METROPOLITAN
TRANSPORTATION PLAN

COLUMBIA AREA

TRANSPORTATION STUDY ORGANIZATION

CATSO

2055 UPDATE

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Stakeholder Groups

CATSO is grateful for the members of the Stakeholder groups, who provided valuable information at several points during the engagement process.

- Boone County Family Resources
- Boone County Fire Protection District
- Cambio Center
- Catholic Charities of Central and Northern Missouri
- City of Columbia Bicycle and Pedestrian Commission
- City of Columbia Climate and Environment Commission
- City of Columbia Office of Sustainability
- City of Columbia Transportation and Infrastructure Committee
- City of Refuge
- Central Missouri Community Action
- COLT Railroad
- Columbia Board of Realtors
- Columbia College
- Columbia Housing Authority
- Columbia Police Department
- Columbia Public School District
- First Last Mile
- GoCOMO
- Greyhound Lines, Inc.
- Homebuilders Association
- Local Motion
- OATS Transit
- Powerhouse
- Regional Economic Development Inc.
- Scheppers Distributing
- Sierra Club
- Services for Independent Living
- Disabilities Commission
- The District
- The Loop
- United Community Builders
- University of Missouri
- West Ash Neighborhood

TABLE OF ABBREVIATIONS AND ACRONYMS

ADA	Americans with Disabilities Act of 1990
CAAP	Climate Action and Adaptation Plan
CATSO	Columbia Area Transportation Study Organization
CIP	Capital Improvement Programs
COLT	Columbia Terminal Railroad
Columbia MPA	Columbia Metropolitan Planning Area
COMO	City of Columbia Missouri
COU	Columbia Regional Airport
EV	Electric Vehicles
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HOV	High Occupancy Vehicle
IIJA	Infrastructure Investment and Jobs Act (or Bipartisan Infrastructure Law)
ISTEA	Intermodal Surface Transportation Efficiency Act
LEED	Leadership in Energy and Environmental Design
LPI	Leading Pedestrian Intervals
LRTP	Long-Range Transportation Plan
MAP-21	Moving Ahead 7 for Progress in the 21st Century
MKT Trail	Missouri-Kansas-Texas Trail
MoDOT	Missouri Department of Transportation
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
MU	University of Missouri - Columbia
NHS	National Highway System
SAFETEA-LU	Safe, Accountable, Flexible, Efficient, Transportation Act: A Legacy for Users
SS4A	Safe Streets and Roads for All
TEA-21	Transportation Equity Act for the 21st Century
TAZ	Transportation Analysis Zone
TDM	Transportation Demand Management
TSM	Transportation System Management
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled

Chapter 1: CATSO 101: Metropolitan Transportation Plan Overview

This chapter focuses on introducing the Columbia Area Transportation Study Organization (CATSO), the importance of a Metropolitan Transportation Plan, and the overarching goals of this document.

INTRODUCTION

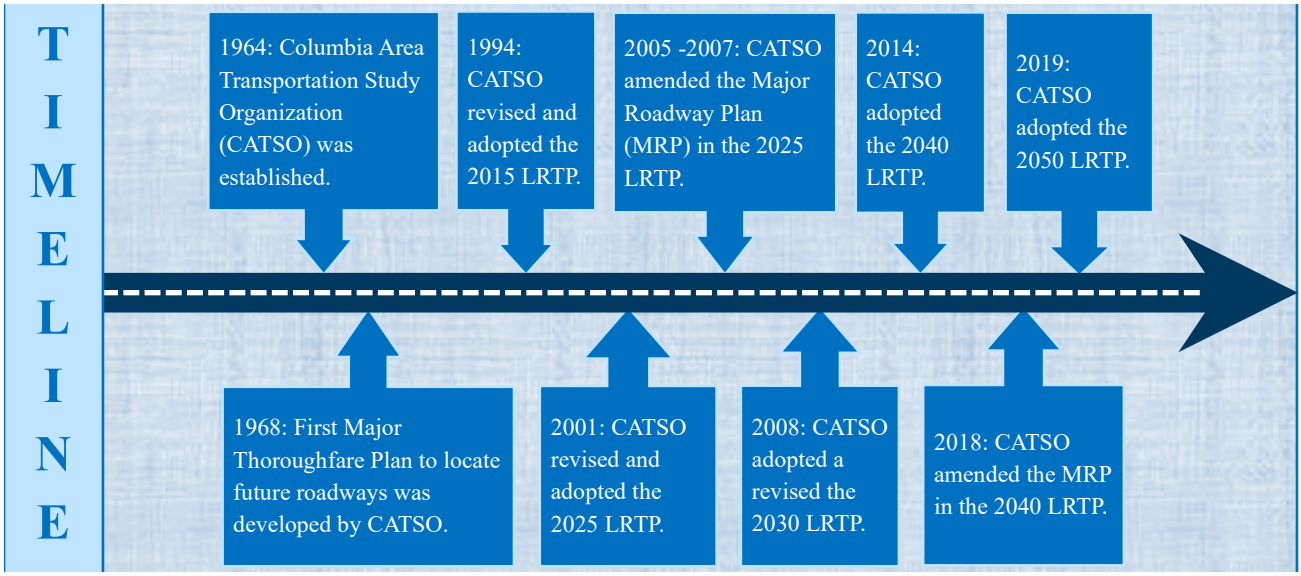
CATSO is the state designated Metropolitan Planning Organization (MPO) for the Columbia, Missouri area, including the City of Columbia and central Boone County. As an MPO, CATSO is responsible for overseeing transportation planning in the metropolitan planning region (MPA), ensuring that infrastructure developments align with the community's long-term goals. The MPO designation provides access to federal funds for street and bridge improvement projects. The MPA of the Columbia region includes the City of Columbia and parts of unincorporated Boone County where the City of Columbia likely expects to annex in the next 20 years.

CATSO is responsible for ensuring a coordinated transportation planning process with the metropolitan area, which includes the Missouri Department of Transportation (MoDOT), Boone County, and The City of Columbia. CATSO also works with several supporting organizations such as the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA). CATSO's work is vital for securing federal funding for transportation projects, as it ensures that the region's planning processes comply with federal requirements. By fostering collaboration among diverse stakeholders, CATSO helps create a transportation system that is safe, efficient, and capable of supporting the area's growth.

As the MPO for the Columbia region, CATSO is required to prepare a Metropolitan Transportation Plan (formerly known as a Long-Range Transportation Plan) every five years. The MTP covers a planning horizon of 20+ years and includes all modes of transportation. The MTP's goal is to outline how to move all modes of transportation in Columbia as safely, efficiently, and as cost-effectively as possible. The implementation of a transportation plan has a direct effect on the form and character of a community, and therefore its overall livability, by influencing development decisions. For this reason, land use and land use planning have traditionally been tied to transportation issues and opportunities.

CATSO HISTORY

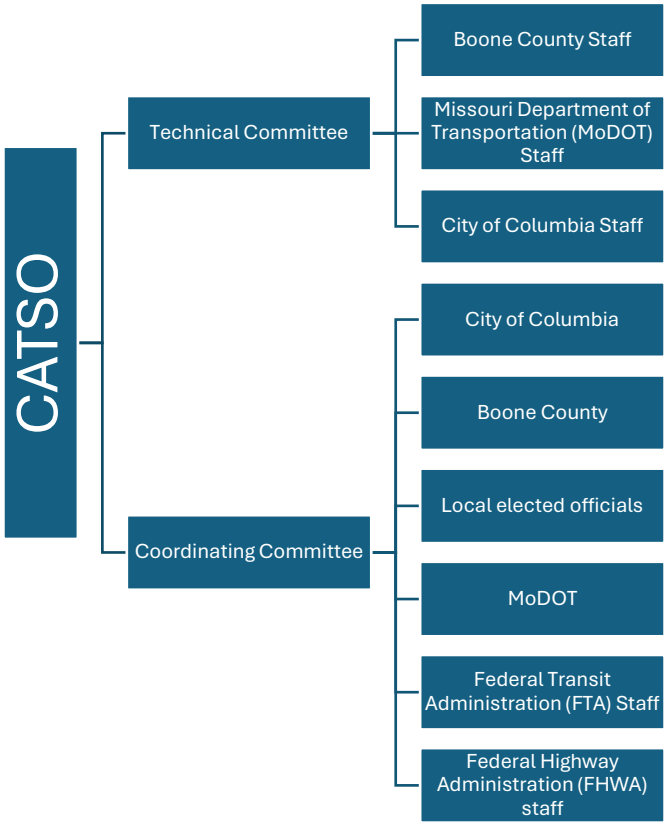
In 1964, the Governor of Missouri's designation to establish CATSO aimed to create a structured approach to transportation planning within the Columbia metropolitan area as the city and surrounding areas experienced significant growth. Initially focused on addressing the immediate transportation needs of a rapidly expanding population, CATSO's role has evolved to include long-term planning for all modes of transportation, including roads, public transit, bicycle, and pedestrian pathways. Over the years, the organization has spearheaded numerous projects aimed at improving mobility, reducing congestion, and enhancing the overall quality of life for Columbia's residents.



This series of transportation plans have provided guidance for the development of facilities that serve the transportation needs of Boone County and the City of Columbia. The plans' goals have been to move people and goods within and through the community in an efficient, cost-effective manner, and to minimize disruption to neighborhoods and other sensitive areas. The implementation of a transportation plan has a direct effect on the form and character of a community, and therefore its overall livability, by influencing development decisions. For this reason, land use and land use planning have traditionally been tied to transportation issues and opportunities.

ORGANIZATION OVERVIEW

CATSO relies on two committees to coordinate the planning process and serve the needs of the Columbia Metropolitan Planning Area. The coordinating committee is made up of upper-level city and county staff members, local elected officials, MoDOT staff, Federal Highway Administration (FHWA) staff and Federal Transit Administration (FTA) staff. The primary function of the Coordinating Committee is to provide guidance, establish policy, and coordinate the planning of the transportation systems in the organization. This policy making group directs the activities of the technical committee and approves documents prepared on behalf of the MPO. Secondly, the technical committee is comprised of staff level planners, engineers and other transportation professionals from the Missouri Department of Transportation (MoDOT), Boone County, and the City of Columbia, who, as the name implies, undertake technical aspects of plans, studies, and reports for the metropolitan area. Both committees work with the FHWA, FTA, and MoDOT to ensure that documents are in regulation with the city, area, county, state, and federal policies. Each committee has a comprehensive understanding of transportation planning procedures to allow for consistency in plans and policies. Staff support for CATSO is provided by the City of Columbia Community Development Department.



The Coordinating Committee

The Coordinating Committee, composed of elected and appointed officials from local governmental jurisdictions and transportation providers in the metropolitan area, serves as the policymaking governing body of CATSO. It provides a forum for cooperative decision-making in the transportation planning process. The committee's primary responsibilities include approving the goals and objectives of the transportation planning process, reviewing and approving the Unified Planning Work Program (UPWP) and its amendments, and reviewing and adopting the Transportation Improvement Program (TIP), including project priorities and requested amendments. Additionally, the Coordinating Committee is tasked with reviewing and approving the metropolitan transportation planning process self-certifications, adopting the MTP and its revisions, and serving as a liaison between governmental units within the study area to facilitate the implementation of various elements of the MTP. The committee also ensures citizen participation through the Public Participation Plan, reviews and adopts key documents such as the CATSO Public Participation Plan, Metro Planning area boundary changes, and the

Coordinated Public Transit Human Services Transportation Plan, while maintaining compliance with all applicable state and federal laws and regulations.

To support its work, the Coordinating Committee may appoint ad hoc committees or study groups as needed, each with a specific charge and a defined period of operation as stated in the motion creating them.

The Technical Committee

The Technical Committee is a working sub-committee of the Coordinating Committee, composed of appointed officials and staff who are involved in the planning, design, and operation of the transportation system in the metropolitan area. Under the direction of the Coordinating Committee, the Technical Committee, advises on technical matters, standards, techniques, procedures, and potential solutions to technical challenges in the transportation system. CATSO staff support, provided by the City of Columbia Department of Planning & Development, operates under roles and responsibilities outlined in a Memorandum of Understanding (MOU).

This committee's primary responsibilities include advising the Coordinating Committee on technical matters related to the transportation system and providing initial review and necessary revisions to key documents such as the Unified Planning Work Program (UPWP), Transportation Improvement Program (TIP), Public Participation Plan (PPP), Title VI plan, and Major Roadway Plan (MRP). After reviewing these documents, the Technical Committee makes recommendations on their adoption to the Coordinating Committee. The Technical Committee also conducts ongoing reviews and suggests changes or corrections during the preparation and formal revision process of the MTP. Additionally, the committee undertakes other tasks as assigned by the Coordinating Committee to ensure the efficient and effective operation of the transportation system.

INTENT, GOALS, AND PRIORITIES

The **Intermodal Surface Transportation Efficiency Act (ISTEA)**, passed by Congress in 1991, brought about significant changes in the MPO transportation planning process. The ISTEA planning process required updates to transportation plans for twenty-year time horizons and placed emphasis on reducing the growth in vehicle miles traveled (VMT) by individuals, implementing Clean Air Act requirements, promoting intermodal means of transportation, and examining the land use implications of transportation decisions. Equally significant was the ISTEA requirement that the transportation plan be financially constrained, meaning that funding for transportation investments (roads, transit, and bicycle/pedestrian facilities) identified in the plan must be shown to be available over the twenty-year period.

This plan continues the transportation planning processes, requirements, and best practices outlined by ISTEA and subsequent legislation, including the 1998 **Transportation Equity Act for the 21st Century (TEA-21)**, the 2005 **Safe, Accountable, Flexible, Efficient Transportation Act: A Legacy for Users (SAFETEA-LU)**, the **Moving Ahead for Progress in the 21st Century (MAP-21)**, and the **Fixing America's Surface Transportation (FAST) Act**. The FAST Act was signed into law in December 2015 and authorized $305 billion from fiscal years 2016 through 2020. It continued the streamlined and performance-based surface transportation program and revisions to the various programs and policies originally established by ISTEA and further developed in MAP-21.

The current national transportation legislation, the **Infrastructure Investment and Jobs Act (IIJA)**, signed into law in November 2021, now provides the guiding principles behind transportation decision-making throughout

the United States in metropolitan planning areas. The IIJA represents a significant shift in transportation planning, with an unprecedented $1.2 trillion investment in infrastructure, including substantial funding for transportation.

The IIJA continues the reaffirmation of the requirement that metropolitan planning areas carry out a transportation planning process that considers the following ten Planning Factors:

1. **Support the economic vitality of the metropolitan area**, especially by enabling global competitiveness, productivity, and efficiency;
2. **Increase the safety** of the transportation system for motorized and non-motorized users;
3. **Increase the security** of the transportation system for motorized and non-motorized users;
4. **Increase accessibility and mobility** of people and freight;
5. **Protect and enhance the environment**, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. **Enhance the integration and connectivity** of the transportation system, across and between modes, for people and freight;
7. **Promote efficient system management and operation**;
8. **Emphasize the preservation of the existing transportation system**;
9. **Improve the resiliency and reliability** of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. **Enhance travel and tourism**.

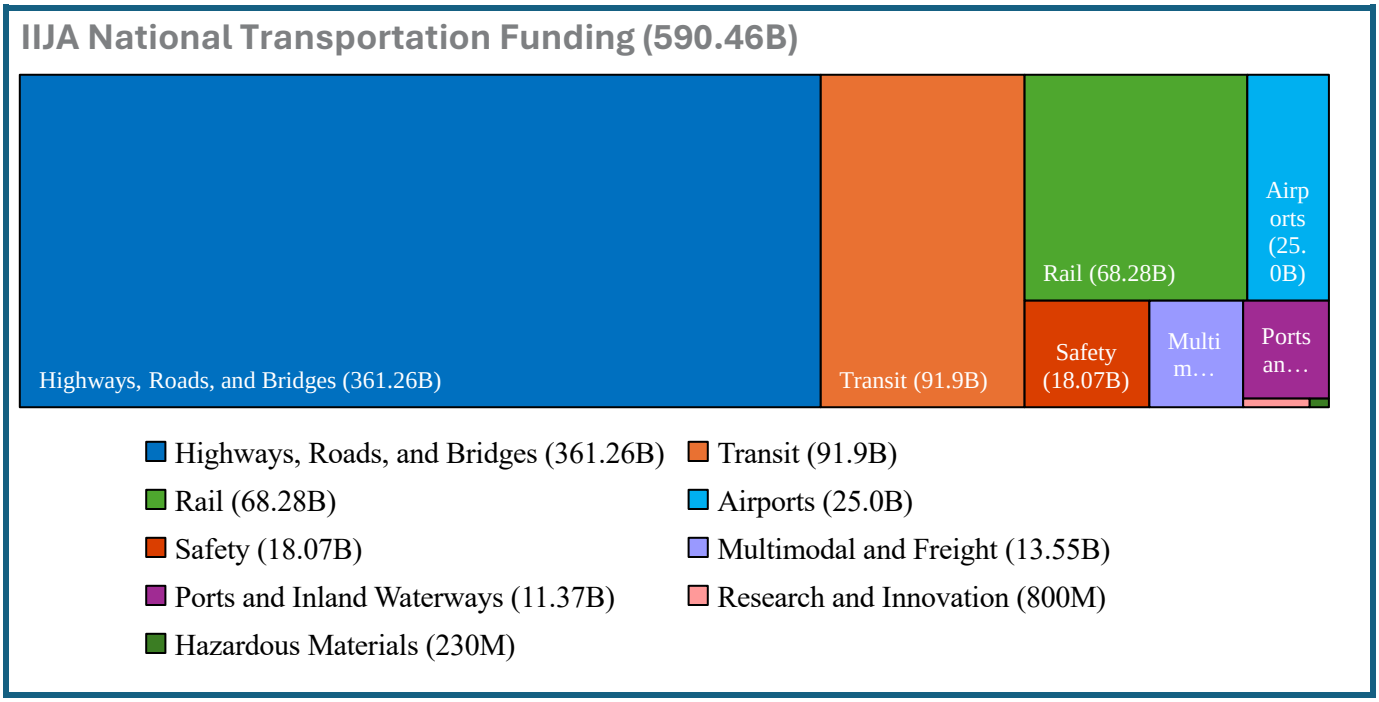
In addition to these ten Planning Factors, the IIJA places even greater emphasis on a performance-based approach to transportation decision-making. This approach focuses on the following areas:

- **Safety:** Achieving a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure Condition:** Maintaining the highway infrastructure asset system in a state of good repair.
- **Congestion Reduction:** Achieving a significant reduction in congestion on the National Highway System.
- **System Reliability:** Improving the efficiency of the surface transportation system.
- **Freight Movement and Economic Vitality:** Improving the national freight network, strengthening the ability of rural communities to access national and international trade markets, and supporting regional economic development.
- **Environmental Sustainability:** Promoting projects that reduce greenhouse gas emissions and enhance climate resilience.
- **Equity and Accessibility:** Ensuring that transportation investments benefit historically underserved communities and promote equitable access to transportation options.

The intent of this CATSO MTP is to align with the requirements and best practices set forth by the IIJA, ensuring that Columbia and Boone County's transportation needs are met up to 2050.

Under IIJA, a little over $590 billion has been allocated to transportation nationwide. This money is spread over five years, from 2022 to 2026, and covers various transportation sectors, including highways, bridges, public transit, rail, airports, and ports.

Below a breakdown of the key categories where this $590 billion is being invested[1]:



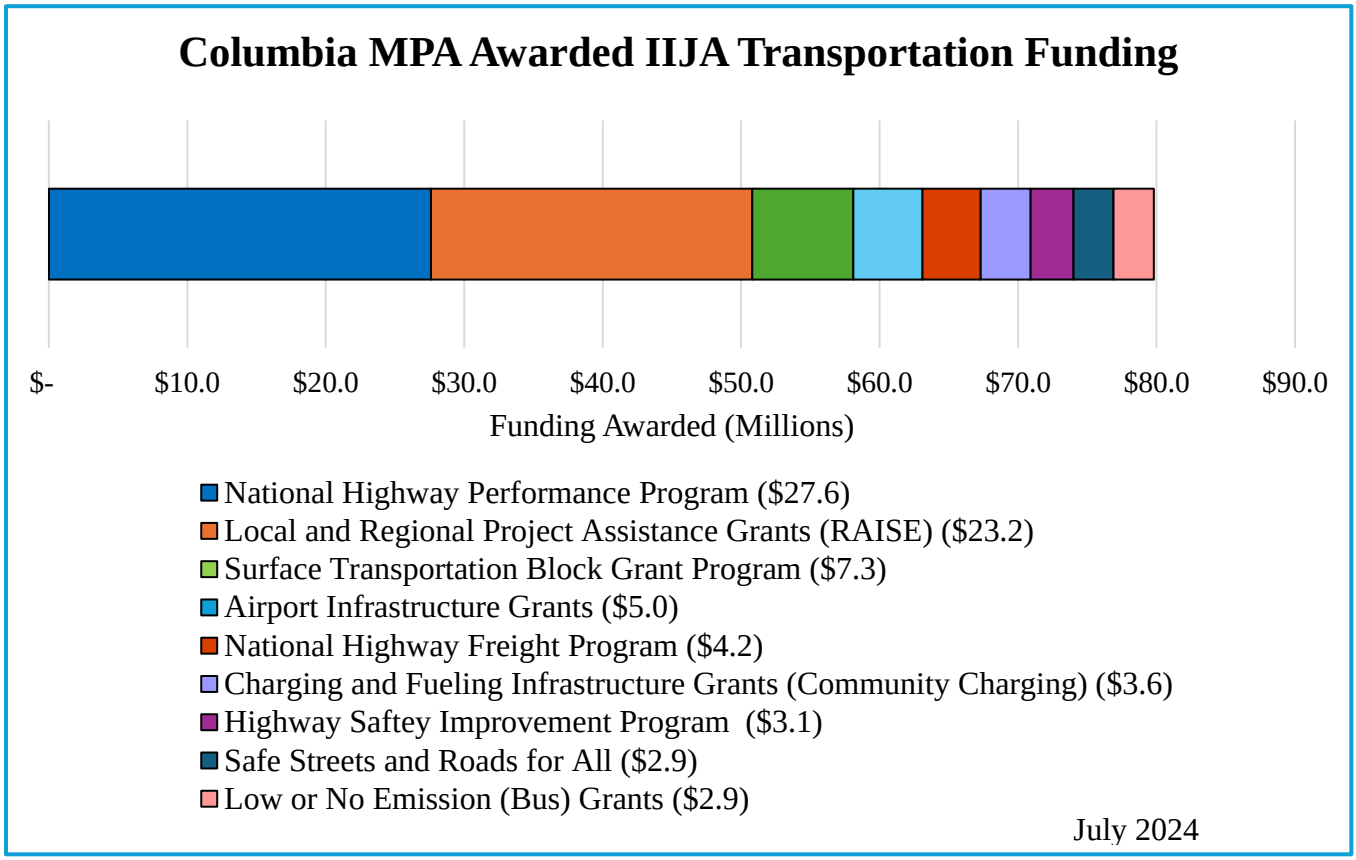
Of that transportation funding, the Columbia MPA receives just under $80 million among nine different various programs. Below is a description of each of the nine programs and the dollar amounts allocated to each[2]:

1. **National Highway Performance Program (NHPP): $27.6 million**
   The NHPP provides funding to maintain and improve the condition and performance of the National Highway System (NHS), which includes the Interstate Highway System and other roads critical to the nation's economy, defense, and mobility. This program ensures that key roadways are in good condition, enhancing safety and mobility.
2. **Local and Regional Project Assistance Grants (RAISE): $23.2 million**
   Formerly known as the TIGER grants, the RAISE (Rebuilding American Infrastructure with Sustainability and Equity) program funds road, rail, transit, and port projects that have significant local or regional impact. This competitive grant program aims to improve transportation infrastructure while addressing economic, environmental, and equity challenges.
3. **Surface Transportation Block Grant Program (STBG): $7.3 million**
   The STBG is one of the most flexible federal-aid highway programs. It provides states and localities with funding for a wide range of surface transportation projects, including roads, bridges, transit capital, and bicycle/pedestrian projects. It allows for the prioritization of projects that meet local transportation needs.
4. **Airport Infrastructure Grants: $5.0 million**
   This funding is part of the effort to modernize and expand airport infrastructure, ensuring that airports meet growing demand and enhance safety. The grants help improve runways, terminals, taxiways, and other critical airport facilities, facilitating better passenger service and cargo operations.

[1] Federal Infrastructure Hub | Brookings
[2] Federal Infrastructure Hub | Brookings

5. **National Highway Freight Program (NHFP): $4.2 million**
   The NHFP aims to improve the efficient movement of freight on the National Highway Freight Network, addressing bottlenecks, enhancing freight mobility, and ensuring the system is resilient. This program is vital to supporting economic growth by improving the reliability of supply chains and reducing freight transportation costs.
6. **Charging and Fueling Infrastructure Grants (Community Charging): $3.6 million**
   This grant program supports the development of electric vehicle (EV) charging and alternative fuel infrastructure, especially in underserved and disadvantaged communities. It helps increase the availability of charging stations to support the growing number of EVs and promote cleaner transportation options.
7. **Highway Safety Improvement Program (HSIP): $3.1 million**
   The HSIP funds projects that aim to reduce fatalities and serious injuries on all public roads, including highways and local roads. It focuses on data-driven approaches to identify high-risk areas and implement safety improvements, such as better signage, lighting, or road redesigns to enhance traffic safety.
8. **Safe Streets and Roads for All: $2.9 million**
   This program funds initiatives aimed at reducing traffic fatalities and serious injuries on the nation's roadways, particularly for vulnerable road users such as pedestrians and cyclists. It promotes safer street designs, traffic calming measures, and the creation of safer, more connected networks for non-motorized transport.
9. **Low or No Emission (Bus) Grants: $2.9 million**
   The Low or No Emission Vehicle Program provides funding to state and local governments to purchase or lease zero-emission and low-emission transit buses, as well as the facilities needed to maintain and charge them. The program aims to reduce emissions from public transportation, contributing to cleaner air and more sustainable transit systems.

Each of these programs plays a role in addressing different aspects of transportation infrastructure, safety, and environmental sustainability as part of the IIJA's broader goal of modernizing U.S. transportation.



Long-range metropolitan transportation planning is mandated under federal law, with the primary goal of guiding investment in transportation to meet the evolving travel needs of a metropolitan area like Columbia. The federal framework for transportation planning is rooted in the concept of the “Three C’s,” ensuring that the process is comprehensive, cooperative, and continuing.

In Columbia, the CATSO planning process integrates regional transportation considerations with local government planning, ensuring that transportation strategies, projects, and services are aligned with the broader community's needs. A key aspect of this planning process is performance-based planning, which provides a structured approach for evaluating the effectiveness of the long-range transportation plan. This method is crucial for fulfilling the “continuing” component of federal planning law, as it allows for ongoing monitoring, evaluation, and updating of transportation strategies.

The transportation planning process can be understood through the following five major questions:

1. **Where are we now?** – This involves assessing current conditions, system performance, and identifying existing issues.
2. **Where do we want to go?** – Establishing goals and objectives for the future transportation system.
3. **How are we going to get there?** – Developing strategic directions and setting investment priorities.

4. **What will it take?** – Determining necessary funding levels and outlining specific projects.
5. **How did we do?** – Evaluating performance measures and targets to assess the outcomes of implemented strategies.

These questions guide the planning process sequentially, ensuring that strategies and investments are effectively put into practice. Should performance fall short of expectations, the "continuing" nature of this process facilitates revisiting and refining strategies and investments.

Elements of Performance-Based Planning

Performance-based planning encompasses several key elements, including goals, objectives, performance measures and targets, and strategies.

- **Goals** are broad statements that describe desired outcomes for the transportation system, reflecting key priorities for the region.
- **Objectives** are specific, measurable actions that support the achievement of these goals within the constraints of time and funding.
- **Performance Measures and Targets** provide the technical basis for measuring objectives, comparing alternative strategies, and tracking progress over time. These metrics also help identify areas of need within the transportation system.
- **Strategies** outline the actions to be taken to achieve goals and objectives, guiding the selection of projects and services for investment. These strategies may require balancing different outcomes to maximize benefits for the region while minimizing potential negative impacts.

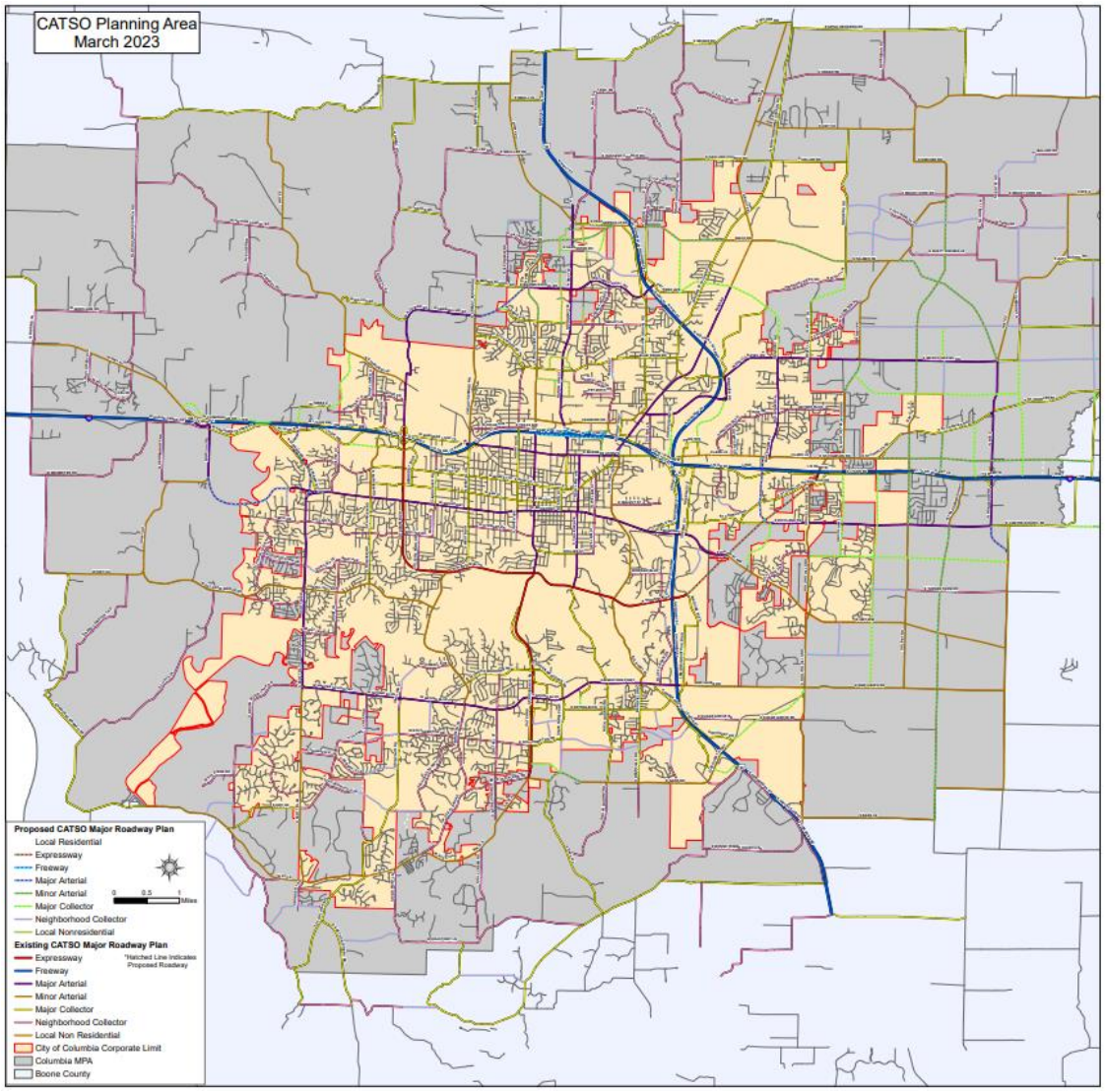
Incorporating these elements into the CATSO MTP ensures that the plan not only meets current needs but is also adaptable to future challenges and opportunities.

In addition to federal guidelines and requirements including those in the IIJA, the 2055 MTP builds on the 2050 LRTP. This will include added emphasis on Columbia MPAs adaption and implementation of multimodal transportation, identifying transportation related climate and equity factors, creating a multimodal level of service metric, and a citizens guide to the MTP update.

STUDY AREA

Map 1 - CATSO Planning Area shows the City of Columbia and the portion of Boone County addressed by this plan.[3] The Metropolitan Planning Area (MPA) includes the City of Columbia and the surrounding areas in unincorporated Boone County that are projected to urbanize within the next 20 years. The latest MPA boundary was adopted by the Coordinating Committee in May 2014. Transportation Analysis Zone (TAZ) geography has now been developed for all of Boone County for traffic analysis purposes. Much of the data found in this report are a mix of Columbia and Boone County statistics which were extracted from 2020 decennial Census information, American Community Service information from the most recent year available or have been developed for the entire area for eventual traffic analysis.

MAP 1 - CATSO PLANNING AREA



[3] CATSO Planning Area (como.gov)

Updating the MPA Boundary

As the urbanized area around Columbia continues to expand, updating the metropolitan planning area (MPA) boundary is essential to include areas likely to urbanize within the next 20 years. Although expanding the boundary was considered in this plan update, the process can be lengthy and requires state approval. Adjusting the boundary also necessitates using current census blocks, which are updated every ten years during the decennial census. It is advisable for CATSO to wait until after the next decennial census, when new demographic and population figures become available, to make informed adjustments. Meanwhile, the current boundary will suffice, though some roads in CATSO's Major Roadway Plan may fall outside the MPA.

PROJECTS COMPLETED SINCE THE 2050 LONG-RANGE TRANSPORTATION PLAN

Since the adoption of the 2050 Long-Range Transportation Plan, many key projects have been completed within the Columbia MPA. These projects addressed goals and objectives outlined in the 2050 plan, reflecting ongoing efforts to enhance mobility, improve safety, and address infrastructure needs for all users. The completed projects include new roadways, upgrades to roadway capacity and intersections, significant maintenance efforts, and expanded non-motorized facilities such as sidewalks and trails. Together, these improvements contribute to a more connected and efficient transportation network, supporting the region's long-term goals.

Street Projects

New Roadways

- Discovery Parkway: Gans Road to New Haven Road

Level of Service Upgrades

- Nifong: Providence Road to Forum Boulevard
- Forum & Green Meadows (roundabout construction)
- Sinclair Road and Route K (roundabout construction)
- Sinclair-Old Mill Creek-Nifong (roundabout construction)
- Keene Street and I-70 Drive SE (roundabout construction)

Major Maintenance Projects

- Walnut Street: College Avenue to Old 63
- Rangeline Street: Rogers to Wilkes

Non-Motorized Projects

Sidewalk Projects

- Stadium Boulevard, Primrose to Business Loop 70 (west side)
- Oakland Gravel Road, Blue Ridge to Vandiver (west side)

Trail Projects

- Shepard Blvd to Rollins Street Trail Connection

Chapter 2: Demographic and Economic Outlook

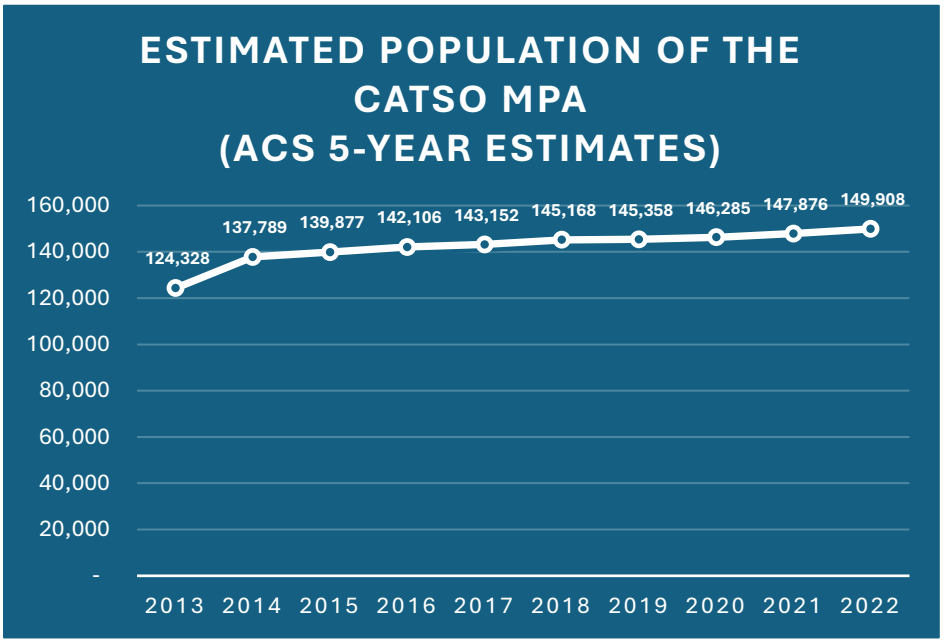
This chapter presents the foundational growth assumptions for the Columbia MPA in the context of transportation planning. The planning process considers anticipated increases in job opportunities, potential employment locations, expected population growth, and probable housing developments.

TODAY'S POPULATION AND WORKFORCE SNAPSHOT

Population Insights: Understanding Our Community Now

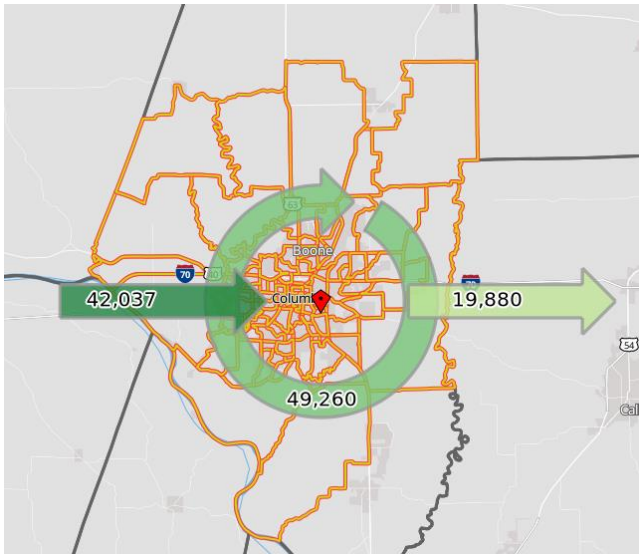
Population projection methods rely on assumptions based on historical trends, migration, birth and death rates, age cohorts, and other factors.

According to the United States Census Bureau's American Community Survey 5-year estimates from 2022 (the most recent year of available data), the MPA had a population of about 149,908, up from 124,328 in 2013. This represents an increase of 25,580 people, or a growth rate of 20.6% since 2013. Annually, this translates to an average growth rate of 2.1% per year.



The Employment Landscape

Looking at current commuting patterns, there are a couple things to note. In 2021 there were about 91,297 people employed in the MPA. Of those, 49,260, or 54%, live in the Columbia MPA. The remaining 42,037, or 46% commute from outside the MPA. Furthermore, there were 69,140 people living within the MPA who were working in 2021. Of those, 19,880, or 28.8% were employed outside the Columbia MPA. What this shows is that while there are some who leave the MPA for work each day, nearly half of all workers come from outside the MPA.

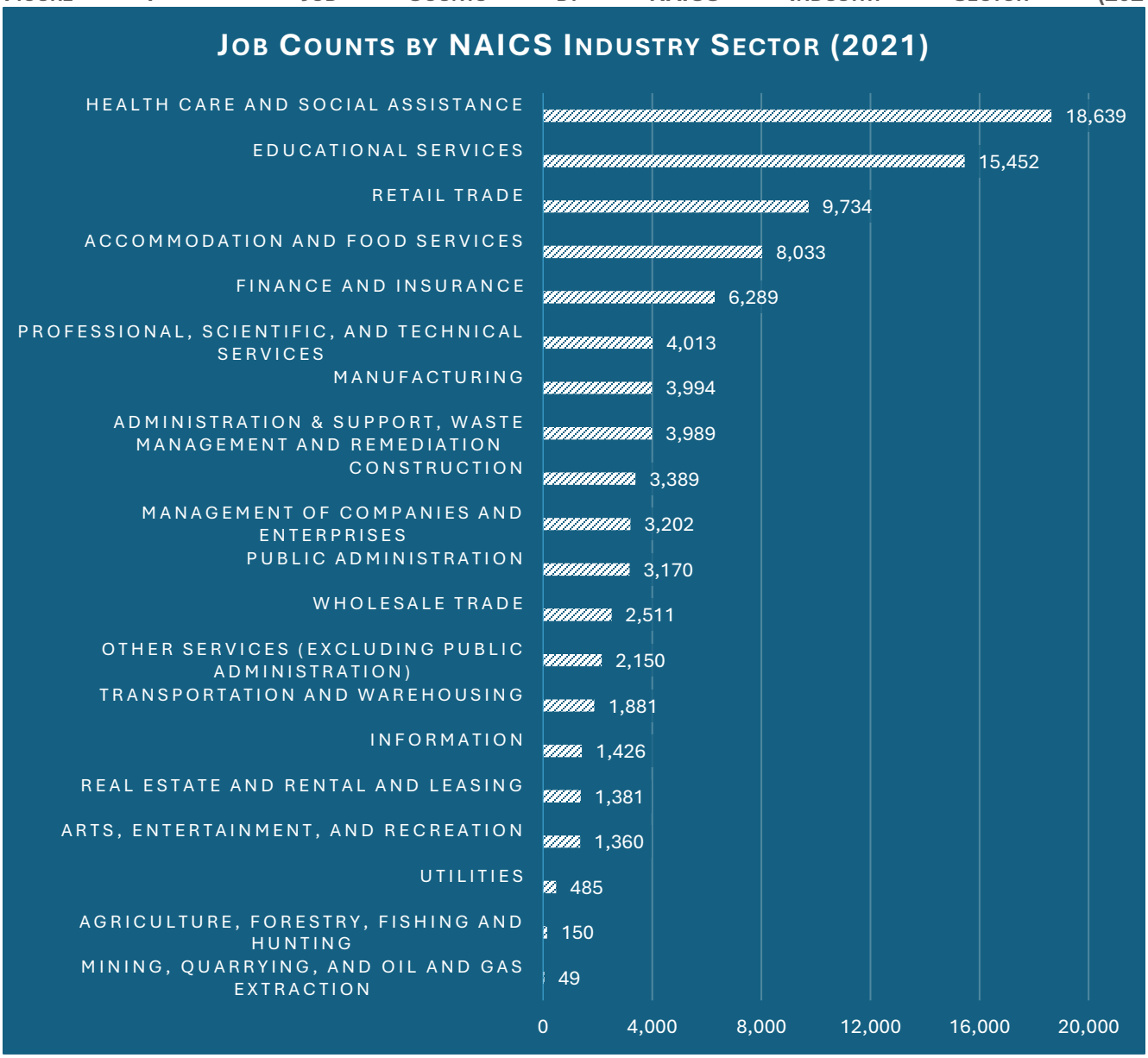


Inflow/Outflow Job Counts (All Jobs)

	2021 Count	2021 Share
Employed in the Selection Area	91,297	100.0%
Employed in the Selection Area but Living Outside	42,037	46.0%
Employed and Living in the Selection Area	49,260	54.0%
Living in the Selection Area	69,140	100.0%
Living in the Selection Area but Employed Outside	19,880	28.8%
Living and Employed in the Selection Area	49,260	71.2%

In 2021, the year with the most recent data available, the North American Industry Classification System (NAICS) data showed that healthcare and social assistance account for the largest sector of employment in the MPA, comprising 20.4% of all jobs (18,639). Educational services follow closely behind at 16.9% (15,452), as would be expected for a metropolitan area home to the largest state university in Missouri as well as several other institutions for higher education, and retail trade accounts for 10.7% of jobs (9,734). Figure 1 below provides a detailed breakdown of job counts by NAICS industry sector in 2021.

FIGURE 1 - JOB COUNTS BY NAICS INDUSTRY SECTOR (2021)



Regional Economic Development Inc. (REDI) keeps track of what organizations employ the most people in the City of Columbia. In 2024, these were the top organizations in Boone County:

BOONE COUNTY LARGEST EMPLOYERS

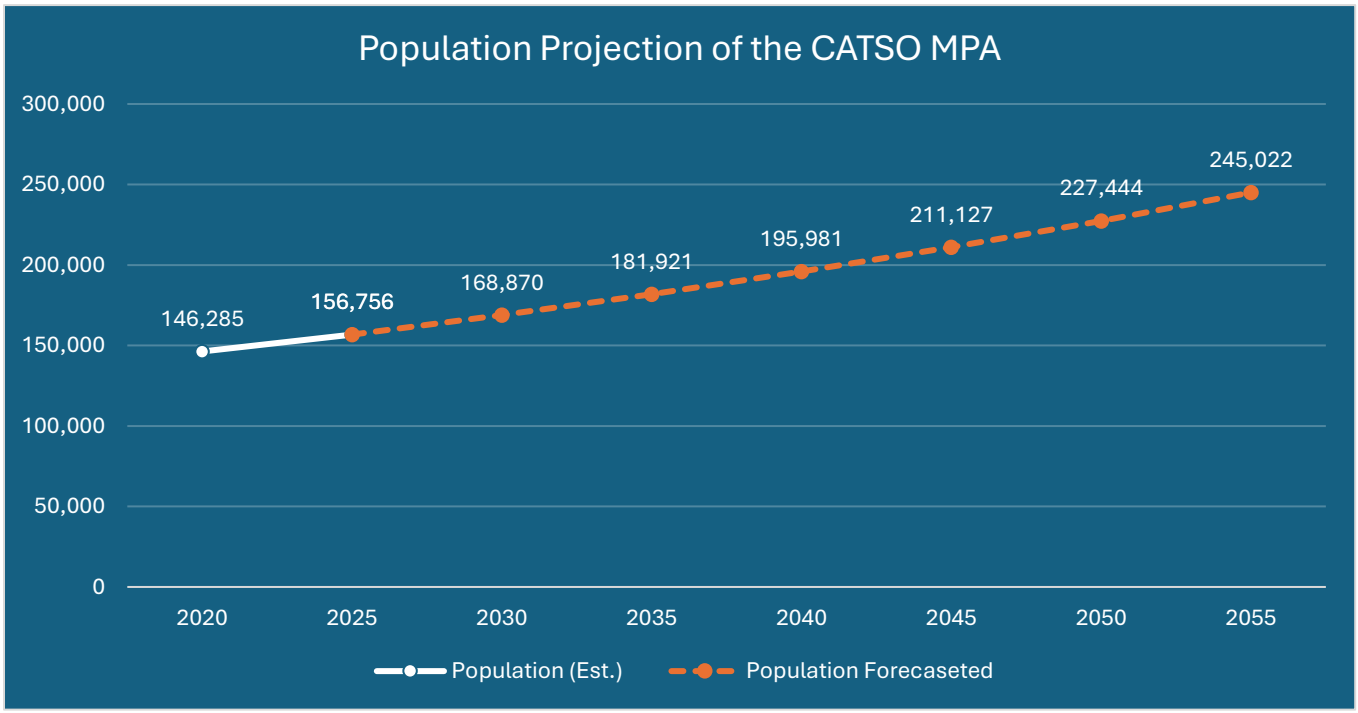
University of Missouri	9,732
MU Healthcare	5,833
Columbia Public Schools	2,944
Veterans United Home Loans	2,906
Harry S. Truman Memorial Veterans' Hospital	1,957
Boone Health	1,581*
Shelter Insurance Companies	1,382
City of Columbia	1,368
Hubbell Power Systems, Inc.	730
McClarty Auto Group: Joe Machens Dealerships	704
EquipmentShare	588
Emery Sapp & Sons	576
MBS Textbook Exchange	496
Boone County Government	486
3M	466
Kraft Heinz	450
Quaker Oats Company	400*
Central Bank of Boone County	340
Columbia Orthopaedic Group	320
Eurofins BioPharma Product Testing Columbia, Inc.	337
Burrell Behavioral Health	317
Midway USA	313
Dana Light Axle Products	300*
Columbia College	236
Watlow	230
Swift/Principe	187

The above numbers are reported as of Q1 2024 and represent full-time benefited employees each company employs in Boone County only.
**Number reported in 2023.*

LOOKING AHEAD: GROWTH PROJECTIONS FOR 2055

Population Futures: Where We Are Heading by 2055

After considering a variety of potential growth rates, the CATSO Coordinating Committee elected to use a projection that was based on a percentage of population growth that is near the mid-range of the 1980s (1.15%), 1990s (2.05%), 2000s (2.93%), and 2010s (1.5%) Columbia MPA growth rate. The population projection assumes an average effective annual growth rate of 1.5%. The choice of projection rate to forecast population growth for the Columbia MPA for the year 2055 continues the rate utilized for the 2050 LRTP.



With the population of the MPA estimated to be about 149,908 in 2022 and growing at a rate of 1.5% per year, the population of the MPA is projected to reach around 245,022 by 2055. This represents an average increase of approximately 3,333 new residents per year.

Tomorrow's Job Market: Employment Trends for 2055

In 2021, Boone County had an employment total of 96,600 people, with approximately 91,297 of those employed within the MPA. This means that 94% of the jobs were located in the MPA. With a 2021 population of 192,946, there was a ratio of 0.5 jobs per person in Boone County. Factors influencing this ratio include a significant number of workers commuting from other counties and more individuals delaying retirement.

The plan projects a slower employment growth rate compared to population growth, applying an annual positive growth rate of 1.3% to the 2021 MPA employment figures due to observed decreases in employment growth rates. Applying this rate to Boone County's 2021 employment total of 96,600 results in an employment projection of 158,310 jobs by 2055, regardless of employee residence. Given that the Columbia MPA is the county's primary job generator, employment growth is expected to occur at a faster rate within the metro area than in the rest of Boone County. Assuming that approximately 90% of jobs will be located in the MPA by 2055, the plan suggests a

projected employment figure of 142,479 for that year. This represents an increase of 51,182 jobs in the Columbia MPA.

Table 1 below illustrates the potential job distribution across each NAICS industry sector in 2055. Based on observed changes in job shares over the decade from 2011 to 2021, we estimate that these trends will continue through 2055. This assumption is supported by historical data, which indicates consistent growth or decline patterns within specific job categories. Given the projected employment figure of 142,479 jobs in the MPA by 2055, we can estimate sector-specific job numbers. However, it is important to note that future economic conditions, technological advancements, and policy changes may impact these projections.

Table 1 - Employment by NAICS Industry Sector

	2011		2021		2055	
	Count	Share	Count	Share	Count	Share
Agriculture, Forestry, Fishing and Hunting	179	0.2%	150	0.2%	**234**	**0.2%**
Mining, Quarrying, and Oil and Gas Extraction	30	0.0%	49	0.1%	**77**	**0.1%**
Utilities	583	0.7%	485	0.5%	**752**	**0.5%**
Construction	3,224	4.0%	3,389	3.7%	**5,245**	**3.7%**
Manufacturing	2,365	2.9%	3,994	4.4%	**6,553**	**4.6%**
Wholesale Trade	2,325	2.9%	2,511	2.8%	**3,905**	**2.7%**
Retail Trade	9,857	12.1%	9,734	10.7%	**14,467**	**10.2%**
Transportation and Warehousing	1,337	1.6%	1,881	2.1%	**2,978**	**2.1%**
Information	1,478	1.8%	1,426	1.6%	**2,206**	**1.5%**
Finance and Insurance	3,613	4.4%	6,289	6.9%	**10,668**	**7.5%**
Real Estate and Rental and Leasing	1,053	1.3%	1,381	1.5%	**2,171**	**1.5%**
Professional, Scientific, and Technical Services	3,627	4.5%	4,013	4.4%	**6,251**	**4.4%**
Management of Companies and Enterprises	2,932	3.6%	3,202	3.5%	**4,982**	**3.5%**
Administration & Support, Waste Management and Remediation	3,001	3.7%	3,989	4.4%	**6,372**	**4.5%**
Educational Services	13,860	17.0%	15,452	16.9%	**24,045**	**16.9%**
Health Care and Social Assistance	16,354	20.1%	18,639	20.4%	**29,432**	**20.7%**
Arts, Entertainment, and Recreation	1,199	1.5%	1,360	1.5%	**2,124**	**1.5%**
Accommodation and Food Services	8,212	10.1%	8,033	8.8%	**12,002**	**8.4%**
Other Services (excluding Public Administration)	2,560	3.1%	2,150	2.4%	**3,267**	**2.3%**
Public Administration	3,695	4.5%	3,170	3.5%	**4,772**	**3.3%**

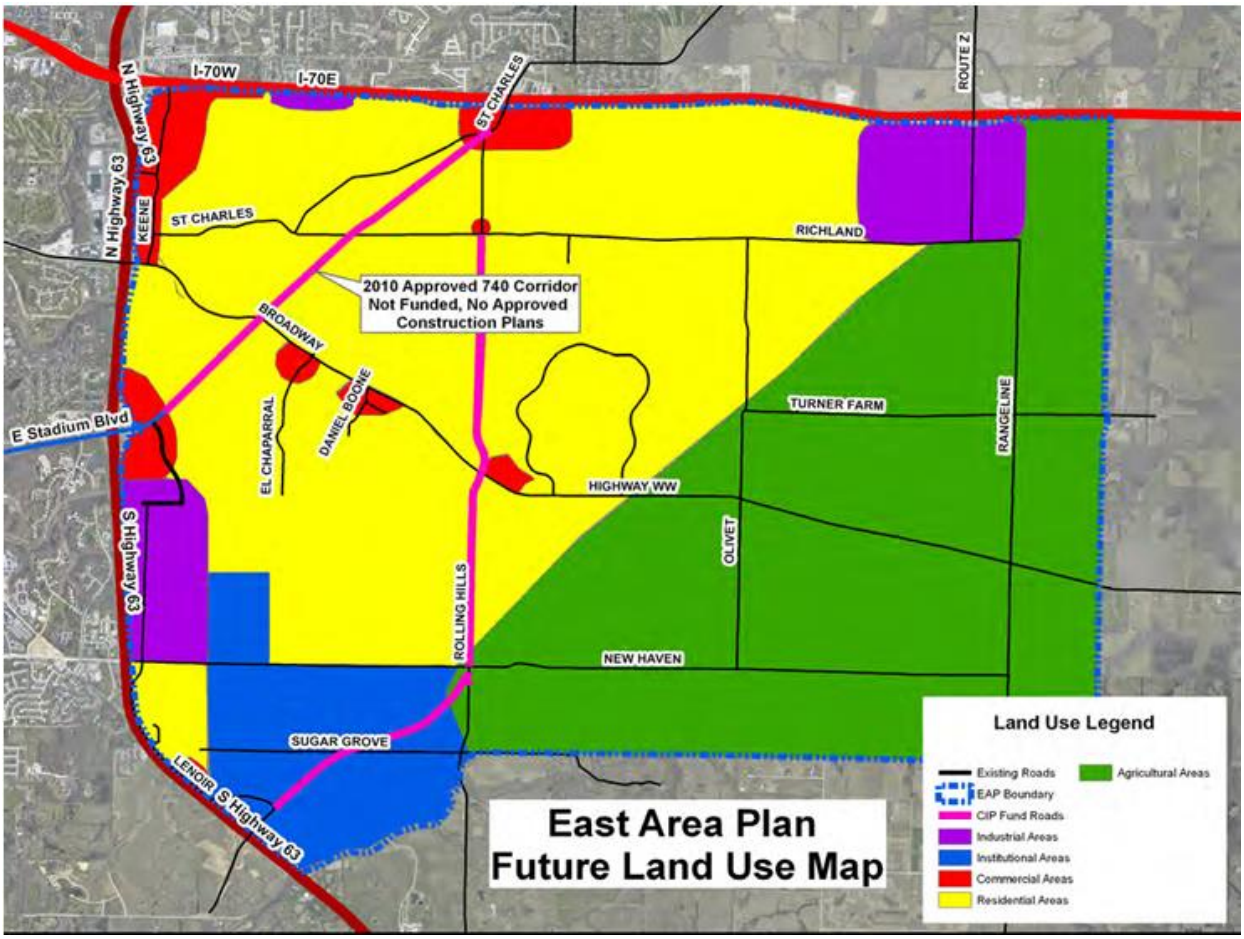
Both the CATSO Technical and Coordinating Committees reviewed and approved staff recommendations for growth rates. It's important to recognize that sector growth trends can shift over time due to factors like technological advancements, demographic changes, economic conditions, incentives, fuel costs, and other variables that influence the economic and employment landscape. Sector growth figures will be reassessed every five years to adjust the data in line with emerging trends. Historically, the local economy has been service-based, with most jobs concentrated in services, education, government, and retail.

SHAPING TOMORROW: LAND USE AND DEVELOPMENT VISION

To plan for improvements to the transportation system, it is necessary to anticipate where the 2050 population will live and work. Using the 2055 MPA projected population of 245,022 people—an increase of 95,114 over the plan's horizon—it is anticipated that 41,354 new housing units will be needed to accommodate the growing population. This projection is based on historical trends, which estimate one housing unit for every 2.3 people. To accommodate these housing units, a total of 15,905 acres will be required, following the projections in *Columbia Imagined*, which estimate 2.6 housing units per acre across all housing types (single-family, duplex, and multi-family). The likely locations for these housing units will be determined by the availability of urban services, utilities, infrastructure, and developable or appropriately zoned land, as identified by *Columbia Imagined*.

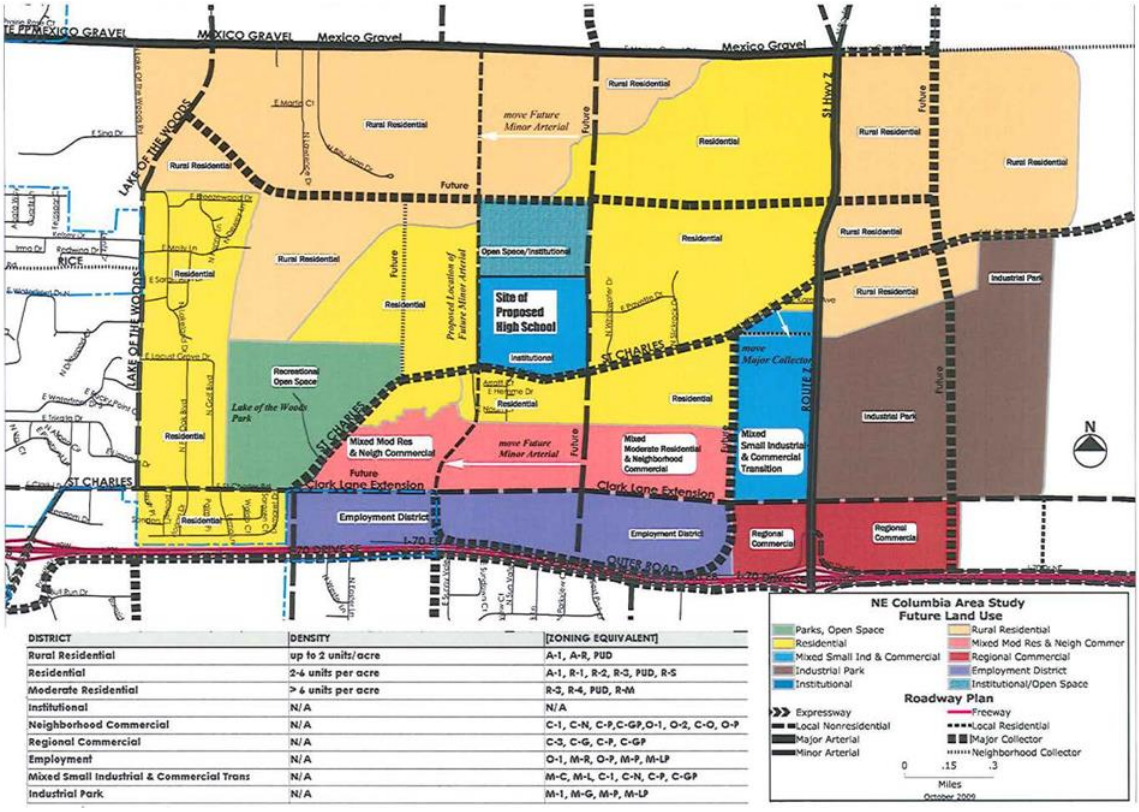
Accommodating this growth is likely to result in two directions of expansion. The first is "upward," involving redevelopment of generally low-density and outdated structures near Columbia's city center. These will be replaced with higher-density buildings to maximize land use. The second is "outward," focusing on expansion to the north and east. Crossing Perche Creek to the west with utilities presents short-term challenges and no plans have been developed yet to grow in that direction. Similarly, much of the southern terrain is difficult to develop and there are no plans for growth in that direction either. Local plans, such as the *East Area Plan* (2010) and the *Northeast Area Plan* (2009), have examined ways to accommodate this outward expansion. Although these plans are slightly dated, they still align with expected growth patterns, as much of these areas are not yet built out.

The *East Area Plan*[4] covers about 13,446 acres (21 square miles) of land and anticipates residential growth on approximately 6,400 acres (10 square miles). Of this, 2,700 acres remain undeveloped and available for new homes.



[4] East Area Plan

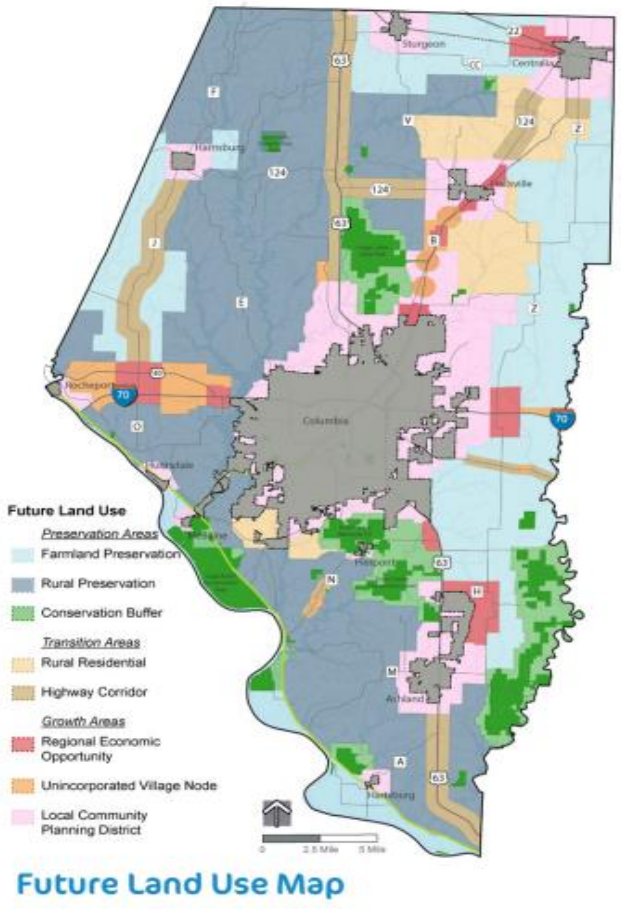
The *Northeast Area Plan*[5] includes an area bounded by Lake of the Woods Road to the west, Mexico Gravel Road to the north, approximately 2,250 feet east of Route Z to the east, and I-70 to the south, covering 3,104 acres. Of the 2,112 acres designated for residential development, around 1,740 acres remain undeveloped.



DISTRICT	DENSITY	[ZONING EQUIVALENT]
Rural Residential	up to 2 units/acre	A-1, A-R, PUD
Residential	2-6 units per acre	A-1, R-1, R-2, R-3, PUD, R-S
Moderate Residential	> 6 units per acre	R-2, R-4, PUD, R-M
Institutional	N/A	N/A
Neighborhood Commercial	N/A	C-1, C-N, C-P,C-GP,O-1, O-2, C-O, O-P
Regional Commercial	N/A	C-3, C-G, C-P, C-GP
Employment	N/A	O-1, M-R, O-P, M-P, M-LP
Mixed Small Industrial & Commercial Trans	N/A	M-C, M-L, C-1, C-N, C-P, C-GP
Industrial Park	N/A	M-1, M-G, M-P, M-LP

[5] Northeast Area Plan

Together, these plans offer about 4,441 acres of land available for development. However, with a total of 15,905 acres needed for housing growth, an additional 11,400 acres will need to be sourced from outside these subarea plans. The *Our Boone County Master Plan*[6], which is currently being developed, anticipates that some of this remaining land will come from unincorporated Boone County. The plan identifies Local Community Planning Districts, areas adjacent to municipal limits that are ideal candidates for development. The future land use map (Map 2) in the *Our Boone* plan shows that many of these districts are located to the north and northeast of Columbia, aligning with the *East Area* and *Northeast Area Plans*. The amount of land identified as Local Community Planning Districts, minus what is already developed, is expected to provide enough space for the additional growth projected through 2055 in the Columbia region.



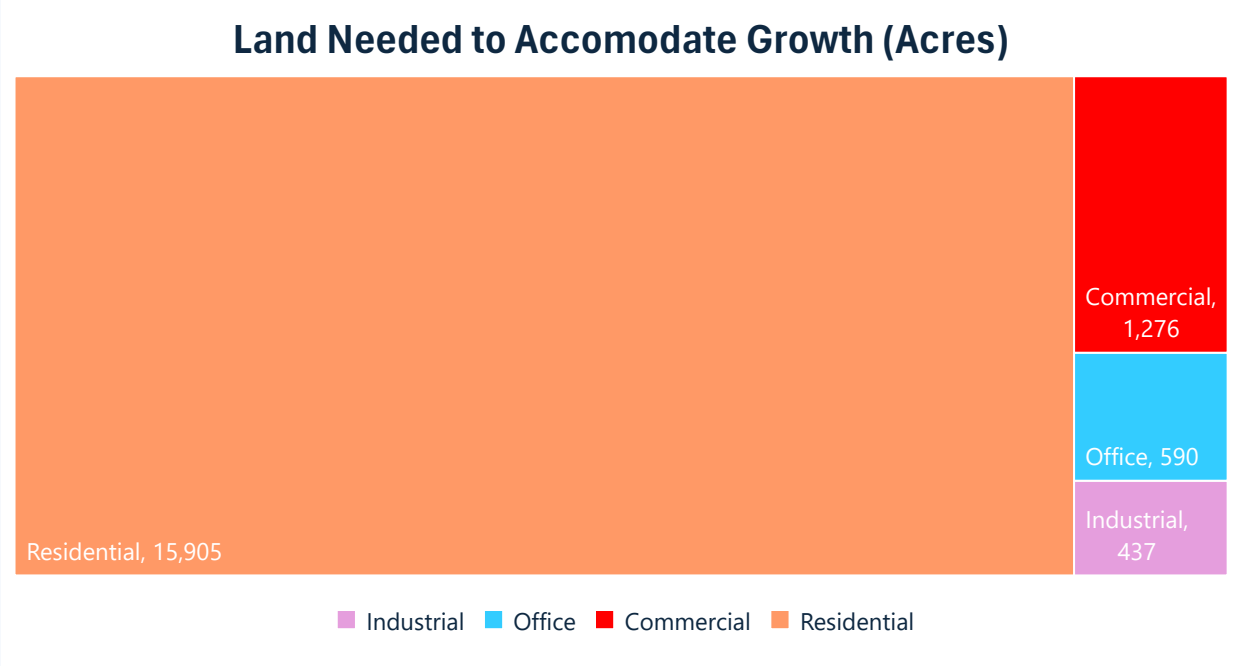
MAP 2 - OUR BOONE FUTURE LAND USE MAP

As referenced above in Employment Forecast: 2055, a net gain of 51,182 jobs is anticipated by 2055 for a total of 142,479 jobs in the MPA. Estimated acreage requirements vary by the type of employment classification. The acreage required to accommodate new employment varies by type, and for estimation purposes, the employment types listed in Table 1 are grouped into three categories: industrial, office, and commercial.

- **Industrial** (7,873 new jobs) includes Agriculture, Forestry, Fishing, and Hunting; Mining, Quarrying, and Oil and Gas Extraction; Utilities; Construction; Manufacturing; Administration & Support; Waste Management and Remediation; and 50% of Wholesale Trade.
- **Office** (17,118 new jobs) includes Information; Finance and Insurance; Professional, Scientific, and Technical Services; Management of Companies and Enterprises; Public Administration; and 50% of Transportation and Warehousing, Real Estate and Rental and Leasing, and Health Care and Social Assistance.
- **Commercial** (25,516 new jobs) includes Retail Trade; Educational Services; Arts, Entertainment, and Recreation; Accommodation and Food Services; Other Services (excluding Public Administration); and 50% of Transportation and Warehousing, Real Estate and Rental and Leasing, and Health Care and Social Assistance.

[6] Our Boone County Master Plan

Office uses are estimated to have an average of 29 employees per acre, industrial uses 18 employees per acre, and commercial uses 20 employees per acre. To accommodate the projected 51,182 additional employees in the MPA by 2055, approximately 2,304 acres will be required: 437 acres for industrial, 590 acres for office, and 1,276 acres for commercial. As technology evolves, the acreage required for each category is likely to change, necessitating recalculations at five-year intervals. For instance, a decline in remote work due to shifting "return to office" policies post-pandemic may increase the demand for office space.



Chapter 3: Wheels and Ways: How We Get Around

This chapter describes the existing facilities and associated services that make up the CATSO transportation system. Later chapters analyze the relationships between different modes of transportation and planned improvements to maximize performance of the system in the future.

COMMUTING MODE SHARE

The US Census's American Community Survey has data for commutes by mode within the Columbia Urbanized Area (an area slightly larger than the city limits, but not quite the size of the MPA) for commuters aged 16 and over. We have examined trends in commuting behavior from 2014 to 2022 (the most recent year available for 1-year data). Within those years, the predominant mode of transportation is driving alone, with percentages fluctuating between 70.8% and 80.6%. Notably, the percentage of people driving alone decreased in recent years, dropping from a high of 80.6% in 2015 to 74.8% in 2022.

Carpooling has seen some variation, peaking at 15.2% in 2017 and then declining to 9.4% in 2022. Public transportation usage remained relatively low throughout the period, with a slight increase in 2022 to 1.4% compared to a low of 0.4% in 2019.

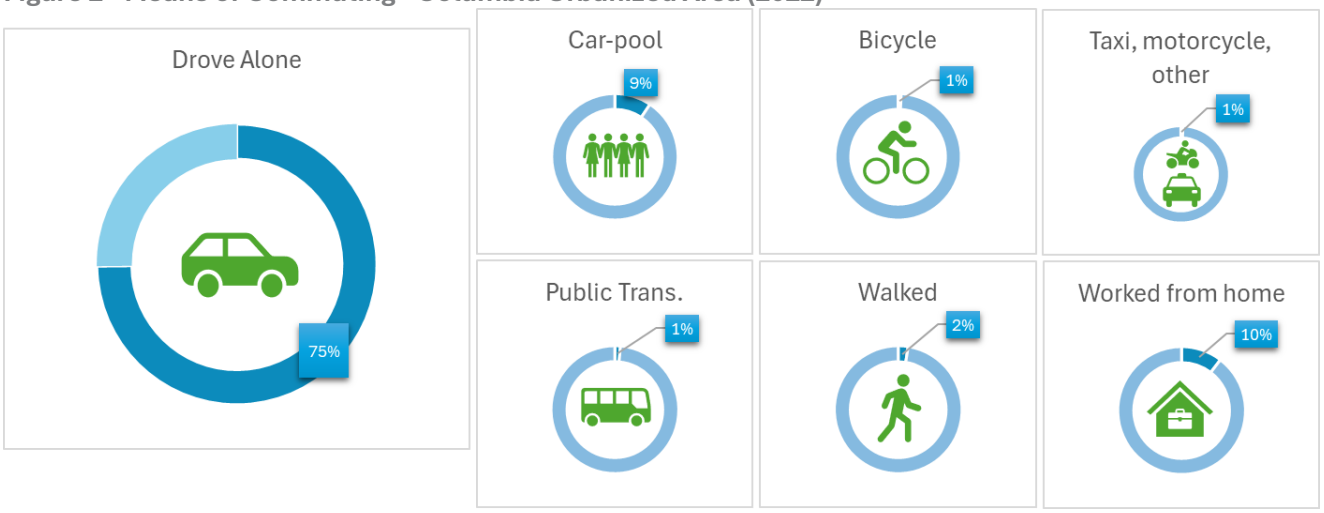
Bicycling and walking show some fluctuations, with bicycling peaking at 1.4% in 2019 and walking seeing its highest percentage in 2014 at 7.0%. However, walking has decreased significantly to 2.5% by 2022.

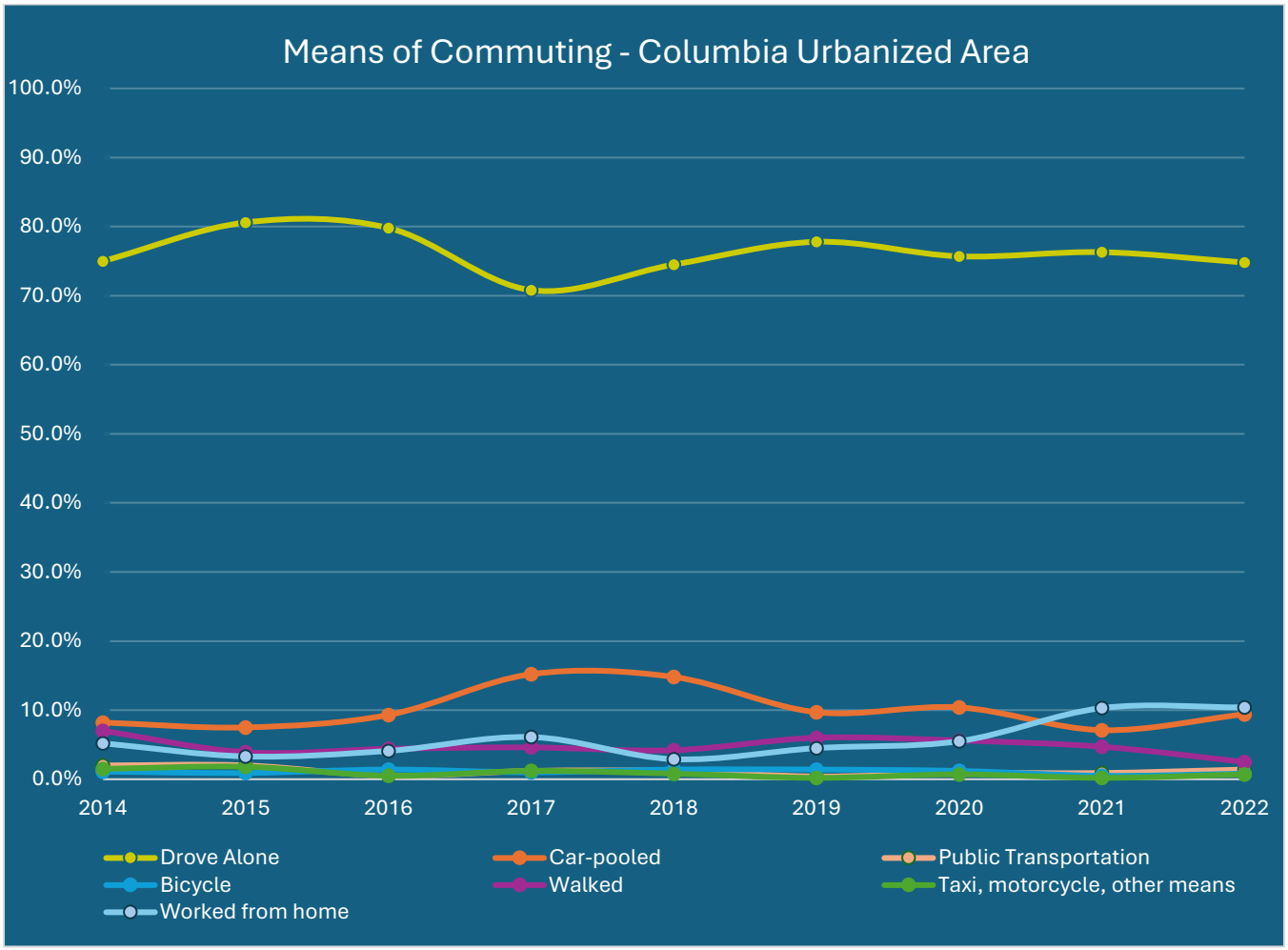
The category for "Taxi, motorcycle, and other means" shows inconsistent usage, peaking at 1.8% in 2015 but dropping to 0.2% in 2021. The percentage of people working from home has seen a steady increase, particularly during the pandemic years, rising from 3.3% in 2015 to 10.4% in 2022.

Means of Commuting - Columbia Urbanized Area

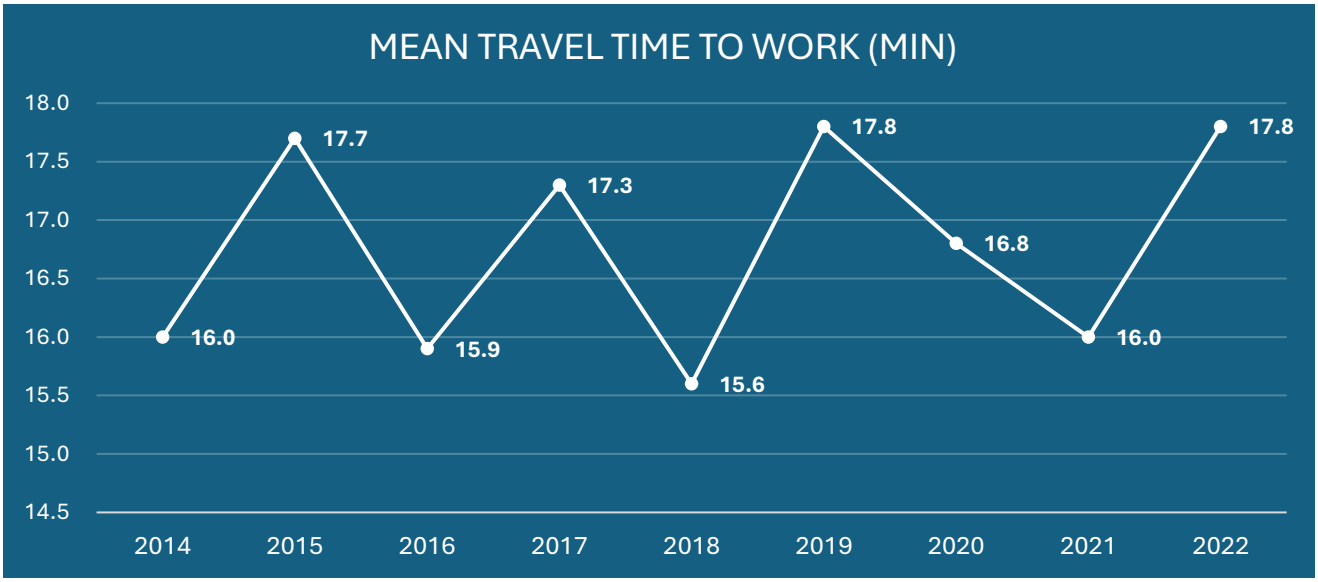
	2014	2015	2016	2017	2018	2019	2020	2021	2022
Drove Alone	75.00%	80.60%	79.80%	70.80%	74.50%	77.80%	75.70%	76.30%	74.80%
Car-pooled	8.20%	7.50%	9.30%	15.20%	14.80%	9.70%	10.40%	7.10%	9.40%
Public Transportation	2.00%	2.00%	0.50%	1.20%	1.20%	0.40%	0.90%	0.90%	1.40%
Bicycle	1.10%	0.90%	1.40%	1.00%	1.40%	1.40%	1.20%	0.50%	0.80%
Walked	7.00%	3.90%	4.40%	4.60%	4.20%	6.00%	5.60%	4.70%	2.50%
Taxi, motorcycle, other means	1.50%	1.80%	0.50%	1.20%	0.80%	0.20%	0.70%	0.20%	0.70%
Worked from home	5.20%	3.30%	4.10%	6.10%	2.90%	4.50%	5.50%	10.30%	10.40%

Figure 2 - Means of Commuting - Columbia Urbanized Area (2022)

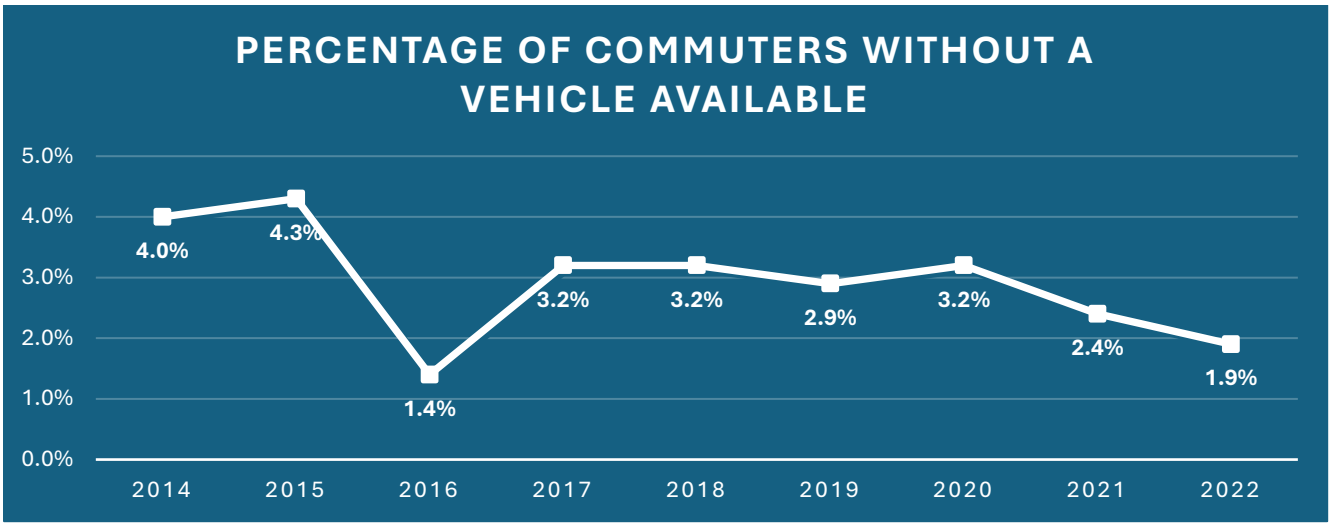




The mean travel time to work in the Columbia Urbanized Area has experienced considerable fluctuations over the past several years, as shown in the table below. In 2022, the average commute time was 17.8 minutes, an increase from the 16.0 minutes recorded in 2021 and returning to a pre-pandemic commute time of 17.8 minutes as well in 2019. However the pandemic years (2020 and 2021) were the only two since 2014 where the mean travel time to work dropped two years in a row. Before then, between 2014 and 2018, the mean travel time to work ebbed and flowed up one year and down the next, fluctuating between about 16 minutes and 18 minutes. Notably, the lowest average travel time during this period was 15.6 minutes in 2018, while the highest was 17.8 minutes in both 2019 and 2022. The overall trend indicates a relatively stable commute time, with most years hovering around 16 to 18 minutes.



The percentage of commuters in the Columbia urbanized area without a vehicle available has varied over the past several years. In 2022, 1.9% of commuters reported not having a vehicle available, a decrease from 2.4% in 2021. This percentage has generally declined since 2014, when 4.0% of commuters were without a vehicle. The highest percentage during this period was recorded in 2015, at 4.3%, followed by a gradual decrease to a low of 1.4% in 2016. The consistency around 3.2% between 2017 and 2020 suggests a period of stability before the recent decline.



STREETS, ROADS, AND HIGHWAYS

Within the MPA, there are approximately 948 centerline miles of federal-aid roadway, totaling about 2,107 lane miles. The City of Columbia maintains 533 of these centerline miles and 1,082 lane miles. Roughly 40% of public roadways in the MPA are included in the Major Roadway Plan (MRP), which excludes most local residential and non-residential streets. Approximately 60% of the roads maintained by the City of Columbia and 63% of those maintained by Boone County are local roads.

Boone County is responsible for maintaining about 28% of the lane miles in the MPA, the City of Columbia maintains about 51%, and the State of Missouri maintains roughly 21%, many of which are highways, including Interstate 70. These mileage figures were provided by the MoDOT Central District office.

A breakdown of lane miles and centerline miles is provided in Table 2. Streets within the MPA are planned and designed according to a functional classification hierarchy. While the MPO's classification system differs slightly from those used by the State of Missouri and the Federal Highway Administration, the overall purpose remains the same. Roadways are classified based on their function, such as property access, trip length and purpose, traffic volumes, and their role in the broader transportation system.

Highways and expressways, for example, typically carry the highest traffic volumes, support through trips or cross-town traffic, provide limited access to adjoining properties, and serve as major conduits for traffic throughout the system. Arterial streets follow in importance, while collectors move traffic between neighborhoods and activity centers. Local streets, which handle lower traffic volumes, primarily provide direct access to adjacent properties. This classification system is designed to ensure efficiency and order within the street network.

MoDOT, Boone County, and the City of Columbia are the three agencies responsible for maintaining and constructing transportation infrastructure within the MPA. The following table provides a summary of arterial and collector street mileage by agency as of May 2024:

Table 2 - Lane and Centerline Miles by Jurisdiction		
Agency	**Lane Miles 2024**	**Centerline Miles 2024**
MoDOT	432	144
Boone County	593	271
City of Columbia	1,082	533
Total	**2,107**	**948**

State and federal highways form much of the structure and capacity of the roadway network across the MPA. There are also private streets within the system, typically serving individual developments or small groups of dwellings, often functioning as shared driveways or dead-end roads.

The University of Missouri-Columbia maintains several local streets on its campus, including Carrie Franke Drive, Missouri Avenue, Virginia Avenue, Mick Deaver Memorial Drive, Monk Drive, Hospital Drive, and Providence Point. The University has funded traffic signal installations at intersections between university roads and MoDOT roadways. One notable difference between city- and university-maintained streets on campus is that city streets may include metered parking, whereas the University does not maintain parking spaces on its streets.

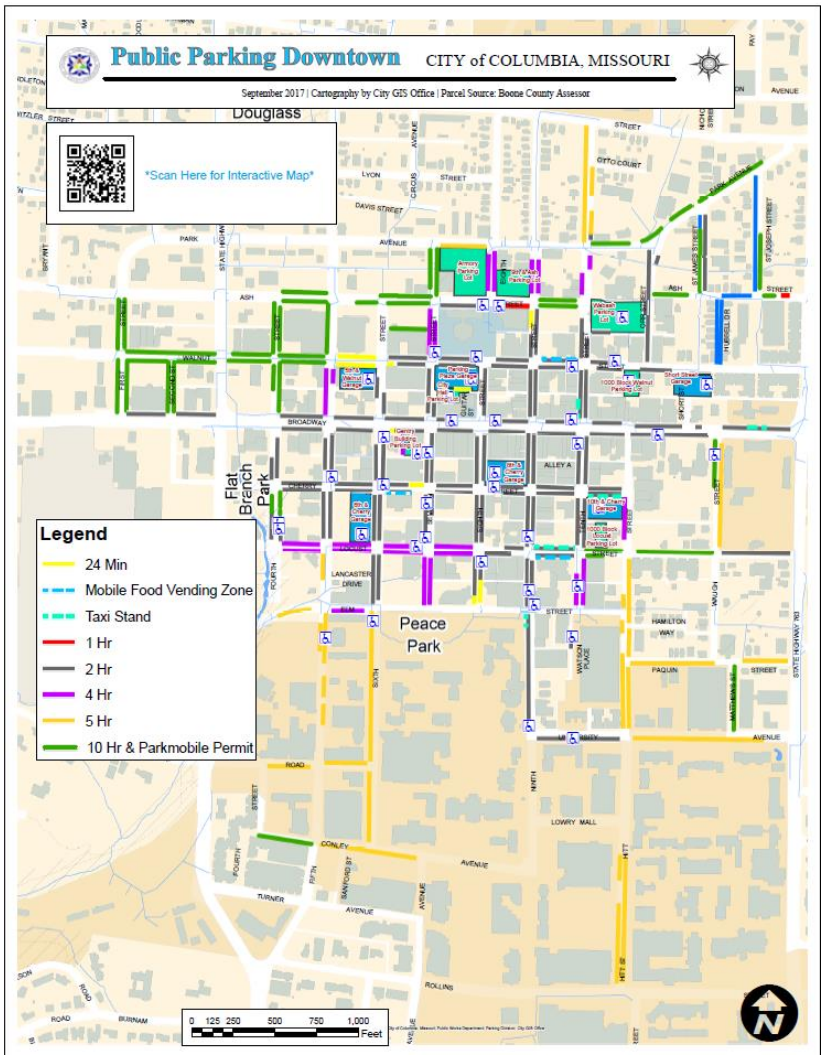
Private motor vehicles remain the dominant mode of transportation on the MPA's street network.

PUBLIC PARKING

The availability of compact public parking is a crucial element in creating walkable destinations, such as the Columbia city center and the University of Missouri-Columbia campus. Bike parking facilities also play a vital role in facilitating transportation options and promoting walkability.

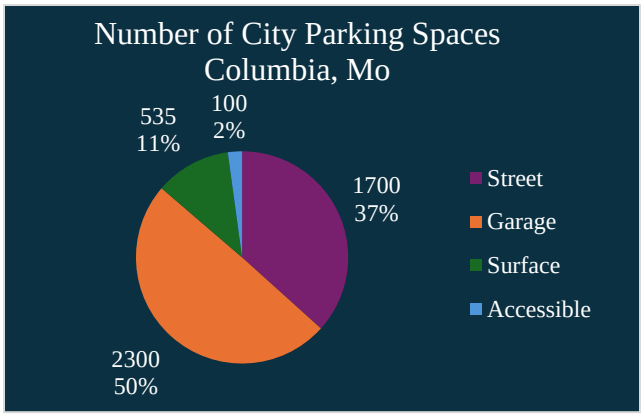
City of Columbia

To accommodate visitors and residents, the City of Columbia collaborates with the ParkMobile App, which reduces the need for change at hourly meter parking and in garages. In addition, meter spaces can be paid for using CoMo Park Cards, which can be loaded with a desired amount at City Hall and used at meters or parking garages. Change-based parking is still available. The parking garages accept CoMo Park Card, Cash, Apple Pay, Google Pay, Samsung Pay, Visa, Discover, MasterCard, and American Express. Currently there is one public electric vehicle charging station, located in the 5th and Walnut parking garage. The City of Columbia received a $3.6 million grant in January 2024 to build 44 level II and III electric vehicle chargers across two parking garages, the public library, and the regional airport.[7]



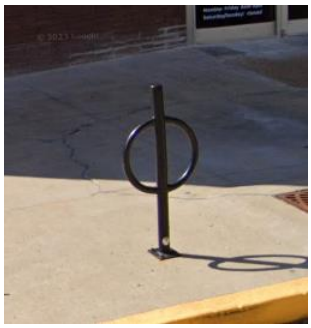
The City of Columbia utility owns and operates six multilevel parking structures with 2,300 spaces in the downtown area. In addition, there are six surface parking lots with 535 spaces, approximately 1,700 on-street parking spaces, and 100 accessible spaces. On-street parking is mostly metered with a tiered system allowing for daily maximums ranging from 24 minutes to 10 hours. This tiered system is simplified with colored meters throughout downtown Columbia which visually represent the maximum parking time for each space.[8]

[7] Columbia receives federal grant for EV charging stations | Mid-Missouri News | komu.com
[8] Parking Utility - City of Columbia Missouri (como.gov)



PARKING METER WITH BIKE RACK ON S 8TH STREET

BIKE RACK OUTSIDE CITY HALL



BIKE BOLLARD ON CHERRY STREET

Bike parking in Columbia is mostly concentrated in the downtown core and on the University of Missouri campus. These are composed of bike racks, parking meters with bike racks, individual bollards with bike parking positions.

University of Missouri-Columbia

The university maintains an abundance of parking for students, faculty, staff, and visitors around its campus, including seven parking structures and many surface parking lots on its campus. There are additional long-term commuter lots off Stadium, Providence and Ashland Road. The campus parking utility administers approximately 22,000 off-street spaces, 9,300 for students with parking permits, 11,000 for faculty and staff with parking permits, and 700 metered spots for visitors. Approximately 200 additional metered on-street parking spots, maintained by the City of Columbia, are available on city streets within the campus. The university does not install parking meters on university-owned streets, given the prohibition of on-street parking on those streets. Most of the university-owned parking is by assignment, with many spots requiring a permit.

There are bike racks located outside of most university-owned buildings. The Tiger Line Shuttle connects to parking lots on the edge of campus when the University is in session to accommodate MU faculty, staff, and students. See section 3.3 for more information. At night after shuttle service ends, Uber vouchers are provided to permit holders in these remote lots for their convenience and safety. These vouchers can be used up to twice per day.

TRANSIT – BUS SERVICE

Go COMO

Since 1965, Go COMO has served as the public mass transportation provider for the City of Columbia. Under Go COMO's umbrella, several services are offered, including fixed-route, Paratransit, and MU shuttle services. Go COMO facilitates over two million passenger trips annually and operates under the administration of the Columbia City Manager and Public Works Department.

In 2024, Olsson, the consultants for the City of Columbia Public Works Department, are conducting a comprehensive study to develop a new transit master plan aimed at improving Go COMO. The goals of this study include identifying ways to increase transit use and ridership, conducting operational analysis, reviewing transit-oriented policies, exploring growth opportunities, and evaluating funding and partnership mechanisms. The plan is expected to be completed by November 2024.

Services:

Fixed-Route

The fixed-route bus service operates within Columbia's city limits and consists of six color-coded routes. Wabash Station, located in downtown Columbia, serves as the hub for these fixed-route buses. All fixed-route buses are wheelchair accessible, and riders can board at any designated bus stop. The City of Columbia offers the Go COMO app, providing live updates on bus locations, schedules, and other important information about the service. As of August 2024, Go COMO's fixed routes are fare-free.

The weekday fixed-route bus service operates on the following schedule:

Weekday Fixed Bus Routes[9]		
Route	Start Time (AM)	Last Stop Time (PM)
#1 Black Route: MU/Providence South	6:30	6:40
#2 Red Route: West Broadway	6:40	5:55
#3 Gold Route: West Worley	6:26	6:40
#4 Orange Route: Range Line North	6:40	5:55
#5 Blue Route: Paris/Clark/Ballenger	6:40	5:55
#6 Green Route: East Broadway/Keene	6:20	6:40

[9] Basic maps and schedules - Go COMO Transit

The Saturday fixed-route bus service operates on the following schedule:

Saturday Fixed Bus Routes[9]		
Route	Start Time (AM)	Last Stop Time (PM)
#1 Black Route: MU/Providence South	10:30	6:40
#2 Red Route: West Broadway	9:55	5:55
#3 Gold Route: West Worley	10:30	6:40
#4 Orange Route: Range Line North	9:55	5:55
#5 Blue Route: Paris/Clark/Ballenger	9:51	5:55
#6 Green Route: East Broadway/Keene	10:30	6:40

Like many bus service providers across the U.S., Go COMO is currently facing a driver shortage. While there has been some relief due to a successful recruiting strategy, additional drivers are still needed. As of August 2024, there are 31 drivers, but 36 are required to operate without necessitating frequent overtime shifts.

Funding is another challenge. Although crucial state funding has become more available in the past year, Go COMO lacks a guaranteed source of revenue, such as a dedicated sales tax, property tax, or fare income from ridership. As a result, there is a risk that funding for operations and maintenance could fluctuate significantly from year to year.

Due to these challenges, Go COMO operates with 90-minute headways, with one bus alternating between two routes. After completing one route, the bus changes its signage and proceeds to the second route.

Paratransit

Go COMO provides specialized lift-equipped mini-bus service for individuals with disabilities and elderly passengers who are unable to use the fixed-route bus system. This service currently provides about 91,000 trips annually, constrained by the driver shortage. When fully staffed, the service can offer over 100,000 rides annually. Service is provided curb-to-curb within the City of Columbia limits. Riders must meet Paratransit eligibility requirements, become certified riders, and schedule trips through the City of Columbia's online services. The service operates on the following schedule:

- Service Hours:
  - Monday through Friday: 6:20 a.m. to 6:25 p.m.
  - Saturday: 9:45 a.m. to 6:25 p.m.
- Booking Hours and Days:
  - Monday to Friday: 7 a.m. to 5 p.m.
  - Saturday: Closed
  - Sunday: 11:30 a.m. to 3:30 p.m. (to book a reservation for Monday) (Note: Paratransit buses do not operate on Sundays.)

As of 2024, there is no fare for paratransit services.

MU Shuttle Services

The MU Tiger Line is a shuttle service designed to help faculty, staff, and students navigate the campus. It consists of three weekday routes and one weekend route, operating during the fall and spring semesters, with no service during university breaks and closures. Provided in collaboration with the City of Columbia, the Tiger Line operates with 20-minute headways, traffic permitting, and is free of charge for the university community.

The weekday Tiger Line bus service operates on the following schedule:

Weekday Fixed Bus Routes[10]		
Route	Start Time (AM)	Last Stop Time (PM)
401 Hearnes Loop	4:50	8:00
402 Trowbridge Loop	6:00	8:00
403 MU Reactor Loop	6:00	8:00

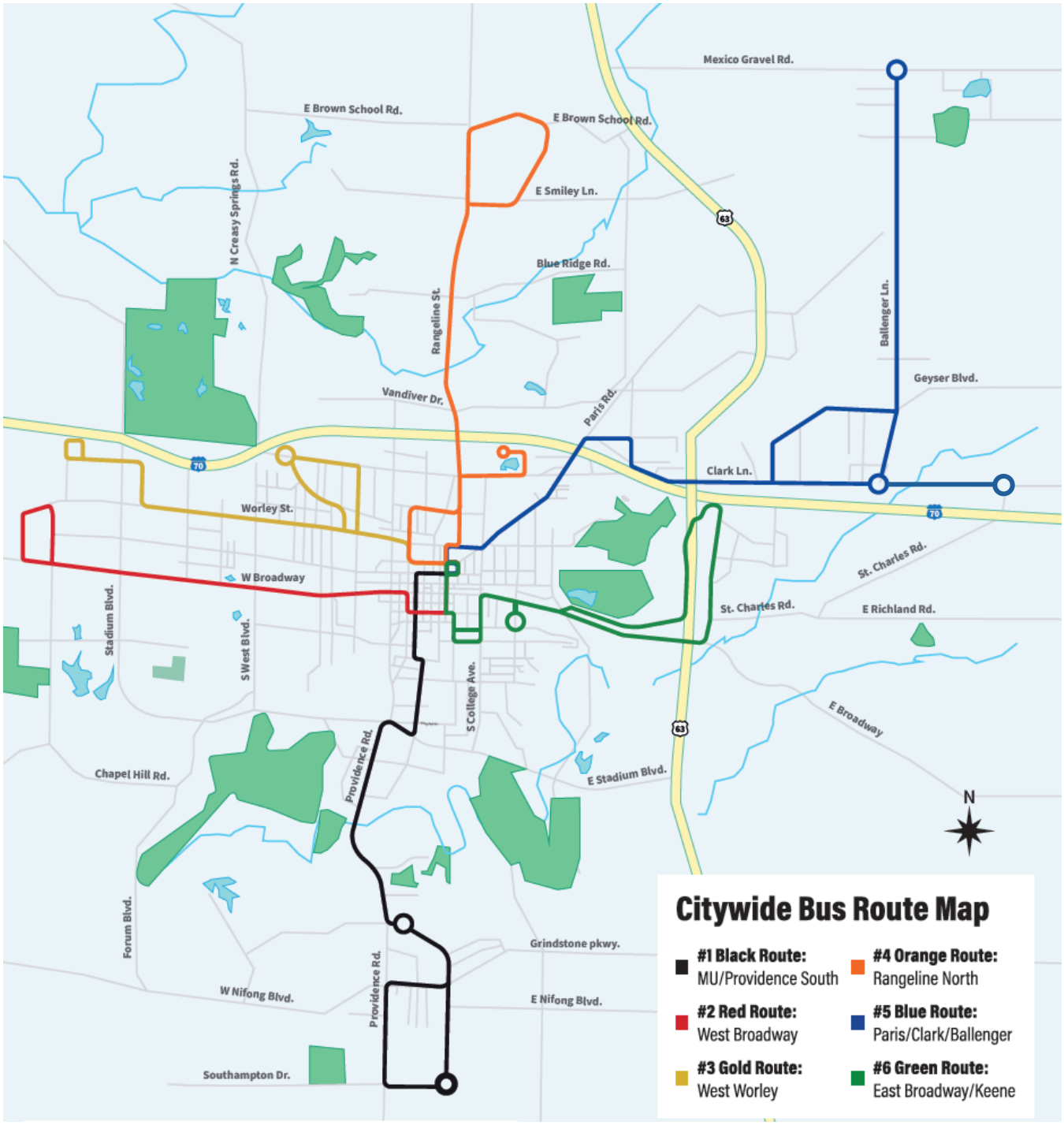
The weekend Tiger Line bus service operates on the following schedule:

Saturday Fixed Bus Routes[9]		
Route	Start Time (AM)	Last Stop Time (PM)
405 Campus Loop	Noon	8:00

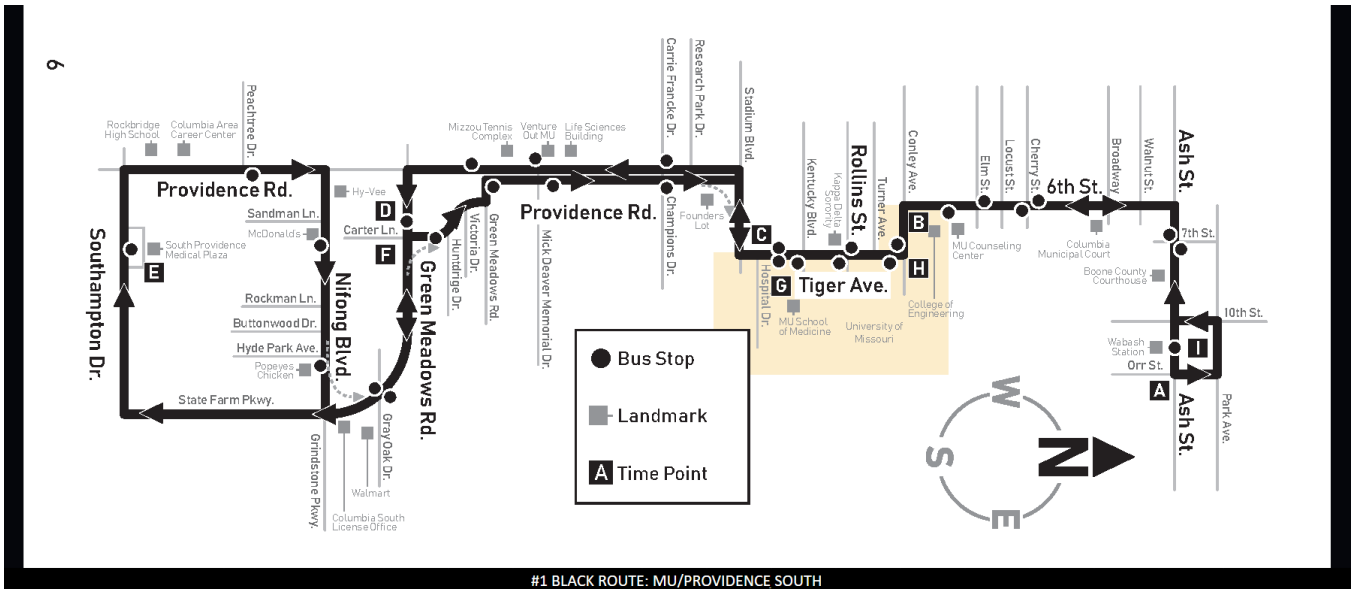
[10] Basic maps and schedules - Go COMO Transit

Routes

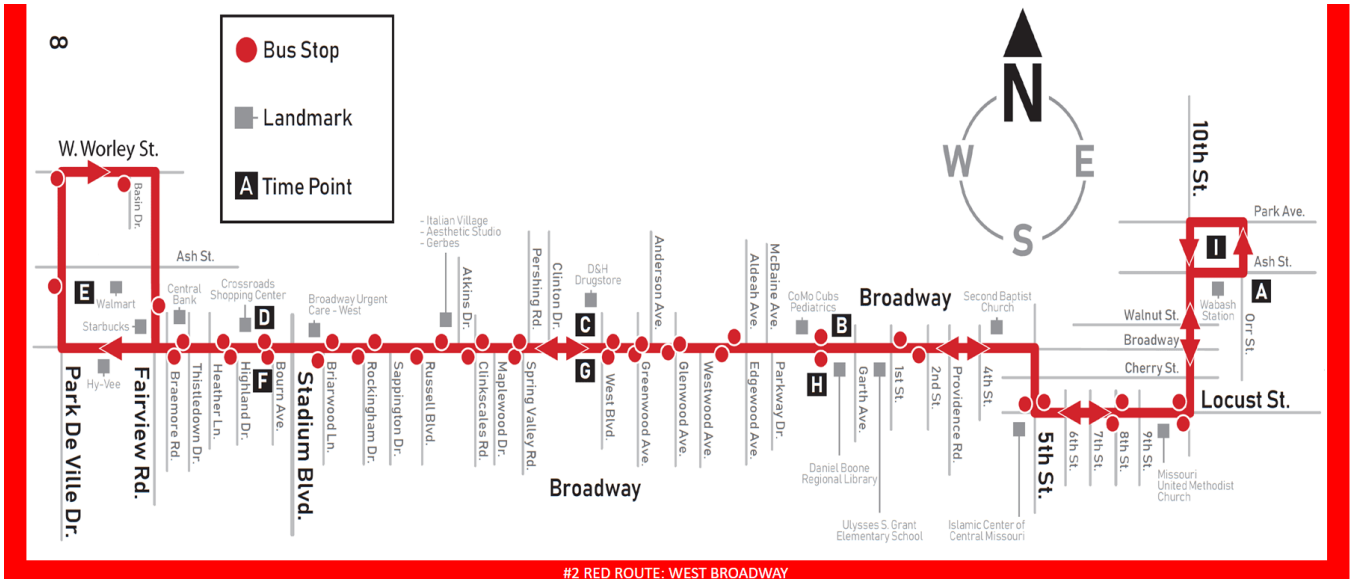
The following maps show the current fixed routes on the Go COMO bus network.



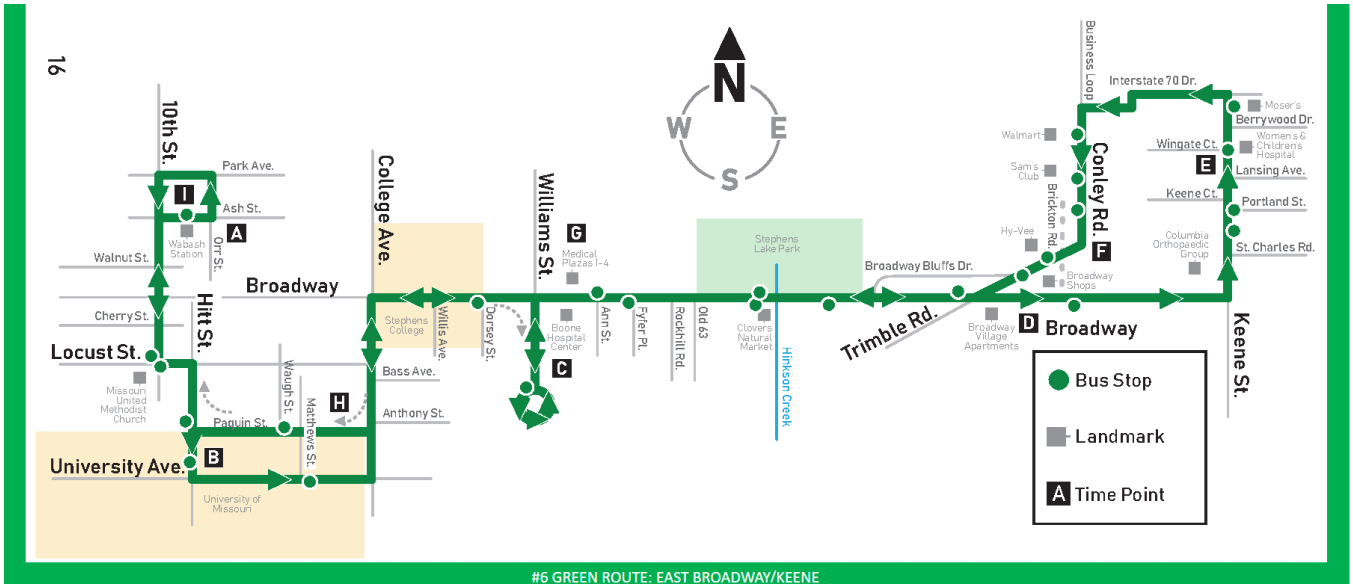
3 Gold Route: West Worley



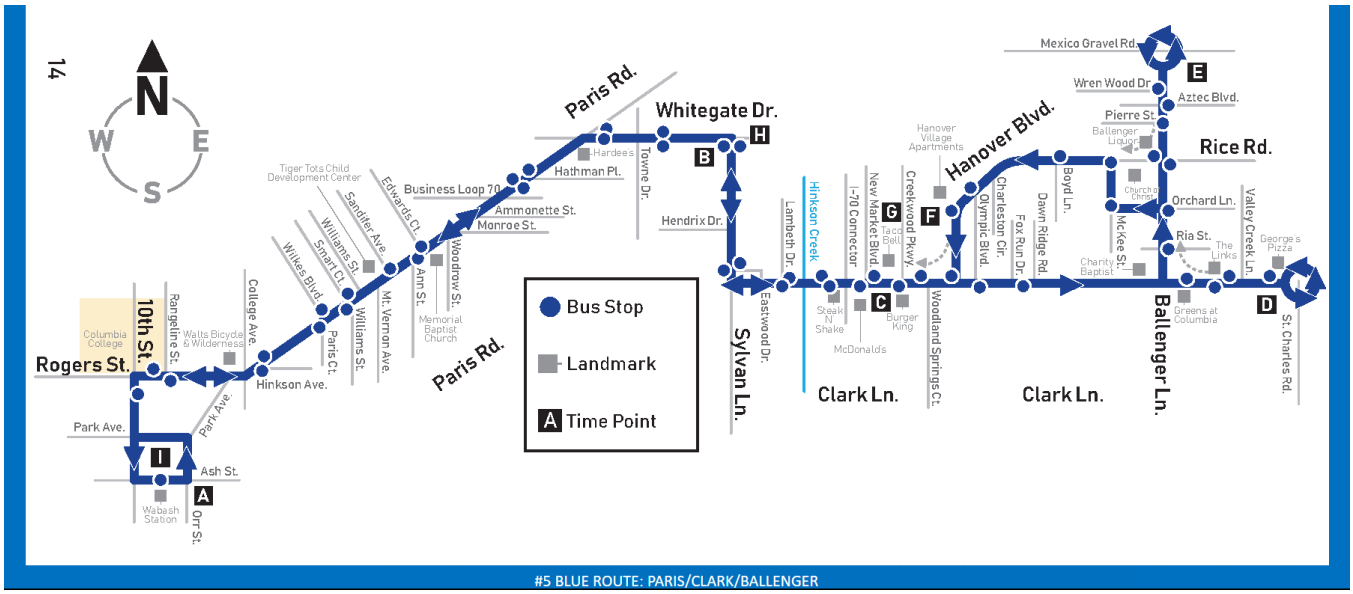
#1 BLACK ROUTE: MU/PROVIDENCE SOUTH


8
Bus Stop
Landmark
A Time Point
N
W
E
S
W. Worley St.
Basin Dr.
Ash St.
E
Walmart
Starbucks
Central Bank
Crossroads Shopping Center
D
Broadway Urgent Care - West
Italian Village
Aesthetic Studio
Gerbes
Atkins Dr.
Pershing Rd.
Clinton Dr.
C
G
D&H Drugstore
Anderson Ave.
Aldeah Ave.
McBaine Ave.
CoMo Cubs Pediatrics
B
H
Broadway
Second Baptist Church
10th St.
Park Ave.
I
Ash St.
A
Walnut St.
Broadway
Cherry St.
Wabash Station
Orr St.
Locust St.
Hy-Vee
Braemore Rd.
Thistledown Dr.
Heather Ln.
Highland Dr.
F
Bourn Ave.
Briarwood Ln.
Rockingham Dr.
Sappington Dr.
Russell Blvd.
Clinkscales Rd.
Maplewood Dr.
Spring Valley Rd.
West Blvd.
Greenwood Ave.
Glenwood Ave.
Westwood Ave.
Edgewood Ave.
Parkway Dr.
Garth Ave.
1st St.
2nd St.
Providence Rd.
4th St.
5th St.
6th St.
7th St.
8th St.
9th St.
Park De Ville Dr.
Fairview Rd.
Stadium Blvd.
Broadway
Daniel Boone Regional Library
Ulysses S. Grant Elementary School
Islamic Center of Central Missouri
Missouri United Methodist Church
#2 RED ROUTE: WEST BROADWAY


12
Bus Stop
Landmark
A Time Point
N
W
E
S
5th St.
Douglass Park
Rogers St.
Hickman Ave.
Dysart St.
Pecan St.
St. Paul AME Church
7th St.
B
Armory Sports Complex
8th St.
9th St.
10th St.
Columbia College
Wabash Station
I
Orr St
A
Ash St.
Park Ave.
Rangeline St.
Wilkes Blvd.
Field Park
Eugene Field Elementary School
Smith St.
North Blvd.
Business Loop 70 East
Boone Electric Cooperative
Family Pawn
H
Lakeview Ave.
Ashley Street Center
C
Bowling Street
Interstate 70
Waffle House
Vandiver Dr.
D
Elleta Blvd.
Bear Creek
Big Bear Blvd.
Wilson's Fitness
Casey's General Store
Rangeline St.
Blue Ridge Rd.
G
Northland Dr.
Rustic Meadows Dr.
Safari Dr.
Jimmy John's
Rain Forest Pkwy.
Kenrtesaw Ridge Rd.
Petro Mart
China Moon
Saddlebrook Pl.
Derby Ridge Dr.
E
Dinviddie Cir.
American Pkwy.
Taco Bell
Smiley Ln.
Central Bank
Risen Star Ct.
Bold Venture Dr.
Typhoon Dr.
Native Dancer Dr.
High Quest Dr.
Bold Ruler Ct.
Citadel Dr.
Brown School Rd.
F
Rangeline St.
Interstate Dr.
Edenton Blvd.
#4 Orange Route: RangeLine North



#6 GREEN ROUTE: EAST BROADWAY/KEENE



#5 BLUE ROUTE: PARIS/CLARK/BALLENGER

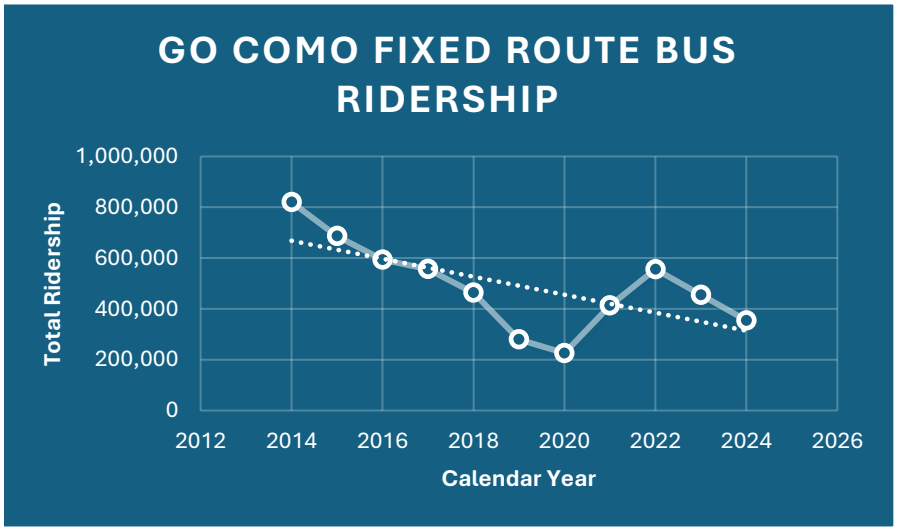
Statistics and Historical Ridership Trends[11]:

Ridership data for the Go COMO fixed-route bus system and Tiger Line Campus shuttle combined reveals several key trends over the past decade. From 2014 to 2017, there was a gradual decline in ridership, decreasing from 1,641,538 to 1,419,260, representing a reduction of approximately 13.5%. This decline accelerated sharply between 2017 and 2020, with ridership plummeting to a low of 318,357 in 2020, likely due to the significant impact of the COVID-19 pandemic on public transportation usage. Following this period, ridership began to recover in 2021, reaching 1,051,849 by 2022. However, the most recent data for 2023 and the estimated figures for 2024 indicate that ridership has stabilized at a lower level, with totals of 820,295 and 814,152, respectively. While this stabilization suggests a return to more consistent usage, it also highlights that ridership has not yet returned to the higher levels observed in earlier years.

