buses are washed, fueled, and stored indoors at the Grissum Building. The majority of transit staff also park personal vehicles onsite at the Grissum Building.

The Grissum Building facility will accommodate the current Go COMO transit service vehicles; however, as currently configured, very little space is available for any future expansion. Go COMO will be conducting a feasibility study in the near future to help them consider expansion of the current site for additional bus storage and administrative functions. To maximize federal funding sources, Go COMO will begin looking at the existing site for potential expansion opportunities and will continue the steps for environmental screening, operational expansion needs, and concept designs.

*Figure 3-4: Interior vehicle storage at Grissum Building*



*Figure 3-1: Grissum Building site*



*Figure 3-2: Grissum Building exterior*



*Figure 3-3: Natural gas fueling facilities at 1900 Lake Ridgeway Road*





## Go COMO Bus Service Evaluation

### Wabash Station – Downtown

The Wabash Railroad Station, located at 126 North 10<sup>th</sup> Street, is a historic train station and major downtown bus stop for Go COMO, where daily operations are conducted. The building was constructed in 1909 as the terminus of the Columbia spur of the Wabash Railroad.

In 1964, the Wabash merged into the Norfolk & Western Railroad, ending one of America's most famous railroads. With the merger, the Norfolk & Western made many changes in Columbia that would eventually affect the station. Because of the advent of other modes of transportation and rising operation costs, passenger service ended on the Columbia Branch on April 18, 1969. After years of operating in the "red," Norfolk & Western finally shut down the depot and unofficially abandoned it in 1977. In February 1979, before the railroad company declared official abandonment, the city of Columbia purchased the station and its surrounding property for \$250,000.<sup>16</sup> In 1982, the city began using the station for its bus operations.

The property was listed on the National Register of Historic Places in 1979. In 2007, the building underwent renovation and restoration of its historic quality and was expanded to accommodate offices for public transportation. The project, approximately \$2.5 million, was intended to make the station a multimodal transportation center. It was certified at the LEED (Leadership in Energy and Environmental Design) Silver Level, meaning it meets national standards for energy efficiency and sustainable construction. The project included exterior renovation of the original structure, remodeling of the interior and passenger lobby, and construction of an administrative wing and a large canopy-covered bus port extending into the rear lot. The station was also a connection to intercity bus service for Megabus; however, the service discontinued in fall 2015.

Go COMO currently has one route, Route 10 – Downtown Orbiter, serving the Wabash Station every 30 minutes. Customer service, schedules, and bus passes are also available onsite. The transit superintendent, supervisors, and dispatch for the fixed-route operation are located at the Wabash Station.

*Figure 3-5: Wabash Station*



<sup>16</sup> [http://www.columbiatribune.com/special\\_sections/wabash-station-celebrating-years/article\\_ba867f63-0fa8-5f76-8c34-51318461f5af.html](http://www.columbiatribune.com/special_sections/wabash-station-celebrating-years/article_ba867f63-0fa8-5f76-8c34-51318461f5af.html)





## Go COMO Bus Service Evaluation

*Figure 3-6: Wabash Station, viewed from North 10th Street*



*Figure 3-7: Bus bays at Wabash Station*





## Major Transfer Centers

**Figure 3-10** illustrates the major transfer points for Go COMO with three or more routes serving that location. The 10 locations include, in no particular order:

1. Broadway/Fairview: Light Green Route #8, Purple Route #9, Gold Route #2
2. Fairview/Worley: Light Green Route #8, Purple Route #9, Gold Route #2
3. Blue Ridge/Providence: Black Route #1, Orange Route #4, Brown Route #3
4. Blue Ridge/Rangeline: Black Route #1, Orange Route #4, Brown Route #3
5. Brown School/Roger Wilson: Orange Route #4, Brown Route #3, Aqua Route #11
6. College/Rogers: Black Route #1, Gold Route #2, Red Route #10
7. College/University: Black Route #1, Gold Route #2, Red Route #10
8. Broadway Market Place/Conley Rd: Gold Route #2, Blue Route #5, Pink Route #6
9. Sylvan/Whitegate: Gold Route #2, Orange Route #4, Brown Route 3 – Brown
10. College/Hinkson: Gold Route #2, Red Route #10, Black Route #1

Additionally, three more of the system's major transfer points (shown in **Figure 3-10** and listed below) are served by only two routes. Although only served by two routes, the Rollings/GRP Residence Halls stop is one of the most active transfer points in the system.

11. Rollins/GRP Residence Halls: Black Route #1, Red Route #10
12. Rollins/MU Student Center: Black Route #1, Red Route #10
13. Broadway/Crossroads Shopping Center: Gold Route #2, Light Green Route #8

In 2014, when the transit system transitioned to the new network for public transportation with higher frequency Black and Gold routes that have lower frequency feeder routes, one goal of the new service was to provide multiple opportunities for residents to transfer to different routes. The connection points allow passengers to have a minimal wait until the next route is scheduled to arrive. Transfers are free for passengers if used within two hours of the trip. The bus stops at the transfer centers have signage indicating which routes pass by the stop. As Go COMO continues to implement the connected network, additional amenities are planned for the major transit centers.

*Figure 3-8: Bus stop sign*



*Figure 3-9: Bus stop on Blue Ridge Road*



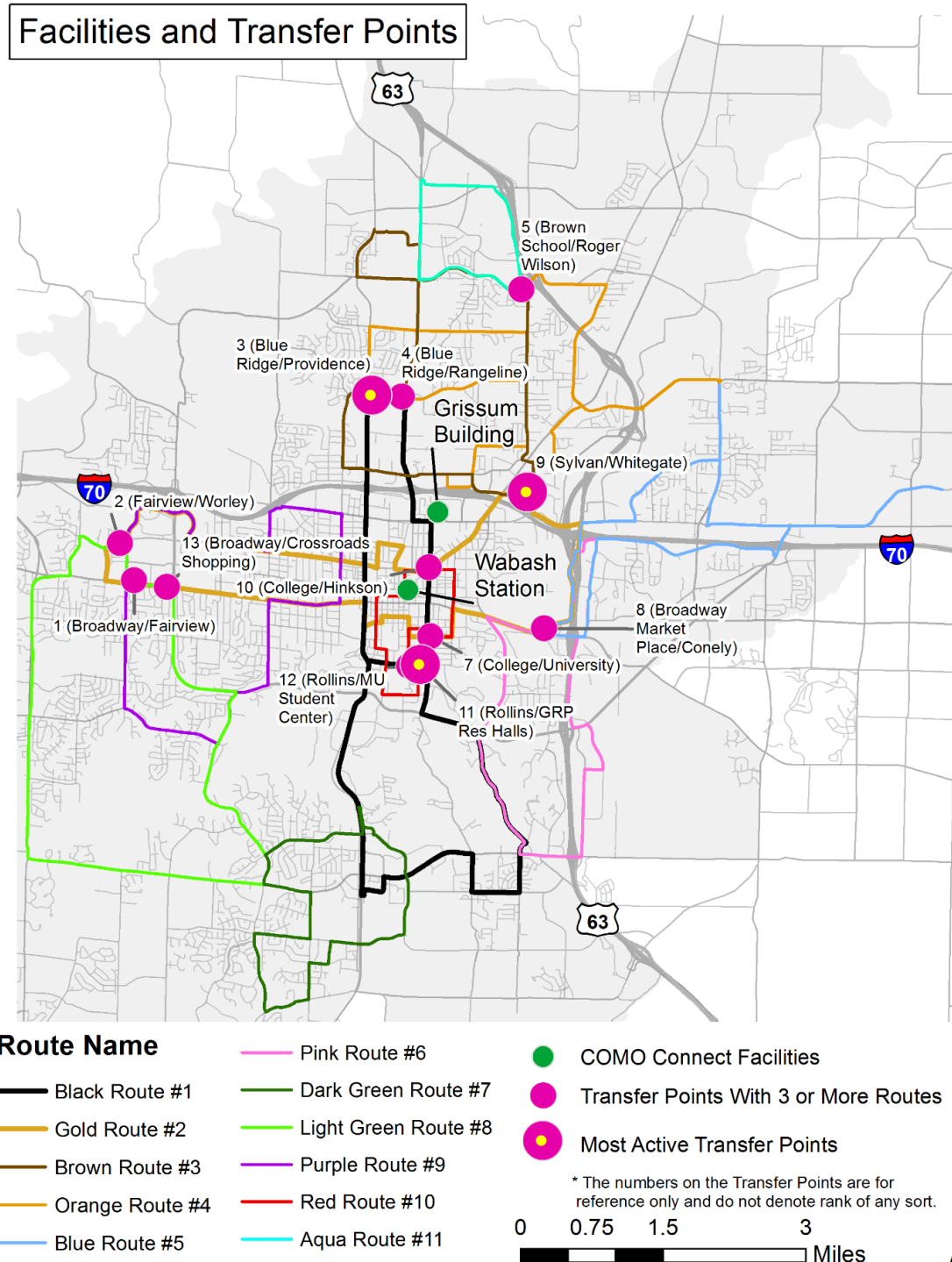




## Go COMO Bus Service Evaluation

In Figure 3-10, the bus stops serving three or more routes and stops with higher levels of ridership are labeled. Both the Grissum Building and Wabash Station are also identified on this map.

*Figure 3-10: Facilities and Transfer Points*





## Go COMO Bus Service Evaluation

### Fare Structure

Fares for passengers on the Go COMO fixed-route system vary in price from a \$1.50 for the regular full fare to free rides for students age 18 and under. In addition to the young adult population, several other opportunities are available for riders to receive a discounted fare.

The general public can purchase either a daily pass, a 25-ride pass, or a 30-day pass for discounted rates. Assuming the rider takes at least two trips per day, the least expensive alternative on a per-ride basis is the monthly pass for \$55.

Half fares are also an option for eligible riders who are either disabled by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability; elderly or 65 years and older; Medicare or Medicaid recipients; or low income residents. Those who submit an approved application can purchase passes for half the full-fare price, with the exception of the daily pass. Low-income riders are only eligible if their household income is less than 185 percent of the federal poverty level. **Table 3-3** outlines the federal income thresholds for 185 percent of the poverty level. Since 2015, one marketing promotion includes the first 200 employees of the central business district businesses are also eligible for the 30-day half-fare price with an approved paystub.

*Table 3-3: Federal Income Chart 2/1/2015 to 1/31/2016*

Household Size	Annual Income	Monthly Income	Weekly Income
1	\$21,756	\$1,813	\$419
2	\$29,448	\$2,454	\$567
3	\$37,152	\$3,096	\$715
4	\$44,844	\$3,737	\$863
5	\$52,536	\$4,378	\$1,011

Semester passes allow unlimited trips for an entire fall or spring semester. These passes are offered to students who have a valid student identification card from any university, college or trade, or public or private school in the Columbia city limits. Prices for the semester pass range from \$50 to \$100, depending on when the student purchases the pass during the school year. Group purchasing options are also available to any agency, entity, organization, or business that purchases multiple passes on behalf of their customers. Discounts range from 35 to 50 percent off the semester prices, depending on whether the organization purchases above or below 1,000 passes.

Paratransit service is offered to those Americans with Disabilities Act (ADA)-eligible persons and their registered care attendants. The fare for eligible riders is \$2 per ride, and it is free for a rider's attendant, if needed.

**Table 3-4** summarizes transit fares.



## Go COMO Bus Service Evaluation

Table 3-4: Transit Fare Summary

Fare Category	Fare Price	Pricing Multiplier	Last Changed
<b>Paratransit</b>			
ADA-eligible persons per ride	\$2.00	N/A	2011
Registered personal care attendant	Free	N/A	2011
<b>Fixed-Route Regular Fares</b>			
Per Ride	\$1.50	N/A	2011
Daily Pass	\$3.00	2	2014
25-Ride Full Fare	\$30.00	20	2011
30-Day Full Fare	\$55.00	36.7	2011
<b>Discounted Fixed-Route Fares</b>			
Per Ride Half Fare	\$0.75	N/A	2011
25-Ride Half Fare	\$15.00	20	2011
30-Day Half Fare	\$25.00	33.3	2014
Downtown Employee Discount (30-Day Half Fare)	\$25.00	16.7	2015
Park & Ride Program (with valid downtown parking permit)	Free Unlimited Rides	N/A	2013
Youth Ride (Students aged 18 and under)	Free	N/A	2014
<b>Fixed Route Semester Passes</b>			
Per Regular Semester	\$100.00	66.7	2011
Regular Semester After October 15 <sup>th</sup> or March 15 <sup>th</sup>	\$50.00	33.4	2012
<b>Discounted Fixed-Route Semester Passes</b>			
Per Regular Semester (Groups of 20 – 1,000)	\$65.00/pass	43.3	2014
Per Regular Semester (Groups of 1,000+)	\$50.00/pass	33.3	2012
Regular Semester After October 15 <sup>th</sup> or March 15 <sup>th</sup> (Groups of 20 – 1,000)	\$32.00/pass	21.3	2014
Regular Semester After October 15 <sup>th</sup> or March 15 <sup>th</sup> (Groups of 1,000+)	\$25.00/pass	16.7	2012
<b>Tiger Line System</b>			
Per Ride	Free to all university students	N/A	N/A



# Go COMO Bus Service Evaluation

## Fleet

The existing fleet for Go COMO is summarized in **Table 3-5**, showing vehicles used for Go COMO fixed route, paratransit, and Tiger Line transit services. Each specific vehicle is described in finer detail in **Table 6**.

*Table 3-5: Summary of Agency Fleet Inventory*

Vehicle Fleet	Total Vehicles	Average Age	Average Miles
<b>Fixed-Route</b>	23	6 years	176,590
<b>Paratransit</b>	18	6 years	114,996
<b>Tiger Line</b>	14	16 years	359,583
<b>Total</b>	55	8.5 years	203,501

*Table 3-6: Agency Fleet Inventory Description*

Vehicle Type	Last 4 Numbers of VIN	Year	Lifetime Miles	Fuel Type	Service
Pickup	6272	2005	N/A	Gas	Revenue
Van (No Lift)	1360	2006	N/A	Gas	Revenue
Toyota Prius	4419	2005	N/A	Gas/Hybrid	Revenue
MV1	1653	2012	8,530	CNG	Para-Transit
MV1	1623	2012	7482	CNG	Para-Transit
Diamond Cutaway	6731	2001	233,466	#2 Diesel	Para-Transit
Diamond Cutaway	5211	2006	214,255	#2 Diesel	Para-Transit
Diamond Cutaway	0663	2004	241,853	#2 Diesel	Para-Transit
Ford E450	6901	2009	190,133	#2 Diesel	Para-Transit
Ford E450	6902	2009	177,493	#2 Diesel	Para-Transit
Ford Collins	5573	1999	162,785	Gas	Para-Transit
Ford V10	4681	2011	144,056	Gas	Para-Transit
Ford V10	4682	2011	151,113	Gas	Para-Transit
Ford V10	6835	2012	143,782	Gas	Para-Transit
Ford V10	6836	2012	142,563	Gas	Para-Transit
Ford V10	8672	2014	38,451	CNG	Para-Transit
Ford V10	8669	2014	52,276	Gas	Para-Transit
Ford V10	8670	2014	49,547	Gas	Para-Transit
Ford	8671	2014	43,992	Gas	Para-Transit
Ford	7867	2014	38,767	CNG	Para-Transit
Ford	8674	2014	29,400	CNG	Para-Transit
Ford Champion	2717	2002	140,884	Gas	Campus Operations
NewFlyer 40 foot	5917	1995	421,567	#2 Diesel	Campus Operations
NewFlyer 40 foot	5918	1995	386,384	#2 Diesel	Campus Operations
NewFlyer 40 foot	1170	2000	313,330	#2 Diesel	Campus Operations
NewFlyer 40 foot	1171	2000	278,803	#2 Diesel	Campus Operations
NewFlyer 40 foot	2253	2001	349,260	#2 Diesel	Campus Operations
NewFlyer 40 foot	2254	2001	375,892	#2 Diesel	Campus Operations
NewFlyer 40 foot	2255	2001	407,553	#2 Diesel	Campus Operations





## Go COMO Bus Service Evaluation

Vehicle Type	Last 4 Numbers of VIN	Year	Lifetime Miles	Fuel Type	Service
NewFlyer 40 foot	2256	2001	348,893	#2 Diesel	Campus Operations
NewFlyer 40 foot	2259	2001	401,239	#2 Diesel	Campus Operations
NewFlyer 30 foot	2368	2001	391,060	#2 Diesel	Campus Operations
NewFlyer 30 foot	2371	2001	386,323	#2 Diesel	Campus Operations
NewFlyer 30 foot	2372	2001	369,119	#2 Diesel	Campus Operations
NewFlyer 30 foot	2373	2001	415,080	#2 Diesel	Campus Operations
NewFlyer 40 foot	2257	2001	396,470	#2 Diesel	Fixed-Route Operations
NewFlyer 40 foot	2258	2001	391,343	#2 Diesel	Fixed-Route Operations
NewFlyer 30 foot	2369	2001	431,481	#2 Diesel	Fixed-Route Operations
NewFlyer 30 foot	2370	2001	426,793	#2 Diesel	Fixed-Route Operations
BYD K9 40 foot	0002	2015	0	Electric	Fixed-Route Operations
Gillig 40 foot	4197	2015	20,780	CNG	Fixed-Route Operations
Gillig 40 foot	4198	2015	25,507	CNG	Fixed-Route Operations
Gillig 40 foot	7819	2007	83,872	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	8199	2007	125,950	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	7780	2010	156,976	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	7781	2010	191,804	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	7782	2010	222,289	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	7783	2010	228,382	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	7784	2010	249,278	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	7917	2011	53,693	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	7918	2011	121,181	#2 Diesel	Fixed-Route Operations
Gillig 35 foot	7919	2011	139,448	#2 Diesel	Fixed-Route Operations
Gillig 35 foot	0518	2012	134,499	#2 Diesel	Fixed-Route Operations
Gillig 35 foot	0519	2012	119,536	#2 Diesel	Fixed-Route Operations
Gillig 35 foot	0520	2012	114,814	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	0517	2012	74,413	#2 Diesel	Fixed-Route Operations
Gillig 40 foot	0516	2012	99,367	#2 Diesel	Fixed-Route Operations
Gillig 35 foot	0521	2012	125,872	#2 Diesel	Fixed-Route Operations

**Notes: (CNG) Compressed Natural Gas**

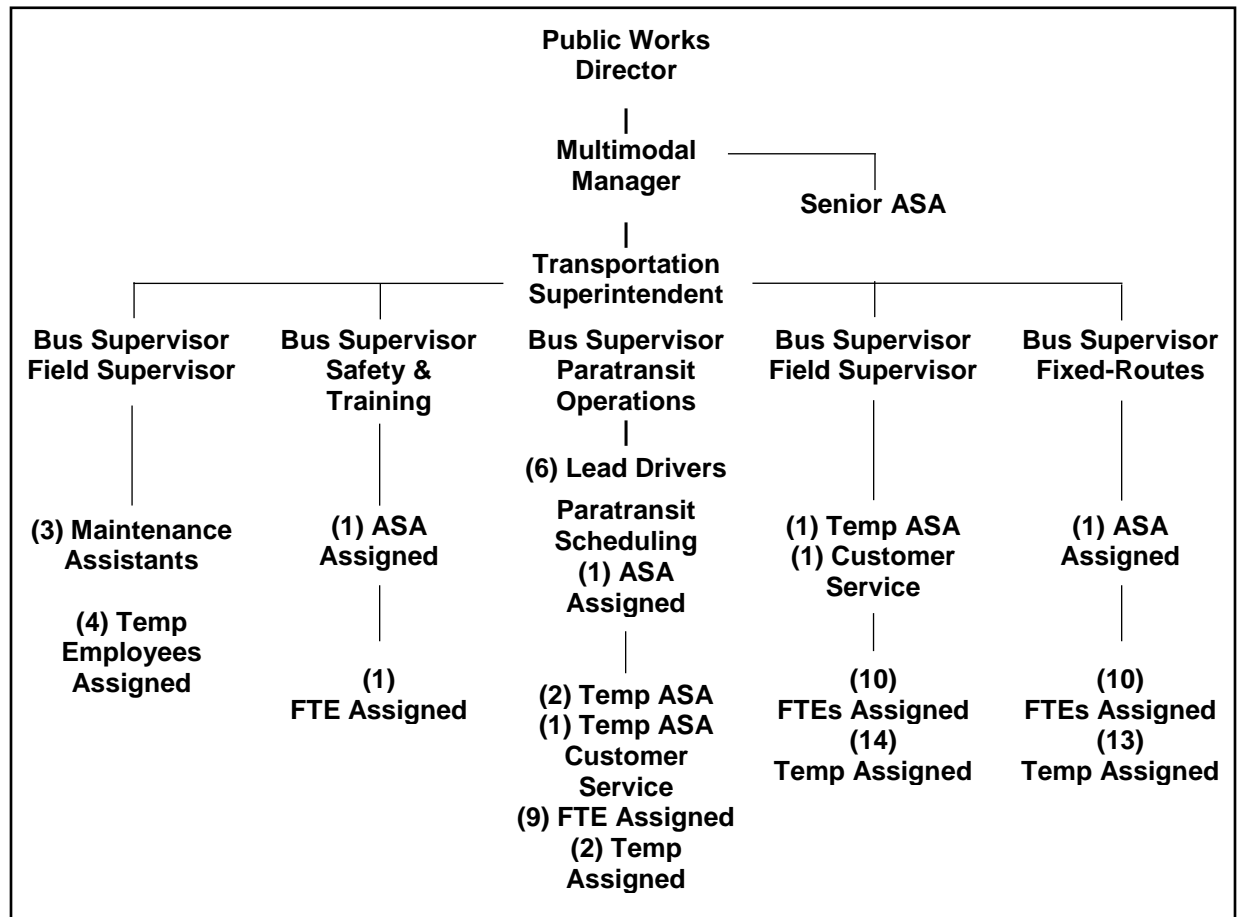


## Go COMO Bus Service Evaluation

### Organizational Structure

**Figure 3-11** illustrates the organization chart for Go COMO, as of February 2016. Go COMO has 27 positions associated with delivering transit services throughout Columbia.

*Figure 3-11: Go COMO Organization Chart*



*Notes: (FTE) Full Time Employee and (ASA) Administration Support Assistant*

### Financial Status

Go COMO is funded through a variety of grants, local sales taxes, and local fund transfers. The majority of funding comes from a portion of a one-half cent transportation tax and federal (predominantly) and state grants. Fees and service charges, primarily user fares, compose another quarter of funding. Finally, fund transfers, such as transfers from the city's parking fund, convention and visitors fund, and Community Development Block Grant (CDBG) monies form a combined 5 percent of financing. **Table 3-7** displays the financial sources of funding.



## Go COMO Bus Service Evaluation

Table 3-7: FY 2016 Financial Sources

FY 2016 Financial Sources	Amount	Percent (%)
Grants (federal and state)	\$2,276,863	30
Fees and Service Charges (i.e., fare box)	\$1,923,675	26
Sales Tax for Operating	\$2,438,773	32
Sales Tax for Capital Projects	\$434,434	6
Fund Transfers	\$382,273	5
Other Revenue, Interest	\$82,248	1
<b>Total</b>	<b>\$7,538,266</b>	<b>100</b>

The half-cent transportation sales tax funds a major portion of the overall transit budget and has traditionally been allocated with 50 percent toward transit, 25 percent toward streets, and 25 percent toward the airport. These amounts are not determined by statute and may vary from year to year.

### Financial Effectiveness

#### Fare Box Recovery Ratio

The fare box recovery ratio is one measure of financial effectiveness in terms of operating costs recovered from fares. The average fare for Go COMO, \$0.33, was derived from the fiscal year 2015 system-wide ridership (700,000) and divided by the most recent annual fare collections (\$2,112,787) reported to the National Transit Database. The total weekday system average for all services was 17 percent fare recovery ratio. For Go COMO-only routes, the weekday average fare recovery ratio was five percent.

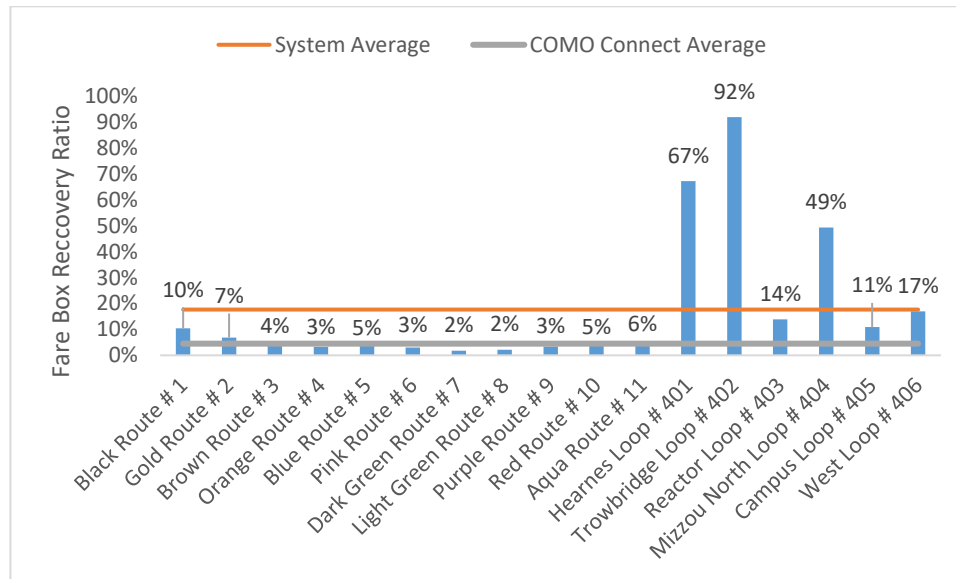
The three highest performing routes for fare box recovery ratio are Tiger Line routes with ratios above 49 percent. Among Go COMO routes, Black Route #1 and Gold Route #2 have weekday fare box recovery ratios of 10 percent and 7 percent, respectively. Six routes perform less than the average of 5 percent:

- Brown Route #3,
- Orange Route #4,
- Pink Route #6,
- Dark Green Route #7,
- Light Green Route #8, and
- Purple Route #9.



## COMO Bus Service Evaluation

Figure 3-12: Fare Box Recovery Ratio by Route



On Saturdays, operating ratios slightly decrease across the entire system as a result of generally reduced ridership per revenue hour. Saturday service for the Go COMO routes operates with a fare box recovery ratio of 4 percent. That percentage increases to 5 percent when including the two Tiger Line routes that operate on Saturday. The fare box recovery ratio for the two Sunday Tiger Line routes (the Campus Loop #405 and West Loop #406) are 4 percent and 10 percent, respectively.

### Net Subsidy per Passenger Boarding

Subsidy per passenger boarding is a way to examine the financial performance of service for each passenger. Net subsidy per boarding measures the additional cost to Go COMO required to cover operating costs, after fare box revenue is accounted for. This measure is inversely proportional to fare box recovery ratio. Routes with a high subsidy per passenger generally have a low fare box recovery ratio.

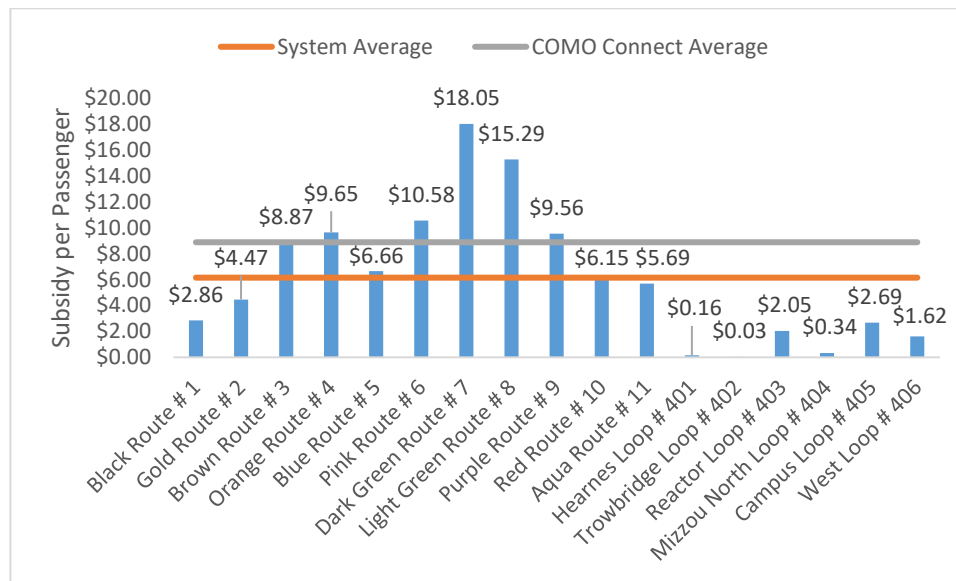
The system-wide weekday average subsidy per passenger is approximately \$6.16. For Go COMO-only routes, the weekday average subsidy per passenger is approximately \$8.89. The lowest weekday subsidy in the entire system is Tiger Line route Trowbridge Loop #402 at \$0.03 per passenger. Among Go COMO routes, Black Route #1 had the lowest subsidy per passenger of \$2.86. Dark Green Route #7 and Light Green Route #8 had the highest subsidies per passenger at \$18.05 and \$15.29, respectively. The difference in subsidies per passenger between the Tiger Line routes and the Go COMO routes is primarily a function of ridership. The Tiger Line route Trowbridge Loop #402 operates approximately 224 passengers per revenue hour, while the Dark Green Route #7 has 4 passengers per revenue hour. This example serves to illustrate the stark differences between routes orientated toward areas with extremely high activity, such as the MU campus, and those routes orientated toward providing coverage service to lower density areas.





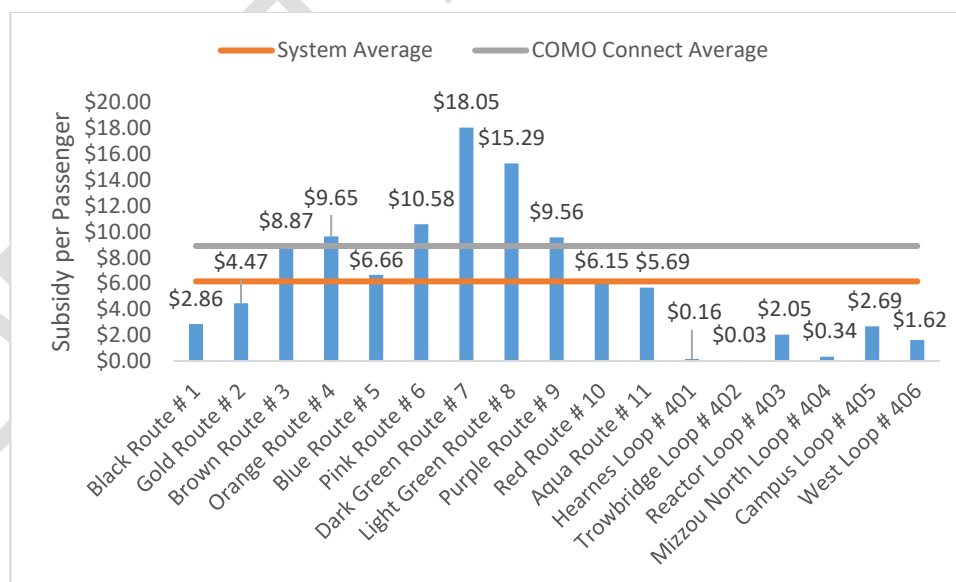
## COMO Bus Service Evaluation

Figure 3-13: Subsidy per Weekday Passenger



The service subsidy per passenger increases across the entire system on weekends as a result of lower Saturday ridership. The Saturday, system-wide average subsidy per passenger is \$7.97. For Go COMO-only routes, the Saturday subsidy per passenger is \$9.07. The subsidy per passenger boarding for the two Sunday Tiger Line routes (the Campus Loop #405 and West Loop #406) are \$7.57 and \$3.12, respectively.

Figure 3-14: Subsidy per Weekend Passenger



### System-wide Overview

Several performance measures are used to analyze how the Go COMO fixed routes are performing in comparison to other routes in the network. These measures help to



## COMO Bus Service Evaluation

understand each route and compare them operationally and financially. Reviewing how well each route performs determines whether the current allocation of service and resources is appropriate for Columbia's needs. Data analyzed in this section will be used in the discussions and recommendations made regarding the efficiency and effectiveness of the system.

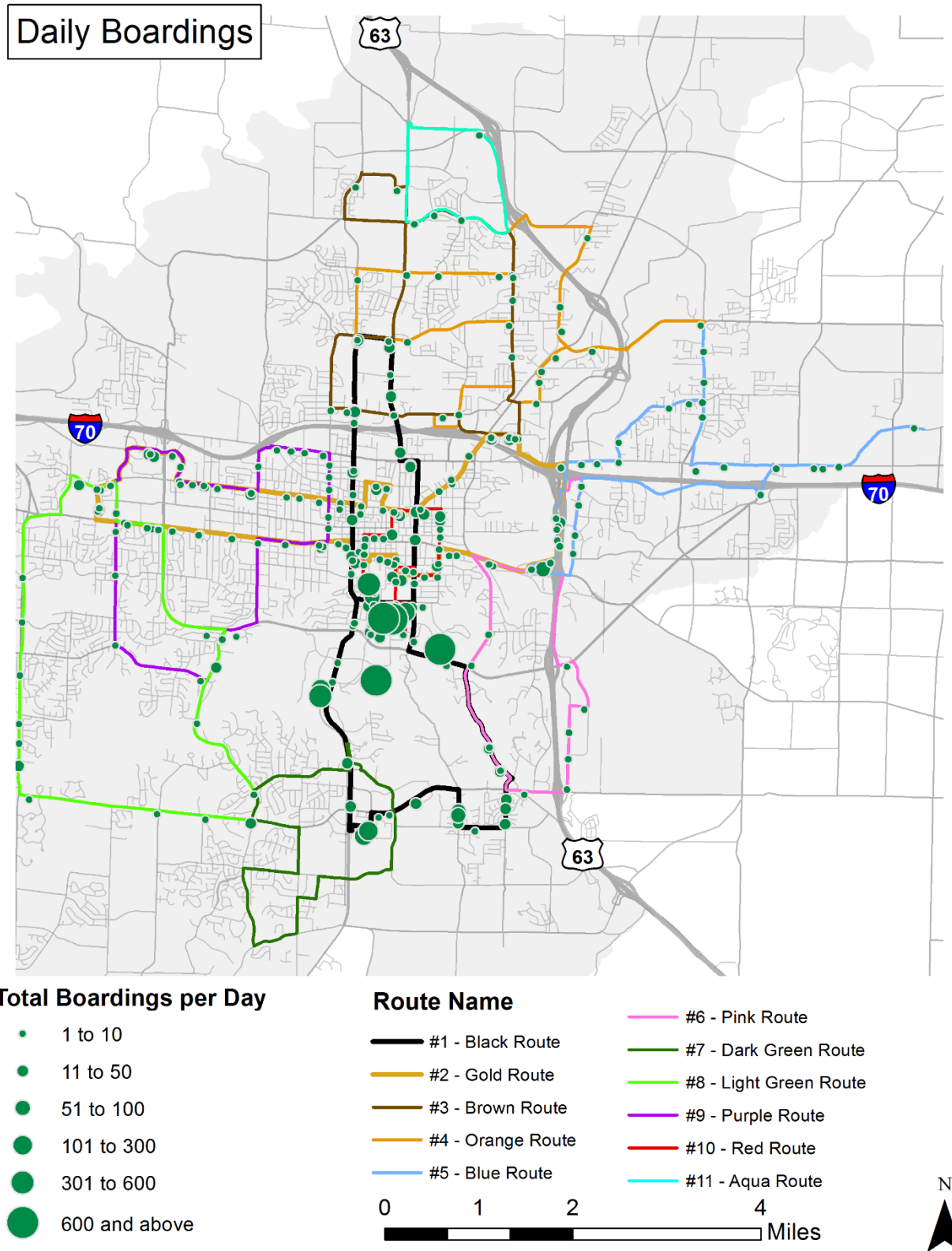
### ***Ridership***

Daily, monthly, and annual ridership information was analyzed at the route level for Go COMO and Tiger Line. For each route, ridership trends were observed for specific times of the day. **Figure 3-15** displays system-wide daily boardings.



## COMO Bus Service Evaluation

Figure 3-15: Average Daily Ridership





## COMO Bus Service Evaluation

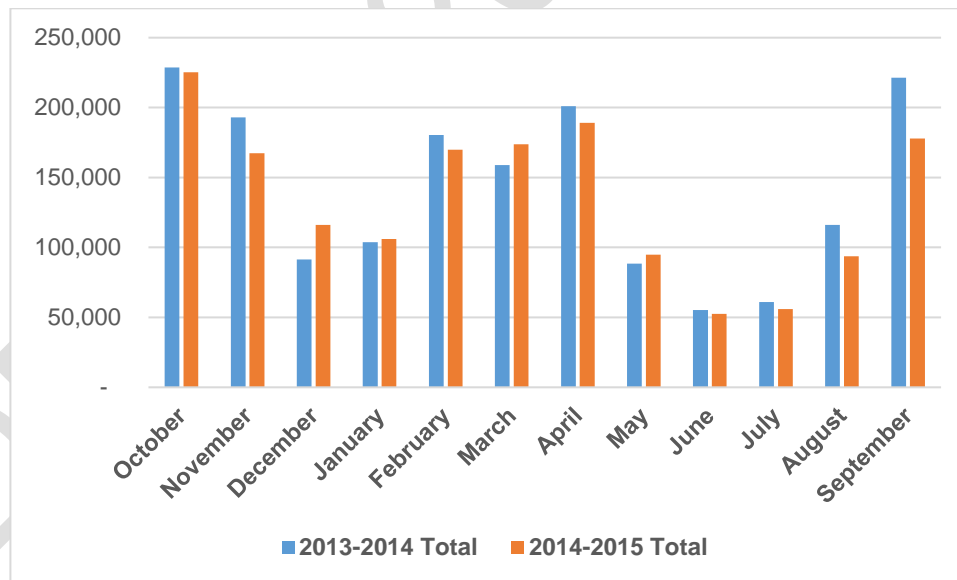
Total annual ridership declined by five percent from Fiscal Year (FY) 2014 to 2015. For Go COMO, the Fiscal Year is from July 1<sup>st</sup> until June 30<sup>th</sup> the following calendar year. From 2014 to 2015 FY, ridership declined 20 percent for the Go COMO fixed-routes. During this time, the Tiger Lines had a ridership increase of 12 percent. **Table 3-8** displays total annual ridership for the Go COMO fixed route, paratransit, and Tiger Line systems during the last two fiscal years.

*Table 3-8: Annual Ridership by Mode*

	2013-2014	% Total	2014-2015	% Total	Annual % Change
<b>Go COMO Fixed-Route</b>	881,386	52	705,697	43	-20
<b>Tiger Line</b>	765,155	45	857,912	53	12
<b>Go COMO Paratransit</b>	52,713	3	58,719	4	11
<b>Total</b>	<b>1,699,254</b>	<b>-/-</b>	<b>1,622,328</b>	<b>-/-</b>	<b>-5</b>

Differences in monthly ridership between FY 2014 and 2015 can also be seen in **Figure 3-16**. The months of December, January, March, and May in FY 2015 experienced total ridership increases from the previous year.

*Figure 3-16: FY 2014 and 2015 Ridership*



While Go COMO had more ridership in FY 2014, Tiger Line ridership in

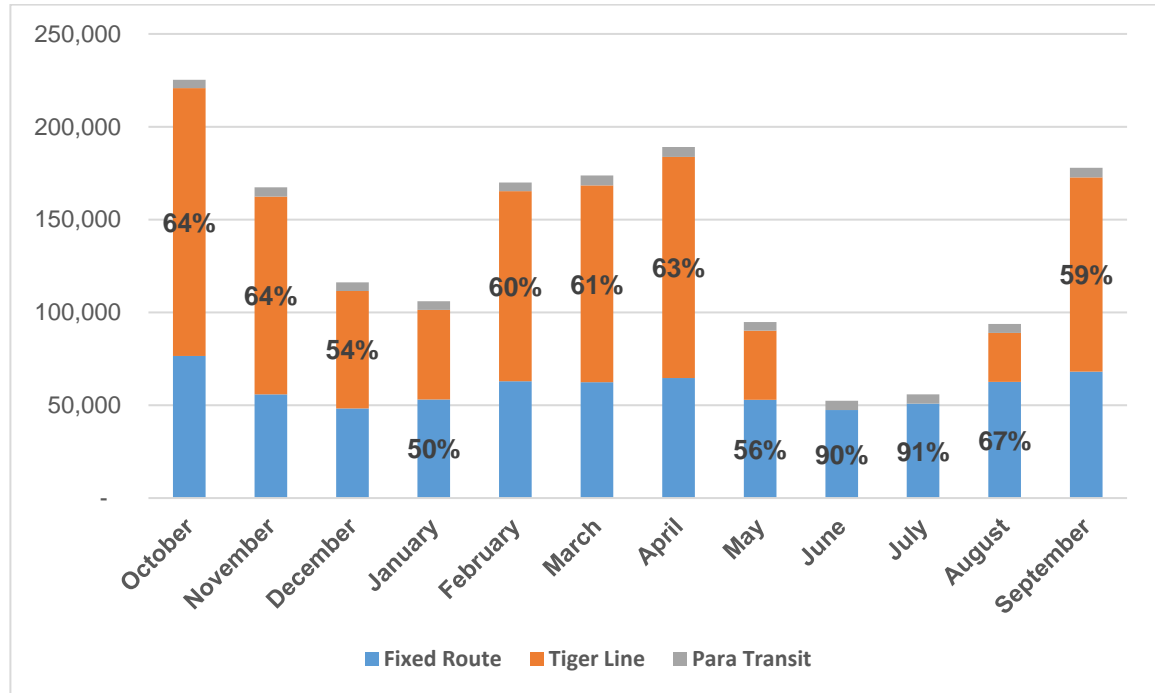




## COMO Bus Service Evaluation

FY 2015 surpassed that of Go COMO. Ridership was higher for the Go COMO system during the month of January and during the summer months of May through August. These times are also when the university population goes down during the winter and summer breaks.

**Figure 3-17: FY 2015 Ridership by Mode**



Note: Percentage shown displays where the majority of ridership is coming from in any particular month.

The next section of the report focuses on route level characteristics. **Figure 3-18** through **Figure 3-27** display the ridership levels for both the Go COMO and the Tiger Line fixed-routes.



## COMO Bus Service Evaluation

Figure 3-18: FY 2015 Go COMO Weekday Ridership by Route

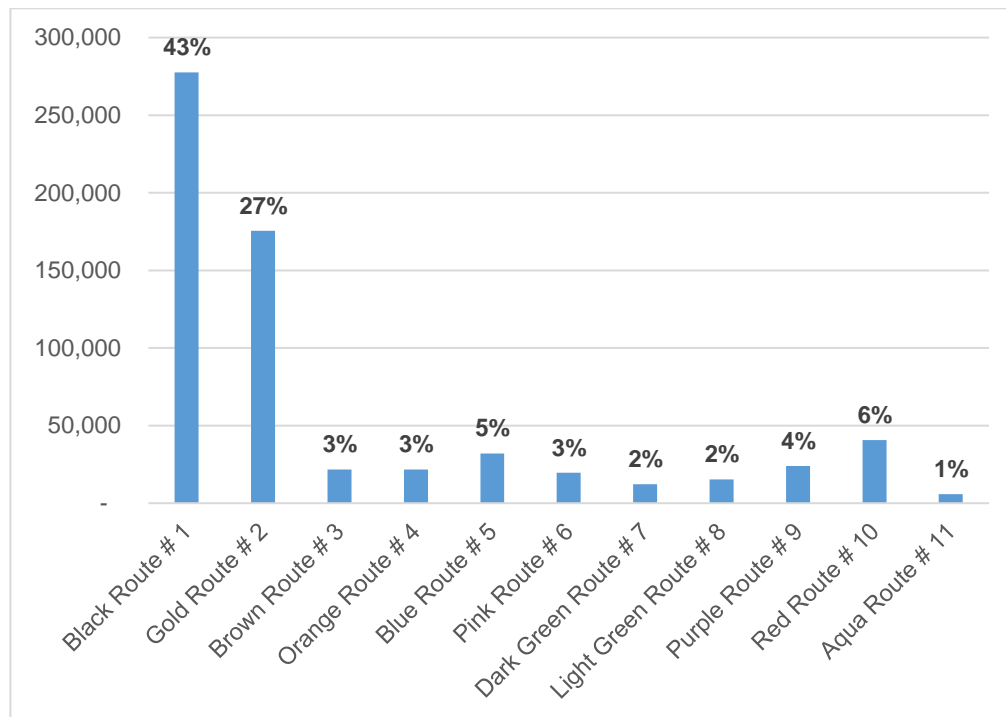
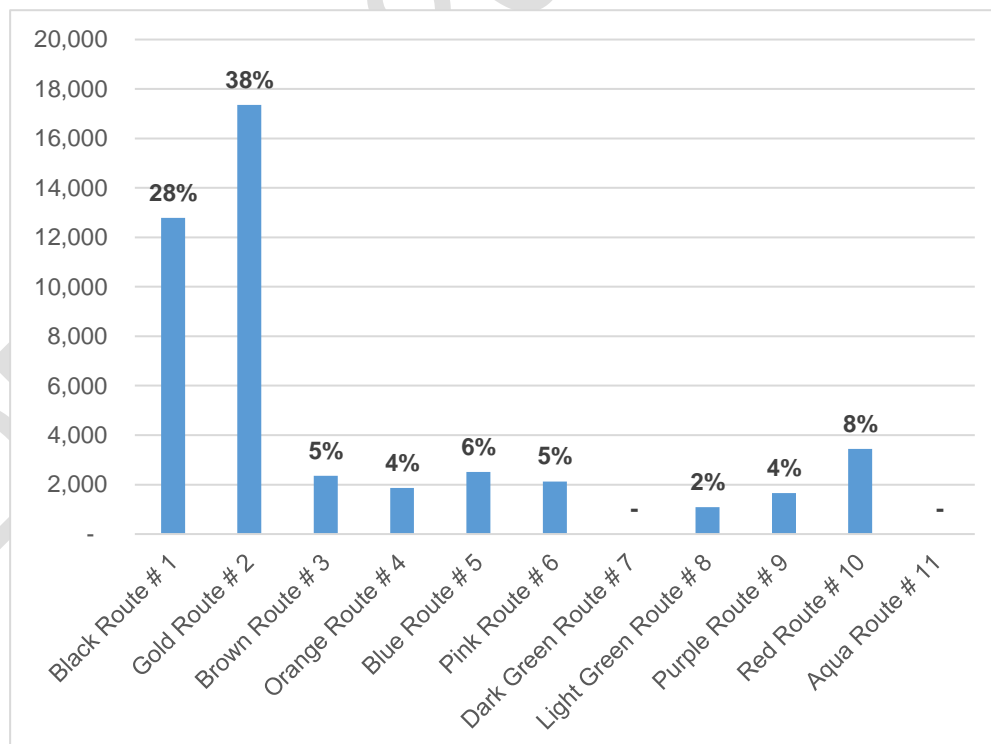


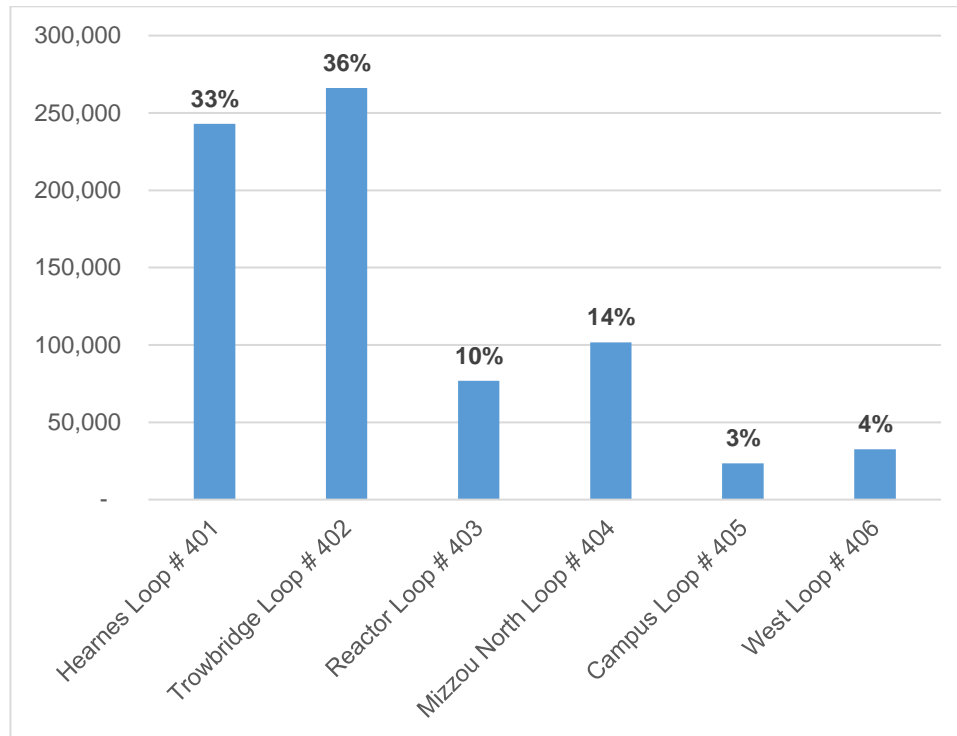
Figure 3-19: FY 2015 Go COMO Saturday Ridership by Route



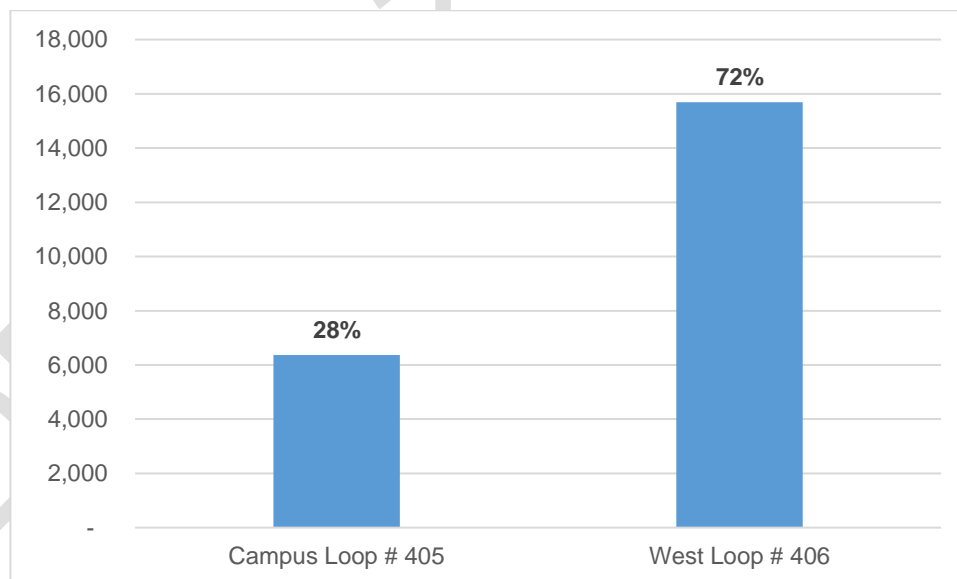


## COMO Bus Service Evaluation

*Figure 3-20: FY 2015 Tiger Line Weekday Ridership by Route*



*Figure 3-21: FY 2015 Tiger Line Weekend Ridership by Route*





## COMO Bus Service Evaluation

### ***Load Factor***

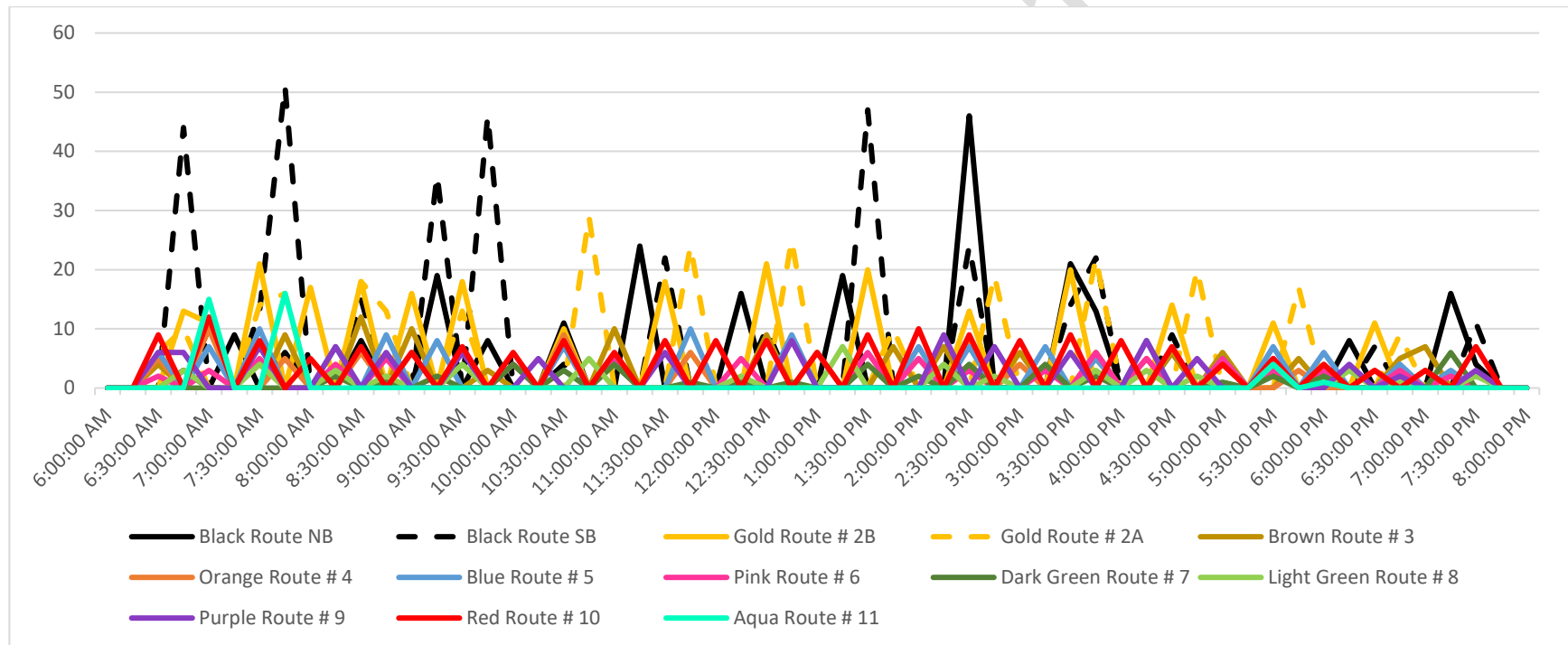
The demand for service was analyzed by ridership by time of day and load factor. Load factor is a measure of the persons on a vehicle compared to that vehicle's capacity. Higher load factors can be characterized where all seats are being utilized and additional passengers are standing. Passengers can perceive very high load factors as overcrowding and as providing a lower level of service. Refer to the figures in the following pages where both ridership and vehicle load factors are displayed throughout the course of a day for each system.





## COMO Bus Service Evaluation

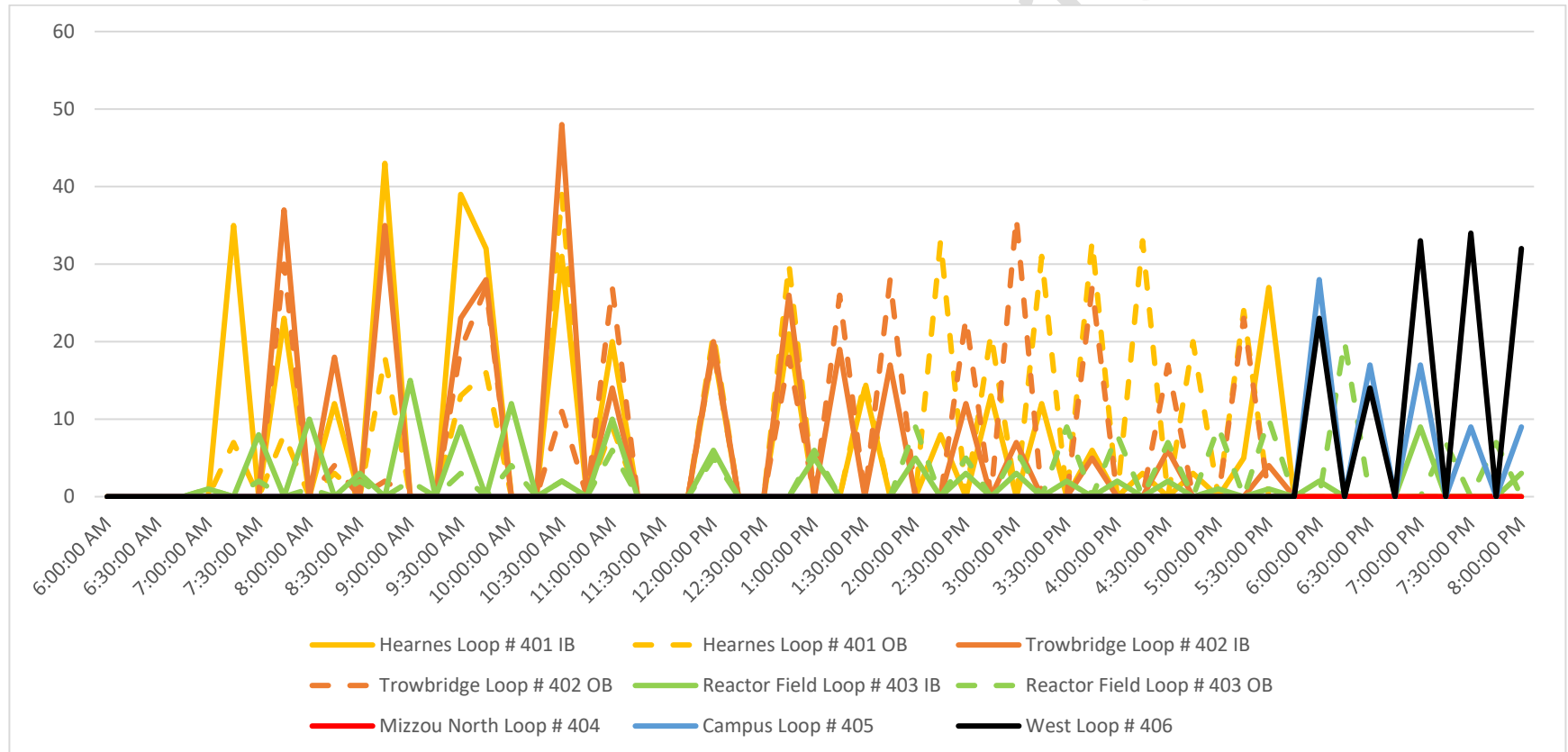
Figure 3-22: Go COMO Ridership by Time of Day





## COMO Bus Service Evaluation

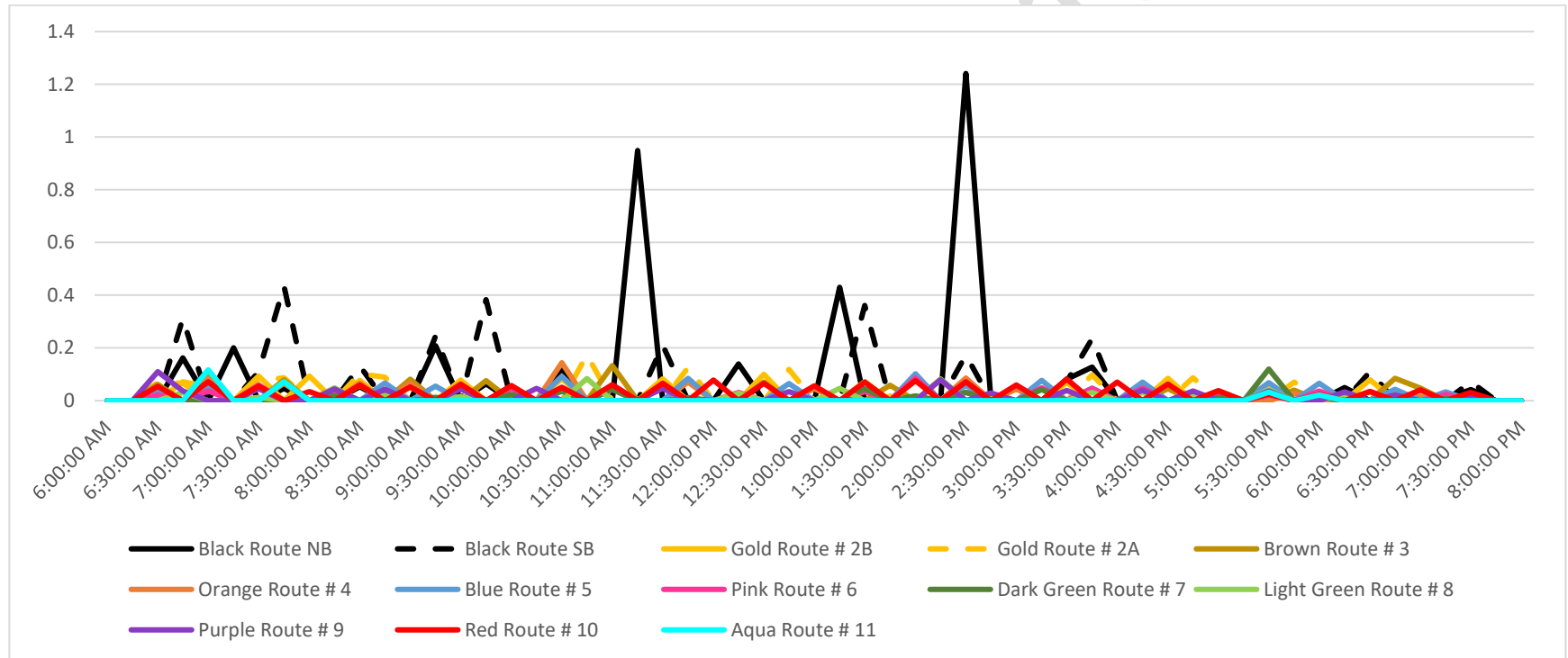
Figure 3-23: Tiger Line Ridership by Time of Day





## COMO Bus Service Evaluation

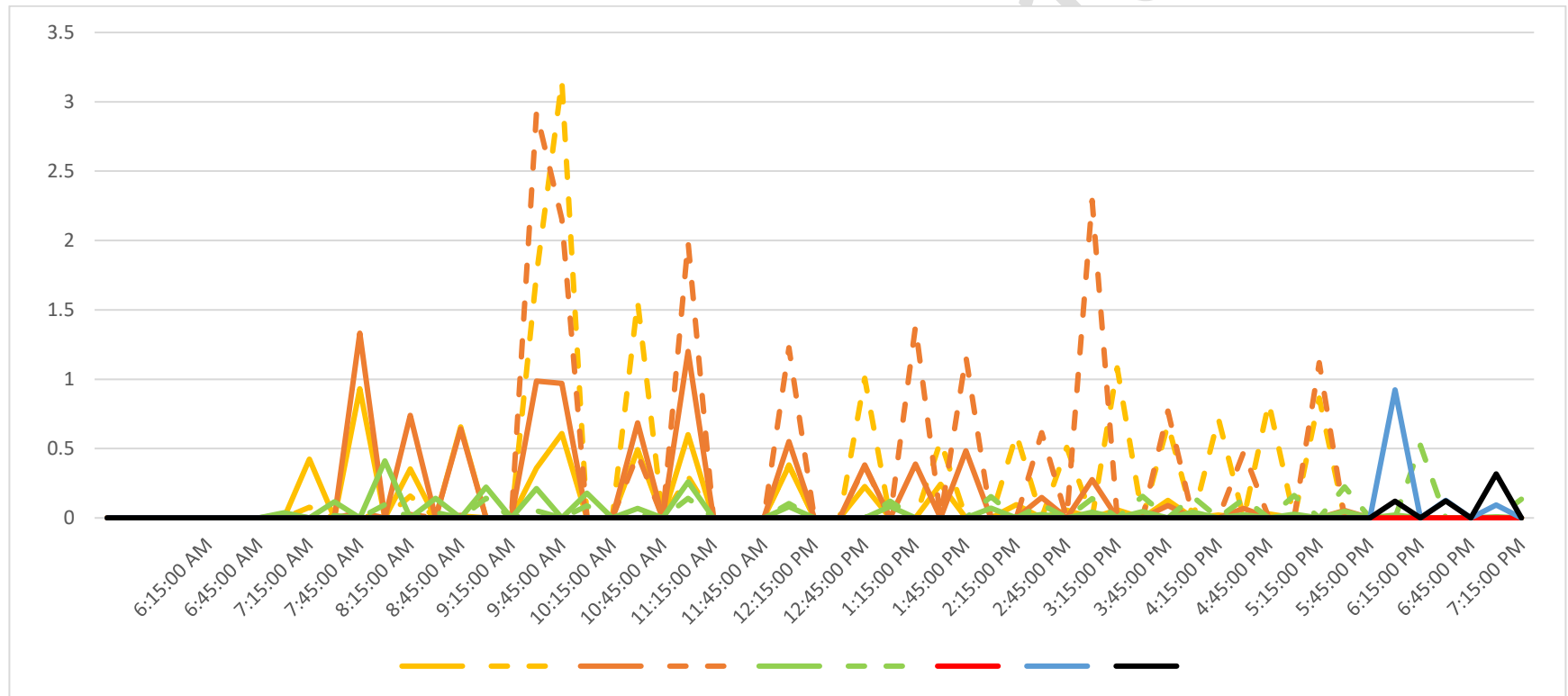
Figure 3-24: Go COMO Vehicle Load Factor by Time of Day





## COMO Bus Service Evaluation

Figure 3-25: Tiger Line Vehicle Load Factor by Time of Day





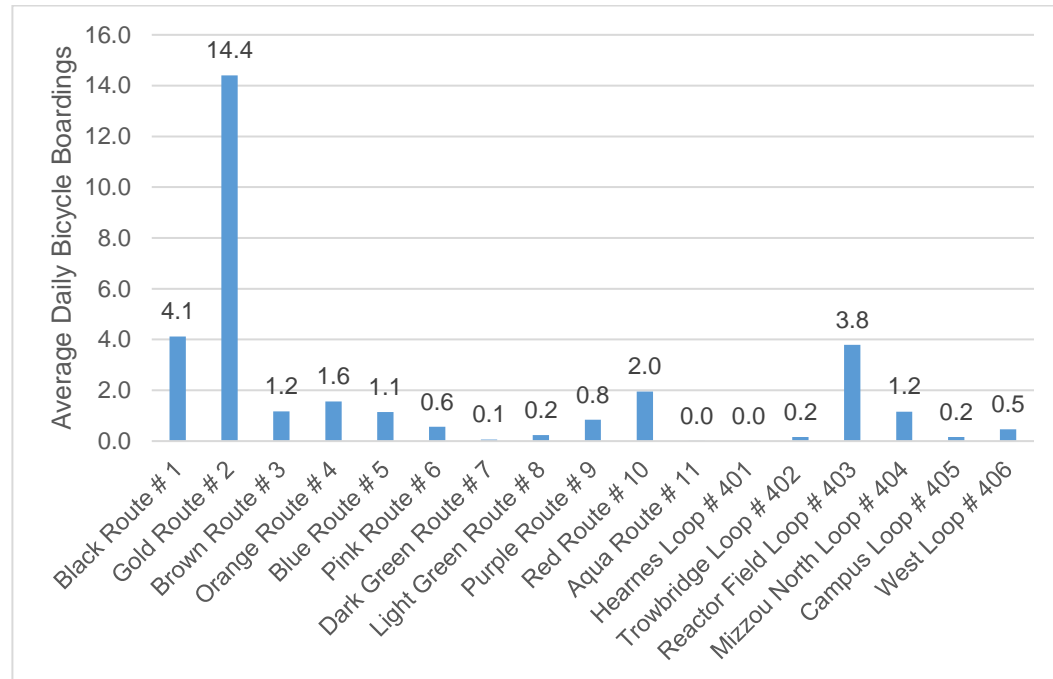


## Go COMO Bus Service Evaluation

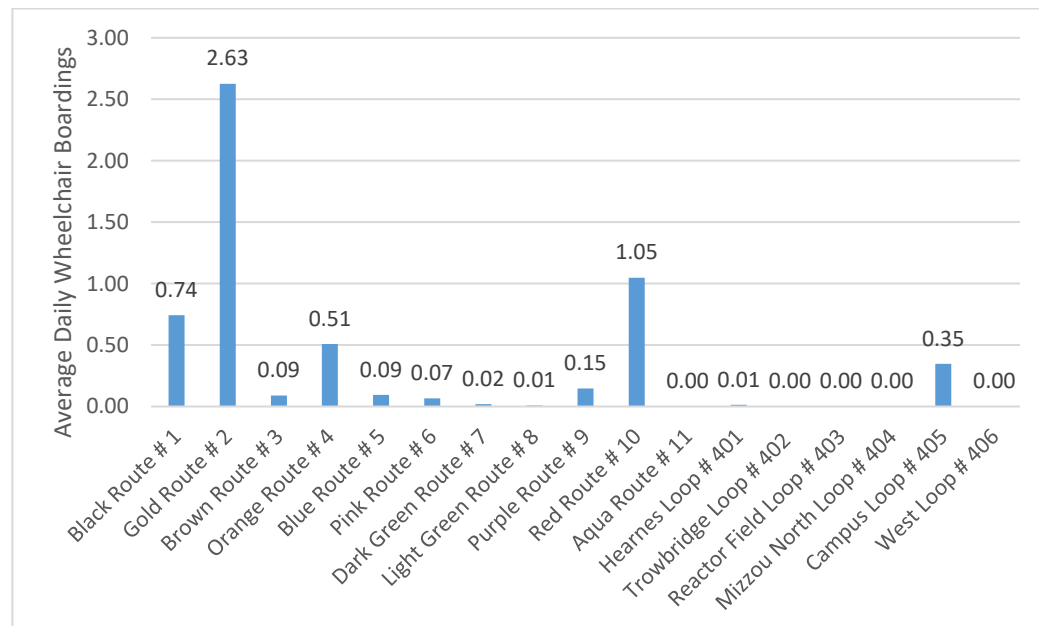
### ***Bicycle and Wheelchair Boardings***

Bicycle and wheelchair average daily boardings are shown in the **Figure 3-26** and **Figure 3-27**. The Black, Gold, and Red Go COMO routes stand out with higher wheelchair and bicycle boardings than many of the other routes.

***Figure 3-26: Average Daily Bicycle Boardings***



***Figure 3-27: Average Daily Wheelchair Boardings***



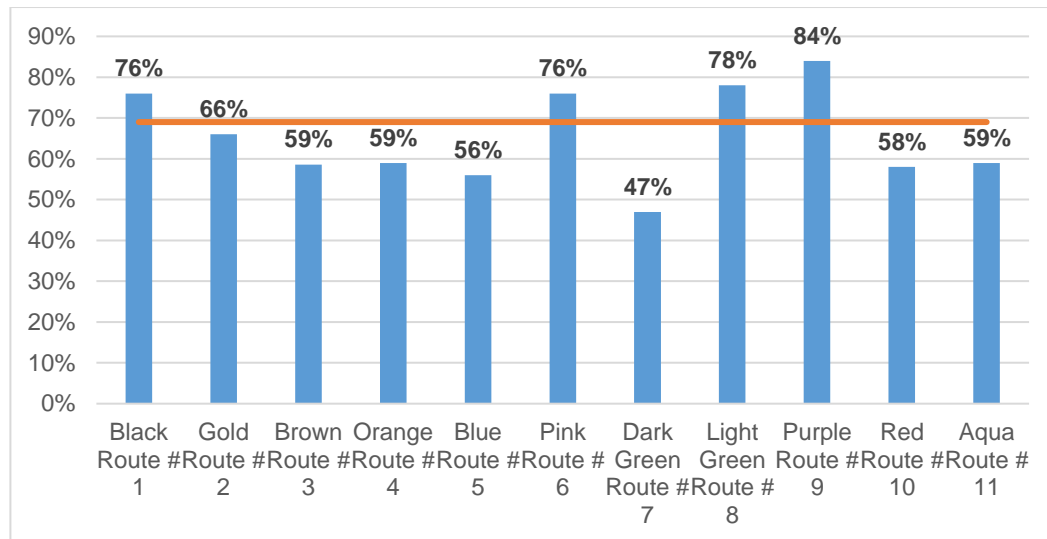


## Go COMO Bus Service Evaluation

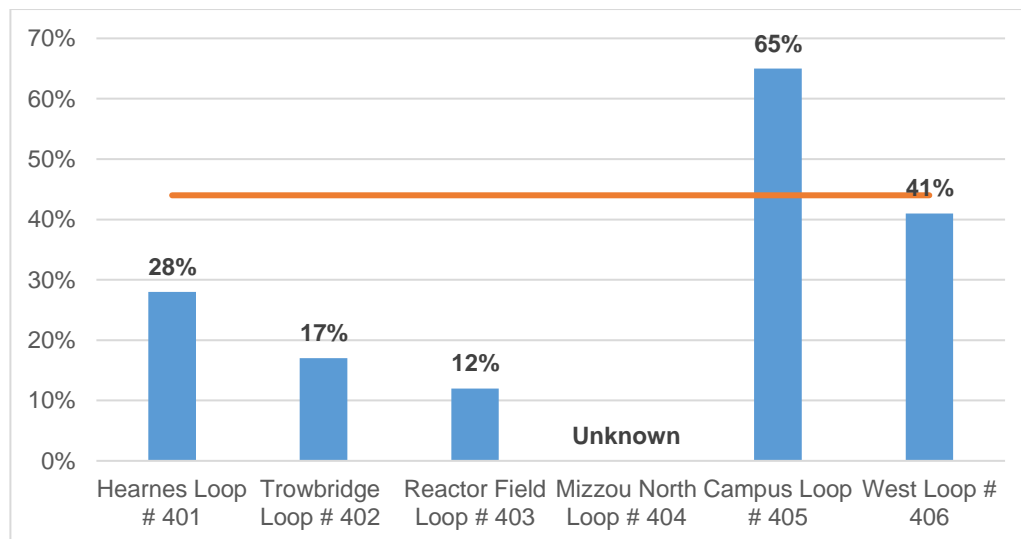
### On-time Performance

**Figure 3-28** and **Figure 3-29** illustrate the on-time performance for Go COMO and the Tiger Line routes. The Go COMO average on-time performance is 69 percent, and 44 percent for the Tiger Line routes. The averages in each graph are illustrated by the solid horizontal line. The figures display on-time performance of each route. Information was not available for the Mizzou North Loop Route #404.

**Figure 3-28: Go COMO Route On-Time Performance**



**Figure 3-29: Tiger Line On-Time Performance**





## Go COMO Bus Service Evaluation

Below are some of the key conclusions made after analyzing the ridership data for each of the routes.

- Black Route #1 and Gold Route #2 currently make up 70 percent of the ridership for the entire Go COMO system.
- Ninety-three percent of Go COMO ridership occurred during weekdays.
- Black Route #1 experiences higher weekday ridership than Gold Route #2 does, but Black Route #1 has lower ridership during Saturday service.
- Dark Green Route #7 and Aqua Route #11 do not offer Saturday service.
- Routes #401 and #402 also make up nearly 70 percent of the Tiger Line ridership.
- Ninety-seven percent of Tiger Line ridership occurs during weekdays.
- Only Routes #405 and #406 offer service Saturday and Sunday.

### Revenue Miles

**Table 3-9** presents the passengers per revenue mile for each route. The system-wide average for both Go COMO and for the six Tiger Line routes is 1.8 passengers per revenue mile. The routes operating above that average are the six Tiger Line routes. The Go COMO average is 1.0 passengers per mile.

**Table 3-9: Passengers per Revenue Mile**

Rank	Route	Weekday Average Passengers Per Revenue Mile
1	Route #401 (Hearnes Loop)	18.5
2	Route #402 (Trowbridge Loop)	17.4
3	Route #404 (Mizzou North Loop)	9.8
4	Route #403 (Reactor Field Loop)	3.4
5	Route #406 (West Loop)	2.3
6	Route #405 (Campus Loop)	2.2
7	Black Route #1 (Blue Ridge to Nifong)	1.5
8	Red Route #10 (Downtown Orbiter)	1.3
9	Gold Route #2 (Conley to Park De Ville)	1.3
10	Aqua Route #11 (Prathersville to Brown School)	0.8
11	Purple Route #9 (Chapel Hill to Business Loop 70)	0.6
12	Blue Route #5 (Battle High School to Conley Road)	0.6
13	Brown Route #3 (Burning Bush to Whitegate)	0.6
14	Pink Route #6 (Grindstone to I-70 Drive SE)	0.5
15	Orange Route #4 (Starke to Whitegate)	0.4
16	Dark Green Route #7 (Old Plank to Green Meadows)	0.4
17	Light Green Route #8 (Scott to Forum)	0.3
<b>Tiger Line Average</b>		<b>7.9</b>
<b>Go COMO Average</b>		<b>1.0</b>
<b>Combined System Average</b>		<b>1.8</b>
<b>Notes: Revenue miles were taken from FY 2015 monthly ridership sheets.</b>		



## Go COMO Bus Service Evaluation

### Revenue Hours

**Table 3-10** shows the system-wide average weekday passengers per revenue hour. The system-wide average is 26.8 passengers per revenue hour. Similar to revenue miles, the routes operating above the system-wide average are five Tiger Line routes. The weekday average for Go COMO routes is 14.4 passengers per revenue hour.

*Table 3-10: Passengers per Revenue Hour*

Rank	Route	Weekday Average Passengers Per Revenue Hour
1	Route #402 (Trowbridge Loop)	224
2	Route #401 (Hearnes Loop)	163.7
3	Route #404 (Mizzou North Loop)	120.3
4	Route #406 (West Loop)	41.32
5	Route #403 (Reactor Field Loop)	33.9
6	Route #405 (Campus Loop)	26.7
7	Black Route #1 (Blue Ridge to Nifong)	25.3
8	Gold Route #2 (Conley to Park De Ville)	16.8
9	Aqua Route #11 (Prathersville to Brown School)	13.4
10	Red Route #10 (Downtown Orbiter)	12.4
11	Blue Route #5 (Battle High School to Conley Road)	11.5
12	Brown Route #3 (Burning Bush to Whitegate)	8.8
13	Orange Route #4 (Starke to Whitegate)	8.1
14	Purple Route #9 (Chapel Hill to Business Loop 70)	8.0
15	Pink Route #6 (Grindstone to I-70 Drive SE)	7.4
16	Light Green Route #8 (Scott to Forum)	5.2
17	Dark Green Route #7 (Old Plank to Green Meadows)	4.4
<b>Tiger Line Average</b>		<b>99.2</b>
<b>Go COMO Average</b>		<b>14.4</b>
<b>Combined System Average</b>		<b>26.8</b>
<i>Notes: Revenue hours were taken from FY 2015 monthly ridership sheets.</i>		



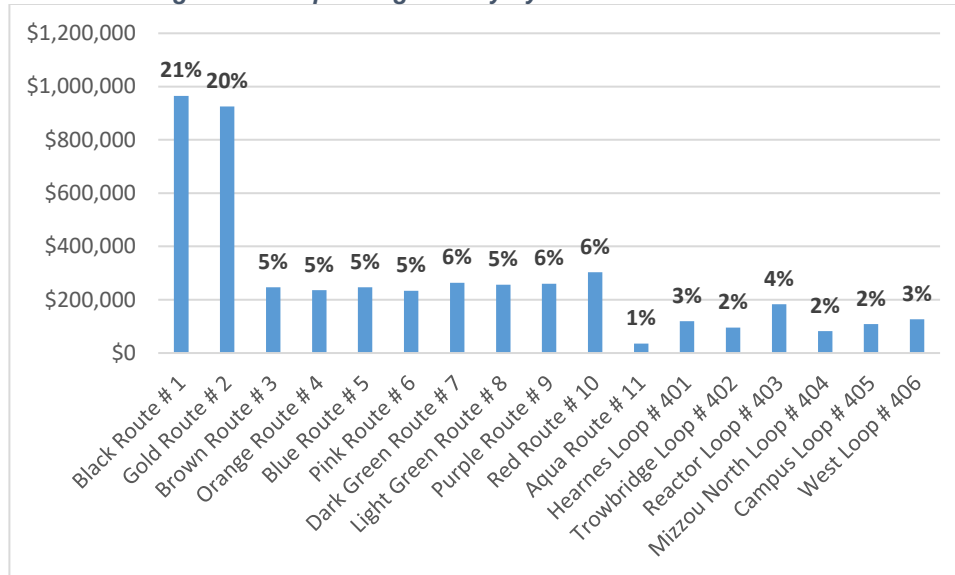


## Go COMO Bus Service Evaluation

### Cost per Route

The operating cost per route is calculated using the number of revenue hours assigned to each particular route with the average cost per hour. **Figure 3-30** presents the operating cost for each route. The Black and Gold routes make up over 40 percent of the system-wide operating cost.

**Figure 3-30: Operating Cost by System Route**



### Summary

The performance measures presented within this chapter provide an overall assessment of the existing transit services. Chapter 3 presents additional data for each individual route.

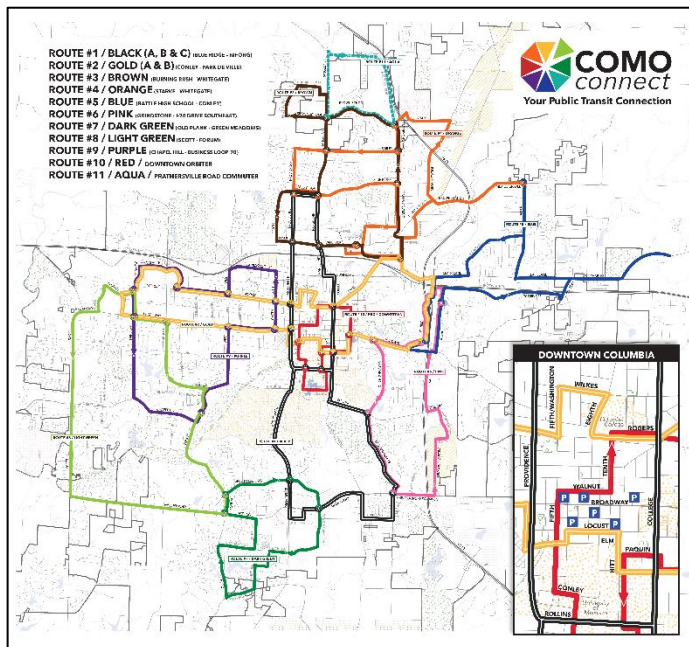


## Chapter 4 Route Performance

### Route Profiles

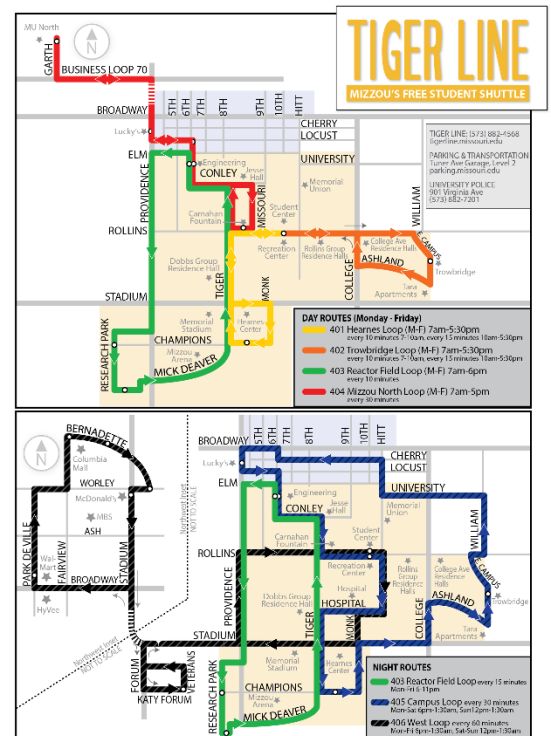
This chapter provides individual route profiles for all Go COMO fixed-routes, paratransit services, as well as for all Tiger Line fixed-routes. Each analysis begins with a short description of the route including alignment, transfer opportunities, activity centers, and areas with high ridership. The profile details ridership along the route with graphics describing ridership by time of day, by month, and by stop. Performance indicators for each route allow comparisons to the system's overall average, but also to other fixed-routes in the system. Information for the route profiles is based on the most recent data from Go COMO. **Table 4-1** presents the sources of data by performance indicator.

**Figure 4-1: Go COMO System-wide Route Map**



Source: Go COMO

**Figure 4-2: Tiger Line System-wide Route Map**



Source: Go COMO



# Go COMO Bus Service Evaluation

Table 4-1: Data Sources

Data	Source	Time Period
Frequency	Go COMO Website	June 2016
Service Span	Go COMO Website	June 2016
Peak # of Vehicles	Go COMO Staff	As of June 16
Average Daily Ridership	Monthly Ridership Sheet	FY 2015
Average Weekday Passengers per Revenue Hour	Monthly Ridership Sheet	FY 2015
Annual Cost per Route	National Transit Database (NTD) Annual Agency Profile	2014
Average Passengers by Time of Day Graph	Trip Report Summaries	<b>Go COMO:</b> October 2014 <b>Tiger Line:</b> September 2015
Average Passengers per Month Graph	Monthly Ridership Sheet	FY 2015
Ridership by Stop Map	Stop Ranking Sheet	February and October 2015
Weekday and Weekend Ridership	Monthly Ridership Sheet	FY 2015
Revenue Miles	Monthly Ridership Sheet	FY 2015
Detailed Revenue Hours	Monthly Ridership Sheet	FY 2015
Summary Revenue Hours	Go COMO Staff	FY 2015
Wheelchair Boardings	Wheelchair Lift Report	August 2014 to July 2015
Bicycle Boardings	Bicycle Rack Report	August 2014 to July 2015
Passengers per Revenue Mile	Monthly Ridership Sheet	FY 2015
Passengers per Revenue Hour	Monthly Ridership Sheet	FY 2015
Total Operating Cost	NTD Annual Agency Profile	2014
Cost per Passenger	NTD Annual Agency Profile	2014
Subsidy per Passenger	NTD Annual Agency Profile	2014
Fare Box Recovery	NTD Annual Agency Profile	2014
On-time Performance	Schedule Adherence	<b>Go COMO:</b> Nov. – Dec. 2015 <b>Tiger Line:</b> Nov. 2014 – Sept 2015 or Jan. – May 2016
Passenger Load	Trip Report Summaries	October 2014



## Go COMO Bus Service Evaluation

### Black Route #1 (Blue Ridge to Nifong)

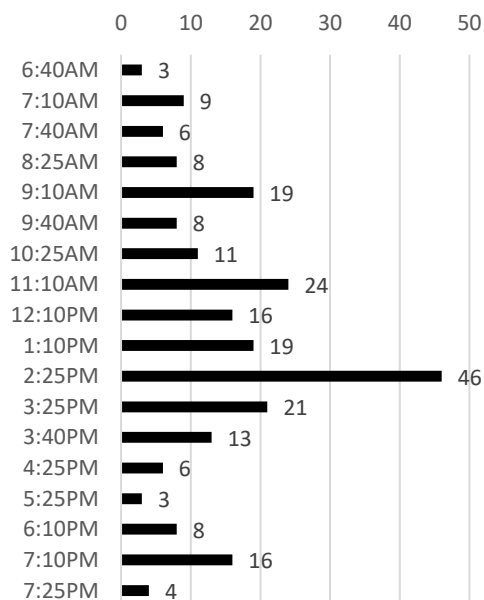
The #1 Black route and the #2 Gold route, the two core connector routes, offer frequent service in both directions, with the #1 Black route operating north and south in the central region of Columbia. The nine neighborhood routes feed into the core Black and Gold routes.

Neighborhood routes with transfer opportunities to the Black route include: the #2 Gold route, #3 Brown route, #4 Orange route, #6 Pink route, #7 Dark Green route, and the #10 Red route. Activity centers along the #1 Black route include MU, retail centers along Nifong Boulevard, multifamily residences along Old US-63, and several businesses along the I-70 business loop.

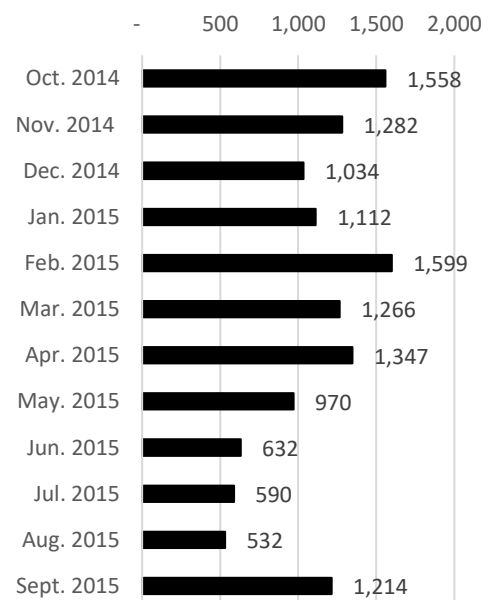
Weekday ridership reaches over 1,000 passenger trips per day, with the highest ridership in February and October, and then trends down during the summer. During weekdays, peak boardings occur from 11:00 a.m. to 3:30 p.m. Locations experiencing the highest ridership include the MU Student Center, multifamily and retail near Buttonwood Drive in the southwestern part of the route, and along Rock Quarry Road and Southland Drive.