Fixed-Route Bus Service Ridership

The ridership of the fixed-route bus service has experienced a significant decline over the past decade. In 2014, ridership was at 820,206, but by 2018, it had dropped to 463,258, reflecting a steady decrease. The decline was particularly sharp in 2019, with ridership falling to 279,232. The impact of the COVID-19 pandemic is evident in 2020, where ridership further decreased to 226,119. However, a recovery began in 2021, with ridership increasing to 412,833 and reaching 555,652 in 2022. Despite this rebound, ridership declined again in 2023 to 455,306, with an estimated further decrease to 354,168 in 2024. This trend indicates that while there has been some recovery post-pandemic, ridership remains below pre-pandemic levels.

CY Totals	Total Ridership
2014	820,206
2015	686,474
2016	593,963
2017	556,580
2018	463,258
2019	279,232
2020	226,119
2021	412,833
2022	555,652
2023	455,306
(est.) 2024	354,168

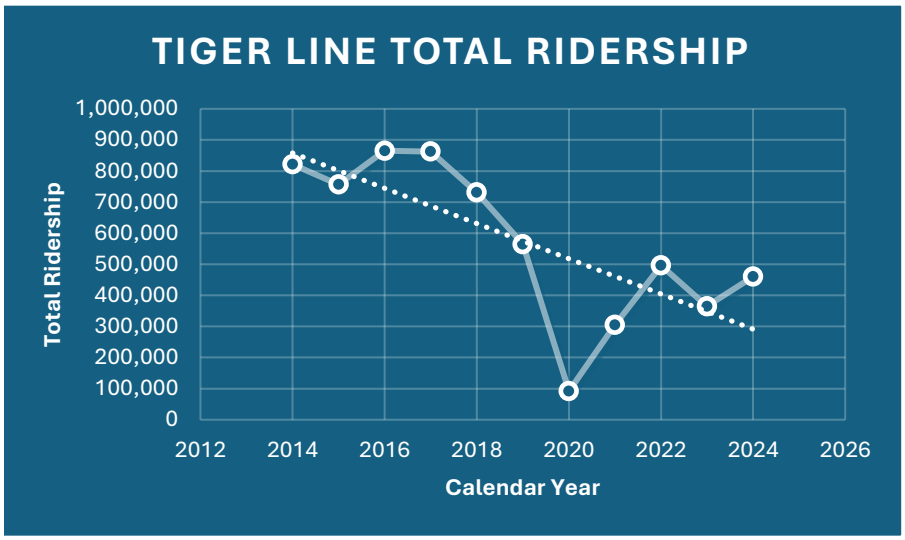


[11] All ridership data obtained from the City of Columbia, Mo

Tiger Line Ridership

The Tiger Line, serving the University of Missouri campus, has shown a more varied pattern in ridership over the years. Starting with 821,332 in 2014, ridership experienced slight fluctuations, peaking in 2016 at 865,246. However, a decline began in 2018, with ridership decreasing to 730,721, followed by a more pronounced drop to 564,335 in 2019. The impact of the COVID-19 pandemic is especially noticeable in 2020, with ridership plummeting to 92,238. Post-pandemic recovery efforts saw ridership rebound to 305,364 in 2021 and 496,197 in 2022. Although there was a decline to 364,989 in 2023, the estimated figure for 2024 shows a potential increase to 459,984. This suggests that the Tiger Line may be gradually recovering from the pandemic's impact, but ridership has not yet stabilized.

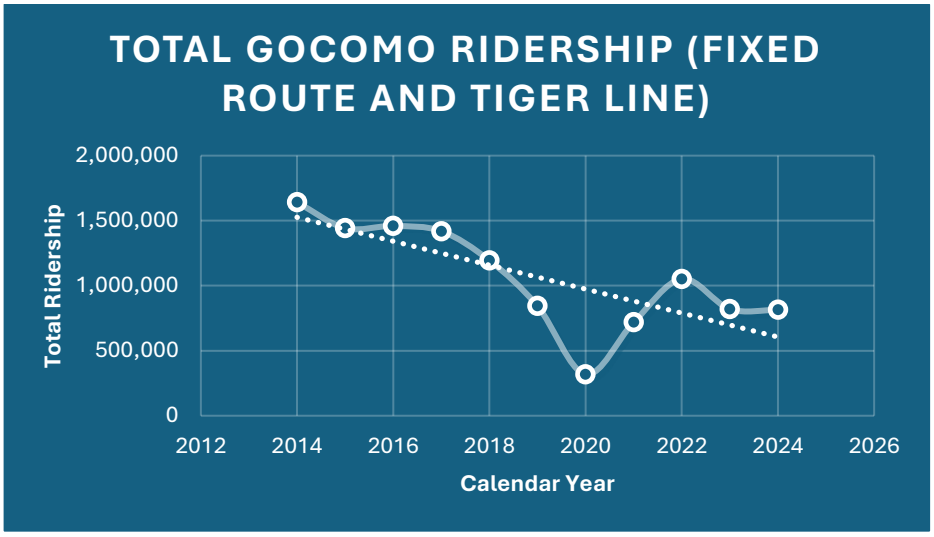
CY Totals	Total Ridership
2014	821,332
2015	756,318
2016	865,246
2017	862,680
2018	730,721
2019	564,335
2020	92,238
2021	305,364
2022	496,197
2023	364,989
(est.) 2024	459,984



Total Go COMO Ridership (Fixed-Route and Tiger Line Combined)

The combined ridership of the Go COMO fixed-route bus service and the Tiger Line shows a clear overall downward trend from 2014 to 2024. Starting with a total of 1,641,538 in 2014, ridership gradually decreased over the years, reaching 1,193,979 in 2018. The most dramatic decline occurred between 2018 and 2020, with ridership falling from 843,567 in 2019 to 318,357 in 2020, largely due to the COVID-19 pandemic. Although there was a notable recovery in 2021, with ridership increasing to 718,197, and further to 1,051,849 in 2022, the following years saw another decrease, with 820,295 in 2023 and an estimated 814,152 in 2024. This data indicates that while ridership has shown signs of recovery post-pandemic, it remains below pre-pandemic levels and has not fully stabilized.

CY Totals	Total Ridership
2014	1,641,538
2015	1,442,792
2016	1,459,209
2017	1,419,260
2018	1,193,979
2019	843,567
2020	318,357
2021	718,197
2022	1,051,849
2023	820,295
2024 (est.)	814,152



Go COMO Finances

Go COMO's operating budget relies heavily on state and federal funding, as well as local support, including a portion of the City of Columbia's ½ cent sales tax for transportation. However, the lack of a dedicated funding source, such as a sales tax or fare revenue, creates a degree of uncertainty in its financial sustainability. The transit system is largely dependent on general revenue allocations, and funding availability can fluctuate significantly from year to year.

In recent years, Go COMO has had to operate with limited resources, impacting its service levels. For example, the budget constraints have led to extended bus headways and fewer buses in operation, as Go COMO has struggled to maintain adequate staffing and fleet maintenance. Additionally, ongoing efforts to recruit more drivers have provided some relief, but the system still faces challenges in meeting operational demands without frequent overtime shifts.

This financial structure places pressure on Go COMO to continuously seek additional funding and to optimize its service offerings to ensure that it can meet the needs of Columbia's residents

Facilities

Go COMO operates out of two key facilities. The first is Wabash Station, located at 126 North 10th Street in Columbia. This facility serves as the main transfer hub for both fixed-route and Paratransit services and functions as the bus dispatch center and the administrative office for Go COMO. The station was completely refurbished in 2007 with the aid of an FTA Capital grant, becoming the City's first Leadership in Energy and Environmental Design (LEED) certified building.

The second facility is the Grissum Building, located at 1313 Lakeview Avenue. This building is a shared maintenance and storage facility for the Public Works Department, of which Go COMO is a division. The Grissum Building is used to store, fuel, maintain, and clean all Go COMO vehicles, which are serviced through the Fleet Operations Division of the Public Works Department.

Capital (Vehicles): Go COMO has a fleet of 49 vehicles to assist with the movement of passengers across the City of Columbia.[12]

Use of Vehicle	Fuel	Number of Vehicles
Fixed Route Bus	Electric	10
	CNG	2
	#2 Diesel (2% Bio-fuel)	1
Support Fixed Route	Gas	2
Support General	Gas	2
Paratransit Bus	CNG	1
Paratransit Van	Gas	16
Campus Bus	CNG	5
	#2 Diesel (2% Bio-Fuel)	8
UMC Access Van	CNG	1
Campus Pickup	Gas	1
Total		**49**

The City of Columbia's policy on providing transit service includes the following objectives:

1. Provide public transportation in the most cost-efficient manner possible.
2. Develop public confidence in the public transportation system.
3. Establish and maintain a clear direction for the growth of the public transportation system and a commitment to future service.
4. Encourage the use of public transportation as an alternative to automobile travel to promote environmental preservation through the conservation of fossil fuel resources, improved air quality, and reduced congestion.

[12] Fleet data given by the City of Columbia, Mo

PRIVATE TRANSPORTATION

School Buses

School buses are a major part of daily transit patterns. The Columbia Public School District is a K-12 school district with an enrollment of approximately 18,187 students (2023) and is the fifth largest school district in the State of Missouri. It covers an area of 302 square miles including most of the MPA. In addition to the Columbia Public School District, the Hallsville School District serves part of the northern Columbia MPA.

The Columbia School District Board of Education approves bus routes each year. By policy, students residing more than one mile from their assigned elementary and middle school and two miles from their assigned high school are eligible for free bus transportation. The District also will furnish free transportation to students residing within one mile of a school if the route to school is considered hazardous. Disabled students are eligible for free transportation anywhere in the district.

Off-Campus Housing Shuttle

Many of the larger, student-oriented off-campus apartment complexes in Columbia offer shuttle services as part of their amenities to residents. These shuttles typically operate on fixed schedules, with frequent service during peak commute times, such as mornings when classes begin and afternoons when they end. They help fill transportation gaps for students who live in these complexes – which are typically outside a reasonable walking distance from campus – and are not served directly by the city's GoCOMO transit system.

Non-Emergency Medical Transportation Services

Several private organizations provide paratransit and other transportation services. According to the Coordinated Public-Transit Human Services Transportation Plan (2018), seventeen transportation and human service agencies actively provide some form of transportation services in Boone County. The majority of these organizations are active in the Columbia MPA. The current CPTHSTP was formally adopted by the CATSO Coordinating Committee in May, 2018. OATS, Inc. is a private, nonprofit specialized transit provider which operates in 87 Missouri counties. Its mission: Enhancing quality of life by providing caring, and reliable transportation services. OATS has been in operation since 1971 and provides door-to-door transportation services to individuals with little or no alternative form of transportation. Service is open to the general public. OATS is funded by a combination of federal, state, and local funds. Government funding through contracts with various agencies covers the cost for the elderly/disabled riders. General public riders are charged a fare for their trip. OATS provides service Monday through Friday 7:00 a.m. to 5:00 p.m. in Columbia along with five schedule days of services for residents living in rural Boone County. OATS annual ridership in the Columbia area is approximately 11,000 one-way trips.

Micromobility (Bird Scooters)

The key micromobility services in Columbia is Bird Scooters, an e-scooter sharing business. Bird scooters can be found throughout the city, mainly in the downtown and campus area. These offer an efficient way to travel short distances and are more environmentally friendly than cars. Users can locate and ride a scooter using the Bird app.

RIDESHARE/TAXI

Rideshare Services

Rideshare platforms like Uber and Lyft have become well-established in the Columbia MPA, significantly expanding mobility options, particularly for those without access to a private vehicle or when public transit is unavailable. These services also complement existing public transportation by filling coverage gaps.

To enhance student safety during evening hours, MU Parking and Transportation has partnered with Uber to provide complimentary rides to and from specific perimeter parking lots. Eligible students can use Uber for trips across campus that begin or end at Trowbridge (Lots AV14A and AV14B), Hearnes (Lot SG4), or MU Reactor (Lot RP10). Students who qualify will receive an Uber Voucher via their university email, along with instructions for adding it to their personal Uber account.

Taxi Services

Traditional taxi services continue to operate within the Columbia area. As of 2024, there are six companies in operation, Taxi services maintain a vital role, especially for residents who prefer or require transportation options that don't rely on smartphone technology. Taxi companies in the region have adapted by offering phone-based dispatch and some have integrated app-based booking to remain competitive.

BIKE FACILITIES

Bike lanes, varying in width from 4 to 6 feet, are present on nearly 76% of roadways in the City of Columbia, representing about 20-25% of total lane miles, including several under MoDOT jurisdiction as of 2021, the most recent year for which data is available. This is an increase from 75% in 2019. There are 145.9 total miles of on-street bike routes in the City, up 1.3% from 144 miles in 2019. Of these routes, 111.4 miles are on City-maintained roadways, while the remaining 34.5 miles are on MoDOT-maintained roadways.

The City currently has three Bike Boulevards:

1. **Green Valley Drive**: Connects Hinkson Creek Trail to Hominy Trail.

2. **E Ash Street/Windsor Street**: Runs between Orr Street and N Ann Street, connecting downtown Columbia with Lions-Stephens Park.

3. **MKT-Parkade**: Follows Maupin Road, turns south onto Edgewood Avenue, and then west along Lathrop Road (between West Boulevard South and MKT Trail Access), linking MKT Trail to downtown, Parkade Commercial Center, and Hickman High School.

In addition, many shared-use routes are marked with a shared-lane marking, or "sharrow." However, the City does not currently track the number of miles of these shared-use routes.

Bicycle parking is required for new developments in Columbia, and the City has installed bicycle parking in its downtown parking structures. A portion of the federal funds from the Non-Motorized Transportation Pilot Program has been allocated for installing bicycle parking in high-activity areas such as the central business district.

The Bicycle & Pedestrian Commission (BPC) advises the City Council on both bicycling and pedestrian issues. The BPC oversees the development and updates of the Bicycle and Pedestrian Network Plan and the Sidewalk Master Plan. The Commission consists of 10 members, one of whom is a non-voting member representing the Parks & Recreation Department staff.

TRAIL FACILITIES

The Columbia MPA boasts a well-developed and extensive network of trails spanning over 60 miles. This network encompasses a diverse range of trail types, including hard surface trails, exercise trails, mountain bike trails, nature trails, and multi-use trails. The extensive trail network in Columbia is widely utilized by residents for both recreational and practical purposes. Trails serve as vital corridors for active transportation. Furthermore, the trails contribute to environmental conservation efforts by preserving green spaces and providing wildlife habitats within the urban setting.

Among the 60 miles of trails, 29.72 miles are not exclusively recreational trails (trails that encircle parks) but rather connect across town, serving a transportation function. The breakdown of these trail types is as follows:

Trail Type	Mileage
City Managed Multi-Use Trails	25.7
University-Owned portion of Hinkson Creek Trail	2.25
Trail Connectors	1.77
Total:	***27.72***

Major Trails

- **MKT Nature and Fitness Trail:** The MKT Trail is perhaps the most iconic of Columbia's trails, stretching approximately 10 miles from downtown Columbia to the outskirts of the city, where it connects to the Katy Trail State Park. This multi-use trail is heavily utilized for both recreational and commuting purposes, offering a scenic route through wooded areas, open fields, and alongside creeks. The MKT Trail is paved with crushed limestone, making it suitable for a wide range of users, from casual walkers to serious cyclists.
- **Bear Creek Trail:** Another significant trail in Columbia, the Bear Creek Trail, extends for about 4.8 miles, connecting the northern part of the city to the central region. This trail follows Bear Creek and offers a mix of paved and gravel surfaces, accommodating various activities such as biking, jogging, and birdwatching. The trail also links several parks and neighborhoods, making it a valuable resource for both recreation and transportation.
- **Katy Trail Connection:** Columbia's trail network is enhanced by its connection to the Katy Trail, one of the longest rail-trails in the United States, spanning over 240 miles across Missouri. The Katy Trail is a major attraction for long-distance cyclists and hikers, and Columbia serves as a key access point for this state-wide trail. The connection to the Katy Trail via the MKT Trail significantly boosts Columbia's appeal as a destination for outdoor enthusiasts.

The City of Columbia has a Trails Plan element in its Park, Recreation, and Open Space Master Plan that lists an additional four trails that are funded or under construction and 18 trails of various types that have been proposed throughout the city, including five primary trail sections, four secondary trail sections, and nine tertiary trail sections. The principal local source of funding is the 1/8 cent temporary parks sales tax, most recently reauthorized by Columbia voters in November 2021 for extension to March, 2032.[13]

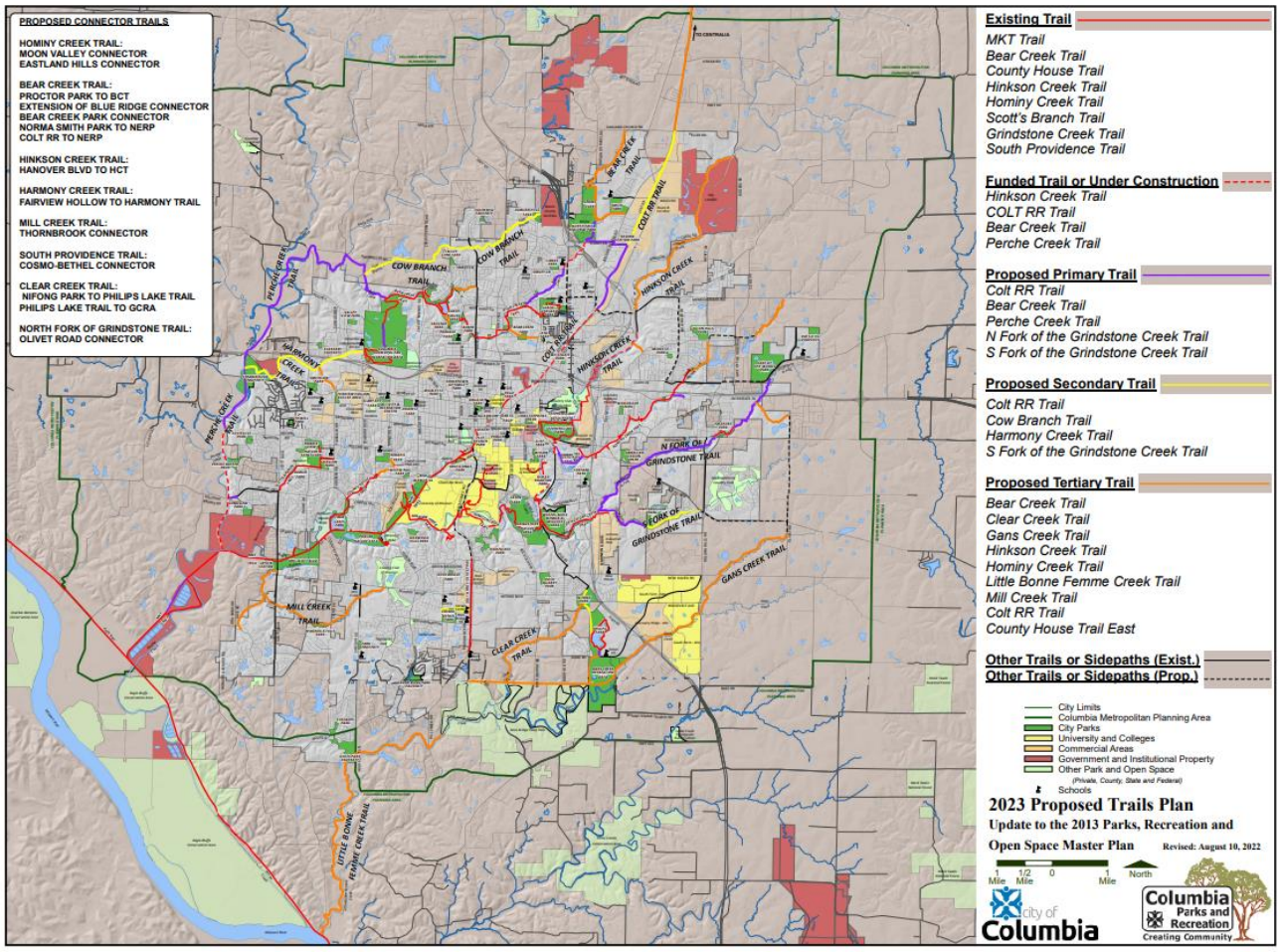
Multi-use sidewalks are present along several major roadways. The CATSO Bicycle and Pedestrian Network Plan identifies numerous corridors as "pedways" and the City of Columbia street standards, Appendix A of the Subdivision Regulations, include an eight-foot "pedway" sidewalk on one side of the street in several of the optional street design cross sections. Locations of pedways are typically determined on a case-by-case basis.

Together, trails and pedways are sometimes identified as "Class I" bike routes, or routes designed for exclusive use by bicyclists, pedestrians, and wheelchair users.

Map 3 shows the Columbia Proposed Trails Plan Map.[14]

[13] FY 2024 Capital Improvement Projects (como.gov)
[14] Columbia Trails Plan

Map 3 - 2023 Columbia Trails Plan



PEDESTRIAN FACILITIES

To support walking as a mode of travel, residential and other subdivisions must provide pedestrian facilities. Sidewalks along public street rights-of-way ensure that pedestrians are safely separated from vehicle traffic. In the Columbia MPA, sidewalks are primarily found within the City of Columbia, while pedestrian facilities are scarce outside the city limits.

Current city subdivision regulations require sidewalks on both sides of new streets. In the early 20th century, sidewalks were constructed as urbanization occurred. However, there was a period after World War II when sidewalks were not included in new developments. In 1974, the city implemented new subdivision regulations mandating sidewalk construction on both sides of new streets, except in industrial areas. The City Council adopted a "Complete Streets" policy in 2004, requiring multimodal facilities for all street classifications. This policy was updated in 2017 as part of the Unified Development Code ordinance[15]. The complete streets standards

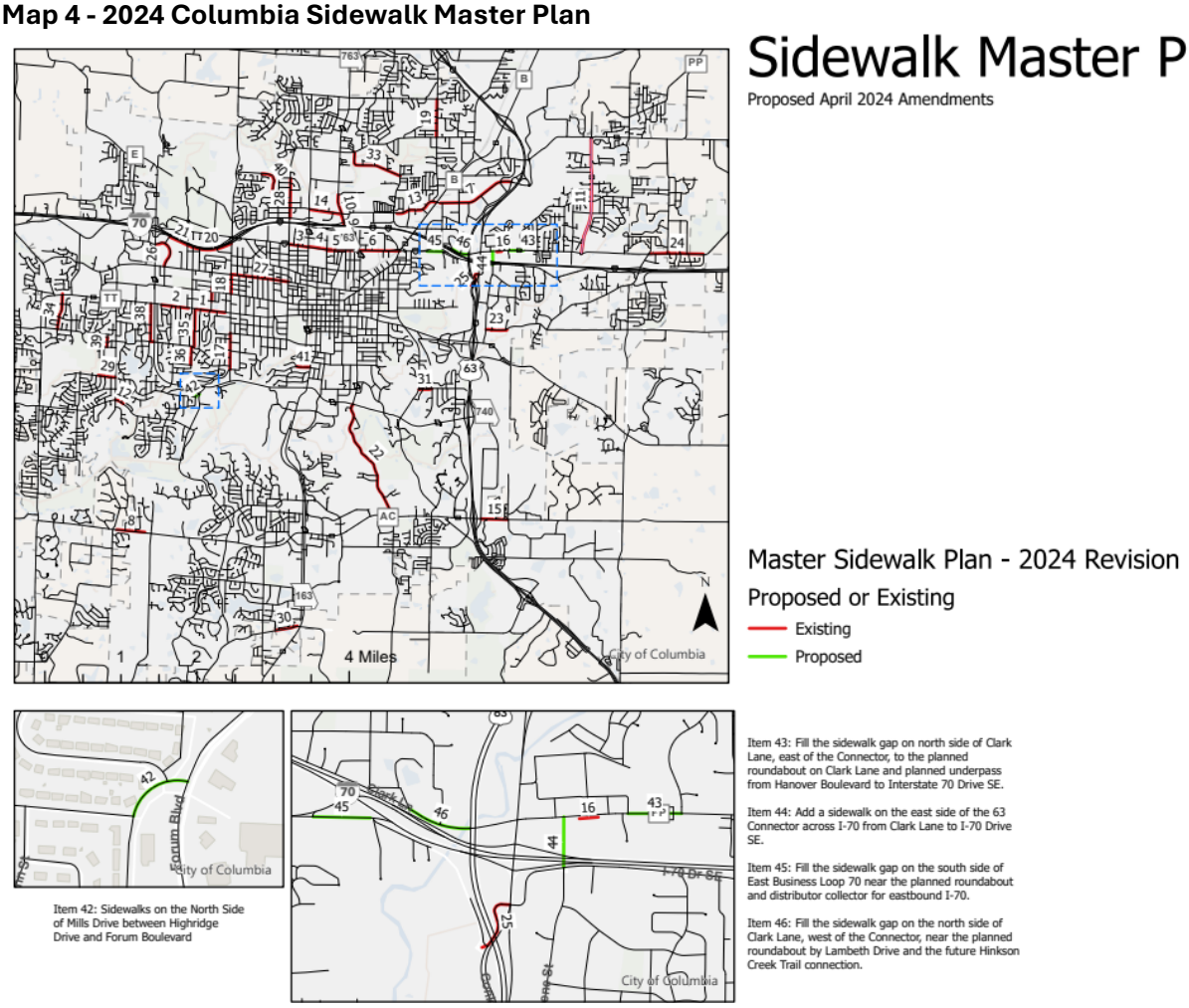
[15] See the City of Columbia Complete Streets Standards here.

are being updated again in 2024 and are anticipated to be complete after the approval of this plan. CATSO adopted its own Complete Streets resolution in 2014.

Over the past 40 years, large areas of unincorporated land have been annexed, including a significant 1969 annexation that nearly doubled the city's physical size. Many of these annexed areas were developed under Boone County standards, which did not require sidewalk construction until 1995. These newer regulations mandate sidewalks in residential subdivisions with densities greater than one unit per half-acre. As a result of decades of development without sidewalks, many neighborhoods either lack sidewalks or have incomplete systems, creating gaps between older central areas and newer neighborhoods. Several sidewalk master plans have been adopted to address this issue, beginning with the first plan in 1976. The most recent plan, updated in 2023 and amended in 2024, identifies 15 new sidewalk construction projects from the previous update in 2012 addressing street corridors lacking sidewalks, ten of which were added in 2023 and five more in 2024, four of which are in conjunction with the I-70/US-63 interchange project developed. The plan focuses on streets in the Major Roadway Plan (MRP), which have the greatest need due to their role in connectivity, higher traffic volumes, and pedestrian safety concerns. Of the 46 total projects in the plan, 37 are on MRP streets, while eight of the remaining nine local street projects are lower-priority carry-overs from the 2013 plan. The 2012 plan had 42 proposed projects. Ten of those had been complete or were funded and in process during the plan update in 2023. One additional project was canceled.

Map 4 shows a map of the 2024 Sidewalk Master Plan.

Map 4 - 2024 Columbia Sidewalk Master Plan



In summary, a large percentage of the street mileage (City, County, and MoDOT-maintained) within the MPA lacks sidewalks. This is true for all street categories as classified by the Major Roadway Plan. There are over 550 miles of sidewalks within the MPA, mostly on local streets. However, approximately half of all arterial and collector street segments in the MPA lack sidewalks on at least one side. The 94 miles of interstate, freeway, and expressway within the MPA, being limited-access roadways, generally do not and are not recommended to have sidewalks for safety reasons. Sidewalk widths in the MPA vary from 36 inches to 120 inches (for shared-use paths or pedways). The current minimum standard for new sidewalk construction is five feet in width.

In 2023, the City of Columbia received $1.4 million Safe Streets and Roads for All (SS4A) grants from the US Department of Transportation (USDOT).[16] With this came funding for pedestrian related improvements, such as review Columbia's Complete Streets policy, a study on leading pedestrian intervals (LPI), and the creation of a pedestrian level of comfort map.

[16] City of Columbia to use Safe Streets and Roads for All grant to pursue traffic safety improvements - City of Columbia Missouri (como.gov)

INTER-REGIONAL TRANSPORTATION: MOVING GOODS AND PASSENGERS

The Columbia MPA serves as a vital transportation hub, facilitating the movement of goods and passengers to and from the region. The primary mode of inter-regional transportation is the highway system, with Interstate 70 and U.S. Highway 63 serving as key arteries.

- **Interstate 70:** This major east-west corridor connects Columbia to other significant cities, including Kansas City and St. Louis, providing efficient access to regional and national markets.
- **U.S. Highway 63:** Running north-south, U.S. Highway 63 links Columbia to Jefferson City and beyond, extending southward to Arkansas and northward to the Iowa border.

Beyond these primary routes, other state highways, such as Route B, also play a crucial role in supporting inter-regional transportation within the MPA.

Interstate 70 is currently in the process of being widened across the state of Missouri, including the stretch through Columbia. By adding a third lane in each direction, the project aims to alleviate traffic congestion, making daily commutes smoother and reducing travel time for residents and visitors. Enhanced safety measures are also a key benefit, as the additional lanes will minimize merging and lane-changing, thereby decreasing the likelihood of accidents. This infrastructure upgrade is expected to bolster economic growth by facilitating more efficient transportation of goods and services. Additionally, modernizing this vital transportation corridor, originally constructed in the 1950s, ensures it meets current and future needs. Funded through Missouri's historic budget surplus, this project represents a timely investment in the state's infrastructure, promising long-term benefits for Columbia and beyond.

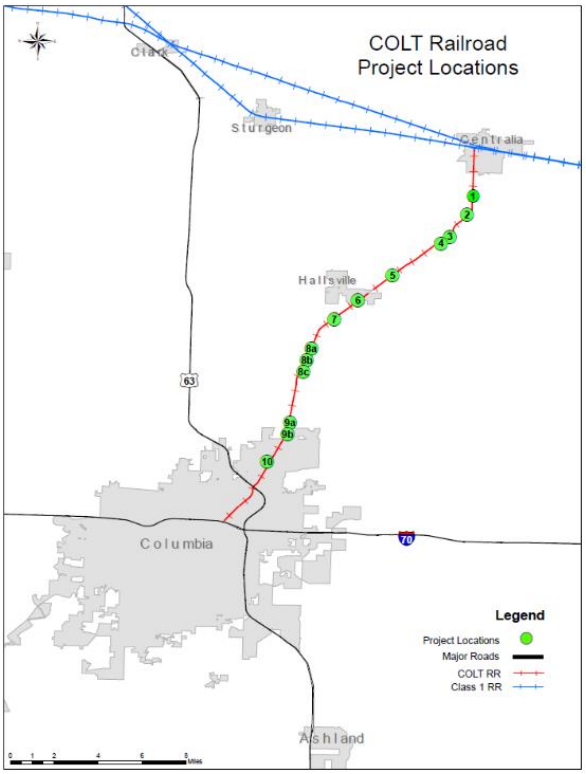
Railways

Freight service to the area is provided by the Columbia Terminal Railroad (COLT), which is owned and operated by the City of Columbia. The railroad serves the communities of Centralia, Hallsville, Browns Station, and Columbia. COLT's infrastructure includes its track, right-of-way, bridges, signals, crossings, culverts, and other elements essential to railroad operation. The railroad's main track spans 21.34 miles between Columbia and Centralia, with approximately 2.5-3 miles currently unused. The COLT line has 39 at-grade public highway/rail crossings and 23 private crossings, with an average of 1.8 public crossings per mile—the second-highest concentration among Missouri's railroads. Thirteen of the public crossings are equipped with active warning devices, and train speeds are limited to 20 MPH in town, increasing to 25 MPH on rural stretches.

A rail-to-truck transload facility, known as the Rail Terminal, has been in operation on the COLT since January 2004. This facility, located on a 15-acre parcel of City-owned land in north Columbia, leased to a private operator, facilitates freight transfers between trucks and rail cars and provides material storage for later delivery. The Rail Terminal handles products like steel, lumber, and auto parts for about 18 customers in Columbia and mid-Missouri. Future growth in railroad traffic is anticipated primarily from expanding rail-to-truck transload freight markets.

The City of Columbia is currently pursuing a COLT Railroad Operations Resiliency and Connectivity Project, which aims to enhance 8.35 miles of track across 10 vulnerable sections of the rail line, shown in Map 5. These improvements, supported by the U.S. Department of Commerce's Economic Development Administration (EDA), involve replacing outdated 90-pound rail with 115-pound industry-standard rail, removing defective ties, adding ballast, tamping, and performing surface upgrades. Additionally, one culvert will be replaced. The upgrade project extends from west of 4501 Paris Rd in Columbia to east of North Jay Jay and East Greenfield Road just south of Centralia. These improvements are intended to reduce service disruptions, enhance operational resilience, and support continued growth of the rail line.

MAP 5 - COLT RAILROAD PROJECT MAP



Inter-regional Passenger Rail Service

The nearest inter-regional passenger rail service to the Columbia Metropolitan Planning Area (MPA) is located approximately 30 miles south in Jefferson City. This service is part of AMTRAK's Missouri River Runner line, which operates four daily trains on the Union Pacific railroad tracks between Kansas City and St. Louis.

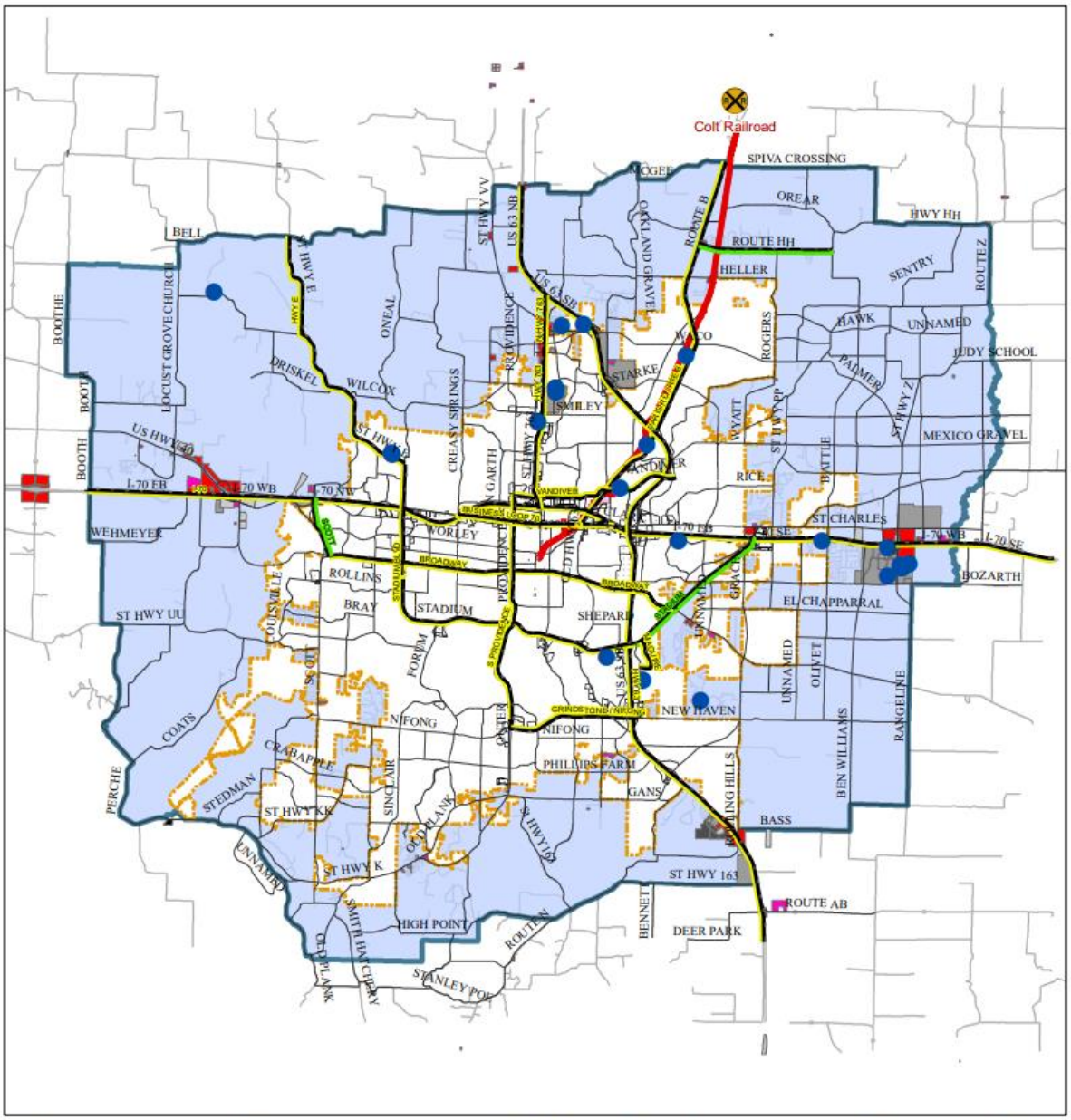
Additionally, AMTRAK offers service at La Plata, Missouri, approximately 80 miles north of the MPA. This station is situated on the Southwest Chief route, which runs on tracks owned by the Burlington Northern Santa Fe (BNSF) railroad. The Southwest Chief is one of AMTRAK's long-distance trains, linking Chicago to Los Angeles with stops in major cities such as Kansas City, Albuquerque, and Flagstaff.

Interstate Freight

The Columbia MPA's location along Interstate 70 provides access to a major east-west route for interstate freight movement. Up to thirty percent of the daily traffic on sections of I-70 through Columbia is multiple-axle trucking. US Highway 63 provides north-south access to the area. A number of motor freight companies have terminals located in Columbia.

Major freight corridors through the Columbia region as well as the locations of major freight carriers are shown in Map 6.

MAP 6 - METROPOLITAN PLANNING AREA FREIGHT CORRIDORS AND COMPANIES



Metropolitan Planning Area Freight Corridors and Companies

Produced by the City of Columbia - Community Development Department- CATSO

Legend

Freight Corridors
- Existing
- Potential

Date: 4/26/2019

1 in = 2 miles

- Freight Hauling Companies
- COLT Railroad
- City of Columbia City Limit
- CATSO Metropolitan Planning Area

Boone County Zoning

C-G	M-GP
C-GP	M-L
C-N	M-LP
M-G	

City of Columbia Zoning

C-1	M-C
C-2	M-P
C-3	M-R
C-P	M-U
M-1	

Air Transport

Columbia Regional Airport (COU) offers passenger service to and from Dallas/Fort Worth and Chicago O'Hare International Airports. Owned by the City of Columbia and serviced by American Airlines, COU plays a vital role in enhancing regional connectivity, driving economic growth, and facilitating travel not only to the City of Columbia, but central Missouri as a whole.

In 2022, COU completed a new terminal that is three times larger than the previous one, accommodating the airport's expanding catchment area, which is estimated to serve a population of 520,000, and an increase in enplanements as seen in Figure 4. This project also added 93 additional parking spaces, bringing the total to 368. [17] Parking at COU is free for any length of time, though travelers planning to leave their vehicle for more than 10 days are asked to fill out an extended parking notification form. In 2024, COU received a $2.4 million grant to rehabilitate its runways. [18]

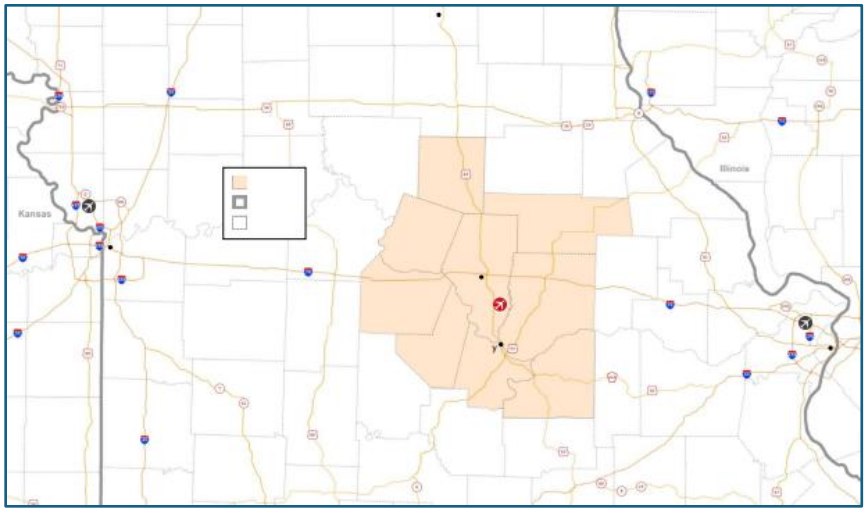
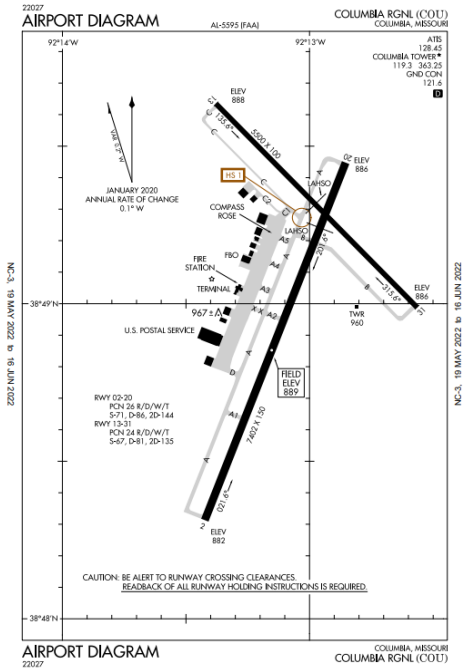


FIGURE 3 - COLUMBIA REGIONAL AIRPORT (COU) CATCHMENT AREA[19]



MAP 7 - DIAGRAM OF COLUMBIA REGIONAL AIRPORT

[17] New Columbia Regional Airport terminal creates opportunities for Columbia, Missouri and the central region (como.gov)
[18] 2024 Airport Improvement Program (AIP) Grants | Federal Aviation Administration (faa.gov)
[19] Columbia-Missouri-Case-Study.pdf (trb.org)

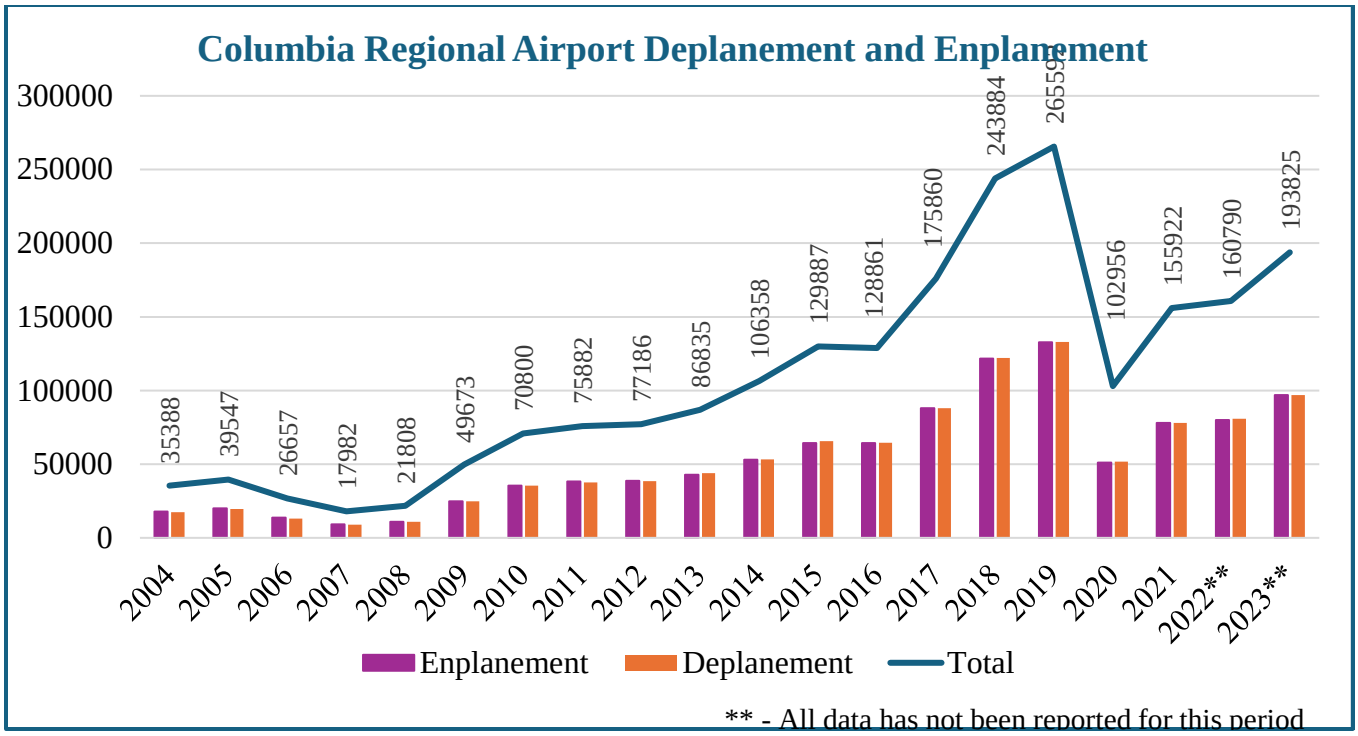
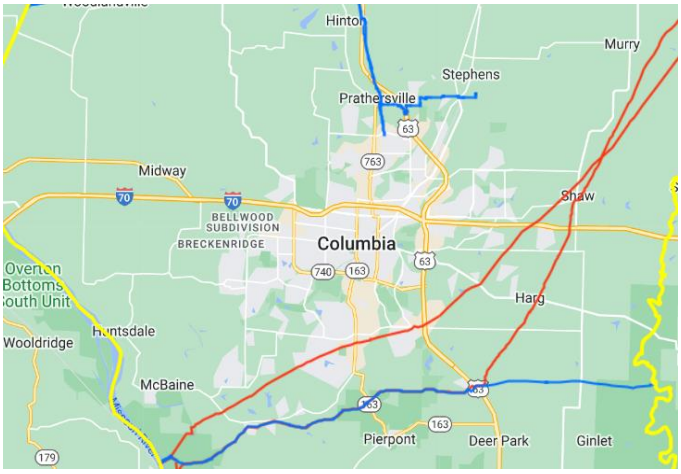


FIGURE 4 - COLUMBIA REGIONAL AIRPORT ENPLANEMENT DATA[20]

Pipelines

There are four active pipelines within the Columbia MPA. The southernmost pipeline is owned by Southern Star Central Gas and transports natural gas east and west across the MPA. The second pipeline is owned by Magellan Pipeline Company and transports fuel in the northeast direction while traveling through the southern portion of the MPA. Both the Southern and Magellan pipelines cross under US 63 near Old Millers Rd. Magellan also operates a refined products terminal in the southeast corner of the MPA. The third pipeline is a north-south pipeline located in the northern area of the MPA and operated by Panhandle Eastern Company which transports natural gas and runs parallel to Rangeline St. The final operating pipeline is an east-west natural gas line operated by Ameren UE located in the central northern area of the MPA and crosses under Prathersville Rd. Additionally, there is one unused pipeline in the southern section of the MPA which crosses under US 63 near New Haven Rd.[21]



MAP 8 - COLUMBIA REGION PIPELINES

[20] Passenger Load Factors - Columbia Regional Airport (flycou.com)
[21] NPMS Public Viewer (dot.gov)

Chapter 4: Transportation System Connectivity and Multi-Modalism

This section of the Metropolitan Transportation Plan (MTP) delves into the critical aspects of transportation system connectivity and multi-modalism within the Columbia Metropolitan Planning Area (MPA). By examining the functional classification of roadways, analyzing design standards, and exploring the integration of non-motorized transportation modes, this section aims to ensure a comprehensive and sustainable transportation network.

The primary objective is to create a transportation system that is efficient, safe, and accessible for all users, regardless of their mode of travel. This includes accommodating the needs of motorists, transit riders, pedestrians, and cyclists. By prioritizing connectivity and multi-modalism, the MTP seeks to enhance the quality of life for residents, stimulate economic growth, and reduce environmental impacts.

TRANSPORTATION SYSTEM CONNECTIVITY

"Transportation connectivity" refers to the continuity of the roadway system within each functional classification, ensuring that the design and capacity of roadways within the metropolitan planning area (MPA) are compatible. Functional classification is a way of organizing roads and streets based on the role they play in the overall transportation network. It is a hierarchy that categorizes roads by how much traffic they handle and what kind of service they provide. Achieving system continuity requires balancing main lane capacity, functional classification, roadway design, and access to create a cohesive roadway system. This system should provide continuous travel paths and avoid abrupt transitions between these elements along the length of a roadway.

The classification of roadways within the Columbia MPA is based on the service function and access function each road provides. The basic roadway types and their functional descriptions are shown in the table below.

Classification	Principal Function	Trip Length	Land Use Linkage
Freeway	Through movements. Access by frontage roads and ramps only.	3 – 5 miles	Central Business District Major Generators
Expressway	Through movements. Interchanges at major Intersections. Restricted driveway access.	3 – 5 miles	Central Business District Major Generators
Arterial	Through movements. Limited driveway access.	1 – 3 miles	Central Business District Secondary Generators
Collector	Through movements and land access.	1 mile	Local areas
Local	Land access.	½ mile	Individual tracts

The access and through-movement functions described here form the foundation for designing the future transportation system. Continuity along a roadway can involve considerations such as alignment, functional classification, roadway length, and cross-section design. The transportation plan assessed six different roadway classifications and designs, along with three lane configurations. Below are descriptions of these classifications and their associated design elements and access management strategies:

1. **Freeway**: Typically 4, 6, or 8 travel lanes with a minimum of 400 feet of right-of-way. This is a limited-access roadway featuring full grade-separated interchanges. Access to the freeway is provided via ramps connecting to frontage roads or interchanges, with no direct property access except via frontage roads. Interstate 70 and Highway 63 are examples of freeways.
2. **Expressway**: Typically 4 or 6 travel lanes with a minimum of 250 feet of right-of-way. This is a high-volume, high-capacity arterial roadway, with widely spaced signalized intersections at minor intersections and grade-separated major intersections. Direct access from properties is limited, with access primarily through right-in, right-out movements. Stadium Boulevard is an example of an expressway.
3. **Major Arterial**: Typically 4 or 6 lanes with 90 to 150 feet of right-of-way. This type of roadway is designed for high traffic volumes with at-grade street intersections and regulated driveway access. Signalization is provided at key intersections, with priority given to through traffic. A raised center median or a flush median may be included, depending on access requirements. Providence Road north of Stadium is an example of a major arterial.
4. **Minor Arterial**: Typically 2 or 4 lanes with 90 to 120 feet of right-of-way. These roads provide secondary arterial functions, offering access to major arterials or limited-access roadways. They serve localized circulation and access needs and may be divided or undivided. Vandiver Drive is an example of a minor arterial.
5. **Major Collector**: Typically 2 or 4 lanes with up to 90 feet of right-of-way. These roads are designed for lower capacity and provide local access and circulation to the arterial network. Creasy Springs Road primarily functions as a major collector.
6. **Neighborhood Collector**: Typically 2 lanes with up to 66 feet of right-of-way. These are low-volume, low-speed roads that provide access for local residential traffic to the major collector and arterial network. Texas Avenue is an example of a neighborhood collector.

The design and functional classification of each roadway in the MRP must ensure the following: 1) design continuity, 2) adequate main lane capacity, 3) appropriate access for adjacent properties, and 4) overall functionality within the roadway network.

For state-maintained roadways, MoDOT requires right-of-way (R.O.W.) consistent with the adopted highway design standards. These standards generally mandate larger right-of-way widths than those of the City of Columbia or Boone County, particularly for rural roadways, which often rely on ditches for drainage rather than curbs and gutters. The right-of-way requirements for roadways under the jurisdiction of the City of Columbia are established through the Public Works Street Design Standards and the City's subdivision regulations. Boone County sets its right-of-way standards through the County Street Design Standards and subdivision regulations. All right-of-way must be sufficient to accommodate roadway pavement, sidewalks, utility easements, street lighting, traffic control devices, signage, drainage, and bicycle/pedestrian facilities.

Street connectivity is a critical concern for public transit, delivery services, and emergency service providers. Collector streets should be designed as through streets, rather than winding cul-de-sacs, to ensure efficient access for bus routes. The design should also include adequate intersection geometrics to accommodate the turning movements of buses, fire trucks, and service vehicles. A useful metric for evaluating connectivity is the

connectivity ratio, which is calculated by dividing the number of intersections (or "nodes") by the total number of dead-end streets plus intersections. The closer this ratio is to one, the better the connectivity.

STREET STANDARDS

Streets within the Columbia MPA roadway system must be designed to safely fulfill their intended access and mobility functions. The right-of-way width, number of lanes, lane width, and geometric design features should align with the anticipated traffic volumes and speeds for each roadway. Additionally, provisions for transit, pedestrian, and bicycle facilities must be integrated into the roadway design.

Boone County, the City of Columbia, and MoDOT all share responsibility for the design and construction of roadways within their respective jurisdictions. A review of street standards reveals that MoDOT's design standards do not require sidewalks or bike lanes on any classification of roadway, though they recommend implementing complete street design elements.[22] In contrast, the City of Columbia has adopted "complete streets" standards, which require sidewalks and bike lanes on all classifications of streets.[23]

MULTI-MODALISM

Multi-modalism refers to the use of transportation facilities and corridors for more than one mode of transport. This approach is evident on most transportation networks, where pedestrians, cyclists, and public transit users share space with motor vehicles. Legislative measures such as TEA-21, SAFETEA-LU, MAP-21, the FAST Act, and most recently, the Infrastructure Investment and Jobs Act (IIJA), have all emphasized the importance of developing street systems that accommodate a range of users, including pedestrians, cyclists, buses, and motor vehicles.

The planning and provision of transportation facilities to support alternative transportation modes—such as public transportation, walking, and bicycling—include the following objectives:

1. Provide continuous street connections to accommodate point-to-point travel;
2. Provide facilities for persons traveling on foot or bicycle along or on the roadway;
3. Eliminate or minimize barriers to pedestrian and bicycle movement; and
4. Provide for ADA accessibility in all public transportation facilities.

The goal of incorporating non-auto modes into the street network and removing barriers to travel is to provide the same level of access and freedom of movement that is available to motorized vehicles. High-volume, high-speed traffic on arterial and collector streets can create significant barriers for pedestrians and cyclists, particularly when crossing these roadways. This also impacts transit use, as pedestrians play a crucial role in accessing mass transit services and require safe and convenient access to transit stops.

[22] Missouri Standard Plans - Highway Construction
[23] City of Columbia Code of Ordinances

LIVABILITY

Livability focuses on linking the quality and location of transportation facilities to broader opportunities such as access to jobs, affordable housing, quality schools, and safer streets. The Metropolitan Transportation Plan (MTP) emphasizes the connection between transportation planning and system maintenance, economic development, land use, and safety to improve the quality of life for residents within the Metropolitan Planning Area (MPA) and to enhance the region's economic competitiveness.

At the federal level, the interagency Partnership for Sustainable Communities—which includes the Department of Transportation, the Department of Housing and Urban Development, and the Environmental Protection Agency—has developed a Livability Initiative. This initiative aims to coordinate and leverage federal investments in housing, transportation, water, and other infrastructure. The Partnership for Sustainable Communities has established the following guiding principles[24]:

1. Provide more transportation choices.
2. Promote equitable, affordable housing.
3. Enhance economic competitiveness.
4. Support existing communities.
5. Coordinate policies and leverage investment.
6. Value communities and neighborhoods.

[24] https://www.epa.gov/sites/default/files/2014-06/documents/partnership_year1.pdf

Chapter 5: Transportation System Management

This chapter provides information on how the Columbia MPA utilizes different forms of measures and management to improve transportation in the region.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

Transportation demand management (TDM) is a strategic approach to addressing roadway capacity deficiencies without relying solely on new construction or expanded roadways.[25] TDM strategies aim to reduce vehicle demand by increasing vehicle capacity or providing alternative transportation options. While new construction can directly and effectively address congestion, it does not provide a complete solution.

To reduce congestion, various strategies can be implemented to incentivize individuals to use alternative modes of transportation or eliminate unnecessary trips:

1. Increase Vehicle Occupancy

- **Ridesharing programs:** Local and regional ridesharing programs can encourage shared travel.
- **Transportation management associations:** These organizations coordinate ridesharing opportunities and incentives through employers or business associations.
- **Cash-out parking subsidies:** Employees can convert employer-paid parking subsidies into transit subsidies or cash.
- **Restrict single-occupancy vehicle parking:** Limiting availability or increasing parking costs for single-occupancy vehicles can discourage solo commuting. An example is the park-and-ride lot at the southeast corner of U.S. 63 and Route AC, owned by MoDOT, which offers commuters the opportunity to park and share rides to Jefferson City.

2. Enhance Access to Alternative Modes

- **Mixed-use development:** Creating mixed-use developments that integrate residential, commercial, and retail areas can encourage walking, cycling, and transit use.
- **Transportation enhancements:** Investing in improved bicycle paths, pedestrian facilities, and public transit infrastructure can provide more options for commuters.
- **Staggered work hours:** Implementing staggered work hours can help distribute traffic more evenly throughout the day.

[25] Transportation Demand Management

Transportation System Management and Operations (TSMO)

TSMO is a comprehensive approach to managing and operating transportation systems more effectively. It involves a range of strategies aimed at improving the reliability, efficiency, and sustainability of the transportation network. Key Components of TSMO are as follows:

- **Traffic Management:**
  - **Signal Timing Optimization:** Coordinating traffic signals to minimize delays and improve traffic flow.
  - **Incident Management:** Implementing strategies to quickly respond to and clear traffic incidents.
  - **Dynamic Message Signs:** Using variable message signs to provide real-time information to drivers.
- **Public Transportation:**
  - **Transit Signal Priority:** Prioritizing transit vehicles at intersections to reduce travel times.
  - **Transit-Only Lanes:** Providing dedicated lanes for transit vehicles to improve efficiency.
  - **Transit Information Systems:** Providing real-time transit information to passengers.
- **Pedestrian and Bicycle Facilities:**
  - **Safe Routes to School:** Creating safe and convenient walking and biking routes for students.
  - **Bicycle Boulevard Networks:** Developing connected bicycle paths for commuting and recreational use.
- **Freight Management:**
  - **Truck Route Optimization:** Identifying efficient routes for freight vehicles to reduce congestion.
  - **Truck Parking Facilities:** Providing adequate parking facilities for commercial trucks.
  - **Advanced Transportation Management Systems (ATMS):** Implementing intelligent transportation systems to manage traffic flow and optimize operations.

Benefits of TSMO:

- **Improved Mobility:** Reduced congestion, shorter travel times, and increased accessibility.
- **Enhanced Safety:** Reduced traffic accidents and improved safety for all road users.
- **Environmental Sustainability:** Reduced emissions and energy consumption.
- **Economic Benefits:** Increased economic activity and job creation.

Implementation of TSMO:

To effectively implement TSMO, transportation agencies should:

- **Conduct a Needs Assessment:** Identify specific transportation challenges and opportunities.
- **Develop a TSMO Plan:** Outline goals, objectives, and strategies.
- **Implement TSMO Initiatives:** Implement selected TSMO strategies.
- **Monitor and Evaluate:** Continuously monitor performance and evaluate the effectiveness of TSMO initiatives.

By adopting a comprehensive TSMO approach, transportation agencies can enhance the efficiency, sustainability, and safety of their transportation systems, providing significant benefits to communities and the environment.

Review of Demand Model Output

As part of long-term planning for the Columbia MPA, it is essential to periodically review and update the demand model output to ensure it reflects current travel patterns, land use changes, and projected growth. While this MTP update utilized the current CATSO TransCAD Travel Demand Model to validate and provide valuable insights into the region's transportation needs, it does not include a major model calibration, setup, and scripting update.

In a future MTP cycle, updating the demand model will be necessary to accurately capture evolving conditions and improve our understanding of how projected growth and infrastructure investments will impact the transportation network. This future model update will allow us to better assess key corridors, modal shifts, and potential capacity issues, providing a more precise foundation for prioritizing projects and planning for sustainable development.

This future update should include:

- **Forecast Validation**: Ensuring projections align with new data and trends since the last model run.
- **Capacity and Performance Analysis**: Identifying areas where demand may exceed capacity under updated scenarios.
- **Equity and Accessibility Review**: Ensuring all communities have equitable access to transportation options.
- **Support for TDM and Mode-Shift Goals**: Understanding shifts to transit, biking, and walking and their impact on overall demand.

This step will remain a priority in future planning efforts to guide data-driven decision-making and support the region's long-term transportation vision.

CONGESTION AND CONGESTION MANAGEMENT

Traffic congestion and travel delays are among the most noticeable signs of transportation problems in an area. While drivers primarily experience congestion as a personal inconvenience, it also wastes time, consumes energy resources, and contributes to lower air quality. In the Columbia MPA, traffic congestion is typically limited to weekday morning and evening peak hours. Delays occur at specific locations, such as interstate ramps, signalized intersections, and bridges. In most cases, congestion in the Columbia MPA lasts less than 30 minutes during these peak periods.

Travel times in the Columbia area have increased only slightly over the last 20 years. In Boone County, the average commute time was 18.4 minutes in 2010, compared to 17.8 minutes in 2000 and 16.7 minutes in 1990. National trends show that while average travel times have remained relatively consistent, the duration of peak-hour congestion has been increasing.

Congestion Measurement Methods

Congestion can be measured using two primary methods: **facility-based measures** and **travel time**. Facility-based methods focus on the road itself, using metrics such as volume-to-capacity ratios and traffic volume per lane mile. Travel time measures assess congestion from the perspective of the individual traveler, such as average commute times. Both methods often lead to similar conclusions about the state of congestion.

Research has noted that individual behavioral changes—such as altering travel routes—can mitigate the effects of congestion. As a result, travel times do not always increase in direct proportion to congestion on specific roadways. However, as Columbia's population grows and residential development expands into outlying areas, vehicle trips are increasing. Many existing streets are now carrying higher traffic volumes, and a closer examination of individual streets might reveal that capacity is not keeping pace with demand, potentially signaling worsening congestion.

A variety of indicators can be used to assess and manage congestion in Columbia, which can be grouped into four categories:

1. **Facility-based measures**:
    - Average vehicle speed during peak hours
    - Volume-to-capacity (V/C) ratio during peak times
    - Total vehicle-hours of delay
    - Proportion of daily travel by speed or V/C range
    - Frequency and duration of traffic incidents
    - Average daily traffic (ADT) per freeway lane
2. **Personal travel effects**:
    - Proportion of personal travel by speed range
    - Delay added to average person trips by time of day and travel purpose
    - Delay added to average trips by place of residence
    - Delay experienced by transit vehicles
    - Number of crashes related to congestion
3. **Economic effects**:
    - Delay added to commuter trips based on place of work
    - Percentage of truck travel by speed or V/C range
    - Vehicle-hours of delay for trucks and delivery vehicles
    - Truck scheduling costs due to travel time uncertainty
    - Market perceptions of congestion’s impact on economic activity
4. **Environmental impacts**:
    - Additional vehicle emissions due to stop-and-go conditions
    - Extra fuel consumption caused by stop-and-go traffic

Induced Demand

A key factor in congestion management is **induced demand**, a phenomenon that occurs when expanding the capacity of a roadway leads to more traffic rather than less. In simple terms, building more lanes or widening roads seems like a straightforward solution to congestion, but research shows that this often encourages more driving. New capacity attracts drivers who may have previously used alternative routes, traveled at off-peak times, or relied on other modes of transportation such as public transit. This increase in traffic demand can quickly fill the added capacity, resulting in little to no long-term reduction in congestion.

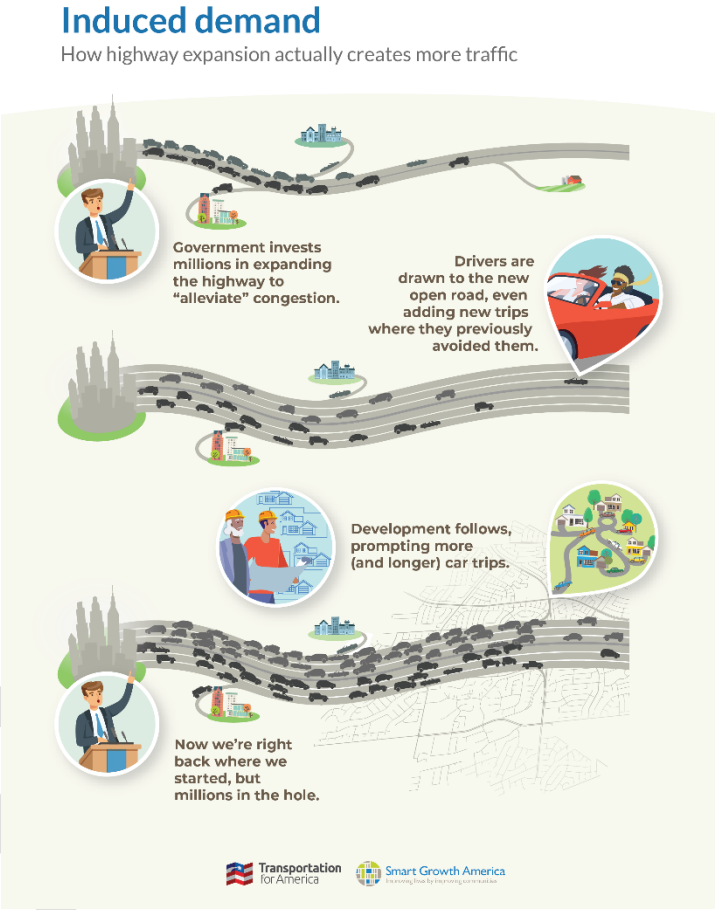
Induced demand occurs in several ways:

1. **Latent demand**: This refers to drivers who avoided a congested road by using less direct routes or traveling at different times. When the road is expanded, these drivers return to the now less-congested route or peak travel hours, filling up the new capacity.
2. **Mode shift**: An expanded road can make driving more attractive compared to other modes of transportation, such as public transit, biking, or walking. As more people choose to drive instead of using these alternative modes, the road quickly becomes congested again.
3. **Land-use changes**: Increased roadway capacity can lead to development in areas that were previously less accessible. New housing developments, businesses, and commercial centers generate more vehicle trips, which in turn contributes to increased traffic on the expanded roadway. This is especially true in rapidly growing regions where road expansions often spur suburban development, leading to even higher traffic volumes over time.

Induced demand highlights the limitations of road widening as a long-term solution to traffic congestion. In many cases, expanding roads only temporarily alleviates congestion before traffic volumes increase to match or exceed the new capacity. This "feedback loop" means that simply adding more lanes is often ineffective at addressing congestion over the long term.

Effective **congestion management** requires a more comprehensive approach that goes beyond road expansion. Instead of continuously building wider roads, cities can focus on strategies such as:

- **Building new roadways, bridges, and highways**: Instead of expanding existing congested roads, constructing new roadways can create alternative routes that divert traffic from overcrowded corridors.
- **Encouraging the use of alternate transportation modes**: Investments in public transit, cycling infrastructure, and pedestrian facilities can reduce the reliance on cars and mitigate congestion.
- **Land-use planning and regulation**: Coordinating land-use policies with transportation planning can help manage demand by promoting higher-density development in areas with good transit access, reducing the need for long car trips.
- **Access management**: Controlling the number of access points on major roads (e.g., limiting driveways and intersections) can improve traffic flow and reduce congestion.



- **Intersection and traffic signal improvements**: Targeted upgrades to intersections and signal timing can increase the efficiency of existing roadways without needing to expand their physical capacity.

The concept of induced demand underscores the importance of adopting a multimodal, holistic approach to transportation planning, where managing travel demand and promoting alternate transportation options take precedence over simply adding more lanes. Without addressing the root causes of congestion, road expansions may lead to more traffic, higher energy consumption, and worsened air quality.

Traffic Control Types

Signalized Intersections

Signalized intersections have a finite capacity for managing through and turning movements. When traffic demand exceeds this capacity, congestion, delays, reduced average travel speeds, and increased travel times result. The City of Columbia currently maintains 50 signals, while MoDOT is responsible for an additional 89 signals.

There are four primary strategies to address intersection delays:

1. Constructing a grade-separated interchange
2. Building a new roadway to divert traffic
3. Accepting delays and implementing mitigation measures to improve safety and accessibility
4. Signal timing and operations

Moving people through a corridor, whether in vehicles, on bikes or walking, cannot be fully optimal without sound traffic signal timing and coordination. Signals are built at intersections to maximize the efficiency of travel through that intersection and without coordination of each signal with respect to the other signals in a system, this efficiency cannot be fully realized. Development of multiple timing plans and a time-of-day schedule can account for fluctuations throughout the day in vehicle volumes. Sound coordination reduces travel time necessary to travel the length of a corridor, minimizes the amount of time vehicles are stopped and increases average speeds to be closer to the speed limit. This results in a decrease in fuel consumption and air pollution.

To maintain the capacity of major arterials, it is essential to ensure adequate spacing between signalized intersections, as these intersections are a primary contributor to roadway delays.

Roundabouts[26]

Roundabouts have emerged as an effective traffic control strategy, providing multiple benefits in terms of safety, traffic flow, and environmental impact. According to the Federal Highway Administration (FHWA), modern roundabouts improve intersection safety by reducing vehicle speeds, minimizing conflict points, and creating a counterclockwise flow around a central island. These design features significantly lower the risk of severe crashes, reducing fatal

[26] Federal Highway Administration. "Roundabouts." Intersection Safety. U.S. Department of Transportation.

and injury crashes by up to 78% when compared to traditional signalized intersections.

From an operational perspective, roundabouts decrease delays and queuing, particularly during peak traffic hours. They allow for continuous vehicle movement by requiring drivers to yield at entry rather than stop completely, which can reduce intersection delays by 20-30%, as noted in various studies. FHWA highlights their ability to manage speed transitions effectively, making them suitable for locations such as freeway interchange ramps and high-speed rural intersections.

In addition to their safety and efficiency advantages, roundabouts align with sustainability goals. FHWA emphasizes their contribution to reducing vehicle emissions and fuel consumption by minimizing idling and stop-and-go traffic. These environmental benefits support Columbia's efforts toward improved air quality and adherence to its climate action goals.

Strategic implementation of roundabouts at key locations in the MPA—such as interstate ramps and congested intersections—could alleviate localized congestion while improving safety and supporting multimodal transportation options. Their success in similar areas demonstrates their potential to enhance traffic management and provide a cost-effective solution to the region's growing transportation needs.

Diverging Diamond Interchange

The diverging diamond interchange (DDI) design has been successfully implemented at key locations across the country and is already in place at the interchange of Stadium Blvd with I-70 in Columbia. This modern intersection configuration has been shown to significantly improve traffic flow and enhance safety by eliminating many of the conflict points associated with traditional interchanges. By allowing vehicles to cross over to the opposite side of the road at designated points, the DDI eliminates the need for left-turn signals and allows for more continuous vehicle movement through the interchange. This results in reduced delays, smoother traffic flow, and a more efficient use of road space.

The diverging diamond design is also recognized for its ability to improve safety outcomes. By reducing the number of conflict points and encouraging lower speeds, DDIs reduce the likelihood of high-severity collisions, such as head-on or left-turn crashes. Since its implementation at Stadium Blvd, the intersection has seen improvements in traffic safety, with fewer reported accidents compared to traditional interchanges.

While the existing DDI at Stadium Blvd and I-70 has proven effective, there is potential for this design to be applied at other high-traffic locations within the Columbia MPA. DDIs are particularly effective at interchanges with frequent left-turn movements or heavy traffic volumes, making them suitable for other major corridors or congested intersections in the area.

Although the initial construction costs of a diverging diamond may be higher than a standard signalized intersection, the long-term benefits, such as reduced congestion, lower maintenance costs, and fewer accidents, can offset these expenses. Additionally, improved traffic flow contributes to reduced travel times and fuel consumption, benefiting both local businesses and commuters.

CATSO can explore the potential for additional diverging diamond implementations by considering the following:

- **Traffic Volume:** DDIs are most effective at high-volume intersections. Assessing traffic data at other key interchanges will help identify suitable candidates.
- **Land Availability:** Sufficient space is needed to accommodate the unique crossover design of a diverging diamond.
- **Cost-Benefit Analysis:** A thorough analysis should be conducted to weigh the upfront costs against the long-term benefits of reduced congestion and improved safety.

Roundabout Interchange[27]

Roundabout interchanges are a modern solution to managing traffic flow and safety at freeway interchanges, offering alternatives to traditional signalized designs. The MPA includes variations of two such interchanges: at I-70 and Business Loop 70, and at I-70 and Rangeline Street. These represent innovative approaches to traffic management, particularly in regions with growing traffic demands.

There are generally two types of roundabout interchanges:

1. **Single Roundabout Interchanges**: These feature a single circular intersection where all ramp terminals converge. They are typically used in areas with lower traffic volumes or where space is limited.
2. **Double Roundabout Interchanges**: Also known as *teardrop interchanges*, these involve two smaller roundabouts, one at each ramp terminal, connected by a short roadway segment. This design is well-suited for managing high traffic volumes while maintaining efficiency and safety.

Benefits and Considerations

[27] Does Your Interchange Design Have you Going Around in Circles? | Public Roads - November/December 2002

- **Safety Improvements**: Roundabout interchanges significantly reduce the likelihood of severe crashes by eliminating conflict points found in traditional intersections. Crashes that do occur are often less severe due to lower speeds and smoother traffic flow.
- **Operational Efficiency**: Studies have shown substantial reductions in delays. For example, a Georgia Department of Transportation (GDOT) project saw peak delays drop from over 200 seconds per vehicle at signalized ramp terminals to less than 25 seconds per vehicle with roundabouts.
- **Space Efficiency**: Compact designs, especially mini-roundabouts, minimize land use while addressing operational and safety needs. However, initial driver unfamiliarity can lead to minor crashes, highlighting the importance of public education and clear signage.

The I-70 interchanges in Columbia are examples of how these designs can enhance connectivity and traffic flow, contributing to a more resilient transportation network. For more details on roundabout interchange designs, the Federal Highway Administration provides insights into their development and success in various locations across the U.S.

Divergeabout

A "divergeabout" is a traffic control concept that combines the operational advantages of two proven designs: the diverging diamond interchange (DDI) and the roundabout. This hybrid layout is tailored for interchanges experiencing high traffic volumes and elevated risks of severe crashes. By integrating features from both designs, a divergeabout aims to improve safety, efficiency, and capacity at complex intersections.

The diverging diamond interchange component streamlines traffic flow by temporarily directing vehicles to the opposite side of the road. This reduces the number of conflict points and facilitates easier left-turn movements onto freeway ramps without the need for dedicated signal phases. Meanwhile, the roundabout element adds continuous-flow capabilities and a simplified control system, allowing for smoother merging and diverging at the interchange's central hub. Together, these features create a seamless traffic flow that minimizes delays and reduces the likelihood of high-speed or severe crashes.

While there are currently no divergeabouts in the Columbia MPA, there is currently two in the State of Missouri, in Grandview at the intersection I-49 and Arnold Avenue/E 155th Street as well as I-49 and Main Street. The design could offer a forward-thinking solution for interchanges facing significant congestion or safety concerns. Its unique ability to handle high traffic volumes efficiently within a compact footprint makes it particularly suitable for locations with spatial constraints or where traditional interchange designs have proven insufficient. Considering Columbia's ongoing growth, the divergeabout concept may be worth exploring in the future as part of the region's strategy to enhance safety and manage increasing transportation demands.

Single Point Urban Interchanges (SPUIs)

Single Point Urban Interchanges (SPUIs) are an option for managing traffic at intersections between arterial roads and freeways or major highways. The distinguishing feature of a SPUI is that all traffic movements are controlled from a single set of traffic signals at the center of the interchange. This compact layout allows vehicles making left turns and through movements from all directions to navigate simultaneously in a smaller footprint compared to traditional diamond interchanges.

SPUIs are particularly effective at improving traffic flow in areas with high volumes of turning movements, as they reduce the number of signal phases required to manage these movements. This efficiency leads to reduced delays and better accommodation of heavy traffic, especially during peak hours. Additionally, the design enhances safety by reducing conflict points and simplifying driver decision-making. While SPUIs require more complex signaling and often come with higher construction costs, their long-term benefits in terms of traffic capacity and reduced congestion make them a viable option for urban areas with significant traffic demands.

Currently, there are no SPUIs in the Columbia MPA. However, as the region grows and experiences increased demand at major interchanges, SPUIs could be considered for implementation, particularly at locations where conventional interchange designs may not suffice due to space constraints or traffic volumes. This forward-looking approach could enhance the region's transportation network by adopting efficient and innovative traffic control solutions.

J-Turns

J-turn intersections, also referred to as Restricted Crossing U-turns (RCUTs), are a traffic control design that improves safety and traffic flow by modifying how left-turn and through movements occur at intersections. In a J-turn design, vehicles on the minor road are directed to turn right onto the major road and then make a U-turn at a designated location to continue in their intended direction. This reduces conflict points, significantly lowering the likelihood of severe crashes.

Studies show that J-turns can reduce fatal and injury crashes by 54% for two-way stop-controlled intersections and by 22% for signalized intersections converted to signalized J-turns. These designs are especially effective in rural, high-speed areas and urban corridors

with heavy traffic volumes. J-turn intersections are also more cost-effective alternatives to traditional interchanges and can improve intersection throughput by up to 30% while reducing travel time by 40%.[28]

Although the Columbia MPA currently does not have J-turn intersections, their potential application could align with future safety and operational improvements, particularly on corridors with higher crash rates or traffic demands. These intersections also support better traffic flow and safety for pedestrians and bicyclists, as they simplify crossing movements.

ACCESS MANAGEMENT

Access management is a critical strategy for preserving roadway capacity and improving traffic safety by effectively regulating how vehicles access arterial roadways. According to the Federal Highway Administration (FHWA), access management involves systematically controlling the design, location, spacing, and operation of driveways, street connections, median openings, interchanges, and traffic signals. Its primary goals are to limit conflicts between vehicles, enhance traffic flow, and maintain the functional integrity of roadways.[29]

Unregulated access points, such as frequent or poorly spaced driveways on arterial roads, create conflict points where vehicles entering or exiting the roadway disrupt the smooth flow of through traffic. These conflicts can lead to congestion, higher crash rates, and reduced roadway capacity. FHWA highlights that the reduction in capacity can be particularly pronounced when turning movements are not properly managed. For instance, uncontrolled left turns are a common cause of delays and collisions, making strategies like implementing raised medians, shared driveways, or restricting left turns at certain points essential for efficiency and safety.

Access management techniques such as consolidating driveways, providing adequate spacing between access points, and encouraging the use of parallel service roads or frontage roads can significantly enhance arterial performance. Raised medians, in particular, play a pivotal role by restricting mid-block left turns and allowing controlled U-turns at designated locations. This improves traffic flow and reduces the likelihood of crashes, especially rear-end and angle collisions, which are common at uncontrolled access points.

In Columbia, access management practices are guided by standards in Appendix A – Street Standards under Chapter 29 of the Unified Development Code. Implementing FHWA-recommended principles, such as coordinating land use and transportation planning and enhancing intersection design, could further strengthen the city's efforts to preserve the movement function of arterial roads while supporting economic development.[30]

Right-of-Way and Corridor Preservation

The preservation and acquisition of right-of-way for planned roadways, roadway expansions, and planned trails is a crucial element in implementing the 2055 Metropolitan Transportation Plan. ROW reserved for roadways should include space for multi-model facilities that will be built as a part of the new roadway or roadway expansion. Corridor alignments for these planned roadways are identified in the CATSO Major Roadway Plan to guide the reservation of future right-of-way and prevent new construction or subdivision activity from preempting roadway development within these corridors.[31]

[28] Reduced Left-Turn Conflict Intersections
[29] What is Access Management?
[30] Appendix A. - Street Standards
[31] CATSO Major Roadway Plan - Interactive Map

These corridor alignments are general in nature and may be adjusted to meet engineering and land use requirements. Planned trail alignments are illustrated in the CATSO Bicycle & Pedestrian Network Plan, last updated in 2024, and part of the 2013 Parks & Recreation Master Plan.

Boone County and the City of Columbia typically acquire right-of-way during the subdivision process or as part of the site plan approval process for planned commercial zones. In these cases, developers dedicate the right-of-way to the City or County to comply with subdivision regulations and zoning requirements. However, right-of-way dedication cannot be mandated when a building permit is issued, even if a site plan is required. Boone County and the City of Columbia should consider developing regulatory mechanisms to require developers to dedicate public right-of-way at all stages of the development process or establish a capital pool for the County or City to use for purchasing right-of-way.

ENERGY CONSERVATION

To reduce the transportation system's energy consumption, policymakers can implement various strategies categorized into three primary areas:

Economic Incentives

Economic incentives, such as taxes, tax breaks, subsidies, regulatory exemptions, and pricing adjustments, can influence energy use. Efficiency standards, zoning regulations, fuel use requirements, speed limits, inspections, maintenance requirements, and travel restrictions are additional tools for reducing energy consumption. A relatively recent incentive, the parking cash-out program, offers employees a monetary bonus in exchange for relinquishing their assigned parking spaces. This encourages employees to use public transit, carpool, or non-motorized modes for commuting.

While some policy options, like gasoline taxes and federal fuel economy standards, are beyond the purview of local governments, the City of Columbia and Boone County can implement measures like the parking cash-out program and zoning regulations to influence energy use within the MPA.

Public Investment

Investing in new transportation infrastructure, maintaining and rehabilitating existing systems, promoting urban development, and conducting research and development can also contribute to energy conservation. Mass transit systems are often touted as a potential solution for reducing fuel consumption. However, significant shifts in travel patterns, particularly for work trips, are necessary to fully realize this potential.

Despite the high costs associated with mass transit systems, there are questions about their overall energy efficiency compared to alternative transportation modes. Statistics indicate that fuel use per passenger mile for bus systems increased by 70% from 1970 to 1989 due to factors like lower passenger loads, urban congestion, and suburban-focused services. Increasing passenger numbers per transit vehicle can improve energy efficiency and reduce subsidies.

Under the right conditions, such as high passenger loads, congested private vehicle traffic, and dedicated transit lanes, mass transit systems can achieve substantial fuel savings. These conditions are influenced by various factors, and fuel savings may vary between bus systems and light rail networks. Due to population size, the Columbia MPA currently does not have the necessary demand for a light rail system.

The City of Columbia's Climate Action and Adaptation Plan (CAAP), adopted in 2019, emphasizes the importance of public investment in non-motorized infrastructure to encourage walking and bicycling.

Regulatory Incentives

The presence of public transit alone is insufficient to ensure its viability as a transportation option. A sufficient density of land uses, particularly residential density, is essential for efficient transit operations. Centralization and a mix of land uses also play a crucial role in determining the utilization of public transportation, walking, and bicycling.

Cities with higher residential densities, a centralized focus, and a mix of land uses tend to have lower per capita travel rates and higher utilization of public transit, walking, and bicycling. In contrast, cities with lower densities, widely separated land uses, and a lack of a centralized downtown or major commercial/office area often have higher per capita travel rates and lower rates of public transportation, walking, and bicycling.

To increase the use of transit, walking, bicycling, and other energy-efficient modes, it is necessary to reduce the distances between residential areas and other land uses. This requires a shift in land use patterns to accommodate alternative forms of development.

In the Columbia area, the City of Columbia's 2017 Uniform Development Code allows for higher densities through mixed-use zoning districts, including accessory dwelling units in specific zoning districts. By combining policies that promote walking and bicycling, improve transit services, and increase land use density, the area can potentially reduce auto travel and achieve substantial energy savings. The Imagine Columbia's Future and Columbia Imagined plans include references to mixed-density and mixed land use zoning concepts that can generate fewer and shorter automobile trips.

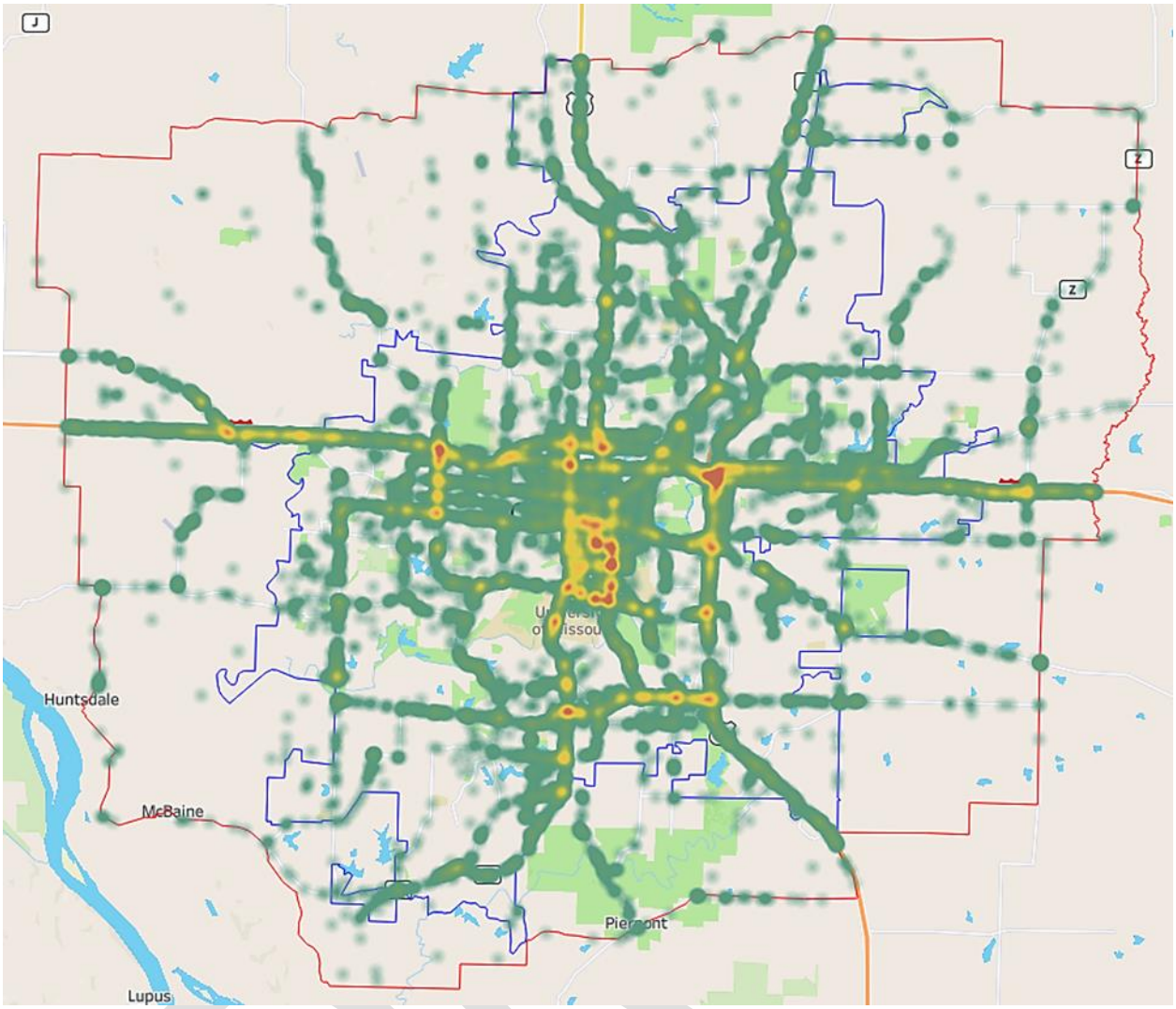
SAFETY ANALYSIS

This section offers a comprehensive review of crash data in the CATSO region from 2014 to 2023, providing insight into patterns that influence transportation safety. This analysis allows us to better understand the current safety landscape and identify the most critical factors affecting crash frequency and severity. By examining trends across crash types, lighting conditions, weather influences, and road surface conditions, this section highlights how environmental and operational factors contribute to the risk of collisions.

Existing Safety Conditions

This section presents a historical analysis of crashes in the CATSO region from 2014 to 2023, focusing on trends related to crash types, weather conditions, lighting, and road surface conditions. The crash data, provided by MoDOT, is used to identify key factors contributing to crash frequency and severity, including rear-end collisions, loss-of-control incidents, and crashes involving vulnerable road users, such as pedestrians. Additionally, the section examines how environmental conditions—such as adverse weather, poor lighting, and hazardous road surfaces—affect crash outcomes. A heatmap of all crashes in the region is detailed in **Map 9**.

Map 9 - Heatmap of All Crashes Within CATSO Region (2014-2023)



Red = Higher Density of crashes; **Green** = lower density of crashes

Crash Trends by Year

Between 2014 and 2023, a total of 17,673 crashes were recorded in the CATSO region, averaging 1768 crashes per year. Of these, 12,192 (69.0%) involved property damage only, while 4,762 (26.9%) resulted in minor injuries. There were 596 crashes classified as suspected serious injuries, accounting for 3.4% of the total, and 123 fatal crashes (0.7%) were reported during this period. As shown in **Table 3,** in the past five years, the highest number of crashes occurred in 2023, with 1,934 crashes, showing an increase in recent years. The lowest crash count was in 2020, with 1,326 crashes, likely influenced by reduced travel during the COVID-19 pandemic. While the number of property damage-only crashes remains relatively stable across the years, there are fluctuations in the number of fatal and serious injury crashes, with 2016 and 2023 showing peaks in fatalities and serious injuries.

Table 3 - Yearly distribution of Crash severity within CATSO region (2014-2023)					
Year	**Property Damage Only**	**Minor Injury**	**Suspected Serious Injury**	**Fatal**	**Grand Total**
2014	1,274	485	53	13	1,825
2015	1,243	562	61	11	1,877
2016	1,298	582	71	17	1,968
2017	1,196	542	62	10	1,810
2018	1,211	464	46	11	1,732
2019	1,258	469	50	14	1,791
2020	947	323	48	8	1,326
2021	1,180	415	71	13	1,679
2022	1,253	411	58	9	1,731
2023	1,332	509	76	17	1,934
Total	***12,192***	***4,762***	***596***	***123***	***17,673***

Historical crashes show consistent distribution throughout the year, with notable monthly variances. October experienced the highest crash total, with 1,854 crashes, while July had the lowest with 1,244 crashes in the past 10 years combined.

While analyzed for crash time and day of the week it was found that crashes were more likely to occur during afternoon and evening peak traffic hours. The data shows a clear spike in crashes between 4:00 PM and 6:00 PM, particularly on Monday through Friday. These trends suggest that the evening rush hour is a particularly hazardous time for crashes. The morning peak hours between 6:00 AM and 9:00 AM, the number of crashes reported are usually low. However, there is a gradual increase as traffic begins to build, particularly between 8:00 AM and 9:00 AM.

The crash distribution throughout the day of the week and hour of the days are shown in **Figure 5**

Figure 5 - Crash Distribution between the Day of Week and Hours of the Day (2014-2023)

Figure 5 - Crash Distribution between the Day of Week and Hours of the Day (2014-2023)

Time New	Day Of Week						
	SUN	MON	TUE	WED	THU	FRI	SAT
1:00 AM	103	63	58	49	63	61	81
2:00 AM	72	21	21	30	36	55	86
3:00 AM	54	15	21	22	22	26	66
4:00 AM	35	15	8	14	21	22	26
5:00 AM	20	16	13	18	22	19	16
6:00 AM	22	25	22	20	17	23	15
7:00 AM	33	68	68	65	89	48	26
8:00 AM	46	176	162	180	166	144	41
9:00 AM	51	173	157	187	166	140	47
10:00 AM	65	104	136	120	123	118	85
11:00 AM	64	166	143	122	122	110	108
12:00 AM	88	142	134	152	132	167	137
1:00 PM	96	180	172	188	184	192	138
2:00 PM	111	159	158	158	153	184	131
3:00 PM	102	189	182	148	165	193	145
4:00 PM	115	210	187	223	188	252	156
5:00 PM	126	247	228	250	232	288	139
6:00 PM	100	279	283	280	286	255	124
7:00 PM	98	144	163	173	158	193	113
8:00 PM	96	104	87	106	118	131	84
9:00 PM	88	88	75	86	94	73	88
10:00 PM	80	65	83	80	83	99	89
11:00 PM	48	49	50	48	52	75	82
12:00 PM	46	32	53	49	43	49	77

As shown in **Figure 6**, October tends to have highest number of crashes than any other months throughout the year. Also, Fridays in October and September had the highest number of crashes. Tuesday and Wednesday tend to show moderate crash activity, while Sunday records the lowest crash occurrences, with notably fewer crashes across all months. Further study would need to be conducted to find out why.

Figure 6 - Crash Distribution between the Day of Week and Months (2014-2023)

Month of Date	Day Of Week						
	SUN	MON	TUE	WED	THU	FRI	SAT
January	120	219	205	204	242	243	158
February	143	219	209	238	215	230	202
March	158	217	195	210	220	210	177
April	135	216	209	193	224	211	171
May	143	212	220	250	228	244	178
June	129	244	223	214	195	204	131
July	130	170	165	211	195	221	152
August	137	229	267	255	227	236	177
September	139	236	240	264	252	293	189
October	208	261	275	269	287	331	223
November	157	275	246	267	221	224	183
December	160	232	210	193	229	270	159

Weather Conditions

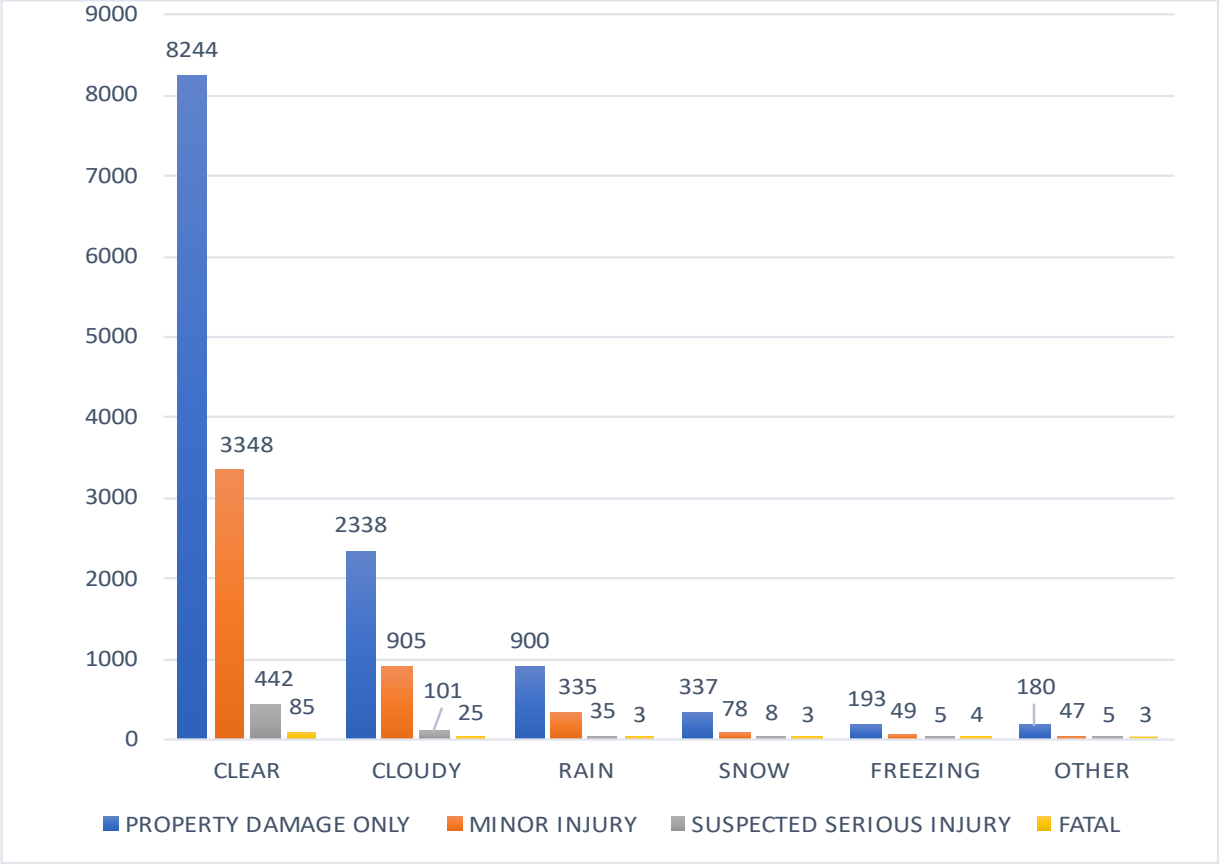
As shown in **Figure 7**, more than two-thirds of crashes (12,119 crashes, or 68.57%) occurred during clear weather conditions, with 67.62% of property damage-only crashes and 74.16% of suspected serious injury crashes taking place in these conditions. Cloudy weather was the second most common condition, contributing to 3,369 crashes (19.06%). Notably, the incidence of suspected serious injury crashes was slightly higher under cloudy conditions (16.95%).

Adverse weather conditions, such as rain, snow, and freezing temperatures, collectively represented a smaller proportion of crashes but played a more critical role in crash severity. Rain accounted for 7.20% of all crashes, but despite being a smaller portion of total crashes, it contributed to 5.87% of suspected serious injuries and 2.44% of fatalities. Snowy and freezing conditions led to 676 crashes (3.83%), and though less frequent than clear and cloudy conditions, these weather conditions were disproportionately linked to severe crashes, with 7.18% of suspected serious injuries occurring in snow and freezing conditions.

Crash severity is significantly affected by weather, as illustrated in **Figure 7**. Fatal crashes were most frequent in clear weather (85 crashes, 69.11%). However, freezing and snowy conditions had a higher proportion of fatal crashes relative to total crashes in these conditions, with 3.25% for freezing and 2.44% for snow. A substantial portion of minor (70.31%) and serious injury crashes (74.16%) also occurred in clear weather, but injury-related crashes were more frequent under

cloudy and adverse conditions, such as rain, freezing, and snow. For instance, freezing weather contributed to 5.98% of suspected serious injury crashes, a notable increase compared to its overall crash share of 1.42%.

Figure 7 - Weather Conditions and Crash Severity in CATSO Region



Certain crash types were more sensitive to weather conditions. Rear-end collisions were the most frequent across all weather conditions, accounting for 28.74% of total crashes, with a higher incidence during clear and cloudy conditions (29.54% and 30.13%, respectively). In contrast, out-of-control crashes became more prominent in adverse weather, especially freezing (48.61%) and snow (48.12%). Left-turn crashes increased significantly in snowy and freezing conditions (6.52% and 6.60%, respectively). Though head-on crashes are relatively rare (5.30% of total crashes), they were more likely to occur in snowy conditions, with 8.70% of head-on crashes happening in snow, compared to an overall snow-related crash share of 2.41%.

Clear weather accounted for most crashes, but adverse weather conditions, including rain, snow, and freezing temperatures, posed a significantly higher risk of severe outcomes. Crashes in these conditions, though fewer, often led to serious injuries or fatalities. Additionally, specific crash types, such as out-of-control and head-on collisions, increased under poor weather conditions.

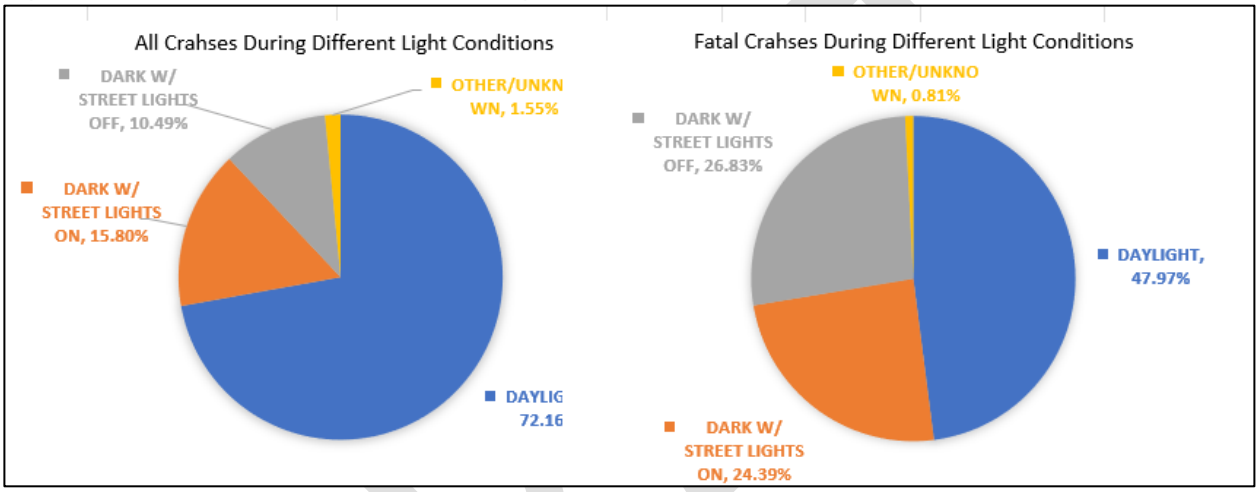
Lighting Condition

The majority of crashes took place during daylight hours, totaling 12,752 crashes (72.16%). Crashes occurring in dark conditions with streetlights on accounted for 15.80% of total crashes, while dark conditions with streetlights off

represented 10.49%. Daylight contributed to 71.76% of property damage-only crashes and 64.60% of suspected serious injury crashes, reflecting the higher traffic volumes typically seen during peak travel hours.

Under dark conditions with streetlights on, 2,793 crashes (15.80%) occurred, with 15.91% of property damage-only crashes and 18.79% of suspected serious injuries. Although street lighting reduces crash frequency, crashes in these conditions tend to be more severe, with a disproportionate percentage of serious injuries and fatalities. Crashes in dark conditions without streetlights accounted for 1,854 crashes (10.49%) and were associated with 10.58% of property damage-only crashes and 15.94% of suspected serious injury crashes. Importantly, 33 fatalities (26.83%) occurred under these conditions, indicating that poor lighting significantly raises the risk of severe or fatal crashes. **Figure 8** illustrates the relationship between crash severity and lighting conditions.

Figure 8 - Crash Proportion at Different Light Conditions



Most fatal crashes (47.97%) occurred in daylight. However, dark conditions, especially without streetlights, increased the likelihood of fatal outcomes, with fatal crashes in unlit conditions accounting for 26.83% of total fatalities. Minor injury crashes were most common during daylight (74.74%), while 14.93% occurred in dark conditions with streetlights on. Although 64.60% of suspected serious injuries occurred in daylight, this percentage was considerably higher in dark conditions with streetlights off (15.94%) and on (18.79%).

Certain crash types were more likely to occur under specific lighting conditions. Rear-end crashes were most common during daylight (32.43%) but decreased under dark, unlit conditions (15.70%). Out-of-control crashes were notably more common in dark conditions without streetlights, representing 40.88% of total out-of-control crashes. Head-on crashes, though rare in daylight (4.96%), were more severe and frequent in dark conditions. Pedestrian-related fatal crashes were also more common in dark conditions without streetlights, accounting for 45% of pedestrian fatalities, compared to 23% in daylight.

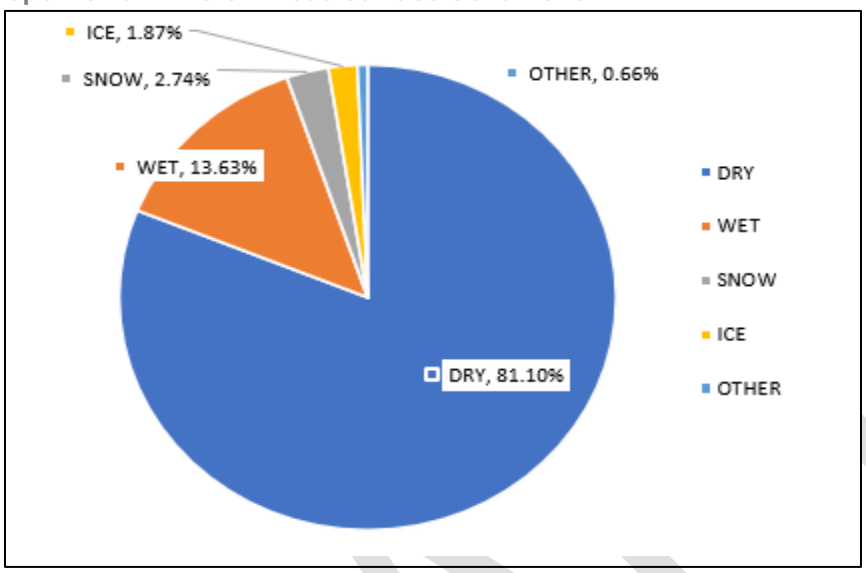
Although more crashes occur during daylight due to higher traffic volumes, dark conditions, particularly without streetlights, are disproportionately linked to severe outcomes, including fatal crashes and serious injuries. Out-of-control crashes and pedestrian crashes are particularly concerning in poorly lit areas.

Road Surface Conditions

As shown in **Figure 9,** the majority of crashes occurred on dry road surfaces, representing 81.10% of all crashes (14,333 total). Notably, 83.74% of fatal crashes and 85.74% of suspected serious injuries occurred on dry roads, indicating that

while dry conditions are generally safer, they still account for a high volume of crashes due to factors like higher traffic volumes. Wet road surfaces contributed to 13.63% of total crashes (2,408 crashes), with 9.76% of fatal crashes and 12.52% of suspected serious injuries occurring in these conditions. Snow and ice collectively were involved in 4.64% of total crashes, with 4.07% of fatal crashes and 2.01% of serious injuries.

Figure 9 - Crash Proportion at Different Road Surface Conditions



Crash Type

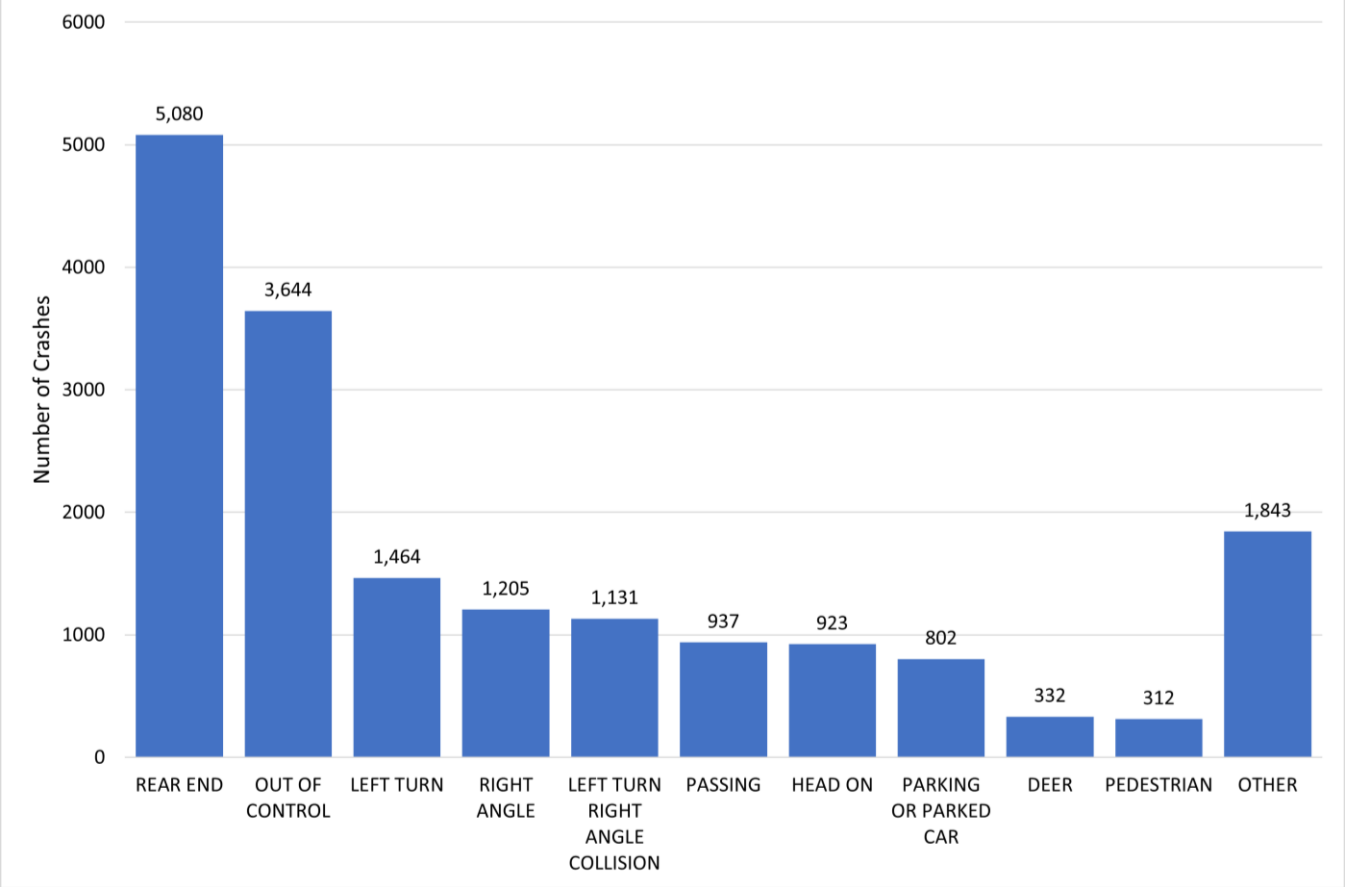
An analysis of crash types (crash classes) over the 10-year period from 2014 to 2023 reveals notable trends in crash frequency and severity across the CATSO region as shown in **Figure 10**. Rear-end crashes were the most common type, comprising 28.74% of all crashes (5,080 total) and resulting in 13 fatalities (10.57% of all fatal crashes). These crashes accounted for a high number of property damage-only incidents (29.49%) and contributed 13.59% to suspected serious injuries.

Out-of-control crashes represented 20.62% of total crashes (3,644), making them the second most common crash type. However, these crashes had a significantly higher fatality rate, contributing to 37 fatalities (30.08%). While many out-of-control crashes resulted in property damage or minor injuries, they also accounted for a disproportionately high number of serious injuries (27.85%).

Left-turn crashes comprised 8.28% of total crashes (1,464), with 9 fatalities (7.32%) and 7.55% of suspected serious injuries. Right-angle crashes accounted for 6.82% of total crashes (1,205) and were linked to 5 fatalities (4.07%). Head-on crashes, though comprising only 5.22% of total crashes (923), were among the most severe, contributing to 12 fatalities (9.76%) and 12.42% of suspected serious injuries. Sideswipe crashes and crashes with parked vehicles or other stationary objects were relatively common but generally less severe, together contributing 5.30% and 4.54% of total crashes, respectively. Animal-related crashes, including those with deer, represented a minor portion, accounting for 1.88% of total crashes and resulting in 39 pedestrian collisions and 9 fatalities.

Crash trends over the past decade show relative consistency in the frequency of common crash types, such as rear-end and out-of-control crashes. However, pedestrian fatalities and serious injuries have remained a significant concern.

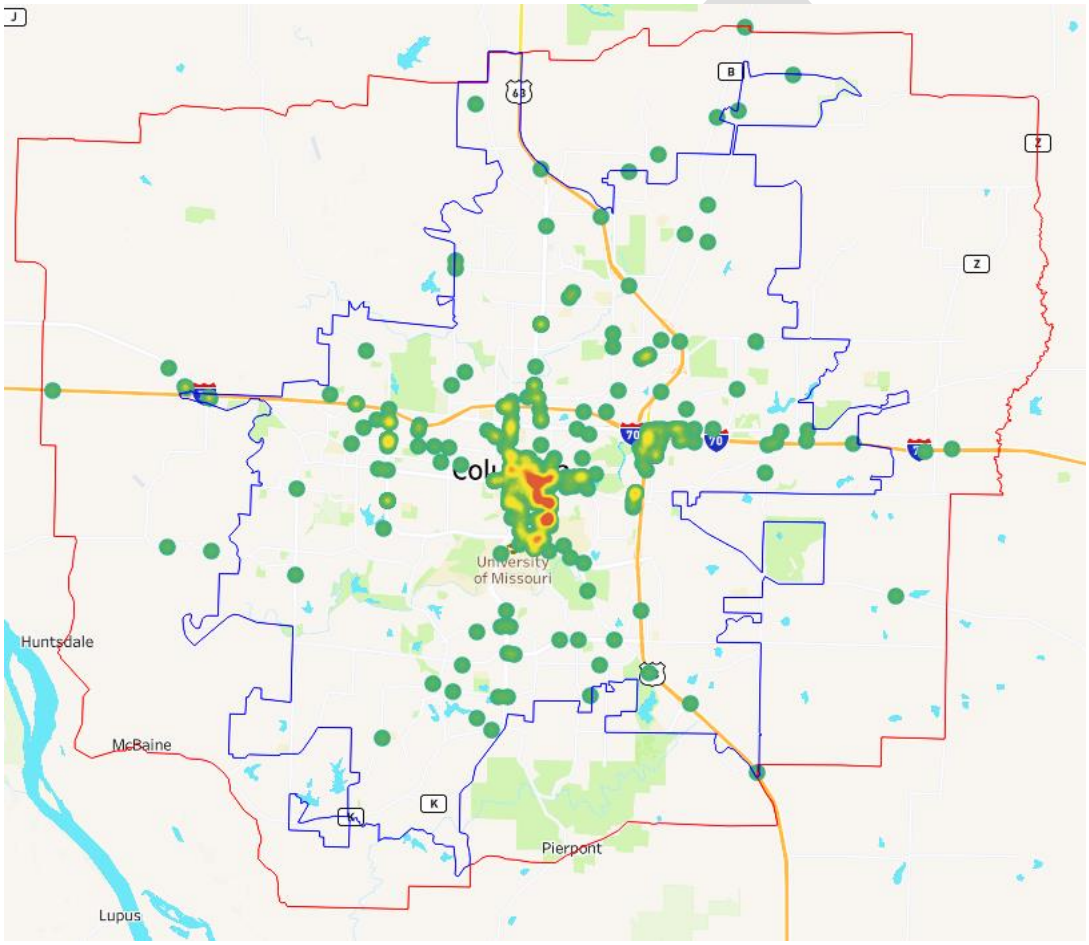
Figure 10 - Crash Types in CATSO Region (2014-2023)



Vulnerable Road Users

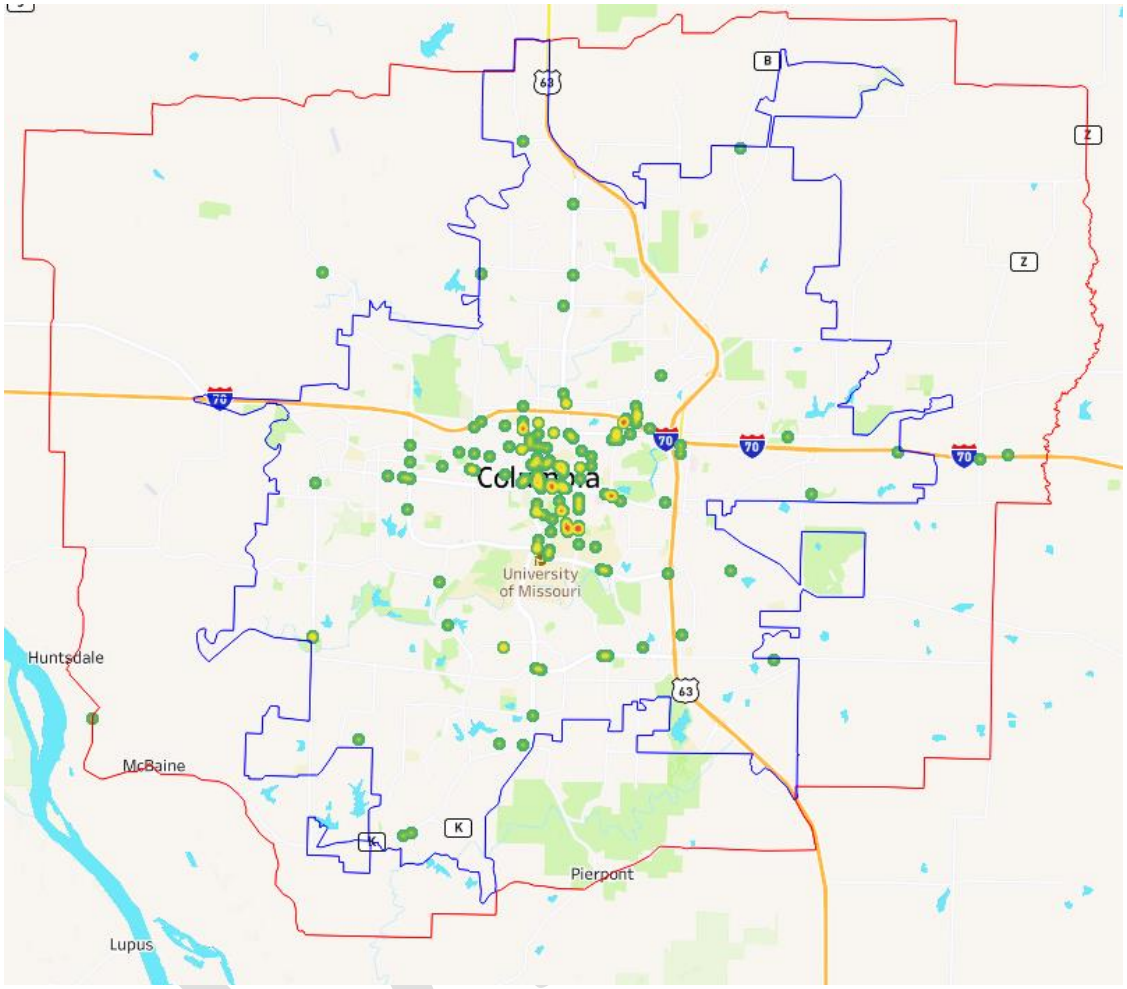
Pedestrian-involved crashes, though less frequent, often resulted in severe outcomes. These crashes made up only 1.77% of total crashes (312) but accounted for 25.20% of all fatal crashes (31 fatalities) and contributed 10.57% to suspected serious injuries. Additionally, 10% of pedestrian crashes occurred during adverse weather conditions such as rain and snow. Fatal pedestrian crashes were more common in dark, unlit conditions, accounting for 45% of pedestrian fatalities, compared to 23% in daylight. Although only 14% of all pedestrian crashes happened on unlit roadways at night, the likelihood of severe crashes was disproportionately higher under these conditions. Pedestrian crashes were most frequent between 10:00 AM and 1:00 PM and from 3:00 PM to 9:00 PM. **Figure 11** shows the density of pedestrian involved crashes.

Figure 11 - Pedestrian Involved Crash Density in CATSO Region



Bicycle-involved crashes accounted for 0.94% of total crashes (166), contributing 2.73% to minor injuries and 2.01% to suspected serious injuries, though no fatalities were recorded. These crashes were most common between 1:00 PM and 6:00 PM. **Figure 12** shows the density of pedestrian involved crashes.

Figure 12 - Pedestrian Involved Crash Density in CATSO Region



Crash data for the CATSO region highlights significant safety challenges related to rear-end and out-of-control crashes in terms of both frequency and severity. Extra attention is required for vulnerable road users, such as pedestrians, who are disproportionately affected by severe crash outcomes.

PERFORMANCE-BASED APPROACH/PERFORMANCE REPORT

The IIJA continues the performance-based approach established by MAP-21 for transportation performance management. This approach requires states, MPOs, and transit agencies to set performance goals and monitor progress using a set of standardized metrics.

National Performance Goals

The seven national performance goals established under MAP-21 are:

1. **Safety -** To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
2. **Infrastructure Condition -** To maintain the highway infrastructure asset system in a state of good repair
3. **Congestion Reduction -** To achieve a significant reduction in congestion on the National Highway System
4. **System Reliability -** To improve the efficiency of the surface transportation system
5. **Freight Movement and Economic Vitality -** To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. **Environmental Sustainability -** To enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. **Reduced Project Delivery Delays -** To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

Federal Performance Measures

MPOs like CATSO are mandated by federal legislation (MAP-21 and the FAST Act) to monitor and set targets for specific performance measures across various aspects of the transportation system within their areas. Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) rulemakings define these performance measures, including their calculation methods, target-setting processes, and reporting requirements, which are organized by rulemaking categories.

Local, regional, and state partners collaborate in collecting and sharing transportation performance data, establishing performance targets, and producing reports.

As necessary, CATSO acts on setting targets for these measures. These performance measures are integral to CATSO's commitment to performance-based planning and are integrated into planning documents such as the Metropolitan Transportation Plan (MTP) and the Transportation Improvement Program (TIP), in alignment with federal requirements.

The FHWA has established three main performance measure rules, known as PM1, PM2, and PM3, each covering different aspects of transportation system performance:

- PM1 - Safety Performance Management (Highway Safety)
- PM2 - Pavement and Bridge Condition Performance Management (Pavement and Bridge Condition)

- PM3 - System Performance, Freight, and Congestion Mitigation and Air Quality Improvement (System Performance)

The FTA requires MPOs to develop and monitor performance targets for transit assets and safety to ensure sustainable, efficient, and safe transit systems:

- Transit Asset Management (TAM)
- Transit Safety – (Public Transportation Agency Safety Plan (PTASP))

Performance Reporting

States, MPOs, and transit agencies are required to collect and report data on these performance measures. This data is used to assess progress toward achieving the national performance goals and to inform transportation planning and investment decisions.

PM1 - Safety Performance Management (Highway Safety)

The Federal Highway Administration's Highway Safety Improvement Program (HSIP) requires states and Metropolitan Planning Organizations (MPOs) to establish safety targets and monitor progress in reducing traffic fatalities and injuries. While agencies have the option to develop their own targets, CATSO chose to adopt the statewide targets set by the Missouri Department of Transportation (MoDOT).

MoDOT's annual statewide safety targets, which were presented to CATSO staff and other MPOs in August 2023, are outlined below in Table 4. These targets align with the HSIP's goal of reducing traffic fatalities and major injuries on public roadways.

By adopting MoDOT's statewide targets, CATSO is demonstrating its commitment to improving safety within the Columbia Metropolitan Planning Area (MPA). This decision offers several benefits:

- **Alignment with State Priorities:** Adopting statewide targets ensures consistency with MoDOT's overall safety initiatives and facilitates collaboration between the state and local agencies.
- **Benchmarking:** Comparing local performance to statewide targets can help identify areas for improvement and prioritize safety initiatives.
- **Public Awareness:** Adopting statewide targets can help raise public awareness about safety issues and encourage community participation in safety initiatives.

The CATSO Coordinating Committee adopted these targets on February 22, 2024, signaling its dedication to enhancing safety within the MPA.

Table 4 - Safety Performance Measures Versus Current Crash Data

Performance Measure	Crash Data				5-year Rolling Average Baseline (2018-2022	5-year Rolling Average Statewide Target CY2024
	2021 Final	2022 Prelim	2023 (Using Target Setting Methodology)	2024 (Using Target Setting Methodology)		
Number of Fatalities*	1016	1057	998	918	972.4	~972.4
Fatality Rate per 100 Million VMT*	1.273	1.34	1.253	1.141	1.258	~1.258
Number of Serious Injuries*	5268	5047	4766	4486	4861.8	~4861.8
Serious Injury Rate per 100 Million VMT^	6.602	6.398	5.982	5.575	6.281	6.227
Number of Non-Motorized Fatalities and Serious Injuries^	530	594	561	525	523.0	~523.0

**Performance Measures to be reported in the 2023 Highway Safety Plan.*

^Performance Measures to be reported in the 2023 Highway Safety Improvement Program Annual Report

Targets are based on Zero by 2030 fatality reduction, Zero by 2040 serious injury reduction, 1% VMT increase, and non-motorized reduction based on overall fatality and serious injury reductions.

PM2 - Pavement and Bridge Condition Performance Management (Pavement and Bridge Condition)

In alignment with the Federal Highway Administration's (FHWA) final PM2 rule, issued on May 20, 2017, CATSO has adopted statewide performance targets for pavement and bridge conditions as established by MoDOT. This PM2 rule was developed under requirements set by MAP-21 and the FAST Act, both of which have been upheld and reinforced under IIJA. These federal mandates call for ongoing monitoring and performance measurement to ensure the condition and safety of critical infrastructure across the National Highway System (NHS).

The FHWA's Pavement and Bridge Condition Performance Measures rule specifies six key measures for State DOTs to assess infrastructure conditions and support the National Highway Performance Program (NHPP). These measures help evaluate both the Interstate and non-Interstate NHS, covering pavements and bridges to identify areas requiring maintenance, rehabilitation, or replacement. These six measures are:

1. Percentage of NHS Bridges in Good Condition
2. Percentage of NHS Bridges in Poor Condition
3. Percentage of Interstate Pavements in Good Condition
4. Percentage of Interstate Pavements in Poor Condition

5. Percentage of non-Interstate NHS Pavements in Good Condition
6. Percentage of non-Interstate NHS Pavements in Poor Condition

MoDOT has established statewide targets to meet these FHWA performance measures, which MPOs, including CATSO, have the option to either adopt or adjust to reflect regional priorities. The CATSO Coordinating Committee formally adopted MoDOT's statewide targets for pavement and bridge conditions on May 25, 2023. These targets align CATSO with state-level efforts and ensure consistent reporting and monitoring.

MoDOT's targets, summarized in Table 5 below, include biennial evaluations that consider changes in infrastructure conditions and ensure compliance with FHWA regulations. Regular updates to these targets allow MoDOT and CATSO to respond dynamically to evolving infrastructure needs, balancing maintenance and improvement efforts to preserve safety, mobility, and access.

In adopting MoDOT's targets, CATSO supports a shared commitment to maintaining NHS pavement and bridge conditions that meet or exceed federal standards. This coordinated approach strengthens the resilience of the regional transportation network, minimizes lifecycle costs, and prioritizes the safety and reliability of key infrastructure assets.

By tracking and reporting on these metrics, CATSO and MoDOT aim to identify areas where interventions may be necessary and prioritize projects that optimize long-term asset performance across the NHS in the region.:

Table 5 - Pavement and Bridge Targets Set by MoDOT

Performance Measure	2021 Baseline	2023 Target	2025 Target
Percentage of NHS Bridges in Good Condition	27.2%	22.8%	19.2%
Percentage of NHS Bridges in Poor Condition	7.1%	7.7%	7.8%
Percentage of Interstate Pavements in Good Condition	79.9%	77.5%	77.5%
Percentage of Interstate Pavements in Poor Condition	0.0%	0.1%	0.1%
Percentage of non-Interstate NHS Pavements in Good Condition	61.3%	61.1%	61.1%
Percentage of non-Interstate NHS Pavements in Poor Condition	0.9%	1.0%	1.0%

PM3 - System Performance, Freight, and Congestion Mitigation and Air Quality Improvement (System Performance)

MoDOT established statewide system performance measures to assess the efficiency and reliability of the transportation network. MPOs, including CATSO, had the option to adopt these measures or develop their own.

CATSO staff recommended that the CATSO Coordinating Committee adopt MoDOT's statewide system performance measures, citing the benefits of aligning with state-level targets and leveraging MoDOT's expertise. The Coordinating Committee agreed, and at their May 25, 2023 meeting, approved the adoption of the MoDOT 4-year targets for Pavement & Bridge targets.

The table below outlines MoDOT's statewide system performance measures and associated targets[32]:

Performance Measure	2021 Baseline	2023 Target	2025 Target
Interstate Travel Time Reliability Measure:	98.4%	87.1%	86.0%
Non-Interstate Travel Time Reliability Measure:	95.5%	87.8%	87.0%
Freight Reliability Measure:	1.18	1.45	1.45

Key Performance Measures:

- **Interstate Travel Time Reliability Measure:** This measure assesses the percentage of person-miles traveled on interstate highways within a specified travel time reliability threshold.
- **Non-Interstate Travel Time Reliability Measure:** Like the interstate measure, this metric evaluates the percentage of person-miles traveled on non-interstate National Highway System (NHS) routes within the reliability threshold.
- **Freight Reliability Measure:** The Truck Travel Time Reliability Index measures the consistency of truck travel times on specific routes.

Significance of Adopting Statewide Targets:

By adopting MoDOT's statewide system performance measures, CATSO demonstrates its commitment to improving the efficiency and reliability of the transportation network within the Columbia Metropolitan Planning Area (MPA). This decision offers several benefits, including:

- **Alignment with State Priorities:** Aligning with MoDOT's statewide targets ensures consistency with the state's transportation goals and facilitates collaboration.
- **Public Awareness:** Adopting statewide targets can help raise public awareness about transportation issues and encourage community participation in efforts to improve the system.

By adopting MoDOT's statewide system performance measures, CATSO is taking a proactive step toward enhancing the efficiency, reliability, and overall quality of the transportation network within the MPA.

Transit Asset Management (TAM) Measures

CATSO has chosen to adopt the statewide Transit Asset Management (TAM) Plan targets established by MoDOT. These targets, presented to CATSO and staff in October 2022, are designed to guide transit agencies in maintaining their vehicle fleets and system facilities in a state of good repair (SGR).

MoDOT's TAM Plan outlines a comprehensive approach to asset management, focusing on long-term planning, preventative maintenance, and data-driven decision-making. The plan establishes performance targets for various asset categories, including:

[32] https://gocolumbiamo.legistar.com/View.ashx?M=F&ID=12000543&GUID=1F858646-80B1-496B-ACE4-457E606474EE

- **Bus fleet:** This could encompass targets for average bus age, preventive maintenance intervals, and vehicle reliability.
- **Transit facilities:** This might include targets for station maintenance, accessibility upgrades, and infrastructure condition.

By adopting MoDOT's TAM Plan targets, CATSO benefits from the following:

- **Standardized Approach:** MoDOT's statewide targets provide a consistent framework for measuring and managing transit assets, facilitating comparisons across different agencies within Missouri.
- **Data-Driven Decisions:** The TAM Plan emphasizes the use of data to inform investment decisions, enabling CATSO to prioritize maintenance and rehabilitation activities effectively.
- **Improved Efficiency:** By focusing on preventative maintenance, MoDOT's TAM Plan targets can help CATSO to minimize costly repairs and extend the lifespan of their assets, ultimately reducing costs.
- **State Funding Opportunities:** Aligning with MoDOT's TAM Plan targets may enhance CATSO's eligibility for state funding programs that support transit asset management initiatives.

Performance Measures and Targets

The CATSO Coordinating Committee officially adopted MoDOT's TAM Plan Performance Measures and Targets on May 25, 2023. This decision signifies CATSO's commitment to proactive asset management practices, ensuring the long-term sustainability and reliability of its public transit system.[33]

Under MoDOT's TAM Plan, CATSO has committed to the following performance measures and targets:

- **Rolling Stock (Revenue Vehicles):** The goal is to maintain a state of good repair by limiting the percentage of vehicles exceeding the Useful Life Benchmark (ULB) for each vehicle category. The targets are as follows:
    - **Automobiles, Minivans, and Vans:** No more than 45% of these vehicles should exceed the ULB of 8 years.
    - **Cutaways:** No more than 45% should exceed the ULB of 10 years.
    - **Buses:** No more than 45% should exceed the ULB of 14 years.
    - **Ferry Boats:** No more than 30% should exceed the ULB of 42 years.
- **Facilities:** Facility assets are evaluated using the Transit Economic Requirements Model (TERM) scale, with targets established to maintain assets above certain condition ratings:
    - **Administrative, Passenger, and Parking Facilities:** No more than 30% should have a condition rating below 3.0 on the TERM scale.
    - **Maintenance Facilities:** No more than 25% should have a condition rating below 3.0 on the TERM scale.

[33] TMP-24520 - MoDOT Transit Sponsored Group TAM Plan Oct 2022.pdf (legistar.com)

Table 6, below shows that, given data from the agency's 2023 profile, Go COMO currently meets the performance targets for vehicles

Table 6 - Rolling Stock Performance Comparison

Vehicle Type	TAM Plan Target ULB (Years)	Target: Max % Exceeding ULB	Go COMO Avg. Fleet Age (Years)	Go COMO Compliance with ULB Target
Bus	14	No more than 45%	10.8	Meets target
Demand Response (Vans)	8	No more than 45%	6.2	Meets target

below shows that, given data from the agency's Facilities Management team, Go COMO currently meets the performance targets for facilities maintenance. Go COMO has been awarded a $23.2 million RAISE grant directly related to building a new transit facility on the current maintenance facility footprint. That should be accomplished within 5 years.

Table 7 - Facilities Maintenance Performance Comparison

Facility Type	TAM Plan Target	Go COMO Facilities Rating	Go COMO Compliance with ULB Target
Administrative, passenger stations (buildings) and parking facilities	No more than 30% with a condition rating at or below 3.0 on FTA's TERM Scale	> 30%	Meets target
Maintenance Facilities	No more than 25% with a condition rating at or below 3.0 on FTA's TERM Scale	25%	Meets target

These targets provide CATSO with a clear framework for maintaining its transit assets. By adopting these measures, CATSO will ensure that transit facilities and rolling stock remain safe, reliable, and capable of meeting the community's needs.

Transit Safety – (Public Transportation Agency Safety Plan (PTASP))

The Federal Transit Administration (FTA) requires that every Public Transportation Agency implement a PTASP, aligning with regulations specified in 49 CFR Part 673. Each PTASP is designed to formalize and enhance safety management practices within the agency, integrating both existing and emerging industry standards to meet federal safety mandates.

The PTASP framework is centered on four core components: Safety Management Policy, Safety Risk Management, Safety Assurance, and Safety Promotion. These elements collectively establish a proactive, systematic approach to identifying, assessing, and mitigating risks in the agency's operations, while fostering a culture of safety among both management and frontline staff. The collaborative approach aims to actively involve both management and labor to ensure continuous improvements in safety practices.

As part of the PTASP, agencies conduct an annual review to assess safety performance and evaluate safety targets. This review helps determine if updates to policies or practices are needed to address newly identified risks, emerging challenges, or changes in operations. Each PTASP also includes performance targets, which serve as benchmarks for tracking improvements in safety metrics, such as incident rates and system reliability.

Go COMO in partnership with MoDOT, established a set of safety performance targets in December 2020, below in Table 8. These targets reflect Go COMO's commitment to improving safety outcomes and are reviewed and potentially updated each year. These coordinated efforts reinforce a broader regional emphasis on transit safety, supporting an adaptable and resilient transit network that prioritizes the well-being of riders, operators, and the community at large.

Table 8 - Go COMO Safety Performance Targets

Transit Type	Fatalities (total)	Fatalities (per 100K VRM)	Injuries (Total)	Injuries (per 100K VRM)	Safety Events (Total)	Safety Events (per 100K VRM)	System Reliability (VRM/Failure)
Fixed Route	0	0	1	.31	2	.61	6,151
Paratransit	0	0	1	.38	1	.38	9,373

Chapter 6: Shaping the Plan

The MTP was developed based on recommendations and goals from various land use and transportation plans created by MPA planning partners. While each plan outlines specific goals and recommendations within its respective scope, common themes emerge across all the plans. They collectively advocate for fundamental changes in how the community grows and functions in the future. These changes include, but are not limited to, guiding development into more compact patterns that support public transit as a competitive alternative to automobiles, ensuring the connectivity of both existing and proposed roadways, and preserving the area's character and quality while accommodating anticipated growth. Adopting these changes will lead to more convenient, cost-effective transportation options and enhance the livability of the urban area. The needs, goals, and objectives were revised to incorporate recommendations from the following plans:

DRIVING CHANGE WITH COMMUNITY INPUT

We believe that collaborative engagement builds trust and momentum. That is why collaboration with stakeholders and community members was conducted every step of the way while forming the 2055 CATSO Metropolitan Transportation Plan (MTP) Update. By involving key stakeholders and members of the public in collaborative conversations throughout the duration of the project, their individual challenges and various concerns related to transportation could be better understood and addressed throughout the project. This collaborative engagement allowed us to develop an MTP update that, we believe, will be effective for all in the CATSO region.

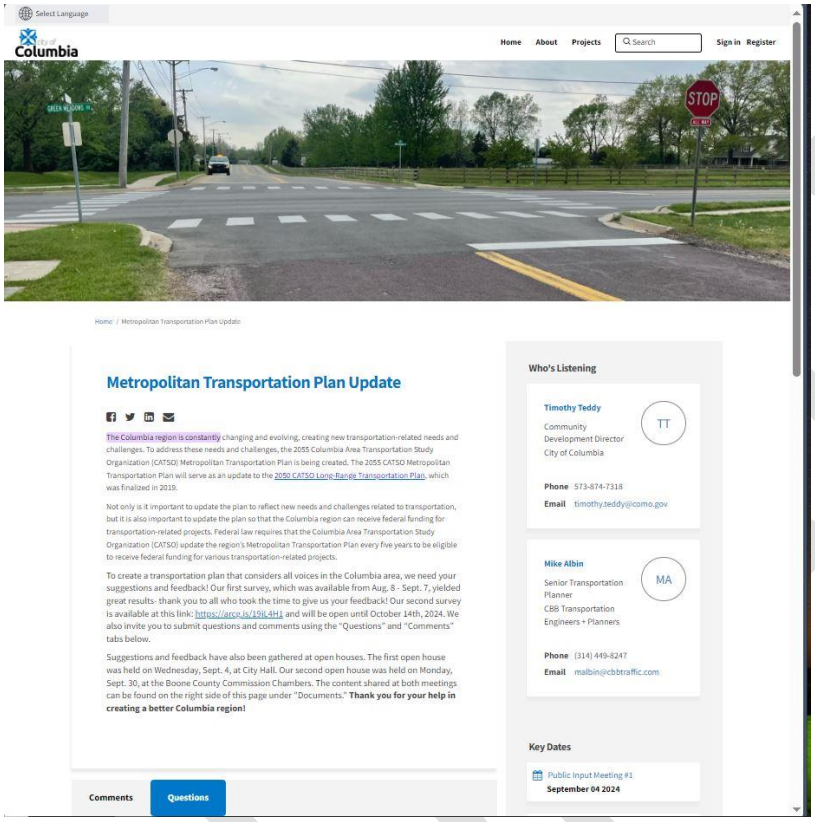
The major goals of our engagement process were to:

- **Inform and Educate**
  - Provide citizens and stakeholders material via a variety of information-sharing channels and techniques that will allow them to stay informed, educated, and current on all aspects of the planning process.
- **Understand**
  - Allow stakeholders and the public to help us really get to know transportation and transportation needs in the Columbia area to better address these needs in the MTP update.
- **Maintain Awareness and Involvement**
  - Involve the public and stakeholders during key phases of plan development, including:
    i. The analysis of existing conditions and transportation needs,
    ii. The development of the vision, goals, and objectives,
    iii. The formation of project recommendations, and
    iv. The review of the plan.
- **Build Durable Community Relationships**
  - The plan has no chance of advancing if a trusting relationship is not built between the consultant team, CATSO, and the plan's stakeholders. The Public Involvement Plan aims to ensure the process is one that achieves and maintains community buy-in every step of the way.

Our engagement process involved two primary groups: a stakeholder group and the public. Tailored strategies were utilized to engage these different groups. These methods of engagement with stakeholders and the public will be explained in the following sections.

BeHeard Site

BeHeardComo is the hub of community engagement for the City of Columbia. BeHeardCoMo was created as a way for residents of the Columbia area to learn about projects and initiatives shaping the future of the region. It also allows residents to easily provide feedback on these projects and initiatives. For the 2055 CATSO MTP Update, a page was created on the BeHeardCoMo site specifically for the project. The page gave background information on the purpose of metropolitan transportation plans and information on ways that members of the public could help with the plan's formation. Other features of the page included:



- A FAQ section, where members of the public could find answers to common questions,
- A "documents" section, where public meeting flyers and content shared at public meetings was available,
- A "key dates" section, where the date, time and location of public meetings could be found,
- A "who's listening" section, where contact information for key project team members was provided,
- A link to the previous transportation plan for the Columbia region, called the CATSO FY 2050 Long-Range Transportation Plan,
- Links to both the first and second surveys,
- A "comments" tab, where members of the public could post publicly visible comments pertaining to the plan and where other members of the public could "like" or "comment" on the posts, and
- A "questions" tab, where members of the public could submit questions directly to the project team.

Stakeholder Meetings

In an effort to receive a diverse set of perspectives on the MTP update, a variety of stakeholders were solicited for participation in the process. When identifying a list of possible stakeholders, the Columbia Public Participation Plan was referenced to ensure that our stakeholder list was comprehensive. We identified that the stakeholder group should consist of:

- Columbia Metropolitan Area Citizens
  - Minority populations
  - Low-income populations
  - Limited English proficiency populations
  - Elderly populations
  - Disabled populations
  - Limited mobility populations
  - Transportation users independent of special interest groups
- Academic Institutions

- Local Business Entities
- Private Transportation Providers
- Government Officials and Entities
- Environmental Organizations

Specific organizations, committees, businesses, and entities that fit into the above categories were then identified. After specific stakeholders were identified, they were contacted via email. The email outlined the purpose of the plan, the purpose and importance of stakeholders, and the expectations for them as stakeholders. The groups that expressed interest and joined the stakeholder group were:

- Boone County Family Resources
- Boone County Fire Protection District
- Cambio Center
- Catholic Charities of Central and Northern Missouri
- City of Columbia Office of Sustainability
- City of Refuge
- Climate and Environment Commission
- Central Missouri Community Action
- COLT Railroad
- Columbia Board of Realtors
- Columbia College
- Columbia Housing Authority
- Columbia Police Department
- Columbia Public School District
- First Last Mile
- GoCOMO
- Homebuilders Association
- Local Motion
- OATS Transit
- Powerhouse
- Regional Economic Development Inc. (REDI)
- Scheppers Distributing
- Sierra Club
- Services for Independent Living
- Disabilities Commission
- The District
- The Loop
- Transportation and Infrastructure Committee
- United Community Builders
- University of Missouri
- West Ash Neighborhood

Round One Stakeholder Meetings

The first round of Stakeholder Meetings was held throughout mid-August 2024, primary the week of August 19th. The goal of the first round of stakeholder meetings was to gain an understanding of the transportation-related needs of the different entities that the stakeholders represented. These identified needs would then be used to develop a consensus around visions, goals, and objectives that would drive the plan forward and maintain buy-in from stakeholders.

Stakeholders were given the option to attend the meetings in-person at Columbia City Hall or virtually. In total, 28 meetings were held, with 31 different entities represented (stakeholders were divided into groups based on the purpose of their organization). Meetings each lasted about an hour and consisted of a presentation from the project team and a facilitated conversation with entities (the PowerPoint slides shown at this meeting may be found in Appendix B). The presentation provided background information on CATSO, their role, the purpose of the 2055 CATSO MTP Update, and the role of stakeholders. The facilitated conversation with entities began with an open question from the project team- "from your perspective, what seems to be working well in the Columbia area in regards to transportation and what does not seem to work as well?" This opened a discussion with stakeholders about how the MTP Update could address the needs of their entity. Meeting notes were taken at each meeting and can be found in Appendix B. These conversations helped the project team to form recommendations as part of the MTP Update that reflected the identified needs of stakeholders.

The following are major takeaways from the round one stakeholder meetings:

Bike and Pedestrian Issues.

- Filling gaps in the sidewalk system and ensuring good maintenance on all sidewalks should be a high priority. Implementing the City's Sidewalk Master Plan and developing a regional sidewalk maintenance plan are important steps forward in this area.
- Providing safe pedestrian roadways crossing should also be a high priority. Resources are available such as FHWA's Safe Transportation for Every Pedestrian (STEP) program. https://highways.dot.gov/safety/pedestrian-bicyclist/step
- Walking at night feels unsafe in some areas due to the lack of streetlights or streetlights being out of order.
- Bike infrastructure should be better connected and better protected. Every roadway project should consider how bicycle infrastructure can create a better-connected system.
- Traffic calming measures are supported by the local community and create safer areas for walking and biking.

Transit Issues

- Free bus fares are appreciated.
- The wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Expanding bus routes would make many areas of the region more accessible for transit users.
- The bus system can be hard to understand, especially for non-native English speakers.
- The transit system can be hard to use for those with disabilities. Not only do the buses need to be ADA accessible, but bus stops and the routes to the bus stops need to be ADA accessible as well.
- A regional transit and connectivity study could help to coordinate various transit needs and services throughout the CATSO region and between the CATSO region and other areas such as Jefferson City and Moberly.

Roadway Issues

- Traffic congestion is well managed compared to many urban areas.
- Conducting Road Safety Audits (RSA), such as the recent Paris Road/Route B RSA, could help improve road safety for all users.
- Roadways need to be designed and constructed to accommodate larger vehicles that are used for emergency response and deliveries.
- A roadway plan, like the East Area Plan, is needed for the area west of Perche Creek.
- Parking is generally available in the region but can be difficult downtown and during major events. A regional parking and wayfinding plan could explore leveraging smart parking technologies to improve parking ease and efficiency for the region's visitors.
- A regional plan for electric vehicle charging stations is needed.

Round Two Stakeholder Meetings

The purpose of the second round of stakeholder meetings was to discuss projects and ideas that could help achieve the vision, goals, and objectives established from the discussions at the round one stakeholder meetings. There were seven meetings that occurred over the course of 2 days (September 3rd-4th, 2024). Each meeting focused on a different transportation topic. The meeting topics were as follows:

- Bicycles
- Pedestrians
- Transit
- Freight
- Micromobility
- Student Transportation
- Safety and Mobility

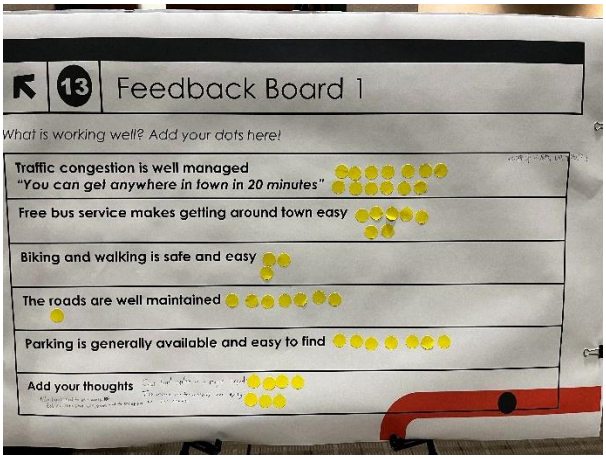
Stakeholders were invited to sign up for any session that they were interested in. During the sessions, stakeholders were shown ideas for recommendations as part of the MTP Update, which they were then invited to comment on. Stakeholders were also given a mapping and polling exercise to identify priority issues. Attendance was low for the Round Two stakeholder meetings, which the planning team assumes is due to the stakeholders feeling successfully heard in the first round of stakeholder meetings. The results from the second-round stakeholder meeting on transit may be found in Appendix B.

Round Three Stakeholder Meeting

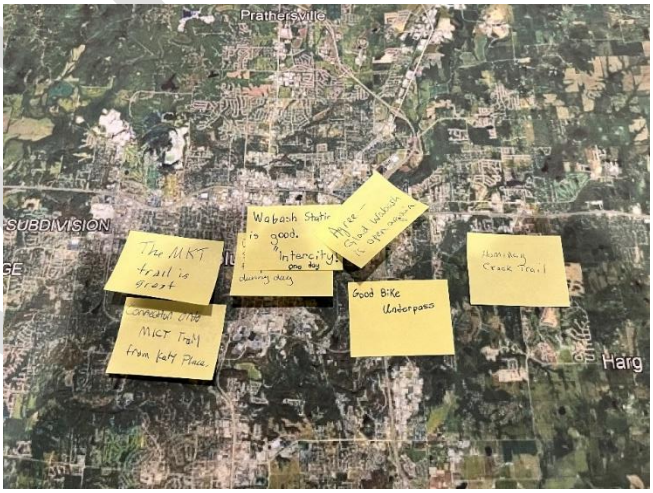
The third stakeholder meeting was held on September 30th, 2024, from 2:00-4:00 PM. All stakeholders that had attended or been invited to previous meetings were invited to attend this meeting. The purpose of this stakeholder meeting was to review draft recommendations for the MTP Update and invite feedback and discussion. 20 stakeholders representing a wide variety of entities attended the round three meeting. At the meeting, a PowerPoint presentation with an overview of the draft recommendations was presented and stakeholders were asked to provide input. The input provided was later incorporated into the draft MTP Update as necessary. One major takeaway from this meeting was that resilience in the Columbia area's transportation system needs to be prioritized to ensure the continuity of regional mobility during and following extreme weather events. The notes on the round three stakeholder meeting as well as the PowerPoint presentation shown at the meeting can be found in Appendix B.

Public Meetings

Public Meeting 1



A main component of our engagement process was public open houses. Our first public open house was held on September 4th, 2024, at the Columbia City Hall from 6-8 PM. This event was advertised using flyers, which were distributed on the City's BeHeard website and Facebook page; through emails to stakeholders; and physically at key community locations, at stakeholder meetings, and at City Hall. To make the meeting more accessible, we were able to contact GoCOMO and make a paratransit vehicle available past the typical hours of operation for anyone requiring the service who wanted to attend the meeting. There were two primary goals for this meeting: 1) understand the public's needs and goals in relation to transportation in the Columbia region and 2) inform the public on the purpose of the Metropolitan Transportation Plan. To inform the public on the purpose of the Metropolitan Transportation Plan and on the process of getting projects done using the plan, several boards with information were on display. CBB and CATSO staff members were also present at the meeting to answer any questions that the public had.



To identify the public's needs and goals, two feedback boards with several statements were displayed. These statements were largely based on comments made at our round one stakeholder meetings and on our analysis of the existing conditions in the Columbia area. Open house attendees were then invited to place stickers next to statements that they agreed with or saw as priorities. Needs and goals were also identified using aerial maps of the Columbia region, which attendees were invited to place sticky notes on in specific areas of need or opportunity. Comment cards were also available at the meeting, which attendees could use to write out any additional input. QR codes that directed attendees to an online survey when scanned were also on display.

In total, 24 people attended the September 4th public open house. The feedback gathered from the comment cards that were turned in may be found in Appendix B. Results from feedback boards 1 and 2 may also be found in Appendix B. The main takeaways from the feedback received mirrored those from the first round of stakeholder meetings as provided below:

Bike and Pedestrian Issues.

- Filling gaps in the sidewalk system, ensuring good maintenance on all sidewalks, and providing safe pedestrian roadways crossing should be a high priority.
- The trail system is a major asset to the area.

- Bike infrastructure should be better connected and better protected. Every roadway project should consider how bicycle infrastructure can create a better-connected system.
- Traffic calming measures are supported by the local community and create safer areas for walking and biking
- E-bikes could be better considered and embraced.

Transit Issues

- Free bus fares are appreciated.
- The wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Expanding bus routes would make many areas of the region more accessible for transit users.
- The transit system can be hard to use for those with disabilities. Not only do the buses need to be ADA accessible, but bus stops and the routes to the bus stops need to be ADA accessible as well.

Roadway Issues

- Traffic congestion is well managed compared to many urban areas.

Public Meeting 2

The second public open house was held on September 30th, 2024, from 4:00-8:00 PM at the Boone County Commission Chambers. To make it easier for people to attend the meeting, the open house began at 4:00 PM and was 4 hours long as opposed to being 2 hours long like the first public open house. This event was advertised using flyers posted on the City's BeHeard website and through emails to stakeholders and attendees of the first public open house. The goal of this meeting was to update the public on the plan's progress and to gather feedback on the plan's draft recommendations. These draft recommendations were largely based on a comprehensive review of existing city, county, and regional plans; various data analysis; extensive stakeholder input gathered throughout this planning process; survey results, and the first open house. Several boards were on display that presented background information on the plan, information on the plan's progress, and the plan's draft recommendations. Project team members were also present at the meeting to answer questions. Feedback on the recommendations was gathered using comment cards, which attendees could use to write out any input.

In total,16 people attended the September 30th public open house. The feedback gathered from the comment cards that were turned in may be found in Appendix B. Feedback mirrored comments from previous meetings. The main takeaways from the feedback received are below:

Bike and Pedestrian Issues.

- A high priority should be given to filling gaps in the sidewalk system, ensuring good maintenance on all sidewalks, providing safe pedestrian crossings, and providing lighting of pedestrian pathways.
- The safety of bicyclists and peds needs to be prioritized. Bike infrastructure should be better connected and better protected.
- Traffic calming measures are supported by the local community and create safer areas for walking and biking.

Transit Issues

- There was support for a regional transit and connectivity study that would explore ways to better coordinate various transit needs and services throughout the CATSO region and between the CATSO region and other areas of central Missouri.

Roadway Issues

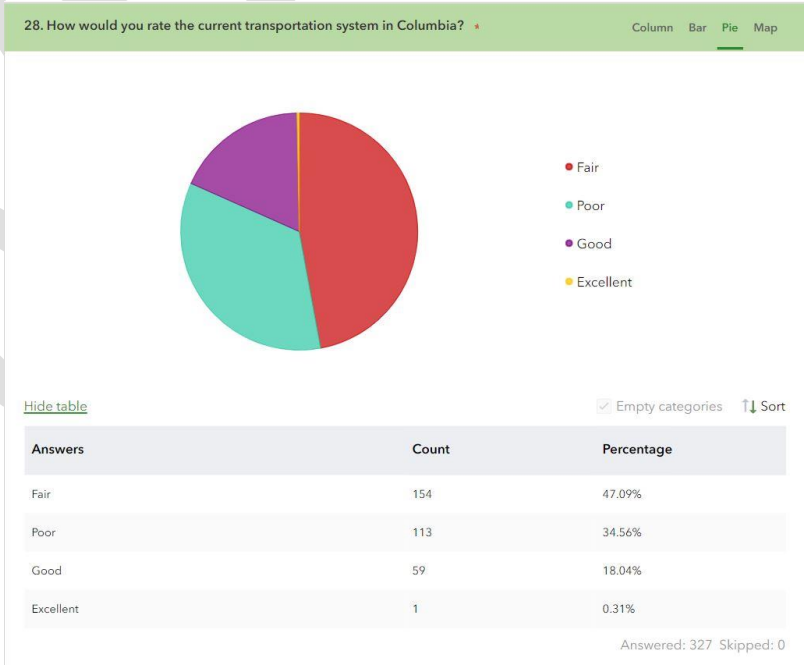
- There was support for doing more road safety audits as well as conducting a regional freight and delivery plan.
- All recommendations/ infrastructure improvement proposals need to consider impacts to the environment.
- Higher density development in the urban core would reduce the long-term urbanized footprint and the need for future roadway expansions in areas that are currently undeveloped.

Surveys

A major goal of our engagement process for the MTP Update was to make engagement as accessible as possible for all. Our online surveys were one of our primary methods of doing so. The surveys being online allowed members of the public to provide input and voice their needs on their own schedule. There were two different surveys developed as part of the CATSO 2055 MTP Update. The two surveys were distributed through the BeHeard site, social media, outreach from stakeholders, outreach at key locations (see "Intercept Surveys" section below), and email lists. The questions and results of the two surveys will be discussed below.

Survey 1

The purpose of the first survey was to develop the vision, goals, and objectives of the MTP Update by assessing the public's needs and priorities in relation to transportation. The first survey became available to the public on Thursday, August 8th, 2024, and closed on Monday, September 9th, 2024. The survey was a total of 36 questions and began with questions on demographics. The purpose of questions on demographics was to gain insight into who our surveys were reaching, and which groups were not being reached by our surveys. Questions on mode share, transportation barriers, strengths and weaknesses of the Columbia area's transportation system, and transportation priorities were then asked. The survey concluded with a GIS-based mapping element, which allowed people to mark a location in the Columbia MPO and leave a comment on the significance of the location- whether it be a location with a transportation need or a transportation opportunity.



Answers	Count	Percentage
Fair	154	47.09%
Poor	113	34.56%
Good	59	18.04%
Excellent	1	0.31%

Answered: 327 Skipped: 0

The questions asked are shown below:

1. How old are you?
2. What is your annual income?

3. Where is your primary residence (where you live for more than 50% of the year) located? (*A map of the CATSO region separated into zones was provided, and users were instructed to pick the zone in which they reside).*
4. Which of the following best describes your race/ethnicity?
5. What is your gender?
6. How often is a personal automobile/motorcycle your primary means of completing a trip?
7. What barriers exist that stop you from using a personal automobile/motorcycle as your primary means of completing a trip?
8. How often is carpooling your primary means of completing a trip?
9. What barriers exist that stop you from using carpooling as your primary means of completing a trip?
10. How often is rideshare (Uber, Lyft, etc.) your primary means of completing a trip?
11. What barriers exist that stop you from using rideshare (Uber, Lyft, etc.) as your primary means of completing a trip?
12. How often is a social service provider (Powerhouse, First Last Mile, other non-emergency medical transportation) your primary means of completing a trip?
13. What barriers exist that stop you from using a social service provider (Powerhouse, First Last Mile, other non-emergency medical transportation) as your primary means of completing a trip?
14. How often are off-campus housing shuttles your primary means of completing a trip?
15. What barriers exist that stop you from using off-campus housing shuttles as your primary means of completing a trip?
16. How often is walking or using a wheelchair your primary means of completing a trip?
17. What barriers exist that stop you from walking or using a wheelchair as your primary means of completing a trip?
18. How often is using a personal bike, scooter, etc., your primary means of completing a trip?
19. What barriers exist that stop you from using a personal bike, scooter, etc., as your primary means of completing a trip?
20. How often is public transit (GoCOMO, OATS, etc.) your primary means of completing a trip?
21. What barriers exist that stop you from using public transit (GoCOMO, OATS, etc.) as your primary means of completing a trip?
22. How often are rental bikes/scooters (Bird scooters, etc.) your primary means of completing a trip?
23. What barriers exist that stop you from using rental bikes/scooters (Bird scooters, etc.) as your primary means of completing a trip?
24. Do you own an electric vehicle (EV)?
25. How likely are you to purchase an electric vehicle in the next 5 years?
26. What is your favorite part of Columbia's current transportation system?
27. What is your least favorite part of Columbia's current transportation system?
28. How would you rate the current transportation system in Columbia?
29. In your opinion, what are the biggest issues on roads in the Columbia area?
30. How important is the improvement of roads to you?
31. How important is the improvement of public transit to you?
32. How important is the improvement of bicycle facilities to you?
33. How important is the improvement of pedestrian facilities to you?
34. Do you have a specific location of concern or potential opportunity?
35. Please explain why you selected the above location as a location of concern/opportunity in a few words.
36. What else would you like us to know about your experiences with transportation in the Columbia area?

There were 327 responses in total. Graphs representing the results of questions 1-25 and 28-33 and a summary of the written responses collected for questions 26, 27, 34, 35, and 36 can be found in Appendix B. The main takeaways of the survey are summarized below:

- Most respondents rated Columbia's transportation system as "fair."
- Respondents identified that a lack of biking and walking infrastructure is a major problem.
- There needs to be better and safer opportunities for pedestrians and bicyclists to cross streets.
- Most people don't choose to bike due to safety concerns.
- Improving pedestrian facilities was the top-ranked priority of respondents, followed by the improvement of bicycle facilities.
- Respondents feel that the bus system needs to be significantly expanded, and that the service needs to be more frequent.
- Traffic calming is necessary on many roads in the Columbia area.

Survey 2

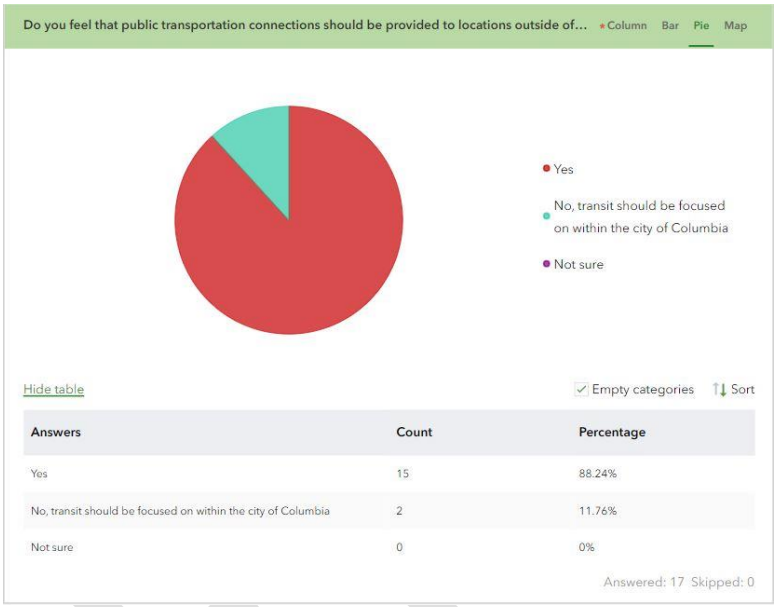
The purpose of the second survey was to get feedback on proposed recommendations for the 2055 CATSO Metropolitan Transportation Plan Update. The second survey became available to the public on Thursday, October 3rd, 2024, and closed on Monday, October 14th, 2024. The survey was a total of 13 questions and began with questions aimed at gathering feedback on two draft maps: the Proposed Major Roadway Plan and the MTP Bicycle and Pedestrian Network Plan. The next questions were aimed at gathering feedback on a draft list of proposed studies. The survey then concluded with questions on regional transit.

The questions asked in the second survey are shown below:

1. Do you feel the proposed roadways on the DRAFT Major Roadway Plan will address the needs of the CATSO region over the next 30 years?
2. Are there other new roads that you feel should be added to the Major Roadway Plan? If yes, please list below.
3. Do you have any general comments about the DRAFT Major Roadway Plan?
4. Do you feel the proposed pedestrian and bicycle infrastructure improvements on the Bicycle and Pedestrian Network Plan DRAFT will address the needs of the CATSO region over the next 30 years?
5. Are there other new bicycle and pedestrian infrastructure improvements that you feel should be added to the Bicycle and Pedestrian Network Plan? If yes, please list below.
6. Do you have any general comments about the Bicycle and Pedestrian Network Plan DRAFT?
7. CATSO is considering conducting the above list of studies based on identified needs. Do you feel the DRAFT proposed studies will address the needs of the CATSO region over the next 30 years?
8. Which of the proposed studies are most important to you? (Select up to 3)
9. Are there any additional studies you think should be conducted? If yes, please list below.
10. Do you have any general comments about the DRAFT list of proposed studies?
11. Do you feel that public transportation connections should be provided to locations outside of the city of Columbia? (for example- Columbia Regional Airport, Midway Greyhound station, Amtrak stations in Jefferson City and LaPlata, Jefferson City, Moberly, Boonville, etc.?)
12. If yes, which locations outside of the city of Columbia would you like to see transit connect to?

13. Do you have any other comments about the 2055 Metropolitan Transportation Plan's DRAFT recommendations?

The second survey received 17 responses. Graphs representing the results of questions 1, 4, 7, 8, and 11 may be found in Appendix B. A summary of the written responses collected for questions 2, 3, 5, 6, 9, 10, 12, and 13 may also be found in Appendix B. The main takeaways of the second survey are below:



- Survey respondents strongly support improvements to the current pedestrian and bicycle network.
- The development of a Regional Sidewalk Maintenance Plan and Regional Transit and Connectivity Study have strong support.
- A regional transit connection to Jefferson City and it's Amtrak station has strong support, especially so people in the Columbia area can more easily reach Kansas City and St. Louis.
- A transit connection to the airport is popular among survey respondents.
- Consideration should be given to higher density development in the urban core, which would reduce the long-term urbanized footprint and the need for future roadway expansions in areas that are currently undeveloped.
- Consideration of environmental and climate impacts is crucial in the transportation planning process.

Intercept Surveys

Not everyone has the time to attend public meetings or to browse on the City's social media or website for updates on projects affecting their region. However, it is still important that these people have their voices heard. To reach these people and achieve a broader level of engagement for the formation of the 2055 CATSO MTP Update, flyers advertising the first public meeting and the first public survey were distributed to a wide range of locations that were strategically identified around the Columbia region. These locations included the Columbia Mall, the Walmart on Conley Road, the Parkade Plaza, and multiple bus stops. When handing out flyers, project team members gave directions for how to reach the survey using the QR code on the flyer and encouraged attendance at the September 4th public meeting. Project team members also had tablets on-hand to assist people with filling out the survey if they preferred.

Social Media

Social media's unique power to reach a large audience in a short amount of time was utilized to increase the levels of engagement of the 2055 CATSO MTP update. Several social media posts about the 2055 CATSO MTP Update were made to the City of Columbia's Facebook page, which has around 12,000 followers. A total of 6 posts were made advertising opportunities for Columbia area residents to provide their input on the MTP Update. Facebook

posts were made advertising the BeHeard site, the first public open house, the first survey, and the second survey. These posts also included educational information about the purpose and importance of the 2055 CATSO MTP Update. These posts may be found in Appendix B.

Additional Outreach

Public Transit and Bicycle and Pedestrian Advisory Commission Meetings

The project team provided updates to the City's Public Transit and Bicycle and Pedestrian Advisory Commissions at their September monthly meetings. The Public Transit Advisory Commission advises the City on issues of transit policy and the Bicycle and Pedestrian Advisory Commission works with the City of Columbia to improve the bicyclist and pedestrian experience. The discussions focused on draft proposed recommendations. The presentations provided may be found in Appendix B. Meeting minutes may be found at https://www.como.gov/boards/public-transit-advisory-commission/ and found at https://www.como.gov/boards/bicycle-pedestrian-commission/.

THE BIG PICTURE: SYNCING LOCAL PLANS AND STRATEGIES FOR SUCCESS

To create an MTP that supports cohesive growth, effective mobility, and sustainable development within the Columbia MPA, we reviewed and incorporated insights from a range of existing regional, state, and federal plans. Aligning our MTP with these guiding documents helps ensure that our strategies complement rather than contradict other initiatives, creating a unified vision for transportation in the region. By referencing plans regional master and subarea plans, state-level infrastructure strategies, and federal transportation directives, we aimed to integrate proven approaches to connectivity, safety, and multi-modal transportation. This collaborative approach enables consistency in policy direction, leverages shared goals, and fosters a more streamlined, efficient implementation process across jurisdictions.

Boone County Master Plan (In Development)

Our Boone County

OUR COMMUNITY. OUR FUTURE. BOONE COUNTY MASTER PLAN

The One Boone Master Plan provides a strategic framework for enhancing transportation infrastructure and safety in Boone County, with a focus on multi-modal options, transportation safety, and integrating transportation with land use planning. These recommendations align with the CATSO MTP's objectives of improving regional mobility, safety, and sustainability. The following is a summary of the draft transportation and transportation-related recommendations relevant to the MTP update as of August, 2024.

Transportation Vision Metric:

Achieve Zero Traffic Fatalities and Serious Injuries in Unincorporated Boone County.

Principles and Goals:

1. **Enhance Transportation Safety:**
    - **Countywide Safety Action Plan:** Develop a comprehensive safety plan to reduce traffic-related deaths and injuries.
    - **High-Crash Corridors:** Identify and address safety issues along high-crash corridors and intersections.

- **Promote Safe Travel Behaviors:** Implement awareness campaigns to encourage safe driving, biking, and walking behaviors.

2. **Support and Expand Multi-Modal Transportation:**
   - **CATSO Long-Range Transportation Plan (LRTP) Support:** Align county transportation initiatives with the goals of the CATSO LRTP to enhance regional connectivity.
   - **Transit-Oriented Development:** Encourage higher development densities to make public transit, walking, and bicycling more viable and efficient transportation options.
   - **Commuter Rail Feasibility:** Evaluate the feasibility of establishing a commuter line along the COLT rail corridor, which would connect key areas and reduce road congestion.
3. **Develop an Active Transportation Network:**
   - **Bicycle and Pedestrian Master Plan:** Create a countywide plan that prioritizes the development of bike lanes, pedestrian pathways, and multi-use trails.
   - **COLT Rail Corridor Multi-Use Trail:** Explore the feasibility of developing a multi-use trail along the COLT rail corridor to provide additional active transportation options.
   - **Subdivision Regulation Updates:** Revise subdivision regulations to ensure better sidewalk connectivity and integration with the broader transportation network.
4. **Fiscally Responsible Transportation Investments:**
   - **Gravel Road Paving Policy:** Establish a clear policy for the prioritization and paving of gravel roads, balancing cost and community needs.
   - **Roadway Improvements in Subdivisions:** Regularly review and update subdivision regulations to ensure that roadway improvements meet safety and connectivity standards.
   - **Pavement Preservation Program:** Invest in the Pavement Preservation Program to maintain and improve existing transportation infrastructure, ensuring long-term usability and safety.

Related Land Use and Infrastructure Planning:

1. **Growth in Served Areas:**
   - Promote development in areas that are already served by public utilities and transportation infrastructure, ensuring that new growth is efficient and cost-effective.
2. **Inter-Government and Utility Collaboration:**
   - Coordinate with state, local, and private entities to plan for transportation infrastructure improvements that align with anticipated growth and development needs.
3. **Broadband Expansion:**
   - Support the expansion of high-speed internet access, which can reduce the need for travel by enabling more remote work and services.

Go COMO Comprehensive Transit Study (In Development)

GO COMO Columbia's Public Transit **Comprehensive Transit Study**

The Columbia Public Transit Feasibility Study is currently in development as of August, 2024, and is anticipated to be wrapped up around the same time as the completion of this update of the CATSO MTP. This section outlines draft service recommendations aimed at improving the Go COMO transit system. These recommendations are structured in three phases or tiers, each designed to be implemented incrementally as resources and conditions allow. Below is a summary of the key recommendations and their relevance to the Metropolitan Transportation Plan (MTP) update.

Tier 1 (Near-Term) Recommendations:

Routes & Alignments:

- Implement targeted alignment changes to improve stop locations, enhancing accessibility and convenience for riders.

Weekday Service:

- Begin service at 6:00 a.m., with full trips starting from Wabash.
- Add evening service by combining routes into 90-minute intervals until 11:10 p.m.

Saturday Service:

- Expand service hours to operate from 6:00 a.m. to 11:10 p.m., maintaining the 90-minute frequency.

Sunday Service:

- Introduce 90-minute frequency service from 8:15 a.m. to 6:40 p.m.

Paratransit Impact:

- Significant increase in paratransit service hours to accommodate extended operating hours.

Cost Impact:

- The additional annual operating cost for fixed route and paratransit services is estimated at $1,740,000.

Tier 2 (Medium-Term) Recommendations:

Routes & Alignments:

- Introduce a new route along the Paris Rd/Route B corridor.
- Extend existing routes to cover new destinations, adding 10-15 minutes to runtimes.

Weekday Service:

- Increase service frequency to 30 minutes during daytime and 60 minutes in the evening.
- Extend service hours slightly, starting at 5:30 a.m. and ending at 11:25 p.m.

Saturday Service:

- Increase service frequency to 60 minutes.

Sunday Service:

- Increase service frequency to 60 minutes.

Paratransit Impact:

- Expand the service area to include the Paris Road corridor.
- Minor increase in paratransit service hours.

Cost Impact:

- The additional annual operating cost for these improvements is estimated at $4,560,000.

Tier 3 (Long-Term) Recommendations:

Routes & Alignments:

- Add new routes in southwest and southeast Columbia to better serve growing areas.

Weekday Service:

- Increase frequency on the highest-ridership routes to 15 minutes during the day and 30 minutes in the evening.
- Extend service hours to operate from 5:00 a.m. to 11:55 p.m.

Saturday Service:

- Increase frequency on the highest-ridership routes to 30 minutes throughout the day.

Sunday Service:

- Extend service hours to operate from 7:00 a.m. to 9:55 p.m.

Paratransit Impact:

- Further expand the service area to cover much of southwest and southeast Columbia.
- Minor increase in paratransit service hours.

Cost Impact:

- The additional annual operating cost for this phase is estimated at $6,970,000.

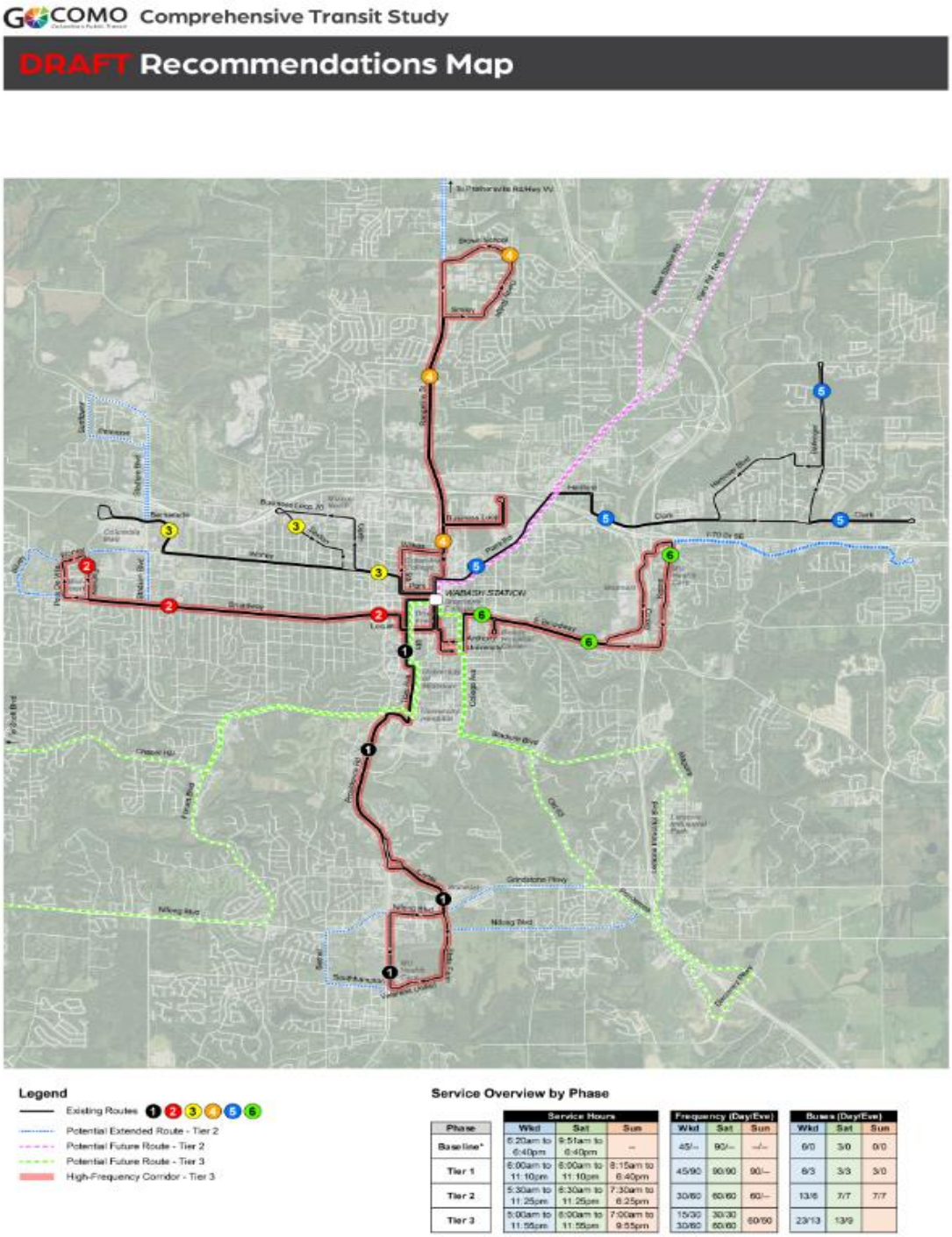
Relation to CATSO MTP Planning

The recommendations from the Columbia Public Transit Feasibility Study address several areas of importance related to the MTP update:

- **Improved Accessibility:** The proposed alignment changes and frequency increases will make public transit more accessible and convenient, potentially reducing car dependency.
- **Expanded Coverage:** The introduction of new routes in underserved areas (e.g., Paris Road, southwest, and southeast Columbia) will ensure that more residents have access to reliable public transportation.

- **Support for Sustainability Goals:** Enhancing public transit aligns with Columbia's broader climate action goals by reducing GHG emissions associated with personal vehicle use.
- **Paratransit Services:** The expansion of paratransit services in line with the fixed-route improvements ensures that the transit system remains inclusive, catering to the needs of all residents, including those with disabilities.

MAP 10 - DRAFT RECOMMENDATIONS AS PART OF THE GO COMO COMPREHENSIVE TRANSIT STUDY AS OF AUGUST 2024. (THESE ARE SUBJECT TO CHANGE BEFORE FINAL PLAN IS RELEASED)



MoDOT STIP

The Missouri Department of Transportation (MoDOT) Statewide Transportation Improvement Program (STIP) for fiscal years 2025-2029 outlines a comprehensive plan for transportation projects across the state. This five-year program includes a wide range of projects aimed at improving highways, bridges, transit systems, aviation, rail, waterways, and multimodal operations. The STIP is a critical document that guides the allocation of state and federal funds to various transportation initiatives, ensuring that Missouri's infrastructure meets current and future needs[1].

Key Components of the 2025-2029 STIP

1. **Highway and Bridge Projects**: Significant investments are planned for the maintenance and expansion of highways and bridges, including major corridors like I-70 and I-44[2].
2. **Multimodal Projects**: The STIP includes funding for transit, aviation, rail, and waterways, promoting a balanced and integrated transportation system[2].
3. **Safety and Maintenance**: Emphasis is placed on projects that enhance safety and maintain existing infrastructure to ensure long-term reliability[2].
4. **Economic Development**: Projects that support economic growth by improving access to key commercial and industrial areas are prioritized[2].

Alignment with MTP

The STIP's alignment with the CATSO MTP is crucial for several reasons:

1. **Funding Alignment**: By incorporating projects from the STIP into the LRTP, CATSO can ensure that local transportation initiatives are eligible for state and federal funding. This alignment helps secure the necessary resources for critical infrastructure improvements in the Columbia area[3].
2. **Strategic Planning**: The STIP provides a framework for long-term transportation planning, allowing CATSO to align its goals and objectives with state priorities. This strategic alignment ensures that local projects contribute to broader regional and state transportation goals[3].
3. **Project Coordination**: Integrating STIP projects into the LRTP facilitates better coordination between state and local agencies. This collaboration enhances the efficiency and effectiveness of project implementation, reducing duplication of efforts and optimizing resource use[3].
4. **Public Involvement**: The STIP process includes public review and comment periods, ensuring that community needs and preferences are considered. By reflecting these inputs in the LRTP, CATSO can develop a transportation plan that is responsive to the needs of Columbia residents[1].

City of Columbia Comprehensive Plan

"Columbia Imagined – The Plan for How We Live & Grow" is Columbia, Missouri's comprehensive land use plan, guiding development through 2030. This plan is a visionary document, integrating social, environmental, and economic strategies to ensure Columbia remains a vibrant, livable, and sustainable city. Built on a foundation of extensive public engagement, "Columbia Imagined" reflects the community's vision and outlines the principles and strategies necessary to achieve that vision. The plan addresses traditional land use and infrastructure needs while incorporating modern considerations such as sustainability, connectivity, and quality of life.

Guiding Principles

At the heart of "Columbia Imagined" are several guiding principles that shape all aspects of the plan:

1. **Preservation and Enhancement of Recreational Facilities:**
    - Columbia's growth should enhance the network of parks, trails, and recreational facilities, making them more accessible and integral to the community's quality of life. Transportation networks, especially trails and bike lanes, are essential for connecting these facilities, ensuring they are easily reachable from all parts of the city. This integration of recreational spaces with transportation infrastructure supports healthy lifestyles and contributes to the overall livability of Columbia.
2. **Promotion of Cultural Opportunities and the Arts:**
    - As Columbia grows, it must continue to nurture and promote cultural and artistic opportunities, reinforcing the city's identity as a regional destination for arts and culture. Accessible transportation is crucial in this regard, enabling residents and visitors to easily attend cultural events, visit galleries, and participate in the arts. By improving transit options and pedestrian pathways, the plan ensures that cultural hubs are seamlessly connected to the broader community.
3. **Balancing Quality of Life with Economic and Housing Growth:**
    - The plan seeks to balance the high quality of life enjoyed by residents with the need for new employment opportunities, diverse housing, and homeownership options. Efficient transportation is a critical element in achieving this balance. By improving public transit and road infrastructure, Columbia can accommodate new housing developments and employment centers while minimizing traffic congestion and preserving the character of neighborhoods. This approach ensures that growth does not come at the expense of the city's charm and livability.
4. **Investment in Downtown as a Cultural and Recreational Hub:**
    - Downtown Columbia is envisioned as the preferred hub of activity for dining, cultural events, and recreation. Transportation improvements, such as enhanced public transit, better parking, and pedestrian-friendly streets, are key to making downtown the vibrant center of community life. By prioritizing these improvements, the plan supports the development of downtown as a lively, accessible, and attractive area that draws residents and visitors alike.
5. **Leveraging Columbia's Strengths for Sustainable Economic Growth:**
    - Columbia's location, quality of life, and access to education and medical services are key assets in pursuing sustainable economic opportunities. A well-planned transportation system enhances these strengths by ensuring that the city is easily navigable and connected, making it an attractive place for businesses and residents. The plan calls for transportation networks that support economic activity by providing reliable access to employment centers, schools, and healthcare facilities.
6. **Maintaining Columbia's Small-Town Feel Amid Growth:**
    - Despite its growth, Columbia aims to retain its small-town character through sustainable programs, policies, and innovative regulations. Transportation planning plays a vital role in maintaining this feel by prioritizing pedestrian-friendly streets, reducing car dependency, and ensuring that new developments

are integrated into the existing urban fabric in a way that feels cohesive and connected. This approach helps preserve the close-knit community atmosphere that residents value.

7. **Respecting and Preserving the Natural Environment:**
    - The plan emphasizes the importance of protecting Columbia's natural environment to maintain its aesthetic and ecological value for future generations. Sustainable transportation practices, such as promoting public transit, cycling, and walking, align with this goal by reducing vehicle emissions and conserving energy. By integrating green infrastructure into transportation projects, the plan ensures that Columbia's growth does not come at the cost of its natural beauty and environmental health.
8. **Preserving Historical Integrity:**
    - Columbia's historical landmarks, neighborhoods, and downtown area are to be preserved through education, incentives, and regulations, ensuring they remain part of the city's evolving identity. Thoughtful transportation planning is necessary to ensure that improvements enhance the accessibility of these historic areas without disrupting their character. This careful balance supports both preservation and progress.
9. **Supporting Educational Opportunities:**
    - Collaboration with educational institutions is key to enhancing Columbia's economic stature and providing lifelong learning opportunities for residents. Transportation is a critical component of this collaboration, ensuring that students, faculty, and staff can easily access educational facilities. By improving transit routes and connectivity, the plan supports the growth and success of Columbia's educational institutions.

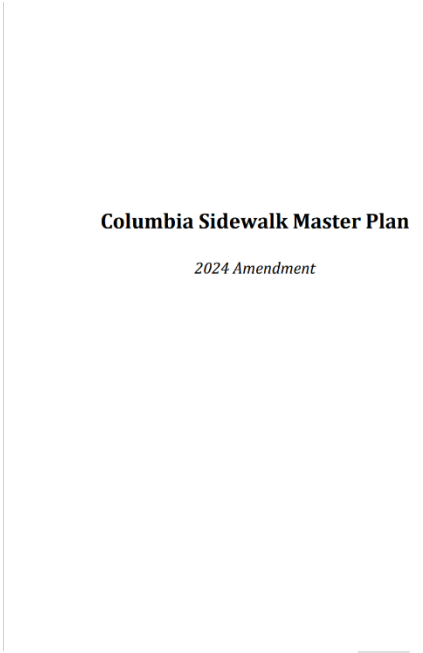
The Three Big Ideas

"Columbia Imagined" identifies three "Big Ideas" that are central to the plan's vision:

1. **Sustainable Growth and Development:**
    - Columbia should grow in a way that is environmentally, economically, and socially sustainable. This involves creating compact, walkable neighborhoods that reduce reliance on automobiles, protect natural areas, and promote a high quality of life. Transportation is a cornerstone of sustainable growth, with the plan advocating for a multi-modal system that supports walking, biking, and public transit. By reducing car dependence and promoting alternative transportation options, Columbia can grow sustainably while enhancing the livability of its neighborhoods.
2. **Enhanced Connectivity and Accessibility:**
    - The plan envisions a city where all residents can easily access jobs, schools, and recreational opportunities. This means investing in a comprehensive transportation network that includes not just roads, but also public transit, bike lanes, and pedestrian pathways. Enhanced connectivity is essential for ensuring that all parts of Columbia are well-connected, making it easier for residents to move around the city and access the amenities they need. This focus on accessibility supports social equity and economic vitality.
3. **Vibrant Downtown and Thriving Community Centers:**

- Downtown Columbia and other community centers should be vibrant, mixed-use areas that serve as focal points for cultural, economic, and social activity. To achieve this vibrancy, transportation planning must focus on improving accessibility, reducing congestion, and creating pedestrian-friendly environments. These improvements will make downtown and other community centers more attractive for businesses, residents, and visitors, fostering economic and social vitality.

City of Columbia Sidewalk Master Plan



The 2024 Columbia Sidewalk Master Plan serves as a strategic guide for improving Columbia's pedestrian infrastructure by addressing gaps in the sidewalk network and prioritizing critical projects. The plan's primary goals are to enhance pedestrian safety, promote connectivity, and support multimodal transportation throughout the city. It aims to provide a comprehensive system of sidewalks that not only serve recreational purposes but also function as vital corridors for active transportation, ensuring that all residents have safe, accessible routes for walking.

The plan outlines several key objectives:

1. **Identify and Prioritize Sidewalk Projects**: Through a public input process, the plan prioritizes projects where sidewalk gaps exist, focusing on major streets that provide critical connections. The priority system helps the City Council allocate funding and apply for grants to support these projects.
2. **Enhance Safety and Accessibility**: A major objective is to ensure pedestrian safety by constructing sidewalks along busy streets with high traffic volumes, as well as improving ADA compliance through the replacement of non-compliant curb ramps and sidewalks.
3. **Improve Connectivity**: By focusing on streets in the Major Roadway Plan (MRP), the plan targets corridors that connect neighborhoods, schools, parks, and commercial areas. This connectivity is essential for integrating pedestrian travel with other transportation modes and creating a walkable city.
4. **Maximize Use of Financial Resources**: The plan outlines funding sources, including local sales taxes, federal grants such as the Transportation Alternative Program (TAP), and Community Development Block Grants (CDBG), ensuring that projects are financially feasible and aligned with the city's capital improvement priorities.

The plan proposes a total of 46 sidewalk projects, with 37 of these located on Major Roadway Plan streets due to their importance for connectivity and high pedestrian demand. The Sidewalk Priority Ratings Matrix helps rank projects based on criteria such as proximity to schools, parks, and bus routes, traffic volumes, and whether the project fills a gap in the existing network. Projects that score highly in these categories are designated as Priority 1, receiving the highest focus for funding and construction.

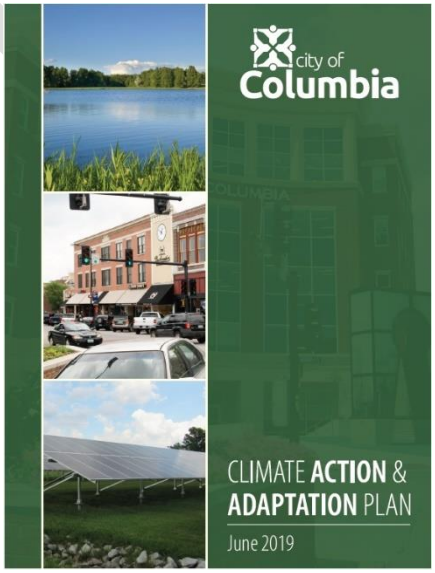
Additionally, the plan includes nine new projects that were recommended by the Bicycle and Pedestrian Commission and Planning & Zoning Commission. These projects, such as the St. Charles Road and Rangeline Street improvements, address critical gaps in the sidewalk network and support the city's broader transportation goals.

Beyond new construction, the plan integrates with the city's ADA Transition Plan, which aims to make all sidewalks compliant with ADA standards. This includes replacing curb ramps and sidewalk sections to improve accessibility for all pedestrians, particularly those with disabilities.

The plan continues to rely on a variety of funding sources, including local sales taxes (¼ Cent Capital Improvement Sales Tax, ½ Cent Transportation Sales Tax), federal grants (e.g., MoDOT TAP), and Community Development Block Grants (CDBG). These funds are critical for implementing the identified sidewalk projects and ensuring that Columbia's pedestrian infrastructure meets current and future needs. The total cost for implementing the projects in the plan is estimated at $32.9 million, covering approximately 17.5 miles of new sidewalk construction. The funding strategy ensures that the city can pursue critical projects while leveraging state and federal resources to minimize the burden on local budgets.

City of Columbia Climate Action and Adaptation Plan

The 2019 Climate Action and Adaptation Plan (CAAP) for Columbia, Missouri, lays out a comprehensive strategy to address climate change by reducing greenhouse gas (GHG) emissions and preparing the community for the impacts of a changing climate. The plan emphasizes reducing the city's carbon footprint through sustainable practices, particularly in the transportation sector, while increasing resilience to climate risks like extreme heat, severe storms, and flooding. The CAAP's goals and recommendations are closely aligned with the Metropolitan Transportation Plan (MTP) update, influencing transportation planning and infrastructure development.



Goals and Objectives:

1. GHG Emission Reduction

Targets: Columbia's CAAP sets ambitious GHG reduction goals, aiming for an 80% reduction in GHG emissions by 2050, with an interim target of 35% by 2035. The ultimate objective is to achieve carbon neutrality by 2060.

Sector-Specific Goals: The CAAP establishes specific targets across transportation, energy, waste, housing, buildings, development, and natural resources to help achieve these emission reductions. Since transportation accounted for 27% of Columbia's GHG emissions in 2015, the CAAP highlights the need for mode-shift goals, which aim to reduce single-occupancy vehicle (SOV) trips and encourage alternative modes of transport.

2. Climate Adaptation

Resilience Building: A key priority of the CAAP is building resilience in Columbia's natural and built environments to withstand climate impacts, including extreme heat, storms, and flooding.

Equity Considerations: The CAAP ensures that vulnerable populations are protected in climate adaptation strategies, addressing inequities and promoting fair access to climate resilience efforts.

3. Integration with Other Plans

Alignment with City Planning: The CAAP was developed in coordination with several other city plans, including the CATSO Long Range Transportation Plan. This ensures that climate action is considered in all aspects of city planning, particularly in transportation, infrastructure, and development.

Key Recommendations:

1. Transportation

- **Mode-Shift Goals:** The CAAP sets ambitious mode-shift goals to reduce SOV use from 78% to 10% by 2050, while increasing walking to 25%, biking to 20%, and public transit use from 1% to 40%. Achieving these goals is critical for reducing transportation-related emissions, which are a significant contributor to Columbia's overall GHG emissions.
- **Low-Emission Transportation:** To meet these mode-shift goals, the CAAP emphasizes reducing reliance on personal vehicles by promoting walking, biking, and public transit as viable alternatives. This includes constructing more sidewalks, bike lanes, and crosswalks to close connectivity gaps and ensure active transportation is both safe and convenient. Additionally, prioritizing public transit is essential to reducing emissions. The CAAP recommends improving the efficiency and reliability of Columbia's public transit system (Go COMO), such as increasing bus frequency, expanding bus routes, and investing in electric buses to transition the transit system to cleaner energy.
- **Land Use Planning:** The CAAP advocates for compact and efficient land use planning to reduce the need for driving. By encouraging sustainable urban development and better land use patterns, Columbia can create a city layout that supports walking, biking, and public transit over car dependency.

2. Energy

- **Renewable Energy Adoption:** The CAAP calls for an increase in renewable energy installations in both new and existing buildings and a shift toward 100% renewable electricity to meet the city's energy needs. This includes promoting solar energy installations and ensuring that the energy grid can support these clean energy sources.
- **Grid Resilience:** Strengthening the resilience of the energy grid is vital to support the community during extreme weather events, ensuring that critical infrastructure, including transportation systems, remains functional in times of crisis.

3. Housing, Buildings, and Development:

- **Energy Efficiency:** Enhancing energy efficiency in residential, commercial, and municipal buildings is a priority for reducing fossil fuel use. The CAAP encourages retrofitting existing buildings and incorporating energy-efficient designs in new developments to improve overall building resilience to future climate conditions.

4. Waste Management:

- **Reducing Landfill Waste:** The CAAP promotes increased recycling, composting, and waste diversion efforts to lower GHG emissions associated with waste management. Encouraging the community to reduce landfill waste aligns with the city's broader sustainability goals.

5. Natural Resources:

- **Water Conservation and Stormwater Management:** The CAAP includes strategies for improving water conservation efforts and managing stormwater to reduce flood risks and protect water quality. These measures are especially important as Columbia faces more frequent and intense storms due to climate change.

Influence on MTP Planning:

1. Transportation Planning:

The CAAP's mode-shift goals are central to the MTP's transportation planning efforts. By encouraging walking, biking, and public transit, the CAAP aligns with the MTP's goal of improving mobility while reducing transportation-related emissions. The MTP's projects will prioritize building sidewalks, bike lanes, and safer street crossings in high-need areas, particularly where infrastructure investments can have the greatest impact on shifting people away from car trips.

Expanding and improving public transit is another key recommendation of the CAAP that directly informs the MTP. Improvements to Go COMO, including increasing bus frequency, shortening wait times, and expanding transit infrastructure, are critical to making public transit a viable alternative to driving. The CAAP also supports the expansion of the city's electric bus fleet as a way to reduce emissions further.

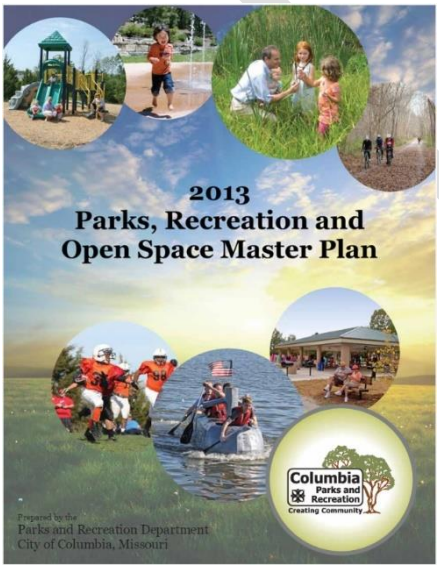
2. Land Use and Development:

The CAAP's focus on compact, efficient land use planning complements the MTP's objectives of supporting sustainable growth. By incorporating these land use strategies, Columbia can reduce the need for car travel and encourage more residents to adopt low-emission modes of transport, such as walking, biking, and public transit.

3. Infrastructure Resilience:

The CAAP's emphasis on resilience in both transportation and energy infrastructure aligns with the MTP's goals of preparing Columbia's infrastructure for climate impacts. This includes strengthening the energy grid to support critical infrastructure, such as transit systems and ensuring that stormwater management systems are equipped to handle future climate challenges.

City of Columbia Parks, Recreation, and Open Space Master Plan



The 2013 Parks, Recreation & Open Space Master Plan is a strategic document intended to guide the City of Columbia in managing and enhancing its parks, trails, and recreational facilities. The plan reflects the community's vision for maintaining a high quality of life through accessible and sustainable recreational opportunities. It focuses on providing equitable access to parks and trails, supporting sustainable practices, and ensuring the safety and well-being of Columbia's residents.

Goals and Objectives

1. Maintain Parks & Recreation Land and Facilities

- **Goal:** Efficiently maintain parks and facilities for public safety, attractiveness, and environmental stewardship, including protecting cultural and natural systems.
- **Objectives:**

- Ensure public safety at parks and facilities.
- Lead in providing sustainable, environmentally-friendly parks and facilities.
- Implement green management practices such as reducing water consumption and energy use.

2. Provide a Citywide Greenbelt/Trail Network

- **Goal:** Create a trail system throughout the city that provides opportunities for recreation as well as alternative modes of transportation.
- **Objectives:**
  - Expand and enhance recreational trail experiences to promote exercise, health, and wellness.
  - Connect neighborhoods and major destinations to the city's trail and greenbelt system.
  - Work with city planning on trail easements in future residential and commercial developments.

3. Diverse, High Quality, Safe, and Accessible Recreation Opportunities

- **Goal:** Provide quality recreation services and well-managed facilities that are financially sustainable, provide excellent customer service, and meet the needs of patrons.
- **Objectives:**
  - Maintain core recreation services and programs.
  - Develop new recreation programs that meet changing community interests.
  - Address the recreational needs of low-income households and diverse ethnic populations.

4. Sound and Sustainable Financial Planning and Management

- **Goal:** Ensure adequate financial resources to meet increasing citizen demands for park and recreation services.
- **Objectives:**
  - Sustain funding and responsible financial planning.
  - Renew the five-year park sales tax program.
  - Pursue grants and partnerships to support programs and facilities.

5. Enhance Organizational Communication and Capacity

- **Goal:** Create a high-performing workforce dedicated to delivering excellent customer service and communicating effectively with Columbia's citizens.
- **Objectives:**
  - Cultivate a learning culture to improve job performance.
  - Develop a comprehensive marketing plan to increase community awareness of the benefits provided by the Parks & Recreation Department.
  - Expand community relations to inform and educate the public about park and recreation benefits.

In 2023, the plan was updated with a new proposed trails plan reflecting changes in trail development and further trail needs that have occurred since the initial plan was adopted in 2013. Further details about this update can be found in section Trail Facilities.

University of Missouri Master Plan

The 2024 University of Missouri Master Plan outlines a comprehensive strategy for enhancing transportation systems across the campus. A central focus is on improving campus mobility and connectivity while ensuring safety for both pedestrians and vehicles. Key transportation-related goals include increasing clarity and consistency in pedestrian and vehicular navigation, improving accessibility for all users, and enhancing wayfinding through new signage and streetscape improvements. This aligns with the University's broader objectives under the *MizzouForward* initiative, which supports student success and faculty excellence.

The Master Plan emphasizes the importance of integrating multimodal transportation solutions to create a more connected and sustainable campus. Planned improvements include expanding the campus bike lane network, improving bus system operations, and removing street parking to increase pedestrian safety. The 6th Street Corridor, identified as a critical zone, will undergo significant upgrades, with plans to remove street parking and enhance pedestrian pathways. Additional corridors, such as University Avenue and the Research Commons, will also see streetscape enhancements to improve pedestrian experience and campus-wide connectivity.

Sustainability is a key element of the transportation strategy, with the Master Plan promoting a compact campus footprint to reduce vehicle reliance, improve multimodal connections, and foster the use of alternative transportation. The plan encourages more efficient land use and expanded access to green spaces, further enhancing pedestrian and cyclist safety. Furthermore, the campus-wide push for enhanced wayfinding, including updated signage and branding, is aimed at improving both vehicular and pedestrian movement throughout the campus.

In the near term, several high-priority projects are identified, such as improvements to the 6th Street Corridor, enhancements to pedestrian connectivity on East Campus, and integration of multi-modal pathways in the Research Commons area. Longer-term opportunities involve expanding infrastructure to support future campus growth, including the development of new research facilities and strategic renovations to ensure that transportation systems meet the needs of both current and future users.

The plan also reflects the University's commitment to environmental stewardship by embedding sustainable practices into campus operations. This includes a strengthened bus network, enhanced bike infrastructure, and the preservation of green spaces, which collectively contribute to reducing the campus's carbon footprint and promoting eco-friendly travel options.

The Master Plan represents a forward-thinking approach to campus development, with transportation planning at the core of its vision. The proposed improvements aim to create a safer, more accessible, and sustainable environment that supports the needs of students, faculty, staff, and visitors, while also laying the groundwork for future expansion and evolving transportation demands.

PARTNERS IN PROGRESS: CONNECTING INITIATIVES FOR A BETTER FUTURE

CATSO's member jurisdictions—MoDOT, Boone County, and the City of Columbia—and ex-officio member organizations, including the Federal Highway Administration, Federal Transit Administration, and the University of Missouri, play a key role in shaping the goals and objectives of the 2055 MTP, as well as identifying priorities and needs. Each jurisdiction's infrastructure funding plans and project prioritization are included in the project listing, as detailed below. Federal initiatives such as IIJA, and the Title VI/LEP/EJ executive orders and circulars guide this document's focus on safety, transparency, fiscal constraint, multimodalism, the movement of people and goods, energy, economic development, and addressing the transportation needs of all ages, abilities, incomes, and ethnicities.

Relationship Between Local and State Priorities and the MTP

The MRP, a major component of the MTP, informs the CATSO Transportation Improvement Program (TIP), the Statewide Transportation Improvement Program (STIP), and the City of Columbia's Capital Improvement Program (CIP) as projects are programmed. The MRP is essential to the MTP since roads are a primary feature of CATSO's transportation network. Existing roadways on the MRP that are scheduled or projected for reconstruction or service upgrades during the MTP period are included in the project list by jurisdiction. Similarly, new MRP roadways planned for construction within the MTP timeframe are listed in the MTP project list by jurisdiction. In some cases, projects are labeled as "illustrative," meaning that no funding is currently available, and its future availability is uncertain.

The City's CIP and annual budget typically include projects on MRP roads and the MTP, though some non-MRP local street projects are also listed. The Sidewalk Master Plan informs sidewalk projects, and the Parks and Recreation Master Plan identifies trail and shared-use facilities. Both the City's CIP and annual budget are key sources for projects listed in the MTP and TIP. While the TIP typically includes only funded projects (with a few illustrative projects), the MTP is more flexible in listing illustrative projects due to its longer scope. The TIP draws its projects from the MTP, including both specific project listings and the MRP.

The relationship between the TIP and STIP is such that when a new TIP or its amendments are approved by CATSO, they are incorporated into the STIP by reference. CATSO's TIP projects for the MoDOT system align with those listed in the STIP. Similarly, STIP projects must be included in the MTP project listing. MoDOT's Long Range Transportation Plan, adopted in June 2018, outlines Missourians' vision for the future and sets priorities to achieve it. As MoDOT implements its LRTP, projects within the CATSO MPA must be incorporated into the CATSO MTP, and vice versa.

Chapter 7: Goals and Objectives

The goals and objectives of this MTP build upon those established in the previous Long-Range Transportation Plan (LRTP), last updated in 2019. They have been thoughtfully revised to reflect current priorities, informed by extensive stakeholder input, public feedback from surveys and open house events, and in-depth discussions with representatives from CATSO's member jurisdictions. Through this collaborative process, we refined our goals to better align with the evolving transportation needs of the community, ensuring that this MTP supports sustainable growth, enhances connectivity, promotes safety, and accommodates all modes of transportation for a diverse population.

As detailed in Chapter 6 – Shaping the Plan, our community engagement revealed several key areas of focus. These insights are grouped into three categories: pedestrian and bicycle infrastructure, transit, and roadways.

Pedestrian and Bicycle Infrastructure

The pedestrian and bicycle infrastructure in the region faces several challenges, including gaps in the sidewalk network and maintenance issues in certain areas. The bike network also lacks sufficient connectivity and would benefit from additional protective measures to enhance cyclist safety. Community feedback highlighted a need for safer street-crossing opportunities, and many residents feel unsafe walking at night due to inadequate or malfunctioning street lighting. Additionally, introducing traffic-calming measures could help create safer spaces for both pedestrians and cyclists.

Transit

While the transit system offers free bus fares, a feature widely appreciated by the community, lengthy wait times between buses and limited service hours pose challenges, particularly for those who work or need to travel in the evenings. Expanding bus routes would improve access to more locations, and simplifying the system could make it more user-friendly, especially for non-native English speakers. Enhancing accessibility for people with disabilities and establishing a regional transit authority could further improve transit funding and expand service.

Roadways

Traffic congestion in the region is generally well-managed compared to many urban areas, though there are specific needs related to larger vehicles used for emergency response and deliveries. While parking is generally available, downtown parking remains a challenge, and there is growing demand for more electric vehicle charging stations across the region.

2055 GOALS AND OBJECTIVES:

Through this extensive engagement process, along with insights and guidance from CATSO, we have carefully revised the goals, objectives, and performance measures outlined in the previous plan. These updates reflect the changing needs of our community, as well as emerging opportunities and challenges in the transportation sector. In addition to refining existing goals, new goals have also been developed to address specific concerns raised by stakeholders, such as enhancing pedestrian safety, increasing transit accessibility, and preparing for new transportation technologies. These goals and objectives serve as a comprehensive roadmap, ensuring that our transportation system will not only meet current demands but also adapt to support long-term growth, equity, sustainability, and connectivity throughout the region.

Goal 1: the Columbia Metropolitan Planning Area (MPA) will have a first class street, highway and non-motorized network that meets the short and long-term needs of the area

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

- Improvement in citizen perception of the quality and livability of the built environment and lifestyle opportunities
- Reduction of negative impacts to the environment due to transportation (improvements in air quality, reduced noise levels, etc.)

Objective 2: Invest in and preserve the existing transportation system

- Increases in annual funding committed to roadway system maintenance, including transit operations
- Improvement in state of pavement and bridge condition/rankings

Objective 3: Support an open, inclusive and participatory transportation planning process

- Improvement in public satisfaction related to transportation projects and improvements
- Higher levels of citizen input/participation in transportation planning
- Use of new technologies and other participatory tools and options for transportation planning

Objective 4: Identify and address the needs of minority and low-income populations in making transportation decisions

- Increased numbers of minority and low-income populations participating in the transportation process
- Improvement in how projects and policies consider/address the needs of minority and low-income people

Goal 2: The MPA transportation system will integrate and connect all travel modes

Objective 1: Encourage convenient intermodal transfers to maximize travel efficiency

- Increased number of multi-modal trips
- Reduction in travel time/delay for multi-modal trips
- Reduction in the cost of trips

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

- Increase in the number of people walking for trips one-mile or less
- Increase in the number of people bicycling for trips 10-miles or less
- Increase in the number of people riding the bus
- Increased size/participation in bike share and car share programs

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

- Reduction in number of person trips by automobile modes - reduction in vehicle miles traveled (VMT) per capita
- Reduction in automobile ownership trends
- Increases in funding for transit and non-motorized travel
- Improvement in number of opportunities to travel for those who do not drive
- Proactive consideration for new transportation methods/technologies

Objective 4: Improve and expand infrastructure for pedestrians, bicyclists and people with disabilities with safe and convenient options

- Increased number of linear feet of sidewalks that connect to destinations/attractions, including trails and transit system access
- Improvement in number and length of bicycle routes that connect destinations/attractions (implementation of Bicycle/Pedestrian Network Plan)
- Continued implementaiton of the City of Columbia ADA Transition Plan and seek funding sources to bring sidewalks, crosswalks, and bus shelters up to ADA-compliance
- Continue to build out a safe and connected bicycle system

Goal 3: The public transportation system will be a viable transportation option throughout the MPA

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

- Reduction in the cost of trips
- Reduction in the cost of vehicle maintenance, capital and operating costs
- Increased number of collaborative partnerships and commuter options

Objective 2: Support and promote the public transportation (bus) system

- Expansion in funding sources, mechanisms and budget amounts for transit
- Expansion in marketing efforts and partnerships
- Improved public awareness/approval of bus system
- Address transit accessibility for non-native English speakers

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

- Increase in the number of routes
- Optimize accessibility of the system
- Increase in service hours and days
- Increase in the number of points of entry/exit/transfer within the system
- Increase in bus system ridership
- Increase/improvement in the number, type or quality of transit facilities and technologies (buses, bus stops, map apps, etc.)
- Increase in annual operating/capital budget for bus system
- Reduce headways
- Improve reliability and punctuality of bus service

Goal 4: Long-range land use and transportation planning will be coordinated on a regional and local basis

Objective 1: Establish policies and programs to reduce motor vehicle travel demand

- Reduction in peak travel motor vehicle volumes
- Increase in the average number of passengers per vehicle per trip
- Explore a regional transit authority

Objective 2: Develop a long-range plan for the establishment of commuter transportation systems serving the MPA

- Expansion of commuter transportation options
- Reduction in single-occupant commuter automobile trips

Objective 3: All planning partners will address multimodal system and safety needs in all planning, design, and construction of transportation improvements

- Increase in number of multimodal projects to address safety needs
- All planning partners reference MoDOT's Show-Me Zero, the MoDOT Strategic Highway Safety Plan

Objective 4: Capitalize on common goals and needs in the region to reduce costs and promote efficiency in transportation improvements

- Increase in the number of policies and projects co-sponsored by multiple jurisdictions
- Increase in the number of regional goals supported by projects and improvements

Objective 5: Accommodate increased freight movement and increase efficiency throughout the region

- Identify and promote the use of key freight corridors
- Improvement of on-time delivery through system efficiency
- System improvement to the COLT railroad corridor and intermodal connector facilities to enable greater connectivity to street network and Norfolk Southern railroad
- Reduce truck traffic in residential neighborhoods and on lower street classifications, particularly local residential streets

Objective 6: Promote rail as a viable option for freight and passenger movement throughout the region

- Increase the amount of freight moved by rail
- Develop passenger rail opportunities
- Support improvements to rail facilities/track expansion

Goal 5: Encourage compact and infill development and redevelopment in under-invested areas

Objective 1: Focus on improvements for all modes in areas of desired future growth and development that support the public's vision for the MPA

- Maximize number of transportation improvements planned, designed, and/or constructed in areas of desired growth
- Direct maximum % of growth and development (units and acres) to areas identified as priority areas in Columbia Imagined
- Support redevelopment and development of areas well-served by all transportation modes

Objective 2: Seek to eliminate/reduce/manage current congestion and multimodal traffic flow restrictions on existing arterial and collector roadways

- Reduction in delay and travel time for automobile, buses, pedestrian and bicycle travel through traffic signal synchronization, intersection improvements, and other methods
- Improvement of congestion management outcomes
- Support access management policies

Objective 3: Develop and modify the transportation system so that it respects and enhances the natural and built environment

- Reduction in the negative environmental impacts of the transportation system (built and future)
- Increase in use of environmentally-sensitive technologies and advancements
- Increase in the use of context-sensitive designs
- Expand the objectives of street design standards to include enhancement of the natural and built environment

Goal 6: Integrate land use planning with infrastructure development

Objective 1: Encourage future development and related transportation improvements to address capacity and connectivity needs proactively rather than reactively

- Transportation improvements built prior to and concurrently with new growth and development (rather than reactive to)
- Corridor preservation: preserve motorized and non-motorized transportation corridors for future growth and to encourage desirable street network designs
- Coordinate land use planning for industrial and other land uses around freight corridors and intermodal connector facilities

Objective 2: Land use planning will utilize the Pedestrian and Bicycle Network Plan to create a bikeway/sidewalk/greenbelt trail network that provides an alternative and complementary means of transportation to the overall street system

- Increase the number of walking and biking users with trip purposes of commuting, shopping and entertainment
- Increases annually in the linear feet of new trails and/or sidewalks built
- Increased focus on maintenance and improvement of existing non-motorized network

Objective 3: Ensure that future development and related transportation improvements address transportation safety needs in planning and design

- Build transportation improvements concurrently with development activity, with emphasis on walkability and overall non-motorized user safety and on connectivity for all travel modes
- Reduction in crash frequency in areas affected by development and population growth

Objective 4: Increase the geographic area in which people have convenient access to non-automobile modes of transportation

- Review of Pedestrian and Bicycle Network Plan by Boone County Commission and the Columbia City Council for long-term amendments
- Expansion of public transit outside of the City limits
- Expansion of bike system mileage outside of City limits

Goal 7: Provide safe and secure facilities and transportation infrastructure for residents, visitors and commerce in the Columbia MPA

Objective 1: Establish partnerships with other federal, state, and local governmental agencies to promote continued interagency cooperation and planning for safety and security measures

- Increase in the consideration of security issues in existing system and proposed improvements
- Enhanced collaboration in the development and implementation of Emergency Response and Hazard Mitigation Plans

Objective 2: Reduce injuries, fatalities and property damage for all modes of transportation with the Vision Zero Plan as the model

- Reduction in the number/frequency of injuries (all modes), with the eventual goal of elimination of deaths and serious injuries by 2030, as specified in the adopted (City) Vision Zero action plan
- Improvement of local enforcement of traffic laws, education of all transportation system users, and appropriate engineering solutions

Objective 3: Minimize security risks on roadways and bikeways, and on public transportation facilities throughout the Metro planning area

- Identify locations for potential safety projects (high crash locations and mode conflict points)
- Increased use of Crime Prevention Through Environmental Design principles in public transit facilities
- Improvement in the number and locations of marked crosswalks and audible pedestrian signals
- Bridge and pavement conditions meet or exceed safety standards

Objective 4: Provide resources for emergency situations and major disasters while improving security and safety-related incident(s) response

- Improvement in emergency response time
- Increased resources available for emergencies and major disasters

Goal 8: Reduce motor vehicle pollution/emissions by allowing opportunities for alternatives to internal combustion engine motor vehicle usage, both vehicular and non-motorized

Objective 1: Provide for use of low to zero emission (electric/hybrid) vehicles

- Continue the replacement of transit system buses with electric and other non- internal combustion engine vehicle alternatives
- Increase the number of electric vehicle charging stations in public areas, such as City and University-owned parking garages and parking lots

Objective 2: Provide for non-motorized travel and commuting opportunities

- Increase bicycle parking facilities at commercial and office locations, and at public facilities, including all levels of public schools, libraries, local colleges and the University of Missouri
- Provide additional on-street bicycle lanes and additional greenbelt trail connections and extensions
- Improvement in sidewalks, crosswalks, and intersections/traffic signals to facilitate increased pedestrian travel

Chapter 8: Columbia's Transportation Network of Tomorrow

PROJECT RECOMMENDATIONS

The recommendations outlined below are derived from a comprehensive review of existing city, county, and regional plans, along with extensive stakeholder input and an analysis of relevant data gathered throughout this planning process. Some of these plans are highlighted alongside the recommendations. Collectively, the recommendations address the transportation needs of the region, providing a foundation for the long-term development and implementation of multimodal transportation strategies within the CATSO MPA.

By aligning the goals and objectives of the MTP with those of these various plans, we aim to create a cohesive and integrated approach that addresses transportation challenges and enhances mobility across the region. These projects are designed with a multimodal focus, supporting not only roadway improvements but also elements for bicyclists, pedestrians, and transit users. They reflect the goals of relieving congestion, improving safety, and enhancing connectivity to build a more efficient, accessible, and resilient transportation network for all users.

Roadways

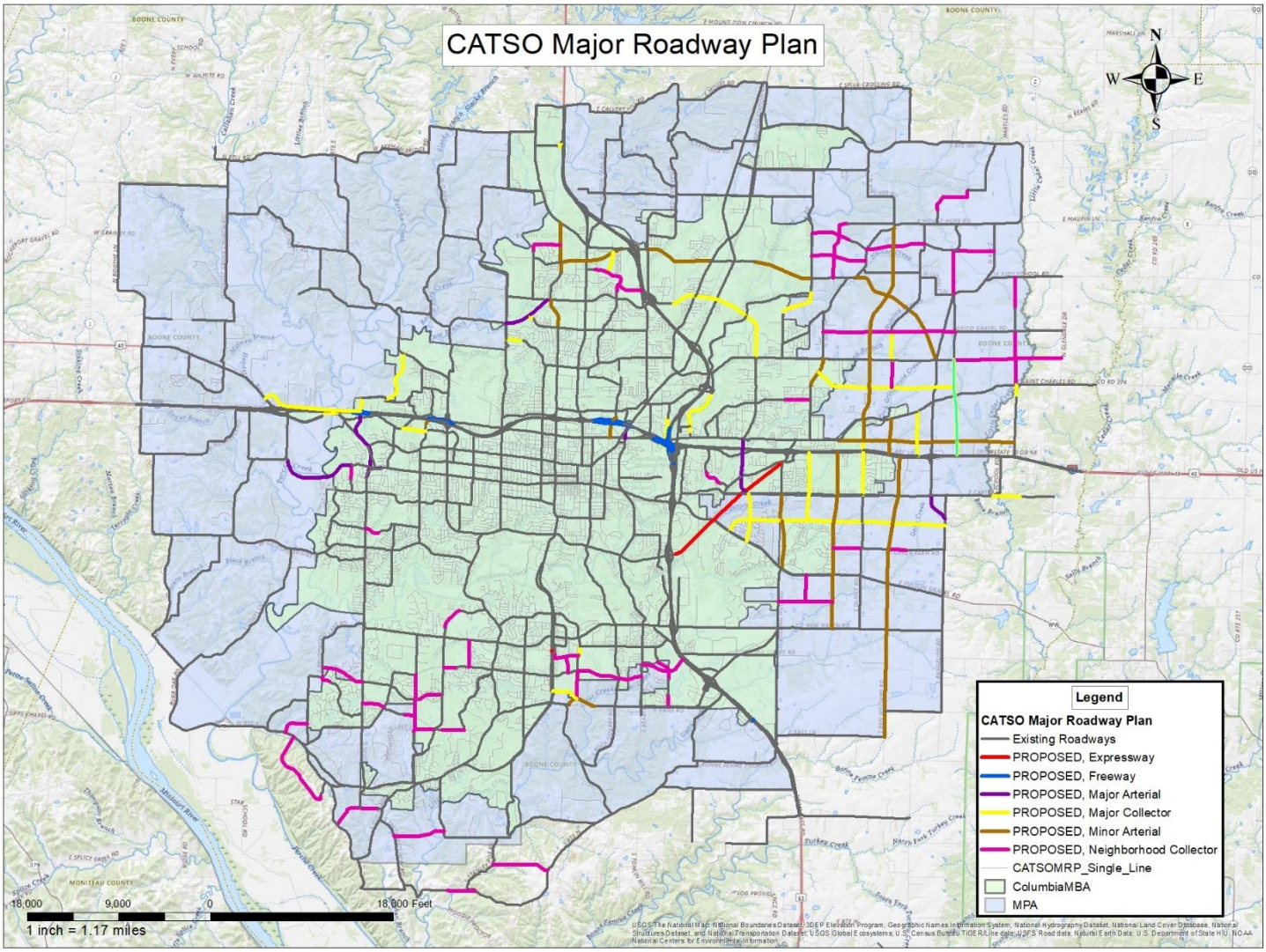
Major Roadway Plan

The recommendations for roadway projects in the CATSO MTP are directly informed by the Major Roadway Plan (MRP). Serving as a strategic blueprint for the region's major roadway network, the MRP addresses all major roadways except for local residential streets. It identifies where major roadway additions and extensions are needed to improve mobility, connectivity, and safety, while accommodating growth throughout the region.

Projects are designed to relieve congestion, enhance safety, and improve connectivity, creating a more efficient and accessible transportation network for all users. In most cases, the major roadways outlined in the MRP include infrastructure elements for bicyclists and pedestrians, promoting multimodal access and safety alongside vehicle travel.

The Major Roadway Plan is updated regularly to reflect changes in development patterns, traffic demands, and public input. Updates typically align with the MTP's five-year review cycle, ensuring that the plan remains current and responsive to the region's evolving needs. A map of the Major Roadway Plan (Map 11 - CATSO Major Roadway Plan) is provided below. A more detailed, zoomable version of this map is available through this link: CATSO MRP.

MAP 11 - CATSO MAJOR ROADWAY PLAN



Growth and expansion of the Columbia area necessitates expanding the arterial network to accommodate it. There are many areas where growth is difficult or will create unnecessary congestion because the arterials network has not kept up with expansion. Several major arterial extensions are proposed to remedy this. Furthermore, MoDOT's expansion plans for I-70 have underscored the need for an expanded arterial system within the MPA to facilitate local traffic movement. Major additions to the arterial network to address these needs are detailed below.

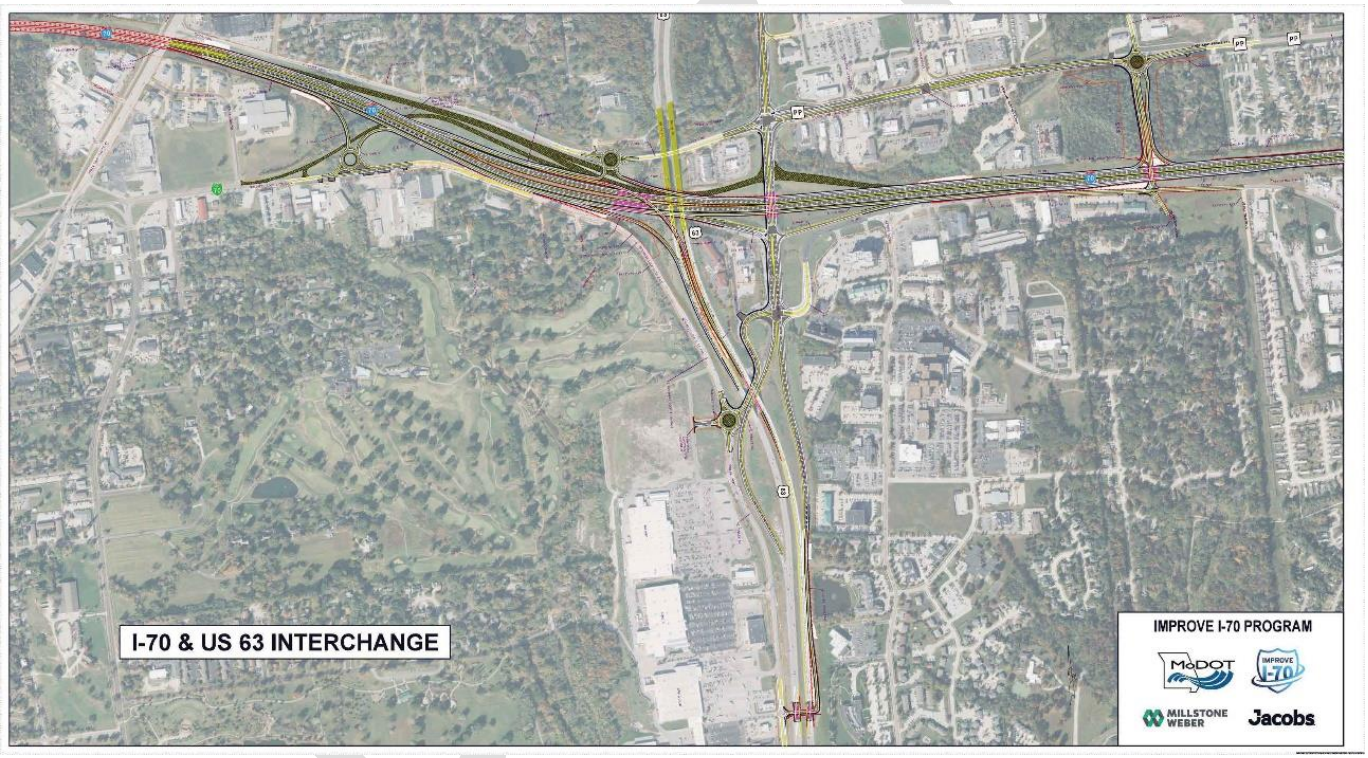
Improve I-70 Program

On December 18, 2001, the Improve I-70 (Kansas City to St. Louis) First Tier Environmental Impact Statement (EIS) findings were accepted by the Federal Highway Administration (FHWA). This formal acceptance, published in the form of a Record of Decision (ROD) explains the study's findings and any commitments[34]. On April 27, 2006, FHWA issued a ROD

[34] https://www.modot.org/tier-i-information

for the Improve I-70 Second Tier EIS Segment of Independent Utility (SIU) 4 though the CATSO region. SIU 4 includes I-70 from just east of Route BB to Route Z. The SIU 4 improvements include one additional lane in each direction on I-70, replacement of all existing interchanges and overpasses, and other operational improvements[35]. In 2024, the Missouri General Assembly provided $2.8 billion in General Revenue for the costs to plan, design, construct, reconstruct, rehabilitate and repair three lanes in each direction on nearly 200 miles of I-70, from Blue Springs to Wentzville. This program includes eight total project segments across the state. The nearly 200 miles have been broken into various contracts that will be awarded throughout 2029. Total completion of the corridor is anticipated by the end of 2030[36].