Black Route #1	
<b>Frequency</b>	Weekday: 30 - 60 minutes; Saturday: 60 minutes
<b>Service Span</b>	Weekday: 6:45 a.m. – 8:10 p.m.; Saturday: 10:10 a.m. – 9:10 p.m.
<b>Peak Vehicles</b>	Black A: 2 vehicles; Black B: 3 vehicles
<b>Average Daily Ridership</b>	Weekday: 1,093; Saturday: 267
<b>Average Weekday Passengers per Revenue Hour</b>	25.3; ranked 7 out of 17
<b>Annual Cost Per Route</b>	\$965,003

Average Passengers per Weekday Revenue Hour



Average Ridership per Month

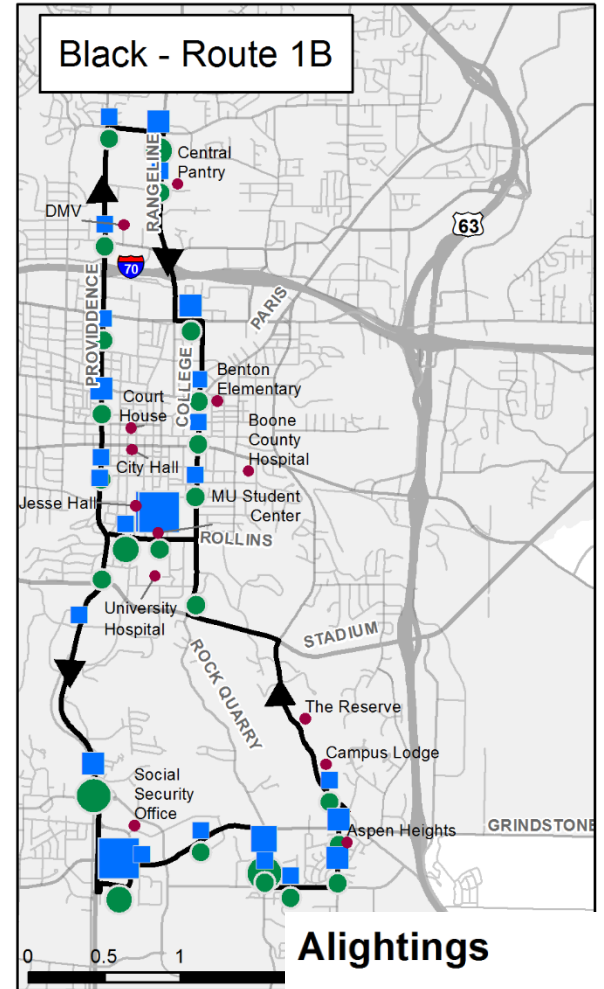
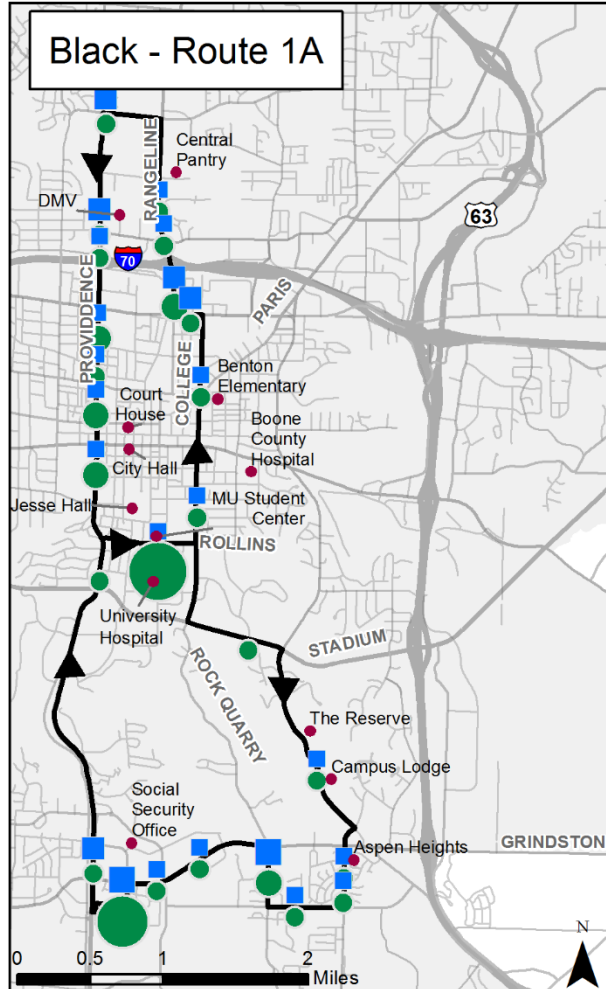


Note: Average Weekday Passengers per Revenue Hour - October 2014 data.  
 "Black A" and "Black B" operate in opposite figure-8 patterns.





## Go COMO Bus Service Evaluation



### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 to 100
- 101 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 to 100
- 101 and Above

### Black Route #1

Performance Indicator	Average Weekday	% of Total
Ridership	1,093	19.5
Revenue Miles	680	22.6
Revenue Hours <sup>1</sup>	43	20.7
Wheelchair Boardings	0.7	13
Bicycle Boardings	4.1	13
Passengers per Revenue Mile	1.6	Sys. Avg. 1.9
Passengers per Revenue Hour <sup>1</sup>	25.3	Sys. Avg. 26.8

Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$965,003	21
Cost per Passenger	\$3.31	Sys. Avg. \$3.14
Subsidy per Passenger	\$2.98	Sys. Avg. \$6.16
Fare Box Recovery	10%	Sys. Avg. 17%
On-time Performance	76%	Sys. Avg. 69%
Passenger Load	0.19	N/A

#### Key Findings:

- Highest ridership of all Go COMO routes.
- Passengers per revenue hour are lower than Tiger Line routes.
- On-time performance for this route is above the system-wide average.

reflection of Summary Revenue Hours.



## Go COMO Bus Service Evaluation

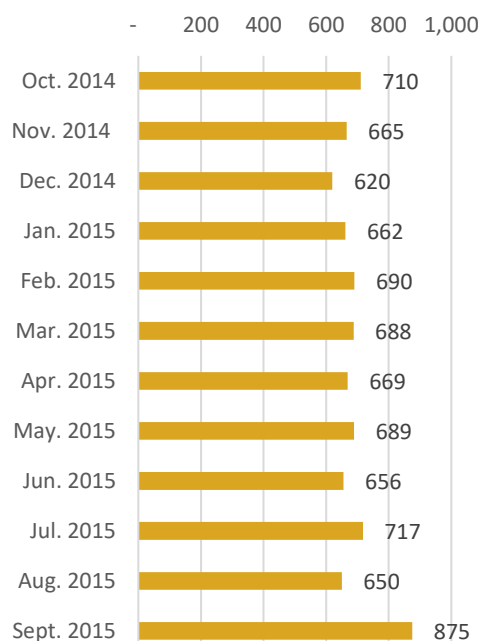
### Gold Route #2 (Conley to Park De Ville)

The #2 Gold route is the second core connector routes, along with the Black route describe above. The #2 Gold offers frequent east and west in the central region of Columbia. Nine neighborhood routes allow connections on the core routes. The #2 Gold route connects with the #1 Black route, #5 Blue route, #6 Pink route, #8 Light Green route, #9 Purple route, and the #10 Red route. Some of the major activity centers along the #2 Gold route include the MU campus, Columbia College and Stephens College, multiple health services, the Columbia Mall and the Walmart Supercenter.

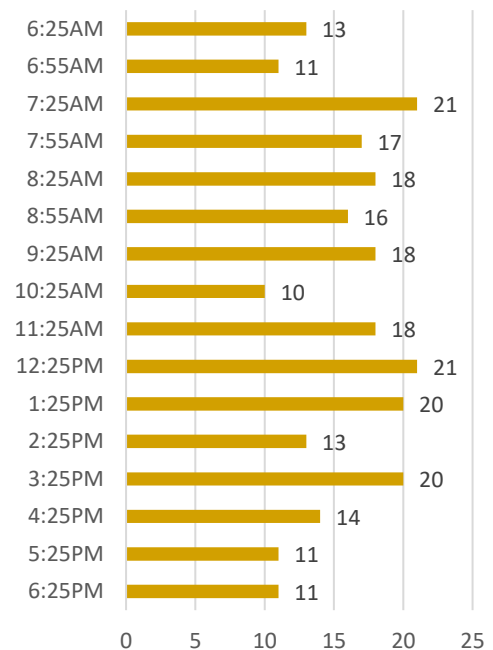
Ridership is consistent throughout the year, with the highest ridership in July, September, and October. During weekdays, peak boardings occur in the morning and midday. Locations experiencing the highest ridership include stops at the MU Memorial Union, Broadway Market Place, Columbia Crossing Apartments, and the Columbia/Boone County Department of Public Health and Human Services.

Gold Route #2	
<b>Frequency</b>	Weekday: 30 - 60 minutes; Saturday: 60 minutes
<b>Service Span</b>	Weekday: 6:25 a.m. – 7:55 p.m.; Saturday: 9:55 a.m. – 7:55 p.m.
<b>Peak Vehicles</b>	Gold A: 2 vehicles; Gold B: 2 vehicles
<b>Average Daily Ridership</b>	Weekday: 691; Saturday: 358
<b>Average Weekday Passengers per Revenue Hour</b>	16.8; ranked 8 out of 17
<b>Annual Cost Per Route</b>	\$925,111

Average Ridership per Month



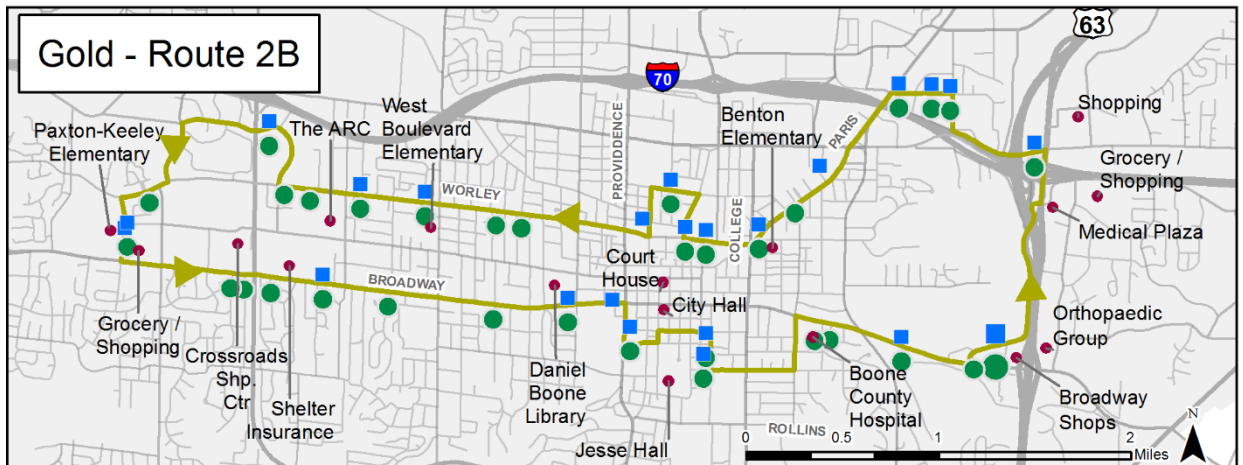
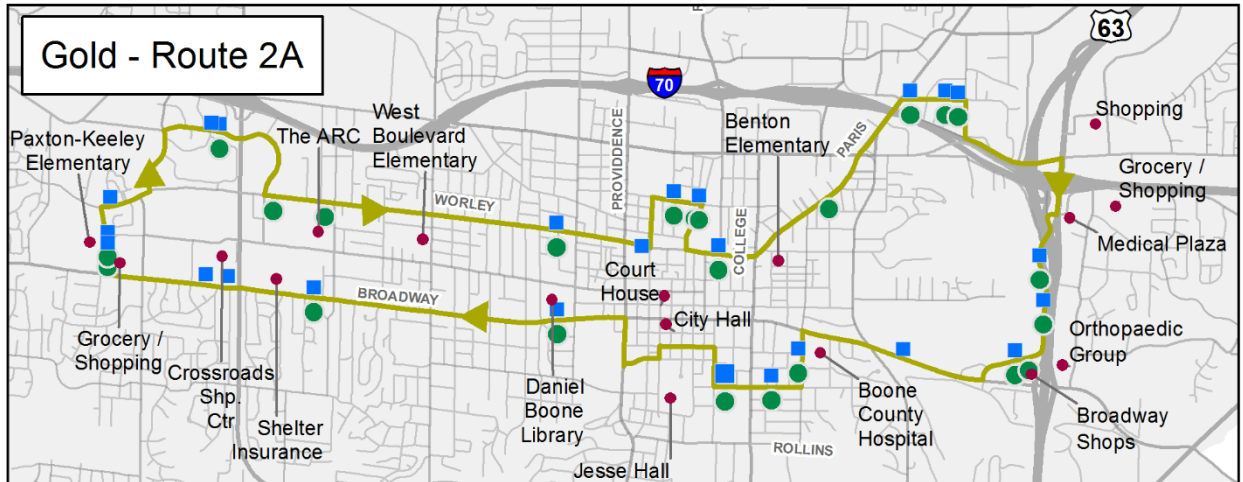
Average Ridership per Hour



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.



## Go COMO Bus Service Evaluation



Gold Route #2		
Performance Indicator	Average Weekday	% of Total
Ridership	691	12.4
Revenue Miles	548	18.2
Revenue Hours <sup>1</sup>	41.2	19.7
Wheelchair Boardings	2.6	46
Bicycle Boardings	14.4	45.2
Passengers / Revenue Mile	1.3	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	16.8	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$925,111	20
Cost / Passenger	\$4.75	Sys. Avg. \$3.14
Subsidy / Passenger	\$4.42	Sys. Avg. \$6.16
Fare Box Recovery	7%	Sys. Avg. 17%
On-time Performance	66%	Sys. Avg. 69%
Passenger Load	0.08	N/A

### Key Findings-

- Second highest ridership of all Go COMO routes.
- Weekday ridership is lower on average than the Black route but does have higher ridership on Saturdays.
- Approximately half of all wheelchair and bicycle boardings.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

## Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

## Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above





## Go COMO Bus Service Evaluation

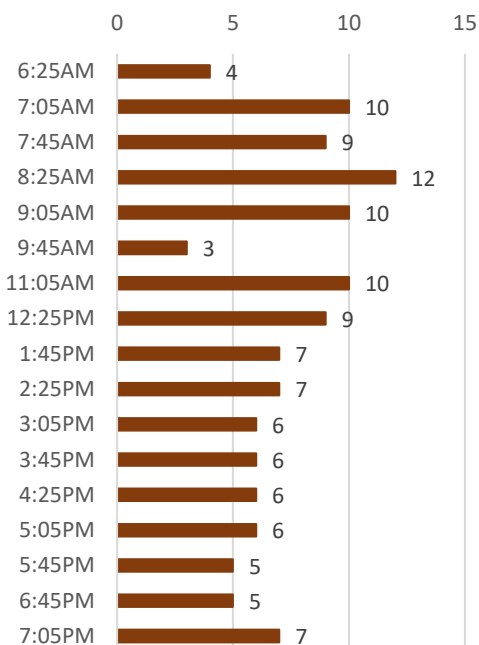
### Brown Route #3 (Burning Bush to Whitegate)

The #3 Brown route is one of nine neighborhood routes system-wide. The route begins a counter-clockwise loop alignment at the southeast corner of Whitegate Drive and Sylvan Lane. The route is located in the north-central area of the city, offering multiple transfer opportunities to the #1 Black route, #2 Gold route, and the #11 Aqua route. During off-peak times, the bus interlines with the #4 Orange route. Activity centers along the #3 Brown route include commercial areas just north of I-70, Columbia Pride Soccer Complex, public elementary and middle schools, a grocery store, and several social service organizations.

Ridership is consistent throughout the year, with the highest ridership in the late fall to early winter. During weekdays, peak boardings occur in the morning peak hours from 7:00 a.m. to 9:00 a.m. Locations experiencing the highest ridership include the Columbia Crossing Apartments and the resource center at 1500 Vandiver Drive.

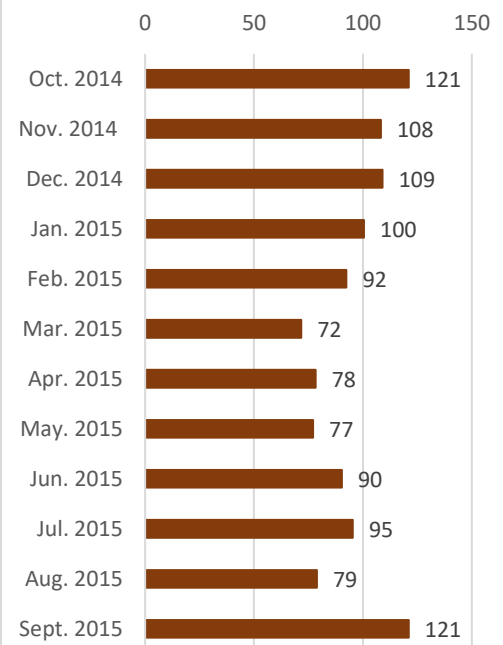
Brown Route #3	
<b>Frequency</b>	Weekday: 40 minutes; Saturday: 40 – 80 minutes
<b>Service Span</b>	Weekday: 6:25 a.m. – 7:45 p.m.; Saturday: 9:45 a.m. – 7:45 p.m.
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 96; Saturday: 45
<b>Average Weekday Passengers per Revenue Hour</b>	8.8; ranked 12 out of 17
<b>Annual Cost Per Route</b>	\$246,612

Average Passengers per Weekday Revenue Hour



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.

Average Weekday Passengers per Month

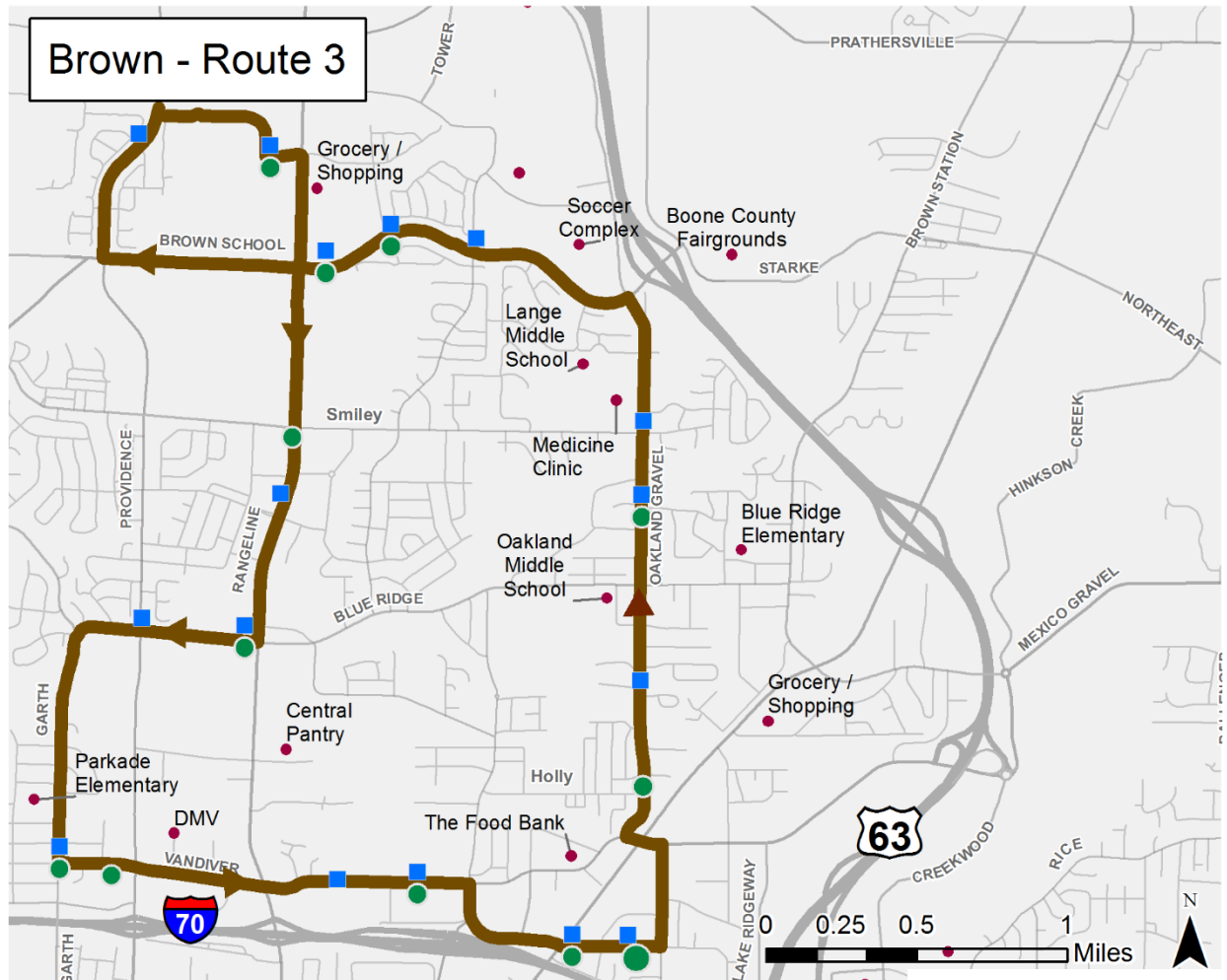


Note: Weekday ridership for September was not made available. October ridership was displayed in its place.





## Go COMO Bus Service Evaluation



Brown Route #3		
Performance Indicator	Average Weekday	% of Total
Ridership	96	1.7
Revenue Miles	175	5.8
Revenue Hours <sup>1</sup>	10.9	5.3
Wheelchair Boardings	0.1	1.6
Bicycle Boardings	1.2	3.7
Passengers / Revenue Mile	0.6	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	8.8	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$246,612	5
Cost / Passenger	\$9.19	Sys. Avg. \$3.14
Subsidy / Passenger	\$8.8	Sys. Avg. \$6.16
Fare Box Recovery	4%	Sys. Avg. 17%
On-time Performance	58.6%	Sys. Avg. 69%
Passenger Load	0.07	N/A
<b>Key Findings:</b>		
- Passengers per revenue mile and passengers per revenue hour are far below the system's weekday average, but performance is ranked in the middle for all neighborhood routes.		

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above



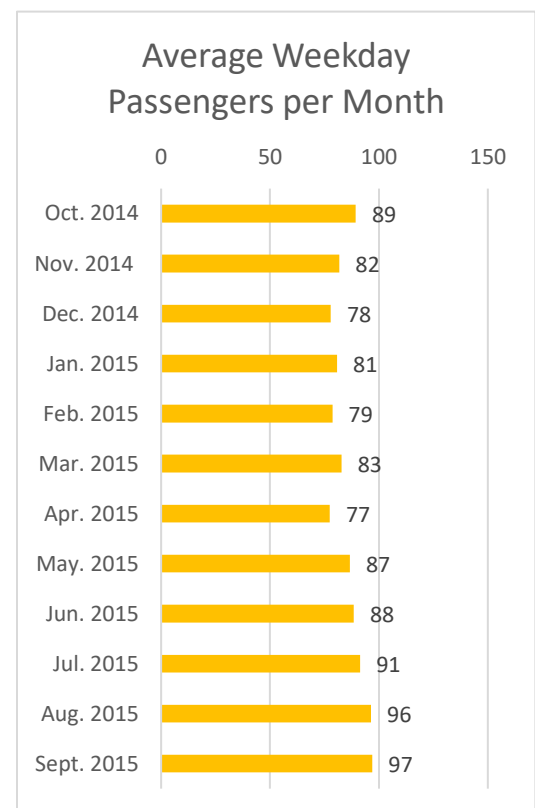
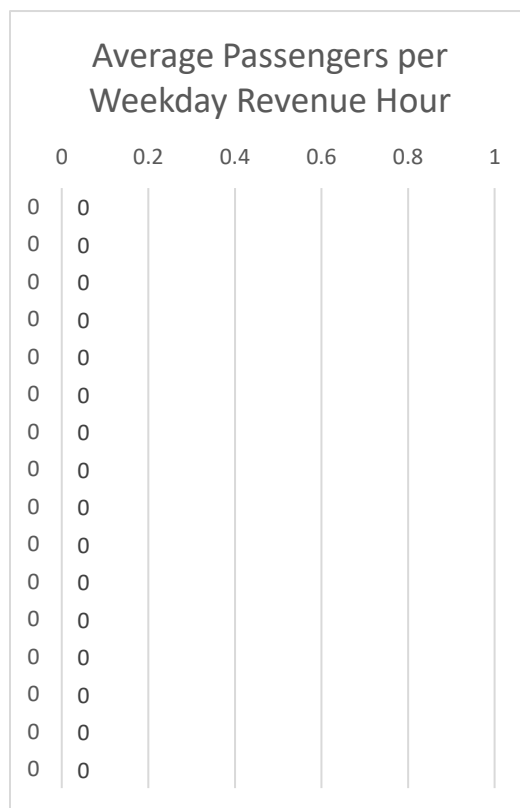
## Go COMO Bus Service Evaluation

### Orange Route #4 (Starke to Whitegate)

The #4 Orange route is a neighborhood route, beginning with a counter-clockwise loop alignment at the southeast corner of Whitegate Drive and Sylvan Lane. The Orange route is located in the northwest area of the city, offering multiple transfer opportunities to the #1 Black route, #2 Gold route, #3 Brown route, #5 Blue route, and the #11 Aqua route. During off-peak times, the bus interlines with the #3 Brown route. Activity centers along the #4 Orange route include the Boone County fairgrounds, grocery stores, several schools, and retail centers.

Ridership is consistent throughout the year, with the highest ridership from July to September. During weekdays, peak boardings occur in the morning peak hours and midday. Locations experiencing the highest ridership include Columbia Crossing Apartments, the retail centers at the south and north ends of Paris Road, and the far west corridor at Providence and Blue Ridge Road.

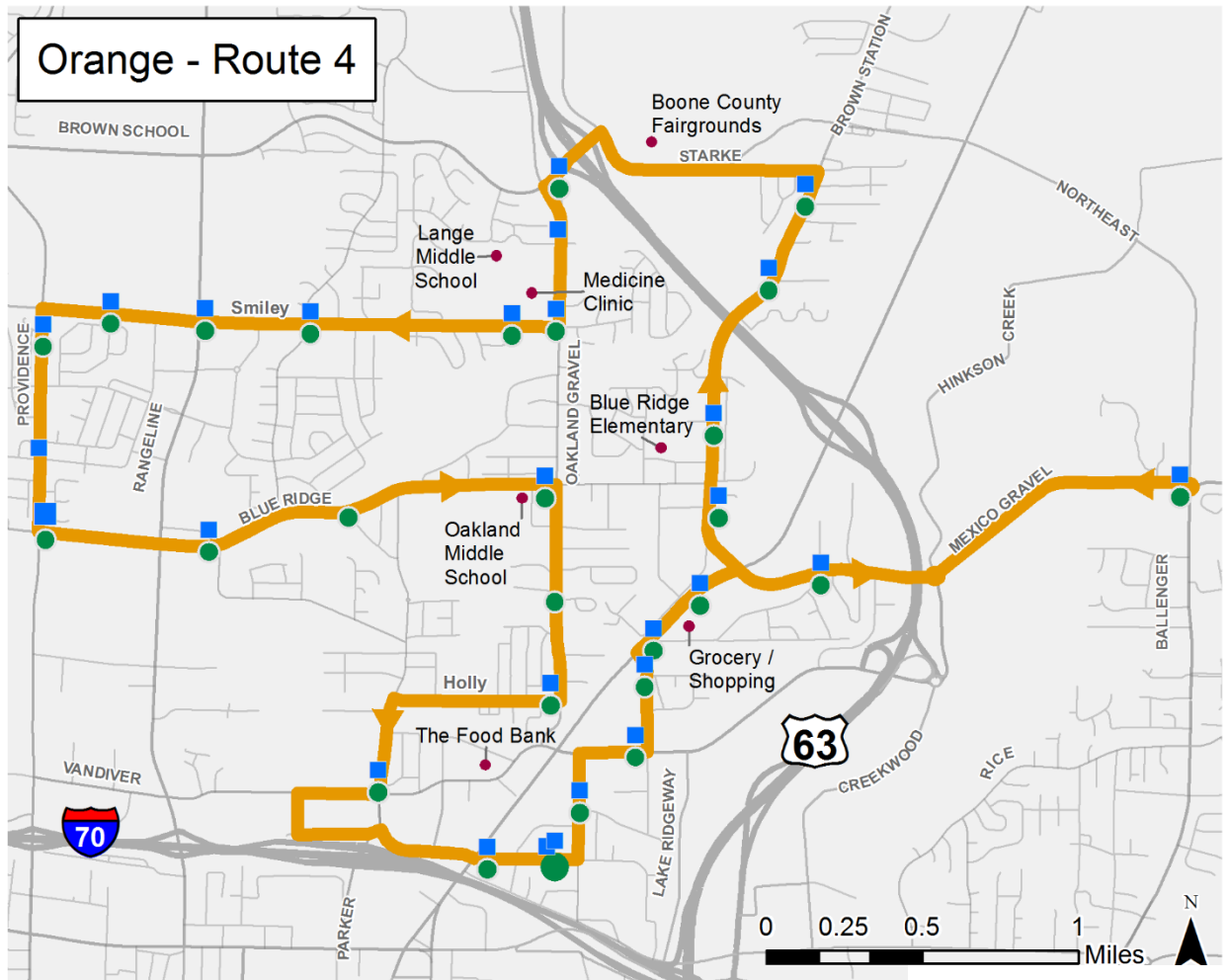
Orange Route #4	
<b>Frequency</b>	Weekday: 40 minutes; Saturday: 40 to 80 minutes
<b>Service Span</b>	Weekday: 6:25 a.m. – 7:45 p.m.; Saturday: 10:25 a.m. – 7:45 p.m.
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 85; Saturday: 35
<b>Average Weekday Passengers per Revenue Hour</b>	8.1; ranked 13 out of 17
<b>Annual Cost Per Route</b>	\$236,319



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.



## Go COMO Bus Service Evaluation



Orange Route #4		
Performance Indicator	Average Weekday	% of Total
Ridership	85	1.5
Revenue Miles	211.7	7.0
Revenue Hours <sup>1</sup>	10.6	5.1
Wheelchair Boardings	0.5	8.9
Bicycle Boardings	1.6	4.9
Passengers / Revenue Mile	0.4	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	8.1	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$236,319	5
Cost / Passenger	\$9.99	Sys. Avg. \$3.14
Subsidy / Passenger	\$9.66	Sys. Avg. \$6.16
Fare Box Recovery	3%	Sys. Avg. 17%
On-time Performance	59%	Sys. Avg. 69%
Passenger Load	0.06	N/A

### Key Findings:

- Low-performing route with under 2 percent of system ridership.
- Passengers per revenue mile and per revenue hour are lower compared to the system-wide average.
- On-time performance for this route is lower than the system's average.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above



## Go COMO Bus Service Evaluation

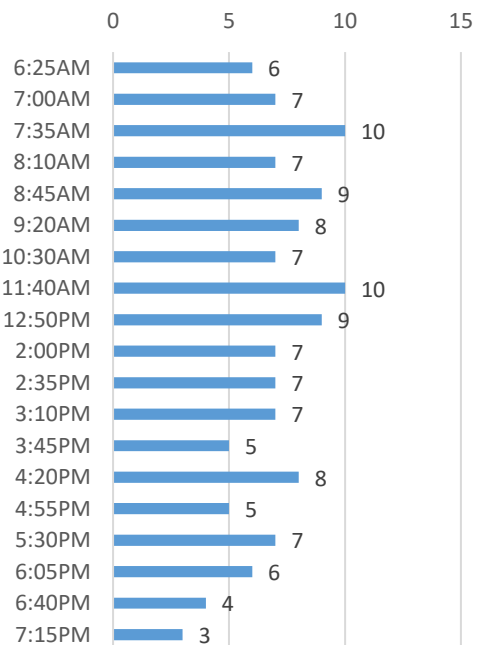
### Blue Route #5 (Battle High School to Conley Road)

The #5 Blue route is a neighborhood route that operates in a counter-clockwise loop from the Walmart Supercenter in Broadway Market Place. The Blue route is located in the eastern area of the city, offering multiple transfer opportunities to the #1 Black route, #2 Gold route, #4 Orange route, and the #6 Pink route. During off-peak times, the bus interlines with the #6 Pink route. Activity centers along the #5 Blue route include the Broadway Shops, Broadway Market Place, health clinics along Keene such as the MU Women's and Children's Hospital, a grocery store, and single-family neighborhoods northeast of the US-63 and I-70 interchange.

Ridership is consistent throughout the year, with the highest ridership in September. During weekdays, peak boardings occur in the morning and midday, then steady throughout the rest of the day. Locations experiencing the highest ridership include the stops at the Hy-Vee and Walmart located at Broadway Market Place.

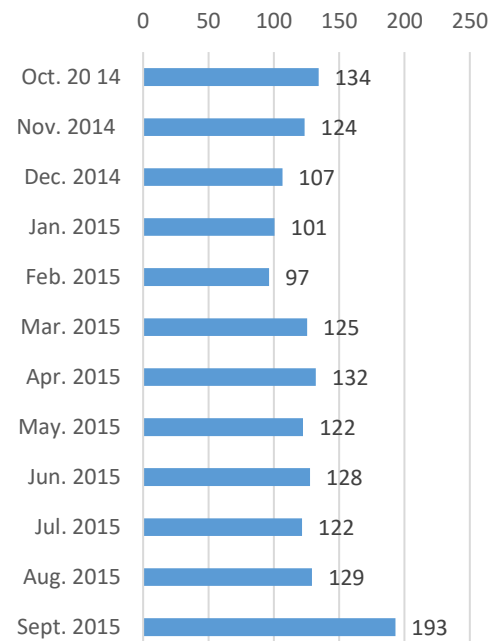
Blue Route #5	
Frequency	Weekday: 35 minutes; Saturday: 35 to 70 minutes
Service Span	Weekday: 6:25 a.m. – 7:50 p.m.; Saturday: 10:30 a.m. – 7:50 p.m.
Peak Vehicles	One vehicle
Average Daily Ridership	Weekday: 126; Saturday: 53
Average Weekday Passengers per Revenue Hour	11.52; ranked 11 out of 17
Annual Cost Per Route	\$246,472

Average Passengers per  
Weekday Revenue Hour



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.

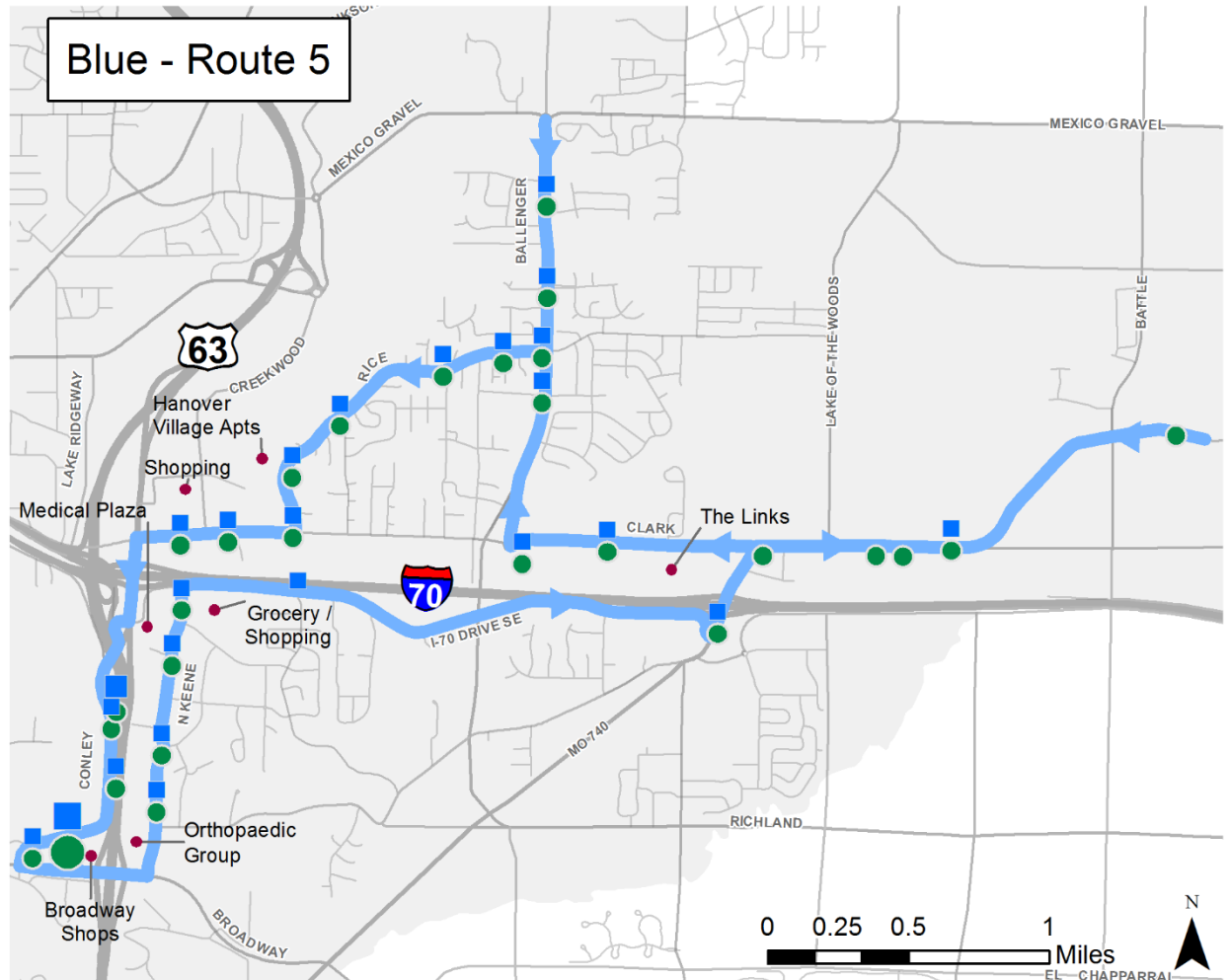
Average Weekday  
Passengers per Month







## Go COMO Bus Service Evaluation



Blue Route #5		
Performance Indicator	Average Weekday	% of Total
Ridership	126	2.3
Revenue Miles	228	7.6
Revenue Hours <sup>1</sup>	11	5.3
Wheelchair Boardings	0.1	1.7
Bicycle Boardings	1.2	3.6
Passengers / Revenue Mile	0.6	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	11.5	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$246,472	5
Cost / Passenger	\$7.06	Sys. Avg. \$3.14
Subsidy / Passenger	\$6.73	Sys. Avg. \$6.16
Fare Box Recovery	3%	Sys. Avg. 17%
On-time Performance	56%	Sys. Avg. 69%
Passenger Load	0.06	N/A

### Key Findings:

- Blue route has the second highest ridership of the nine neighborhood routes.
- Performance indicators rank near the middle of the COMO routes.
- On-time performance is lower than the system-wide average.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above



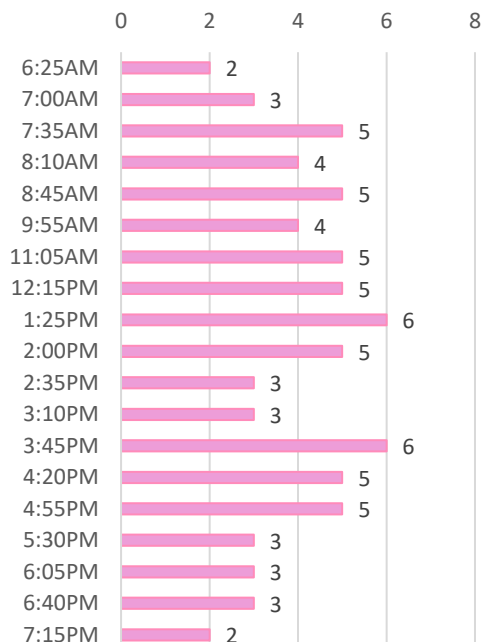
### Pink Route #6 (Grindstone to I-70 Drive SE)

The #6 Pink route is a neighborhood route that begins a counter-clockwise loop at the Walmart Supercenter in Broadway Market Place. The route is located in the southeast area of the city, offering multiple transfers to the #1 Black route, #2 Gold route, and the #5 Blue route. During off-peak times, the bus interlines with the #5 Blue route. Activity centers along the #6 Pink route include the Broadway Marketplace, multifamily complexes along Old US-63, the Women's and Children's Hospital/Keene Medical Building, and the industrial district east of US-63 along Lemone Industrial Boulevard.

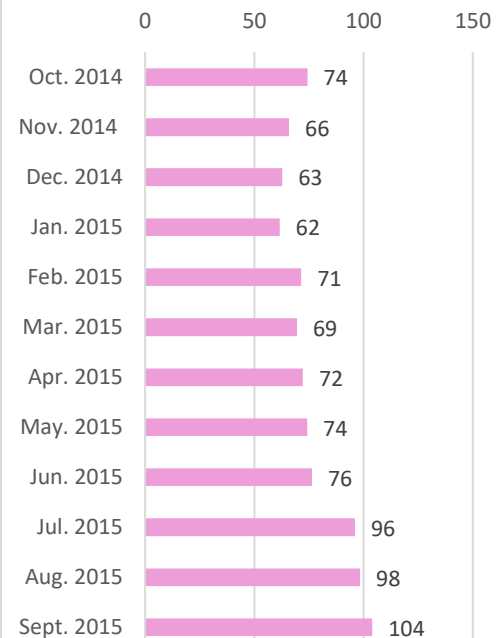
Ridership is consistent throughout the year, experiencing the highest ridership in July, August, and September. During weekdays, ridership levels stay consistent throughout the day, with only minor peaks in the afternoon. The Hy-Vee stop has the highest boardings along the route. Stops along the Lemone Industrial Boulevard district have the second highest ridership activity along the route.

Pink Route #6	
<b>Frequency</b>	Weekday: 35 minutes; Saturday: 35 to 70 minutes
<b>Service Span</b>	Weekday: 6:25 a.m. – 7:50 p.m.; Saturday: 9:55 a.m. – 7:50 p.m.
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 77; Saturday: 45
<b>Average Weekday Passengers per Revenue Hour</b>	7.4; ranked 15 out of 17
<b>Annual Cost Per Route</b>	\$233,903

Average Passengers per  
Weekday Revenue Hour



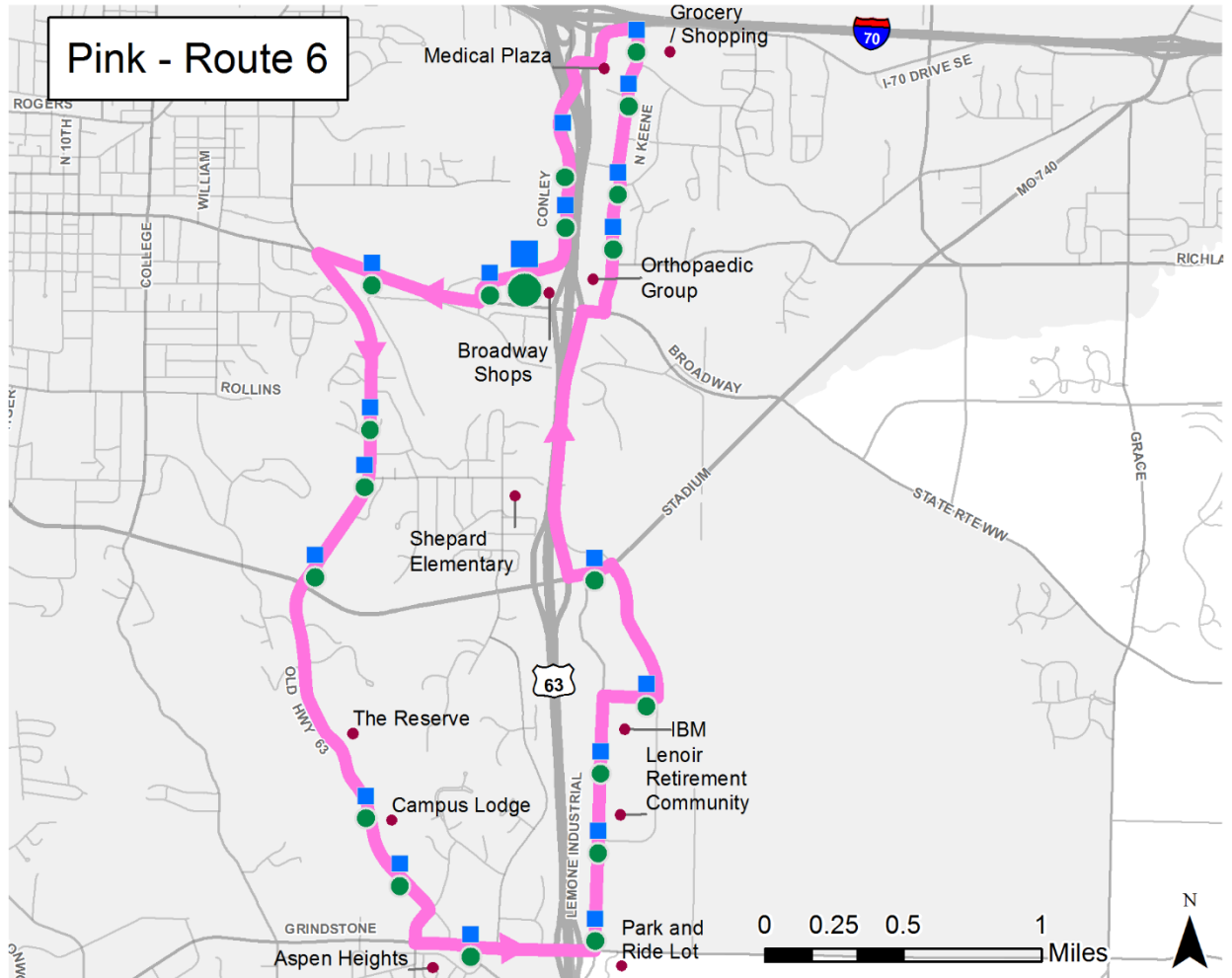
Average Passengers per  
Month



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.



## Go COMO Bus Service Evaluation



Pink Route #6		
Performance Indicator	Average Weekday	% of Total
Ridership	77	1.4
Revenue Miles	163.6	5.4
Revenue Hours <sup>1</sup>	10.4	5.0
Wheelchair Boardings	0.07	1.2
Bicycle Boardings	0.6	1.8
Passengers / Revenue Mile	0.5	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	7.4	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$233,903	5
Cost / Passenger	\$10.63	Sys. Avg. \$3.14
Subsidy / Passenger	\$10.30	Sys. Avg. \$6.16
Fare Box Recovery	3%	Sys. Avg. 17%
On-time Performance	76%	Sys. Avg. 69%
Passenger Load	0.04	N/A
<b>Key Findings:</b>		
- Passengers per revenue mile and revenue hour both rank near the bottom of all routes.		
- On-time performance is above the system average.		

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above



## Go COMO Bus Service Evaluation

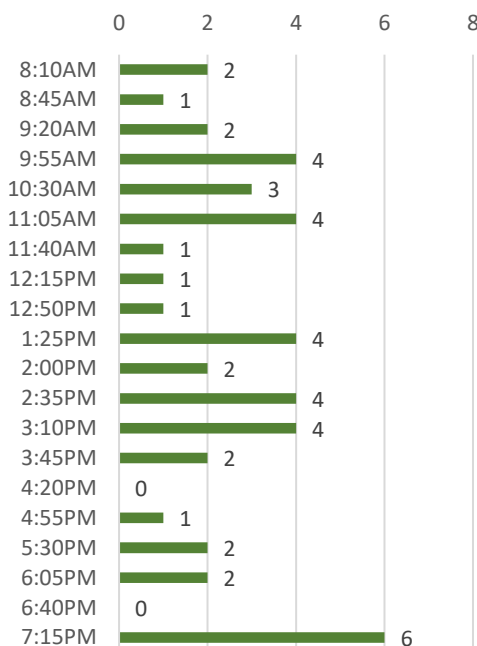
### Dark Green Route #7 (Old Plank to Green Meadows)

The #7 Dark Green neighborhood route begins a clockwise loop at the intersection of John Garry Drive and North Cedar Lake Drive. The route is located in the south-central area of the city, offering transfers to the #1 Black route and the #8 Light Green route. Activity centers along the #7 Dark Green route include the retail centers along Nifong Boulevard and Buttonwood Drive, the South Providence Health Care, State Farm Insurance office, Rock Bridge High School, and single-family and multifamily neighborhoods.

Ridership is consistent throughout most of the year, with the highest ridership primarily in the fall. There is limited ridership throughout the weekday, with the highest activity in the late afternoon. The location with the highest ridership occurs at the intersection of Southampton Drive and Bethel Street, near Cosmo Bethel Park.

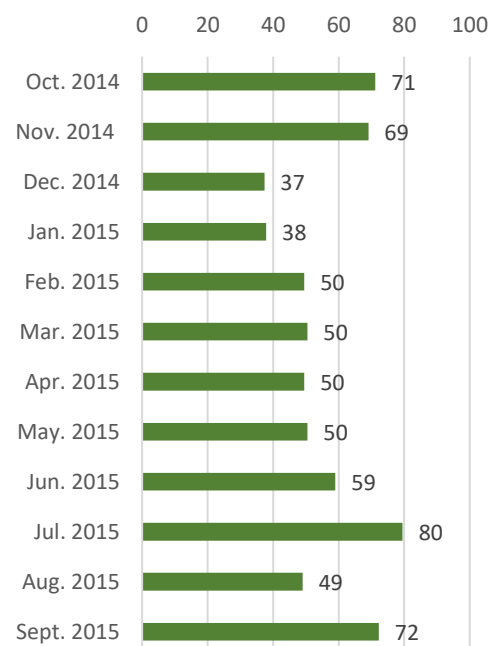
Dark Green Route #7	
<b>Frequency</b>	Weekday: 30 minutes; Saturday: N/A
<b>Service Span</b>	Weekday: 6:30 a.m. – 8:00 p.m.; Saturday: N/A
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 56; Saturday: N/A
<b>Average Weekday Passengers per Revenue Hour</b>	4.4; ranked 17 out of 17
<b>Annual Cost Per Route</b>	\$263,727

Average Passengers per  
Weekday Revenue Hour



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.

Average Passengers per  
Month



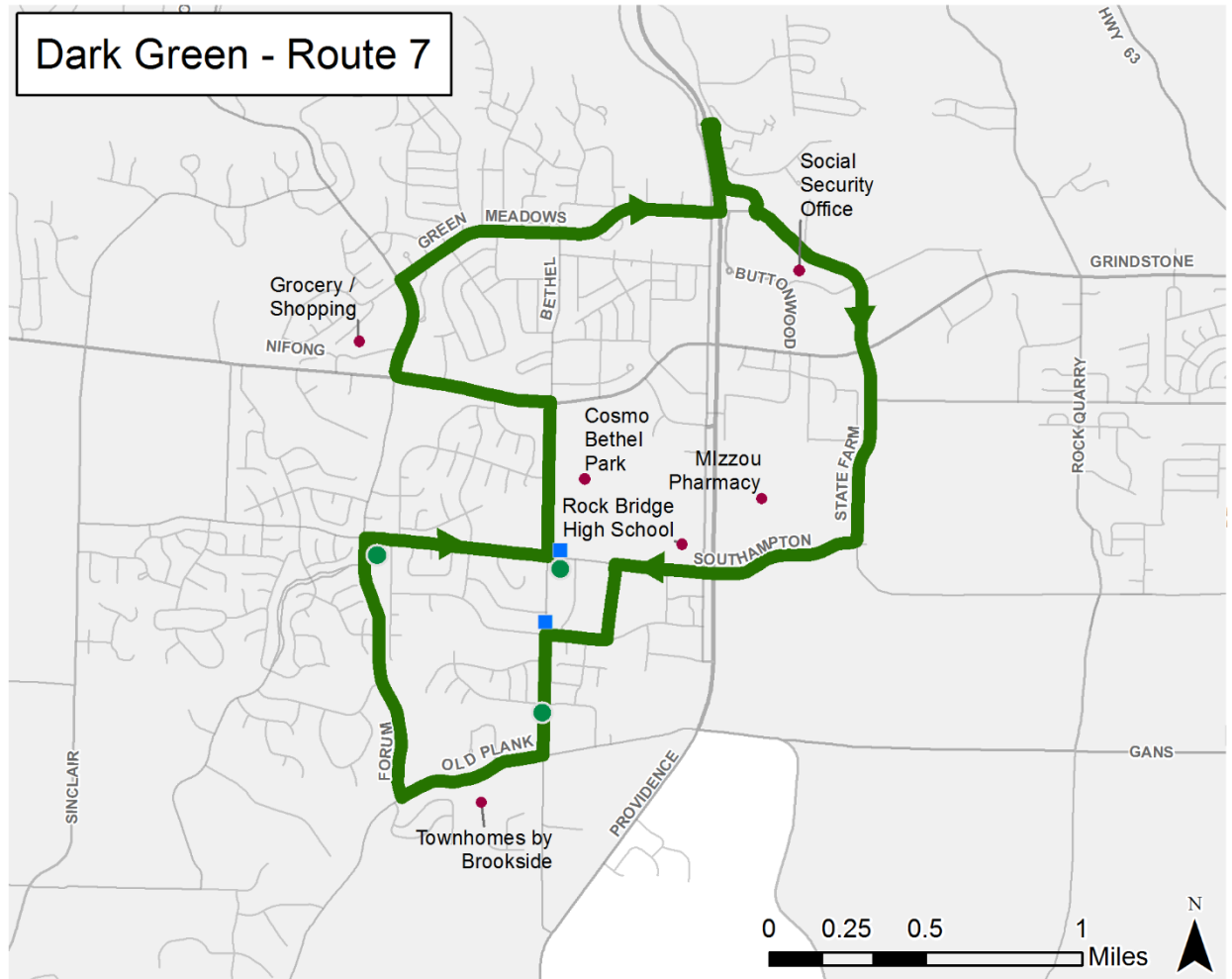
Note: Weekday ridership for April and May was not made available. February and March ridership was displayed in its place.





## Go COMO Bus Service Evaluation

### Dark Green - Route 7



#### Dark Green Route #7

Performance Indicator	Average Weekday	% of Total
Ridership	58	1.0
Revenue Miles	161.6	5.3
Revenue Hours <sup>1</sup>	12.9	6.2
Wheelchair Boardings	0.02	0.3
Bicycle Boardings	0.07	0.2
Passengers / Revenue Mile	0.4	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	4.4	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$263,727	6
Cost / Passenger	\$18.38	Sys. Avg. \$3.14
Subsidy / Passenger	\$18.05	Sys. Avg. \$6.16
Fare Box Recovery	2%	Sys. Avg. 17%
On-time Performance	47%	Sys. Avg. 69%
Passenger Load	0.02	N/A

#### Key Findings:

- Passengers per revenue mile and revenue hour are ranked near the lowest of all routes.
- On-time performance is significantly lower than the system-wide average.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above



## Go COMO Bus Service Evaluation

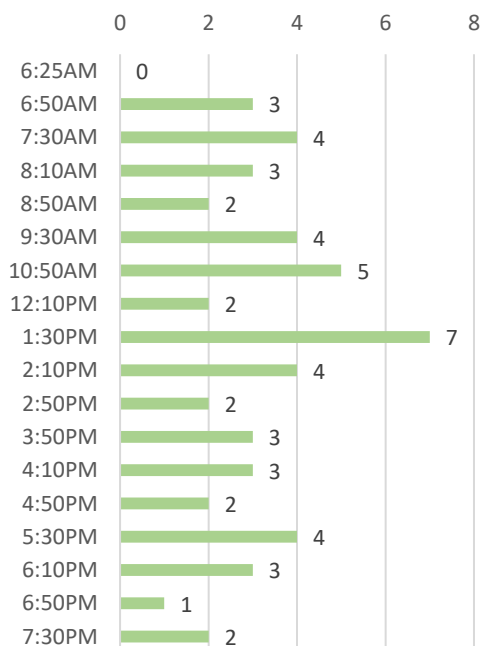
### Light Green Route #8 (Scott to Forum)

The #8 Light Green neighborhood route begins a counter-clockwise loop near the intersection of Forum Boulevard and Stadium Boulevard. The route is located in the southwest area of the city, offering multiple transfers to the #2 Gold route, #7 Dark Green route, and the #9 Purple route. During off-peak times, the bus interlines with the #9 Purple route. Activity centers along the #8 Light Green route include the Forum Shopping Center, multifamily communities along Stadium Boulevard and West Broadway, and the Walmart Supercenter on Fairview Road.

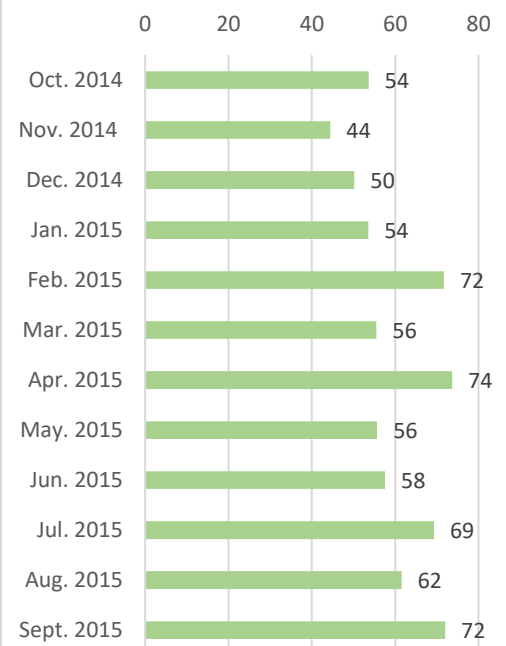
Ridership is consistent throughout the year, with minimal peaks in ridership in February, April, and September. During weekdays, ridership is steady with a small peak at 1:30 p.m. The Katy Place Apartments bus stop has the highest boarding activity among all stops. Other areas with high ridership include the area near the MKT Trail access along Scott Boulevard and the Walgreens along Nifong Boulevard and Forum Boulevard.

Light Green Route #8	
<b>Frequency</b>	Weekday: 40 minutes; Saturday: 40 to 80 minutes
<b>Service Span</b>	Weekday: 6:25 a.m. – 8:10 p.m.; Saturday: 10:50 a.m. – 8:10 p.m.
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 60; Saturday: 22
<b>Average Weekday Passengers per Revenue Hour</b>	5.2; ranked 16 out of 17
<b>Annual Cost Per Route</b>	\$256,162

Average Passengers per  
Weekday Revenue Hour



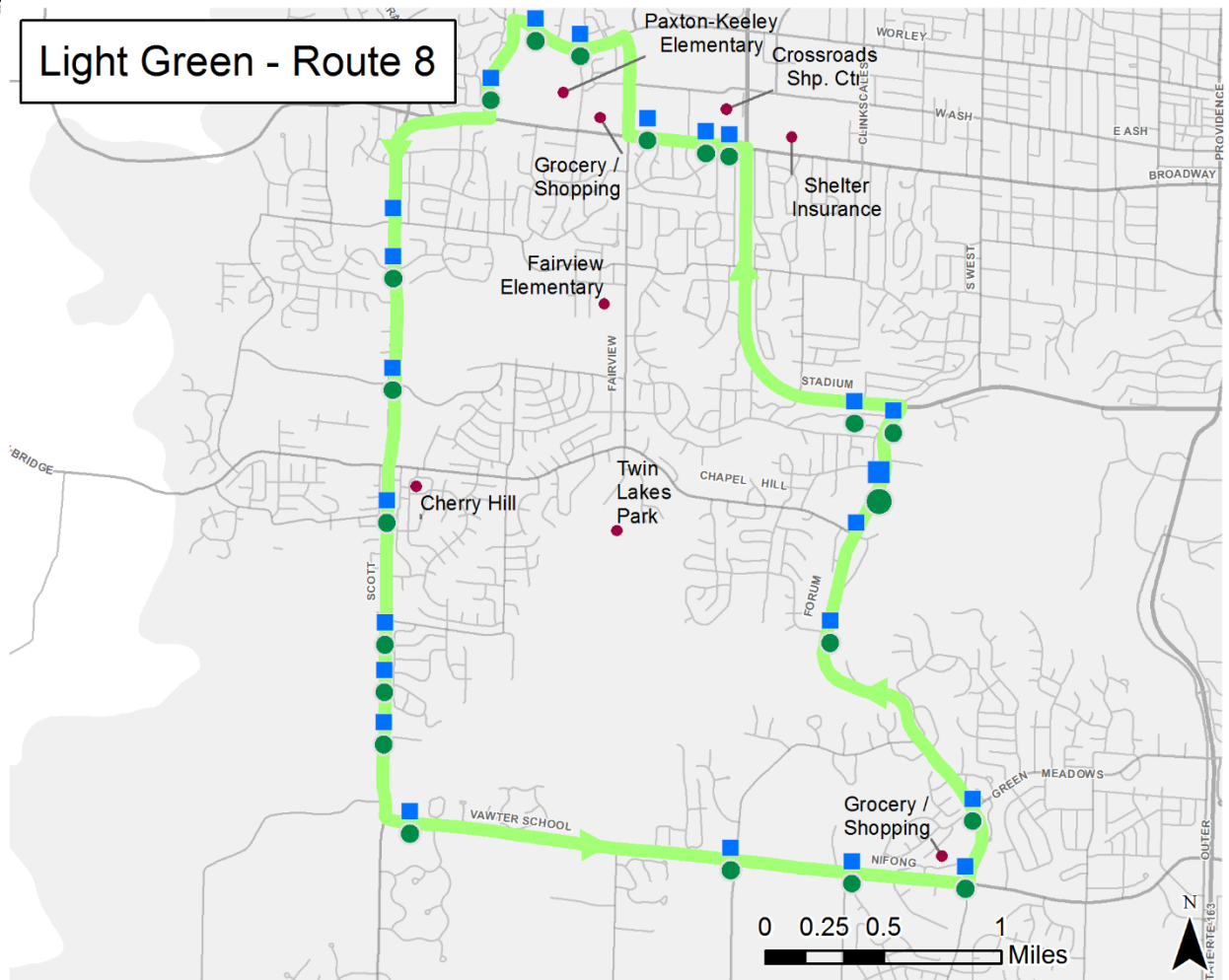
Average Passengers per  
Month



*Note: Average Weekday Passengers per Revenue Hour - October 2014 data.*



## Go COMO Bus Service Evaluation



Light Green #8		
Performance Indicator	Average Weekday	% of Total
Ridership	60	1.1
Revenue Miles	197.3	6.5
Revenue Hours <sup>1</sup>	11.6	5.6
Wheelchair Boardings	0.01	0.1
Bicycle Boardings	0.2	0.7
Passengers / Revenue Mile	0.3	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	5.2	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$256,162	5
Cost / Passenger	\$15.62	Sys. Avg. \$3.14
Subsidy / Passenger	\$15.29	Sys. Avg. \$6.16
Fare Box Recovery	2%	Sys. Avg. 17%
On-time Performance	78%	Sys. Avg. 69%
Passenger Load	0.03	N/A
<b>Key Findings:</b>		
- The Light Green route is ranked near the bottom of all routes for passenger per revenue mile and revenue hour.		
- On-time performance is above the system-wide average.		

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above



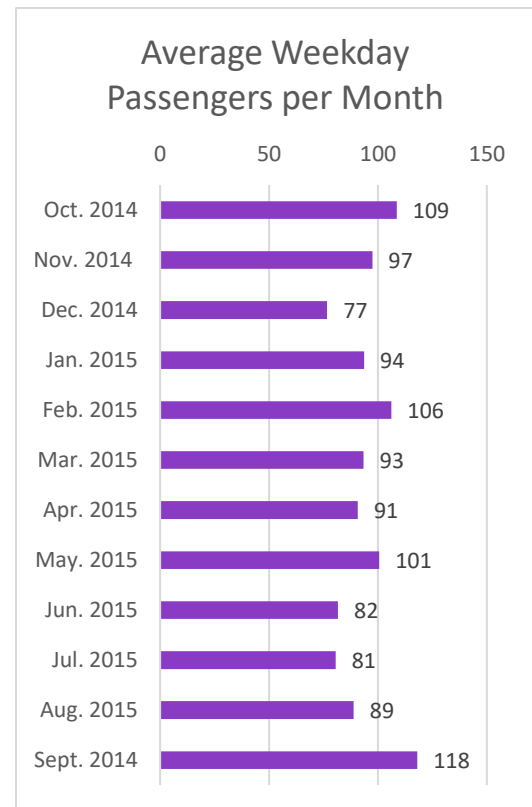
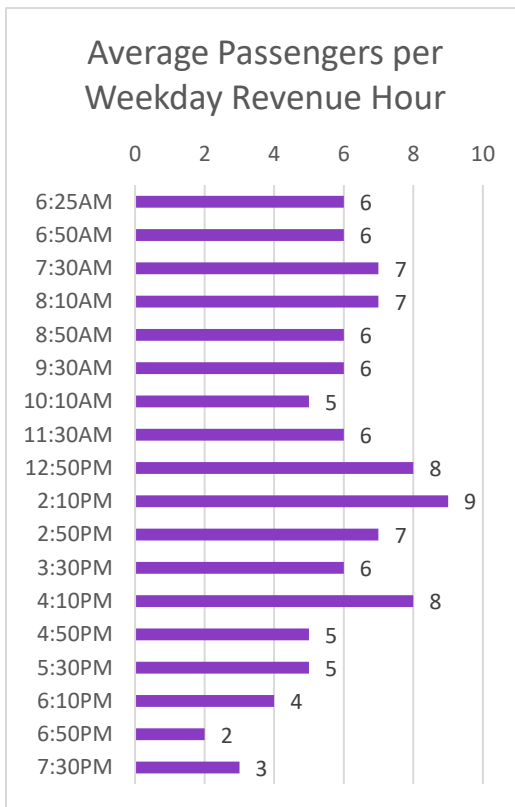
## Go COMO Bus Service Evaluation

### Purple Route #9 (Chapel Hill to Business Loop 70)

The #9 Purple route is a neighborhood route that begins a counter-clockwise loop near the corner of Garth Avenue and Worley Street. The route is located in the west-central area of the city, offering transfers to the #2 Gold route and the #8 Light Green. During off-peak times, the bus interlines with the #8 Light Green route. Activity centers along the #9 Purple route include the Columbia Mall and surrounding retail centers, the Forum Shopping Center, the Daniel Boone Regional Library, and the Columbia/Boone County Department of Public Health and Human Services.

Ridership varies throughout the year, with the highest ridership in February, May, September, and October. During weekdays, ridership stays consistent with a small peak in the afternoon and prior to the evening rush hour. The location experiencing the highest ridership is the stop near the Daniel Boone Regional Library. Other locations with high ridership include the Columbia Mall, the Katy Place Apartments, Oak Tower Senior Living community, and Walmart Supercenter.

Purple Route #9	
<b>Frequency</b>	Weekday: 40 minutes; Saturday: 40 to 80 minutes
<b>Service Span</b>	Weekday: 6:25 a.m. – 8:10 p.m.; Saturday: 10:10 a.m. – 8:10 p.m.
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 94; Saturday: 34
<b>Average Weekday Passengers per Revenue Hour</b>	8.0; ranked 14 out of 17
<b>Annual Cost Per Route</b>	\$259,645



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.







## Go COMO Bus Service Evaluation

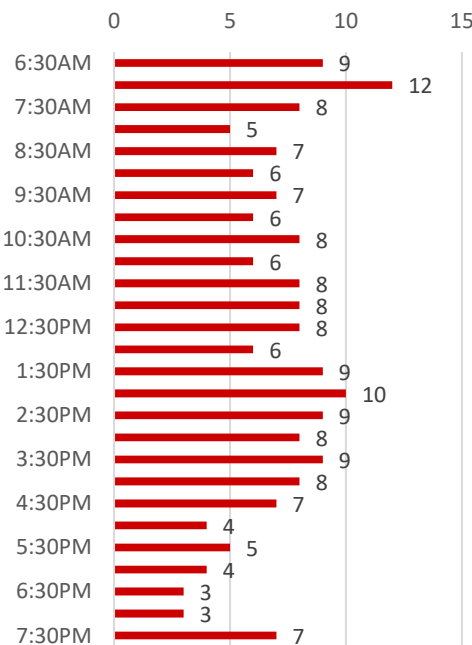
### Red Route #10 (Downtown Orbiter)

The #10 Red route focuses service in the downtown area. The route begins a clockwise loop at the corner of Hinkson Avenue and William Street, with transfers to both the #1 Black route and the #2 Gold route. Activity centers along the #10 Red route include education facilities at MU, Columbia College, and Stephens College. In addition to the connections to each campus, the route serves the Boone County Courthouse, Wabash Station, and medical facilities at the Missouri Heart Institute and the Boone Hospital Center.

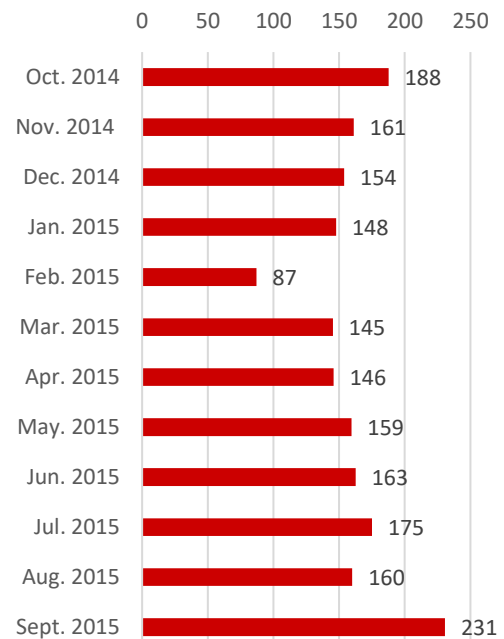
Ridership is generally consistent throughout the year, with the highest ridership in September and October. During weekdays, peak boardings occur in the morning and late afternoon. The two bus stops with the highest ridership are the hospitals along Hospital Drive and the Wabash Station. Other stops with high ridership include Columbia College and the MU Student Center.

Red Route #10	
<b>Frequency</b>	Weekday: 30 minutes; Saturday: 30 minutes
<b>Service Span</b>	Weekday: 6:30 a.m. – 8:00 p.m.; Saturday: 10:00 a.m. – 8:00 p.m.
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 160; Saturday: 66
<b>Average Weekday Passengers per Revenue Hour</b>	12.4; ranked 10 out of 17
<b>Annual Cost Per Route</b>	\$303,589

Average Passengers per Weekday Revenue Hour



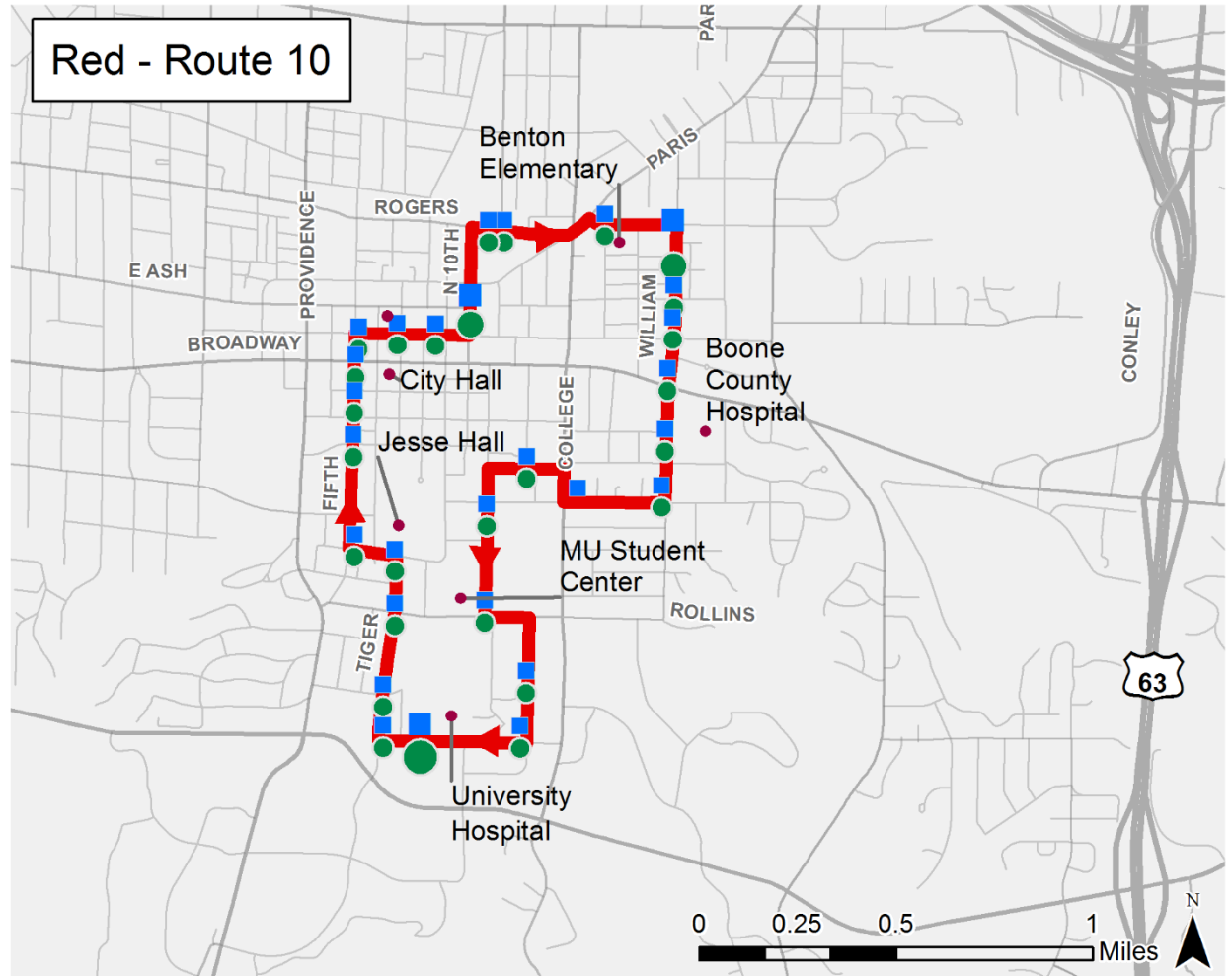
Average Passengers per Month



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.



## Go COMO Bus Service Evaluation



Red Route #10		
Performance Indicator	Average Weekday	% of Total
Ridership	160	2.9
Revenue Miles	117.8	3.9
Revenue Hours <sup>1</sup>	12.9	6.2
Wheelchair Boardings	1.1	18.3
Bicycle Boardings	2.0	6.1
Passengers / Revenue Mile	1.4	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	12.4	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$303,589	6
Cost / Passenger	\$6.88	Sys. Avg. \$3.14
Subsidy / Passenger	\$6.55	Sys. Avg. \$6.16
Fare Box Recovery	5%	Sys. Avg. 17%
On-time Performance	58%	Sys. Avg. 69%
Passenger Load	0.06	N/A

### Key Findings:

- This route has the highest ridership of all neighborhood routes. It also ranks high on passengers per revenue mile and revenue hour.
- On-time performance is below the system-wide average.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above



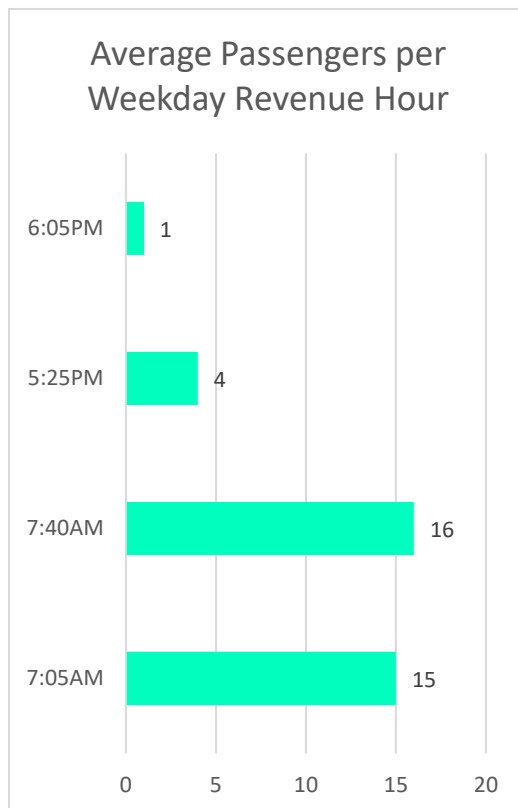
## Go COMO Bus Service Evaluation

### Aqua Route #11 (Prathersville to Brown School)

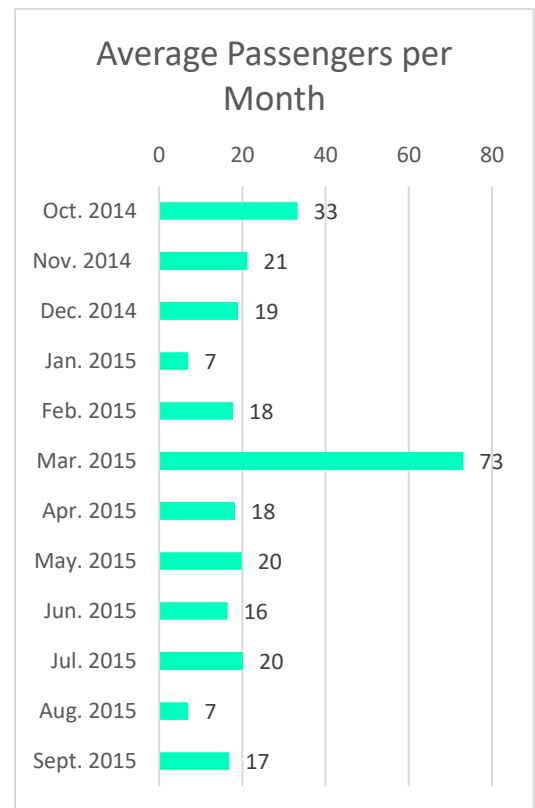
The #11 Aqua route begins a clockwise loop alignment at the corner of Prathersville Road and Rangeline Street. This neighborhood route is located in the northern area of the city, offering transfers to the #3 Brown route and the #4 Orange route. The Aqua route is designated as a limited service commuter route, providing only two trips in the morning and evening peak periods. Activity centers along the #11 Aqua route include the Boone County fairgrounds, Reality House, a grocery store, and several single-family and multifamily communities.

Ridership is consistent through the year with the highest ridership, in March. During weekdays, peak boardings occur in the evening hours. Boarding activity along the Aqua route is consistent.

Aqua Route #11	
<b>Frequency</b>	Weekday: 40 minutes; Saturday: N/A
<b>Service Span</b>	Weekday: 7:05 a.m. – 6:10 p.m.; Saturday: N/A
<b>Peak Vehicles</b>	Operates in conjunction with the #3 Brown route
<b>Average Daily Ridership</b>	Weekday: 23; Saturday: N/A
<b>Average Weekday Passengers per Revenue Hour</b>	13.4; ranked 9 out of 17
<b>Annual Cost Per Route</b>	\$34.962



Note: Average Weekday Passengers per Revenue Hour - October 2014 data.

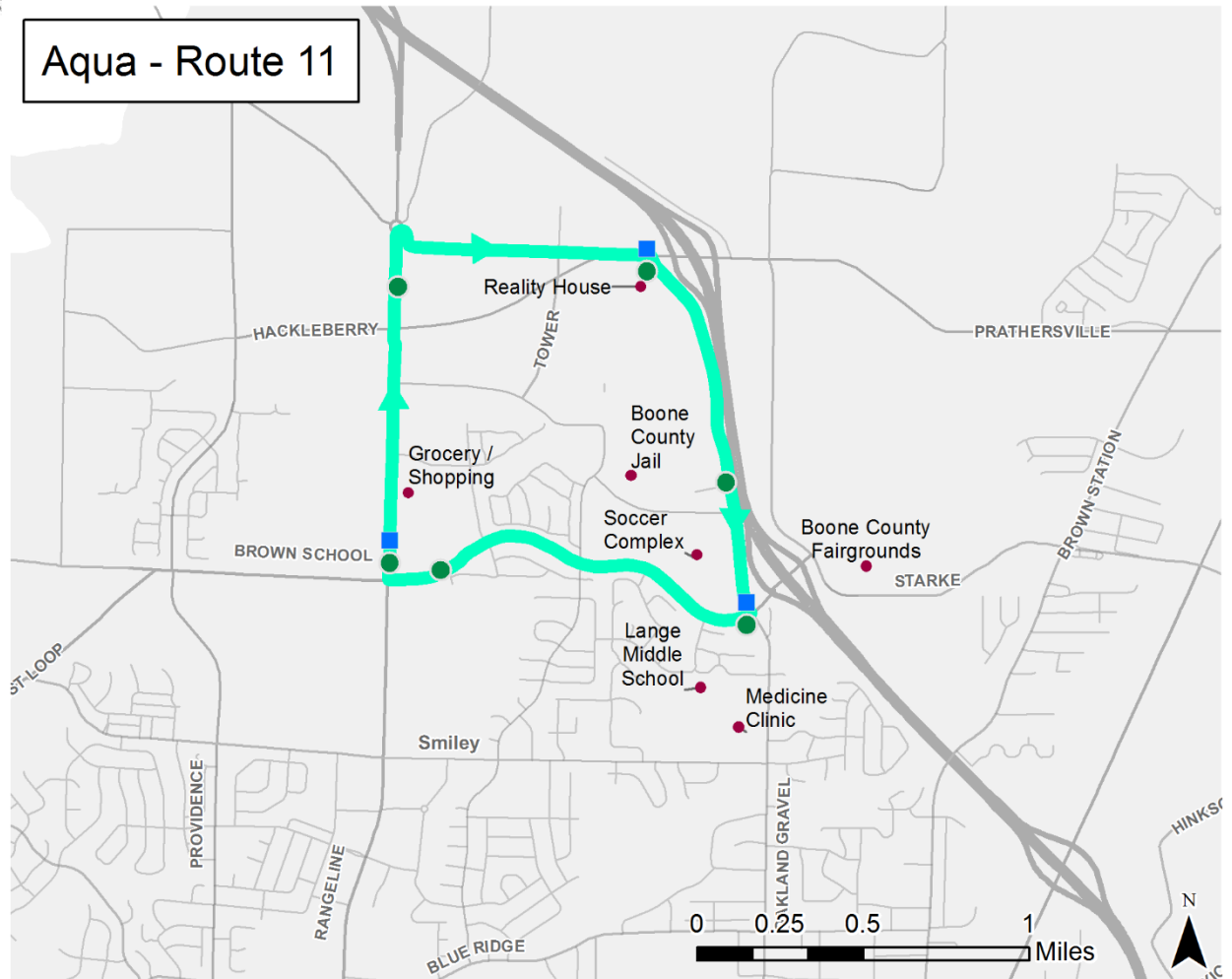






## Go COMO Bus Service Evaluation

### Aqua - Route 11



#### Aqua Route #11

Performance Indicator	Average Weekday	% of Total
Ridership	23	0.4
Revenue Miles	29	1.0
Revenue Hours <sup>1</sup>	1.7	0.8
Wheelchair Boardings	0	0
Bicycle Boardings	0.01	0.02
Passengers / Revenue Mile	0.79	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	13.4	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$34.962	1
Cost / Passenger	\$6.02	Sys. Avg. \$3.14
Subsidy / Passenger	\$5.69	Sys. Avg. \$6.16
Fare Box Recovery	6%	Sys. Avg. 17%
On-time Performance	59%	Sys. Avg. 69%
Passenger Load	0.06	N/A

#### Key Findings:

- Route ranks near the top of neighborhood routes in passengers per revenue mile and revenue hour. It also offers the least amount of service.
- Because of the limited service offered, ridership is the lowest in the system.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above

### Boardings

- 1 to 10
- 11 to 25
- 26 to 50
- 51 to 75
- 76 and above



## Go COMO Bus Service Evaluation

### Route #401 (Hearnes Loop)

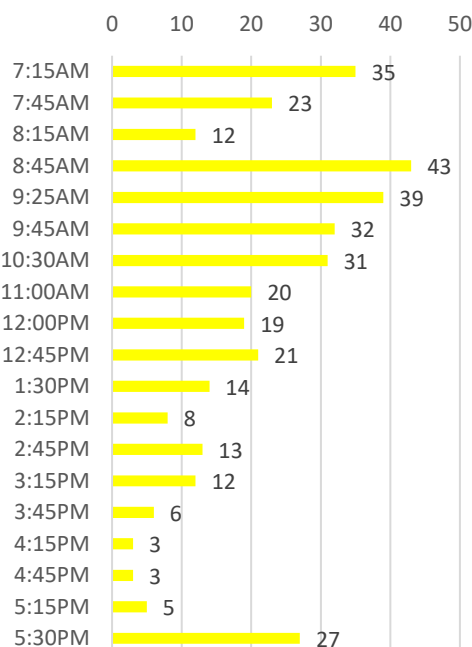
Route #401 is one of the four Tiger Line day routes operating during regular business hours, weekdays only. Route #401 serves the center of the MU campus and runs north and south between the activity centers of Hearnes Center and the Recreation Center. Transfer opportunities are available nearby with other day routes.

Route #401 and Route #402 total ridership make up a large portion of the Tiger Lines' daily total. Ridership is consistent throughout the fall and spring semesters, with the highest ridership in September and October. During weekdays, peak boardings occur from 8:00 a.m. to 11:00 a.m. Following the morning peak, ridership declines the remainder of the day.

Since the Tiger Line routes service much of MU, students frequently use these routes to reach popular destinations. Ridership is highest near the Student Center, Recreation Center, and near Mizzou Arena and Hearnes Center.

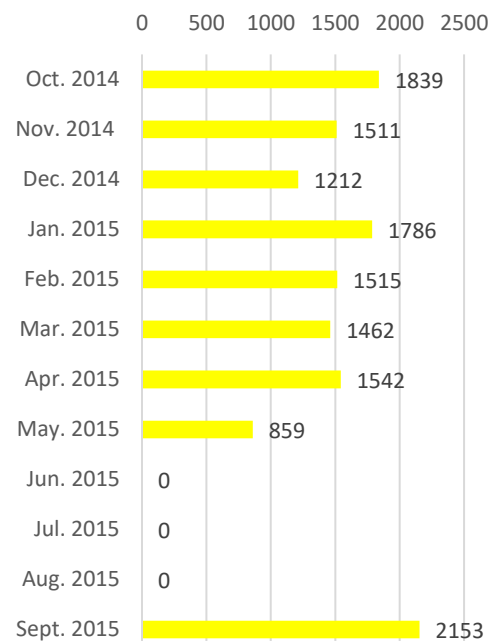
Route #401 Hearnes Loop	
<b>Frequency</b>	Weekday: 10 to 15 minutes; Saturday: N/A
<b>Service Span</b>	Weekday: 6:00 a.m. – 5:30 p.m.; Saturday: N/A
<b>Peak Vehicles</b>	Two vehicles, plus one additional from 6:00 a.m. to 10:00 a.m.
<b>Average Daily Ridership</b>	Weekday: 1,588; Saturday: N/A
<b>Average Weekday Passengers per Revenue Hour</b>	163.7; ranked 2 out of 17
<b>Annual Cost Per Route</b>	\$119,586

Average Passenger per  
Weekday Revenue Hour



Note: Average Weekday Passengers per Revenue Hour - September 2015 data.

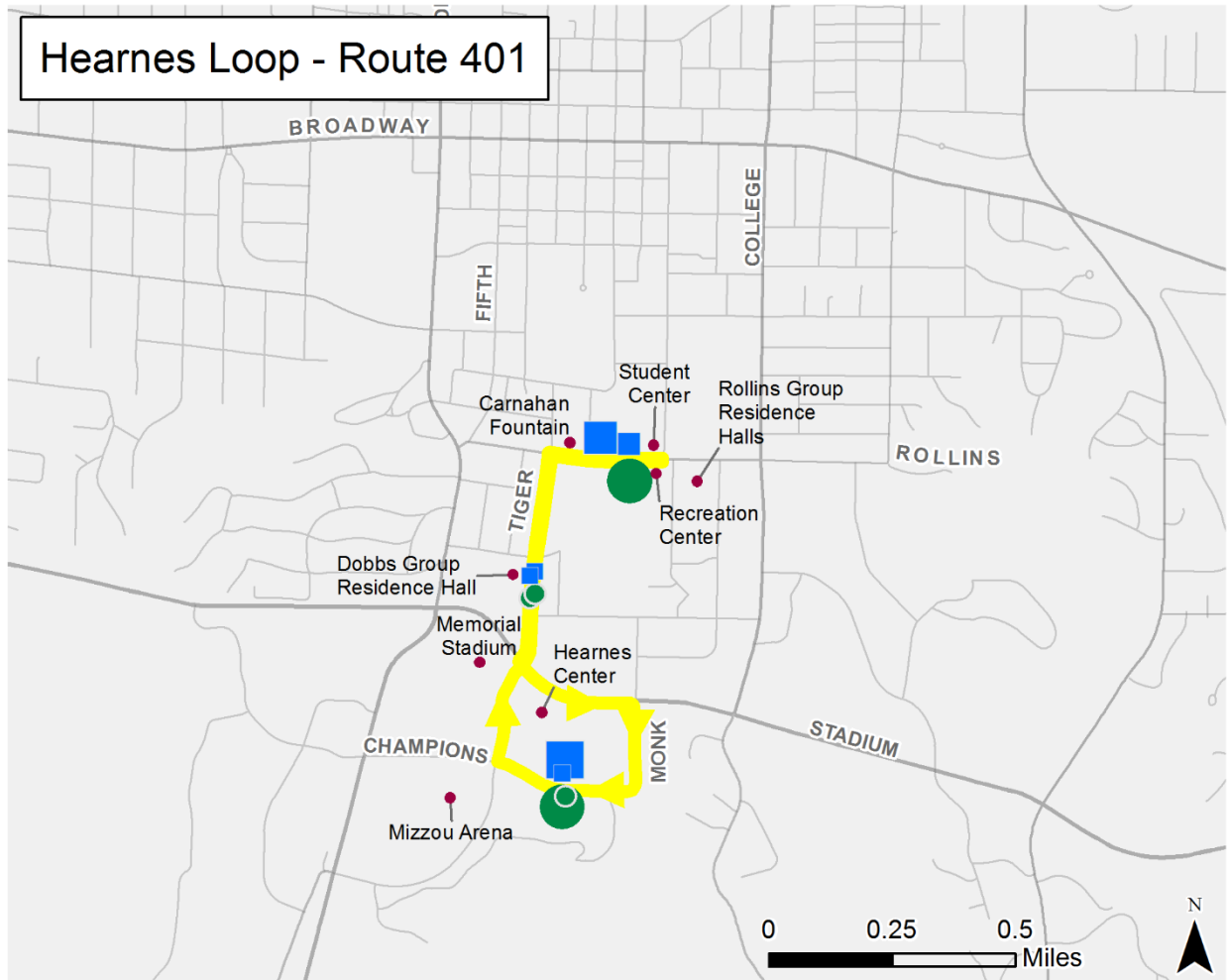
Average Passengers per  
Month



Note: No Tiger Line service is offered in the summer months.