In 2024 MoDOT began construction on the first project in the Improve I-70 program, a segment from just west of US 63 to just east of US 54 in Callaway County. The improvements include providing a third lane in each direction; reconstructing or rehabilitating pavement and bridges; improving traffic operations, geometrics, and safety; and improving accessibility along and across the corridor for freight, bicycles, and pedestrians[37]. ***The updated design includes improved interchange configurations for the US 63 connector, which will incorporate westbound access to Business Loop 70.***



[35] https://www.modot.org/improvei70/tier-ii-section-4
[36] https://www.modot.org/improvei70/home
[37] https://www.modot.org/improvei70/columbiakingdomcity

The existing westbound on- and off-ramps at US 63 will be removed and relocated to the west of the US 63 overpass, connecting to a new roundabout at Clark Lane. From this roundabout, traffic will have access to US 63 or Business Loop 70 East, with access to Business Loop 70 East via Paris Road/Route B. Additionally, new eastbound I-70 off- and on-ramps will be constructed just east of the current westbound off-ramp flyover, reintroducing an eastbound on-ramp to I-70 and creating a new eastbound off-ramp. A roundabout will be constructed on Business Loop 70 East to connect to the new ramps. A separate part of this project will include a new roundabout at Business Loop 70 East and Conley Road, along with an overpass from the south entrance of Sam's Club on Conley Road over US 63. This overpass will connect to a new frontage road running north to the US 63 northbound off-ramp[38].

The Improve I-70 project for the segment of I-70 west of US 63 is being called "Improve I-70: Rocheport to Columbia" project and is scheduled for 2026-2029.

Business Loop 70 Reconnecting & Revitalizing an Underserved Community: I-70 Business Loop Corridor Study

The I-70 Business Loop Corridor study is focused on revitalizing the I-70 Business Loop between Stadium Boulevard and Eastland Circle. In FY 2023, the project received a Neighborhood Access and Equity Program (NAEP) grant under the Reconnecting Communities program[39]. This grant will support a study to enhance accessibility, safety, and economic opportunities while addressing the needs of historically disadvantaged and underserved communities along the corridor.

The study emphasizes a complete streets design to create a safer and more inclusive environment for all users. Proposed improvements include upgraded intersections, dedicated bike lanes, and enhanced pedestrian connections to promote multimodal accessibility. In addition, aesthetic upgrades, such as improved landscaping and signage, will aim to make the corridor more visually appealing and inviting. Environmental sustainability is also a focus, with stormwater management improvements planned to mitigate local flooding and enhance resilience.

These enhancements are designed to strengthen the corridor's role as a vital connector for nearby neighborhoods, educational institutions, community services, and commercial centers. By bridging gaps in infrastructure and accessibility, the plan seeks to stimulate economic growth and foster a sense of cohesion within the community. Supported by the NAEP grant, the Business Loop 70 Corridor Plan is an essential step toward creating a safer, more equitable, and vibrant transportation network for Columbia, Missouri.

Broadway

West Broadway Extension

The Major Roadway Plan outlines the extension of West Broadway as a major arterial from Route UU (I-70/Highway 40 interchange) to Scott Boulevard/Route TT. This extension is intended to provide connectivity between the areas east and west of Perche Creek. The specifics of this alignment should be considered as part of the Westside Transportation Study discussed later under the Study Recommendations section. Perche Creek and its floodway present a natural barrier that will require a long bridge.

Currently, only I-70 and Gillespie Bridge Road provide east-west travel across Perche Creek in the western portion of the Metropolitan Planning Area (MPA). Gillespie Bridge Road is prone to flooding and I-70 is prone to congestion from causes such as traffic crashes. The extension of Broadway to the I-70/Highway 40 interchange could significantly reduce travel

[38] I-70 and 63 Projection
[39] Reconnecting Communities FY23 Awards

times and lower traffic volumes on Stadium Boulevard, while also alleviating delays on I-70. It also provides connectivity for residents and development as well as a crucial access route for emergency services.

The Major Roadway Plan (MRP) shows the preliminary alignment for this roadway. The City of Columbia has conducted a preliminary study of alternative alignments and secured commitments for portions of the right-of-way in a future subdivision (The Overlook). Cooperation will be required to acquire right-of-way and construct the roadway. The roadway extension involves coordination across multiple jurisdictions, including MoDOT, Boone County, and the City of Columbia. Right-of-way will need to be surveyed and purchased through the Perche Creek bottoms up to Route UU. Environmental concerns, particularly regarding water quality and the karst/sinkhole topography in the area, will need to be addressed during the construction phase. Due to the topography and floodplain, the roadway corridor offers limited development potential, but the scenic qualities should be evaluated, and natural features preserved to create an attractive western entrance to Columbia.

East Broadway Improvements

The East Broadway Improvements would improve East Broadway east of US 63 to an arterial roadway to improve traffic flow from areas east of US 63 to the core urbanized area west of US 63. A study is needed to determine an appropriate scope of work for this project

Stadium Boulevard (MO 740 East Extension)

An EIS to extend Stadium Boulevard from US 63 to I-70 was completed in 2009. The CATSO MRP provides a preliminary alignment for this section of the Circumferential Roadway System. While there have been attempts to secure funding for the project, the project has not yet been completed. As described in the Study Recommendations section, there is value in revisiting the recommendations from the 2009 EIS to ensure that the findings and recommendations from the EIS are still appropriate. There is ongoing subdivision activity within the proposed roadway corridor. The proposed corridor is currently developed with single-family residences on large properties, necessitating the acquisition of right-of-way, which will likely involve property condemnation. Development around the Lake of the Woods interchange may require purchasing businesses and homes. Given the proximity to Grindstone Creek, there are likely to be concerns related to water quality and impacts on the greenbelt. The eastern portion of the US Highway 63/Stadium Boulevard interchange is evolving into a commercial center and multi-family residential area. At this location, Maguire Boulevard has been extended north to Stadium Boulevard, completing a long-standing plan to provide northern street access to the Concorde Industrial Park. With this extension, the interchange at US 63 should be revisited to ensure it can properly handle added traffic.

Providence Road (MO 163)

North Providence Road Improvements

This project was first presented in its current alignment in the 2025 CATSO Plan, which removed the northern connection to US Highway 63 and connected the northern terminus of the Providence Road extension to Route VV. The plan also downgraded the roadway to a minor arterial. The City has since constructed the section of the Providence Road extension from Vandiver Drive, crossing Bear Creek, to Smiley Lane. Land uses proposed along the corridor have shifted from industrial to residential. Given the developing residential nature of the area, the connection to US Highway 63 is no longer necessary to serve an industrial district. Traffic between US 63 and I-70 will instead use Rangeline Street (Highway 763). However, a parallel route to Rangeline—which serves as a commercial and industrial corridor—is needed to accommodate existing and future residential development.

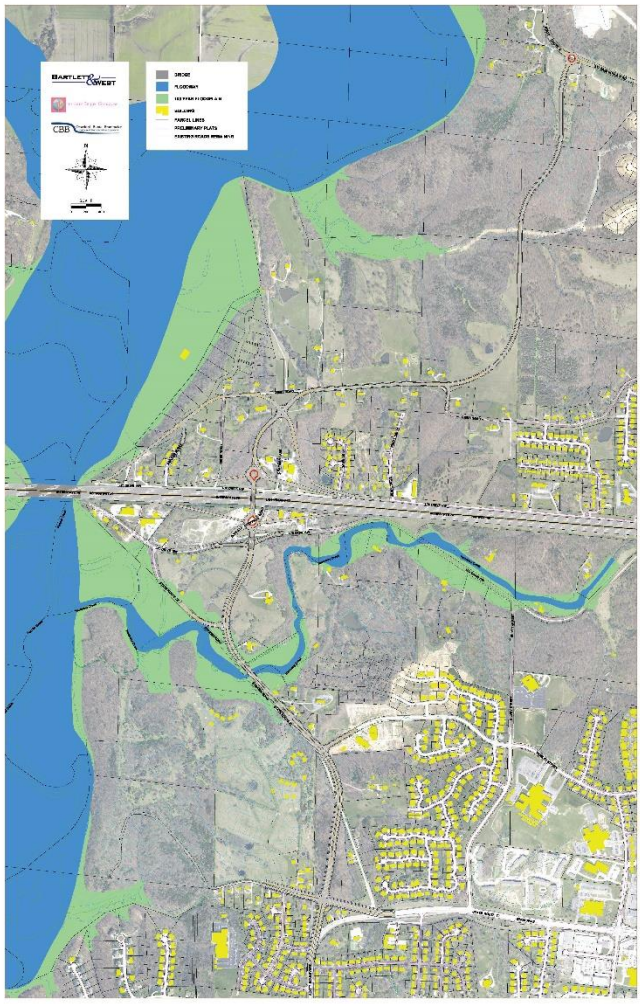
An additional section of Providence Road has been constructed from East Brown School Road north for approximately 1.1 miles as part of the development of the Forest Ridge subdivision. A 0.5-mile unbuilt gap remains in the corridor between Brown School Road and Smiley Lane.

South Providence Road Improvements

This project involves widening MO 163 from Southampton Drive to Route K to four lanes. The right-of-way for the widening is currently available, although additional right-of-way may be necessary at the intersection with Route K and Old Plank Road. MO 163 is part of the Pedestrian and Bicycle Network Backbone, and the widening project should include provisions for the appropriate pedestrian and bicycle infrastructure.

Gans Road

This proposed extension runs from Providence Road to U.S. Highway 63, following the existing alignment as a minor arterial, with a new alignment east of Bearfield Road leading to an interchange at U.S. Highway 63. Future signalized intersections are planned at Gans Road's junctions with Ponderosa Street, Bearfield Road, Rock Quarry Road, and Highway 163. Gans Road is classified as a minor arterial due to the limited development potential in the areas south of the roadway. The road is situated in the drainage area for Clear Creek, which flows into Rockbridge State Park. The construction phase poses a significant threat to the water quality of the creek and the park. To enhance its appeal and preserve the corridor's unique character, Gans Road should be considered for local designation as a scenic road, creating an attractive southern entrance to south Columbia.



Proposed I-70 and Scott Boulevard Interchange

In October 2011 the City of Columbia submitted an Access Justification Report (AJR) and Environmental Assessment (EA) to MoDOT and FHWA, exploring the possibility of a northern extension of Scott Boulevard and a new interchange with I-70. FWHA granted a Finding of No Significant Impact (FONSI) and approved the project's AJR in January 2013. This established the preferred alternative for the future roadway extension.

Circumferential Roadway System

The proposed Circumferential Roadway System builds upon many existing roadways within the MPA. Of the 12.2 miles of the proposed system west of US 63, only 0.85 miles, or seven percent, would require new street right-of-way (ROW). Starting at Stadium Boulevard (MO 740) and US Highway 63, the loop would extend along Stadium Boulevard, then north along Route E and Blackfoot Road to Wilcox Road and Obermiller Road, and continue to Creasy Springs Road. From there, the system would proceed northeast along a new alignment, connecting to Brown School Road east of Clearview Road, and follow Brown School Road to its interchange with US Highway 63.

East of US 63, the system would continue along Starke Lane to Brown Station Road. From Brown Station Road, a new roadway would be constructed across the COLT railroad to Route B. The roadway would then follow a new alignment heading southeast to intersect with Route PP. From the Route PP intersection, the system would use the Ballenger Road alignment to Clark Lane and then extend across I-70 along the Ballenger Lane extension to connect with the planned extension of Stadium Boulevard (MO 740), completing the loop at US Highway 63 in eastern Columbia.

Except for the existing sections of Stadium Boulevard and the segment between Route PP and US 63, the Circumferential Roadway System would ultimately be constructed as a four-lane primary arterial, with a raised median to control access. The following sections provide a detailed, segment-by-segment description of the proposed system.

1. **Blackfoot Road (Route E to Wilcox Road):** Blackfoot Road is currently a narrow, 18-20 foot wide collector street with sharp curves and steep grades, making it unsuitable for heavy traffic. Since there's a quarry nearby, large trucks already use the road. The City of Columbia is working to acquire land to widen Blackfoot Road and upgrade it to a major arterial. There is also a plan to realign Route E to form a "T" intersection with Blackfoot Road. Once widened, the road would handle higher traffic volumes and improve safety.

2. **Obermiller Road (Wilcox to Creasy Springs Road)**: Obermiller Road is a two-lane road that meets county standards, but it has a sharp 90-degree turn that could reduce traffic speeds. The road needs additional right-of-way (ROW) to be widened into a four-lane street with a raised median. The curve would also be improved to allow for higher-speed traffic.

3. **Northwest Arterial (Creasy Springs Road to Brown School Road and US 63) (18):** This project involves a new roadway alignment beginning at the intersection of Obermiller Road and Creasy Springs Road. Utilizing the platted right-of-way (ROW) for Sanderson Lane from the intersection with Creasy Springs Road, the proposed Northwest Arterial would extend northeast to meet the current alignment of Brown School Road, approximately 1,500 feet east of Clearview Road. Smiley Lane and Clearview Road would connect to the Northwest Arterial via "T" intersections, with a minimum distance of 1,320 feet between them. One challenge is the inadequate ROW along the existing Sanderson Lane alignment, as well as the proximity of several residences to the future roadway.

   The Northwest Arterial relies on the Sanderson Lane portion of the Smiley Lane alignment and would intersect Smiley Lane at a "T" junction. This section is a crucial component of the western portion of the system, as it completes the connection between US Highway 63 and I-70. If Smiley Lane is extended to Obermiller Road, the design should include provisions for the construction of the Northwest Loop and create a "T" intersection for Smiley Lane.

4. **Starke Lane (US 63 to Route B):** The construction of the interchange at US 63/Oakland Gravel Road in the early 1990s improved access to the Boone County Fairgrounds and led to changes in the alignments of Oakland Gravel Road, Roger I. Wilson Memorial Drive, and Brown School Road. As a result, Brown School Road was upgraded from a collector to an arterial road. Currently, Starke Lane is a narrow, two-lane roadway that terminates at Brown Station Road. The primary land use along this corridor is the Boone County Fairgrounds.

   East of US 63, Oakland Gravel Road and Starke Lane meet at a "T" intersection with Brown School Road, located just 200 feet east of the northbound ramps of US 63. This intersection requires all eastbound vehicles to stop and turn, which disrupts through traffic. To address this, the 2025 CATSO Roadway Plan realigned Starke Lane and its

extension eastward to Route B. Initially, Starke Lane was planned to be realigned through Fairground property as an extension of Brown School Road. However, in 2006, the CATSO Coordinating Committee amended the Major Roadway Plan (MRP) to show the existing alignment of Starke Avenue, reducing the impact on the Boone County Fairgrounds. This revision presents challenges, as Starke Lane is a critical segment of the northern loop circumferential system. If the "T" intersection at Starke and Oakland Gravel Road remains, the continuity of the northern loop will be disrupted. CATSO will need to revisit the Starke Corridor as planning for the northern loop progresses. Most available roadway corridors for the extension are developed with small residences and duplexes, so acquiring right-of-way (ROW) for the Starke Avenue extension will likely involve purchasing several residential properties. Boone County is a key stakeholder in this corridor. Improved access to the Boone County Fairgrounds and surrounding properties would be a direct benefit of the roadway realignment. The realignment will require significant regrading east of US 63, with Oakland Gravel Road being shifted east to create a new intersection with Starke Avenue.

5. **Northeast Collector (Route B to Route PP):** The Northeast Collector would extend east from Route B, then south as a major collector to intersect with Route PP. This roadway would cross Hinkson Creek and its floodplain. The area adjacent to the proposed corridor is sparsely developed with residences, while industrial uses on the east side of Route B limit potential intersection locations for the Northeast Collector. A major bridge will be needed to cross Hinkson Creek, and water quality in the creek will be a consideration during the design and construction phases.

   This section is crucial for the eastern portion of the loop, completing the connection between US Highway 63 and service roads in the I-70 corridor. The Northeast Collector should provide access to a future Hinkson Creek Trail and include sidewalks on the Hinkson Creek Bridge. An alignment study is necessary to evaluate alternatives, costs, and impacts for this section of the Circumferential Roadway System, should funding become available for this potential project.

6. **Ballenger Lane Extension (Clark Lane to St. Charles Road) (14):** The Ballenger Lane Extension would cross I-70 via an overpass to connect with I-70 Drive SE and St. Charles Road on the south as a major arterial. The overpass would also span Hominy Branch Creek. This extension was added to the Roadway Plan in 1997 in response to growing traffic volumes and delays at the Clark Lane (Route PP) and US Highway 63 intersection, and to preserve a potential alignment for the planned extension of Stadium Boulevard (MO State Route 740). Currently, there is a 2.1-mile gap between I-70 crossings at St. Charles Road (Lake of the Woods) and US 63, which impedes efficient traffic flow. The key feature of this project is the overpass over I-70, providing north-south access for northeast Columbia.

   The proximity of the overpass to the existing I-70/US Highway 63 interchange limits the possibility of adding ramps to create a new interchange for Ballenger Lane or Stadium Boulevard. There is considerable development pressure and subdivision activity in the proposed roadway corridor, particularly near I-70 Drive SE and Clark Lane. Although there is no existing development directly impacted by the proposed arterial street, the alignment would divide several large residential tracts currently developed with single residences. The extension will require a bridge over Hominy Branch Creek and the City of Columbia's Hominy Branch Greenbelt. The construction poses a significant threat to the water quality of Hominy Branch Creek and downstream Hinkson Creek.

The I-70 overpass was included in the MoDOT I-70/US 63 (East Columbia) Environmental Impact Statement (EIS) as a key improvement to relieve congestion at the I-70/US 63 interchange. However, MoDOT did not include this roadway section in the State's Long Range Transportation Plan. Although the overpass was discussed in the EIS's preferred alternative, it is not covered in the cost of that alternative, which includes the Stadium Boulevard (Route 740) extension and improvements to Route WW (US 63 to the Columbia urban limit). Responsibility for the Clark Lane extension and I-70 overpass was determined to fall to local jurisdictions. The City's Capital Improvement Plan (CIP) lists this project as a future endeavor (10+ years from FY 2020), but no cost estimates or funding sources have been established.

Recent amendments to the MRP for the northeast area resulted from the construction of the new Battle High School on St. Charles Road and related development activity. In 2013, Boone County and MoDOT jointly reconstructed the intersection at Route Z and St. Charles Road, installing a roundabout to address safety concerns before the school's opening. New roadway alignments were also developed in the Northeast Columbia Area Plan.

Bicycles and Pedestrians

During the planning process for the MTP update, several key concerns were raised by the public regarding the existing bicycle and pedestrian network:

- **Significant gaps in the sidewalk system**: Many community members noted that the current sidewalk network is incomplete, with substantial gaps that make walking difficult or unsafe in some areas.
- **Sidewalk maintenance issues**: In certain areas, existing sidewalks are not well-maintained, posing challenges for pedestrians, especially those with mobility impairments or parents with strollers.
- **Lack of connectivity in bike infrastructure**: The existing bike routes and lanes do not form a well-connected system, making it difficult for cyclists to navigate the city safely and efficiently.
- **Need for better-protected bike infrastructure**: Cyclists expressed a desire for more protected bike lanes and safer bike routes to ensure greater separation from vehicular traffic.
- **Safer street-crossing opportunities**: Pedestrians highlighted the need for more crosswalks and safer ways to cross busy streets, especially near schools and parks.
- **Concerns about walking at night**: Some areas of the city feel unsafe for walking at night due to insufficient street lighting or malfunctioning lights.
- **Desire for traffic calming measures**: Many respondents supported the introduction of traffic calming measures to create safer environments for both walking and biking.

Bicycle and Pedestrian Network Plan

The Bicycle and Pedestrian Network Plan outlines a comprehensive pedestrian and bicycle network for the entire Columbia MPA. The map serves as a planning document that identifies existing pedestrian and bicycle facilities, as well as proposed new connections and extensions to enhance connectivity within the network. Its implementation will ultimately create a fully integrated system for non-motorized travel.

The network currently includes over 130 miles of trails, 255 miles of pedways, and 385 miles of bicycle routes and lanes. It incorporates facilities from the City's Parks and Recreation Master Plan (2013) and proposes additional connections beyond the city limits within the Columbia Metropolitan Area boundary. The CATSO Ped/Bike map also highlights roadways that are critical for improved mobility within the MPA and for connecting non-motorized modes to and from the bike/ped network. To support these functions, roadways lacking complete streets features (such as bike lanes, sidewalks, or pedways) should be constructed or retrofitted accordingly.

In line with the publicly expressed goals and objectives of this plan, the Network Plan aims to provide greater opportunities for walking and cycling throughout Columbia and the metropolitan planning area by constructing a system that connects all parts of the region. Specifically, the plan is designed to allow children, the elderly, and individuals with disabilities to walk or bike across the community in safe and attractive surroundings.

The plan's development seeks to leverage all facilities to improve system-wide connectivity throughout the MPA. While the trails system will create a separate transportation network for bicyclists and walkers, it complements existing sidewalks, bicycle routes, and pedways within the pedestrian/bicycle network. The sidewalk system includes two types of facilities:

- **Pedways:** Pedways are shared-use paths for all non-motorized modes of transportation Typically 8 to 10 feet wide and paved, they are often adjacent to roadways but provide greater separation from traffic than bike lanes and wider than. Pedways are sometimes called shared-use paths or urban trails.
- **Conventional Sidewalks:** Sidewalks are typically 5 feet wide except in the central business district (10 feet) and exceptional corridors like Broadway (six feet is recommended).

Map 12 below presents three primary classifications of facilities: CATSO Bike and Pedestrian Connectivity Map

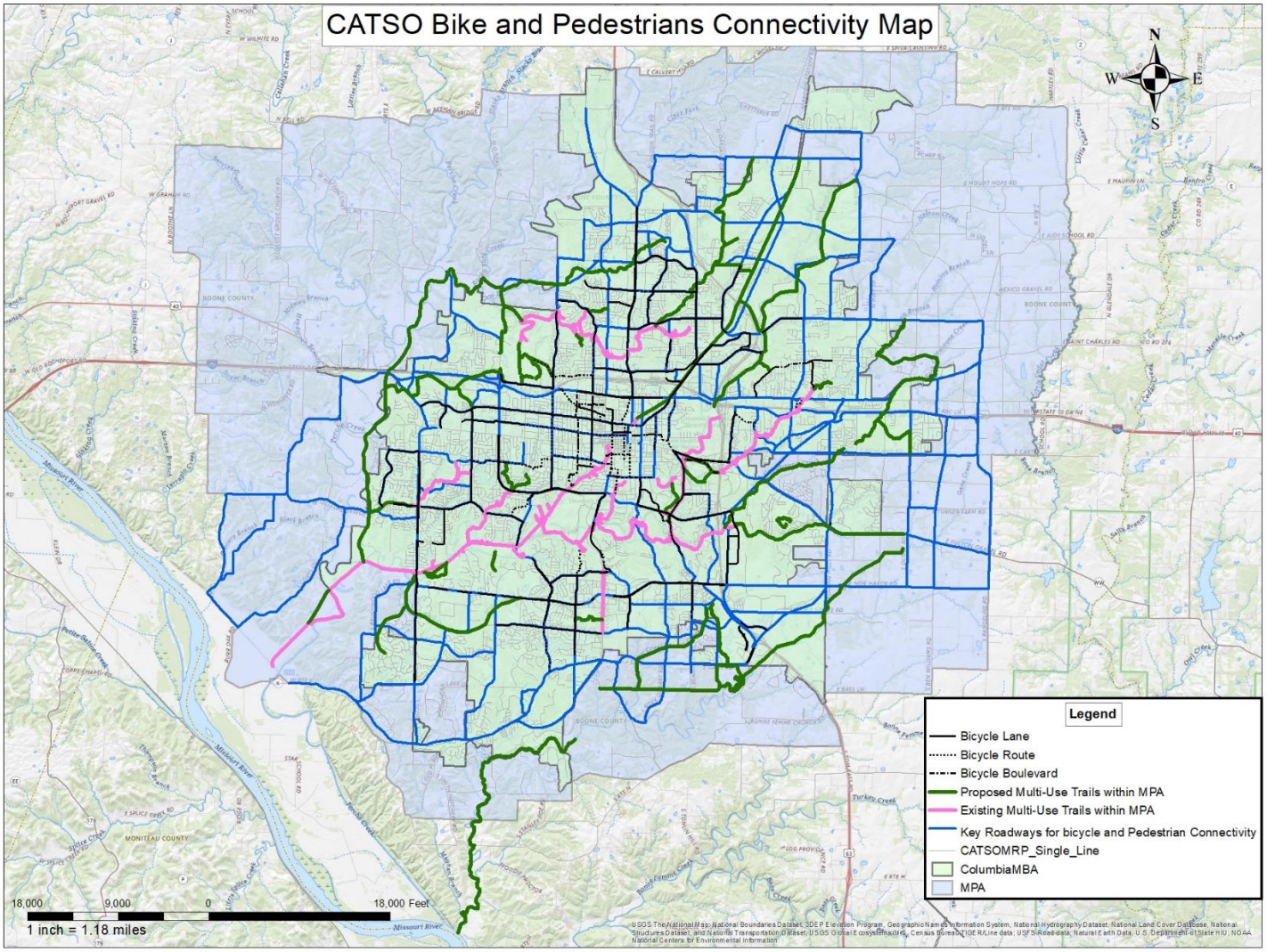
Classifications:

1. **Existing Bicycle & Pedestrian Network (Existing or Underway):** This includes trails, pedways, and other shared-use facilities that are already built or currently funded/under construction. This category is considered the backbone of the network, to which new additions should be connected. It includes a wide range of facilities, such as the MKT Trail, the South Providence Pedway, and segments of the Bear Creek Trail.

2. **Proposed New Additions to the Bicycle & Pedestrian Network:** This category includes proposed trails along creek/greenbelt corridors and the Columbia COLT Railroad right-of-way, as well as extensions of existing trails like Bear Creek Trail and planned pedways. These additions align with the recommendations in the Parks and Recreation Master Plan (updated in 2013).

3. **Roadways Key to Bicycle and Pedestrian Connectivity:** These roadways either already have bike lanes and sidewalks or are recommended to be built or rebuilt as complete streets due to their importance in connecting the MPA and their relationship to the bike/ped network.

Map 12 - CATSO Bicycle and Pedestrian Connectivity Map



City of Columbia Trails Plan

The City of Columbia Trails Plan was last updated in 2023 to supplement the Bicycle and Pedestrian Network Plan.[40] It, aims to enhance connectivity, accessibility, and recreational opportunities for the community. This plan builds on the **2013 Parks, Recreation, and Open Space Master Plan** and includes proposed extensions, connector trails, and new trail segments across the MPA.

Key features include:

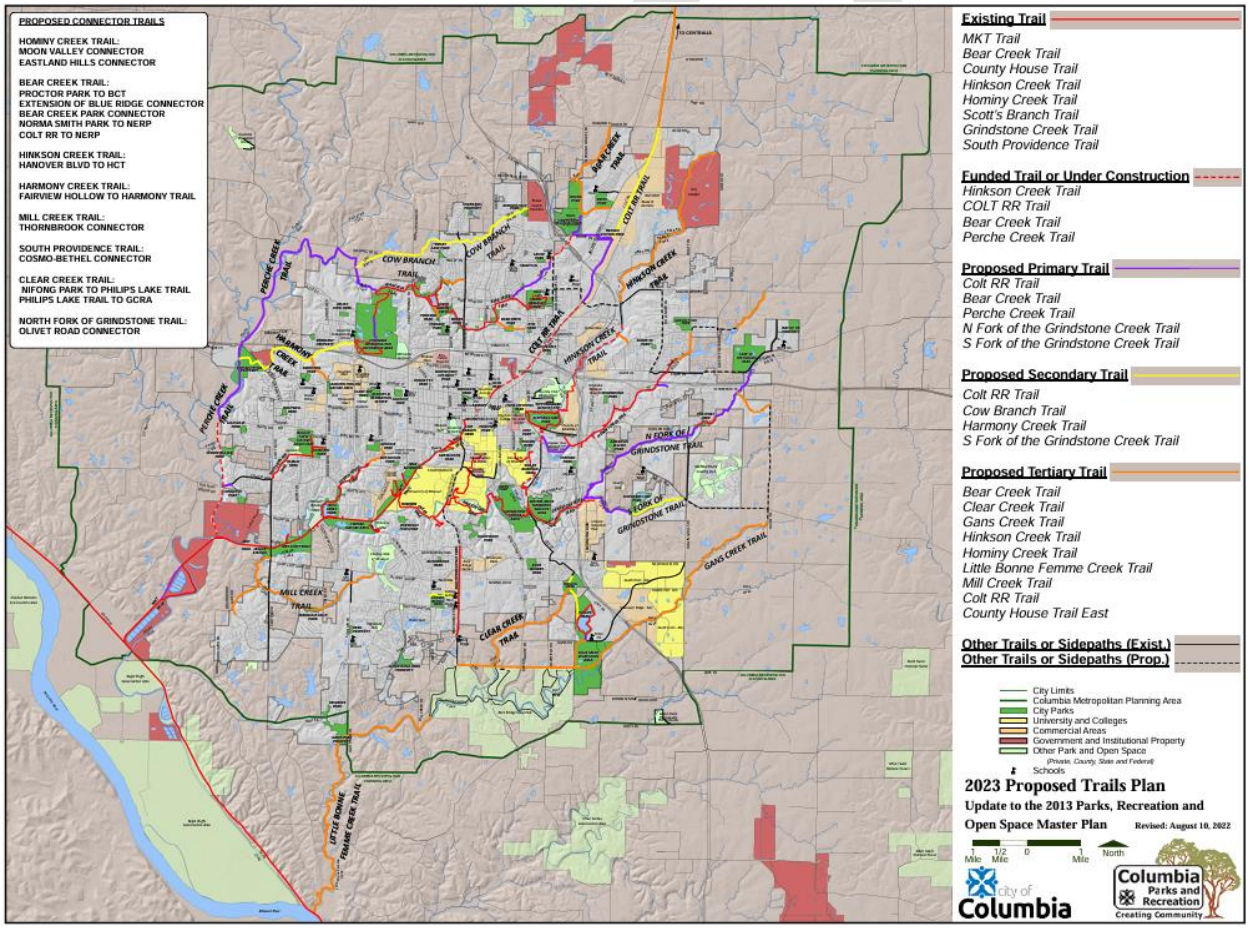
- **Primary, Secondary, and Tertiary Trail Classifications**: Proposed trails are categorized based on their anticipated usage and regional connectivity. Primary trails are envisioned to support significant traffic and connect major urban and suburban areas, while secondary and tertiary trails offer additional pathways for neighborhood and community access.

[40] 2023 Trails Plan - Update to the 2013 Parks Recreation and Open Space Master Plan

- **Connector Trails**: The plan outlines various connector trails designed to link existing routes with new segments, improving overall trail system integration. Notable connectors include the **Hominy Creek Trail**, **Hinkson Creek Trail**, and **Bear Creek Trail**, among others, which are proposed to enhance access across neighborhoods, parks, and recreational facilities.

- **New Developments and Priority Areas**: The map highlights funded trails or those under construction, such as segments along **Hinkson Creek** and the **Perche Creek**. These priority trails are aimed at addressing current gaps in the network and supporting active transportation options.

- **Integration with Natural Landscapes**: Trails are planned to run through and around green spaces, open spaces, and natural landscapes, enhancing the scenic and recreational quality of the trail system. This approach aligns with the city's vision of creating accessible, nature-friendly spaces for walking, cycling, and other non-motorized transportation modes.



The City of Columbia Sidewalk Master Plan

The Sidewalk Master Plan plays a crucial role in improving pedestrian infrastructure within the Columbia Metropolitan Planning Area (MPA). This plan outlines strategic priorities for filling gaps in the sidewalk system, particularly along major streets, and serves as a tool for guiding the City Council in making informed decisions regarding capital improvements and grant funding applications.

The 2024 Sidewalk Master Plan[41] builds upon past versions by focusing on critical gaps in high-traffic areas, prioritizing the safety and connectivity of pedestrians. It specifically highlights streets in the Major Roadway Plan (MRP), as these streets experience higher traffic volumes and are essential for enhancing connectivity. Of the 41 projects identified in the 2024 plan, 33 are located on MRP streets. This focus reflects the priority of improving pedestrian access and safety, which aligns with the goals of reducing vehicular trips and encouraging walking as a viable mode of transportation.

One of the key objectives of the Sidewalk Master Plan is to provide continuously connected walkways on both sides of major streets, particularly arterial and collector streets, to improve pedestrian safety and access. The plan includes detailed specifications for sidewalks, recommending a minimum width of 5 feet to allow for ADA accessibility, along with proper slopes, cross-slopes, and curb cuts. In higher pedestrian traffic areas, such as downtown Columbia, wider walkways are recommended, with a suggested 50/50 ratio of vehicle space to pedestrian space in public spaces to ensure both safety and promote economic development.

In addition to addressing sidewalk gaps, the plan emphasizes the importance of intersection safety, recommending features such as medians to reduce pedestrian exposure to traffic and turning speed controls to keep vehicle speeds below 20 mph for left turns and 10 mph for right turns. This is particularly critical in downtown areas, school zones, and commercial districts where pedestrian traffic is high.

The 2024 plan also includes a Sidewalk Priority Ratings Matrix that scores projects based on factors such as pedestrian attractors (e.g., schools and parks), proximity to bus routes, and the volume of vehicular traffic. Projects that score six or more points are classified as Priority 1, indicating their critical importance for pedestrian safety and network connectivity.

The Sidewalk Master Plan not only serves as a planning tool but also informs capital budgeting decisions. The plan is aligned with the City's Capital Improvements Program (CIP) and other funding opportunities such as the Transportation Alternatives Program (TAP) and Community Development Block Grants (CDBG). A key feature of the plan is its ability to respond to short grant application windows by identifying shovel-ready projects that have been publicly vetted and prioritized.

Since 2012, the City has maintained a digital sidewalk inventory to better map sidewalk locations, with plans to expand the database to include sidewalk condition information (e.g., slope, width, maintenance needs). This will assist in ongoing maintenance and future project planning.

The Sidewalk Master Plan is updated periodically to reflect completed projects, changing priorities, and new funding opportunities. As of the 2024 update, 10 of the original 42 projects from the 2013 plan have been completed or fully funded, and six others are in progress. The plan's ongoing updates ensure that new gaps are identified and addressed, particularly in rapidly growing areas of the city.

For the MTP update, the recommendations of the Sidewalk Master Plan will be used to prioritize sidewalk projects that address significant gaps in connectivity, safety, and accessibility across the CATSO region. The MTP will integrate the plan's recommendations with broader transportation goals, emphasizing the need for continuous pedestrian facilities, ADA compliance, and intersection safety improvements.

[41] https://gocolumbiamo.legistar1.com/gocolumbiamo/attachments/1b7a386d-9ded-42e8-bcac-59c207590abb.pdf

By aligning the Sidewalk Master Plan with the MTP update, CATSO and its partners can ensure that pedestrian infrastructure improvements are implemented in a way that supports multi-modal transportation, enhances safety, and encourages sustainable urban development. The focus on connectivity, pedestrian safety, and ADA compliance in both plans will help create a more inclusive and functional transportation network for all users.

Public Transit

The goals and objectives outlined in 0highlight a disconnect between transit needs and available funding over the plan horizon. Using a fiscally constrained approach, transit revenues are projected to remain mostly flat year over year. One of the more significant outcomes from the public engagement effort detailed in 0 was that there is significant demand for increased transit service and safety. To expand the system's routes, days, and hours of operation in order to meet citizen demand, improve efficiency, enhance route amenities, upgrade intermodal transfer facilities, and address other needs such as regional commuter options, a reconsideration of transit funding mechanisms and a greater investment in transit will be necessary.

As further detailed below, the MTP recommends identifying additional funding sources and mechanisms, as well as promoting regional collaboration. Go COMO is the product of an intensive public dialogue aimed at identifying system-wide needs. Through route adjustments, enhanced technology, and improved amenities, Go COMO is designed to extend service throughout more of the day and across more areas of the city. The system is partially funded by the City's Parking Utility. Initiatives like the "park and ride" system, where parking permit holders receive a bus pass, and small increases in parking permit and meter fees to match demand, will generate additional transit funds that can be used to leverage Federal Transit Administration (FTA) grants for operations. Additional grants are also being sought for other needs, including bus stops, maps, and technology improvements.

The GoCOMO Comprehensive Transit Study, completed several months before the completion of this MTP update, is designed to serve as a strategic guide for improving public transit in Columbia. Its goals include implementing near-term enhancements to existing services while planning for long-term growth. The study focuses on increasing transit service and ridership, evaluating funding mechanisms and partnership opportunities, and improving overall transit operations, efficiency, technology, staffing, and facilities. Additionally, it defines long-term goals for public transit and explores ways to expand services. The study also considers opportunities for integrating transit with development and other modes of transportation.[42] The recommendations within that plan align with the vision, goals, and objectives of the CATSO 2055 MTP Update.

While Go COMO works toward addressing the region's transit needs, the MTP goals and objectives call for broader system expansion and enhancements. This includes extending service beyond the city limits and developing regional transit and commuter options. To cover the capital, operating, and maintenance costs associated with such extensive system improvements, the MTP recommends studying new strategies for obtaining funding and exploring mechanisms for regional collaboration.

[42] Transit Plan Draft Recommendations

STUDY RECOMMENDATIONS

Roadways

Westside Transportation Study

CATSO should consider pursuing a Westside Transportation Study to define a long-term transportation framework that can support future development on the west side of the Columbia MPA, particularly across Perche Creek. The study would establish a vision for a roadway network and protected mobility corridors to ensure that if development occurs, it can proceed in a rational, sustainable, resilient, and equitable manner with minimal impacts on the human and natural environment.

Perche Creek serves as a natural barrier to connectivity, with only two existing crossings: I-70 and Gillespie Creek Bridge Road. While I-70 functions as a major highway, it is not suitable for local traffic. Gillespie Creek Bridge Road, the other crossing, frequently floods, further limiting access. These constraints hinder connectivity and highlight the need for a cohesive transportation plan.

This study should evaluate the feasibility of new arterial roads and alternative crossing options to improve connectivity while addressing local and regional mobility needs. By proactively planning and protecting key corridors, the study should aim to balance future growth opportunities with a commitment to sustainable infrastructure development that considers environmental and community priorities.

Regional Wayfinding Plan

AAs the Columbia region continues to grow and attract a diverse range of visitors, such as those coming to the University of Missouri for events or exploring local attractions, it is crucial to enhance the ease with which all users—motorists, bicyclists, and pedestrians—navigate the area. To address this need the development and implementation of a comprehensive Regional Wayfinding Plan is recommended. This plan should aim to establish a cohesive and intuitive system of signage and informational guides that would assist residents and visitors in finding their way to various destinations, landmarks, and points of interest throughout the region. A well-executed wayfinding system would not only improve navigation by providing clear, consistent, and easily recognizable branded signage but also significantly enhance the overall visitor experience. By guiding tourists to parking areas, stadiums, museums, and other key locations, the plan would make the Columbia area more accessible and welcoming. Moreover, an effective wayfinding strategy would support local businesses by directing foot traffic to shopping districts, restaurants, and entertainment venues, thereby fostering economic growth. Safety is another crucial benefit, as a well-designed signage system can reduce confusion and the risk of navigation-related accidents, contributing to a more efficient and safe transportation network. Implementing a Regional Wayfinding Plan will be a strategic investment in enhancing connectivity, accessibility, and the overall experience of navigating Columbia, ultimately benefiting both its residents and visitors.

MO-740 Extension Study

The MO-740 Extension Study would examine the potential benefits of extending MO-740 from its current terminus east of the US-63 interchange at East Stadium Boulevard. As described in the Project Recommendations section, while an Environmental Impact Statement (EIS) for MO-740 has already been approved, this study would be essential in determining the most suitable alignment for a potential extension.

The study should aim to evaluate how an extension could enhance regional mobility by providing connectivity to the northeast of Stadium and US-63 and a potential alternative route for traffic that currently depends on US-63. It should also explore improvements in traffic flow and access to Columbia's east side, benefiting both local and regional travel.

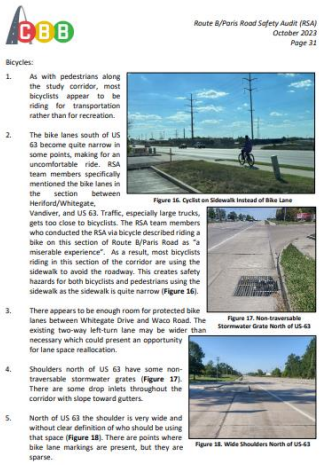
In addition to transportation impacts, the study should assess the economic and development potential associated with improved connectivity to this growing part of Columbia. An extension to MO-740 could enhance access for residents and businesses and bolster the transportation network's resilience and capacity to support future growth. Ultimately, this study should determine the feasibility, optimal routing, and potential benefits of a MO-740 extension.

Road Safety Audits

The Road Safety Audits (RSAs) initiative focuses on improving safety across the region by identifying key corridors and conducting comprehensive assessments of road conditions. RSAs are formal safety performance evaluations of existing or planned roads or intersections performed by an independent, multidisciplinary team. These audits qualitatively estimate and report on potential safety concerns, providing opportunities to address risks and improve safety for all road users, including motorists, cyclists, and pedestrians.[43]

RSAs examine elements of the road that may pose safety risks, assessing their impact on various users and circumstances. They also explore opportunities to eliminate or mitigate identified concerns. The Federal Highway Administration (FHWA) supports the integration of RSAs into project development processes for both new and existing roads and intersections, encouraging their use at any phase of development—from planning and design to construction and retrofitting.

The findings from RSAs guide the development of targeted recommendations, such as traffic calming measures, enhanced pedestrian crossings, and improved bike infrastructure. These recommendations aim to reduce crashes, enhance safety, and contribute to a more accessible multimodal transportation network. By incorporating RSAs into projects of all sizes, from minor intersection upgrades to large-scale developments, public agencies can significantly advance their commitment to improving roadway safety across the region.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Bicycles:

1. As with pedestrians along the study corridor, most bicyclists appear to be riding for transportation rather than for recreation.

2. The bike lanes south of US 63 become quite narrow in some points, making for an uncomfortable ride. RSA team members specifically mentioned the bike lanes in the section between Hereford/Whitegate, Vandiver, and US 63. Traffic, especially large trucks, gets too close to bicyclists. The RSA team members who conducted the RSA via bicycle described riding a bike on this section of Route B/Paris Road as "a miserable experience". As a result, most bicyclists riding in this section of the corridor are using the sidewalk to avoid the roadway. This creates safety hazards for both bicyclists and pedestrians using the sidewalk as the sidewalk is quite narrow (**Figure 16**).

Figure 16. Cyclist on Sidewalk Instead of Bike Lane

3. There appears to be enough room for protected bike lanes between Whitegate Drive and Waco Road. The existing two-way left-turn lane may be wider than necessary which could present an opportunity for lane space reallocation.

Figure 17. Non-traversable Stormwater Grate North of US-63

4. Shoulders north of US 63 have some non-traversable stormwater grates (**Figure 17**). There are some drop inlets throughout the corridor with slope toward gutters.

5. North of US 63 the shoulder is very wide and without clear definition of who should be using that space (**Figure 18**). There are points where bike lane markings are present, but they are sparse.

Figure 18. Wide Shoulders North of US-63

A recent example of a Road Safety Audit in the Columbia MPA is the Route B/Paris Road Safety Audit, completed in 2023.[44] This audit focused on improving safety for all users, with particular attention to vulnerable road users, including pedestrians, cyclists, seniors, motorcyclists, and school-age children. Conducted as part of the City's Vision Zero efforts, the audit adopted a Safe Systems Approach, which aims to

[43] Road Safety Audits (RSA)
[44] Route B/Paris Road Road Safety Audit

eliminate fatal and serious injuries by designing a road system that anticipates human mistakes and ensures that the impact energy remains within tolerable limits.

Bicycles and Pedestrians

Sidewalk Maintenance Plan Study

The development of a Sidewalk Maintenance Plan is essential to ensure safe and accessible pedestrian infrastructure throughout the Columbia MPA. While many areas within the region benefit from regular sidewalk maintenance, there are significant gaps where sidewalks are not well-maintained, presenting safety hazards and accessibility challenges. Overgrown vegetation, debris, root heaving, and damaged surfaces hinder mobility, especially for pedestrians with disabilities, older adults, and families with strollers.

A comprehensive maintenance plan would provide a framework for systematic inspections, prioritizing areas of greatest need, and establishing consistent practices for upkeep. Key tasks would include fixing cracks and root heaving, trimming overgrown vegetation, maintaining pedestrian signals and push buttons, and addressing ADA compliance issues. Such improvements are critical for creating a safe, reliable, and connected pedestrian network, fostering walkability and reducing barriers to mobility.

Conducting this study aligns with recommendations from the Route B/Paris Road Safety Audit completed in 2023. The recommendations encourage vegetation, dirt, debris, and trash maintenance be conducted along the entire corridor, with particular attention paid to Mexico Gravel Road, for the benefits of increased walkability, bikeability, and pedestrian visibility.

Public Transit

Regional Transit and Connectivity Study

To address the region's evolving transit needs and enhance overall connectivity, it is recommended that CATSO conduct a comprehensive Regional Transit and Connectivity Study. This study would evaluate the feasibility and benefits of transitioning the region's public transit system to a Regional Transit Authority (RTA) long-term, while also exploring opportunities to integrate and expand intercity bus and rail services.

The study should investigate the potential advantages of an RTA, such as expanding transit service beyond Columbia's city limits to key destinations like the Columbia Regional Airport and neighboring communities, including Jefferson City, Ashland, Fulton, and Centralia. This shift could significantly enhance regional accessibility and open new revenue streams to support long-term transit improvements.

Additionally, the study should examine the wide range of transportation services currently operating in Columbia, including GoCOMO, OATS Transit, and specialized services like those provided by the City of Refuge and private providers. Each of these services caters to specific populations, such as individuals with disabilities, older adults, and rural residents, creating a diverse yet fragmented network. Improved coordination among these providers could yield

significant benefits, such as streamlined routes, more efficient use of resources, and enhanced service coverage across the Columbia MPA.

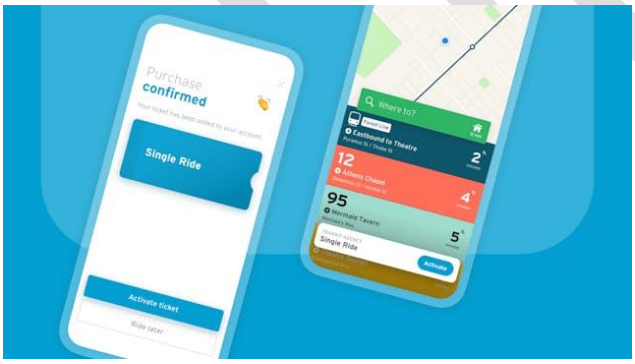
Simultaneously, the study should assess ways to maximize intercity bus and rail connectivity, focusing on enhancing Columbia's role as a key stop on Greyhound's route between Kansas City and St. Louis. Given the recent growth in Greyhound ticket sales since its acquisition by FlixBus, the study should evaluate the potential for better integrating GoCOMO bus services with Greyhound's Midway Travel Center stop. Improvements such as enhanced long-term parking and safer access could significantly benefit users.

As part of these efforts, the study should incorporate MoDOT's ongoing Columbia to Jefferson City Express Bus Study, which aims to improve transit connections between downtown Columbia, the Jefferson City Amtrak station, and intermediate points along the U.S. 63 corridor. With several major universities, state agencies, and large employers generating significant commuter traffic between the two cities, the study will provide essential data on regional travel needs. The Regional Transit and Connectivity Study should evaluate how the proposed express bus service could enhance regional transit options, offering connections to Amtrak, local transit providers, and intercity bus services like Greyhound.

Furthermore, the study should explore opportunities related to Amtrak. While direct service to Columbia may not be feasible, improved connections to Amtrak stations in Jefferson City and La Plata could increase regional rail accessibility. Collaboration with the Columbia Terminal (COLT) Railroad and other transportation providers could further strengthen this intercity transit network.

The Regional Transit and Connectivity Study should also identify potential funding mechanisms and partnership opportunities to support the expansion of transit services and improvements to intercity bus and rail. By addressing these diverse elements—including enhanced coordination of existing services—the study would position the region to create a more integrated, accessible, and efficient transportation system that meets growing demands while fostering greater regional collaboration and connectivity.

Public facing Mobility Map



The purpose of this study is to explore the feasibility and opportunities for developing a Public-Facing Mobility Map that could streamline access to transportation information and enhance mobility within the Columbia MPA. Rather than directly creating the map, this effort would evaluate best practices, review examples from other transit agencies, and identify how data can be formatted and shared with private app developers to leverage their expertise.

The Mobility Map concept envisions a user-friendly platform where residents and visitors could easily explore transportation options across the region. Such a "one-stop shop" resource could include:

- **Integrated Route Information:** Real-time data on bus routes, rideshare options, bike-sharing locations, and other public transit services, enabling users to identify the best routes for their needs.

- **Service Providers and Timetables:** Schedules, service hours, and availability across various transportation modes for effective trip planning.
- **First-Mile/Last-Mile Solutions:** Options for covering the "first and last mile" of trips, including trails, sidewalks, and bike paths, supporting seamless connections to public transit stops.
- **Accessible and Inclusive Design:** Information on ADA-compliant routes and services for individuals with mobility challenges to ensure equitable access.

The study would also evaluate collaboration opportunities with third-party providers, such as Moovel, Google, or other app developers. By formatting transit data in widely used standards like GTFS (General Transit Feed Specification), CATSO could enable private-sector partners to integrate local transit information into their platforms. Examples like Google Transit, Transit App, and Moovit demonstrate how public agencies have successfully partnered with private developers to provide user-friendly, technologically advanced solutions.

Including insights from other regions and agencies, this study would assess how a Mobility Map could benefit the Columbia MPA, with potential outcomes including:

- Increased public awareness of multi-modal transportation options.
- Reduced dependency on single-occupancy vehicles.
- Enhanced mobility and convenience for residents and visitors.
- Support for sustainability and equitable access goals.

By exploring the feasibility and options for developing a Mobility Map, CATSO could establish the foundation for a more integrated and user-focused transportation ecosystem, while leaving open the possibility of implementation through public or private means.

Freight

Regional Freight and Delivery Plan

To address the growing challenges of freight and delivery operations across the region, it is recommended that CATSO develop a comprehensive Regional Freight and Delivery Plan. This plan would assess the unique needs of freight movement and delivery services within the region, focusing on optimizing logistics, improving access for commercial vehicles, and minimizing congestion in high-demand areas such as downtown Columbia and I-70.

Key components of the plan would include the identification and creation of designated loading and unloading zones for commercial vehicles to reduce conflicts with other road users, especially in congested areas. It could also explore the

potential for establishing regional sub-distribution centers, allowing goods to be transferred to smaller vehicles for local delivery, thereby reducing the number of large trucks in urban centers.

The plan could also consider the integration of smart technologies and data-driven monitoring systems to improve the efficiency of delivery operations. By examining freight routes, delivery patterns, and infrastructure needs, the plan would ensure that the region is equipped to handle the increasing demand for freight and delivery services while enhancing safety and reducing traffic congestion.

This regional approach would not only streamline freight and delivery operations but also align with broader goals of sustainable transportation, supporting economic growth and improving the overall efficiency of goods movement throughout the area.

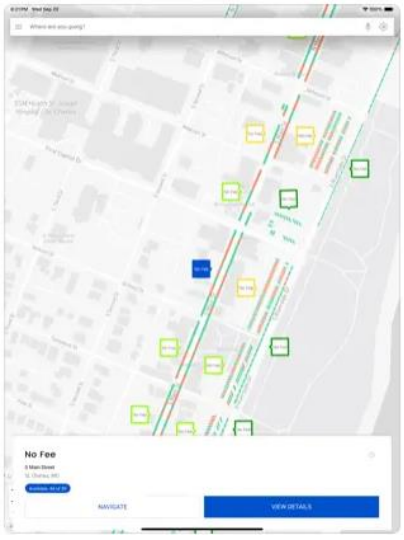
East-West Gateway, the MPO for the greater St. Louis region, has developed the St. Louis Regional Freight Study, a to evaluate the St. Louis' regional freight system. This can be used as an example.[45]

Parking

Effective parking management is a critical component of urban transportation planning, influencing the accessibility and convenience of both residential and commercial areas. Optimizing parking resources becomes increasingly important to support economic activity, reduce congestion, and enhance the overall quality of urban life. Currently, the region faces challenges related to parking availability, efficiency, and the integration of emerging technologies. Addressing these challenges through the studies recommended below will be essential for creating a more responsive and user-friendly parking system that meets the needs of residents, businesses, and visitors.

Regional Smart Parking Plan

To improve parking efficiency across the region and address growing demand for parking, it is recommended that CATSO work with the City of Columbia, MoDOT, and Boone County to develop a Smart Parking Plan for the region. This plan would leverage advanced technologies to optimize the use of existing parking resources and enhance the overall parking experience throughout the MPA.



Key components of the Regional Smart Parking Plan would include the implementation of real-time parking availability monitoring, the use of data analytics to predict peak demand periods, and the integration of mobile apps for user convenience. By incorporating smart sensors and digital signage, real-time information on parking space availability can be displayed on various streets and highways around the MPA, reducing the time spent searching for parking and alleviating congestion caused by drivers circling for spaces.

The plan could also explore dynamic pricing strategies to manage demand and incentivize turnover in high-demand areas, with a focus on region-wide applications that consider varying parking needs in different cities and districts. A Regional Smart Parking Plan will not only improve operational efficiency within individual municipalities but also support the

[45] St. Louis Regional Freight Study

broader goals of enhancing mobility, reducing traffic congestion, and fostering coordinated, sustainable growth across the region.

St. Charles, Missouri, currently utilizes a smart parking app that which could be used as an example.[46]

Regional Electric Transportation Charging Study

As the adoption of electric vehicles (EVs) and electric bikes (e-bikes) continues to rise, it is recommended that CATSO conduct a comprehensive Electric Transportation Charging Study to assess and plan for the region's current and future charging infrastructure needs. The study would explore questions critical to the successful expansion of electric transportation, including:

- **Ownership and Operation:** Who should provide and maintain charging stations—private entities, public agencies, or through public-private partnerships?
- **Optimal Locations:** Where charging stations should be located to maximize convenience and utility, such as near major highways, commercial areas, employment centers, multi-modal transit hubs, or underserved neighborhoods.
- **Infrastructure Requirements:** What infrastructure improvements, such as upgrades to electrical capacity or new distribution networks, are needed to support widespread charging access?

The study would also evaluate current charging station usage, analyze barriers to broader EV and e-bike adoption, and explore how charging infrastructure can be integrated with broader urban planning and development initiatives throughout the region. Insights would be drawn from other MPOs and regions that have successfully implemented charging infrastructure strategies, ensuring that CATSO's approach is informed by best practices.

In addition, the study would investigate funding opportunities, such as grants, incentives, or private investment, to support the expansion of charging networks. Potential collaborations with private entities like utilities, retail businesses, and transportation providers would also be explored to ensure a cost-effective and scalable deployment.

By addressing these elements, the study would position the region to:

- Support the transition to cleaner, more sustainable transportation options.
- Enhance the convenience and feasibility of EV and e-bike ownership.
- Align with regional sustainability and climate action goals.

[46] ParkSTC app

Implementing the study's recommendations would help ensure the region is equipped to handle the growing demand for electric transportation, creating a more resilient and future-ready transportation network.

COLT Railroad

COLT Railroad Corridor Study

A comprehensive study of the COLT Railroad Corridor is recommended to explore its full range of potential uses, considering opportunities for the corridor's future development. The study would assess the corridor both as a whole and in distinct segments, including the active rail section, the inactive section north of I-70, and the section south of I-70. This segmented approach would allow for tailored recommendations that address the unique characteristics and potential of each area.

Key considerations for the study include:

- **Grade and Profile Adjustments:** The study should explore the feasibility of lowering the railroad's profile at key crossings, such as Vandiver Drive and Heriford Road. These locations currently have significant grade differences, which are contributing factors to safety issues and high crash rates, as highlighted in the Paris Road Safety Audit (RSA). Addressing these grade differences could substantially improve safety and reduce crashes, particularly at Vandiver Drive, which is a known high-crash location.
- **Inactive Section North of I-70:** For the inactive section, the study could evaluate opportunities for reactivation or redevelopment, such as freight uses, rail-trail conversions, or multi-use pathways that enhance connectivity for bicycles and pedestrians.
- **Active Section and Connections South of I-70:** South of I-70, the COLT corridor could play a vital role in connecting the City's Opportunity Campus with downtown Columbia. This section could support multimodal transportation solutions, such as transit-oriented development or enhanced access for active transportation users.
- **Holistic Corridor Vision:** While freight reactivation is one potential use, the study should also examine possibilities for introducing or expanding passenger rail service, developing trails or recreational spaces, and constructing new facilities that support transportation, recreation, and economic growth.

The study would align with Columbia's long-term goals by identifying how the corridor can reduce road congestion, improve multimodal transportation options, and foster regional economic development. By addressing the unique needs and potential of each corridor segment, the study could generate recommendations that maximize the corridor's value for the city and its residents.

POLICIES AND PROCEDURE RECOMMENDATIONS

Scenic Roadways

The designation and conservation of scenic roadways in the U.S. began with the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, and it has continued through subsequent transportation bills, including TEA-21, SAFETEA-LU, and the current Infrastructure Investment and Jobs Act (IIJA). These legislative acts have sustained the National Scenic Byways Program, which allows states to designate and preserve scenic roadways. The program includes two

categories: National Scenic Byways and All-American Roads, with the latter meeting stricter standards for scenic quality and resource protection.

In Missouri, the National Scenic Byways Program is administered MoDOT. The designation of scenic roadways at the state level applies to roads under state or federal jurisdiction. These roadways are recognized for their significant cultural, historic, natural, or scenic features. Scenic byways serve not only to protect these features but also to promote economic development and tourism in the surrounding areas. Scenic roads are classified by their intrinsic resources, which may include scenic, historic, recreational, cultural, natural, and archaeological values.

The designation of All-American Roads represents a higher level of protection and recognition, ensuring that these roadways provide a distinctive travel experience. Protecting scenic resources through these designations ensures that future development does not degrade the natural beauty or cultural heritage that attracts visitors to these areas.

Local Scenic Roadways

While the National Scenic Byways Program applies to roads under state and federal jurisdiction, local governments have the authority to designate scenic roadways within their own jurisdictions. Local scenic roadway designations can range from simple declarations to more complex guidelines and standards aimed at preserving scenic qualities. These designations help safeguard the visual character of local roads and can be used as a factor in project prioritization for Surface Transportation Program (STP) Enhancement funding through the MPO.

In the CATSO region, scenic roadway designations could be considered when ranking projects for STP enhancement funding. To implement a local scenic roadway, local governments would need to establish a process for designation and administration. Mechanisms for protection, whether voluntary or regulatory, must also be in place.

Local governments have several regulatory options available to protect scenic roadways, including zoning ordinances, building codes, and sign ordinances. Scenic America, a national conservation organization, recommends that local scenic road protections be managed through corridor management plans. These plans ensure that the character of scenic roads is maintained by regulating land use, signage, and development along the corridor.

Within the City of Columbia, the Scenic Roadway Area Overlay District already applies to several miles of Rock Quarry Road. This overlay district allows the City Council to adopt scenic roadway protections at their discretion. Should the City wish to expand the number of designated scenic roadways, a corridor management plan would be required. The National Trust for Historic Preservation suggests a three-step process for establishing these plans:

Chapter 1 - Identify the specific scenic qualities of a roadway that are valuable and worthy of protection.

Chapter 2 - Determine the appropriate methods to protect those qualities.

Chapter 3 - Commit to applying these methods through regulatory and administrative measures.

A well-designed corridor management plan would typically include the following elements:

- The road must have significant scenic, cultural, historic, or natural features.
- There must be local support and active citizen participation in the designation process.

- The scenic designation should enhance the travel experience without compromising roadway safety.

Key tools for maintaining scenic quality include land-use regulations, density controls, signage restrictions, and design standards for buildings and infrastructure along the corridor. For example, the control of outdoor advertising and tree protection policies are important in maintaining the visual integrity of scenic roads. Vegetation management should prioritize safety, but tree and shrub removal should only be allowed in cases where it is absolutely necessary, such as for safety or to preserve historically significant views.

Another potential strategy for protecting scenic corridors is the use of Transfer of Development Rights (TDR) programs. These programs allow for the redistribution of development rights from sensitive scenic areas to other locations, thereby protecting scenic corridors from overdevelopment while allowing for growth in less sensitive areas.

Billboard controls are another critical component in preserving the character of scenic roads. Limiting or banning off-premise signs in rural areas or along scenic roadways can help maintain the views that contribute to a road's scenic designation. Additionally, acquiring land and easements along scenic roads can offer long-term protection while maintaining private ownership.

The success of scenic roadway programs depends heavily on public participation and interagency coordination. Public involvement in the designation process can foster greater community support and ensure that scenic protections align with local values. A public comment period for proposed scenic road designations allows the community to weigh in on changes and helps ensure that scenic road policies reflect local priorities.

Coordination between Columbia and Boone County on scenic road designations is critical, as roadways often traverse multiple jurisdictions. CATSO could play a vital role in coordinating scenic road issues between these entities. The MPO might also consider integrating scenic roadways into the Major Roadway Plan (MRP) as an overlay or classification, reflecting their importance to the region.

During the 2040 Long-Range Transportation Plan (LRTP) update process, public input indicated a desire for CATSO to explore scenic roadway designations further. Should a scenic roadway classification be added to the MRP, CATSO's Coordinating Committee could work with the public to identify suitable roadways for designation and assess the associated benefits and restrictions.

As the region continues to develop, thoughtful planning and the preservation of scenic roadways can contribute to both environmental protection and economic growth, supporting sustainable tourism and maintaining the region's natural beauty for future generations.

Access Management

Access management policies are closely tied to two primary goals of the Columbia MTP:

- **Goal 1**: The Columbia MPA will have a first-class street, highway, and non-motorized network that meets the short- and long-term needs of the MPA.
- **Goal 7**: Provide safe and secure facilities and transportation infrastructure for residents, visitors, and commerce in the Columbia MPA.

The proliferation of driveways along arterial streets significantly reduces roadway capacity. Traffic delays caused by vehicles entering or exiting driveways impede the flow of traffic on arterials, reducing their ability to handle through traffic and increasing crash rates. The National Cooperative Highway Research Program (NCHRP) addressed these issues in its publication, *Report 420: Impacts of Access Management Techniques* (1999), which identifies over 100 access management techniques based on policy and roadway design features.

Key findings from the *NCHRP Report 420* and summarized in the Federal Highway Administration (FHWA) brochure, *Benefits of Access Management*[47], include:

- Each additional traffic signal per mile (above two signals per mile) increases travel time by more than 6%. Increasing the distance between signals reduces crash frequency; data from seven states shows that crash rates rise with additional signals per mile.
- For every 10 access points per mile, average roadway speeds decrease by 2.5 mph, up to a maximum reduction of 10 mph.
- Exclusive left-turn lanes reduce crashes by 50% on average, and rear-end collisions by between 60% and 88%.
- Indirect turns, such as jug-handle left turns and indirect U-turns, reduce crashes by 20% on average (35% if signalized).
- Raised medians reduce crashes by more than 40% in urban areas and over 60% in rural areas.

Recommendations from NCHRP Report 420 suggest that local governments consider the following access management strategies:

- Develop comprehensive access management codes that specify where access is allowed or denied for various road classes, define signal spacing, and outline permit procedures.
- Ensure a sufficient network of local and collector streets to provide direct access to developments, minimizing direct access on major arterials.
- Limit access to strategic and primary arterials, restricting it to right turns wherever possible.
- Separate left-turn and cross-traffic movements at locations that align with signal coordination patterns.
- Incorporate access spacing standards and zoning regulations into long-range development planning to preserve arterial traffic flow while allowing property access.

Perhaps most critically, access management should be approached systematically rather than piecemeal to avoid shifting problems to other locations. For example, closing a median at a driveway may simply transfer traffic issues elsewhere. A systemwide approach ensures that potential problems downstream are considered.

Access management also affects businesses along arterial and collector streets. A 2000 report by the Center for Urban Transportation Research at the University of South Florida, titled *Economic Impacts of Access Management*, synthesized

[47] Benefits of Access Management Brochure

several studies examining the effects of access restrictions on local businesses. Findings indicate that while some businesses reported a change in sales following the installation of raised medians or driveway access changes, the majority saw no impact. Destination businesses, such as restaurants and specialty stores, were less affected, while businesses reliant on impulse stops, like gas stations or convenience stores, were more vulnerable to reduced sales.

To mitigate concerns among business owners, public involvement in access management projects is crucial. The Florida Department of Transportation (FDOT) found that districts with a well-established public involvement process for median projects encountered fewer administrative hearings and achieved greater success in implementing access management strategies. Early public involvement, open house forums, and transparency were key to reducing opposition and increasing project success.

Under the current transportation legislation, IIJA, local and state agencies are required to manage existing roadway investments more effectively. Access management provides an economical strategy for preserving the function and capacity of arterial streets within the MPA. However, current driveway standards, subdivision regulations, and zoning ordinances in Boone County and the City of Columbia make little distinction between local, collector, and arterial streets. Comprehensive regulatory updates are essential to implement effective access management on arterials.

Some strategies to improve access management in the Columbia MPA include:

- Adoption of an overarching access management policy.
- Utilizing Planned District zoning to negotiate access points.
- Implementing minimum lot frontage requirements for all zoning districts and site plans for properties with arterial access.
- Requiring a minimum site frontage of 700 feet along arterials for unsubdivided tracts, and prohibiting individual driveway access for residential lots.
- Revising driveway spacing standards for arterial roadways to reflect best practices in access management.

By updating zoning ordinances and coordinating access management across jurisdictions, the Columbia MPA can enhance roadway safety, improve traffic flow, and ensure a balance between transportation needs and economic vitality.

Driveway Standards

Driveways accessing arterial streets should be designed to ensure safe ingress and egress and a turning speed of 5-10 mph to minimize the speed differential between turning vehicles and through traffic. Recommended driveway standards for arterial street access include:

- **Minimum width:** 30 feet
- **Maximum width:** 38 feet
- **Minimum curb return radii:** 15 feet
- **Maximum curb return radii:** 25 feet

Regulatory Oversight

- **Missouri Department of Transportation (MoDOT):** Controls access by purchasing or condemning rights of access, approves grants of access, and issues driveway permits.
- **Boone County:** Regulates driveways through design standards adopted by the County Road and Bridge Commission.
- **City of Columbia:** Regulates driveways through driveway design standards set forth in the Public Works Department's Street and Storm Sewer Specifications and Standards Manual.

Driveway Spacing

The appropriate spacing between driveways on an arterial street is influenced by the roadway's design speed. To maintain higher average speeds, driveways should be spaced adequately to allow vehicles to reduce speed before turning. For a typical arterial with an operating speed of 35-40 mph, a minimum spacing of 200-300 feet between driveways is recommended. At intersections, driveways should be located as far as possible from the operational area of the intersection, with a minimum distance of 350 feet from the points of intersecting right-of-way.

Driveway Permits

MoDOT's Central District Office should not issue driveway permits in Boone County or the City of Columbia until a local permit has been issued. This policy agreement should be formalized with the Central District Office.

Street Standards

The City of Columbia's complete streets policy/standards advocate for arterial streets with raised medians and median breaks for access. Driveways and public cross streets should align with these median breaks. The minimum distance between median breaks is determined by the arterial's design speed, typically a minimum of 800 feet. The location and number of median breaks are established during the design phase of the arterial, with priority given to public streets.

Recommendation

Boone County and the City of Columbia could consider adopting a Primary Arterials ordinance that requires a site plan for all properties accessing arterial roadways. This site plan would be necessary during rezoning or when applying for a building permit. The ordinance should specify minimum driveway spacing requirements, require right-of-way dedication, and include standards for driveway widths. Subdivision regulations should be amended to prohibit the platting of residential lots with arterial access and require a minimum site frontage of at least 700 feet for new commercial lots. For lots within commercial subdivisions, joint use access rights should be granted to promote shared driveways and travel between parking lots.

Right-of-Way Preservation

The dedication of right-of-way (ROW) is essential for meeting future transportation needs. Local governments implement the roadway alignments and classifications outlined in the Major Roadway Plan (MRP). In Boone County and the City of Columbia, subdivision ordinances serve as the primary mechanism for acquiring and preserving ROW for new roadways. For commercial and office zoning districts, ROW dedication is required as part of the site plan approval process.

ROW Standards:

Local subdivision regulations should include standards for divided arterials and establish ROW widths to avoid ambiguity. Currently, the use of a width range leads to the minimum ROW often becoming the maximum required during the subdivision process. A standard ROW width for each street classification would simplify this. If full ROW width isn't needed for utilities or sidewalks, a variance can be requested. ROW should be dedicated through subdivision or site

plans, and metes and bounds descriptions of ROW should be avoided unless requested by Boone County or Columbia. Boone County typically acquires ROW through subdivision approvals, often securing half-width ROWs along existing streets. For new roads, ROW dedication can be requested but not enforced, constrained by state statutes. The county relies on voluntary donations or must purchase ROW easements. Plan implementation in Boone County is determined by the Planning and Zoning Commission, which approves subdivision plats and can influence transportation policy by controlling ROW acquisition. To ensure plan compliance, recommended deviations from the MRP should be reviewed by the Boone County Commissioners before final subdivision approvals.

Roadway Alignments:

There are no formal engineering alignments for new roadways that overlap Boone County and Columbia jurisdictions. While past plans included "plan lines" to show future roadways, legal challenges have eliminated this practice. Preliminary engineering studies should be conducted to define suitable alignments for future roadways, and these studies should be coordinated by CATSO for use by local agencies.

Recommendation:

Boone County and Columbia should advocate for state legislation that enhances counties' authority to require ROW dedication along new alignments during the platting process. Zoning regulations in both jurisdictions should be reviewed to support ROW acquisition. Expanding the site plan requirement for ROW dedication, similar to the planned commercial districts, could be extended to all properties accessing arterial streets.

Project Prioritization

Most transportation projects in the CATSO MPA are funded by partner agencies utilizing local or non-competitive funding sources. For instance, Go COMO receives federal and state funds, along with local contributions, for operations and capital expenditures, without competing with MoDOT or Boone County, as these partners do not offer transit services. However, in some instances, funding sources may be competitive, or partner agencies may need to prioritize multiple projects for a single funding source. As CATSO continues to refine its approach to transportation planning, considering a weighted project prioritization method presents an opportunity to enhance decision-making processes. In previous updates to the plan, CATSO recognized the importance of establishing a systematic approach for evaluating projects, especially when funding sources are competitive. By implementing a project weighting system based on key criteria, CATSO can better align transportation initiatives with the community's goals and needs, ensuring that the most impactful projects receive the attention and resources they require. This approach can facilitate a transparent selection process, ultimately supporting the efficient allocation of limited funding and fostering greater community engagement.

Below is a straightforward scoring system that could serve as an introductory tool for prioritizing projects across various transportation modes. As funding programs evolve and the need for competitive prioritization becomes more critical, more complex, mode-specific scoring systems could be developed.

Category	Impact
Safety (20 points)	• Reduction in accident rates • Improvement in pedestrian and cyclist safety
Mobility and Access (20 points)	• Enhancements to public transit services • Connectivity improvements for pedestrians and cyclists
Environmental Impact (15 points)	• Reduction in greenhouse gas emissions • Promotion of sustainable transport options
Economic Impact (15 points)	• Potential for job creation • Effects on local businesses and property values
Equity (15 points)	• Benefits to underserved communities • Improvement in access to essential services
Community Support (10 points)	• Public support and community engagement • Alignment with local development plans
Cost-Effectiveness (5 points)	• Budget adherence and funding availability • Long-term maintenance costs

Each project would be scored against these criteria, with higher scores given to those that fulfill more of the specified goals. This scoring system allows for a transparent and systematic approach to project prioritization, ensuring that transportation projects align with community values and needs.

EMERGING TECHNOLOGIES

Electric Transit Vehicles

Electric transit vehicles are a growing innovation in public transportation, providing a cleaner, quieter, and more efficient alternative to traditional diesel-powered buses. These vehicles are powered entirely by electric batteries, which eliminates tailpipe emissions and significantly reduces noise pollution. Cities across the world are turning to electric buses to reduce their environmental footprint, lower operational costs, and improve the overall experience for transit riders.

Key Features of Electric Transit Vehicles

1. **Zero Emissions**: Electric buses produce no exhaust emissions, making them an essential part of a city's strategy to improve air quality and reduce greenhouse gases. This is especially important in urban areas where vehicle emissions contribute significantly to pollution levels.

2. **Lower Noise Levels**: Electric buses are much quieter than diesel buses, contributing to a reduction in noise pollution. This makes them a desirable option for urban environments, particularly in residential areas and along bus routes that pass schools, parks, and other sensitive areas.

3. **Reduced Operating and Maintenance Costs**: Although electric buses come with a higher upfront purchase price, they offer significant cost savings over time. They require less maintenance due to fewer moving parts (e.g., no engines or exhaust systems), and electricity is cheaper than diesel fuel. These savings are attractive for transit agencies looking to cut long-term costs.

4. **Energy Efficiency**: Electric buses are more energy-efficient than their diesel counterparts. They convert a higher percentage of energy from the grid into vehicle movement, further reducing the overall energy footprint of transit systems.

Globally, there has been a rapid increase in the adoption of electric buses. Countries like China have led the way, with major cities deploying thousands of electric buses to replace diesel fleets. In Europe and North America, many cities are following suit as part of broader climate action plans. In the U.S., cities such as Los Angeles, Seattle, and New York are gradually transitioning their fleets to electric, aiming for fully electric transit systems within the next few decades. Locally GoCOMO has begun to invest in electrifying its bus fleet. Currently GoCOMO has 10 electric buses in its fleet, including four new ones added in 2024.

Several factors are driving this transition:

1. **Government Incentives and Regulations**: Many cities and transit agencies are able to tap into government grants and subsidies aimed at promoting clean energy. For example, the U.S. Federal Transit Administration (FTA) offers funding through the **Low- or No-Emission Vehicle Program** to help transit agencies purchase electric buses and the associated infrastructure.

2. **Environmental Goals**: Cities are increasingly setting ambitious climate goals to reduce carbon emissions, and public transportation is often a central component of these plans. Electric buses are a critical tool for cities aiming to become carbon-neutral or significantly lower their emissions.

3. **Technological Advancements**: The technology behind electric buses has rapidly improved in recent years. Battery life, charging times, and vehicle range have all increased, making electric buses more practical and reliable for daily operations. Some electric buses now have ranges that allow them to operate a full day on a single charge, and rapid charging stations can minimize downtime.

4. **Public and Political Pressure**: As public awareness of climate change grows, so does the demand for cleaner, more sustainable transportation options. Citizens and advocacy groups are putting pressure on city governments and transit agencies to adopt electric vehicles as part of broader efforts to combat pollution and global warming.

Electric Cars

Electric cars (EVs) are vehicles powered by electric motors using electricity stored in batteries, as opposed to traditional internal combustion engine (ICE) cars that rely on gasoline or diesel. EVs are a significant part of the ongoing transformation in transportation, particularly as cities, governments, and consumers seek more sustainable mobility options. Their widespread adoption is driven by technological advancements, environmental concerns, and changing public policies.

Electric cars run on electricity, usually supplied by lithium-ion batteries, which are rechargeable through the electric grid. These cars use one or more electric motors to generate motion, and their energy efficiency is much higher than that of conventional gasoline vehicles. They come in several forms:

1. **Battery Electric Vehicles (BEVs)**: Fully electric vehicles powered solely by electricity stored in onboard batteries. They produce zero emissions during operation.
2. **Plug-in Hybrid Electric Vehicles (PHEVs)**: These vehicles combine an internal combustion engine with an electric motor. They can run on electric power alone for a limited range, after which the gasoline engine takes over.
3. **Hybrid Electric Vehicles (HEVs)**: Though not plug-in, HEVs use both an electric motor and a gasoline engine, relying on regenerative braking to recharge the electric battery. Unlike PHEVs, they do not rely on external charging.

EVs are characterized by several key features:

- **Zero Tailpipe Emissions (in BEVs)**: BEVs emit no pollutants, making them environmentally friendly in urban areas struggling with air quality.
- **Lower Operating Costs**: Electricity is generally cheaper than gasoline, and EVs have fewer moving parts, reducing the cost of maintenance.
- **Energy Efficiency**: Electric motors are far more efficient at converting energy into vehicle movement than gasoline engines.

Electric vehicles are powered by electric energy stored in batteries, which are charged from external sources. The primary component of an EV is its battery pack, which powers the electric motor that drives the wheels. EVs use regenerative braking to recapture some of the energy lost during braking, which further enhances their efficiency.

Charging an EV is done through a variety of methods:

- **Level 1 Charging**: Uses a standard household outlet, but this method is slow, taking many hours to fully charge a vehicle.
- **Level 2 Charging**: Uses a dedicated home or public charger and provides faster charging, typically requiring a few hours for a full charge.
- **DC Fast Charging**: Available at public charging stations, this method can rapidly charge an EV in under an hour, depending on the battery size and capacity.

EVs are becoming an increasingly prominent part of the global transportation landscape. Several trends are driving the adoption of electric cars:

1. **Environmental Concerns and Government Regulations**:

- **Reduction of Greenhouse Gas Emissions**: Governments around the world are pushing for policies to reduce greenhouse gas emissions, and EVs are a critical part of these efforts. Many countries and states have set timelines to phase out the sale of new gasoline and diesel cars, pushing automakers toward electric models.

- **Air Quality Improvement**: In cities facing severe air pollution, EVs offer a solution to reduce smog and improve public health. Several urban centers are establishing low-emission zones where only electric or ultra-low-emission vehicles can operate freely.

2. **Increased Vehicle Offerings and Market Expansion**:

   - As demand for EVs grows, automakers are rapidly expanding their portfolios of electric cars. Tesla was an early leader in the mass production of EVs, but other major automakers such as Ford, General Motors, Volkswagen, and Toyota are now producing a variety of electric models, from compact cars to SUVs and trucks.

   - The variety of EVs on the market means that consumers have more choices, making EV adoption accessible across different price ranges.

3. **Technological Advancements**:

   - **Battery Improvements**: Advances in battery technology have resulted in higher energy density and reduced costs. As a result, modern EVs can travel longer distances on a single charge, with ranges often exceeding 250-300 miles per charge, addressing one of the main concerns about EVs—range anxiety.

   - **Charging Infrastructure**: The growth of charging networks is crucial for widespread EV adoption. Public charging stations, including fast chargers, are becoming more common across urban areas and along major highways. Governments and private companies are investing heavily in expanding these networks.

4. **Cost Parity with Internal Combustion Engine (ICE) Vehicles**:

   - As production scales up and battery technology advances, the cost of electric vehicles is steadily decreasing. Some experts predict that EVs will achieve price parity with gasoline vehicles in the next few years.

   - Lower operating costs (fuel and maintenance) and government incentives (tax credits, rebates) further make EVs a cost-effective choice for consumers.

5. **Government Incentives and Policy Support**:

   - Many governments offer subsidies, tax credits, and rebates to incentivize the purchase of electric vehicles. In the U.S., federal and state programs provide substantial financial support for EV buyers, and countries in Europe and Asia have similar programs.

- In addition to financial incentives, governments are implementing policies that encourage electric vehicle adoption, such as mandating the installation of charging stations in new residential and commercial buildings.

6. **Electric Vehicles and Renewable Energy Integration**:
    - EVs are often seen as part of a broader strategy to decarbonize the energy system. As renewable energy sources like wind and solar power become more prevalent, charging electric vehicles with clean energy further reduces their carbon footprint. In some cases, EVs can even serve as energy storage units, feeding electricity back into the grid during peak demand.

Electric cars are playing a transformative role in the transportation network, particularly as cities and regions focus on building more sustainable infrastructure. As urban areas grow and concerns about congestion, pollution, and climate change intensify, EVs offer several benefits:

1. **Integration with Smart Cities**:
    - As cities evolve toward "smart city" frameworks, electric vehicles fit seamlessly into plans for reducing congestion and improving energy efficiency. For example, EVs can be part of interconnected systems that use real-time data to optimize traffic flow and reduce emissions in densely populated areas.
2. **Shared Mobility and Ride-Hailing**:
    - Electric vehicles are becoming an integral part of ride-hailing services and car-sharing platforms. Companies like Uber and Lyft are gradually moving toward electrifying their fleets, and car-sharing services often feature electric vehicles as a way to promote green transportation.
    - EVs in shared mobility programs contribute to reducing the number of private cars on the road, further alleviating urban congestion.
3. **Public Transportation Electrification**:
    - Beyond personal vehicles, electric buses and shuttles are being integrated into public transportation networks. These vehicles not only lower the carbon footprint of public transit but also reduce operating costs and improve air quality in urban areas.
4. **Charging Infrastructure Development**:
    - Expanding the charging infrastructure is crucial for integrating electric cars into transportation networks. Cities are developing public charging stations in key locations such as parking lots, shopping centers, and along major transit routes to encourage EV adoption.
    - "Charging deserts" in rural or underserved urban areas are becoming a focus for policy makers, ensuring that EV infrastructure is accessible to all residents.

Despite the growing popularity of electric cars, several challenges remain in their widespread adoption:

- **Range Anxiety**: Some consumers still worry about the limited range of electric vehicles, though technological advancements are gradually alleviating this concern.
- **Charging Infrastructure**: While urban areas are seeing an increase in charging stations, rural areas may still lack adequate infrastructure, limiting the appeal of EVs for long-distance travelers.
- **Upfront Costs**: Despite decreasing prices, electric cars are still generally more expensive upfront than traditional vehicles, although long-term savings can offset this.

E-Bikes

Electric bikes, commonly referred to as e-bikes, are bicycles equipped with an electric motor and a battery that assist the rider while pedaling. This electric assistance, known as pedal-assist or throttle-assist, reduces the physical effort required to ride, making cycling more accessible for a broader range of users. E-bikes typically have adjustable settings that allow riders to control the level of motor assistance, ranging from minimal support to significant propulsion, which is particularly helpful on hilly terrain or for longer trips.

The rise of e-bikes represents a significant shift in urban and regional transportation systems, providing a sustainable and efficient alternative to car travel for short to medium distances. As part of the broader micromobility movement, e-bikes offer an appealing option for commuters, recreational cyclists, and those seeking an active but less strenuous mode of transportation. In cities around the world, including those with hilly geographies or extensive suburban areas, e-bikes are increasingly being seen as a viable solution to reduce traffic congestion, lower carbon emissions, and promote healthier lifestyles.

Several trends are shaping the integration of e-bikes into transportation networks. First, there has been significant growth in the variety of e-bikes available on the market, ranging from commuter-focused models to cargo bikes designed for transporting goods or children. The flexibility offered by e-bikes makes them ideal for various user groups, from daily commuters to families and delivery services. This has contributed to their increasing popularity in both urban and suburban contexts.

Public policies and incentives are also playing a key role in encouraging e-bike adoption. Many cities and states are implementing subsidies, tax incentives, or rebates to lower the cost of purchasing e-bikes, which tend to be more expensive than traditional bicycles due to their electric components. In addition, transportation agencies are prioritizing the development of e-bike-friendly infrastructure, such as bike lanes, bike-share programs, and charging stations, which enhance the usability of e-bikes for everyday travel.

E-bike use is growing rapidly, with some cities incorporating them into bike-sharing programs as part of larger efforts to promote multimodal transportation. Shared e-bike fleets allow users to rent bikes for short trips, bridging the gap between public transit stops and final destinations, a concept known as "first mile/last mile" connectivity. This feature makes e-bikes particularly attractive for areas underserved by public transit, or where short car trips can be easily replaced by a more sustainable mode of travel.

From an environmental perspective, e-bikes offer a low-carbon alternative to car travel, particularly for short trips. Studies show that e-bikes can replace a significant portion of car trips, leading to reductions in greenhouse gas

emissions, improved air quality, and decreased traffic congestion. E-bikes are also more energy-efficient than electric cars due to their smaller size and lower power requirements, further supporting their role in sustainable urban mobility.

As a transportation mode, e-bikes also present opportunities to address issues related to equity. By reducing the physical exertion required for cycling, e-bikes make biking more accessible to individuals of all ages and fitness levels, including older adults, those with physical limitations, and people who may not traditionally consider biking as a viable option. Furthermore, e-bikes can provide a cost-effective alternative to car ownership, especially for lower-income individuals who need reliable transportation for commuting or errands.

Locally, the integration of e-bikes into the transportation network presents an opportunity to enhance connectivity, reduce reliance on single-occupancy vehicles, and promote active transportation. The existing and planned bicycle and pedestrian facilities, such as trails and bike lanes, provide a solid foundation for supporting e-bike use, particularly as these facilities expand and are adapted to accommodate the growing demand for micromobility options. Additionally, incorporating e-bike charging stations at key locations, such as public transit hubs or popular destinations, would further facilitate their use and encourage multimodal travel throughout the region.

E-Scooters

Electric scooters, commonly known as e-scooters, are battery-powered devices designed for short-distance travel, typically standing riders on a narrow platform with handlebars for control. They are equipped with small electric motors that provide propulsion, enabling riders to travel at speeds usually ranging from 10 to 20 miles per hour, depending on the model and local regulations. E-scooters are particularly popular in urban areas due to their portability and ease of use, offering a convenient way to cover short distances without the physical effort required by traditional bicycles or even e-bikes.

One of the primary trends shaping the rise of e-scooters is their integration into micromobility services, often through app-based rental systems. Companies like Bird, Lime, and Spin have deployed shared e-scooter fleets in cities worldwide, allowing users to rent them for short trips. These rental services offer a "dockless" experience, meaning scooters can be picked up and dropped off at various points throughout the city, making them a flexible transportation option. E-scooters are well-suited for first-mile/last-mile connections, complementing public transit systems by providing quick access between transit stops and final destinations. They also help alleviate traffic congestion, reduce emissions, and promote sustainable urban mobility.

E-scooters differ from e-bikes in several key ways, particularly in terms of their design and intended use. While e-bikes resemble traditional bicycles with the added benefit of motor assistance, e-scooters are smaller, lighter, and often easier to navigate in crowded urban environments. Their standing design allows for quick mounting and dismounting, making them ideal for short trips around town. However, the lack of seating and reduced stability compared to e-bikes means they are typically used for shorter distances and may not be as comfortable for longer commutes. In addition, e-scooters are usually slower than e-bikes, making them better suited for low-speed travel in dense areas, whereas e-bikes are more appropriate for covering longer distances or riding on roads with higher speed limits.

The rapid growth of e-scooters in transportation networks has sparked both excitement and challenges. On the positive side, e-scooters can significantly reduce dependence on cars for short trips, cutting down on traffic and emissions. Many cities are beginning to recognize their role in creating a more diverse, multimodal transportation system. However, their

widespread adoption has also raised safety concerns, particularly regarding the lack of designated lanes or infrastructure for scooters. Riders often share space with pedestrians on sidewalks or cyclists on bike lanes, leading to conflicts and accidents. Cities are responding by introducing regulations on where e-scooters can be ridden and parked, setting speed limits, and requiring helmet use in some cases.

As part of the larger transportation network in the MPA, e-scooters can play a valuable role in promoting multimodal mobility, particularly in dense urban areas or for short trips. To maximize their benefits, it will be important to address infrastructure needs, including clear regulations and designated spaces for e-scooters to safely coexist with other modes of transport. Expanding micromobility options like e-scooters can also attract users who may be hesitant to commit to cycling or transit for short trips, providing an alternative that is convenient, affordable, and sustainable.

Autonomous vehicles

Autonomous vehicles (AVs), also known as self-driving cars, are vehicles equipped with advanced sensors, cameras, radar, and artificial intelligence (AI) systems that allow them to navigate and operate without human intervention. These vehicles use a combination of technologies, including lidar (light detection and ranging), GPS, and machine learning algorithms, to detect their surroundings, make decisions, and move through traffic autonomously. AVs are designed to reduce the need for human drivers, potentially transforming the future of transportation by improving safety, reducing traffic congestion, and enhancing mobility for those who cannot drive.

The development of autonomous vehicles is part of a broader trend toward automation and artificial intelligence in transportation. Major companies like Tesla, Waymo (Google's self-driving division), and traditional automakers such as General Motors and Ford are at the forefront of AV technology. Autonomous driving is often classified into levels, ranging from Level 0 (no automation) to Level 5 (full automation), where Level 5 vehicles require no human input for operation. Currently, most commercially available vehicles fall between Level 2 and Level 4, where some automated driving features exist but still require human oversight. However, the push towards fully autonomous (Level 5) vehicles is ongoing, with testing and pilot programs taking place in cities around the world.

Several trends are driving the integration of autonomous vehicles into the transportation network. First, advancements in AI and sensor technology have made it possible for AVs to handle complex driving scenarios, such as navigating through urban traffic, merging onto highways, and responding to dynamic environments like pedestrian crosswalks. Second, many cities are testing autonomous shuttles and ride-hailing services in limited areas to assess their impact on urban mobility. These services are particularly useful for first-mile/last-mile solutions, connecting passengers to public transit systems and reducing the need for personal vehicle ownership. Furthermore, the rise of electric vehicles (EVs) and AVs is becoming intertwined, with many autonomous prototypes also being fully electric, contributing to sustainability goals by reducing emissions.

Autonomous vehicles have the potential to significantly alter how cities plan their transportation systems. For example, AVs could reduce the need for parking spaces, as shared autonomous fleets could operate continuously without the need for parking between trips. This shift could free up urban land for other uses, such as green spaces or commercial development. Additionally, AVs promise to improve safety by minimizing human error, which is responsible for the vast majority of traffic accidents. By relying on sensors and AI to make split-second decisions, AVs can reduce the likelihood of collisions, especially in congested areas or at high speeds on highways.

Despite these benefits, several challenges remain. Public trust in AV technology is still developing, with concerns about safety and liability in the event of accidents. There are also regulatory hurdles, as governments work to create frameworks for the safe deployment of autonomous vehicles. Moreover, while AVs have the potential to reduce traffic congestion, there is also the possibility that they could contribute to more vehicles on the road if personal ownership of AVs becomes widespread, rather than focusing on shared or public AV fleets.

In the context of the CATSO Metropolitan Planning Area (MPA), autonomous vehicles could play a significant role in improving transportation efficiency and safety. The deployment of AVs could help address long-term goals such as reducing traffic congestion, enhancing accessibility for non-drivers, and supporting sustainable urban growth. However, thoughtful planning and regulation will be necessary to ensure that AVs are integrated in a way that benefits all users. For example, AV infrastructure, such as vehicle-to-infrastructure (V2I) communication systems and dedicated AV lanes, might be needed to support their safe and efficient use.

LEVEL OF SERVICE FRAMEWORK

It is essential that communities provide infrastructure for a variety of transportation modes so that all people can get to their destinations safely and easily, no matter how they travel. An alternative level of service (LOS) framework has been developed to analyze the performance of multimodal transportation infrastructure in the Columbia area and identify the issues in which it needs improvement.

The development process involved researching national standards, existing models of multimodal level of service, and incorporating local resources. National references include the National Association of City Transportation Officials (NACTO)[48][49], Federal Highway Administration (FHWA)[50], Transportation Research Board (TRB)[51], Mineta Transportation Institute[52], and Florida Department of Transportation[53]. On a local level, resources include utilizing GoCOMO Transit Map[54], Columbia Parks and Recreation Trail Guide & Map[55], City of Columbia Traffic Counts Map[56], and CBB's previous multimodal efforts such as St. Louis County Action Plan for Walking + Biking[57] and St. Louis Region Gateway Bike Plan[58].

By analyzing the existing multimodal infrastructure, the level of service framework allows its users to see areas in need of improvements, and which specific improvements are needed. The level of service framework also helps to identify which areas are performing well and where improvements are not as necessary. Long-term performance of multimodal infrastructure can also be measured using the framework if the framework is used at multiple points over time.

The level of service framework varies based on the specific mode of travel being analyzed. This means there are separate level of service frameworks for pedestrian infrastructure, bicycle infrastructure, transit infrastructure. Figure 13 shows

[48] https://nacto.org/publication/urban-street-design-guide/
[49] https://nacto.org/publication/urban-bikeway-design-guide/
[50] https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page00.cfm
[51] https://trid.trb.org/View/469373
[52] https://transweb.sjsu.edu/research/Low-Stress-Bicycling-and-Network-Connectivity
[53] https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/systems-management/document-repository/qlos/fdot_qlos_handbook_v6-0_clean-june-2023.pdf?sfvrsn=198c6846_2
[54] https://www.gocomotransit.com/routes/
[55] https://www.como.gov/wp-content/uploads/2024/02/FOR-WEB-_Trail-Guide-Brochure_Revised_Map_14-01-2024.pdf
[56] https://www.como.gov/boards/columbia-area-transportation-study-organization/traffic-counts/
[57] https://stlouiscountymo.gov/st-louis-county-departments/transportation-and-public-works/planning-for-the-future/action-plan-for-walking-and-biking1/st-louis-county-action-plan1/
[58] https://www.stlouis-mo.gov/government/departments/street/documents/gateway-bike-plan.cfm

the layout of frameworks designed to access each infrastructure. The framework designed for "Trails" refers to paths that are off-road or not street-adjacent for convenient travel closer to nature, incorporating some considerations for both pedestrians and bicyclists.

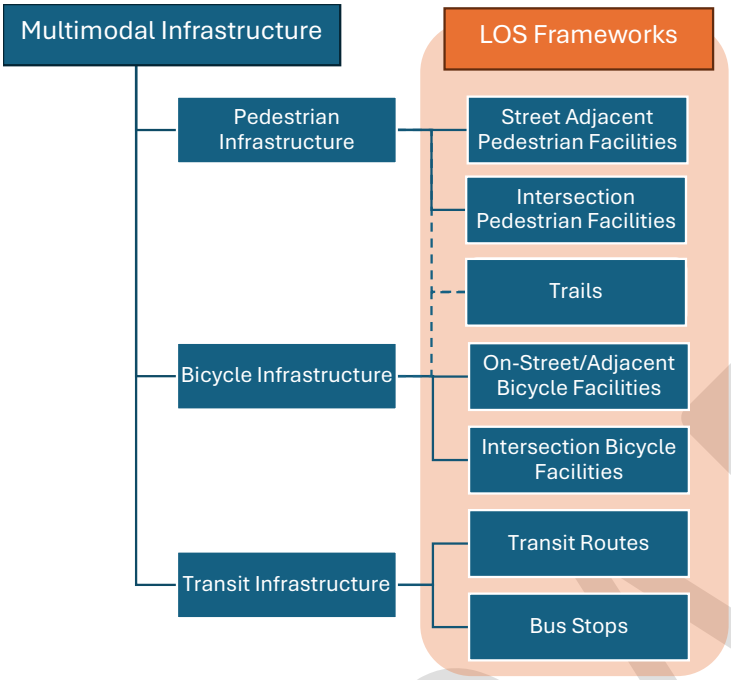


FIGURE 13 - ALTERNATIVE LEVEL OF SERVICE SYSTEM

Each framework is graded based on key factors involving the condition and functionality. The factors evaluated typically involve the type of facility available for use (type of bike lane, sidewalk presence, type of mid-block crossing), the surface conditions, lighting along the route, connections between modes of travel, the provided amenities, and other considerations relevant to each mode. If the facility being evaluated fulfills a factor, points may then be added up to determine a final score. Similar to motor vehicle traffic level of service, each facility being evaluated receives a grade, which in framework is determined by the final score as shown in Table 9 as an example,

TABLE 9 - LOS BASED SCORE

LOS		Points *(Example Values)*
A	Excellent	*7+*
B	Good	*5 to 6*
C	Fair	*3 to 4*
D	Poor	*2 to 3*
F	Fails	*1 or less*

Two versions of the framework exist. The first version operates as a "checklist" where criteria is checked with yes/no and "select one" responses that corresponding to point values. The second version presents a "scale" of best to worst case for each factor with visual aids to assist users in identifying which case best fits the existing conditions they fall under. Because the "checklist" version has limited responses in contrary to the more subjective/user-friendly choices in the "scale" version, the resulting level of service grades will differ. Both formats were designed to be possible tools with only

one type to be used for further development. An example on how to use the "scale" format is shown in Figure 1 under Appendix A. An example on how to use the "checklist" format is shown in Figure 2 under Appendix A.

Below, the level of service frameworks set for the different types of multimodal transportation networks will be presented and explained.

Pedestrian Level of Service Framework

The pedestrian level of service framework may be used to assess pedestrian infrastructure on individual road segments and at intersections. To give an accurate level of service score, the conditions of the roadway along which the pedestrian facility is located are considered when scoring the facility. This is done because roadways that have less traffic, less travel lanes, and slower speeds are considerably safer for pedestrians[59][60], making additional pedestrian safety features less essential to achieve a good grade. Therefore, step one of the pedestrian framework requires users to identify which case type the roadway on which the facility is located falls under. The case types are determined based on posted speed limit, average daily traffic (ADT), and number of traffic lanes as laid out in Table 2 under Appendix A. After the case type is determined, users assess components of the pedestrian infrastructure provided along roadway segments and at intersections.

The level of service for pedestrian infrastructure along road segments is determined by assessing the width of the sidewalk, the facility characteristics, the ADA compliance of the facility, mid-block crossing characteristics, the sidewalk surface condition, and amenities provided along the facility. The pedestrian framework for street-segments, using the "scale" format is shown in Tables 18 and Table 19 under Appendix A. The pedestrian framework for street-segments, using the "checklist" format is shown in Table 35 and Table 36 under Appendix A.

The level of service for pedestrian infrastructure at intersections first depends on the type of intersection being looked at- either an unsignalized intersection, a signalized intersection, or a roundabout. Then, pedestrian facility treatments and conditions are assessed. The pedestrian framework for intersections, using the "scale" format is shown in Table 21 under Appendix A. The pedestrian framework for intersections, using the "checklist" format is shown in Table 38 under Appendix A.

Bicycle Level of Service Framework

The bicycle level of service framework may be used to assess bicycle infrastructure on individual road segments and at intersections. The framework is intended to be used on one side of a road at a time, as bicycle infrastructure conditions may vary from side to side. To give an accurate level of service score, the conditions of the roadway on which the bicycle facility is located are considered when scoring the facility. This is done because roadways that have less traffic, less travel lanes, and slower speeds are considerably safer for bicyclists, making additional bicyclist safety features less essential[61]. Therefore, step one of the bicycle framework requires users to identify which case type the roadway on which the facility is located falls under. The case types are determined based on posted speed limit, average daily traffic (ADT), and number of lanes as laid out in Table 1 under Appendix A. After the case type is determined, users may use either the checklist framework or the scale framework made for that case type to determine the level of service grade for the infrastructure.

[59] https://www.nhtsa.gov/book/countermeasures-that-work/pedestrian-safety/understanding-problem
[60] https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/
[61] https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/

The level of service for bicycle infrastructure on road segments is determined by assessing the facility type, the width of the facility, the facility's surface conditions, the utility of the facility, and facility signage, markings, lighting and amenities. The bicycle framework for street-segments, using the "scale" format is shown in Table 11, 12, and 13 under Appendix A. The bicycle framework for street-segments, using the "checklist" format is shown in Table 31 under Appendix A.

The level of service for bicycle infrastructure at intersections first depends on the type of intersection being looked at- either an unsignalized intersection, a signalized intersection, or a roundabout. Then, bicycle facility treatments and conditions are assessed. The bicycle framework for intersections, using the "scale" format is shown in Table 15 under Appendix A. The bicycle framework for intersections, using the "checklist" format is shown in Table 33 under Appendix A.

Transit Level of Service Framework

The transit level of service framework may be used to assess transit routes and transit stops. The level of service of transit routes is determined by assessing the frequency of service of transit, the weekly availability of transit, the connectivity and accessibility of transit routes, the travel time of transit compared to car travel times, and the reliability of transit. The transit route framework using the "scale" format is shown in Table 7 under Appendix A, and the "checklist" format is shown in Table 30 under Appendix A.

The level of service at a transit stop is determined by assessing the amenities provided at the stop and the stop's connectivity with other modes of transportation. The transit stop framework using the "scale" format is shown in Table 9 under Appendix A, and the "checklist" format is shown in Table 29 under Appendix A.

Trail Level of Service Framework

The trail level of service framework may be used to assess any section of a destination trail. Columbia Parks and Recreation defines destination trails as pathways "to connect people to where they work, shop, go to school, and play, as well as for fitness and recreation." Examples would include the MKT Trail, Hinkson Creek Trail/MU Recreation Trail, Bear Creek Trail, and Grindstone Creek Trail. This framework aims to specifically assess trails that allow people to move while not being adjacent to or on a roadway. For example, the South Providence Trail would be more accurately accessed using the Street-Adjacent Pedestrian Facilities Framework and On-Street/Adjacent Bicycle Facilities Framework instead of the Trails Framework since that path serves as means of multimodal travel along South Providence Road rather than aiming to also provide amenities and other benefits found on other trails, resulting in a poor LOS grade.

The level of service of trails is determined by assessing the width of the trail, the trail conditions, trail amenities, the trail's connectivity with other modes of transportation, and the trail's roadway crossings. The trail framework using the "scale" format is shown in Table 5 under Appendix A, and the "checklist" format is shown in Table 25 under Appendix A.

Chapter 9: Financing Transportation Improvements

The 2055 MTP is a financially constrained plan prepared for the Columbia urbanized area. The evaluation of the area's financial capacity is based on estimates of reasonably anticipated funding from federal, state, Boone County, and City of Columbia sources, as well as system maintenance and capital improvement costs through 2055. The IIJA requires that funding be available for all elements included in the 2055 MTP that are in the Columbia MPA.

Revenue to pay for planned improvements and maintenance comes from five main sources:

1. Federal funding for roadways and transit
2. State funding for roadways
3. Boone County
4. The City of Columbia
5. Special districts, such as Transportation Development Districts (TDDs) and Community Improvement Districts (CIDs)

The thirty-two-year revenue projections included in the Plan were provided by the Missouri Department of Transportation, Boone County Public Works, and the City of Columbia Finance Department. Due to the variability of revenues from TDD and CID sources, potential funds from these sources are not included in the revenue forecasts. This chapter summarizes the primary methods and conclusions of the financial capacity analysis for the CATSO 2055 plan.

FUNDING FOR TRANSPORTATION PROJECTS

Funding for streets and highways in the MPA comes from a combination of federal, state, and local sources. Most state programs are financed through federal funds, supplemented by revenues from state motor fuel taxes and user fees. Local programs rely on state sub-allocations of motor fuel tax revenue, property and sales taxes, general fund allocations, and other local fees, with federal assistance for highways and bridges. Federal funds play a critical role in enabling state and local governments to complete major capital projects by typically covering 80% of eligible project costs, while the remaining 20%, the "local match," is provided by the requesting agency.

Under the IIJA, funding has increased and continues to prioritize multimodal transportation, which includes highways, transit, bike and pedestrian facilities, and green infrastructure. IIJA expands funding flexibility, allowing greater support for non-highway modes, promoting climate resilience, and increasing investments in safety, equity, and sustainability. This flexibility, originally introduced in prior legislation such as TEA-21 and continued under the FAST Act, remains a guiding principle under IIJA.

BOONE COUNTY

In 1993, Boone County residents passed a 1/2-cent sales tax to fund roadway improvements. Initially enacted for five years, the tax was extended by voters in 1998 for an additional ten years. Further extensions were approved by voters in November 2007 and August 2017. For this plan, it is assumed that the 1/2-cent sales tax will remain in place through 2055.

Boone County also receives reimbursements from the State of Missouri through revenues collected from the state motor fuel tax, sales and use tax, and licenses and fees. A 1.5% annual growth in tax revenue is factored into the sales and

property tax revenue estimates for the plan period, while revenues from gasoline and motor vehicle taxes are assumed to remain flat. Federal funds come to Boone County through the Missouri Department of Transportation.

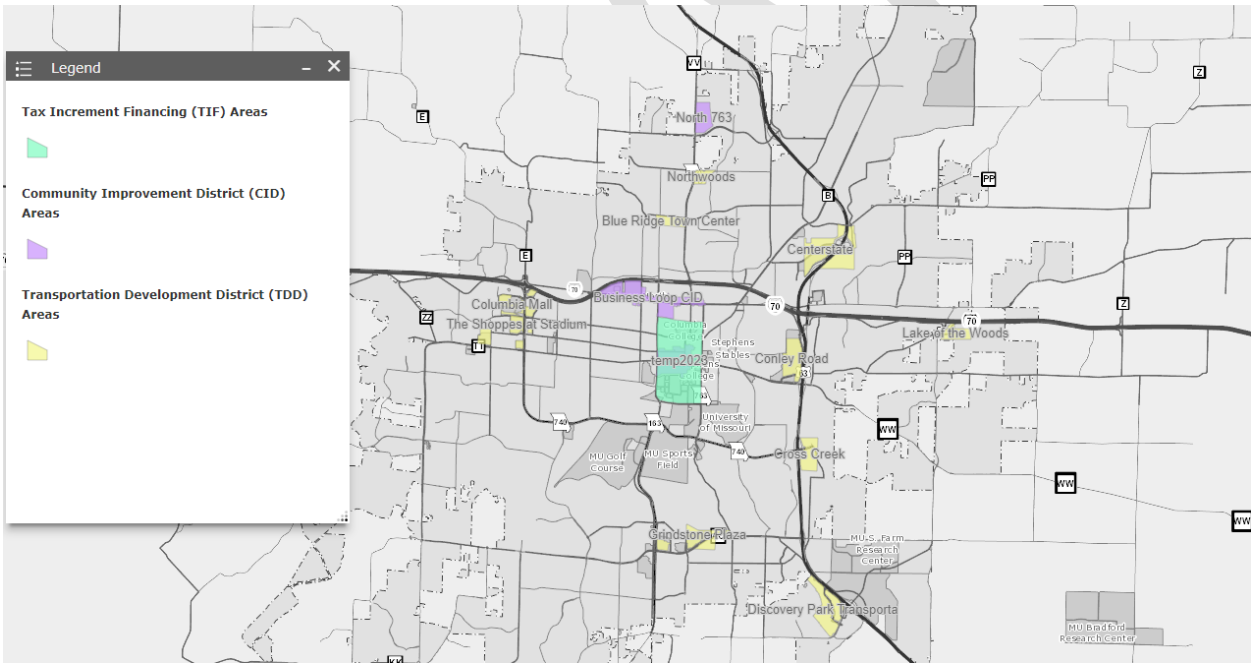
CITY OF COLUMBIA

Funding for transportation improvements in the City of Columbia comes from sources including property taxes, development charges from new construction, user fees, special assessments, general obligation bonds, and the City's 1/2-cent Transportation Sales Tax. The City also receives revenue from Boone County under a rebate ordinance and state reimbursements from motor fuel tax, sales and use taxes, licenses, and fees. Federal funds for highways and transit are administered through MoDOT. The City continues to utilize additional funding for non-motorized transportation under the IIJA's Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant program.

For transit, the City of Columbia usually receives approximately $2.6 million annually in federal Section 5307 operating funds to support the Go COMO transit system, however that amount increased to $4.1 million in 2023. In addition, Go COMO receives around $20,000 annually from the state for transit operations. To maintain a consistent approach to funding projections, only fixed funding sources are included in revenue forecasts, although it is assumed that general obligation bonds and private development will also contribute to roadway financing.

City of Columbia – Special Districts

Since the completion of the 2050 Transportation Plan, special district financing has continued within the MPA. As of 2024, Columbia had 16 Special Taxing Districts, including one Tax Increment Financing Area (TIF), two Community Improvement Districts (CID), and 13 Transportation Development Districts (TDDs) within its borders.



TDDs are enabled by state law to levy up to a 1% sales tax to fund transportation improvements related to the district. The City of Columbia encourages TDDs to enter agreements with the City to coordinate their projects and to allow the City to administer sales tax receipts. To date, Columbia TDDs have levied no more than a 0.5% sales tax.

CIDs provide for special property tax assessments to fund improvements, including transportation infrastructure. TIF districts enable redevelopment by capturing the increase in property and sales tax revenues due to new development and using these funds to finance infrastructure projects.

STATE FUNDING FOR TRANSPORTATION PROJECTS

State funding for roadway maintenance and construction in Missouri primarily comes from the state's motor fuel tax, along with revenue from sales and use taxes, licenses, and fees. In 2021, the state enacted a $0.125 per gallon addition to the $0.17 per gallon fuel tax, to be added incrementally over five years. When it is fully implemented in 2025, Missouri's gas tax will be $0.295 per gallon. Under the IIJA, additional funding is available for initiatives related to climate resilience, EV infrastructure, and safety improvements. MoDOT allocates state funds through a three-year Transportation Improvement Program (TIP), considering factors like population, vehicle miles traveled, and roadway conditions.

Inflation and rising material costs have significantly eroded the purchasing power of state funds. Over the past 27 years, the value of Missouri's fuel tax has effectively dropped to the equivalent of 1 cent per gallon, while the costs of essential materials like asphalt, concrete, and steel have doubled. Additionally, the state's revenue per mile, at $73,477 (in 2023), remains far below the national average of $247,954, making Missouri's large highway system, the seventh largest in the nation, challenging to maintain. Neighboring states with smaller highway systems often benefit from additional funding sources such as tolls and sales taxes, which Missouri currently lacks. These issues will likely strain the state's ability to fund necessary improvements and maintain its transportation infrastructure in the coming years.

FEDERAL FUNDING FOR TRANSPORTATION PROJECTS

Federal funding for roadway maintenance and construction comes from fuel taxes ($0.184 per gallon on gasoline and $0.244 on diesel) and excise taxes on tires and batteries, which are allocated to states through the Federal Highway Trust Fund under IIJA. The IIJA increases overall federal transportation funding and places a strong emphasis on infrastructure modernization and safety, including funding for highways, bridges, transit, and EV charging infrastructure.

The City of Columbia is also an entitlement community under the Community Development Block Grant (CDBG) program administered by the U.S. Department of Housing and Urban Development (HUD). Columbia allocates 30-50% of annual CDBG funds to public improvements, including streets and sidewalks, within a designated eligibility area. Transportation-related CDBG expenditures have averaged between $100,000 and $200,000 annually.

This section explores innovative financing techniques, new funding sources, and strategic approaches to reduce the need for transportation improvements while increasing funding for both motorized and non-motorized systems.

INNOVATIVE FINANCING TECHNIQUES

Special Assessment Districts

Special Assessment Districts (SADs), also known as Special Tax Districts or Benefit Assessment Districts, are a valuable tool for increasing funding for transportation improvements. CATSO and its communities can effectively leverage SADs to fund both motorized and non-motorized transportation systems. Special Assessment Districts are designated areas where property owners agree to pay an additional assessment or tax to fund specific public projects that benefit the properties within the district. These projects can include road improvements, public transit enhancements, bike lanes, sidewalks, and other transportation infrastructure. As the Columbia MPA is not currently eligible for federal CMAQ funding, SADs can be an alternative strategy for achieving the goals of the CMAQ program.

Comparison to Community Improvement Districts (CIDs)

The Loop and The District Community Improvement Districts (CIDs) function similarly to a SAD but operate under slightly different principles and legislative frameworks. Both CIDs and SADs aim to fund improvements within a designated area by imposing additional taxes or assessments on property owners who benefit from the enhancements. In the case of The Loop and The District CIDs, they were designed to revitalize and enhance the business corridor along the Business Loop 70 and downtown Columbia, respectively. The districts encompass various commercial properties and aim to improve infrastructure, beautify the area, and promote economic development. The CIDs focus on projects such as streetscaping, pedestrian improvements, marketing initiatives, and public safety enhancements.

Similarities:

- **Purpose**: Both CIDs and SADs are established to fund infrastructure improvements and services within a specific area.
- **Funding**: Both mechanisms involve additional taxes or assessments on property owners within the district.
- **Benefits**: Improvements funded by CIDs and SADs generally lead to increased property values, enhanced public amenities, and economic development.

Differences:

- **Legislation**: CIDs are established under different legislative frameworks compared to SADs. In Missouri, CIDs are authorized under the Missouri CID Act, whereas SADs are typically created under statutes specific to special assessments.
- **Governance**: CIDs are often managed by a board of directors representing property owners within the district, while SADs may be managed directly by local government agencies.
- **Types of Improvements**: While both can fund a wide range of projects, CIDs often have a broader scope, including marketing and promotional activities in addition to physical infrastructure improvements.

Benefits of SADs for CATSO Communities

Direct Benefits to Property Owners:

- **Increased Property Values**: Enhanced transportation networks often lead to higher property values, as better infrastructure makes areas more attractive to residents and businesses.
- **Enhanced Accessibility**: Improved transportation options make it easier for residents to commute, access services, and engage in recreational activities, enhancing overall quality of life. By offering safe and comfortable methods for getting around by walking, biking, rolling, and/or taking transit, allows people to get around how they wish or the best way for them.

Community-wide Benefits:

- **Economic Development**: Better transportation infrastructure attracts businesses and promotes economic growth, creating jobs and increasing the local tax base.

- **Environmental Benefits**: Enhancements to non-motorized transportation systems reduce reliance on cars, lowering greenhouse gas emissions, contributing to cleaner air, and lessening the amount of valuable real estate that must be devoted to parking lots.

- **Health and Safety**: Improved pedestrian and cycling infrastructure promotes physical activity and reduces the risk of traffic accidents, contributing to a healthier and safer community.

Funding Motorized and Non-Motorized Systems

Implementing SADs in the CATSO area to fund both motorized and non-motorized transportation systems involves a structured approach that ensures all relevant transportation needs are met.