## Go COMO Bus Service Evaluation



Performance Indicator	Average Weekday	% of Total
Ridership	1,588	28.4
Revenue Miles	86.1	2.9
Revenue Hours <sup>1</sup>	9.7	4.6
Wheelchair Boardings	0.01	0.2
Bicycle Boardings	0.01	0.04
Passengers / Revenue Mile	18.5	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	163.7	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$119,586	3
Cost / Passenger	\$0.49	Sys. Avg. \$3.14
Subsidy / Passenger	\$0.16	Sys. Avg. \$6.16
Fare Box Recovery	67%	Sys. Avg. 17%
On-time Performance	28%	Sys. Avg. 44%
Passenger Load	0.63	N/A

**Key Findings:**

- This route ranks second among all routes in total ridership.
- Cost per passenger is lower than the system average.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 100
- 101 to 500
- 501 to 600
- 601 to 700
- 701 and above

### Boardings

- 1 to 100
- 101 to 500
- 501 to 600
- 601 to 700
- 701 and above



## Go COMO Bus Service Evaluation

### Route #402 (Trowbridge Loop)

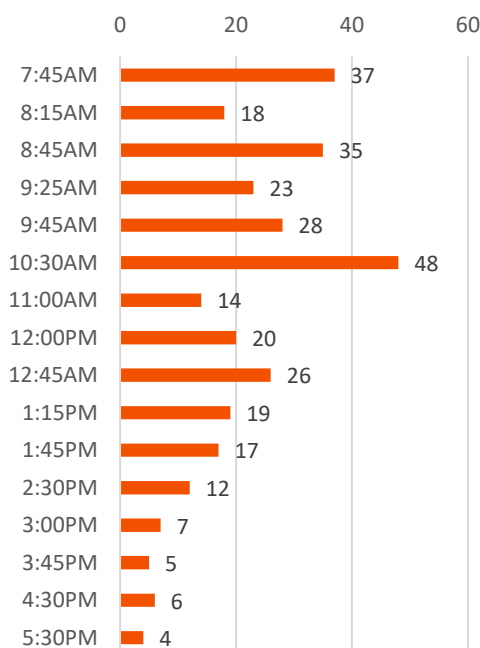
Route #402 is a Tiger Line day routes operating during regular business hours, weekdays only. Route #402 operates on the east side of campus and runs east and west along Rollins Street and Ashland Road. Activity centers along Rollins Street include the Recreation Center and several residence halls. Nearby transfer opportunities are available with all other day routes.

Route #402 and Route #401 total ridership make up a large portion of the system ridership. Ridership varies throughout the fall and spring semesters, with the highest ridership in September and October. During weekdays, peak boardings occur from 7:45 a.m. to 11:00 a.m., then decline following the lunch hour.

The locations with the highest ridership are the Student Center and the Recreation Center. Other popular locations include two residential centers in Trowbridge and Tara Apartments.

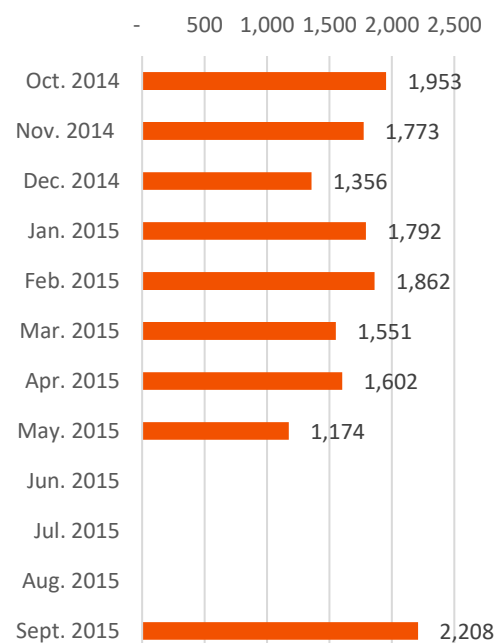
Route #402 Trowbridge Loop	
<b>Frequency</b>	Weekday: 10 to 15 minutes; Saturday: N/A
<b>Service Span</b>	Weekday: 6:00 a.m. – 5:30 p.m.; Saturday: N/A
<b>Peak Vehicles</b>	Two vehicles, plus one additional from 6:00 a.m. to 10:00 a.m.
<b>Average Daily Ridership</b>	Weekday: 1,740; Saturday: N/A
<b>Average Weekday Passengers per Revenue Hour</b>	224; ranked 1 out of 17
<b>Annual Cost Per Route</b>	\$95,804

Average Passengers per Weekday Revenue Hour



Note: Average Weekday Passengers per Revenue Hour - September 2015 data.

Average Passengers per Month

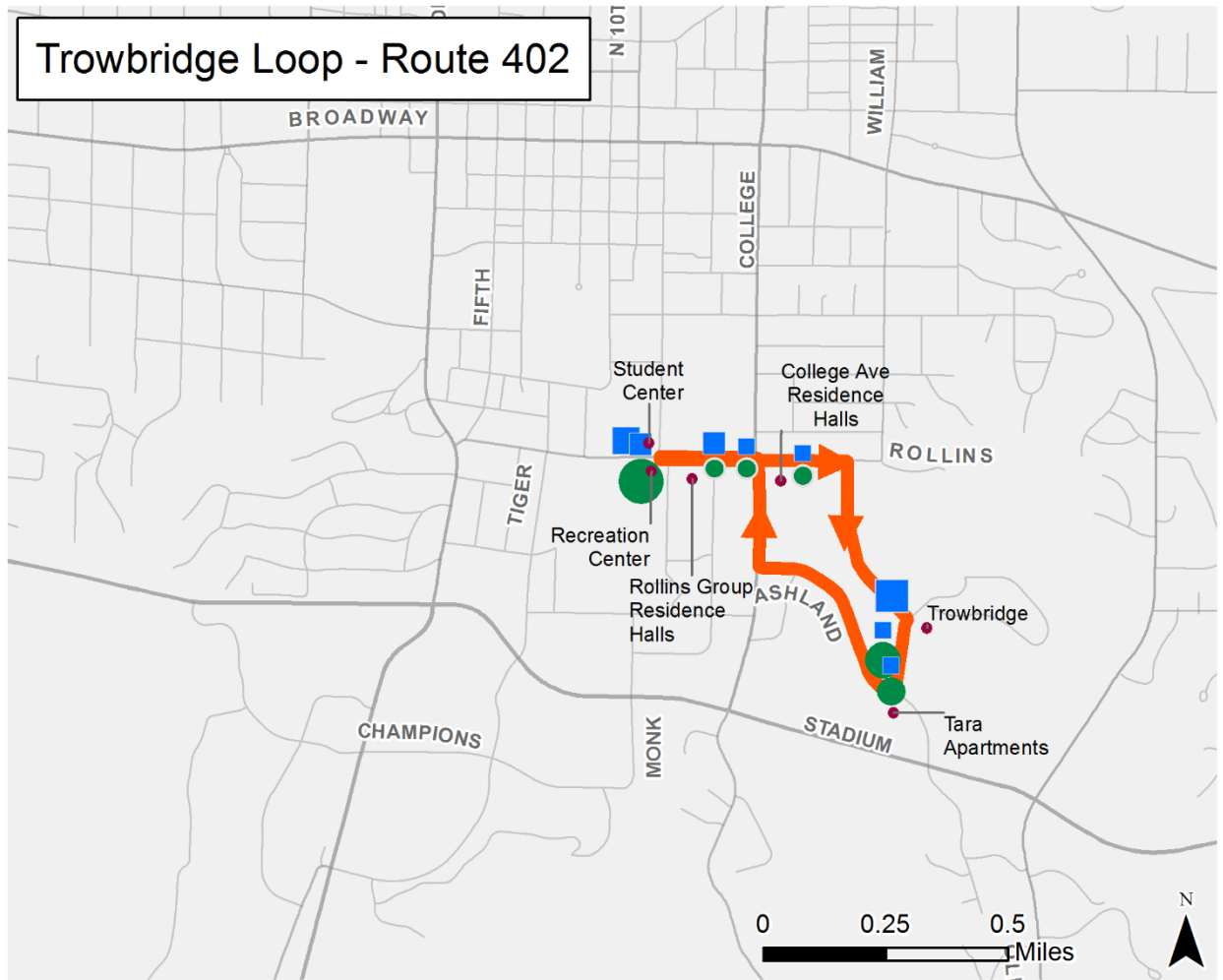


Note: No Tiger Line service is offered in the summer months.





## Trowbridge Loop - Route 402



### Route #402 Trowbridge Loop

Performance Indicator	Average Weekday	% of Total
Ridership	1,740	31.1
Revenue Miles	100.2	3.3
Revenue Hours <sup>1</sup>	7.8	3.7
Wheelchair Boardings	0.0	0
Bicycle Boardings	0.16	0.5
Passengers / Revenue Mile	17.36	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	224	Sys. Avg. 26.7
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$95,804	2
Cost / Passenger	\$0.36	Sys. Avg. \$3.14
Subsidy / Passenger	\$0.03	Sys. Avg. \$6.16
Fare Box Recovery	92%	Sys. Avg. 17%
On-time Performance	17%	Sys. Avg. 44%
Passenger Load	0.95	N/A

#### Key Findings:

- This route is ranked first in total ridership.
- Cost per passenger is much lower than the system average.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 100
- 101 to 500
- 501 to 600
- 601 to 700
- 701 and above

### Boardings

- 1 to 100
- 101 to 500
- 501 to 600
- 601 to 700
- 701 and above



## Go COMO Bus Service Evaluation

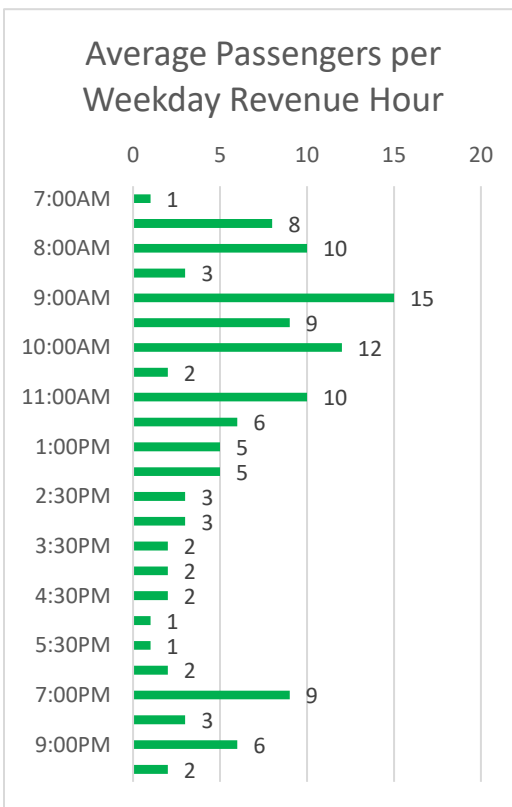
### Route #403 (Reactor Field Loop)

Unlike the other five Tiger Line routes, Route #403 operates as both a day route and as a night route. Route #403 travels north and south, serving the western section of the MU campus and connecting activity centers such as Memorial Stadium, Mizzou Arena, and Dobbs Group Residence Hall. Nearby transfer opportunities are available with all other day and night routes.

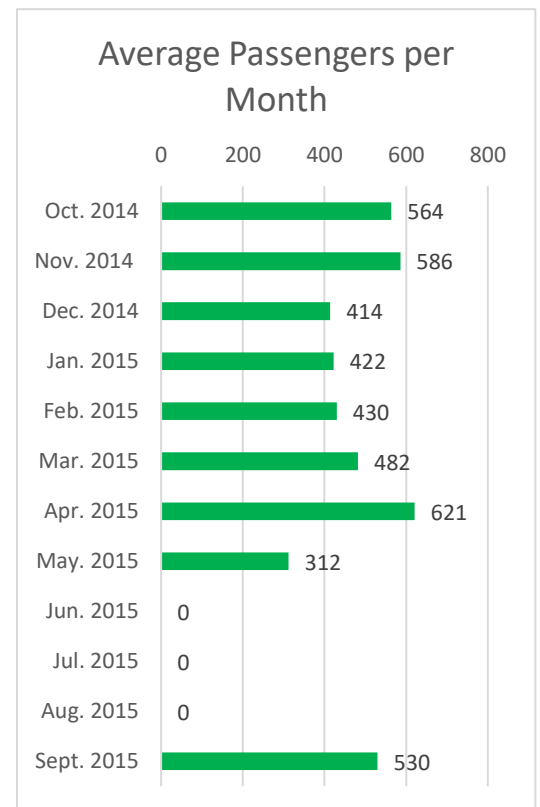
Ridership is consistently around 550 passenger trips per day throughout the fall semester and then levels off to approximately 400 passenger trips per day during the spring semester, with the highest ridership occurring in April. During weekdays, peak boardings occur from 8:00 a.m. to 11:00 a.m., then decline for the remainder of the day.

The bus stop locations with the highest ridership are the student commuter lot on Research Park Drive and the stops close to the engineering campus.

Route #403 Reactor Field Loop	
<b>Frequency</b>	Weekday: 10 to 15 minutes; Saturday: N/A
<b>Service Span</b>	Weekday: 7:00 a.m. – 11:00 p.m.; Saturday: N/A
<b>Peak Vehicles</b>	Day route: two vehicles; Night route: one vehicle
<b>Average Daily Ridership</b>	Weekday: 501; Saturday: N/A
<b>Average Weekday Passengers per Revenue Hour</b>	33.9; ranked 5 out of 17
<b>Annual Cost Per Route</b>	\$182,751



Note: Average Weekday Passengers per Revenue Hour - September 2015 data.

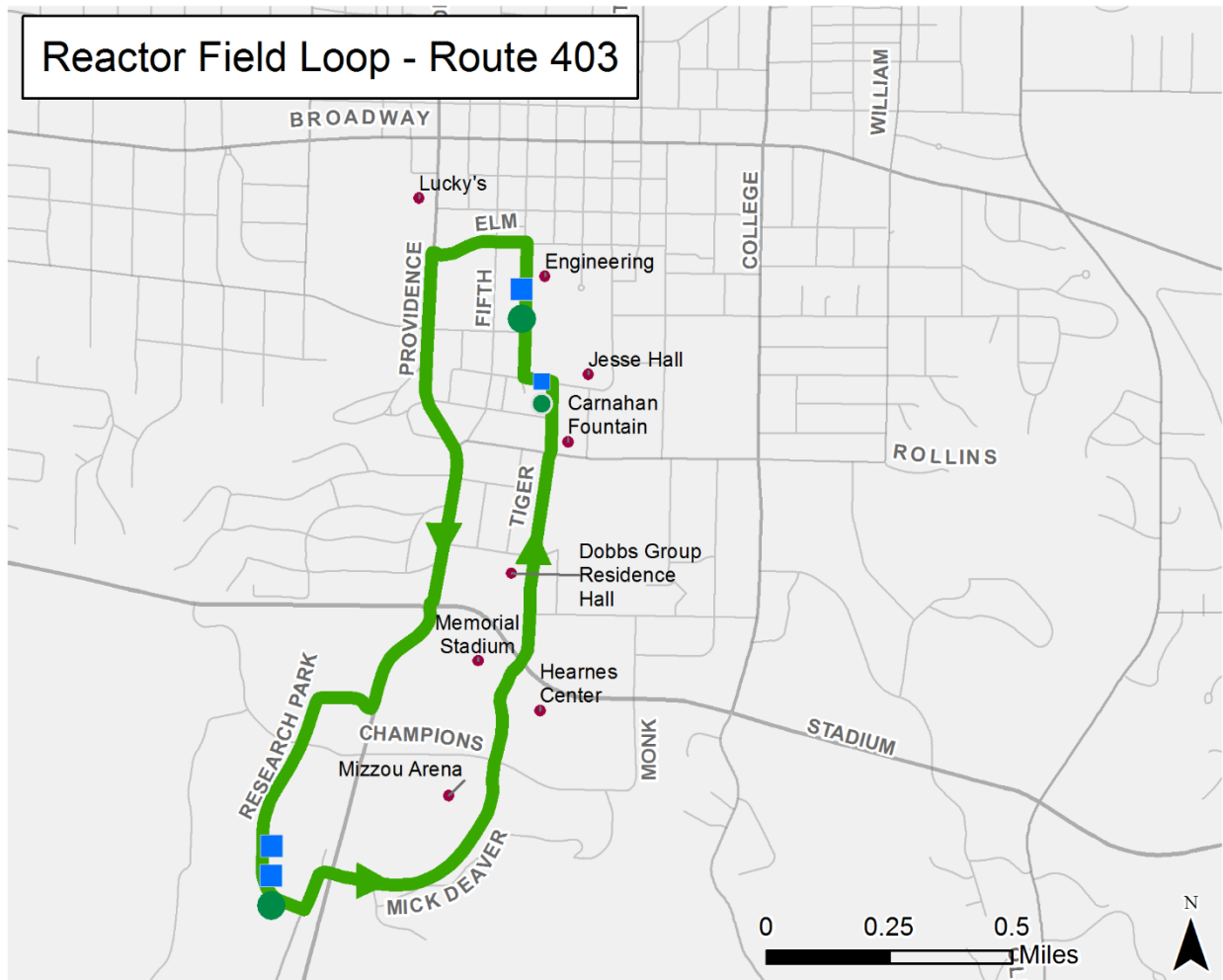


Note: No Tiger Line service is offered in the summer months.



## Go COMO Bus Service Evaluation

### Reactor Field Loop - Route 403



#### Route #403 Reactor Field Loop

Performance Indicator	Average Weekday	% of Total
Ridership	501	9.0
Revenue Miles	146.2	4.9
Revenue Hours <sup>1</sup>	14.8	7.1
Wheelchair Boardings	0.0	0
Bicycle Boardings	3.8	11.9
Passengers / Revenue Mile	3.4	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	33.9	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$182,751	4
Cost / Passenger	\$2.38	Sys. Avg. \$3.14
Subsidy / Passenger	\$2.05	Sys. Avg. \$6.16
Fare Box Recovery	14%	Sys. Avg. 17%
On-time Performance	12%	Sys. Avg. 44%
Passenger Load	0.12	N/A

#### Key Findings:

- Average weekday passengers per revenue hour ranks fifth of all routes.
- Of the Tiger Line routes, this route has one of the higher operating cost totals.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

#### Alightings

- 1 to 100
- 101 to 500
- 501 to 600
- 601 to 700
- 701 and above

#### Boardings

- 1 to 100
- 101 to 500
- 501 to 600
- 601 to 700
- 701 and above



## Go COMO Bus Service Evaluation

### Route #404 (Mizzou North Loop)

Route #404 is one of the four Tiger Line day routes operating during regular business hours, weekdays only. Route #402 operates in the northwest area of the MU campus and serves as a north and south loop for students to access Mizzou North. The route also provides connections to engineering facilities, Jessie Hall, and the Student Center. Nearby transfer opportunities are available with all other day routes.

Ridership is highest at the beginning of the fall and spring semesters and then levels off during the remainder of the year. Of all months with available ridership information, October shows the highest average daily ridership.

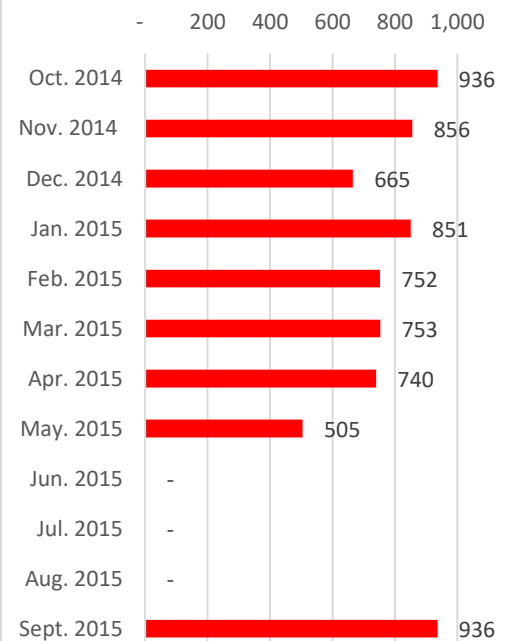
No ridership or stop data were made available for Route #404. It could be assumed that this route would serve as a connection from the main campus to the northern campus. Popular locations served include Mizzou North, Jessie Hall, and the engineering campus.

Route #404 Mizzou North Loop	
<b>Frequency</b>	Weekday: 30 minutes; Saturday: N/A
<b>Service Span</b>	Weekday: 7:00 a.m. – 5:00 p.m.; Saturday: N/A
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 805; Saturday: N/A
<b>Average Weekday Passengers per Revenue Hour</b>	120.3; ranked 3 out of 17
<b>Annual Cost Per Route</b>	\$82,567

Average Passengers per  
Weekday Revenue Hour

- DATA UNAVAILABLE -

### Average Passengers per Month



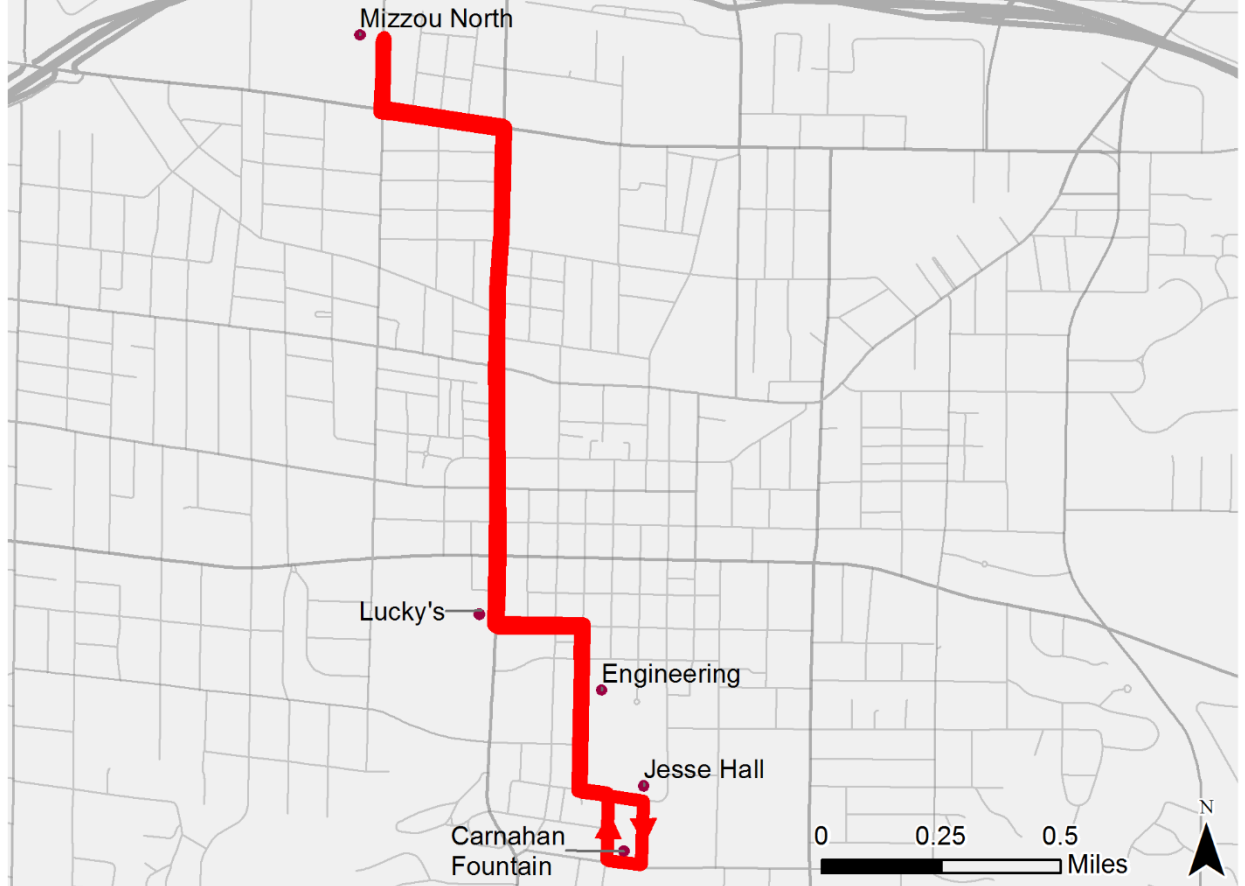
Note: No Tiger Line service is offered in the summer months.





## Go COMO Bus Service Evaluation

### Mizzou North Loop - Route 404



#### Route #404 Mizzou North Loop

Performance Indicator	Average Weekday	% of Total
Ridership	770	14.4
Revenue Miles	81.35	2.7
Revenue Hours <sup>1</sup>	6.7	3.2
Wheelchair Boardings	0	0
Bicycle Boardings	1.16	3.7
Passengers / Revenue Mile	9.8	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	120.3	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$82,567	2
Cost / Passenger	\$0.67	Sys. Avg. \$3.14
Subsidy / Passenger	\$0.34	Sys. Avg. \$6.16
Fare Box Recovery	49%	Sys. Avg. 17%
On-time Performance	Unavailable	Sys. Avg. 44%
Passenger Load	Unavailable	N/A

#### Key Findings:

- Routes connects both Mizzou North and MU's main campus.
- Average weekday passengers per revenue hour ranks third out of all routes.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

Stop Level  
Ridership

- DATA  
UNAVAILABLE -



## Go COMO Bus Service Evaluation

### Route #405 (Campus Loop)

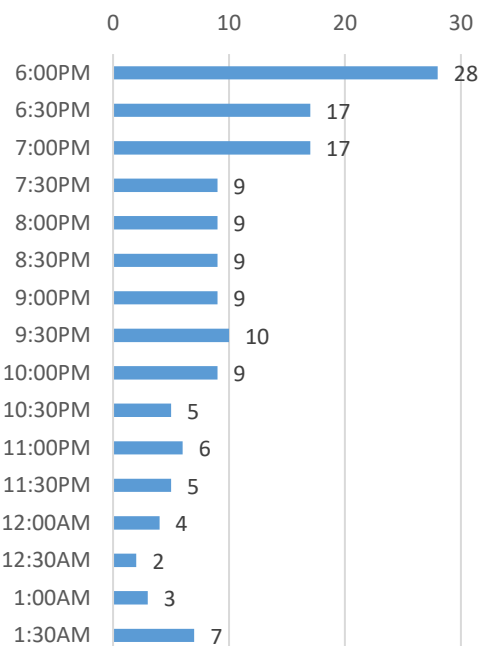
Route #405 is one of three Tiger Line night routes operating after the day routes finish service at 6:00 p.m. and during weekends. The route is aligned in a counter-clockwise loop, providing service to activity centers and residential complexes, such as Tara Apartments and College Avenue Residence Halls. The route also runs through the MU campus, along Cherry Street and Broadway in downtown Columbia, and east to the Veterinary Health Center and the Boone Hospital Center. Nearby transfer opportunities are available with all other night routes.

Ridership is approximately 150 passenger trips per weekday, with the highest activity in February. During weekdays, peak boardings occur at 6:00 p.m. and decrease throughout the evening.

Bus stops with the highest boarding activity include the Student Center and the Recreation Center. This loop serves other popular destinations like Memorial Union and Memorial Stadium.

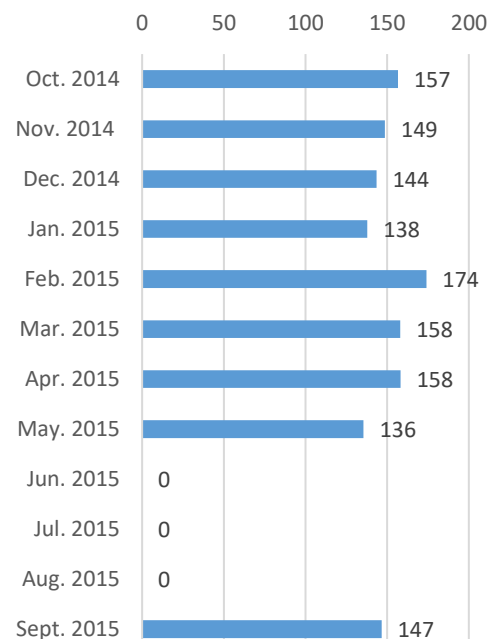
Route #405 Campus Loop	
<b>Frequency</b>	Monday - Saturday: 30 minutes; Sunday: 30 minutes
<b>Service Span</b>	Monday - Saturday: 6:00 p.m. – 12:00 a.m.; Sunday: 12:00 p.m. – 12:00 a.m.
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 153; Saturday: 111, Sunday: 108
<b>Average Weekday Passengers per Revenue Hour</b>	26.7; ranked 6 out of 17
<b>Annual Cost Per Route</b>	\$109,018

Average Passengers per  
Weekday Revenue Hour



Note: Average Weekday Passengers per Revenue Hour - September 2015 data.

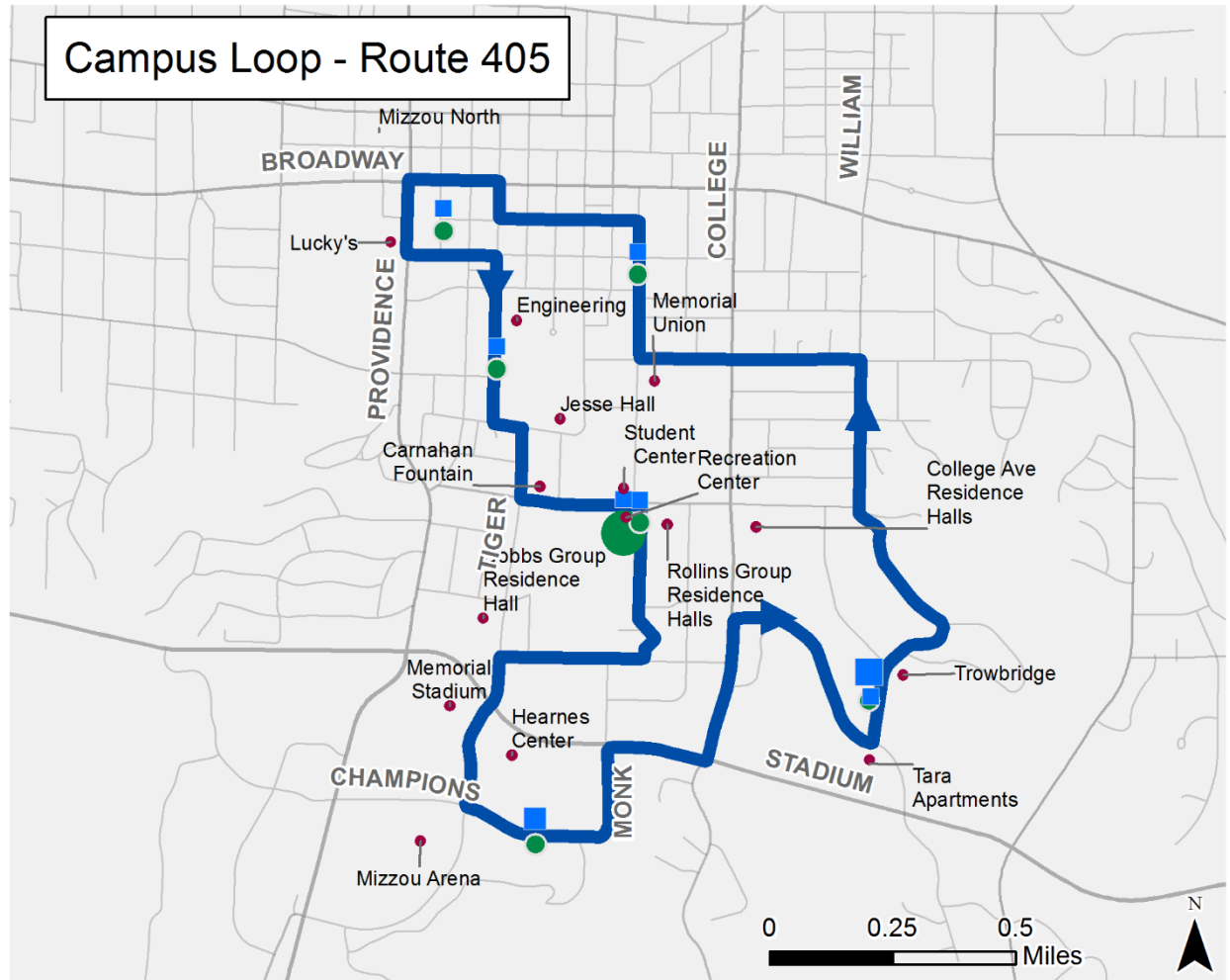
Average Passengers per  
Month



Note: No Tiger Line service is offered in the summer months.



## Go COMO Bus Service Evaluation



Route #405 Campus Loop		
Performance Indicator	Average Weekday	% of Total
Ridership	153	2.7
Revenue Miles	57.2	1.9
Revenue Hours <sup>1</sup>	5.7	2.8
Wheelchair Boardings	0.4	6.1
Bicycle Boardings	0.2	0.5
Passengers / Revenue Mile	2.7	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	26.7	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$109,018	2
Cost / Passenger	\$3.66	Sys. Avg. \$3.14
Subsidy / Passenger	\$3.33	Sys. Avg. \$6.16
Fare Box Recovery	9%	Sys. Avg. 17%
On-time Performance	65%	Sys. Avg. 44%
Passenger Load	0.12	N/A
<b>Key Findings:</b>		
- Average weekday passengers per revenue hour ranks fifth out of all routes.		
- This route serves many popular destinations around campus.		

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 25
- 26 to 50
- 51 to 75
- 75 to 100
- 100 and above

### Boardings

- 1 to 25
- 26 to 50
- 51 to 75
- 76 to 100
- 100 and above



## Go COMO Bus Service Evaluation

### Route #406 (West Loop)

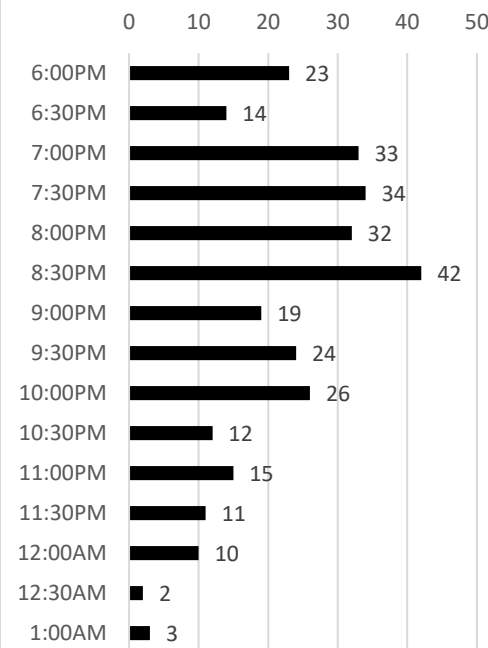
Route #406 is one of the three Tiger Line night routes operating after the day routes finish service at 6:00 p.m. and during weekends. The route operates clockwise through the MU campus, and to areas to the west of the campus including Hy-Vee, Walmart Supercenter, and Columbia Mall. Nearby transfer opportunities are available with all other night routes.

Ridership is consistently around 150 riders per weekday, with the highest average daily ridership occurring in November. During weekdays, peak boardings occur from 7:00 p.m. to 8:30 p.m. and decrease as it gets later in the day.

Highest boarding activity locations include the Student Center and Recreation Center.

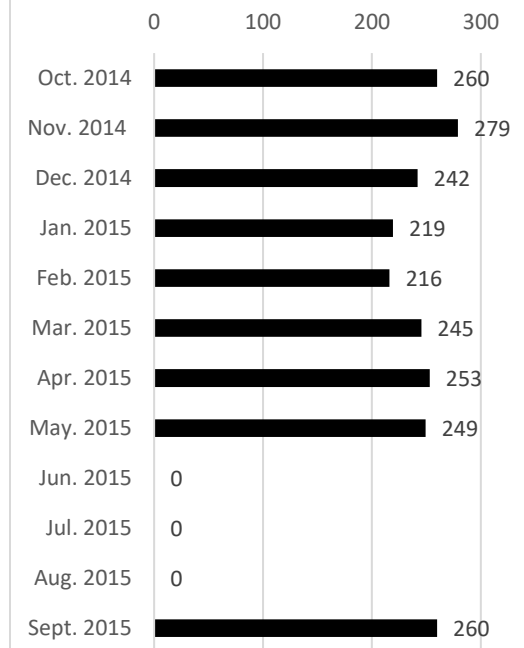
Route #406 West Loop	
<b>Frequency</b>	Monday - Saturday: 60 minutes; Sunday: 60 minutes
<b>Service Span</b>	Monday - Saturday: 6:00 p.m. – 11:00 p.m.; Sunday: 12:00 p.m. – 11:00 p.m.
<b>Peak Vehicles</b>	One vehicle
<b>Average Daily Ridership</b>	Weekday: 251; Saturday: 288, Sunday: 253
<b>Average Weekday Passengers per Revenue Hour</b>	41.32; ranked 4 out of 17
<b>Annual Cost Per Route</b>	\$126,692

Average Passengers per Weekday Revenue Hour



Note: Average Passengers per Weekday Revenue Hour - September 2015 data.

Average Passengers per Month

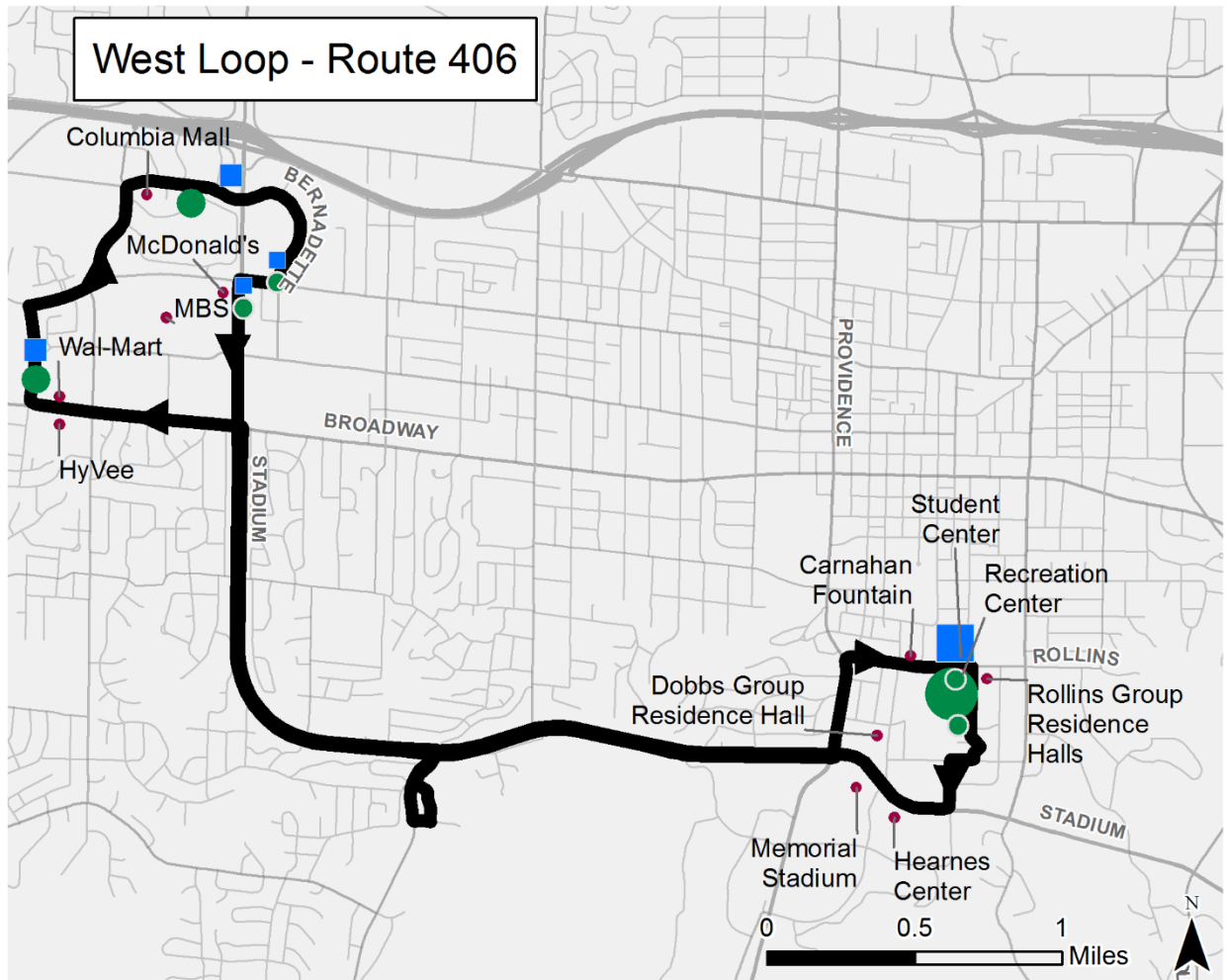


Note: No Tiger Line service is offered in the summer months.





## Go COMO Bus Service Evaluation



Route #406 West Loop		
Performance Indicator	Average Weekday	% of Total
Ridership	246	4.5
Revenue Miles	90.3	3.0
Revenue Hours <sup>1</sup>	6.0	2.9
Wheelchair Boardings	0.0	0
Bicycle Boardings	0.5	1.5
Passengers / Revenue Mile	2.8	Sys. Avg. 1.9
Passengers / Revenue Hour <sup>1</sup>	41.3	Sys. Avg. 26.8
Performance Indicator	Annual Average	% of Total
Total Operating Cost <sup>2</sup>	\$126,692	3
Cost / Passenger	\$2.33	Sys. Avg. \$3.14
Subsidy / Passenger	\$2.00	Sys. Avg. \$6.16
Fare Box Recovery	14%	Sys. Avg. 17%
On-time Performance	41%	Sys. Avg. 44%
Passenger Load	0.23	N/A

**Key Findings:**  
 - This route is one of the highest ridership routes and is also below the system-wide average for cost per passenger.

Notes: <sup>1</sup> Revenue Hours is a reflection of the Detailed Revenue Hours. <sup>2</sup> Cost is a reflection of Summary Revenue Hours.

### Alightings

- 1 to 5
- 6 to 10
- 11 to 13
- 14 to 16
- 17 and above

### Boardings

- 1 to 5
- 6 to 10
- 11 to 13
- 14 to 16
- 17 and above



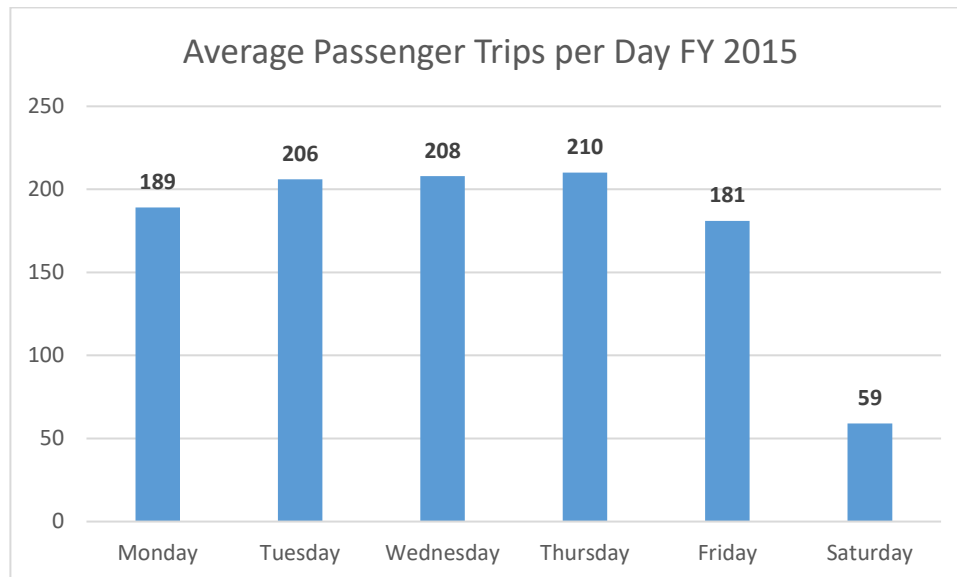
## Go COMO Bus Service Evaluation

### Go COMO Paratransit Transit

The Go COMO paratransit services are offered to all eligible riders within three-quarters of a mile from any point along the Go COMO fixed-route system. The area outside the three-quarter-mile buffer, but within the Columbia city limits, is available if the schedule allows it. The paratransit service is a curb-to-curb shared-ride program that mimics the fixed-route service period: weekdays from 6:25 a.m. to 7:30 p.m. and Saturdays from 10:00 a.m. to 7:30 p.m. Paratransit is not available on Sundays.

Ridership information is not available by hour or by month, so ridership by day is explained in the graph below. Throughout the weekdays, ridership levels do not vary any more than 30 riders each day (more or less). Saturday ridership is nearly a quarter of the levels expected during the weekdays.

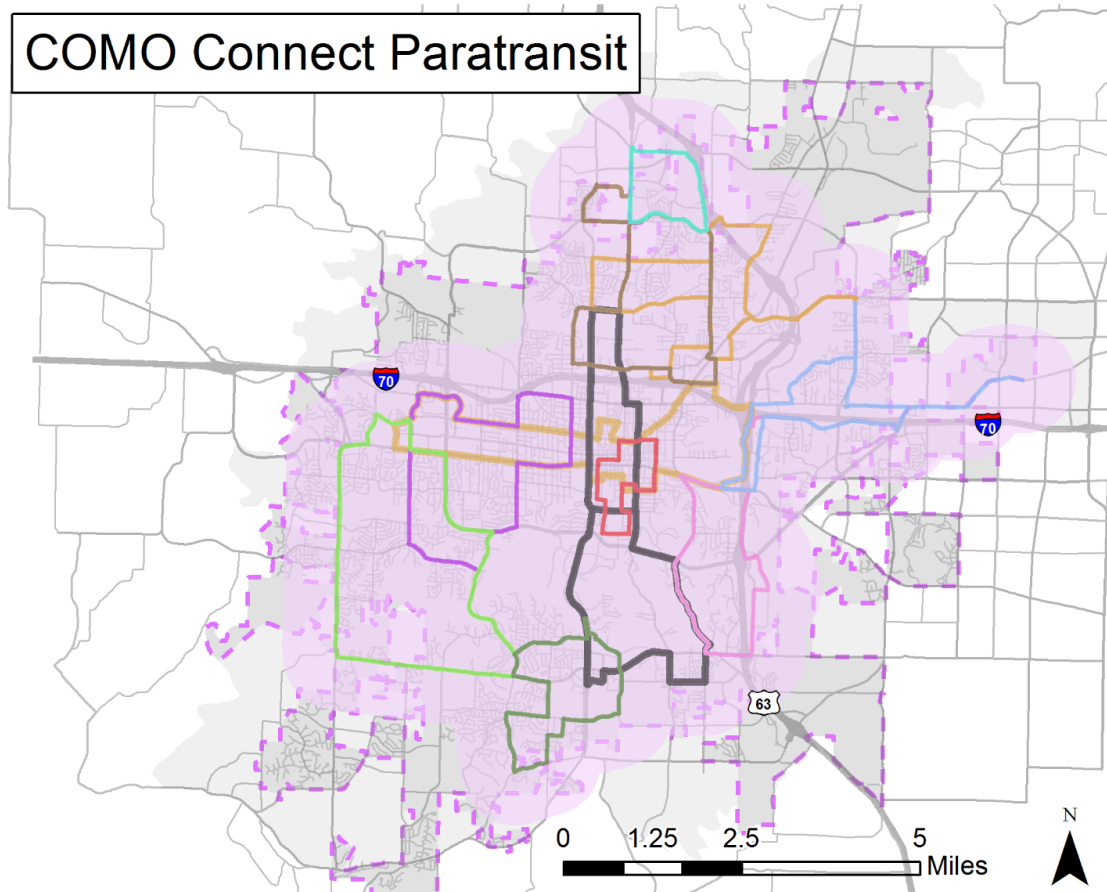
Go COMO Paratransit	
<b>Service Span</b>	Weekday: 6:25 a.m. – 7:30 p.m.; Saturday: 10:00 a.m. – 7:30 p.m.
<b>Peak Vehicles</b>	Eight vehicles
<b>Average Daily Ridership</b>	186
<b>Average Passengers per Revenue Hour</b>	2.44
<b>Annual Cost Per Route</b>	\$1,379,992



Source: Go COMO



## COMO Connect Paratransit



### Go COMO Paratransit

Performance Indicator	Average Daily
-----------------------	---------------

Ridership	186
-----------	-----

Revenue Miles	689.5
---------------	-------

Revenue Hours <sup>1</sup>	76.6
----------------------------	------

Wheelchair Boardings	36
----------------------	----

Passengers / Revenue Mile	0.27
---------------------------	------

Passengers / Revenue Hour <sup>1</sup>	2.44
----------------------------------------	------

Performance Indicator	Annual Average
-----------------------	----------------

Total Operating Cost <sup>2</sup>	\$1,894,842
-----------------------------------	-------------

Cost / Passenger	\$33.03
------------------	---------

Subsidy / Passenger	XX
---------------------	----

Fare Box Recovery	XX
-------------------	----

Daily Cancellations	31
---------------------	----

Passenger Load	Unavailable
----------------	-------------

### Key Findings:

- Paratransit service is over 28 percent of the overall total budget.
- Paratransit ridership is 4 percent of the total system ridership.

## Paratransit Boundary

- Three-Quarter Mile Boundary
- Columbia City Limit Boundary



## Chapter 5 Assessment

To effectively analyze transit routes for Columbia, system data was collected and compiled using metrics, presented in Chapters 3 and 4. This chapter provides an overall assessment of the highest and lowest performing routes, as well as a discussion of the route profiles.

### Performance Indicators

One common transit industry performance indicator to determine how well a bus route is operating and its activity level is the average weekday passengers per revenue hour. This indicator is found by taking the route's average weekday ridership divided by the average weekday revenue hours. Chapter 3 identified the system-wide metrics for the Go COMO fixed routes and the Tiger Line routes. Chapter 4 presented these data for each individual route of the system.

Many other performance indicators can be used to analyze the performance of a route and how these routes interact with other fixed routes system-wide. These indicators include annual ridership, revenue hours, revenue miles, and cost per passenger, which are detailed in the previous two chapters. The focus of this chapter is to identify, using the performance indicator - passengers per revenue hour, the highest and lowest performing routes.

All Tiger Line routes are among the top five performing routes. This is not surprising due to the MU student population and their travel habits occurring primarily within the MU campus and to off-campus residences. Many route alignments operate in densely populated areas with a large concentration of popular activity centers.

**Table 5-1** illustrates all routes and their performance using two transit industry common performance measures.

- Passengers per revenue hour
- Cost per passenger





## Go COMO Bus Service Evaluation

Table 5-1: Go COMO and Tiger Line Individual Route Data

Rank	Route	Average Weekday Ridership	Average Weekday Revenue Hours	Cost Per Passenger	Passengers Per Revenue Hour
1	Route #402 (Trowbridge Loop)	1,740	7.8	\$0.36	224
2	Route #401 (Hearnes Loop)	1,588	9.7	\$0.49	163.7
3	Route #404 (Mizzou North Loop)	770	6.7	\$0.67	120.3
4	Route #406 (West Loop)	246	6.0	\$2.33	41.32
5	Route #403 (Reactor Field Loop)	501	14.8	\$2.38	33.9
6	Route #405 (Campus Loop)	153	5.7	\$3.66	26.7
7	Black Route #1 (Blue Ridge to Nifong)	1,093	43	\$3.31	25.3
8	Gold Route #2 (Conley to Park De Ville)	691	41.2	\$4.75	16.8
9	Aqua Route #11 (Prathersville to Brown School)	23	1.7	\$6.02	13.4
10	Red Route #10 (Downtown Orbiter)	160	12.9	\$6.88	12.4
11	Blue Route #5 (Battle High School to Conley Road)	126	11	\$7.06	11.5
12	Brown Route #3 (Burning Bush to Whitegate)	96	10.9	\$9.19	8.8
13	Orange Route #4 (Starke to Whitegate)	85	10.6	\$9.99	8.1
14	Purple Route #9 (Chapel Hill to Business Loop 70)	94	11.6	\$10.07	8.0
15	Pink Route #6 (Grindstone to I-70 Drive SE)	77	10.4	\$10.63	7.4
16	Light Green Route #8 (Scott to Forum)	60	11.6	\$15.62	5.2
17	Dark Green Route #7 (Old Plank to Green Meadows)	53	12.9	\$18.38	4.4
<b>Tiger Line Average*</b>		<b>833</b>	<b>8.5</b>	<b>1.65</b>	<b>102</b>
<b>Go COMO Average*</b>		<b>233</b>	<b>16.2</b>	<b>9.26</b>	<b>11</b>
<b>Total</b>		<b>7,556</b>	<b>228.5</b>	<b>Sys. Avg. \$3.14</b>	<b>Sys. Avg. 26.8</b>

Notes: (\*) While the total system average divides the combined totals of all routes, the Tiger Line Average and Go COMO Average are found by averaging the Tiger Line and Go COMO route data from the table.



## Go COMO Bus Service Evaluation

### High-Performing Routes

The top five performing routes for passengers per revenue hour are listed below. These routes rank above the system-wide average of 26.8 passengers per revenue hour.

- Route #402 (Trowbridge Loop)
- Route #401 (Hearnes Loop)
- Route #404 (Mizzou North Loop)
- Route #406 (West Loop)
- Route #403 (Reactor Field Loop)

Several different characteristics are shared by the high-performing routes. All routes in the top five serve the MU campus and free to the MU student population. Many transit agencies that serve the student market segment see high ridership because limited access to on-campus parking and vehicles for many students looking for rides to popular destinations, such as shopping, jobs, or other services.

The highest performing Go COMO route is the #1 Black route, ranked sixth system-wide. Just as with the Tiger Line routes, the Black route provides service to MU and to popular destinations across Columbia.

Of the highest performing routes, the best on-time performance is with Route #405, with 65 percent of total arrivals and departures reporting on time. The lowest on-time performance is Route #403 with 12 percent of the trips on time.

#### Route #402 (Trowbridge Loop)

The highest performing route is Route #402 with 224 passengers per revenue hour. The Trowbridge Loop is ranked first in multiple performance indicators, including ridership and lowest cost per passenger. Popular destinations along this route include the student center, the recreation center, the student residence hall, and the Tara Apartments. These popular destinations cause this route to have an average load factor of 0.95. The high activity of this route, and the density of its service area, lead to a low on-time performance of 17 percent. Route #402 has lower revenue miles due to the small service area. The popular destinations located along the route attract the highest ridership for the system.

#### Route #401 (Hearnes Loop)

The #401 Hearnes Loop has the second highest rank with 164 average passengers per hour. Similar to Route #402, Route #401 serves the student center and recreation center. Route #401 also serves the Hearnes Center, the softball stadium, Memorial Stadium, and Mizzou Arena. The Hearnes Loop has an average load factor of 0.63 and an on-time performance of 28 percent of total trips being on time.

#### Route #404 (Mizzou North Loop)

Route #404 has an average of 120 passengers per revenue hour, the third highest performing route. Like the other Tiger Line routes, Route #404 exceeds system averages for all identified indicators. This route serves a large portion of the student



## Go COMO Bus Service Evaluation

population by providing service to popular stops such as Jesse Hall, Mizzou North, and the engineering campus. Load factors and on-time performance data were unavailable due to the lack of individual stop data. However, Route #404 would likely share similar trends to the above routes.

### #1 Black Route (Blue Ridge to Nifong)

The highest performing Go COMO route is the #1 Black route. This core connector route offers frequent service and connects with many of the most active transfer centers in Columbia. This route has an average of 25 passengers per revenue hour. The #1 Black service area allows it to have a more effective on-time performance of 76 percent. Locations experiencing the highest ridership include the MU Student Center, multifamily and retail near Buttonwood Drive in the southwestern part of the route, and along Rock Quarry Road and Southland Drive.

### #2 Gold Route (Conley to Park De Ville)

The #2 Gold route is primary east/west core connector route with an average of 17 passengers per revenue hour. The Gold route's average load factor is 0.08 and the on-time performance is 66 percent. Locations experiencing the highest ridership include stops at the MU Memorial Union, Broadway Market Place, Columbia Crossing Apartments, and the Columbia/Boone County Department of Public Health and Human Services.

### #10 Red Route (Downtown Orbiter)

The Downtown Orbiter route averages 12.4 passengers per revenue hour with multiple transfer opportunities to the core Black and Gold routes and the popular activity center of MU. The route's average passenger load of 0.06 with an on-time performance of 58 percent. The two locations experiencing the highest ridership are the hospitals along Hospital Drive and the Wabash Station. Other stops with high ridership include Columbia College and the MU Student Center.

While the #11 Aqua route had a higher amount of passengers per revenue hour (13.4) than the #10 Red route, the #11 Aqua route only offers 1.7 revenue hours per weekday, or four roundtrips each day. The #11 Aqua route was not included in the listing of high-performing routes due to this low number of trips per day.

### Low-Performing Routes

The three lowest performing routes are the Pink, Light Green, and Dark Green routes. These routes rank significantly lower than the Go COMO system-wide average of 14.4 passengers per revenue hour, at 7.4, 5.2, and 4.4 respectively. While these routes do serve some popular origins and destinations in Columbia, they do not serve the MU campus, which provides much of the ridership for the higher performing routes. The one-way loop alignments of some of the lower-performing routes may require riders to travel in the opposite direction of their intended final destination before they eventually get to their final destination or a transfer point. These routes were designed as neighborhood routes to provide additional service to outlying neighborhoods in Columbia. It is anticipated the ridership may not be as high as the



## Go COMO Bus Service Evaluation

core connector routes; however, the existing little activity on these three routes warrants additional analysis of the type of service to be provided in these areas.

The Pink and Light Green routes have transfer points on the Gold route, and the Dark Green route provides transfer points to the Black route. Although these routes have a low performance, they do serve areas of the city where much of the non-student population lives and still needs access to connections to Columbia-area activity centers.

The following section is a summary of the six lowest performing routes.

### **#3 Brown Route (Burning Bush to Whitegate)**

This route has a low performance of 8.8 passengers per revenue hour. This route, along with several others, are under the threshold of approximately 10 passengers per revenue hour, which is an industry rule of thumb for gauging whether fixed route service is the best mode of public transit for a particular area. The route has an average passenger load of 0.07 and an on-time performance of 57 percent. Its most active locations are the Columbia Crossing Apartments and the resource center at 1500 Vandiver Drive.

### **#4 Orange Route (Starke to Whitegate)**

The #4 Orange has an average of 8.1 passengers per hour. This route is one of the nine neighborhood routes connecting riders to a point where they can transfer to one of the higher performing connector routes. This route has an average load factor of 0.06 and a 59 percent on-time performance. Locations experiencing the highest ridership include the Columbia Crossing Apartments, the retail centers at the south and north ends of Paris Road, and the far west corridor near Providence and Blue Ridge Road.

### **#9 Purple Route (Chapel Hill to Business Loop 70)**

The #9 Purple neighborhood route has an average of 8.0 passengers per revenue hour. The Purple route's total ridership makes up less than 2 percent of the system-wide total, with an average load factor of 0.04. The Purple route has a higher on-time performance of 84 percent. Locations with high ridership are found at Columbia Mall, the Katy Place Apartments, Oak Tower Senior Living Community, and the Walmart Supercenter.

### **#6 Pink Route (Grindstone to I-70 Drive SE)**

The #6 Pink route has an average of 7.4 passengers per hour, with an on-time performance of 76 percent. The most ridership occurs at the Hy-Vee stop and there is some activity at the Lemone Industrial Boulevard district.

### **#8 Light Green Route (Scott to Forum)**

The Light Green route has an average of 5.2 passengers per revenue hour with a load factor of 0.03. Similar to other neighborhood routes, the Light Green route does have an above average on-time performance of 78 percent. The Katy Place





## Go COMO Bus Service Evaluation

Apartments bus stop has the highest ridership for the route. Other locations with high ridership include the area near the MKT Trail access along Scott Boulevard and the Walgreens along Nifong Boulevard and Forum Boulevard.

### #7 Dark Green Route (Old Plank to Green Meadows)

The lowest performing route for the system is the Dark Green route with an average of 4.4 passengers per hour and an average load factor of 0.02. On-time performance is also below the system average. Locations with the highest ridership occur at the intersection of Southampton Drive and Bethel Street, near Cosmo Bethel Park.

### Summary

Many of the higher performing routes have direct connections from residential centers to popular activity centers within Columbia – specifically the MU campus. However, the three lowest performing routes – although they have the ability to connect riders to these activity centers – operate at lower frequencies, serve lower density areas in terms of both housing and activity centers, and have one-way alignments that may make them less attractive and convenient to riders. In contrast, all of the highest performing routes not only provide service to the MU campus, but they also connect riders to several shopping, convenience, and employment destinations. Several of these higher performing routes provide bi-directional service and service frequency of 30 minutes or less.



### Chapter 6 Service Design Guidelines

# Service Design

Route  
Design

Area  
Coverage

Service  
Frequency

Span of  
Service

Transit/Auto  
Travel Time

Vehicle Size

#### Background

The city of Columbia is committed to creating and maintaining a transit system that ensures a livable and healthy community for future generations. An important part of this process is developing guidelines for Go COMO to evaluate how well the transit system meets the needs of the city, their own goals, and when to modify or adjust routes, vehicle type, service levels, or amenities.

As a recipient of Federal Transit Administration funding, Go COMO is required to report annual system data to the National Transit Database, which has been in place for several decades. Four categories are mandated for each agency:

- Passenger per revenue mile
- Passenger per revenue hour
- Cost per passenger trip
- Farebox recovery

Existing staff have monitored these statistics to determine past route changes and to assess annual agency performance. However, as Go COMO continues to grow, along with the Columbia community, the agency recognizes the importance of having adopted policies with Service Design Guidelines and performance measures to guide future transit system changes.

Go COMO route and systemwide data were used to determine what data are collected, how often it is collected, and what mechanism is used to collect the information. A peer agency review was also completed to review what other agencies



## Go COMO Bus Service Evaluation

in similar size communities are using for their Service Design Guidelines and for their agency Performance Measures.

The Go COMO proposed Service Design Guidelines will assist in efforts to serve current and future transit markets, and be a clear measure by which the City evaluates their transit network. The Service Design Guidelines will also assist the agency in understanding if their system is meeting local and regional travel needs.

Chapter 6, 7 and 8 focuses on three levels of service components.

- Service Design
- Service Standards
- Service Evaluation

The Go COMO Service Design Guidelines provide guidance on how the future transit service in Columbia will be designed and operated, as well as for new services. The agency goal is to provide quality transit service in a cost-effective manner that is consistent and equitable. Often there are competing decisions for areas with greatest demand, which service works best, and where limited resources can and should be used. The Guidelines will bring clarity and consistency when adjusting or improving transit services to meet changing customer and community needs. The Guidelines will also have flexibility to respond to customer needs and community expectations in an accountable, equitable, and efficient manner.

It should also be noted that adherence to the service guidelines depends upon available resources at Go COMO. In the event of constrained resources, the agency will meet the Guidelines as closely and consistently as possible, as resources allow.

### Route Design

Transit agencies consider a full range of factors, such as politics and the economy, when making route and service decisions. The design of routes provides guidance in the planning process. The following categories assist in the development and modifications of fixed route services.

- **Directness:** Routes should be as direct as the street network allows. Straight paths make for the fastest trip possible, while circuitous routes take more time to deliver passengers to their destinations. Direct routes also allow passengers to easily maintain orientation, which can make the transit service easier to navigate.
- **Simplicity:** Direct routes will likely be associated with one or two major arterials, and will encourage the idea that the transit system is an integrated part of the transportation system.
- **Consistency:** The route should be consistent in both alignment and schedule. While the schedule may change during the day due to demand, changes from one trip to another that appear random to a customer should be avoided. When possible, frequencies should be divided easily into an hour such as every 15, 20, 30, or 60 minutes. Customers can easily remember when the bus comes each hour, and if they only use the service irregularly, won't be required to consult a time table each time they want to catch the bus.



## Go COMO Bus Service Evaluation

Consistent scheduling also allows for easier connections between routes that consistently occur each hour. These connections are especially important for neighborhood routes that are less frequent, and whose ridership relies on transfers for much of their trips.

These factors must be balanced in Columbia where the city is bisected by I-70 running east-west, and US 63 running north-south, which limits the connectivity of the underlying street network. Several of the major arterials within Columbia, such as Providence Road, Rangeline Street, and College Avenue are MoDOT facilities.

### Area Coverage

Area Coverage indicators measure demographic information of the designated transit service area. Different measures include population density, income levels, activity centers, etc. Transit systems operate in a variety of different areas, such as neighborhood settings, downtown business districts, or campus environments.

Demographic analysis pertinent to transit route spacing may be completed by the local Metropolitan Planning Organization (MPO), as part of an annual transit analysis. The data provided from this analysis proves useful and provides a detailed analysis of transit demand potential within a community.

Table 6-1 provides route spacing guidelines recommended from the *Transit Capacity and Quality of Service Manual*. Selecting a pre-determined standard assists Go COMO to determine when an area of the community may need service modifications. In Columbia, low-income areas often overlap lower-density areas, which is difficult for transit agencies to provide higher levels of transit service without surrounding higher densities to support the service.

**Table 6-1: Route Spacing Guidelines**

Population / Acre	Low Income and >50% with 1 or Fewer Vehicles	Moderate Income and 15% to 50% with 1 or Fewer Vehicles	Middle Income and 2.5% to 15% with 1 or Fewer Vehicles	Upper Income and >2.5% with 1 or Fewer Vehicles
<b>Greater than 10 persons/ acre</b>	¼ mile between routes	½ mile between routes	¾ mile between routes	1 mile between routes
<b>3 to 9 persons/acre</b>	½ mile between routes	¾ mile between routes	1 mile between routes	Space as needed
<b>Less than 3 persons/acre</b>	¾ mile between routes	1 mile between routes	Space as needed	Space as needed

Source: TCRP Report #100, *Transit Capacity and Quality of Service Manual*

Figure 6-1 displays the areas in Columbia where demographic factors, such as population density and auto ownership, were aggregated to predict the likelihood of persons riding transit or transit propensity.





## Go COMO Bus Service Evaluation

Another criterion used to assess route spacing is location of activity centers, displayed in Table 6-2. Activity centers are places where one or more functions are concentrated. Functions in this case, indicate large employers, medical facilities, retail centers, or educational institutions. The activity centers may be clustered around an intersection, within a dedicated area, or along street corridors. Activity center clusters should be located no farther than ½-mile apart.

*Table 6-2: Activity Center Guidelines*

Activity Center Guidelines
Employers with 500+ Employees
Hospitals/nursing homes w/ 100+ beds
Educational Institutions w/ 1,000 students
Retail Centers w/100,000 sq ft of leased space
Social Service Agencies w/ 75 daily clients
Apartments w/ 300+ units
Government Agencies w/100 daily clients

Source: TCRP Report #100, Transit Capacity and Quality of Service Manual





## Go COMO Bus Service Evaluation

### Frequency of Service

Service frequency defines how long customers must wait for the next bus. Higher frequencies help make service more attractive to potential riders, but have a higher cost with more buses and drivers.

Table 6-3 represents a range of standards for Frequency of Service for different types of routes.

**Table 6-3: Frequency of Service**

Average Headway (Minute)	Vehicles/Hour	Comments
<b>Less than 10 min.</b>	Greater than 6	Passengers do not need schedules
<b>10 – 14 min.</b>	5 – 6	Frequent service, passengers consult schedules
<b>15 – 20 min.</b>	3 – 4	Maximum desirable time to wait if bus/train is missed.
<b>21 – 30 min.</b>	2	Service unattractive to choice riders
<b>31 – 60 min.</b>	1	Service available during the hour
<b>Greater than 60 min.</b>	Less than 1	Service unattractive to all riders

Source: TCRP Report #100, Transit Capacity and Quality of Service Manual

Go COMO has routes varying from a 60-minute peak headways to 10-minute peak headways. Table 6-4 and Table 6-5 summarize the different frequencies of the routes in the Go COMO system.

**Table 6-4: Go COMO Headways by Route**

Route Name	Route Type	Peak Headway	Non-Peak Headway	Saturday Headway
<b>1A. Black Route</b>	Connector	30 minute	60 minute	60 minute
<b>1B. Black Route</b>	Connector	30 minute	60 minute	60 minute
<b>2A. Gold Route</b>	Connector	30 minute	60 minute	60 minute
<b>2B. Gold Route</b>	Connector	30 minute	60 minute	60 minute
<b>3. Brown Route</b>	Neighborhood	40 minute	40 minute	40 - 80 minute
<b>4. Orange Route</b>	Neighborhood	40 minute	40 minute	40 - 80 minute
<b>5. Blue Route</b>	Neighborhood	35 minute	35 minute	35 - 70 minute
<b>6. Pink Route</b>	Neighborhood	35 minute	35 minute	35 - 70 minute
<b>7. Dark Green Route</b>	Neighborhood	30 minute	30 minute	No service
<b>8. Light Green Route</b>	Neighborhood	40 minute	40 minute	40 - 80 minute
<b>9. Purple Route</b>	Neighborhood	40 minute	40 minute	40 - 80 minute
<b>10. Red Route</b>	Downtown	30 minute	30 minute	30 minute
<b>* 11. Aqua Route</b>	Commuter	40 minute	40 minute	No service

Notes: (\*) Aqua Route #11 offers four trips per day, weekdays only.

Source: Go COMO, 2016



## Go COMO Bus Service Evaluation

*Table 6-5: Tiger Lines Headways by Route*

Route Name	Route Type	Days of Service	Morning Headway	Afternoon Headway
<b>401. Hearnese Loop</b>	Day Route	Mon. – Fri.	10 minute	15 minute
<b>402. Trowbridge Loop</b>	Day Route	Mon. – Fri.	10 minute	15 minute
<b>403. Reactor Field Loop</b>	Day Route	Mon. – Fri.	10 minute	10 minute
<b>404. Mizzou North Loop</b>	Day Route	Mon. – Fri.	30 minute	30 minute
<b>403. Reactor Field Loop</b>	Night Route	Mon. – Fri.	15 minute	15 minute
<b>405. Campus Loop</b>	Night Route	Mon. – Sun.	30 minute	30 minute
<b>406. West Loop</b>	Night Route	Mon. – Sun.	60 minute	60 minute

Source: Go COMO, 2016

### Span of Service Hours

Service hours define the number of hours a specific route will operate each day. Longer hours of daily service allow the transit agency to capture more riders, but also increases overall costs, when operating outside the typical work day and peak hours. Generally, in transit, service starting early in the morning, should be prioritized over service extending into the early evening, to better capture the start of the working period. Characteristics of different spans of service are shown in **Table 6-6**. These standards represent a range that Go COMO will develop as a service standard.

Go COMO fixed-route service operates Monday through Friday, generally from 6:30 a.m. to 8:00 p.m. Nine routes operate on Saturday, from 10:00 a.m. to 8:00 p.m. The routes not operating on Saturday include the Dark Green Route #7 and the Aqua Route #11.

Tiger Line routes operate only during the fall and spring semesters. Four of the Tiger Line routes are “Daytime” routes, operating Monday through Saturday from 6:00 a.m. to 6:00 p.m. Three Tiger Line routes are Nighttime routes, operating Monday through Saturday from 6:00 p.m. to 1:30 a.m. The Go COMO hours of service are summarized in Table 6-7.

**Table 6-6: Hours of Service**

Hours of Service	Comments
<b>19 – 24</b>	Night or “Owl” service provided
<b>17 – 18</b>	Late evening service provided
<b>14 – 16</b>	Early evening service provided
<b>12 – 13</b>	Daytime service provided
<b>4 - 11</b>	Peak hour service only or limited midday service
<b>0 – 3</b>	Very limited or no service

Source: TCRP Report #100, *Transit Capacity and Quality of Service Manual*





## Go COMO Bus Service Evaluation

Table 6-7: Go COMO Hours of Service

Route	Service Span (Weekday)	Service Span (Saturday)
<b><u>Go COMO</u></b>		
1A. Black Route	13 hrs. 25 min.	11 hrs.
1B. Black Route	13 hrs. 30 min.	10 hrs.
2A. Gold Route	13 hrs. 20 min.	10 hrs.
2B. Gold Route	13 hrs. 20 min.	9 hrs. 20 min.
3. Brown Route	13 hrs. 25 min.	9 hrs. 20 min.
4. Orange Route	13 hrs. 25 min.	9 hrs. 55 min.
5. Blue Route	13 hrs. 30 min.	N/A
6. Pink Route	13 hrs. 45 min.	9 hrs. 20 min.
7. Dark Green Route	13 hrs. 45 min.	10 hrs.
8. Light Green Route	13 hrs. 30 min.	10 hrs.
9. Aqua Route	1 hr. 30 min.	N/A
Paratransit	13 hrs. 5 min.	9 hrs. 30 min.
<b><u>TIGER Line</u></b>		
401. Hearnese Loop	11 hrs. 30 min.	N/A
402. Trowbridge Loop	11 hrs. 30 min.	N/A
403. Reactor Field Loop	16 hrs.	N/A
404. Mizzou North Loop	10 hrs.	N/A
405. Campus Loop	6 hrs. (Inc. Sat.)	12 hrs. (Sunday)
406. West Loop	5 hrs. (Inc. Sat.)	11 hrs. (Sunday)

Source: Go COMO, 2016

### Transit/Auto Travel Time

The travel time metric is a comparison between a bus and auto traveling from one end of the route to the other end. Auto/Bus travel times measure the directness of a bus route compared with auto travel and are a good indication whether the transit service will be appealing to persons with the option of the automobile.

Data collection for Auto/Bus travel time comparisons are costly if many origin-destination pairs are considered. This measure requires an amount of subjectivity when selecting the origin-destination pairs. The metric assumes the walk time from residence to auto parking is the same of the wait time for a bus.

Table 6-8 below shows Auto/Bus travel time characteristics



## Go COMO Bus Service Evaluation

*Table 6-8: Transit/Auto Travel Time*

Travel Time Difference (Min)	Comments
<0	Faster by transit than by automobile
1 – 15 min.	About as fast by transit as by automobile
16 – 30 min.	Tolerable for choice riders
31 – 45 min.	Round-trip at least an hour longer by transit
46 – 60 min.	Tedious for all riders; may be best possible in small cities
More than 60 min	Unacceptable to most riders

Source: TCRP Report #100, *Transit Capacity and Quality of Service Manual*

### Vehicle Size

Appropriately sized vehicles are important for maintaining passenger comfort, perception of well-utilized resources, and overall safety. A balance must be achieved for when a passenger views a vehicle as too full or not having enough capacity, which may dissuade them from using the bus. On the other hand, a vehicle with too much capacity could lead a passenger to think that the agency is not utilizing their funds correctly.

To find this balance, transit agencies typically use load factor or passengers per revenue hour to determine the correct vehicle size. Using the load factor metric, provides peak period time of day data. The passengers per revenue hour metric does not report by peak hour, but daily information. Because of this drawback, agencies continually review overloading incidents in comparison with passengers per revenue hour to confirm and re-evaluate vehicle size.

Table 6-9 summarizes vehicle size standards as measured by passengers per revenue hour. It should be noted that it is up to the agency to evaluate all routes within the system. For example, a 60 foot articulated bus would be evaluated for routes experiencing above 60 passengers per revenue hour. However, it should be noted that higher initial purchasing costs, higher fuel costs, and higher maintenance costs should be taken into consideration when evaluating the purchase of these vehicles.

The desire to diversify a fleet should be balanced with the impacts on fleet storage requirements, maintenance training and equipment, and that some vehicles, such as body-on-chassis vehicles, tend to have higher maintenance costs and shorter vehicle lifespans when compared when heavy duty full size buses.



## Go COMO Bus Service Evaluation

*Table 6-9: Vehicle Size Standards*

Average Passengers per Revenue Hour	Vehicle type
<b>Below 7.5</b>	Body-on-chassis
<b>Greater than 7.5</b>	Minimum of 30 ft.
<b>Greater than 30</b>	Minimum of 40 ft.
<b>Greater than 60</b>	Evaluate 60 ft. articulated

Source: TCRP Report #100, Transit Capacity and Quality of Service Manual

*Table 6-10: Suggested Vehicle Type by Route*

Route	Weekday Average Passengers Per Revenue Hour	Suggested Vehicle Type
402. Trowbridge Loop	224	*60 ft. articulated
401. Hearnese Loop	163.7	*60 ft. articulated
404. Mizzou North Loop	120.3	*60 ft. articulated
406. West Loop	41.32	Minimum of 40 ft.
403. Reactor Field Loop	33.9	Minimum of 40 ft.
405. Campus Loop	26.7	Minimum of 30 ft.
1. Black - Blue Ridge to Nifong	25.3	Minimum of 30 ft.
2. Gold - Conley to Park De Ville	12.8	Minimum of 30 ft.
11. Aqua - Prathersville to Brown School	13.4	Minimum of 30 ft.
10. Red - Downtown Orbiter	12.4	Minimum of 30 ft.
5. Blue - Battle High School to Conley Road	11.5	Minimum of 30 ft.
3. Brown - Burning Bush to Whitegate	8.8	Minimum of 30 ft.
4. Orange - Starke to Whitegate	8.1	Minimum of 30 ft.
9. Purple - Chapel Hill to Business Loop 70	8.0	Minimum of 30 ft.
6. Pink - Grindstone to I-70 Drive SE	7.4	Body-on-chassis
8. Light Green - Scott to Forum	5.2	Body-on-chassis
7. Dark Green - Old Plank to Green Meadows	4.4	Body-on-chassis

Note: \* 60 ft. articulated bus should be evaluated for this route.

### Stop Spacing and Placement

Bus stop spacing and placement is an important element in service design. Routes with many bus stops may increase travel time due to the frequent stops and customers boarding or alighting. Having many bus stops affects ridership, because even though passengers may have a shorter walk to a bus stop, their overall travel time may be longer. Each community must gauge the trade-off between many bus stops and longer trip time that provide short walking distances but more frequent stops; or bus stops farther apart, but require longer walking distances, higher speeds, and potentially shorter bus trips. **Table 6-11** summarizes the typical bus stop spacing referenced by TCRP Report 19 “*Guidelines for the Location and Design of Bus Stops*.” The current stop spacing for Go COMO is typically 1,000 to 1,200 feet apart.



## Go COMO Bus Service Evaluation

**Table 6-11: TCRP Stop Space Guidelines**

Environment	Spacing Range	Typical Spacing
<b>Central Core Areas of CBDs</b>	300 to 1,000 feet	600 feet
<b>Urban Areas</b>	500 to 1,200 feet	750 feet
<b>Suburban Areas</b>	600 to 2,500 feet	1,000 feet
<b>Rural Areas</b>	650 to 2,640 feet	1,250 feet

Source: TCRP Report #19, *Guidelines for the Location and Design of Bus Stops*

Understanding land use and planning dynamics within each community is key to establishing bus stop placement. Two examples from the Kansas City area and from Lincoln, Nebraska are shown below. **Table 6-12** summarizes the stop spacing used by the Kansas City Area Transportation Authority (KCATA), which is based on the type of service and general density characteristics of the area.

**Table 6-12: KCATA Stop Spacing Guidelines**

	Key Corridor - <BRT>	Key Corridor - Other	Urban Local	Suburban Local	Commuter	Lifeline
<b>Minimum Stop Spacing (Feet)</b>						
<b>Moderate to High Density Areas</b>	1,100	900	660	660	900	900
<b>Low Density Areas</b>	1,300	1,300	900	1,100	1,100	1,100
<b>Maximum Stops per Mile</b>						
<b>Moderate to High Density Areas</b>	5	6	8	8	6	6
<b>Low Density Areas</b>	4	4	6	5	5	5

Source: Kansas City Area Transportation Authority. *KCATA Bus Stop Guidelines*. August 2015

StarTran, in Lincoln, NE, determines stop spacing guidelines by population and employment, as shown in **Table 6-13**. Go COMO has similar standards for bus stop spacing as used in Lincoln.





## Go COMO Bus Service Evaluation

*Table 6-13: StarTran Stop Spacing Guidelines*

Density Characteristics	Population and Employment Characteristics	Spacing Dimensions
<b>High Density</b>	16+ persons or jobs per acre	Approx. every 800 feet
<b>Moderate Density</b>	8-16 persons or jobs per acre	Approx. every ¼-mile
	4-8 persons or jobs per acre	Approx. every ¼- to ½-mile
<b>Low Density</b>	0-4 persons or jobs per acre	As needed

Source: Lincoln Transit Development Plan, Final Report, April 2016

### Bus Stop Amenities

In Columbia, the standard bus stop amenities consist of a bus stop sign and route designation numbers, which are typically adequate for a bus stop with a low passenger boarding or alighting volumes. As passenger amenities are enhanced and improved, public transit becomes more attractive to potential riders. Additional amenities provide a greater sense of presence and are more inviting than a stop with a sign. They also improve the comfort and experience of current passengers.

The type of stop infrastructure varies depending on adjacent land use, boarding and alighting volume, and service frequency. **Table 6-14** displays one example of bus stop amenity standards for Lawrence, KS.

*Table 6-14: Bus Stop Amenities Standards, based upon Daily Boardings*

Feature	Daily Boardings				
	<10	10-24	25-50	51-150	150+
<b>Bus Stop* Sign</b>	Standard	Standard	Standard	Standard	Standard
<b>Route Designation</b>	Standard	Standard	Standard	Standard	Standard
<b>Benches</b>			Standard	Standard	Standard
<b>Shelter</b>			Standard	Standard	Standard
<b>Information Display</b>			Standard	Standard	Standard
<b>Trash Receptacle</b>			Standard	Standard	Standard
<b>Bus Stop Pad</b>			Standard	Standard	Standard
<b>Lighting</b>				Standard	Standard
<b>Bicycle Rack</b>				Standard	Standard
<b>Landscaping</b>				Standard	Standard
<b>Leaning Rails</b>				Standard	Standard
<b>Bollards</b>				Standard	Standard

Source: Lawrence Kansas

### Access to Bus Stops

Residents within the community being able to safely and conveniently get to and from bus stops is necessary for passengers to fully utilize the system. Without accessible connections, bus stops are disconnected from the transportation network and not useful. In addition, providing accessible connections to bus stops are



## Go COMO Bus Service Evaluation

required under federal law. The Americans with Disabilities Act (ADA) Accessibility Guidelines for Transportation Facilities (ADAAG) was adopted by the United States Department of Transportation (USDOT) as the standard for ADA compliance. ADAAG requires “bus boarding and alighting” areas be “connected to streets, sidewalks, or pedestrian paths by an accessible route” (ADAAG 810.2.3). The ADAAG minimum requirements are listed below.

- Section 810.2.1: “Surface: Bus stop boarding and alighting areas shall have a firm, stable surface.”
- Section 810.2.2: “Dimensions. Bus stop boarding and alighting areas shall provide a clear length of 96 inches [8 feet] minimum, measures perpendicular to the curb or vehicle roadway edge, and a clear width of 60 inches [5 feet], measured parallel to the vehicle roadway.”
- Section 810.2.3: “Connection. Bus boarding and alighting areas shall be connected to the streets, sidewalks, or pedestrian paths by an accessible route complying with 402” of the 2010 ADA standards.
- Section 810.2.4: “Slope. Parallel to the roadway, the slope of a bus stop boarding and alighting area shall be the same as the roadway, to the maximum extent practicable. Perpendicular to the roadway, the slope of the bus stop boarding and alighting area shall not be steeper than 1:48 [~2%].”
- Section 810.3: “Bus Shelters. Bus shelters shall provide a minimum clear floor or ground space complying with 305 entirely within the shelter. Bus shelters shall be connected with an accessible route complying with 402 of the 2010 ADA standards to a board and alighting areas complying with 810.2.”
- Section 810.4: “Bus signs. Bus route identification signs shall comply with 703.5.1 through 703.5.4, and 703.5.7 and 703.5.8 of the 2010 ADA standards. In addition, to the maximum extent practicable, bus route identification signs shall comply with 703.5.5,” which pertain to finish, contrast, and legibility standards.

Accessibility is also defined as having access to transit service within the community. One recent 2016 example is at Metro in Los Angeles, the agency developed new performance criteria with Accessibility as one measure. The Metro Board adopted a revised set of service standards and policies designed to improve the customer experience. The following text is one indicator used by the agency<sup>17</sup>.

*Accessibility: Service is to be provided within ¼-mile of 99% of Census tracts within Metro’s service area having at least three households per acre and/or at least four jobs per acre. Fixed-route service provided by other operators may be used to meet this standard. This standard ensures the availability of fixed route service to virtually all residents of Metro’s service area while limiting duplication of service by using services operated by others to achieve the standard<sup>17</sup>.*

<sup>17</sup> Los Angeles Metro 2016 Metro Transit Service Policies and Standards



## Chapter 7 Service Standards

# Service Standards

Passenger  
Load Factor

On-Time  
Performance

Passengers  
per Revenue  
Mile

Service design guidelines were discussed previously in Chapter 6 and focused on guidance for structure a transit network or individual routes. Chapter 7 focuses on the Service Performance Standards which provide transit agencies an opportunity to evaluate the operation of service. Tracking metrics on regular basis provides transit agencies with trend data and identifies specific service or route evaluations for modification or changes.

Service performance standards also support the Metropolitan Planning Organization in meeting federal requirements. The recent passage of the federal transportation bill, 'Fixing America's Surface Transportation Act,' or "FAST Act," was signed into law on December 4, 2015. FAST Act builds upon performance measurement requirements of the previous transportation bill, MAP-21, and requires MPOs to select performance targets through coordination with public transit agencies that must meet performance targets based on safety performance criteria and state of good repairs.

The service performance standards within this chapter help ensure transit agency services are useful to residents in the community, as well as cost effective for tax payer contributions. A variety of standards cover a wide range of subjects, including ridership, safety, reliability, customer satisfaction, etc.



## Go COMO Bus Service Evaluation

### Passenger Load Factor

The passenger load factor (the ratio between seated and standing passengers) evaluates how well the space on transit vehicles is being utilized, along with how efficiently the seats are filled. The metric assists an agency in understanding the size of vehicle appropriate to transit demand. In addition, the metric assists transit management with trip level planning when the buses are too full (exceed standard thresholds) during specific times of day to take action with the dispatch of additional service vehicles. Table 7-1 summarizes peak load factor characteristics.

Passenger load factors should be collected for all Go COMO services. The load factors for the Tiger Line Routes will be significantly higher due to the captive market of the college students and the higher density campus area. Neighborhood routes will likely have a low load factor. Go COMO should continue to collect peak load data to determine which routes are operating at crush load and at which specific time periods. If the peak loads continue to occur on a regular basis (at least three days a week for weekday service or two times a month weekend service), corrective action should be taken.

*Table 7-1: Passenger Load Factor*

Passengers / Seat	Standing Passengers (ft <sup>2</sup> / P)	Area (m <sup>2</sup> /p)	Comments
<b>0.00 – 0.50</b>	>10.8	>1.00	No passenger need sit next to another
<b>0.51 – 0.75</b>	8.2 – 10.8	0.76 – 1.00	Passengers can choose where to sit
<b>0.76 – 1.00</b>	5.5 – 8.1	0.51 – 0.75	All passengers can sit
<b>1.01 – 1.25</b>	3.9 – 5.4	0.36 - .50	Comfortable standee load for design
<b>1.26 – 1.50</b>	2.2 – 3.8	0.20 – 0.35	Maximum schedule load
<b>&gt;1.50</b>	<2.2	<0.20	Crush load

Source: TCRP Report #100, *Transit Capacity and Quality of Service Manual*

### On-Time Performance

A key success factor for all transit agencies is providing convenient and reliable transit service with schedules the public can depend on. To identify routes with serious on-time performance issues, an agency must conduct an annual comprehensive assessment of on-time performance using automatic passenger count data samples (if available), together with spot on-street monitoring. The assessment is based on data collected over at least one service change period. The results of the assessment allow the transit agency to rate each route for on-time performance and prioritize other actions to improve performance.





## Go COMO Bus Service Evaluation

On-time performance describes how a transit vehicle adheres to the posted schedule and is an important component in measuring the usability and attractiveness of a transit system. This measurement is only effective and accurate if the agency has established a standard for on-time performance and collected accurate data. The data collected by Go COMO's current technology vendor requires calibration prior to collecting accurate on-time performance data.

Table 7-2 summarizes on-time performance characteristics. Realistic on-time performance standards allow latitude for encountering general delays, without unduly inconveniencing bus riders. For most persons, a wait of up to five additional minutes would not be regarded as excessive. However, beyond five minutes late does not leave a favorable impression on reliability of the system. Buses should never be early.

**Table 7-2: On-Time Percentage**

On-Time Percentage	Comments
95.0 – 100.0%	1 late transit vehicle every 2 weeks (no transfer)
90.0 – 94.9%	1 late transit vehicle every week (no transfer)
85.0 – 89.9%	3 late transit vehicles every 2 weeks (no transfer)
80.0 – 84.9%	2 late transit vehicles every week (no transfer)
75.0 – 79.9%	1 late transit vehicle every day (with a transfer)
<75.0%	1 late transit vehicle at least daily (with a transfer)

Source: TCRP Report #100, Transit Capacity and Quality of Service Manual

### Passengers per Revenue Hour

Passengers per Revenue Hour is a ridership productivity measure. This measure can be a factor of similar route types in the system, such as neighborhood routes or connector routes. A "System Index" evaluation compares individual route performance to metrics from the entire system or a group of similar routes. This methodology compares similar connector routes, such as the Black Route #1 and Gold Route #2, to each other. The connector routes would have different metrics and standards, compared to the neighborhood or TIGER Line routes. **Table 7-3** presents the existing passengers per revenue hour for each route.

This methodology calculates the systemwide average for each type of route and determines how each route performs compared with the systemwide average. For example, as shown in Table 7-3, the systemwide average for the Connector Routes is 21.1 passengers per revenue hour. The two Connector Routes (Black Route and Gold Route) are compared to the Connector systemwide average. The Black Route has an average of 25.3 passengers per hour, which performs at 120% of the system average. The Gold Route performs at 80 percent of the system average.