Motorized Systems:

- **Roadway Improvements**: Use SAD funds to widen or repave roads, add new lanes, install traffic signals, and improve intersections. These enhancements can reduce congestion and improve safety for motorists.

- **Public Transit Infrastructure**: Invest in new bus stops, shelters, and dedicated bus lanes. SAD funds can also support the purchase of new buses or the expansion of existing transit routes, improving service frequency and coverage.

Non-Motorized Systems:

- **Bicycle Infrastructure**: Develop bike lanes, bike racks, and bike-sharing stations to encourage cycling as a viable mode of transportation, reducing traffic and promoting healthy lifestyles.

- **Pedestrian Facilities**: Enhance sidewalks, crosswalks, pedestrian bridges, traffic calming, and trails. Improving pedestrian infrastructure makes walking safer and more accessible, encouraging people to walk more.

- **Multi-Use Paths**: Create multi-use paths that accommodate both cyclists and pedestrians. These paths can connect residential areas to commercial centers, schools, parks, and other key destinations.

Steps for Implementing SADs in the CATSO Region

Implementing SADs in the CATSO area is a multifaceted process that requires careful planning, community involvement, and compliance with legal requirements.

1. Identify Target Areas

The first step involves identifying the areas within the CATSO region where transportation improvements are most needed and where property owners are likely to benefit from these improvements.

- **Assessment and Planning**: Conduct thorough assessments to determine areas with the most pressing transportation needs. This might involve analyzing traffic patterns, accident data, and current infrastructure conditions. Pay particular attention to where there are multimodal supportive land uses without multimodal infrastructure. These are often denser developments downtown, near one of the college campuses, or could be one of the newer dense developments that are typically found on the south side of town, such as that which is being developed southwest of Highway 63 and Discovery Parkway. Prioritize projects that will have the greatest impact on safety, congestion, and connectivity.

- **Project Prioritization**: Identify specific projects that align with the regional transportation plan (examples can be found in the Funding Motorized and Non-Motorized section above). Ensure these projects address both current needs and future growth outlined in this plan.

2. Conduct Community Engagement

Engaging the community will be crucial.

- **Stakeholder Meetings**: Organize meetings with property owners, business leaders, and residents to explain the benefits of the proposed transportation improvements and the SAD mechanism. Address any concerns and provide clear information on how the assessments will be used.
- **Public Outreach**: Use various outreach methods, such as the City's BeHeard website, public forums, social media campaigns, local news outlets, and mailers, to inform the wider community about the SAD proposal. Transparency and clear communication are key to building trust and support.

3. Define the District Boundaries

Clearly defining the geographic boundaries of the SAD is essential for determining who will be assessed and ensuring that those who benefit from the improvements are the ones contributing to the costs.

- **Geographic Boundaries**: Use mapping tools like ArcGIS to delineate the boundaries of the SAD based on the areas that will directly benefit from the proposed transportation improvements. This could include neighborhoods, commercial districts, or specific corridors.
- **Benefit Analysis**: Conduct a detailed benefit analysis to demonstrate how the proposed improvements will enhance property values, accessibility, and overall quality of life within the district. Use data and case studies to support your analysis. This will help create community support.

4. Assessment Methodology

Determining a fair and equitable method for assessing property owners is critical.

- **Assessment Rates**: Develop a methodology for calculating assessment rates. This could be based on property value, frontage length, or another equitable metric. Ensure that the rates are proportional to the benefits received from the improvements. This will need to be determined with the help of impacted property owners and stakeholders.
- **Payment Structure**: Outline the payment structure, including how assessments will be collected (e.g., annually, semi-annually) and the duration of the assessment period. Provide options for property owners to pay in installments if needed.

5. Legal and Regulatory Framework

Ensure that all legal and regulatory requirements are met to establish the SAD.

- **Legislation**: Verify that local legislation permits the creation of SADs. The State of Missouri currently allows them under the Revised Statutes of Missouri, Chapter 67, section 1521. They are also allowed under the City of Columbia Code of Ordinances in Article IX. - Public Improvements and Special Assessments under Section 72. – Special Assessments.

Boone County seems to fall under the Revised Statutes of Missouri legislation. Special assessments are governed by general ordinances consistent with state law. However, codes and ordinances change and it's always best to check with legal counsel on interpretation.

- **Approval Process**: Follow the required local approval process.

6. Implementation and Management

Once the SAD is approved, the implementation phase begins.

- **Project Management**: Develop a detailed project plan outlining timelines, budgets, and responsibilities. Ensure that the projects are managed efficiently and transparently.
- **Ongoing Communication**: Maintain open lines of communication with property owners and the community throughout the implementation phase. Provide regular updates on project progress and address any issues or concerns that arise.
- **Evaluation and Reporting**: After the completion of the projects, conduct an evaluation to measure the impact of the improvements. Prepare a report detailing the outcomes and benefits, and share this information with the community and stakeholders. Having this data will also be useful in building support for implementing further SADs in the Columbia MPA.

Examples and Case Studies

1. **Denver, Colorado -** Denver, Colorado, has successfully implemented Special Assessment Districts (SADs) to finance various transportation improvements. One notable example is the RiNo (River North) Art District, where SADs have been used to fund infrastructure projects that support the area's growth and development. In RiNo, property owners agreed to an additional assessment to finance street improvements, pedestrian-friendly pathways, and transit-oriented projects. These enhancements have transformed RiNo into a vibrant, accessible, and economically thriving neighborhood.

   The benefits of the SADs in Denver are evident in the increased property values and the influx of new businesses and residents to the area. The improved infrastructure has made RiNo more attractive for investment, fostering a creative and entrepreneurial community. Furthermore, the SAD-funded projects have led to better connectivity and accessibility, reducing traffic congestion and encouraging the use of alternative transportation modes like cycling and walking. By leveraging SADs, Denver has demonstrated how targeted funding mechanisms can drive urban revitalization and sustainable growth.

2. **San Francisco, California -** San Francisco, California, offers another compelling example of the effective use of Special Assessment Districts to enhance transportation infrastructure. The city has utilized SADs to develop and expand its network of bike lanes and pedestrian-friendly streets. One prominent project funded through SADs is the Better Market Street initiative, which aims to transform Market Street into a world-class boulevard prioritizing pedestrians, cyclists, and public transit.

   Through SADs, property owners along Market Street agreed to fund improvements that included widened sidewalks, protected bike lanes, new public plazas, and enhanced transit stops. These changes have significantly improved the safety and accessibility of Market Street, making it a more inviting space for residents, commuters, and tourists alike.

The initiative has also stimulated economic activity by attracting businesses and enhancing the overall appeal of the area.

The success of SADs in San Francisco is reflected in the increased use of non-motorized transportation, reduced traffic congestion, and a more vibrant street life. The city's commitment to creating a sustainable and pedestrian-friendly environment through SADs serves as a model for other urban areas seeking to balance development with environmental and social goals. San Francisco's experience illustrates the transformative potential of SADs in creating more livable, equitable, and economically robust communities.

By strategically implementing Special Assessment Districts, CATSO and its communities can effectively increase funding for critical transportation improvements. This approach not only enhances motorized and non-motorized systems but also delivers substantial economic, environmental, and social benefits to the region. With careful planning, community engagement, and transparent management, SADs can be a powerful tool for building a more connected, sustainable, and vibrant Columbia, Missouri.

Public-Private Partnerships (PPPs)

PPPs present a viable financing mechanism for the CATSO region. PPPs are a contractual collaboration between public sector entities and private companies to fund, develop, and operate transportation projects. In a PPP, the private sector typically finances the project upfront and then receives revenue from taxpayers and/or users over the course of the contract. This can help projects to be completed sooner or allow projects that otherwise wouldn't get off the ground to be implemented. The private party assumes significant risk and management responsibility. PPPs work best when private-sector innovation and technology combine with public-sector incentives to complete the project on time and within budget.

PPPs offer significant benefits, including access to substantial private capital, which reduces the immediate financial burden on public budgets. Financial risks are shared between the public and private sectors, mitigating the financial exposure of public agencies. Additionally, PPPs enhance efficiency and innovation through the operational expertise, innovative practices, and advanced technologies brought by private sector partners, leading to more efficient project delivery and timely completion. High service standards and maintenance requirements stipulated in PPP agreements ensure long-term quality and reliability of the facilities involved with the PPP.

What PPPs Can Be Used For

PPPs can be used to fund and develop a wide range of transportation, including:

- **Public Transit Enhancements**: Expand bus networks, develop light rail systems, or implement additional/expand existing shuttle services.
- **Bicycle and Pedestrian Infrastructure**: Create bike lanes, bike-sharing programs, sidewalks, and pedestrian bridges.
- **Roadway Improvements**: Widen or repave roads, add new lanes, and improve intersections.
- **Traffic Management Systems**: Implement advanced traffic signal systems, congestion management technologies, and smart city infrastructure.

Steps for Implementing PPPs

To implement PPPs effectively, CATSO must follow a structured approach that ensures all relevant aspects are adequately addressed.

Identify Suitable Projects

Projects that are good candidates for PPPs are typically large in scale. In the Columbia MPA, such projects might include expanding the GO COMO bus network to different parts of the community, implementing a bike-sharing program, or deploying advanced traffic signal systems. Feasibility studies should be conducted to assess the technical, financial, and legal viability of potential PPP projects.

Ensure Appropriate Legal and Regulatory Frameworks are in Place

Ensuring appropriate legal and regulatory frameworks are in place is crucial. Clear regulations outlining the roles, responsibilities, and obligations of both public and private partners are essential. While PPPs do currently exist in the Columbia region, such as REDI, and at the state level where PPPs are a useful tool utilized by MoDOT, it would be best to ensure that the rules in place allow the sort of PPP desired.

Engage Stakeholders

Engaging stakeholders is a critical step in the PPP process. Public consultations should be conducted to gather input, address concerns, and build support for PPP projects. Engaging with potential private sector partners through industry forums, market soundings, and pre-bid conferences helps attract qualified partners and ensures value for money.

Transparent Procurement Processes

Transparent procurement processes must be designed, including comprehensive Requests for Proposals (RFPs) that clearly define project requirements, evaluation criteria, and performance metrics. Implementing a competitive bidding process is vital for attracting qualified private partners and ensuring value for money.

Contractual Agreements and Risk Management

Contracts should detail project scope, financing arrangements, risk-sharing mechanisms, and performance standards. Thorough legal reviews should be conducted to ensure enforceability and protection of all parties' interests.

Governance and Oversight

Establishing governance and oversight mechanisms is crucial for the successful implementation and operation of PPP projects. A dedicated project management team should be set up to oversee each PPP project, with monitoring and evaluation frameworks to track progress, assess performance, and enforce contractual obligations.

Examples and Case Studies

1. **Denver Union Station (Denver, Colorado)** Denver's Union Station redevelopment project is a successful example of a PPP. The project involved the transformation of the historic train station into a vibrant transit hub with retail, dining, and hospitality services. The private sector financed the project upfront, and revenue from leasing and operations provided a return on investment. The project has revitalized the area, increased property values, and improved transit connectivity.
2. **Port of Miami Tunnel (Miami, Florida)** The Port of Miami Tunnel project is another example of a successful PPP. The private sector partner was responsible for designing, building, financing, and operating the tunnel. The project was

completed on time and within budget, significantly improving access to the port and reducing congestion in downtown Miami. The risk was shared between the public and private sectors, ensuring efficient project delivery.

3. **London Underground (London, United Kingdom)** The London Underground's PPP agreements for the maintenance and upgrade of the tube network are a notable example. The private sector was contracted to maintain and upgrade the infrastructure, bringing in efficiency and innovation. The agreements ensured high service standards and long-term reliability, benefiting millions of daily commuters.

Transportation Infrastructure Finance and Innovation Act (TIFIA)

The TIFIA program aims to advance the development of critical transportation infrastructure across the United States by providing federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit. Its primary purpose is to leverage federal funds to attract substantial private and non-federal co-investment, addressing the shortfall in traditional funding mechanisms and enabling large-scale projects to proceed more swiftly and efficiently. It is designed to fill market gaps and leverage substantial private co-investment by bridging the gap between traditional funding sources such as state and local funding, federal grants, municipal bonds, etc. TIFIA targets projects that demonstrate national or regional significance, including highways, bridges, transit systems, railways, and intermodal facilities.

The goals of TIFIA are multifaceted. First, it seeks to promote economic growth and job creation by facilitating the timely development of transportation infrastructure, which is crucial for the movement of goods and people. Second, TIFIA aims to enhance the quality and reliability of transportation networks, improving safety and reducing congestion. Third, the program strives to foster innovation in project delivery and financing, encouraging the use of PPPs and other similar funding solutions. By offering more favorable financing terms than the private market, TIFIA helps reduce the cost of infrastructure projects, making them more financially viable and attractive to investors. Overall, TIFIA's mission is to bridge the gap between limited public funds and the substantial investment needed to maintain and expand the nation's transportation infrastructure.

Types of Financial Assistance

TIFIA offers three forms of financial assistance:

1. **Direct Loans:** Provide long-term, fixed-rate financing directly from the federal government. These loans can cover up to 49% of the total project cost, making them a substantial source of funding for large projects.

2. **Loan Guarantees:** Ensure that private lenders are repaid if the borrower defaults, reducing the financial risk and encouraging private investment.

3. **Lines of Credit:** Offer contingent sources of funding that can be drawn upon if necessary, providing a financial safety net for projects that may face unexpected costs or revenue shortfalls.

Benefits of TIFIA Financing

Flexible Financing Options

TIFIA offers flexible financing options, including direct loans, loan guarantees, and lines of credit. This flexibility enables MPOs like CATSO and local governments to select the financing structure that best meets their specific project needs and cash flow requirements, ensuring a tailored approach to funding transportation initiatives.

Lower Interest Rates

TIFIA loans typically come with lower interest rates compared to conventional financing. This reduction in borrowing costs can significantly decrease the overall financial burden associated with large-scale transportation projects. This advantage makes it more feasible to undertake necessary infrastructure improvements without incurring unsustainable debt levels.

Long Repayment Terms

Another compelling feature of TIFIA is its long repayment terms, which can extend up to 35 years. This extended timeframe allows repayment costs to be spread over a more manageable period, thereby easing budget pressures and enabling more strategic long-term financial planning. This approach is particularly beneficial for projects that may require substantial upfront investment but promise long-term benefits for the community.

Steps for Implementing TIFIA Financing in the CATSO Region

Identifying Suitable Projects

Projects that are suitable for TIFIA financing should have significant regional or national importance and substantial upfront investment needs. Potential projects in the CATSO MPA could include major roadway expansions, new transit systems, or significant infrastructure upgrades.

Establishing Public-Private Partnerships (PPPs)

TIFIA encourages the establishment of PPPs, which can stimulate private investment in transportation projects. Collaborating with private entities can accelerate project completion and lead to innovative solutions. Building strong partnerships with private sector partners, financial institutions, and other stakeholders is crucial for enhancing project viability and leveraging additional funding sources.

Preparing for the TIFIA Application Process

Engaging in the TIFIA application process requires careful preparation and thorough documentation. Key steps include:

- **Project Documentation**: Prepare detailed project documentation demonstrating the project's significance, financial viability, and readiness for advancement. This includes feasibility studies, cost estimates, environmental impact assessments, and financial plans.
- **Financial Analysis**: Conduct a comprehensive financial analysis to showcase the project's revenue-generating potential, cost-effectiveness, and ability to meet TIFIA's repayment requirements.
- **Stakeholder Engagement**: Engage with stakeholders, including local communities, government agencies, and private partners, to gather support and ensure a collaborative approach to project planning and implementation.
- **Application Submission**: Submit a well-prepared TIFIA application, adhering to federal guidelines and requirements, to maximize the chances of securing TIFIA financing.

Examples and Case Studies

1. **Los Angeles Metro's Regional Connector Transit Corridor**

This project involved the construction of a 1.9-mile underground tunnel connecting several light rail lines in downtown Los Angeles, including the A Line, E Line, and what used to be called the L Line. The A and E Lines previously terminated adjacent to the L Line in downtown Los Angeles. Today the three previously segmented lines connect and the L Line has been rolled into the A and E lines, no longer necessitating some users to transfer. TIFIA provided a $160 million loan, allowing the project to move forward with reduced borrowing costs and extended repayment terms. The project enhances transit connectivity, reduces travel times, and supports sustainable urban development.

2. **Denver Union Station**

   The redevelopment of Denver's Union Station into a multimodal transportation hub was supported by a $145 million TIFIA loan. The project integrated various transit services, including commuter rail, light rail, and bus rapid transit, while fostering economic development in the surrounding area. The TIFIA financing enabled the project to be completed on time and within budget, enhancing regional mobility and accessibility.

3. **Port of Miami Tunnel**

   The Port of Miami Tunnel project, aimed at improving access to the port and reducing downtown congestion, received a $341 million TIFIA loan. The loan's favorable terms and long repayment period facilitated the project's financial viability. The tunnel significantly improves freight movement, reduces traffic congestion, and supports economic growth in the region.

Land Use Impact Fees

Land use impact fees are a tool for funding infrastructure improvements necessitated by new development. These fees are charged to developers to offset the costs of public services and infrastructure that arise due to new construction. Within the CATSO MPA, land use impact fees can be an effective mechanism to ensure that growth and development contribute to the necessary expansion and maintenance of transportation infrastructure.

These are typically implemented by city or county governments that have jurisdiction over the specific area, such as the City of Columbia or Boone County. Within these governments, the typically planning and zoning departments or their equivalent assess the impact of new developments, setting fee structures, and ensuring compliance with local regulations. Additionally, public works or transportation departments are often involved in determining the infrastructure needs that the impact fees are intended to address. Finance departments are responsible for the collection, management, and allocation of the funds generated by impact fees, ensuring that the collected fees are used according to established regulations and for the intended infrastructure projects.

Benefits of Land Use Impact Fees

Land use impact fees ensure that the costs of infrastructure improvements are equitably distributed among those who directly contribute to the need for such improvements. This approach prevents the financial burden from falling solely on existing taxpayers and ensures that new developments contribute to the community's growth sustainably.

By providing a dedicated revenue stream, land use impact fees enable timely infrastructure development. These fees can fund road expansions, new transit routes, bike lanes, and other transportation projects that support and facilitate new development, ensuring that infrastructure keeps pace with growth.

The implementation of land use impact fees encourages comprehensive community planning. It incentivizes developers to consider the broader impact of their projects on local infrastructure, leading to more thoughtful and sustainable development practices that align with regional transportation and land use goals.

Steps for Implementing Land Use Impact Fees in the CATSO Region

Conducting a Needs Assessment

Conduct a thorough needs assessment to identify the infrastructure improvements required to support development. This involves analyzing current transportation systems, forecasting future development patterns, and estimating the costs associated with necessary infrastructure upgrades. This MTP and the projects and recommendations within should play an integral role within this step.

Developing an Impact Fee Schedule

Develop an impact fee schedule based on the needs assessment. The fee schedule should reflect the costs of infrastructure improvements proportionate to the impact of new development. Consider factors such as the type and size of development, location, and the projected demand on transportation infrastructure.

Engaging Stakeholders

Engage with stakeholders, including developers, property owners, local government officials, and community members, to gather input and build support for the implementation of land use impact fees. Transparent communication about the purpose and benefits of the fees is essential for gaining community buy-in.

Establishing Legal and Regulatory Frameworks

Ensure the necessary legal and regulatory frameworks to implement and enforce land use impact fees are in place. This includes ordinances, administrative processes for fee collection and allocation, and ensuring compliance with state and local laws.

Implementing the Fee Collection Process

Implement a robust fee collection process to ensure that impact fees are collected efficiently and transparently. Establish clear guidelines for when and how fees are collected, such as during the permitting process, and ensure that funds are allocated specifically for transportation infrastructure improvements.

Monitoring and Adjusting Fees

Regularly monitor the impact fee program to ensure it meets the community's needs and objectives. Conduct periodic reviews to adjust fee rates based on changes in development patterns, infrastructure costs, and transportation needs. Engage with stakeholders during these reviews to maintain transparency and support.

Examples and Case Studies

1. **San Diego, California** San Diego's Development Impact Fee (DIF) program has funded road expansions, new transit facilities, and bike lanes. The program has led to improved traffic flow, enhanced transit services, and a more sustainable urban environment. For example, the Carmel Valley Road Enhancements project focused on improving a significant segment of Carmel Valley Road to accommodate increased traffic and enhance safety for all users, including motorists, bicyclists, and pedestrians. The Carmel Valley was seeing significant growth at the time and the City collected fees from a variety of new developments along the corridor. The project included widening Carmel

Valley Road to add additional lanes, adding dedicated bike lanes, and adding or improving sidewalks and pedestrian crossings to enhance safety and accessibility for pedestrians. Additionally, new traffic signals were installed at key intersections to manage the increased traffic volume and improve safety for both drivers and pedestrians.

2. **Austin, Texas** Austin's Transportation Impact Fee (TIF) program charges developers to fund transportation infrastructure improvements. The fees are based on the specific impact of each development on the transportation system. This approach has enabled Austin to fund critical projects, supporting the city's rapid growth while maintaining infrastructure quality and service levels. For example, The East Riverside Drive Corridor Improvement Project utilized Austin's TIF from growth in along the corridor and included widening sections of the roadway to accommodate more lanes and dedicated bike lanes and improved sidewalks to promote safer and more accessible non-motorized transportation options. Enhanced pedestrian crossings and ADA-compliant ramps were also part of the upgrades, ensuring better accessibility for all users. Public transit enhancements were another critical component of the project. Bus stops and shelters along the corridor were upgraded to support public transit use.
3. **Portland, Oregon** Portland's System Development Charges (SDCs) include transportation impact fees that fund road and transit infrastructure improvements. The SDC program has supported the development of complete streets, bike lanes, and transit facilities, promoting sustainable growth and enhancing the city's transportation network. Portland's experience demonstrates the effectiveness of impact fees in supporting a multimodal transportation system and fostering sustainable urban development.

Land Value Taxation

Land Value Taxation (LVT) is an approach to funding transportation infrastructure that focuses on taxing the unimproved value of land rather than the value of buildings or other improvements. The concept is grounded in the economic principle that the value of land is largely created by its location and the benefits provided by the community and infrastructure around it, rather than by any efforts of the individual landowner. LVT incentivizes the efficient use of land by taxing the unimproved value, which discourages land speculation and underutilization. Property owners are motivated to develop their land to its highest and best use, promoting urban density, reducing sprawl, and ensuring that land within the MPA is used effectively to support transportation and other infrastructure needs. For the Columbia MPA, implementing LVT can provide a stable and equitable revenue stream to support transportation projects while encouraging efficient land use and development.

Since land values are relatively stable and less volatile compared to property values, LVT provides a more predictable and reliable source of revenue for funding transportation projects. This stability allows for better long-term planning and financial management, ensuring that essential infrastructure improvements can be funded consistently.

LVT is considered more equitable than traditional property taxes because it taxes the inherent value of land, which is often a result of community investments in infrastructure and services. This approach ensures that property owners who benefit from improved transportation infrastructure contribute their fair share to funding these improvements.

Steps for Implementing Land Value Taxation in the CATSO Region

Conducting a Land Value Assessment

Conduct a comprehensive assessment of land values within the City of Columbia and/or central Boone County in the CATSO MPA. This involves determining the unimproved value of land parcels to establish a baseline for taxation. Utilize

geographic information systems (GIS) and other valuation tools to ensure accuracy and fairness in the assessment process.

Engaging Stakeholders

Engage with key stakeholders, including property owners, local government officials, developers, and community members, to discuss the benefits and implications of LVT. Transparent communication and public education are crucial to gaining support and addressing any concerns or misconceptions about the taxation system.

Establishing Legal and Regulatory Frameworks

Develop the necessary legal and regulatory frameworks to implement LVT. This includes drafting ordinances, setting up administrative processes for tax collection, and ensuring compliance with state and local laws. Legal frameworks should outline how land values will be assessed, tax rates, and procedures for appeals or disputes.

Implementing the Tax Collection Process

Implement a robust and transparent tax collection process. This includes setting clear guidelines for when and how taxes will be collected, establishing payment schedules, and creating mechanisms for enforcement. Ensure that collected funds are allocated specifically for transportation infrastructure improvements.

Monitoring and Adjusting the Tax System

Regularly monitor the effectiveness of the LVT system to ensure it meets the region's needs and objectives. Conduct periodic reviews to adjust tax rates based on changes in land values, development patterns, and infrastructure needs. Engage with stakeholders during these reviews to maintain transparency and support.

Examples and Case Studies

1. **Pittsburgh, Pennsylvania** Pittsburgh implemented its two-rate property tax system in 2001. This system was introduced as part of a broader reform effort to address issues of tax fairness and to encourage economic development. This approach led to increased urban development, reduced vacancy rates, and more efficient land use. The additional revenue generated was used to fund transportation and other infrastructure projects, supporting the city's development.
2. **Sydney, Australia** Sydney uses land value taxation to fund various infrastructure projects, including transportation. The city's LVT system has encouraged higher-density development, reduced urban sprawl, and generated stable revenue for public investments. This approach has improved transportation infrastructure, enhanced public transit systems, and supported sustainable urban growth.
3. **Denmark** Denmark has a long history of using land value taxation to fund public infrastructure. The country's LVT system has promoted efficient land use, reduced speculation, and generated reliable revenue for transportation projects. The funds collected through LVT have supported the development of comprehensive public transit networks, road improvements, and other critical infrastructure, contributing to Denmark's high quality of life and sustainable development practices.

STRATEGIES TO REDUCE THE NEED FOR TRANSPORTATION IMPROVEMENTS

Mixed-Use Development

Mixed-use development is not a new concept to the CATSO MPA but it is a concept that can be expanded or manipulated to achieve a reduction in the need for transportation improvements by creating more efficient, self-sustaining communities. Mixed-use development integrates residential, commercial, and recreational spaces within the same building or within proximity where daily activities such as shopping, dining, and recreational activities are within walking or biking distance. By reducing the need for residents to rely on cars for short trips, mixed-use developments can decrease traffic congestion, the associated wear and tear on roads, excess parking, and different kinds of pollution. This shift towards non-motorized transportation reduces the demand for road expansions and other car-centric infrastructure improvements to significantly less expensive pedestrian and bicycle facilities. Shorter and fewer car trips result in less congestion and lower maintenance costs for roadways.

Transit also plays a role in mixed-use developments. With higher densities and a mix of uses, mixed-use development creates more efficient and feasible public transit routes. When people live and work in the same area, public transit systems can operate with higher ridership and more frequent service, making them a more attractive option compared to personal vehicles. This reduces the need for extensive road networks and parking infrastructure, as public transit can handle a significant portion of travel demand.

Mixed-use development also have other benefits outside of those related to transportation. For one, it encourages more efficient land use by integrating various functions into a single area. This curtails urban sprawl, which typically demands extensive transportation networks to connect distant residential and commercial areas. By containing growth within designated mixed-use zones, local governments in the CATSO MPA can limit the need for new roads and highways, focusing instead on maintaining and optimizing current infrastructure.

It also stimulates local economies by attracting businesses and services that cater to the needs of residents. When people live, work, and shop in the same area, local businesses thrive, creating a vibrant community. This economic vitality reduces the need for residents to travel long distances for employment or shopping, again lessening the burden on transportation infrastructure.

By focusing development within established urban areas and promoting a mix of uses, mixed-use development is sustainable and reduces the environmental impact of transportation systems. Fewer vehicles on the road mean lower emissions and less pollution, contributing to cleaner air and a healthier environment.

For CATSO area communities, implementing mixed-use zoning can be an effective strategy to manage growth and transportation needs. Key steps include:

1. **Zoning Policy Adjustments**: Revising zoning regulations to allow for mixed-use developments in strategic areas. This may involve updating the zoning map to allow Mixed-use zones in additional areas. Currently, Columbia's M-DT mixed use downtown form district, M-C mixed use – corridor district zones, and M-N mixed use – neighborhood districts are most closely aligned with the style of mixed-use development described here.

2. **Incentives for Development**: Offering incentives such as tax breaks, density bonuses, or streamlined permitting processes for developers who build mixed-use projects. These incentives can attract investment and encourage the development of integrated communities.
3. **Community Engagement**: Involving the community in the planning process to ensure mixed-use developments meet local needs and preferences. Public input can help identify the most suitable locations for mixed-use zones and ensure community buy-in.
4. **Infrastructure Support**: Investing in infrastructure improvements that support mixed-use developments, such as pedestrian pathways, bike lanes, and public transit enhancements. These investments can enhance connectivity and accessibility within mixed-use zones.

Transit-Oriented Development (TOD)

Transit-oriented development (TOD) is an urban planning strategy that focuses on creating compact, walkable communities centered around high-quality public transportation. Although the CATSO region currently has a bus network with a few lines, implementing TOD can still significantly reduce the need for extensive transportation infrastructure improvements.

Transit-oriented development prioritizes the placement of residential, commercial, and recreational facilities within proximity to public transit stations. In the case of CATSO, this means concentrating development around GO COMO bus stops and routes or potential GO COMO stops and routes. By making it more convenient for people to live, work, and shop near bus lines, TOD can increase bus ridership, reduce reliance on personal vehicles. Though of course bus routes can easily be changed, much more easily than fixed rail transit. But by developing TODs in along specific corridors, it increases the viability for the bus network to be maintained along that corridor. Increased transit use can decrease the need for expanding road networks and parking facilities.

By promoting a high-density, mixed-use environment around bus stops, TOD encourages residents to use public transportation for their daily needs. This can lead to a significant reduction in car trips, thereby lowering traffic volumes and reducing wear and tear on road infrastructure. With fewer cars on the road, there is less demand for road expansions and extensive maintenance, which helps to preserve existing transportation infrastructure.

TOD fosters the development of pedestrian-friendly environments. By designing neighborhoods that prioritize sidewalks, crosswalks, and safe pathways, TOD encourages walking and cycling as primary modes of transportation. Improved walkability reduces the need for extensive road improvements and can create a more sustainable, health-focused community. Investments in pedestrian infrastructure are typically less costly than major road projects and can yield high returns in terms of community health and quality of life.

One of the core principles of TOD is to use land more efficiently by concentrating development in areas that are well-served by public transit. This can prevent urban sprawl and the associated costs of extending infrastructure to outlying areas. By focusing growth in transit-rich areas, CATSO can reduce the need for new road construction and other infrastructure projects that are typically required to support dispersed, low-density development.

Transit-oriented development can boost local economies by attracting businesses and investments to transit hubs. Retail, office spaces, and services located near transit stations can benefit from increased foot traffic and accessibility.

This economic stimulation can generate additional tax revenues that can be reinvested into maintaining and improving existing infrastructure, rather than building new roads and facilities.

By reducing car dependency and promoting public transportation, TOD helps lower greenhouse gas emissions and pollution. This environmental benefit can lead to improved public health and reduced healthcare costs. Moreover, less pollution can contribute to lower maintenance costs for roads and other infrastructure, as pollutants can accelerate the deterioration of materials.

Implementation Steps for TOD in the CATSO Region

To implement TOD in the CATSO region effectively, several steps should be considered:

Policy and Zoning Adjustments

- **Amend Zoning Codes**: Update zoning codes to allow for higher density and mixed-use development around GO COMO bus stops. This may include rezoning areas to support residential, commercial, and recreational uses within close proximity to transit.
- **Incentivize TOD Projects**: Offer incentives such as tax abatements, grants, or density bonuses to developers who build TOD projects. These incentives can encourage the private sector to invest in transit-oriented communities.

Infrastructure Investments

- **Enhance Bus Infrastructure**: Invest in bus shelters, improved bus stops, and dedicated bus lanes to make the GO COMO bus network more efficient and appealing to riders.
- **Pedestrian and Bicycle Infrastructure**: Develop sidewalks, bike lanes, and pedestrian pathways that connect seamlessly to bus stops, making it easy and safe for residents to access public transit.

Community Engagement

- **Public Outreach**: Engage the community through public meetings, workshops, and surveys to gather input and build support for TOD initiatives. Highlight the benefits of TOD, such as reduced traffic congestion, improved air quality, and enhanced quality of life.
- **Education Campaigns**: Educate residents and businesses about the advantages of using public transit and the importance of TOD in creating sustainable, livable communities.

Collaboration with Transit Agencies

- **Coordination with GO COMO**: Work closely with GO COMO to align transit services with TOD plans. This may include adjusting bus routes, schedules, and services to better serve TOD areas and meet the needs of residents and businesses.

Trail-Oriented Development

Trail-oriented development (TrOD) is a strategic approach to urban planning that leverages the presence of multi-use trails to create vibrant, walkable, and bike-friendly communities. For the CATSO region, which has a fair amount of existing and planned trail networks, TrOD prioritizes the integration of residential, commercial, and recreational facilities within proximity to multi-use trails. By encouraging walking, cycling, and other forms of active transportation, TrOD reduces the reliance on personal vehicles. This decrease in car usage can lead to less traffic congestion and lower road maintenance costs, thereby reducing the need for extensive road infrastructure improvements.

TrOD encourages mixed-use developments that combine living, working, and leisure spaces in close proximity. This reduces the distance residents need to travel for daily activities, leading to fewer and shorter car trips. As a result, the overall demand for road infrastructure is lowered, allowing for more focused maintenance and optimization of current transportation systems.

Implementation Steps for TrOD in the CATSO Region

To implement TrOD effectively in the CATSO region, several key steps should be considered:

Policy and Zoning Adjustments

- **Amend Zoning Codes**: Update zoning regulations to encourage higher density and mixed-use development around existing and planned trail networks. This may involve creating specific TrOD zones that facilitate residential, commercial, and recreational uses near trails.
- **Incentivize TrOD Projects**: Provide incentives such as tax credits, grants, or expedited permitting for developers who invest in TrOD projects. These incentives can attract private investment and support the development of trail-oriented communities.

Infrastructure Investments

- **Enhance Trail Infrastructure**: Invest in the construction and maintenance of multi-use trails, ensuring they are safe, accessible, and well-connected to surrounding neighborhoods. This includes installing lighting, signage, and amenities such as benches and water stations.
- **Pedestrian and Bicycle Facilities**: Develop complementary infrastructure such as bike lanes, pedestrian pathways, and bike-sharing stations that connect to trail networks, making it easier for residents to access and use the trails.

Community Engagement

- **Public Outreach**: Engage the community through public meetings, workshops, and surveys to gather input and build support for TrOD initiatives. Highlight the benefits of TrOD, such as improved health, reduced transportation costs, and enhanced quality of life.
- **Education Campaigns**: Educate residents and businesses about the advantages of using trails for transportation and the importance of TrOD in creating sustainable, livable communities.

Collaboration with Stakeholders

- **Partnerships with Local Organizations**: Collaborate with local cycling and pedestrian advocacy groups, environmental organizations, and business associations to promote and implement TrOD. These partnerships can provide valuable support and resources.
- **Coordination with Transportation Agencies**: Work closely with transportation agencies to ensure that trail networks are integrated into broader transportation planning efforts. This may include aligning trail development with public transit routes and other transportation infrastructure.

Density Bonuses and Incentives

Density bonuses and incentives are urban planning tools that encourage developers to include community benefits in their projects, such as cycle tracks or trails, by offering increased development rights, such as higher building density or additional floor area.

Benefits of Density Bonuses and Incentives

One of the primary benefits of density bonuses is the ability to increase the supply of affordable housing near where multimodal transportation is strongest in the region. By allowing higher density development in these areas, municipalities can ensure that more residents have easy access to public transit options. This not only makes public transportation more viable but also reduces reliance on private vehicles. Affordable housing near GO COMO bus lines can also increase ridership, making the system more financially sustainable.

Public amenities are another benefit. Developers can be incentivized to include transportation-related public amenities, such as bus shelters, bike lanes, and pedestrian pathways, in their projects. These amenities enhance the usability and accessibility of public transportation systems, making it easier and more attractive for people to use these modes of transport.

Density bonuses can also promote sustainable development practices that benefit transportation infrastructure. Encouraging higher density in appropriate areas supports the efficient use of land and reduces urban sprawl, which in turn minimizes the need for extensive road networks and reduces the environmental impact of transportation. Sustainable development practices, such as green building certifications and energy-efficient designs, can further reduce the carbon footprint of transportation infrastructure.

Implementing Density Bonuses and Incentives in the CATSO Region

For the CATSO region, implementing density bonuses and incentives can be a strategic way to enhance transportation infrastructure. First, CATSO can identify areas within the region that would benefit most from higher density development, such as those with good access to GO COMO bus lines and existing infrastructure. By focusing on these areas, CATSO can maximize the positive impact on the transportation network.

Developing a clear policy framework is essential for the successful implementation of density bonuses and incentives. This framework should outline the types of public benefits that qualify for density bonuses and the specific incentives offered. For example, developers who include a certain percentage of affordable housing units or transportation-related public amenities in their projects could receive additional development rights. This approach ensures that the benefits align with CATSO's regional planning goals and objectives.

Engaging stakeholders is a crucial step in the planning process. Involving developers, community groups, and local government officials helps build consensus on the types of public benefits most needed and the appropriate level of density bonuses. Transparent guidelines for the application and approval process, including criteria for qualifying public benefits and compliance monitoring mechanisms, ensure that all parties understand the program and its requirements.

Providing technical assistance to developers can help them navigate the application process and understand the benefits of participating in the density bonus program. Workshops, informational materials, and one-on-one consultations can be valuable resources for developers, helping them incorporate transportation-related public benefits into their projects.

Monitoring and evaluation mechanisms are necessary to track the outcomes of density bonus projects. CATSO should assess whether the promised public benefits are being delivered and whether the program is meeting its transportation infrastructure goals. This ongoing evaluation helps identify areas for improvement and ensures the program's long-term success.

Potential Applications in the CATSO Region

In the CATSO region, density bonuses and incentives can be applied in various ways to enhance transportation infrastructure. For example, offering density bonuses for developments near bus line corridors can encourage the inclusion of features that support public transportation use, such as bus shelters and bike racks. This not only improves the infrastructure but also promotes a shift towards more sustainable transportation modes.

Incentivizing the development of mixed-use projects as described in the previous section that combine residential, commercial, and recreational spaces can create vibrant, walkable neighborhoods. These neighborhoods reduce the need for extensive road networks and promote the use of public transportation, walking, and biking. Additionally, green infrastructure elements, such as green roofs and rain gardens, can be encouraged through density bonuses, contributing to sustainable and resilient transportation infrastructure.

By strategically implementing density bonuses and incentives, CATSO can foster a more sustainable, equitable, and economically vibrant community. These tools offer a way to enhance transportation infrastructure, improve mobility, and create a higher quality of life for residents, aligning with CATSO's long-term planning objectives.

Parking Management

Parking management strategies are a set of policies and practices designed to maximize the efficiency and effectiveness of parking resources. These strategies aim to reduce traffic congestion, improve accessibility, and promote more sustainable transportation habits. By carefully managing parking supply and demand, the Columbia MPA can enhance mobility, reduce environmental impacts, and make better use of available space.

In the CATSO region, parking management strategies can be applied in various ways to improve transportation infrastructure. For example, demand-based parking pricing can be introduced in downtown Columbia and other high-traffic areas to manage parking demand and encourage the use of alternative transportation modes. This strategy can help reduce congestion and improve air quality in the city center.

Parking time limits and improved enforcement can be implemented in commercial districts to ensure that parking spaces are available for customers and short-term visitors. This approach can support local businesses by making it easier for customers to find parking and reducing the time spent searching for a spot.

Shared parking arrangements can be encouraged in areas with mixed-use developments, such as those near transit hubs or major employment centers. By making better use of existing parking facilities, CATSO can reduce the need for new parking construction and promote more efficient land use.

Investing in technology, such as real-time parking information systems and mobile payment platforms, can enhance the efficiency and convenience of parking management. These systems can provide drivers with accurate information on parking availability, reduce congestion caused by searching for parking, and streamline the payment process.

Chapter 10: 2055 Financial Plan

The Financial Plan outlines how the adopted transportation plan will be implemented. Together with the current Transportation Improvement Program, this section forms the Financial Plan for the MTP. The following paragraphs address the federal requirements relevant to developing this Financial Plan. It provides system-level cost estimates and identifies revenue sources that are reasonably expected to be available to support the operation and maintenance of Federal-Aid highways and public transit within the CATSO region over the 30-year planning horizon.

CATSO collaborates with public transit operators, the City of Columbia, Boone County, and MoDOT to develop cooperative funding estimates to support the MTP's implementation. All necessary public funding sources reasonably expected to support the MTP are identified here. CATSO has considered all proposed projects and strategies for funding under title 23 U.S.C., title 49 U.S.C. Chapter 53, other Federal funds, State aid, local sources, and private contributions. Where applicable, an inflation rate has been applied to revenue and cost estimates to reflect "year of expenditure dollars," based on information developed cooperatively by CATSO, MoDOT, member jurisdictions, and public transit operators. An illustrative list of non-fiscally constrained projects is also included, featuring categorized, prioritized projects with estimated cost ranges for which additional funding sources would need to be identified.

REGIONAL TRANSPORTATION PRIORITIES

The priorities and challenges in the Columbia MPA reflect ongoing trends. Meeting the need for a variety of transportation options for area residents remains a key focus. Public demand for non-motorized transportation options has increased in recent years, with federal funding through the Non-Motorized Pilot Project (locally known as GetAbout Columbia) supporting these initiatives. Although the Non-Motorized Pilot Project funding has now concluded, it enabled numerous pedestrian and bicycle transportation facility projects within the MPA. Maintaining, improving, and, where necessary, expanding the regional roadway network to support both motorized and non-motorized travel continues to be a financial and operational challenge.

The projects selected to implement the MTP contribute to achieving the plan goals, with a particular emphasis on Goals 1, 2, 3, 4, 7, and 8.

- **Goal 1:** the Columbia Metropolitan Planning Area (MPA) will have a first class street, highway and non-motorized network that meets the short and long-term needs of the area
- **Goal 2:** The MPA transportation system will integrate and connect all travel modes
- **Goal 3:** The public transportation system will be a viable transportation option throughout the MPA
- **Goal 4:** Long-range land use and transportation planning will be coordinated on a regional and local basis
- **Goal 7:** Provide safe and secure facilities and transportation infrastructure for residents, visitors and commerce in the Columbia MPA
- **Goal 8:** Reduce motor vehicle pollution/emissions by allowing opportunities for alternatives to internal combustion engine motor vehicle usage, both vehicular and non-motorized

CONSTRUCTION AND CAPITAL COSTS

The CATSO MRP identifies the major roadways in the MPA and assigns functional designations based on future needs and roadway function. Each roadway segment in the plan is evaluated and categorized as requiring new construction, a level

of service upgrade, or no change. The "new construction" designation applies to roadways that will be built on a new alignment, as a relocation, an extension of an existing facility, or a completely new roadway. For existing roadways, a "level of service upgrade" indicates that improvements, such as adding turn lanes or travel lanes, are planned. If a roadway already provides sufficient capacity to meet future needs, it is given the designation of "no change."

PROJECT SELECTION

Projects for funding and implementation are selected by the Missouri Department of Transportation (MoDOT), Boone County, the City of Columbia (including GoCOMO, the transit operator), and private transportation providers, in collaboration with the MPO.

Programs covered by the Coordinated Public Transit Human Services Transportation Plan are included here, though CATSO does not directly select these projects. Each public jurisdiction within the MPA—MoDOT, Boone County, and the City of Columbia—applies its own project selection and prioritization criteria. Projects are selected based on recommendations from staff and governing bodies, including the Missouri Highways and Transportation Commission, the Boone County Commission, and the Columbia City Council.

The City of Columbia's public involvement process for transportation capital improvement projects is extensive. More information is available at the link below: City of Columbia Public Involvement Process

COST ESTIMATES FOR TRANSPORTATION IMPROVEMENTS[62]

Cost estimates have been developed for all roadway, transit, pedestrian, and bicycle improvements included in the plan through the year 2054. These estimates are accompanied by revenue projections from various funding sources over the same period.

The estimates for new construction, reconstruction, and maintenance were provided by the Missouri Department of Transportation (MoDOT), Boone County Resource Management, and the City of Columbia Public Works Department. These estimates reflect the anticipated cost for projects in the region based on current economic conditions and trends.

The general cost factors for new construction are detailed in Table 10 - Estimated 2025 Roadway Costs Per Linear Food for New Construction. These estimates are primarily derived from data provided by the City of Columbia. However, cost estimation methodologies may vary for MoDOT and Boone County, reflecting regional differences in resource availability and labor costs.

[62] https://gocolumbiamo.legistar.com/View.ashx?M=F&ID=13242983&GUID=21DEE221-93B5-488C-9AC0-D8ADE7E55FA6

Table 10 - Estimated 2025 Roadway Costs Per Linear Food for New Construction	
Street Classification	**Estimated Cost Per Linear Foot**
Neighborhood Collector	$903.07
Major Collector	$1,081.60
Minor Arterial	$1,624.14
Major Arterial	$1,984.68

Note: The cost figures in the table were provided by the City of Columbia Public Works Department. This is a sample of street construction costs for a CATSO member. Columbia's Complete Streets policy is unique compared to other jurisdictions, meaning costs for similar street classifications in other areas may vary.

The cost factors considered in preparing these estimates include excavation and grading, utility contingencies, flexible base, surfacing, curb and gutter, drainage, engineering design, administration, inspection and testing, and basic site restoration. Additional costs for bridges, culverts, overpasses, and major intersections are included on individual roadways as needed.

All cost estimates were calculated in 2025 dollars, with a 3% annual inflation rate applied to base estimates initially developed using 2007 dollars/project costs. The cost of right-of-way (ROW) acquisition was also considered for each roadway. Land costs can vary widely due to factors such as existing land use, zoning, the desirability of the area, and the perceived potential for future development. When available, recent property sales were considered when estimating ROW costs.

Acquiring ROW to widen an existing roadway is almost always more expensive than constructing a new roadway through vacant land. Generally for new construction, approximately 5% of the required parcels will be dedicated at no cost, 80% will be purchased at their appraised value, and the remaining 15% may end up in condemnation proceedings, where the cost may exceed the appraised value.

FORECASTED REVENUE ESTIMATES

Revenue forecasts for future TIP funding were developed in consultation with key CATSO member departments, including the Boone County Auditor's Office, Boone County Public Works Department, City of Columbia Finance Department, City of Columbia Public Works Department, MoDOT Transportation Planning, as well as the plan's consultant team.

Federal Revenue

The FHWA and the FTA publish notices in the Federal Register that estimate federal fiscal year allocations by program year for each urbanized area. These estimates are used as the anticipated federal funding amounts. Assumptions about federal funding availability are based on MoDOT's projections for the state system. In Boone County, federal funding for projects is intermittent, and no assumptions are made regarding future federal funding availability. For other City of Columbia project categories using federal funds, such as Transportation Alternatives (TAP) and the Traffic Engineering

Assistance Program (TEAP), no specific future funding projections are made due to the lack of a fixed allocation and the competitive nature of these funding sources.

MoDOT combines FHWA and FTA funding estimates with state transportation revenue projections to estimate transportation funding, which is included in the Statewide Transportation Improvement Program (STIP). CATSO uses these projections to assess fiscal constraint relative to the projects programmed in the TIP.

CATSO is responsible for programming projects within the federal revenue categories of Off-System Bridge (BRO) and the Non-Motorized Pilot Program (GetAbout Columbia). Please note that all fiscal years in the revenue tables refer to the federal fiscal year, which runs from October 1 to September 30 annually.

Estimating revenues for long-term future years can be challenging due to potential changes in the economy, transportation legislation, and government priorities, all of which can impact funding levels. For Federal Highway Administration (FHWA) revenues in the out years (2030-2054), the planning team adopted a conservative approach. The yearly averages of federal funding received in each category during the four years of CATSO's current Transportation Improvement Program (TIP) cycle (2025-2028) were calculated. These averages were then projected as the annual revenue amounts for each year between 2030 and 2054.

For Federal Transit Administration (FTA) revenues, the projection was based on consistency in funding levels. Since the annual funding amounts for the years 2026-2028 remain constant, this same yearly amount was projected for each year from 2029 through 2054.

FHWA Revenues	2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	TOTAL
Regional Bridge - Boone County	$-	$-	$-	$-	$-	$-	$-	$-	**$-**
FHWA - City of Columbia	$2,130,800	$-	$-	$-	$-	$2,663,500	$5,327,000	$5,327,000	**$15,448,300**
Rail-Highway	$-	$-	$-	$-	$-	$-	$-	$-	**$-**
Transportation Alternatives (TAP)	$435,573	$402,908	$-	$-	$-	$1,048,101	$2,096,203	$2,096,203	**$6,078,987**
EV Related	$3,610,708	$-	$-	$-	$-	$4,513,385	$9,026,770	$9,026,770	**$26,177,633**
MoDOT STBG	$217,600	$3,639,000	$485,200	$-	$-	$5,427,250	$10,854,500	$10,854,500	**$31,478,050**
MoDOT Safety	$541,000	$58,000	$58,000	$-	$-	$821,250	$1,642,500	$1,642,500	**$4,763,250**
MoDOT NHFP (Freight)	$-	$-	$-	$-	$-	$-	$-	$-	**$-**
MoDOT NHPP	$13,280,800	$1,318,000	$-	$-	$-	$18,248,500	$36,497,000	$36,497,000	**$105,841,300**
FHWA Sub-Total	**$20,216,481**	**$5,417,908**	**$543,200**	**$-**	**$-**	**$32,721,986**	**$65,443,973**	**$65,443,973**	**$189,787,520**
FTA Revenues	**2025**	**2026**	**2027**	**2028**	**2029**	**2030-2034**	**2035-2044**	**2045-2054**	**TOTAL**
Section 5307 Operating	$4,600,000	$4,600,000	$4,600,000	$4,600,000	$4,600,000	$23,000,000	$46,000,000	$46,000,000	**$138,000,000**
Section 5307 Capital	$2,481,314	$0	$0	$0	$-	$-	$-	$-	**$2,481,314**

Section 5339 Capital	$4,295,083	$60,000	$60,000	$60,000	$60,000	$300,000	$600,000	$600,000	**$6,035,083**
Section 5310 Operating	$115,000	$140,000	$140,000	$140,000	$140,000	$700,000	$1,400,000	$1,400,000	**$4,175,000**
Section 5310 Capital	$163,063	$28,800	$28,800	$28,800	$28,800	$144,000	$288,000	$288,000	**$998,263**
Section 5311 Operating	$60,000	$60,000	$60,000	$60,000	$60,000	$300,000	$600,000	$600,000	**$1,800,000**
CARES Act Funding	$2,924,043	$0	$0	$0	$-	$-	$-	$-	**$2,924,043**
FTA Total	**$14,638,503**	**$4,888,800**	**$4,888,800**	**$4,888,800**	**$4,888,800**	**$24,444,000**	**$48,888,000**	**$48,888,000**	**$156,413,703**
Federal Totals	**$34,854,984**	**$10,306,708**	**$5,432,000**	**$4,888,800**	**$4,888,800**	**$57,165,986**	**$114,331,973**	**$114,331,973**	**$346,201,223**

State Revenue

State revenue comes through state projects which are sponsored by MoDOT. MoDOT's primary sources of state revenue for road maintenance include motor vehicle fuel taxes, licenses and fees, and 71% of the statewide motor vehicle sales tax. These revenue sources are expected to continue, though potentially at reduced funding levels, to support MoDOT's maintenance obligations within the CATSO MPA.

To estimate state revenue for the out years, the planning team applied a conservative approach. For maintenance, an annual inflation rate of 1.5% was assumed, and this rate was applied consistently each year from 2029 through 2054.

Estimating MoDOT construction revenues was more complex due to significant fluctuations in near-term projections. The planning team averaged the revenue amounts expected in 2027 and 2028—years with the lowest projections in the four-year TIP—and used this average as the annual amount for each year between 2029 and 2054.

For MoDOT scoping, only two years within the TIP had projected revenues. The planning team calculated an average of the revenues across the five years from 2025 to 2029 and used this value as the annual amount for each year between 2030 and 2054.

Rail-Highway funds were assumed to remain $0 annually.

Finally, since transit revenues were consistent during the four-year TIP, the same annual amount was projected for each year through 2054.

Revenue by Category	2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	Total
Maintenance (all MPA state system)	$2,413,357	$2,449,557	$2,486,301	$2,523,595	$2,561,449	$13,355,296	$29,664,050	$34,088,665	$89,542,270
MoDOT Construction	$37,365,400	$492,232,200	$9,801,800	$4,768,600	$7,285,000	$36,425,000	$72,850,000	$72,850,000	$733,578,000
MoDOT Scoping	$113,000	$159,000	$0	$0	$0	$272,000	$544,000	$544,000	$1,632,000
Rail- Highway	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transit	$125,500	$125,500	$125,500	$125,500	$125,500	$627,500	$1,255,000	$1,255,000	$3,765,000
TOTALS	**$40,017,257**	**$494,966,257**	**$12,413,601**	**$7,417,695**	**$9,971,949**	**$50,679,796**	**$104,313,050**	**$108,737,665**	**$828,517,270**

Local Revenue

Most local funding for transportation projects in the Columbia MPA comes from sales taxes. Boone County generates revenue from several sources, including a dedicated half-cent sales tax. This sales tax revenue partially replaces dedicated property tax revenue, which was reduced but not eliminated after voters approved the sales tax. Additionally, a portion of the sales tax is distributed to entities within the county, such as cities and special road districts. The net amount retained by Boone County is used for the maintenance and improvement of the county's roadway infrastructure. In 2017, voters renewed this sales tax, authorizing it through September 2028.

In addition to the half-cent sales tax, Boone County receives revenue from a reduced property tax levy (as noted above), the state fuel tax, motor vehicle licensing fees, and a portion of state sales taxes derived from vehicle sales. Some of Boone County's infrastructure assets lie within the CATSO area; therefore, the revenue amounts in the table below have been prorated. These figures are also adjusted to reflect distributions to other entities. Boone County also occasionally receives federal funding for bridge projects, although this is intermittent, and no such funding is currently shown in [Federal Funding Table].

The City of Columbia also has a dedicated half-cent transportation sales tax, which funds airport operations, transit system operations, street and sidewalk maintenance, and system improvements. This tax is permanent. In addition, the City has a quarter-cent capital improvement sales tax, used partly for street and sidewalk construction. Voters renewed this tax on August 6, 2024, for another 10 years.

Other revenue sources for transportation projects include development charges, user fees, special assessments, and the sale of general obligation bonds. Transportation development districts (TDDs) provide additional revenue for transportation projects but are not included in this discussion, as they are not administered by political jurisdictions within the CATSO MPA.

Revenue estimates in Table 11 - Boone County Transportation Revenues Summary are based on original projections from the Boone County Auditor's office through 2028 and by this plan's planning team through 2054. Estimates in Table 12 - City of Columbia Transportation Revenues Summary have been updated by the City of Columbia Finance Department through 2028 and by this plan's planning team through 2054. Table 11 and Table 12 summarize local tax revenue sources. For Boone County's half-cent sales tax and dedicated property tax, an annual inflation factor of 1.5% was generally applied. Boone County's gas tax, motor vehicle fees & sales tax were assumed to remain flat. For the City of Columbia's half-cent transportation sales tax, half-cent use tax, and quarter-cent capital improvement sales tax, and quarter-cent use tax, a 1.4% annual inflation factor was used. For the City's Gasoline Tax, Motor Vehicle Tax, and Public Improvement Fund/Development Fees a 1% annual inflation factor was used. Other revenue sources are projected to remain flat over the course of the MTP planning period.

Table 11 - Boone County Transportation Revenues Summary

	2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	Total
Boone County 1/2 cent sales tax	$4,258,068	$4,321,939	$4,386,768	$4,452,570	$4,519,359	$23,634,216	$52,889,235	$61,380,116	$159,842,270
Boone County dedicated property tax	$475,695	$485,209	$494,913	$504,811	$512,383	$2,679,534	$5,996,327	$6,958,983	$18,107,855
Boone County gas tax	$383,040	$383,040	$383,040	$383,040	$383,040	$1,915,200	$3,830,400	$3,830,400	$11,491,200
Boone County motor vehicle fees & sales tax	$143,460	$143,460	$143,460	$143,460	$143,460	$717,300	$1,434,600	$1,434,600	$4,303,800
Total Estimated Revenue (CATSO MPA Only)	**$5,260,263**	**$5,333,648**	**$5,408,181**	**$5,483,881**	**$5,558,242**	**$28,946,250**	**$64,150,562**	**$73,604,099**	**$193,745,125**

Table 12 - City of Columbia Transportation Revenues Summary

	2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	Total
City of Columbia 1/2 cent sales tax	$16,234,361	$16,470,075	$16,692,612	$16,936,035	$17,173,139	$89,540,085	$198,881,522	$228,546,189	$600,474,016
City of Columbia 1/2 cent use tax	$2,272,810	$2,305,811	$2,336,966	$2,371,045	$2,404,239	$12,535,612	$27,843,413	$31,996,466	$84,066,362
City of Columbia 1/4 cent sales tax	$8,117,180	$8,235,038	$8,346,306	$8,468,017	$8,586,570	$44,770,042	$99,440,761	$114,273,095	$300,237,008
City of Columbia 1/4 cent use tax	$1,136,405	$1,152,905	$1,168,483	$1,185,522	$1,202,120	$6,267,806	$13,921,707	$15,998,233	$42,033,181
City of Columbia Boone County Rebate Tax	$2,300,000	$2,300,000	$2,300,000	$2,300,000	$2,300,000	$11,500,000	$23,000,000	$23,000,000	$69,000,000
Public Imp. Fund (2% of 1% General sales tax)	$649,374	$658,803	$667,704	$677,441	$686,926	$3,581,603	$7,955,261	$9,141,848	$24,018,961
Public Imp. Fund (2% of 1% General use tax)	$90,912	$92,232	$93,479	$94,842	$96,170	$501,424	$1,113,737	$1,279,859	$3,362,654
Gasoline Tax (City)	$4,842,761	$4,891,188	$4,940,100	$4,989,501	$5,039,396	$25,963,046	$55,966,777	$61,822,140	$168,454,909
Motor Vehicle Tax (City)	$1,412,751	$1,426,878	$1,441,147	$1,455,559	$1,470,114	$7,574,051	$16,326,868	$18,035,020	$49,142,388
Public Improvement Fund/Dev. Fees	$909,722	$918,819	$928,007	$937,287	$946,660	$4,877,208	$10,513,467	$11,613,409	$31,644,581
TOTAL All City Revenue	**$37,966,277**	**$38,451,750**	**$38,914,804**	**$39,415,250**	**$39,905,334**	**$207,110,878**	**$454,963,512**	**$515,706,258**	**$1,372,434,062**

Total Revenue

Table 13, below, shows the total revenue for federal, state (MoDOT), Boone County, and City of Columbia sources during the planning period.

Table 13 - Summary of Forecasted Federal, State & Local Revenue

Anticipated Revenue Source	2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	Total
Federal	$34,854,984	$10,306,708	$5,432,000	$4,888,800	$4,888,800	$57,165,986	$114,331,973	$114,331,973	$55,482,492
State (MoDOT)	$40,017,257	$494,966,257	$12,413,601	$7,417,695	$9,971,949	$50,679,796	$104,313,050	$108,737,665	$554,814,810
Boone County	$5,260,263	$5,333,648	$5,408,181	$5,483,881	$5,558,242	$28,946,250	$64,150,562	$73,604,099	$21,485,973
City of Columbia	$37,966,277	$38,451,750	$38,914,804	$39,415,250	$39,905,334	$207,110,878	$454,963,512	$515,706,258	$140,680,918
TOTALS	$118,098,781	$549,058,363	$62,168,586	$57,205,626	$60,324,325	$343,902,909	$737,759,096	$812,379,994	$2,740,897,680

MAINTENANCE AND OPERATING COSTS

Ongoing maintenance of transportation infrastructure is crucial, as mandated by federal regulations, including SAFETEA-LU, MAP-21, and the IIJA. Estimates for maintenance through 2054 were accepted by MoDOT, Boone County, and the City of Columbia, based on the road classifications in the Metropolitan Planning Area (MPA).

The projected expenses for maintaining roadways and operating public transit services through 2054 are highlighted in Table 14 - Maintenance and Transit Operating Costs. These maintenance costs are calculated based on centerline miles of all public streets in the MPA.

Table 14 - Maintenance and Transit Operating Costs

Category	MoDOT	Boone Co	Columbia	Total	% of Total
Streets & Sidewalks	$81,817,293	$205,382,837	$289,836,186	$577,036,316	**69.6%**
Transit Operations	$790,625	NA	$251,137,509	$251,928,134	**30.4%**
Total	**$82,607,918**	**$205,382,837**	**$540,973,695**	**$828,964,450**	**100.0%**
Percent of Total	**10.0%**	**24.8%**	**65.3%**	**100.0%**	

Note: N/A = Not Applicable

Maintenance costs are projected to increase on a 3% annual inflation factor for all categories from 2025 through 2054. These costs include roadway maintenance across MoDOT, Boone County, and the City of Columbia.

Within the Columbia MPA, the major roadways are part of the federal-aid highway system. This system includes three parts as listed:

- The **Interstate Highway System** (**FAI** routes)
- The **Federal-aid primary highway system** (**FAP** system) is a system of connected main highways, selected by each state highway department subject to the approval of the Bureau of Public Roads. It encompasses routes of the Interstate System and other important routes serving essentially through traffic with their urban extensions, including important loops, belt highways, and spurs.
- The **Federal-aid secondary highway system** (**FAS** system) consists of the principal secondary and feeder routes including farm-to-market roads, rural mail and public school bus routes, local rural roads, county and township roads, roads of the county, road class, and their urban extensions. These roads are chosen by the state highway departments and appropriate local road officials cooperatively, subject to approval by the Bureau of Public Roads.

Maintenance and operations for only federal-aid public roadways in the CATSO MPA are accounted for Table 15 - Estimated Maintenance Costs for Federal-Aid Road Mileage in Columbia MPA. All jurisdictional maintenance costs per lane mile are updated figures for 2025. These figures were revised based on previous document numbers and an inflation factor applied. For MPA roadways that are not part of the federal-aid system, the maintenance cost per centerline mile is generally lower due to multiple factors, including lower traffic volumes.

A consistent 3% annual increase in maintenance costs from 2025 through 2054 for MoDOT, Boone County, and the City of Columbia.

Table 15 - Estimated Maintenance Costs for Federal-Aid Road Mileage in Columbia MPA (Lane Miles) for FY 2025-2054

Maintenance Costs	Federal-Aid Lane Miles	Cost Per Mile	2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	Total
State System - MoDOT	365.99	$6,299	$2,305,377	$2,374,539	$2,445,775	$2,519,148	$2,594,722	$14,189,006	$35,517,784	$47,732,932	**$109,679,283**
Boone County	35.128	$8,430	$296,112	$304,995	$314,145	$323,569	$333,276	$1,822,490	$4,562,040	$6,131,000	**$14,087,627**
City of Columbia	194.02	$7,536	$1,462,038	$1,505,899	$1,551,076	$1,597,609	$1,645,537	$8,998,472	$22,524,890	$30,271,568	**$69,557,090**
Total	*595.14*	--	*$4,063,527*	*$4,185,433*	*$4,310,996*	*$4,440,326*	*$4,573,536*	*$25,009,968*	*$62,604,714*	*$84,135,500*	*$193,324,000*

The lane per mile cost figures above could also be utilized to calculate the maintenance costs for all roadways maintained by the local jurisdictions within the MPA, beyond the federal aid system. The annual City of Columbia operations and maintenance costs depicted in **Table 16 - City of Columbia Roadway Network Funding Summary** is based on the cost of maintaining the entire roadway network under its jurisdiction, not just the federal-aid miles. Similarly, **Table 17 - Boone County Funding Summary - Roadway Network Projects (CATSO MPA)** illustrates the cost to Boone County of maintaining all streets under its jurisdiction within the Columbia MPA, not just federal-aid miles.

13B - Estimated Operations & Maintenance costs Assume a 3% growth rate each year. Funds Available for Capital Projects, Funds Available for Additional TIP Projects, and Funds Available for Additional TIP Projects assumes a 0.85% growth rate from 2028 to 2054.

Table 16 - City of Columbia Roadway Network Funding Summary

	2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	Total
Total Estimated Revenue (from Table 12)	$37,966,277	$38,451,750	$38,914,804	$39,415,250	$39,905,334	$207,110,878	$454,963,512	$515,706,258	$1,372,434,062
Estimated Operations & Maintenance Costs	$8,665,917	$8,925,895	$9,193,671	$9,469,481	$9,602,054	$52,507,966	$131,437,438	$176,640,926	$406,443,347
Transfers to Go COMO Operations/Maintenance	$4,600,000	$4,600,000	$4,600,000	$4,600,000	$4,600,000	$23,000,000	$46,000,000	$46,000,000	$138,000,000
Other Transfers to Go COMO for Project Match	$1,862,094	$0	$0	$0	$0	$0	$0	$0	$1,862,094
Funds Available for Capital Projects	$19,257,353	$21,469,573	$21,626,276	$21,810,657	$21,996,048	$112,816,722	$240,475,015	$261,715,224	$721,166,868
Local Share of TIP Projects with Federal Funds	$1,148,649	$151,712	$0	$0	$0	$0	$0	$0	$1,300,361
Funds Available for Additional TIP Projects	$18,108,704	$21,317,861	$21,626,276	$21,810,657	$21,996,048	$112,816,722	$240,475,015	$261,715,224	$719,866,507
Programmed Street Projects 100% City Funded	$7,218,828	$591,969	$0	$0	$0	$0	$0	$0	$7,810,797
Programmed Sidewalk Projects 100% City Funded	$500,000	$200,000	$0	$0	$0	$0	$0	$0	$700,000
Funds Available* for Additional TIP Projects	$10,389,876	$20,525,892	$21,626,276	$21,810,657	$21,996,048	$112,816,722	$240,475,015	$261,715,224	$711,355,710

Note 1: Additional funding for capital projects may be available from City of Columbia previous year allocations and reserve funds.
** Operations and maintenance for Go COMO will also be taken from funding balance (½ cent TST revenues) as is an annual capital projects amount. Go COMO also has additional funding sources not available for roadway projects.*

Table 17 - Boone County Funding Summary - Roadway Network Projects (CATSO MPA)

	2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	Total
Total Estimated Revenue (CATSO MPA only) (From Table 11)	$5,260,263	$5,333,648	$5,408,181	$5,483,881	$5,558,242	$28,946,250	$64,150,562	$73,604,099	$193,745,125
Estimated Operations & Maintenance Costs	$4,708,730	$4,849,992	$4,995,492	$5,145,356	$5,299,717	$28,981,023	$72,545,020	$97,494,441	$224,019,771
Funds Available for Capital Projects	$551,533	$483,656	$412,690	$338,525		$0	$0	$0	$1,786,404
Local Share of TIP Projects with Federal Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0
Funds Available for Local Projects	$551,533	$483,656	$412,690	$338,525		$0	$0	$0	$1,786,404

NOTE: Estimated O & M Costs shown are for *all* Boone County roadways within the CATSO MPA, not just federal aid system.

The City of Columbia and Boone County ½ cent sales taxes, plus additional City funding sources, produce adequate revenue that demonstrates that local jurisdictions within the CATSO MPA boundary are able to fund the local share of federally-funded projects programmed in the TIP as well as maintain the local roadway system, including the portions of the federal-aid system maintained by said jurisdictions, over the TIP horizon period.

FINANCIALLY CONSTRAINED IMPROVEMENTS

The absence of financial constraints in transportation planning can lead to the inclusion of projects and programs that are unrealistic or unjustified. A strategic approach to future transportation projects requires establishing priorities to allocate limited resources among competing needs. For the past 35 years, the CATSO Transportation Plan for the Columbia Area has focused on maintaining existing infrastructure, operating on the assumption that the necessary resources for system maintenance and expansion would be secured as needs arose.

The CATSO 2055 Metropolitan Transportation Plan emphasizes long-term solutions to current transportation needs while ensuring sufficient capacity for future growth. At the same time, it prioritizes preserving the existing transportation infrastructure. This approach is consistent with the policy framework outlined in the 2040 Plan. Funding for maintenance and planned investments is a key factor influencing decisions about the future of the MPA's transportation system. Prior to 1994, CATSO plans identified needs and proposed solutions without considering the ability of state or local governments to fund new projects or thoroughly examine costs.

In contrast, the CATSO 2055 Metropolitan Transportation Plan and the current Transportation Improvement Program (TIP) are authoritative statements of the region's transportation investment strategy. These plans are the product of careful planning and engineering assessments, and they are bound by financial constraints.

Fiscal Constraint: 2025-2029 – Transportation Improvement Program (TIP)

The TIP is a schedule of planned transportation improvements, or continuations of ongoing activities, covering a four-year period. It includes projects funded by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The Columbia Area Transportation Study Organization (CATSO), as the designated Metropolitan Planning Organization (MPO) for the Columbia metropolitan area, develops the TIP in collaboration with the Missouri Department of Transportation (MoDOT) and affected transit operators.

Under Code of Federal Regulations (CFR) Title 23, Section 450.326, the MPO is required to prepare a TIP for the metropolitan planning area.

The TIP must cover a minimum period of four years, be updated at least every four years, and receive approval from both the MPO and the Governor of Missouri. However, for the purpose of the MTP and per federal requirements, an additional year was examined, 2029, with a selection of illustrative projects (explained later). CATSO's policy is to update the TIP annually, unless circumstances suggest a less frequent schedule. Once approved, the TIP is incorporated by reference into Missouri's Statewide Transportation Improvement Program (STIP). It contains a priority list of projects to be carried out during each four-year period, organized by year, and includes a fiscally constrained financial plan to ensure the program's feasibility. The TIP is incorporated into the STIP through a MoDOT amendment that is reviewed and approved by FHWA and FTA (ONE DOT).

Table 18 - Total Revenue 2025-2029 (Derived from Table 13)

Anticipated Revenue Source	2025	2026	2027	2028	2029	Total
Federal	$34,854,984	$10,306,708	$5,432,000	$4,888,800	$4,888,800	**$60,371,292**
State (MoDOT)	$40,017,257	$494,966,257	$12,413,601	$7,417,695	$9,971,949	**$564,786,759**
Boone County	$5,260,263	$5,333,648	$5,408,181	$5,483,881	$5,558,242	**$27,044,215**
City of Columbia	$37,966,277	$38,451,750	$38,914,804	$39,415,250	$39,905,334	**$194,653,415**
TOTALS	**$118,098,781**	**$549,058,363**	**$62,168,586**	**$57,205,626**	**$60,324,325**	**$846,855,680**

Table 19 - Total Financial Summary (2025-2029)			
TIP Programmed Projects	**Federal $**	**Local $**	**Total $**
Capital Projects			
MoDOT Roadways	$19,596,800	$543,913,200	**$563,510,000**
MoDOT Scoping	$0	$280,800	**$280,800**
Boone County	$0	$0	**$0**
Columbia Streets	$2,130,800	$8,343,497	**$10,474,297**
Columbia Sidewalks	$838,481	$1,097,684	**$1,936,165**
Rail-Highway	$0	$0	**$0**
Parking	$3,610,708	$902,677	**$4,513,385**
Transit	$29,304,903	$22,081,014	**$51,385,917**
Total Capital Project Funding	$55,481,692	$576,618,872	**$632,100,564**
Total Maintenance (Fed-aid system)	$0	$21,573,818	**$21,573,818**
Total Programmed	$55,481,692	$598,192,690	**$653,674,382**
Total Revenue	$60,371,292	$786,484,388	**$846,855,680**
Funds Remaining*	**$4,889,600**	**$188,291,698**	**$193,181,298**

**Note: the remaining local funds are used for a variety of other transportation related responsibilities which the City and County must meet. This is primarily maintenance and related expenses for the existing roadway system.*

Given current projects programmed in the TIP and the amount of local and federal funding expected to be received by CATSO for projects between 2025 and 2029, the program is currently constrained with $193,181,298 in remaining funds for additional projects to be programmed.

Long Range Projects: 2030-2054 – Out Years

The following section outlines a mix of fiscally constrained and illustrative projects. While no specific funding sources have been secured for many of these projects, the MTP assumes that anticipated revenues over the plan's timeframe will be sufficient to cover the costs. The illustrative projects, which are not yet funded, provide a vision for potential future improvements that could be pursued if additional resources become available.

The "Ballot Measure Projects" list includes transportation investments expected to be funded by the extension of Columbia's 1/4-cent capital improvements sales tax, potentially supplemented by other funding sources. Meanwhile, the "Illustrative Projects" section highlights additional opportunities to address identified transportation needs, offering a framework for prioritizing future investments as resources allow. Together, these projects represent a strategic approach to meeting both current and long-term transportation goals within the planning area.

Ballot Measure Projects

Below is a list of 14 "ballot measure projects" anticipated to be funded with the extension of the City of Columbia's 1/4-cent capital improvements sales tax. These projects, outlined in a recent ballot measure, are expected to be completed using local funding sources, potentially supplemented by additional revenue streams beyond the sales tax. Currently it is expected that these projects will be completed before 2035.

Table 20 - Ballot Projects

Project	Termini	Description	Estimated Total Cost

Clark Lane Improvements	Woodland Springs to Ballenger Lane	• Widen the road:
		  ○ center turn lane
		  ○ bike lanes
		  ○ curb and gutter
		• Sidewalks
		• Stormwater improvements
		• Asphalt overlay
			$7,300,000

State Farm Parkway and Nifong Intersection	Intersection Improvements	• Replace 1-way stop (3 legs) with roundabout • Sidewalks • Stormwater and lighting improvements	$1,100,000

New Haven Road Improvements	Warren Drive to Rolling Hills Road	• Widen road
		  ○ center turn lane
		  ○ bike lanes
		  ○ curb and gutter
		• Sidewalks
		• Stormwater improvements
		• Asphalt overlay
			$6,900,000

Nifong Boulevard Improvements	Willowcreek Lane to Old Mill Creek Road	• Widen road:
		  ○ additional driving lanes
		  ○ bike lanes
		  ○ curb and gutter
		• Widen roundabouts to double lanes
		• Sidewalks
		• Stormwater improvements
		• Asphalt overlay
			$6,500,000

St. Charles Road Improvements	Keene Street to Richland Road	• Widen road
		  ○ center turn lane
		  ○ bike lanes
		  ○ curb and gutter
		• Intersection improvements
		• Sidewalks
		• Stormwater improvements
		• Asphalt overlay
			$9,800,000

Blue Ridge Road and Providence Road	Intersection Improvements	• Replace the 4-way stop with roundabout • Sidewalks • Stormwater and lighting improvements	**$1,000,000**

St. Charles Road Improvements	Keene Street to Richland Road	• Widen road
		  ○ center turn lane
		  ○ bike lanes
		  ○ curb and gutter
		• Intersection improvements
		• Sidewalks
		• Stormwater improvements
		• Asphalt overlay
			$9,800,000

Discovery Parkway and New Haven Road	Intersection Improvements	• Replace the 4-way stop with a roundabout • Sidewalks • Stormwater and lighting improvements	**$1,200,000**

Richland Road Improvements	St. Charles Road to Grace Lane	• Widen road
		  ○ turn lane
		  ○ bike lanes
		  ○ curb and gutter
		• Sidewalks
		• Stormwater improvements
		• Asphalt overlay
			$4,800,000

Ballenger Lane and Rice Road	Intersection Improvements	• Replace the 2-way stop with a roundabout • Sidewalks • Stormwater and lighting improvements	**$1,000,000**
Bethel Road and Green Meadows Road	Intersection Improvements	• Replace the 4-way stop with a roundabout • Sidewalks • Stormwater and lighting improvements	**$1,1000,000**
Rice Road Improvements	Hanover Boulevard to Ballenger Lane	• Curb and gutter • Sidewalks • Stormwater improvements	**$3,200,000**
Fairview Road and Worley Street	Intersection Improvements	• Replace 2-way stop (offset roads) with a roundabout, realignment • Sidewalks • Stormwater and lighting improvements	**$1,500,000**

Sinclair Road Improvements	Nifong Boulevard to South 9,000 Feet	• Widen road:
		  ○ center turn lane
		  ○ bike lanes
		  ○ curb and gutter
		• Intersection improvements
		• Sidewalks
		• Stormwater improvements
		• Asphalt overlay
			$12,100,000

Total:			**$77,200,000**

Illustrative Projects

The financial plan includes illustrative projects, which represent potential additional improvements that could be undertaken if more resources became available. These projects are not currently funded but are included to showcase opportunities for addressing identified needs and priorities beyond the fiscally constrained plan. In the context of a Metropolitan Transportation Plan (MTP), illustrative projects highlight future possibilities and help guide decision-makers in prioritizing investments should additional funding be secured.

Some projects on the illustrative list include cost estimates or ranges, providing a sense of the scale of investment required. The development of this list began with 66 potential projects, out of which 18 were analyzed in detail using the Highway Safety Manual (HSM) to evaluate their safety benefits and feasibility. After discussions with the City Council, four projects that were studied did not make the final ballot for inclusion in the fiscally constrained project list. This process ensures transparency and helps maintain a clear distinction between funded commitments and aspirational improvements, fostering strategic planning and alignment with long-term transportation goals.

Illustrative Projects	
Project Description	**Cost**
Broadway Extension – current terminus to Route UU	$54 million
Scott Blvd extension and I-70 interchange	$81 million
Rock Quarry Road - Grindstone Parkway to Stadium Boulevard	$13.4 million
Creasy Springs Road - Bear Creek to Blue Ridge Road	$13.8 million
Sinclair Road - Route K to north 6,700 feet	$7.7 million
Waco Road - Brown Station Road to Oakland Gravel Road	$2.2 million
Rock Quarry Road - Grindstone Parkway to Stadium Boulevard	$13.4 million
Creasy Springs Road - Bear Creek to Blue Ridge Road	$13.8 million
Sinclair Road - Route K to north 6,700 feet	$7.7 million
Waco Road - Brown Station Road to Oakland Gravel Road	$2.2 million
Old Mill Creek Road/Route KK (Vawter School Road to Scott Blvd)	$8.7 million
Highway 63 & Broadway Overpass	$18 million
Keene Street & St. Charles Road Intersection	$1.5 million
New Haven Road (Lemone Industrial Blvd to Warren Drive)	$3.1 million
Scott Blvd & I-70 Interchange	$91.5 million
740 Corridor/Stadium Blvd Extension to I-70	$47.8 million
Ballenger Lane Overpass (Clark Lane to Richland Road)	$40.8 million
Grace Lane (Richland Road to St. Charles Road)	$14.1 million
Oakland Gravel Road/Holly Ave Extension to Route B	$816k
Gans Road (Highway 63 to Bearfield Road)	$8.1 million
Gans Road/Bearfield Road Extension to Highway 163	$14.5 million
Business Loop 70	$25 million
North Downtown Sidewalks and Bike Boulevards Connection	$1.25 million
Forum Blvd (Stadium Blvd to Mills Drive)	$6 million
Total:	**$456.4 million**

TRANSIT FINANCIAL SUMMARY

Table 21 below outlines the projected financial summary for transit services within the Metropolitan Planning Area, encompassing agencies such as Go COMO, OATS, Inc., and ACT. The forecasted revenues are categorized by funding sources, including federal, state, local, and other contributions, spanning from 2025 to 2054. While federal funding availability is contingent on Congressional appropriations and Federal Transit Administration (FTA) approval processes, this summary demonstrates the anticipated financial framework necessary to sustain and enhance transit operations and capital projects over the long term. This comprehensive outlook underscores the region's commitment to supporting accessible and efficient transit systems while leveraging diverse funding streams to meet evolving transportation needs.

Table 21 - Transit Financial Summary

Agencies		2025	2026	2027	2028	2029	2030-2034	2035-2044	2045-2054	TOTALS
Go COMO; OATS, Inc.; ACT	Federal	$14,638,503	$4,888,800	$4,888,800	$4,888,800	$4,888,800	$24,444,000	$48,888,000	$48,888,000	**$156,413,703**
	State	$128,500	$128,500	$128,500	$128,500	$128,500	$642,500	$1,285,000	$1,285,000	**$3,855,000**
	Local	$6,484,294	$4,622,200	$4,622,200	$4,622,200	$4,622,200	$23,111,000	$46,222,000	$46,222,000	**$140,528,094**
	Other	$285,280	$310,280	$310,280	$310,280	$310,280	$1,551,400	$3,102,800	$3,102,800	**$9,283,400**
	Total	**$21,536,577**	**$9,949,780**	**$9,949,780**	**$9,949,780**	**$9,949,780**	**$49,748,900**	**$99,497,800**	**$99,497,800**	**$310,080,197**
Note: FTA capital funding availability is subject to Congressional action or selection as part of the FTA rating process Note: Total FTA funding by year/category is as follows:										
Federal Funding by Category		**2025**	**2026**	**2027**	**2028**	**2029**	**2030-2034**	**2035-2044**	**2045-2054**	**TOTAL**
Section 5307 Operating		$4,600,000	$4,600,000	$4,600,000	$4,600,000	$4,600,000	$23,000,000	$46,000,000	$46,000,000	**$138,000,000**
Section 5307 Capital		$2,481,314	$0	$0	$0	$-	$-	$-	$-	**$2,481,314**
Section 5339 Capital		$4,295,083	$60,000	$60,000	$60,000	$60,000	$300,000	$600,000	$600,000	**$6,035,083**
Section 5310 Operating		$115,000	$140,000	$140,000	$140,000	$140,000	$700,000	$1,400,000	$1,400,000	**$4,175,000**
Section 5310 Capital		$163,063	$28,800	$28,800	$28,800	$28,800	$144,000	$288,000	$288,000	**$998,263**
Section 5311 Operating		$60,000	$60,000	$60,000	$60,000	$60,000	$300,000	$600,000	$600,000	**$1,800,000**
CARES Act Funding		$2,924,043	$0	$0	$0	$-	$-	$-	$-	**$2,924,043**
Total		**$14,638,503**	**$4,888,800**	**$4,888,800**	**$4,888,800**	**$4,888,800**	**$24,444,000**	**$48,888,000**	**$48,888,000**	$156,413,703

Chapter 11: Plan Outcomes and Community Impacts

This chapter reviews the local tools required or recommended to implement the provisions outlined in the Infrastructure Investment and Jobs Act (IIJA), continuing key elements from prior legislation, including the Fixing America's Surface Transportation (FAST) Act. A critical aspect of the IIJA is the emphasis on performance-based planning, a framework first introduced in the Moving Ahead for Progress in the 21st Century Act (MAP-21) and carried forward through subsequent legislation. The performance measurement component in the IIJA aims to enhance the effectiveness of federal transportation investments by aligning them with national transportation goals, increasing accountability and transparency, and improving decision-making through data-driven processes.

At the local level, performance tracking enables CATSO to monitor the effectiveness of the transportation system within the MPA. This monitoring informs future updates to the MTP, measures progress towards achieving MTP goals and objectives and keeps the public and partner agencies informed of key performance metrics. Additionally, this chapter outlines the impact of local policies on the transportation system and in turn the transportation system's impact on Safety, Mult modalism, Fostering Economic Development, Improving Energy Efficiency, and Transportation Equity

Boone County and the City of Columbia are responsible for maintaining their respective roadways and regulating development. Local zoning and subdivision ordinances govern land use and development, helping to achieve a balance between land use and transportation needs. The policies and recommendations in this section serve as a resource for future action, with many drawn from related land use and transportation plans within the MPA, such as the *Imagine Columbia's Future* visioning process and *Columbia Imagined*.

The goals and objectives presented in Chapter 7 form the foundation of this plan, and the policies here provide additional guidance for the performance measures used to assess the MTP's progress. Section 10.11 introduces a preliminary prioritization process for regional projects, focusing on how well these projects align with the goals and objectives of the 2050 MTP.

SOCIAL IMPACTS, QUALITY OF LIFE AND LIVABILITY

Quality of life and livability for residents are significantly enhanced by transportation options, attractive and complete streets, and reduced congestion. The MTP plays a critical role in recommending policies to improve these aspects by enhancing the effectiveness and aesthetics of the transportation system. It aims to improve the connectivity and accessibility of streets, pedestrian, and bicycle networks, promote urban density and efficient development patterns, and increase the efficiency and convenience of the public transit system.

The 2055 Transportation Plan continues to recommend gradual changes in both personal transportation habits and public policy within the Columbia MPA. The likelihood remains that the single-occupancy vehicle will continue to be the predominant mode of transportation for residents. While the plan maintains a focus on providing facilities for motor vehicles, it also emphasizes the importance of supporting other modes, such as transit, bicycling, and walking (Goal 2).

Expanding transportation choices is influenced by a variety of factors, including availability, access, ease of use, cost, quality, infrastructure, and supporting facilities. The CATSO MPA has seen small but meaningful increases in multi-modal

use due to local, regional, and federal policies, as well as broader trends. However, the social impacts of a land use pattern centered around private vehicles have been the subject of much debate and research. The street system is generally designed for traffic flow and vehicle mobility, not for promoting social interaction among community members. Occupants of individual vehicles have no direct interaction with others outside their own vehicle, and the prevalence of single-occupancy trips further isolates individuals within the transportation system.

While this system may benefit those seeking privacy, it disadvantages residents who prefer a more social experience. The focus on automobiles also puts non-motorized road users at a disadvantage, as streets often prioritize vehicles and lack adequate accommodations for pedestrians and bicyclists. Residential neighborhoods developed since the 1950s are typically designed for car access and traffic flow rather than pedestrian access and interaction, negatively affecting socialization among neighbors.

More positive social impacts can be achieved through land use configurations that support transportation options fostering social interaction and interpersonal contact. The establishment of a more compact development pattern (Goal 5) provides opportunities for mobility without the need for a vehicle, giving individuals greater transportation choices (Goal 2). A more compact land use structure also supports the city bus system by providing the population density necessary for efficient transit operations.

The continued operation of the bus system has major social benefits. It provides mobility for transit-dependent populations, including physically handicapped individuals and those unable to afford a car, enabling them to get to work and meet personal needs (Goal 3). It also offers an option for those who prefer public transit over driving. These elements are reflected in the most recent citywide comprehensive plan, *Columbia Imagined: The Plan for How We Live and Grow,* which calls for mixed-use, walkable neighborhoods with multi-modal access to services, community amenities, and improvements in public transit.

> *"An important element of a complete neighborhood is its construction at a walkable and bikeable human scale that meets the needs of people of all ages and abilities. Walkable, bikeable neighborhoods also encourage healthy lifestyles for community members... This policy will positively impact public transportation services by encouraging high-density residential and commercial development along major road corridors that are easily served by transit, thus reducing reliance on automobiles for accessing basic services*
>
> ...
>
> *Encouraging compact development near transit corridors and commercial hubs supports the feasibility of transit service. As the city grows and these areas become more established, public transit routes may be added to better serve them and enhance employment and living opportunities."*
>
> *— Chapter 4, Columbia Imagined (2013)*

On a larger geographic scale, roadways connect places and can foster social interaction between neighborhoods and activity centers, such as employment and shopping districts, schools, and parks.

FOSTERING ECONOMIC DEVELOPMENT

Major Roadway Plan

> *"A network of safe roadways in and around the city will provide sustainable, efficient mobility for vehicular travel and other modes in a complementary manner."*
>
> *— Goal, Transportation Citizen Topic Group, Imagine Columbia's Future (2007)*

A significant economic impact of the CATSO Major Roadway Plan (MRP) will come from both its construction and, even more so, its ongoing maintenance. Numerous jobs will be created through the street construction projects needed to build and maintain the network outlined in the roadway plan. Most new street construction and reconstruction projects are contracted out by the city and state, providing work to private construction companies. This, in turn, benefits the local economy, particularly contractors and their suppliers. The employment generated by these projects will have a multiplier effect, as money spent by project workers at local businesses will sustain or create additional jobs.

A well-maintained road system also saves individual motorists from incurring additional costs for vehicle maintenance and repairs that would otherwise result from driving on poorly maintained roads. Furthermore, the relationship between the transportation network, economic development, and land use is described in *Imagine Columbia's Future*:

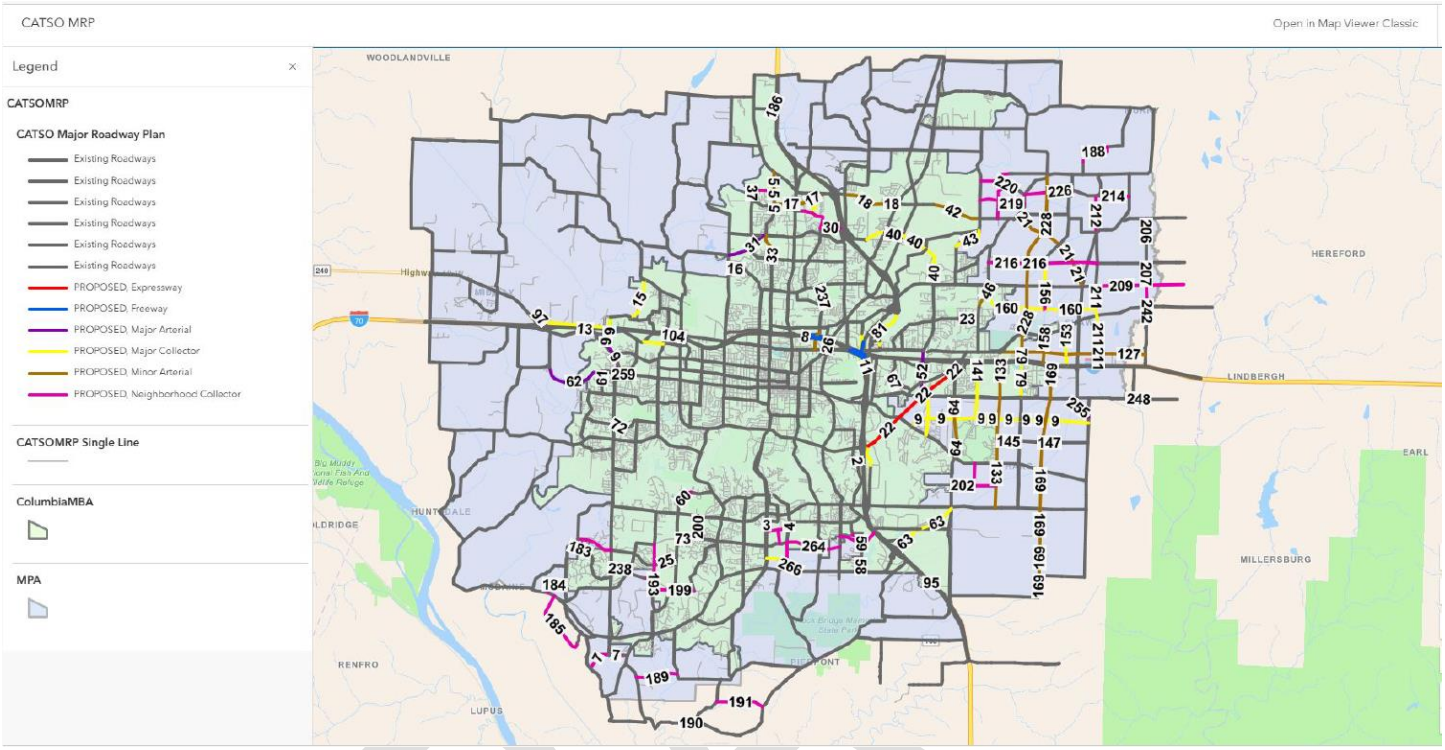
> *"The city's land use pattern is not only influenced by zoning and annexation policy, but also by roadway and utility corridors, utility service areas, and other environmental factors. The construction, availability, and placement of these features all influence development patterns within and around Columbia... An example of how transportation infrastructure has influenced land use can be seen along the Old Nifong Boulevard corridor. After the construction of Grindstone Parkway, commercial development replaced the existing agricultural and low-density residential uses. The installation of this four-lane divided roadway improved accessibility to an area previously lacking in infrastructure, creating opportunities for business growth."*

One of the strategies developed by the Transportation Citizen Topic Group during *Imagine Columbia's Future* was to "Develop and adopt a clear area-wide Major Roadway Plan (MRP) that carries the commitment of the City and County." The recent efforts by the City and County to integrate the MRP more promptly into their comprehensive plans represent progress. The next critical step is to collaborate with other regional economic development and growth drivers (Goal 4).

The development of the Major Roadway Plan, achieved through regional cooperation between MoDOT, the City of Columbia, and Boone County, aligns with a key economic development policy expressed in *Columbia Imagined*:

> *"Policy One: Foster opportunities for economic growth partnerships. Promote cooperation with the multi-jurisdictional political system to minimize cost, maximize efficiency, and ensure adequate support of community services that benefit all citizens."*
>
> *— Economic Development, *Columbia Imagined* (2013), Inter-Governmental Cooperation Goal, Policy 1, Strategy 1.*

The action items identified in *Columbia Imagined* for this policy and strategy also involve other bodies, such as Columbia Public Schools and the University of Missouri. Increased cooperation within the larger transportation system will yield positive economic and growth management benefits.



Bicycle and Pedestrian Elements

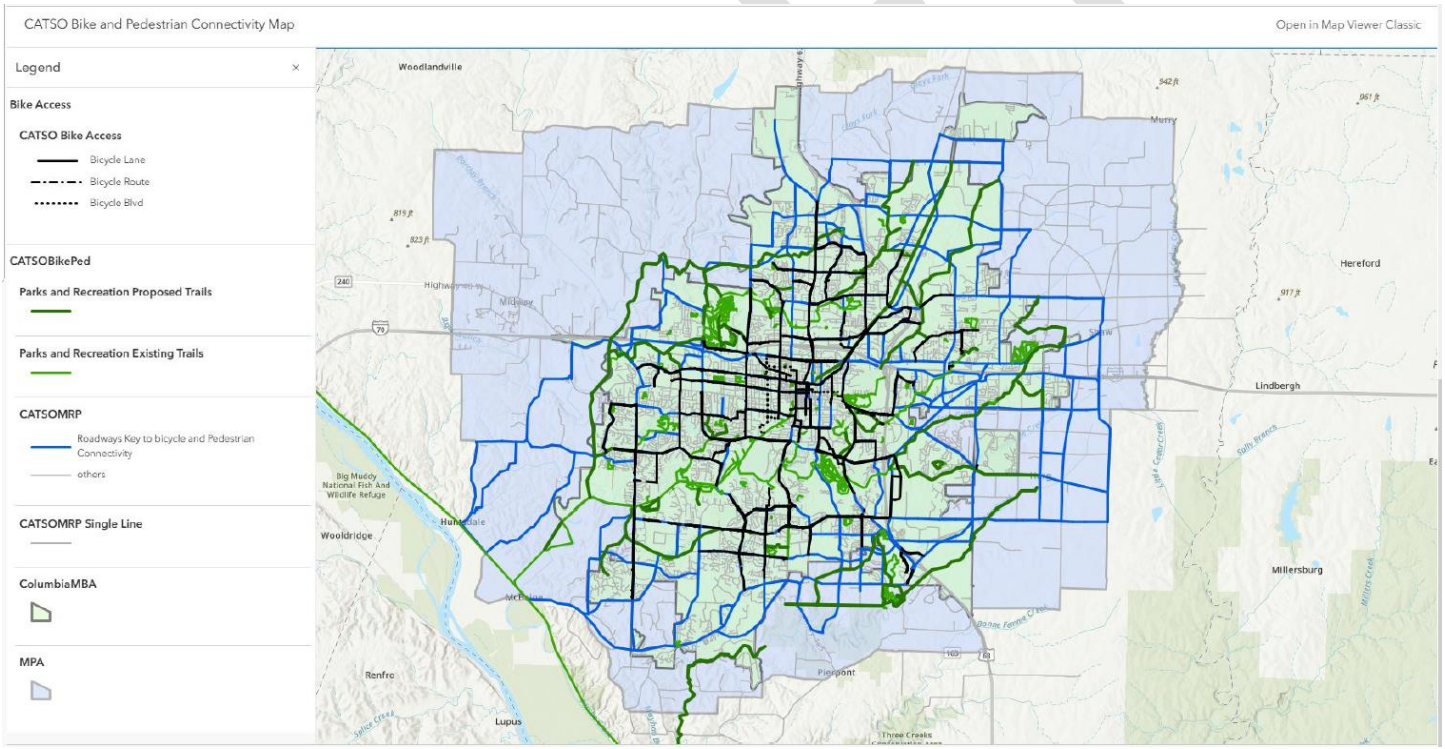
> *"Columbia will enjoy a safe, interconnected, non-motorized transportation network. This network will be culturally supported by citizens, encouraging social interaction and healthy lifestyles. The roadway, sidewalk, public transit, and trail systems will all integrate into an effective, cohesive transportation network."*
>
> *— Goal, Transportation Citizen Topic Group, Imagine Columbia's Future (2007)*
>
> *"It is important that residents have diverse transportation options. Allowing residents to travel by means other than an automobile may lessen the effects of traffic, such as noise, congestion, and air pollution, on both the built and natural environments. The City should identify corridors significant not only for motorized transportation but also for non-motorized transportation improvements and collaborate with developers and landowners to set aside or acquire areas for such use. Enhancing the multi-use trail network will connect neighborhoods, support future growth, and help achieve environmental goals."*
>
> *— Land Use Policy 1: Mobility, Connectivity, and Accessibility, Chapter 4, Columbia Imagined (2013)*

The economic and social impacts of implementing the bicycle and pedestrian elements of this plan will be significant, as highlighted in the Bicycle and Pedestrian Network Plan and the Sidewalk Master Plan. Additional contracting jobs will emerge from the construction of new sidewalks and bike routes, with many integrated into street projects. Including these

non-motorized elements will increase overall project costs and time, but the investment will yield substantial returns in the form of a more connected and accessible transportation system.

Importantly, expanding bicycling infrastructure will provide greater mobility options for those without consistent access to a car, or who are unable to drive. For individuals who rely on alternative modes of transport—such as students, low-income residents, or those with physical limitations—well-maintained bike routes and pedestrian pathways will offer a reliable, affordable means of getting to work, school, shopping centers, and other essential services. This increased accessibility can lead to greater economic opportunities, reduced transportation costs, and more independence for individuals who might otherwise be limited by their reliance on motor vehicles. Encouraging a shift from cars to bikes and walking for short trips will not only save residents money on gas and vehicle maintenance but also contribute to the broader goals of reducing traffic congestion and improving public health.

In the long term, decreased annual mileage on household vehicles may allow families to hold on to cars for longer, reducing the need for frequent vehicle purchases and freeing up income for other priorities. Additionally, those who integrate more walking and cycling into their routines may experience health improvements, which could lead to lower medical costs.



Transit Element

> *"An efficient, innovative, accessible public and human services transportation system will be fully integrated with all other forms of transportation in Columbia and surrounding communities. It will be possible for all residents to live easily in Columbia without a vehicle."*
>
> *— Goal, Transportation Citizen Topic Group, Imagine Columbia's Future (2007)*

The public transit element of this plan, supported by Goal 3, carries significant economic benefits by providing mobility to individuals who lack access to private vehicles and those who prefer having broader mobility options. For lower-income residents, public transit is a crucial lifeline that enables them to secure and maintain employment, as well as access essential services like shopping, medical appointments, and other daily needs. Without reliable transit, many of these individuals would be unable to reach their jobs, which limits their ability to contribute to the local economy. By ensuring they can access employment opportunities, the community benefits through increased self-sufficiency, higher local spending, and overall economic growth. This underscores the vital role that transit plays in supporting economic mobility and reducing income inequality.

One of the key strategies recommended by the Transportation Citizen Topic Group in *Imagine Columbia's Future* is to expand the public transit system by identifying and addressing gaps in service. This includes extending service hours, increasing frequency, and expanding coverage across the city. These improvements would ensure that even more residents, especially those in underserved areas, can access reliable transportation, thereby enhancing their ability to participate fully in the workforce and in community life.

The goals, policies, and strategies laid out in *Imagine Columbia's Future* have been further supported by *Columbia Imagined*, which outlines specific action items to improve and expand public transit. As the city works toward a more integrated and accessible transportation network, these efforts will continue to provide substantial economic and social benefits, particularly for those without private vehicles. Expanding transit services not only connects residents to job opportunities but also fosters a more inclusive and equitable community where everyone can thrive, regardless of their access to personal transportation.

IMPROVING ENERGY EFFICIENCY

Most trips to work in the CATSO MPA, 86%, are made by private motor vehicles. Of these, approximately 77% are single-occupancy trips[63]. These percentages have remained stable over the past 10 years - 90.2% and 77% respectively. This continued reliance on single-occupancy vehicles consumes significantly more energy compared to other modes of travel, as it requires additional street mileage, wider pavements, parking facilities, and other infrastructure to accommodate vehicles that frequently transport just one person. The energy cost of maintaining and expanding this infrastructure is substantial. The 2055 Plan, while anticipating continued construction of new collector and arterial streets to support growing development, also prioritizes strategies to reduce vehicle miles traveled (VMT) and shift residents toward more energy-efficient modes of transportation.

One of the core strategies to achieve energy reduction is the expansion of non-motorized travel options. The plan aims to increase the share of trips made by bicycling and walking, both of which are highly energy-efficient. Providing a more extensive and convenient network of bicycle routes across Columbia is a key part of this effort. These routes will give residents better access to areas that have traditionally been inconvenient for bicycle travel. Encouraging more people to bike—both for commuting and other daily trips—could decrease local gasoline consumption and slow the rate of increase in fuel use. According to 2018-2022 American Community Survey data, only 0.8% of workers commute by bicycle in Columbia, but expanding and improving cycling infrastructure can significantly boost that number, leading to direct energy savings.

[63] American Community Survey - Commuting Characteristics 2023

Similarly, the plan emphasizes improving pedestrian facilities, recognizing that walking is the second most common mode of travel among Columbia residents, accounting for 4.2% of work trips. Pedestrian travel requires no energy beyond human effort and thus offers substantial energy savings compared to motorized transport. By enhancing sidewalks, improving pedestrian access to all parts of the city, and eliminating barriers to walking, the 2055 Plan aims to make walking a more viable and appealing option for daily travel. This, in turn, could help reduce vehicle dependence, conserving energy and contributing to a more sustainable transportation system.

Public transit also plays a crucial role in reducing energy consumption. The Go COMO bus system offers a low-energy alternative to private vehicle use. Although currently less than 1% of work trips are made by bus, the 2055 Plan supports expanding bus service to increase ridership. Public transit is much more energy-efficient per passenger mile compared to single-occupancy vehicle trips, especially when buses operate at higher capacity. Encouraging more residents to switch to transit, particularly through improved service coverage and frequency, could significantly lower the energy consumption associated with transportation in Columbia. The plan also supports regional transit options, such as the implementation of a regional transit authority, as discussed in Chapter 7, which would further reduce the number of single-occupancy vehicles on the road.

The 2055 Plan acknowledges the energy demands of a growing population and seeks to manage these demands by promoting compact and infill development, which can reduce the need for additional road infrastructure and shorten trip distances. By encouraging more energy-efficient modes of transportation—walking, bicycling, and public transit—the plan aims to reduce the overall energy footprint of Columbia's transportation network.

ENVIRONMENTAL IMPACTS AND RESILIENCY

Driven by concerns about public health, air quality, congestion, and the long-term sustainability of fossil fuels, this plan prioritizes non-motorized modes of transportation.

Currently, the transportation system in the Columbia MPA is largely designed for individual motor vehicles, with about 77% % of vehicles carrying a single occupant, according to 2018-2022 ACS data. Including carpooling, 86.0% of the workforce commuted using private motor vehicles. This reliance on personal vehicles contributes to various environmental problems, with air pollution from vehicle exhaust being one of the most cited. Other issues include traffic noise, which can degrade the quality of life, and stormwater runoff from streets, parking lots, and driveways, which negatively impacts the quality of local streams and groundwater. Furthermore, the automobile industry's production cycle and the disposal of junked vehicles create additional ecological harm.

To address these environmental concerns, the 2050 Plan emphasizes transportation modes that reduce energy consumption and emissions. By promoting walking, biking, and public transit, the plan aligns with the City of Columbia's Climate Action and Adaptation Plan (CAAP) and supports broader sustainability goals. Expanding the city's bicycle routes and improving pedestrian infrastructure will encourage residents to adopt more energy-efficient transportation options, leading to reductions in greenhouse gas emissions, air pollution, and congestion.

For example, increased walking and bicycling, along with improved public transit, can reduce vehicle emissions, leading to better air quality. Reduced reliance on personal vehicles can also decrease traffic congestion and noise pollution, while the associated reduction in pavement coverage will minimize harmful runoff into local water bodies.

In addition to reducing pollution, the 2055 Plan supports transportation enhancements that can improve the aesthetic environment. The plan aligns with strategies from the Imagine Columbia's Future (2007) vision, including recommendations from the Community Appearance Citizen Topic Group to develop streetscape plans. These plans would incorporate landscaping, site amenities, art, and thematic elements to create more attractive and memorable streetscapes. Efforts such as placing utilities underground, cleaning up business corridors, regulating billboards, and developing gateway and entryway plans can enhance both the visual appeal and environmental quality of the transportation network.

By encouraging more sustainable transportation options and incorporating aesthetic improvements, the 2050 Plan has the potential to significantly reduce the negative environmental impacts of transportation while fostering a healthier, more attractive urban environment.

Major Roadway Plan

The construction of street projects outlined in the MRP is expected to have some negative impacts on the specific neighborhoods or areas where they are built. These impacts include the loss of green space and the addition of more impervious surfaces, which will increase stormwater runoff and the runoff of pollutants such as oil and antifreeze from vehicle traffic. Additionally, construction activities will contribute to soil compaction, erosion, noise, and disturbances to stream beds and floodplains at major creek crossings.

After project completion, traffic noise impacts may be significant, especially with the planned widening of Interstate 70. Noise abatement measures will be necessary to protect adjacent residential areas, with these measures becoming even more critical with the expansion of the interstate.

On the positive side, new street construction may alleviate congestion by dispersing existing traffic across a larger area, thanks to the provision of alternative routes. These new routes could offer shorter and more direct access for motorists, potentially reducing driving times, trip distances, and overall traffic congestion. This reduction in congestion could, in turn, lower air and noise pollution, as idling vehicles are major sources of exhaust emissions. Moreover, new street projects may allow for greater consideration to non-polluting traffic modes through the inclusion of bicycle lanes and improved sidewalk facilities as part of local Complete Streets efforts.

Bicycle and Pedestrian Network Plan

The 2055 CATSO Bicycle/Pedestrian Network Plan, builds on the Bicycle Plan adopted in the 2050 Plan and extends the network from the existing 2040 CATSO Pedestrian and Bicycle Plan. Local Motion, previously known as PedNet Coalition, a private organization, played a crucial role in developing the original network, first outlined in the 2025 Plan adopted in 2001. Collaborating with the City of Columbia Bicycle and Pedestrian Commission, CATSO staff and Local Motion representatives created the pedway concept, enhancing mobility, safety, and comfort for non-motorized traffic.

The 2050 Pedestrian and Bicycle Network Plan Map reflects revisions aimed at improving connectivity, addressing growth areas, and creating a more complete network. Implementing this plan is expected to have largely positive effects on the local environment. By integrating bicyclists into the transportation system, the plan supports efforts to reduce vehicle traffic volumes or at least slow the rate of increase. Bicycling, being a non-polluting and quiet mode of travel, offers substantial environmental benefits.

However, one potential environmental drawback is the need to widen existing streets or construct new ones with greater pavement widths, which may necessitate the removal of trees and other vegetation, leading to increased impervious surfaces. These impacts might be mitigated by the benefits of increased bicycle ridership. The pedestrian component of the 2055 Plan, which includes elements from the 2024 Columbia Master Sidewalk Plan, addresses major pedestrian barriers across Columbia. Enhancing pedestrian facilities is another strategy to reduce motor vehicle traffic and its associated noise and air pollution. Although constructing more sidewalks and pedestrian facilities may involve paving additional right-of-way and reducing green space, the overall environmental impact is likely to be positive if pedestrian trips replace automobile trips.

Land Use

Positive ecological impacts can result from changes to local land use regulations. Land use is a critical factor in shaping transportation networks. To create a more environmentally friendly system for moving people and goods, land use controls should promote development patterns that make alternative modes of transport—beyond private vehicles—convenient and efficient.

Encouraging mixed-use developments, cluster and small-lot residential housing, and, in general, more compact development within specific areas can help provide residents with viable alternatives to vehicle use. A mixture of housing types and economic levels within walking or biking distance of employment and shopping opportunities fosters non-motorized transportation and a cleaner environment. Both *Imagine Columbia's Future* (2007) and *Columbia Imagined* (2013) advocate for strategies to improve transportation efficiency through mixed-use land-use concepts. The Visioning Development and Community Character Citizen Topic Groups recommended using the city's development planning process to promote socio-economically diverse, mixed-use neighborhoods that are supported by citywide bicycle, pedestrian, and transit systems. This would reduce the need for automobile commuting. They also advocated for creative and flexible approaches to mixed-use zoning that encourage walkable communities and expand opportunities for local businesses, farmers, gardeners, and service providers.

Chapter 4 of *Columbia Imagined*, which discusses Growth Patterns and Policies, suggests that for local neighborhood commercial service centers to be sustainable, higher residential densities must be built around them. This facilitates enough local clientele to support the businesses. Ideally, new neighborhood commercial nodes, or "urban villages," should be spaced approximately one-half mile apart to ensure residents have walkable access to goods and services.

Environmental Resources

The environmental opportunities and constraints related to transportation planning, design, and construction are outlined in various standard and recent sources:

- **Floodplains**: The updated Flood Insurance Rate Maps (FIRM) for the Columbia MPA, incorporating local geodatabases, may better reflect the impacts of the past 30 years of development. The maps indicate many perennial streams flowing across the MPA, primarily from the northeast to the southwest.
- **Streams and Surface Water**: Federal, state, and local regulations govern surface water. The City of Columbia has mapped the 27 watersheds within the MPA, and several streams have been individually assessed. The U.S. Environmental Protection Agency monitors water quality, and the U.S. Army Corps of Engineers oversees modifications to streams classified as "waters of the United States."

- **Wetlands**: The National Wetlands Inventory (1993) maps probable wetlands using U.S. Geological Survey topographic maps. While these maps are helpful for estimating the impact of future transportation projects on wetlands, detailed delineation studies should be conducted to assess ground water recharge, wildlife, and other functions of wetlands.

- **Forest**: The Natural Resources Inventory (NRI), produced by the City of Columbia, the University of Missouri, and CATSO, provides a database of forest cover and environmental features, including steep slopes and surface water.

- **Soils**: The U.S. Department of Agriculture's 1998 *Soil Survey of Boone County* includes soil capability ratings, which help assess drainage, strength, and other key properties for construction planning.

- **Historic Resources**: Columbia has several properties and districts on the National Register of Historic Places. Projects near these locations that use federal funds must undergo a Section 106 review to assess impacts on historic resources. Locally designated historic districts are subject to special zoning rules for any alterations.

Climate Change and Resiliency

In 2019, the City of Columbia adopted the Climate Action and Adaptation Plan (CAAP), which aims to reduce greenhouse gas emissions and make the city more resilient to climate impacts. This plan recognizes the importance of street and trail systems and encourages the maintenance and reconstruction of these elements to reduce emissions and improve resilience to extreme weather conditions.

The 2055 MTP continues the emphasis of the 2050 plan on promoting non-motorized transportation, such as walking and biking, to reduce pollution and mitigate the environmental impacts of the transportation system. The MTP includes tens of millions of dollars in sidewalk and greenbelt trail projects, which will implement portions of the Pedestrian and Bicycle Network Plan. These projects provide alternatives to the street network, encouraging the use of non-motorized transportation modes and aligning with CAAP's goal of creating walkable and bikeable communities.

There are also non-motorized elements of traditional street improvement projects, such as sidewalks, pedways, or on-street bicycle lanes. Depending on the classification of the streets, these projects will also feature landscape buffers between sidewalks and streets. When feasible, CATSO jurisdictions should consider implementing protected bicycle lanes on higher classification streets, especially those with speed limits exceeding 30 miles per hour. This not only improves pedestrian safety but also fosters a more attractive walking environment.

Columbia’s Complete Streets Policy, adopted in 2004 and currently being updated as of the writing of this report, mandates non-motorized facilities on all new street corridors, promoting a transportation system that accommodates all modes of travel. A shift from motorized to non-motorized transportation, particularly for short trips within the MPA, will help reduce vehicular emissions and meet the CAAP’s objectives.

TRANSPORTATION EQUITY

Transportation equity seeks to ensure fairness in mobility and accessibility, aiming to meet the transportation needs of all community members. It recognizes that not all populations face the same barriers or have equal access to resources, and therefore, the goal is to provide equitable levels of access to affordable and reliable transportation options based on the unique needs of the populations being served.

A key objective of transportation equity is to facilitate social and economic opportunities by removing transportation barriers and ensuring that all individuals, especially those from traditionally underserved or marginalized groups, can benefit from the transportation system. This includes populations with disabilities, rural communities, and those affected by persistent poverty or inequality.

Under Executive Order 13985: Advancing Racial Equity and Support for Underserved Communities (2021), equity is defined as the consistent and systematic fair, just, and impartial treatment of all individuals, with particular focus on addressing the historic denial of opportunities for certain groups. Transportation equity goes beyond ensuring equal access; it recognizes that different communities face unique challenges in mobility and connectivity, and those circumstances must be considered when planning and implementing transportation projects.

To build an equitable transportation network, this plan encourages several factors be considered:

1. Understanding Community Needs: Rather than treating all populations the same, transportation equity involves understanding the specific barriers and challenges faced by underserved communities and addressing those with tailored solutions. This could mean providing additional resources or infrastructure to areas with fewer options or ensuring accessible and reliable transportation for communities historically left out of the planning process.

2. Public Participation: Meaningful public participation is central to achieving transportation equity. Engaging with underserved populations early and throughout the planning process ensures their voices are heard and their needs are reflected in decision-making. This engagement helps identify potential conflicts or barriers that may otherwise delay or complicate project implementation.

3. Data Collection and Analysis: Analyzing demographic data, mobility patterns, and connectivity gaps helps inform the development of equitable transportation policies and projects. Data-driven approaches allow transportation agencies to identify disparities and address them proactively, ensuring fair distribution of benefits and minimizing unintended harms.

4. Compliance with Federal Guidelines: Achieving transportation equity requires adherence to Title VI, environmental justice (EJ), and nondiscrimination regulations, as outlined by USDOT and other federal agencies. These guidelines provide a framework for addressing equity in transportation planning, ensuring that all populations, especially underserved groups, receive fair treatment and benefit from transportation investments.

The 2055 MTP emphasizes the need to identify and address the specific mobility needs of underserved populations, ensuring that transportation systems contribute to greater economic mobility, social inclusion, and quality of life for all residents of the Columbia MPA.

Transportation equity is a critical lens through which the long-term transportation needs of the MPA can be addressed. As such, it requires ongoing commitment to fair and just treatment in the design, construction, and operation of transportation systems.

Demographic Profile

It's essential to understand the demographics that shape the community. The following profile provides a snapshot of the population and key social indicators, highlighting groups that may face unique transportation challenges or barriers. These demographic insights guide the Metropolitan Transportation Plan (MTP) in identifying and prioritizing equitable transportation solutions, tailored to meet the diverse needs of the community.

Category	City of Columbia	Boone County
Total Population (2022)	126,172	184,043
Total Households	50,948	74,269
Average Household Size	2.3	2.35
Minority Population	24.4%	21.1%
Population Living in Poverty[64]	21.4%	17.8%
Persons with a Disability	14,337 (11.5%)	22,494 (12.3%)
Zero Car Households	3,660	4,554

The demographic data indicates several factors to consider in developing equitable transportation services:

- **Minority Population**: With 24.4% of Columbia's population identifying as part of a minority group, transportation equity efforts should consider potential disparities in access to reliable transit options, as well as unique mobility needs that may not be met by existing systems. Addressing these needs can foster inclusivity and support social and economic mobility.
- **Poverty Levels**: Approximately 21.4% of Columbia's population lives below the poverty line, a rate notably higher than Boone County's 17.8%. Economic limitations often impact transportation access, so it's crucial to provide affordable and accessible transportation options to support the economic stability and well-being of these residents.
- **Persons with Disabilities**: The 11.5% of Columbia's population with disabilities underscores the need for accessible transportation solutions that comply with ADA standards and ensure that everyone, regardless of ability, has equal access to mobility. This might include considerations for paratransit services, accessible sidewalks, and enhanced connectivity to essential destinations.
- **Zero Car Households**: Columbia has a significant number of zero-car households (3,660), indicating a reliance on alternative modes of transportation such as public transit, biking, or walking. Ensuring a robust transportation network that includes reliable public transit and safe active transportation options is vital for these households.

Understanding these demographic characteristics allows transportation planners to address the unique needs of underserved populations effectively. The MTP uses this demographic profile to guide its commitment to equity, ensuring that transportation planning considers social, economic, and accessibility barriers that could otherwise hinder mobility

[64] Poverty thresholds are set for number of persons in a household. In 2022 the poverty threshold for one person under 65 was U.S. $15,230.

and connectivity for specific groups within the Columbia MPA. Through targeted public engagement, data-driven analysis, and compliance with federal equity standards, the MTP strives to build a transportation system that enhances the quality of life for all residents, regardless of background or circumstance.

Climate Adaptation

CATSO aims to integrate national guidelines for climate adaptation and align them with the goals and strategies outlined in Columbia's Climate Action and Adaptation Plan (CAAP) as appropriate. This is key to ensuring that all communities, including underserved and vulnerable populations, benefit from resilient, sustainable transportation systems.

National climate adaptation guidelines, such as those from the Federal Highway Administration (FHWA) and the U.S. Department of Transportation (USDOT), emphasize the need for **equitable** and resilient transportation systems. These guidelines focus on:

- **Infrastructure Resilience**: Ensuring that transportation infrastructure in all communities, particularly those that are low-income or historically marginalized, is resilient to climate impacts such as flooding and extreme heat.
- **Equitable Access to Sustainable Transportation**: Expanding access to multimodal transportation options, such as public transit, biking, and walking, in underserved areas to reduce reliance on personal vehicles and provide affordable transportation alternatives.
- **Risk-Based Planning with Equity Lens**: Incorporating climate risk assessments that prioritize projects in communities most vulnerable to climate impacts, ensuring that investments in infrastructure resilience directly benefit those facing the greatest risks.
- **GHG Emission Reductions and Health Benefits**: Advancing policies that not only reduce GHG emissions but also improve air quality, particularly in disadvantaged communities disproportionately affected by pollution from transportation.

By following these guidelines, CATSO aims to address systemic inequities in transportation infrastructure and ensure that climate adaptation strategies benefit all communities, especially those most affected by climate change.

Columbia's Climate Action and Adaptation Plan (CAAP) and Transportation Equity

The Climate Action and Adaptation Plan (CAAP) sets forth specific goals to reduce carbon emissions and enhance resilience, with a particular focus on **equitable outcomes**. The CAAP's transportation-related goals include:

- **Mode Shift for Equity**: Expanding access to affordable, safe, and reliable public transportation and active transportation options (biking, walking) for historically underserved communities. This aligns with the CAAP's goal of reducing vehicle miles traveled (VMT) and improving access to sustainable transportation.
- **Electrification of Vehicles in Underserved Areas**: Supporting the transition to electric vehicles (EVs) and ensuring that EV infrastructure, such as charging stations, is equitably distributed across all neighborhoods, including low-income and minority communities, to avoid disparities in access to clean transportation.
- **Health and GHG Emission Reductions**: Reducing emissions in transportation-dense and historically polluted areas, which often coincide with marginalized communities, thus improving air quality and public health in these neighborhoods.

- **Resilient Infrastructure in Vulnerable Communities**: Ensuring that communities most vulnerable to climate risks, such as flooding or extreme heat, have infrastructure upgrades that protect against these impacts, with a focus on improving safety and connectivity for all users.

Aligning CATSO's MTP with National and Local Equity Strategies

In ensuring that transportation equity is central to its climate adaptation strategies, CATSO will focus on several key initiatives:

- **Resilient Infrastructure with an Equity Focus**: CATSO will prioritize climate-resilient transportation projects in communities most at risk from climate impacts, such as areas prone to flooding or lacking sufficient infrastructure. This includes upgrading roadways, bridges, and transit systems in historically underserved neighborhoods, ensuring that all residents have access to safe and reliable transportation, regardless of income or geography.
- **Equitable Access to Sustainable Modes of Transportation**: CATSO will promote investments in multimodal transportation options—such as expanded public transit routes, bike lanes, and pedestrian paths—that serve communities with limited transportation choices. Special attention will be given to ensuring that low-income and minority communities benefit from these improvements, reducing transportation costs, improving access to jobs and services, and enhancing overall quality of life.
- **Electrification and EV Infrastructure for All**: CATSO will work to ensure that EV charging stations and other electrification infrastructure are equitably distributed across the Columbia region, particularly in areas that have historically lacked access to clean transportation options. This will help prevent disparities in the transition to electric vehicles and ensure that all residents can participate in the shift to cleaner transportation options.
- **Health and Climate Resilience for Vulnerable Communities**: Consistent with national guidelines and the CAAP, CATSO will prioritize projects that reduce emissions and improve air quality in communities disproportionately affected by pollution and climate risks. Additionally, investments in climate-resilient infrastructure, such as flood mitigation and heat-resistant roadways, will be targeted toward vulnerable populations to ensure their protection from the increasing impacts of climate change.
- **Collaborative Planning with Community Input**: CATSO will engage directly with historically marginalized communities to ensure that transportation planning and climate adaptation strategies reflect their needs and priorities. By involving residents in decision-making processes, CATSO will ensure that equity remains at the forefront of all transportation projects, from planning through implementation.

By aligning with national climate adaptation guidelines and the strategies of Columbia's CAAP, CATSO's MTP will ensure that transportation equity is a central focus in addressing climate impacts. This will involve targeted investments in resilient infrastructure, expanding access to sustainable transportation, supporting electrification efforts, and prioritizing health improvements in underserved communities. In doing so, CATSO will create a transportation network that not only adapts to climate change but also ensures fair and equitable outcomes for all residents of the Columbia Metropolitan Planning Area

Identifying Transportation Needs

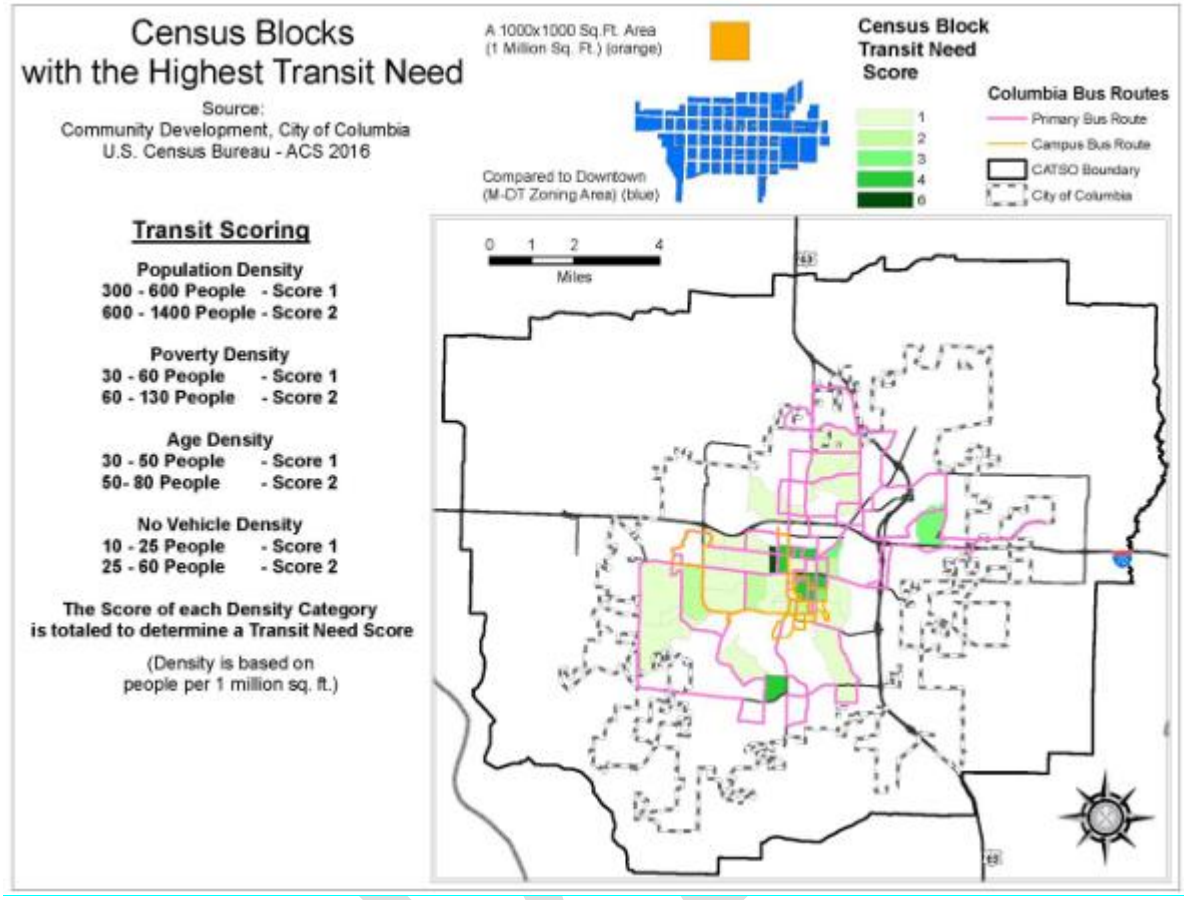
Identifying the transportation needs of target populations is an ongoing process that largely depends on input from social service agencies and the use of Census data. Many social service agencies report their clients' transportation needs, information which is generally captured in CATSO's Coordinated Public Transit-Human Services Plan. In general, feedback from agency personnel falls into the following categories:

1. The need for a public transportation system that is reliable, accessible, affordable, convenient, and timely, capable of accommodating a full range of daily activities;
2. A lack of financial and other support for transportation services and public transit from employers and the general public; and
3. Limited support for alternative modes of transportation.

The transportation needs of disabled and low-income individuals have traditionally been addressed by fixed-route public transit and ADA-mandated paratransit services. However, the transportation needs of minority populations are less easily quantified, emphasizing the importance of involving minority community members early in the planning process to ensure they are not disproportionately affected by CATSO policies or plans. Census data also provides an initial spatial analysis of areas likely to have high transit needs based on demographic characteristics and population density.

The 2018 CATSO Public Transit-Human Services Plan used available Census data to prepare a map of areas with potentially high transit demand. This assessment considered four types of limitations that often prevent people from driving: (1) physical limitations, (2) financial limitations, (3) legal limitations, and (4) self-imposed limitations. This information is shown in **Map 13**.

Map 13 - CATSO Census Blocks with the Highest Transit Need



SPECIALIZED TRANSPORTATION

Travel remains essential for independence, yet segments of the population within the MPA are still underserved by the current transportation systems. Individuals who, due to physical or mental disabilities, age, income status, or other factors, cannot transport themselves or afford transportation often rely on others to access essential services such as healthcare, employment, education, and shopping. The Americans with Disabilities Act (ADA) and Environmental Justice provisions have alleviated some barriers, but significant transportation gaps persist, particularly in access to public transportation.

Public transportation remains a key factor in addressing these gaps, yet resources are limited, fragmented, and lack coordination. GoCOMO provides both fixed-route transit and paratransit services, but this service is restricted to individuals who meet specific ADA eligibility criteria and live within designated urban areas. For those who live outside the service area or do not qualify, transportation options become significantly more limited. Paratransit capacity is currently constrained, operating near capacity at 250 daily rides, although there are efforts to expand this to 300 rides per day as new vehicles and additional drivers are added. Yet, service levels remain impacted by driver shortages and funding constraints.

OATS plays a crucial role in providing curb-to-curb transportation services to rural Boone County and beyond, filling a need for older adults and individuals in more remote areas. While OATS' primary service areas are rural, it operates on

limited funding, often relying on grants like the 5310 for urban areas and the 5311 for rural services. This limits their capacity to expand into urban areas like Columbia or to serve those with broader transportation needs beyond contracted trips for healthcare or employment services. OATS' services complement GoCOMO by providing transportation for older adults and individuals with disabilities, particularly in regions where public transit may not reach.

Catholic Charities primarily provides transportation to newly resettled refugees, ensuring they can attend critical medical exams within 30 days of arrival. This service is funded through government grants and operates its own vehicles. After a resettlement period of 30 to 90 days, refugees often transition to informal networks for transportation, such as family or community members. However, public transportation is often unreliable or inaccessible for refugees, particularly when essential services lie outside bus routes. Additionally, language barriers make navigating transit systems even more challenging, despite efforts by the Missouri Office of Refugee Administration (MO-ORA) to provide resources like driver's license tests in multiple languages.

Similarly, City of Refuge provides vital transportation for refugees, assisting them in accessing essential services like medical care and English language classes. However, like Catholic Charities, City of Refuge struggles with limited resources and language barriers, making it difficult for refugees to fully utilize Columbia's public transit options.

First Mile Last Mile Columbia is a more recent initiative, developed out of a roundtable in 2021 to address critical gaps in transportation, particularly for individuals whose needs fall outside of the traditional transit and paratransit services. Funded through ARPA (American Rescue Plan Act) funds, this service focuses on connecting people to essential destinations like grocery stores or work, particularly in cases where public transportation is unreliable or inaccessible. Since its launch in June 2023, First Mile Last Mile has provided over 1,100 rides, filling the transportation void where public transit falls short, particularly due to long headways or limited service areas.

One of the key distinctions of First Mile Last Mile is its close coordination with local employers, who often fund transportation for their workers through this service. The initiative operates with two minivans and a 15-passenger vehicle, helping employees reach job sites. Employers such as Big Daddy's BBQ and veterans services have used this service to help their workers who otherwise have limited transportation options. First Mile Last Mile aims to help individuals "graduate" from reliance on its services by providing them the necessary support until they can access more permanent transportation solutions.

While ARPA funding sustains the program through 2026, the initiative will need to explore long-term funding strategies to ensure sustainability beyond that period. The service has made significant strides in addressing transportation inequities for underserved populations but remains focused on finding ways to extend its impact in the years to come.

The combined efforts of GoCOMO, OATS, Catholic Charities, City of Refuge, and First Mile Last Mile Columbia address specific transportation needs, yet gaps remain, particularly for individuals who do not meet the eligibility requirements for these services or live outside of service areas. Many of these gaps are related to the fragmented nature of transportation resources and services within the region.

Resource coordination between these organizations is a potential strategy to address these service gaps more effectively. By pooling transportation resources and coordinating activities, these agencies could better align their services, reducing overlap and improving service availability for underserved populations. For instance, Catholic Charities, City of Refuge, and First Mile Last Mile could coordinate with GoCOMO and OATS to provide supplemental services in areas where public

transit is insufficient or inaccessible. This could also allow for shared use of vehicles, coordinated dispatch systems, or joint outreach efforts to reduce costs and increase service efficiency.

According to the Coordinated Public Transit-Human Services Transportation Plan (2018), improving coordination among service providers is essential for addressing the fragmented system that currently exists. This lack of coordination often results in duplicated efforts, limited-service capacity, and confusion for users. By leveraging existing resources, such as unused vehicle capacity or time, and creating economies of scale in operations, planning, and maintenance, service providers could expand mobility options without needing significant additional funding. Coordinated efforts could also help bridge the gap for individuals who fall outside the eligibility criteria of specialized services, offering more comprehensive transportation solutions.

TRANSPORTATION SAFETY

Transportation safety is a key priority within the 2055 MTP for the Columbia MPA. In support of that, the City of Columbia has adopted a Vision Zero approach, a commitment to eliminating traffic deaths and serious injuries by 2030, which forms the foundation of its safety initiatives. This policy framework, initially set in motion by the Mayor's Task Force on Pedestrian Safety in 2015 and formalized by City Council in 2016, represents a broad commitment to safety, equity, and system design that protects all road users.

The Safe Systems Approach, central to Vision Zero, is based on the premise that human error is inevitable and that transportation systems should be designed to prevent these errors from leading to serious injuries or fatalities and is the filter through which projects in the MPA are considered. The emphasis is on engineering safer roadways, particularly for vulnerable road users, such as pedestrians, cyclists, and individuals in underserved communities.

Since adopting its Vision Zero plan, the City of Columbia has made several key advancements:

- Crash Analysis Team: The team was established to analyze crash data and identify systemic safety improvements.
- Safe Systems Team: Focused on incorporating Vision Zero principles into day-to-day operations and identifying priority areas for intervention, including visibility improvements and safer pedestrian crossings.
- Road Safety Audits (RSA): RSAs have been conducted, starting with the audit of Route B/Paris Road, and continue to be a focus of future efforts.

One of the notable aspects of Columbia's Vision Zero plan is its emphasis on public involvement and equity. Public input meetings, town halls, and surveys were instrumental in shaping the Vision Zero Action Plan. Efforts to engage vulnerable road users, including underserved communities, are ongoing. For example, the city's participation in Project Homeless Connect resulted in the distribution of high-visibility backpacks and an increase in public safety awareness among vulnerable populations.

The Vision Zero framework aligns with other city and state plans, including MoDOT's strategic goals. It also sets the tone for transportation system planning by emphasizing that safety is the most important factor in decision-making processes. This policy alignment has led to substantial grant support, including the Safe Streets for All (SS4A) FY22 Grant, which

brought in over $1.4 million to Columbia for supplemental planning projects, such as the update to the High-Injury Network and the development of a Pedestrian Level of Comfort Map.

Incorporating lessons from the Safe Systems Approach, the Vision Zero plan emphasizes systemic solutions:

- Speed management: To prevent speed-related injuries and fatalities, infrastructure improvements aim to reduce speeds in high-risk areas.
- Engineering improvements: These include safer pedestrian crossings, better visibility in the right-of-way, and modifications to turning movements at intersections to minimize conflicts.
- Education and enforcement: Public campaigns and safety education programs target dangerous behaviors, such as distracted driving, impaired driving, and speeding.

Looking ahead, the Vision Zero plan includes additional Road Safety Audits, the update of Complete Streets Standards, and further outreach to vulnerable populations. Columbia's commitment to safety as a citywide priority is reflected in the plan's focus on equitable outcomes, ensuring that all transportation improvements provide safe, accessible, and efficient mobility for every community member.

The City's continued focus on safe speeds, equitable infrastructure, and community engagement will be essential as it works to meet its Vision Zero goal by 2030. Efforts to improve road design, incorporate proven safety countermeasures, and emphasize equity in safety strategies position Columbia as a leader in traffic safety innovations.

Improving safety in the MPA is a coordinated, region-wide approach. By integrating Safe Systems principles with local efforts like Columbia's Vision Zero Plan and aligning with state strategies, the region will continue to reduce transportation-related injuries and fatalities. This holistic focus on infrastructure, education, and enforcement will enhance safety for all users, ensuring that the region's transportation network is both safe and accessible for the future.

Appendix A: Level of Service Framework

CATSO 2055 MTP UPDATE

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Pedestrian & Bicycle Classification Tables

Table 1: Bicycle Case Classification

Posted Speed Limit*(1)	ADT*(1)	Number of Lanes*(1)	Resulting Classification
≤ 20 MPH	0 - 2,000	No centerline or single lane one-way	Case 1
25 MPH	0 - 1,500		
	1,501 – 6,000	1 lane each direction or single lane one-way	Case 2
	Greater than 6,000		Case 3
		Multiple lanes per direction	
≥ 30 MPH	Any	Any	

*For intersection assessments, the intersecting roadway with the higher speed, followed by ADT, or number of lanes, takes priority in determining resulting classification.

References

(1) NACTO Urban Bikeway Design Guide https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/choosing-ages-abilities-bicycle-facility/

Table 2: Pedestrian Case Classification

Posted Speed Limit*(1)	ADT*(1)	# of Lanes*(1)	Resulting Classification
≤ 20 MPH	< 3,000	1 to 2 Lanes	Case 1
	> 3,000	Any	Case 2
≥ 25 MPH	Any	Any	

*For intersection assessments, the intersecting roadway with the higher speed, followed by ADT, or number of lanes, takes priority in determining resulting classification.

References

(1) NACTO Urban Street Design Guide https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/

Scale LOS Frameworks

To complete each framework, users must select a criteria field from 4.0 to 0.0 that best fits existing conditions, marking the score out of four in a following table to determine the resulting LOS grade.

A filled-out example is shown below, the green highlighted boxes: [ ] shows the chosen criteria. The resulting LOS grade is shown on the next page.

As described in the legend found at the bottom of every table, Greyed Out Boxes indicate a field unavailable to select.

Table XX: Title of the framework

Category	Assessment Level				
	4.0 - Excellent	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Stop Amenities	 [24] Transit stop provides shelter with lighting, a bench, and posted schedule and may/may not have with real time updates	 [25] Transit stop provides 3 of the following: o Shelter o Bench o Lighting o Posted Schedule	 [26] Transit stop provides 2 of the following: o Shelter o Bench o Lighting o Posted Schedule	 [27] Transit stop provides 1 of the following: o Shelter o Bench o Lighting o Posted Schedule	 [1] Transit stop provides none of the following: o Shelter o Bench o Lighting o Posted Schedule
Connectivity & Accessibility	 Transit stop meets ADA requirements and has nearby pedestrian, bicycle, and commuter parking facilities	 Transit stop meets ADA requirements and provides 2 additional facilities: nearby pedestrian, bicycle, or commuter parking facilities	 Transit stop meets ADA requirements and provides 1 additional facility: nearby pedestrian, bicycle, or commuter parking facilities	 Transit stop meets ADA requirements	

Definitions, references, and a legend are attached below at the bottom of every table or on the next page.

Legend

Greyed Out Boxes = Not Selectable, Scores still out of 4

[X] = Picture Reference Number

Figure 1: Example of the Scale Version

Based on the total number of points (50), **Table 3** shows a corresponding LOS grade of D: Poor.

Table 3: Example of LOS Results – Scale Version

Metric	Assessment (X/4)	x Weight/Value =	Points
Stop Amenities	1/4	50	12.5
Connectivity & Accessibility	3/4	50	37.5
	SUM	100	50
LOS Grading Distribution A – Excellent: 100-90 B – Good: <90 – 75 C – Fair: <75 – 60 D – Poor: < 60 – 50 F – Fails: <50			

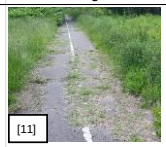
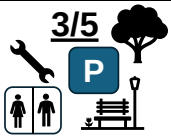
For certain frameworks, involving pedestrians or bicyclists near streets/intersections, a preliminary table must be followed first as shown in **Table 4**, as an example. The classification later dictates what column of points is used in resulting tables. It requires some roadway characteristics, such as speed, number of vehicle lanes, and average daily traffic (ADT), as context before evaluating the existing conditions. Traffic counts for the city of Columbia can be found here: https://www.como.gov/boards/columbia-area-transportation-study-organization/traffic-counts/. The order of importance to determining the case starts with the speed limit, ADT, and then number of lanes, as shown by the green arrows.

Table 4: Case Classification Example

1. Posted Speed Limit*	2. ADT*	3. Number of Lanes*	Resulting Classification
≤ 20 MPH	0 - 2,000	No centerline or single lane one-way	Case 1
25 MPH	0 - 1,500		
	1,501 – 6,000	1 lane each direction or single lane one-way	Case 2
	Greater than 6,000		Case 3
		Multiple lanes per direction	
≥ 30 MPH	Any	Any	

*For intersection assessments, the intersecting roadway with the higher speed, followed by ADT, or number of lanes, takes priority in determining resulting classification.

Table 5: Trail Framework – Scale Version

Category		Assessment Level				
		4.0 - Very Good	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0 - Nonexistant
Trail Dimensions[1C]		 [18] Trail width is ≥ 8-ft to support bicycle and pedestrian flow and vertical grades are considered flat	 [19] Trail width is ≥ 8-ft to support bicycle and pedestrian flow, vertical grades maybe excessive	 [20] Trail width is ≥ 5-ft to support bicycle or pedestrian flow, vertical grades maybe excessive	 [21] Trail width is < 5-ft to support pedestrian flow, vertical grades maybe excessive	
Trail Surfaces/Divison		 [15] Multi-surfaced[1A] with division between bikes and pedestrians	 [16] Monosurfaced[2] with divison between bikes and pedestrians	 [17] Monosurfaced[2] with no division between bikes and pedestrians		
Surface Condtions[1B]	Gravel/ Dirt Path		 [12] Clear outline of path from grass, path not eroded	 [13] Path edges slightly eroded	 [14] Path is overgrown/eroded	
	Paved/ Hard Surface	 [8] Even & Aligned, No Cracks, Like New	 [9] Even, Very Minor Damage/No Impact to Use	 [10] Damage inhibits travel in some spots	 [11] Surface is completely damaged/overgrown	
Connectivity		 Trail provides access between residential areas and community hubs and with connections to bicycle or transit facilities within 400 ft of reaching at-grade with roadway	 [7] Trail provides access between residential areas and community hubs (more than parks)	 [6] Trail provides access between residential areas and parks	Trail is concentrated within an area (park or forest) without serving as an extension to another trail	
Amenities		 Trail provides restrooms, bike repair stations, benches, tree/shading, and connections to parking lots	 Trail provides 3 of the following: restrooms, bike repair stations, benches, tree/shading, and connections to parking lots	 Trail provides 2 of the following: restrooms, bike repair stations, benches, tree/shading, and connections to parking lots	 Trail provides 1 of the following: restrooms, bike repair stations, benches, tree/shading, and connections to parking lots	 Trail provides no restrooms, bike repair stations, benches, tree/shading, or connections to parking lots
Mid-Block Crossings[3]		 [1] Grade-separated overpass or Grade-separated (underpass) with at grade crosswalks incase of underpass flooding	 [1] Grade-separated underpass with no at-grade option	 [1] At grade marked crosswalk with active warning beacons or at a signalized intersection	 [1] At grade marked crosswalk	No Mid-block Road Crossings
Lighting		 [3] Brightly lit throughout entire trail	Lighting provided throughout most of the trail **(60%)**	 [4] Sporadic lighting	 [5] Dim/Poor Lighting	No lighting along entire trail

1A Multi-surface refers to a trail system consisting of different surfaces in its cross section, intended for separated bike and pedestrian traffic
1B If trail is multi-surfaced, choose the assessment level matching the lower performing surface condition
1C If the trail is divided (say between bikes and pedestrians), the considered trail width is the combined total width of the divided trails
2 Monosurface refers to a singular type of surface used in the cross section the trail
3 Crossings refer to all crossings within the studied length of trail being the same type, separate scores can be given to separate lengths of a trail that contain different types of crossings

Legend
Greyed Out Boxes = Not Selectable, Scores still out of 4

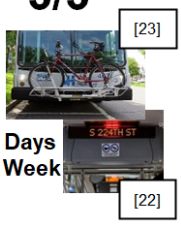
[X] = Picture Reference Number

Table 6: Trail LOS Results – Scale Version

Metric	Assessment (X/4)	x Weight/Value =	Points
Trail Dimensions		15	
Trail Surfaces/Division		15	
Surface Conditions[1B]		15	
Connectivity		15	
Amenities		15	
Mid-Block Crossings		10	
Lighting		15	
SUM		100	

LOS Grading Distribution
A – Excellent: 100-90
B – Good: <90 – 75
C – Fair: <75 – 60
D – Poor: < 60 – 50
F – Fails: <50

Table 7: Transit Route Framework – Scale Version

Category	Assessment Level				
	4.0 - Excellent	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Amenities & Services	**3/3**  [23] **7 Days A Week** [22] Transit route offers access between residential areas and community hubs and 1 of the following: o Stores bikes on bus o Runs 7 days a week o Message board on bus	**2/3**  **7 Days A Week** Transit route offers access between residential areas and community hubs and 1 of the following: o Stores bikes on bus o Runs 7 days a week o Message board on bus	**1/3**  **7 Days A Week** Transit route offers access between residential areas and community hubs and 1 of the following: o Stores bikes on bus o Runs 7 days a week o Message board on bus	**0/3**  **7 Days A Week** Transit route offers access between residential areas and community hubs with no special amenities/services	
Daily Period of Service	**All 24 Hours of the Day**	**+14 Hours of the Day**	**12 Hours of the Day**	**10 Hours of the Day**	**< 10 Hours of the Day**
Frequency of Service (Headway or time between buses)[(1) (2)]	< 10 mins headway Passengers don't need schedules	10 to 20 mins headway Frequent service, desriable wait time if transit vehicle is missed	21 to 30 mins headway Service unattractive to choice riders	31 to 60 mins headway Service available during the hour	> 60 mins headway Service attractive to all riders
Travel Time (ratio of car travel time to bus travel time) (t = bus travel time / car travel time)	t ≤ 1.2 or bus travel time is within 5 minutes of car travel time	t ≤ 1.5	t ≤ 2.0	t > 2.0	
Reliability[(4)] (on time considered between 1 min early and 5 mins late)[(6)]	On time for 90% or more of the stops	On time for 85% or more of the stops	On time for 70% of the stops	On time for 60% of the stops	On time for 50% of the stops or less

References

(1) FWHA Pedestrian Safety Guide for Transit Agencies https://safety.fhwa.dot.gov/ped_bike/ped_transit/ped_transguide/ch3.cfm#a6

(2) Easter Seals, Inc. Toolkit for the Assessment of Bus Stop Accessibility and Safety https://www.nadtc.org/wp-content/uploads/NADTC-Toolkit-for-the-Assessment-of-Bus-Stop-Accessibility.pdf

(3) NACTO Urban Street Design Guide: Crosswalks and Crossings https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/

(4) Walker, J. (2011, April 24). basics: walking distance to transit. *Human Transit*. https://humantransit.org/2011/04/basics-walking-distance-to-transit.html

Legend

Greyed Out Boxes = Not Selectable, Scores still out of 4

[X] = Picture Reference Number

Table 8: Transit Route LOS Results – Scale Version

Metric	Assessment (X/4)	x Weight/Value =	Points
Amenities & Services		15	
Daily Period of Service		25	
Frequency of Service		20	
Travel Time		20	
Reliability		20	
SUM		100	

LOS Grading Distribution
A – Excellent: 100-90
B – Good: <90 – 75
C – Fair: <75 – 60
D – Poor: < 60 – 50
F – Fails: <50

Table 9: Transit Stop Framework – Scale Version

Category	Assessment Level				
	4.0 - Excellent	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Stop Amenities	**4/4**  [24] Transit stop provides shelter with lighting, a bench, and posted schedule and may/may not have with real time updates	**3/4**  [25] Transit stop provides 3 of the following: o Shelter o Bench o Lighting o Posted Schedule	**2/4**  [26] Transit stop provides 2 of the following: o Shelter o Bench o Lighting o Posted Schedule	**1/4**  [27] Transit stop provides 1 of the following: o Shelter o Bench o Lighting o Posted Schedule	**0/4**  [1] Transit stop provides none of the following: o Shelter o Bench o Lighting o Posted Schedule
= Connectivity & Accessibility	**4/4**  Transit stop meets ADA requirements and has nearby pedestrian, bicycle, and commuter parking facilities	**3/4**  Transit stop meets ADA requirements and provides 2 additional facilities: nearby pedestrian, bicycle, or commuter parking facilities	**2/4**  Transit stop meets ADA requirements and provides 1 additional facility: nearby pedestrian, bicycle, or commuter parking facilities	**1/4**  Transit stop meets ADA requirements	

References

(1) FWHA Pedestrian Safety Guide for Transit Agencies https://safety.fhwa.dot.gov/ped_bike/ped_transit/ped_transguide/ch3.cfm#a6

(2) Easter Seals, Inc. Toolkit for the Assessment of Bus Stop Accessibility and Safety https://www.nadtc.org/wp-content/uploads/NADTC-Toolkit-for-the-Assessment-of-Bus-Stop-Accessibility.pdf

Legend

Greyed Out Boxes = Not Selectable, Scores still out of 4

[X] = Picture Reference Number

Table 10: Transit Stop LOS Results – Scale Version

Metric	Assessment (X/4)	x Weight/Value =	Points
Stop Amenities		50	
Connectivity & Accessibility		50	
SUM		100	

LOS Grading Distribution

A – Excellent: 100-90
B – Good: <90 – 75
C – Fair: <75 – 60
D – Poor: < 60 – 50
F – Fails: <50

Table 11: On-Street/Adjacent Bicycle Framework: Case 1 – Scale Version

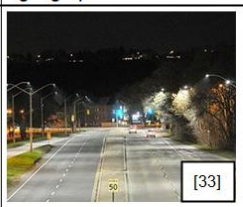
Street Assessment - Case 1					
Category	Assessment Level				
	4.0 - Very Good	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Type of Bike Facility	 [1] Bicycle Boulevard, shared-lane marking, or anything more substantial	 Bike route signage and anything more substantial.			
Bike Facility Surface Condtions	 [8] Even & Aligned, No Cracks, Like New	 [9] Even, Very Minor Damage/No Impact to Use	 [28] Occasionally Uneven or Some Overgrowth, Minor Impact to Use	 [29] Surface is completely damaged/overgrown	
Utility	 Repair stations provided, No blocking parked vehicles or utilities	 [30] [31] Haphazard utilities here and there, some parked cars.			
Signage/Visibility	 [2] Colored pavement markings, wayfinding signage posted	 [32] Standard signage indicating the slow speed nature to an area.			
Lighting on Bike Facility	 [33] Brightly lit throughout street	 [34] Lit throughout majority of the street	 [35] Sporadic lighting	 [36] Dim/Poor Lighting	

Table 12: On-Street/Adjacent Bicycle Framework: Case 2 – Scale Version

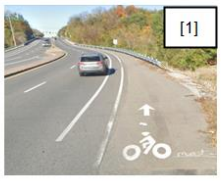
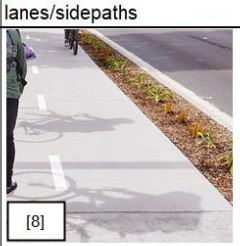
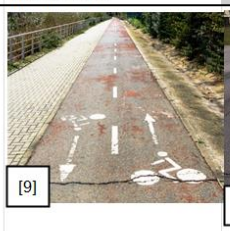
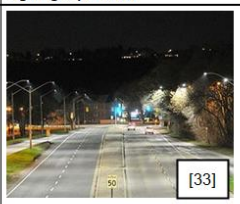
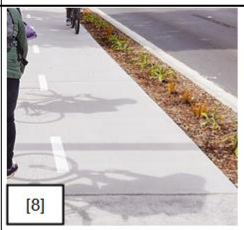
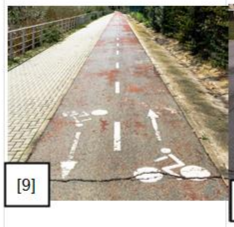
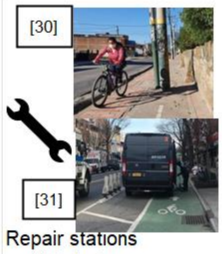
Street Assessment - Case 2					
Category	Assessment Level				
	4.0 - Very Good	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Type of Bike Facility	 [1] Bike Lanes with Clear Buffer to Traffic Lane **OR** physically separated bike lanes/sidepaths	 [1] Bike Lanes adjacent to Traffic Lane			
Bike Facility Surface Condtions	 [8] Even & Aligned, No Cracks, Like New	 [9] Even, Very Minor Damage/No Impact to Use	 [28] Occasionally Uneven or Some Overgrowth, Minor Impact to Use	 [29] Surface is completely damaged/overgrown	
Utility	 Repair stations provided, No blocking parked vehicles or utilities	 [30] [31] Some utilities/vehicles parked in path			
Signage/Visibility	 [2] Colored pavement markings **AND** wayfinding signage posted	 [2] Colored pavement markings **OR** wayfinding signage posted			
Lighting on Bike Facility	 [33] Brightly lit throughout street	 [34] Lit throughout majority of the street	 [35] Sporadic lighting	 [36] Dim/Poor Lighting	

Table 13: On-Street/Adjacent Bicycle Framework: Case 3 – Scale Version

Street Assessment - Case 3					
Category	Assessment Level				
	4.0 - Very Good	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Type of Bike Facility	 [37] Physically Separated Bikeways **OR** Shared Use Facilities	 [1] Bike Lanes with Clear Buffer to Traffic Lane	 [1] Bike Lanes adjacent to Traffic Lane		
Bike Facility Surface Condtions	 [8] Even & Aligned, No Cracks, Like New	 [9] Even, Very Minor Damage/No Impact to Use	 [28] Occasionally Uneven or Some Overgrowth, Minor Impact to Use	 [29] Surface is completely damaged/overgrown	
Utility	 Repair stations provided, No blocking parked vehicles or utilities	 [30] [31] Repair stations provided, Some utilities/vehicles parked in path			
Signage/Visibility	 [2] Colored pavement markings **AND** wayfinding signage posted	 [2] Colored pavement markings **OR** wayfinding signage posted			
Lighting on Bike Facility	 [33] Brightly lit throughout street	 [34] Lit throughout majority of the street	 [35] Sporadic lighting	 [36] Dim/Poor Lighting	

Legend

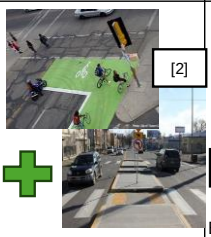
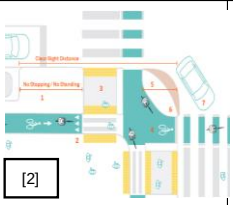
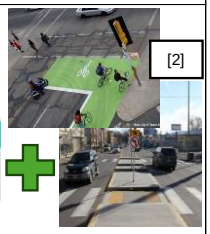
Greyed Out Boxes = Not Selectable, Scores still out of 4 [X] = Picture Reference Number

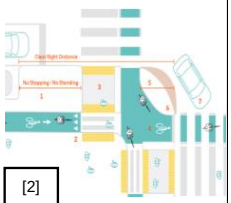
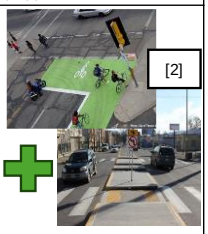
Table 14: On-Street/Adjacent Bicycle LOS Results – Scale Version

Metric	Assessment (X/4)	x Weight/Value	= Points
Type of Bike Facility		50	
Surface Conditions		20	
Utility		10	
Signage/Visibility		10	
Lighting		10	
SUM		100	

LOS Grading Distribution
A – Excellent: 100-90
B – Good: <90 – 75
C – Fair: <75 – 60
D – Poor: < 60 – 50
F – Fails: <50

Table 15: Intersection Bicycle Framework – Scale Version

Category	Intersection Type	Assessment Level				
		4.0 - Excellent	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Case 1	Unsignalized	Median Refuge Islands, Active Warning Beacons, Curb Extensions, or Raised Intersections are implemented. Cross street is 2 lanes across or fewer	 [2] Intersection crossing markings and vehicle traffic warning signs deployed	 [38] Bicyclists resort to using pedestrian marked crosswalks, no bicycle intersection facilities	No facilities for bicyclists to use, must share the road/lanes,	
	Signalized	 [2] Protected Intersection Treatments[1]	 [2] One advanced treatment[2] for crossings in addition to through bicycle lanes	 [38] Bicyclists resort to using pedestrian marked crosswalks, no bicycle intersection facilities	No facilities for bicyclists to use, must share the road/lanes, cross street is more than 3 lanes across	
	Roundabout	 [39] Separated Bike Lanes/Crossings	 [1] Median Refuge Island on all legs of roundabout with Active Warning Beacons on at least one leg	 [1] Median Refuge Island on all legs of roundabout	No additions to marked crossings	
Case 2	Unsignalized	Hybrid Beacon available and median refuge island for crossing bicyclists, and through bicycle lanes on approach/no mixing zones on any right turn lanes	Median Refuge Islands, or Active Warning Beacons, and Through bicycle lanes on approach/no mixing zones on any right turn lanes	 [2] Through bicycle lanes on approach, right-turn lane mixing zones present,	No facilities for bicyclists to use, must share the road/lanes, must resort to pedestrian marked crosswalks but no right turn lanes present	No facilities for bicyclists to use, must share the road/lanes, right turn lanes present with no mixing zones
	Signalized	 [2] Protected Intersection Treatments[1]	 [2] One advanced treatment[2] for crossings in addition to through bicycle lanes			
	Roundabout	 [39] Separated Bike Lanes/Crossings	 [1] Median Refuge Island with Active Warning Beacons on at least one leg of roundabout	 [1] Median Refuge Island on all legs of roundabout	No additions to marked crossings	

Case 3	Unsignalized	Hybrid Beacon available for crossing bicyclists, and Through bicycle lanes on approach/no mixing zones on any right turn lanes	Median Refuge Islands, or Active Warning Beacons, and Through bicycle lanes on approach/no mixing zones on any right turn lanes	[2] 		
	Signalized	 [2] Protected Intersection Treatments[1]	 [2] One advanced treatment[2] for crossings in addition to through bicycle lanes	Through bicycle lanes on approach, no left-turn facilities	Bicyclists resort to using pedestrian marked crosswalks, mixing lanes present for right turn lanes or no bicycle intersection facilities	No facilities for bicyclists to use, must share the road/lanes
	Roundabout	 [39] Separated Bike Lanes/Crossings	 [1] Median Refuge Island with Active Warning Beacons on at least one leg of roundabout	 [1] Median Refuge Island on all legs of roundabout	No additions to marked crossings	

References/Definitions

1 Protected Intersections posses multiple advanced facilities including corner islands or curb extensions, creating a queueing area for bikes separate from pedestrians, in addition to bicycle signal heads with detection or actuation. https://nacto.org/publication/dont-give-up-at-the-intersection/protected-intersections/

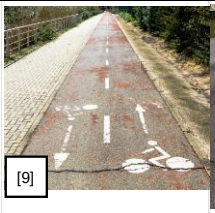
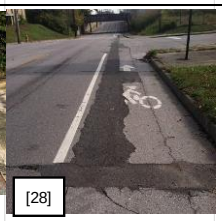
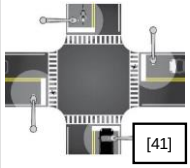
2 Treatments included median refuge islands, intersection crossing markings, bike boxes, active warning beacons https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/

Legend

Greyed Out Boxes = Not Selectable, Scores still out of 4

[X] = Picture Reference Number

Table 16: Intersection (Conditions) Bicycle Framework – Scale Version

Category	Assessment Level				
	4.0 - Excellent	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Surface Condtions	 [8] Even & Aligned, No Cracks, Like New	 [9] Even, Very Minor Damage/No Impact to Use	 [28] Occasionally Uneven or Some Overgrowth, Minor Impact to Use	 [29] Surface is completely damaged/overgrown	
Signage/Visibility	 [2] Colored pavement markings **AND** wayfinding signage posted	 [2] Colored pavement markings **OR** wayfinding signage posted	 [2] Visable pavement markings	 [1] Faded pavement markings	No pavement markings or signage indicating bicycles on road
Lighting over Intersection	 [40] Brightly lit throughout intersection	 [41] Lit at all stop bars or before entering intersection	 [42] Lit for most approaches	 [43] Dim/Poor Lighting	 [44] No intersection lighting

Legend

Greyed Out Boxes = Not Selectable, Scores still out of 4

[X] = Picture Reference Number

Table 17: Intersection Bicycle LOS Results – Scale Version

Table Source	Metric	Assessment (X/4)	x Weight/Value =	Points
Table 15	Intersection Grade		70	
Table 16	Surface Conditions		10	
	Signage/Visibility		10	
	Lighting		10	
		SUM	100	

LOS Grading Distribution
A – Excellent: 100-90
B – Good: <90 – 75
C – Fair: <75 – 60
D – Poor: < 60 – 50
F – Fails: <50

Table 18: Street-Adjacent Pedestrian Framework: Case 1 – Scale Version

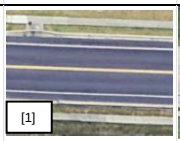
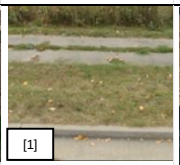
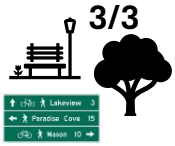
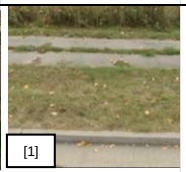
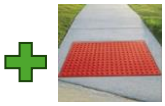
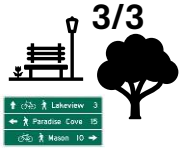
Category	Assessment Level				
	4.0 - Very Good	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Pedestrian Facility[1]	 [1] Public sidewalk width of ≥ 5 ft on both sides of roadway (excludes curb zone)	 [1] Public sidewalk width of ≤ 4 ft on both sides of roadway or > 4 ft on one side of roadyway (excludes curb zone)	 [1] Public sidewalk of ≤ 4 ft on one side of the roadway	No sidewalk, Wide shoulder (≥ 8 ft) available to use	No sidewalk or wide shoulder (≥ 8 ft) or roadside
Minimum Buffer/Furnishing Zone[2]	Buffer between the sidewalk(s) and edge of pavement is at least 4 ft	Buffer between the sidewalk(s) and edge of pavement is at least 2 ft	The only buffer between the sidewalk(s) and traffic is the shoulder (or bike lane) that is ≤ 5 ft in width	No buffer exists between the sidewalk and traffic, roadway cross section goes from traffic lane, to gutter/curb to sidewalk	
Surface Condtions	 [8] Even & Aligned, No Cracks, Like New	 [46] Even & Aligned, Very Minor Damage/No Impact to Use	 [1] Occasionally Uneven or Some Overgrowth, Minor Impact to Use	 [45] Surface is completely damaged/overgrown	
ADA Compliance across driveways (not residential properties)[3]	 Detectable Warning Surfaces **added on some** driveways (more than 1 property), all driveways that are not level with the street have ramps	At **all** driveways where the sidewalk is not level with the street, ramps are provided	For **more than half** of driveways where the sidewalk is not level with the street, ramps are provided	For **less than half** of driveways where the sidewalk is not level with the street, ramps are provided	
Mid-Block Crossings	 [1] Grade-separated overpass or Grade-separated (underpass) with at grade crosswalks incase of underpass flooding	 [1] Grade-separated underpass with no at-grade option	 [1] At grade marked crosswalk with active warning or hybrid beacons	 [1] At grade marked crosswalk	No Mid-block Road Crossings
Amenities	 Transit stop provides 3 of the following: o Benches o Wayfinding Signage[4] o Trees/Shading	 Transit stop provides 2 of the following: o Benches o Wayfinding Signage[4] o Trees/Shading	 Transit stop provides 1 of the following: o Benches o Wayfinding Signage[4] o Trees/Shading	 Transit stop provides none of the following: o Benches o Wayfinding Signage[4] o Trees/Shading	No pavement markings or signage indicating bicycles on road
Lighting	 [33] Brightly lit throughout street	 [34] Lit throughout majority of the street	 [35] Sporadic lighting	 [36] Dim/Poor Lighting	No street lighting throughout street

Table 19: Street-Adjacent Pedestrian Framework: Case 2 – Scale Version

Category	Assessment Level				
	4.0 - Very Good	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Pedestrian Facility[1]	 [1] Public sidewalk or shared use facility of 8-12 ft on at least one side with a ≥ 4 ft sidewalk on the opposite side (excludes curb zone)	 [1] Public sidewalk width of 5-7 ft on both sides of roadway (excludes curb zone)	 [1] Public sidewalk width of ≤ 4 ft on both sides of roadway or > 4 ft on one side of roadyway (excludes curb zone)	 [1] Public sidewalk of ≤ 4 ft on one side of the roadway	No sidewalk, pedestrians resort to shoulder or roadside
Minimum Buffer/Furnishing Zone[2]	Buffer between the sidewalk(s) and edge of pavement is ≥ 6 ft, or buffered by street parking	Buffer between the sidewalk(s) and edge of pavement is at least 4 ft	Buffer between the sidewalk(s) and edge of pavement is at least 2 ft	The only buffer between the sidewalk(s) and traffic is the shoulder (or bike lane) that is ≤ 5 ft in width	No buffer exists between the sidewalk and traffic, roadway cross section goes from traffic lane, to gutter/curb to sidewalk
Surface Condtions	 [8] Even & Aligned, No Cracks, Like New	 [46] Even & Aligned, Very Minor Damage/No Impact to Use	 [1] Occasionally Uneven or Some Overgrowth, Minor Impact to Use	 [45] Surface is completely damaged/overgrown	
ADA Compliance across driveways (not residential properties)[3]	 Detectable Warning Surfaces **added on some** driveways (more than 1 property), all driveways that are not level with the street have ramps	At **all** driveways where the sidewalk is not level with the street, ramps are provided	For **more than half** of driveways where the sidewalk is not level with the street, ramps are provided	For **less than half** of driveways where the sidewalk is not level with the street, ramps are provided	
Mid-Block Crossings	 [1] Grade-separated overpass or Grade-separated (underpass) with at grade crosswalks incase of underpass flooding	 [1] Grade-separated underpass with no at-grade option	 [1] At grade marked crosswalk with active warning or hybrid beacons	 [1] At grade marked crosswalk	No Mid-block Road Crossings
Amenities	 Transit stop provides 3 of the following: o Benches o Wayfinding Signage[4] o Trees/Shading	 Transit stop provides 2 of the following: o Benches o Wayfinding Signage[4] o Trees/Shading	 Transit stop provides 1 of the following: o Benches o Wayfinding Signage[4] o Trees/Shading	 Transit stop provides none of the following: o Benches o Wayfinding Signage[4] o Trees/Shading	No pavement markings or signage indicating bicycles on road
Lighting	 [33] Brightly lit throughout street	 [34] Lit throughout majority of the street	 [35] Sporadic lighting	 [36] Dim/Poor Lighting	No street lighting throughout street

References

(1) NACTO Urban Street Design Guide
https://nacto.org/publication/urban-street-design-guide/street-design-elements/sidewalks/
(2) Portland Pedestrian Design Guide
https://www.portland.gov/sites/default/files/2022/PBOT%20Pedestrian%20Design%20Guide%202022.pdf
(3) ADA Curb Ramps and Pedestrian Crossings
https://archive.ada.gov/pcatoolkit/ch6_toolkit.pdf
(4) NACTO Urban Bikeway Design Guide
https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/

Legend

Greyed Out Boxes = Not Selectable, Scores still out of 4

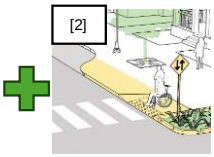
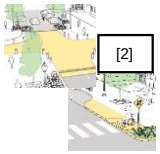
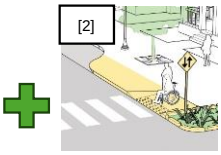
[X] = Picture Reference Number

Table 20: Street-Adjacent Pedestrian LOS Results – Scale Version

Metric	Assessment (X/4)	x Weight/Value	= Points
Pedestrian Facility		25	
Minimum Buffer/Furnishing Zone		15	
Surface Conditions		15	
ADA Compliance		10	
Mid-Block Crossings		15	
Amenities		10	
Lighting		10	
	SUM	100	

LOS Grading Distribution
A – Excellent: 100-90
B – Good: <90 – 75
C – Fair: <75 – 60
D – Poor: < 60 – 50
F – Fails: <50

Table 21: Intersection Pedestrian Framework – Scale Version

Category	Intersection Type	Assessment Level				
		4.0 - Excellent	3.0 - Good	2.0 - Fair	1.0 - Poor	0.0
Case 1	Unsignalized	 [48] Active Warning Beacons or Median Refuge Island on the major road approaches implemented	Pedestrian marked crosswalks across **all** approaches	Pedestrian marked crosswalks across **some** approaches		
	Signalized	 [2] In addition to Median Refuge Islands, the intersection has Curb Extensions.	 [47] Median Refuge Island on the major road approaches	Pedestrian marked crosswalks across all approaches with countdown signals	Pedestrian marked crosswalks across some approaches with countdown signals	
	Roundabout	 [1] Active Warning Beacons and Median Refuge Islands on **all** approaches	Active Warning Beacons and Median Refuge Islands on the major road approaches	 [1] Median Refuge Island on **all** legs of roundabout	No additions to marked crossings	
Case 2	Unsignalized	 [2] In addition to Active Warning Beacons or Median Refuge Islands, the intersection has Curb Extensions, or Raised Intersections or Raised Crosswalks.	 [48] Active Warning Beacons or Median Refuge Island on the major road approaches implemented	Pedestrian marked crosswalks across **all** approaches	Pedestrian marked crosswalks across **some** approaches	
	Signalized	 [2] In addition to Median Refuge Islands, the intersection has Curb Extensions.	 [47] Median Refuge Island on the major road approaches	Pedestrian marked crosswalks across **all** approaches with countdown signals	Pedestrian marked crosswalks across **some** approaches with countdown signals	
	Roundabout	 [1] Active Warning Beacons and Median Refuge Islands on **all** approaches	Active Warning Beacons and Median Refuge Islands on the major road approaches	 [1] Median Refuge Island on **all** legs of roundabout	No additions to marked crossings	

Legend

Greyed Out Boxes = Not Selectable, Scores still out of 4

[X] = Picture Reference Number

Table 22: Intersection Pedestrian LOS Results – Scale Version

Metric	Assessment (X/4)	x Weight/Value	= Points
Pedestrian Facility		25	
Minimum Buffer/Furnishing Zone		15	
Surface Conditions		15	
ADA Compliance		10	
Mid-Block Crossings		15	
Amenities		10	
Lighting		10	
	SUM	100	

LOS Grading Distribution
A – Excellent: 100-90
B – Good: <90 – 75
C – Fair: <75 – 60
D – Poor: < 60 – 50
F – Fails: <50

Pictures References Numbers

[1] Google Earth

[2] NACTO Urban Bikeway Design Guide https://nacto.org/publication/urban-bikeway-design-guide/

[3]https://www.brandonindustries.com/different-purposes-of-street-lighting/

[4] https://www.quora.com/Why-do-we-need-street-lights-throughout-the-night

[5] https://www.thisisthoughtful.com/3263/street-light

[6] https://www.youtube.com/watch?v=BvY51buTuaM

[7] https://casacomfortrentals.com/5-must-do-activities-in-stamford-ct/

[8] https://www.greaterauckland.org.nz/2018/09/13/quay-st-cycleway-extension-officially-open/

[9] https://www.dreamstime.com/photos-images/bike-broken-red.html

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[11] https://www.flickr.com/photos/ell-r-brown/28841951181

[12] https://empiretrail.ny.gov/poughkeepsie-albany/east-kingston-tivoli

[13] https://www.hikewnc.info/gallery/rainbow-falls-hike/

[14] https://www.devilslakewisconsin.com/2023/08/18/exploring-the-pine-river-trail/

[15] https://www.gbu-presnenskij.ru/news/hwd6.html/?q=a-view-from-the-cycle-path-being-a-member-dd-AwgZLRtV

[16] https://www.dallasparks.org/149/3073/Trails?PREVIEW=YES

[17] https://mccmeetingspublic.blob.core.usgovcloudapi.net/stphnvlltx-meet-550320e464244974991fa93905ac3102/ITEM-Attachment-001-6dbb291f96134ee09dc77844a2f55067.pdf

[18] https://www.elkrivermn.gov/facilities/facility/details/Woodland-Trails-Park-31

[19] https://www.exploredevoupark.org/paved-trails

[20] https://kineticrecreation.com/products/walking-pathways

[21] https://www.alltrails.com/us/missouri/lexington/photos

[22] https://www.environmentsforall.org/files/2015/10/Presentation_SDF14_Metro-Accessible-Svcs_Weidner.pdf

[23] https://www.hartransit.com/bikes-board-0

[24] https://pixabay.com/photos/bus-stop-london-station-city-4362319/

[25] https://www.handi-hut.com/products/accessories/solar-lighting/

[26] https://www.fsunews.com/story/news/2019/09/22/new-slanted-bus-stop-benches-spark-outrage-social-media/2410778001/

[27] https://x.com/sdmts/status/1113556199625056256

[28] Bike Louisville https://brokensidewalk.com/2015/fix-problem-bike-lanes/

[29] https://www.hcpcme.org/ellsworth/Sidewalks/5a.html

[30] https://momentummag.com/a-look-at-some-of-the-worst-bike-lanes-on-the-planet/

[31] https://nyc.streetsblog.org/2020/02/13/dots-new-protected-grand-street-bike-lane-is-still-not-protected

[32] https://www.safetysign.com/bike-signs

[33] https://www.linkedin.com/pulse/ama-dont-condemn-blue-light-street-lights-gresser-aia-leed-ap

[34] https://www.holophane.co.uk/case-studies/upgrades-residential-street-lighting

[35] https://www.flickr.com/photos/theellipsis/8461642109

[36] https://streets.mn/2016/01/22/the-case-of-the-disappearing-street-lights/

[37] https://altago.com/separated-bike-lanes/

[38] https://www.bloomberg.com/news/features/2022-12-05/urban-planner-jeff-speck-revisits-walkable-city-10-years-later

[39] https://usa.streetsblog.org/2022/09/30/not-all-roundabouts-are-created-equal-when-it-comes-to-bicycle-safety

[40] https://powerlines.seattle.gov/2014/10/08/energy-efficient-street-lighting-another-benefit-of-public-power/

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[44] https://practiceplusgroup.com/knowledge-hub/what-vision-looks-like-with-cataracts/

[45] https://www.beaconjournal.com/story/news/2020/02/02/students-canvass-to-brighten-university/1779526007/

[46] https://coloradosprings.gov/public-works/page/concrete-maintenance

[47] https://civiltechinc.com/improving-pedestrian-safety-through-cdots-arterial-street-resurfacing-program/

[48] https://www.tssco.com/product/rectangular-rapid-flashing-beacon/

Checklist LOS Frameworks

To complete each framework, users must check off or select a criteria that best fits the conditions, marking their results under the "**Check**" column.

A filled-out example is shown below, the green checkmarks: ✓ represent criteria that is met, and the highlighted boxes: ☐ shows the chosen criteria for "select one" responses. The resulting LOS based on the total is shown at the bottom.

As described in the legend found at the bottom of every table,
Highlighted Green Boxes indicate a field available to choose one criteria point, under that category, and add up the corresponding points.

Table XX: Title of the framework

Category	Criteria	Check	Points
Trail Width	Trail width is ≥ 8 ft	Select One	1.5
	Trail width is 5-8 ft		1
	Trail width is ≤ 4 ft		0.5
Conditions	No Major damage/overgrowth inhibiting travel (<5 instances/mi)	Select One	0
	Damage/overgrowth inhibits travel in a few spots (<= 10 instances/mi)		-0.5
	Damage/overgrowth inhibits travel in several spots (> 10 instances/mi)		-1
	Surface is completely damaged/overgrown, needs repair throughout		-2
	Any/All bridges are maintained, even, not bumpy	✓	0.5
Amenities	Restrooms available on trail	✓	1
	Benches are available on trail	✓	1
	Trashcans available on trail	✓	0.5
	Lighting Throughout		1
	Bicycle Repair Stations		1
	Trail Map/Information Guide	✓	1
Connectivity	Trail connects to a on-street bicycle facility	✓	1
	Trail has a connection to a transit stop		1
	Trail connects to a parking lot	✓	1
		SUM	**7**

Definitions, references, and a legend are attached below at the bottom of every table or on the next page.

Legend
Highlighted Green Box = Select One

Figure 2: Example of the Checklist Version

Based on the total number of points (7), Table 23 shows a corresponding LOS grade of C: Fair.

Table 23: Example LOS Results - Checklist Version

LOS		Points
Excellent	A	10+
Good	B	8.5 – 9.5
Fair	C	6.5 - 8
Poor	D	5 – 6
Fails	F	5 or less

For certain frameworks, involving pedestrians or bicyclists near streets/intersections, a preliminary table must be followed first as shown in Table XX, as an example. The classification later dictates what column of points is used in resulting tables. It requires some roadway characteristics, such as speed, number of vehicle lanes, and average daily traffic (ADT), as context before evaluating the existing conditions. Traffic counts for the city of Columbia can be found here: https://www.como.gov/boards/columbia-area-transportation-study-organization/traffic-counts/. The order of importance to determining the case starts with the speed limit, ADT, and then number of lanes, as shown by the green arrows.

Table 24: Case Classification Example

1. Posted Speed Limit*	2. ADT*	3. Number of Lanes*	Resulting Classification
≤ 20 MPH	0 - 2,000	No centerline or single lane one-way	Case 1
25 MPH	0 - 1,500		
	1,501 – 6,000	1 lane each direction or single lane one-way	Case 2
	Greater than 6,000		Case 3
		Multiple lanes per direction	
≥ 30 MPH	Any	Any	

*For intersection assessments, the intersecting roadway with the higher speed, followed by ADT, or number of lanes, takes priority in determining resulting classification.

Table 25: Trail Framework – Checklist Version

Category	Criteria	Check	Points
Trail Width[1]	Trail width is ≥ 8 ft	Select One	1.5
	Trail width is 5-8 ft		1
	Trail width is ≤ 4 ft		0.5
Conditions	No Major damage/overgrowth inhibiting travel (<5 instances/mi)	Select One	0
	Damage/overgrowth inhibits travel in a few spots (<= 10 instances/mi)		-0.5
	Damage/overgrowth inhibits travel in several spots (> 10 instances/mi)		-1
	Surface is completely damaged/overgrown, needs repair throughout		-2
	Any/All bridges are maintained, even, not bumpy		0.5
Amenities	Restrooms available on trail		1
	Benches are available on trail		1
	Trashcans available on trail		0.5
	Lighting Throughout		1
	Bicycle Repair Stations		1
	Trail Map/Information Guide		1
Connectivity	Trail connects to a on-street bicycle facility		1
	Trail has a connection a transit stop		1
	Trail connects to a parking lot		1
Mid-Block Crossings[2]	No Mid-block Road Crossings	Select One	2
	Grade-separated (overpass)		2
	Grade-separated (underpass) with options to cross at grade incase of underpass flooding		2
	Grade-separated (underpass) with no at-grade option		1.5
	At grade crosswalk		1
	At grade, no marked crosswalk		-1
	Grade-separated (underpass tunnel) has no lighting		-0.5
		SUM	

Legend
Highlighted Green Box = Select One Criteria Box

1 If the trail is divided (say between bikes and pedestrians), the considered trail width is the combined total width of the divided trails
2 Crossings refer to all crossings within the studied length of trail being the same type, separate scores can be given to separate lengths of a trail that contain differing type of crossing
3 Multi-surface refers to a trail system consisting of different surfaces in its cross section, intended for separated bike and pedestrian traffic
4 Monosurface refers to a singular type of surface used in the cross section the trail

Table 26: Trail LOS Results – Checklist Version

LOS by pavement type (Max points: 13)			
		 [15]	 [17]
LOS		Multi-surface[3]	Monosurface[4]
Excellent	A	10 +	-
Good	B	8.5 to 9.5	8.5 +
Fair	C	6.5 to 8	6.5 to 8
Poor	D	5 to 6	5 to 6
Fail	F	Less than 5	Less than 5

Table 27: Transit Route Framework – Checklist Version

Category	Criteria		Check	Points
Frequency of Service (headway or time between buses)[1] [2]	< 10 mins	Passengers don't need schedules	Select One	5
	10 to 14 mins	Frequent Service, Passengers consult schedules		4
	15 to 20 mins	Maximum desirable wait time if transit vehicle is missed		3
	21 to 30 mins	Service unattractive to choice riders		2
	31 to 60 mins	Service available during the hour		1
	> 60 mins	Service unattractive to all riders		0
Availability	Service the whole week sometimes		Select One	1
	Service only provided only part of the week			0
Connectivity and Accessibility	Route connects to residential areas			1
	Route connects to community hubs			1
Travel Time (ratio of car travel time to bus travel time) (t = bus travel time / car travel time)[3]	t ≤ 1.2 or bus travel time is within 5 minutes of car travel time		Select One	3
	t ≤ 1.5			2
	t ≤ 2.0			1
	t > 2.0			0
Reliability[4] (on time considered between 1 min early and 5 mins late)[5]	On time for 90% or more of the stops		Select One	2
	On time for 85% or more of the stops			1
	On times less than 85% of the stops			0
Other	Bus has system to alert riders to delays (app, message board, etc.)			1
	Bus has ability to store and carry bicycles			1
			SUM	

Legend
Highlighted Green Box = Select One

References

(1) TRB Transit Cooperative Research Program: Transit Capacity and Quality of Service Manual https://nap.nationalacademies.org/read/24766/chapter/6#199

(2) Yiqiu, Tan & Qin, Lihui & Ismael, Imad & Naser, Ali. (2021). Performance Measures and Level of Transit Service Assessment of Public Transport Bus Network in Baghdad City during 2002-2003. Tikrit Journal of Engineering Sciences. 28. 71-87. 10.25130/tjes.28.3.06.

(3) Liao, Y., Gil, J., Pereira, R.H.M. *et al.* Disparities in travel times between car and transit: Spatiotemporal patterns in cities. *Sci Rep* **10**, 4056 (2020). https://doi.org/10.1038/s41598-020-61077-0

(4) FHWA Travel Time Reliability: Making It There On Time, All The Time https://ops.fhwa.dot.gov/publications/tt_reliability/ttr_report.htm

(5) TRB Transit Cooperative Research Program: Minutes Matter: A Guide to Bus Transit Service Reliability https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=3929

Table 28: Transit Route LOS Results – Checklist Version

LOS		Points (Max 15)
Excellent	A	14+
Good	B	11 to 13
Fair	C	9 to 10
Poor	D	6 to 8
Fails	F	5 or less

Table 29: Transit Stop Framework – Checklist Version

Category	Criteria	Check	Points
Stop Amenities[1] [2]	Bench		1
	Shelter		1
	Schedule Posted		1
	Real Time Updates		0.5
	Heating and Cooling		0.5
	Lighting		1
Connectivity with other Transportation Systems	Crosswalk is within 100 ft[3]	Select One	1
	Crosswalk is within 200 ft[4]		0.5
	Sidewalk is connected to pedestrian network		1
	Bus stop meets ADA requirements		1
	Bike facilities connected to stop		1
	Commercial/public parking with 200 ft of stop		1
		SUM	

Legend
Highlighted Green Box = Select One

References
(1) Pedestrian Safety Guide for Transit Agencies https://safety.fhwa.dot.gov/ped_bike/ped_transit/ped_transguide/ch3.cfm#a6
(2) Easter Seals, Inc. Toolkit for the Assessment of Bus Stop Accessibility and Safety https://www.nadtc.org/wp-content/uploads/NADTC-Toolkit-for-the-Assessment-of-Bus-Stop-Accessibility.pdf
(3) NACTO Urban Street Design Guide: Crosswalks and Crossings https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/
(4) Walker, J. (2011, April 24). basics: walking distance to transit. Human Transit. https://humantransit.org/2011/04/basics-walking-distance-to-transit.html

Table 30: Transit Stop LOS Results – Checklist Version

LOS		Points (Max 9.5)
Excellent	A	8.5+
Good	B	7.5 to 8
Fair	C	8 to 7
Poor	D	4.5 to 5.5
Fails	F	4 or less

Table 31: On-Street/Adjacent Bicycle Facilities Framework – Checklist Version

Category	Criteria	Check	Point System Based on Case		
			Case 1	Case 2	Case 3
Type of Bike Facility[1]	Physically Separated Bikeways[2]	Select One	5	5	5
	Shared-Use Facilities[3]		5	5	5
	Clear Buffer Bike Lanes[4]		5	4	4
	Bike Boulevard		6	3	1
	Marked Bike Lane (≥ 5 ft)		4	3	3
	Marked Bike Lane (< 5 ft)		3	2	1
	Wide Paved Shoulder (≥ 5 ft)		3	2	2
	No Bicycle Facilities		0	0	0
Bike Facility Surface Conditions	Surface is completely damaged or overgrown, needs repair throughout	Select One	-3	-3	-3
	Damage/overgrowth inhibits travel in several spots (> 5 instances/mi)		-2	-2	-2
	Damage/overgrowth inhibits travel in a few spots (5 instances/mi)		-1	-1	-1
Utility	Gaps in Continuity/Incomplete		-1	-1	-1
	Some Utilities Blocking Path	Select One	-1	-1	-1
	Path Obstructed by Parked Vehicles and Utilities		-2	-2	-2
Signage/Visibility	Faded Pavement Markings		-0.5	-0.5	-0.5
	Colored Pavement Facilities[5]		2	2	2
	Wayfinding Signage Provided[6]		1	1	1
Lighting	Not Well Lit at Night		-0.5	-0.5	-0.5
Destination Amenities	Repair Stations		1	1	1
		SUM			

References

(1) NACTO Urban Bikeway Design Guide https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/choosing-ages-abilities-bicycle-facility/

(2) FHWA Separated Bike Lane Planning and Design Guide https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page01.cfm#chapter1

(3) NACTO Urban Bikeway Design Guide https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/ages-abilities-design-toolbox/

(4) NACTO Urban Bikeway Design Guide https://nacto.org/publication/urban-bikeway-design-guide/bike-lanes/buffered-bike-lanes/

(5) NACTO Urban Bikeway Design Guide https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/colored-pavement-material-guidance/

(6) NACTO Urban Bikeway Design Guide https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/

Legend
Highlighted Green Box = Select One

Table 32: On-Street/Adjacent Bicycle Facilities LOS Results – Checklist Version

LOS		Points (Max 9)
Excellent	A	7+
Good	B	< 7 to 6
Fair	C	< 6 to 5
Poor	D	< 5 to 4
Fails	F	< 4

Table 33: Intersection Bicycle Facilities Framework – Checklist Version

Type of Intersection	Bike Facility Treatments	Check	Point System Based on Case		
			Case 1	Case 2	Case 3
Unsignalized Intersection	Active Warning Beacon		1	1	1
	Intersection Crossing Markings		1	1	1
	Hybrid Beacon		1	1	1
	Advance Warning Signs		1	1	1
	Median Refuge Island		2	2	2
	Raised Intersection		2	2	2
Signalized Intersection	Through Bike Lanes		1	1	1
	Bicycle Signal Heads		1	1	1
	Bike Boxes		1	1	1
	Intersection Crossing Markings		2	2	2
	Median Refuge Island		1	1	1
	Protected Intersection(1)		6	6	6
Roundabout	Active Warning Beacons		1	1	1
	Sharrows/Share The Road Signage		1	1	1
	Median Refuge Island		2	2	2
	Separated Bike Lanes/Crossings		6	6	6
Intersection Type Point Subtotal					
Bike Facility Conditions	Surface is completely damaged/overgrown and Faded Pavement Markings	Select One	-3		
	Surface damaged, inhibits travel		-1.5		
	Faded Pavement Markings		-0.5		
	Not Well Lit at Night		-0.5		
	Active/Hybrid Beacons Not Working		-1		
Bike Facility Condition Point Subtotal					
Intersection Type + Conditions = Total Number of Points					

References

(1) NACTO Don't Give Up at the Intersection https://nacto.org/publication/dont-give-up-at-the-intersection/protected-intersections/

Legend

Highlighted Green Box = Select One

Table 34: Intersection Bicycle Facilities LOS Results – Checklist Version

LOS		Points (Max 8)
Excellent	A	≥ 6
Good	B	< 6 to 4
Fair	C	< 4 to 3
Poor	D	< 3 to 2
Fails	F	< 2

Table 35: Street Adjacent Pedestrian Facilities Framework: Part 1 – Checklist Version

Category		Criteria	Check	Point System Based on Case	
				Case 1	Case 2
Pedestrian Facility[1]		Public sidewalk with a pedestrian through zone of 8-12 ft (excludes curb zone)	Select One	3	3
		Public sidewalk with a pedestrian though zone of 5-7 ft (excludes curb zone)		2	2
		Public sidewalk with a pedestrian through zone of 4 ft or less (excludes curb zone)		1	1
		Shared-use path		2	2
		No Pedestrian Facilities		0	0
Facility Characteristics	Buffer/ Furnishing Zone Characteristics [2]	Buffer between the sidewalk(s) and edge of pavement is ≥ 6 ft	Select One	2	3
		Buffer between the sidewalk(s) and edge of pavement is at least 4 ft		1	2
		Buffer between the sidewalk(s) and edge of pavement is at least 2 ft		0	-1
		There is no buffer between ped facility and road		-1	-2
	Addition Separation	There is a curb between facility and roadway		0.5	0.5
		There is one/more of the following between sidewalk/path and roadway: parking lane, wide shoulder ≥ 5-ft		1	2
ADA Compliance at Driveway Crossings[3] (Not Residential Properties)	Ramps Across Driveways	**(All)** At all driveways where the sidewalk is not level with the street, ramps are provided if necessary	Select One	1	1.5
		(Some) At some driveways where the sidewalk is not level with the street, ramps are provided if necessary		0	0
		(None) No Ramps are provided at driveways where the sidewalk/path is not level with the street		-1	-1
	Detectable Warning Surfaces	**(All)** Detectable warnings are provided at all driveways	Select One	1	1.5
		(Some) Detectable warnings are provided at some driveways		0	0
		(None) Detectable warnings are not provided at driveways		-1	-1
			Part 1 Subtotal		

References

(1) NACTO Urban Street Design Guide https://nacto.org/publication/urban-street-design-guide/street-design-elements/sidewalks/

(2) Portland Pedestrian Design Guide https://www.portland.gov/sites/default/files/2022/PBOT%20Pedestrian%20Design%20Guide%202022.pdf

(3) ADA Curb Ramps and Pedestrian Crossings https://archive.ada.gov/pcatoolkit/ch6_toolkit.pdf

Legend

Highlighted Green Box = Select One

Table 36: Street Adjacent Pedestrian Facilities Framework: Part 2 – Checklist Version

Category	Criteria	Check	Point System Based on Case	
			Case 1	Case 2
Mid-Block Crossing	No Mid-block Road Crossings	Select One	0	0
	Grade-separated (overpass)		3	3
	Grade-separated (underpass) with an option at grade (marked crossings) in case of underpass flooding		3	3
	Grade-separated (underpass) with no at-grade option		3	2
	At grade with marked crossings		2	1
	Grade-separated (underpass tunnel) has no lighting		-0.5	-0.5
Pedestrian Facility Surface Conditions	Damage/overgrowth inhibits travel in a few spots (5 instances/mi)	Select One	-0.5	-0.5
	Damage/overgrowth inhibits travel in several spots (> 5 instances/mi)		-1	-1
	Surface is completely damaged or overgrown, needs repair throughout		-2	-2
Utilities/Amenities	Gap in Continuity		-1	-1
	Lighting		1	1
	Trees/Shade		0.5	0.5
	Signage for Wayfinding[4]		1	1
	Benches		1	1
Part 2 Subtotal				
Part 1 + Part 2 = Total Number of Points				

References

(4) NACTO Urban Bikeway Design Guide https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/

Legend

Highlighted Green Box = Select One

Table 37: Street Adjacent Pedestrian Facilities LOS Results – Checklist Version

LOS		Points (Max 18)
Excellent	A	16+
Good	B	15.5 to 12
Fair	C	11.5 to 8
Poor	D	7.5 to 5
Fails	F	4.5 or less

Table 38: Intersection Pedestrian Facilities Framework – Checklist Version

Type of Intersection	Pedestrian Facility Treatments	Check	Point System Based on Case	
			Case 1	Case 2
Unsignalized Intersection (Not Mid-Block Crossings, See Streets)	Pedestrian Hybrid Beacons[4]		2	2
	Rapid Flashing Beacons[5]		1	1
	Medians		1	1
	Crosswalk Markings		0.5	1
	High-Visibility Crosswalk Markings[6]		1	1.5
	Curb ramps		2	2
	Detectable Warning Surfaces		0.5	0.5
	Curb Extensions[2]		2	2
	Pedestrian Safety Islands[3]		2	2
Signalized Intersection	Pedestrian Countdown Signals		1	1
	Porkchops/Channelized Right-turn Lanes[1]		-0.5	-1
	Prohibited Right on Red		1	1
	Crosswalk Markings		0.5	1
	High-Visibility Crosswalk Markings[6]		1	1.5
	Curb Ramps		2	2
	Detectable Warning Surfaces		0.5	0.5
	Curb Extensions[2]		2	2
	Pedestrian Safety Islands[3]		2	2
Roundabout	Pedestrian Hybrid Beacons[4]		2	2
	Rapid Flashing Beacons[5]		1	1
	Crosswalk Markings		0.5	1.0
	High-Visibility Crosswalk Markings[6]		1	1.5
	Curb Ramps		2	2
	Detectable Warning Surfaces		0.5	0.5
	Pedestrian Safety Islands[3]		2	2
Intersection Type Point Subtotal				
Pedestrian Facility Conditions	Surface is completely damaged/overgrown and Faded Pavement Markings	Select One	-3	
	Surface damaged, inhibits travel		-1.5	
	Faded Pavement Markings		-0.5	
	Not Well Lit		-1	
	Active/Hybrid Beacons Not Working		-1	
Pedestrian Facility Condition Point Subtotal				
Intersection Type + Conditions = Total Number of Points				

References

(1) Porkchops https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/
(2) Curb extensions - Visually and physically narrow the roadway creating shorter cross walks https://nacto.org/publication/urban-street-design-guide/street-design-elements/curb-extensions/
(3) Pedestrian Safety Island - Reduces the time in which a ped is exposed in an intersection. https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/pedestrian-safety-islands/
(4) Pedestrian Hybrid Beacons https://highways.dot.gov/safety/proven-safety-countermeasures/pedestrian-hybrid-beacons
(5) Rapid Flashing Beacons https://www.portland.gov/transportation/traffic-operations/information-rapid-flashing-beacons
(6) Right on Red, Crosswalk Markings https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/conventional-crosswalks/

Legend

Highlighted Green Box = Select One

Table 39: Intersection Pedestrian Facilities LOS Results – Checklist Version

LOS		Points
Excellent	A	7+
Good	B	5 to 6.5
Fair	C	3.5 to 4.5
Poor	D	2 to 3
Fails	F	1.5 or less

Appendix B: Engagement

CATSO 2055 MTP UPDATE

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BeHeard Site

BeHeardComo is the hub of community engagement for the City of Columbia. BeHeardCoMo was created as a way for residents of the Columbia area to learn about projects and initiatives shaping the future of the region. It also allows residents to easily provide feedback on these projects and initiatives. For the 2055 CATSO MTP Update, a page was created on the BeHeardCoMo site specifically for the project. The page gave background information on the purpose of the Metropolitan Transportation Plan and information on ways that members of the public could help with the plan's formation. Other features of the page included:

- A FAQ section, where members of the public could find answers to common questions,
- A "documents" section, where public meeting flyers and content shared at public meetings was available,
- A "key dates" section, where the date, time and location of public meetings could be found,
- A "who's listening" section, where contact information for key project team members was provided,
- A link to the previous transportation plan for the Columbia region, called the CATSO FY 2050 Long-Range Transportation Plan,
- Links to both the first and second surveys,
- A "comments" tab, where members of the public could post publicly visible comments pertaining to the plan and where other members of the public could "like" or "comment" on the posts, and
- A "questions" tab, where members of the public could submit questions directly to the project team.

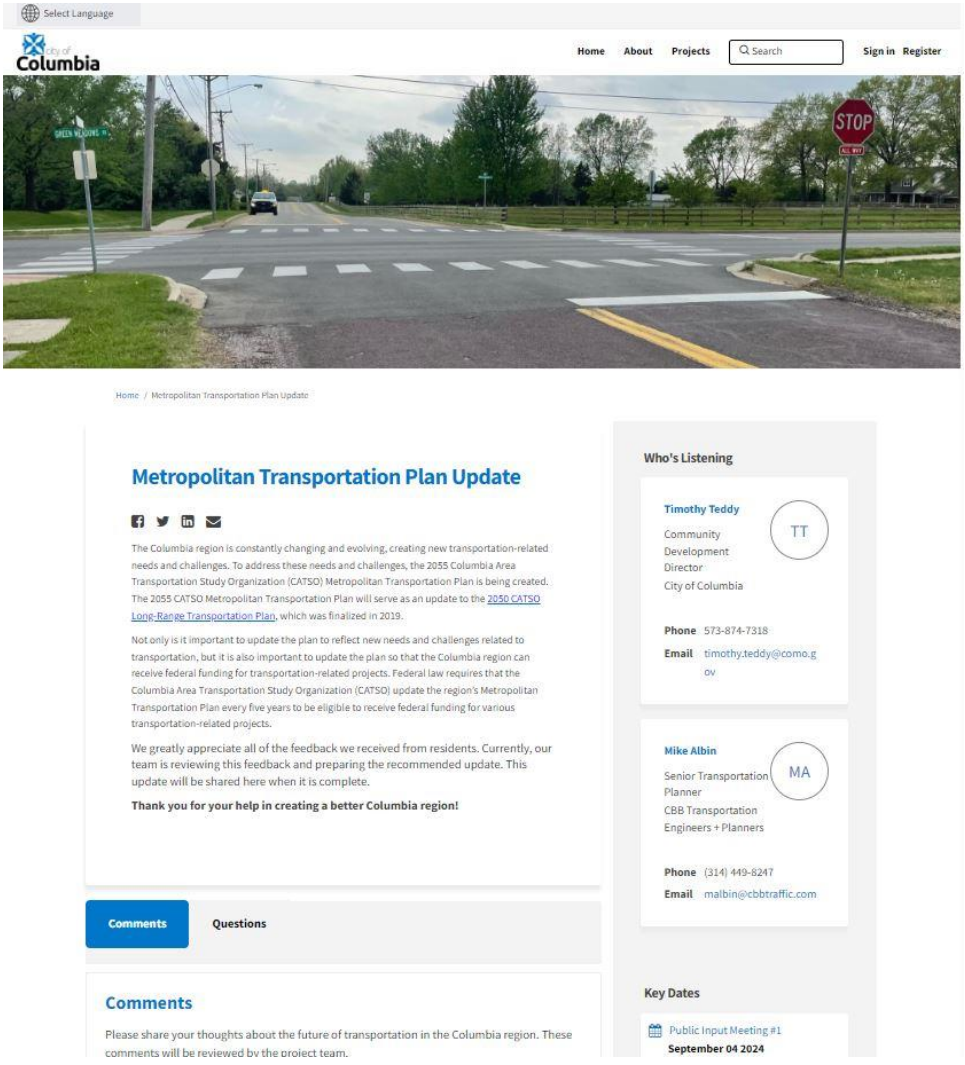
The following comments were posted on the 2055 Metropolitan Transportation Plan Update's BeHeard CoMo page under the "Comments" tab:

- "**Encourage the use of electric vehicles by taxi companies in Columbia:** Electric cars are ideal for use as taxis. If the City subsidized electric taxis by providing free or reduced cost electricity it would clearly demonstrate the commitment of Columbia to reducing fossil fuel use. And if the savings to the taxi companies from not having to buy gasoline could be passed through to customers in the form of reduced fares, it could make taxis a very attractive alternative for low-income families and seniors who don't want to (or can't) drive their own cars and for whom the bus routes are not convenient. A taxi recharging station utilizing solar power from installations like the city's solar panel facility on Bernadette Drive, with batteries for night charging, would eliminate the cost to the City of electricity for taxi batteries."
- **"Consider 'right-sizing' projects:** Many streets and roads throughout Columbia have lane widths wider than necessary (built to a highway standard) and excessive lanes which leads to people speeding through the city. This is especially problematic around central Columbia and many residential neighborhoods where pedestrians and cyclists are present

and higher design speeds lead deaths and serious injury of those outside cars. These projects could be completed along with adding well designed bike lanes, sidewalk or multiuser paths depending on the situation."

    - This post received 3 likes.

- "**Survey Distribution:** In response to my last question, I just want to point out that the newest version of the survey has not been posted on social media. The first survey was distributed but the second survey has not been circulated to the same extent. Thank you!"
    - This post received 1 comment from a City of Columbia staff member and project team member, who said: "thank you for bringing that to our attention. We will make sure it gets shared out more."
- **"West Ash should be designated a 'neighborhood collector,' not a 'major collector.' CATSO Coordination Committee should include citizens:** Move cars through the Ash corridor at a calmed speed as well as accommodate pedestrians and bikes. Narrower lanes, less pavement and more sharing of a street built years ago with many driveways. The CATSO Coordinating Committee would make better decisions if there were 3 citizens included in the vote, appointed by the city and county.



Stakeholder Meetings

In an effort to receive a diverse set of perspectives on the MTP update, a variety of stakeholders were solicited for participation in the process. When identifying a list of possible stakeholders, the Columbia Public Participation Plan was referenced to ensure that our stakeholder list was comprehensive. We identified that the stakeholder group should consist of:

- Columbia Metropolitan Area Citizens
    - Minority populations
    - Low-income populations
    - Limited English proficiency populations
    - Elderly populations
    - Disabled populations
    - Limited mobility populations
    - Transportation users independent of special interest groups
- Academic Institutions
- Local Business Entities
- Private Transportation Providers
- Government Officials and Entities
- Environmental Organizations

Specific organizations, committees, businesses, and entities that fit into the above categories were then identified. After specific stakeholders were identified, they were contacted via email. The email outlined the purpose of the plan, the purpose and importance of stakeholders, and the expectations for them as stakeholders. The groups that expressed interest and joined the stakeholder group were:

- Boone County Family Resources
- Boone County Fire Protection District
- Cambio Center
- Catholic Charities of Central and Northern Missouri
- City of Columbia Office of Sustainability
- City of Refuge
- Climate and Environment Commission
- Central Missouri Community Action
- COLT Railroad
- Columbia Board of Realtors
- Columbia College
- Columbia Housing Authority
- Columbia Police Department
- Columbia Public School District
- First Last Mile
- GoCOMO
- Homebuilders Association
- Local Motion
- OATS Transit
- Powerhouse
- Regional Economic Development Inc. (REDI)
- Scheppers Distributing
- Sierra Club
- Services for Independent Living
- Disabilities Commission
- The District
- The Loop
- Transportation and Infrastructure Committee
- United Community Builders
- University of Missouri
- West Ash Neighborhood

Round One Stakeholder Meetings

The first round of Stakeholder Meetings was held throughout mid-August 2024, primary the week of August 19th. The goal of the first round of stakeholder meetings was to gain an understanding of the transportation-related needs of the different entities that the stakeholders represented. These identified needs would then be used to develop a consensus around visions, goals, and objectives that would drive the plan forward and maintain buy-in from stakeholders.

Stakeholders were given the option to attend the meetings in-person at Columbia City Hall or virtually. In total, 28 meetings were held, with 31 different entities represented (stakeholders were divided into groups based on the purpose of their organization). Meetings each lasted about an hour and consisted of a presentation from the project team and a facilitated conversation with entities (the PowerPoint slides shown at this meeting may be found in Appendix B). The presentation provided background information on CATSO, their role, the purpose of the 2055 CATSO MTP Update, and the role of stakeholders. The facilitated conversation with entities began with an open question from the project team- "from your perspective, what seems to be working well in the Columbia area in regards to transportation and what does not seem to work as well?" This opened a discussion with stakeholders about how the MTP Update could address the needs of their entity. Meeting notes were taken at each meeting and can be found in Appendix B. These conversations helped the project team to form recommendations as part of the MTP Update that reflected the identified needs of stakeholders.

The following are major takeaways from the round one stakeholder meetings:

Bike and Pedestrian Issues

- Filling gaps in the sidewalk system and ensuring good maintenance on all sidewalks should be a high priority. Implementing the City's Sidewalk Master Plan and developing a regional sidewalk maintenance plan are important steps forward in this area.
- Providing safe pedestrian roadways crossing should also be a high priority. Resources are available such as FHWA's Safe Transportation for Every Pedestrian (STEP) program. https://highways.dot.gov/safety/pedestrian-bicyclist/step
- Walking at night feels unsafe in some areas due to the lack of streetlights or streetlights being out of order.
- Bike infrastructure should be better connected and better protected. Every roadway project should consider how bicycle infrastructure can create a better-connected system.

- Traffic calming measures are supported by the local community and create safer areas for walking and biking.

Transit Issues

- Free bus fares are appreciated.
- The wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Expanding bus routes would make many areas of the region more accessible for transit users.
- The bus system can be hard to understand, especially for non-native English speakers.
- The transit system can be hard to use for those with disabilities. Not only do the buses need to be ADA accessible, but bus stops and the routes to the bus stops need to be ADA accessible as well.
- A regional transit and connectivity study could help to coordinate various transit needs and services throughout the CATSO region and between the CATSO region and other areas such as Jefferson City and Moberly.

Roadway Issues

- Traffic congestion is well managed compared to many urban areas.
- Conducting Road Safety Audits (RSA), such as the recent Paris Road/Route B RSA, could help improve road safety for all users.
- Roadways need to be designed and constructed to accommodate larger vehicles that are used for emergency response and deliveries.
- A roadway plan, like the East Area Plan, is needed for the area west of Perche Creek.
- Parking is generally available in the region but can be difficult downtown and during major events. A regional parking and wayfinding plan could explore leveraging smart parking technologies to improve parking ease and efficiency for the region's visitors.
- A regional plan for electric vehicle charging stations is needed.

CATSO 2055 MTP Update

CBB TRANSPORTATION ENGINEERS+PLANNERS

city of Columbia

COUNTY OF BOONE MISSOURI BOONE COUNTY GOVERNMENT

MoDOT

Team Introductions

Shawn Leight, PE, PTOE, PTP
Project Principal

Mike Albin, AICP
Project Manager

Julia Curry
Project Planner

Claire Sherburn
Engagement Coordinator

CATSO Representatives

Mitch Skov
Senior Planner | CATSO

Thaddeus Yonke
Senior Planner | Boone County

Pat Zenner
Development Services Manager | City of Columbia

Tim Teddy
Community Development Director | City of Columbia

METROPOLITAN TRANSPORTATION PLAN
COLUMBIA AREA
TRANSPORTATION STUDY ORGANIZATION
CATSO
2055 UPDATE

Introduction to the Columbia Area Transportation Study Organization(CATSO)

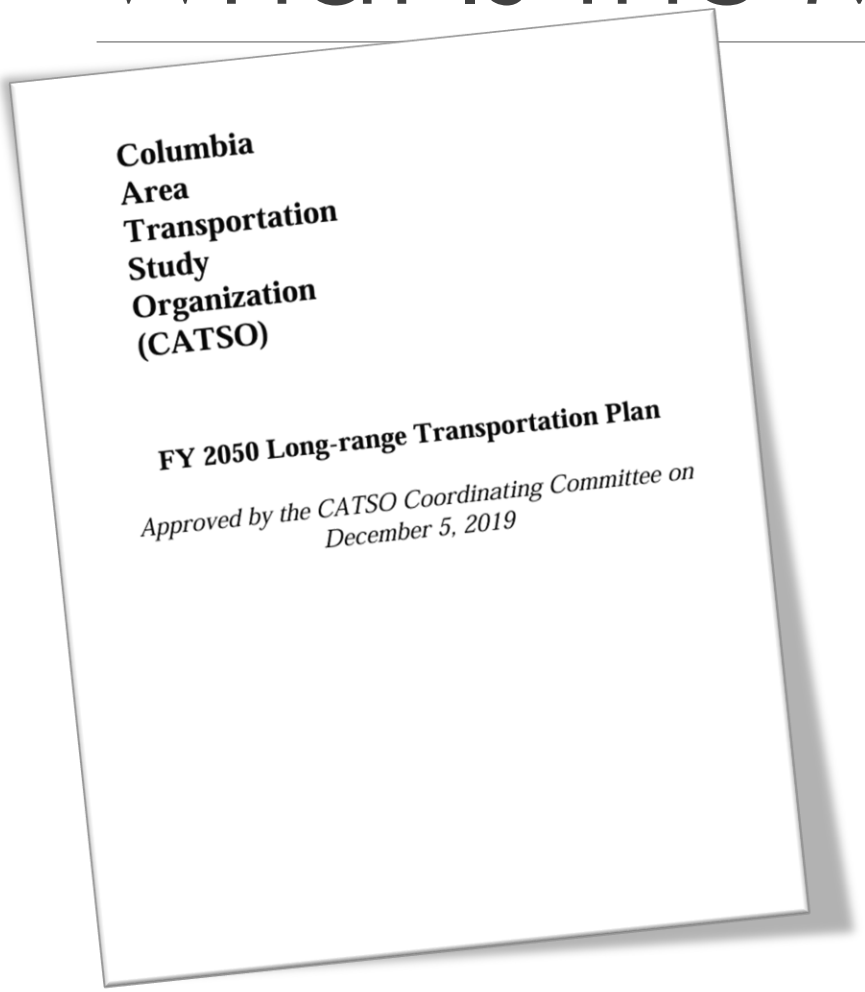
What is CATSO?

- Coordinates and plans transportation projects in the Columbia, Missouri area
- Covers the Columbia Metropolitan Planning Area (MPA)
  - Columbia and central Boone County

Why Do They Exist?

- Improve transportation infrastructure; Enhance mobility and accessibility for residents
  - Conduct various transportation studies and analyses
  - Develop and update the Metropolitan Transportation Plan (MTP)
- Promote sustainable and efficient transportation systems
- Develop the Transportation Improvement Program, a four-year listing of area transportation projects using federal funding

What Is the MTP?



A comprehensive, long-range plan for a metropolitan area's transportation system

- Guides development to meet current and future transportation needs over 20-25 years.
- Federal requirement to receive federal funding for regionally important transportation projects

Key Components

- Vision and Goals: Desired outcomes for the transportation system.
- Existing Conditions: Current state assessment of infrastructure.
- Future Needs: Projections based on growth and trends.
- Strategies and Projects: Specific initiatives to achieve goals.

Why Is the MTP Important?

Benefits to the Columbia MPA

- Encourages regionally coordinated transportation planning among a variety of transportation entities
- Prerequisite to receive federal and state grant funding used to fund a significant percentage of regional transportation projects.
  - Federal funding: ~$22 million annually
  - State funding: ~$20 million annually

Fulfills federal mandate

Used for planning to achieve environmental and financial sustainability

Why Do We Update the MTP?

Changes in demographics and travel patterns

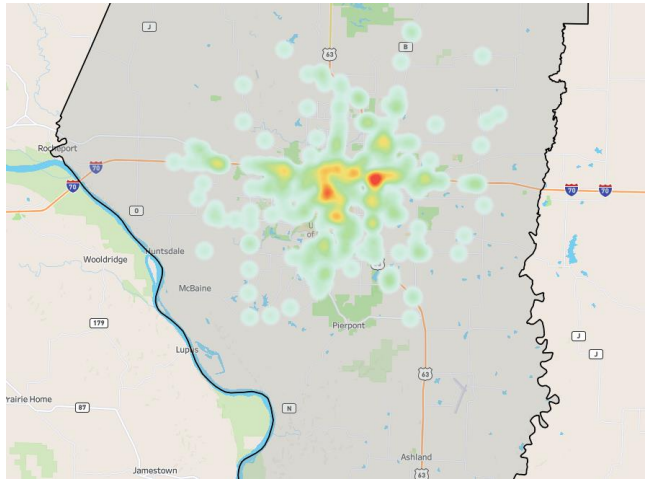
Technological advancements

Environmental considerations

New regulations and funding opportunities

Improve Safety

Fatal and Serious Injury Crash Density (2019-2024)



Key Components Anticipated in the Updated MTP

New projects and initiatives

Revised priorities and strategies

Improved data and analytics

New Level of service metrics for non-motorized transportation

Strategies for new and innovative financial tools to fund transportation projects

Citizen's Guide to the 2055 CATSO MTP

Stakeholder Roles and Responsibilities

Provide input and feedback representing your agency or community

Discuss relevant issues to establish a unified plan

Your input will help guide the direction of the plan, including:

- Vision
- Goals
- Objectives
- Recommendations

Data Needs

Timeline

Round 2 Meetings
- Scheduled for **September 3rd and 4th**
- Divided into transportation topics:
  - Bicycles
  - Pedestrians
  - Transit
  - Freight
  - Student Transportation
  - Micromobility
  - Safety and Mobility
- Stakeholders invited to participate in relevant topics

Third stakeholder meeting: **likely week of September 30**
- Draft plan discussed

*The plan must be complete by **winter 2025.***

Second Round Meetings

Tuesday, September 3

10:30–12:00 | Bicycles

1:00–2:30 | Pedestrians

3:00–4:30 | Transit

Wednesday, September 4

8:30–10:00 | Freight

10:30–12:00 | Micromobility

1:00–2:30 | Student Transportation

3:00–4:30 | Safety and Mobility

Columbia Area Transportation Study Organization

Metropolitan Transportation Plan Update

OPEN HOUSE MEETING

Columbia City Hall
701 E. Broadway
Room 1A-1B

Wednesday, September 4
6:00 PM - 8:00 PM

At our Open House Meeting, you'll have the opportunity to:

- Discuss transportation issues that matter to you
- Share your ideas and suggestions
- Learn about the plan update and ask the team questions

WHAT IS THIS FOR?

The US Department of Transportation (USDOT) requires that Metropolitan Planning Organizations, including the Columbia Area Transportation Study Organization, to maintain a Metropolitan Transportation Plan as a condition to be eligible to receive federal funding for bicycle, pedestrian, transit, and roadway infrastructure projects. USDOT requires that this plan be updated every five years to account for changes in demographics, development, and travel patterns.

Scan for Survey

Contact Us

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Upcoming Public Open House

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Thanks!

BeHeard Project Page:

https://beheard.como.gov/catso-metropolitan-transportation-plan-update

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting: Columbia Public School District

Tuesday, August 13, 2024: 2:00 PM- Virtual

Attendees:

Tony Maltiba, *Transportation Director of Columbia Public Schools*
Lazell Ofield II, *Chief Operations Officer for Columbia Public Schools*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Existing system
   a. About 19,000 kids travel to and from Columbia Public Schools each day, which is a major source of traffic on Columbia roads.
   b. About 8,000-10,000 kids use the bus to get to and from school each day.
   c. The Columbia Public School District has 140 buses and 123 bus routes.
   d. Buses used by Columbia Public Schools for student transportation are leased by DS Bus Line, who oversees bus maintenance and hiring drivers.
   e. Elementary school kids living within 1 mile of school are not given the option for transportation and are encouraged to walk but are often driven by parents.
   f. High school kids living within 2 miles of school are not given the option for transportation and are encouraged to walk but often drive or are driven.
   g. Buses park at 3511 Clark Lane, which is a district-owned facility.

II. Issues/Concerns
   a. Many parents don't feel comfortable allowing children to walk to school.
   b. Columbia Public Schools' bus system is struggling to hire and keep bus drivers.
   c. Road construction significantly delays buses often. Knowing about road closures and construction or crash-related delays ahead of time would allow the bus routes to be adjusted ahead of time and minimize delays. There is concern surrounding the I-70 project and how it will affect Columbia Public Schools' bus routes.
   d. The new development on S Sinclair Road should preserve the sidewalks and crosswalks that are currently there and are heavily used by children attending nearby schools.
   e. Columbia Public Schools do not see EV buses as a possibility for the public school system due to concerns about price, bandwidth, and high energy demand.

III. Next Steps
   a. Columbia Public Schools will let CBB know if there are specific locations with sidewalk and crosswalk needs and if there are specific locations with congestion issues.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Columbia Transit

Monday, August 19, 2024: 1:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Mike Sokoff, *Transit and Parking Manager at City of Columbia*
Pat Zenner, *City of Columbia*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Existing System
   a. The GoCOMO bus system currently has 3 buses running 6 fixed routes (combined routes). The bus system's headway is 90 minutes but used to be 45 minutes.
      i. This longer headway plus the combined routes is due to the driver shortage that the system is experiencing.
      ii. There are currently only 27 drivers. The system would require 36-40 drivers in order for the routes to be uncombined and for 45-minute headways.
   b. The bus system provides about 24,000 rides per month.
      i. This is much lower ridership than last year.
      ii. Many riders are non-destination riders, but the bulk of riders are using the bus to get to and from their jobs.
   c. The bus station on Wabash acts as the hub of the bus system.
   d. GoCOMO's paratransit system includes 8-9 vans, which provide around 250 rides per day.
      i. 4 new paratransit vans will be added in September of 2024.
      ii. Paratransit vans also serve the University of Missouri.
      iii. If the system was better staffed, rides per day would be closer to 300.
      iv. The system prioritizes giving rides to those with medical needs.
   e. GoCOMO currently has 4 electric buses and will be adding 6 more.
   f. GoCOMO has a contract with the University of Missouri to provide on-campus shuttles.
   g. Buses and paratransit are currently fare free for riders.
      i. Buses became fare free during COVID-19 and has remained this way since.
   h. 23.2 million was awarded to Columbia though a RAISE grant to redo/modernize transit facilities/bus stops and to add shelters.
      i. They are currently working to identify priority locations for bus stop shelters, which will guide investments.
      ii. Some shelters would need to be built on private properties, but property owners are sometimes hesitant to allow shelters to be built on their property.

i. The current system uses federal funding and typically receives about $2 million per year.
    i. This year (2024), the amount of federal funding increased to $4.1 million, but it requires cost sharing from Columbia.
    ii. GOCOMO gets partial sales tax revenue to meet 50/50 grants.
    iii. MoDOT has increased GoCOMO's funding to $214,000 this year.
j. The University of Missouri parking spaces used to be assigned but are now first come-first serve.
k. Parking is essentially not enforced after 6 PM in Columbia.
l. GoCOMO received a RAISE Grant of $23 million to modernize their transit center and bus stops.

II. Issues/Concerns
a. It is difficult to incentivize taking the bus when parking is fairly cheap and it is easier to use a car to get around.
b. Riders must wait 90 minutes between buses at a single stop.
    i. Increasing the frequency of buses to at least one bus every 30 minutes is a #1 priority, but there are concerns about what this would cost.
c. GoCOMO is struggling to hire drivers.
    i. The DOT hiring process is quite complicated and requires several qualifications (including drug tests), which often deters new drivers.
    ii. The minimum hours that hired drivers drive per week is around 52 hours.
d. There have been many complaints from the community about how inaccessible the bus stops are, especially coming from the disabled community.
    i. Sidewalks connecting bus stops are a real need.
e. There are concerns about the bus system being fare free and it encouraging non-destination riders, who use the bus to keep cool in the summer and keep warm in the winter.
    i. There is conversation around bringing fares back.
    ii. If fares were brought back, they could be a burden to lower income people using the bus.
f. The GoCOMO system does not have sustainable revenue.
    i. Knowing how much money is coming in for GoCOMO ahead of time would allow the system to budget and plan projects/investments.
    ii. The GoCOMO bus system heavily relies on the federal government's funding in order to survive, but would like to have an alternate funding source.
    iii. There is interest in a sales tax to support GoCOMO, but there is concerns that this would not be politically popular.

III. Other Comments
a. Mizzou is considering adding off-campus parking lots.
    i. People that are willing to park out in these lots would only be charged $5/month.
    ii. These lots may be attractive to hospital staff.
    iii. If there is interest in these lots, a bus route could be created to serve those parking in the lots.
b. They were considering providing shuttles to and from housing facilities/complexes.

i. A benefit of this is that it would increase ridership, which would increase federal funding. However, the bus system does not have the capacity to reach these locations and the complexes often have roads that are too small or tight for buses.

c. They want to increase the level of service for the University of Missouri and start service earlier and run service later.
d. There is interest in a regional transit authority that would allow for a commuter service connecting Jefferson City and Columbia and would allow for a route connecting the airport to Columbia.
    i. There is a demand for service connecting the airport to Columbia, especially from University of Missouri students.
e. There is interest in a micro-transit system that would use smaller vehicles (vans, small buses, etc.) and provide door-to-door service for anyone that needs a ride.
    i. Rides would need to be scheduled in advance but would operate similarly to Uber/Lyft.
    ii. Systems like these would need to be heavily subsidized.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Disabilities Commission

Monday, August 19, 2024: 4:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Ann Marie Gortmaker, *Disabilities Commission*
Adam Kruse, *Disabilities Commission*
John Bowders, *Disabilities Commission*
Rene Powell, *Disabilities Commission*
Pat Zenner, *City of Columbia*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. The transportation system in Columbia presents challenges for people with disabilities. Examples of challenges and ideas for ways to improve the system are discussed below.

II. Transit
   a. The transit system does not provide the level of service that many people need because of the system's infrequent service, limited hours of operation, and bus crowding. Bus crowding is especially an issue for people with wheelchairs.
   b. Attendees said that they appreciate Columbia's free bus fares and the move toward electric powered busses.
   c. The attendees talked about the level of service provided by the transit systems in Tucson, AZ and Urbana, IL, and that those systems could be looked at for ideas to improve Columbia's transit system.
   d. Attendees discussed opportunities to combine/better coordinate bus systems that serve Columbia area citizens *and* students (K-12 students, University of Missouri students, etc.). The idea is that having separate transit systems for K-12 students, university students, and private student housing can divide the system.
   e. It is difficult to reach the bus stop at the intersection of the eastbound lane of Broadway and Russell Boulevard because there is no sidewalk on the south side of Broadway and no nearby marked crossing.

III. Spontaneity is not possible for many people in the Commission who cannot drive because of limited transportation options.
   i. Ubers/Lyfts can be expensive and are often not equipped to transport those in wheelchairs.
   ii. Paratransit vehicles have limited hours and must be reserved often days in advance.
   iii. The transit system has limited hours of operation and limited-service area.
   iv. Walking/wheeling places can be difficult, especially at night and especially in areas where sidewalks are not well-maintained or are non-existent.
   v. Many taxis in Columbia do not have wheelchair lifts.

vi. There is a need for more on-demand transportation for those with disabilities, especially those with wheelchairs.

IV. Pedestrians and Bicycles

a. Attendees discussed challenges pedestrians with disabilities walking through roundabouts, especially multi-lane roundabouts. There was discussion that HAWK traffic signals or RRFB at roundabout pedestrian crosswalks could help to improve the pedestrian safety at these crossings.
b. There was discussion of sidewalk system gaps along Business Loop. Further it was noted that many sidewalks are poorly maintained.
c. There is strong support for the City's Sidewalk Master Plan.
d. The group discussed that concrete medians on College Avenue might make it easier for pedestrians to cross the street.
e. The group noted that 9th Street by Sparky's is reported to be a good model for accessibility.
f. Pedestrian signals with audible warnings are being installed at all new traffic light controlled intersections, which is helpful for those with disabilities.
g. There is a desire to generally lower speeds, especially in areas where pedestrians are present. The ideas of reduced speed limits and stronger enforcement were discussed.
h. Attendees expressed a need for physically protected, not just painted bike lanes.

V. The group discussed that the project team is defining micromobility as scooters, bikes, etc. owned by private companies that may be rented and may be used as a form of transportation.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: First Last Mile

Monday, August 19, 2024: 3:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Miles Gibson, *First Last Mile*
De'Andre Thompson, *First Last Mile*
Pat Zenner, *City of Columbia*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. First Last Mile (FLM) is a nonprofit business providing transportation services to help people get to and from work and other places that the City of Columbia public transportation does not reach.
II. Many FLM customers live outside of the paratransit zone.
III. This service is needed because cars are often unaffordable, and people often need alternate modes of transportation. People without cars are usually the people who use First Last Mile's services.
IV. FLM partners with businesses/employers, who pay FLM then connect their employees with transportation needs to FLM'a services.
V. FLM currently has 2 part-time drivers and will soon be adding an additional driver and a fleet manager.
VI. The service is funded through ARPA, which will be providing funding through 2026. The service began as a pilot program in June of 2023. The service has provided ~1,100 rides. First Last Mile is unsure how/if their services will continue after their ARPA funding runs out after 2026.
VII. Because of the high demand for services, there is consideration to transitioning the program to a service that gives people rides to and from GoCOMO bus stops.
VIII. Many people who need transportation do not use the GoCOMO bus system because of the 90-minute gap between buses and because the bus does not go to certain areas.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Housing

Monday, August 19, 2024: 2:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Randy Cole, *Columbia Housing Authority*
Caitlin Hammons, *Columbia Housing Authority*
Daniel Crasnow, *Central Missouri Community Action*
Timothy Rich, *United Community Builders*
Pat Zenner, *City of Columbia*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Columbia Housing Authority provides affordable rental housing to families who are struggling financially, for whatever reason. https://columbiaha.com/
II. Central Missouri Community Action supports low-income individuals and families. When a family comes to them with a specific need, they use a whole family approach and work with these families to provide support for any additional needs by referring them to other programs offered. https://cmca.us/
III. United Community Builders (UCB) supports Boone County families and children with programs focused on skill building at all levels (e.g., after school learning academy to summer programming to employment training and preparation). https://ucbuilders.org/
IV. The group discussed that the 2055 Metropolitan Transportation Plan will cover the CATSO Metropolitan Planning Area (MPA), which contains the City of Columbia and portions of Boone County. The MPA limits generally cover where development is likely to occur over the next 20-30 years.
V. A Boone County Community Health/Needs Assessment conducted by Live Well Boone County did not find that transportation is a critical issue in Boone County.
VI. There is a gap between transit routes and many areas of low-cost housing that makes it difficult for people living in low-cost housing to use the transit system.
VII. Several comments were made related to sidewalks. 1) Sidewalk improvements such as filling sidewalk gaps and better maintenance are needed. 2) Prioritization for improvements should be given to sidewalks at that access bus stops that serve school students. 3) New developments and subdivisions need to have sidewalks that connect to existing sidewalk systems and/or to important community locations. 4) Pedestrian routes need to be improved between the business loop and downtown.
VIII. There was discussion related to several new developments.
    a. The new Park Avenue development will bring in many new residents. Pedestrian safety features and wheelchair accessibility features need to be considered.

b. The development of the new community center will be adding sidewalks to an area that currently lacks them. There is value in providing a bus stop at this location so that children can take buses here after school. Early childhood and after school care will be provided at this facility.
c. White Gate neighborhood could use a bus route that connects the neighborhood to grocery stores.
d. Many residents at Paquin Towers desire traffic calming.

IX. The City of Columbia's policy for sidewalk snow clearing is that the property owners must clear the sidewalks if the snow is greater than 2 inches.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Local Motion/Bike and Ped Commission

Tuesday, August 20, 2024: 2:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Rikki Ascani, *Local Motion*
Lawrence Simonson, *Local Motion*
Janet Godon, *Bike and Ped Commission*
Pat Zenner, *City of Columbia*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Local Motion is a advocacy organization in Columbia towards promoting walking, biking, and transit as tools to building transportation equity https://lomocomo.org/
II. CATSO Transparency and engagement with the local community are critical for regional collaboration.
III. The goals established in the 2050 CATSO LRTP from 2019 were very well made and still ring true. Achieving these goals will take time and success will depend on availability of transportation funding.
IV. Transportation improvements need to include the diversity of transportation modes/options, and not solely focus on roadway improvements.
V. Specific comments/recommendations were discussed.
    - Trails and bike infrastructure need to be better connected to bus routes/bus stops.
    - Clark Lane presents significant challenges for pedestrians. A sidewalk and other pedestrian infrastructure (such as pedestrian crossings) are desperately needed.
    - Park and ride connections could be explored further
VI. Local Motion will send the project team an evaluation that was completed about the needs of Columbia citizens.
VII. CBB should reference the following plans into the 2055 MTP Update:
    - GoCOMO Plan (under development) https://beheard.como.gov/columbia-transit-study
    - City of Columbia Climate Action & Adaptation Plan
      https://comoclimateaction.org/dashboard
      https://www.como.gov/wp-content/uploads/2020/11/ADOPTED_CAAP.pdf
    - City of Columbia Sidewalk Master Plan
    - City of Columbia Park Master Plan
      https://www.como.gov/parks-and-recreation/comprehensive-park-master-plan/

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Powerhouse

Tuesday, August 20, 2024: 11:00 AM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Erika Buford, *Powerhouse*
Dee Dee Jackson, *Powerhouse*
Pat Zenner, *City of Columbia*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Powerhouse exists to "Prepare and equip individuals for economic and life challenging situations as it relates to their personal growth and development." Powerhouse provides support to people in need. They have 4 offices in mid-Missouri, including one in Parkade Center on Business Loop 70. They have operated in Columbia for 6 years. In terms of transportation, Powerhouse provides rides to clients who need to reach school, appointments, grocery stores, and other essential places. Powerhouse has 2 vans and 2 school buses (1 in Columbia) and hired drivers. Powerhouse also provides monetary support for clients with car issues. https://www.pwrhousecdc.org/

II. A major effort is providing transportation for kids to get to after-school programs. It is often difficult for children to get to after-school programs if parents are working. Not having transportation to after-school programs can result in children being involved in destructive behavior out of boredom. Kids are often not encouraged to walk to various programs because of distance, fear of crime, and inadequate pedestrian infrastructure.