## Go COMO Bus Service Evaluation

Routes are evaluated based on the following categories:

- Low-performing: 50% of system average and below
- Average-performing: 51%-149% of the system average
- High-performing: 150% of the system average

*Table 7-3 Passengers per Revenue Hour System Index*

	Type	Weekday Px/Rev Hr	% of Route Type Average
<b>Black</b>	Connector	25.3	120%
<b>Gold</b>	Connector	16.8	80%
<b>Aqua</b>	Neighborhood	13.4	100%
<b>Red</b>	Neighborhood	12.4	100%
<b>Blue</b>	Neighborhood	11.5	151%
<b>Brown</b>	Neighborhood	8.8	115%
<b>Orange</b>	Neighborhood	8.1	106%
<b>Purple</b>	Neighborhood	8	105%
<b>Pink</b>	Neighborhood	7.4	97%
<b>Light Green</b>	Neighborhood	5.2	68%
<b>Dark Green</b>	Neighborhood	4.4	58%
<b>Connector Route Average</b>			21.1
<b>Neighborhood Route Average</b>			8.8

### Safety Standards

The Federal Transportation Bill, FAST Act, requires MPOs to coordinate their performance measures “to the maximum extent practicable<sup>18</sup>” with public transportation providers, which in turn, are required to develop performance targets based on safety performance criteria for all modes of public transportation<sup>19</sup>. The performance measures will make agencies more accountable for the development and maintenance of federally funded programs.

Safety measures essential for tracking performance are listed below. Numerous others also exist; however, the list below include metrics that are tracked currently by Go COMO.

- Total crashes per 100,000 revenue miles – reflects exposure, such as lack of bus lanes
- Revenue miles between preventable incidents
- Preventable crashes per 100,000 revenue miles – reflects operator training
- Total fatalities – should be zero in a given year for the transit agency
- Reported crimes per 100,000 boardings
- Total accidents and/or incidents per 100,000 miles

<sup>18</sup> Section 5303(h)(2)(ii)

<sup>19</sup> Section 5329(d)(1)(E)



## Go COMO Bus Service Evaluation

### Asset Management

FAST Act requires MPOs, such as the Columbia Area Transportation Study Organization (CATSO), to coordinate performance measures with public transportation providers on the State of Good Repair.

The Transit Asset Management final rule was published on July 26, 2016 with an effective date of October 1, 2016. This final rule establishes state good repair standards and four state of good repair performance measures:

- Equipment: (non-revenue) service vehicles;
- Rolling stock;
- Infrastructure: rail fixed-guideway, track, signals, and systems; and,
- Facilities.

Realistic metrics used by many agencies to collect data for the above measures are listed below. Completing an assessment of capital investment and other strategies preserves existing and projected future transportation infrastructure, provides for multimodal projects based on regional needs and priorities, and reduces vulnerability of the existing infrastructure to natural disasters, as stated in the current transportation bill.

- Average Age in Fleet
- Percent of fleet exceeding design lifespan
- Percent preventative maintenance performed on schedule
- Missed trips due to operation failures
- Number of repeat breakdowns per month
- Revenue miles between failures
- Spare ratio
- Total road calls
- Energy Savings



## Go COMO Bus Service Evaluation

### Chapter 8 Service Evaluation

Service standards ensure a transit system is responsive to community needs and changing ridership patterns, and that ultimately, the system is utilizing community tax payer dollars with maximum efficiency. Implementing a regular schedule to evaluate service performance allows Go COMO to track systemwide or route-level performance, and make adjustments to improve overall transit service.

#### Frequency of Evaluation

Service should be evaluated so Go COMO staff identifies emerging trends and ties performance to specific seasons or community events that change travel patterns, such as school breaks or seasonal weather.

When creating system performance reports there is a fine line of comprehensive analysis verses an overview of data, which with too many details, it may overwhelm senior administration and policy makers.

Regular collection and processing of data allow transit staff to remain familiar with data sources available to them, and identify any challenges with data collection equipment, software, or processes.

Monthly reports are common across the transit industry. The monthly frequency balances administrative burden, ridership or performance trend identification, and responsiveness to any community or policy makers request for data.

#### Metric Data for Evaluation

The performance metrics described previously in Chapter 7 provided suggested measures to use for service evaluation. **Table 8-1** through **Table 8-4** identifies detailed information for data resources, formulas to calculate the measures, and the purpose of collecting the information.





# Go COMO Bus Service Evaluation

*Table 8-1: Sample Service Design Guidelines*

	Measure	Data Needed	Possible Data Source / Technology	Formula	Purpose of Measure	Data Collection Ease
Service Design Guidelines	Area Coverage	Total square footage of area served	GIS spatial analysis	Total square footage of area served	Reflects the total area that is served by transit	Easy
	Frequency of Service	Timetables for vehicle service along the routes	Schedule data, CAD, AVL	How often a transit route is run	Reflects the amount of time vehicles take to run a full route	Easy
	Span of Service	Span of service	Schedule data, CAD, AVL	Span of service	Reflects the operating hours of a service	Easy
	Transit/Auto Travel Time	Transit time between two locations	Schedule data, CAD, AVL, Google Maps, GIS Analysis	Transit time / Vehicle time	Reflects the attractiveness of using transit instead of a vehicle.	Moderate
	Transit/Auto Travel Time Stop Spacing and Placement	Vehicle time between two locations	Schedule data, CAD, AVL, Google Maps, GIS Analysis	Transit time / Vehicle time Location of Transit Stop	Reflects the attractiveness of using transit instead of a vehicle; and ease of access, travel time, and reliability of service	Moderate Easy
		Location of Transit Stop				
	Bus Stop Amenities	Amenities at each stop	Schedule data, CAD, AVL, Google Maps, GIS Analysis, manual counting	Amenities at each stop	Reflects attractiveness of service and ease of access	Easy
	Vehicle Size	Capacity and Vehicle Type	Internal records of accidents and incidents	Capacity and Vehicle Type	Reflects the capacity of each type of vehicle in fleet	Easy



## Go COMO Bus Service Evaluation

*Table 8-2: Sample Service Standards*

	Measure	Data Needed	Possible Data Source / Technology	Formula	Purpose of Measure	Data Collection Ease
Service Standards	Passenger Load Factor	Seated capacity of vehicle	Trip logs, maintenance logs, manual counting	Number of riders / Seated Vehicle Capacity	Reflects the utilization of a vehicle	Moderate
		Number of riders on a vehicle				
	On-Time Performance	Services on time	Schedule data, CAD, AVL, Google Maps, GIS Analysis, Manual counting	(Services on time / Total services provided) * 100	Reflects the ability of a service to be on time	Moderate
		Total services provided				
	Passengers per Revenue Hour	Passengers on a service	Trip logs	Passengers / Revenue hours	Reflects the utilization of a transit service	Moderate
		Total revenue hours of a service	Schedule data, CAD, AVL, Google Maps, GIS Analysis			



## Go COMO Bus Service Evaluation

*Table 8-3: Sample Safety Service Standards*

	Measure	Data Needed	Possible Data Source / Technology	Formula	Purpose of Measure	Data Collection Ease
Service Standards (Safety)	Accidents per 100,000 Revenue Miles	Total Injuries	Internal records of accidents and incidents	$(\text{Total injuries} + \text{Total Fatalities}) / 100,000 \text{ revenue miles} * 100$	Measures accident rate, determines overall safety of the system	Easy
		Total Fatalities				
		Revenue Miles	Schedule data, CAD, AVL			
	Revenue Miles between incidents	Revenue Miles	Schedule Data, CAD, AVL	Revenue Miles / total incidents	Measures distance between incidents	Easy
		Total Incidents	Internal records of accidents and incidents			
	Preventable crashes per 100,000 revenue miles	Total preventable collision	Internal records of accidents and incidents	Total preventable crashes / 100,000 revenue miles	Reflects operator training	Easy
		Revenue miles	Schedule data, CAD, AVL			
	Total incidents	Total incidents	Internal records of accidents and incidents	Total incidents	Indicator for minor safety occurrences	Easy



## Go COMO Bus Service Evaluation

*Table 8-4: Sample Asset Management Service Standards*

	Measure	Data Needed	Possible Data Source / Technology	Formula	Purpose of Measure	Data Collection Ease
Service Standards (Asset Management)	Avg Age in Fleet	Age of each vehicle in the fleet	Internal fleet data	Summation of fleet age / fleet size	Measures reliability / condition of fleet	Easy
	% of fleet exceeding design lifespan	Fleet Size	Internal fleet data	(Fleet size exceeding design lifespan / fleet size) * 100	Reflects immediate needs, maintenance of existing vehicles.	Easy
		Design lifespan of each vehicle in fleet	Set by FDOT based on FTA guidelines			
	% of preventative maintenance performed on schedule	On time preventative maintenance	Manual counting, internal fleet data	(Preventative maintenance performed on schedule / (preventative maintenance performed early + on time + late)) * 100	Reflects regularity and ability to properly maintain assets	Easy
		Total preventative Maintenance				
	Missed trips due to operation failures	Missed trips due to operation failures	Schedule data, manual counting, internal fleet data, maintenance logs	Number of missed trips due to operation failures	Reflects maintenance quality as well as loss in revenue and service shortage due to operation failures	Easy
	Number of repeat breakdowns per month	Number of repeat breakdowns per month	Manual counting, internal fleet data, maintenance logs	Number of repeat breakdowns per month	Reflects maintenance quality	Easy
	Revenue miles between failures	Revenue miles	Manual counting, internal fleet data, maintenance logs	Revenue miles / Total road calls	Reflects maintenance quality and asset condition; reflects	Easy





## Go COMO Bus Service Evaluation

Measure	Data Needed	Possible Data Source / Technology	Formula	Purpose of Measure	Data Collection Ease
	Total number of failures	Schedule data, CAD, AVL		passenger experience	
Spare Ratio	Fleet size	Manual counting, internal fleet data	(Fleet size – Vehicles operating in maximum service) / fleet size	Reflects service reliability, ensuring adequate service supply	Easy
	Vehicles operated in maximum service	Schedule data, CAD, AVL			
Total Road Calls	Total road calls	Manual counting, internal fleet data, maintenance logs	Total road calls	Reflects service reliability, ensuring adequate service supply	Easy

### Evaluation Reporting

A monthly evaluation report is one typical report used across the transit industry, along with an annual summary of statistics in comparison to previous time periods. This report is often derived from a pre-populated spreadsheet or a template word document that is easily updated. Using a spreadsheet allows data to be exported or displayed in a graphic format. The spreadsheet also allows staff and interested parties to view more detailed analysis of the various inputs affecting route- or system-level performance.

**Figure 8-1** displays an example of a Monthly Performance Report from Kansas City Area Transit Authority (KCATA). As shown, KCATA classified each route by route type (“Key Corridors”, “Urban Locals”, etc.) and measures the performance of each route against a standard set by the performance of the overall category. This method allows performance measures to fluctuate with outside factors that may affect the system.

For Go COMO, the four route types are

- “Connector” (Black and Gold routes),
- “Neighborhood” (the remaining Go COMO Routes),
- TIGER Day routes



## Go COMO Bus Service Evaluation

- TIGER Evening routes

Performance monitoring includes evaluating each route of the transit agency. Those routes below the agency standard are eligible for corrective intervention and actions to improve ridership along the route. Routes ranking above the agency standards are typically doing well and need minimal immediate action.

### Review process

An informal review process is needed at the beginning of each semester by Go COMO and MU officials to determine any changes or trends for ridership and traffic patterns. Tripper buses may be needed to capture the passengers if continuous overloading occurs more than three days of the week.

Adjusting bus schedules in the middle of the school semester is not ideal; however, COMO does not want to lose riders due to inefficient operations. Adjustments would be based on the number of trippers added during the monitoring period to meet passenger demand. An alternative to changing frequency in the middle of the semester is to make a policy decision to run trippers as double-headers, where an extra bus would immediately follow the scheduled bus to accommodate excess demand.

A formal review process for the system and for all routes typically occurs annually. Summer ridership should be analyzed separately school year ridership due to the drastic change in the Columbia student population. Decisions made in March for changes in service will allow for adequate time to publicize any changes for people who are making decisions in April on where to live for the next school year.



# Go COMO Bus Service Evaluation

Figure 8-1: Sample Performance Monthly Report

ROUTE LEVEL PERFORMANCE MONITORING										
Weekdays (21), March, 2013										
RTE	Route Name	Bus Size	Title VI	ADR	Daily Hrs	Daily Miles	Passengers/ Hour	Passengers/ Mile	Direct Op. Cost/ Passenger	Direct Op. Cost Recovery
Key Corridors	12 Twelfth Street	L	MIN	914	36.7	425	24.92	2.15	\$1.98	39.6%
	24 Independence	L	MIN	3,210	102.0	937	31.46	3.43	\$1.51	48.5%
	25 Troost	L	MIN	1,408	56.3	579	25.00	2.43	\$1.94	39.8%
	26 MAX - TROOST	L	MIN	5,841	170.3	1,981	34.31	2.95	\$1.44	44.3%
	31 Thirty-First Street	L	MIN	2,973	113.0	1,370	26.31	2.17	\$1.89	34.9%
	39 Thirty-Ninth Street	L	MIN	3,085	83.3	787	37.04	3.92	\$1.29	49.0%
	47 Broadway	L	MIN	1,605	64.8	922	24.75	1.74	\$2.07	34.1%
	58 MAX - MAIN	L	MIN	5,224	168.1	1,762	31.07	2.96	\$1.56	43.0%
	71 Prospect	L	MIN	5,521	165.2	1,707	33.41	3.23	\$1.45	46.7%
	101 Minnesota/State Avenue	S	MIN	1,700	86.8	1,133	19.60	1.50	\$2.09	34.3%
	142 North Oak	L	MAJ	995	76.3	1,273	13.03	0.78	\$4.08	19.6%
	SUBTOTALS			32,475	1122.8	12,876				
	STANDARD						24.00	2.67	\$1.70	43.8%
Urban Local	15 Truman Road	S	MIN	581	32.1	313	18.12	1.86	\$2.13	34.5%
	27 Twenty-Seventh St	L	MIN	1,048	48.4	538	21.66	1.95	\$2.26	35.6%
	30 Northeast	L/S	MIN	842	51.8	645	16.26	1.31	\$2.50	33.3%
	35 Thirty-Fifth Street	S	MIN	1,049	52.9	505	19.82	2.08	\$1.94	38.0%
	51 Ward Parkway	S	MAJ	610	50.7	638	12.02	0.96	\$3.38	24.9%
	54 Armour/Paseo	L	MIN	1,541	65.7	907	23.47	1.70	\$1.77	45.5%
	57 Wornall	S	MIN	639	55.3	812	11.54	0.79	\$3.65	20.2%
	104 Argentine	S	MIN	434	29.2	398	14.85	1.09	\$2.79	31.6%
	106 Guindaro	S	MIN	1,448	74.2	777	19.53	1.86	\$2.00	35.8%
	107 Seventh St/Parallel	S	MIN	588	44.4	502	13.23	1.17	\$3.00	29.0%
	108 Indiana	L/S	MIN	1,419	63.0	683	22.54	2.08	\$1.75	44.1%
	109 Ninth Street	S	MIN	524	31.9	390	16.46	1.34	\$2.46	34.9%
	110 Woodland/Brooklyn	S	MIN	108	12.9	138	8.34	0.78	\$4.71	20.7%
	121 Cleveland-Antioch	S	MIN	472	32.4	522	14.55	0.90	\$2.97	29.7%
	123 Twenty-Third Street	S	MIN	166	16.2	184	10.26	0.90	\$3.88	23.1%
	155 Fifty-Fifth Street	S	MIN	242	14.8	177	16.36	1.37	\$2.46	26.8%
	163 Sixty-Third Street	S	MIN	690	33.1	486	20.86	1.42	\$2.02	31.2%
	175 Seventy-Fifth Street	S	MAJ	844	46.1	803	18.31	1.05	\$2.41	24.5%
	SUBTOTALS			13,246	755.1	9,418				
	STANDARD						15.00	1.46	\$2.21	34.6%
Suburban Local	28 Blue Ridge	S	MIN	1,144	36.1	610	31.65	1.87	\$1.38	55.8%
	129 I-29 Express	L/S	MAJ	516	46.9	1,124	11.00	0.46	\$5.31	15.5%
	173 Casino Cruiser	L	MAJ	709	41.2	614	17.22	1.15	\$3.01	20.4%
	229 I-29/Tiffany Springs	S	MAJ	170	35.6	608	4.78	0.28	\$9.18	7.1%
	SUBTOTALS			2,539	159.8	2,956				
	STANDARD						12.00	0.89	\$3.74	19.8%
Life Line - Fixed	32 Linwood Link	M	MIN	57	7.0	75	8.10	0.76	\$4.85	15.0%
	136 Boardwalk/Antioch	M	MAJ	44	9.0	157	4.86	0.28	\$8.14	10.5%
	137 Metro North/Antioch	M	MAJ	64	6.8	99	9.49	0.65	\$4.03	21.2%
	201 Downtown Airport	S	MIN	9	3.0	27	3.14	0.35	\$12.15	5.6%
	243 Antioch/Barry Conn.	M	MAJ	91	15.7	244	5.77	0.37	\$6.70	14.2%
	251 TMC Lakewood Conn.	M	MAJ	32	7.2	133	4.44	0.24	\$9.01	7.0%
	SUBTOTALS			296	48.6	735				
	STANDARD						4.00	0.39	\$6.68	13.6%
Life Line - Metrofi	237 Gladstone Cir.	M	MAJ	17	9.4	97	1.80	0.17	\$17.36	4.5%
	244 NKC Circulator	M	MIN	57	18.4	155	3.11	0.37	\$9.75	3.6%
	252 Lee's Summit Circ.	M	MAJ	28	17.7	194	1.59	0.14	\$19.83	3.9%
	253 Raytown Circulator	M	MAJ	40	10.7	169	3.75	0.24	\$8.96	9.8%
	296 Bannister/Hillcrest	M	MIN	158	42.0	581	3.76	0.27	\$8.72	10.0%
	298 SKC Wornall	M	MAJ	90	26.0	342	3.21	0.26	\$9.99	7.4%
	SUBTOTALS			390	126.2	1,538				
	STANDARD						4.00	0.28	\$8.88	6.6%
Commuter	37 Gladstone	S	MAJ	82	16.9	353	4.83	0.23	\$9.64	9.4%
	38 Meadowbrook	S	MAJ							
	69 Liberty Express	S	MAJ							
	102 Central	S	MIN							
	132 Gracemor	S	MIN							
	133 Vivion/Antioch	L/S	MIN							
	135 Winnwood/59 Hwy	S	MIN							
	152 LS/Raytown Express	L	MAJ							
	170 Blue Springs	L	MAJ							
	415 Truman Road Express	L	MIN							
	428 Blue Ridge Express	L	MIN							
	451 Ward Parkway Express	L	MAJ							
	471 71-Hwy Express	L	MIN							
	SUBTOTALS			2,235	183.4	3,405				
	STANDARD						12.00	0.66	\$4.31	26.6%
GRAND TOTALS				51,183	2,396	30,928				

STANDARD: 110% of median value

RED: Less than or equal to 50% of the standard

YELLOW: Between 50-75% of the standard

GREEN: Greater than or equal to 125% of the standard.



## Go COMO Bus Service Evaluation

### Peer City Review

This section will examine the different performance measures examined by other cities with similar characteristics as Columbia. Table 8-5 and **Table 8-6** shows a summary of performance measures used by the peer cities. The most expansive guidelines were provided by Ithaca, New York, and Fort Collins, Colorado. Lawrence, Kansas has not adopted guidelines, but did consider expansive guidelines. Examples of these cities design guidelines and performance standards are provided throughout this section.

Chapter 5 includes a peer review of design guidelines and service standards of communities with similar characteristics of Columbia, Missouri. The purpose of the review is to identify existing performance measures used by transit agencies. The peer communities are listed below.

- Ithaca, NY
- Lawrence, KS
- Fort Collins, CO
- Gainesville, FL
- Bloomington, IN
- Lafayette, IN

*Table 8-5: Peer Cities Service Design Guidelines Matrix*

	Passengers / Revenue Hour	Passengers / Revenue Miles	Vehicle Load	Headways	On-Time Performance
Ithaca, NY			✓	✓	✓
Lawrence, KS*			✓	✓	✓
Gainesville, FL					
Bloomington, IN					
Lafayette, IN	✓	✓			
Fort Collins, CO	✓	✓	✓		✓





## Go COMO Bus Service Evaluation

Table 8-6: Peer Cities' Guidelines Summary

	Ithaca, NY	*Lawrence, KS	Fort Collins, CO		Gainesville, FL	Bloomington, IN	Lafayette, IN
Vehicle Load/Load Factor	Cut-Away = 125% 30' Bus = 136% 40' Low Floor = 150%	The system should adopt a load of 1.01-1.25 to 1.26-1.50 to provide extra space.	University Route	Residential Route	N/A	N/A	N/A
			Peak = 125% Off Peak = 100%	Peak = 125% Off Peak = 100%			
Fixed Route Standards	N/A	Add Service = Weekdays greater than 125% of standard.  Reduce Service = Weekdays less than 25% of standard.	Passengers/Revenue Mile (University Route)	Passengers/Revenue Hour (University Route)	N/A	N/A	N/A
			Satisfactory: 3-5 Unsatisfactory: <1.5	Satisfactory: 30-60 Unsatisfactory: <20			
Frequency of Service	N/A	To attract choice riders KU on Wheels should look for a maximum headway of 15 – 20 minutes.	University Route	Residential Route	N/A	N/A	N/A
			Peak: Minimum Frequency = 30 Minutes Off Peak: Minimum Frequency = 60 Minutes	Peak: Minimum Frequency = 30 Minutes Off Peak: Minimum Frequency = 60 Minutes			
Transit/Auto Travel Time	N/A	Origins and destinations would be chosen to evaluate the attractiveness of other modes based on travel time.	N/A		N/A	N/A	N/A
On-Time Performance	Minimum percent on-time service standard for a route with a frequency of more than 15 minutes is... Peak = 85%. Off Peak = 95%	N/A	N/A		N/A	N/A	N/A
*Lawrence, Kansas has reviewed and considered these standards, but has not adopted any set standards.							



## Go COMO Bus Service Evaluation

### Ithaca, New York

The city of Ithaca, New York developed quantifiable standards and policies used to evaluate the transit service. In 2015 Tompkins Consolidates Area Transit (TCAT) approved the following service standards and policies to be used:

- Vehicle Load
- Headways
- On-time Performance (Schedule Adherence)
- Vehicle Assignment Policy
- Transit Amenity Policy

The following tables summarizes the standards for Ithaca, New York.

*Table 8-7: Ithaca, NY Transit Vehicle Loading Standards*

Bus type	Seats	Max Standees	Maximum Loading Standard	Percentage of Max Capacity to Seats on Bus
<b>20' – 25' Cut-Away</b>	16	6	20	125%
<b>30' Bus/Trolley</b>	25	12	34	136%
<b>40' Low-Floor</b>	38	28	59	150%

Source: Tompkins Consolidated Area Transit, Inc. Title VI Program, 2015

*Table 8-8: Ithaca, NY Vehicle Headway (in Minutes) and Service Span Per Route Type*

Weekday						
Service Type	AM Peak	Base	PM Peak	Night	Saturday	Sunday
<b>Urban</b>	30	60	30	60	60	60
	7:00 – 9:00	9:00 – 16:00	16:00 – 18:00	18:00- 21:30	8:00 – 22:30	9:00 – 20:30
<b>Campus Shuttle</b>	15	20	20	60	60	60
	7:30 – 10:00	10:00 – 15:45	15:45 – 18:15	18:15 – 0:30	9:00 – 2:00	9:30 – 23:00
<b>Rural Commuter</b>	3 trips	1 trip	2 trip	1 trip	3 trips	3 trips

Source: Tompkins Consolidated Area Transit, Inc. Title VI Program, 2015



## Go COMO Bus Service Evaluation

*Table 8-9: Ithaca, NY Minimum Percent On-Time Service Standard*

Time Period	Schedule Frequency in Minutes	
	0 to 15	More than 15
Peak Hours	75%	85%
Off-Peak Hours	85%	95%
Weekend	85%	95%

Source: Tomkins Consolidated Area Transit, Inc. Title VI Program, 2015

### Fort Collins, Colorado

Transfort developed Final Design Standards to assist City staff, developers, local partners, and private property owners in locating and designing bus stops and associated passenger amenities. The standards address bus stop spacing, bus stop locating, in-street design, curb side characteristics, and many other design features of a transit route. The city of Fort Collins also has Service Standards and Policies that focus on performance measures. Table 8-10, Table 8-11, and Table 8-12 show the measurements used to evaluate the transit system.

*Table 8-10: Passengers per Revenue Mile and Revenue Hour*

Rapid Route	Pass/Hour	Pass/Mile
Exceeds	>50	>8
Satisfactory	41-50	6-8
Marginal	20-40	4-5
Unsatisfactory	<20	<4
Commercial Route	Pass/Hour	Pass/Mile
Exceeds	>30	>3.5
Satisfactory	20-30	2.5-3.5
Marginal	15-20	1.5-2.5
Unsatisfactory	<15	<1.5
University Route	Pass/Hour	Pass/Mile
Exceeds	>60	>5
Satisfactory	30-60	3-5
Marginal	20-30	1.5-3
Unsatisfactory	<20	<1.5
Residential Route	Pass/Hour	Pass/Mile
Exceeds	>40	>2
Satisfactory	20-40	1.5-2
Marginal	15-20	1-1.5
Unsatisfactory	<15	<.5
Regional Route	Pass/Hour	Pass/Mile
Exceeds	>30	>2
Satisfactory	20-30	1-2
Marginal	15-20	.75-1
Unsatisfactory	<15	<.75

Source: City of Fort Collins, Service Standards and Policies, 2015



## Go COMO Bus Service Evaluation

**Table 8-11: Maximum Load Standard**

Service Type	Time	Load Standard
<b>Rapid Transit Route</b>	Peak	150% Seated Capacity
	Off Peak	Seated Capacity
<b>Commercial Route</b>	Peak	125% Seated Capacity
	Off Peak	Seated Capacity
<b>University Route</b>	Peak	125% Seated Capacity
	Off Peak	Seated Capacity
<b>Residential Route</b>	Peak	125% Seated Capacity
	Off Peak	Seated Capacity
<b>Regional Route</b>	Peak	125% Seated Capacity
	Off Peak	Seated Capacity

Source: City of Fort Collins, Service Standards and Policies, 2015

**Table 8-12: Minimum Service Frequency**

Service Type	Time Frame	Minimum Frequency
<b>Rapid Route</b>	Peak	15 min
	Off Peak	30 min
<b>Commercial Route</b>	Peak	60 min
	Off Peak	60 min
<b>University Route</b>	Peak	30 min
	Off Peak	60 min
<b>Residential Route</b>	Peak	30 min
	Off Peak	60 min
<b>Regional Route</b>	2 peak trips, Monday -Friday trips should target: 7:00 AM – 9:00AM work shift start times 4:00 PM – 6:00PM work shift end times	

Source: City of Fort Collins, Service Standards and Policies, 2015

The city of Fort Collins has procedural and policy language to assess Equipment Assignment, On Time Performance, and the Distribution of Transit Amenities, including shelters, benches, schedules/maps, and trash receptacles.

### Lawrence, Kansas

Service Standards and Policies were prepared for the City of Lawrence, Kansas and the University of Kansas in 2009. This document covered Fixed Route Design Standards, such as Frequency of Service, Hours of Service, and Area Coverage. The Standards summarize Fixed Route Performance Standards, including Passenger Load Factor, On-Time Performance, and Transit/Auto Travel Time. For





## Go COMO Bus Service Evaluation

route and service area changes, the Standards address the establishment of new routes, improvement of frequency to existing routes, and additional hours of service to existing routes. It should be noted that Lawrence, Kansas has reviewed and considered these standards, but does not have adopted standards at this time. Table 8-13 shows the standards used to evaluate the need for adding or eliminating service.

*Table 8-13: Fixed Route Standards to Add or Eliminate Service*

Fixed Route Standards to Add or Eliminate Service				
Day	Add Service	No Change	Increase Route Marketing	Route Realignment
<b>T Weekdays</b>	Greater than 125% of Standard	75% to 125% of Standard	50% to 75% of Standard	25% to 50% of Standard
<b>T Weekends</b>	Greater than 125% of Standard	75% to 125% of Standard	50% to 75% of Standard	25% to 50% of Standard
<b>KUOW On-Campus</b>	Greater than 125% of Standard	75% to 125% of Standard	50% to 75% of Standard	25% to 50% of Standard
<b>KUOW Off-Campus</b>	Greater than 125% of Standard	75% to 125% of Standard	50% to 75% of Standard	25% to 50% of Standard
Day	Reduce Service	Deviated Fixed Route	Public Demand Response	Eliminate Service
<b>T Weekdays</b>	Less than 25% of Standard	4 - 6 pph	2 - 4 pph	less than 2 pph
<b>T Weekends</b>	Less than 25% of Standard	4 - 6 pph	2 - 4 pph	less than 2 pph
<b>KUOW On-Campus</b>	Less than 25% of Standard	N / A	N / A	less than 6 pph
<b>KUOW Off-Campus</b>	Less than 25% of Standard	N / A	N / A	less than 6 pph
Standard: 110% of Median Riders Per Hour Among Peer Group				
pph: passengers per revenue hour				
Note: Lawrence, Kansas has considered and reviewed these standards, but has not adopted any set standards.				

Source: *Service Standards and Policies, Lawrence Route and Schedule Design for Coordinated Transportation, 2009*



### Chapter 9 Recommended Service Standards

The purpose of this chapter is to assist the city of Columbia in creating and maintaining a transit system that ensures a livable and healthy community for future generations. COMO managements understand the importance of developing guidelines to evaluate how well the transit system meets the needs of the city, COMO goals, and when to modify or adjust routes, vehicle type, service levels, or amenities.

The Go COMO recommended service standards are presented in the following text. They will assist management in efforts to serve current and future transit markets, and provide be a clear measure by which the City evaluates their transit network. The service standards will also assist the agency in understanding if the system is meeting local and regional travel needs.

Current and future funding levels dictate the level of service to be provided in any community, which is also true for the city of Columbia. If funding streams remain stable, the agency is limited to additional services in the community. However, the recommended service standards provide guidance and input for modifications of the transit service.

#### Recommended Service Guidelines

**Table 9-1** provides the recommended service design guidelines, including:

- Service Frequency
- Span of Service
- Bus Stop Spacing
- Bus Stop Amenities
- Route Design
- Area Coverage
- Transit verses Auto Travel Time
- Vehicle Size



# Go COMO Bus Service Evaluation

Table 9-1: Service Guidelines

Criteria	Neighborhood Route		Connector Route		TIGER Line Routes (day time)	
	Current	Future	Current	Future	Current	Future
<b>Peak Frequency (minutes)</b>	30, 35, or 40	30, 40, or 45	30	20-30	10, 15, or 30	10, 15, 20, or 30
<b>Off Peak Frequency (minutes)</b>	30, 35, 40	30, 40, or 45	60	30	10, 15, or 30	10, 15, 20, or 30
<b>Hours of Service</b>	6:30 am to 8:00 pm	6:00 am to 7:30 pm or later	6:30 am to 8:00 pm	6:00 am to 7:30 pm or later	7:00 am to 5:30 pm or 6:00 pm	7:00 am to 5:30 pm or 6:00 pm
<b>Span of Service (hrs)</b>	13-14	13-14	13-14	13-14	6-16	6-16
<b>Stop Spacing</b>	800' to 1,200'		800' to 1,200'		800' to 1,200'	800' to 1,200'
<b>Bus stop amenities</b>	N/A	>25 ADR	N/A	>25 ADR	N/A	N/A

ADR: Average Daily Ridership

## Route Design

The following recommendations are for Go COMO route design standards.

- **Directness:** Routes should be as direct as the street network allows. Straight paths make for the fastest trip possible, while circuitous routes take more time to deliver passengers to their destinations. Direct routes also allow passengers to easily maintain orientation, which can make the transit service easier to navigate.
- **Simplicity:** Direct routes will likely be associated with one or two major arterials, and will encourage the idea that the transit system is an integrated part of the transportation system.
- **Consistency:** The route should be consistent in both alignment and schedule. While the schedule may change during the day due to demand, changes from one trip to another that appear random to a customer should be avoided. When possible, frequencies should be divided easily into an hour such as every 15, 20, 30, or 60 minutes.

These factors must be balanced in Columbia where the city is bisected by I-70 running east-west, and US 63 running north-south, which limits the connectivity of the underlying street network. Several of the major arterials within Columbia, such as Providence Road, Rangeline Street, and College Avenue are MoDOT facilities.



# Go COMO Bus Service Evaluation

## Area Coverage

Area Coverage recommended indicators measure demographic information of the designated transit service area. Different measures include population density, income levels, activity centers, etc. Transit systems operate in a variety of different areas, such as neighborhood settings, downtown business districts, or campus environments.

Table 9-2 provides route spacing guidelines recommended from the *Transit Capacity and Quality of Service Manual*. Selecting a pre-determined standard assists Go COMO to determine when an area of the community may need service modifications. In Columbia, low-income areas often overlap lower-density areas, which is difficult for transit agencies to provide higher levels of transit service without surrounding higher densities to support the service.

**Table 9-2: Route Spacing Guidelines**

Population / Acre	Low Income and >50% with 1 or Fewer Vehicles	Moderate Income and 15% to 50% with 1 or Fewer Vehicles	Middle Income and 2.5% to 15% with 1 or Fewer Vehicles	Upper Income and >2.5% with 1 or Fewer Vehicles
<b>10+ persons/acre</b>	¼-mile between routes	½-mile between routes	¾-mile between routes	1-mile between routes
<b>3 to 9 persons/acre</b>	½-mile between routes	¾-mile between routes	1-mile between routes	Space as needed
<b>Less than 3 persons/acre</b>	¾-mile between routes	1-mile between routes	Space as needed	Space as needed

Source: TCRP Report #100, *Transit Capacity and Quality of Service Manual*

Another recommended criterion for Go COMO to use for assessment of route spacing is location of activity centers, displayed in Table 9-3. Activity centers are places where one or more functions are concentrated. Functions in this case, indicate large employers, medical facilities, retail centers, or educational institutions. The activity centers may be clustered around an intersection, within a dedicated area, or along street corridors. Activity center clusters should be located no farther than ½-mile apart.





## Go COMO Bus Service Evaluation

**Table 9-3: Activity Center Guidelines**

Activity Center Guidelines
Employers with 500+ Employees
Hospitals/nursing homes w/ 100+ beds
Educational Institutions w/ 1,000 students
Retail Centers w/100,000 sq ft of leased space
Social Service Agencies w/ 75 daily clients
Apartments w/ 300+ units
Government Agencies w/100 daily clients

Source: TCRP Report #100, Transit Capacity and Quality of Service Manual

### Vehicle Size

Appropriately sized vehicles are important for maintaining passenger comfort, perception of well-utilized resources, and overall safety. Table 9-4 summarizes the recommended vehicle size standards for Go COMO as measured by passengers per revenue hour. **Table 9-5** lists the passenger per hour on current routes, with the suggested vehicle type.

**Table 9-4: Vehicle Size Standards**

Average Passengers per Revenue Hour	Vehicle type
Below 7.5	Body-on-chassis
Greater than 7.5	Minimum of 30 ft.
Greater than 30	Minimum of 40 ft.
Greater than 60	Evaluate 60 ft. articulated

Source: TCRP Report #100, Transit Capacity and Quality of Service Manual



## Go COMO Bus Service Evaluation

*Table 9-5: Suggested Vehicle Type by Route*

Route	Weekday Average Passengers Per Revenue Hour	Suggested Vehicle Type
402. Trowbridge Loop	224	*60 ft. articulated
401. Hearnese Loop	163.7	*60 ft. articulated
404. Mizzou North Loop	120.3	*60 ft. articulated
406. West Loop	41.32	Minimum of 40 ft.
403. Reactor Field Loop	33.9	Minimum of 40 ft.
405. Campus Loop	26.7	Minimum of 30 ft.
1. Black - Blue Ridge to Nifong	25.3	Minimum of 30 ft.
2. Gold - Conley to Park De Ville	12.8	Minimum of 30 ft.
11. Aqua - Prathersville to Brown School	13.4	Minimum of 30 ft.
10. Red - Downtown Orbiter	12.4	Minimum of 30 ft.
5. Blue - Battle High School to Conley Road	11.5	Minimum of 30 ft.
3. Brown - Burning Bush to Whitegate	8.8	Minimum of 30 ft.
4. Orange - Starke to Whitegate	8.1	Minimum of 30 ft.
9. Purple - Chapel Hill to Business Loop 70	8.0	Minimum of 30 ft.
6. Pink - Grindstone to I-70 Drive SE	7.4	Body-on-chassis
8. Light Green - Scott to Forum	5.2	Body-on-chassis
7. Dark Green - Old Plank to Green Meadows	4.4	Body-on-chassis

*Note: \* 60 ft. articulated bus should be evaluated for this route*

### Access to Bus Stops

Residents within the community being able to safely and conveniently get to and from bus stops is necessary for passengers to fully utilize the system. Without accessible connections, bus stops are disconnected from the transportation network and not useful. In addition, providing accessible connections to bus stops are required under federal law.

The American Public Transportation Association offers the following "Recommended Practice for *Design of On-street Transit Stops and Access from Surrounding Areas*:"

- **Connectivity.** People should be able to move directly between their origin, the transit service(s) and their destination.
- **Universal design.** All people, regardless of physical ability, should be able to easily and safely access transit services without any unavoidable impediments or barriers.
- **Safety.** People should be able to reach the transit vehicle from their origin point or reach their destination from the transit vehicle with minimal risk of being hit by a vehicle, being a victim of crime or otherwise being injured. Moreover, they should feel as if they are at minimal risk.
- **Comfort.** The experience of using transit should be pleasant. People should be protected from climatic extremes like direct sun on a hot day, heavy winds



## Go COMO Bus Service Evaluation

or extreme cold. Where they must wait, they should be able to do so comfortably.

- Legibility. People getting off the transit vehicle should be able to easily identify how to get to nearby destinations. Conversely, passengers leaving nearby origins should be able to identify the existence of transit service and how to get to it.
- Quality. People should perceive all public spaces as being well built and well maintained.

The recommended accessibility guideline is to:

- Expand multimodal access and connectivity to destinations within the community.
  - Achieve ADA accessibility to transit – Achieve 90 percent ADA bus stops by FY2030.
  - Increase the percent of population and jobs within a ¼-mile of bus stops.
  - Increase the percent of traditionally underserved (low income and minority) populations within a quarter mile of a bus stop by 2 percent by FY2030.

### Recommended Service Standards

The following standards are detailed for Go COMO.

- Passenger Load Factor
- On-time Performance
- Passengers per Revenue Hour
- Safety Standards
- Asset Management

#### ***Passenger Load Factor***

The passenger load factor (the ratio between seated and standing passengers) evaluates how well the space on transit vehicles is being utilized, along with how efficiently the seats are filled. **Table 9-6** describes passenger load factor. Table 9-7

Passenger load factors should be collected for all Go COMO services. The load factors for the Tiger Line Routes will be significantly higher due to the captive market of the college students and the higher density campus area. Neighborhood routes will likely have a low load factor. Go COMO should continue to collect peak load data to determine which routes are operating at crush load and at which specific time periods. If the peak loads continue to occur on a regular basis (at least three days a week for weekday service or two times a month weekend service), corrective action should be taken.



## Go COMO Bus Service Evaluation

**Table 9-6: Passenger Load Factor**

Passengers / Seat	Standing Passengers (ft <sup>2</sup> / P)	Area (m <sup>2</sup> /p)	Comments
<b>0.00 – 0.50</b>	>10.8	>1.00	No passenger need sit next to another
<b>0.51 – 0.75</b>	8.2 – 10.8	0.76 – 1.00	Passengers can choose where to sit
<b>0.76 – 1.00</b>	5.5 – 8.1	0.51 – 0.75	All passengers can sit
<b>1.01 – 1.25</b>	3.9 – 5.4	0.36 - .50	Comfortable standee load for design
<b>1.26 – 1.50</b>	2.2 – 3.8	0.20 – 0.35	Maximum schedule load
<b>&gt;1.50</b>	<2.2	<0.20	Crush load

Source: TCRP Report #100, Transit Capacity and Quality of Service Manual

**Table 9-7: Recommended Go COMO Load Factor Standards**

Route Type	Time	Recommended Load Factor Standards
<b>Neighborhood Routes</b>	Peak	125% Seated Capacity
	Off Peak	Seated Capacity
<b>Connector Routes</b>	Peak	125% Seated Capacity
	Off Peak	Seated Capacity
<b>Tiger Lines</b>	Peak	150% Seated Capacity
	Off Peak	125% Seated Capacity

### On-Time Performance

A key success factor for all transit agencies is providing convenient and reliable transit service with schedules the public can depend on. Table 9-8 describes on-time performance standards.

A 95 percent on-time performance standard should be adopted for Go COMO. Buses should never be early.





## Go COMO Bus Service Evaluation

**Table 9-8: On-Time Percentage**

On-Time Percentage	Comments
95.0 – 100.0%	1 late transit vehicle every 2 weeks (no transfer)
90.0 – 94.9%	1 late transit vehicle every week (no transfer)
85.0 – 89.9%	3 late transit vehicles every 2 weeks (no transfer)
80.0 – 84.9%	2 late transit vehicles every week (no transfer)
75.0 – 79.9%	1 late transit vehicle every day (with a transfer)
<75.0%	1 late transit vehicle at least daily (with a transfer)

Source: TCRP Report #100, Transit Capacity and Quality of Service Manual

### Passengers per Revenue Hour

Passengers per Revenue Hour is a ridership productivity measure. This measure can be a factor of similar route types in the system, such as neighborhood routes or connector routes. A “System Index” evaluation compares individual route performance to metrics from the entire system or a group of similar routes. **Table 9-9** presents the existing passengers per revenue hour for each route.

This methodology calculates the systemwide average for each type of route and determines how each route performs compared with the systemwide average. For example, as shown in Table 17, the systemwide average for the Connector Routes is 21.1 passengers per revenue hour. The two Connector Routes (Black Route and Gold Route) are compared to the Connector systemwide average. The Black Route has an average of 25.3 passengers per hour, which performs at 120% of the system average. The Gold Route performs at 80 percent of the system average.



## Go COMO Bus Service Evaluation

*Table 9-9: Passengers per Revenue Hour System Index*

Type		Weekday Pass / Rev Hr	% of Route Type Average
<b>Black</b>	Connector	25.3	120%
<b>Gold</b>	Connector	16.8	80%
<b>Aqua</b>	Neighborhood	13.4	152%
<b>Red</b>	Neighborhood	12.4	140%
<b>Blue</b>	Neighborhood	11.5	131%
<b>Brown</b>	Neighborhood	8.8	100%
<b>Orange</b>	Neighborhood	8.1	92%
<b>Purple</b>	Neighborhood	8	91%
<b>Pink</b>	Neighborhood	7.4	84%
<b>Light Green</b>	Neighborhood	5.2	59%
<b>Dark Green</b>	Neighborhood	4.4	50%
<b>Connector Route Average</b>			21.1
<b>Neighborhood Route Average</b>			8.8

Table 9-10 provides the recommended standards.

*Table 9-10: Recommended Service Standards*

	Evaluate adding service	No Change	Increase route marketing	Evaluate Route Realignment
<b>Neighborhood Routes</b>	Greater than 125% of Standard	75% to 125% of standard	50% to 75% of standard	25% to 50% of standard
<b>Connector Routes</b>	Greater than 125% of Standard	75% of 125% of standard	50% to 75% of standard	25% to 50% of standard
<b>TIGER Line</b>	Greater than 125% of Standard	75% to 125% of standard	50% to 75% of standard	25% to 50% of standard
	Evaluate Reducing Service	Evaluate Deviated Fixed Route	Evaluate Public Demand Response	Evaluate Eliminate Service
<b>Neighborhood Routes</b>	Less than 25% of standard	4 – 6 pph	2 – 4 pph	Less than 2 pph
<b>Connector Routes</b>	Less than 25% of standard	4 – 6 pph	2 – 4 pph	Less than 2 pph
<b>TIGER Line</b>	Less than 25% of standard	N/A	N/A	Less than 6 pph
<b>Standard: 110% of median passengers per revenue hour among peer group</b>				
<b>pph: Passengers per revenue hour</b>				



### ***Safety Standards***

The Federal Transportation Bill, FAST Act, requires MPOs to coordinate their performance measures “to the maximum extent practicable<sup>20</sup>” with public transportation providers, which in turn, are required to develop performance targets based on safety performance criteria for all modes of public transportation.<sup>21</sup> The performance measures will make agencies more accountable for the development and maintenance of federally funded programs.

Safety measures essential for tracking performance are listed below. Numerous others also exist; however, the list below include metrics that are tracked currently by Go COMO. **Table 9-11** lists recommended safety service standards.

*Table 9-11: Recommended Safety Service Standards*

Measure	Recommended Service Standard - Safety
<b>Total Accidents per 100,000 revenue miles</b>	Fewer than 2 accidents/100,000 revenue miles
<b>Safety – Crime</b>	Maintain and/or reduce the number of incidents of vandalism of agency property according to police reports and repair records per 100,000 boardings
<b>Total Fatalities</b>	0 annually
<b>Preventable Accidents</b>	Reduce preventable accidents by 3% each year
<b>Miles between Preventable Accidents</b>	100,000 miles minimum

### ***Asset Management***

FAST Act requires MPOs, such as the Columbia Area Transportation Study Organization (CATSO), to coordinate performance measures with public transportation providers on the State of Good Repair.

The Transit Asset Management final rule was published on July 26, 2016 with an effective date of October 1, 2016. This final rule establishes state good repair standards and four state of good repair performance measures:

- Equipment: (non-revenue) service vehicles;
- Rolling stock;
- Infrastructure: rail fixed-guideway, track, signals, and systems; and,

<sup>20</sup> Section 5303(h)(2)(ii)

<sup>21</sup> Section 5329(d)(1)(E)



## Go COMO Bus Service Evaluation

- Facilities.

Realistic metrics used by many agencies to collect data for the above measures are listed below. Completing an assessment of capital investment and other strategies preserves existing and projected future transportation infrastructure, provides for multimodal projects based on regional needs and priorities, and reduces vulnerability of the existing infrastructure to natural disasters, as stated in the current transportation bill. **Table 9-12** provides the recommended service standards for Go COMO

*Table 9-12: Recommended Asset Management Service Standards*

Measure	Recommended Service Standard – Asset Management
Miles between Road Calls	10,000 miles minimum
Spare Ratio	Maintain a spare ratio of 10% for fixed route service
Age of Fleet	Operate a fleet of vehicles with an average age of less than 7 years by 2020
Energy Savings	Convert 50% of existing fleet to green vehicles by 2030
Revenue Miles between system failures	Minimum of 50,000 revenue miles between system failures
Bus stops	Enhance bus stops by placement of 5 landing pads per year and 2 shelters per year.





## Go COMO Bus Service Evaluation

### Existing System

Performance of existing routes were measured by the number of passengers per revenue hour. This was incorporated into a system index to evaluate like routes against each other. The two connector routes, Black Route #1 and Gold Route #2 are compared to each other, as are the neighborhood routes. **Table 9-13** details the performance of each route in the existing system. Included in this comparison is the ridership (passengers per revenue hour), the percent ridership when compared to the "average" of each route type, and the annual cost per route.

*Table 9-13 Passengers per Revenue Hour System Index*

Route	Type	Weekday Pass / Rev Hr	% of Route Type Average	Annual Cost Per Route
<b>Black Route #1</b>	Connector	25.3	120	\$965,003
<b>Gold Route #2</b>	Connector	16.8	80	\$925,111
<b>Orange Route #3</b>	Neighborhood	8.1	92	\$236,319
<b>Brown Route #4</b>	Neighborhood	8.8	100	\$246,612
<b>Blue Route #5</b>	Neighborhood	11.5	131	\$246,472
<b>Pink Route #6</b>	Neighborhood	7.4	84	\$233,903
<b>Dark Green Route #7</b>	Neighborhood	4.4	50	\$263,727
<b>Light Green Route #8</b>	Neighborhood	5.2	59	\$256,162
<b>Purple Route #9</b>	Neighborhood	8	91	\$259,645
<b>Red Route #10</b>	Neighborhood	12.4	140	\$303,589
<b>*Aqua Route #11</b>	Neighborhood	13.4	152	\$34,962
<b>Connector Route Average</b>			21.1	
<b>Neighborhood Route Average</b>			8.8	
<b>* The Aqua route operates four trips per day, weekdays only.</b>				

Source: Go COMO Service Design Guidelines DRAFT 2017-02-08

Following the COA and the visioning session, Service Design Guidelines and Standards were created to guide how future transit service should be designed for Columbia, identify transit standards for each route to be measured, and provide performance metrics to determine when modifications should be evaluated.

Table 9-14 describes the draft recommended service standards for the system.



## Go COMO Bus Service Evaluation

Table 9-14 Draft Recommended Service Standards

	Evaluate adding service	No Change	Increase route marketing	Evaluate Route Realignment
<b>Neighborhood Routes</b>	Greater than 125% of Standard	75% to 125% of standard	50% to 75% of standard	25% to 50% of standard
<b>Connector Routes</b>	Greater than 125% of Standard	75% of 125% of standard	50% to 75% of standard	25% to 50% of standard
<b>TIGER Line</b>	Greater than 125% of Standard	75% to 125% of standard	50% to 75% of standard	25% to 50% of standard
	Evaluate Reducing Service	Evaluate Deviated Fixed Route	Evaluate Public Demand Response	Evaluate Eliminate Service
<b>Neighborhood Routes</b>	Less than 25% of standard	4 – 6 pph	2 – 4 pph	Less than 2 pph
<b>Connector Routes</b>	Less than 25% of standard	4 – 6 pph	2 – 4 pph	Less than 2 pph
<b>TIGER Line</b>	Less than 25% of standard	N/A	N/A	Less than 6 pph
<b>Standard:</b> 110% of median passengers per revenue hour among peer group <b>pph:</b> Passengers per revenue hour				

Source: Go COMO Service Design Guidelines DRAFT 2017-02-08

Table 9-15 describes the draft service design guidelines. Neighborhood routes will have more frequency, and Connector routes will have a future frequency of 20-30 minutes. Also, the recommendations include an adjustment to the service span to start a half hour earlier each day at 6:00 am. This increases the ability for residents to use transit in Columbia to get to work for the early shifts.



## Go COMO Bus Service Evaluation

*Table 9-15 Draft Service Guidelines*

Criteria	Neighborhood Route		Connector Route		TIGER Line Routes (day time)	
	Current	Future	Current	Future	Current	Future
<b>Peak Frequency (minutes)</b>	30, 35, or 40	30, 40, or 45	30	20-30	10, 15, or 30	10, 15, 20, or 30
<b>Off Peak Frequency (minutes)</b>	30, 35, 40	30, 40, or 45	60	30	10, 15, or 30	10, 15, 20, or 30
<b>Hours of Service</b>	6:30 am to 8:00 pm	6:00 am to 7:30 pm or later	6:30 am to 8:00 pm	6:00 am to 7:30 pm or later	7:00 am to 5:30 pm or 6:00 pm	7:00 am to 5:30 pm or 6:00 pm
<b>Span of Service (hrs)</b>	13-14	13-14	13-14	13-14	6-16	6-16
<b>Stop Spacing</b>	800' to 1,200'		800' to 1,200'		800' to 1,200'	800' to 1,200'
<b>Bus stop amenities</b>	N/A	>25 ADR	N/A	>25 ADR	N/A	N/A

ADR: Average Daily Ridership

Source: Go COMO Service Design Guidelines DRAFT 2017-02-08



## Go COMO Bus Service Evaluation

### Chapter 10 Alternatives

Services alternatives were developed following the Comprehensive Operations Analysis of the existing system, the visioning workshop, and the service design guidelines and standards. These alternatives incorporate what was learned in the operations analysis, as well as comments heard in the visioning workshop, and service design guidelines and standards.

Some of the alternatives incorporate a new concept in Columbia called Flex routes, which are described below. Alternatives also realign how routes proceed through the University of Missouri campus.

#### ***Flex network***

The existing Go COMO service operates several one-way loop neighborhood routes through lower density areas to ensure that outlying neighborhoods have transit service. These neighborhood loop routes provide connections to nearby shopping, medical, or employment opportunities, and connect into the rest of the system using transfers to the more direct and higher frequency Black and Gold route. The neighborhood routes demonstrate much lower ridership than the bi-directional, more direct Black and Gold routes. Ridership on the neighborhood routes are challenged by traveling the one-way loop system which makes for a longer trip time.

The nature of Columbia's underlying roadway network also challenges the provision of transit in Columbia. The presence of I-70 limits north-south roadway connections between major parts of Columbia. Connectivity is further constrained by the University of Missouri campus in the center of Columbia, and US-63 on Columbia's east side. This limited connectivity increases congestion at the few key roadways that connect across Columbia, such as Providence Road, or Clark Lane. This traffic congestion further impacts transit operating speed and schedule reliability.

To address the neighborhood areas with relatively low population density and low transit ridership, several alternatives in this study utilize general public demand response transit service, also known as "zonal flex" or "flex" service. Flex service has a service area boundary in areas of Columbia with low population, low employment density, and low levels of existing transit ridership. Figure 10-1 displays the areas of different transit propensity in Columbia. Customers needing transit service within the flex zone make a reservation with Go COMO, and a vehicle will pick the passenger up curbside. The customer takes a trip either within the flex zone, or transfers to the fixed route service. Within that zone, the flex service provides curb-to-curb transportation and as such, passengers of the flex service are typically charged a higher fare than fixed route transit service. This type of service allows the transit agency to continue providing transit service in low demand areas, while only operating vehicles when a ride is requested. Some passengers may perceive this as a lower level of service, but it is using resources more efficiently. The curb-to-curb aspect of the flex routes within each flex zone may also be perceived as a higher level of service compared to the existing one-way loop routes. Flexible route service is a common way to deliver transit service in low density areas, and is currently used





in Lee's Summit, Missouri; Kansas City, Missouri; Raymore, Missouri; and Des Moines, Iowa. Should transit demand increase in these areas, the transit agency utilizes the collected ridership data to implement fixed route service.



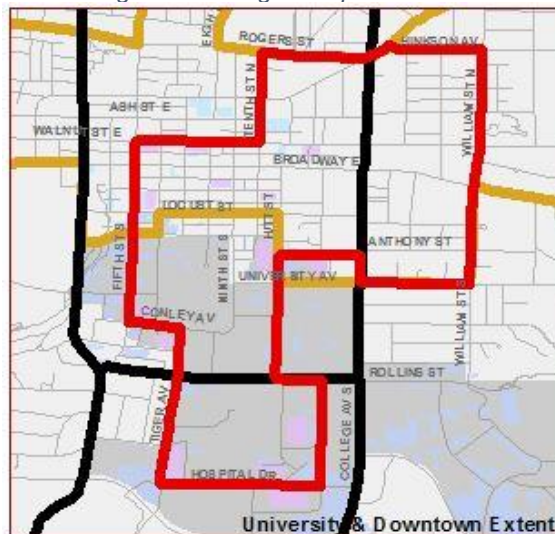
## Go COMO Bus Service Evaluation

### *Network through MU*

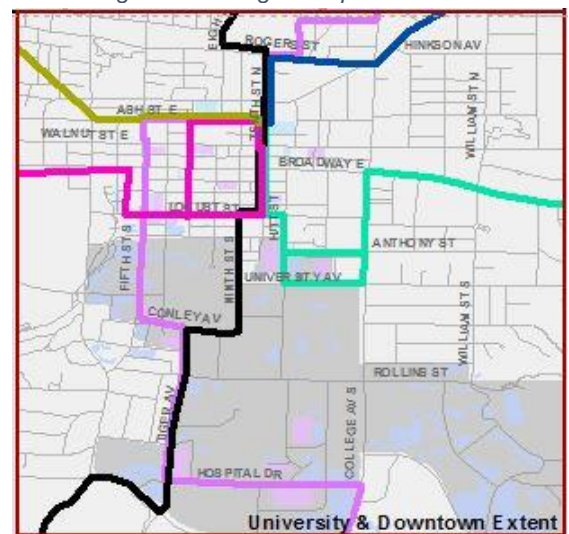
Currently, Go COMO's Black Route #1 and Gold Route #2, the most heavily used routes, both operate through the University of Missouri (MU) campus along Rollins Street. This routing provides direct transit connections between MU and several large apartment complexes, grocery stores, and medical and social service agencies. For these reasons, the Black and Gold routes are also heavily used by passengers who are not MU students. The alignment through campus poses challenges. Heavy pedestrian traffic on Rollins Street impedes transit vehicles. A future traffic signal on Providence Road will restrict left turns into and out of campus. Construction projects are also planned for several campus streets for Summer 2017. These areas of heavy traffic and pedestrian congestion have impacted daily transit schedule reliability. The alternatives developed within this study recommend a re-aligning of routes through campus using Fifth Street, Conley Avenue, Ninth Street, and Tiger Avenue, which allows the bus to bypass heavy pedestrian traffic on Rollins Street, and current and planned construction projects impacting Hitt Street. Figure 10-2 illustrates the revised alignment.

**Figure 10-2 Current and Revised Alignments through Campus**

*Current Alignment through Campus*



*Revised Alignment through Campus*



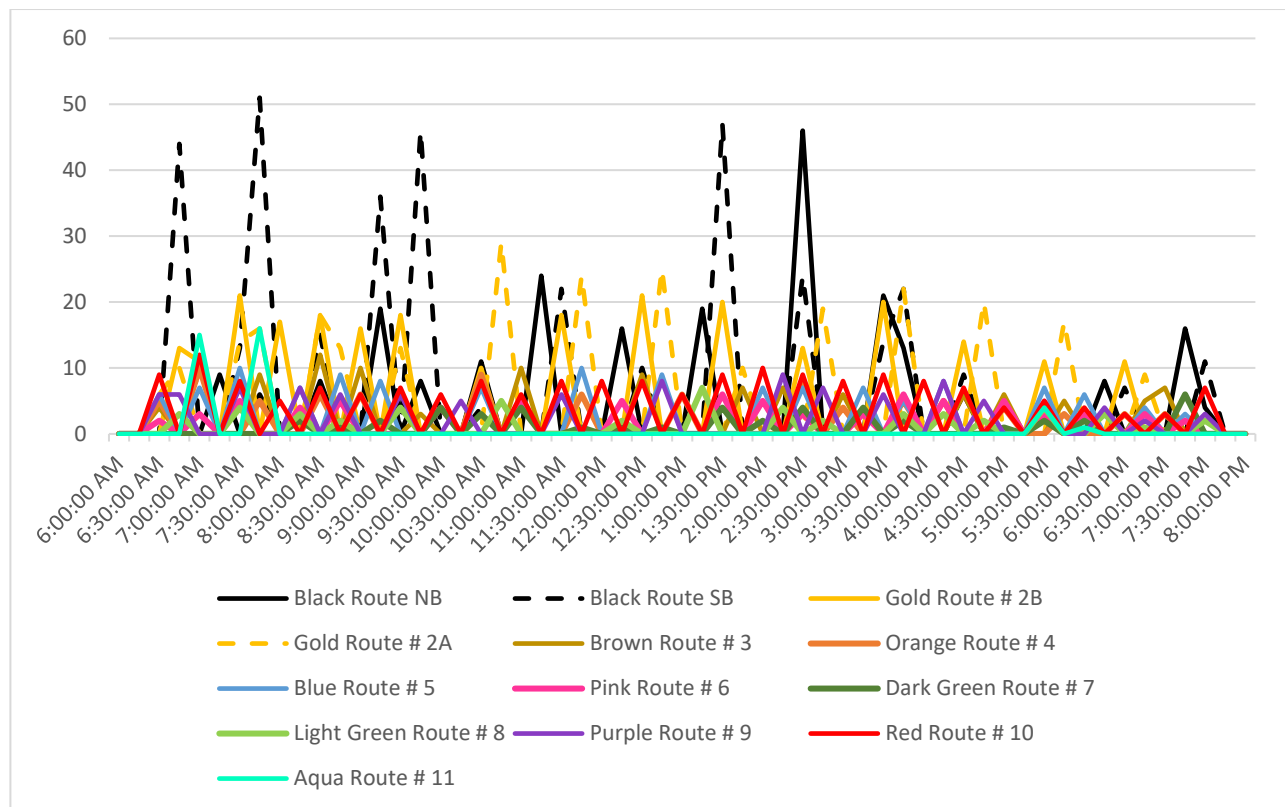


## Go COMO Bus Service Evaluation

### Service Span Adjustments

The scenarios include a recommendation to adjustment to the service span to start a half hour earlier each day at 6:00 am. Figure 10-3 shows higher existing ridership in the early morning than in the early evening. Adjusting the service span to start at 6:00 am instead of 6:30 am increases the ability for residents to use transit to get to work for the early shifts.

**Figure 10-3 Go COMO Ridership by Time of Day**



### Scenarios

Services scenarios were developed following the Comprehensive Operation Analysis of the existing system, the visioning workshop, and the service design guidelines and standards. These alternatives incorporate what was learned in the operations analysis, as well as comments heard in the visioning workshop, and service design guidelines and standards.

#### **Scenario A – Revised Loop Routes with Flex Routes.**

The existing system features nine interlinked loop routes centered on two cross town routes. Scenario A simplifies this system by modifying the alignment of Gold Route #2 and dividing the existing Black Route #1 into two separate routes. This allows the



## Go COMO Bus Service Evaluation

two segments to operate separately whereas currently, heavy congestion on one segment would impeded the entire route.

- The Blue Route #5 largely maintains its current alignment, but only serves Battle High School at the beginning or end of the school day.
- The Brown Route #3 and Orange Route #4 neighborhood routes would be replaced by a flex zone that would provide general public demand response service either within the zone, or deliver passengers to a point where they can connect to a fixed route service. This would allow transit service to provide coverage in an otherwise lower density area.
- A new, bi-directional trunk route would link Brown School Road and Oakland Gravel Road, to retail opportunities at Conley Road. This would also provide connections to the Gold Route.
- The areas served by Dark Green Route #7, Light Green Route #8, Purple Route #9, and Pink Route #6 would turn into a flex zone allowing passengers to either circulate within the zone, or deliver to a point where they can access fixed route transportation.

*Table 10-1 Scenario "A" Characteristics*

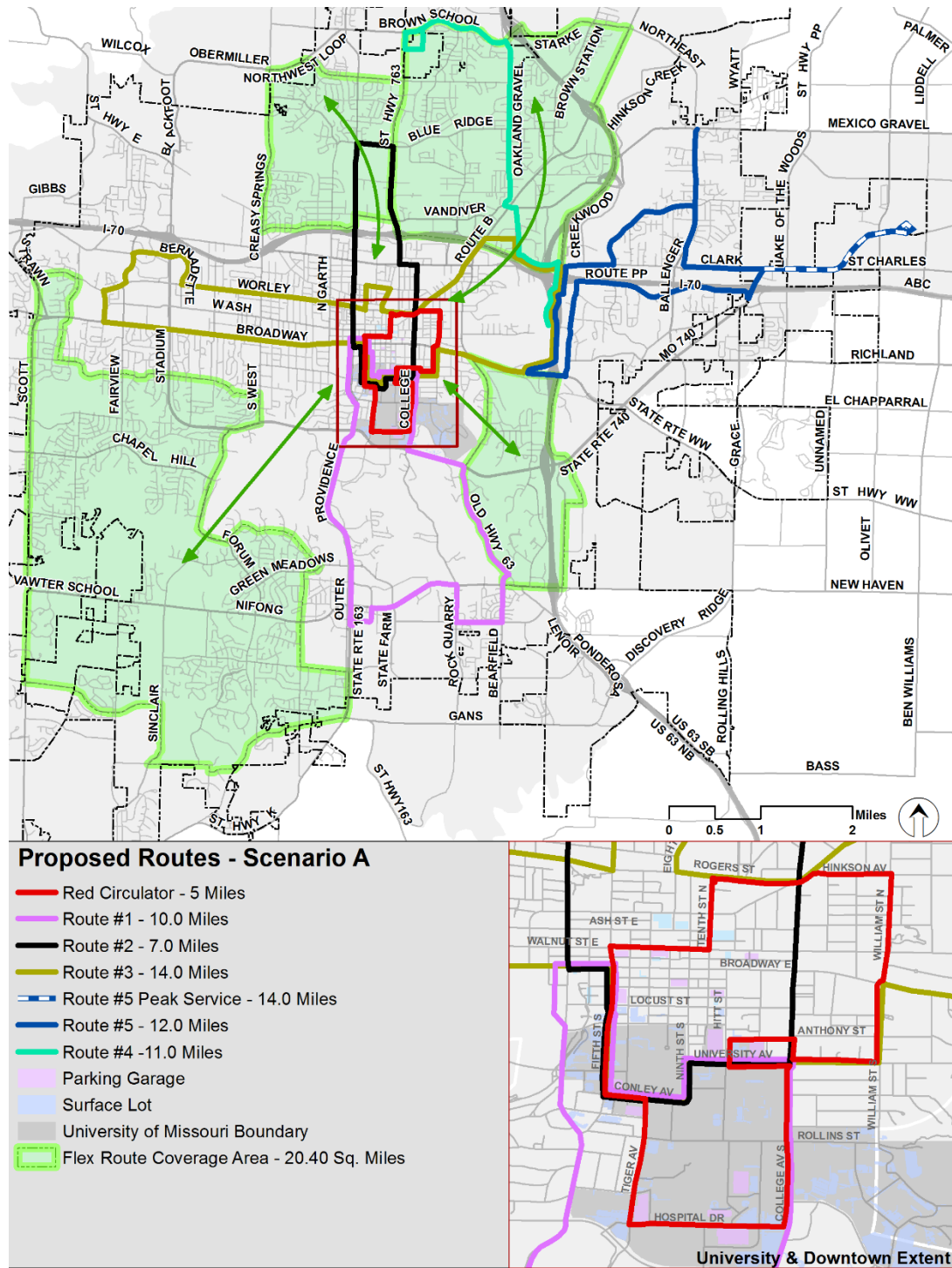
Scenario A	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
<b>Route #1 Lavender</b>	30 minute	2	270	27.0
<b>Route #2 Black</b>	30 minute	1	189	13.5
<b>Route #3 Gold</b>	30 minute	2	378	27.0
<b>Route #4 Aqua</b>	30 minute	2	297	27.0
<b>Route #5 Blue</b>	30 minute	2	228	19.0
<b>Route #5 Blue Pk</b>	30 minute	1	112	8.0
<b>Red Route</b>	30 Minute	1	135	13.5
<b>Flex Routes</b>	N/A	3.5	756	47.25
<b>Total:</b>		<b>13.5</b>	<b>2,365</b>	<b>182.3</b>
<b>Scenario "A" Annual Weekday Operating Cost</b>				<b>\$3,745,785</b>
<b>Current Weekday Operating Cost</b>				<b>\$3,727,572</b>
<b>Increase (Decrease) over Current Cost</b>				<b>+\$18,213</b>





## Go COMO Bus Service Evaluation

Figure 10-4 Scenario "A" Proposed Routes





## Go COMO Bus Service Evaluation

### ***Scenario B – Trunk System with Flex Routes.***

Scenario B, C, and D transforms the transit system from a system of loops, to one of bi-directional linear routes that utilize the Wabash Station at 10th Street and Ash Street while also maintaining strong connections to the MU campus. The Wabash Station would provide customers a comfortable experience transferring between routes, increases opportunities to deliver direct customer service, and provides a safe location for operator shift changes.

- In Scenario B, the current Black Route #1 will be split into two north-south routes that both serve University of Missouri campus and Wabash Station.
- A new Route #2 would serve the retail on Providence and Nifong, before connecting through campus to the Wabash Station. It would then continue to Business Loop 70 and then extend north along Garth Avenue to terminate at Blue Ridge Road.
- The eastern portion of the existing Route #1 would be served by a new Route #1 that would connect Rock Quarry Road and Grindstone Parkway in the southeast of the city, to Wabash Station through the University of Missouri campus.
- The current Gold Route #2 would be split into three separate routes. A new Route #3 would connect the Wabash Station to retail on Fairview using Ash Street, Garth Avenue, Business Loop 70, Wooley, and Bernadette. A new Route #4 primarily serve Broadway between Wabash Station and Fairview. A revised Route #5 would extend service from Ballenger Lane and Clark Lane to Wabash Station via Paris Road, while also serving the retail and medical services on Conley Road and Keene Street. Battle High School would continue to be served before and after the school day.
- A new Route # 6 would link the retail and medical services on Conley Road and Keene Street to the Wabash Station via Broadway and the campus.
- The areas served by Dark Green Route #7, Light Green Route #8, Purple Route #9, and Pink Route #6 would turn into a flex zone allowing passengers to either circulate within the zone, or deliver to a point where they can access fixed route transportation.
- Flex service would be introduced in areas served by the current Brown Route #3 and Orange Route #4.

Table 10-2 describes the characteristics of the Scenario B. Savings shown over current costs would be directed back into supporting flex and paratransit routes.



## Go COMO Bus Service Evaluation

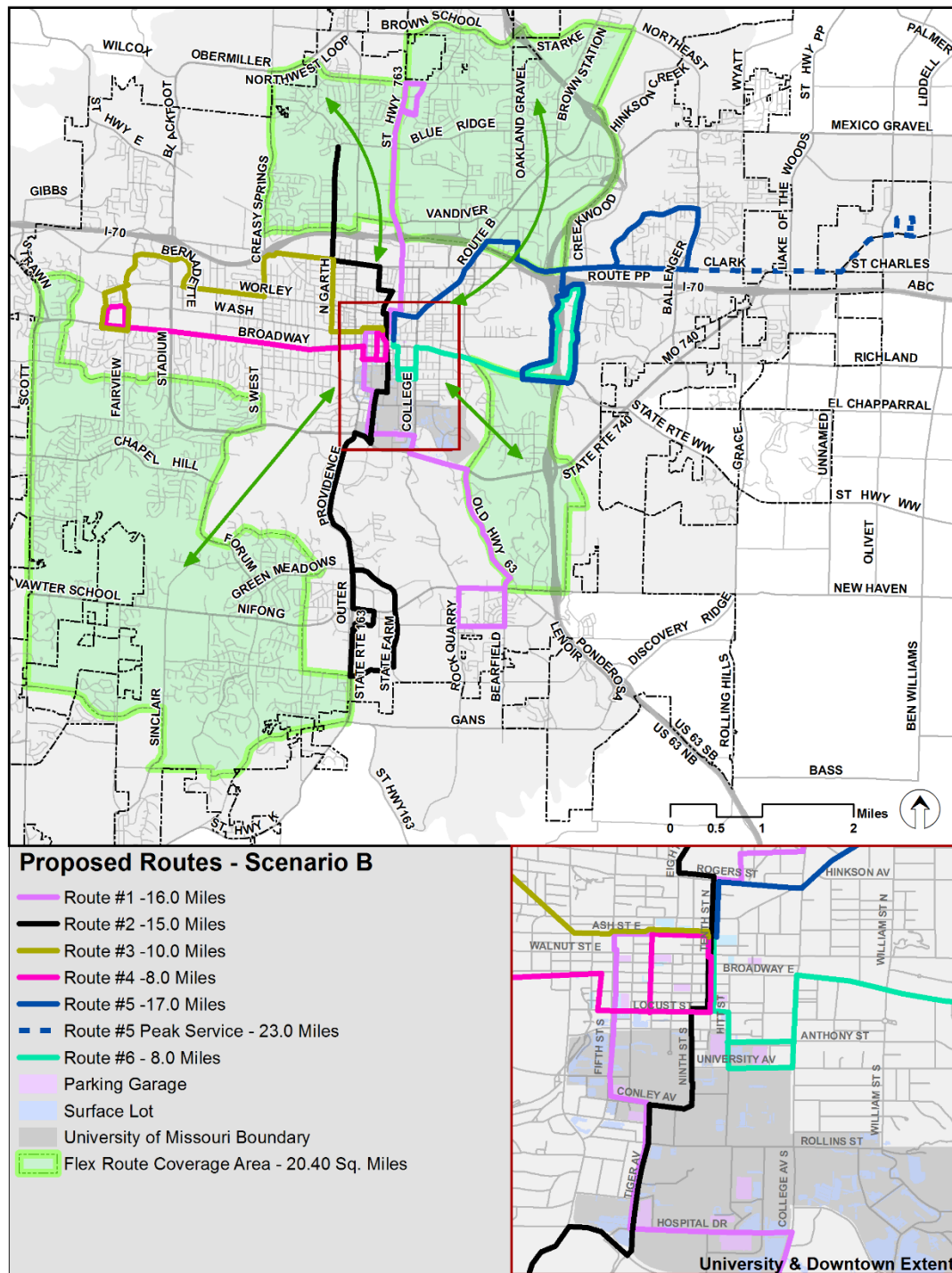
Table 10-2 Scenario "B" Characteristics

Scenario B	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
Route #1 Lavender	30 minute	3	432	40.5
Route #2 Black	30 minute	2	405	27.0
Route #3 Gold	30 minute	2	270	27.0
Route #4 Pink	30 minute	1	216	13.5
Route #5 Blue	30 minute	2	323	19.0
Route #5 Blue Pk	30 minute	3	184	12.0
Route #6 Aqua	30 Minute	1	216	13.5
Flex Routes	N/A	2	432	27
<b>Total:</b>		<b>16</b>	<b>2,478</b>	<b>179.5</b>
<b>Scenario B Annual Weekday Operating Cost</b>				<b>\$3,689,264</b>
<b>Current Weekday Operating Cost</b>				<b>\$3,727,572</b>
<b>Increase (Decrease) over Current Cost</b>				<b>(\$38,308)</b>



## Go COMO Bus Service Evaluation

Figure 10-5 Scenario "B" Proposed Routes







## Go COMO Bus Service Evaluation

### Scenario C - Higher Frequency Trunk Routes

Scenario C utilizes the trunk routes defined in Scenario B, and increase a system frequency from 30 minutes to 20 minutes. This scenario does not utilize flex routes. This prioritizes transit service to those areas of Columbia with the highest past demonstrated ridership.

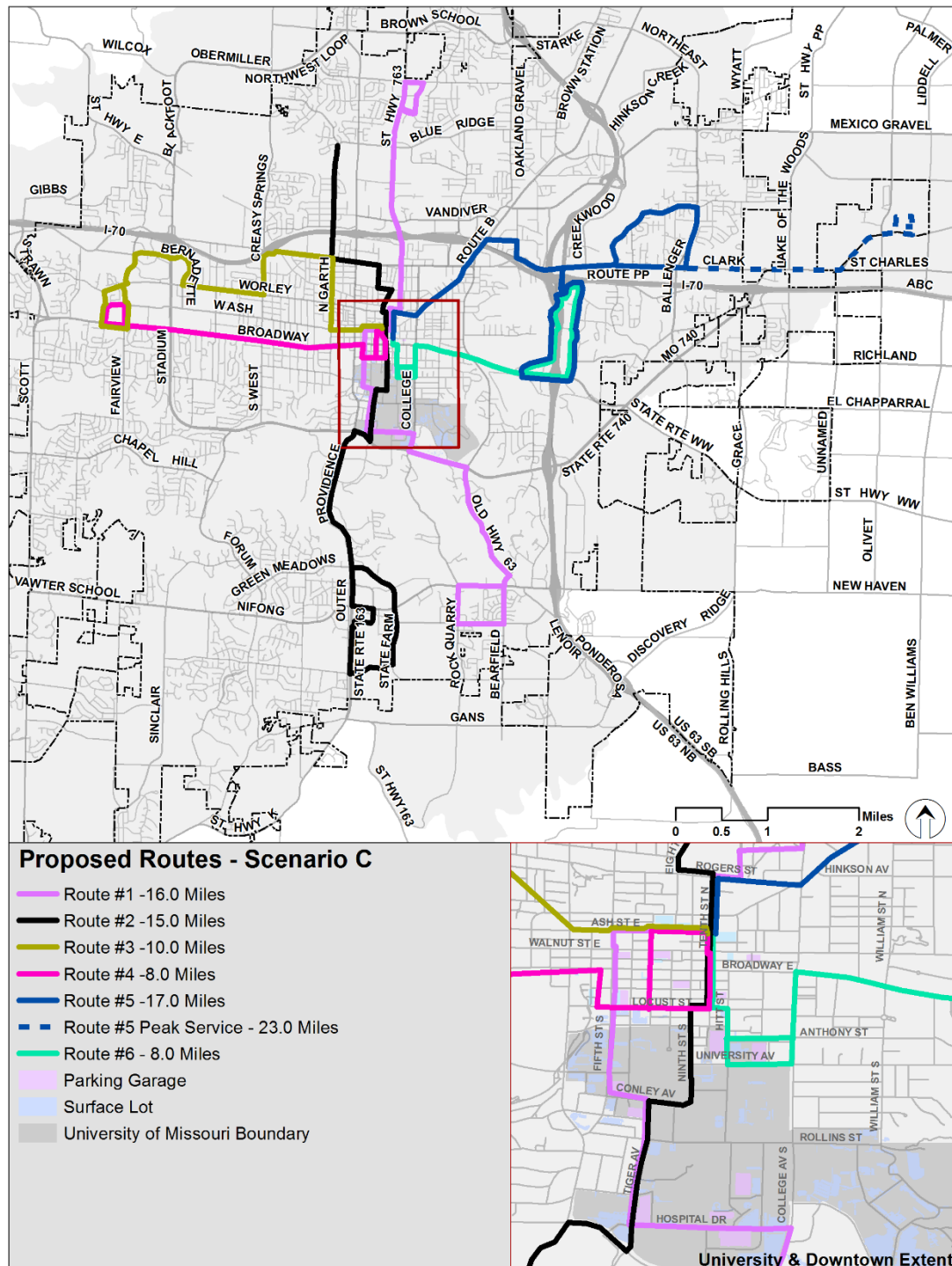
*Table 10-3 Scenario "C" Characteristics*

Scenario C	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
Route #1 Lavender	20 minute	4	648	54.0
Route #2 Black	20 minute	3	608	40.5
Route #3 Gold	20 minute	2	405	27.0
Route #4 Pink	20 minute	2	324	27.0
Route #5 Blue	20 minute	3	485	28.5
Route #5 Blue Pk	20 minute	4	276	16.0
Route #6 Aqua	20 minute	2	324	27.0
Total:		20	3,069	220.0
Scenario C Annual Weekday Operating Cost				\$4,521,660
Current Weekday Operating Cost				\$3,727,572
Increase (Decrease) over Current Cost				+\$794,088



# Go COMO Bus Service Evaluation

Figure 10-6 Scenario "C" Proposed Routes





## Go COMO Bus Service Evaluation

### Scenario D – Higher Frequency Trunk Routes with Flex

Scenario D adds the flex zones onto the 20-minute frequency routes of Scenario C. This scenario provides a high quality of transit service to those areas with the highest past demonstrated ridership, while also providing a base level of general public demand response service for less dense areas of Columbia.

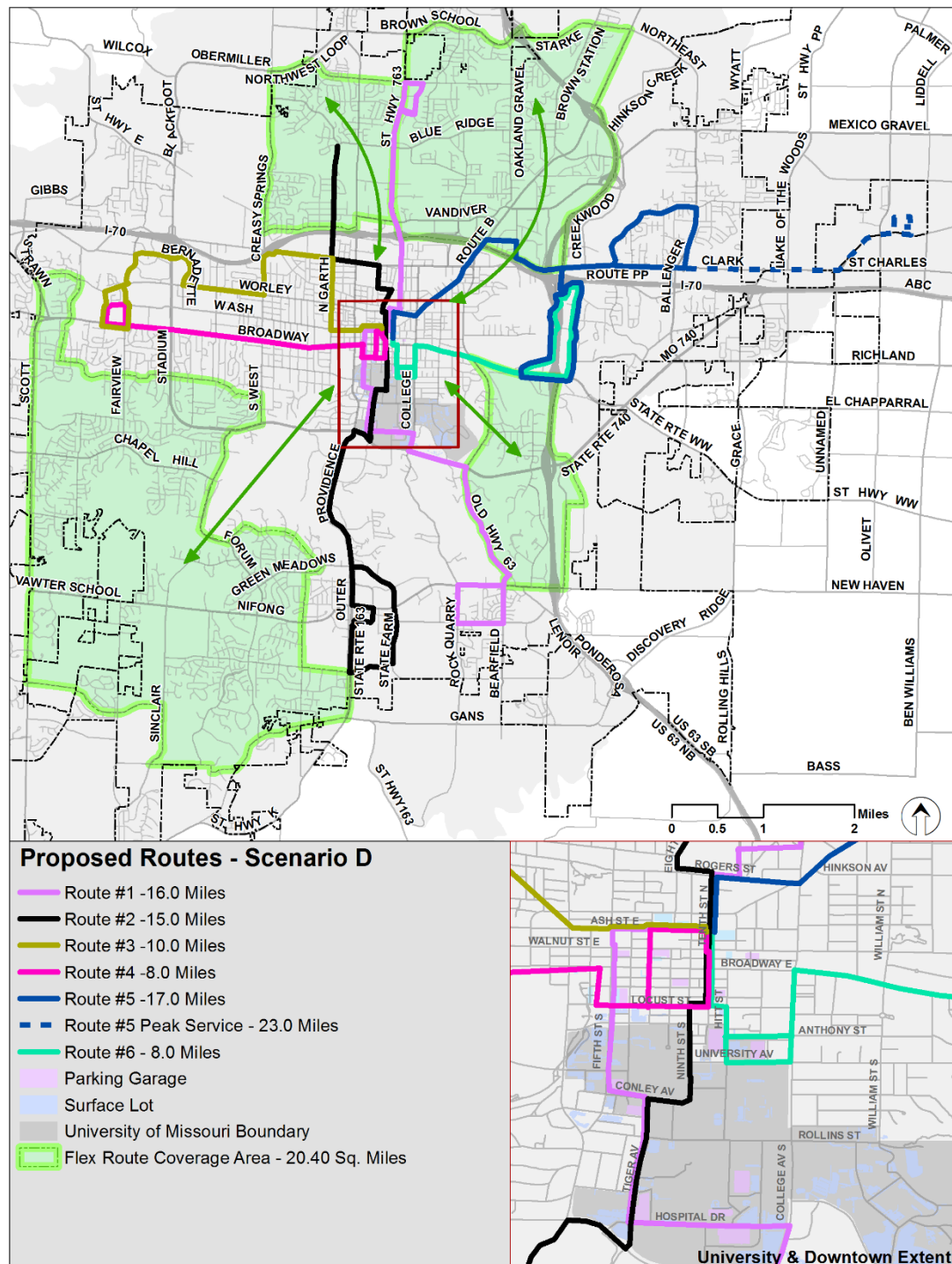
*Table 10-4 Scenario "D" Route Characteristics*

Scenario D	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
<b>Route #1 Lavender</b>	20 minute	4	648	54.0
<b>Route #2 Black</b>	20 minute	3	608	40.5
<b>Route #3 Gold</b>	20 minute	2	405	27.0
<b>Route #4 Pink</b>	20 minute	2	324	27.0
<b>Route #5 Blue</b>	20 minute	3	485	28.5
<b>Route #5 Blue Pk</b>	20 minute	4	276	16.0
<b>Route #6 Aqua</b>	20 minute	2	324	27.0
<b>Flex Routes</b>	N/A	3.5	432	27
<b>Total:</b>		<b>22.5</b>	<b>3,501</b>	<b>247.0</b>
<b>Scenario D Annual Weekday Operating Cost</b>				<b>\$5,076,591</b>
<b>Current Weekday Operating Cost</b>				<b>\$3,727,572</b>
<b>Increase (Decrease) over Current Cost</b>				<b>+\$1,349,019</b>



## Go COMO Bus Service Evaluation

Figure 10-7 Scenario "D" Proposed Routes







## Go COMO Bus Service Evaluation

### Summary

Table 10-5 describes the existing system compared to each scenario. Generally, these scenarios provide a more direct service at a consistent frequency when compared to the existing service. Passengers in the flex zones may perceive a lower level of service, although this is a more efficient use of resources, and provides those passengers with the opportunity for a curb-to-curb trip inside a flex zone. Scenarios B, C, and D reorient the system around Wabash Station. This provides customers a comfortable experience for transferring between routes, increases opportunities to deliver direct customer service, and provides a safe location for operator shift changes.

*Table 10-5 Existing System and Scenarios Comparison*

Scenario	Description	Frequency	Flex Routes	Cost	Increase (Decrease) over Current Cost*
<b>Existing</b>	Loops	30, 35, 40, 60 minute	No	\$3,727,572	N/A
<b>Scenario A</b>	Modified Loops	30 minute	Yes	\$3,745,784	+\$18,212
<b>Scenario B</b>	Trunk Routes	30 Minute	Yes	\$3,689,264	(\$38,308)
<b>Scenario C</b>	High freq. Trunks	20 Minute	No	\$4,521,660	+\$794,088
<b>Scenario D</b>	High Freq. Trunks + Flex	20 Minute	Yes	\$5,076,591	+\$1,349,019

**\*Costs calculated only for annual weekday service.**

Table 10-6 displays the numbers of existing riders that would be in flex zones under each scenarios.

*Table 10-6 Existing Ridership Within Scenario's Fixed Route and Flex Areas*

Scenario	Within ¼ mile of Fixed Route Service	Outside ¼ Mile of Fixed Route Service but Within Flex Area	Outside both ¼ Mile of Fixed Route Service and Flex Area
<b>Scenario A</b>	9,422 (91%)	787 (7%)	137 (1%)
<b>Scenario B</b>	9,366 (90%)	787 (7%)	193 (2%)
<b>Scenario C</b>	9,366 (90%)	0 (0%)	980 (9%)
<b>Scenario D</b>	9,366 (90%)	787 (7%)	193 (2%)

**Source: October 2015 Ridership**

These scenarios were presented to the City Council on March 20<sup>th</sup>, 2017, and presented at public meetings on April 20<sup>th</sup>, 2017.



## Public Input on Alternatives

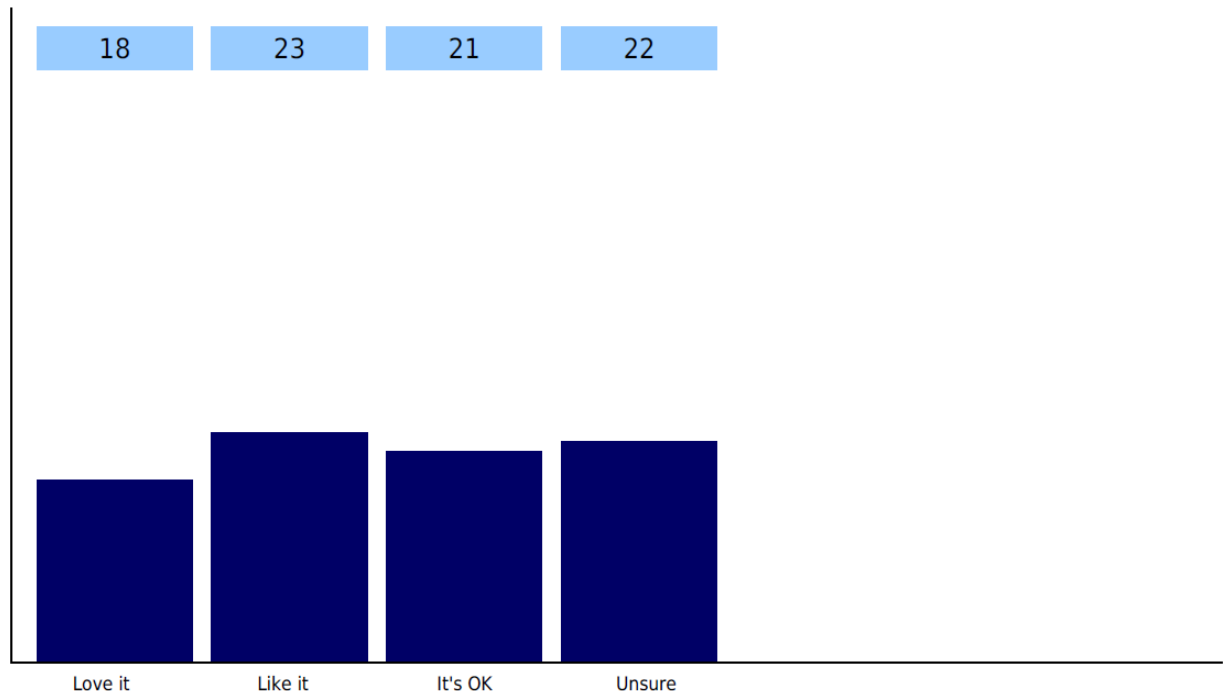
A public open house, six bus stop meetings, and a stakeholder meeting with bus drivers were held throughout the day on April 20<sup>th</sup>, 2017. The purpose of these events were to share the potential bus and paratransit improvement scenarios' and gather feedback from the public on opinions of scenarios A, B, C, and D, the scenario that participants feel is most important for the community, and that which is most important for the individual stakeholder.

An estimated 300 people were engaged during the event, including representatives from the PedNet Coalition, Love Inc. of Columbia, Central Missouri Community Action (CMCA), Public Transportation Advisory Committee (PTAC), city officials and staff, Central Missouri Contracting Enterprises (CMSE) workers, as well as residents, transit riders, and University of Missouri students. These meetings were advertised through a city press release, e-blasts, and facebook advertising and through the project Facebook page.

An opinion survey was administered during these meetings, and online from April 20<sup>th</sup> to May 5<sup>th</sup>, 2017. A total of 94 responses was collected during the period. The survey is summarized in **Figure 10-8** through **Figure 10-17** below.

In addition, the survey included a question where respondents could write comments, and Facebook comments and email comments were collected as well. A complete summary of the public meeting process is included in Appendix A, Appendix B, and Appendix C.

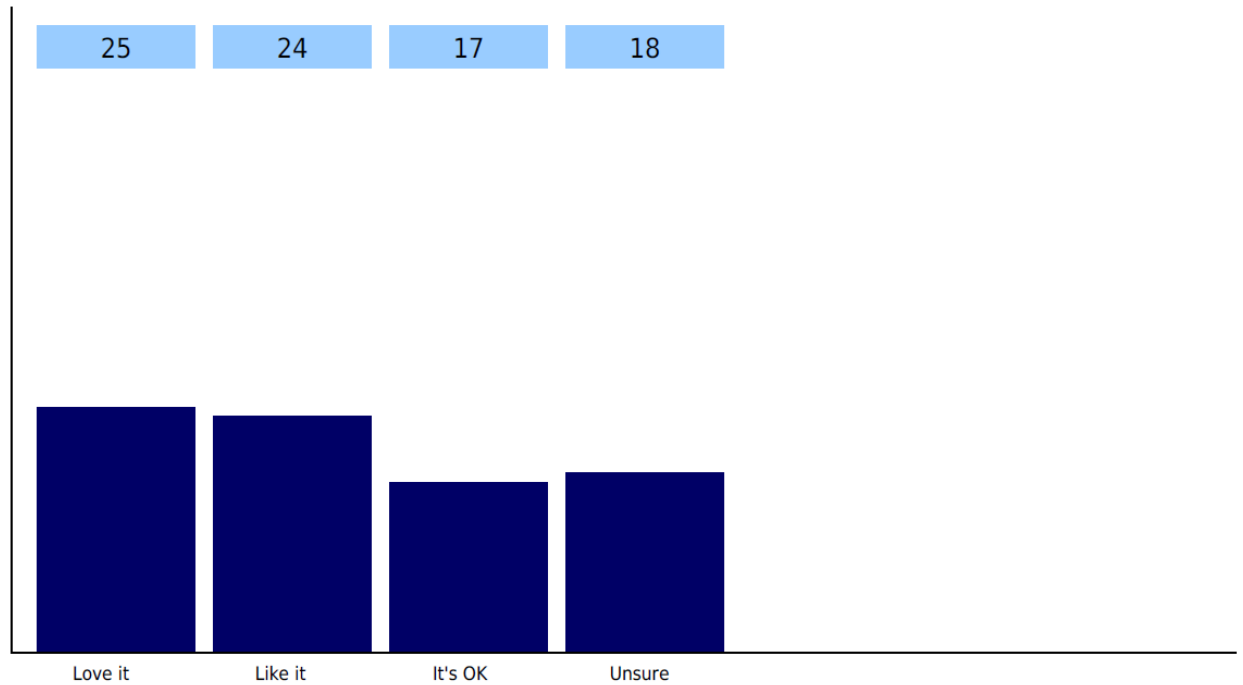
*Figure 10-8: Opinions of Flex Routes*



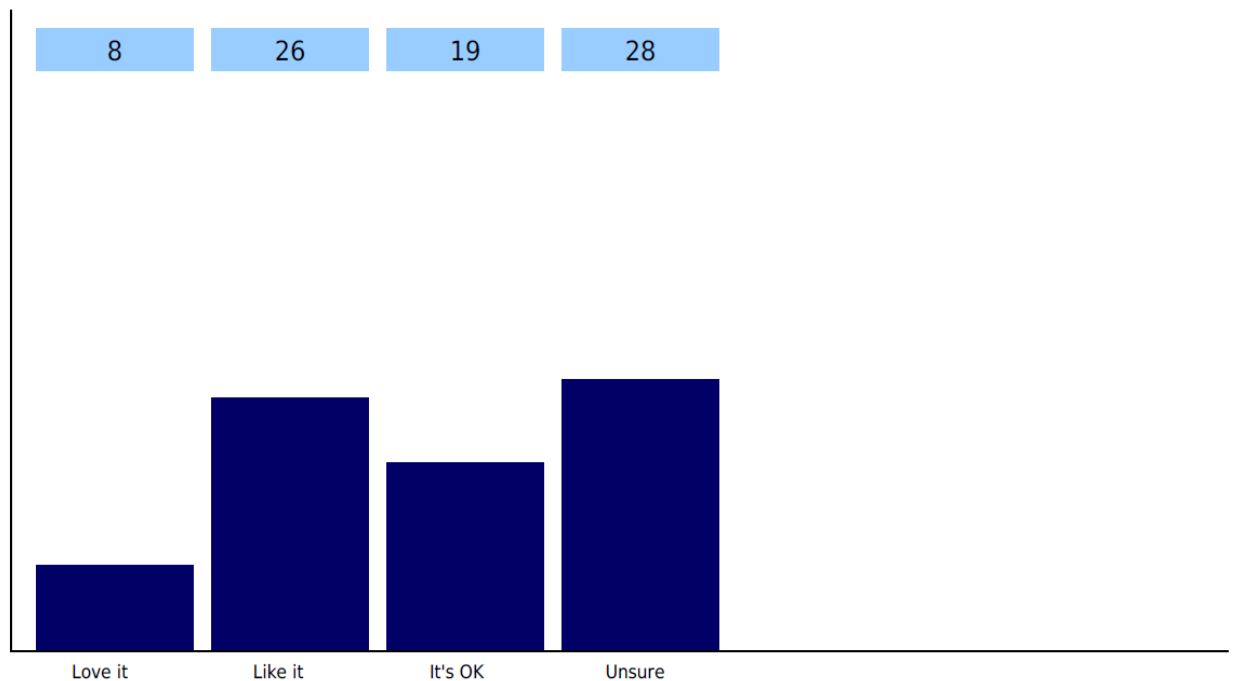


## Go COMO Bus Service Evaluation

*Figure 10-9: Opinions of Route through MU Campus*



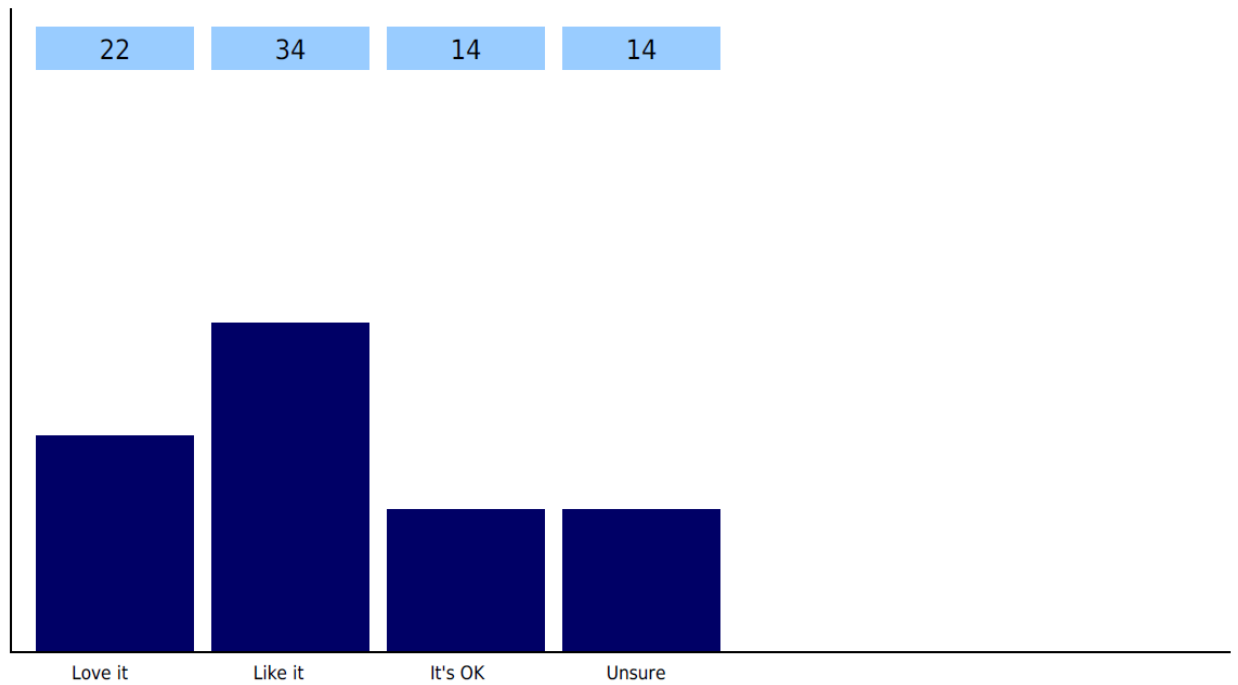
*Figure 10-10: Opinions of Modified Loops Scenario*



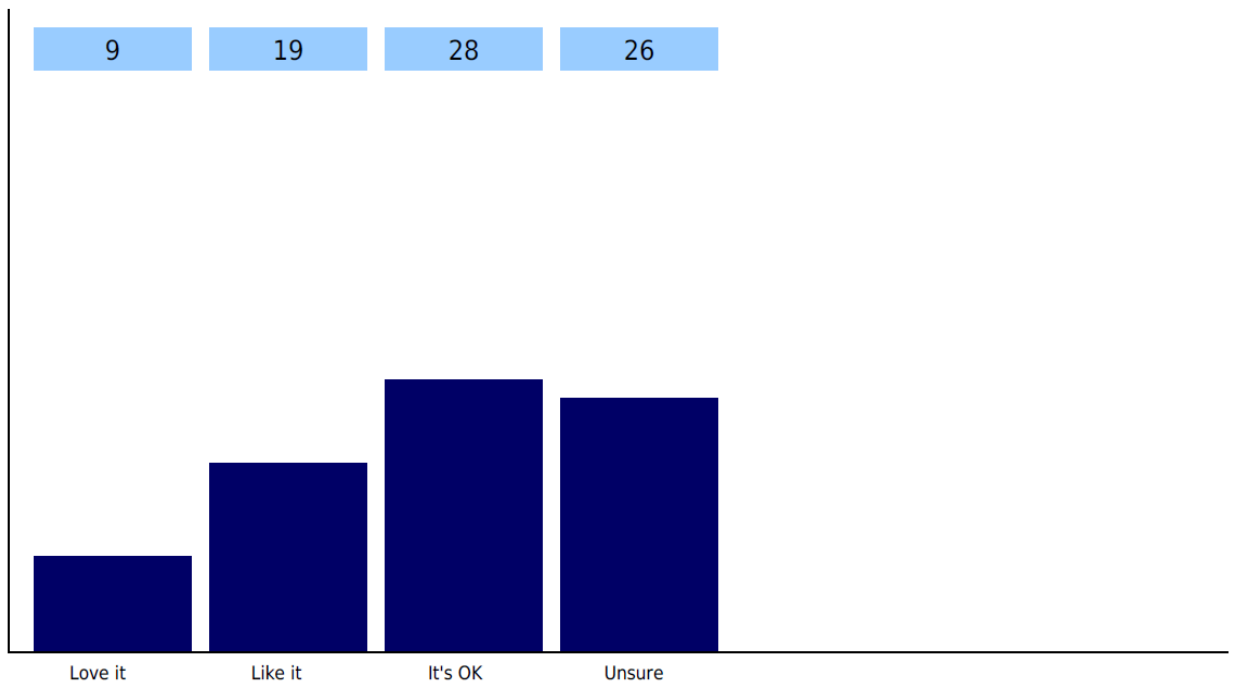


## Go COMO Bus Service Evaluation

*Figure 10-11: Opinions of Trunk Routes Scenario*



*Figure 10-12: Opinions of High Frequency Scenario*

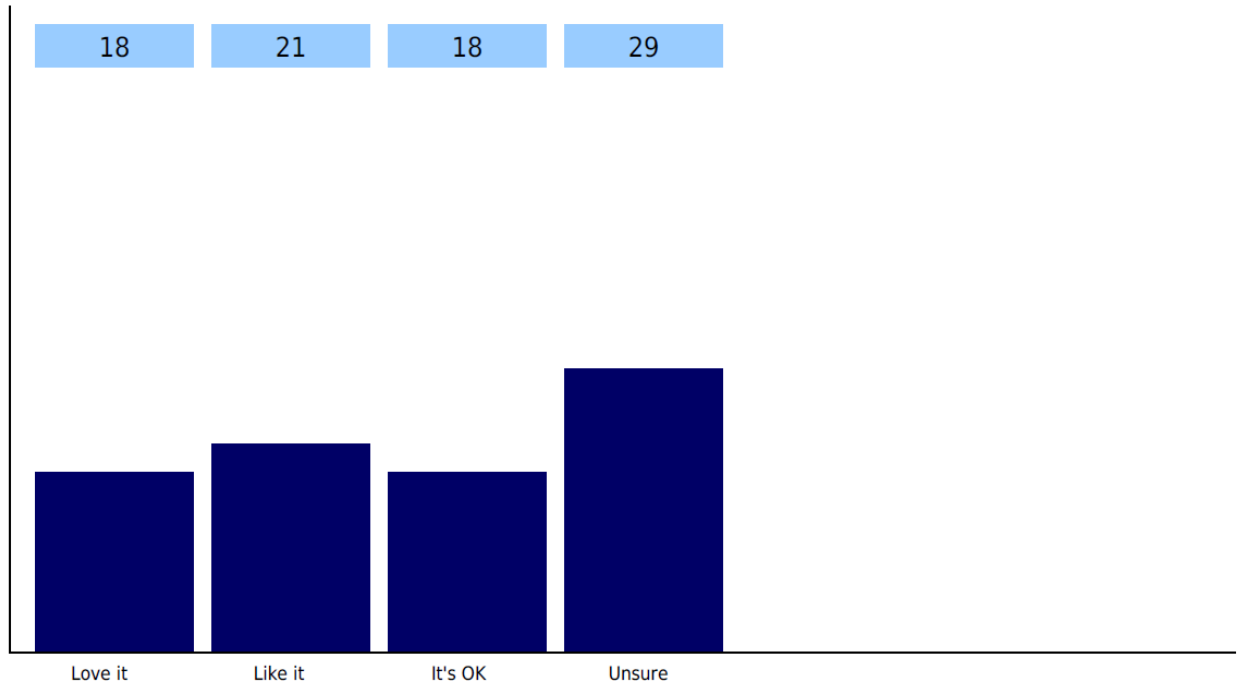




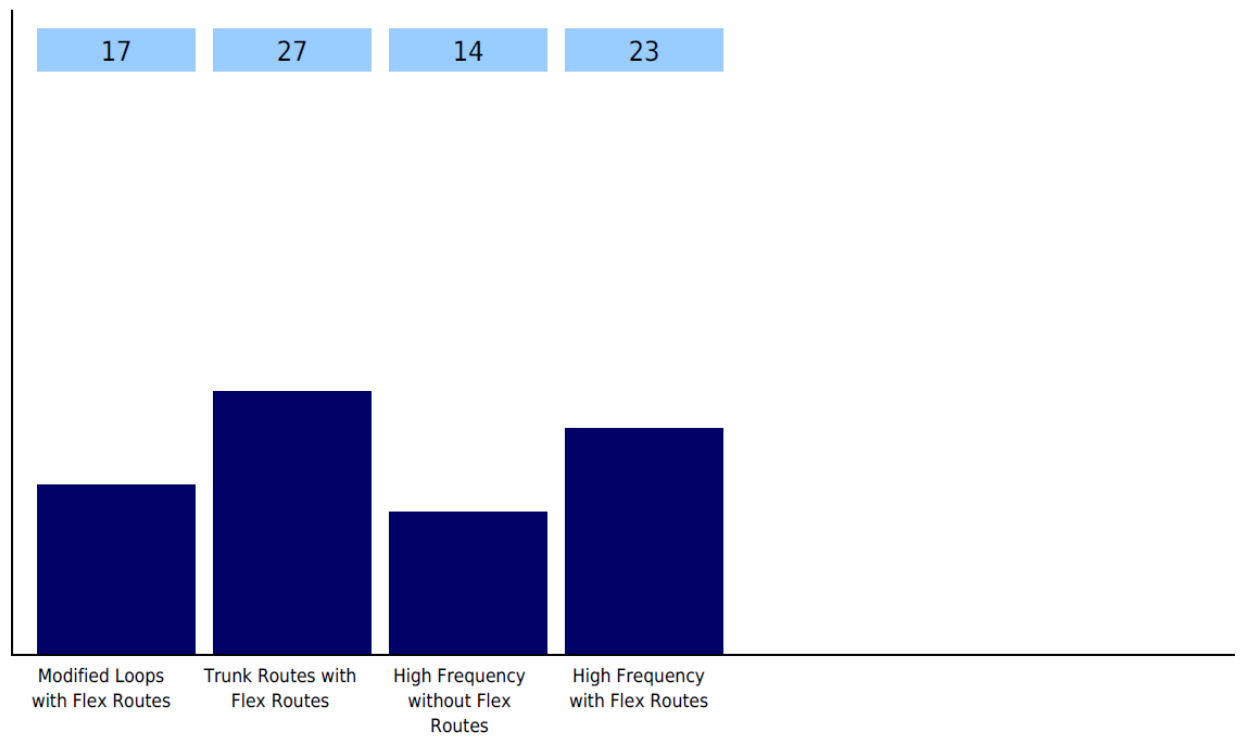


## Go COMO Bus Service Evaluation

*Figure 10-13: Opinions of High Frequency (with Flex Routes) Scenario*



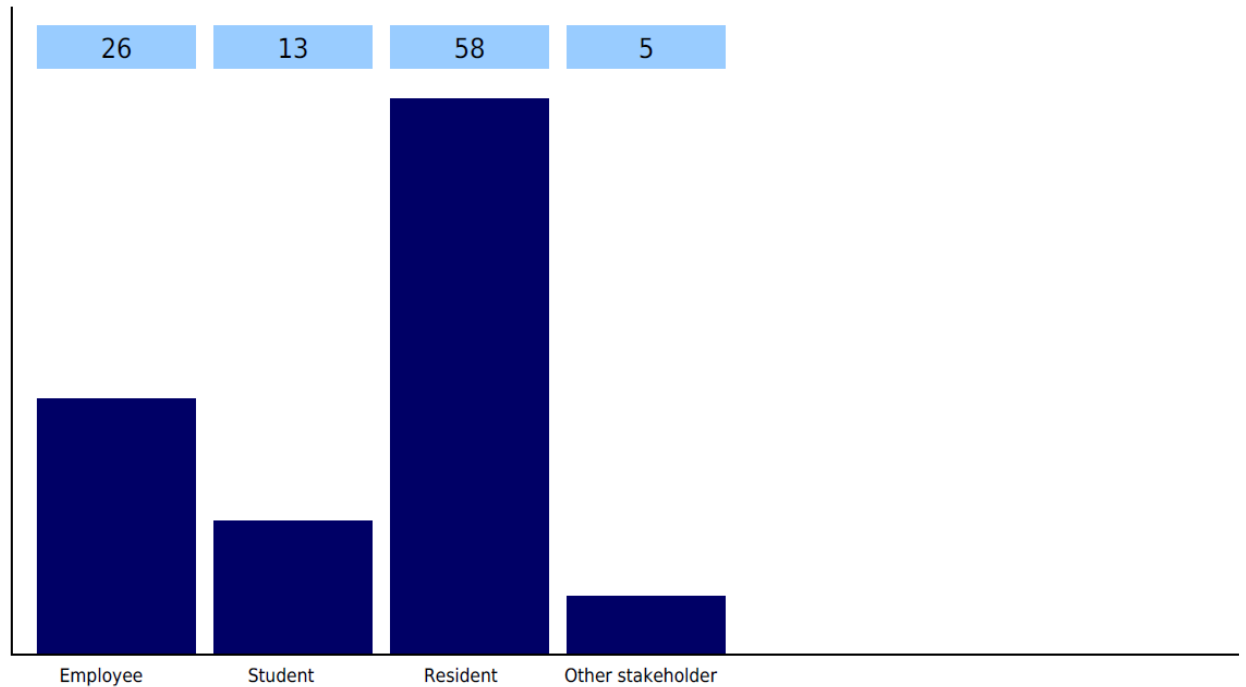
*Figure 10-14: Opinions on the Best Transit Scenario for the Community*



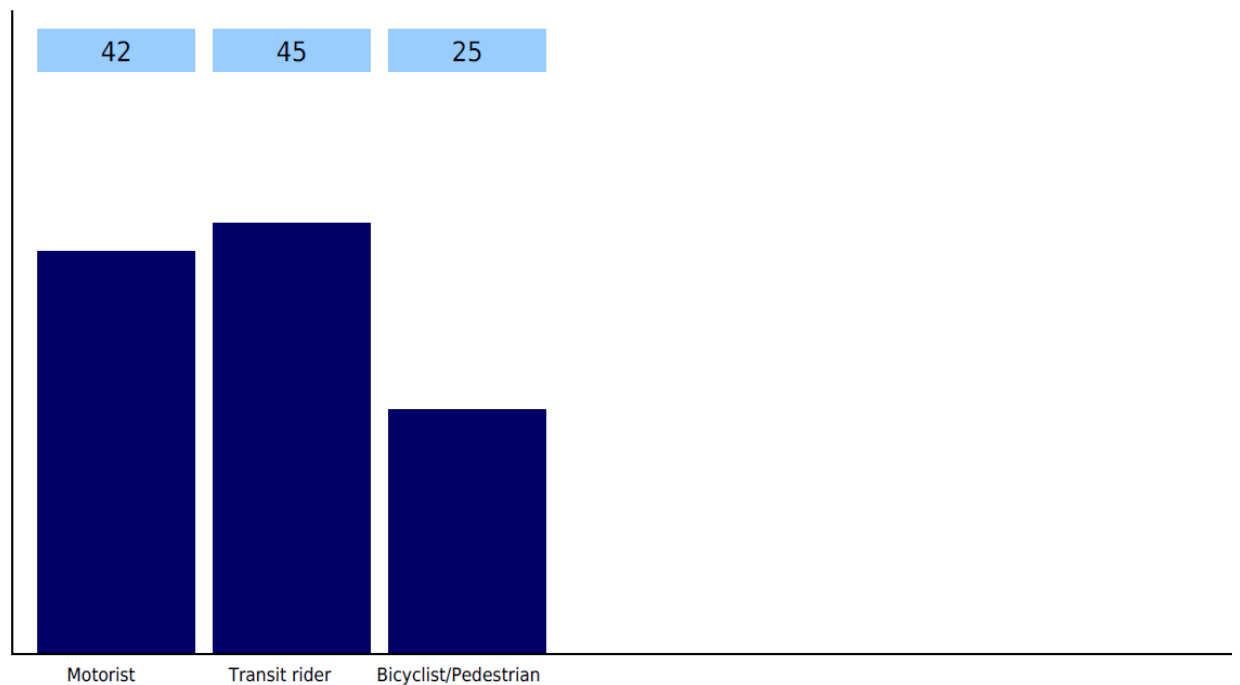


## Go COMO Bus Service Evaluation

*Figure 10-15: Survey Respondents Self Descriptions*



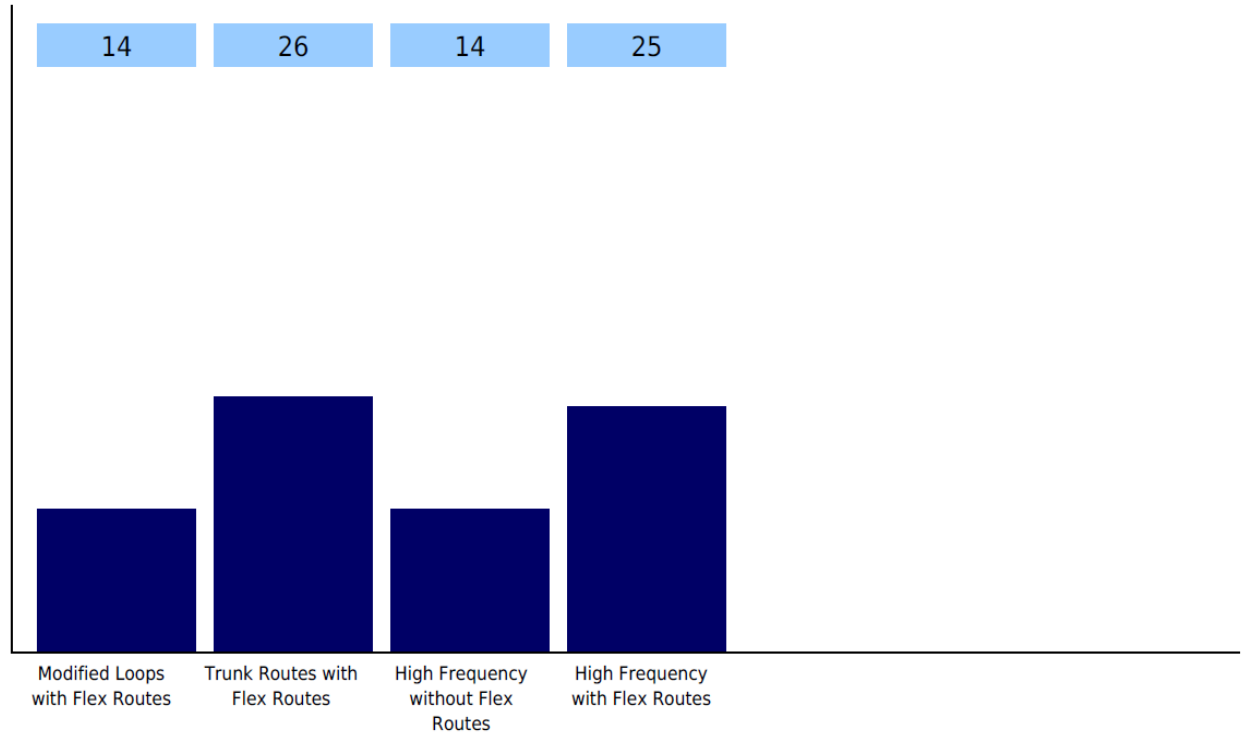
*Figure 10-16: Survey Respondents Commute Mode of Transportation*





## Go COMO Bus Service Evaluation

*Figure 10-17: Opinions of the Best Transit Scenario for Specific Stakeholders*





## Go COMO Bus Service Evaluation

### Chapter 11 Preferred Transit Alternative

This chapter presents the preferred transit package for Columbia to best meet the current public transportation needs of the community. The preferred transit package is a slightly modified Scenario B, which transforms the transit system from the current systems of loops, to one of bi-directional linear routes that would bring routes to the Wabash Station at 10<sup>th</sup> Street and Ash Street to facilitate transfers, while also continuing to serve the University of Missouri campus.

#### Short-Term Service Plan

The preferred transit package for Columbia in the near-term includes:

- Replacing the current Black Route #1 with two north-south routes that both serve the University of Missouri campus and Wabash Station.
  - A new Route #2 that would serve the retail on Providence and Nifong, before connecting through campus to the Wabash Station. It would then continue to Business Loop 70 and then extend north along Garth Avenue to terminate at Blue Ridge Road.
  - The eastern portion of the existing Route #1 would be served by a new Route #1 that would connect Rock Quarry Road and Grindstone Parkway in the southeast of the city, to Wabash Station through the University of Missouri Campus, to Brown School Road via Rangline Street.
- The current Gold Route #2 would be split into three separate routes. A new Route #3 would connect the Wabash Station to retail on Fairview using Ash Street, Garth Avenue, Business Loop 70, Wooley, and Bernadette. A new Route #4 would primarily serve Broadway between Wabash Station and Fairview. A revised Route #5 would extend service from St. Charles Road and Clark Lane to Wabash Station via Paris Road, while also serving the retail and medical services on Conley Road and Keene Street. Battle High School would continue to be served before and after the school day.
- A new Route #6 would link the retail and medical services on Conley Road and Keen Street to the Wabash Station via Broadway and the campus.
- The areas served by Dark Green Route #7, Light Green Route #8, Purple Route #9, and Pink Route #6 would turn into a flex zone allowing passengers to either circulate within the zone, or deliver to a point where they can access fixed route transportation.
- Flex would be introduced in areas served by the current Brown Route #3 and Orange Route #4.
- Modify the service span to start at 6:00 am, rather than 6:30 am, on weekdays. Evening service would end at 7:30 pm.

The preferred transit packages incorporate changes made after public comments were received through public input. The new Route #1 was initially proposed to terminate at Smiley Lane, but was extended to Brown School Road after public comments were received. This would capture additional riders at relatively little additional cost.





## Go COMO Bus Service Evaluation

The off-peak Route #5 was extended from terminating at Ballenger Lane and Clark Lane, to terminating at St. Charles Road and Clark Lane instead. This would extend service to within walking distance for low income residents living in the area.

Individual route maps are displayed in Appendix D.

**Figure 11-1** and **Figure 11-2** displays the preferred short-term plan.

*Table 11-1: Weekday Short-Term Preferred Plan Characteristics*

Weekday Short-Term Preferred Plan	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
Route #1 Lavender	30 minute	3	459	40.5
Route #2 Black	30 minute	2	405	27.0
Route #3 Gold	30 minute	2	270	27.0
Route #4 Pink	30 minute	1	216	13.5
Route #5 Blue	30 minute	2	361	19.0
Route #5 Blue Pk	30 minute	3	184	12.0
Route #6 Aqua	30 Minute	1	216	13.5
Flex Routes	N/A	2	459	27
<b>Total:</b>		<b>14<sup>1</sup></b>	<b>2,543</b>	<b>179.5</b>
<b>Short-Term Preferred Plan Weekday Operating Cost<sup>2</sup></b>				<b>\$3,689,264</b>
<b>Current Weekday Operating Cost</b>				<b>\$3,727,572</b>
<b>Increase (Decrease) over Current Cost</b>				<b>(\$38,308)</b>

*Notes: <sup>1</sup>Number of total buses exclude Route #5 Off-Peak*

*<sup>2</sup>Costs excludes paratransit. Paratransit costs included in summary tables.*

*Table 11-2: Saturday Short-Term Preferred Plan Characteristics*

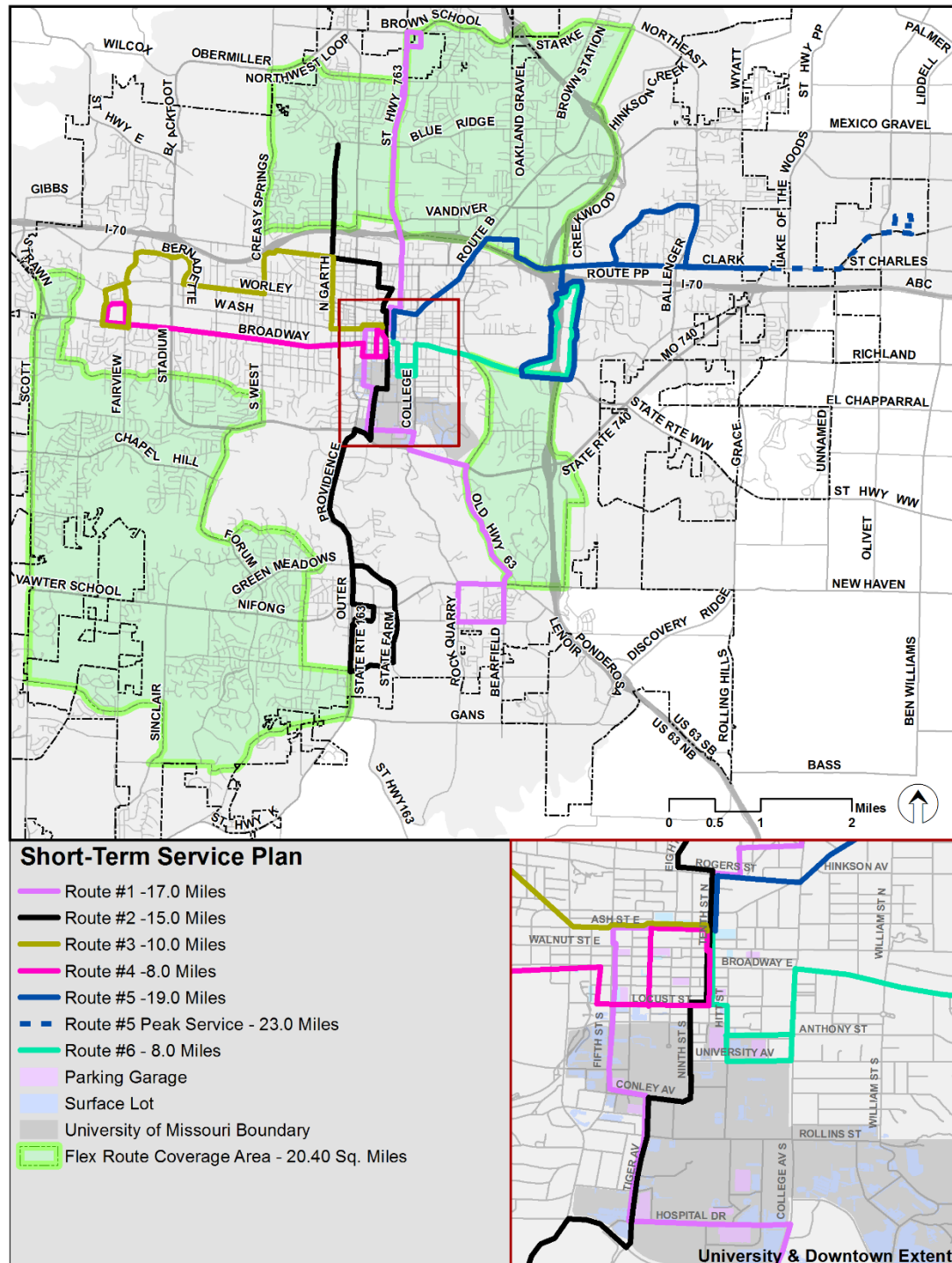
Saturday Short-Term Preferred Plan	Frequency	Buses	Avg. Sat Revenue Miles	Avg. Sat Revenue Hours
Route #1 Lavender	60 minute	2	170	40.5
Route #2 Black	60 minute	1	150	27.0
Route #3 Gold	60 minute	1	100	27.0
Route #4 Pink	60 minute	1	80	13.5
Route #5 Blue	60 minute	1	190	19.0
Route #5 Blue Pk	N/A	N/A	N/A	N/A
Route #6 Aqua	60 Minute	1	80	13.5
Flex Routes	N/A	2	320	27
<b>Total:</b>		<b>9</b>	<b>1,090</b>	<b>90</b>
<b>Short-Term Preferred Plan Saturday Operating Cost<sup>1</sup></b>				<b>\$398,970</b>
<b>Current Saturday Operating Cost</b>				<b>\$394,107</b>
<b>Increase (Decrease) over Current Cost</b>				<b>(\$4,863)</b>

*Notes: <sup>1</sup>Costs excludes paratransit. Paratransit costs included in summary tables.*



# Go COMO Bus Service Evaluation

Figure 11-1: Preferred Short-Term Alternative





## Go COMO Bus Service Evaluation

### Medium-Term Service Plan

The flex service introduced in the short-term scenario is a tool to serve those areas with lower ridership demand. Should ridership in those areas increase, it may be appropriate to reintroduce fixed route service back into an area. There is also the desire and need to expand the service span to evening service to 11 pm on weeknights and weekends. This would increase the appeal of transit to a broader variety of users, including those working in the retail and service sector, and those attending evening events or functions.

**Table 11-3** through **Table 11-5** describes the medium term service plan and costs. **Figure 11-2** illustrates the medium term service plan.

*Table 11-3: Weekday Medium-Term Preferred Plan Characteristics*

Weekday Medium-Term Preferred Plan	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
<b>Route #1 Lavender</b>	30 minute	3	459	40.5
<b>Route #2 Black</b>	30 minute	2	405	27.0
<b>Route #3 Gold</b>	30 minute	2	270	27.0
<b>Route #4 Pink</b>	30 minute	1	216	13.5
<b>Route #5 Blue</b>	30 minute	2	361	19.0
<b>Route #5 Blue Pk</b>	30 minute	3	184	12.0
<b>Route #6 Aqua</b>	30 Minute	1	216	13.5
<b>Route #7 Green</b>	30 Minute	2	351	27
<b>Flex Routes</b>	N/A	2	459	27
<b>Total:</b>		<b>16<sup>1</sup></b>	<b>2,894</b>	<b>206.5</b>
<b>Medium-Term Preferred Plan Weekday Operating Cost<sup>2</sup></b>				<b>\$4,244,195</b>
<b>Current Weekday Operating Cost</b>				<b>\$3,727,572</b>
<b>Increase (Decrease) over Current Cost</b>				<b>\$516,623</b>

*Notes: <sup>1</sup>Number of total buses exclude Route #5 Off-Peak*

*<sup>2</sup>Costs excludes paratransit. Paratransit costs included in summary tables.*



## Go COMO Bus Service Evaluation

*Table 11-4: Weekday Evening Medium-Term Preferred Plan Characteristics*

Weekday Evening Medium-Term Preferred Plan	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
Route #1 Lavender	60 minute	2	51	6
Route #2 Black	60 minute	1	45	3
Route #3 Gold	60 minute	1	30	3
Route #4 Pink	60 minute	1	24	3
Route #5 Blue	60 minute	1	57	3
Route #5 Blue Pk	N/A	N/A	N/A	N/A
Route #6 Aqua	60 Minute	1	24	3
Route #7 Green	60 Minute	1	39	3
Flex Routes	N/A	2	96	6
<b>Total:</b>		<b>10</b>	<b>366</b>	<b>30</b>
<b>Medium-Term Preferred Plan Evening Operating Cost<sup>1</sup></b>				<b>\$616,590</b>
<b>Current Evening Operating Cost</b>				<b>\$0</b>
<b>Increase (Decrease) over Current Cost</b>				<b>\$616,590</b>

*Notes:<sup>1</sup>Cost excludes paratransit. Paratransit costs included in summary tables.*

*Table 11-5: Saturday Medium-Term Preferred Plan Characteristics*

Saturday Medium-Term Preferred Plan	Frequency	Buses	Avg. Sat Revenue Miles	Avg. Sat Revenue Hours
Route #1 Lavender	60 minute	2	459	40.5
Route #2 Black	60 minute	1	405	27.0
Route #3 Gold	60 minute	1	270	27.0
Route #4 Pink	60 minute	1	216	13.5
Route #5 Blue	60 minute	1	361	19.0
Route #5 Blue Pk	N/A	N/A	N/A	N/A
Route #6 Aqua	60 Minute	1	216	13.5
Route #7 Green	60 Minute	1	351	27
Flex Routes	N/A	2	459	27
<b>Total:</b>		<b>10</b>	<b>1,220</b>	<b>100</b>
<b>Medium-Term Preferred Plan Saturday Operating Cost<sup>1</sup></b>				<b>\$443,300</b>
<b>Current Weekday Operating Cost</b>				<b>\$394,107</b>
<b>Increase (Decrease) over Current Cost</b>				<b>\$49,193</b>

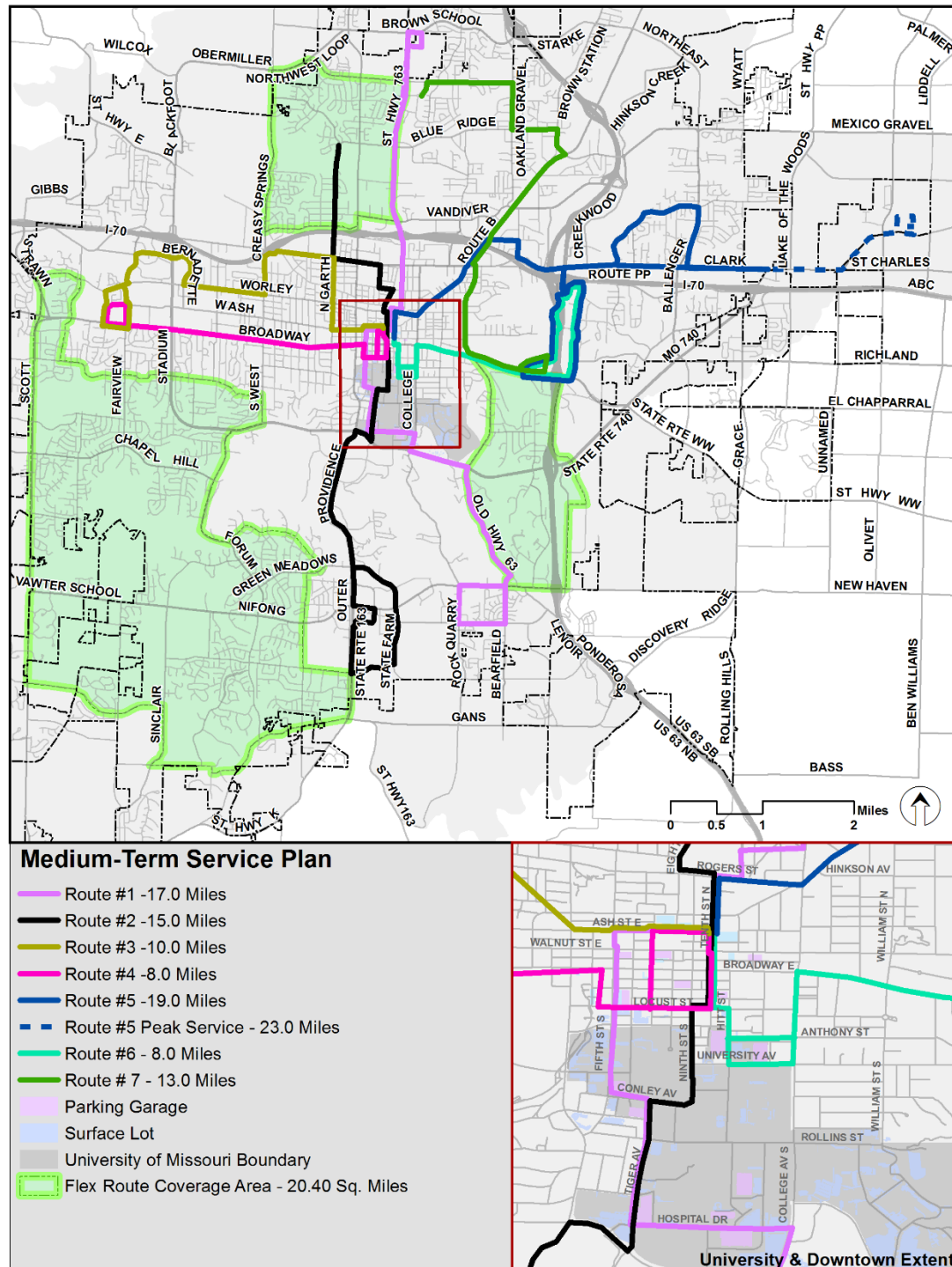
*Notes:<sup>1</sup>Costs excludes paratransit. Paratransit costs included in summary tables*





## Go COMO Bus Service Evaluation

Figure 11-2: Medium Term Service Plan





# Go COMO Bus Service Evaluation

## Long-Term Service Plan

The public indicated a strong desire for more frequent bus service, even beyond the 30 minute frequency that the near-term service plan envisions. The long-term plan would introduce 20 minute day-time frequency to the system, and 30-minute evening frequency. One-hour Sunday service would also be introduced. This would be contingent on additional funding. **Table 11-6** to **Table 11-9** describes the costs.

*Table 11-6: Weekday Long-Term Preferred Plan Characteristics*

Weekday Long-Term Preferred Plan	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
Route #1 Lavender	20 minute	4	689	54
Route #2 Black	20 minute	3	608	41
Route #3 Gold	20 minute	2	405	27
Route #4 Pink	20 minute	2	324	27
Route #5 Blue	20 minute	4	542	38
Route #5 Blue Pk	20 minute	4	276	16
Route #6 Aqua	20 Minute	2	324	27
Route #7 Green	20 Minute	3	527	41
Flex Routes	N/A	2	432	27
<b>Total:</b>		<b>22<sup>1</sup></b>	<b>4,125</b>	<b>297</b>
<b>Long-Term Preferred Plan Weekday Operating Cost<sup>2</sup></b>				<b>\$6,104,241</b>
<b>Current Weekday Operating Cost</b>				<b>\$3,727,572</b>
<b>Increase (Decrease) over Current Cost</b>				<b>\$2,376,669</b>

*Notes: <sup>1</sup>Number of total buses exclude Route #5 Off-Peak*

*<sup>2</sup>Costs excludes paratransit. Paratransit costs included in summary tables.*

*Table 11-7: Weekday Evening Long-Term Preferred Plan Characteristics*

Weekday Evening Long-Term Preferred Plan	Frequency	Buses	Avg. Wkday Revenue Miles	Avg. Wkday Revenue Hours
Route #1 Lavender	30 minute	3	102	9
Route #2 Black	30 minute	2	90	6
Route #3 Gold	30 minute	2	60	6
Route #4 Pink	30 minute	1	48	3
Route #5 Blue	30 minute	2	114	6
Route #5 Blue Pk	N/A	N/A	N/A	N/A
Route #6 Aqua	30 Minute	1	48	3
Route #7 Green	30 Minute	2	78	6
Flex Routes	N/A	2	96	6
<b>Total:</b>		<b>15</b>	<b>636</b>	<b>45</b>
<b>Long-Term Preferred Plan Evening Operating Cost<sup>1</sup></b>				<b>\$924,885</b>
<b>Current Evening Operating Cost</b>				<b>\$0</b>
<b>Increase (Decrease) over Current Cost</b>				<b>\$924,885</b>

*Notes: <sup>1</sup>Costs excludes paratransit. Paratransit costs included in summary tables*



# Go COMO Bus Service Evaluation

Table 11-8: Saturday Long-Term Preferred Plan Characteristics

Saturday Long-Term Preferred Plan	Frequency	Buses	Avg. Sat Revenue Miles	Avg. Sat Revenue Hours
Route #1 Lavender	60 minute	2	170	20
Route #2 Black	60 minute	1	150	10
Route #3 Gold	60 minute	1	100	10
Route #4 Pink	60 minute	1	80	10
Route #5 Blue	60 minute	1	190	10
Route #5 Blue Pk	N/A	N/A	N/A	N/A
Route #6 Aqua	60 Minute	1	80	10
Route #7 Green	60 Minute	1	130	10
Flex Routes	N/A	2	320	20
<b>Total:</b>		<b>10</b>	<b>1,220</b>	<b>100</b>
<b>Long-Term Preferred Plan Saturday Operating Cost<sup>1</sup></b>				<b>\$443,300</b>
<b>Current Saturday Operating Cost</b>				<b>\$394,107</b>
<b>Increase (Decrease) over Current Cost</b>				<b>\$49,193</b>

Notes:<sup>1</sup>Costs excludes paratransit. Paratransit costs included in summary tables

Table 11-9: Sunday Long-Term Preferred Plan Characteristics

Sunday Long-Term Preferred Plan	Frequency	Buses	Avg. Sun Revenue Miles	Avg. Sun Revenue Hours
Route #1 Lavender	60 minute	2	119	14
Route #2 Black	60 minute	1	105	7
Route #3 Gold	60 minute	1	70	7
Route #4 Pink	60 minute	1	56	7
Route #5 Blue	60 minute	1	133	7
Route #5 Blue Pk	N/A	N/A	N/A	N/A
Route #6 Aqua	60 Minute	1	56	7
Route #7 Green	60 Minute	1	91	7
Flex Routes	N/A	2	224	14
<b>Total:</b>		<b>10</b>	<b>854</b>	<b>70</b>
<b>Long-Term Preferred Plan Sunday Operating Cost<sup>1</sup></b>				<b>\$310,310</b>
<b>Current Sunday Operating Cost</b>				<b>\$0</b>
<b>Increase (Decrease) over Current Cost</b>				<b>\$310,310</b>

Notes:<sup>1</sup>Costs excludes paratransit. Paratransit costs included in summary tables

## Paratransit Costs

Paratransit costs were developed for each service plan. Costs were calculated by determining the system-wide cost per service hour (i.e. how much does it cost to operate one hour of paratransit for the entire service), multiplied by the annual service span of each service plan. This was then factored by the amount of city population that was not included in a flex service areas. Paratransit customers within flex areas would be served by flex routes.



# Go COMO Bus Service Evaluation

## Service Plan Summary

Table 11-10 summarizes the different service plans.

Table 11-10: Summary of Short-, Medium-, and Long-Term Plan

Preferred Plan	Peak Frequency	Service Span (Hrs)	Buses	Annual Operating Cost
Short Term				
Weekday Service	30	13.5	14	\$3,689,264
Saturday Service	60	10	9	\$398,970
Paratransit <sup>1</sup>	N/A	N/A	N/A	\$1,266,583
	Total			\$5,354,817
	Net Change Over Existing			\$(365,635)
Medium Term				
Weekday Service	30	13.5	16	\$4,244,195
Evening Service	60	3	10	\$616,590
Saturday Service	60	10	10	\$443,300
Paratransit <sup>1</sup>	N/A	N/A	N/A	\$1,730,820
	Total			\$7,034,904
	Net Change Over Existing			\$1,314,452
Long Term				
Weekday Service	20	13.5	22	\$6,104,241
Evening Service	30	3	15	\$924,885
Saturday Service	60	10	10	\$443,300
Sunday Service	60	7	10	\$310,310
Paratransit <sup>1</sup>	N/A	N/A	N/A	\$1,861,801
	Total			\$9,644,537
	Net Change Over Existing			\$3,924,085

Notes: <sup>1</sup>Paratransit costs were calculated by multiplying the system-wide cost per service hour by the annual service span of each service plan, factored for the amount of city population included in a flex service areas.





### Funding Plan

A detailed description of the preferred transit plans were presented in the previous section. The plans were itemized as short-term, medium-term and long-term. Determining how transit service is paid for in the city of Columbia is not a simple task, and will continue to evolve as different funding opportunities become available and relationships with partners in Columbia, such as the University of Missouri, continue to evolve.

All public transit systems in the United States are funding through a combination of programs and revenue sources such as federal and state grants, passenger fares, advertisement revenue, and local funding. Federal grants typically help systems cover a significant portion of a systems capital cost, with the remainder being covered by local contributions. Some state department of transportations also cover a portion of a systems capital cost.

The revenue categories of the funding plan are:

- Federal Transit Administration funding – the revenue estimates assume a contribution of 34 percent of operations funding from the FTA, and 80 percent of capital funding.
- State funding – Missouri's financial support for public transportation has made up relatively small portions of a transit agency's budget, even for larger agencies such as the KCATA in Kansas City. The revenue estimates assume that the state will contribute 0.05 percent of operations funding, and will not contribute to capital funding.
- Fares – It is assumed approximately 26 percent of total operating cost will be funded from farebox revenue or service contracts.
- Local funding – the revenue estimates assume a local contribution of approximately 39 percent for operating costs, and 20 percent for capital costs. Specific funding streams are not identified. The current sales tax contributes 32 percent of existing operating costs, with fund transfers and other revenue contributing the remaining.

**Table 11-11** and **Table 11-12** shows the operating and capital costs and funding revenue for the preferred transit package. **Table 11-13** displays the combined capital and operating costs.



## Go COMO Bus Service Evaluation

Table 11-11: Operating Costs and Revenue

Operations	Implement. Year	Annual Cost Operatation	1 2018	2 2019	3 2020	4 2021	5 2022	Year 6 2023	7 2024	8 2025	9 2026	10 2027	11 2028
<b>Existing</b>													
Existing	1	\$ 5,720,452	\$ 6,068,827										
<b>Short-Term</b>													
30 Minute Weekday Service	2	\$ 3,689,264		\$ 3,913,940	\$ 4,031,358	\$ 4,152,299	\$ 4,276,868						
60 Minute Saturday Service	2	\$ 398,970		\$ 423,267	\$ 435,965	\$ 449,044	\$ 462,516						
Paratransit	2	\$ 1,266,583		\$ 1,343,718	\$ 1,384,030	\$ 1,425,551	\$ 1,468,317						
<b>Mid-Term</b>													
30 Minute Weekday Service	5	\$ 4,244,195						\$ 5,067,790	\$ 5,219,824	\$ 5,376,419	\$ 5,537,711	\$ 5,703,843	
60 Minute Evening Service	5	\$ 616,590						\$ 736,241	\$ 758,328	\$ 781,078	\$ 804,510	\$ 828,645	
60 Minute Saturday Service	5	\$ 443,300						\$ 529,323	\$ 545,203	\$ 561,559	\$ 578,406	\$ 595,758	
Paratransit	5	\$ 1,730,820						\$ 2,066,689	\$ 2,128,690	\$ 2,192,551	\$ 2,258,327	\$ 2,326,077	
<b>Long-Term</b>													
20 Minute Weekday Service	10	\$ 6,104,241											\$ 8,449,697
30 Minute Evening Service	10	\$ 924,885											\$ 1,280,257
60 Minute Saturday Service	10	\$ 443,300											\$ 613,631
60 Minute Sunday Service	10	\$ 310,310											\$ 429,542
Paratransit	10	\$ 1,861,801											\$ 2,577,168
<b>Total Operating Cost<sup>1</sup></b>			\$ 6,068,827	\$ 5,680,925	\$ 5,851,353	\$ 6,026,894	\$ 6,207,700	\$ 8,400,044	\$ 8,652,045	\$ 8,911,606	\$ 9,178,954	\$ 9,454,323	\$ 13,350,294

Notes: <sup>1</sup> Assumes 3% inflation factor

<b>Operating Revenues<sup>1</sup></b>													
Federal Revenues (Assume 34%)		\$ 2,063,401	\$ 1,931,515	\$ 1,989,460	\$ 2,049,144	\$ 2,110,618	\$ 2,856,015	\$ 2,941,695	\$ 3,029,946	\$ 3,120,844	\$ 3,214,470	\$ 4,539,100	
State Revenues (Assume 0.05%)		\$ 30,344	\$ 28,405	\$ 29,257	\$ 30,134	\$ 31,039	\$ 42,000	\$ 43,260	\$ 44,558	\$ 45,895	\$ 47,272	\$ 66,751	
Fares and Service Contracts (Assume 26%)		\$ 1,577,895	\$ 1,477,041	\$ 1,521,352	\$ 1,566,992	\$ 1,614,002	\$ 2,184,011	\$ 2,249,532	\$ 2,317,018	\$ 2,386,528	\$ 2,458,124	\$ 3,471,077	
Local Funding		\$ 2,397,187	\$ 2,243,965	\$ 2,311,284	\$ 2,380,623	\$ 2,452,042	\$ 3,318,017	\$ 3,417,558	\$ 3,520,084	\$ 3,625,687	\$ 3,734,458	\$ 5,273,366	
<b>Total Operating Revenue</b>		\$ 6,068,827	\$ 5,680,925	\$ 5,851,353	\$ 6,026,894	\$ 6,207,700	\$ 8,400,044	\$ 8,652,045	\$ 8,911,606	\$ 9,178,954	\$ 9,454,323	\$ 13,350,294	

Notes: <sup>1</sup> Federal amount taken from Adopted FY2016 COMO Connect Budget 2014-2016. State amount from 2014 NTD report. Fares include service contracts.



## Go COMO Bus Service Evaluation

**Table 11-12: Capital Costs and Revenue**

Vehicle Type	Implement. Year	Per Vehicle Capital Cost	1 2018	2 2019	3 2020	4 2021	5 2022	Year 6 2023	7 2024	8 2025	9 2026	10 2027	11 2028
Existing Fleet Replacement													
Paratransit Vehicle	1,2	\$ 70,000	6	6									
35 or 40 ft	1,2,5-6, 10,11	\$ 600,000	11	2			5	3	6			3	5
30 ft	1, 9	\$ 450,000	6								3		
Add'l Service New Vehicles	11	\$ 650,000											4
Current Fleet Replacement													
Vehicle Capital Costs	Implement. Year	Capital Cost	1 2018	2 2019	3 2020	4 2021	5 2022	Year 6 2023	7 2024	8 2025	9 2026	10 2027	11 2028
Existing Fleet Replacement		\$ 25,890,000	\$ 10,011,600	\$ 1,718,658	\$ -	\$ -	\$ 3,477,822	\$ 2,149,294	\$ 4,427,546	\$ -	\$ 1,761,444	\$ 2,419,049	\$ 4,152,702
Add'l Service New Vehicles		\$ 2,600,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,599,008
<b>Other Capital Costs</b>													
Bus Stop or Station Infrastructure	On-Going	\$ 30,000	\$ 30,900	\$ 31,827	\$ 32,782	\$ 33,765	\$ 34,778	\$ 35,822	\$ 36,896	\$ 38,003	\$ 39,143	\$ 40,317	\$ 41,527
1st Year Bus Stop Installation (50 x \$2,500)	1	\$ 125,000	\$ 128,750										
2nd Year Bus Stop Installation (40 x \$2,400)	2	\$ 100,000		\$ 106,090									
ITS													
Bus Stop Removal (est. 170 bus stops x \$500)	1	\$ 85,000		\$ 90,177									
<b>Total Capital Expenses<sup>1</sup></b>		<b>\$ 28,830,000</b>	<b>\$ 10,171,250</b>	<b>\$ 1,946,752</b>	<b>\$ 32,782</b>	<b>\$ 33,765</b>	<b>\$ 3,512,600</b>	<b>\$ 2,185,116</b>	<b>\$ 4,464,442</b>	<b>\$ 38,003</b>	<b>\$ 1,800,587</b>	<b>\$ 2,459,367</b>	<b>\$ 7,793,237</b>
Notes: <sup>1</sup> Assumes 3% inflation factor													
<b>Capital Revenues</b>													
Federal Transit Administration (Assume 80%)		\$ 23,064,000	\$ 8,137,000	\$ 1,557,401	\$ 26,225	\$ 27,012	\$ 2,810,080	\$ 1,748,093	\$ 3,571,554	\$ 30,402	\$ 1,440,470	\$ 1,967,494	\$ 6,234,589
State Funding (Assume 0%)		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Local Funding (Assume 20%)		\$ 5,766,000	\$ 2,034,250	\$ 389,350	\$ 6,556	\$ 6,753	\$ 702,520	\$ 437,023	\$ 892,888	\$ 7,601	\$ 360,117	\$ 491,873	\$ 1,558,647
<b>Total Capital Revenue</b>		<b>\$ 28,830,000</b>	<b>\$ 10,171,250</b>	<b>\$ 1,946,752</b>	<b>\$ 32,782</b>	<b>\$ 33,765</b>	<b>\$ 3,512,600</b>	<b>\$ 2,185,116</b>	<b>\$ 4,464,442</b>	<b>\$ 38,003</b>	<b>\$ 1,800,587</b>	<b>\$ 2,459,367</b>	<b>\$ 7,793,237</b>

**Table 11-13: Combined Capital and Operating Costs**

<b>Combined Capital + Operating Costs</b>													
Federal Transit Administration			\$ 10,200,401	\$ 3,488,916	\$ 2,015,685	\$ 2,076,156	\$ 4,920,699	\$ 4,604,107	\$ 6,513,249	\$ 3,060,349	\$ 4,561,314	\$ 5,181,963	\$ 10,773,689
State Costs			\$ 30,344	\$ 28,405	\$ 29,257	\$ 30,134	\$ 31,039	\$ 42,000	\$ 43,260	\$ 44,558	\$ 45,895	\$ 47,272	\$ 66,751
Local Costs			\$ 6,009,332	\$ 4,110,356	\$ 3,839,193	\$ 3,954,368	\$ 4,768,564	\$ 5,939,052	\$ 6,559,978	\$ 5,844,703	\$ 6,372,333	\$ 6,684,455	\$ 10,303,090
Local Costs excluding fares			\$ 4,431,437	\$ 2,633,316	\$ 2,317,841	\$ 2,387,376	\$ 3,154,562	\$ 3,755,040	\$ 4,310,446	\$ 3,527,685	\$ 3,985,804	\$ 4,226,331	\$ 6,832,014
<b>Total Combined Capital + Operating Costs</b>			<b>\$ 16,240,077</b>	<b>\$ 7,627,677</b>	<b>\$ 5,884,135</b>	<b>\$ 6,060,659</b>	<b>\$ 9,720,301</b>	<b>\$ 10,585,159</b>	<b>\$ 13,116,487</b>	<b>\$ 8,949,609</b>	<b>\$ 10,979,541</b>	<b>\$ 11,913,690</b>	<b>\$ 21,143,531</b>



## Go COMO Bus Service Evaluation

### Appendix A: Stakeholder Meeting Notes





# STAKEHOLDER MEETING NOTES

## COMO Bus Service Evaluation

Thursday, March 17, 2016 | Columbia, MO

### Overview

The study team held a series of 11 small group stakeholder meetings on Thursday, March 17, 2016 in Columbia, Missouri to discuss potential improvements to Columbia's future transit system. Meeting attendees included representatives from the following stakeholder groups:

- ☐ Municipal staff/officials
- ☐ Business development (downtown Community Improvement District, employers, economic development groups, etc)
- ☐ COMO Connect drivers
- ☐ Transit providers (transit and paratransit)
- ☐ Education (universities, etc)
- ☐ Housing (neighborhoods, apartment complexes)
- ☐ Public Transit Advisory Committee (PTAC)
- ☐ Transit and paratransit riders
- ☐ Advocates

Approximately 37 people signed in to the meeting, not including several bus drivers. Stakeholders responded to questions that related to:

- ☐ Familiarity the transit system
- ☐ The refined COMO Connect vision
- ☐ Perceptions of support for transit
- ☐ Priority service
- ☐ Potential improvements
- ☐ Priority challenges and opportunities
- ☐ Funding transit improvements
- ☐ Other topics

Popular comments involved:

- ☐ The importance of providing transit service
- ☐ Drivers' good rapport with riders
- ☐ Transfer point coordination and timing
- ☐ Extending service hours and areas
- ☐ Novice riders' knowledge of the bus system, its services, and smartphone app
- ☐ Suggestions for how to improve service performance and convenience
- ☐ Improving transit ridership, e.g. by targeting students and college/university staff
- ☐ Creative funding alternatives, such as public-private partnerships

- ☐ Developing apartment-focused partnerships, e.g. apartment with apartment complex; apartments with City, etc.
- ☐ The view or opinion that driving is easier and faster than riding the bus
- ☐ Key audiences (students, seniors, those “on the verge” of riding the bus), strategies, and tactics for transit marketing and education
- ☐ The perception that the buses are empty

## Discussion Notes by Stakeholder Group

The following pages include the discussion notes gathered during each of the stakeholder meetings. The study team asked each group a similar series of questions, including:

- ☐ **Familiarity:** How FAMILIAR are you with Columbia transit system?
- ☐ **Perceptions of Transit Support:** In your opinion, do you think there is POLITICAL AND/OR COMMUNITY SUPPORT for transit? If not, how would you increase it?
- ☐ **Vision:** Which of the following COMO Connect Project vision elements is most important to you? Why?
  - o Connected network of routes with shorter travel times
  - o More service more of the day, throughout more of the city
  - o Live within our [financial] means
  - o Customer focused
  - o Strategic, innovative, responsive, and designed for growth
- ☐ **Service Priority:** When transit service is refined, which is more important:
  - o Making a little bit of transit service available to EVERYONE? Why?
  - o Making transit serve those who USE IT MOST? Why?
- ☐ **Potential Improvements:**
  - o What OTHER AREAS should the COMO transit system serve? Why?
  - o Service areas, different vehicles, schedules, and hours of operation can improve the performance of a bus system. As the COMO Connect transit vision is refined and implemented, what is needed to improve the PERFORMANCE of the bus system? Why?
  - o The experience of convenient transit service often involves shorter wait times, special amenities for transit riders, bicyclists, and pedestrians, and other items. As the COMO Connect transit vision is refined and implemented, what is essential to include for more CONVENIENT bus service?
  - o What OTHER IMPROVEMENTS or projects are needed to make implementing the COMO Connect transit vision a success?

- ☐ **Priority Challenges and Opportunities:**
  - What do you think is the BIGGEST CHALLENGE for making transit service better?
  - As the transit vision is refined, what could be the BIGGEST OPPORTUNITY ahead for making transit in Columbia more successful?
- ☐ **Funding:** How supportive would you be of INCREASED FUNDING? What type of funding should be pursued?

### Discussion I - Municipal Staff and Officials at 8AM

#### Perceptions

- ☐ Everyone wants better transit; no one wants to pay for it
- ☐ Partnering with the University of Missouri (MU) is a non - starter – Past efforts have failed
  - MU – Why would anyone not walk on this campus?
  - Benchmarking cities – All show strong university collaborations
    - Led by students
    - Early investments are now paying dividends
  - State is reluctant to increase fees
  - No previous interest from students
  - MU is concerned about investing in transit – Have other capital costs
  - Parking is the pinch-point on campus
    - MU is considering a park-and-ride lot by the interstate
    - City is not very interested in this approach
    - City sustained losses by extending service to apartments but then cut back
  - Tiger Line – Private sector has filled in some of these gaps
  - Student fee is \$18 per semester for transit
    - Some paying \$150 per semester for shuttles from Harness Center
      - ☐ They are already paying higher fees
    - Students need to have an incentive to raise fees
    - Student apartments pay for city transit service
    - Students do not think they are paying for transit – Reinforces commuter culture

#### Vision

- ☐ Only 5% are regular bus users
  - Non-users would say financial means is top priority
  - Regular users look at other goals
- ☐ We need to get more riders on busses
- ☐ Greenway Shuttles [Professional Student Transportation] takes riders for the city system
- ☐ Consider fare-free transit
- ☐ Increasing frequency

### Service Priority

- ☐ Better pay for drivers
  - o Better service, better retention, quality folks
- ☐ Re-slicing transportation funding will be painful
- ☐ Strong support on City Council; weak general support
- ☐ Pulling more busses is not going to work
- ☐ Put more obligation on the university
  - o At some point, they will not be happy with Greenway Shuttles and will come back to the City for help
- ☐ City has offered bus service through campus and Greek Town – Cannot overcome commuter culture
- ☐ Roads are everyone's number one priority; sidewalks are just as important as transit
  - o Survey results show that transit is the lowest priority

### Potential Improvements

- ☐ New Service Areas
  - o Prathersville Road - New service but some riders do not have the money
  - o Lake of the Woods Road and Scott Boulevard are now served
  - o Not going to wait for two busses to get five miles
  - o Need to compress systems and offer fare free core system every 30 minutes
  - o Independent living providers expanded service to low-income residents in order to maintain viability
  - o People whose trip lengths have increased will speak out more than those whose service has increased
  - o Some people will be unhappy if we compress a route and go fare free

### Funding

- ☐ Cannot increase student fees at this time
- ☐ Limited in ability to raise fees – Needs to be put to voters (usually get creamed 70/30)
- ☐ Trying to increase property tax for hiring more police

### Other Comments

- ☐ Commuting area is larger than shown on the slide – Should include Ashland, Jefferson City, and Boone City
- ☐ 2011 task force on transit
- ☐ Reiterate – Raise for bus drivers
- ☐ City finances will be challenged – 50% in sales tax
  - o Down 14% (approx. \$300,000) – Internet commerce is killing state and local governments



## Discussion 2 – City Council at 8:45AM

### Familiarity

- ☐ Yes and No – Some ride; some do not
- ☐ State law restricts public schools ability to contract out transportation service – Could include financial partnerships with public transportation
- ☐ Private/public university coordination

### Perception of Community Support

- ☐ People feel transit is a “social good” but many do not use it
- ☐ Consider hybrid system, so more people use it – Generate interest, so transit priority increases (need critical mass)
- ☐ Including transit “collection points” helps with education but does not mean people will use it
- ☐ Hear complaints that busses are empty
- ☐ Constituents lobby for small busses but standard size busses are easier to maintain

### Vision

- ☐ Important elements boil down to money
- ☐ More service
- ☐ “Connected network...”, especially for low-income workers without vehicles and those who work second and third shifts
- ☐ “Strategic/innovative...” because we need to be flexible to respond to new businesses

### Service Priority

- ☐ Make available to everyone who could possibly use it - No value in compression
- ☐ Ridership needs to come from schools, so that people will not see empty buses
- ☐ Do schools have to contract bus service? Could the City provide school transportation? School superintendent is pushing to allow the City to bid on school busing contract (maybe school district pays 50% of the costs).
- ☐ Coverage is top priority; convenience is second
- ☐ If new dollars are available, concentrate on increasing service to areas that need it most (target) - Black and gold lines could be heavier lines

### Potential Improvements

- ☐ Determine which routes are most traveled as compared to those that are less traveled - Help direct possible changes
- ☐ Only way to sell transit is to get people to use it (less empty buses)
- ☐ Do not exclude the Wabash Station near downtown
- ☐ City to set up resources for bus stop overhaul - Adding transit shelters, etc.

- ☐ Electronic way-finding - Example: Bermuda - Signs/poles + vehicle match
- ☐ Free service dramatically increases ridership (goal)
- ☐ Have free service now for special events
- ☐ Note online sites killing sales tax generation - Could have \$2 million+ in revenue if local tax was paid for online sales

### Convenience

- ☐ Need coverage first, then work on timing
- ☐ Need riders. How to get people excited?
  - o Take away the reasons for not riding the bus
- ☐ Focus on north-south routes
- ☐ Note: Supervisors are also driving

### Funding

- ☐ Get more drivers, so supervisors can be supervisors, not drivers
- ☐ Bus shelter improvements will help
- ☐ Need to demonstrate commitment within the constraints today
- ☐ Lots of talk about increased taxes
- ☐ School district tax is 12 times higher
- ☐ Campaign season: Fear of crime is high concern - Path for more public safety
- ☐ Two years ago tried property tax increase but it failed

### Other Comments

- ☐ Comparable College Towns
  - o Selected already? Midwest or National?
    - Columbia's culture is different than Lawrence's, Champagne's, etc

### Discussion 3 – Business/Economic Development at 10AM

#### Familiarity

- ☐ Some have ridden but not often or in a while

#### Perception

- ☐ Big empty buses
- ☐ How can we spend this much money on something that runs empty
- ☐ Support for a system, but not overwhelmingly
  - o Other issues like crime are more important.
- ☐ We need a bus system but we are small enough to get around very easily and conveniently by car - Parking is cheap and plentiful
- ☐ 15-minute drive vs. 45-minute ride
- ☐ Need for employees – Some travel far (cities of Booneville and Mexico by car)

- Columbia has duplicative services
- Trip to Gainesville – They all share the same resources

### Political Support

- ☐ Seems like it
- ☐ Not enough to add more service
- ☐ To many transit is not a priority
- ☐ Comes down to funding

### Vision

- ☐ Like to know more about existing ridership - Focus on increasing service for those riders
- ☐ Part of downtown development agreement – Apartments buy transit passes from City, but tenants do not always know that passes are available or ask for or use them
- ☐ Some tenants/students in downtown do not travel far enough to need car or bus
- ☐ Walk 45 minutes to an hour to reach a bus, then Green Line, and then Black Line just to get to work
- ☐ A trolley through downtown could attract people to shops and restaurants
- ☐ Focus on those that need it, those without a car
  - Heavily in the first ward but not on I-70
- ☐ Some need private automobile for business/meetings around town
- ☐ Maybe a transit hub would increase ridership
- ☐ Main reason for expanding routes was to reach those on the periphery who needed service

### Service Priority

- ☐ Downtown (services, employers)
- ☐ Mall
- ☐ Buses could function for a lot less if we planned it better
- ☐ Students are not told how transit works
  - Educating students would help
  - There is an app for that
- ☐ \$75 monthly parking downtown
- ☐ Parking garages sustain themselves with revenue
- ☐ City has resisted more parking.
- ☐ University should be included
- ☐ Are special events included in ridership? Yes - Impact is not significant (approximately 150 per day for The True/False Film Festival)
- ☐ Call-a-ride might better serve periphery
- ☐ High visibility, frequent downtown shuttle/trolley/circulator
- ☐ Bus stops used to have schedules

- ☐ Visitors center gives out lots of guides and promotes transit - Lots of people have questions and are intimidated by network map
- ☐ Need to ride it to understand and gain familiarity

### Opportunities

- ☐ Has to be a tipping point where people actually WANT to ride
- ☐ Public transportation is hurting in every comparable city
- ☐ Changes to system do not always change ridership/transportation culture
- ☐ Focus on people who need it
- ☐ We are a full service community and people have come to expect it

### Challenges

- ☐ Downtown evening/late hours – How do we serve this line? Tiger line?
- ☐ Sunday services
- ☐ Campus
- ☐ Raising awareness/marketing

### Top Employers

- ☐ University
- ☐ Medical centers
- ☐ Downtown

### Funding

- ☐ City raided parking garage fund to pay for transit - \$290,000 from parking to transit
- ☐ Maybe a fee increase
- ☐ If you raise the fee for low-income users, do you decrease ridership?
- ☐ Changing transit is a political decision – Roads and public safety are higher priorities
- ☐ Parking tickets could be increased to cover transit
- ☐ Parking dollars go to the general fund
- ☐ Does the City have a lobbyist to advocate for increased funding?
- ☐ COMO Connect gets \$20,000 from state – Is that a collection or an allocation problem?
- ☐ What about charitable funds? United Way? Kids First?
- ☐ City has a program to donate required transit passes - Let's try to help with those who need it
- ☐ Raising cigarette and alcohol tax
- ☐ All funding is political



## Discussions 4 and 5 – Bus Drivers at 12:30 and 2:45PM

### Best Routes

- ☐ Black and Gold Lines - Take people where they want to go
- ☐ Longest routes
- ☐ Connect to the right places

### Where do people want to go that are not served now

- ☐ Midway – Greyhound
- ☐ Scott Boulevard – Housing, travel there now
- ☐ Route B/ North Paris Road - Get to work, industrial
- ☐ Broadway and WW – El Chaparral – New subdivisions
- ☐ Further south on Old Plank – Housing
- ☐ North Stadium – Apartments (Aaron Drive)
- ☐ Park De Ville Place (apartments and condos)
- ☐ Waco Road

### Worst Routes

- ☐ Aqua Line (but keep part up by Murray's) - Needs more trips
- ☐ Blue Line
- ☐ Orange Line
- ☐ Routes are too long
- ☐ Time points on Blue Line are off
- ☐ School traffic slows route(s) down
- ☐ Along St. Charles – Times do not match
- ☐ Green – Never picked anyone up through Highlands, Nifong West - None of these people ride the bus
- ☐ Light Green Line

### What to change

- ☐ Aqua Line
- ☐ Blue Line
  - ☐ More advertising to draw customers
  - ☐ Make sure to stay close to neighborhoods so they can still walk to the bus
  - ☐ Fix schedules to make transfers easier
  - ☐ Improve bus stops at transfer stops
- ☐ Add lights at stops, push buttons, solar powered lights
- ☐ Not enough shelters
- ☐ Difficult to see customers waiting for bus – Light, better reflection on signs
- ☐ Need a route on Ash
- ☐ Get main line service for Broadway

- ☐ Need to get paratransit riders on fixed routes
- ☐ Better compliance with university students

#### Five Stops for Improvement

- ☐ Walmart at Conelly
- ☐ Whitegate (both sides)
- ☐ Walmart at Park De Ville Place
- ☐ Library on B side
- ☐ Macadoodles, Providence and Green Meadows, east side - Lots of wheelchairs; not really safe right now; have to partner with MoDOT

#### Two Changes

- ☐ Make neighborhood routes run in both directions
- ☐ Stagger bus stops so buses stop blocking traffic at Whitegate and at the Health Center
- ☐ Eliminate dangerous stops (Clinkscapes, I by Kohls) - There are a lot of nearby stops
- ☐ Shorten time points from 5 to 1 – Be more realistic
- ☐ Schedules should be finalized and posted
- ☐ Blue bus – I-70 and St. Charles is dangerous
- ☐ 7th and Wilkes to Whitegate
- ☐ Extended hours on weekends
- ☐ More efficient paratransit routing
- ☐ 10 hours per day, 4 days a week
- ☐ Fixed routes back to Wabash, neighborhood routes, drivers can use restrooms
- ☐ Keep drivers
- ☐ Driver Facilities
- ☐ Scott Boulevard turnaround (roundabout)
- ☐ Temporary drivers need benefits and adequate pay

#### Other

- ☐ Shelter – Blue Ridge/Providence - Better

#### Discussion 6 – Education at IPM

##### Familiarity

- ☐ Yes, some route specific, e.g. Gold Line
- ☐ School district bus service subject to law – Limits on service provisions, hours, etc.
- ☐ Like existing COMO Connect coverage
- ☐ Previous engagement finding: People want to reach schools, e.g. high schools – Surprising (Common theme)

- ☐ One-mile radius for elementary; two miles for middle and high school – Law says 3+miles required by state for school district
- ☐ Can lose school transportation funding if contract out service, etc.
- ☐ Those within 1- or 2-mile radius can pay fee for riding school bus
  - o Example: Battle High School

#### Perceptions of COMO transit

- ☐ Good but misconceptions exist: Educating youth about transit per believe busses are empty, dirty, old, do not go where they want to go, and are not safe because people of low income and handicapped ride
  - o Where busses travel to/from
- ☐ Good but people are not using it
- ☐ Mismatch between complaining about it versus using it
- ☐ Gold experience is good - Could come more frequently
- ☐ International students have higher transit expectations than exist in the city; Natural transit users but buying and/or sharing cars to get around to stores
- ☐ Biggest dissatisfaction is transit convenience – Vibrant system would help students (marketing opportunity?)
- ☐ Based on COMET outcomes, elected/political climate is supportive
- ☐ Increase political support for transit?
- ☐ Direct correlation to dollars
- ☐ Meet student needs, e.g. shopping
- ☐ Route planning is a challenge: Not on Google Transit yet (ready this summer) - Opportunity to remove barriers
- ☐ Without smart phones, you do not know when busses are coming – Kids do not always have smartphones
- ☐ Recent COMET survey of kids found they do not know about it - Marketing and education needed

#### Vision

- ☐ “Connected network ....” And more service
- ☐ Later hours – Impacts work for kids and others (second shift, etc)
- ☐ Service throughout the day

#### Service priority

- ☐ Potential for inadequacies (big time)
- ☐ COMO project made transfers/connections worse – Now have Global Positioning System (GPS) data
- ☐ Equity issues – Want everyone to have access
- ☐ Providing excellent service for core users
- ☐ Easy service elsewhere – No need to study system per signage tells when bus is arriving, etc.
- ☐ Have heard that downtown parking is an issue - Fix by focusing on busses
- ☐ Issue with small town: faster to walk

- ☐ Apartment busses have demand (full vehicles)

#### Potential Improvements

- ☐ Later hours, weekends, Sundays
- ☐ Takes too long - People get frustrated and call cabs or school district
- ☐ Time stops/transfer times need to be coordinated

#### Convenience Improvements

- ☐ Consistent naming of each scheduled time point
- ☐ Bi-directional routes like Black and Gold Lines
- ☐ Perception is that transit takes longer than driving/walking
- ☐ Fewer needed transfers – Would save time
- ☐ For kids: before/after school transportation, coordinate timing of COMO bus and school district timing plus increased frequency
  - ☐ Need shelters in order to improve safety and security for younger riders
- ☐ Coordinated activity times to pair with busses

#### Biggest Challenge

- ☐ More frequency and later service while still needing riders (chicken and egg)
- ☐ Funding

#### One Change (Opportunity)

- ☐ High School perspective: Event specific route adjustment, e.g. for True Falls, Roots and Blues, etc.
- ☐ Improve directness of Gold Line as it travels downtown
- ☐ Just cross through downtown rather than going around it
- ☐ Match up/work on connection/transfer points

#### Other

- ☐ Explain fare/cost breakdown
- ☐ Nice if could buy passes on busses
- ☐ Customer service is good at COMO bus

#### Discussion 7 – Housing at 2:30PM

#### Support

- ☐ Absolutely – Students without cars, international students
  - ☐ May not know how to use system
  - ☐ Travel training (past)
  - ☐ MU willing to promote as resource



- ☐ Grad Students
  - o “Where can I live and easily get to school”
- ☐ Differences among undergraduates - More marketing to both undergraduates and graduates
- ☐ Apartment complexes use their own shuttle service
  - o 40-60% residents use shuttle
  - o 30-minute frequency (15-minutes there, 15 minutes back) with one bus
  - o TIGER bus was previously pretty direct

#### Vision

- ☐ More service throughout more of the day
  - o To go shopping when not studying
  - o Bar routes
  - o Get to entertainment (movie theater)
    - Currently served by Tiger Line
- ☐ Would love to take a bus to work, except the kids...
- ☐ Marketing opportunities (low carbon foot print, etc)
- ☐ Online trip planner (not there now)
  - o “How to make that first trip easier”
- ☐ Bus stops
  - o Next bus info
  - o Bus stops difficult to see
- ☐ Students would use it but don't know how
- ☐ Make marketing material available
- ☐ Education is important
- ☐ Jobs (student jobs)
- ☐ Service to those who need it the most- (usage/ridership)

#### Potential Improvements

- ☐ Student Jobs
- ☐ Dense housing areas (Clark Lane)
  - o Higher density of jobs or people

#### Performance

- ☐ Busses with WIFI (because of prevalence of tablets, smart phones and cell phones and companies moving away from unlimited data plans)

#### Convenience

- ☐ In summer, most apartments give up shuttle service
  - o Leaves students stranded
  - o Need closer proximity to stops – Opportunity to park closer

- ☐ Benches
  - On Providence Road (danger, high speeds, 5 lanes of 50 mph traffic) which is state highway (US-163)
- ☐ Make navigating the system easier
  - Don't know the app exists/how to use it
  - Additional landmarks on maps and apps
- ☐ COMO Connect/apartment coordinate on travel
- ☐ Education: Getting people to take the first ride
- ☐ Group ride activities
- ☐ Lots of students from areas with no public transit
- ☐ Video explaining how to use transit
  - How to pay
  - Apple pay
  - Mobile payments
- ☐ Challenge of using cash

#### Biggest opportunity

- ☐ Education/travel training tailored to target audiences
- ☐ Apartments complexes to help pay for a special route

#### Funding

- ☐ MU limited on how much it can raise fees
- ☐ More collaboration with apartment complexes

#### Other

- ☐ Apartment shuttles are residents only

#### Discussion 8 – Transit/Paratransit at 4PM

#### Perception for improving transit

- ☐ Long trip times - Public/students
  - Yes, support to improve
- ☐ When needed, it becomes priority
  - Specifically to medical: must be on time but may not know return time
  - People want to be individualized: If too long, call someone else
  - Busses are accessible for wheelchairs
  - Yes; support
- ☐ Many calls (re: long rides, many PT complaints) – Transfer point timing not working
  - People supported but trips are longer – Called city council
- ☐ Orange Line – One marked crosswalk; walk signals are not working
  - Other – Potential customers –Not served

## Vision

- ☐ Financial Means – Raise service – Connect to attract people, raise rider swap
- ☐ Connections for public transportation are not realistic
- ☐ Intermodal connections – Creative, e.g. Uber

## Service Priority

- ☐ Serve all people
- ☐ Do we have enough money to make it work?
- ☐ Outlying communities, e.g. Hallsville - commuter service - demand there
  - o Peak service – Still stuck in traffic.
  - o To major employers (MU hospitals, etc)
  - o Funding – Fast Act - new programs

## Performance

- ☐ I 600/I 700 Broadway (600 trips month)
- ☐ Transfers – Culture
- ☐ Marketing opportunities for IT in place
- ☐ Travel training
- ☐ Regular riders lost service
- ☐ Jefferson City reverse commute
- ☐ Greyhound available today

## Improve Convenience

- ☐ Tried to do it with neighborhood routes (every route has access to grocery, bank, medical)

## Funding

- ☐ No raise on public transportation fees
  - o Public Private Partnership – Employee benefit (MU example)
- ☐ City employees – Commute pas benefit
- ☐ Ashland park-and-ride to MU
- ☐ Cost of driver retention raise pay but is it cheaper than turnover
  - o Accidents – Public perceptions
- ☐ Paraplan – Look at scheduling software – Efficiencies (55% in ridership)
  - o Pay more than COMO, have benefits – Population challenge

## Other

- ☐ Greenway

- ☐ Service for independent living – 40 FTE (20% not reliable transportation)
- ☐ PTAC
- ☐ Public Safety
- ☐ Peers- Lawrence and Champaign: culture different (Columbia wants vehicles)
- ☐ KC<x>STL
- ☐ Look at bus stops in other areas
- ☐ Must be more convenient to be successful

### Discussion 9 – Public Transit Advisory Committee (PTAC) at 5:30PM

#### Initial Thoughts

- ☐ Previous surveys – Concerns about burnout
  - o Time burden
  - o Faith in process – Already gave input: What is different?
- ☐ Today's meeting: lots of the same faces from initial outreach efforts, including new PTAC members
- ☐ End of process: will there be specific PTAC recommendations? Yes.
  - o Asked specifically for this during consultant team selection
- ☐ Roles of consultant team members
- ☐ Is there a recommendation that the team could give the City to better connect to the county, so they are served too?
- ☐ Have Mid-MO ride coordination

#### Group No. 1

- ☐ **Recommendations for PTAC**
  - o Looking outside city boundaries
  - o City Manager
  - o OATS – Now
- ☐ **Experience**
  - o Ann Marie – Served for independent living: rider full-time/part-time
  - o Rachel – Bike/Ped- bike rider
  - o Sarah – Central action – Mobility management/agencies
    - 8 counties
  - o Cheryl – PTAC chair – Part-time/full-time Rider
  - o Glenn – City Manager offices – Year pass, test the system
    - Customer service – Good/system – Headways/loops
  - o Anne – Board Member/CNCA Board – Rider, scooter
    - Part-time/full-time rider – Good
    - Raise transfers/no shelters, etc
  - o Cathy – Comm. on PTAC, transit/bike user; gave up car
    - Transfer challenges
    - Great drivers
    - Safety at bus stops



- Longer hours
  - Gold Line late
  - Providence Road stop
- Dianne – Columbia College Representative – Second meeting
  - Worked with Ian (peers)
  - Transfer stations accessible
- **Service Priority**
  - Combination
  - Try choice
  - Those who need
  - Higher density areas
- **Improvements**
  - Timing of transfers
  - Marketing of service
  - More frequent service
- **Challenge**
  - Funding
- **Opportunity**
  - MU/Parking/Culture
- **Other**
  - Previous trips/visits
    - 2014- 3 in 1
    - Political relationships
    - Must coordinate
  - City/County relationships
    - MU/City/County
  - Land use planning
    - Must have transit at the table
  - Environment/Energy
    - Intercity Service – Columbia/Jefferson City
    - County rep on PTAC
    - Smaller

## Group No. 2

- **Perceptions of Transit**
  - Buses are too dirty
  - Trips are too long
  - Students do not know many routes, not well publicized, not cool to ride bus, does not serve my home, needs to be more on time, and not too long
  - General dissatisfaction moving away from hub and spoke system – Longer trips, exposed to the elements
  - On the plus side, we may have greater coverage to periphery
  - Driving is easy; commutes are short
  - Need incentives to draw more drivers
  - Political support? No.

- Sensitivity issue – People not caring
- Students: Why should I care if I do not use transit?
- Non-rider perception: nobody rides the bus – Waste of money – Should be disbanded (small but vocal minority)
- Mizzou survey – 45,000 responses (faculty, under, graduate)
  - Over 50% willing to try other modes
  - For faculty and staff 90% currently commute alone - 30% willing to try alternatives
- Marginalized populations greatly affected by poor service.
  - Late buses = Lost employment/income (long loop routes can be slow)
- ATED group – One or two choices for mobility
  - Resources are more invested/impacted by transit
- St. Joseph – Implemented hub and spoke system from scratch
  - How did they develop community/political capital to support this?
  - Look into it – May be a good example

□ Vision

- Living within financial means
- MoDOT FASTACT increased funding, matching funds 50/50 - Need local dollars to access federal dollars
  - Partnerships (public/private) to access federal capital
- More service (time and place)
- Successful systems try to target high volume routes, compress system to provide better service
  - Some areas lost service when we tried to compress last time
- Areas on the periphery still need service
- Lots of complaints about loss of curbside main entrance service at shopping centers, high ridership on Ash Street
- Strategic, innovative, responsive to students, transit dependent populations
- Out on Nifong current stops are dangerous for families and wheelchair users
- Data to support decisions: Green (light green) Line not conducive for many commuters in that area

□ Everybody or those who need it most?

- Close threshold riders – Those that can be easily converted
- Families considering dropping a car
  - Might just need a little push or a plan with a little structure
- MU has a van pool from Boonville
  - MU to MU North commuter route
- Park-n-ride to capture riders further out
- Service personnel – Might need expanded service hours
- Low income residents
- Laura Holland – Holiday Inn: Employees are transit dependent and sometimes route schedule does not support these employees
- Buses are a driver of the economy
- Holiday shopping route in the evenings?
- Special event services – Tiger Football

- Target contracts with bus service in first weeks of school to provide students access to the store
- **Service Performance**
  - Prathersville Road, Rice Road – Cheaper housing but poor access to public transit: Similar around other areas
  - Stop by Mozer's (on Brown School Road) can be moved to Murray's to catch more riders
  - Southern California – Light rail transit built to support people living on fringe for affordable housing: Now supports 30% of commuters
  - Use Geographic Information Systems (GIS) to layer inputs and identify high priority areas
  - Can we map/identify low-income, high need individuals and families, especially on the edge?
  - Several felons in the community: need jobs and are dependent on reliable transportation
  - Add Sunday service – People want to get out on Sundays
  - Some buses might be too big for the route they serve, adds to perception of “no one rides”
  - Need high-tech, wired buses – Add to rider experience and productivity
  - Add bike and wheelchair access on buses; currently capped at two of each
  - People seem happier with consistent hours Monday-Saturday
  - Student perception that buses do not run long enough for late classes and/or social engagements, so they rule it out as an option: ONLY TAKES ONE TIME
  - Students already take private mass transit
    - Many students not happy – Stop at 7 p.m., run late, no seats.
  - Every 60 minutes, 90 minutes (student private buses)
  - Better capacity, more frequent intervals
  - COMO app does not always work, not always accurate, sometimes delayed, cell connection can cause lag
  - We spend resources to train and certify drivers but they leave quickly for better pay: Need competitive wages, bonuses, etc.
- **Biggest Challenge**
  - Funding
  - Community buy-in. Need to be confident we can ask for increases in funding and they will support it - Property taxes are hard to pass
  - Decrease in revenue from online sales
  - Cutting down on car – First mentality
  - State law prohibits City buses from providing contract services to public schools
    - Chicago kids ride CTA buses; in other countries there are no “school buses” – Kids just take the bus
  - Lots of Columbians are not used to having quality public transportation system and the benefits it provides
    - Does redistricting impact potential for public transportation to support public school transportation?