III. It is expensive to own a car, which is a burden on low-income families. People often fear having car troubles because if they can't pay for them or the repairs take a while, they are essentially trapped.

IV. Notes on transportation infrastructure:
   a. Transportation investments cannot overlook the needs in low-income areas.
   b. There is a need for the Columbia bus service to be expanded. Specifically, there is a need to run buses more frequently, for longer periods of the day, and expand routes to more areas, especially near affordable housing.
   c. Powerhouse is interested in a system of vehicles smaller than buses that could provide transportation to connect people from their homes to GoCOMO bus stops.
   d. It is important that sidewalks and trails are comprehensive, connected, and well maintained, especially near schools and parks. There are gaps in the existing sidewalk system and some sidewalks are not well maintained.
   e. Effective street lighting is important. In some areas of the city streetlights are at times not operable due to maintenance and/or vandalism.
   f. Ubers won't come to certain parts of town out of fear for safety, but people need rides in these areas.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Rail and Freight

Tuesday, August 20, 2024: 9:00 AM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Joe Priesmeyer, *Scheppers Distributing*
Shane Riley, *Colt Rail*
Pat Zenner, *City of Columbia*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

Colt Railroad

I. The Colt Railroad is an active short line railroad owned and operated by the City of Columbia. COLT's five-year direct impact accounts for $670 million in total sales, 243 jobs and $2.4 million in tax revenue in the City of Columbia and Boone County. https://www.como.gov/utilities/columbia-colt-railroad/
II. The railroad owns a transload (rail/truck transfer facility) north of Columbia.
III. The shift away from coal power has impacted the use of the railroad, specifically to downtown Columbia. However, there may be opportunities in the future for Colt Railroad to bring in biofuel for renewable energy in the future.
IV. Many customers using the Colt Railroad would not be able to function without rail.
V. Various alternatives have been considered for the future of the COLT railroad. One idea is to have a commuter train between Columbia and Centralia. Another idea considered is providing a trail either on or adjacent to the existing rail right of way.

Scheppers Distributing

VI. Scheppers Distributing transports beverages throughout Central Missouri. https://nhscheppers.com/
VII. Distributors prefer larger vehicles for efficiency. They do have smaller vehicles that they can use in areas that are too tight for larger vehicles. Road design needs to consider larger vehicles.
VIII. Scheppers had considered a system in which customers pick up their own orders at a facility, but this brings up many logistical issues.
IX. Loading zones are not always provided but they are helpful for trucks making deliveries. Hybrid lanes that function as both loading zones and parking spots is an idea that can be explored.
X. Congestion is difficult for delivery trucks in downtown Columbia, especially at noon.
XI. Scheppers distribution warehouse is located at the east end of the Business Loop. The I-70 project will overall benefit Scheppers Distributing. The westbound I-70 Business Loop exit that leads directly to the Scheppers Distributing facility will be missed, but it is not crucial.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Services for Independent Living and Boone County Family Resources

Tuesday, August 20, 2024: 3:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Chimene Schwach, *SIL*
Patrick Lee, *SIL*
Kari Utterback, *BCFR*
Pat Zenner, *City of Columbia*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Services for Independent Living (SIL) is a non-profit that promotes independence for persons with disabilities, seniors, and veterans https://silcolumbia.org/. SIL transportation program serves veterans, disabled people, and elderly people. SIL has 3 full-time drivers.

II. Boone County Family Resources (BCFR) Services Boone County Family Resources serves persons of all ages and income levels with a diagnosed developmental disability who reside in Boone County. https://www.bcfr.org/. BCFR has purchased vehicles to provide rides to those they serve.

III. Seniors and disabled people are often isolated because of their lack of transportation. Senior homes often market that they provide transportation to residents but often these services are difficult to access. As an example, one local company owns 7-8 senior homes and claims to provide transportation to all residents, but only has one driver. It can be difficult to get rides to medical appointments, but even more difficult to get rides to events, recreational opportunities, or anything for fun.

IV. There are so many people requesting transportation from SIL, but they simply don't have the capacity to provide service to everyone. As with other organizations, SIL is having a hard time finding drivers.

V. There is great value in expanding the bus system in Columbia. People are doing risky things to get where they need to go (for example, kids driving under the age of 16, people travelling in wheelchairs in the street, etc.). In addition to expanded but service, bus stop shelters would be of benefit. A regional transit authority should be considered.

VI. Crosswalks should be improved, for example with flashing beacons to alert drivers.

VII. A system of shuttles could potentially act as a supplement to the GoCOMO bus system. There could be coordination between these small-scale transportation providers in Columbia.

VIII. There needs to be more funding for transportation overall.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: West Ash Neighborhood

Tuesday, August 20, 2024: 1:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Dee Doeken, *West Ash Neighborhood*
Christine Gardener, *West Ash Neighborhood*
Kevin Roberson, *Friends of Rock Bridge State Park*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Comments Specific to West Ash Street
   a. West Ash Street is an east-west connection between downtown Columbia and Stadium Boulevard. The street runs through residential neighborhoods and is often used as a cut-through route. Conflicts between residents (pedestrians) and more regional traffic has created issues. As a result, many residents feel unsafe walking along and crossing the street. Residents have a desire for traffic calming on this street to reduce speeding.
   b. The city has a project which will improve the sidewalks along West Ash Street. The project will include construction of an 8-foot-wide sidewalk along the north side of Ash Street to better address the ADA design and to provide a green space between the sidewalk and the curb. The project will also include construction of a 5-foot-wide sidewalk along the south side of Ash Street to fill in sidewalk gaps. In addition, the design will include a continuous bike lane along the south side of Ash Street. Finally, the design will include crosswalks with flashing beacons at the intersection with Redwood Road, Anderson Avenue and Alexander Avenue. Construction is expected to begin at the earliest in summer 2025, but more than likely it will start in the spring of 2026. https://beheard.como.gov/ash-street-improvements

II. Other Comments
   a. There needs to be safer designated bike lanes and sidewalks that are separated from vehicular traffic.
   b. Cars are often unaffordable, so people who can't afford cars are left trying to walk, bike, or use transit, which can be difficult to do in Columbia.
   c. Development is being proposed near Rock Bridge Park in an area that is currently a natural area. The group does not want to see this development happen.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Columbia Board of Realtors

Wednesday, August 21, 2024: 2:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Brian Toohey, *Columbia Board of Realtors*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. The population of Columbia seems to be growing faster than housing supply. Sewer systems are crucial to residential development and the lack of sewers in some areas has constrained housing development. Some developers have come up with onsite sewer systems so that they don't have to connect to the city's system.
II. New roadways and roadway improvements will be required to support development on the west side of Perche Creek. There needs to be better ways of crossing Perche Creek in western Columbia. The roads that do cross here flood often.
III. Roadway improvements are needed in southeast Columbia to take the pressure off roads like Old Hawthorne Drive.
IV. Development will likely happen in northern Columbia if sewers are expanded there.
V. Development is slowing in southwest Columbia as that part of the region is nearing build-out.
VI. Tear down and redevelopment is not happening much in Columbia.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Catholic Charities of Central and Northern Missouri

Wednesday, August 21, 2024: 3:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Nicole Seckert, *Catholic Charities of Central and Northern Missouri*
Shawn Leight, *CBB*
Mike Albin, *CBB*

Meeting Notes:

I. Catholic Charities of Central and Northern Missouri are primarily funded through federal grants. They often provide transportation to refugees when they first arrive. Catholic Charities owns vehicles that they use to help the refugees with transportation. https://cccnmo.diojeffcity.org/

II. After 1-3 months, refugees often transfer to other programs or get help from family or friends that live in the US already. At this point, refugees are either relying on family or friends for transportation or are walking and biking to their destinations or are using public transportation.

III. Public transportation is challenging for many of the Catholic Charities clients to use.
   a. The system's routes do not go to many locations where Catholic Charities clients need to go. For example, refugees need to receive a medical examination within their first 30 days in the US, and the existing bus routes do not go to many of the areas where these exams are performed.
   b. Medicaid transportation is available for some clients, but it only takes people to and from medical appointments and does not allow for stops at secondary locations (for example a grocery store).

IV. It is difficult for refugees to be able to drive.
   a. Some refugees, often women, did not learn to drive before coming to the United States. These people need some form of basic drivers training assistance.
   b. There are challenges for refugees to obtain a driver's license. For example, some refugees do not read English and cannot understand the written driver's test. The driver's test can be translated to other languages through the Missouri Office of Refugees. https://moora.org/
   c. Refugees can feel uncomfortable walking in some areas. Some roadways do not have sidewalks, and there are gaps in the sidewalk system. Sidewalks are poorly maintained in some areas. This leaves people walking on the sides of roads or in the grass. Fear of crime also makes walking feel unsafe in some areas during certain times of the day.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Columbia College

Wednesday, August 21, 2024: 9:00 AM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Cliff Jarvis, *Columbia College*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Columbia College, https://www.ccis.edu/, has about 1,000 total day students and around 400 students live on campus. The other 600 live off campus and drive to school.
II. Students mostly walk to the downtown area of Columbia and to the Mizzou campus.
III. People often use Columbia College's parking areas on days when there are large events.
IV. Public transportation could be great for people living off-campus to reach campus if it were more convenient to use. While there are bus stops near the college the bus routes do not go to many places the students need to go.
V. An improved pedestrian crossing on 8th St between Wilkes and Rogers is needed due to traffic volumes and speeding.
VI. There is a need to fill gaps in the local sidewalk system and better maintain existing sidewalks. Gaps in the sidewalks or poorly maintained sidewalks can force people in wheelchairs to go into the street.
VII. There is value in improving Rangeline Street north of Campus.
VIII. The intersection of the Business Loop and Rangeline Street has several issues.
    a. This is a large intersection that experiences congestion and can be confusing to navigate due to the unique geometrics on the south side of the intersection.
    b. Sidewalks are missing in parts of the intersection, and some of the existing sidewalks are in poor repair.
    c. Removal of the westbound I-70 Business Loop exit will push traffic onto Rangeline Street, exacerbating existing issues.
    d. A roundabout here could be a potential project.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Boone County Fire Protection

Wednesday, August 21, 2024: 10:00 AM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Gale Blomenkamp, *Boone County Fire Protection District*
Mitch Skov, *City of Columbia*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. The Boone County Fire Protection District serves the unincorporated areas of CATSO. https://bcfdmo.com/

II. Many areas of incorporated Boone County do not have adequate water service to fight fires. So, Boone County fire trucks carry water to fight fires.

III. Public roadways and private developments need to be designed so that large fire trucks can access areas for emergency response. Access to some areas of Boone County can present a challenge for first responders. Roundabouts need to be designed to accommodate these large vehicles.

IV. Gale noted that coordination between the City and County Fire Departments is critical to providing effective emergency services in the region.

V. Gale noted an interest in greater coordination with MODOT on their roadway project planning. For example, the Fire District is interested in having discussions about potential roadway closures from the upcoming Improve I-70 project. As another example, Gale noted that road shoulders are important when emergency vehicles need to get through traffic. Gale specifically mentioned that closing the I-70 center median for emergency vehicle U-turns as part of the Improve I-70 project will cause issues for emergency vehicles because it will prevent them from being able to turn around.

VI. The Fire District responds to many roadway crashes. Gale noted some specific observations/concerns: 1) Boone County Fire Protection District often responds to I-70 crashes, which are a bulk of crashes; 2) Paris Road would benefit from better pedestrian crossing opportunities, especially north of US 63; 3) there are issues with speeding on roads in the Columbia, especially with younger drivers; and 4) Creasy Springs Road sees a high number of crashes.

VII. Gale noted that there needs to be better connections across Perche Creek both for regional connectivity and emergency response. One option to do this is to connect the I-70 outer roads across Perche Creek.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: The Loop

Wednesday, August 21, 2024: 11:00 AM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Carrie Gartner, *The Loop*
Mitch Skov, *City of Columbia*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. The Loop Community Improvement District is an organization dedicated to 1) Creating an attractive and authentic multi-modal corridor, 2) Attracting and retaining diverse and innovative businesses, employees, makers, and investors, 3) Designing a street that is safe, vibrant, healthy, and welcoming to all, and 4) Communicating the importance of the area to Columbia. https://theloopcomo.com/

II. There is a need to improve connectivity between streets, pedestrian networks, and bike networks. Well maintained sidewalks should be provided on all major roadways and a strong bike corridor would be beneficial. Improvements to the local transit service would make it more convenient for people to use.

III. The City of Columbia has been awarded a grant through the Reconnecting Communities Program to study the I-70 Business Loop corridor between Stadium Boulevard and Eastland Circle. The study will include improving safety for both motorized and non-motorized users, improving accessible multi-modal operations, providing aesthetics along the corridor, and improving economic vitality. The improvements strive to reinvigorate the corridor, connect a number of historically disadvantaged and underserved communities, and support a growing network of community services, education opportunities, and commercial centers along the corridor. https://www.transportation.gov/reconnecting

IV. The intersection of I-70 Business Loop and Rangeline Street is congested, confusing to drive, and lacks any aesthetic appeal. As a main entryway to Columbia College, it would benefit from improvement.

V. Coordination with local agencies is critical. There is a desire for more engagement with MoDOT during projects.

VI. Large roundabouts, such as the Rangeline Street/I-70 interchange, can be difficult for bicyclists to navigate.

VII. I-70 essentially cuts Columbia in half. There is a need for better north and south connections over I-70.

VIII. Transportation projects should prioritize beautification.

IX. Biking and walking feel unsafe in areas of the city including Rangeline Street, Ash Street, Stadium Boulevard, and Forum Boulevard.

X. Local trails are appreciated and well-connected.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: The District

Wednesday, August 21, 2024: 1:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Nickie Davis, *The District*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. The Downtown Community Improvement District (CID) is an independent organization dedicated to keeping Columbia's downtown—The District—vital by encouraging a centrally located, live/work/play neighborhood, creating an authentic, dense and sustainable urban space, cultivating a creative and innovative culture of diverse enterprises, and maintaining the local and eclectic flavor of the area. https://www.discoverthedistrict.com/

II. Nickie noted the following about the GoCOMO system.
   a. Buses are often crowded.
   b. Bus routes provide limited coverage of the region.
   c. Having a bus service that serves people on University of Missouri game days would be beneficial. A shuttle bus service connecting parking lots and garages to popular locations could be a helpful addition. Mac Daddy Lifts provides a similar service and is very popular. https://www.macdaddylyfts.com/

III. There is value in strengthening bicycle and pedestrian connections in and to Downtown Columbia.

IV. Nickie noted the following about downtown parking.
   a. People can find the varying parking rules and rates difficult to understand.
   b. Students from the 3 colleges nearby downtown take up parking spaces that could be used by downtown customers and workers.
   c. A new downtown convention center would introduce more parking issues.
   d. The following could be beneficial: 1) Downtown parking study, a new parking garage or surface lot downtown, 3) a Smart Parking app

V. There is value in improving wayfinding in and to downtown. Existing wayfinding signs could be refreshed and updated. Wayfinding could help bring more customers to downtown businesses.

VI. The brick streets are beautiful but often not well-maintained. Some people avoid driving or parking on these streets.

VII. A downtown pedestrian-only street has been considered but is opposed by some downtown businesses.

VIII. The North Village Arts District is a thriving area that will likely continue to experience growth.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: City of Refuge

Thursday, August 22, 2024: 11:00 AM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

David Echols, *City of Refuge*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. City of Refuge was founded in Columbia in 2010. "City of Refuge helps refugees navigate a new life in mid-Missouri. We provide unique and often overlooked services under three categories: basic needs, school navigation, and professional development through a foundation of relationship and trust." https://cityofrefugecolumbia.org/our-services/. City of Refuge serves more than a thousand refugees in the Columbia area.

II. Transportation is a significant challenge faced by refugees in Columbia. Transportation is needed to access jobs and goods and services such as food and health care. Effective transportation is essential in getting these people settled in their new lives.

a. Learning how to drive and getting a driver's license is often very difficult for refugees, but having a car is almost essential for life in Columbia. Driver's tests are often in English, in which many refugees have limited proficiency. City of Refuge has recently obtained a driving simulator, funded by a grant from the Missouri Office of Refugee Administration, to help provide driver's training assistance to refugees. https://www.columbiamissourian.com/news/local/city-of-refuge-offers-simulator-for-refugees-to-practice-driving/article_078639b8-7cf5-11ee-99bb-07f38febb1d2.html

b. The bus system can be a challenge for refugees, many of whom have limited English proficiency. Providing translations of bus information would be very helpful. Visual tutorials explaining the bus system in different languages would be helpful for the refugee population. Languages that refugees in Columbia speak include: Dari, Pashto (Afghani), Swahili, Kinyarwanda, Tigrinya (African), Burmese, Karen (South Asian), Spanish, Arabic. While Chat GPT is good at doing accurate translations of these languages, many refugees cannot read, even in their native language.

c. Many refugees find biking in the Columbia community challenging. The rules of the road are often hard to understand. Biking education programs for refugees would be helpful. Expanded biking infrastructure would help to connect various areas of the City, thus providing greater transportation options.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Climate and Environment Commission and the City of Columbia Office of Sustainability

Thursday, August 22, 2024: 10:00 AM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Leanne Tippet Mosby, *Climate and Environment Commission*
Matthew Ludden, *Climate and Environment Commission*
Linda Godwin, *Climate and Environment Commission*
Eric Hempel, *City of Columbia Office of Sustainability*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. The 2055 MTP Update needs to be more than just a plan for cars- the plan needs to reflect the prioritization of multimodal transportation. The plan should provide goals that are realistic and recommendations that encourage the lowering of greenhouse gas emissions. For example, the group would like to see more electric buses and E-bikes.

II. The group would like to see a significant reduction in the use of personal automobiles. This could be achieved by:
   a. Improving the connectivity of the bicycle and pedestrian network.
   b. Expanding transit and transit-oriented development.
   c. Building streets that serve all people who use them. Complete streets provide safe mobility for all modes of surface transportation.

III. Other suggestions:
   a. A regional transit authority would be beneficial and may address issues faced by GoCOMO.
   b. The group would like to see electric vehicles prioritized in Columbia. There is a need for an electric vehicle infrastructure/charging station study for the Columbia area.
   c. The group would like to explore how to better use the regional trail network for transportation.

IV. In developing the MTP Update: the project team will
   a. Reference the new Boone County Master Plan (under development). https://www.ourboone.com/
   b. Reference the GoCOMO Plan (under development) https://beheard.como.gov/columbia-transit-study
   c. Reference the city's Climate Action & Adaptation Plan https://comoclimateaction.org/dashboard https://www.como.gov/wp-content/uploads/2020/11/ADOPTED_CAAP.pdf

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: OATS Transit

Thursday, August 22, 2024: 1:00 PM- Virtual

Attendees:

Gary Anspach, *OATS Transit*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*

Meeting Notes:

I. OATS Transit is a 501(c)3 nonprofit corporation providing public transportation in 87 Missouri counties. OATS Transit offers a shared-ride, demand-response, door-to-door service focused on rural counties. https://www.oatstransit.org/ OATS is the largest rural transit provider in the nation.

II. All OATS vehicles are equipped with wheelchair lifts and ramps.

III. OATS charges $2 to ride.

IV. OATS's service is often used by older adults, especially older adults needing to travel for medical appointments.

V. OATS is funded through the 5311 program, which funds rural service, and the 5310 program, which funds urban service.
   a. OATS's urban service is limited to partnerships with entities, like senior homes, mental health facilities, and sheltered workshops, to provide medical transportation. The urban service provided by OATS is usually giving rides to people at homes for veterans, people needing non-emergency medical transportation, and people at senior centers. OATS is not able to give people in urban areas rides to locations like grocery stores.
   b. The rural service provided by OATS is often for medical needs and for more general needs, like grocery store trips. The rural-to-urban service that OATS is currently providing is good.
   c. OATS's rural service is unable to give rides to people seeking transportation from one urban location to another once rural customers are in town perhaps for another reason. The trip must either originate in a rural area or the destination for the trip must be in a rural area.
   d. If OATS were to provide more urban service, they would receive less funding from the 5311 program. The funding from the 5310 program for urban service is very limited.

VI. OATS locally provides transportation for about 30 trips per day and around 150 trips per week ("trips" are one way, so a roundtrip is two "trips").

VII. An inner-city route connecting multiple modes of transportation (rides from homes to airports or homes to GoCOMO bus stops) would be beneficial.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: REDI and Emery Sapp

Thursday, August 22, 2024: 9:00 AM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Bernie Andrews, *REDI*
Lisa Drexel-Hawxby, *REDI*
Dave Nichols, *Emery Sapp*
Shawn Leight, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Making the transit system more convenient would help to grow ridership. For example, there are a lot of people who work on the Route B corridor who would benefit from transit service on that route.
II. Quality pedestrian and bike facilities make people comfortable choosing to walk or bike.
III. Several roadway projects that would help the roadway system in Columbia, including:
    a. An extension of Broadway to the west and improvements to Broadway in the east.
    b. Extending Scott Boulevard to a new interchange with I-70.
    c. A new roadway connection from US 63 to S Providence Road by extending Philips Farm Rd.
IV. The FedEX facility opening in northeastern Columbia will likely bring in activity and other developments.
V. The sewer lines are a major driver of development and where development happens.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Sierra Club

Thursday, August 22, 2024: 5:00 PM- Virtual

Attendees:

Carolyn Amparan, *Sierra Club*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Needs, Issues, and Opportunities
   a. Bike lanes need to be better separated from traffic to improve safety.
   b. Public transit needs to be expanded.
      i. Having bus stops at parks and recreation centers would be beneficial for the community.
      ii. Public transit service should be provided for commuters who travel to nearby towns (Jefferson City, etc.) for work.
   c. Crossings for wildlife would be appreciated.
      i. There are many wildlife areas around Columbia and wildlife often travel between these areas.
   d. Electric vehicles need to be better supported.
   e. The Livable Streets initiative needs to be better supported.
      i. Motor vehicles have long been the sole focus of streets.

II. Other Comments
   a. There have been improvements in safe crossings in Columbia.
   b. The roundabouts implemented in Columbia have been appreciated.
   c. Columbia has done a good job focusing on sidewalks.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Home Builders Association of Columbia

Friday, August 23, 2024: 10:00 AM- Virtual

Attendees:

Jami Clevenger, *Home Builders Association of Columbia*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Development is likely to occur in north/northeast Columbia by the Lake of the Woods and in northwest Columbia.

II. High housing prices make it difficult for first-time home buyers to find homes that they can afford. The availability of more housing stock could help to stabilize home prices.

III. Traffic in the Columbia regional is relatively well managed and congestion is minimal. However, road conditions could be improved. Better signing and striping could improve lane visibility at night, especially during wet conditions. Some Missouri drivers struggle with complex, multi-lane roundabouts.

IV. The bus system could be improved with more frequent service, longer hours of operation, and more routes. Madison, Wisconsin's bus system serves as a good example of a well-functioning bus system. All city employees and students are given bus passes to incentivize use.

V. Some of the bike lanes in the city are narrow, adjacent to high speed and high-volume traffic, and feel unsafe. (e.g., Business Loop).

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Cambio Center

Monday, August 26, 2024: 11:00 AM- Virtual

Attendees:

Alejandra Gudino, *Cambio Center*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. The Cambio Center is a research center within the University of Missouri that works with immigration-related issues and challenges. https://cambio.missouri.edu/

II. The frequency and routes of the GoCOMO make it challenging for Cambio Center's clients to use this service to access the things they need.
   a. The routes do not go to many of the places that people need to go. Expanding the bus system to make it more accessible would greatly benefit immigrants in Columbia. It would be helpful if the service better accessed low-income neighborhoods and trailer parks.
   b. The bus needs to start service earlier and run service later to serve those who work early/work late. Many restaurant workers are unable to use the bus to get home because the service stops too early.

III. The Cambio Center has identified that many in the Latino community in Columbia are using bicycles and walking to reach their destinations, but this is difficult to do during the winter.

IV. The bike trails seem to be catering mostly to higher income people, not to lower income people.

V. The business loop needs better pedestrian infrastructure. The sidewalks currently here are narrow and dangerous. Improving pedestrian infrastructure here would benefit high school students who walk to and from school on this road.

VI. Surveys need to be more accessible for people with limited English.

VII. Ms. Gudino suggests that CBB reach out and engage with the historical Black church in downtown Columbia.

VIII. Ms. Gudino will attempt to gather stories from the people she serves at the Cambio Center about transportation needs and struggles and share findings with CBB to help inform the MTP Update.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: University of Missouri

Monday, August 26, 2024: 9:00 AM- Virtual

Attendees:

Heath Immel, University of Missouri
Danene Brooks, University of Missouri
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Needs, Issues, and Opportunities
   a. Students without cars find it hard to reach shopping areas given the limited bus service of GoCOMO. Improved GoCOMO service would greatly benefit University students. GoCOMO's paratransit system can be challenging to use because it requires reserving a ride far in advance.
   b. Parking is important to Mizzou's students, faculty, staff and guests.
   c. Sidewalks in some parts of the City are not well maintained and create challenges for Mizzou's disabled population.

II. Next Steps
   a. CBB will reach out to the University's master planning committee.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Columbia Police Department

Wednesday, August 28, 2024: 1:00 PM- Virtual

Attendees:

Jill Schlude, *Columbia Police Department*
Matt Stephens, *Columbia Police Department*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. Drivers distracted by their phones is major concern.
II. There are a lot of unfamiliar drivers on Columbia's roads due to the large number of new people that drive to the Mizzou campus. This can result in safety issues.
III. Single lane roundabouts are helpful in preventing crashes, but complicated multi-lane roundabouts can be difficult for some drivers to navigate.
IV. Many bicyclists and pedestrians to not obey traffic signals.
V. Bicycle and pedestrian crashes have become more frequent. Speeding may be contributing to this.
VI. Right turns on red contribute to pedestrian and bicycle crashes. Prohibiting right turns on red at some signalized intersections (especially those with high pedestrian and bicycle volumes) could possibly help with bike and pedestrian safety.
VII. Providing more marked crosswalks with flashing beacons would be helpful.
VIII. It would help if more bus routes reached lower income neighborhoods where people may not be able to afford cars.
IX. Sidewalks should be fully connected around Battle High School for students who walk to and from school.
X. The Columbia Police Department is working to provide more traffic enforcement, but they are limited in how much enforcement that they can provide due to current staffing levels.
XI. Several areas were discussed that would benefit from safety studies
    a. East Richland Road, especially the intersection with St. Charles Road.
    b. Clark Lane. There are pedestrian safety issues given the width of the road and lack of adequate sidewalks.
    c. Paris Road. (Note a Road Safety Audit was conducted here in 2022).
    d. Stadium Blvd. There are congestion issues on some parts of this corridor.
    e. Providence Road. This corridor has a lot of traffic and pedestrian activity.
XII. There are a significant number of unhoused people using the GoCOMO bus. It would be more desirable for these people to use warming and cooling centers and shelters to warm up or cool down instead of using the bus.
XIII. Clearly marked roads are helpful and allow for people to drive more safely in the dark and in rainy conditions.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: University of Missouri

Friday, August 30, 2024: 3:00 PM- Virtual

Attendees:

Heiddi Davis, *University of Missouri*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*

Meeting Notes:

a. Mizzou is currently working on a Campus Master Plan. This plan is close to completion. https://masterplan.missouri.edu/
b. Stadium, College, and Providence are the main roads to the Mizzou campus. They are all controlled by MODOT.
c. The Providence/I-70 interchange is a primary gateway into the Mizzou campus. The University would like to see the improved aesthetics at the interchange.
d. While the roadway networks in Columbia generally work well, there are congestion issues on Stadium Boulevard through the Mizzou campus.
e. There are still gaps in the sidewalk system that create challenges for pedestrians trying to use the system.
f. Convenient parking is important to Mizzou's students, faculty, staff, and guests.
g. Rock Quarry Road (the continuation of College Avenue) between Stadium and Grindstone is tight and winding. It is a challenging road for pedestrians as there are no sidewalks. This is an important road for a connection between north and south Columbia.
h. Ms. Davis recommends contacting Michael Graves for more information.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: Greyhound

Tuesday, August 3, 2024: 3:00 PM- Virtual

Attendees:

Keith Loney, *Greyhound*
Mike Albin, *CBB*
Julia Curry, *CBB*

Meeting Notes:

I. About Greyhound
   a. Columbia is an important stop on routes between Kansas City and St. Louis.
   b. Greyhound ticket sales are up in Columbia, especially since they were purchased by Flixbus, who introduced a modernized, online ticket purchasing option.
      i. Greyhound makes $11,000 per month in ticket sales from Columbia alone.
   c. Greyhound has 2 stops in the CATSO MPA- one in downtown Columbia and one at the Midway Travel Center off the Midway off the Hwy 40 exit with I-70.
      i. At each of these stops, 5-10 people board a Greyhound bus each day.
      ii. At each of these stops, 6-8 people arrive in Columbia on the Greyhound bus each day.
   d. Greyhound users are often lower income.
      i. Many use Greyhound because they do not own a car or are unable to afford a car for long distance travel.
      ii. Riders are often riding to a vacation destination; secondarily to visit family who live a distance away.
      iii. Riders who do own personal vehicles may not necessarily trust their vehicle's roadworthiness for longer trips, making Greyhound a more reliable option
   e. The I-70 corridor is integral to Greyhound service, as it connects the west and east coast of the United States.

II. Needs, Issues, and Opportunities
   a. It would be beneficial if GoCOMO buses came to the Greyhound stop at Midway.
      i. Most people get dropped off at the Midway station, as there is not a great place to safely park a car here long-term.
      ii. If someone could not get dropped off by a friend with a car, it would be nice to have another way of reaching this location.
   b. Greyhound is working to improve the timeliness of buses serving Columbia.

CATSO 2055 Metropolitan Transportation Plan Update

Round 1 Stakeholder Meeting Notes: City of Columbia Public Works

Wednesday, September 4, 2024: 1:30 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Jacob Ray, *City of Columbia Public Works*
Richard Stone, *City of Columbia Public Works*
Tim Teddy, *City of Columbia*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

Meeting Notes:

I. A GIS-style map of recommended or needed roadway connections would be a helpful resource to create.

II. A major roadway plan is needed for the area west of Perche Creek, especially north of I-70. There is development pressure in this part of the region. This plan would be a similar planning effort to the Boone County Northeast and East major roadway plans. The transportation plan for this area should consider Boone County's land use plan for the area.

III. New roadway connections across Perche Creek will be critical if land use development crosses Perche Creek. Currently crossings of Perche Creek are limited, with most traffic using I-70. There are a limited number of proposed future roadway crossings of Perche Creek in the existing Major Road plan. However, these crossings, such as an extension of Broadway Boulevard, would be difficult given the creek's expansive floodway. Any new crossings of Perche Creek will require a long bridge structure, which will be expensive.

IV. The original Stadium Boulevard EIS extension (US 63 to I-70) was completed in 2009. While there have been attempts to secure funding for the project, the project has not yet been completed. A lot has changed in this corridor since 2009, and there is value in revisiting the recommendations from the 2009 EIS to ensure that they are still appropriate.

Round Two Stakeholder Meetings

The purpose of the second round of stakeholder meetings was to discuss projects and ideas that could help achieve the vision, goals, and objectives established from the discussions at the round one stakeholder meetings. There were seven meetings that occurred over the course of 2 days (September 3rd-4th, 2024). Each meeting focused on a different transportation topic. The meeting topics were as follows:

- Bicycles
- Pedestrians
- Transit
- Freight
- Micromobility
- Student Transportation
- Safety and Mobility

Stakeholders were invited to sign up for any session that they were interested in. During the sessions, stakeholders were shown ideas for recommendations as part of the MTP Update, which they were then invited to comment on. Stakeholders were also given a mapping and polling exercise to identify priority issues. Attendance was low for the Round Two stakeholder meetings, which the planning team assumes is due to the stakeholders feeling successfully heard in the first round of stakeholder meetings. The results from the second-round stakeholder meeting on transit may be found below in this appendix.

Columbia Area Transportation Study Organization (CATSO)

Metropolitan Transportation Plan Update

SECOND ROUND STAKEHOLDER MEETINGS

BY INVITATION

Tuesday, September 3

10:30-12:00 | Bicycles

1:00-2:30 | Pedestrians

3:00-4:30 | Transit

Wednesday, September 4

8:30-10:00 | Freight

10:30-12:00 | Micromobility

1:00-2:30 | Student Transportation

3:00-4:30 | Safety and Mobility

Columbia City Hall
701 E. Broadway

Scan for Survey

RSVP to Claire Sherburn to inform our team of which group(s) you would like to attend

csherburn@cbbtraffic.com

PUBLIC MEETING TO FOLLOW - 9.4.24 | 6 PM

Contact Us

Mike Albin, AICP
malbin@cbbtraffic.com

Claire Sherburn
csherburn@cbbtraffic.com

METROPOLITAN TRANSPORTATION PLAN
COLUMBIA AREA
TRANSPORTATION STUDY ORGANIZATION
CATSO
2055 UPDATE

051

CATSO 2055 Metropolitan Transportation Plan Update

Round 2 Stakeholder Meeting Notes: Transit

Tuesday, September 3rd, 2024: 3:00-4:30 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Shawn Leight, *CBB*
Claire Sherburn, *CBB*
Dee Dokken

Feedback Board 1:

Feedback Board 1 read: "What is working well?" Attendees were then invited to place sticker dots next to statements with which they agreed. The statements and results are below:

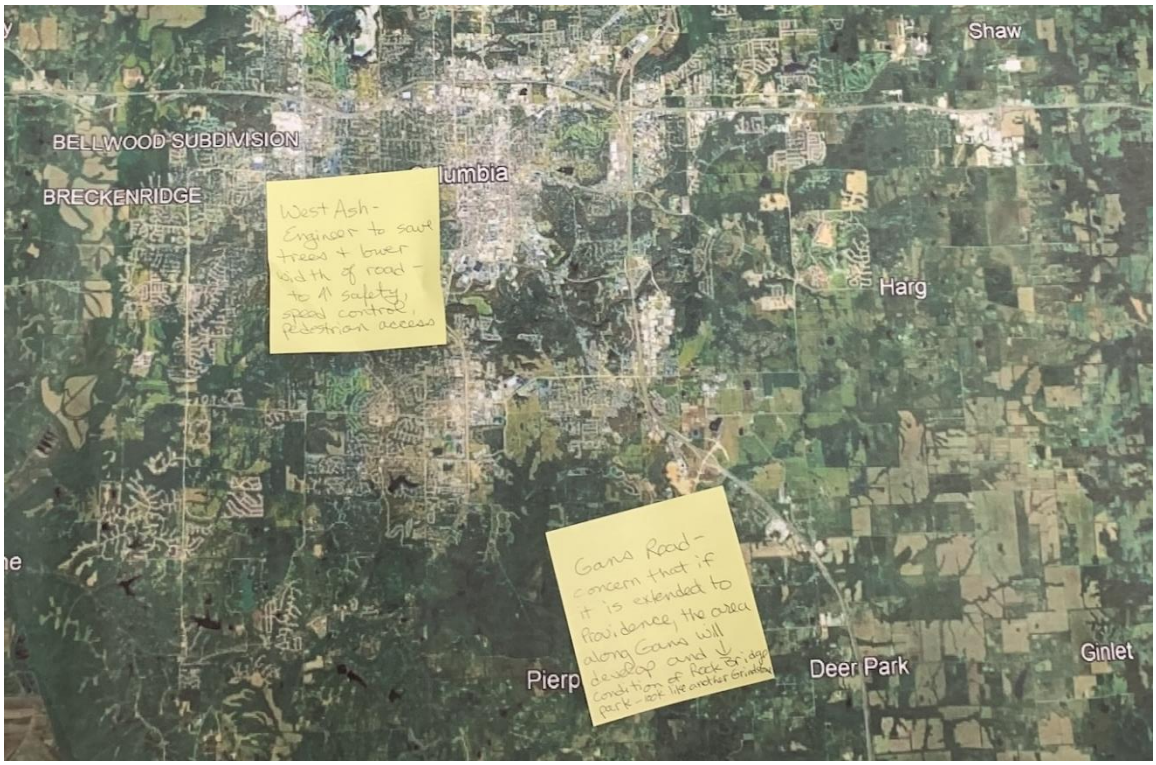
- "Traffic congestion is well managed. 'You can get anywhere in town in 20 minutes.'" - 1 vote
- "Free bus service makes getting around town easy."
- "Biking and walking is safe and easy."
- "The roads are well-maintained." - 1 vote
- "Parking is generally available and easy to find."

Feedback Board 2:

Feedback Board 2 read: "What should be improved?" Attendees were then invited to place sticker dots next to statements with which they agreed. The statements and results are below:

- "Bus routes and hours of operation make the bus difficult to use." - 2 votes
- "The condition of sidewalks can make it hard to use them." - 1 vote
- "Areas with missing sidewalks make it hard to get around." - 1 vote
- "The bicycle system is not connected, and some bike lanes are too narrow to use." - 1 vote
- "Lack of streetlights makes it difficult to walk and bicycle at night."

Needs Map Results:



- "West Ash- engineer to save trees and lower width of road to improve safety, speed control, and pedestrian access."
- "Gans Road- concern that if it is extended to Providence, the area along Gans will develop and make worse the condition of Rock Bridge Park- look like another Grindstone."

Round Three Stakeholder Meeting

The third stakeholder meeting was held on September 30th, 2024, from 2:00-4:00 PM. All stakeholders that had attended or been invited to previous meetings were invited to attend this meeting. The purpose of this stakeholder meeting was to review draft recommendations for the MTP Update and invite feedback and discussion. 20 stakeholders representing a wide variety of entities attended the round three meeting. At the meeting, a PowerPoint presentation with an overview of the draft recommendations was presented and stakeholders were asked to provide input. The input provided was later incorporated into the draft MTP Update as necessary. One major takeaway from this meeting was that resilience in the Columbia area's transportation system needs to be prioritized to ensure the continuity of regional mobility during and following extreme weather events. The notes on the round three stakeholder meeting as well as the PowerPoint presentation shown at the meeting can be found below in this appendix.

WELCOME

CATSO Metropolitan Transportation Plan (MTP) 2055 Update

Stakeholder Meeting #3

September 30, 2024

METROPOLITAN TRANSPORTATION PLAN
COLUMBIA AREA
TRANSPORTATION STUDY ORGANIZATION
CATSO
2055 UPDATE

1 Meeting Objectives

1. Overview of Draft MTP Document

2. Review prior stakeholder discussions

3. Gather Feedback on Recommendations

1 What is CATSO?

Columbia Area Transportation Study Organization

- Collaboration among City of Columbia, Boone County, and MoDOT to carry out transportation planning
- Required to receive federal transportation funding
- CATSO is strictly a planning organization – it does not design or build any projects

BOONE COUNTY GOVERNMENT

city of Columbia

MoDOT

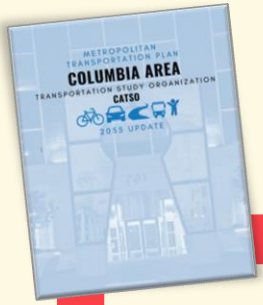
2 What is a Metropolitan Transportation Plan (MTP)?

Benefits

- Required by Federal Law
- Enables access to state and federal transportation funding (typically $40M-$50M annually)
- Enables regional coordination in transportation planning
- Helps the region meet goals in sustainability, safety, economic development, and equity.

Key Components

- Vision & Goals
- Existing Conditions Analysis
- Future Needs Forecasting
- Strategies & Projects



3 Other Key Plans Considered

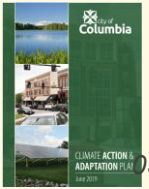
- Boone County Master Plan (*in development)*
- GoCOMO Comprehensive Transit Study (*in development)*
- MoDOT STIP
- MoDOT Columbia-Jefferson City Express Bus Study (*In development*)
- City of Columbia's Comprehensive Plan
- City of Columbia Sidewalk Master Plan
- City of Columbia Climate Action and Adaptation Plan
- City of Columbia Park Master Plan
- University of Missouri Campus Master Plan (*in development)*

Columbia Imagined
The Plan for How We Live & Grow

Our Boone County
OUR COMMUNITY. OUR FUTURE. BOONE COUNTY MASTER PLAN

University of Missouri
Campus Master Plan 2024

GOCOMO Columbia's Public Transit **Comprehensive Transit Study**



Projects Funded Through MTP

Programmed TIP Projects (2025-2028)

Total Financial Summary FY 2025-2028 TIP Programmed Projects	Federal $	Local $	Total $
Capital Projects			
MoDOT Roadways	$19,596,800	$543,913,200	$563,510,000
MoDOT Scoping	$0	$280,800	$280,800
Boone County	$0	$0	$0
Columbia Streets	$2,130,800	$8,343,497	$10,474,297
Columbia Sidewalks	$838,481	$1,097,684	$1,936,165
Rail-Highway	$0	$0	$0
Parking	$3,610,708	$902,677	$4,513,385
Transit	$29,304,903	$22,081,014	$51,385,917
Total Capital Project Funding	$55,481,692	$576,618,872	$632,100,564
Total Maintenance (Fed-aid system)	$0	$17,000,823	$17,000,823
Total Programmed	$55,481,692	$593,619,695	$649,101,387
Total Revenue	$55,482,492	$716,981,701	$772,464,193
*Funds Remaining**	$800	$123,362,006	$123,362,806

5 Who We've Talked To

- Bike and Ped Commission
- Boone County Family Resources
- Boone County Fire Protection District
- Cambio Center
- Catholic Charities of Central and Northern Missouri
- City of Columbia Office of Sustainability
- City of Refuge
- Climate and Environment Commission
- Central Missouri Community Action
- COLT Railroad
- Columbia Board of Realtors
- Columbia College
- Columbia Housing Authority
- Columbia Police Department
- Columbia Public School District
- First Last Mile
- GoCOMO
- Homebuilders Association
- Local Motion
- OATS Transit
- Powerhouse
- Regional Economic Development Inc.
- Scheppers Distributing
- Sierra Club
- Services for Independent Living
- Disabilities Commission
- The District
- The Loop
- Transportation and Infrastructure Committee
- United Community Builders
- University of Missouri
- West Ash Neighborhood

6 What We Have Heard So Far

Pedestrian and Bicycle

- There are gaps in the sidewalk system, some sidewalks not well-maintained
- Bike infrastructure is not well-connected and needs to be better protected
- There needs to be safer opportunities for crossing the street
- Walking at night feels unsafe in some areas due to the lack of streetlights or streetlights being out of order
- Traffic calming measures would create safer areas for walking and biking

Transit

- Free bus fares are appreciated
- Wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Bus routes need to be expanded so that more locations can be reached
- Public transportation should be considered at a more regional level
- Bus system should be easier to understand, especially for non-English speakers
- Transit needs to be more accessible for those with disabilities

Cars and Roads

- Traffic congestion is very well managed compared to many urban areas
- Roadways need to accommodate larger vehicles used for emergency response and deliveries
- Parking is generally available in the region, but can be difficult downtown
- More electric vehicle charging stations are needed

7 MTP Update Engagement Plan

Be Heard Website

- https://beheard.como.gov/catso-metropolitan-transportation-plan-update

Stakeholder Meetings Round 1

- *Late August*
- *Invite only*

Stakeholder Meetings Round 2

- *Held 9/3/24 - 9/4/24*
- *Invite only*

Survey 1

- *Closed 9/7/24*

Public Meeting 1

- *9/4/24 6-8 PM*
- *Columbia City Hall*

Survey 2

- *Available NOW on the BeHeard Site*
- *Closes on 10/14/24*

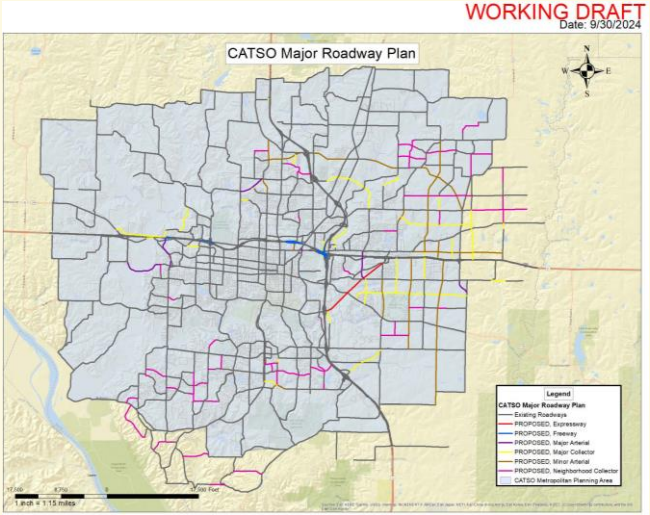
Stakeholder Meeting Round 3

- *9/30/24, 2-4 PM*
- *Invite only*

Public Meeting 2

- *9/30/24, 4-8 PM*
- *Boone County Commission Chambers*

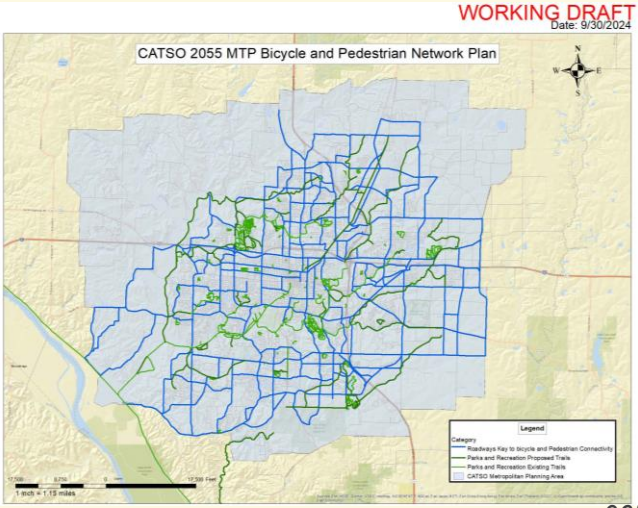
8 Proposed MTP Recommendations



- Implement Major Roadways Plan
  - Provides increased multimodal connectivity
  - Bicycle and pedestrian facilities are integrated into many of the proposed roadways
  - Based on a thorough review of city, county, and regional plans, alongside extensive stakeholder input.
  - Aligns MTP goals with regional objectives, creating an integrated approach to transportation needs and mobility improvements

9 Proposed MTP Recommendations

- Implement CATSO 2055 MTP Bicycle and Pedestrian Network Plan
  - Outlines an integrated system of over 130 miles of trails, 255 miles of pedways, and 385 miles of bike routes enhancing connectivity.
  - Leverages facilities from the City's Parks and Recreation Master Plan, focusing on complete streets and safe, accessible options for walking and cycling.
  - Highlights key roadways for improved mobility and emphasizes safe, attractive infrastructure for children, the elderly, and individuals with disabilities.
  - Implemented through a variety of means including roadway projects, trails projects, and sidewalk projects



10 Proposed CATSO Future Studies

Westside Transportation Study

- Would address infrastructure challenges and improve connectivity across Perche Creek,
- Would explore potential solutions, including new arterial roads and alternative crossings, to support local traffic and future development on Columbia's west side.
- Would also assess the extension of the sewer network, integrating both transportation and utility upgrades to facilitate development in the region.

Regional Wayfinding Plan

- Develop a Regional Wayfinding Plan to improve navigation for motorists, cyclists, and pedestrians.
- Establish cohesive, branded signage to guide visitors to key destinations (e.g., parking, stadiums, attractions).
- Enhance accessibility, boost local business by directing foot traffic, and improve safety through clearer navigation.

MO-740 Extension Study

- Would study the value of extending MO-740 from US-63 interchange at E Stadium Blvd northeast to I-70 interchange at E St. Charles Rd.
- Would explore the relief provided on US-63 and connectivity to Columbia's east side.

11 Proposed CATSO Future Studies

Road Safety Audits

- Conduct road safety audits on key corridors to assess safety for all transportation modes.
- Identify safety improvements for motorists, cyclists, and pedestrians across the region.
- Use audit findings to enhance multimodal safety and reduce accidents.

Regional Sidewalk Maintenance Plan

- Develop a Sidewalk Maintenance Plan to ensure safe, well-maintained pedestrian infrastructure
- Identify and prioritize areas needing repairs, upgrades, or ADA compliance
- Enhance safety, accessibility, and connectivity for pedestrians across the region

Regional Transit and Connectivity Study

- Conduct a Regional Transit and Connectivity Study to assess transitioning to a Regional Transit Authority (RTA) and expanding intercity bus and rail services.
- Evaluate benefits of extending transit service beyond Columbia to destinations like the airport and neighboring communities (e.g., Jefferson City, Ashland).
- Explore integration with Greyhound, Amtrak, and other transit services to improve regional connectivity and support future transit expansion

12 Proposed CATSO Future Studies

Public Facing Mobility App

- Create a one-stop-shop platform for mobility options, including routes, providers, services, and timetables.
- Integrate first-mile/last-mile options like trails and sidewalks for seamless connectivity.
- Partner with third-party providers (e.g., Moovel) to develop the platform.

Regional Freight and Delivery Plan

- Develop a Regional Freight and Delivery Plan to optimize logistics, improve access, and reduce congestion for freight operations.
- Identify designated loading zones and explore regional sub-distribution centers to minimize large trucks in urban areas.
- Integrate smart technologies to enhance delivery efficiency, safety, and sustainability across the region.

Regional Smart Parking Plan

- Develop a Regional Smart Parking Plan using advanced tech to optimize parking and enhance user experience.
- Implement real-time monitoring, mobile apps, and data analytics to predict demand and improve parking efficiency.
- Explore dynamic pricing to manage demand, reduce congestion, and support sustainable growth across the region.

13 Proposed CATSO Future Studies

Regional Electric Transportation Charging Study

- Conduct a Regional Electric Transportation Charging Study to assess current and future demand for EV and e-bike charging infrastructure.
- Identify optimal locations for new charging stations and explore partnerships and funding opportunities for network expansion.
- Analyze existing usage, barriers to adoption, and integration with urban planning to support sustainable transportation goals.

COLT Railroad Corridor Study

- A comprehensive study of the COLT Railroad Corridor to explore diverse future development opportunities.
- Consider multiple uses: enhancing freight movement, expanding passenger rail service, incorporating trails, and developing transportation/recreational facilities.
- Evaluate alignment with city goals: reduce road congestion, improve multimodal transportation, and support economic growth.
- Determine optimal uses of the corridor, whether for freight, public transit, recreation, or a combination.

14 Feedback and Discussion

INPUT ON PROPOSED TRANSPORTATION PROJECTS FOR 2055

INPUT ON HOW RECOMMENDATIONS ADDRESS MOBILITY FOR ALL USER GROUPS

FEEDBACK ON HOW THE MTP ALIGNS WITH ENVIRONMENTAL GOALS

THANK YOU

To learn more, visit the BeHeard website page that can be reached here:
https://beheard.como.gov/catso-metropolitan-transportation-plan-update

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BeHeard Page

CATSO 2055 Metropolitan Transportation Plan Update

Round 3 Stakeholder Meeting Notes

Monday, September 30th, 2024: 2:00-4:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:
Shawn Leight, *CBB*
Thaddeus Yonke, *Boone County*
Alice Leeper, *CBOR*
Lisa Driskel-Hawxby, *REDI*
Leanne Tippett Mosby, *Columbia Climate and Environment Commission*
Eric Hemper, *Columbia Office of Sustainability*
David Nichols, *Emery Sapp & Sons*
Mike Sokoff, *City of Columbia Parking & Transit*
Bernie Andrews, *REDI*
Kari Utterback, *Columbia Public Health and Human Services*
Liz Sensintaffar, *Job Point*
McKenzie Ortiz, *Bicycle and Pedestrian Commission*
Carolyn Amparan, *Sierra Club (Mid-Missouri Group)*
Miles Gibson, *First Last Mile*
David Echols, *City of Refuge*
Lawrence Simonson, *Local Motion*
Jami Clevenger, *Homebuilders Association of Columbia*
AnnMarie Gortmaker, *Disabilities Commission*
Elke Boyd, *Bicycle and Pedestrian Commission*
Heidi Davis, *University of Missouri*
Carol Elliott, *Bicycle and Pedestrian Commission*
John Ambra, *Columbia Fire Department*

Meeting Notes:
The group went through the project team's presentation and discussed draft recommendations. The resilience of the local transportation system, especially related to severe weather events, was a key area of discussion.

Public Open House Meetings

Public Open House 1

A main component of our engagement process was public open houses. Our first public open house was held on September 4th, 2024, at the Columbia City Hall from 6-8 PM. This event was advertised using flyers, which were distributed on the City's BeHeard website and Facebook page; through emails to stakeholders; and physically at key community locations, at stakeholder meetings, and at City Hall. To make the meeting more accessible, we were able to contact GoCOMO and make a paratransit vehicle available past the typical hours of operation for anyone requiring the service who wanted to attend the meeting. There were two primary goals for this meeting: 1) understand the public's needs and goals in relation to transportation in the Columbia region and 2) inform the public on the purpose of the Metropolitan Transportation Plan. To inform the public on the purpose of the Metropolitan Transportation Plan and on the process of getting projects done using the plan, several boards with information were on display. CBB and CATSO staff members were also present at the meeting to answer any questions that the public had.

To identify the public's needs and goals, two feedback boards with several statements were displayed. These statements were largely based on comments made at our round one stakeholder meetings and on our analysis of the existing conditions in the Columbia area. Open house attendees were then invited to place stickers next to statements that they agreed with or saw as priorities. Needs and goals were also identified using aerial maps of the Columbia region, which attendees were invited to place sticky notes on in specific areas of need or opportunity. Comment cards were also available at the meeting, which attendees could use to write out any additional input. QR codes that directed attendees to an online survey when scanned were also on display.

In total, 24 people attended the September 4th public open house. The feedback gathered from the comment cards that were turned in may be found below in this appendix. Results from feedback boards 1 and 2 may also be found below in this appendix. The main takeaways from the feedback received mirrored those from the first round of stakeholder meetings as provided below:

Bike and Pedestrian Issues

- Filling gaps in the sidewalk system, ensuring good maintenance on all sidewalks, and providing safe pedestrian roadways crossing should be a high priority.
- The trail system is a major asset to the area.
- Bike infrastructure should be better connected and better protected. Every roadway project should consider how bicycle infrastructure can create a better-connected system.
- Traffic calming measures are supported by the local community and create safer areas for walking and biking
- E-bikes could be better considered and embraced.

Transit Issues

- Free bus fares are appreciated.
- The wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Expanding bus routes would make many areas of the region more accessible for transit users.
- The transit system can be hard to use for those with disabilities. Not only do the buses need to be ADA accessible, but bus stops and the routes to the bus stops need to be ADA accessible as well.

Roadway Issues

- Traffic congestion is well managed compared to many urban areas.

Columbia Area Transportation Study Organization (CATSO)

Metropolitan Transportation Plan Update

OPEN HOUSE MEETING

Columbia City Hall
701 E. Broadway
Room 1A-1B

Wednesday, September 4
6:00 PM - 8:00 PM

At our Open House Meeting, you'll have the opportunity to:

- Discuss transportation issues that matter to you
- Share your ideas and suggestions
- Learn about the plan update and ask the team questions

Scan for Survey

WHAT IS THIS FOR?

The US Department of Transportation (USDOT) requires that Metropolitan Planning Organizations, including the Columbia Area Transportation Study Organization (CATSO), to maintain a Metropolitan Transportation Plan as a condition to be eligible to receive federal funding for bicycle, pedestrian, transit, and roadway infrastructure projects. USDOT requires that this plan be updated every five years to account for changes in demographics, development, and travel patterns.

Contact Us

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Claire Sherburn
csherburn@cbbtraffic.com

METROPOLITAN TRANSPORTATION PLAN
COLUMBIA AREA
TRANSPORTATION STUDY ORGANIZATION
CATSO
2055 UPDATE

METROPOLITAN
TRANSPORTATION PLAN

COLUMBIA AREA

TRANSPORTATION STUDY ORGANIZATION

CATSO

2055 UPDATE

Public Open House | 9/4/2024

WELCOME

TO THE CATSO
Metropolitan Transportation Plan (MTP)
2055 Update
PUBLIC OPEN HOUSE

METROPOLITAN
TRANSPORTATION PLAN
COLUMBIA AREA
TRANSPORTATION STUDY ORGANIZATION
CATSO
2055 UPDATE

1 What is CATSO?

Columbia Area Transportation Study Organization

- Collaboration among City of Columbia, Boone County, and MoDOT to carry out transportation planning
- Required to receive federal transportation funding
- CATSO is strictly a planning organization – it does not design or build any projects

BOONE COUNTY GOVERNMENT

city of Columbia

MoDOT

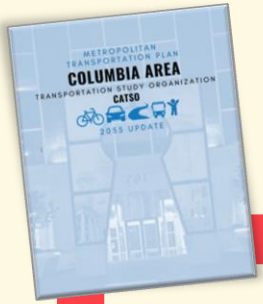
2 What is a Metropolitan Transportation Plan (MTP)?

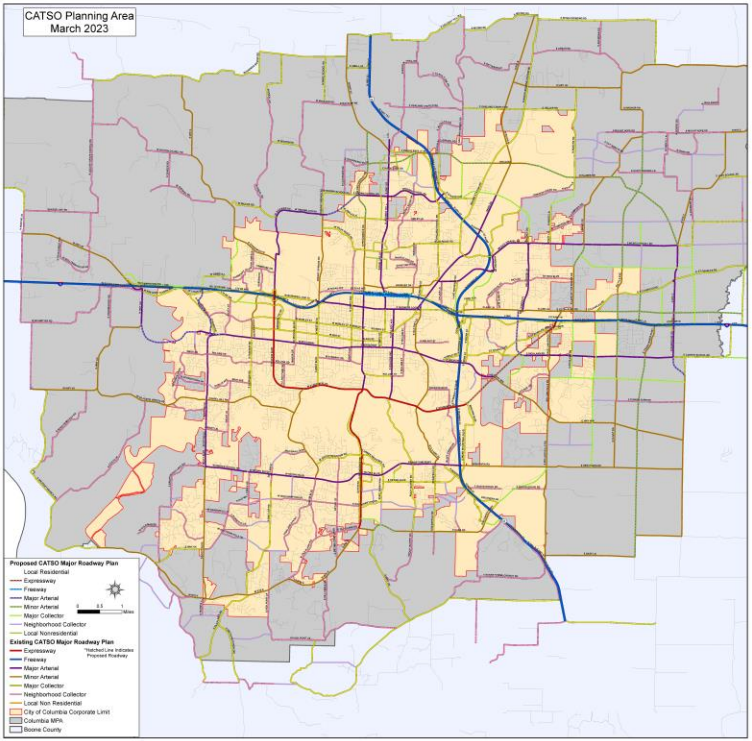
Benefits

- Required by Federal Law
- Enables access to state and federal transportation funding (typically $40M-$50M annually)
- Enables regional coordination in transportation planning
- Helps the region meet goals in sustainability, safety, economic development, and equity.

Key Components

- Vision & Goals
- Existing Conditions Analysis
- Future Needs Forecasting
- Strategies & Projects

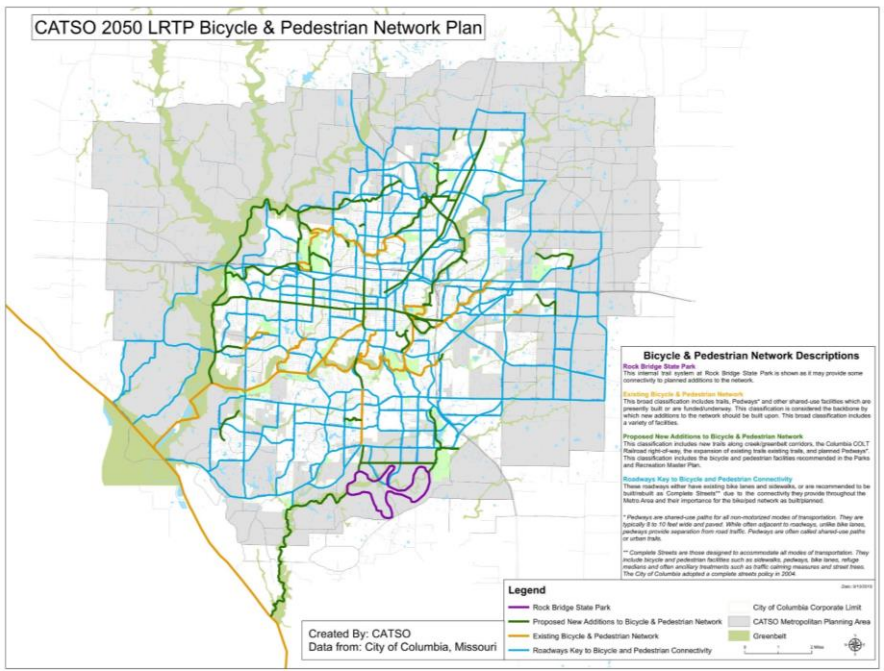




3

Existing CATSO Major Roadway Plan

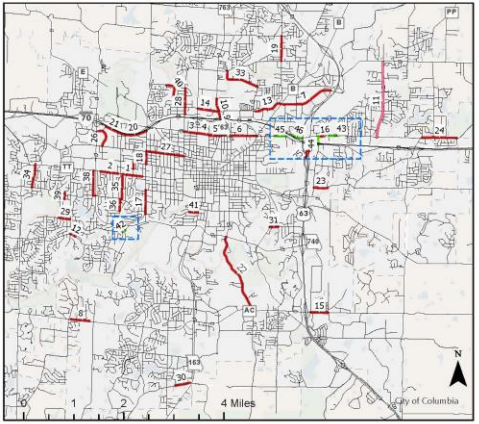
Collectors and arterials are eligible for federal funding programs



4

Existing CATSO Bicycle and Pedestrian Network Plan

Existing City of Columbia Sidewalk Plan



Item 42: Sidewalks on the North Side of Milk Drive between Highridge Drive and Forum Boulevard

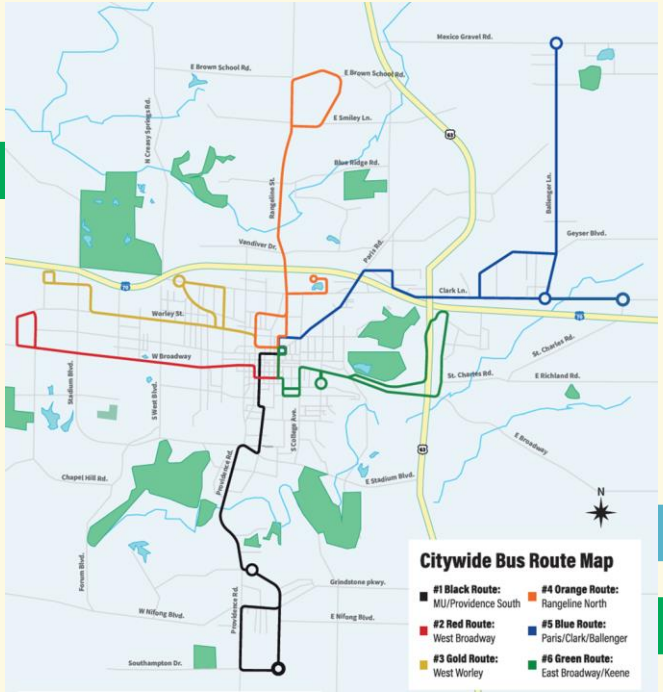
Item 43: Fill the sidewalk gap on north side of Clark Lane, east of the Connector, to the planned roundabout on Clark Lane and planned underpass from Hanover Boulevard to Interstate 70 Drive SE.

Item 44: Add a sidewalk on the east side of the 63 Connector across I-70 from Clark Lane to I-70 Drive SE.

Item 45: Fill the sidewalk gap on the south side of East Business Loop 70 near the planned roundabout and distributor collector for eastbound I-70.

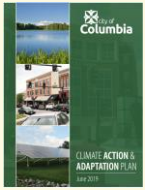
Item 46: Fill the sidewalk gap on the north side of Clark Lane, west of the Connector, near the planned roundabout by Lambeth Drive and the future Hinkson Creek Trail connection.

Existing GO Como Transit Map



7 Other Key Plans Considered

- Boone County Master Plan
  in development
- GoCOMO Comprehensive Transit Study
  in development
- MoDOT STIP
- City of Columbia's Comprehensive Plan
- City of Columbia Sidewalk Master Plan
- City of Columbia Climate Action and Adaptation Plan
- City of Columbia Park Master Plan
- University of Missouri Campus Master Plan
  in development

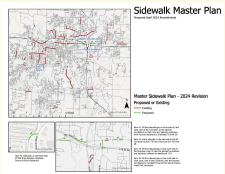


Columbia Imagined
The Plan for How We Live & Grow

Our Boone County
OUR COMMUNITY. OUR FUTURE. BOONE COUNTY MASTER PLAN

University of Missouri
Campus Master Plan 2024

GoCOMO Columbia's Public Transit **Comprehensive Transit Study**

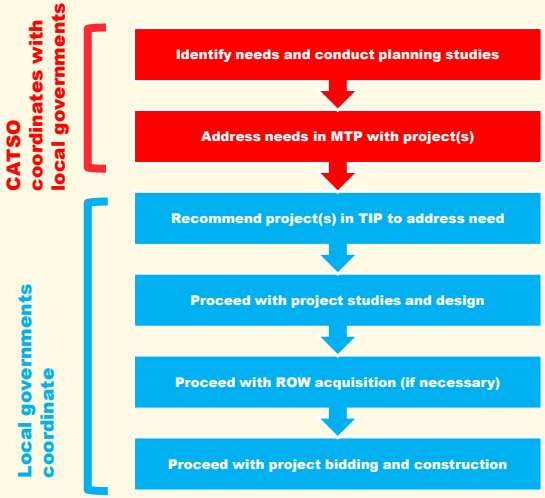


8 Projects Funded Through MTP

Programmed TIP Projects (2025-2028)

Total Financial Summary FY 2025-2028 TIP Programmed Projects	Federal $	Local $	Total $
Capital Projects			
MoDOT Roadways	$19,596,800	$543,913,200	$563,510,000
MoDOT Scoping	$0	$280,800	$280,800
Boone County	$0	$0	$0
Columbia Streets	$2,130,800	$8,343,497	$10,474,297
Columbia Sidewalks	$838,481	$1,097,684	$1,936,165
Rail-Highway	$0	$0	$0
Parking	$3,610,708	$902,677	$4,513,385
Transit	$29,304,903	$22,081,014	$51,385,917
Total Capital Project Funding	$55,481,692	$576,618,872	$632,100,564
Total Maintenance (Fed-aid system)	$0	$17,000,823	$17,000,823
Total Programmed	$55,481,692	$593,619,695	$649,101,387
Total Revenue	$55,482,492	$716,981,701	$772,464,193
*Funds Remaining**	$800	$123,362,006	$123,362,806

9 How Do Projects In The MTP Get Done?



- The MTP provides a long-term transportation vision.
- The Transportation Improvement Program (TIP) lists projects to be implemented in near term.
- Local agencies (Boone County, City of Columbia, and MoDOT) implement the projects.

10 Who We've Talked To

- Bike and Ped Commission
- Boone County Family Resources
- Boone County Fire Protection District
- Cambio Center
- Catholic Charities of Central and Northern Missouri
- City of Columbia Office of Sustainability
- City of Refuge
- Climate and Environment Commission
- Central Missouri Community Action
- COLT Railroad
- Columbia Board of Realtors
- Columbia College
- Columbia Housing Authority
- Columbia Police Department
- Columbia Public School District
- First Last Mile
- GoCOMO
- Homebuilders Association
- Local Motion
- OATS Transit
- Powerhouse
- Regional Economic Development Inc.
- Scheppers Distributing
- Sierra Club
- Services for Independent Living
- Disabilities Commission
- The District
- The Loop
- Transportation and Infrastructure Committee
- United Community Builders
- University of Missouri
- West Ash Neighborhood

11 What We Have Heard So Far

Pedestrian and Bicycle

- There are gaps in the sidewalk system, some sidewalks not well-maintained
- Bike infrastructure is not well-connected and needs to be better protected
- There needs to be safer opportunities for crossing the street
- Walking at night feels unsafe in some areas due to the lack of streetlights or streetlights being out of order
- Traffic calming measures would create safer areas for walking and biking

Transit

- Free bus fares are appreciated
- Wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Bus routes need to be expanded so that more locations can be reached
- The bus system needs to be easier to understand, especially for non-native English speakers
- Transit needs to be more accessible for those with disabilities

Cars and Roads

- Traffic congestion is very well managed compared to many urban areas
- Roadways need to accommodate larger vehicles used for emergency response and deliveries
- Parking is generally available in the region, but can be difficult downtown
- More electric vehicle charging stations are needed

12 MTP Update Engagement Plan

Be Heard Website

- https://beheard.como.gov/catso-metropolitan-transportation-plan-update

Stakeholder Meetings Round 1

- *Late August*
- *Invite only*

Stakeholder Meetings Round 2

- *Held 9/3/24 - 9/4/24*
- *Invite only*

Survey 1

- *Available NOW using BeHeard & QR code*
- *Closes 9/7/24*

Public Meeting 1

- *You are here!*

Survey 2

- *Coming in September!*
- *Look for posting on BeHeard*

Public Meeting 2

- *9/30/24, 6-8 pm*
- *801 E Walnut St*

Stakeholder Meeting Round 3

- *9/30/24, 2-4 pm*
- *Invite only*

13 Feedback Board 1

What is working well? Add your dots here!

Traffic congestion is well managed ***"You can get anywhere in town in 20 minutes"***
Free bus service makes getting around town easy
Biking and walking is safe and easy
The roads are well maintained
Parking is generally available and easy to find
Add your thoughts

14 Feedback Board 2

What should be improved? Add your dots here!

Bus routes and hours of operation make the bus difficult to use
The condition of sidewalks can make it hard to use them
Areas with missing sidewalks makes it hard to get around
The bicycle system is not connected, and some bike lanes are too narrow to use.
Lack of streetlights makes it difficult to walk and bicycle at night
Add your thoughts

15 Feedback Station 1

Show us on the map areas that you think work especially well

16 Feedback Station 2

Show us on the map areas that you think need special attention.

THANK YOU

To learn more, visit the BeHeard website page that can be reached here:
https://beheard.como.gov/catso-metropolitan-transportation-plan-update

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BeHeard Page

Survey

CATSO 2055 Metropolitan Transportation Plan Update

Public Open House 1: Public Feedback

Wednesday, September 4th, 2024: 6:00-8:00 PM
Columbia City Hall- 701 E Broadway Blvd, Columbia, MO, 65205

Attendees:

Project Team
Pat Zenner, *Columbia*
Tim Teddy, *Columbia*
Mitch Skov, *Columbia*
Thaddeus Yonke, *Boone Cty*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Claire Sherburn, *CBB*

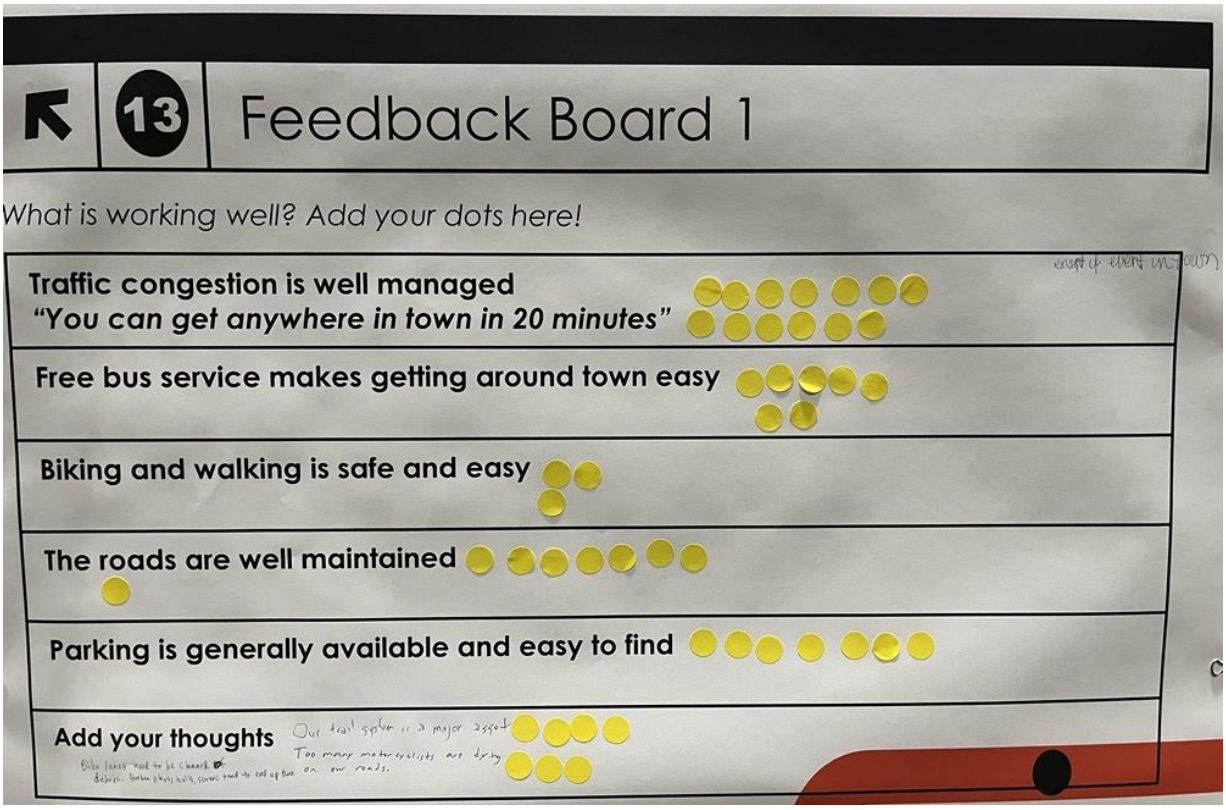
Clyde Bentley
Alice Leeper
Matt Wright
Christine Gardner
Brian Toohey
Anne Woods
Ben Ross
Graham Brownstein
David Nichols
John Frerking
Andrew Devereux
Janet Godon
Liberty Stone

Ryan Imhoff
McKenzie Ortiz
Alex Wolford
Steve Sieveking
Dee Dokken
Bill Brumbaugh
Laurie Wern
Mark Casey
Beth Hastings
Lydia Olmsted
Juli Olmsted

Public Comments:

- "I would like to see bike infrastructure connected and expanded. Separate bike travel from auto travel, speeds aren't too different for safe travel!"
- "The bike/pedestrian system exceeds many city systems. The system needs more marketing/awareness of the connectivity that it provides to citizens. I think this will open a lot of eyes once people understand it."
- "The last-mile issue is very serious and needs to be addressed at all levels of the plan. A parking garage or bus stop fails to work if people can't conveniently go to their home or destination. New technologies like e-scooters, e-bikes, etc. should be embraced. Right now, we tend to throw up barriers to any new last-mile solution."
- "Post pandemic, the demographics of bicycling have changed. Electric-assist bicycles have dramatically increased the number of "mature" cyclists on trails and streets. They need better signage and lane controls. They also seek good parking sites and would appreciate the bike recharging stations. E-bikes are one solution to the last-mile dilemma."
- "Need a bike walk road from Stadium Blvd. to Green Meadows Rd. Many Columbia sidewalks not walkable. Speed racing on streets dangerous. Hard to get West of Providence Rd. on Nifong- poor visibility and floods for days when rains. I need access to airport, Amtrak, and Greyhound. Taxi too expensive, Uber too. I have to take an expensive taxi home from this meeting. Transportation to jobs is expensive."

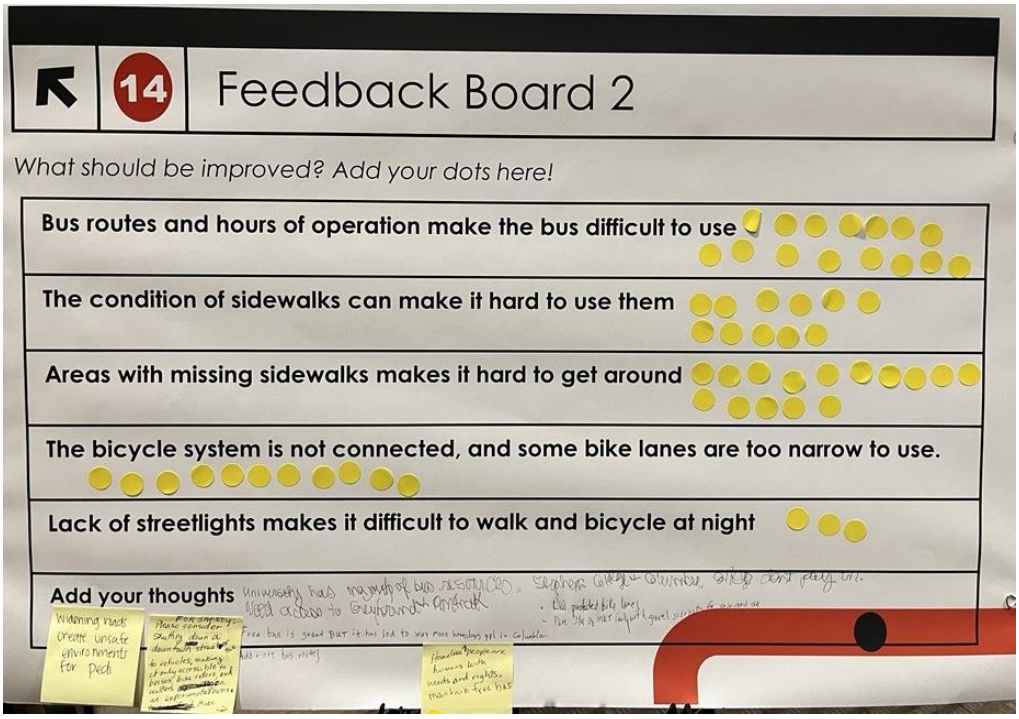
Feedback Board 1:



Open house attendees were given sticker dots upon arrival and were invited to place their dots next to statements that they agreed with on the first feedback board, which asked the question: "what is working well?". The results are shown below:

- "Traffic congestion is well-managed. 'You can get anywhere in town in 20 minutes.'" - 13 votes
- "Free bus service makes getting around town easy." - 7 votes
- "Biking and walking is safe and easy." - 3 votes
- "The roads are well-maintained." - 8 votes
- "Parking is generally available and easy to find." - 7 votes
- "Add your thoughts."
    - "Our trail system is a major asset." - 4 votes
    - "Too many motorcyclists are dying on our roads." - 3 votes
    - "Bike lanes need to be cleared of debris. Broken glass, nails, etc."

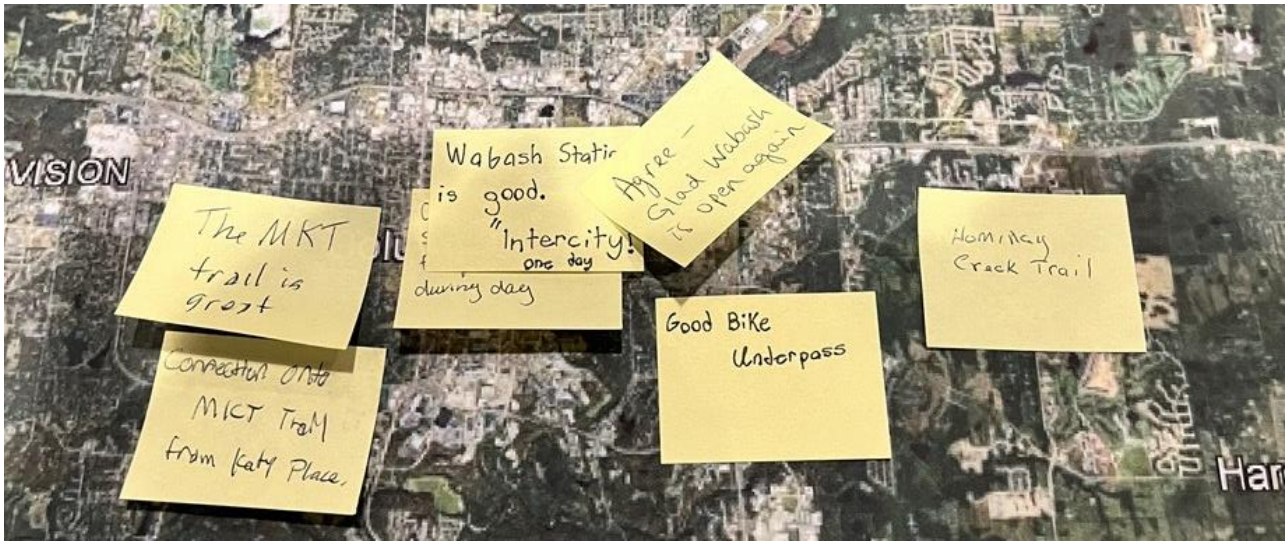
Feedback Board 2:



The second feedback board asked the question: "What should be improved?" Open house attendees were once again invited to place their dots next to statements that they agreed with. The results are shown below:

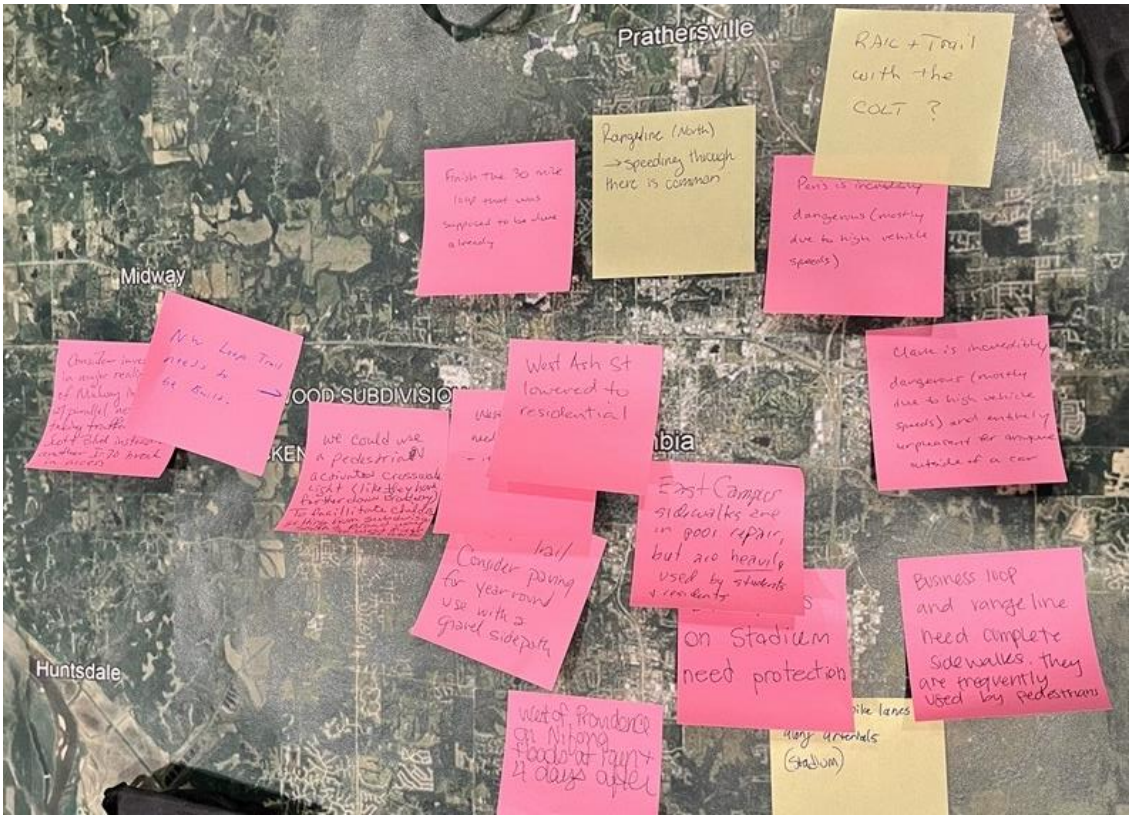
- "Bus routes and hours of operation make the bus difficult to use." - 15 votes
- "The condition of sidewalks can make it hard to use them." - 11 votes
- "Areas with missing sidewalks makes it hard to get around." - 15 votes
- "The bicycle system is not connected, and some bike lanes are too narrow to use." - 11 votes
- "Lack of streetlights make it difficult to walk and bicycle at night." - 3 votes
- "Add your thoughts"
    - "University has majority of bus resources. Stephens College and Columbia College don't pay in. Need access to Greyhound and Amtrak."
    - "Free bus is great BUT it has led to way more homeless people in Columbia. Add more bus routes."
    - "Homeless people are humans with needs and rights. Maintain free bus." - 1 vote
    - "Add protected bike lanes."
    - "Pave 3/4 of MKT with gravel side path for year-round use"
    - "Widening roads creates unsafe environments for peds."
    - "For safety: please consider shutting down a downtown street or two to vehicles, making it only accessible to buses, bike riders, and walkers on an experimental basis. Make it more difficult for cars to come downtown."

Mapping Exercise: Locations where things are working well



- "The MKT trail is great"
- "Connection onto MKT Trail from Katy Place"
- "Wabash Station is good. 'Intercity?' one day"
    - "Agree- glad Wabash is open again."
- "Campus shutting down for pedestrians during day"
- "Good bike underpass"
- "Hominy Creek Trail"

Mapping Exercise: Locations of Needs



- "Consider investing in major realignment of Midway interchange with parallel network taking traffic into Scott Blvd instead of another I-70 break in access."
- "NW Loop Trail needs to be built."
- "We could use a pedestrian activated crosswalk light (like they have further down Broadway). To facilitate children getting from subdivision south of Broadway to West Middle at Gerbes."
- "Finish the 30 mile loop that was supposed to be done already."
- "West Ash St needs to be reclassified- it's a residential street!"
- "MKT Trail- Consider paving for year-round use with a gravel side path."
- "West of Providence on Nifong floods at rain and 4 days after."
- "Rangeline (north)- speeding through there is common."
- "West Ash St lowered to residential."
- "East Campus sidewalks are in poor repair but are heavily used by students and residents."
- "Bike lanes on Stadium need protection."
- "Separation of bike lanes along arterials (Stadium)."
- "Rail + Trail with the COLT?"

- “Paris is incredibly dangerous (mostly due to high vehicle speeds).”
- “Clark is incredibly dangerous (mostly due to high vehicle speeds) and entirely unpleasant for anyone outside of a car.”
- “Business Loop and Rangeline need complete sidewalks. They are frequently used by pedestrians.”

Public Open House 2

The second public open house was held on September 30th, 2024, from 4:00-8:00 PM at the Boone County Commission Chambers. To make it easier for people to attend the meeting, the open house began at 4:00 PM and was 4 hours long as opposed to being 2 hours long like the first public open house. This event was advertised using flyers posted on the City's BeHeard website and through emails to stakeholders and attendees of the first public open house. The goal of this meeting was to update the public on the plan's progress and to gather feedback on the plan's draft recommendations. These draft recommendations were largely based on a comprehensive review of existing city, county, and regional plans; various data analysis; extensive stakeholder input gathered throughout this planning process; survey results, and the first open house. Several boards were on display that presented background information on the plan, information on the plan's progress, and the plan's draft recommendations. Project team members were also present at the meeting to answer questions. Feedback on the recommendations was gathered using comment cards, which attendees could use to write out any input.

In total,16 people attended the September 30th public open house. The feedback gathered from the comment cards that were turned in may be found in Appendix B. Feedback mirrored comments from previous meetings. The main takeaways from the feedback received are below:

Bike and Pedestrian Issues

- A high priority should be given to filling gaps in the sidewalk system, ensuring good maintenance on all sidewalks, providing safe pedestrian crossings, and providing lighting of pedestrian pathways.
- The safety of bicyclists and peds needs to be prioritized. Bike infrastructure should be better connected and better protected.

- Traffic calming measures are supported by the local community and create safer areas for walking and biking.

Transit Issues

- There was support for a regional transit and connectivity study that would explore ways to better coordinate various transit needs and services throughout the CATSO region and between the CATSO region and other areas of central Missouri.

Roadway Issues

- There was support for doing more road safety audits as well as conducting a regional freight and delivery plan.
- All recommendations/ infrastructure improvement proposals need to consider impacts to the environment.
- Higher density development in the urban core would reduce the long-term urbanized footprint and the need for future roadway expansions in areas that are currently undeveloped.

Columbia Area Transportation Study Organization (CATSO)

2055 Metropolitan Transportation Plan Update

PUBLIC OPEN HOUSE #2

JOIN US TO PROVIDE YOUR INPUT ON OUR DRAFT RECOMMENDATIONS FOR THE 2055 METROPOLITAN TRANSPORTATION PLAN UPDATE

Monday, September 30th, 2024

4:00 - 8:00 PM

Boone County Commission Chambers
801 E. Walnut St

SCAN FOR BEHEARD SITE

Contact Us

Mike Albin, AICP
malbin@cbbtraffic.com

Mitch Skov
mitch.skov@como.gov

METROPOLITAN TRANSPORTATION PLAN
COLUMBIA AREA
TRANSPORTATION STUDY ORGANIZATION
CATSO
2055 UPDATE

WELCOME

TO THE CATSO
Metropolitan Transportation Plan (MTP)
2055 Update
PUBLIC OPEN HOUSE II

METROPOLITAN
TRANSPORTATION PLAN
COLUMBIA AREA
TRANSPORTATION STUDY ORGANIZATION
CATSO
2055 UPDATE

1 What is CATSO?

Columbia Area Transportation Study Organization

- Collaboration among City of Columbia, Boone County, and MoDOT to carry out transportation planning
- Required to receive federal transportation funding
- CATSO is strictly a planning organization – it does not design or build any projects

BOONE COUNTY GOVERNMENT

city of Columbia

MoDOT

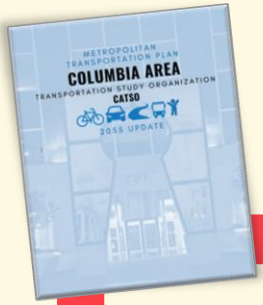
2 What is a Metropolitan Transportation Plan (MTP)?

Benefits

- Required by Federal Law
- Enables access to state and federal transportation funding (typically $40M-$50M annually)
- Enables regional coordination in transportation planning
- Helps the region meet goals in sustainability, safety, economic development, and equity.

Key Components

- Vision & Goals
- Existing Conditions Analysis
- Future Needs Forecasting
- Strategies & Projects



3 Other Key Plans Considered

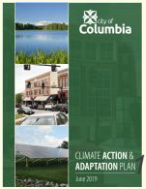
- Boone County Master Plan (*in development)*
- GoCOMO Comprehensive Transit Study (*in development)*
- MoDOT STIP
- MoDOT Columbia-Jefferson City Express Bus Study (*In development*)
- City of Columbia's Comprehensive Plan
- City of Columbia Sidewalk Master Plan
- City of Columbia Climate Action and Adaptation Plan
- City of Columbia Park Master Plan
- University of Missouri Campus Master Plan (*in development)*

Columbia Imagined
The Plan for How We Live & Grow

Our Boone County
OUR COMMUNITY. OUR FUTURE. BOONE COUNTY MASTER PLAN

University of Missouri
Campus Master Plan 2024

GoCOMO Comprehensive Transit Study



Projects Funded Through MTP

Programmed TIP Projects (2025-2028)

Total Financial Summary FY 2025-2028 TIP Programmed Projects	Federal $	Local $	Total $
Capital Projects			
MoDOT Roadways	$19,596,800	$543,913,200	$563,510,000
MoDOT Scoping	$0	$280,800	$280,800
Boone County	$0	$0	$0
Columbia Streets	$2,130,800	$8,343,497	$10,474,297
Columbia Sidewalks	$838,481	$1,097,684	$1,936,165
Rail-Highway	$0	$0	$0
Parking	$3,610,708	$902,677	$4,513,385
Transit	$29,304,903	$22,081,014	$51,385,917
Total Capital Project Funding	$55,481,692	$576,618,872	$632,100,564
Total Maintenance (Fed-aid system)	$0	$17,000,823	$17,000,823
Total Programmed	$55,481,692	$593,619,695	$649,101,387
Total Revenue	$55,482,492	$716,981,701	$772,464,193
*Funds Remaining**	$800	$123,362,006	$123,362,806

5 Who We've Talked To

- Bike and Ped Commission
- Boone County Family Resources
- Boone County Fire Protection District
- Cambio Center
- Catholic Charities of Central and Northern Missouri
- City of Columbia Office of Sustainability
- City of Refuge
- Climate and Environment Commission
- Central Missouri Community Action
- COLT Railroad
- Columbia Board of Realtors
- Columbia College
- Columbia Housing Authority
- Columbia Police Department
- Columbia Public School District
- First Last Mile
- GoCOMO
- Homebuilders Association
- Local Motion
- OATS Transit
- Powerhouse
- Regional Economic Development Inc.
- Scheppers Distributing
- Sierra Club
- Services for Independent Living
- Disabilities Commission
- The District
- The Loop
- Transportation and Infrastructure Committee
- United Community Builders
- University of Missouri
- West Ash Neighborhood

6 What We Have Heard So Far

Pedestrian and Bicycle

- There are gaps in the sidewalk system, some sidewalks not well-maintained
- Bike infrastructure is not well-connected and needs to be better protected
- There needs to be safer opportunities for crossing the street
- Walking at night feels unsafe in some areas due to the lack of streetlights or streetlights being out of order
- Traffic calming measures would create safer areas for walking and biking

Transit

- Free bus fares are appreciated
- Wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Bus routes need to be expanded so that more locations can be reached
- Public transportation should be considered at a more regional level
- Bus system should be easier to understand, especially for non-English speakers
- Transit needs to be more accessible for those with disabilities

Cars and Roads

- Traffic congestion is very well managed compared to many urban areas
- Roadways need to accommodate larger vehicles used for emergency response and deliveries
- Parking is generally available in the region, but can be difficult downtown
- More electric vehicle charging stations are needed

7 MTP Update Engagement Plan

Be Heard Website
- https://beheard.como.gov/catso-metropolitan-transportation-plan-update

Stakeholder Meetings Round 1
- *Late August*
- *Invite only*

Stakeholder Meetings Round 2
- *Held 9/3/24 - 9/4/24*
- *Invite only*

Survey 1
- *Closed 9/7/24*

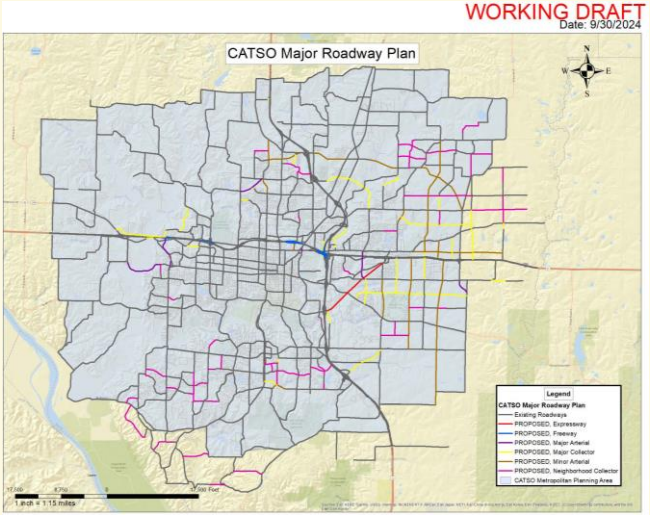
Public Meeting 1
- *9/4/24 6-8 PM*
- *Columbia City Hall*

Survey 2
- *Available NOW on the BeHeard Site*
- *Closes on 10/14/24*

Stakeholder Meeting Round 3
- *9/30/24, 2-4 pm*
- *Invite only*

Public Meeting 2
- *You are here!*

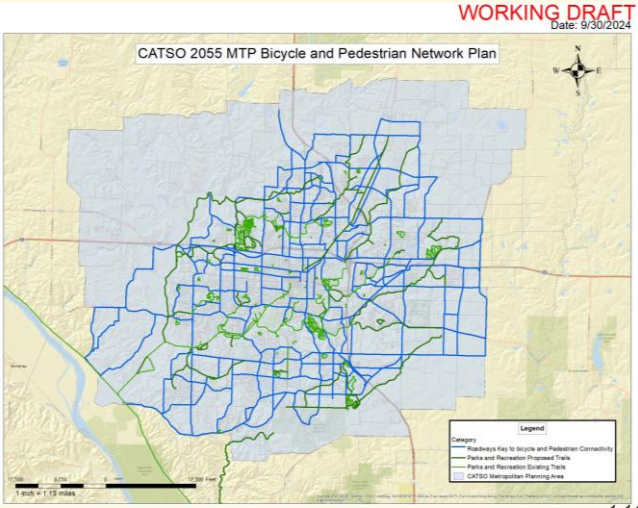
8 Proposed MTP Recommendations



- Implement Major Roadways Plan
  - Provides increased multimodal connectivity
  - Bicycle and pedestrian facilities are integrated into many of the proposed roadways
  - Based on a thorough review of city, county, and regional plans, alongside extensive stakeholder input.
  - Aligns MTP goals with regional objectives, creating an integrated approach to transportation needs and mobility improvements

9 Proposed MTP Recommendations

- Implement CATSO 2055 MTP Bicycle and Pedestrian Network Plan
  - Outlines an integrated system of over 130 miles of trails, 255 miles of pedways, and 385 miles of bike routes enhancing connectivity.
  - Leverages facilities from the City's Parks and Recreation Master Plan, focusing on complete streets and safe, accessible options for walking and cycling.
  - Highlights key roadways for improved mobility and emphasizes safe, attractive infrastructure for children, the elderly, and individuals with disabilities.
  - Implemented through a variety of means including roadway projects, trails projects, and sidewalk projects



10 Proposed CATSO Future Studies

Westside Transportation Study

- Would address infrastructure challenges and improve connectivity across Perche Creek,
- Would explore potential solutions, including new arterial roads and alternative crossings, to support local traffic and future development on Columbia's west side.
- Would also assess the extension of the sewer network, integrating both transportation and utility upgrades to facilitate development in the region.

Regional Wayfinding Plan

- Develop a Regional Wayfinding Plan to improve navigation for motorists, cyclists, and pedestrians.
- Establish cohesive, branded signage to guide visitors to key destinations (e.g., parking, stadiums, attractions).
- Enhance accessibility, boost local business by directing foot traffic, and improve safety through clearer navigation.

MO-740 Extension Study

- Would study the value of extending MO-740 from US-63 interchange at E Stadium Blvd northeast to I-70 interchange at E St. Charles Rd.
- Would explore the relief provided on US-63 and connectivity to Columbia's east side.

11 Proposed CATSO Future Studies

Road Safety Audits

- Conduct road safety audits on key corridors to assess safety for all transportation modes.
- Identify safety improvements for motorists, cyclists, and pedestrians across the region.
- Use audit findings to enhance multimodal safety and reduce accidents.

Regional Sidewalk Maintenance Plan

- Develop a Sidewalk Maintenance Plan to ensure safe, well-maintained pedestrian infrastructure
- Identify and prioritize areas needing repairs, upgrades, or ADA compliance
- Enhance safety, accessibility, and connectivity for pedestrians across the region

Regional Transit and Connectivity Study

- Conduct a Regional Transit and Connectivity Study to assess transitioning to a Regional Transit Authority (RTA) and expanding intercity bus and rail services.
- Evaluate benefits of extending transit service beyond Columbia to destinations like the airport and neighboring communities (e.g., Jefferson City, Ashland).
- Explore integration with Greyhound, Amtrak, and other transit services to improve regional connectivity and support future transit expansion

12 Proposed CATSO Future Studies

Public Facing Mobility App

- Create a one-stop-shop platform for mobility options, including routes, providers, services, and timetables.
- Integrate first-mile/last-mile options like trails and sidewalks for seamless connectivity.
- Partner with third-party providers (e.g., Moovel) to develop the platform.

Regional Freight and Delivery Plan

- Develop a Regional Freight and Delivery Plan to optimize logistics, improve access, and reduce congestion for freight operations.
- Identify designated loading zones and explore regional sub-distribution centers to minimize large trucks in urban areas.
- Integrate smart technologies to enhance delivery efficiency, safety, and sustainability across the region.

Regional Smart Parking Plan

- Develop a Regional Smart Parking Plan using advanced tech to optimize parking and enhance user experience.
- Implement real-time monitoring, mobile apps, and data analytics to predict demand and improve parking efficiency.
- Explore dynamic pricing to manage demand, reduce congestion, and support sustainable growth across the region.

13 Proposed CATSO Future Studies

Regional Electric Transportation Charging Study

- Conduct a Regional Electric Transportation Charging Study to assess current and future demand for EV and e-bike charging infrastructure.
- Identify optimal locations for new charging stations and explore partnerships and funding opportunities for network expansion.
- Analyze existing usage, barriers to adoption, and integration with urban planning to support sustainable transportation goals.

COLT Railroad Corridor Study

- A comprehensive study of the COLT Railroad Corridor to explore diverse future development opportunities.
- Consider multiple uses: enhancing freight movement, expanding passenger rail service, incorporating trails, and developing transportation/recreational facilities.
- Evaluate alignment with city goals: reduce road congestion, improve multimodal transportation, and support economic growth.
- Determine optimal uses of the corridor, whether for freight, public transit, recreation, or a combination.

THANK YOU

To learn more, visit the BeHeard website page that can be reached here:
https://beheard.como.gov/catso-metropolitan-transportation-plan-update

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573-874-7243

BeHeard Page

CATSO 2055 Metropolitan Transportation Plan Update

Public Open House 2: Public Feedback

Monday, September 30th, 2024: 4:00-8:00 PM
Boone County Commission Chambers, 801 E Walnut, Columbia, MO, 65201

Attendees:

Project Team
Pat Zenner, *Columbia*
Tim Teddy, *Columbia*
Mitch Skov, *Columbia*
Thaddeus Yonke, *Boone Cty*
Shawn Leight, *CBB*
Mike Albin, *CBB*
Julia Curry, *CBB*
Alex Zarate, *CBB*

David Melegrito
Heiddi Davis
Tammy Teel
Karen Brickey
Anne Z Woods
Steve Sieveking
Elke Boyd
Matt Wright
McKenzie Ortiz

Ben Ross
Andrew Devereux
Andrew Fell
Dee Dokken
Christine Gardener
Joan Ferguson
Randal Meyer
Lawrence Simonson

Public Comments:

- "This plan clearly focuses on one vision of Columbia: where the city continues to expand outward at a car-dependent, suburban density. We need to invest more effort into increasing density within the center city where other mobility options exist. Outward growth takes too much infrastructure for not enough people and is not sustainable long-term."
- "Lots of good recommendations for future studies. Hopefully they can be done. Planning should include accommodations for extreme weather events. The Westside Transportation Study needs to be part of more comprehensive planning by Columbia and Boone County for watershed and habitat protection and limiting sprawl. Similarly, the environmental effects of a MO-740 extension and Gans Rd extension should be carefully planned. Regional or Columbia transit should include connections to Rock Bridge State Park and other spots for outdoor recreation. Maybe federal money from Transit to Trails for this?"
- "1) Sharrow spots are not easily seen or known about by drivers. Drivers need to be educated. 2) Area on Business Loop 70 where I-70 enters is very hazardous for those on Business Loop wanting to turn on Burlington."
- "I am much more interested in keeping traffic away from bikes and peds- we know that causes death and accidents when they "share" space. It looks like West Ash is 'roadway key to bike and ped connectivity and I am expecting our concern over safety for children, the elderly, and those using motorized wheelchairs (of which I see many along West Ash) will be taken seriously. We need safe intersections and traffic calming. A road safety audit on West Ash cannot come too soon. I wish data on accidents could be available through Columbia Police but frequently accidents are called in but not recorded. Repeat accidents tell us where street redesign is needed. Please bring regional transit- get people out of cars!"
- "I think the regional freight and delivery plan is interesting and would like to see what recommendation could be made to downsize lanes/roadways which are not essential for

freight. Westside transportation study doesn't make much sense. Not too many people need to cross Perche Creek. Love to see study on dynamic parking pricing. Much of Columbia's parking issues is because it is too cheap. Roadway safety audits are great but not too much action has occurred after studies in Columbia. Major roadways plan should consider how bus/public transit can utilize major thorough fares. Regional transit is definitely needed in Columbia/Boone County. It is hard to get to the Airport, Jefferson City, Ashland and other surrounding towns without a car or expensive Uber. Airport and Jefferson City (Amtrak + 20k state jobs) should be focused on. Major Roadway Plan should consider just increasing bike/ped infrastructure around Mizzou, Downtown, and Boone County Library. Not every roadway needs addition lane for cars. Induced demand!"

- "I really like regional transit and connectivity study idea. I think this will be very useful to those of us who rely on public transit or private (uber, amtrack) to get to our friends and families. I like the road safety audit- maybe in collaboration with vision zero folks. Probably not CATSO purview but relationship of unhoused population and road safety (for the unhoused who may get hit by cars)."

Surveys

A major goal of our engagement process for the MTP Update was to make engagement as accessible as possible for all. Our online surveys were one of our primary methods of doing so. The surveys being online allowed members of the public to provide input and voice their needs on their own schedule. There were two different surveys developed as part of the CATSO 2055 MTP Update. The two surveys were distributed through the BeHeard site, the City of Columbia's Facebook site, outreach from stakeholders, outreach at key locations (see "Intercept Surveys" section below), and email lists. The questions and results of the two surveys will be discussed below.

Intercept Surveys

We understand that not everyone has the time to attend public meetings or to browse on the City's social media or website for updates on projects affecting their region. However, it is still important that these people have their voices heard. To reach these people and achieve a broader level of engagement for the formation of the 2055 CATSO MTP Update, intercept surveys were conducted on August 21st and 22nd, 2024. Flyers advertising the first public meeting and the first public survey were distributed to a wide range of locations that were strategically identified around the Columbia region. These locations included the Columbia Mall, the Walmart on Conley Rd, the Parkade Plaza, and multiple bus stops. When handing out flyers, project team members gave directions for how to reach the survey using the QR code on the flyer and encouraged attendance at the September 4th public meeting. Project team members also had tablets on-hand to assist people with filling out the survey if they preferred.

Survey 1

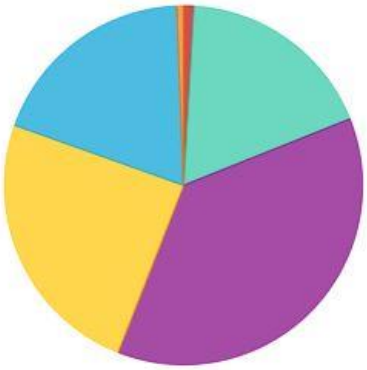
The purpose of the first survey was to develop the vision, goals, and objectives of the MTP Update by assessing the public's needs and priorities in relation to transportation. The first survey became available to the public on Thursday, August 8th, 2024, and closed on Monday, September 9th, 2024. The survey was a total of 36 questions and began with questions on demographics. The purpose of questions on demographics was to gain insight into who our surveys were reaching, and which groups were not being reached by our surveys. Questions on mode share, transportation barriers, strengths and weaknesses of the Columbia area's transportation system, and transportation priorities were then asked. The survey concluded with a GIS-based mapping element, which allowed people to mark a location in the Columbia MPO and leave a comment on the significance of the location- whether it be a location with a transportation need or a transportation opportunity.