- ☐ Funding
  - Do not call it taxes – Call it public investments
  - Regional transportation districts
  - Low cost rapid implementation
  - Demographic overlaps to determine more accurate coverage

#### Discussion 10 – Council representatives Thomas and Nauser at 5:30PM

##### Familiarity

- ☐ Mixed familiarity
  - Ian knows it well
  - Laura is less familiar
- ☐ Need to involve students – Social media will help
- ☐ Need to involve senior citizens, especially Ward 5
  - Different engagement methods

##### Perception

- ☐ Not much support in Ward 5
- ☐ Not much ridership or interest in funding increase
- ☐ Not focused on social benefit – More concern about taxes and fees (more suburban-oriented)
  - Rely on automobiles (low density)
- ☐ Ian – Very involved in transportation reform
  - Better approach to community mobility
  - The goal: Transit is better than driving
- ☐ A lot of people do not have a choice
- ☐ Limited service coverage and hours drive people to choose the private auto
- ☐ Social and environmental benefits
- ☐ Gathered signatures from 2,000 people for better transit

##### Funding

- ☐ Need to question some of the “can’ts”, especially with MU student transportation fees
- ☐ MU is changing a lot – Possible opportunities
- ☐ More service, less congestion, maintenance, costs, etc

##### Political Support

- ☐ Minimal support from (university, chamber of commerce)
- ☐ Council is generally supportive
- ☐ Desire to see it become more self-sufficient
- ☐ Has been a council topic a lot lately



- ☐ Chamber of commerce/economic. development folks do not focus on this or connect the dots between transit and economical development
  - o May be growing awareness but not a high priority

#### Vision

- ☐ Ian – Connected network, shorter times, more coverage
- ☐ Laura hears a lot about evening/weekend service, living within financial means
- ☐ Boise, ID struggles with similar issues – Have put most resources in high priority routes and subsidizing other service delivery modes – Taxi's, Uber

#### Service Priorities

- ☐ Productivity over coverage
  - o Concentrate on rider-rich areas of town
  - o Still look for low-cost opportunities to serve less dense areas
  - o How do you balance call-a-ride with taxi?
    - Not direct competition, but private services can supplement the system

#### Improvements

- ☐ Look at designs that do not involve loops or at least try bi-directional loops
  - o The system can be confusing, especially with transfers
- ☐ Lots of people like the smartphone app and are using it
- ☐ Would be great to have that screen on the bus
  - o Could show riders where connecting routes are at
- ☐ Having arrival information at bus stops
- ☐ Marketing right now is good
- ☐ Without spending more money, getting more riders is hard – Must reduce/replace loop routes with direct main line back and forth
- ☐ Need better bus stops – Increase comfort, e.g. via protection from the elements
- ☐ Are we surveying/involving larger employers?
  - o Many will not participate without providing a carrot or a stick

#### Funding Opportunities

- ☐ Percent increase in sales tax funding
- ☐ Sales tax increase not feasible
- ☐ Property tax did not get great response
- ☐ Need university buy-in – Then we might get something on community side
- ☐ Increase bus ridership, decrease maintenance, and invest in bus
- ☐ Fare-free service?
  - o More efficient, quicker service
  - o May not have as big of an impact on operating expenses as people may think

- Missoula, MT does this – May pay with utility tax

### Biggest Challenge

- ☐ Money – Requires more education
- ☐ Show value through productive service
- ☐ Address densifying neighborhoods
  - Serve current riders, but prepare for growth
- ☐ Look at transit buy-in in lieu of parking minimums, especially for student housing
- ☐ Change expectations, esp. W.R.T. parking

### Connection Points

- ☐ Some connection points aren't time points
- ☐ Neighborhood routes – Some are very loose – Sitting and stopping
- ☐ Find a way to get university on board
  - Roll funding into parking fee transportation fee

### Discussion 11 – PTAC Debrief/Review at 7:30PM

### Stakeholders Meetings

- ☐ Is the university involved? Yes.
- ☐ Is the main consultant contact is Tom Worker-Braddock (Olsson Associates)? Yes.

### Relationship with University

- ☐ MU's growing (in terms of facilities not students) – Focusing on building research facilities as better use of existing spaces (parking lot) – Needs relationship with city, etc
  - No raise in student fee for transportation – Not on the table
  - U-passes (opt in option) are better than raised fee
    - Gives transit at reduced cost, so a pass is on table
  - Has hospital on campus – Affects demand on parking
  - Parking study is all preliminary – Have not talked to students about U-pass option
    - Only 36% of all enrolled students bought transit passes
    - Ninety percent of those drive vehicles to school – Great demographic for public transit – What incentive is needed and how does ridership potential match up with where workers live? (In proximity to campus)
    - 1-2 hour commutes (park and ride with express rate)
    - 1,200 workers work at MU and 70% responded to survey
- ☐ Idea – Park-and-ride that is integrated into transportation oriented development

- ☐ Recent (2015/2016) parking audit by Smart Growth America recommended creation of a “parking commission”
  - o Contact Leah Christian in City Manager’s office
- ☐ Would St. Joseph service improvements example be helpful to Columbia?
  - o Elaborate on St. Joseph project involving flex service, etc.
- ☐ Have experience riding bikes - Lots of college age drivers
- ☐ Can be expensive
- ☐ Results of elected officials’ stakeholder meetings?
  - o Meet with candidates for elections?
  - o Mayor is almost out of office
- ☐ Has there been increase in ridership since allowing the rides to those 18 and under? No.
- ☐ Would like more targeting to seniors
- ☐ Fare boxes do not always work
- ☐ St. Louis subway has honor system and security that randomly checks for paid fares
- ☐ What can PTAC do to help?
- ☐ Note: Ask Drew for list of commission and PTAC contacts for e-blasts and social media posts
- ☐ Focus on minority populations
- ☐ Coordination with new zoning ordinance update – See online
- ☐ Will utility bill inserts be used for project communications?
- ☐ Utility as funding option

#### Other

- ☐ What is the study team’s initial impression of doing what was done in Lawrence here in Columbia?
- ☐ Combining/coordinating city system with KU system?
- ☐ Previous peer commuters:
  - o Ames
  - o Lawrence
  - o Champaign/Urbana
  - o Other
  - o Determined by mayor
  - o Also visited these cities



## Go COMO Bus Service Evaluation

### Appendix B: Visioning Session Summary



## SUMMARY OF COMMUNITY VISIONING SESSION & ONLINE ENGAGEMENT

### COMO Bus Service Evaluation Project

Period: Fall 2016 – January 13, 2017

#### Overview

A Community Visioning Session was held on Tuesday, October 11, 2016 from 6 to 8 p.m. at the Activity Recreation Center (1701 W. Ash) in Columbia, Missouri for the **COMO Bus Service Evaluation Project**. The purpose of the event was to:

- ☐ Engage the broader community in the **COMO Bus Service Evaluation Project**.
- ☐ Share the following information with Visioning Session participants:
  - Results of the spring 2016 stakeholder meetings;
  - Recent market findings, including comparable communities analysis;
  - Potential transit goals based on previous feedback, policy review; and market findings.
  - Online commenting options available through December 17, 2016.
- ☐ Gather feedback from participants about:
  - The refined vision for improved transit in Columbia;
  - Priority community transit needs and desires; and
  - Goals for improved bus service.
- ☐ Incorporate community feedback into a series of range of short-, medium, and long-term transit improvement alternatives that will be shared via public and mobile meetings during the winter of 2017.

A total of 48 people attended the meeting, including representatives from Central Missouri Contracting Enterprises (CMSE), Public Transportation Advisory Committee (PTAC), Tiger Council of the Blind – Missouri Council of the Blind Affiliate, JEFFTRAN, Welcome Home, Columbia Disabilities Commission, Columbia Housing Authority (CHA), PedNet, Central Missouri Community Action, Environmental Dynamics International, Columbia City Council, COMO Connect, and the general public. Other stakeholders provided comment via the project's Facebook page, opinion survey, and email.

#### Notice

Meeting notice was provided via:

- ☐ City-issued press releases to news media



A series of nine e-blasts (shown in Table 1)

Table 1 - E-Blast Series

Title	Date	Open Rate	Click-through Rate	Comparison Rate(s)*
Save the Date! October 11 <sup>th</sup> – COMO Community Visioning Session	Sept. 8	34.8%	4.8%	Government avg. is 22.93% (open); 9.90% (click)
Save the Date! October 11 <sup>th</sup> – COMO Community Visioning Session	Sept. 14	28.6%	4.0%	
You're Invited October 11 – COMO Community Visioning Session	Sept. 22	31.5%	12.5%	
Next Week: COMO Community Visioning Session	Oct. 5	25.7%	12.8%	
Tuesday Evening: COMO Community Visioning Session	Oct. 10	29.0%	9.3%	
COMO Bus Service Evaluation Project: Online commenting is available	Oct. 13	28.6%	6.9%	
Share Your Ideas: Online survey for better bus and paratransit service in Columbia continues	Nov. 30	26.8%	17.5%	
In 2 Weeks: Online survey for better bus and paratransit service in Columbia closes	Dec. 14	24.1%	12.5%	
Closing Soon: Online survey for better bus and paratransit service in Columbia ends	Dec. 21	23.2%	13.0%	

\*As of August 2016 from <https://support2.constantcontact.com/articles/FAQ/2499>

- ☐ **Facebook advertising** via a combination of posts and clickable ads served to men and women ages 18 to 65+ who identified themselves as living in Columbia (+ 10

miles), Missouri and had one of the following interests: public health, community issues, Missouri Tigers men's basketball, paratransit, Columbia College, Stephens College, Missouri Tigers football, University of Missouri School of Medicine, public transport, economic development, University of Missouri, cycling, or walkability. Three ads were served from late September to mid-December 2016. They achieved the results shown in Table 2.

*Table 2 - Facebook Advertising Results*

Ad Title	Ad Type	People Reached	Number of Engagements
You're invited October 11 – Community Visioning Session	Post	8,157	158
#COMOConnect Video Invitation! Watch it here <a href="http://www.como.gov/tcc/2016/09/27/como-bus-system-community-visioning-session/?doing_wp_cron=1475595065.287216901779174804687">http://www.como.gov/tcc/2016/09/27/como-bus-system-community-visioning-session/?doing_wp_cron=1475595065.287216901779174804687</a>	Post	7,345	120
If bus and paratransit service were improved in the future, what would it include? Comment online at <a href="http://comobus.digicate.com/">http://comobus.digicate.com/</a> .  #COMOConnect	Post	10,899	189

## Handouts

The handouts that were provided to meeting participants included:

- ☐ Opinion survey
- ☐ Project fact sheet

## Presentation

The project team presented a slideshow that outlined the following information:

- ☐ Purpose of the project
- ☐ Community engagement
- ☐ Process and schedule
- ☐ Spring Stakeholder Meetings
- ☐ Market findings
- ☐ Potential goals for bus and paratransit in Columbia
  - Coverage and accessibility
  - Performance
  - Resources
  - Integration
  - Marketing
  - Other (to be identified via small group discussions)



In response to the presentation, meeting participants offered the following comments:

- ☐ How did you account for the green dots (employment ranges, concentrations)?
  - What about smaller employers (1-30 workers)?
  - Square mile concentric circles, e.g. to define districts, may be better.
  - How deeply did you think about using the square mile vs. an alternative approach?
  - Did you consider where people get on and off the bus?
- ☐ How long will it take to get to CMSE?
  - Bus used to go up to the door but now it doesn't and we have to cross Nifong (no sidewalks, real problem).
  - Negatively impacted employers (Sheltered Workshop).
    - Site was on the bus route for 20 years but removed with the recent rerouting effort (COMO Connect).
    - 15 to 20 people rode the bus plus paratransit but now more people have to use paratransit and are arriving late to work since CMSE is no longer on the bus route.
- ☐ "Performance" depends on where you're located vs. where you're going.
- ☐ Integration should involve other considerations, such as presence of crosswalks, snow removal from sidewalks, etc.
- ☐ Accessibility, especially for the blind

- Information access is critical, e.g. via maps, route information, smartphone apps, audio announcements, bells that work correctly on the bus (affects ability to be able to get off), announcement of routes (sometimes such are skipped), wheelchair accessibility routes, and stops.
- Need more bus stops and signs.
  - Number today is minimal (have to walk 3-4 blocks).
  - More bus stops would increase ridership and make bus stops easier to find.
  - Why are there so few bus stops? How can we fix this?
- Need consistent schedules all day (confusing to riders).
- Welcome Home Veterans housing development is under construction; Victory place is also for Veterans – No bus stop for either location.
  - Bus service is needed.
- North Hampton Village (lived there in 2000) – Had to walk ¼-mile to catch the bus. Later the route was changed along Brown Station Road, which caused a longer walk, so now I can't ride the bus and have to use paratransit.
- Why are drivers speeding past stops?
  - Have a lot of new drivers, so stops are being passed.
    - Drivers aren't trained well enough.
    - Bus system won't work without good drivers.
    - Need driver coordination for riders to transfer to the next bus – Drivers are pulling off before the transferring rider can board the second bus.
- Not enough meeting notice, so people didn't know about the meeting unless they rode the bus.
- Connection from the Blue to Gold Routes at Conley – 7AM (Blue arrives) and 6:55AM (Gold leaves).
  - Solution: Start route 10 minutes earlier.
- Last trip for the Blue does not serve Mexico Gravel.
  - Need last trip.

## Small Group Goals Discussions

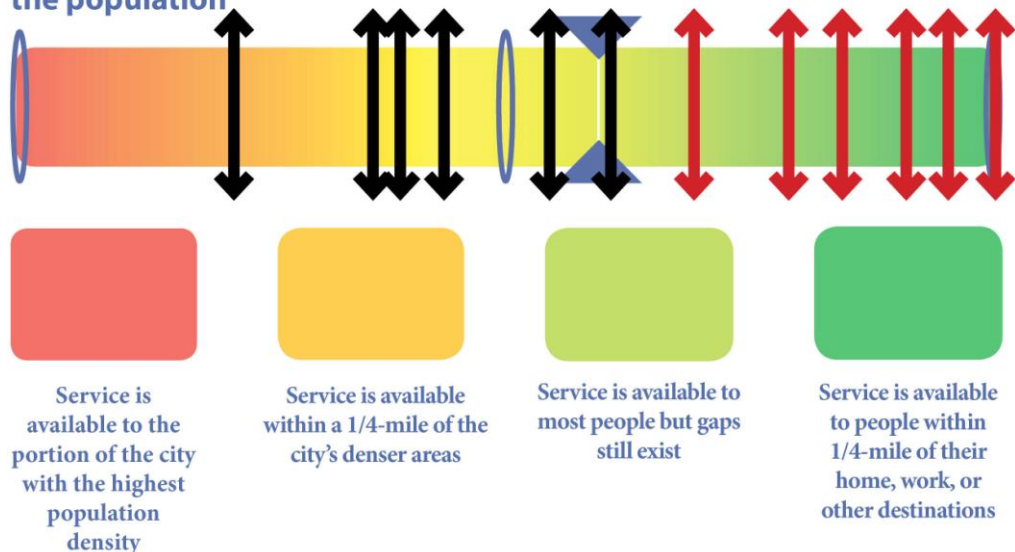
Following the presentation, meeting participants were organized into six small groups around a very large comment form that included the potential transit goals for Columbia. Each goal was described as a series of options that increased in intensity as a continuum or range of color-coded options. The colors ranged from red/dark orange (lowest intensity) to orange (low intensity) to yellow (medium intensity) to light green (high intensity) and darker green (highest intensity).



The study' team's thoughts were included with each continuum as a static "slider" for reference and discussion. The six groups reviewed the goals, team thoughts, and added new goals where needed. They used black markers to indicate where they felt the bus and paratransit system is today and red markers to indicate where they would like it to be in the future in relation to each goal. The groups also wrote additional comments for each goal on their large comment forms. When combined, the groups' comments included those noted on pages 6-12 of this report.

## Coverage and Accessibility

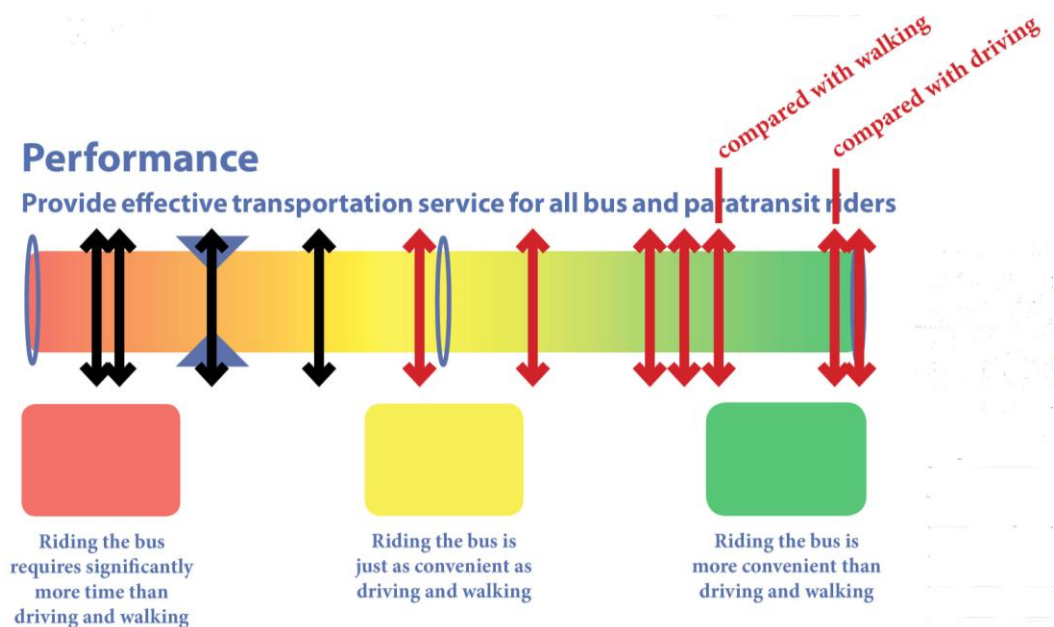
**Ensure bus and paratransit service is fully accessible to all members of the population**



- ☐ Other comments:
- o Separate walking and riding the bus.
  - o Depends on destination.



- o Many children can add difficulty for parents trying to use transit.
- o We need to cover areas that were previously covered. Gaps are appropriate in the right spots. Avoid adding a lot of service in areas where people are not likely to ride it (i.e. homes with cars).
- o Signs with times.
- o Maps – schedules.
- o CMSE has been dropped off entirely – 4040 South Bearfield.
- o Expand hours later in evenings and on weekends. More mid-day too.
- o No bus route on Route B/Paris Road industrial corridor.
- o Services like food stamps should not move where it is harder for people to get to due to relocation.
- o Lack of sidewalks and crosswalks.
- o Some apartment buildings need bus services. Some bus stops aren't accessible to wheelchairs – long hour on the bus.

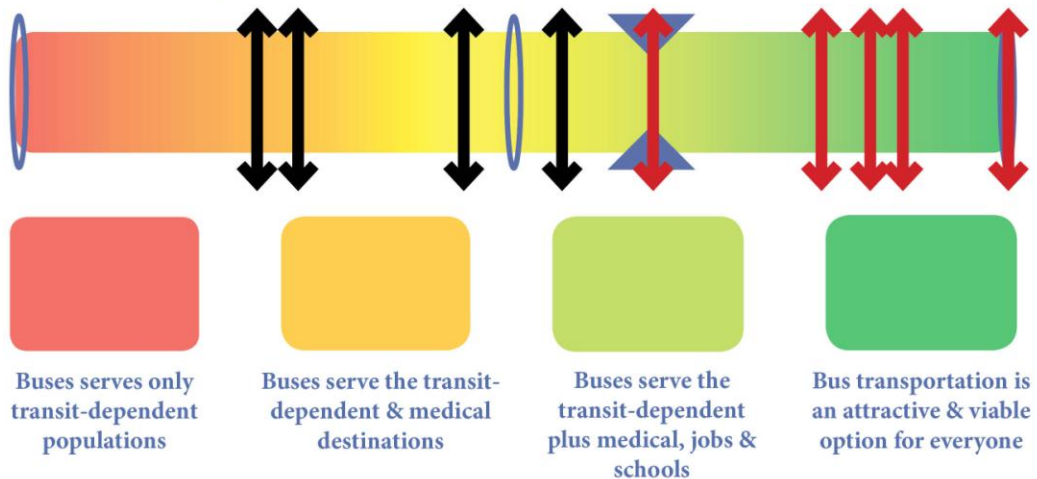


- Other comments:
  - o Direct access to medical facilities – Drop off at the facility (door).
  - o Direct access (at the door) to handicapped work centers .
  - o Prioritize low-income resource sites.
  - o Really inconvenient now, but we understand that we are not NYC or Chicago and not everyone will use it.
  - o Transfers are what kills the time – takes the time.

- Reasons to like the bus – Market it being enjoyable, text, etc. catch up on work.
- Keeping to schedule. Transfer buses don't always link up with their partner buses.
- Most drivers are part-time, lots of turnover.
- Depend on both fixed and paratransit. Can't drive a car due to disability. Later even.
- Make Saturday until 10.
- Make Saturday run State at 6 a.m. to 10 p.m.

## Resources

**Provide sufficient resources for bus and paratransit service in the community**

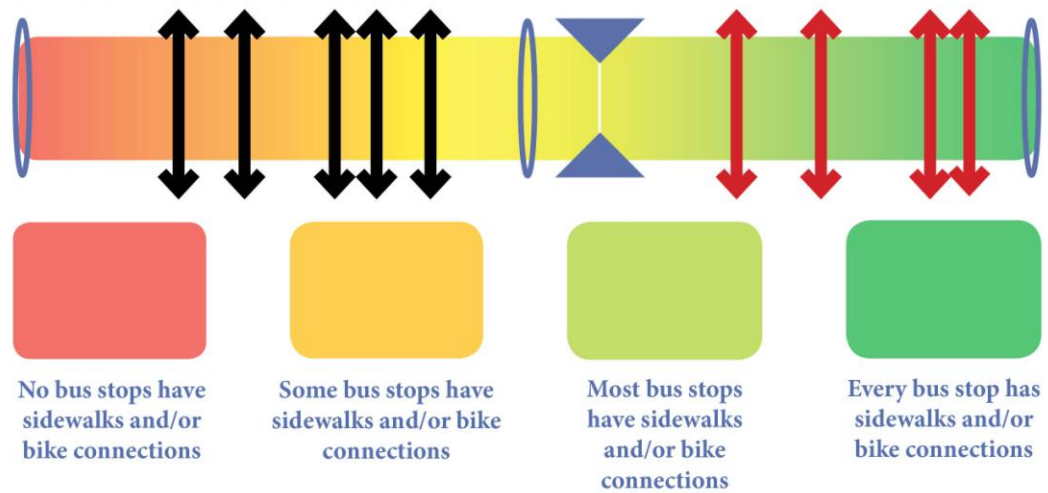


- ☐ Other comments:
- Feel like we need more resources.
  - Service isn't available to many folks who need it.
  - We want to see more resources put into improving service.
  - Tighter servicing area – \_\_\_\_\_ service tighter areas lots of stops.
  - Nice try.
  - MU is big employers, but they don't fit the schedules.
  - No service to industrial corridor.
  - Nothing on Keene Street to service employers.

- o Each trip is \$2.00 and you need 3 to 4 trips a day.
- o More enforcement with car drivers blocking the bus stop – If high school students are free then everybody should be free.

## Integration

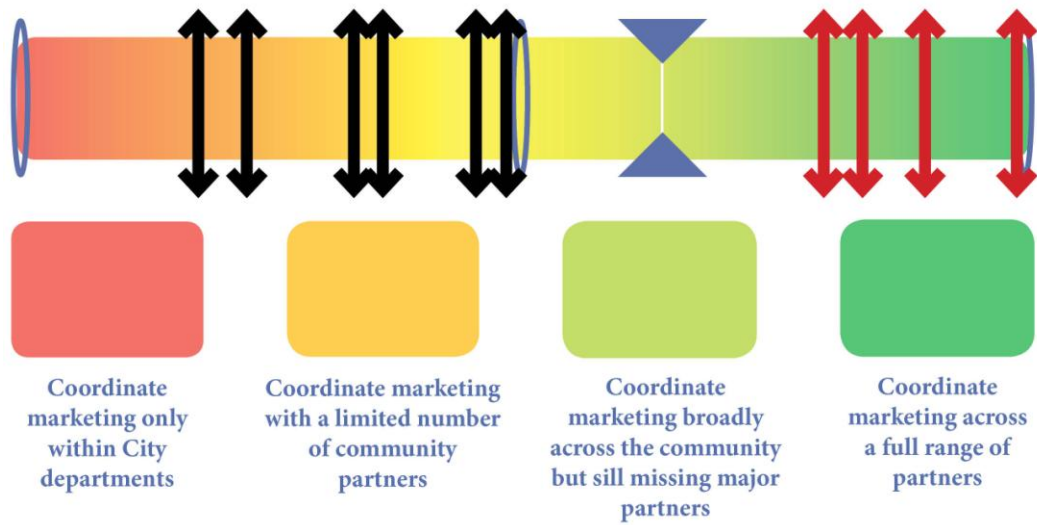
**Integrate the transit system into Columbia's overall transportation network, including sidewalk and bike connections between destinations and bus stops**



- Other comments:
  - o University students are unaware of service.
  - o Every bus stop needs sidewalks/platform at every stop.
  - o Bike racks.
  - o Usable curb cuts for bus lifts to move chairs.
  - o Road markings/paintings.
  - o Need more shelters – At least seating at connection points.
  - o Better lighting.
  - o Consider timed heaters.
  - o \*Thanks for change in stop/shelter at COMO library stop\*

## Marketing

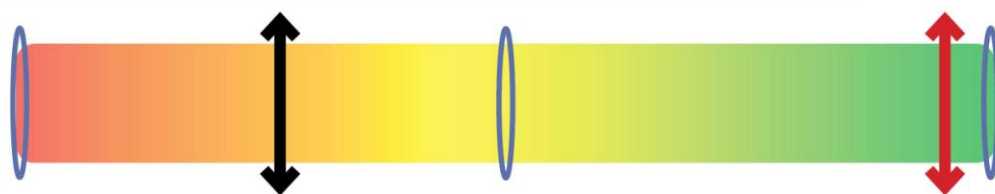
Partner with stakeholders to promote and market the bus system



□ Other comments:

- Feel like many partners/private sector groups are not aware/involved in marketing.
- Crucial to have all partners involved. We need to make riding the bus fun!
- Convenience and parking.
- Culture (delta) change that looks [like] convenience to people who don't usually ride.
- Ideas for marketing:
  - Branded icon/trademarks – Explore partial wrap with other opportunities for businesses (benches – other marketing) – this gets businesses visibility and helps bus system (bench, sign, etc.).
  - Bus wrapping – Safety concern on back of bus - People can't see lights.
  - Marketing manager has to let them know when bus should be in.
  - Schedules at malls, grocery, and destination places.
  - If paratransit is the only option due to inaccessibility of fixed route service (i.e. no sidewalk).

## Safety



Major gaps exist  
in safety with  
paratransit and  
drivers




---

---

---

---




---

---

---

---



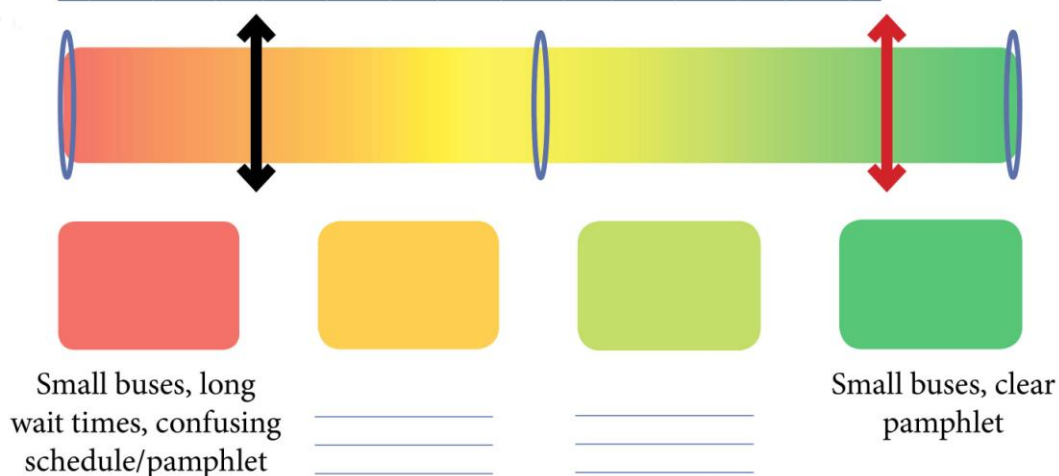
All stops are safe  
& drivers are  
professional &  
safe

☐ Other comments:

- Bus drivers not wearing seatbelts.
- Bus drivers leaving bus to get on phone.
- Bus drivers should wear professional uniform logo.
- Badge your drivers with driver number – Visible on bus for patrons to report safety concerns.
- Bigger and two-sided bus stop sign or special shape for signs.
- Safe stops – evaluate all bus stops on major roads.
- Crosswalks near stops with signs.



## Small Buses & Clear Bus Schedule/Pamphlet



☐ Other comments:

- Use small buses for off peak times non-Black and Gold lines to facilitate decreased wait times and increased efficiency and decreased cost.
- Simplify current bus schedule and pamphlet.

### Additional Feedback from Small Groups

- ☐ Rider comfort – Allowing drinks on the bus as long as they have a lid.
- ☐ Covered shelters at all stops.
- ☐ Sunday service and extended hours (10 p.m.).

## Verbatim Comments from Facebook

A project Facebook page was created for the project at [https://www.facebook.com/COMO-Bus-Service-Evaluation-1523732664307371/?hc\\_ref=PAGES\\_TIMELINE](https://www.facebook.com/COMO-Bus-Service-Evaluation-1523732664307371/?hc_ref=PAGES_TIMELINE). The page currently has 124 likes and the following comments on it:

- Join Us! #COMOConnect
  - **Thadeous Mon:** No thanks!
- #COMOConnect Video invitation! Watch it here  
[http://www.como.gov/tcc/2016/09/27/como-bus-system-community-visioning-session/?doing\\_wp\\_cron=1475595065.287216901779174804687](http://www.como.gov/tcc/2016/09/27/como-bus-system-community-visioning-session/?doing_wp_cron=1475595065.287216901779174804687).
  - **Cynthia Lynne Holloway Raven** Please stop parking at the bus stop when not actively dropping and picking up passengers. This unnecessarily blocks traffic in the Conley Road area.
  - **Steve Athans** Hang on to YOUR Wallet!!!!
- If bus and paratransit service were improved in the future, what would it include?  
 Comment online at [comobus.digicate.com](http://comobus.digicate.com). #COMOConnect
  - **Nora Frier** On a and b connectors maybe some benches some how some where,I kinda miss the station where the we had rain,or snow for coverage,and
  - **Derrick Bull Tyus** Running 7 days a week and later. Maybe 24 hours. Or til 12am
    - **Natalie MonkeyMind Feibish** From what I understand a lot of people are saying that, and the response is "No. But is there anything else?"
    - **Natalie MonkeyMind Feibish** That is the sole reason I don't ride the bus. I can get places but not
  - **Daniel Skalnik** More buses a complete revamp of the whole system the bus is ridiculous in this town
  - **Judith Boyd O'Brien** To hire someone back who was falsely terminated. She was the most dedicated employee you've had in a long time.
    - **Sophia Smith** Yes and I was also falsely terminated
  - **Nikki Butler** I've been there since 97. Dedicated to the core. Only a couple people above me are still there. That's dedication!
  - **Esperanza Lopez** Not making people late for WORK!!!
  - **Elsie Privette** More middle of the day runs
  - **Corey Parks** Cut out the busses completely and give cab vouchers for the small majority of people that ride it everyday and save the city a few hundred thousand a year.
  - **Scott Buis** Have a bus stop by Patriot Place and the new site for the homeless Veteran shelter; Welcome Home. While you're at it, include the 3 social service agencies on Hathman Place that serve impoverished residents with disabilities.
  - **Linda Lake** so many cars....need more routes to cover more areas....

- **Ian Kimmel** Why don't they run on Sunday?
- **Tim Robertson** Survey not working right on my iPhone
- **Sophia Smith** They need to replace a lot of the old buses and management. they have a lot of controversy and favoritism within their staff. They also have high turnover within staffing for transit positions. To me it's the worse department to work for in the city occupation.
- **Rhonda Saunoras** Go down PrathersvilleRd once a hour. We need a way to go to mall to.
- **Jana Lynn** Ha!
- **Tiffany Hickem** Can the black connector bus ( around Rollins/campus area) be on time EVER!!!!!! A few minutes here and there ,fine but an HOUR or more is ridiculous!!!!
- *Excited about the additional GREEN buses!*  
[http://www.columbiamissourian.com/.../article\\_ea7f77d2-9618-1...#COMOConnect](http://www.columbiamissourian.com/.../article_ea7f77d2-9618-1...#COMOConnect)
  - **Chris Krause** This article is over a month old and says the bus deliveries will be November 4. Have the buses been delivered already? If so, what routes are they running on?
    - **COMO Bus Service Evaluation** They will arrive before the end of the year and operate on Tiger Line during the school year and on various COMO Connect routes when campus is not in session.

## Verbatim Comments from Opinion Survey

Digital and hardcopy responses to the opinion survey were collected from October 4, 2016 to January 13, 2017. Three hundred ninety-two (392) surveys were returned during the period. The survey included 11 multiple choice and open-ended questions and resulted in the following responses that included on remaining pages of this report. Responses to multiple choice questions have also been organized by Greater Columbia zip code and are included with the Appendix. The zip codes include:

<i>Zip Code</i>	<i>General Location</i>	<i>Percent of Survey Respondents</i>
65202	North side of Business Loop 70	23%
65203	South of Business Loop 70 and west of South Providence Road	42%
65201	South of Business Loop 70 and east of South Providence Road	26%
Other	Bladwin, Ashland, Russelville, Centralia, and Fulton, Missouri, and Warrenton, Virginia	9%

**Note:** Census data from the American Community Survey (2011-2015) for the zip codes are available at the following link: <https://maps.mysidewalk.com/0011d1af42>.

- ☐ **Q1 – Coverage and Accessibility:** How important is it to ensure that bus and paratransit service is fully accessible to all members of the population? Select one opinion.
  - Very important (297 responses)
  - Somewhat important (65 responses)
  - Not important (22 responses)
  - Unsure (4 response)
- ☐ **Q2 – Converge and Accessibility (continued):** In the future, which type of coverage and accessibility do you envision? Select one opinion.
  - Service is available for the portion of the city with the highest population density (56 responses)
  - Service is available within a ¼-mile of the city's denser areas (37 responses)
  - Service is available to most people but gaps exist (68 responses)
  - Service is available to people within ¼-mile of their home, work, or other destinations (211 responses)
- ☐ **Q3 – Performance:** How important is it to provide effective transportation service for all bus and paratransit riders? Select one opinion.
  - Very important (310 responses)
  - Somewhat important (40 responses)
  - Not important (19 response)
  - Unsure (6 responses)
- ☐ **Q4 – Performance (continued):** In the future, which type of performance do you envision? Select one opinion.
  - Riding the bus requires significantly more time than driving and walking (59 responses)
  - Riding the bus is just as convenient as driving and walking (159 responses)
  - Riding the bus is more convenient than driving and walking (160 responses)
- ☐ **Q5 – Resources:** How important is it to provide sufficient resources for bus and paratransit service in the community? Select one opinion.
  - Very important (298 responses)
  - Somewhat important (52 responses)
  - Not important (22 responses)
  - Unsure (3 responses)
- ☐ **Q6 – Resources (continued):** In the future, what type of bus and paratransit resources do you envision? Select one opinion.
  - Buses serve only transit-dependent populations (20 responses)

- Buses serve the transit-dependent and medical destinations (21 responses)
- Buses serve the transit-dependent plus medical, jobs, and schools (80 responses)
- Bus transportation is an attractive and viable option for everyone (246 responses)
- **Q7 – Integration:** How important is it to integrate the transit system into Columbia's overall transportation network, including sidewalks and bike connections between destinations and bus stops? Select one opinion.
  - Very important (278 responses)
  - Somewhat important (53 responses)
  - Not important (35 responses)
  - Unsure (7 responses)
- **Q8 - Integration (continued):** In the future, what do you envision for integration? Select one opinion.
  - No bus stops have sidewalks and/or bike connections (10 responses)
  - Some bus stops have sidewalks and/or bike connections (50 responses)
  - Most bus stops have sidewalks and /or bike connections (123 responses)
  - Every bus stop has sidewalks and/or bike connections (191 responses)
- **Q9 – Marketing:** How important is it to partner with stakeholders to promote and market the bus system? Select one opinion.
  - Very important (261 responses)
  - Somewhat important (64 responses)
  - Not important (33 response)
  - Unsure (14 response)
- **Q10 – Marketing (continued):** In the future, what do you envision for marketing? Select on opinion.
  - Coordinate marketing only within City departments (24 response)
  - Coordinate marketing with a limited number of community partners (28 responses)
  - Coordinate marketing broadly across the community but still missing major partners (32 responses)
  - Coordinate marketing across a full range of partners (287 responses)
- **Q11 – Other Comments:** What additional goals would you suggest? What is your vision for achieving them? (256 responses)
  - Free service and Sunday service
  - More frequent buses in a tighter geographic area. Emphasis on getting



around downtown and north/south & east/west

- Encouraging more people to ride the bus. Possibly working towards make it attractive in terms of aesthetics and making it a pleasant experience.
- Improve efficiency of the entire system so that someone can get from Columbias city limits east to west or north to south in less than one hour. Stop using huge busses that are mostly empty and replace them with smaller vehicles that run much more frequently. Every bus stop should have service to it every 20 to 25 minutes maximum especially between 6 to 8 a.m. 11 a.m. to 1 p.m. and 4 to 6 p.m.
- Riding the bus would be much easier if pets were allowed and the buses ran later on the primary routes like the gold.
- Making connection points where you can connect two routes from both directions not just one. Ex: some connections are good when you go from neighborhood route to connector but not the other way around. Later evening service 9p. Have Neighborhood routes not rotate using same bus...confusing Sunday service...More shelters and benches
- Earlier start, run later and include Sundays and holidays. Life still go on those days and not just for the college...
- More frequent pick-up/drop-off times would do a great deal in regard to making riding the bus as convenient as walking or driving.
- Bus availability on Rt KK
- Busses should run 24 hours or at least later and all days of the week. Busses should be seen as a solution to lack of parking downtown perhaps some kind of commuter lot with busses running to the downtown area.
- Bus schedules are fine tuned to be accurate most times barring out of the ordinary circumstances. This is vital for people riding to work and appo
- Make 24/7 service available and safe for all who desire to use it.
- Expanded service hours are crucial! Also the university community is a potentially huge portion of the business but is not being well utilized. In Athens GA the city buses are very well utilized and the town and university are similar to Columbia. Finding a way to make bus transport more attractive especially with the influx of students downtown seems to make a lot of sense. Also the service needs to include more shelters.
- Aim to reduce Columbia's emissions by having a reduced number of citizens using their cars as their only means of transportation. Have more bike racks available on the busses to integrate them as a means of transportation.
- Please have bus service after 7 PM and on Sundays. This is the only time I usually ride the bus: when I'm not working. If the bus is not available

during non-peak work hours it is very difficult to go out to buy groceries. Please also make the bus service more frequent. It takes too long to get to my destination when I use the bus and it is just not efficient.

- Use of bus station to get picked up at when it is cold.
- Extended hours and running on Sundays and more benches and shelters at all bus stops and sidewalks to make it easier for people in wheel chairs to get on the ramp of the bus and off at their destination.
- I work at CMSE Giving Gardens - Would like CMSE Giving Gardens put back on the bus route so our employees have safe and easy access to work.
- Stop at Welcome Home! on Bus Loop 70
- Make accessibility more available to create self-sufficiency for the population with disabilities
- See Saturday buses run same as Mon-Fri
- I'm just trying to get a motorized wheel chair to get to bus stop Dr. won't give me one. Health too bad to make it to bus stop by myself.
- I would like transit to be accessible to all people as an attractive viable option.
- Improve access to Parkade Neighborhood - Link to Business Loop grocery store (Aldi Mosers) and Parkade Plaza (employment opportunity) - Provide access to Patriot Place - east-west connector along Business Loop. Prioritize service in areas with greater density and populations likely to use service. Also need to provide service to Valley View sub. Link to mall to employment and shopping.
- Reduce automobile traffic.
- I like to see more of buses and more time buses put the buses back on Walbash
- More time and more on the buses
- Not to ride a long time on paratransit
- Put the buses back at the bus station longer hours. More sidewalks at all bus stops to make them more accessible.
- The disabled population ride the bus more - percentage - than other populations. Special attention should be given to these people.
- Coverage and accessibility: Esp. disabled) Eliminate mid-day service and expand regular service for entire day. People need service all day esp. working people. 2) Since satellite service has begun friends say it takes twice as long to get around up to three hours! Small show of people indicates not enough public knowledge of this forum. Why is that? At

least 500 people should have shown up for this!!

- Bus stops need to have schedules posted. Also consider using a better app than DoubleMap. I visited Tampa this summer and their app was AMAZING. It would notify me when the bus was nearby and had real-time estimates rather than the often wrong estimates DoubleMap has.
- Better connections between buses so there wouldn't be a 20- to 40-minute wait at transfer point.
- Extend evening hours for whole system not just for MU students. Start earlier on Saturdays.
- Regular service all day/week long. More consistent schedule. Itinerary planner needs to be added to app and calendar. More communication with assistance agencies. Eliminate mid-day service with more consistent hours that don't flip flop times. More lost bus service or hours. Ash Street for are Gerbes and apartment buildings.
- #8 - Also curb cuts! And snow removal! And plenty of shelters! And crosswalks from the stops! #3 - Plenty of coverage but it takes TOO LONG to be a reasonable choice. And greater frequency.
- Keep good drivers they will
- We need to make sure we are not only serving students. Two routes or portions of routes that have been removed affect transportation for people trying to get to work. The city needs to consider the turnover that they have in drivers. Is this due to pay benefits?? The routes would run more smoothly if drivers were not constantly changing. I am afraid the old adage you get what you pay for applies here.
- No bus routes in other industrial corridor Route B (Pepsico Scheider Electric 3M EDI)
- Return service to CMSE 4040 Bearfield Mon-Fri
- I want to see a community where public transit is the first choice in getting anywhere. Significantly reducing the students need for cars and single occupant commuters to campus being my number one priority.
- I think the major factor to consider is parking. I do not see transit attracting Columbians as long as parking is free and easily accessible which is why the volume of riders is increased so heavily for events such as RnB football games and other community events. As an MU employee I am only charged \$21/month to park, which is not much. I can see teaming up with businesses who charge for parking to work with transit to increase on-site parking costs while subsidizing transit passes for those who do not drive in order to make it more competitive.
- 7 days a week service and early start on weekends and later in the

evening

- o Your current connector system is fundamentally flawed. People do not use a bus to go around their neighborhood they use a bus to get out of their neighborhood. Currently only those living close to the city center of Columbia and who are only commuting to another portion of city center would require 1 bus. Everyone from all other areas of the town require at least 2. Some people would require 3. Consider that it would only take 10-15 minutes to go from Nifong/Forum to Paris/Brown Station Rd. by car but it would require 3 buses to do so. 2 of those buses only run every 30-40 minutes. Timing would have to be PHENOMENAL for that route to take less than an hour by bus. The system should be based around people getting being able to leave their neighborhood and get to entirely other portions of Columbia with minimal effort and transfers. In most metro areas with well-established bus systems a person living in an expansive residential neighborhood can hop on a bus and easily get to their job a mall or to other residential neighborhoods and you would only ever have more than 1 transfer if you were literally going to the other side of a large city. Columbia is not that big in order to compete with cars you must be able to offer quick transportation ACROSS Columbia. Ask yourselves: How do you get from Grindstone to the mall? How do you get from North Columbia to the restaurants and shopping areas along Nifong? How do you get from an apartment complex on Clark LN to the shopping areas of Stadium or W Broadway? These may seem like odd questions but they speak to the underlying issue: If someone lives on one side and wants to work or play on the other side they HAVE to take a car or leave 2 hours ahead of schedule for a bus. Also don't have limited service on Saturday. It is Saturday: first retail people still have to work second M-F workers like to use Saturday to run errands go shopping go see a movie. If you limit bus service on Saturday then they have to drive. Provide for them let them hop on comoconnect and let them relax while you quickly and easily transport them to where they need to be. And have frequent enough service that you're ready for them when they're done. They don't have to worry about missing a bus and having to wait another hour for the Gold. Along the same lines offer service on Sunday. Sundays are typically less frequent service across the country. Sundays are more of a stay in and relax kind of day but that doesn't mean everyone stays in or there aren't still people who can't use the bus to get to work. (Basically I would recommend weekday service on Saturday and the Saturday limited service on Sunday. Also just generally make service more frequent for MTWTFs). Speaking of frequency: Gold and Black need 3 buses every 20 minutes. If you're going to keep the neighborhood system they each either need 2 buses for more frequent service or 1 bus in each direction for better options of where someone can go. For instance I live on W Broadway (but east of Stadium) I can take the gold to the mall but

if I just miss the gold bus I'm kind of stuck. I could walk to west and catch the purple but it is literally going the wrong direction for me. Likewise from the same location how do I get down to the forum shopping center? Both Purple and Light Green go the wrong direction to get there quickly requiring longer bus rides. Another suggestion: extend service to later hours. People still like to go get a bite to eat or may be getting off work at 8 or 9 pm and limited or ended service at those hours does them no good.

- The ability to let a driver know you are en-route to a stop so they will not depart early; perhaps in the current smartphone app. Also the ability to request the AC/Heat to be turned on without having to yell and remain seated while the bus is in motion.
- As a student I recommend extending bus hours to include early mornings and at least until 9 or 10:00 at night. I also would appreciate bus service (even if limited) on Sundays as I am not religious Sunday is a day like any other and I need to be getting to and from downtown then too.
- a better smartphone app for CoMo Connect bus stops that have buses stop at them at least every 15-20 minutes (some routes only come by the bus stops once an hour)
- I would like to see the bus system run on Sundays and further into the evening every night. I would like the bus stop poles to be distinctive in some way so that blind and visually impaired patrons can distinguish them from other road signs. I would like the busses to audibly announce to patrons outside the bus which bus it is and where it's going.
- Make the transit system more functional for students to and from campus. Remove the colors and ask questions that are not importance based in the survey.
- Bus service every day including Sundays and extend the hours of service
- Changing routes often is detrimental to the people you are trying to serve when they enter lease agreements or home purchases and even jobs based on bus accessibility and convenience. The fact that you are considering changes yet again stops people from committing to housing and employment in the city. Make the system one people can count on long term not changing at the whims of each new expensive study.
- There are a lot of different bus services there has to be a way to streamline the bus service system.
- low your prices the city do not as much as paratansit
- I want to see more on buses an time for the buses
- more on the buses an time on the buses



- There are several issues that I would like to be addressed in the near future. Shelters at all bus stops. During the winter months this is incredibly important. Some bus routes are too long and routes get behind really easily. The skipping of stops to get back on schedule should not be happening. These issues impact reliability and increasing users of the transit system will be hindered by such problems. Service should be seven days a week. Those who rely solely or predominately on the transit system would benefit from a seven day availability.
- The bus system needs to be available during a wider range of hours and more often. When a core ridership becomes more stable then you can grow. Why is this not being considered important?! I would take the bus every day if I didn't get stranded at 8pm or on Sunday.
- Please connect with service providers for mental health basic needs/safety net all new locations for State services (which were formerly located in 1500 Vandiver Building). Please invite us as stakeholders to inform new designs.
- This is a very specific request but access to Cosmo Park and Love INC on W. Business Loop 70 would be hugely helpful!! Any chance of that happening in the near future?
- I would like to see the bus stop back up on Old 63 North close to Lakewood Apartments. There is also Burrell Behavioral Health Services close by. I am NOT able to access the bus stop where it is presently located now. It is just too far and difficult. I know there are a lot of people who would use that bus stop. I believe it should be incorporated back into the bus routes. Thank you.
- Columbia should not have a bus system that is financially burdensome to the whole community as it attempts to serve the whole community, which will not use it or don't want it. The bus system is a supplemental transportation system to provide transportation to those that can't afford their own. It should attempt to be an alternative to cars or to promote a green agenda. Focus on city and population centers. This city is not geographically designed for a bus system with our small population and density.
- Create pull off areas for the bus at their stops. When they stop they block traffic and have almost caused a good number of accidents. Most of the drivers I have seen just pull back out in front of another car after they have picked up their passengers. This probably isn't a possibility but even a bus lane for the routes the bus takes.
- Stop wasting money on the bus system. Columbia will never have the density and parking issues that warrant a taxpayer-funded system. If the system can't run on fares alone eliminate it.

- I believe the lack of service on North Stadium (Columbia Independent School Four Winds Villages Valley View Gardens and Monterrey Hills) is an oversight. That whole area can be serviced with the exception of the single left turn from N. Stadium onto Primrose with a right-turn only loop (Stadium left turn onto Primrose right turn onto Sunflower right turn back onto Stadium right turn onto Timber Creek Drive and a right turn back onto Stadium).
- How about routes that take people where they need to go. Have shelters for passengers. Longer service hours. Less focus on mu. Drivers who announce stops as required by ADA law. Many many more needs including less than 1/4 mile walk to a bus stop.
- We waste FAR too much money on the bus system. Consider looking into a voucher system using Uber instead.
- more integrated system that is fully accessible and efficient
- Sunday service is important. Should be no longer than 30 minute wait at any bus stop at any time.
- Reliable buses; short wait times; major bus routes (a bus that runs back and forth on each of the major streets -- Broadway Stadium Providence and College). You have to make it as cheap as driving reliable and frequent enough that people do not believe they are giving up anything in order to ride the bus.
- I grew up in and around NYC. I didn't drive until I came to Columbia and now I drive all the time because the buses are inconvenient and unreliable. (1) We need to eliminate the huge buses and replace them with twice as many smaller vehicles that run more frequently (every 15 minutes) during work day rush hours (6am to 10 am and 3 pm to 7 pm). (2) We need to create better routes that get people to work with no stops or transfers from all of the primary neighborhoods. (3) How difficult would it be to create an online application that would take a potential riders information e.g. I want to go from my house to my office on campus and create a personal transportation plan? The route maps are toooooo confusing. (4) While you worry about your current riders also worry about all those potential riders who are falling through the cracks. You need to convince people that this will work. (5) Pay the bus drivers more money and give them more training!!!! It is unbelievable to me that these drivers have temporary part-time jobs with no benefits making \$11 an hour and THEY ARE RESPONSIBLE FOR OUR LIVES!!! That is just treacherous!
- I would like the gold and black routes to go every 15 minutes all day and also go later or perhaps less frequently later but at least hourly until 10pm. I'm not sure how the neighborhood routes are working because I don't take them very often but they seem inconvenient. Perhaps having

nine routes that go across town a north middle and southern route that go all the way east to west and also a eastern middle and western route that go north south. That way you could overlap each route with three north/south or east/west options. Think of a tic-tac-toe game...

- More buses.
- Get on Google Transit and/or a Ride App that connects to Smartphones. Having estimated times isn't enough; people need to know how to get from Point A to Point B even when they're not familiar with Columbia. Look at a city like Minneapolis to see how it can be done on a smaller scale than Chicago and NYC.
- Extend the service hours to midnight and up to Sundays. I believe this will help a lot of people especially in avoiding drunk driving.
- either having all the buses meet back at the Wabash bus station or put benches at all the bus stops and post times at all stops so people know what time the bus will be at the bus stops so that they don't have to guess or call and ask all the time due to the bus app for phones sometimes doesn't work. also if people that are over the age of 18 have to pay to ride the bus then the people that are in schools like middle schools and junior high and high school should pay as well because it is not fare that they get to ride free and the rest of us have to pay or use a bus pass
- The system has run more frequently. It is currently only utilized by those with no other option. It can take more than an hour to get from destinations if one or more transfers are required. This is exacerbated by poor scheduling where riders frequently reach a transfer stop just a few minutes after their next bus has just left.
- Bus system is currently worthless. It usually takes at least 2 hours to get anywhere. I used to be able to walk to a bus stop a block or two away. Now the closed but stop is over a mile away. The system either needs to be fixed to meet the needs of the customers or shutdown. If no changes are made it should be shut down.
- Longer hours and days. Right now among people who would take the bus cant because of the hours of operation and time between pick ups. With the way the buses run it is hard to use them and get back and forth to work without losing a lot of time. Impractical if working 2 jobs or going to school and working.
- Complete an automated trip planning function.
- In the medium term (next 3-5 years) service should concentrate on highest ridership routes (black and gold possibly other connections) - more frequent 7-day and late night service on these routes while

implementing reduced or on-demand service for lower ridership areas.

- Bring back a central location for transferring between the routes.
- There are 3000 international students and about 900 international visiting scholars at the University of Missouri. Those who work at MU constantly hear from them that they love living in Columbia but really hope our public transportation system will improve. Thank you very much.
- Making the system viable across the community, which should involve buses running both directions on the extreme routes. Ridership will only increase if and when the options are convenient.
- The bus needs to run more often and longer in the day or it will never be an attractive option for the majority of people
- I would really like to see an express bus from Columbia to Jefferson City. There are many people who work as state workers in Jefferson City. They work within a few blocks of each other. These employees don't make very much money and spend quite a bit of money and time to get to Jefferson City every day. An express bus could save these employees time and money if it is implemented well. The bus could pick up from the commuter parking lot in Columbia and drop off at a couple stops in Jeff. It would only need to run a couple trips in the morning and a couple in the evening to get commuters. I've heard that in other communities capturing these types of commuters has increased bus use. To my knowledge there is currently only one shuttle available to Jefferson City. It costs \$12 per day, which is not a practical option for a middle income commuter. On another note when I was first trying to figure out how to ride the bus I found it very complicated to see the direction of the bus route on the online maps. There are no arrows on the online maps which makes it nearly impossible to figure out where or when you need to catch the bus. I have a car so I do not have to ride the bus. There were multiple times when I wanted to try to ride the bus instead of driving but I couldn't figure out the bus maps so I ended up driving. I finally figured out that if I watched the live map long enough I could figure out what direction the buses were going so I did finally end up being able to ride the bus. Once I got a map off the bus I saw it had arrows on it, which made it so much easier to use. I wish the online maps had the arrows and numbers on the stops corresponding with numbers on the schedule. This would make riding the bus much easier for people who are not intimately familiar with the routes.
- Smaller vehicles for maneuverability and more appropriate to size of population and ridership.
- Increasing coverage and less time to get across town. Right now if you have to be at work at 7:30 AM and have to go across town you cannot

take even the earliest bus because it takes too long and three transfers. :(

- More reliable scheduled. I take the Heame's bus everyday for classes. Some days the schedule gets behind so the drivers break is messed up which means a trip gets skipped for their break or pushed back.
- Have the best core transit we can afford with rapid trips so you don't need a schedule. Dial a ride for other parts. Explore privatization especially paratransit. Partner with Mizzou CPS & Jeff City.
- To reach more areas - like Northwest Columbia or make a way to safely get to a stop from Stadium North of I-70. No shoulder bike lane bus stop or safe way to get out of that area without a vehicle. Hard surface platforms between sidewalk and street so riders and wheelchairs don't have to disembark into dewy tall grass or mud ruts like on Blueridge. If the stops aren't permanent enough for concrete maybe that playground rubber stuff or the temporary planks they use at street/sidewalk construction sites. Advertising really isn't that important if the product is right it advertises itself. I think driving and parking at work (Mizzou) is overpriced and a pain and I enjoy the little bit of exercise I get ridding to the bus stop and having my bicycle on campus to ride around for lunch meetings errands etc. during the day. I guess most people think having their car handy provides more freedom but I really don't like driving to work with all the construction everywhere creating detours almost every day. Maybe you should play up some of the benefits that I see?
- Wow not even sure what you were getting at with some of those questions and they were not what is most important to me. Got to assume that someone knows what they are doing in asking...but unfortunately my experience says otherwise. If I am having trouble understanding I can only assume others will to. Also the colors...I am assuming research shows that people are less likely to choose red even if that is there choice as it would be perceived as the negative choice. So I guess if you didn't want to public to choose the red choice you created the survey appropriately. Anyway I think it is important to express my disappointment and confusion in a city resource that I hold so dear.  
 Ginny Chadwick
- I have been planning to ride the bus for a few years. The city apps don't work on my phone. If the city is really serious about folks using the bus service it needs to get groups of people in the community to use it. Some key people in neighborhoods. Then it needs to be marketed as a convenient transportation mode. If I live near Fairview what time do I have to be at the bus stop to be at work on time and what time will I get home?
- Smaller buses or vans.
- Longer hours midday service express busses and regular busses on the



same routes bus service that goes places I need to go (a block from home not 1/4 mile away with huge grocery bags; local gyms ) Sunday hours discounts for frequent riders less focus on campus. Service to Cherry Hill. Better service to forum. Service past city limits to outlying communities. Give the long term citizens of Columbia what they need!

- I would use public transportation daily if routes came within 3 blocks of my home and ran more frequently. I love that students of CPS ride free and my children would ride if it served our neighborhood.
- Whatever you do make the schedules realistic so people know what to expect. Obviously there will be days that nothing goes right that's not controllable. But most of the time the schedule should be accurate. Right now it's anything but which makes the bus system unreliable and almost unusable for some people.
- Fuel-efficient and appropriately sized vehicles. Most routes likely won't merit full-sized buses. I'd rather see a variety of vehicle sizes than mostly empty full-sized buses driving around the city.
- Work with the city to designate bus lanes or priority bus access to high traffic routes during high traffic time - i.e. 50 people on a bus are entitled to 50x more road than one person in one car. Would make bus travel a more attractive and viable option for commuters and disincentives solo car travel.
- With so many options for green energy it would be great if the bus system in Columbia would go 100% green. I've been in cars with people when they are driving behind a bus and they often complain about how it pollutes the air and they can feel the pollution in their lungs when they are the car behind the bus. Also though switching to be 100% green would initially require more money in the longer run going green will save money.
- Providing bus 24/7 schedule for second and third shift workers
- Make the different routes work together better make sure the busses actually run when and where they say they will and have a better system to keep people informed. Someone should not have to wait 1 hr for a bus that never shows up even though its shown on the app as running on time.
- A bus on Sunday! Night buses as well for students who drink!
- The transit system in Columbia should be a far more attractive option than driving. The appeal of taking public transit should be convenience: no parking meters no gas station stops easy walk to work home entertainment and other public places. No one wants to wait for a bus. Bad weather makes waiting for the bus unpleasant. Also there is a time issue; I have known people that had to take 2 busses to get to their

destination and it took 2 hours! Columbia is just NOT that big. I think public transit would work better if the city could do some neighborhood planning and design. Keep some basic services in each neighborhood and within walking distance. And Columbians could just walk to their destinations.

- Bus transit should be a viable option for low income families who are the ones usually needing bus services! This should happen through large scale partnerships across the entire city!
- We need Sunday hours!! Late night hours would be good too but Sunday hours are needed! This can be achieved by hiring more drivers. Ridership (and revenue) will increase with more convenient coverage and scheduling.
- I would like the bus service to extend into some of the further neighborhoods. I live off of Rt K and the nearest stop about 1.5mi away is the corner of forum and old plank. Old Plank is a dangerous road to walk/bike along. So bus service extending to the neighborhoods further south and out Rt K would be awesome.
- Have designated driver breaks NOT in the middle of the road. Partner with landowners to provide a parking lot area to have bus driver shift changes and breaks. It's a safety concern for riders and other motorists
- Regular hours on Saturday/Sunday. Bus shelters!
- Bus bays so other traffic is not interrupted at bus stops.
- Provide sidewalk-type waiting areas at each bus stop. Currently at most stops people have to wait in the grass/ditch to reduce the risk of being hit by speeding traffic. Where are the covered bus stop shelters that were promised?
- Light rail going from Highway 63 to near the end of West Broadway. It should be free for all riders.
- The 30 minute goal between buses is still far behind effective bus systems in the nation. I would ride if the interval was 15 minutes.
- International students often come for just 1 year and do not have private transportation. Public transportation is available but limited. We could bring more international students if public transportation was more readily available and convenient.
- Buses running til 9 or 10 on Friday and Saturday. Dark green bus include a stop at Hy-Vee store on Nifong and Providence.
- Shelters should be available at most bus stops. Return to prior route system with the central hub at the bus station until shelters are built at bus stops. My vision is that we would build bus shelters at new bus stops

before we change the routes.

- Reduce the Electromagnetic Fields (EMFs) in your New Flyer buses to benefit the health of the riders. I suffer from Electromagnetic Hypersensitivity (EHS) and cannot ride your New Flyer buses because they emit high EMFs. (Have a Cornet ED78s EMF meter and tested it on your New Flyer buses and the levels are off the charts~ about 5 milligauss pulsing to 30 mG every second or so). Your CNG buses and other vehicles by New Flyer test high for some reason. I had to stop riding because every time I rode your New Flyer bus I got a headache burning sensation under the skin and it greatly aggravated an existing neurological condition (movement disorder) that I have. A small subset of us suffers from this disorder (Electromagnetic Hypersensitivity - EHS) which is recognized officially as a disability in Sweden and is an extremely debilitating condition for those of us that have it. FYI the Gillig (non-hybrid) buses don't test as high - on my meter the levels are consistently about 3 - 7 mG for the duration of the ride. The New Flyers are the only buses that seem to consistently spike from about 5 to 30 mG every second. Please investigate this issue on your New Flyer buses. What is unique about these buses in particular that cause readings up to 30 mG? My vision is that all buses be tested both for magnetic and radiofrequency (RF) radiation as the health effects are devastating particularly for those of us that suffer from EHS.
- This survey is dumb for starters. Every bus stop MUST have the times when it comes to that particular stop along with an appropriate waiting area. Not everyone has smart phones and the website is a complete waste of time. You should either have an automated system to call so anyone can find out bus arrival times automatically (use the same systems as movie hotlines) or have someone you can actually reach on the phone. Also please use waiting music instead of a guy's voice saying all lines are busy over and over again. That is so annoying! Worse than trying to call the DMV. The new bus system is terrible it used to be convenient now it's anything but. I can't even get from East to West Broadway which was the main convenience of the bus system that and the fact that all the buses actually stopped at the bus station. Whose bright idea was that? Let's completely change the entire bus system to make no sense what so ever! Anybody in your planning dept ever been to a city before? The people planning these routes obviously don't ride the bus.
- Provide fast frequent transit service that connects the core part of Columbia and university/college campuses with jobs medical facilities and shopping. This service should run every 30 minutes all day in both directions. A connection to the airport and Amtrak in Jefferson City also is vital because that would allow Columbia residents including students to live without a car while not sacrificing the ability to travel within and

beyond Columbia. As resources are available first expand that core service into evenings and weekends including Sundays. After that expand transit to serve the lower-density neighborhoods. Service to lower-density neighborhoods does not need to have the same frequency or service hours as the core service unless sufficient resources are available.

- On time to meet connections!!! I was not able to go to a job interview because I could meet my connection. I did not want to and could not do to other people scheduled for interviews show up one hour late and was not able to reschedule.
- Making an additional main bus line just for transit to go to campus. Many of the customers that now ride do not need to go to campus (or can transfer to the Red 10 Orbiter) however depend on the Gold or Black routes to get to other destinations but since the Gold and Black routes go through campus often get stuck in traffic they are often running behind which puts the riders late for other connections and/or to their destinations. If there could be a main transit line that most of the neighborhood routes could connect to and would go to campus the Black and Gold lines could be diverted from the campus area which would result in them running on time more frequently. I also think running until later in the evening would be a good goal to work for. Many of the citizens who actually need to the services transit provides do not work 8-5 and need transportation later in the evening. I also think that the mid-day alternating buses needs to stop as it causes mass confusion and does not adequately service the citizens of Columbia. Finally the Dark Green 7 route (or whatever route would service that area in the future) needs to run every day that transit is operating not just Monday through Friday.
- To make the bus system more accessible for everyone I'd think it helpful to have some advice or service line available to call and help figure out connecting lines so people can know for sure what the options are for getting from one place to another.
- Bus service should be focused on the densest population areas. Service to the outskirts of the city where there is low ridership should be repurposed to denser areas to provide more frequent service.
- Focus on people (areas) where transit would be actually used. For those areas make it frequent and extensive
- The goal of providing access to all residents is extremely important. With the current routes there are major areas that have no service (but had service under the prior system) so even if residents wanted to use the bus it's not even an option. Bus stops should be within walking distance of the entrances to city neighborhoods.
- Allow the system to be bid out to private companies. The city has never

operated in a balanced budget with the bus system. They operate too big of buses within the city never half full. They continue to change buses every other year from gas natural etc. The community thinks this is a joke. Look at JC...they run the small shuttle buses. Look at Detroit...they went private. I operate a private bus company and the city has taken a portion of revenue from me on Football and event days operating for free...then they can't make money to cover operating cost...go figure. Replace the leadership!

- Make sure the bus drivers are being safe and try to understand people.
- One of the major things I would like to see is a bus route that ran Stadium 63 business 70 as a loop in two directions. It would connect a lot of major work/shop/residential areas. It would also connect the main shopping centers stadium and event heavy Lake Stephens Park pretty well. That loop is a pretty distinct part of the Columbia network.
- Need CoMo connect phone app for windows phone. It's been a few weeks since I last rode bus but since the new routes began I've ridden numerous times for FREE because the card reader would not read my multi-ride pass. So it seems to me that hemorrhaging money. You need reliable payment system. The one they use in San Diego is awesome.
- Pay your bus drivers more to be competitive among employers requiring CDL licensing. Allow pets on buses not just service animals.
- More Bus stops downtown. Have free or inexpensive parking on the perimeter of the City and then bus those people downtown. This will relieve some of the downtown parking issues. Ban Semis from downtown streets. Enforce the restrictions on bikes and skateboards using sidewalks downtown.
- Improve the time between buses to be at a minimum of 10 minutes. Provide buses that run both ways (helps with planning your bus routes and decreases wait time). Increase number of green buses in fleet and expand fleet maintenance operations.
- Have an easier way to communicate the maps or have more of an online resource to type in your information and have a robot tell you where you need to catch the next bus and what route you need to transfer to and or take initially. Rather than having a heap of phone calls to answer.
- Overall I am disappointed with this survey as it is slanted to achieve a particular result. Lumping paratransit which is the highest priority for me with other transit questions leads to a misleading result. Also color coding the responses to make the red response negative has an effect on which response is chosen. None of the responses allow for a moderate answer. I support transit particularly paratransit but think the push by councilman Thomas has gone too far and the city needs a more balanced approach



and prioritization of resources to help those with greatest need.

- My observation is that the large buses are mostly empty. Why not use smaller mini-buses!
- Do we current use our transit for special events tours or planned activity? We need to encourage the use and friendliness of our bus system. One of the complaints I hear about our buses is the cleanliness of them. They say they smell. Good Luck with the survey. I live on the far east edge of town and I feel that the bus system is a huge necessity for the residents there. I see people waiting at all times of day and night.
- Lower bus fare
- Sunday coverage and later service hours in the evenings. Public transportation should at minimum be able to provide transportation for a 1st AND 2nd shift worker. Currently the second shift worker has no way to get home at the end of their shift. Plus no Sunday coverage makes it tough for those workers who are employed on Sunday.
- Less time spent riding (more efficiency) it takes 8x longer to ride the bus than drive - which is not an attractive incentive to ride the bus.
- Use smaller buses that more efficient and run each route more fr.
- Smaller bus sizes for certain routes. I rarely see a bus half full let alone completely full.
- Review routing. I used to ride consistently. The orbits made my 20 min commute an hour and two bus changes. I no longer ride
- Closer/more stops around MU campus. More bus shelters. Different swipe card system. My pass has stopped working 4 times and I've had to have it replaced.
- Commuter routes that run limited routes (several during morning/evening rush hour) in close proximity to residential neighborhoods with high density of commuters providing connection to downtown and other employment centers.
- Buses need to run more often. In the city of Chicago the bus comes every 5-10 minutes. I realize Columbia is not that big but 30 minutes is a huge time gap when you need to get to work. Having buses run thru every 15 minutes would be preferable and that means the City needs more buses. Sidewalks are important too. Many people in the Clark Lane area walk and there are no sidewalks. That can be dangerous especially at night when people have to walk home from work.
- I think smaller buses would help drivers and be more efficient. It also would help on cramped streets and neighborhoods. Save the larger buses for routes with increased population density or primary streets.

- THE PARATRANSIT SERVICE THAT SERVES THE EMPLOYEES THAT WORK AT CMSE IS WELL BELOW THE SERVICE THAT IT SHOULD BE. ON A DAILY BASIS A LARGE GROUP (6-10) ARE LATE TO WORK DUE TO PARATRANSIT INSUFFICIENCY. IT IS REPORTED TO ME BY EMPLOYEES THAT THEY OFTEN SPEND UPWARD OF 2 HOURS (ONE WAY) TO GET TO WORK. OUR EMPLOYEES ARE LOSING PAY BECAUSE THEY ARE GETTING TO WORK LATE ON A DAILY BASIS AND THEIR TARDINESS HAS A NEGATIVE EFFECT ON OUR PRODUCTION. I DON'T BELIEVE THAT HAVING TO RIDE UP TO 2 HOURS EACH WAY TO WORK IS ACCEPTABLE WHEN YOU LIVE AND WORK IN THE SAME COMMUNITY. I ALSO DON'T BELIEVE THAT COMO CONNECT WOULD EXPECT OTHER RIDERS TO ENDURE THIS KIND OF POOR SERVICE. I COMPLAINED ONCE AND IT WAS RESOLVED FOR A WEEK AND THEN THE FOLLOWING WEEK THE SAME PROBLEMS CAME UP. I HAVE REPORTED THE CONCERN AGAIN AND AM AWAITING A RESPONSE. MY EMPLOYEES DESERVE BETTER THAN THIS FROM THE CITY OF COLUMBIA.
- Connect with MU to increase bus use among students and community members. One way to fund the money that more hours and better route access would require is to incorporate a bus fee structure into the student fee system for all college students in higher education institutions in Columbia and they would in return receive unlimited rides all day every day. See University of Wisconsin-Madison as an example of how this was achieved successfully in their city.
- Bus route that get people from point a to point b within 30 minutes
- If you really want to see this city grow you need to include intra city bus services to other towns in the area such as Fulton Moberley, Asheland and Midway.
- Offer the same Saturday scheduled routes on Sundays and see if there is enough riders to support it. I hear complaints about not being able to do certain activities or work because there is no bus service. Also Columbia is getting big enough now that services during the week should run until 10 pm. Compare how bus services run in other cities as a model.
- These all seemed like leading questions and not really questions of value. You need a way to ensure your buses are running on time. Every time I have ridden the bus the blue line has been significantly late. I won't even ride the bus to work now because even if I plan to be at work an hour early I have been late. There also needs to be a way for people to use debit cards to ride the bus and quite frankly it's unacceptable that that option is not available. I did not have any cash with me one time but I did have my debit card. A majority of the population now does not use

cash so how are you supposed to have more customers use your system if you don't allow debit card use. I also think you should have an option on your phone to store bus passes there. If someone had a smart phone they could use the app to at least purchase with their debit card and use the pass at the bus that way.

- Please update your app about service interruptions or buses that aren't going to come.
- If we can get wifi on the bus also more buses and to allow the buses to run later
- There should be more bus shelters. We voted on them a couple years ago.
- If the bus is easy to take it would be used more. More stops more frequency better hours and quicker routes. As it is the whole system is so obscure and difficult it is a huge learning curve for new people and they don't use it unless there is no other option. Quicker routes: I really dislike it if I have to travel halfway across town to get to somewhere that would take not even 5 minutes by car. For example taking the bus from Columbia College to the city library. Even on the Gold route which goes both directions I have to travel the whole route to get there. As the crow flies its just 1.1 miles. On the bus it's at least 30 minutes and I have to go west and then turn around and go east to get there. Frustrating. Also I miss downtown routes. Currently there is only one and it only goes one direction. I would love to be able to take the bus to lunch its not convenient. Half my lunch hour is taken riding the bus. So in the end I bring my lunch instead of spending money downtown. I'd love to see \_at least\_ two downtown routes that loop \_both\_ directions so that it is really useful. Can be promoted that you don't need to worry about lunch parking or paying for parking change for meters. In Austin TX the downtown routes are free and are called Dilloos. They look like trolley cars and its really cute and quaint making it fun to ride. They are short routes in the downtown area so no worry about accidentally getting taken to another region of town. Frequency: If the bus came every 15 minutes no one would have to bother with a schedule book or app. A person could just go and wait and know it would come soon enough. They'd know they could rely on it coming. More stops: One example: It's a pain to take the bus to the mall. There is one bus stop at one spot on the west end. There should be one on the other end of the mall at least (by Target.) People are going to have packages! Ideally it would stop in the parking lot. It's a long hike across the lot. You could advertise about how much easier it is than dealing with parking. That we will be your chauffeur! Also more benches and covered shelters. ComoConnect has been going for how long now and it seems to me a large percentage of the stops don't have any benches. And that's the least we can do.

Missouri weather doesn't make it pleasant to wait outside most of the time. Plus you need somewhere to put your shopping bags. It also can be dangerous having no benches as people sit on the curb by the cars going by. And it's awkward to have to stand in the grass beside the road while cars go by. More obstacles keeping people from trying the bus. Also the point about needing sidewalks to get up to the bus is equally important. Longer hours and SUNDAY services! People that work during the week could get errands done on the weekend if Sunday was available. Later hours would be great as you could advertise it as a way to get home from after being out at happy hour or at the clubs. Less drunk driving. More spending on drinks downtown. Cost: I learned that the income generated by our fares are about even with the costs of purchasing and repairing our bus fare boxes. I say make riding the bus free -- that takes away a big obstacle for beginners to use the bus. It's stressful to try something new and having to worry about getting on quickly and having change or how to get a transfer or ticket - all that is no longer an obstacle for new riders. And it's exciting to get something free. It needs to be easy reliable convenient quick and free and promoted to be so. Make it easy - or at least less painful - to use the bus and inform people how to take it so it is not so daunting to try it. Thank you for listening.

- The current two major routes (Black and Gold) serve the needs well. However there are significant sidewalk gaps on both (see the southern portion of the Black route). City-funded sidewalk installation should target the bus routes and stops used most starting with the two major loops. A partnership with Mizzou Athletics regarding bus routes to and from Faurot Field/Mizzou Arena for THE WHOLE CITY seems attractive to me.
- Getting current non-riders to take the bus by making it much much more convenient and accessible. This of course will take more funding so advocating for more money is essential at both the city and state level. Partnering with CVS which would be mutually beneficial. Some way to get businesses to help out by advertising their business at bus stops like paying for a bench with their ad on it.
- The City needs to privatize the bus system. They should not be in this business. If there is a demand for this type of transportation service the private marketplace will fill the need.
- I think every school hospital/clinic and grocery store should have a convenient bus stop. The ones for West Broadway Gerbes and West Broadway Wal-Mart are a city block away from the store. I also wish fewer buses doubled up routes at certain times of day for instance the orange and brown. And is the Trip Planner working yet? I know it has been promised on the website for a very very long time and would be convenient for those of us who travel all over town. Love the hybrid

buses and most drivers are absolutely wonderful. Thanks for all you do.

- Public money spent on bus system is better return on investment than on road expansion
- I suggest abandoning the entire system. The system is a huge drain on city finances and has proved over and over again to be used by only a very few riders.
- Busing makes sense for most people and is friendly to the environment. Also it can build community. How about: Meet your neighbor on the bus! The buses should be small but run every 15 minutes. Add neighborhoods on one at a time after each neighborhood reaches a critical mass of riders and there are lots of testimonials to share with the adjacent neighborhood. Begin with the neighborhoods in which economic circumstances dictate the residents are in greatest need to get to shopping recreational areas and health care and spread out from there. Have businesses offer coupons for people who ride the bus to their business (the bus driver can clip the coupon). Have a rack with free books/newspapers to read on the bus (there can be a special donation center for these at the police station or food pantry --- only use family friendly material). Think out of the box.
- Size of bus should equate to volume of ridership!
- Cut funding hire more police
- Trolley route from library neighborhood to Boone hospital neighborhood during business hours to make downtown less congested with car traffic and an easier destination. This would increase customers for downtown businesses.
- The current bus system is worthless! Go back to using Wabash as a transfer site.
- Before trying to provide good service to outlying low density areas we should achieve a very high level of service and significant ridership to more densely populated areas. Perhaps some form of call a ride service and of course handicap service only should be provided to less dense areas. Service should be free to the extent possible to all students.
- Sadly this survey (like most) was limited on answers. Surveys seem to be built to get the answers they want. Para and regular transport are two different subjects and should not be grouped. This is more waste of taxpayer money.
- This survey is so vague that I don't see how it can mean anything to anyone. Several years ago after customarily walking or riding my bike from home to my workplace University Hospital I transferred to Women's and Children's Hospital (then Columbia Regional). I made a



serious commitment to riding the bus to work. No good. Buses were too far apart schedule too erratic routes too circuitous -- took me forever to get home. I gave up and went back to my car. I am a strong proponent of public transportation. Always rode the bus when I lived in Richmond VA. We NEED a system that is convenient enough that people from all walks of life will actually use it. I realize it's a chicken vs. egg situation but you cannot hope to have good ridership with the system that's available at present.

- I wish the bus would run on Sundays like the Saturday schedule.
- still not DEPENDABLE
- More BUS shelters and seating were they are needed. More BUS stops on Washington Street to make it more accessible to get to Kilgore's and CMCA.
- Bus service should be self sustaining or eliminated.
- You are NEVER going to get people to ride the bus regularly until you permit them to go into subdivisions as people will not walk to a major collector street to get on a bus. The developers and owners will never allow buses in the neighborhoods not even on the supposed arterial streets. Therefore the system is destined to fail. For example it would be at least a 3/4 mile hike from my house to the nearest bus stop. I am not going to do that. Neither are my neighbors. This is not a walking society and until you can make stops within 1/8-1/5 of a mile of homes people will not use it. The only other way it will work is if you make everyone available for the door to door service available to users of paratransit.
- Make it less confusing to use.
- Continue to expand and promote public transit. Make it more appealing to senior citizens. For example drivers could assist elderly onto and off bus stops at door of ARC mall entrance senior center grocery store. Insist on on-time arrival at stops. Market on bus itself and in newspaper.
- Service on Sundays and later into the night and also service that is frequent enough that missing a bus is not a complete disaster. (minimum 20 minute head times)
- No buses. Use taxi like service for those with disabilities on as needed basis.
- Transit has to be a priority for our growing city. One of the keys is to coordinate with the university.
- This survey is a very poor one. It appears slanted juvenile and does not allow comments on each question.

- Best coverage out North Stadium north of I-70 we have a lot of people out here on primrose and farther north that need it. From Primrose it's a mile to walk up to the Taco Bell without sidewalks and its impossible in winter time or wet weather. We are left out!
- More buses and routes. Routes to connect easier and in more places routes meeting each other in both directions for quicker efficient transitions. CLEANER climate control and attractive buses in and out! All buses accessible for handicapped and mobility challenged people.
- To have all the buses coming into Wabash station so connecting to busses being safer waiting places can get out of weather restrooms being able to set down being able to buy bus passes when you don't have a way to Wabash station and can go all different directions in a lot less time. I live on the north side of town on Vandiver and can't get to Rusk Rehab Parkade Plaza Aldisor up and down the Business without walking from Lesile on Garth or try to connect with 3 or 4 different busses and go all the way down to Rock Bridge south and back to the business loop.. Something is really wrong with having to do that. But the Brown and orange routes both go east and north and we have nothing going south and west to the business loop. Neither one connect with the Black route. A lot of the bus stops are very unsafe and dangerous and too far apart in most cases the city busses shouldn't be going all the way through the university. Let the people catch the bus on collage or providence rd. and move the connection place back to the Walbash and solve a lot of the time connecting and much safer for everyone problems.
- minimize the length of time spent waiting at transfer point.-- better co-ordination of routes
- Have the bus run over the hwy 63 bridge off Prathersville exit. It's dangerous to walk across the bridge to get to the bus stop sign at the Rodger Wilson Street.
- Buses that arrive on time.
- Public transportation should be available to everyone at all times. Columbia must commit to having a bus system that runs buses every 15 minutes on all lines no exceptions. Columbia would also benefit from a circulator route system similar to the one in Washington DC. Public transportation has never been is not now nor will it ever be a money making business. Public transportation only works when the public have access to it. Columbia has one of the worst systems I have ever seen.
- Focus on areas of need. I see empty buses all the time especially away from the city center
- Buses crate safety hazards and block traffic when they stop at various places around city. Normally this is on street that regular traffic is using.

Buses should be required to pull off the road into a parking lot so they are not creating roadblocks. Smaller buses should be used. I doubt that any data can be learned from survey. Questions are too ambiguous and without being involved in question development it is very difficult to determine what the meaning of the question is.

- Goal - all routes run more frequently during peak periods and on Sundays. Achieve them through sales tax or gasoline tax.
- More frequent service
- The current transit system is not transparent. Buses are empty in certain areas and are a waste of gas and resources. Ridership numbers of each bus line need to be disclosed to the public and routes that are not used much should be eliminated. Quit trying to raise taxes to pay for the bus system instead concentrate the bus system for where it is needed with population density. When you had a free bus day you bragged about riders but the public had had no info at all about what tax dollars (federal state local) are paying for on a daily basis.
- buses running later at night and more often
- In my opinion due to the lack of available funding I think it would be better to contract the system. Run a high quality system that truly works in a smaller area with an increase in frequency of busses on each route. As the ease and convenience of using this system become recognized by residents there will be greater demand and support for expanding the system. From there the system could slowly and sustainably be expanded.
- This is a very bad survey which explains why you have so few participants. It is designed with definite slant does not allow comments on each question and is somewhat insulting with colored blocks.
- At least some buses running until 9 pm.
- Current opinion on service . You need bus drivers to stop waiting for other passengers coming from other buses that are way behind . A good example is what if someone is currently on that bus and He or she waiting has a doctor's appointment that he or she need to get to as fast as they can but the bus is late getting there because of all that waiting for other passengers to transfer from the other bus . The person with the doctor appointment has a more important duty to take care of than the lazy passenger who refuses to wait . Stop it .
- Reduce time between busses and the number of transfers needed.
- I don't use the bus service. I kind of looked to see what it would take to get a bus to work and then home the day/week the City promoted taking the bus instead of driving. It didn't look like I had a stop very close and I couldn't tell on the site where the bus would let me off and if it was close

to work. Maybe if I researched more I could have grasped it. I know if I called they could help me. Even if a stop is not too far I am not in very good shape and have had some back issues so don't know if I could walk to the stop and stand there long enough for the bus to come. Maybe once I get in better shape that wouldn't be a problem. I might try it again when the weather gets nice. It would be nice to see benches and coverage (protection from rain etc.) at each stop but I know that would be expensive. It does seem there are a lot of people that use the system. I see them at stops all the time and when it is raining or cold I think it would be much nicer if they had somewhere to sit under coverage from the rain while waiting. I think a lot of the people that use the service do so because they have to - they don't have a car or other transportation. I think it would be good to provide them as much help as possible by having bus stops close with seating and coverage. Thanks.

- I want the bus system to expand fully into the evening and night. It could help people get home from jobs which stretch into the evening and provide safe transportation towards home for those enjoying the city's nightlife. Many people at my work which is on MU's campus can't take the bus home because our shifts run until 9PM.
- Please do not name bus stops based on buildings in the city that no one knows where they are located. Not sure what you currently do as I gave up trying to figure out the system when I couldn't locate the buildings. Also post time schedule at bus stop and have shelters with shade and seats.
- Get smaller more efficient busses. They would take up less room in the crowded portions of the city and would be more likely to be full. I see the big busses go by and they are never full. Very few riders most of the time. Busses about the size of the MO X St Louis/KC Airport runs would be fairly full. Much lower cost to purchase could have more busses running so wait times would be reduced and would not contribute to traffic congestion.
- utilizing smaller buses that are more fuel efficient something about half the size of the buses we now use
- It is most important to have good coverage for low-income areas including those in the northern and eastern regions of the city. Lack of transportation is a huge obstacle to finding and keeping jobs after-school programs for children etc.
- extend routes further out
- Protective shelters are needed at bus stops. We can't just rely on the bus system to pay its own way - have to be willing to pay more tax to support a top-notch system.

- o I. PLEASE I repeat PLEASE put the bus stop back on the side of Target but also keeping the one in front of Dullards. I don't know why you guys would get rid of it especially since they have the grocery section now. It's extremely difficult carrying groceries way across the parking lot (which is a 3-5 minute walk) to get to the nearest stop which is in front of Dillard's. It is desperately needed! If we only need to go to Target WHY do we have to walk clear across the parking lot just to get to Target when the bus goes RIGHT BY the store. It's extremely upsetting that the stop was removed especially for the disable people who are walking with canes. Just imagine how long it takes them to get to the store. I love the Como Connect app but please figure out a way to add the schedules to it. Each bus shows the stops and arrive times but it doesn't show the schedules. It would be nice if there is an announcement that there is some type of notification on the app that shows a new announcement has been entered. Also when you enter an announcement PLEASE add the date at the top of each announcement so we know when it has been entered currently we have no clue when it was added. Under the Controls section just add a section title Schedules then load all the schedules don't understand why this wasn't added to begin with. The transit system needs to move to having more permanent reliable hard plastic bus cards such as what NYC has called the Metro Card it would be so much easier on the customer if we can just upload the funds to it from our desk or smartphones. At least make it an option for your customers where you have different options such as weekly fare month. Also Miami Dade has the Easy Card I would look into researching how these are working for their cities. I just KNOW this would come in handy for our junior and high school students who rely on the bus to get to school and the people like me who use the bus to get to work sometimes on bad weather days such as when its rainy have an ice or snow storm. Instead of always having to get change. 4. Please put a shelter at most stops. I thought it was really ridiculous of you guys to remove the shelter outside of the Conley Walmart then move the shelter down across from the Staples store. The shelter that was moved gave us a little protection from the nasty weather now it looks like we are standing on the highway with grocery bags. Overall I am happy with some of the changes that you guys are making with the transit system. I love the uniforms and the buses appear to be more clean. I really hope you guys take into account what we are saying remember the majority of these comments are coming from the customers who know the transit system well. Thanks for doing this survey and taking the time to read our comments complaints compliments and concerns. Happy Holidays!
- o Goals: Construct bus routes and schedules to attract more riders; Every bus meet its time schedule; Clean bus interiors; Weather-protective shelters at many bus stops; Polite helpful well-trained bus drivers;



appropriate schedules posted at every bus stop; raise awareness of value of bus riding and encourage riders via radio and TV PSAs newspaper discount coupons.

- Opportunity to take bus from west part of town (i.e. Fairview school Paxton-Keely school area) to battle high school. I would take the bus and from work.
- I would like to see a shelter and or a bench at all bus stops no matter where they are. You could apply for a grant to pay for them.
- Bus stops need shelter in most cases. Regardless of the extent of the system I suspect that the elderly who age in place will continue to experience difficulty getting to a bus stop. My own home is located about 3/4 mile down Lynnwood Drive for example.
- Shelters for bus stops and stops with high frequency pick-ups
- It is hard to figure out the bus routes and schedules. For a populations that is not use to bus transportation the explanations may have to be simplified. Major urban areas have people who are more adjusted to traveling by bus
- Running 24/7. Many people who ride the bus do so because they do not have a car AND are working jobs outside of the traditional weekday 9-5. Having a bus system that runs as many hours as possible would open up a lot of employment opportunities for people working various shifts especially for many of the factory shifts in Columbia therefore stimulating economic growth.
- I think it could be very beneficial to the citizens of Columbia and the employees within Columbia to have buses that run at all hours. Also there are many people who work at large factories on the outskirts of town such as Columbia Foods or EPC that have no bus to get to work. Having buses that can go to these areas will not only help the individuals who are going to work but also help boost the economy of Columbia by increasing the job opportunities for people.
- An accurate and reliable phone app that tracks where my bus is so I can anticipate walking to the stop and making my connection.
- Eliminate the bus system. Even during late afternoon/evening commute time I typically see buses within only one person aboard. It's a waste of taxpayer money that should be spent on higher priorities such as the roads and sewers that unlike buses everyone uses.
- Shorter transfer delays! I've gotten off a bus more than once and had to wait for the other bus for more than 45 minutes! It makes the bus unusable for me if I have a limited amount of time or in bad weather.
- Extending the times bus service is available.

- Available and convenient bus transportation 7 days a week. Those who need the bus to get to work frequently work on the weekends. So limiting bus service on the weekends means they need to find other ways to get to work.
- more time an more buses
- more time more buses
- Routes to Columbia regional airport shuttle to a central pickup point downtown with direct service to the air
- Enclosed bus shelters at main transfer points. Benches at many other bus stops. Bus stops need to be closer together and determined by destination locations. Right now they are too far apart and some are not well located.
- Not knowing whether this will be the only text box in this survey I will go ahead and give you all my thoughts now. I really wish you had designed your survey to allow additional comments next to each and every question. It was hard to know what you were getting at with some of the questions. For example what do I envision is sort of meaningless if there is a limit to the amount of money available to the city to spend. Of course I would want for every single person in Columbia to consider public transportation more convenient than walking or driving and that the bus stops within a 5-minute walk of their house which would ideally have a sidewalk on it. If your aim is to get a good solid percentage of responders saying they want bus service that's more convenient than driving how exactly could you use that information to your advantage? I would imagine that more realistic questions would ask what people preferred if they could have only have one thing or another. For example would you rather pay less but have a longer ride or vice versa? As for the question on whether there should be a sidewalk at every bus stop isn't that unrealistic if you hope to have a route that extends outside of town? I truly support public transportation and use it extensively whenever I travel to a big city and to smaller cities that have effective systems such as the college town of Ann Arbor Michigan. The neighboring town of Ypsilanti is 30 minutes away (much like our Jefferson City) and they have buses that go between the cities rather seamlessly. On the other hand each time I have tried to use the City of Columbia's bus system - dating back to the first time in 1983 I have been so put off that I swore off even trying each time! (Then a few years later I'd think maybe they've worked out the kinks only to find that no the kinks are still there and even worse. After one such experiment years ago I decided to take the bus from campus to downtown to transfer at the station. To my amazement the bus ride from campus to downtown took longer than it would have to walk! Another time about three years ago I decided to

take the bus rather than use my car because it had snowed a few days before and I didn't want to use my car on side roads. It was a clear bright day on the day I decided to take the bus. It took me probably 20 minutes of studying the maps and explanations to figure out how exactly to even ride the bus and even then I wasn't sure what side of the street I was supposed to stand on. After waiting in the cold for what was probably 45 minutes after the time the bus was supposed to come I gave up and called a cab. Once again disenchanted with the whole system. I mentioned this experience to a person who doesn't have a car and he agreed that the City of Columbia bus service is so poorly managed that he NEVER takes it. He walks or rides a bicycle everywhere. If you go to the trouble of issuing a survey again don't just ask questions about what would be an ideal bus system in a utopian community in a world where there's enough money for everything. Ask people what their best experience was and why and what their worst experience was and why. Another thing. Do you know if there are any tourists or visitors to our city riding the buses? That may be a really good indicator of how well it works for people.

- 1/ Make the bus schedules easily understandable. 2/ Improve the dependability of the bus schedule. The routes previous to our current routes were more dependable and got me to my destinations in less time and on time compared to our current system.
- 1. Better route and bus management--maybe replace system management staff but for sure retrain them and monitor what they are doing. After the last re-configuration of routes I spoke with a bus driver who said drivers had virtually no orientation and training for the new system and hardly any warning of when it was going to happen. They were apparently driving blind from the start. Better evaluation of routes and connections. Same bus driver told me that they drove a particular route numerous times per day and sometimes had one or two or no riders. The re-configuration was successful in some ways--for example some areas now have at least minimal service where none was previously available. On the other hand I have numerous tenants who used to ride the bus to work and to other destinations but now don't use it at all due to route changes difficult connections which forced them to wait unreasonably long times for buses which sometimes never showed up at all. I had heard numerous complaints of long waits before the route changes were made but even more complaints afterward. I know of only one tenant who currently uses bus service.
- We need reliable bus service that actually gets you where you need to go in a timely manner The old bus system was at least 10 times better than the current fiasco. PLEASE PLEASE PLEASE go back to it!
- The city needs to get out of the transportation business. If they can't

break even and operate without subsidies they are not necessary. The private sector will provide service much less expensively and with much better service for those needing it.

- Invest in the bus stop infrastructure. A signpost in some un-kept grass without a shelter seating rubbish bin etc is a massive obstacle towards people wanting to use public transportation. A joint system with businesses and institutions in the city center to subsidize and/or encourage workers/shoppers to use public transit would be a step in the right direction. The long term goal for downtown and campus area should easily be a world-class tram system (see Freiburg Germany for an example). Buses would then service the outlying areas towards the core and the tram would service the core and expand as the city expands. It would be nice to see some sort of service between Columbia Fulton Jefferson City and Kingdom City. Perhaps the regional communities could come together for a regional transportation authority starting with quality public transit to these city nodes. The city in general must desperately do something to address the high amount of litter and poor maintenance of sidewalks public grass etc. Enlist a corps of volunteers if you must. The impression of streets such as Clark Lane East Broadway etc is subpar. The city politicians and administration must first speak to the people of the city and the region at large. Write express and yes debate in the local newspapers. Build upon local pride and Missouri roots to support our local industries to keep more money here rather than see profits go out of the state. Churn the economy by working on local pride and the desire to be proud in our own property house and political districts. The potential of the city's public transit and the city overall is very high and it would be wise to follow along a path to the system of Central Europe seen in Germany Switzerland and Austria.
- I live 3 miles from my office. I have tried to ride the bus to work but it takes almost a full hour. I can drive in 5-10 minutes. I used to live in Washington DC which has an excellent bus and metro system. Buses ran approximately every 20 minutes more frequently during peak hours. I would prefer that Columbia have more frequent routes but smaller buses. Do we really need the full-size buses? They are rarely totally full at least when have ridden them. I would gladly trade-off size of bus for more frequent routes.
- Doing the best with available monies. Como does a good job now. I do not drive as I lost some sight in military service. I used the bus when my wife had to leave town to attend her dying mother and I was pleased with the service and professionalism of the drivers. Disregard the ignoramuses who keep complaining in the Tribune--they have probably never tried the buses.
- Bus service should serve the needs of the vast majority of citizens even

those who could choose a different means of transport. We won't succeed if the only people who use the service are those who have no other choice. It needs to become the PREFERRED way to get somewhere not the option of last resort.

- I am unconvinced of the cost effectiveness of the bus system. How much does it cost per ride? Would much smaller more efficient vehicles make more sense?
- Need smoother access for individuals from low income housing to get to medical appointments/hospitals. Need to make riding the bus easier for people with low literacy levels and/or non-English speakers. Currently it would be hard for me to navigate even being a native English speaker with a college degree. Need more visual representations so people know where they are going without being able to read or speak English.
- Smaller busses. It is not efficient to have large busses wasting energy with few riders in them. CNG or electric busses are okay but only big busses should serve the main routes and smaller busses serve the rest.
- I would like Comoconnect to run longer. Ill suggest 7AM-10PM .
- Consider inserting a metro link into Broadway & the District making Broadway pedestrian-and-bike-only as well as public transit secure.
- Para transit and the city bus need to expand their service area. Para transit drives past my neighborhood which it doesn't service to get to a neighborhood where it does.
- Broad-based understanding that our transit system is crucially important to achieving the following three goals - sustainable economic development responsible environmental development and development that systemically reduces existing social economic and educational inequities.
- The bus goes by my house and by stores Id want to go to but it doesn't go to my work. I wish there was a greater emphasis on using public transit for the good of the environment. Millennials like myself like that type of marketing.
- Bus shelters or benches at the majority of the stops. When there is rain or snow people don't want to stand there even with umbrellas and such.
- 7 days a week service longer service days faster and more efficient service.
- Bus transportation to major streets downtown not just to the periphery. Change routes to pick up and drop off passengers downtown. If they can do this in St. Louis we can do it here.
- I would like to see the bus run later than 7:30pm. My suggestion would



be to have the bus run until 10:00pm.

- Extend the bus service for football games festivals and music concerts.
- Bus service to be available more hours especially at night and on the weekends. Ideally I would like to see 24 hours service but realize this may not be feasible. There are many people who rely on transit who work late hours in the service economy and have to get home after the buses stop running. It isn't unusual to see wait staff cooks or store clerks still wearing their uniforms walking home on the side of the road after midnight which is dangerous for them. I don't really have a vision for achieving this goal because I'm not sure what the barriers are whether its lack of money or what. I just know that there is a population that isn't being served by the transit system at night when they are particularly vulnerable.
- All persons living or working in Columbia who have a motor vehicle registered in their name should be required to pay a \$100 fee per year which funds should all go toward financing public transportation such as bus service improvements to pedestrian/bicycle/disabled safety and other public transpo. Infrastructure. Speed limits for motor vehicles should all be reduced by (some 5 others 10 mph) and strictly enforced.
- Run it like a business and make it possible for most citizens to ride it to and from work and school from 6AM until midnight 5 days a week.
- It would be nice if all the buses could be on time and have appropriate waiting places such as a shelter.
- Please go back to the old bus system It was so much easier. The change has truly affected my life.
- I think a very liable time table is critical to getting people to actually use the bus. In my opinion with the current red and gold lines we haven't met this goal yet. Also this survey really does not seem very well designed to illicit actionable information from the public.
- The system should be condensed to provide high-quality reliable fast service in dense areas first which a focus on prioritizing underserved populations. Then the system should be expanded to provide this same type of service to outlying areas.

## Verbatim Comments from Emails

The “comments” option linked to the online version of the opinion survey, yielded the following email comments:

- **Received October 13, 2016:** When the bus stopped coming to CMSE at least a half dozen people had to either find different transportation or had to take a step back and ask to ride paratransit. The current bus stop is too far for some to walk especially since there is not sidewalk all the way. Where the sidewalk ends the employees now have to walk through grass, down a slight incline and then get on the street before meeting up with the sidewalk. ([fran@cmse.org](mailto:fran@cmse.org))
- **Received November 1, 2016:** I already took the survey and left a lengthy comment, but I thought of one more. As I sit and watch the bus tracker, there is one more major issue I see with how the system is run. When one bus falls so behind schedule as the bus behind it catches up to it. Why do both buses continue to run the route for the entire route? As soon as such a catch up happens. All passengers on one of the buses should be vacated to the other bus. The now empty bus should take the quickest route possible to a point on the route where it would be considered on-time. ([just\\_w88@yahoo.com](mailto:just_w88@yahoo.com))
- **Received November 2, 2016:** Is there any chance Business Loop 70 West - Cosmo park area - will be reintegrated into the bus route? Love INC clients who have no transportation have a difficult time getting to our office. Perhaps families would take the bus to Cosmo Park? ([jbethwalker58@gmail.com](mailto:jbethwalker58@gmail.com))
- **Received November 14, 2016:** I am writing in regard to the current situation of the transit system . Instead of leaving at their scheduled time buses are waiting 10 to 15 minutes for passengers to transfer from late buses . This needs to stop because it makes other passengers from the bus that is waiting, late for their appointments. ([rickgm@hotmail.com](mailto:rickgm@hotmail.com))
- **Received November 16, 2016:** Longer hours. ([weaverbrenda63@gmail.com](mailto:weaverbrenda63@gmail.com))
- **Received December 9, 2016:** Questions seem rather obvious. Doesn't everyone want a bus system that caters to everyone's needs and gives everyone access? ([lucas.geisler@gmail.com](mailto:lucas.geisler@gmail.com))
- **Received December 20, 2016:** All buses need to leave their starting points at the scheduled times , and not waiting 10 to 15 minutes for passengers from other buses . I had a doctor's appointment and was 20 minutes late because a driver had to wait for a late passenger from another bus so the passenger could visit his mommy . Change that rule or I will never ride the bus again. ([rickgm@hotmail.com](mailto:rickgm@hotmail.com))
- **Received December 20, 2016:** All buses should leave their starting points at their scheduled times . One day I was 20 minutes late for my doctor appointment because the other passenger from a late bus had to see his mommy . In no way should that person get first priority . If so I will tell a big majority of people to never ride COMO connect. ([rickgm@hotmail.com](mailto:rickgm@hotmail.com))

- **Received December 24, 2016:** Here is my example of barriers to taking the bus. I work at MU and would love to take the bus. The bus line on Providence goes by my building, on the corner of Rollins, but the nearest bus stops are several blocks in either direction. Why? There are buses that come down Rollins but there is no stop before the turn onto Providence. Why not? Suggestions: Set up park and ride during rush hour to high volume destinations, like MU, hospitals, downtown. Route line 2 through downtown. Right now service to our "Main Street" is non-existent, which makes no sense. You will not get people to ride the bus unless buses are prioritized over cars. ([green.maryk@yahoo.com](mailto:green.maryk@yahoo.com))
- **Received January 1, 2017:** Good, easy to use survey. ([colwillw@gmail.com](mailto:colwillw@gmail.com))

## APPENDIX

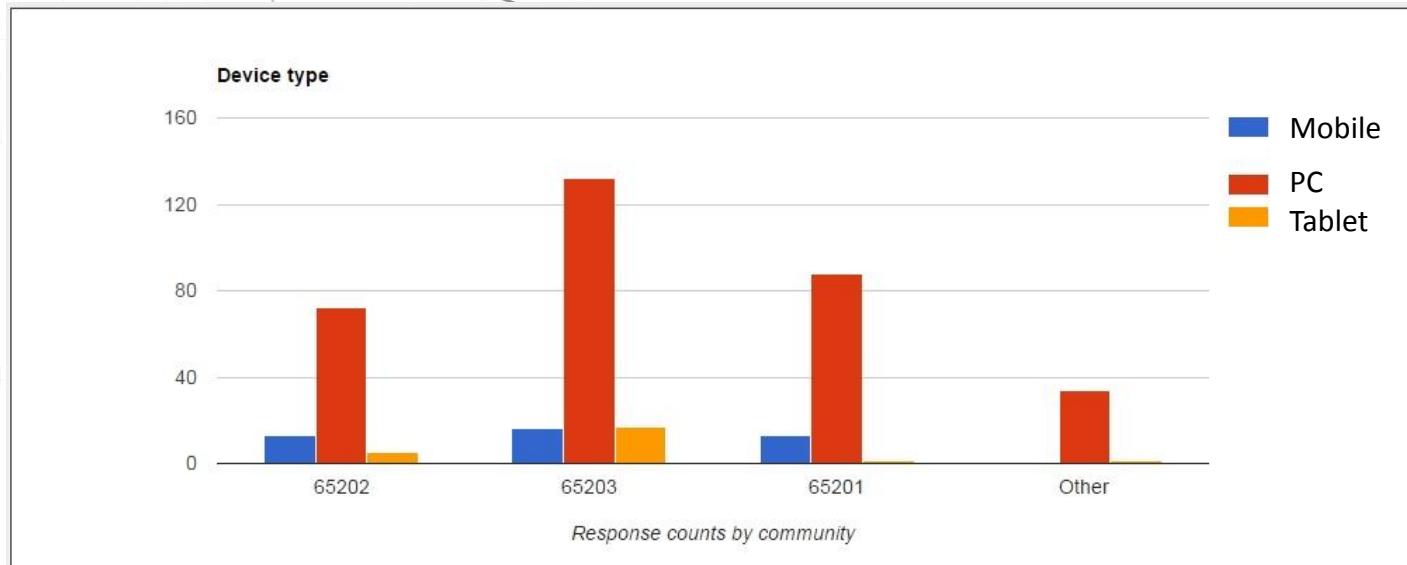
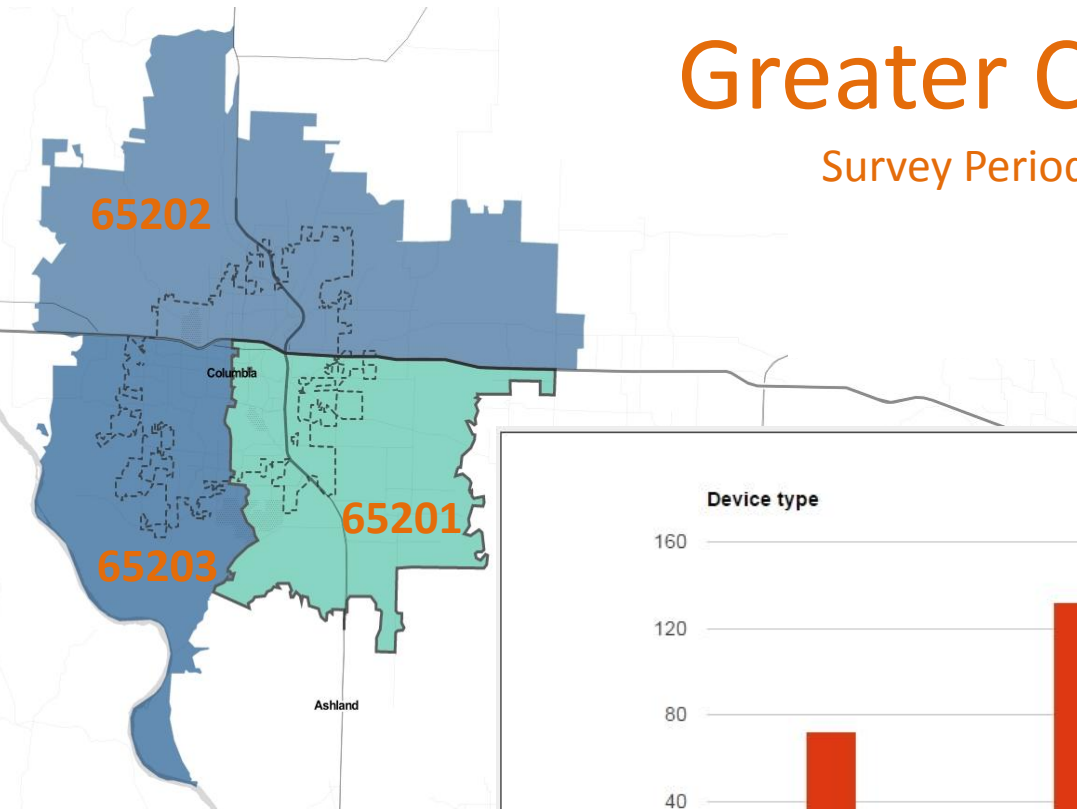
### Graphed Survey Responses by Greater Columbia Zip Code

comobus.digicate.com

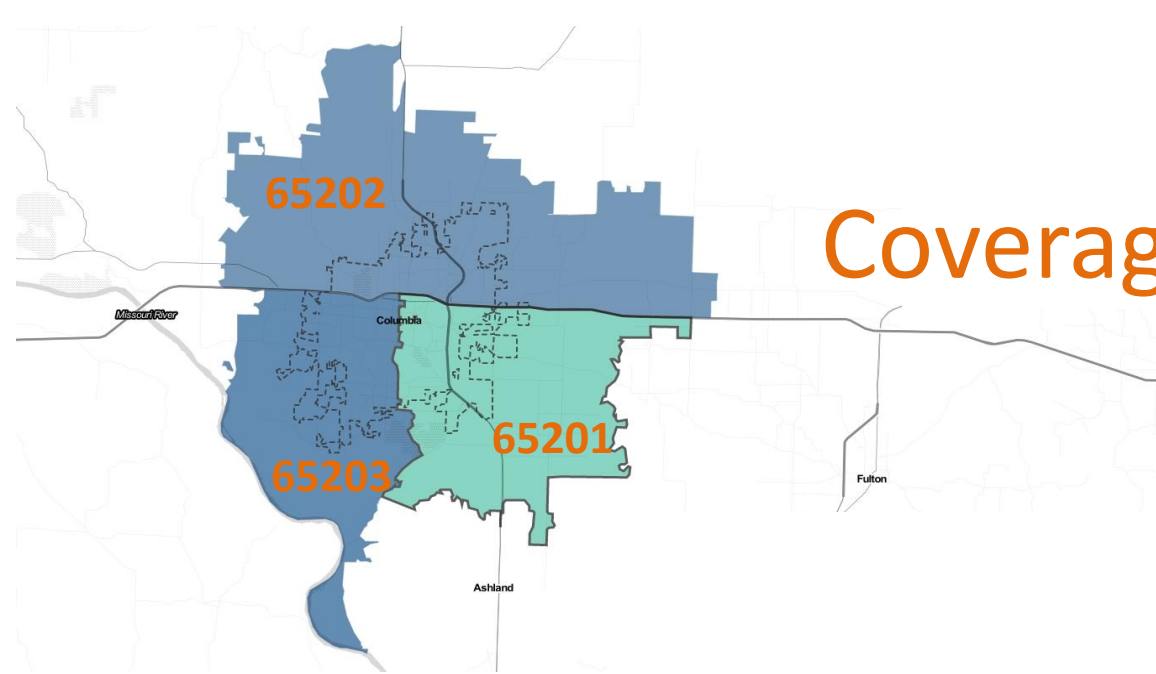
# Survey Results by Greater Columbia Zip Codes

Survey Period: September 27, 2016 – January 13, 2017

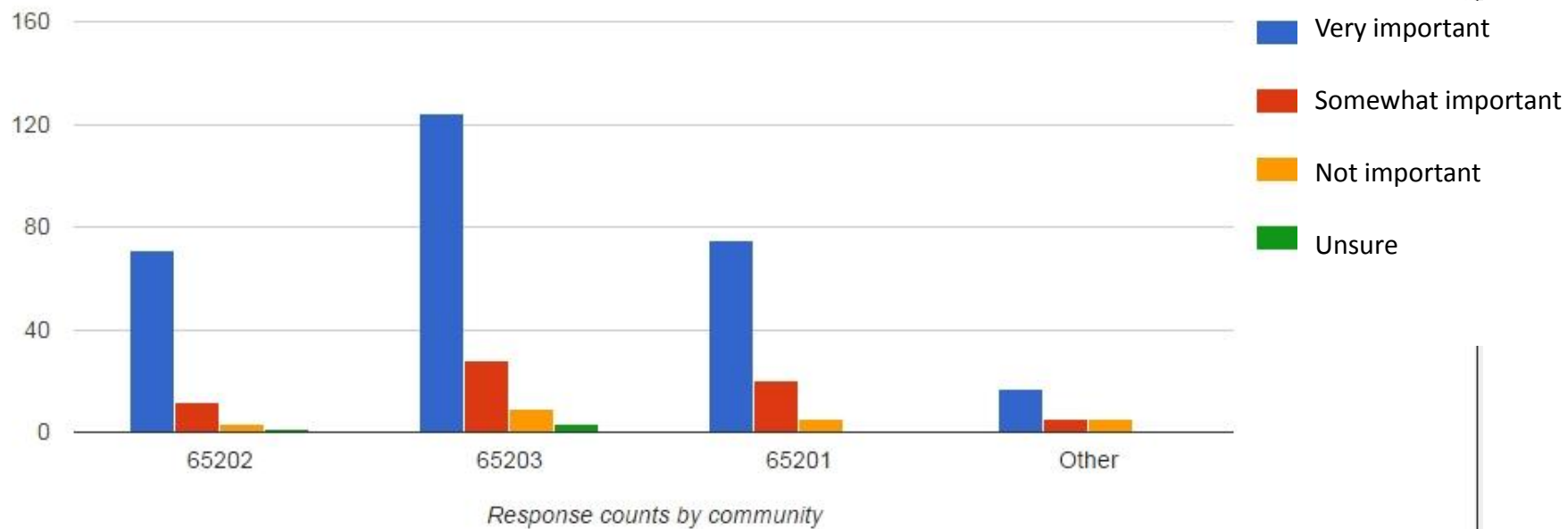
Responses: 392



# Importance of Coverage & Accessibility

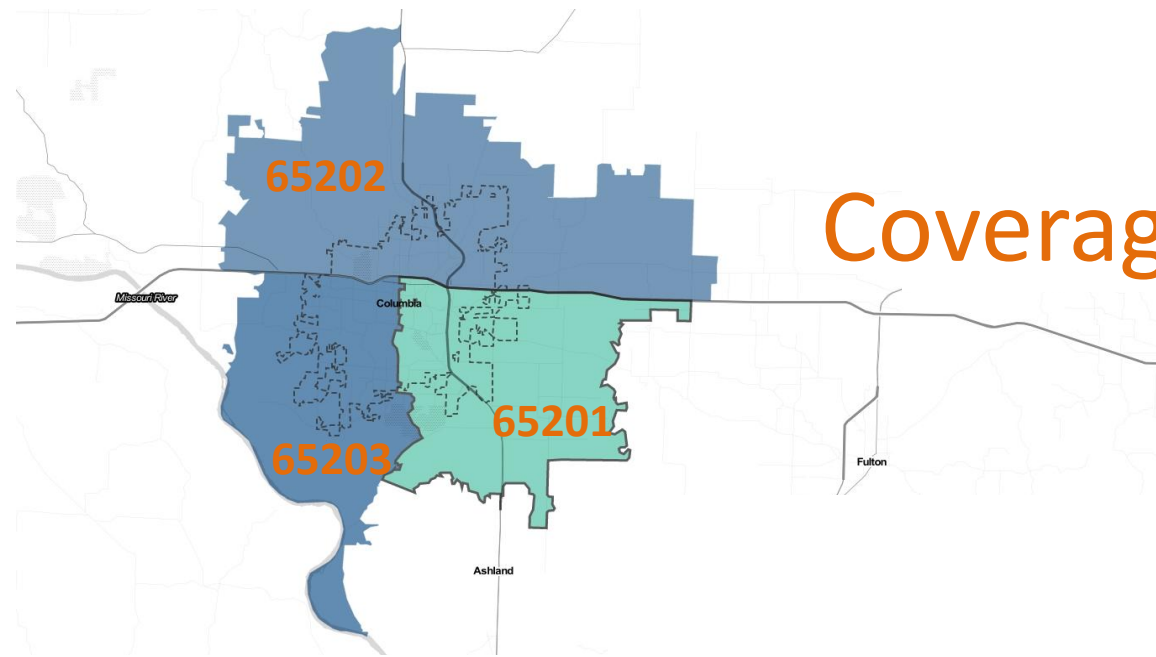


**Coverage and Accessibility: How important is it to ensure that bus and paratransit service is fully accessible to all members of the population? Select one opinion.**

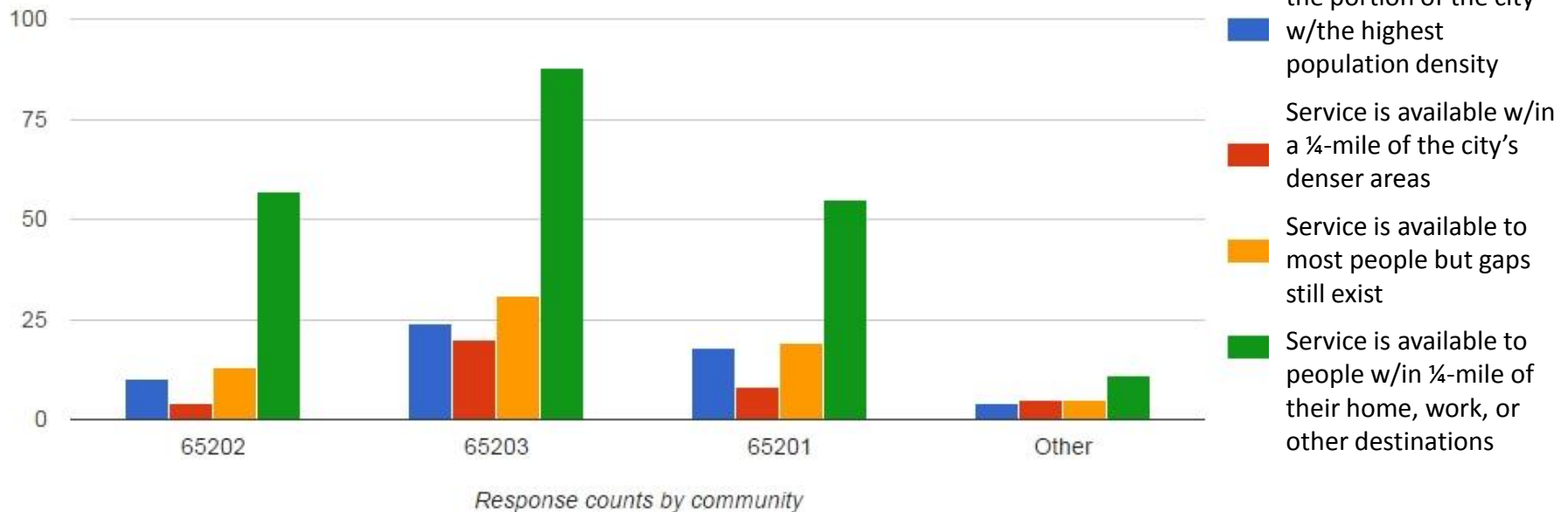




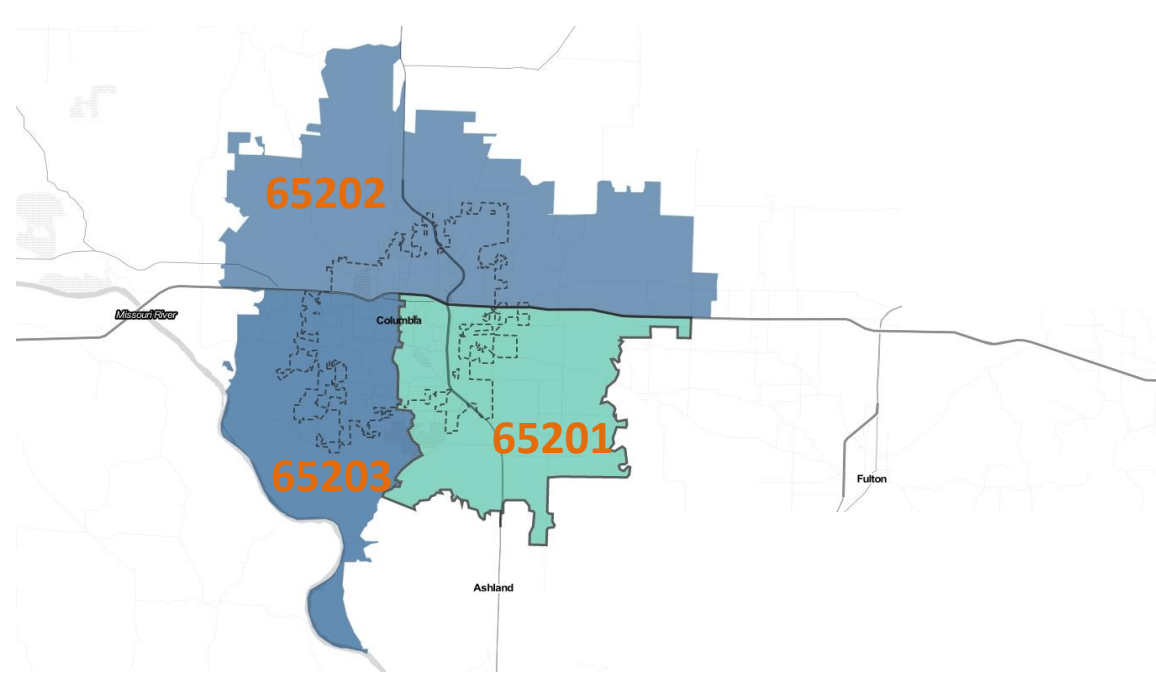
# Vision for Coverage & Accessibility



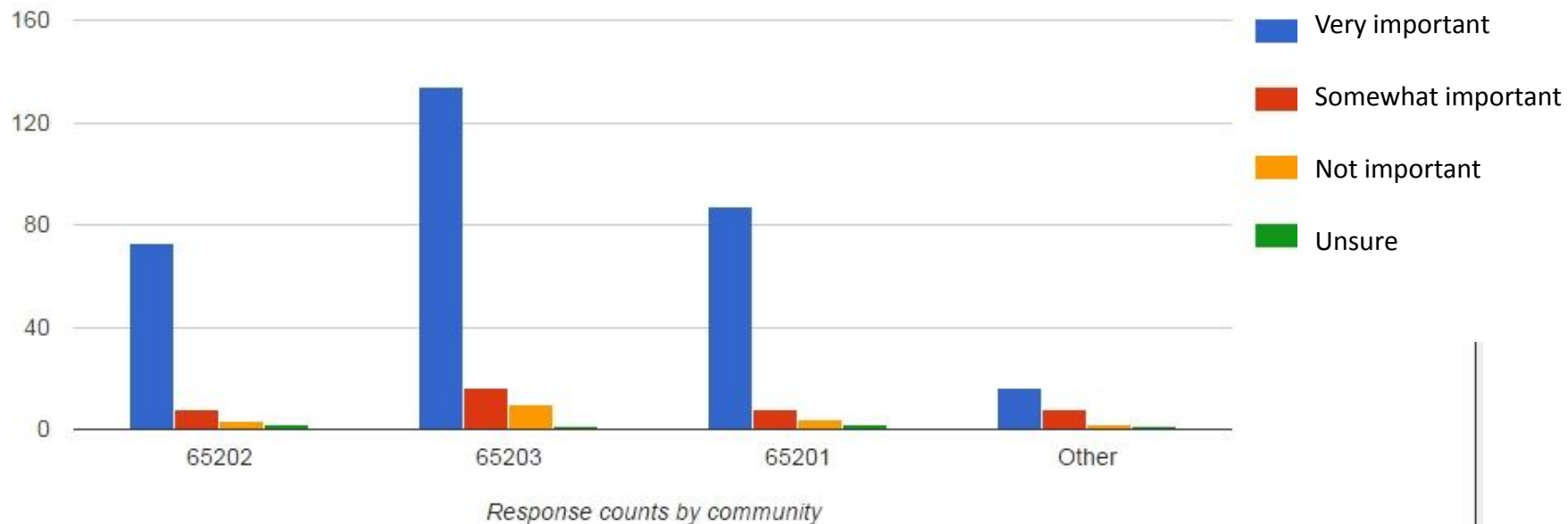
Coverage and Accessibility (continued): In the future, which type of coverage and accessibility do you envision? Select one opinion.



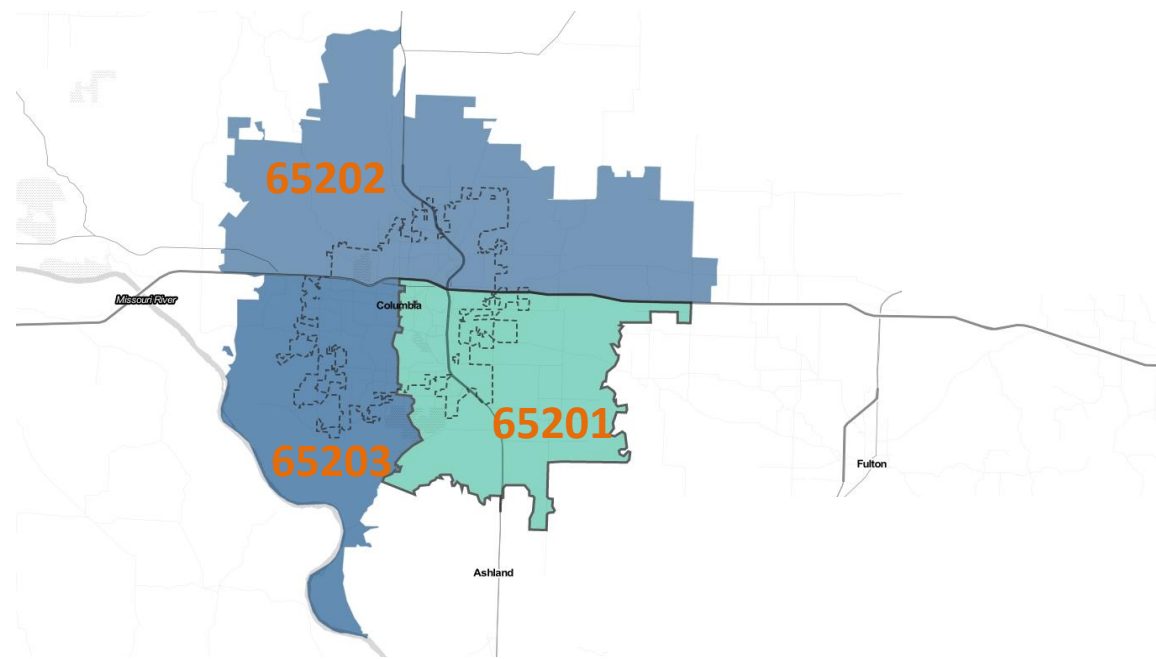
# Importance of Performance



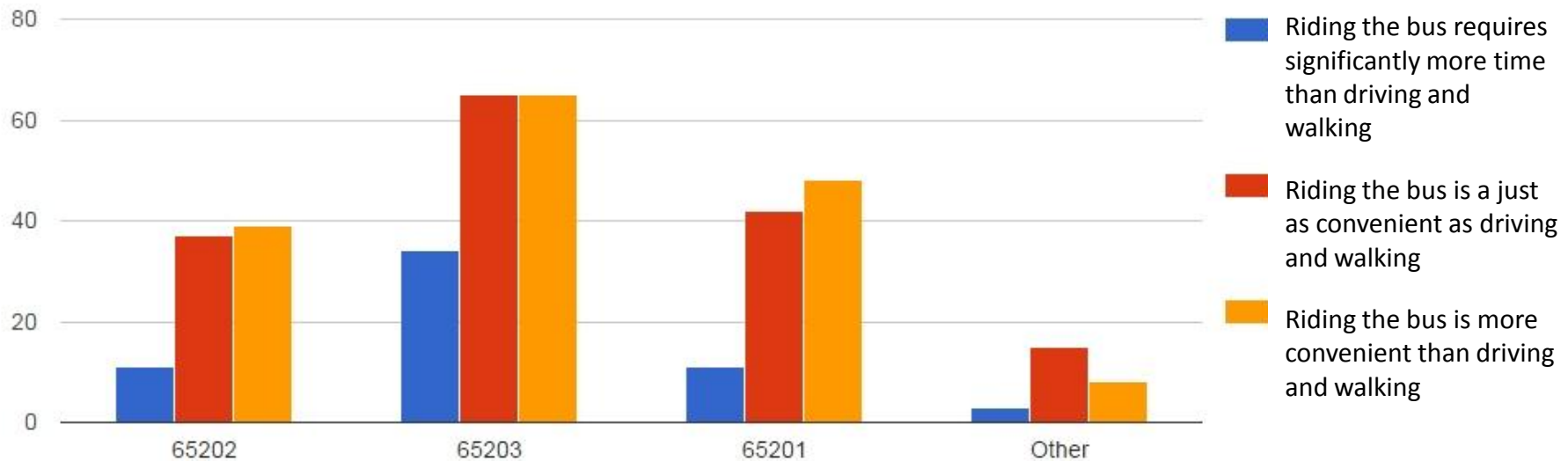
**Performance: How important is it to provide effective transportation service for all bus and paratransit riders? Select one opinion.**



# Vision for Performance

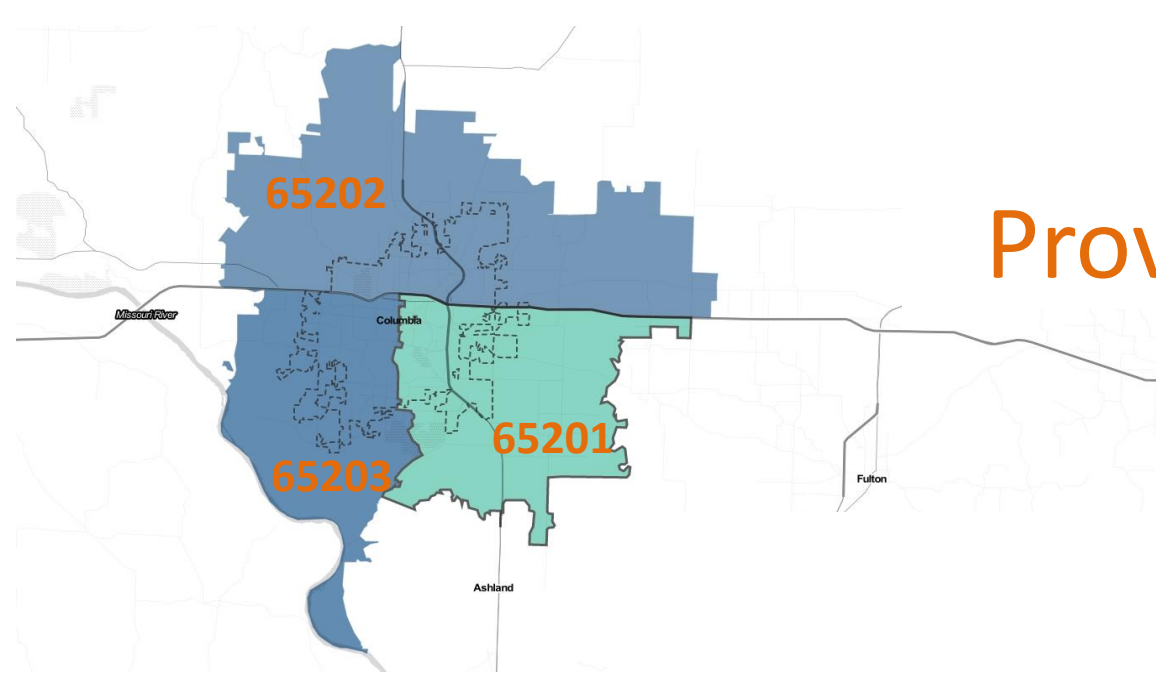


Performance (continued): In the future, which type of performance do you envision? Select one opinion.

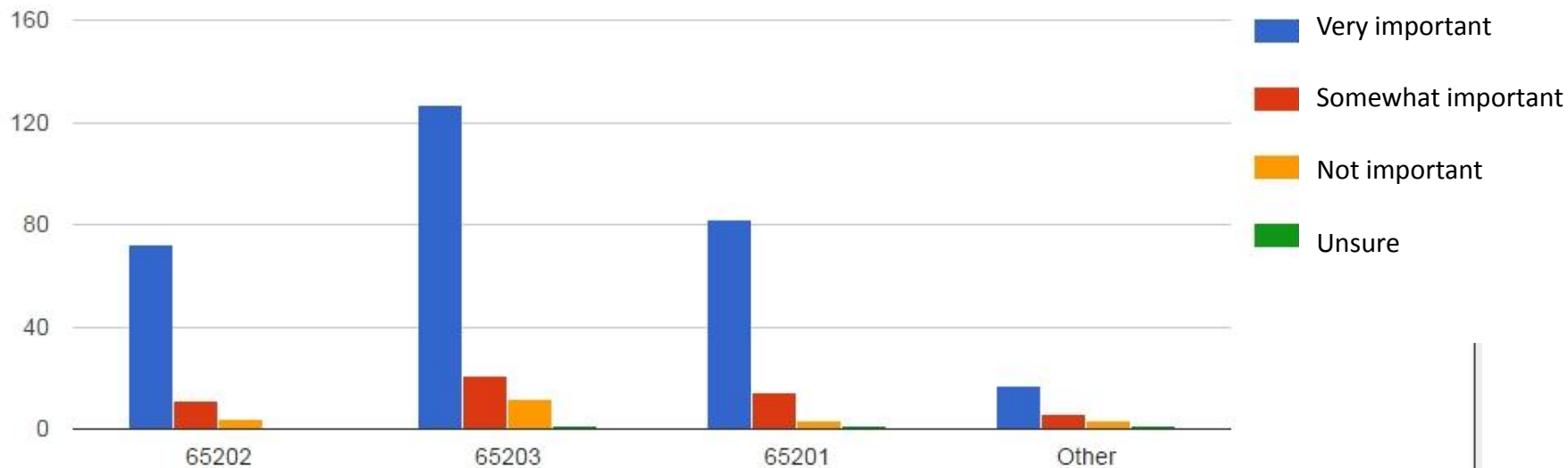


Response counts by community

# Importance of Providing Resources

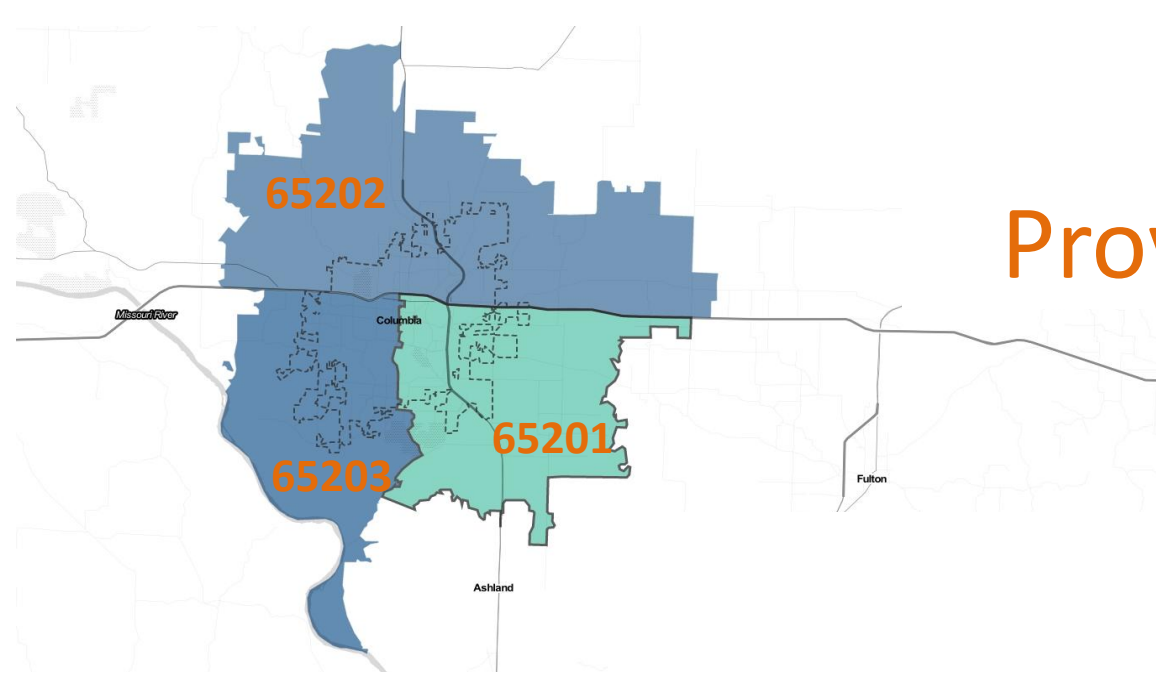


**Resources: How important is it to provide sufficient resources for bus and paratransit service in the community? Select one opinion.**

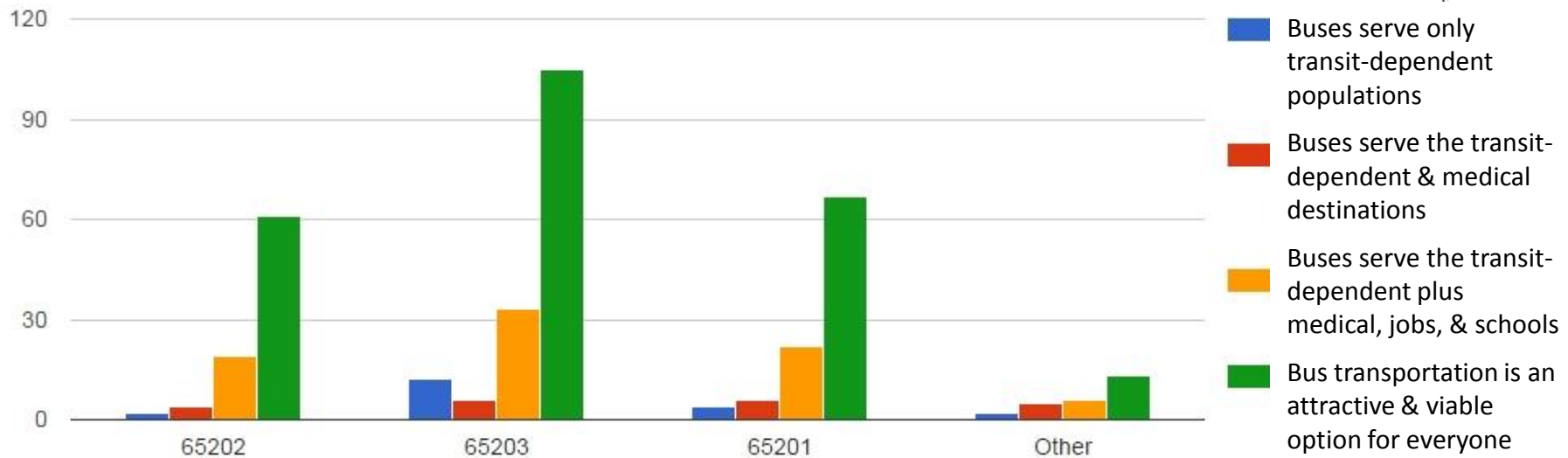


*Response counts by community*

# Vision for Providing Resources



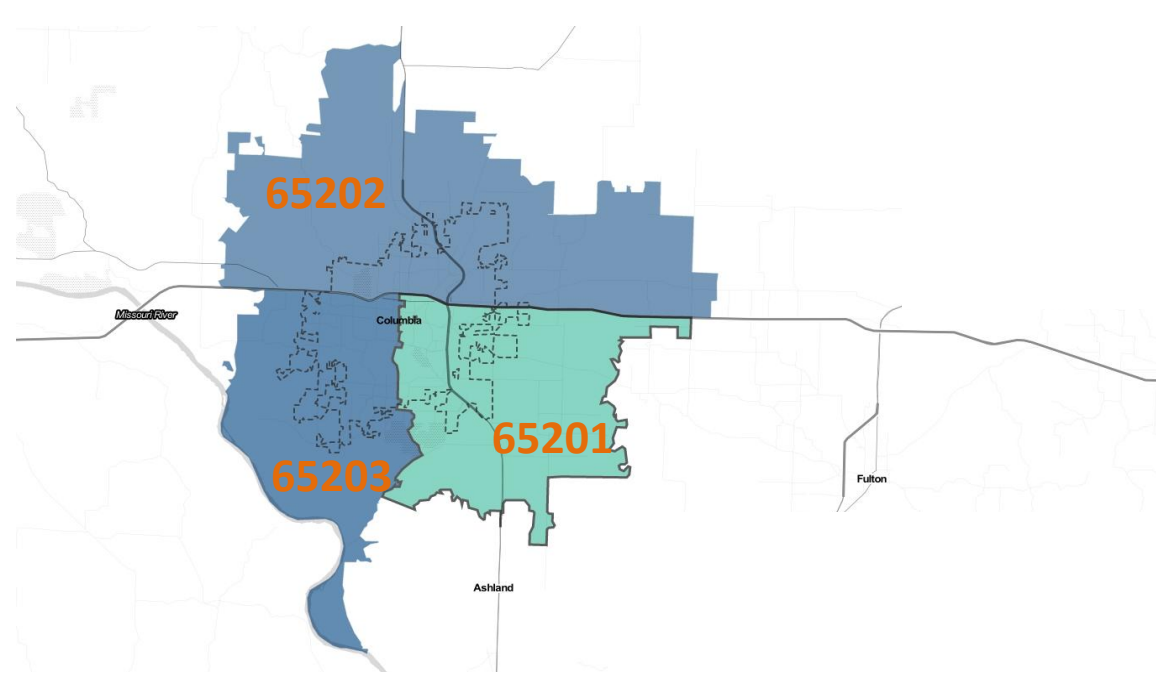
**Resources (continued): In the future, what type of bus and paratransit resources do you envision?**  
Select one opinion.



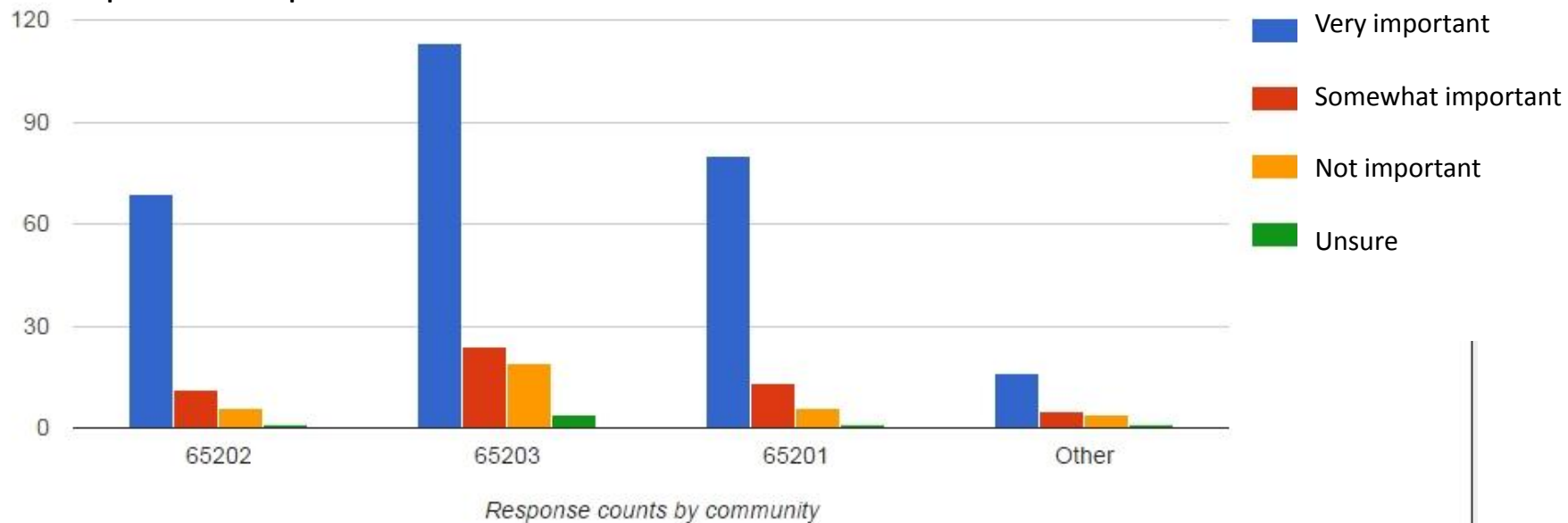
*Response counts by community*



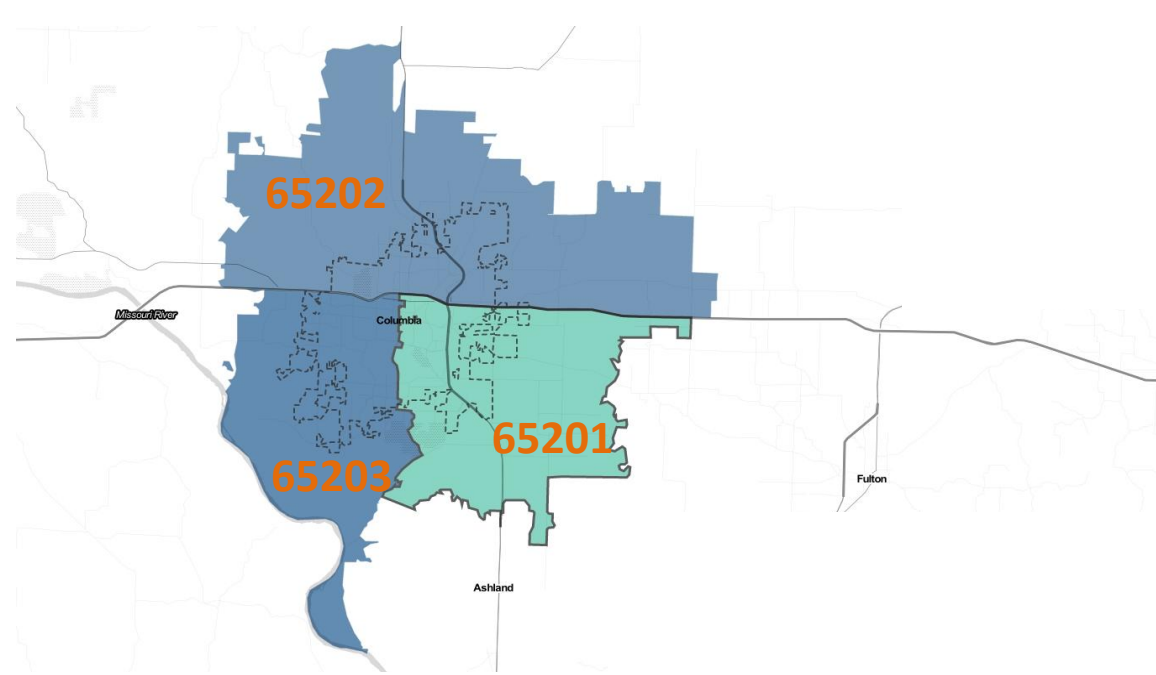
# Importance of Integration



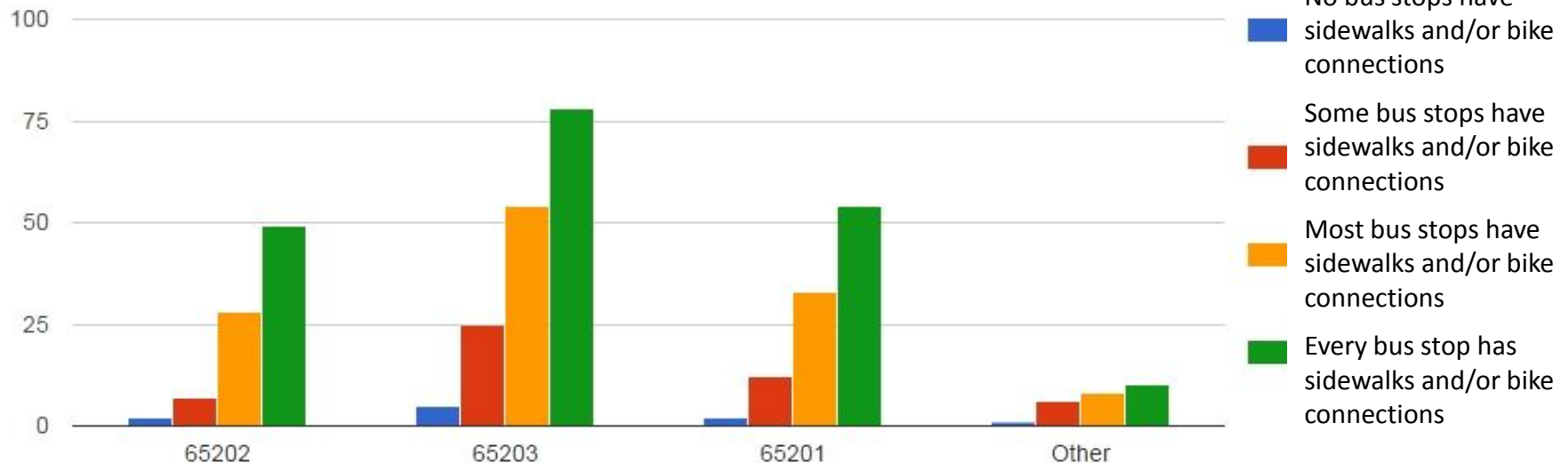
**Integration: How important is it to integrate the transit system into Columbia's overall transportation network, including sidewalk and bike connections between destinations and bus stops? Select one opinion.**



# Vision for Integration

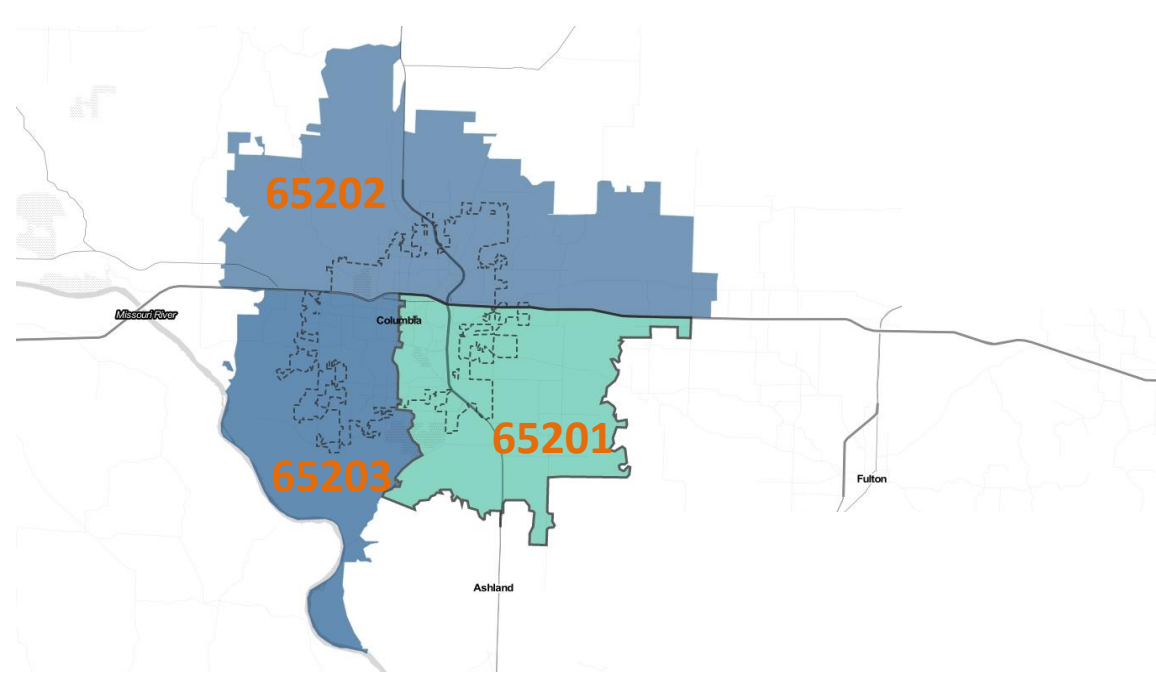


Integration (continued): In the future, what do you envision for integration? Select one opinion.

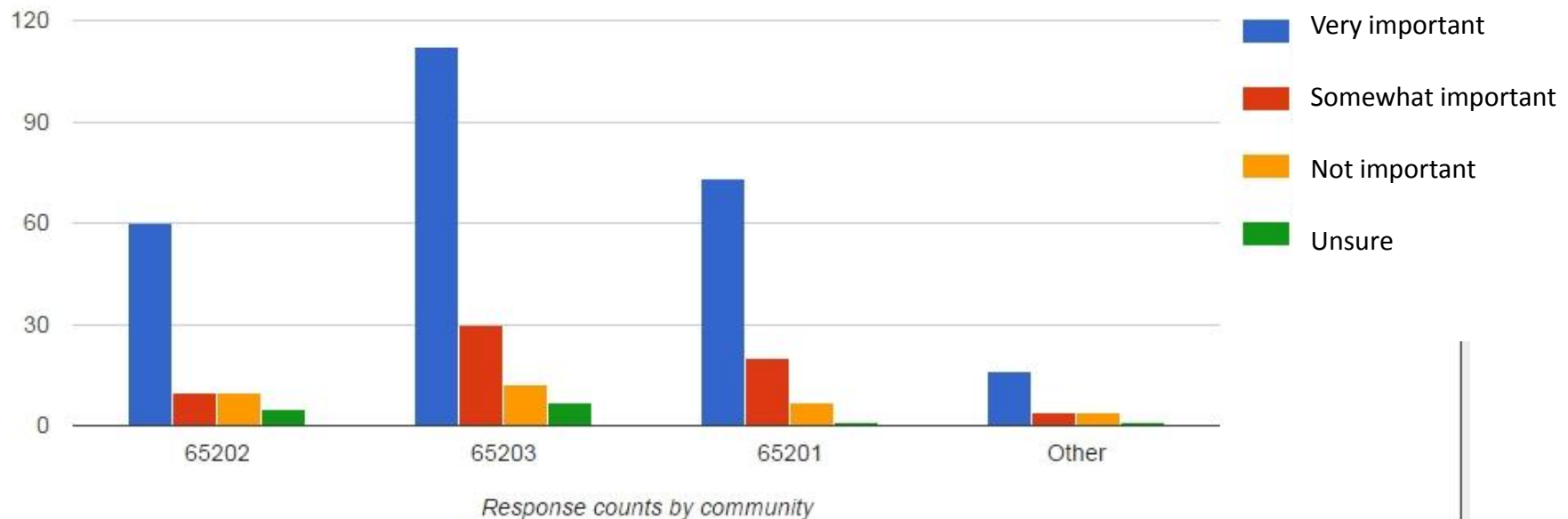


Response counts by community

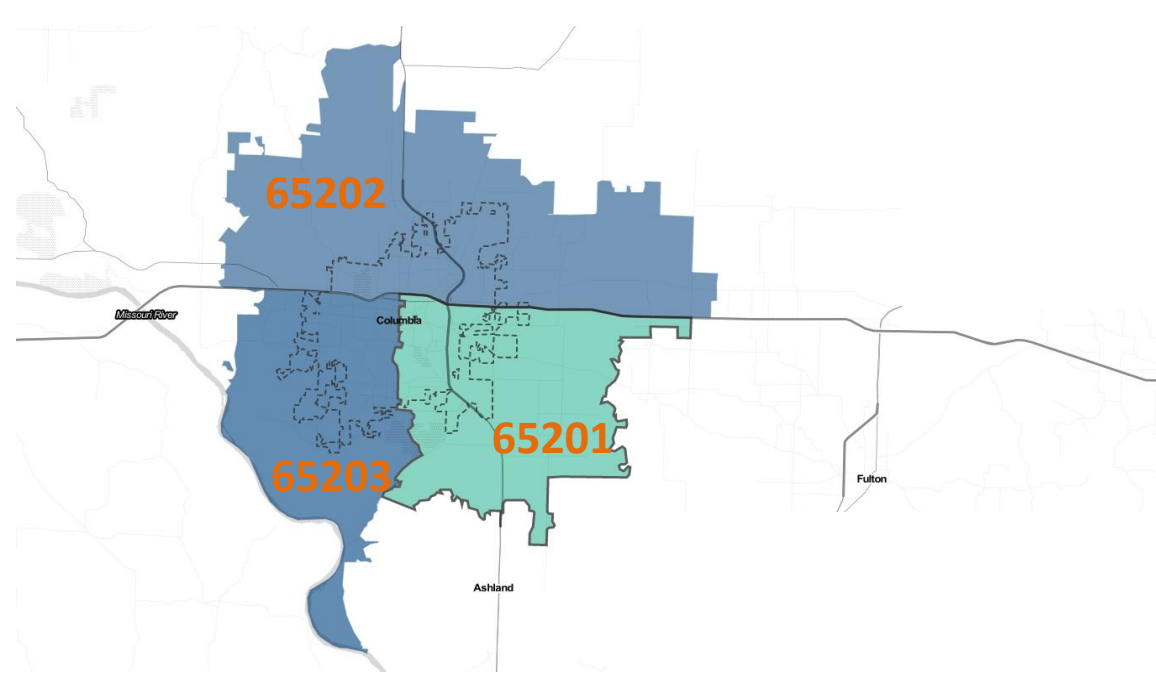
# Importance of Marketing



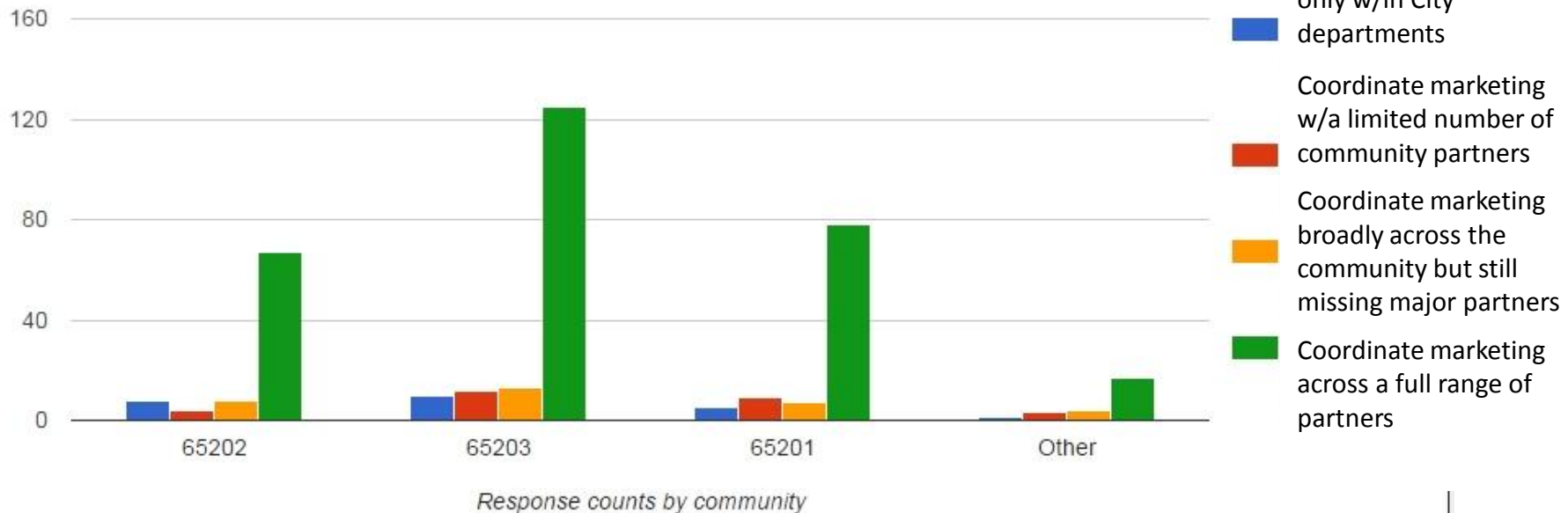
**Marketing: How important is it to partner with stakeholders to promote and market the bus system?**  
Select one opinion.



# Vision for Marketing



Marketing (continued): In the future, what do you envision for marketing? Select one opinion.





## Go COMO Bus Service Evaluation

### Appendix C: Transit Scenario Engagement Summary





## TRANSIT SCENARIOS ENGAGEMENT SUMMARY

### COMO Bus Service Evaluation Project

Comment Period: April 20 – May 5, 2017

#### Overview

A Public Open House, six Bus Stop Meetings, and a stakeholder meeting with bus drivers were held throughout the day on April 20, 2017 for the *COMO Bus Service Evaluation Project*. The purpose of the events was to:

- ☐ Share the following potential bus and paratransit improvement scenarios
- ☐ Gather feedback from meeting participants about:
  - o Opinions of Scenarios, A, B, C, and D
  - o Which scenario is the most important for the community
  - o Which scenario is most important for stakeholders individually
  - o Other comments

An estimated 300 people were engaged during the events, including representatives from the PedNet Coalition, Love Inc. of Columbia, Central Missouri Community Action (CMCA), Public Transportation Advisory Committee (PTAC), and City officials and staff. Central Missouri Contracting Enterprises (CMSE) workers, University of Missouri students, residents, transit rides, and others also participated. The meeting scheduled is included on page 18 of this report.

#### Notice

Meeting notice was provided via:

- ☐ City-issued press releases to news media
- A series of three e-blasts (shown in Table 1)

Table 1 - E-Blast Series

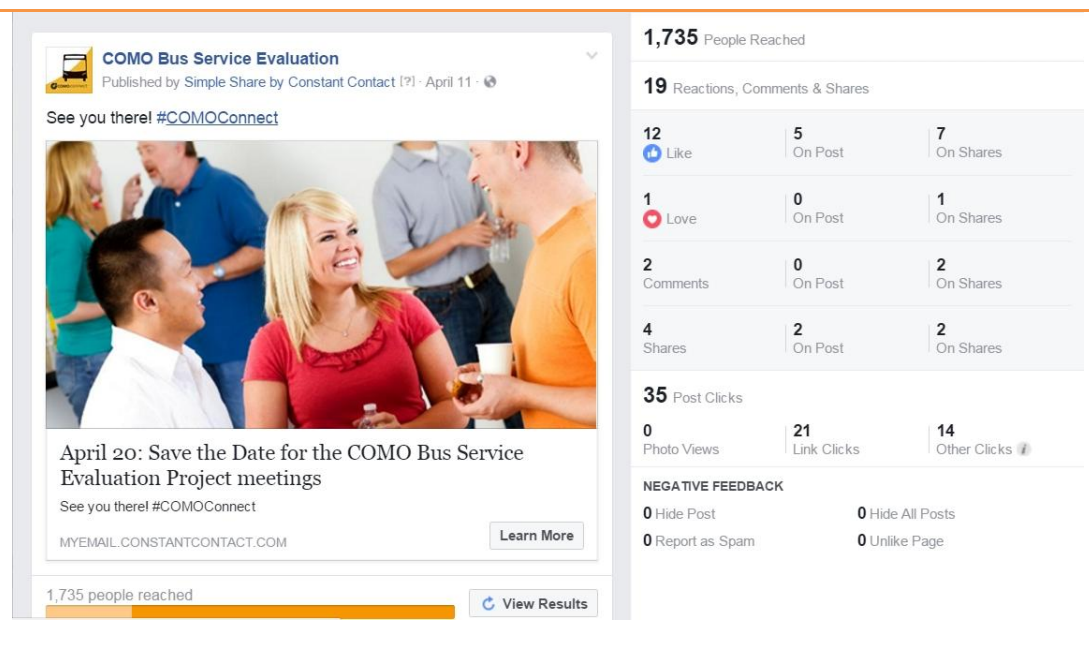
Title	Date	Open Rate	Click-through Rate	Comparison Rate(s)*
April 20: Save the Date for the COMO Bus Service Evaluation Project meetings	Apr. 11	32.6%	1.3%	Government avg. is 22.93% (open); 9.90% (click)
LOCATION CORRECTION: COMO Bus Service Evaluation Project	Apr. 13	31.0%	1.4%	

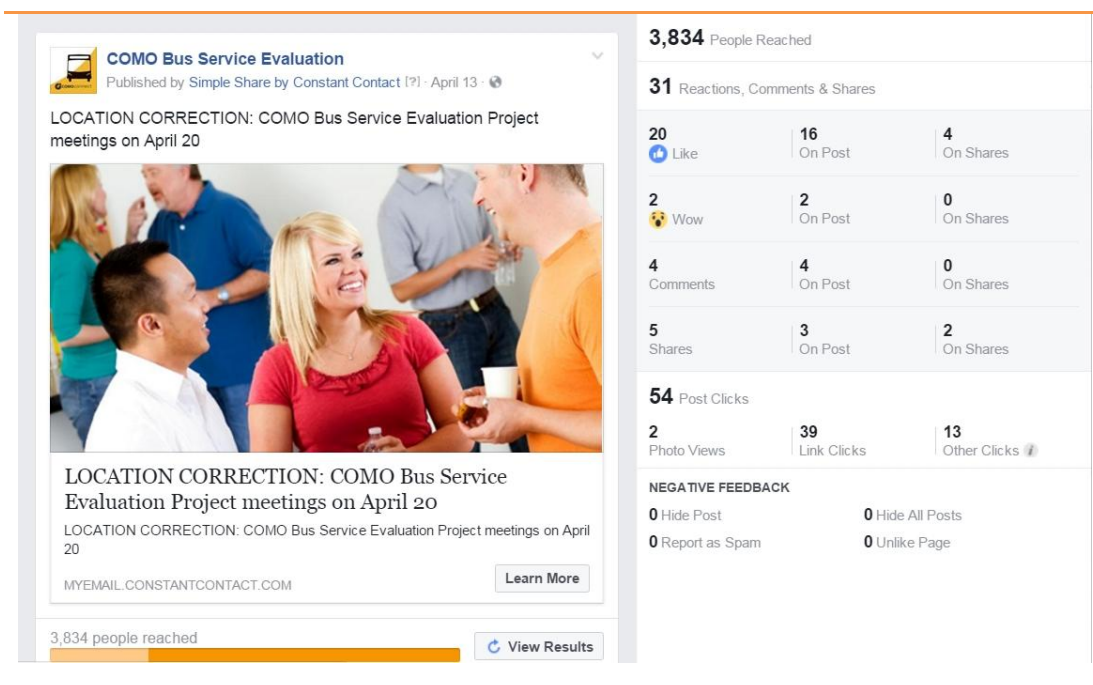
meetings				
Comment Online: COMO Connect transit improvement scenarios	Apr. 28	33.9%	21.7%	

\*As of August 2016 from <https://support2.constantcontact.com/articles/FAQ/2499>

- Facebook advertising via a combination of posts and clickable ads served to men and women ages 18 to 65+ who identified themselves as living in Columbia (+ 10 miles), Missouri and had one of the following interests: public health, community issues, Missouri Tigers men's basketball, paratransit, Columbia College, Stephens College, Missouri Tigers football, University of Missouri School of Medicine, public transport, economic development, University of Missouri, cycling, or walkability. Two ads were served during mid-April 2017. Together, they reached thousands of people as shown in Table 2.

Table 2 - Facebook Advertising Results





## Presentation Materials

### Handouts

- ☐ Opinion survey
- ☐ Project booklet containing transit improvement scenarios A, B, C, and D, along with information on Flex Zones and the University alignment

### Display Boards

- ☐ What's Happening / Planning Process
- ☐ Results of Community Visioning (in person and online)
- ☐ Today's COMO Connect Transit System
- ☐ Flex Routes and University Access
- ☐ Modified Loops (Transit Scenario A)
- ☐ Trunk Routs (Transit Scenario B)
- ☐ High Frequency (Transit Scenario C)
- ☐ High Frequency with Flex Routes (Transit Scenario D)
- ☐ What's Your Opinion?

## Verbatim Comments from Facebook

A project Facebook page was created for the project at [https://www.facebook.com/COMO-Bus-Service-Evaluation-1523732664307371/?hc\\_ref=PAGES\\_TIMELINE](https://www.facebook.com/COMO-Bus-Service-Evaluation-1523732664307371/?hc_ref=PAGES_TIMELINE). The page currently has 123 likes and the following comments on it:

- *Report suggests major changes in Columbia bus system*
  - **Rachel Ruhlen** I'd vote for the most expanded service but I don't know where the funds would come from.
- *LOCATION CORRECTION: COMO Bus Service Evaluation Project meetings on April 20*
  - **Les Raymond Masters** Why bother? They never listen to anyone
  - **Gary Bassett** I had lived in an area that had a bus GPS system "Next Bus" that you could text the bus stop # and get an accurate ETA reply. This is great for people with dumb government or not phones who cannot afford a smart phone.
  - **Gary Bassett** I think the Flex Routes are a great idea but see many likely issues hopefully just initially. The issues I foresee is scheduled pickups being on time to get to appointments and returns that cannot be scheduled at a specific time as in doctor's appointments and job interviews. Even with GPS tracking if on Flex Buses without a smart phone is useless. Many people who ride the bus cannot afford smart phones and only have a government or Obama phone.
  - **Gary Bassett** A Flexbus to COMO airport may increase ridership and make it a viable option.
- *Public comment sessions scheduled for CoMO Connect*
  - **Gary Bassett** Did not know about the free ride day if I did I would have done some needed food shopping otherwise I wait until I absolutely have to. I was on [comoconnect.org](http://comoconnect.org) yesterday for quite some time and did not see it! I am not obsessed social media and do not have a smart phone so I did not see it on FB.

## Verbatim Comments from Opinion Survey

Digital and hardcopy responses to the opinion survey were collected from April 20 – May 5, 2017. A total of 94 responses were collected during the period. The survey included multiple choice and open-ended questions and resulted in the following responses that included on the remaining pages of this report. Graphed responses are attached to this report.

- **Q1 – Flex Routes:** These provide curb-to-curb service in areas with lower transit ridership (flex zones). Riders would call COMO Connect 24 hours in advance for rides within a zone and could transfer to fixed routes. Fares would cost more than fixed route service. What's your opinion of flex routes? Select 1 response.
  - Love it (18 responses)

- Like it (23 responses)
  - It's OK (22 responses)
  - Unsure (22 responses)
- ☐ **Q2 – Route through MU Campus:** The new route would allow buses to bypass heavy pedestrian traffic on Rollins Streets. It would also help buses avoid construction projects that impact Hitt Street. What is your opinion of the new route through MU Campus? Select 1 response.
  - Love it (25 responses)
  - Like it (24 responses)
  - It's OK (17 responses)
  - Unsure (18 responses)
- ☐ **Q3 – Modified Loops Scenario:** This scenario costs about as much as today's system but simplifies it by adding flex routes, changing the alignment of Gold Route #2, and dividing Black Route #1 into two separate routes. It responds to congestion issues and provides 30-minute service. What is your opinion of it? Select 1 response.
  - Love it (8 responses)
  - Like it (26 responses)
  - It's OK (19 responses)
  - Unsure (28 responses)
- ☐ **Q4 – Trunk Routes Scenario:** This costs about as much as today's system but changes it from 1-way loops to 2-way, straighter routes that use the Wabash Station at 10th and Ash Streets, connect to MU Campus, and include flex routes. It provides 30-minute service, improves transfers between routes, and helps with bus driver shift changes. What is your opinion of this scenario? Select 1 response.
  - Love it (22 responses)
  - Like it (34 responses)
  - It's OK (14 responses)
  - Unsure (14 responses)
- ☐ **Q5 – High Frequency Scenario:** This costs about \$800,00 more than today's system. It has some of the same features as the Trunk Route Scenario, e.g. 2-way routes, but it also provides 20-minute service. No flex routes are included. What is your opinion of this scenario? Select 1 response.
  - Love it (9 responses)
  - Like it (19 responses)
  - It's OK (28 responses)
  - Unsure (26 responses)
- ☐ **Q6 – High Frequency (with Flex Routes) Scenario:** This costs about \$1.3 million more than today's system but it changes the system into 2-way routes with 20-minute service. It also includes flex routes. What is your opinion of this scenario? Select 1 response.



- Love it (18 responses)
  - Like it (21 responses)
  - It's OK (18 responses)
  - Unsure (29 responses)
- ☐ **Q7 – Community:** Which transit scenario is most important for the community? Select 1 response.
- Modified Loops with Flex Routes (17 responses)
  - Truck Routes with Flex Routes (27 responses)
  - High Frequency without Flex Routes (14 responses)
  - High Frequency with Flex Routes (23 responses)
- ☐ **Q8 - Descriptions** How would you describe yourself? Select up to 4 responses.
- Employee (24 responses)
  - Student (11 responses)
  - Resident (48 responses)
  - Other stakeholder (4 responses)
- ☐ **Q9 - Commute:** How do you primarily move around Columbia now? Select up to 3 responses.
- Motorist (42 responses)
  - Transit rider (45 responses)
  - Bicyclist/pedestrian (25 responses)
- ☐ **Q10 –Personal Opinion:** Which transit scenario is most important for stakeholders like you? Select 1 response.
- Modified Loops with Flex Routes (14 responses)
  - Truck Routes with Flex Routes (26 responses)
  - High Frequency without Flex Routes (14 responses)
  - High Frequency with Flex Routes (25 responses)
- ☐ **Q11 – Comments:** What other comments do you have about the transit scenarios? (61 responses).
- All of these options do away with local routes like the dark green which we used almost daily. Without it we can no longer access South Providence urgent care the grocery store or our bank without requiring considerable pre-planning. We could not use the bus for emergencies which we do now. Also flex routes will cost the rider more but you fail to say how much more. Those of us without cars depend on the bus service. I don't much like the new plans.
  - I think the campus routes (401 402 and 403) need to be looked at too. The schedule in theory works but the drivers don't follow it. They need to be better trained to leave on time and not run behind. Also look for a route for them that also bypasses the busiest parts of campus including

the hospital.

- I wish the bus ran later in the evening and had more weekend hours. I don't own a car and would like to do things downtown at night or on the weekend but the schedule makes it very hard to ever do anything.
- Right now the gold route is very convenient for me to get to and from work. I get on the 2B bus at the stop on Fairview in the morning and get off at Hitt and University. I go the opposite route home. It seems to me like some of the proposals would now require me to transfer or walk further to the bus stop. I don't mind walking a little further to get the bus (if there are more frequent routes since it will take longer to get to the bus stop from work) but I hope this does not make it take longer to get from the west side of town to downtown Columbia and back.
- If I am reading these change proposals correctly the changes would put me out of the routes I need even outside the flex zones. I normally would pick up the Brown line bus at Brown School Rd. and Derby Ridge riding it to Blue Ridge and Providence Rd to take the Black line bus to the Student Center on the MU campus then back again. On returning once I got to Blue Ridge I would usually just get off there and walk back to Brown School Rd. and Derby Ridge rather than ride around the loop again. If I have to walk to a flex zone and call 24-hrs. in advance can I say what time I would like to be picked up and do I have to also state what time I need to be picked up on the return?
- High Frequency C No High Frequency with flex routes D No
- Benches at all bus stops !!!!!!!
- I wood like to see more of the buses
- I wood like to see more of the bus es
- Why don't we get the hate it or NFW option? To be honest I think you will do what you want and say go to hell with what customers want
- Make transferring easier
- Quite honestly. None of these solutions are really good. The flex routes aren't very FLEXible if a rider needs to call about it in advance and if it is going to cost more. The trunk routes aren't necessarily bad but they would NEED to be frequent to make up for the need to transfer buses. To move buses away from Rollins because of traffic but increase buses on streets like locust elm etc seems counter productive. Suggestions: Stop thinking of the neighborhoods as these separate entities. Your neighborhood ridership is so low because it is a PAIN to ride a bus in most of a circle so you can connect to another bus to get to the other side of town. The neighborhood routes should not be abandoned instead they should be designed around actually taking people where they want

or at least closer to it without transfers or multiple transfers. In this regard the trunk routes would help if you had more of them basically all your routes going into and out of the city center area. Not all neighborhoods would need to be serviced as they are but at least regionally (SESSWNNEE). Allow someone to hop on a bus in the neighborhoods and just get into the city center or to get to other shopping areas or to work that much quicker.

- I am unsure about any of the suggested changes but I do like the description of the Trunk routes that use the Wabash station like in the past myself. I think that what is a real need is a bus shelter. At Gerbs Grocery that is the one place that comes to my mind waiting right on the side of Broadway Ave. every time I shop there. I have to shop there often because my pharmacy is there no shelter in the wind and rain or cold weather is a bummer.
- Pictures or maps would have been helpful in my assessment of these plans.
- I am somewhat puzzled by the flex routes. For example you have a doctors appointment and schedule the pick-up 24 hours in advance. You do not know when you will be done with your appointment. How do you schedule the trip home? I am a regular user of COMO. I work as a substitute teacher and use the different buses to go to assignments all over the city. I do not see how the flex system can work to get me to the various schools.
- I strongly feel that the bus (likely the gold) should go by the ARC. As the City of Columbias gym I have been surprised that the bus doesn't stop at it. A bus stop there would help me out a great deal.
- The bus service excellent.
- Keep buses along Rollins!
- Arrival times are very inaccurate and I sometimes have to wait 40 minutes or more for a bus.
- I like that your making the bus more easier for people to take and have away around.
- Easier transfers buses running later?
- Drivers very courteous and helpful.
- 20 minute service is critical. Existing total boarding per day stats - people will not start riding the bus until its convenient. I don't think flex routes are the answer - 24 hours advance notifications are not convenient. Given the options presented they seem to be needed. Need to get students taking the buses more rather than driving. I think you are missing routes down Chapel Hill and Nirong. Trunks are a huge

improvement over loops.

- I would like to see much more service than any of the options provide. Flex routes do not allow unforeseen scenarios to arise that require last minute travel. I will happily pay higher taxes for increased transit options and the benefits that come with that.
- Brand awareness is very important. The appearance of the buses is damaged by the advertising - get rid of it!
- No advertising wraps small signs on inside are okay. It looks awful and folks don't identify with the city bus system. Please put the schedule posted at stops.
- Flex concept has some communication challenges. Need to serve lower income properties west of Scott Boulevard.
- It would be better to be able to call for a ride as late as 5:00 pm the previous day. Were I to ride the regular bus I'd like a shelter and a place to sit.
- I bought a transit pass and rode the bus 30 times. Three times the bus broke down. Reliability is also very important. I would love to be able to rely on the bus.
- I like the bi-directional better than the loops like 20 minute routes.
- I like the idea of using Wabash. Nice to get out of weather and easy to get passes if needed. University area: I am concerned that there will no longer be service on College Boulevard for students. This cuts off easy access to Physics Building dorms frat's Ag Department etc. I understand the traffic issues on Rollins and Hitt but perhaps you can move a route out to College to get them closer. I love bi-directional routes!! And shorter routes. Love high frequency.
- West side (Ward 1) needs two routes parallel corridor common terminus east and west (Wabash & Hyvee/Walmart) Route 1 Garth/BL-7-/Worey WB/Ash EB. Route 2 Broadway WB/Worley EB. Schedule at 1/2 interval of other routes. This area has highest density of transit riders (current and potential) in the City. Not any of the 4 (BL-70W Worley Ash Broadway) major E-W arterial streets in Col. near west side (downtown/stadium) should be without bus route.
- Need Sunday and night service.
- I think we might be pushing social inequity further with folks without access to phone/internet. We need a lot of options for folks to schedule rides that do not require folks to be enrolled in services. I think it is an unfair assumption to assume all transit dependent folks are connected to human service providers. I know that it might not be possible to find a perfect solution. However I am very concerned about the north flex

zone.

- Weekend bus. Constant or more frequent buses.
- Cosmo Park Love Inc need at least some service.
- I have a petition with 113 signatures to extend evening hours. Im concerned that this is not being discussed in any plan.
- Would love a bus stop near Cosmo Park on West Business Loop 70 to better serve clients of Love Inc.
- Would like for bus to come two times a day out in Greenway Height
- Should have a services bus. This would go all over (to areas not covered) and transport people once a day to high need services (food bank health center etc.)
- Would like to use transit if it were adequate.
- Extend business hours extend the Aqua route further north. Keep Red Route on all scenarios. Flex routes should have a half fare.
- Move the buses back to the bus station and run on Sunday and longer hours.
- Well its not a bad idea but what if people don't have a phone and they can't call in or if you living on the street all you're trying to get somewhere and you cant be anything but be stuck
- I like how it is now.
- I see there being issues with the implementation at flex routes. Not sure people would call in advance.
- Put buses back down at Wabash so we riders have safe seating roof over protection bathrooms and access to all different buses and routes. I live on Vandiver and these scenarios take buses away and I don't want to call 24 hours in advance or even 2 hours in advance
- MU Campus route. Have the bus where it can drop off at the corner of Hitt Street and Rollins or Tiger Avenue and Rollins to avoid driving directly in front of student center.
- Feel need for Route between Garth and WST Boulevard. Demaret off St. Charles low income area several riders possible to use round about on St. Charles next to fire station.
- I hope city did not pay much for this survey horribly done without providing details of the scenarios suggested. No option to explain that compared to the scenarios offered current system is the best. Not ideal but better than offered alternatives.
- I love the idea of flex routes because where I live I am not able to walk to



the fixed bus stop. This would be very helpful at times when I am not able to drive or having car problems. I believe I would use the bus more frequently. Even if it costs more than regular fare I still believe it is more economical than taxi service.

- Every bus I see has very few passengers. In my opinion our buses generally are too large given how many riders use the bus transit system. We need to be using smaller buses.
- Connecting bus services to areas with high rider use should be priority. The City I came from had transit lots where users drove biked or walked to them and then caught a bus the rest of the way. Not sure if that works here but it might help on the far ends of the City. It could also help if these lots were also on trailheads.
- I love the bus app which shows you where your bus is. However the schedule is difficult to understand when you are trying to connect one route with another. For instance I needed to go from the VA Hospital to an address at Pershing and Broadway. It appeared that I could do this by taking 10 to Locust and transferring to 2 there. However there didn't appear to be any attempt to ensure that connection could be made. When I got to Locust the app showed that I would have a 40-minute wait for the next 2 bus so I walked. It would help riders if they could depend on connections being available where 2 bus routes cross. Also a larger route map which shows more detail would be helpful even if there was a charge for it. I had a bus driver on the 1 route get cranky with me when I asked whether he stopped near the intersection of Nifong and State Farm Parkway. He handed me a bus schedule which I had already told him I had. A more detailed map would have been helpful to me. However his response was not normal. Bus drivers are usually quite willing to answer questions although riders often know more about how to work the routes to get from one place to another.
- As a middle class person who lives (barely!) within walking distance of my job I would prefer more frequent service. Its usually quicker to walk to work than wait for the bus. HOWEVER I have the option to drive walk or take the bus. So I'd say its more important to extend service routes to poorer neighborhoods where people might actually need bus service.
- The Downtown Loop is most important to me and my neighbors who commute to MU and hospitals from central neighborhoods. This loop is the best part of the transit system IMO and should be retained. The flex route idea is redundant given that Uber is available and would probably be most responsive. I question the validity of your survey moreover. Results are skewed to positive responses and thus will be unreliable.
- Based on the total overall cost and low ridership we should ditch the entire system and apply the money towards better roads. Columbia is

not large enough city to justify a bus system at this cost to the tax payers.

- o Low ridership of the outlying neighborhood bus lines is due more to lack of connectivity (i.e. no transfer points or long transfer wait times) to routes that serve major employment and school hubs than it is to interest and need for transit services in these areas. The flex zone concept makes using public transit more difficult and less useful for these residents (myself included). Flex zones would not be useful for a daily rider to and from work/school (scheduling round trip rides every day 24 hrs in advance) but may work for some who have occasional trips to shopping drs appointments etc. Flex zones are made further useless because you can only ride within the flex zone which are small enough geographically to potentially be walking/biking distance. Walking and biking within the flex zone would be more convenient than scheduling round trip rides 24 hours in advance. Instead of investing in a flex zone service it would be better if outlying fixed routes had more connections to core fixed routes. If fixed bus routes are removed from the flex zone areas my access will to useful public transit will be effectively eliminated.
- o I think the Flex Routes are a great idea but see many likely issues hopefully just initially. The issues I foresee is scheduled pickups being on time to get to appointments and returns that cannot be scheduled at a specific time as in doctor's appointments and job interviews. Even with GPS tracking if on Flex Buses without a smart phone is useless. Many people who ride the bus cannot afford smart phones and only have a government or Obama phone. I had lived in an area that had a bus GPS system Next Bus□ that you could text the bus stop # and get an accurate ETA reply. This is great for people with dumb government or not phones who cannot afford a smart phone. The big issue in Columbia Jefferson City Cole County and Boone County MO is the lack of wide area transportation. If a county connector bus line existed between COMO and JC the two cities bus systems would be connected as would Amtrak MU and Lincoln University it also could connect COMO airport and increase ridership if it stopped along the way. It would give students and the general public access to and from Chicago to COMO by air or train and make it a viable option. The connector could be funded in part by Boone County COMO Connect MU Cole County JC JeffTran Lincoln University Amtrak Columbia Airport MODOT American Airlines and United Airlines. It is a save assumption that United Airline would be interested in increasing passengers on a new service to Columbia MO airport starting on 08/01/17 by making it more convent to 10s of thousands of college students in Columbia and the public it would also be in the interest of American Airlines. Currently almost everyone drives 2 hours or more to STL or KC airports or takes a shuttle for \$40 or more each way rather than utilizes Columbia MO airport. Greyhound connections to JC only run once per day at 12:55 AM arriving in JC at

10:35 AM a 9 hr. 40 min. trip at the minimum of \$15 one-way if available on 4/28 return the same day would be minimum \$20 if available at 1:45 PM and a 6 hr. 45 min. trip both with one transfer. Even better would be connecting a state transportation system at the least connecting KC and STL and stopping in COMO which would then connect the bus systems Amtrak options in both cities Greyhound and transportation to both airports. It would make COMO an Missouri a more viable place for many people to live to have commuter and transportation options.

## Verbatim Comments from Emails

The “comments” option linked to the online version of the opinion survey, yielded the following email comments:

□ **Received April 21, 2017:**

Hello!

I am writing in response to the proposals made to the COMO Connect system by the Olsson Associates in order to address the declining use of many of the systems routes. I am happy to see that an assessment of the system's use was made, as I have felt that discontinuing use of the Wabash Station in favor of having passengers make transfers at curb-side stops instead would lead to dissatisfaction with the system, and decreased use as a consequence. The Wabash Station is an excellent asset to the COMO Connect system that can and should be fully utilized to improve rider satisfaction, allow easier connections to more routes, and increase system ridership overall.

I strongly believe that our transit system should try to serve as many as possible, and to that end I commend the designers of the current system for seeing to it that the goal of serving many was met. Access to public transportation is essential to many going about their daily lives. Having public transit as a viable option improves a community as a whole with reduced traffic congestion, accidents, and pollution, increased economic activity brought by passengers to businesses for employment or patronage, and through a higher quality of life afforded to all of it's residents to enjoy. It makes sense for our city to invest in a good public transit system.

Now is the time to act, and the attention shown from interested parties is an encouraging sign. With some modifications, this system can be a better service to more Columbians. I strongly agree that it is time to end use of the loop routes, and to instead design a system with routes converging or truncating at the Wabash Station, allowing the use of this well built facility to many more of the systems passengers. This is imperative; people want a indoor facility to wait within for transfers, not outside in the elements. Any further thought otherwise will only hurt the system and the city. It must be admitted that people want a bus system to

have a bus station. Access to staff for customer service, to restrooms, and to climate-controlled conditions is a reasonable desire for passengers of any system. Ours should return to that model.

I also admire the idea of flex-route services. I would like to know more of the roll out of that concept in Columbia, what it would look like, when it could be used and how much it would cost to use. I think that reallocating resources to other areas with increased demand or to improve degraded service makes sense. This flexible model is an interesting proposal that deserves more serious consideration. It should be open to most users at times approximate to fixed route operations. It could also be a potential model for or the foundation of a future Sunday service, which many think is something long needed in Columbia.

I would like to see the Forum Boulevard area served by a fixed route of some sort, as this area has many businesses and is a rather significant center of employment and commerce. Perhaps a route that could include this area within its service could be looked into; a route that uses Stadium Boulevard could potentially serve this area.

I am happy to see a real proposition put forward before the Council to address some of the issues that have been hampering the system. and I am especially happy to see the Wabash Station put back to its former use as the hub of public transit. These ideas brought forward by the Olsson Associates are innovative solutions and we should fully contemplate these ideas together as a community. All input should be considered, and the populace given a fair chance to voice their concerns and thoughts. I hope to hear more about these proposals in the coming months. I personally like the concept shown in Option D, although it is more costly and therefore may not be as strongly considered at this time, it shows a vision of what the COMO Connect system could move toward in the future. Any improvements, however, can only make public transit in our city a better service for all, and I undoubtedly support any such changes.

Thank you  
-John Matticker  
([jmatticker@gmail.com](mailto:jmatticker@gmail.com))

□ **Received April 20, 2017:**

Hi,

I wasn't able to make it to one of your forums today. But I am writing to request a bus stop near Love INC. We are located at 1516 Business Loop 70 W. Across the street from the entrance to Cosmo Park.

I am the Extra Mile coordinator at Love INC. We help people learn how to better handle and manage their money. Many of our clients do not have a car and it is

very difficult for them to get to our office, especially when the weather is cold or rainy.

Thank you for considering this request.

([kvando@gmail.com](mailto:kvando@gmail.com))

☐ **Received April 23, 2017:**

I am not a bus user, walking works well for me. After reading the Friday story in the Columbia Tribune regarding the proposed bus route changes, and specifically after reading about how the survey was conducted, I would like to say that targeting students -- while they may be your primary ridership -- does not support the larger goal of making Columbia a bus-friendly community. Also, you risk taking the voice away from those least able to defend themselves -- the working poor. Further, the practice of focusing on students for input (un)intentionally disenfranchises socioeconomic groups based on their ridership. The bus system is NOT student transportation, it's COMMUNITY transportation. Think about who you intend to serve, not who is going to pay the bills, otherwise, the students are going to end up with a beautiful bus system and the poor and working class are going to be squeezed out even further. ([norgardp@gmail.com](mailto:norgardp@gmail.com))

☐ **Received April 26, 2017:**

It looks like we are going to be in a flex zone. What do we do about round-trips? We don't own a car. We're on the dark green and have learned to make it work for grocery shopping and the South Providence Clinic. Can we still get there -- and back -- using flex service? ([annawhitl@gmail.com](mailto:annawhitl@gmail.com))

## Notes from Bus Stop Meetings

Comments collected via the project team from members of the public include:

- ☐ **Resource Center (Riding the Brown Line)**
  - o More timely service - Had to wait 3-4 minutes
  - o Weekend service - Both Saturday and Sunday (run Saturday service scheduled on Sundays) - Have drivers operate it by seniority
  - o Later service, e.g. to 11 PM
  - o Driver courtesy - Drivers represent the City but some aren't nice and get frustrated when you ask them questions
- ☐ **MU Student Center**
  - o Scenario A - Want to stay on Rollins and keep the Red Line as it is today
  - o Scenario B - Biggest issue is not directly serving the Student Center
  - o Tiger Lines - Done behind closed doors (with no consultation with students)
  - o 402/Trailridge - Not on time; route should be shorter
  - o Overall, buses don't get me to class on time
- ☐ **Daniel Boone Regional Public Library (Riding the Gold Line):**
  - o System is frustrating - Walking is easier for certain times of the day



- Gold Line works well - Always on time (Robert's a good driver)
- Like the old system
- Metro Link from Downtown to Merrick (sp?)
- Pink to Blue transition is difficult - Wait is an hour (can just walk)
- Purple and Light Green Lines are difficult
- Aqua needs to run more than twice a day
- Too much catering to students
- Want Sunday service - Want to go to church (2-hour work if living "way out" and church is downtown); run until 3-4PM on Sundays or at least 1/2 day
- Flex routes eliminate flexibility, e.g. random trips
- Flex route are okay for pre-planned trips, e.g. to the grocery store
- Like the 10th/Wabash connections
- Gold Lines 2A and 2B are okay
- Route 1B is late and sometimes doesn't come - Makes me late to work, so I have to take the neighborhood orbiter-
- Sometimes the bus passes passengers by who are waiting at the stop because they're driving too fast and don't see waiting passengers
- Not going to like flex routes - Cutting off independence
- Riding the bus is my social life
- Everyone doesn't have a phone and can't call for flex service
- Run longer, e.g. 10 PM
- Run Saturday and Sunday until 12AM/1AM
- Want Sunday service for church and work - Lots of jobs want you to work on Sundays and expect you to take a cab, especially at the CMSE Workshop
- Like the Black Route with 2B bus in each direction
- Follow the St. Louis model - Longer hours; more buses per route
- Run earlier on Saturdays, e.g. same time as Monday - Friday service
- Weekend service would reduce drunk driving
- Better connection to Balinger (sp?) via McKee Street/Clark Lane/Conley
- Really want a bus on McKee Street (connect to New Horizons Apartments)
- Need a bus to pick up at Wabash and take riders to CMSE Workshop
- Have to walk 2-3 blocks - Improve the transfer system
- **Walmart (Riding the Light Green Line):**
  - Scenario D - Like it because I take 3 buses to work at Walmart now (Dark Green to Black to Gold = 1 hour trip in the morning; 1-1.5-hour trip in the afternoon)
  - Driver communication for transfers needs improvement - Dispatcher coordination

## Outreach Schedule

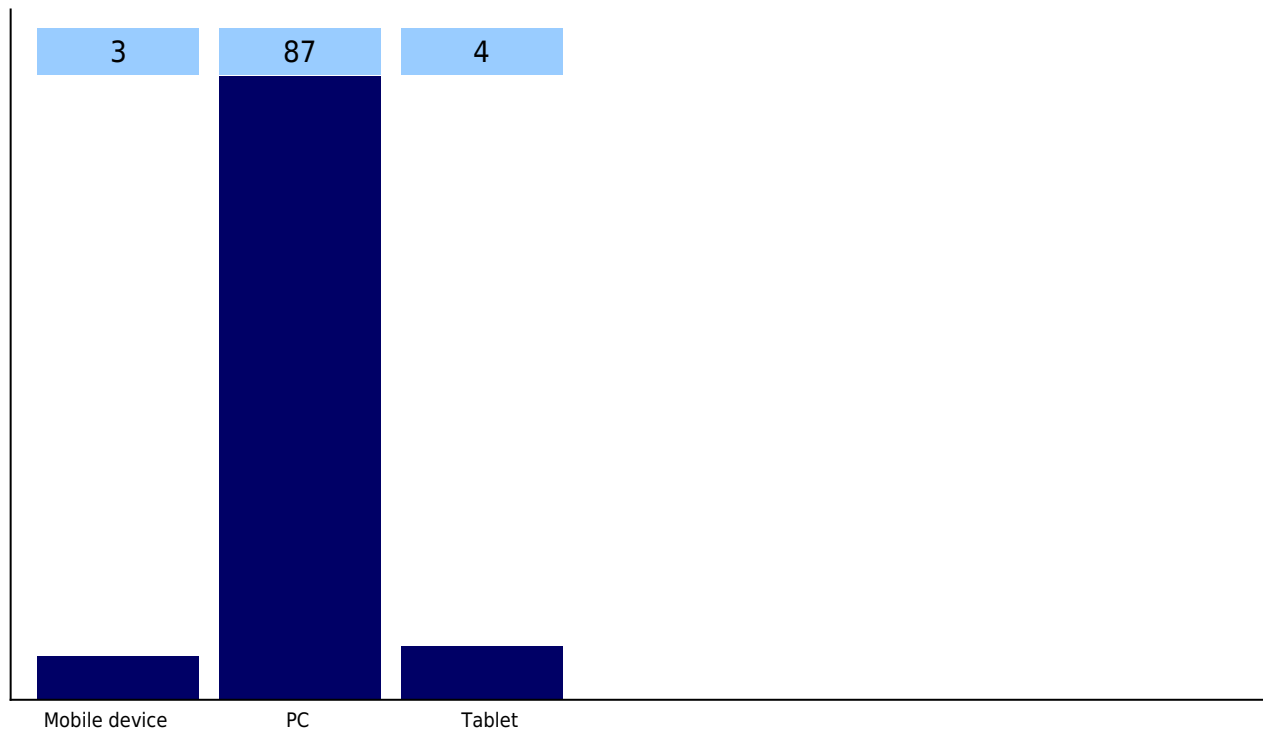
Time	Community	Activity, Location, & Staffing Team
8 – 9:20 AM	Gold Route 2A (south side), :00 and :30 Gold Route 2B (north side), :45 and :15 Purple Route (north side), :30 and :10	Bus Stop Meeting – Team A Columbia/Boone County Public Health and Human Services Department Bus Stop (1005 W. Broadway)
8:15 – 9:45 AM	Orange Route (north side), 7:40, 8:20, 9:00, 9:40, 2:00, 3:40, 4:20 Brown Route (south side), 7:40, 8:20, 9:00, 9:40, 3:00, 3:40, 4:20	Bus Stop Meeting – Team B The Resource Center (1500 Vandiver Drive)
10:30 AM – 12 PM	Multiple routes, multiple times	Bus Stop Meeting – Team B MU Student Center Bus Stop (911 E. Rollins Street)
12:30 – 2:30 PM	Bus drivers	Stakeholder Meeting – Team A Grissim Building
2:45 – 4:15 PM	Gold Route 2A (north side), :25 and :55 Gold Route 2B (south side), :50 and :20 Blue Route 5 (north side), :25 and :00 Pink Route 6 (north side), :25 and :00	Bus Stop Meeting – Team A Hy-Vee Bus Stop (25 Conley Road at the Trimble Road bus shelter)
3 – 4PM	Gold Route 2A (north side), ~:40 and ~:10 Gold Route 2B (south side), ~:30 and ~:05 Purple Route (south side), 2:20, 3:00, 3:40, 4:20, 5:00, 5:40	Bus Stop Meeting – Team B Daniel Boone Regional Public Library Bus Stop (100 W. Broadway)
4:15 PM – 5:15 PM	Gold Route 2A (east side):50 and :20 Gold Route 2B (west side):25 and :55	Bus Stop Meeting – Team B Wal-Mart Bus Stop at (3001 W. Broadway at the Park De Ville bus shelter)
6 – 8 PM	General public	Public Open House – Teams A and B City Hall – Conference Room 1A, 701 E. Broadway, Columbia, MO



## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### By Device

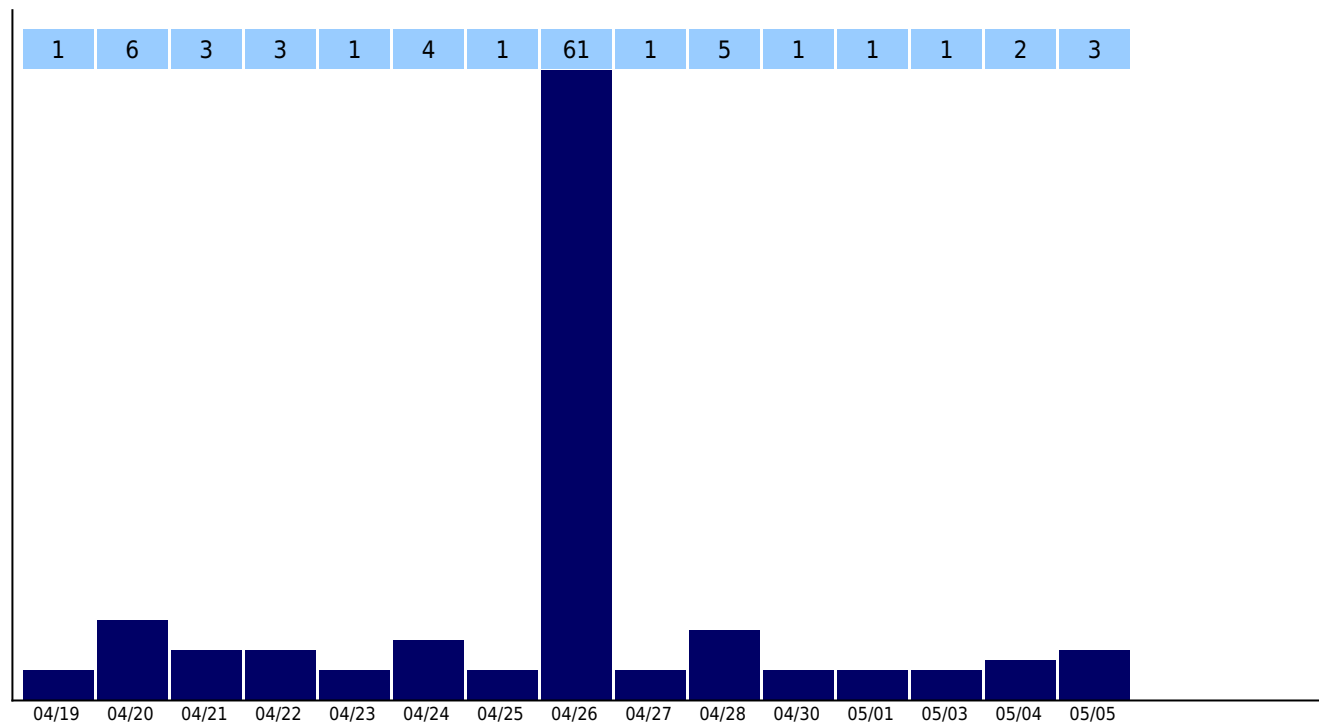




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### By Date

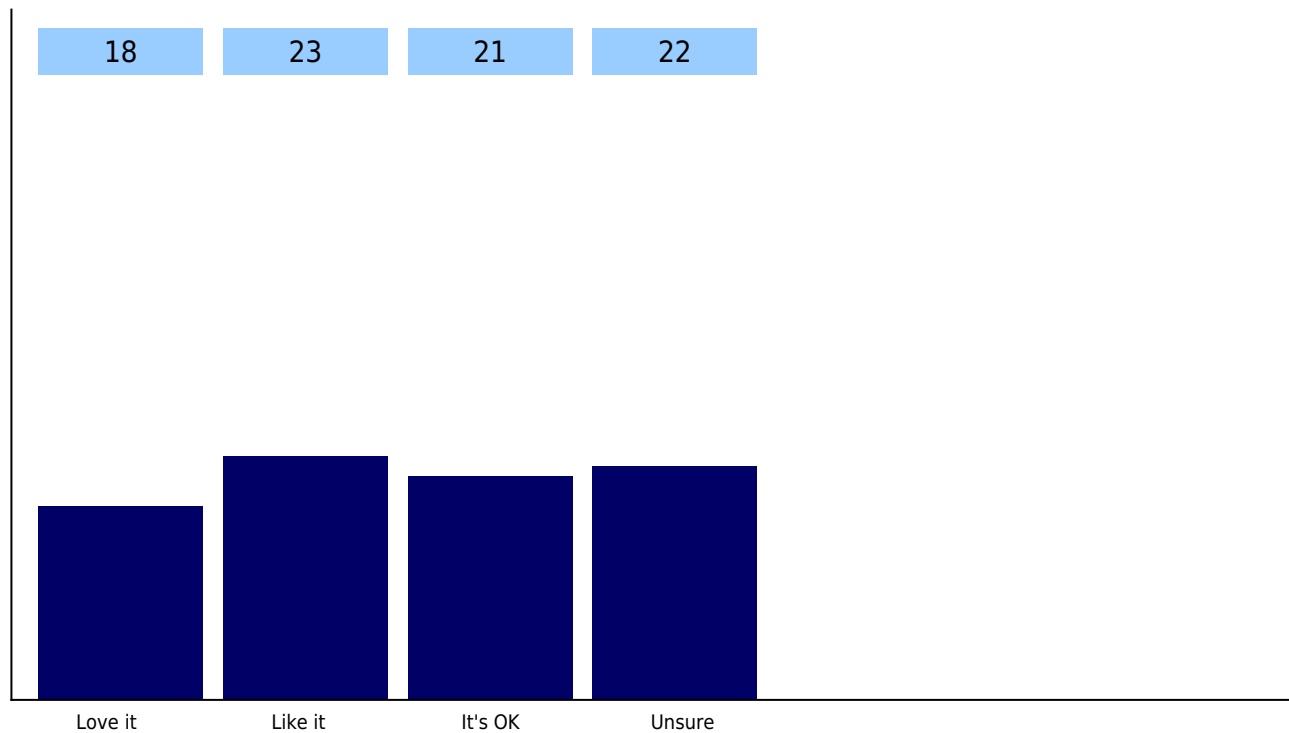




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: 94. (excludes tests)

### 1. Opinions of Flex Routes



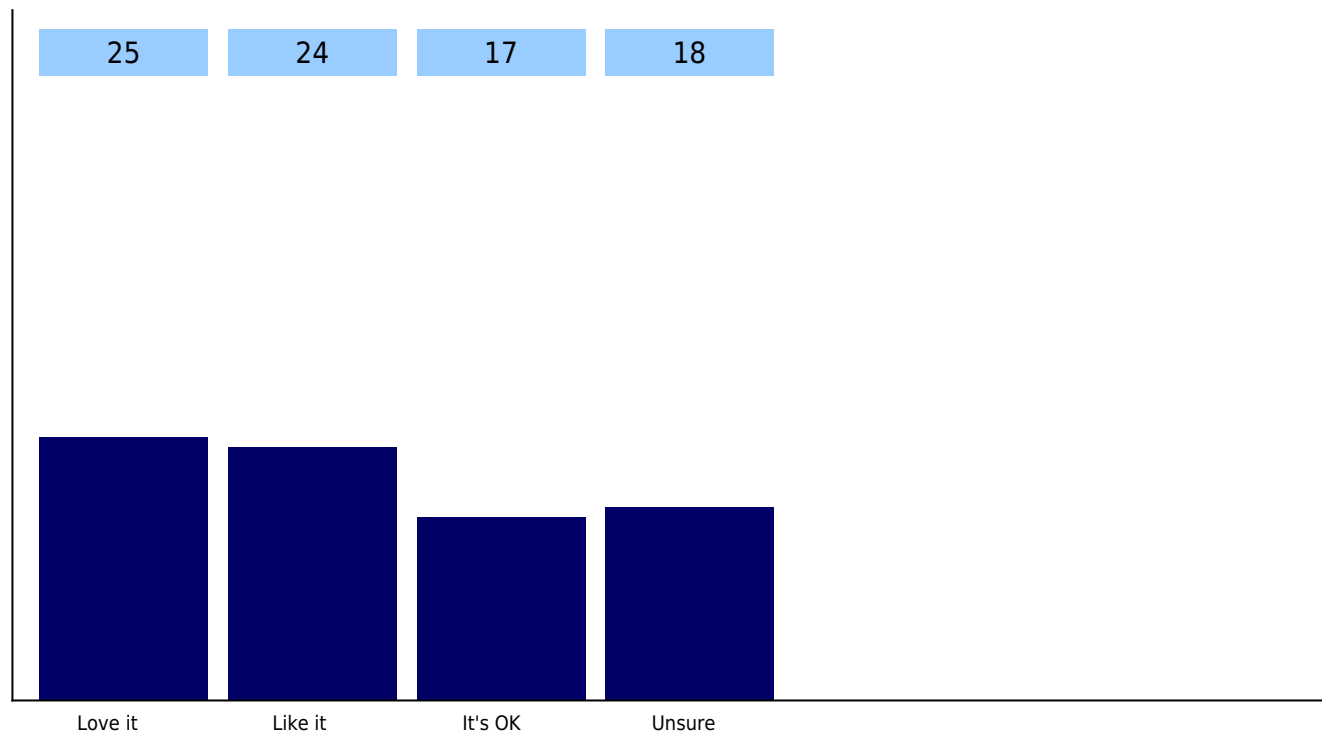




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 2. Opinions of Route through MU Campus

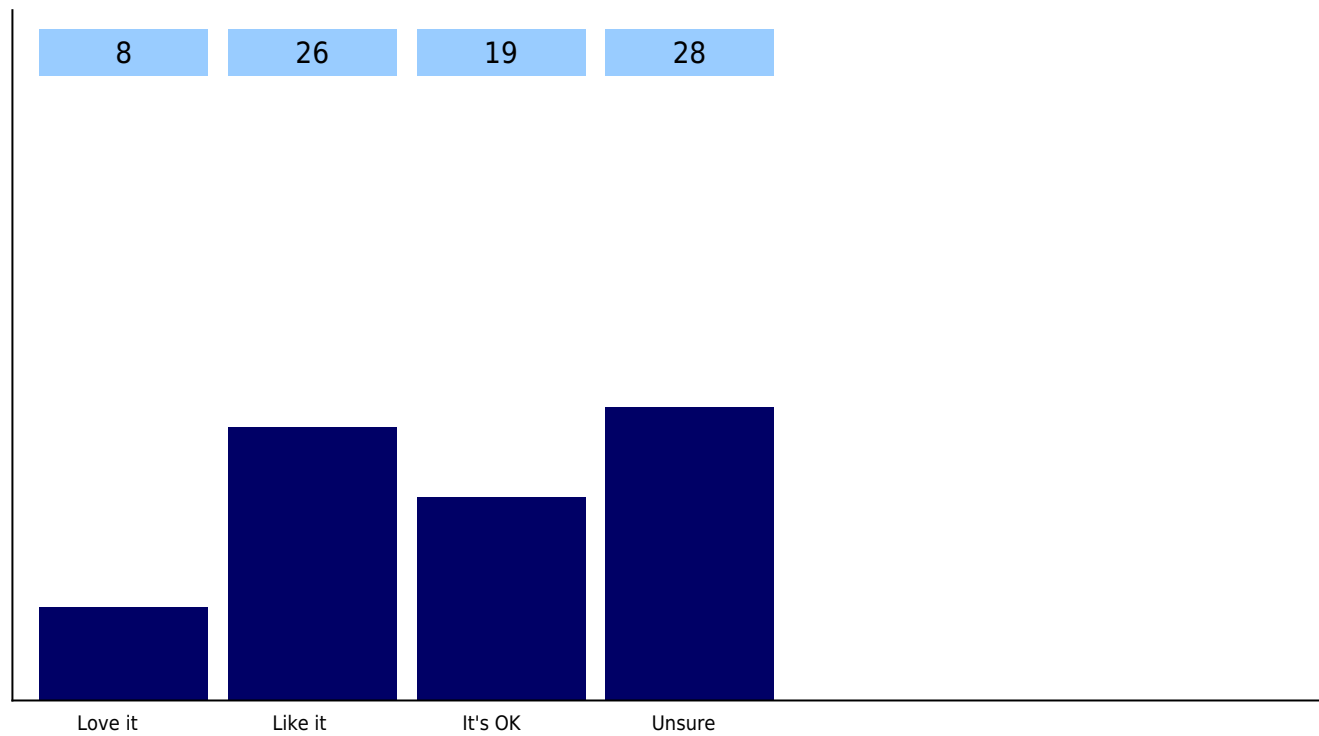




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 3. Opinions of Modified Loops Scenario

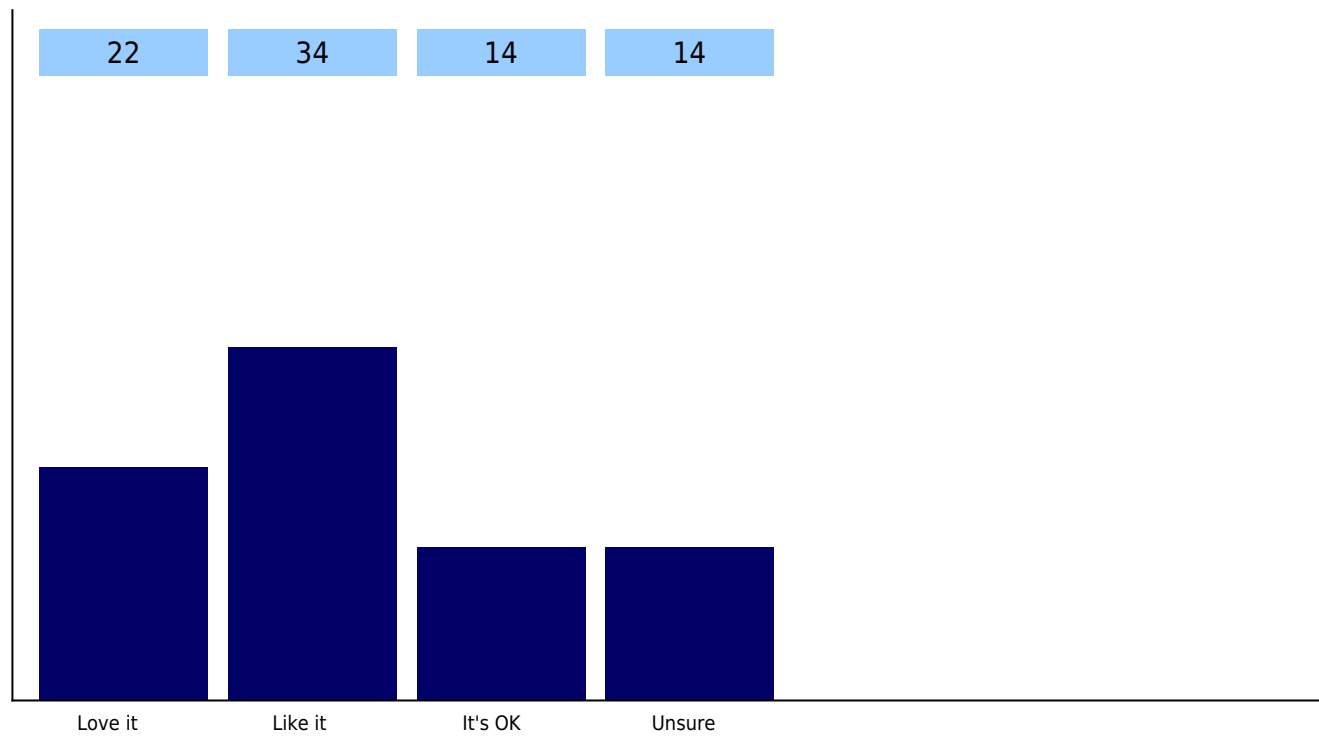




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 4. Opinions of Trunk Routes Scenario

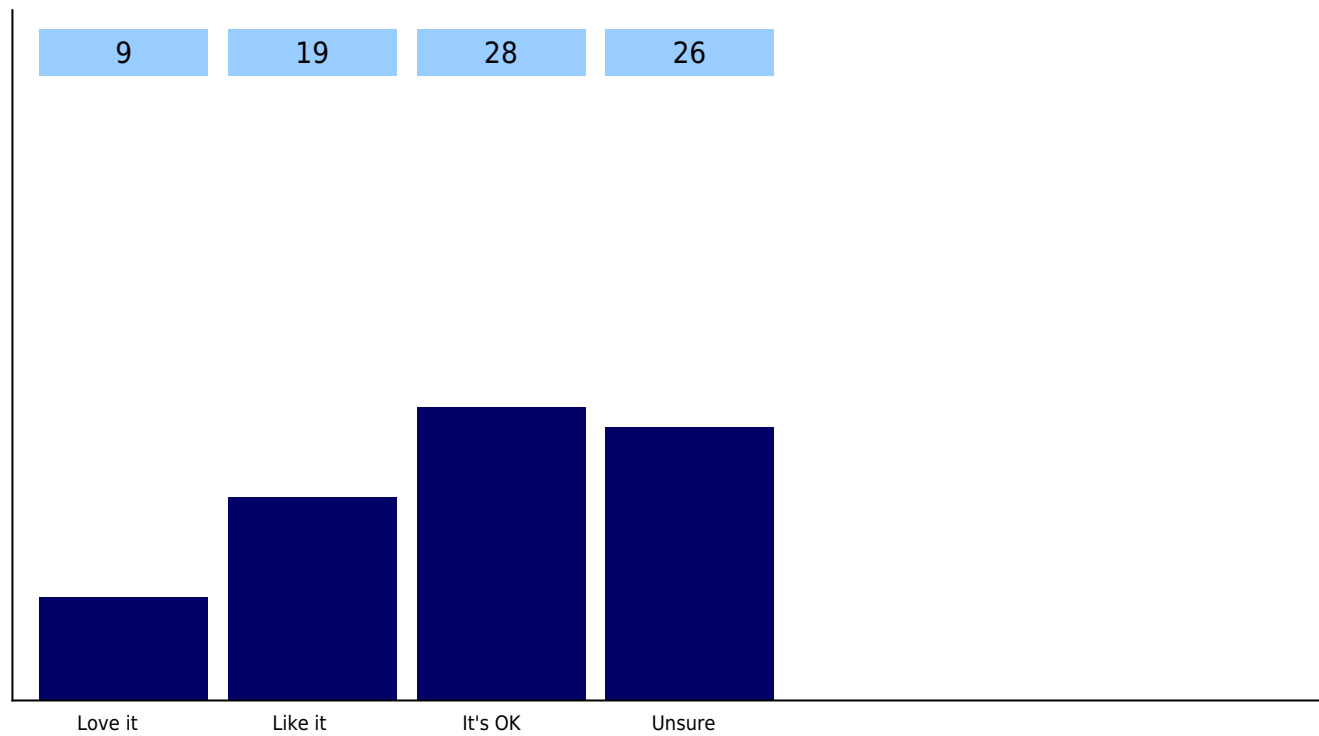




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 5. Opinins of High Frequency Scenario

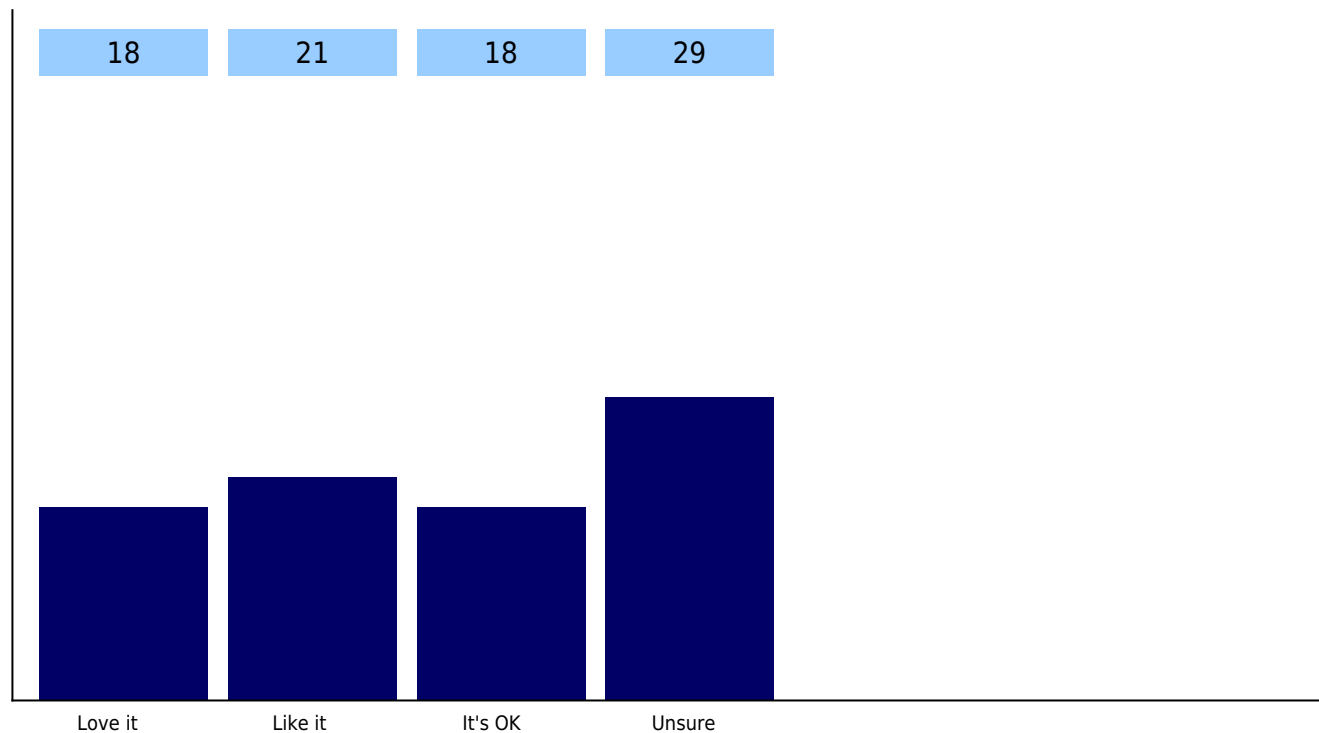




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 6. Opinions of High Frequency (with Flex Routes) Scenario



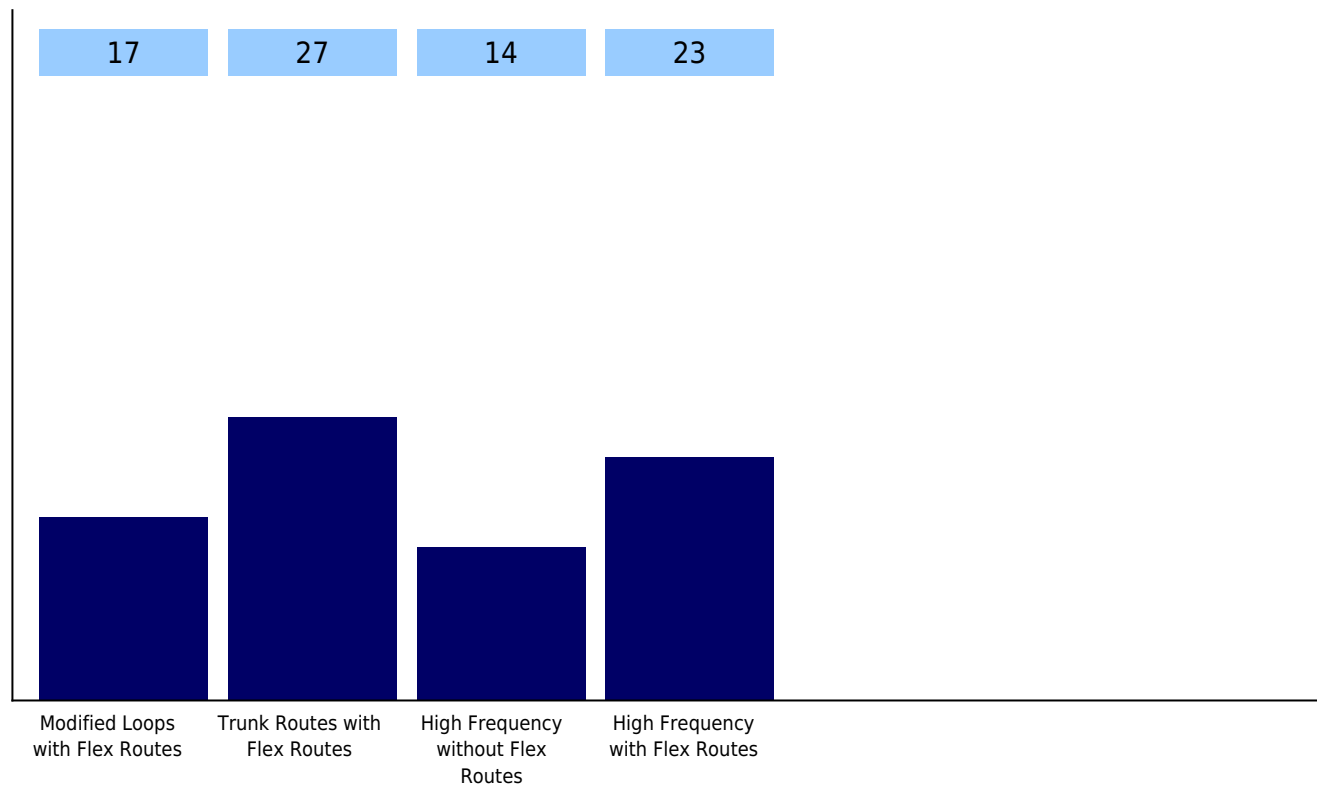




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 7. Opinions on the Best Transit Scenario for the Community

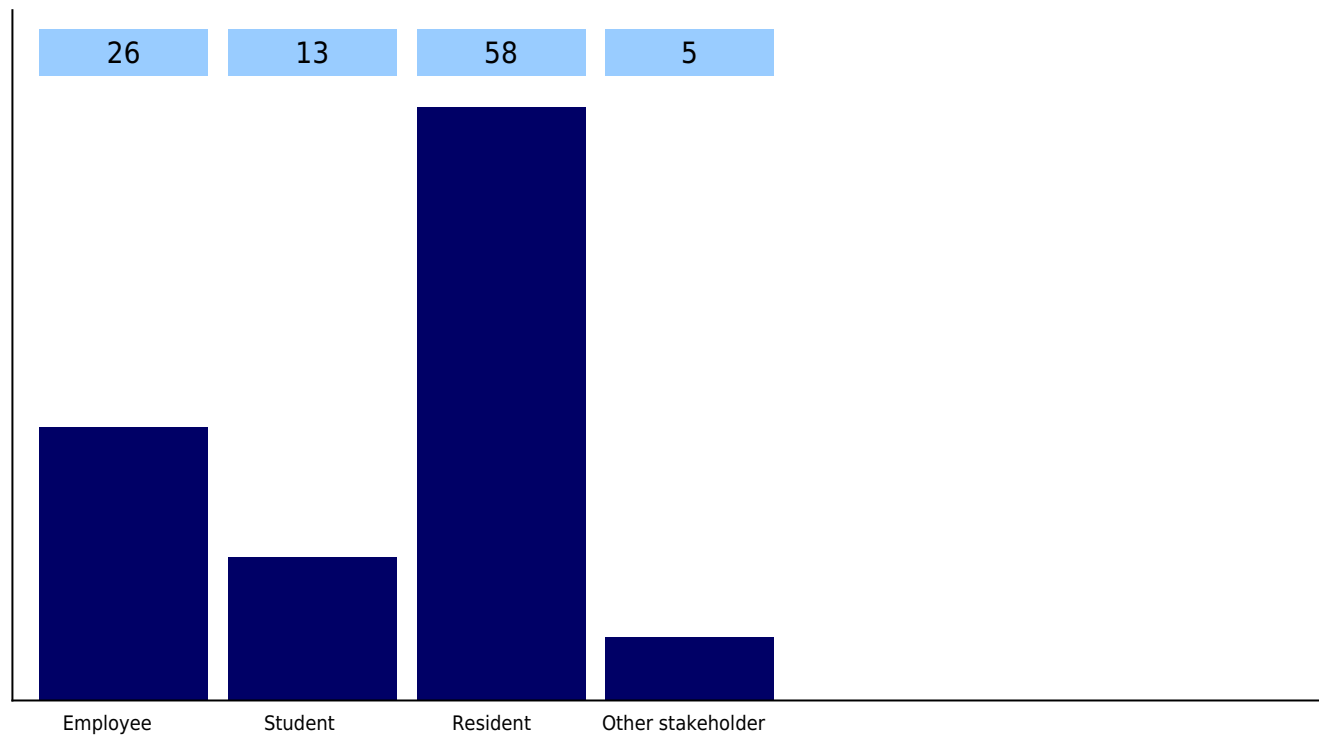




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 8. Self Descriptions

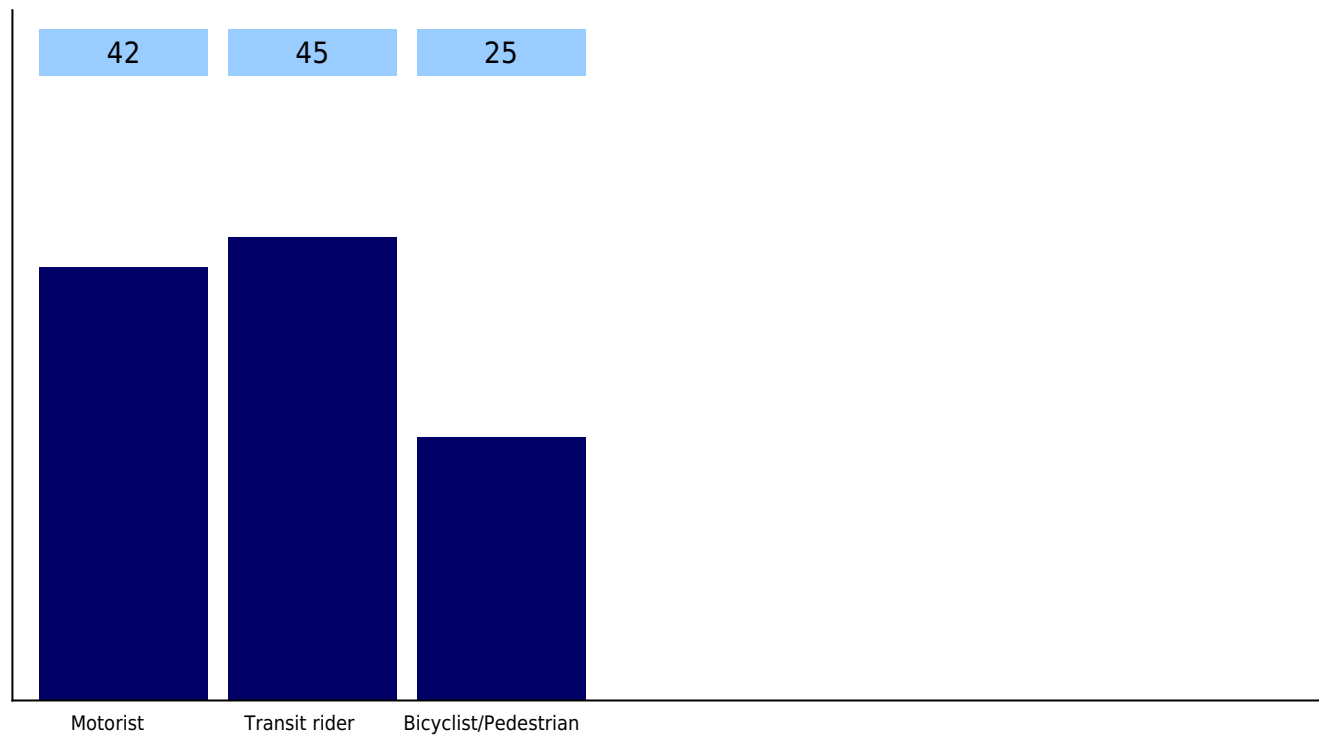




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 9. Commute - Mode of Transportation

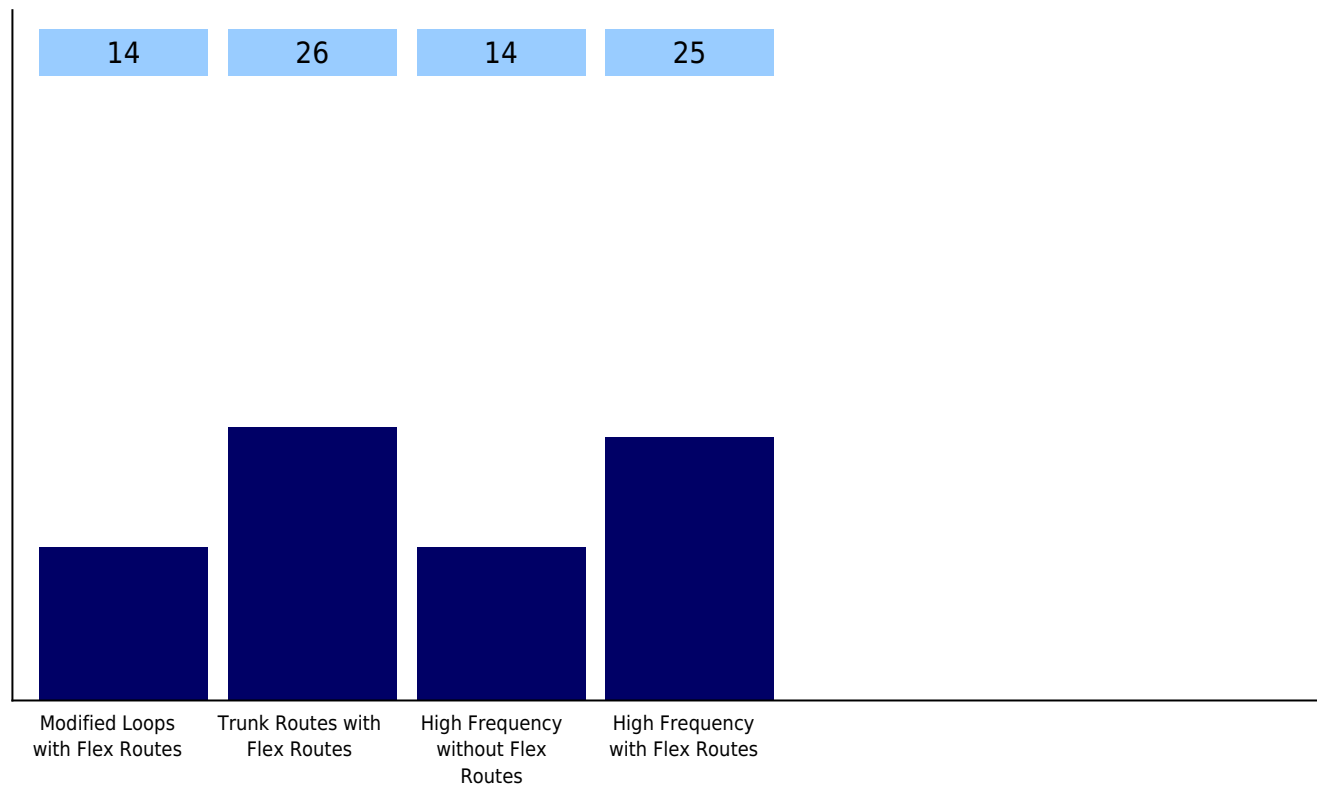




## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

### 10. Opinions of the Best Transit Scenario for Specific Stakeholders





## Results for survey: COMO Bus Service Evaluation

This survey is currently **closed**. Open date: 04-20-2017. Close date: 05-06-2017.  
Number of surveys taken: **94**. (excludes tests)

**11. Comments: What other comments do you have about the transit scenarios? Type them in the space below. Then touch the NEXT button.**







## Go COMO Bus Service Evaluation

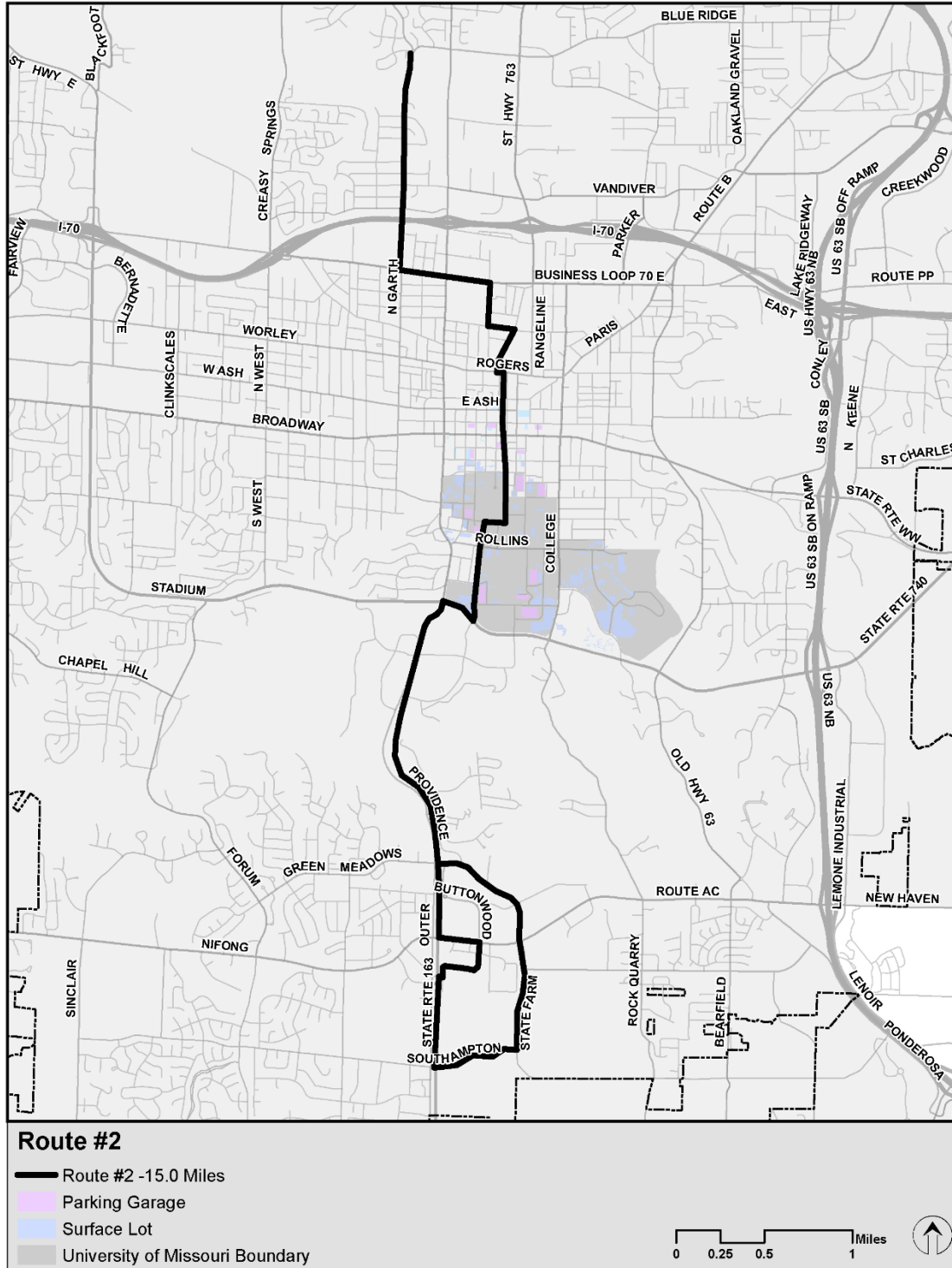
### Appendix D: Final Preferred Individual Routes





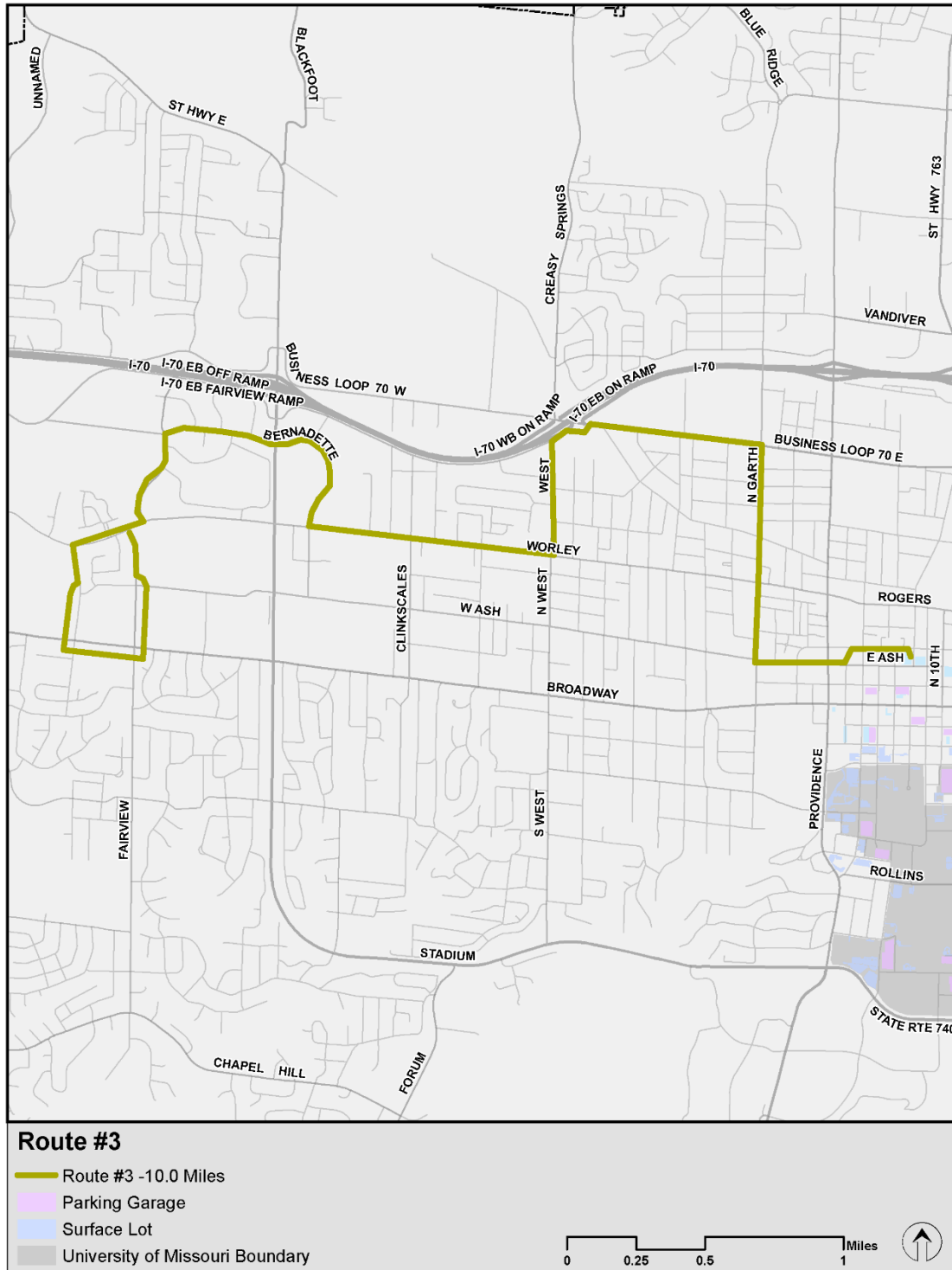


## Go COMO Bus Service Evaluation



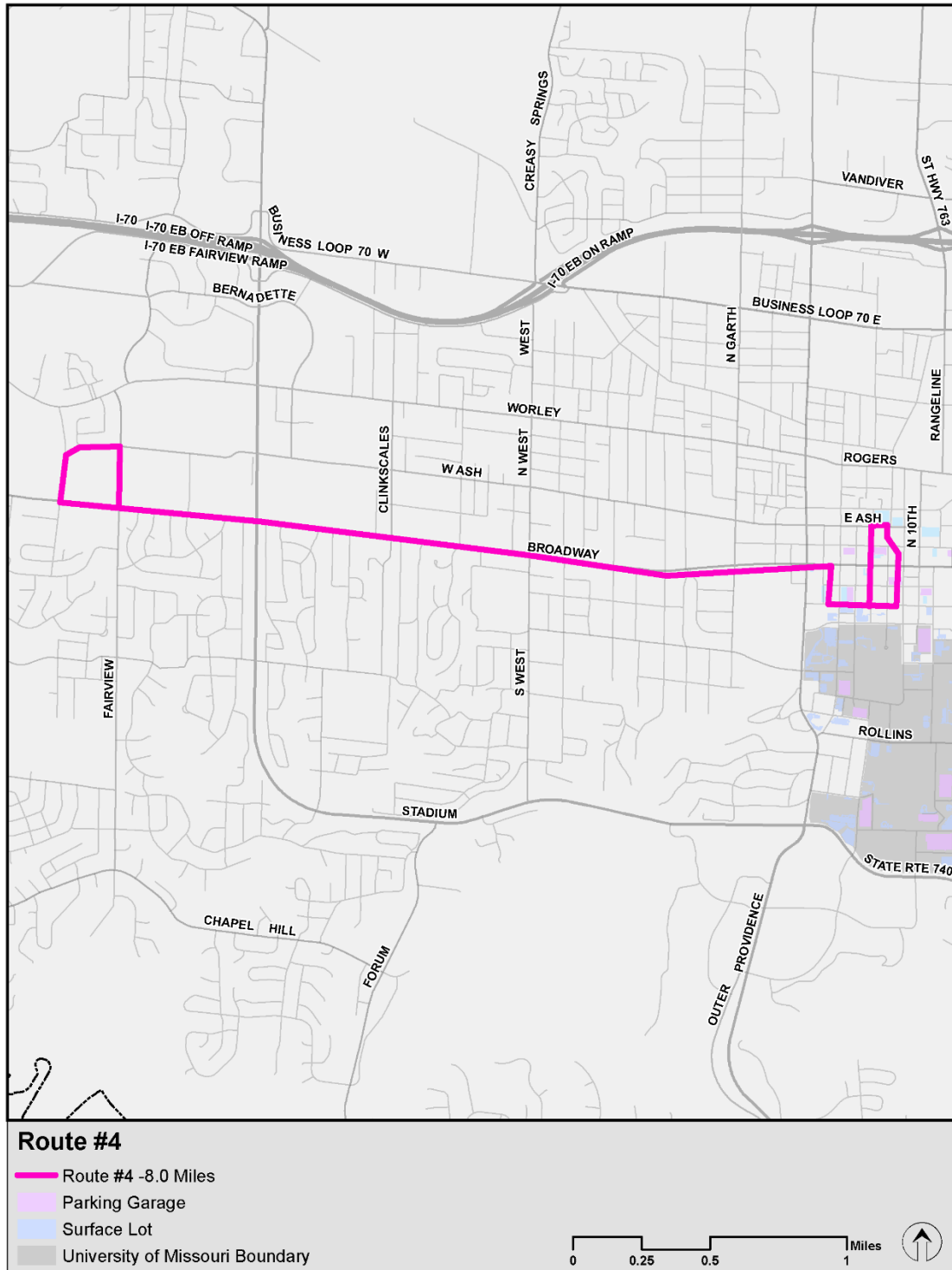


## Go COMO Bus Service Evaluation





## Go COMO Bus Service Evaluation

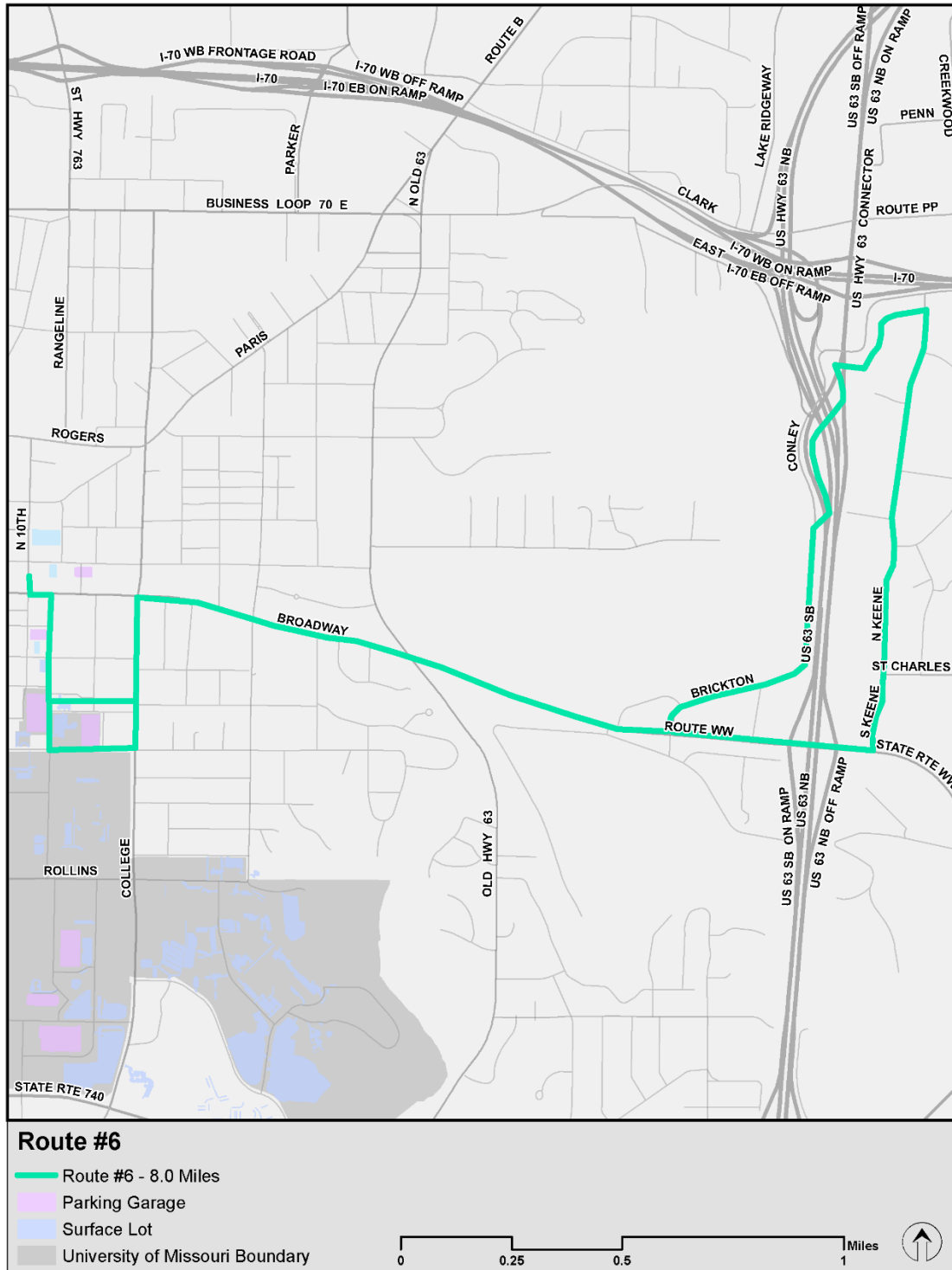






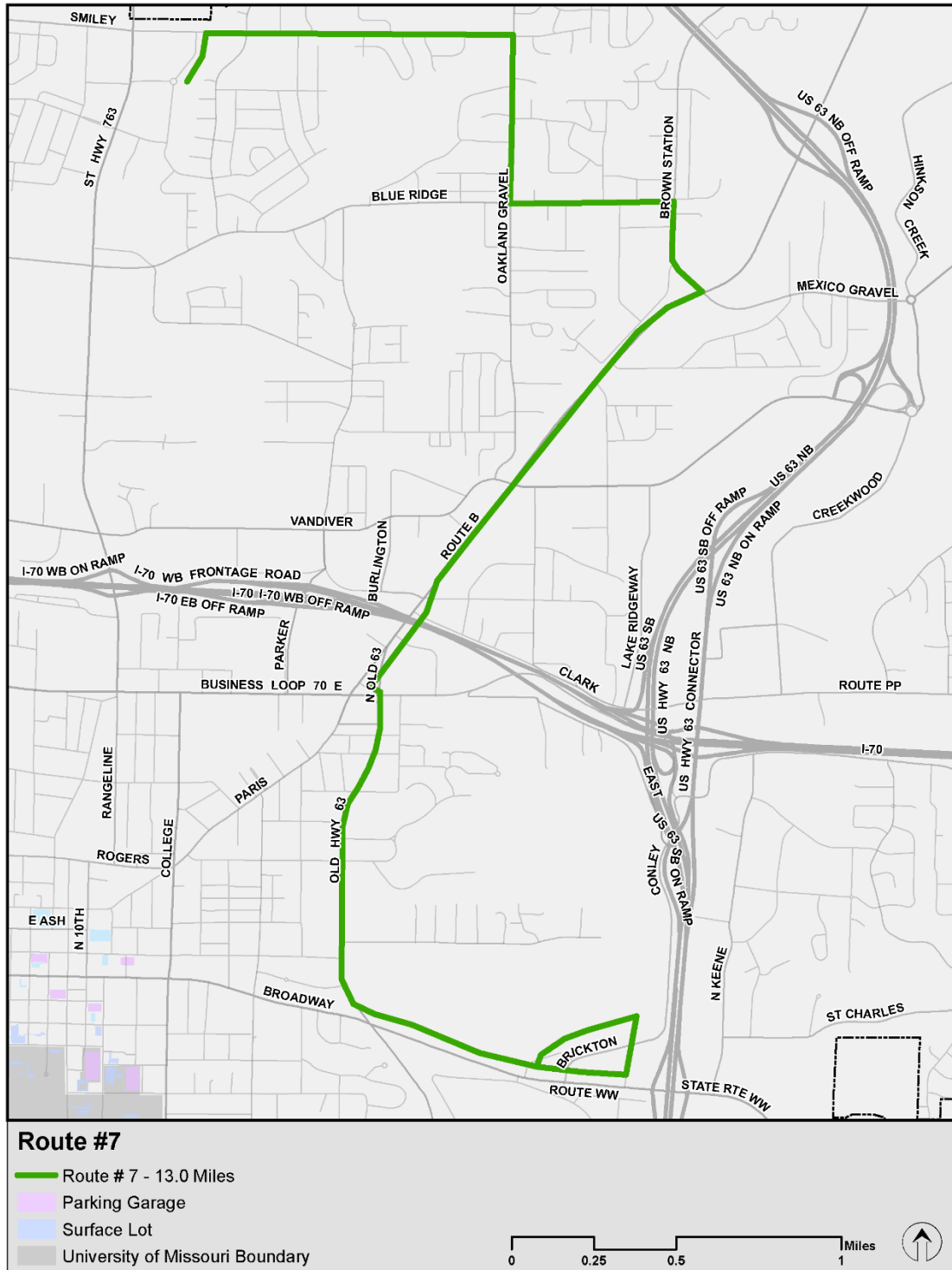


## Go COMO Bus Service Evaluation



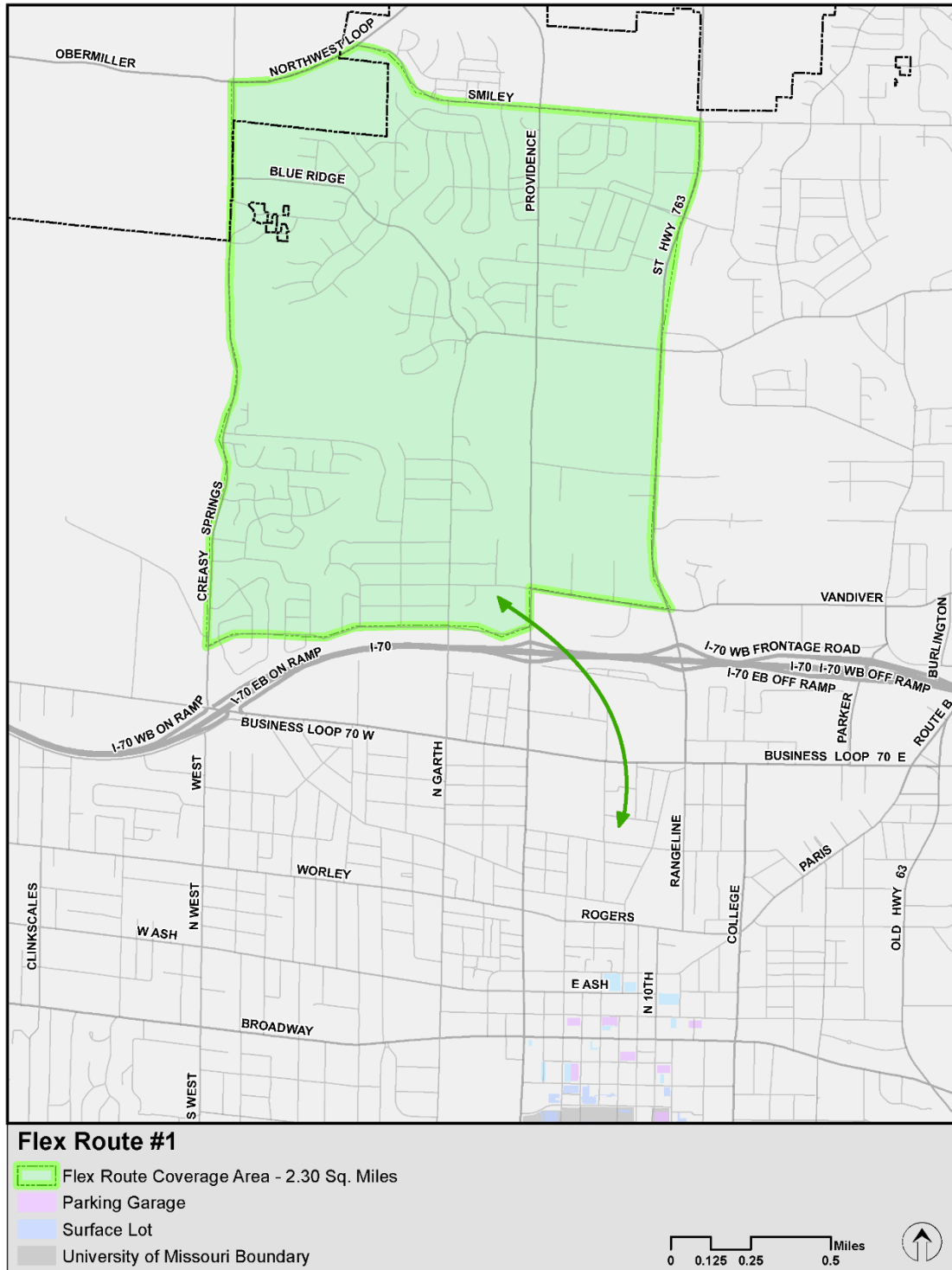


## Go COMO Bus Service Evaluation



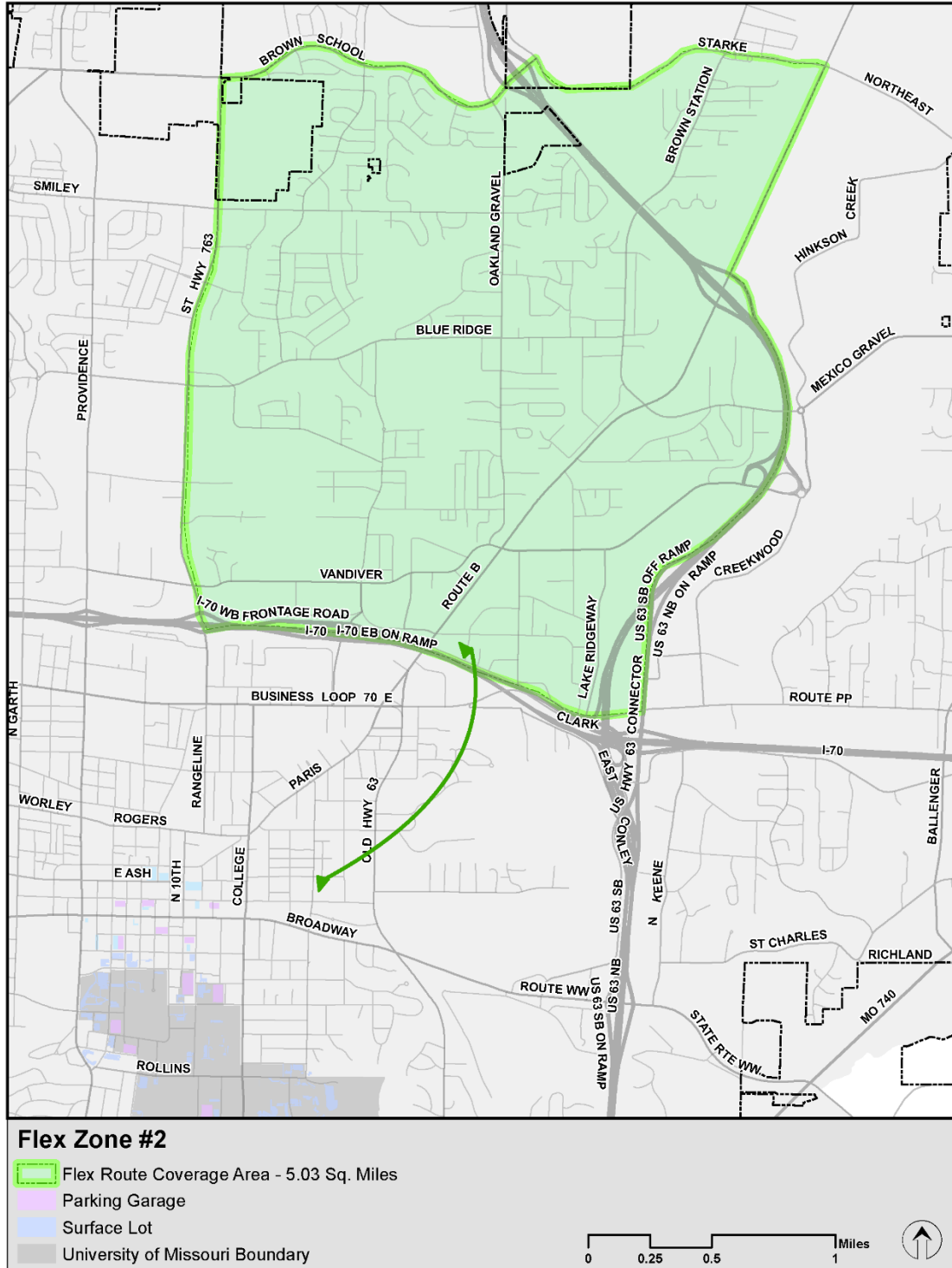


## Go COMO Bus Service Evaluation





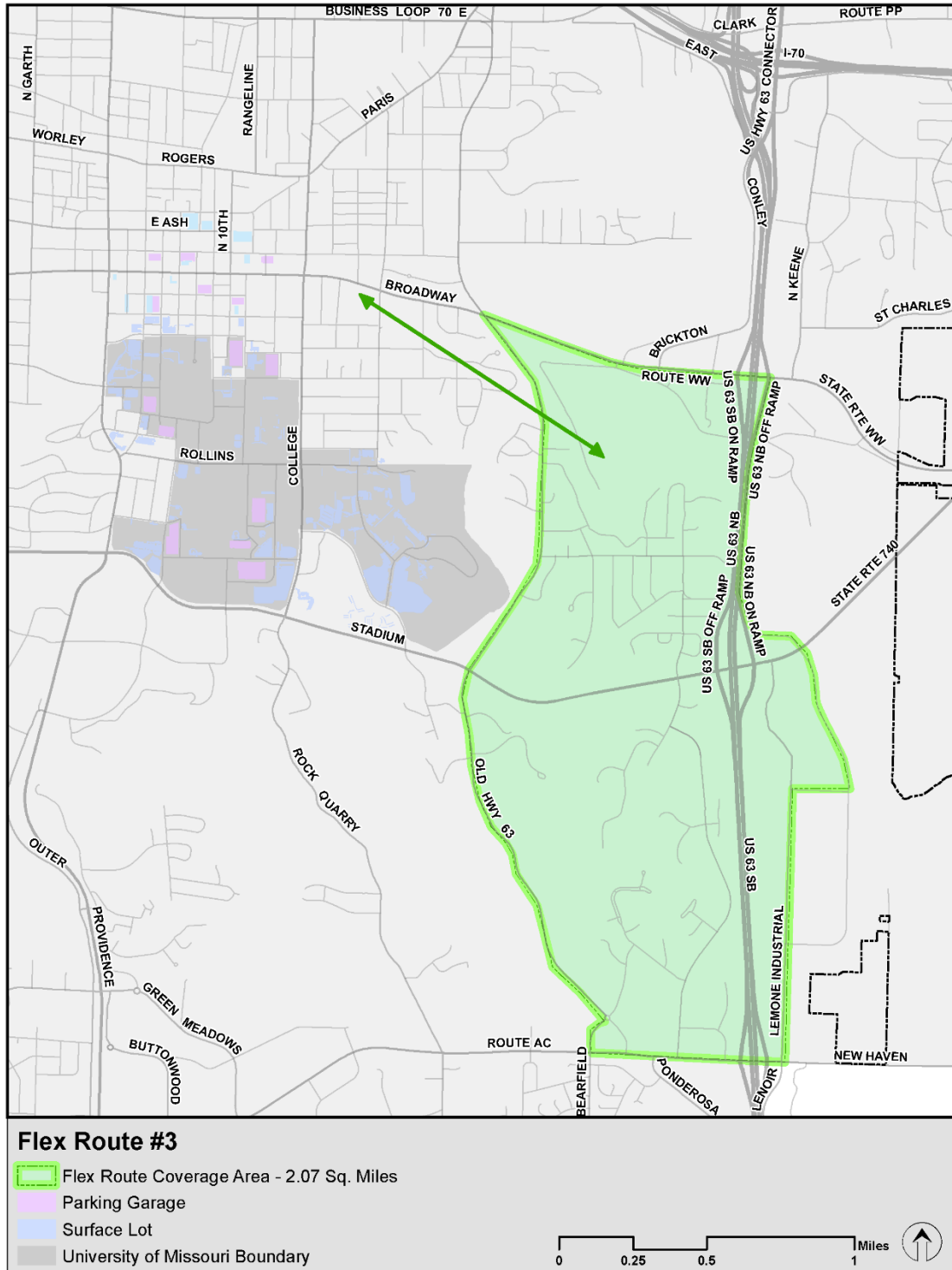
## Go COMO Bus Service Evaluation





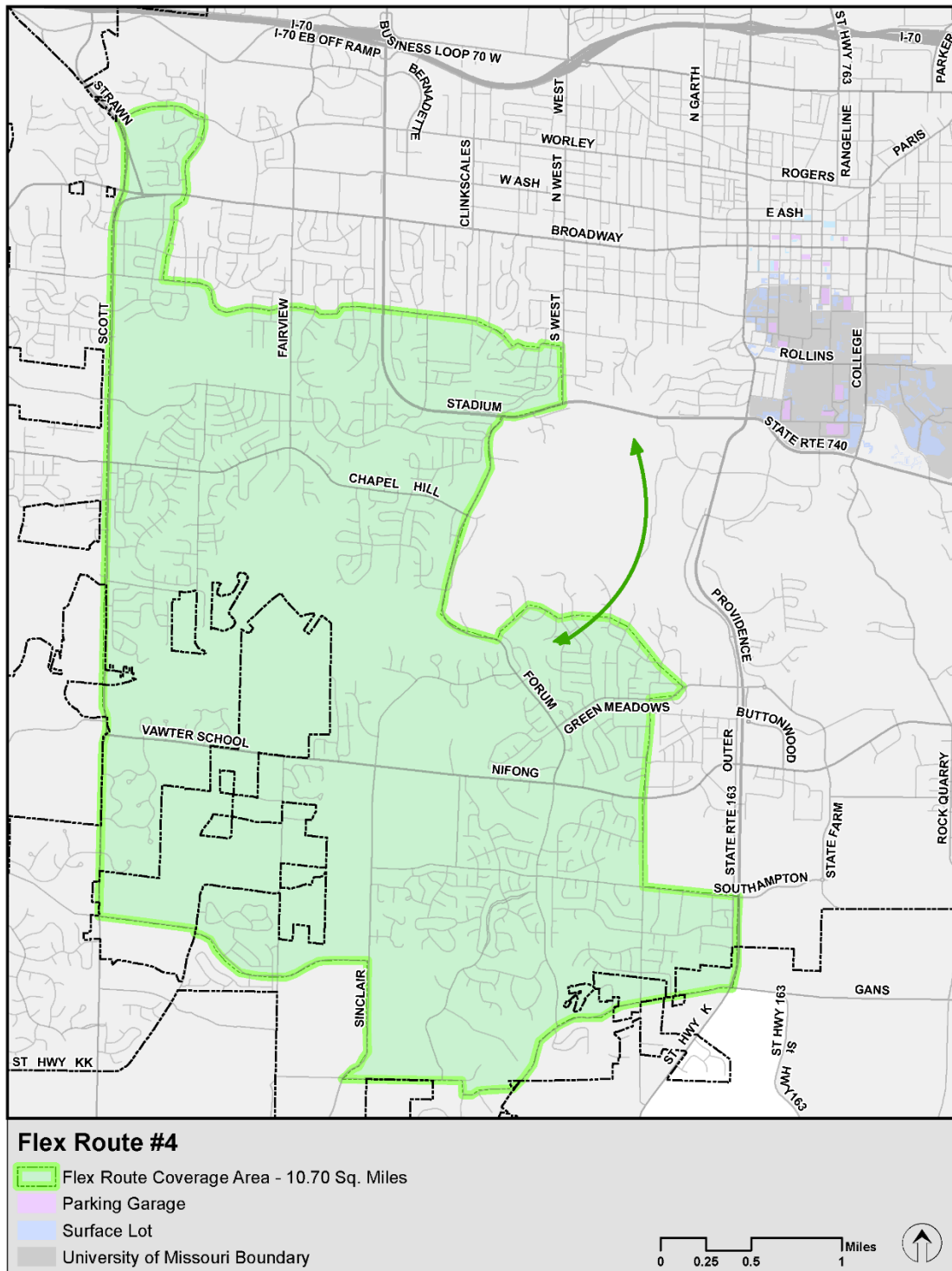


## Go COMO Bus Service Evaluation





## Go COMO Bus Service Evaluation





## Go COMO Bus Service Evaluation

### Appendix E – Agency Flex Brochures



# 299 Gladstone-Antioch

## Service Upon Request

RideKC Flex service will pick you up and take you to your destination. All trips must be within the boundaries of the map below.

---

**Call 816.346.0346**

**Service is offered Monday through Friday from 8 a.m. to 3:30 p.m.**

---

Please call at least 24 hours in advance of your requested trip.

**Monday-Friday:** 5 a.m. to 9:30 p.m.

**Saturday:** 5 a.m. to 9 p.m.

**Sunday/Holiday:** 10 a.m. to 6 p.m.

## Regular Rider Service

For trips to the same location at the same time on a daily, weekly or monthly basis, you can set up a **Standing Order** by calling 816.346.0346 and telling the agent you wish to be a regular rider. Your future trips will be automatically scheduled.

## Cancelling Your Trip

If your plans change and you wish to cancel your Standing Order, please call 816.346.0346 as soon as possible. Repeatedly failing to show for trips will result in the loss of the Standing Order privileges.

# Fares

## Local Routes

Adult.....	\$ 1.75
Half-Fare* .....	.75
Children 6 – 10 .....	.75
Children 5 and under .....	FREE
<i>(Must be accompanied by an adult)</i>	

## Express Routes

Cash.....	\$ 2.00
Half-Fare* .....	.75

## Transfers

*Request when boarding. Valid two hours after issued.*

Local to Local .....	FREE
Local to Express .....	.25
Local to Flex/On Call .....	1.75
Express to Flex/On Call .....	1.50
Half-Fare* .....	FREE

## Tokens

*Tokens must be purchased in packages of 10.*

Full Fare .....	10/\$ 17.50
Half-Fare (Reduced Fare ID*) .....	10/\$ 7.50

## Passes

Weekly (Local) .....	\$ 16.00
Half-Fare Weekly*^ .....	\$ 7.00
<i>(Local, Express &amp; Flex/On Call)</i>	
Monthly (Local) .....	\$ 48.00
Half-Fare Monthly*^ .....	\$ 24.00
<i>(Local, Express &amp; Flex/On Call)</i>	
Monthly Express Plus .....	\$ 58.00
<i>(Local, Express &amp; Flex/On Call)</i>	

## Flex/On Call Service

Cash.....	\$ 3.50
Half-Fare* .....	.75

## Zone Fares

**Downtown Loop** (Cash only, No transfers issued).. \$ .75  
*Applies to all routes going through downtown. You must begin and end your ride within the zone. Boundaries are: South of I-235 to Cherry/Court Ave. (including DART Central Station), East of W. 15th St. to E. 14th St.*

## Please Remember

DART requires exact fares and all special IDs upon boarding.

All DART locations are smokefree pursuant to the Iowa Smokefree Air Act.

Transfer times are not guaranteed.

## CUSTOMER SERVICE ..... 515-283-8100

\* Applies to elderly (65+), persons with disabilities, Medicare card holders and veterans with a Service Connected ID.

^ Applies to middle and high school students with current school year ID. Student discount not valid with cash or tokens and valid only on Local, Express and Flex Routes.

May be asked for additional identification to validate use/sale of half-fares or passes. Additional forms of identification include a driver's license, Veterans Service Connected ID, or a photo ID presented with a Medicare Card, SSI Disability Card, and DART Half-Fare/Reduced Fare ID.

**Des Moines Area Regional Transit Authority**  
**620 Cherry Street, Des Moines, Iowa 50309**  
**515-283-8100 ► [www.ridedart.com](http://www.ridedart.com)**

## ON CALL

EFFECTIVE 8/18/13

# Ankeny

Service Tuesday, Wednesday, Friday  
No holiday service

## Route Destinations ▼

City limits of Ankeny ▼



*Ride for a Reason*

Accessible



All Trips

**DES MOINES AREA REGIONAL TRANSIT AUTHORITY**  
**515-283-8100 ► [www.ridedart.com](http://www.ridedart.com)**



# Ankeny

Ankeny On Call is a neighborhood shuttle service that provides transportation within the city of Ankeny. The shuttle will pick you up at your door and take you anywhere in Ankeny.

## Shuttle Service Hours

The shuttle will operate during the following times:

**Tuesday from 9 a.m. to 1:30 p.m.**

**Wednesday from 9 a.m. to 3 p.m.**

**Friday from 9 a.m. to 3 p.m.**

## Congregate Meal Shuttle Service Hours

Daily transportation will be provided to Ankeny seniors going to the congregate meals at the Ankeny Senior Citizen Center. Transportation is free but donations are accepted. Contact the Ankeny Senior Center for more information on the congregate meal transportation program.

## Trip Request

To make your reservation call DART On Call at **515-283-8136** up to seven days in advance.

Please be ready to provide DART with the following information:

- Name
- Phone number
- Date of travel
- Departure location
- Destination location
- Desired arrival time

If you leave a message requesting an On Call trip, a DART On Call representative will return your call as soon as possible. Service is available on a first-come, first-served basis. Same-day trips can be made, on a space-available basis, at least 30 minutes in advance.

## Flexibility

DART's On Call representatives will make every effort to accommodate your trip needs. During

periods of high demand, your trip request may be more easily accommodated if you are willing to travel at a slightly different time or by a less-direct route to your destination.

## Pick-Up Times

A DART On Call representative will review your request and schedule a pick-up time for your trip, although vehicle arrival time may vary by up to 15 minutes. Upon arrival, the driver will only wait five minutes for you to board.

## Cancellations

To cancel or change your trip reservation, call **515-283-8136** during DART service hours and at least 30 minutes prior to the scheduled pick-up, or a no-show will be recorded. More than four no-shows in a calendar month may result in a suspension of your On Call service.