The questions and responses are shown below:

1. How old are you?

1. How old are you? *

Column Bar Pie Map



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Empty categories Sort

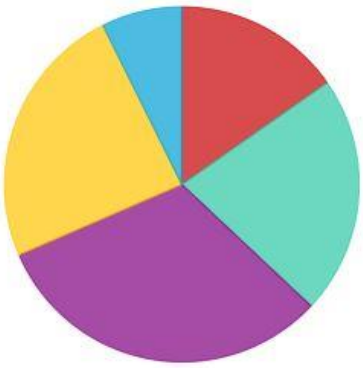
Answers	Count	Percentage
18 or under	3	0.92%
Between 18 and 29	59	18.04%
Between 30 and 49	121	37%
Between 50 and 64	80	24.46%
65 and up	62	18.96%
Prefer not to say	2	0.61%

Answered: 327 Skipped: 0

2. What is your annual income?

2. What is your annual income? *

Column Bar Pie Map



- $25,000 or below
- Between $26,000 and $50,000
- Between $51,000 and $100,000
- Above $100,000
- N/A or prefer not to say

Hide table

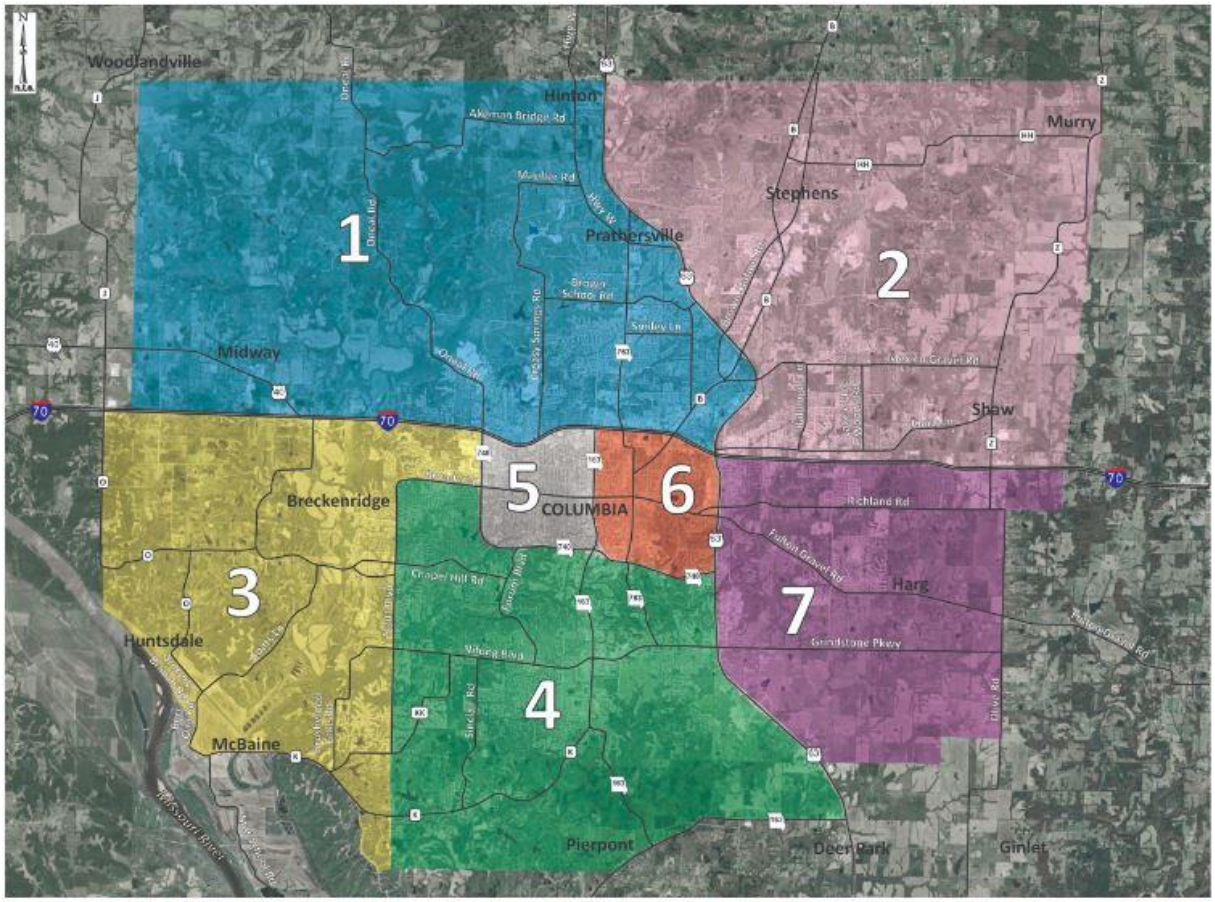
Empty categories Sort

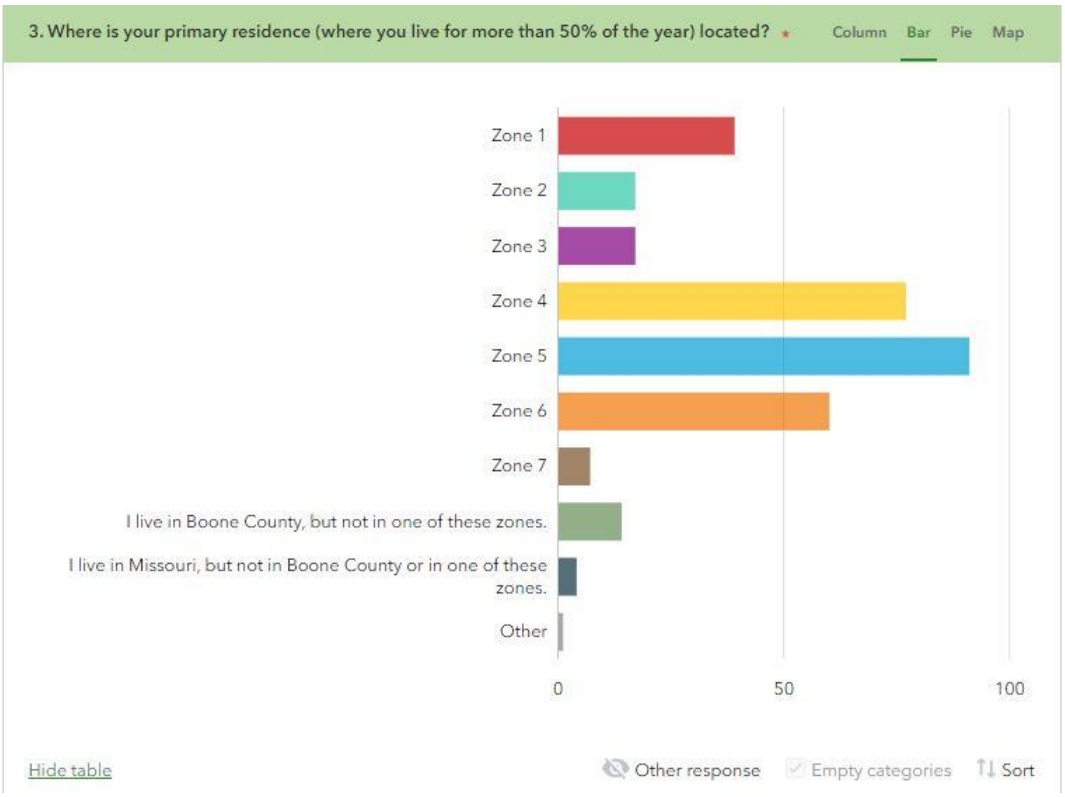
Answers	Count	Percentage
$25,000 or below	50	15.29%
Between $26,000 and $50,000	71	21.71%
Between $51,000 and $100,000	103	31.5%
Above $100,000	79	24.16%
N/A or prefer not to say	24	7.34%

Answered: 327 Skipped: 0

3. Where is your primary residence (where you live for more than 50% of the year) located?

CATSO Metropolitan Planning Area- Zones





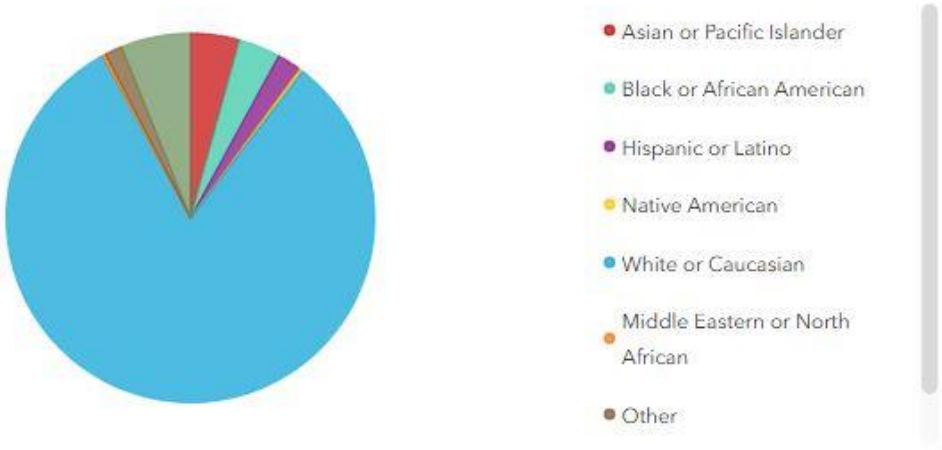
Answers	Count	Percentage
Zone 1	39	11.93%
Zone 2	17	5.2%
Zone 3	17	5.2%
Zone 4	77	23.55%
Zone 5	91	27.83%
Zone 6	60	18.35%
Zone 7	7	2.14%
I live in Boone County, but not in one of these zones.	14	4.28%
I live in Missouri, but not in Boone County or in one of these zones.	4	1.22%
Other	1	0.31%

Answered: 327 Skipped: 0

4. Which of the following best describes your race/ethnicity?

4. Which of the following best describes your race/ethnicity? *

Column Bar Pie Map



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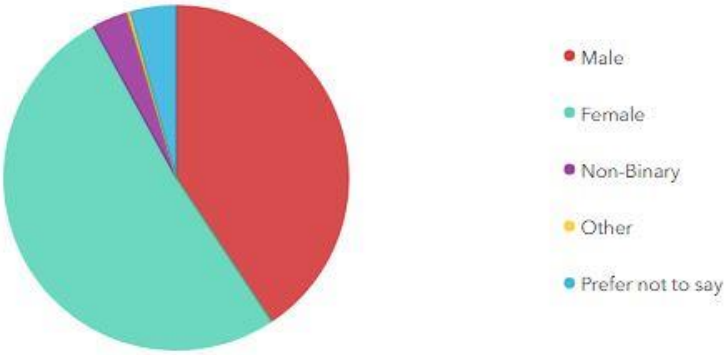
Answers	Count	Percentage
Asian or Pacific Islander	14	4.28%
Black or African American	12	3.67%
Hispanic or Latino	7	2.14%
Native American	1	0.31%
White or Caucasian	267	81.65%
Middle Eastern or North African	1	0.31%
Other	5	1.53%
Prefer not to say	20	6.12%

Answered: 327 Skipped: 0

5. What is your gender?

5. What is your gender? *

Column Bar Pie Map



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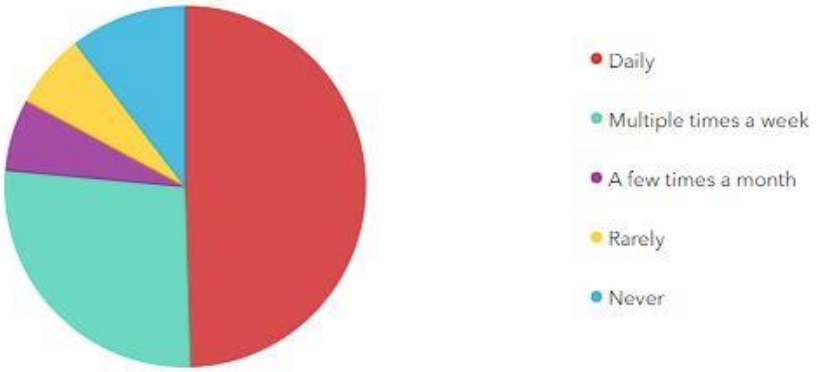
Answers	Count	Percentage
Male	133	40.67%
Female	168	51.38%
Non-Binary	11	3.36%
Other	1	0.31%
Prefer not to say	14	4.28%

Answered: 327 Skipped: 0

6. How often is a personal automobile/motorcycle your primary means of completing a trip?

6. How often is personal automobile/motorcycle your primary means of completing a trip? * Column Bar Pie Map



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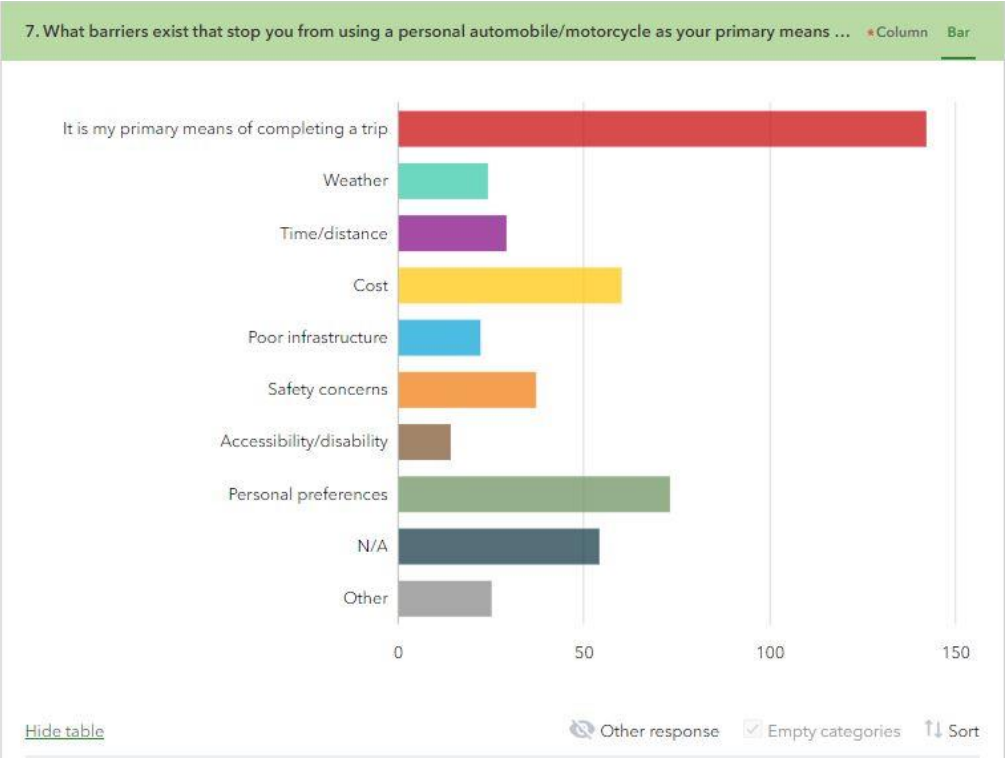
Answers	Count	Percentage
Daily	162	49.54%
Multiple times a week	88	26.91%
A few times a month	21	6.42%
Rarely	22	6.73%
Never	34	10.4%

Answered: 327 Skipped: 0

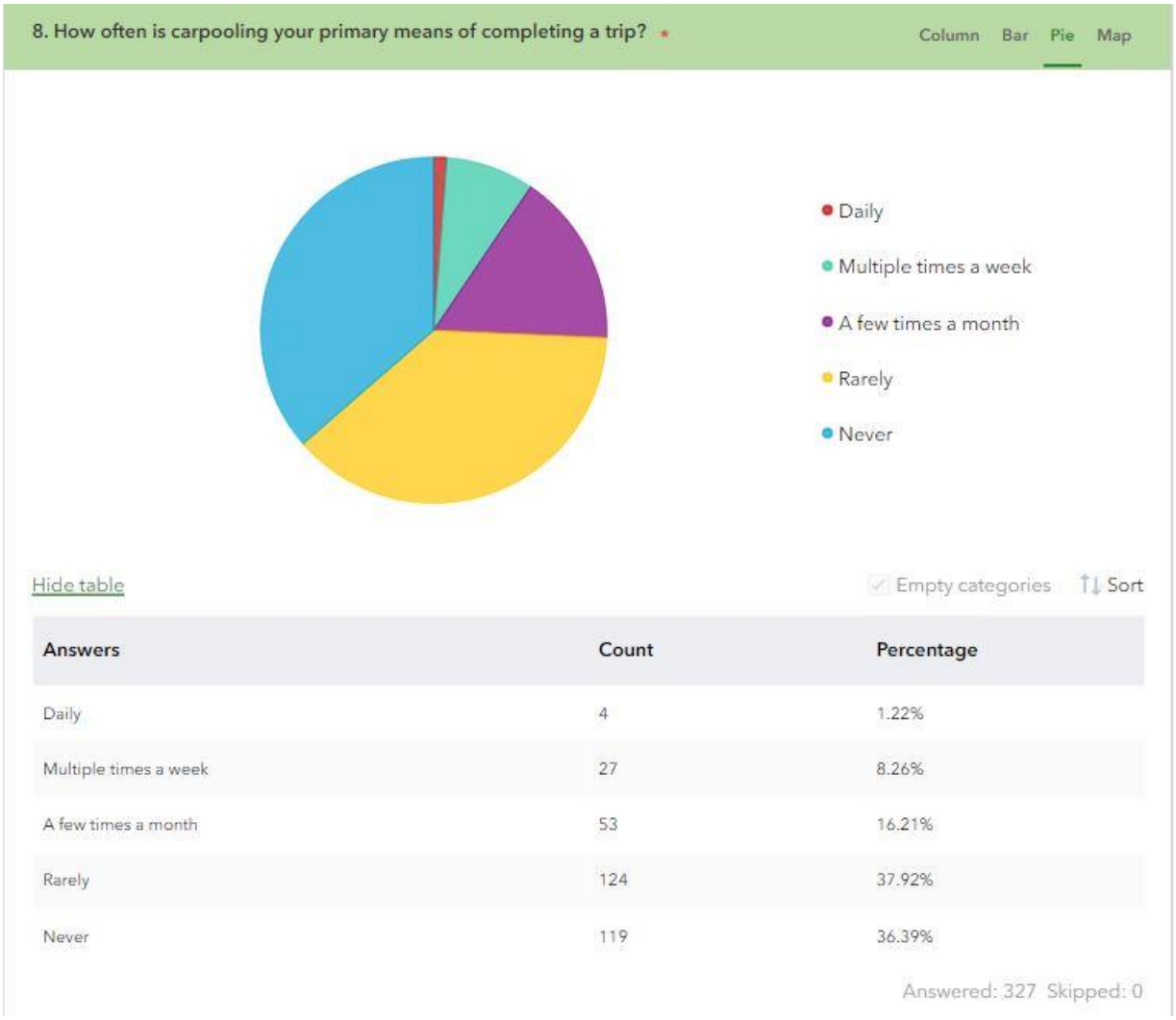
7. What barriers exist that stop you from using a personal automobile/motorcycle as your primary means of completing a trip?



Answers	Count	Percentage
It is my primary means of completing a trip	142	43.43%
Weather	24	7.34%
Time/distance	29	8.87%
Cost	60	18.35%
Poor infrastructure	22	6.73%
Safety concerns	37	11.31%
Accessibility/disability	14	4.28%
Personal preferences	73	22.32%
N/A	54	16.51%
Other	25	7.65%

Answered: 327 Skipped: 0

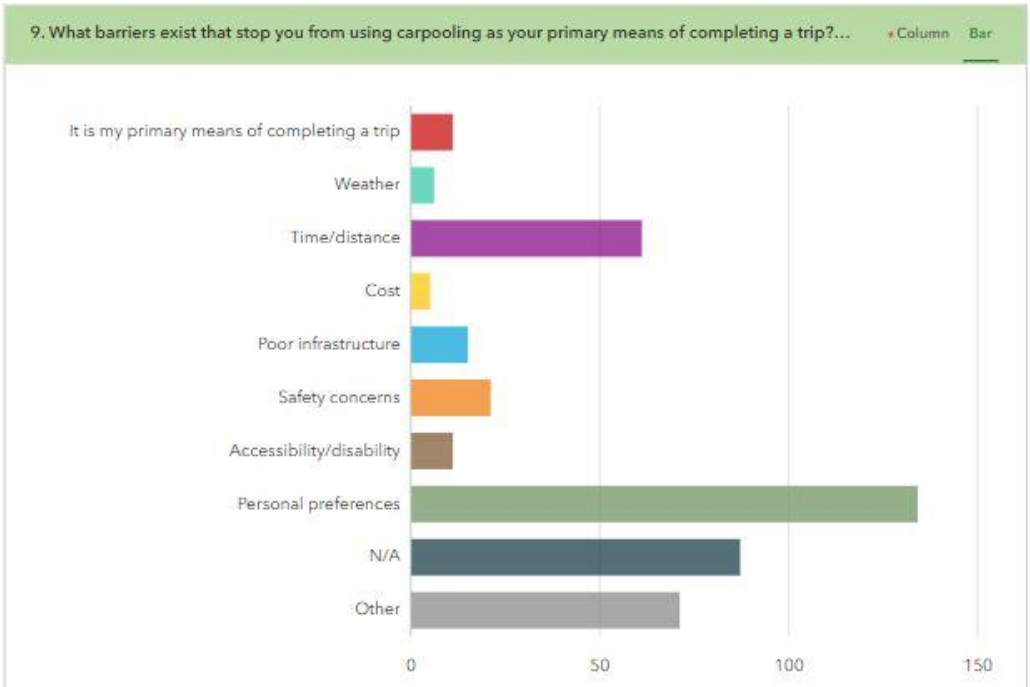
8. How often is carpooling your primary means of completing a trip?



Answers	Count	Percentage
Daily	4	1.22%
Multiple times a week	27	8.26%
A few times a month	53	16.21%
Rarely	124	37.92%
Never	119	36.39%

Answered: 327 Skipped: 0

9. What barriers exist that stop you from using carpooling as your primary means of completing a trip?



Hide table | Other response | Empty categories | Sort

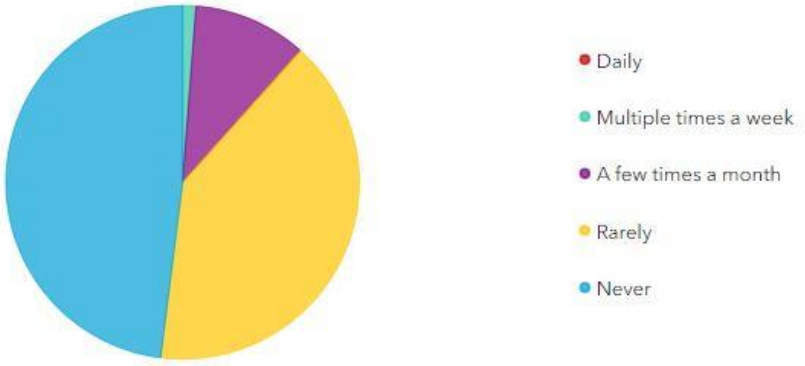
Answers	Count	Percentage
It is my primary means of completing a trip	11	3.36%
Weather	6	1.83%
Time/distance	61	18.65%
Cost	5	1.53%
Poor infrastructure	15	4.59%
Safety concerns	21	6.42%
Accessibility/disability	11	3.36%
Personal preferences	134	40.98%
N/A	87	26.61%
Other	71	21.71%

Answered: 327 Skipped: 0

10. How often is rideshare (Uber, Lyft, etc.) your primary means of completing a trip?

10. How often is ride share (Uber, Lyft, etc.) your primary means of completing a trip? *

Column Bar Pie Map



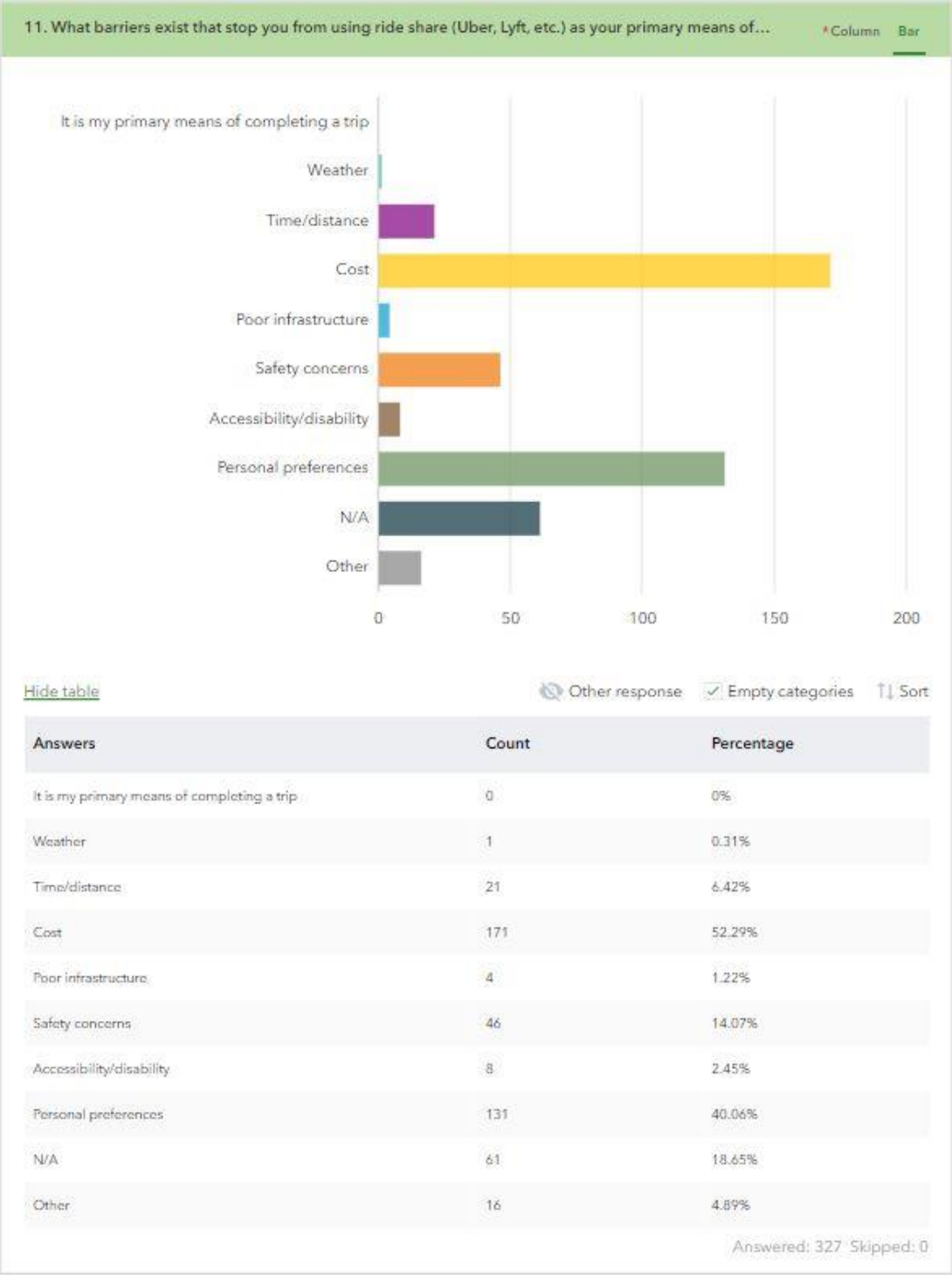
Hide table

Empty categories Sort

Answers	Count	Percentage
Daily	0	0%
Multiple times a week	4	1.22%
A few times a month	34	10.4%
Rarely	132	40.37%
Never	157	48.01%

Answered: 327 Skipped: 0

11. What barriers exist that stop you from using rideshare (Uber, Lyft, etc.) as your primary means of completing a trip?

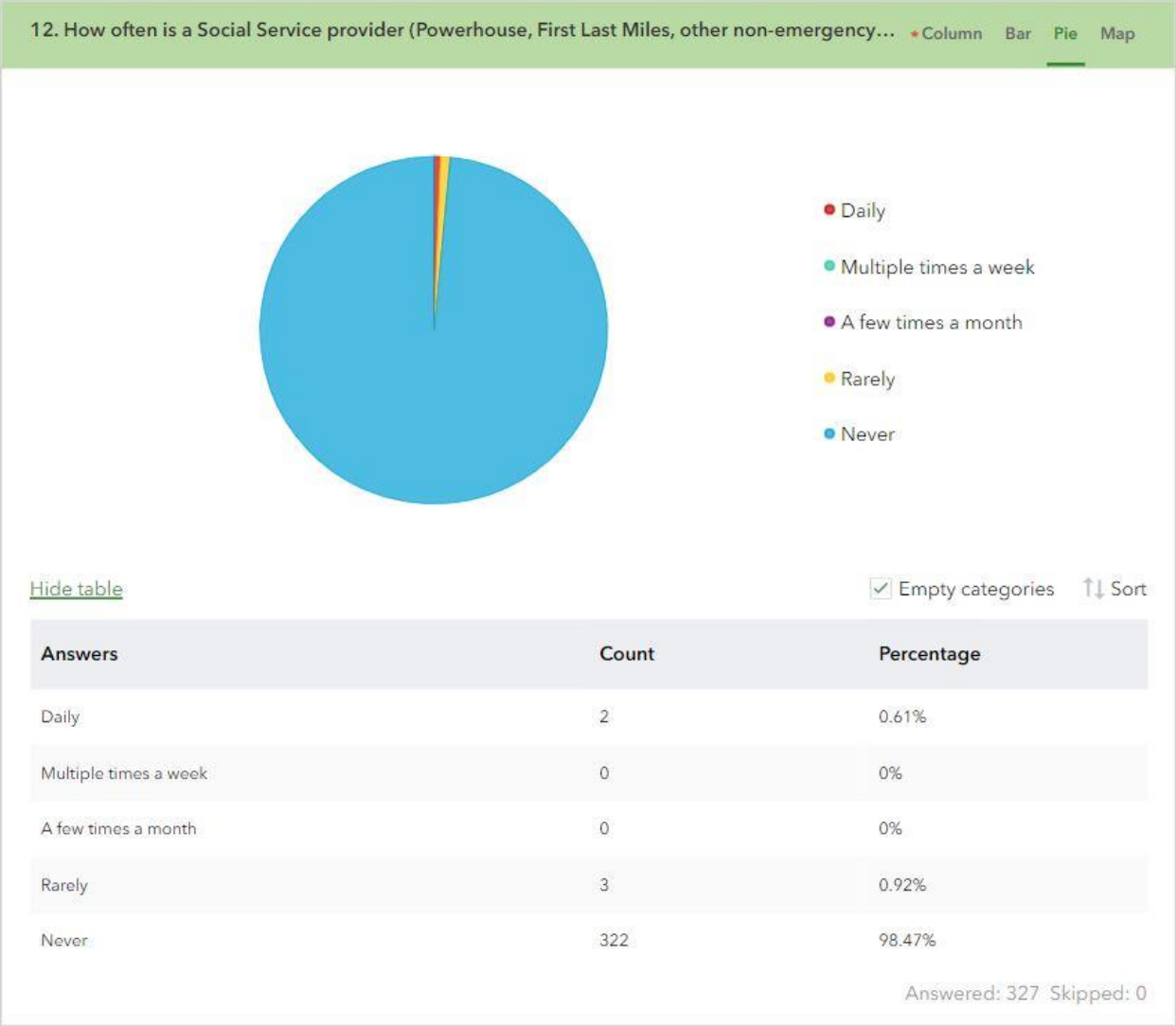


Hide table | Other response | Empty categories | Sort

Answers	Count	Percentage
It is my primary means of completing a trip	0	0%
Weather	1	0.31%
Time/distance	21	6.42%
Cost	171	52.29%
Poor infrastructure	4	1.22%
Safety concerns	46	14.07%
Accessibility/disability	8	2.45%
Personal preferences	131	40.06%
N/A	61	18.65%
Other	16	4.89%

Answered: 327 Skipped: 0

12. How often is a social service provider (Powerhouse, First Last Mile, other non-emergency medical transportation) your primary means of completing a trip?



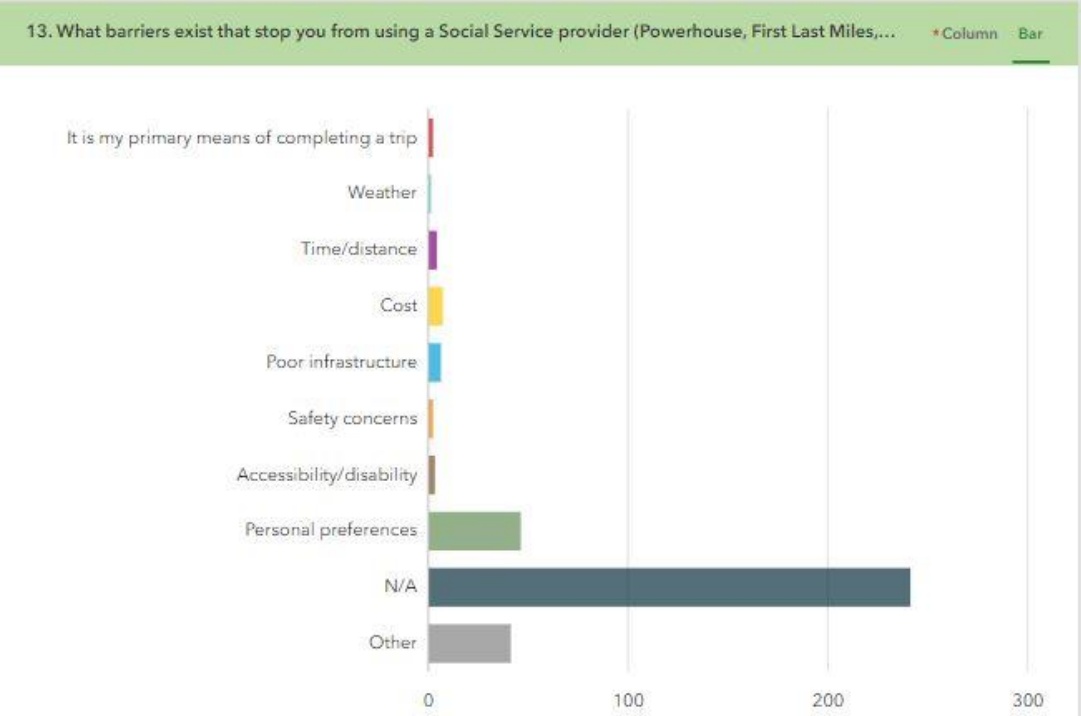
Hide table

Empty categories Sort

Answers	Count	Percentage
Daily	2	0.61%
Multiple times a week	0	0%
A few times a month	0	0%
Rarely	3	0.92%
Never	322	98.47%

Answered: 327 Skipped: 0

13. What barriers exist that stop you from using a social service provider (Powerhouse, First Last Mile, other non-emergency medical transportation) as your primary means of completing a trip?



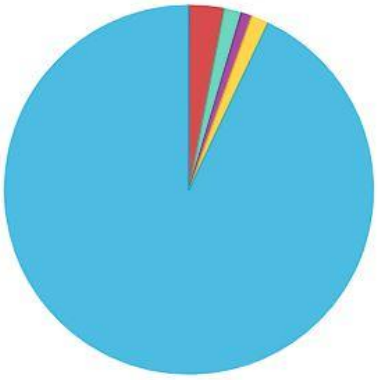
Hide table | Other response | Empty categories | Sort

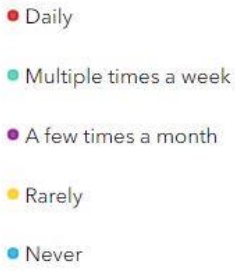
Answers	Count	Percentage
It is my primary means of completing a trip	2	0.61%
Weather	1	0.31%
Time/distance	4	1.22%
Cost	7	2.14%
Poor infrastructure	6	1.83%
Safety concerns	2	0.61%
Accessibility/disability	3	0.92%
Personal preferences	46	14.07%
N/A	241	73.7%
Other	41	12.54%

Answered: 327 Skipped: 0

14. How often are off-campus housing shuttles your primary means of completing a trip?

14. How often are off-campus housing shuttles your primary means of completing a trip? * Column Bar Pie Map



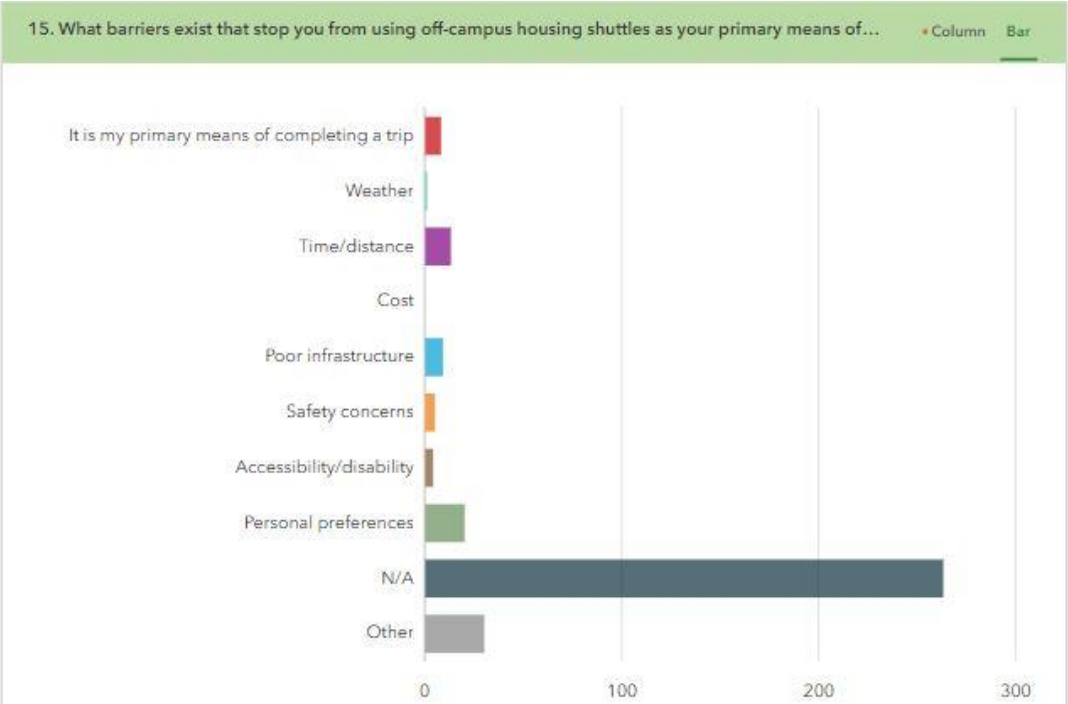


Hide table Empty categories Sort

Answers	Count	Percentage
Daily	10	3.06%
Multiple times a week	5	1.53%
A few times a month	3	0.92%
Rarely	5	1.53%
Never	304	92.97%

Answered: 327 Skipped: 0

15. What barriers exist that stop you from using off-campus housing shuttles as your primary means of completing a trip?



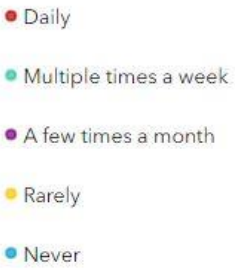
Hide table | Other response | Empty categories | Sort

Answers	Count	Percentage
It is my primary means of completing a trip	8	2.45%
Weather	1	0.31%
Time/distance	13	3.98%
Cost	0	0%
Poor infrastructure	9	2.75%
Safety concerns	5	1.53%
Accessibility/disability	4	1.22%
Personal preferences	20	6.12%
N/A	263	80.43%
Other	30	9.17%

Answered: 327 Skipped: 0

16. How often is walking or using a wheelchair your primary means of completing a trip?

16. How often is walking or using a wheelchair your primary means of completing a trip? * Column Bar Pie Map

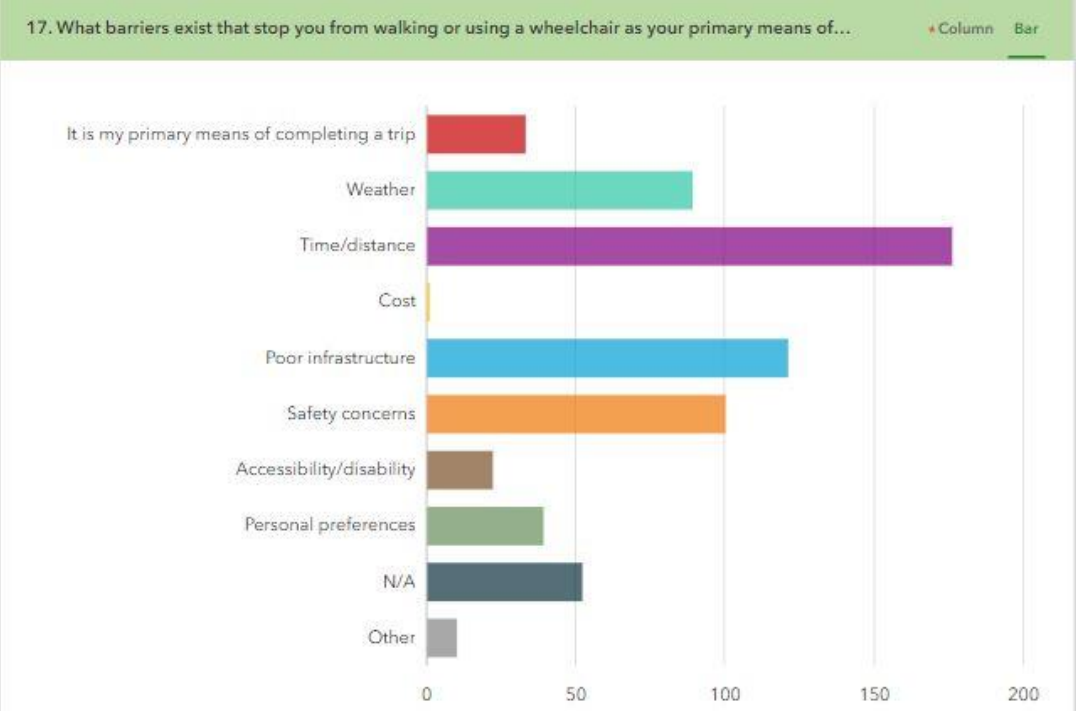


Hide table Empty categories Sort

Answers	Count	Percentage
Daily	60	18.35%
Multiple times a week	56	17.13%
A few times a month	60	18.35%
Rarely	78	23.85%
Never	73	22.32%

Answered: 327 Skipped: 0

17. What barriers exist that stop you from walking or using a wheelchair as your primary means of completing a trip?



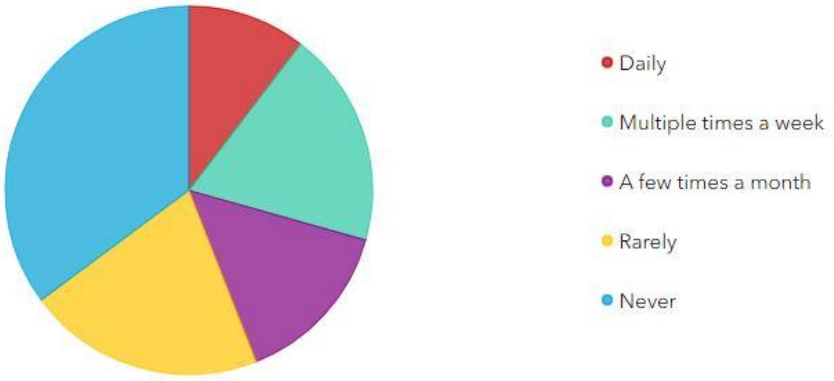
Hide table | Other response | Empty categories | Sort

Answers	Count	Percentage
It is my primary means of completing a trip	33	10.09%
Weather	89	27.22%
Time/distance	176	53.82%
Cost	1	0.31%
Poor infrastructure	121	37%
Safety concerns	100	30.58%
Accessibility/disability	22	6.73%
Personal preferences	39	11.93%
N/A	52	15.9%
Other	10	3.06%

Answered: 327 Skipped: 0

18. How often is using a personal bike, scooter, etc., your primary means of completing a trip?

18. How often is using a personal bike, scooter, etc., your primary means of completing a trip? * Column Bar Pie Map

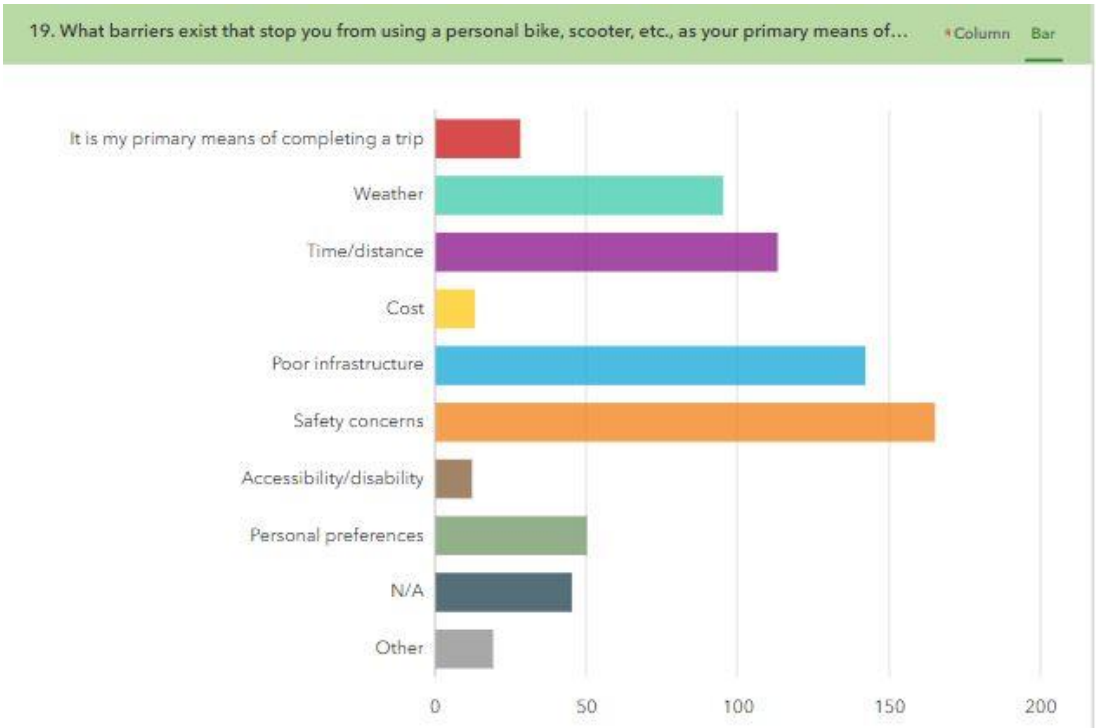


Hide table Empty categories Sort

Answers	Count	Percentage
Daily	34	10.4%
Multiple times a week	62	18.96%
A few times a month	48	14.68%
Rarely	68	20.8%
Never	115	35.17%

Answered: 327 Skipped: 0

19. What barriers exist that stop you from using a personal bike, scooter, etc., as your primary means of completing a trip?



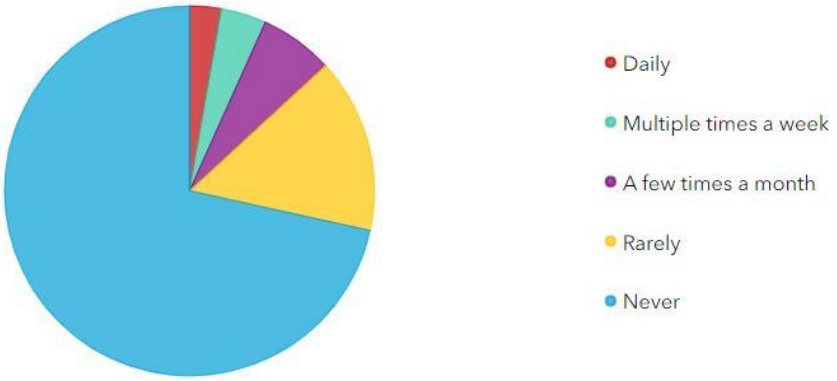
Hide table | Other response | Empty categories | Sort

Answers	Count	Percentage
It is my primary means of completing a trip	28	8.56%
Weather	95	29.05%
Time/distance	113	34.56%
Cost	13	3.98%
Poor infrastructure	142	43.43%
Safety concerns	165	50.46%
Accessibility/disability	12	3.67%
Personal preferences	50	15.29%
N/A	45	13.76%
Other	19	5.81%

Answered: 327 Skipped: 0

20. How often is public transit (GoCOMO, OATS, etc.) your primary means of completing a trip?

20. How often is public transit (GoCOMO, OATS, etc.) your primary means of completing a trip? Column Bar Pie Map

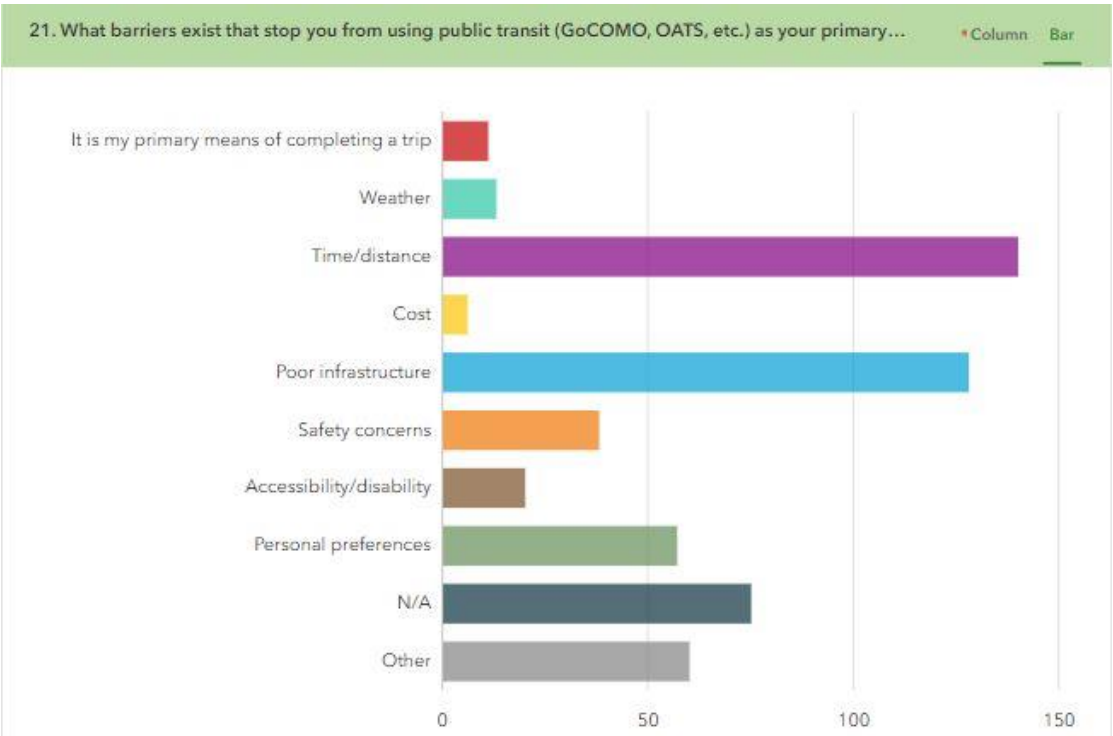


Hide table Empty categories Sort

Answers	Count	Percentage
Daily	9	2.75%
Multiple times a week	13	3.98%
A few times a month	21	6.42%
Rarely	50	15.29%
Never	234	71.56%

Answered: 327 Skipped: 0

21. What barriers exist that stop you from using public transit (GoCOMO, OATS, etc.) as your primary means of completing a trip?



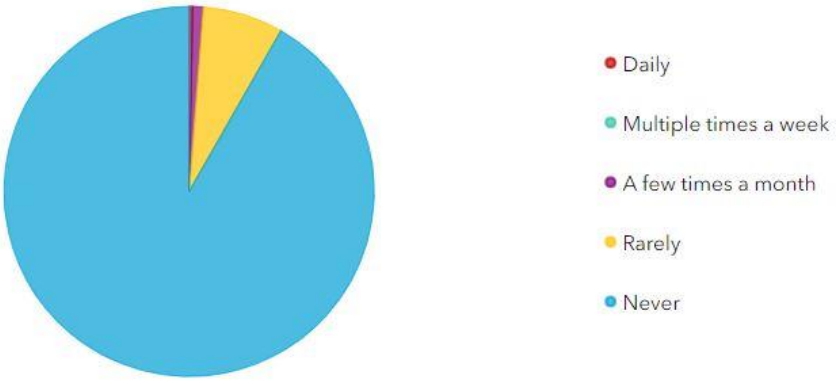
Hide table | Other response | Empty categories | Sort

Answers	Count	Percentage
It is my primary means of completing a trip	11	3.36%
Weather	13	3.98%
Time/distance	140	42.81%
Cost	6	1.83%
Poor infrastructure	128	39.14%
Safety concerns	38	11.62%
Accessibility/disability	20	6.12%
Personal preferences	57	17.43%
N/A	75	22.94%
Other	60	18.35%

Answered: 327 Skipped: 0

22. How often are rental bikes/scooters (Bird scooters, etc.) your primary means of completing a trip?

22. How often are rental bikes/scooters (Bird scooters, etc.) your primary means of completin... *Column Bar Pie Map

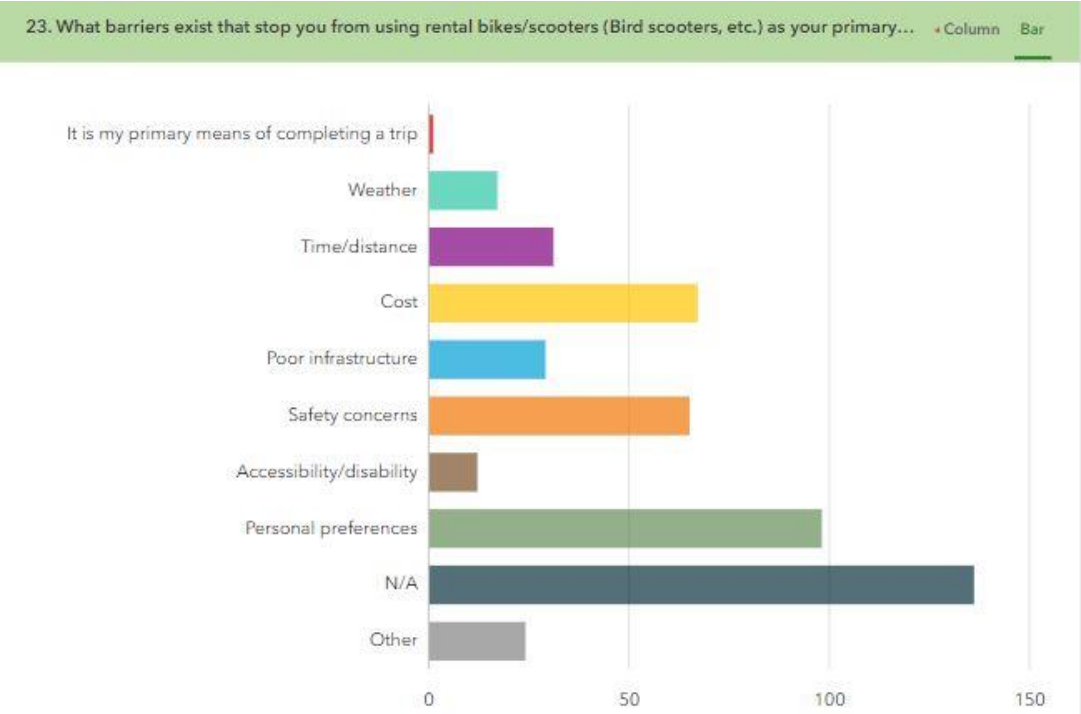


Hide table ☑ Empty categories ↑↓ Sort

Answers	Count	Percentage
Daily	1	0.31%
Multiple times a week	0	0%
A few times a month	3	0.92%
Rarely	23	7.03%
Never	300	91.74%

Answered: 327 Skipped: 0

23. What barriers exist that stop you from using rental bikes/scooters (Bird scooters, etc.) as your primary means of completing a trip?

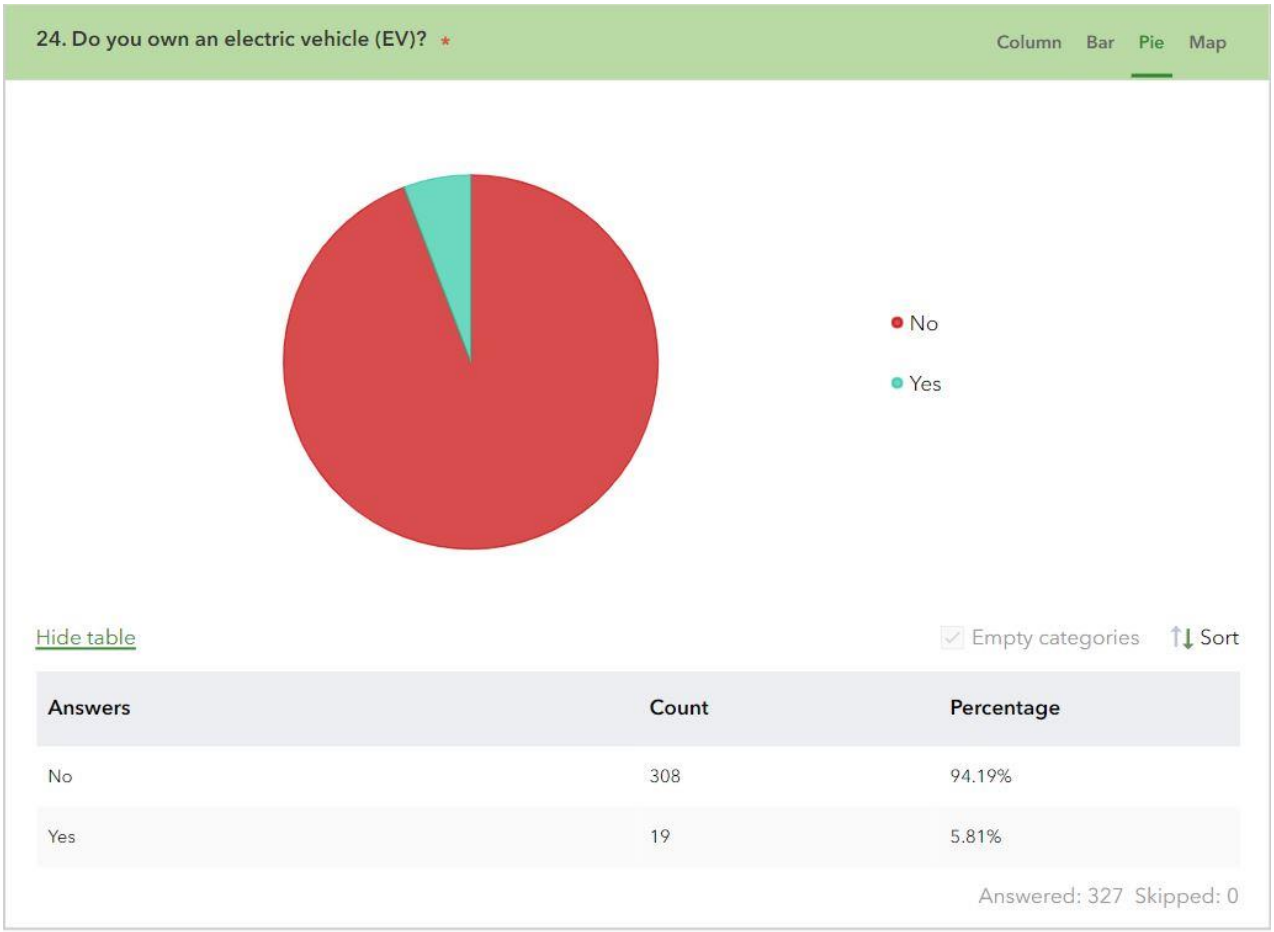


Hide table | Other response | Empty categories | Sort

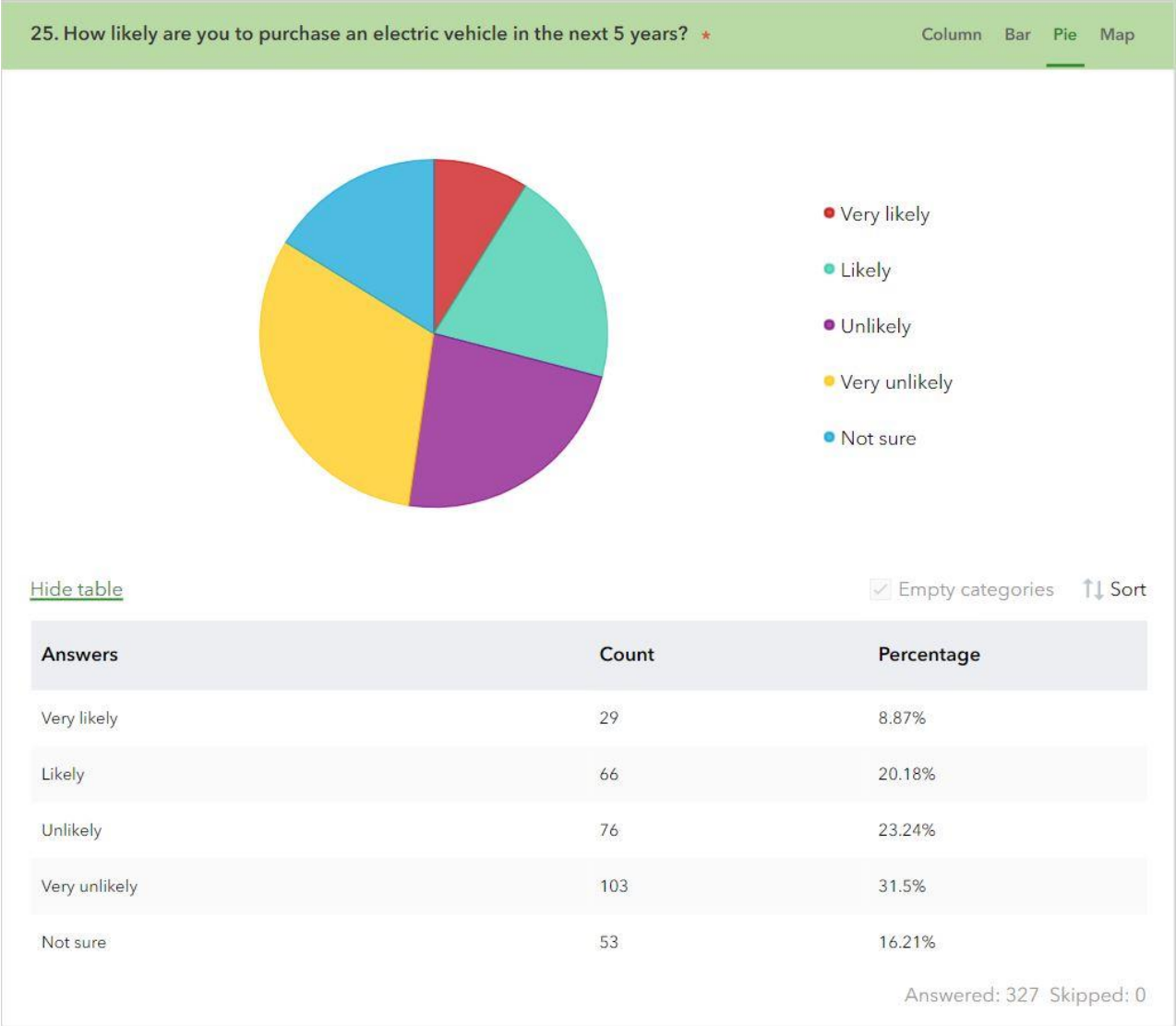
Answers	Count	Percentage
It is my primary means of completing a trip	1	0.31%
Weather	17	5.2%
Time/distance	31	9.48%
Cost	67	20.49%
Poor infrastructure	29	8.87%
Safety concerns	65	19.88%
Accessibility/disability	12	3.67%
Personal preferences	98	29.97%
N/A	136	41.59%
Other	24	7.34%

Answered: 327 Skipped: 0

24. Do you own an electric vehicle (EV)?



25. How likely are you to purchase an electric vehicle in the next 5 years?



Hide table

Empty categories

Sort

Answers	Count	Percentage
Very likely	29	8.87%
Likely	66	20.18%
Unlikely	76	23.24%
Very unlikely	103	31.5%
Not sure	53	16.21%

Answered: 327 Skipped: 0

26. What is your favorite part of Columbia's current transportation system?

(Below is a summary of responses gathered)

- Trail network
  - ~80 comments
- Bike infrastructure (bike boulevards, lanes, center lanes)
  - ~55 comments
- Free bus fare
  - ~ 30 comments
- Pedestrian infrastructure/sidewalks (especially downtown and campus)
  - ~25 comments
- The public transit system (Accessibility, routes, simplicity, timeliness, ease with tracking)
  - ~20 comments
- Roadways (connectivity, Providence, ones that are residential with slow traffic)
  - ~10 comments
- Roundabouts
  - ~10 comments
- Multimodal transportation facilities on roads (Nifong Blvd)
  - ~10 comments
- Low traffic congestion
  - ~5 comments
- Paratransit
  - ~5 comments
- Micromobility (scooters)
  - ~5 comments
- Off-Campus shuttles
  - ~5 comments
- Traffic calming (speed bumps)
  - ~5 comments
- Access to major state highways

27. What is your least favorite part of Columbia's current transportation system?

(Below is a summary of responses gathered)

- The public transit system
  - There are issues with dependability and timeliness.
  - Routes are limited and are not reaching certain parts of town, like the Columbia Farmer's Market, southwest Columbia, southern Columbia, and within Mizzou's campus.
  - Hours of operation are limited.
  - There are long gaps between headways.
  - The system can be difficult to understand.
  - There are concerns for personal safety when using the bus.
  - There is a lack of infrastructure, like crosswalks, benches, and shelters, at some bus stops.
  - The current transit system does not provide connections to some surrounding cities or to key transportation hubs, like the Jefferson City Amtrak station, the Midway Greyhound station, or the Columbia Regional Airport.
- The para-transit system
  - It can be difficult to schedule a ride.
- Pedestrian infrastructure
  - Some sidewalks have not been well-maintained, which can make sidewalks difficult to use (for example, on West Ash St).
  - Some sidewalks are too narrow or do not have adequate ADA accessibility features.
  - There are some gaps in the sidewalk network (for example, on West Broadway, at Worley and Rogers, on Rothwell, on Business Loop 70, on Clark Ln, between Mizzou's campus and southern Columbia, north of I-70, and on Paris Rd).
  - Pedestrian connectivity could be improved between north and south Columbia.
  - There are concerns for personal safety when walking in some areas.
- Streets with inadequate lighting at certain times of day (for example, on Providence)
- Speeding and unsafe driver behavior
  - Speeding seems to be common on Forum, Providence, Stadium, Scott, Grindstone, West Blvd, and West Ash.
- Lack of speed limit enforcement
- Road conditions
  - There are several streets with potholes and uneven asphalt, especially at intersections.
  - Road stripes can be hard to see in certain conditions.
- Roadway design
  - Roundabouts
  - Wide travel lanes
  - 4-way stops

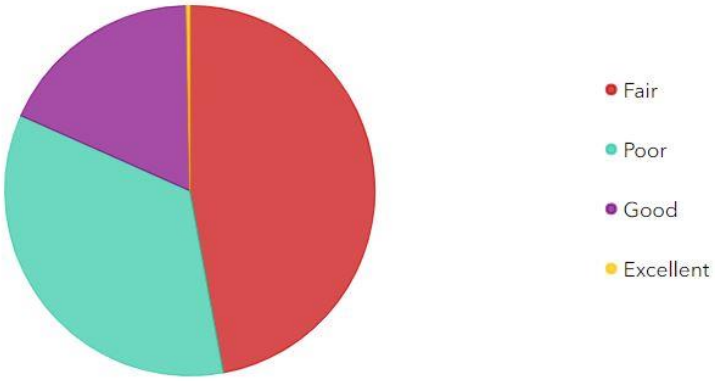
- Two-way left turn lanes
- The roadway design of Grindstone Parkway, Providence, Broadway, and the intersection at Vandiver and Oakland Gravel

- Bicycle infrastructure
  - Unprotected, paint-only bike lanes on Stadium, Grindstone Parkway, Paris Rd, I-70/US 63 interchange, S Providence, N of I-70, Clark Ln, and Scott Blvd.
  - Cars parked in bike lanes
  - Gaps in the bicycle infrastructure network (like in downtown Columbia, on the Business Loop, in northwest Boone County, on Route K, on Sinclair Rd, and Route E).
  - Unmaintained bike lanes
  - Limited options for safe bicycle storage
  - Limited bicycle infrastructure connecting north and south Columbia.
- The appearance of concrete medians
- Trails
  - There is limited access to trails in southwest and northeast Columbia.
  - There are concerns with trail maintenance, trail lighting, and flooding on trails.
- Traffic congestion
- The prioritization of cars
- Signal timing
- Private apartment complex shuttles
- Lack of trees
- The I-70/U.S. 63/Clark Lane intersection
- Large parking lots
- Scooters
- Parking
  - Parking can be difficult in downtown Columbia.
  - Paying for parking online or with a credit card is not possible for all.
- Not enough north-south corridors
  - Rock Quarry Rd is an example of a corridor that could be expanded to improve the north-south connection.
- Noise pollution from automobiles
- Roadway connections with NE side of town

28. How would you rate the current transportation system in Columbia?

28. How would you rate the current transportation system in Columbia? *

Column Bar Pie Map



Hide table

Empty categories Sort

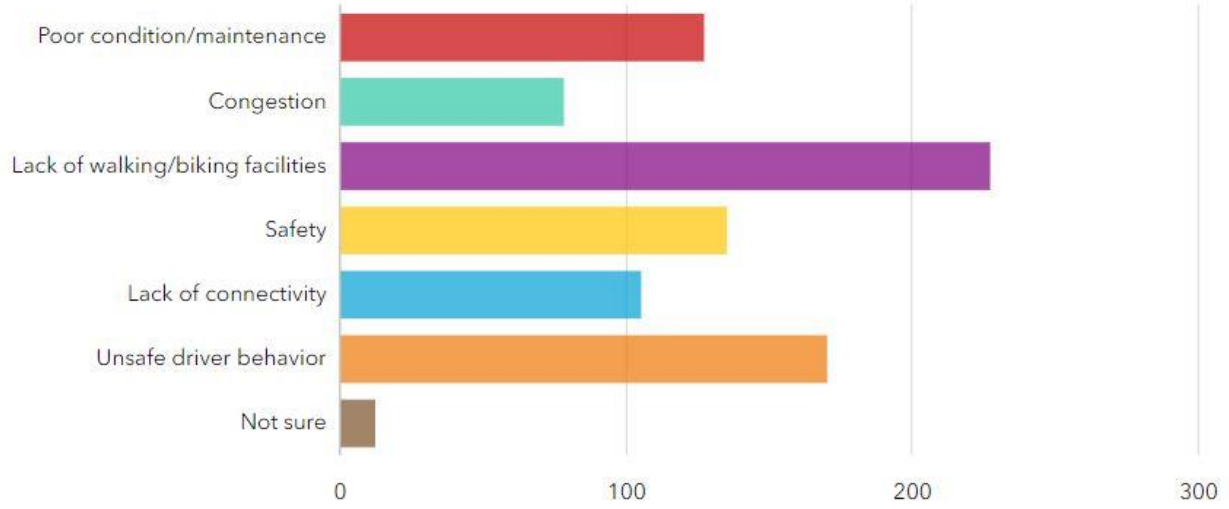
Answers	Count	Percentage
Fair	154	47.09%
Poor	113	34.56%
Good	59	18.04%
Excellent	1	0.31%

Answered: 327 Skipped: 0

29. In your opinion, what are the biggest issues on roads in the Columbia area? (select up to 3)

29. In your opinion, what are the biggest issues on roads in the Columbia area? (Select up to 3) *

Column Bar



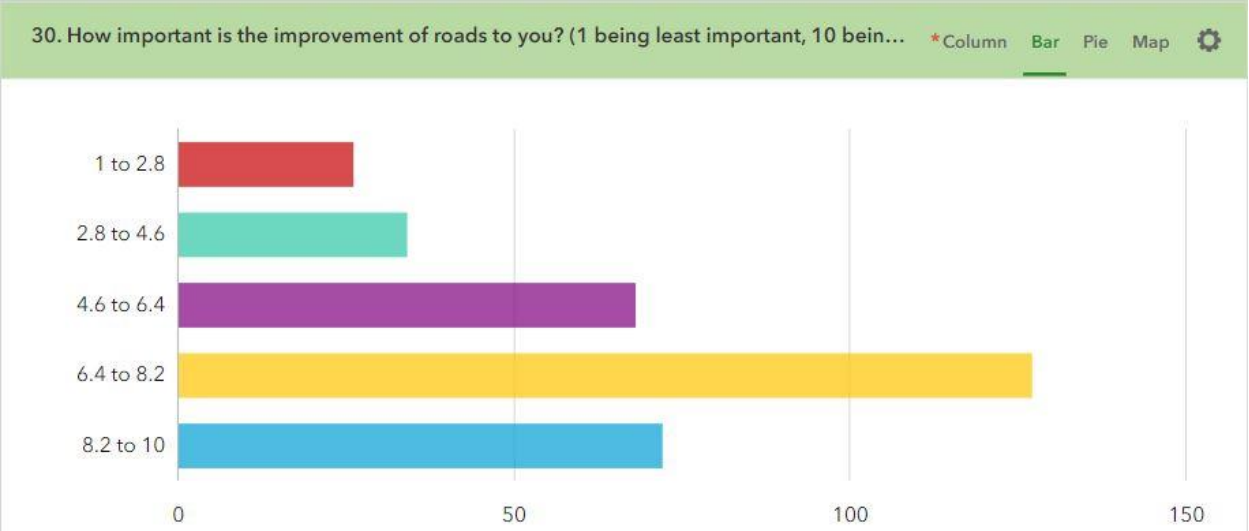
Hide table

Empty categories Sort

Answers	Count	Percentage
Poor condition/maintenance	127	38.84%
Congestion	78	23.85%
Lack of walking/biking facilities	227	69.42%
Safety	135	41.28%
Lack of connectivity	105	32.11%
Unsafe driver behavior	170	51.99%
Not sure	12	3.67%

Answered: 327 Skipped: 0

30. How important is the improvement of roads to you? (1 being the least important, 10 being most important)



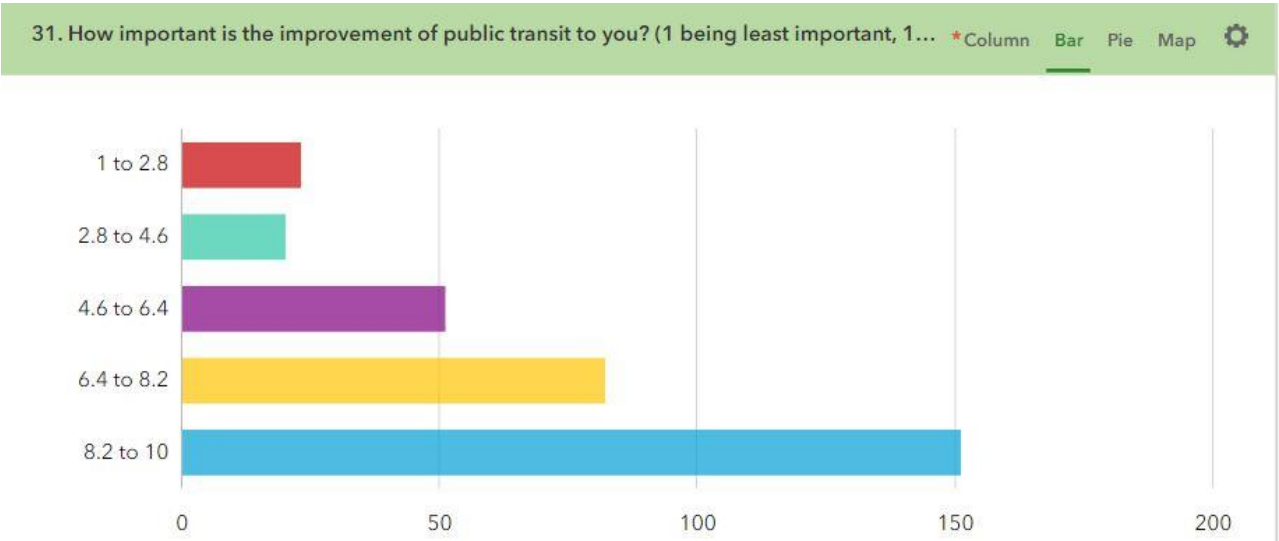
Hide table

Empty categories Sort

Stats	Value
Min.	1
Max.	10
Avg.	6.666666666666667
Sum.	2,180

Answered: 327 Skipped: 0

31. How important is the improvement of public transit to you? (1 being least important, 10 being most important)



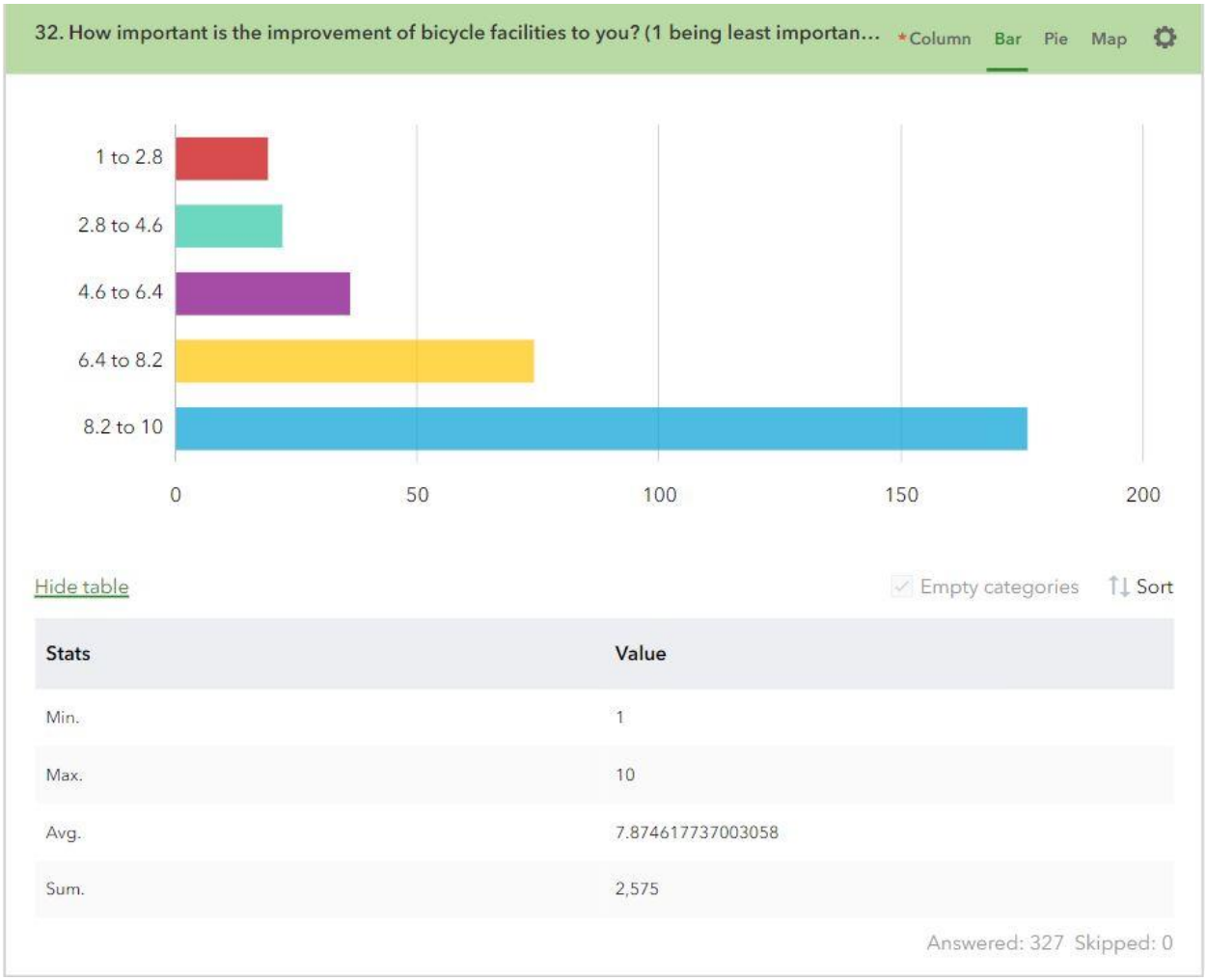
Hide table

Empty categories Sort

Stats	Value
Min.	1
Max.	10
Avg.	7.584097859327217
Sum.	2,480

Answered: 327 Skipped: 0

32. How important is the improvement of bicycle facilities to you? (1 being least important, 10 being most important)



33. How important is the improvement of pedestrian facilities to you? (1 being least important, 10 being most important)

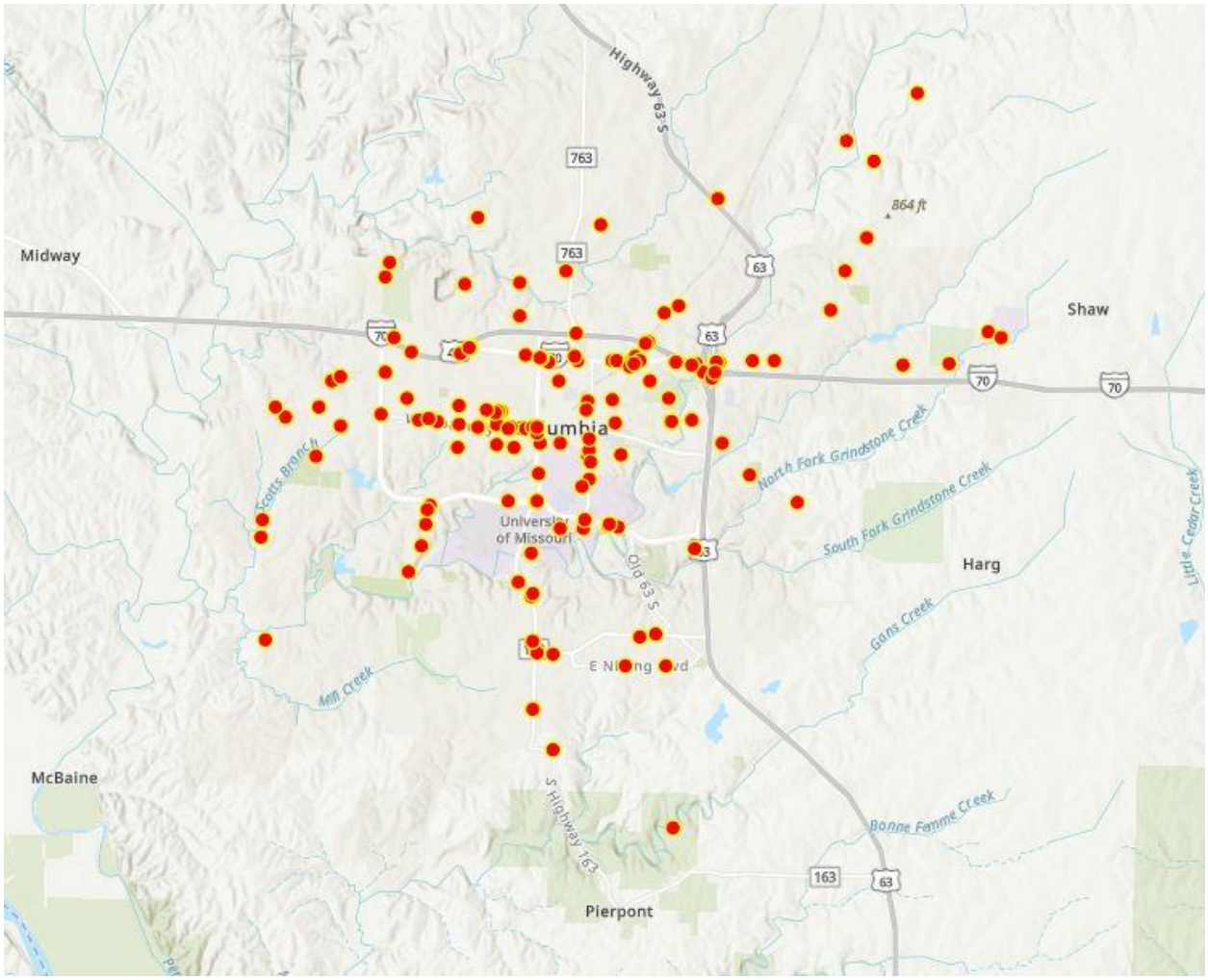
Hide table

Empty categories Sort

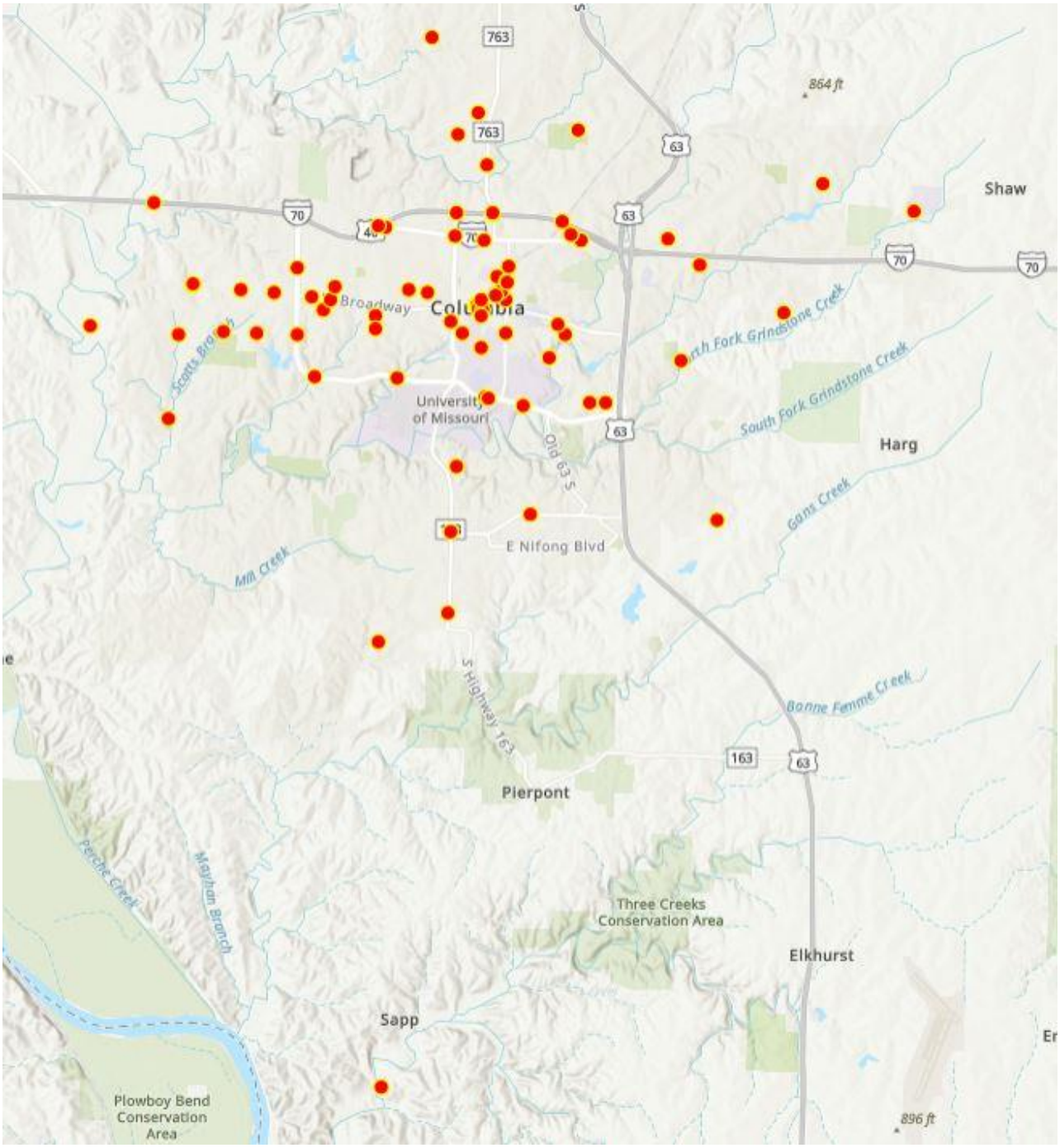
Stats	Value
Min.	1
Max.	10
Avg.	8.492354740061161
Sum.	2,777

Answered: 327 Skipped: 0

34. Do you have a specific location of concern or potential opportunity?



Question 34 results- continued



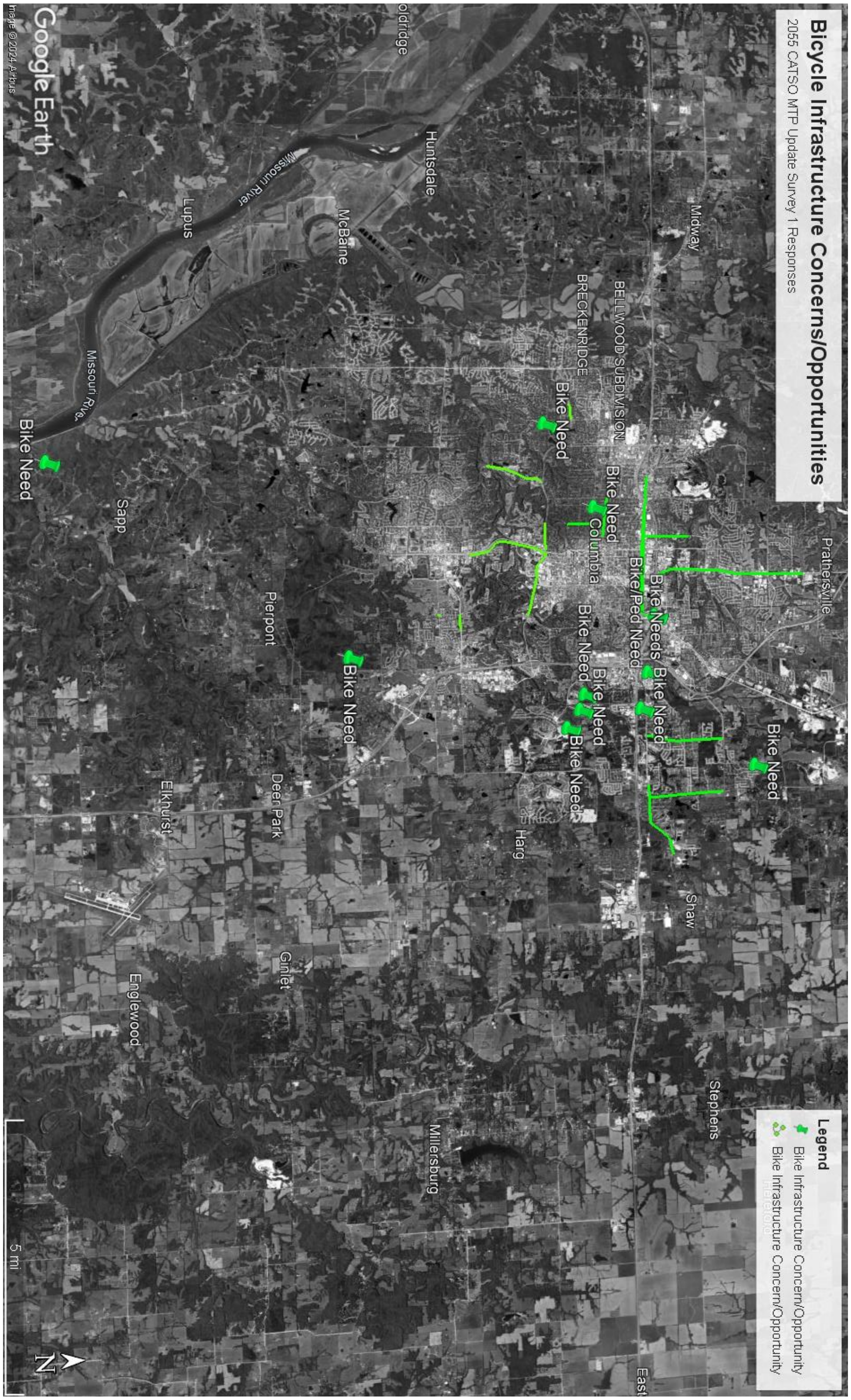
35. Please explain why you selected the above location as a location of concern/opportunity in a few words.

The locations of concerns/opportunities were organized based on the type of concern/opportunity. Locations were organized into the following groups:

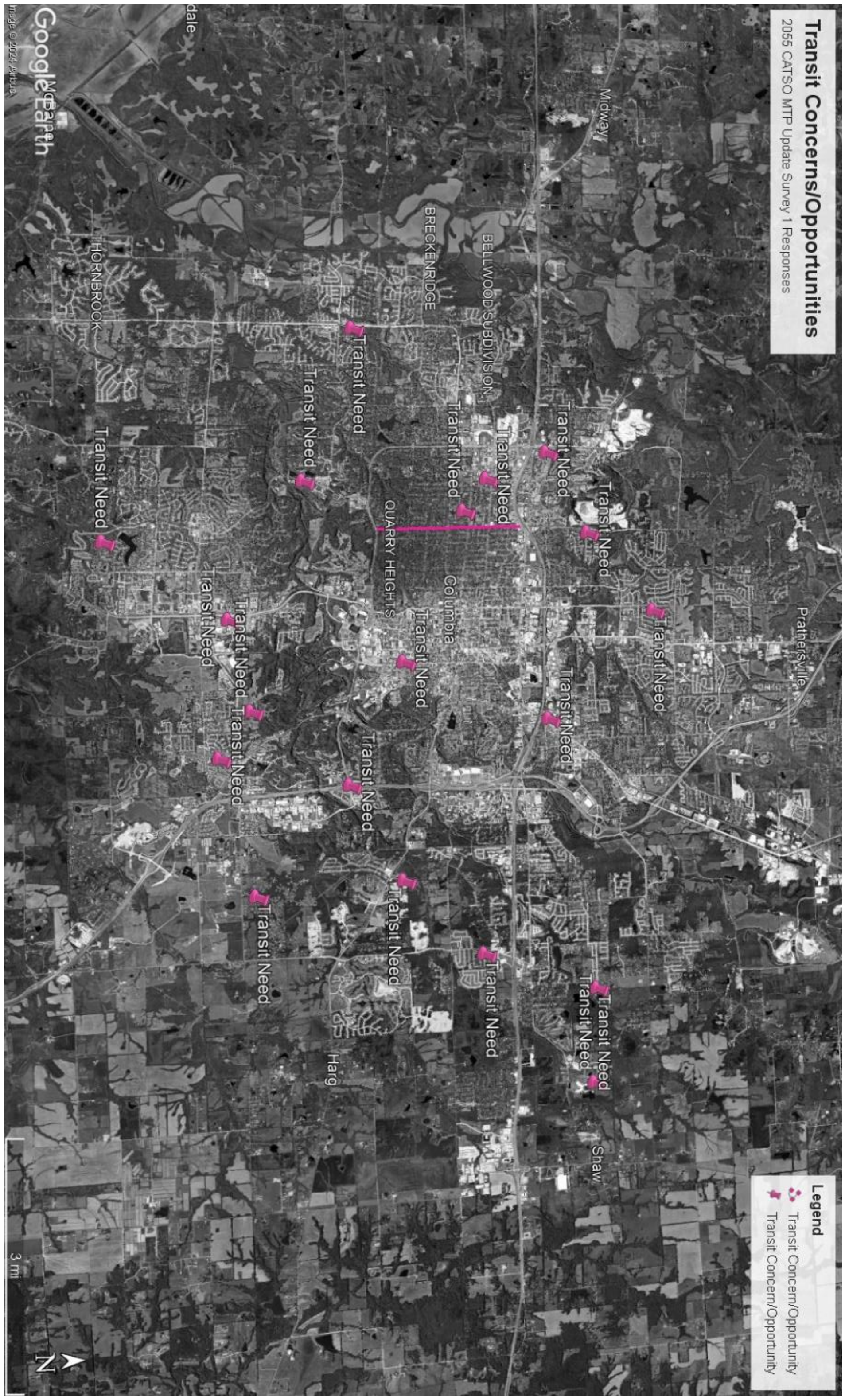
- *sidewalk concern/opportunity (blue)*
- *bicycle infrastructure concern/opportunity (green)*
- *transit concern/opportunity (pink)*
- *roadway concern/opportunity (red)*
- *traffic calming opportunity (purple)*
- *crossing concern/opportunity (yellow)*

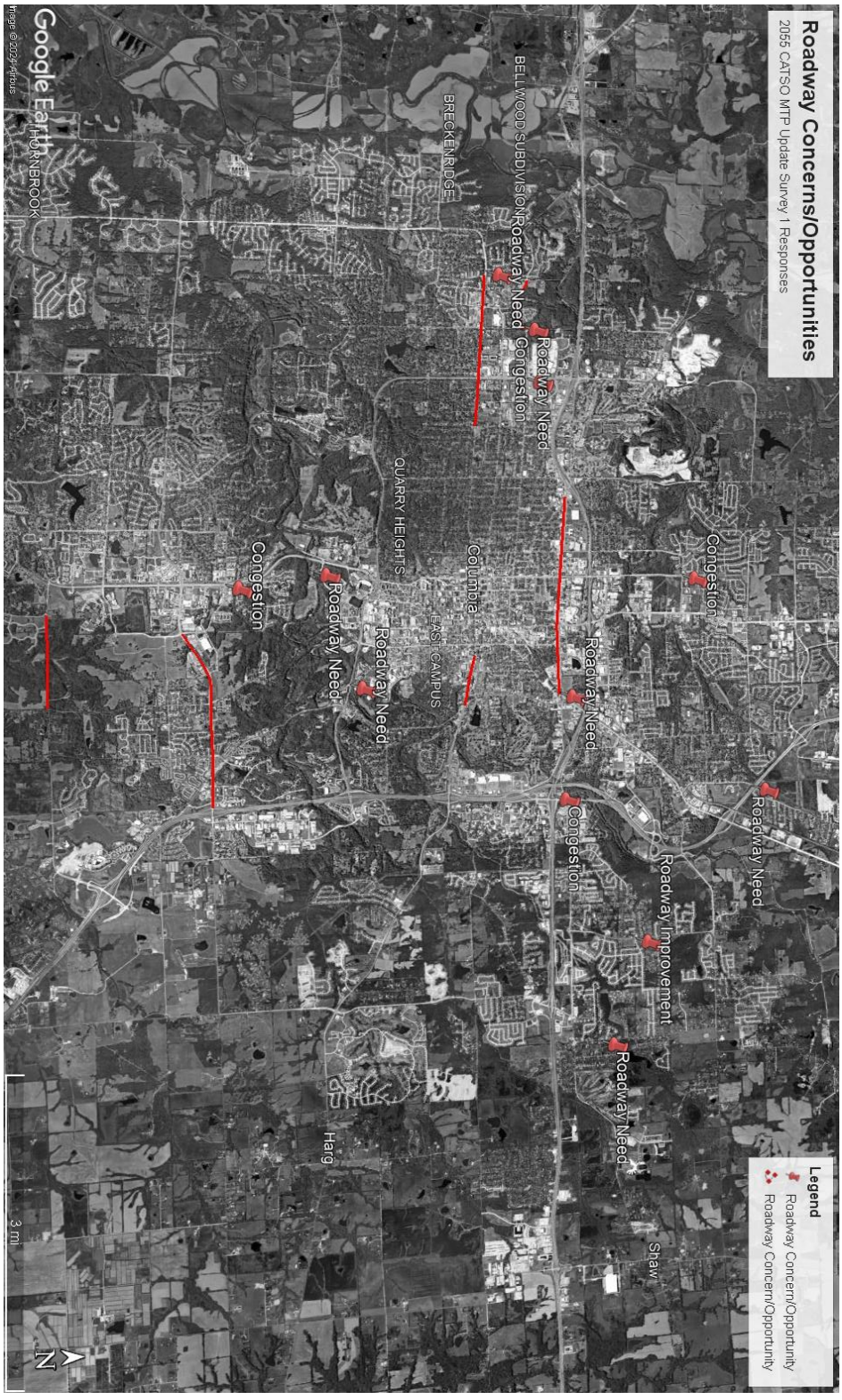
The results are shown below:

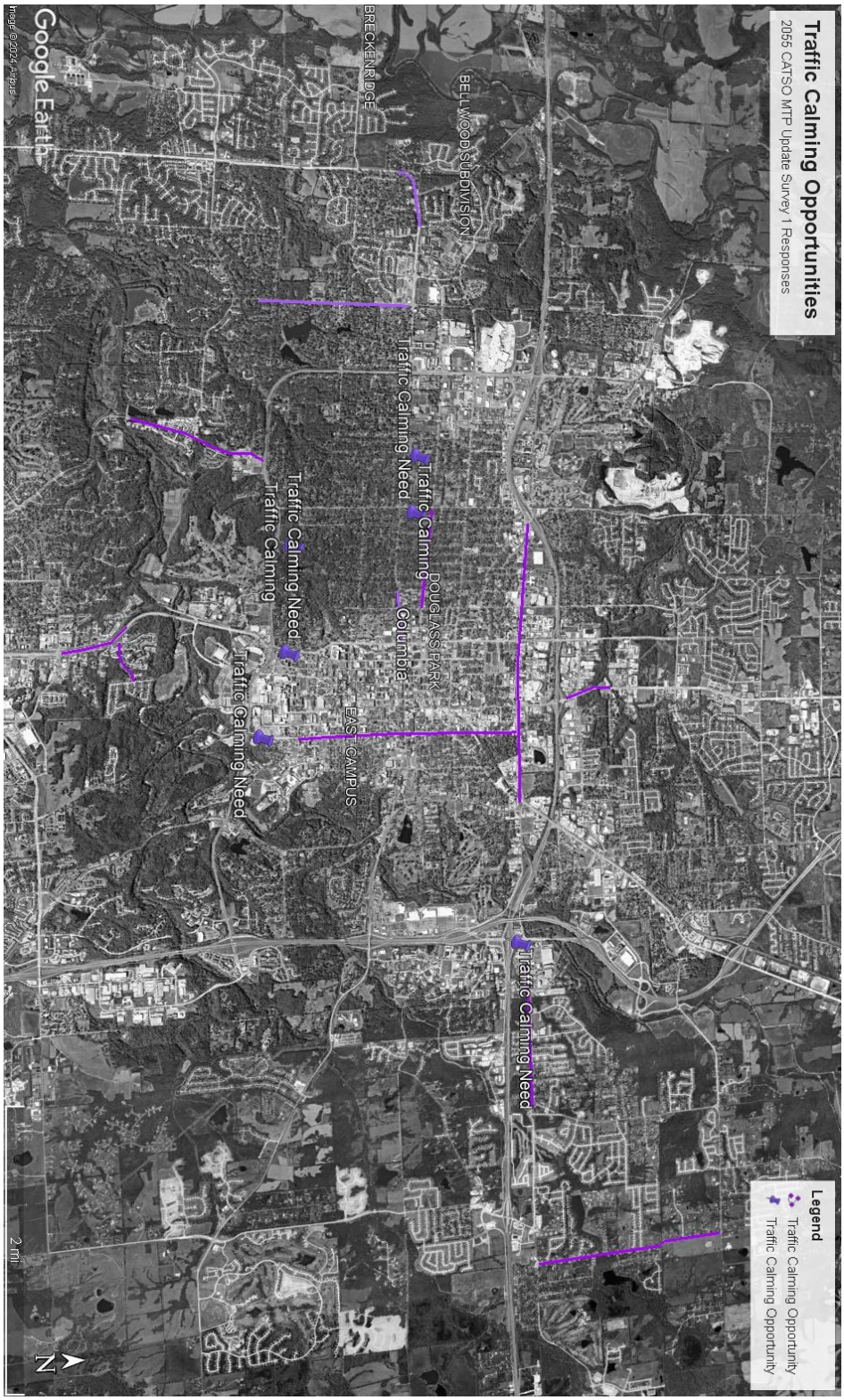
Sidewalk Concerns/Opportunities
2055 CATSO MTP Update Survey 1 Responses
Legend
Sidewalk Concern/Opportunity
Sidewalk Concern/Opportunity
Google Earth
Image © 2024 Airbus
BRECKENRIDGE
BELLWOOD SUBDIVISION
QUARRY HEIGHTS
EAST CAMPUS
Columbia
Sidewalk Need
Sidewalk Needs
Sidewalk Needs
Sidewalk Needs
Shaw
Harg
2 mi
N

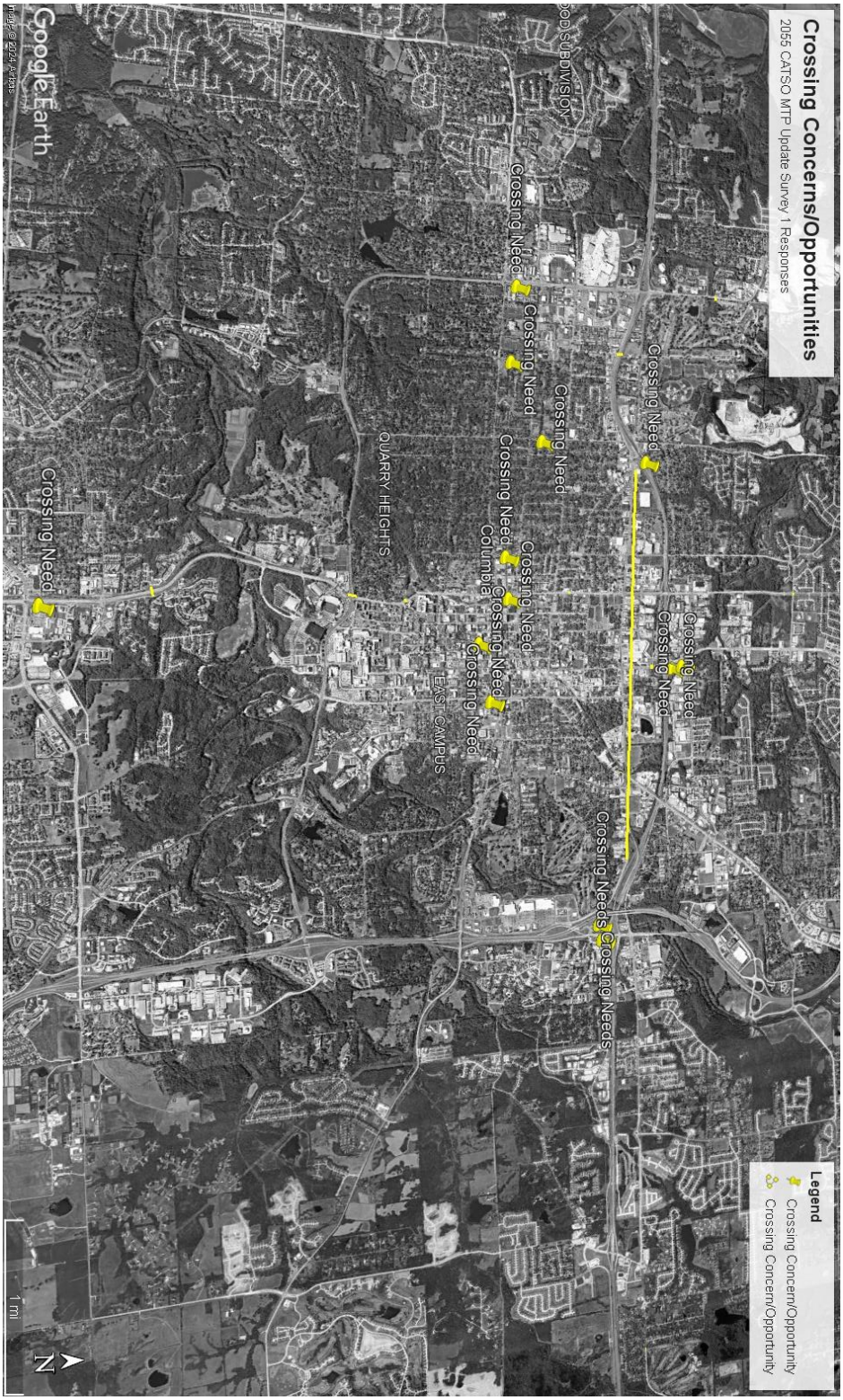

Bicycle Infrastructure Concerns/Opportunities
2055 CATSO MTP Update Survey 1 Responses
Legend
Bike Infrastructure Concern/Opportunity
Bike Infrastructure Concern/Opportunity
Midway
Prathersville
BELLWOOD SUBDIVISION
BRECKENRIDGE
Columbia
Bike Need
Bike/Ped Need
Bike Needs
Huntsdale
McBaine
Missouri River
Lupus
Sapp
Pierpont
Deer Park
Elkhurst
Harg
Shaw
Ginlet
Englewood
Stephens
Millersburg
Google Earth
5 mi
N

City of Columbia | CBB Transportation Engineers + Planners | County of Boone, Missouri




Roadway Concerns/Opportunities
2055 CATSO MTP Update Survey 1 Responses
Legend
Roadway Concern/Opportunity
Roadway Concern/Opportunity
Roadway Need
Congestion
Roadway Improvement
Google Earth
Image © 2024 Airbus
BELLWOOD SUBDIVISION
BRECKENRIDGE
QUARRY HEIGHTS
EAST CAMPUS
HUNTSBROOK
Columbia
Shaw
Harg
3 mi
N


Traffic Calming Opportunities
2055 CATSO MTP Update Survey 1 Responses
Legend
Traffic Calming Opportunity
Traffic Calming Opportunity
Traffic Calming Need
Traffic Calming Need
Traffic Calming Need
Traffic Calming Need
Traffic Calming Need
BELLWOOD SUBDIVISION
BRECKENRIDGE
DOUGLASS PARK
Columbia
EAST CAMPUS
Google Earth
Image © 2024 Airbus
2 mi
N


Crossing Concerns/Opportunities
2055 CATSO MTP Update Survey 1 Responses
Legend
Crossing Concern/Opportunity
Crossing Concern/Opportunity
Crossing Need
Crossing Needs
QUARRY HEIGHTS
EAST CAMPUS
Columbia
Google Earth
1 mi
N

36. *What else would you like us to know?*

(Below is a summary of responses gathered)

- **Public Transit:** Residents find Columbia's public transit (especially COMO buses) unreliable, inconsistent, and poorly coordinated. There are complaints about infrequent schedules, limited coverage, especially in underserved areas like the North Side, and a lack of accessible options for low-income individuals, seniors, and people with disabilities. There's a strong call for improved reliability, better bus routes, and more bus shelters.
- **Pedestrian and Bicycle Safety:** Many feel unsafe walking or biking due to poor infrastructure, particularly on high-traffic roads. Key issues include insufficient or poorly maintained sidewalks, unsafe crossings, and lack of dedicated bike lanes. Some residents suggest adding overpasses or tunnels at large and high trafficked intersections and improving accessibility for people with disabilities. There's a push for more bike lanes, especially for e-bikes, and safer routes in residential areas.
- **Car-Centric Infrastructure:** A common concern is that the city's infrastructure prioritizes cars over other modes of transport, exacerbating traffic issues and increasing safety risks for cyclists and pedestrians. There is a call for a shift away from car dependency, with more focus on sustainable options like biking, walking, and public transit.
- **Transportation Equity and Sustainability**: Residents emphasize the need for more equitable access to transportation, particularly for those who cannot afford or do not want a car. There is strong support for expanding sustainable transportation options to reduce congestion, promote climate goals, and improve the overall quality of life.
- **Road Design and Safety:** There are concerns that roadway expansions, like widening streets, contribute to speeding and create dangerous conditions for pedestrians and cyclists. Calls for better planning include safer crossings and traffic calming measures, particularly in high-traffic areas near schools.
- **Community Engagement and Advocacy:** Many residents advocate for more pedestrian-friendly areas, particularly in downtown Columbia, and increased investment in the trail system. There is also a desire for better education and awareness to improve coexistence among different road users.

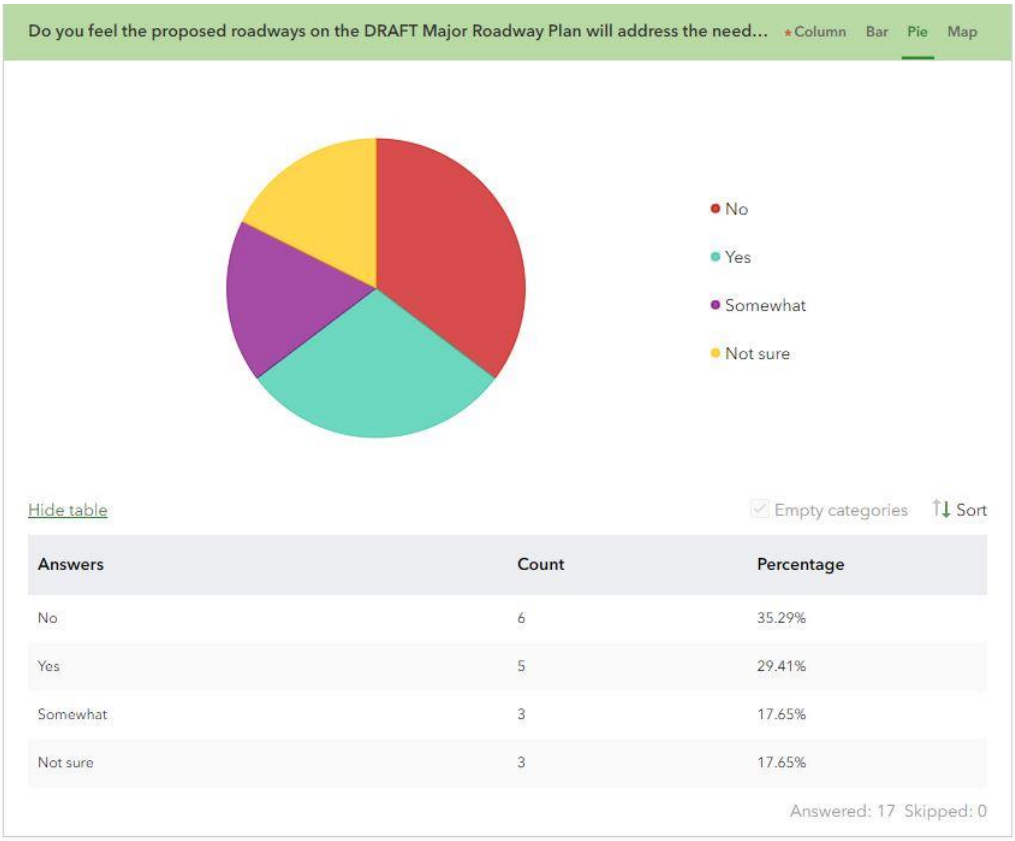
Survey 2

The purpose of the second survey was to get feedback on proposed recommendations for the 2055 CATSO Metropolitan Transportation Plan Update. The second survey became available to the public on Thursday, October 3rd, 2024, and closed on Monday, October 14th, 2024. The survey was a total of 13 questions and began with questions aimed at gathering feedback on two draft maps: the Proposed Major Roadways Plan and the MTP Bicycle and Pedestrian Network Plan. The next questions were aimed at gathering feedback on a draft list of proposed studies. The survey then concluded with questions on regional transit.

The questions and responses are shown below:

1. Do you feel the proposed roadways on the DRAFT Major Roadway Plan will address the needs of the CATSO region over the next 30 years?

Use the following link to view the DRAFT Major Roadways Plan: *https://cbb1.maps.arcgis.com/apps/mapviewer/index.html?webmap=631f8335cb29437f8b359e999276c7e7*



Answers	Count	Percentage
No	6	35.29%
Yes	5	29.41%
Somewhat	3	17.65%
Not sure	3	17.65%

Answered: 17 Skipped: 0

2. Are there other new roads that you feel should be added to the Major Roadway Plan? If yes, please list below.

Below is a summary of responses gathered:

- Survey respondents expressed a preference for higher density development to lessen the size of the developed CATSO urban area. This would lessen the need for additional roadway infrastructure and increase the effectiveness of travel modes such as walking, biking, and public transport.
- Survey respondents want to see additions to/improvements of pedestrian and bicycle infrastructure and improvements to existing roadway infrastructure.

3. Do you have any general comments about the DRAFT Major Roadway Plan?

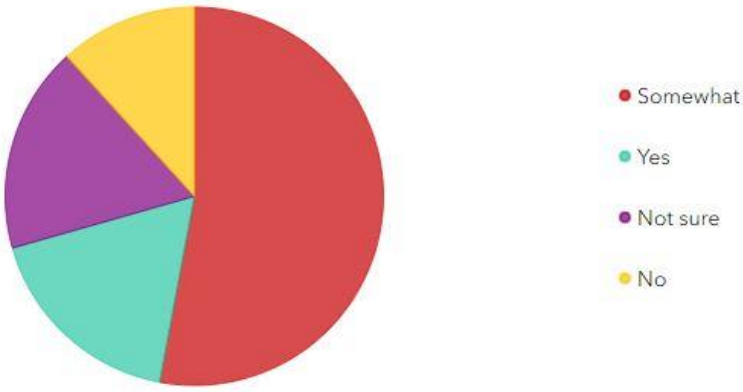
Below is a summary of responses gathered:

- Survey respondents note that roads and transportation facilities are difficult to maintain, and further sprawl will add to the maintenance burden.
- Survey respondents would like to see the focus shift to improving public transit and bike/pedestrian infrastructure to reduce traffic pressures.
- Survey respondents are concerned with roadway expansion interfering with natural areas.

4. Do you feel the proposed pedestrian and bicycle infrastructure improvements on the Bicycle and Pedestrian Network Plan DRAFT will address the needs of the CATSO region over the next 30 years?

Use the following link to view the Bicycle and Pedestrian Network Plan DRAFT:
https://cbb1.maps.arcgis.com/apps/mapviewer/index.html?webmap=8e7efd8ac05d458693892b07cf3ce0dc

Do you feel the proposed pedestrian and bicycle infrastructure improvements on the Bicycle... *Column Bar Pie Map



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Answers	Count	Percentage
Somewhat	9	52.94%
Yes	3	17.65%
Not sure	3	17.65%
No	2	11.76%

Answered: 17 Skipped: 0

5. Are there other new bicycle and pedestrian infrastructure improvements that you feel should be added to the Bicycle and Pedestrian Network Plan? If yes, please list below.

Below is a summary of responses gathered:

- Broadway should be prioritized for improvements, as it is a key east/west corridor frequently used by pedestrians and cyclists.
- It is essential to improve connectivity between trails, particularly between Bonne Femme Creek Trail and southeast Columbia, and address the lack of east-west trail connections in the northeast.
- A goal should be to complete 30-mile trail loop within the next 30 years, addressing missing sections.
- South Providence should be prioritized for bike and pedestrian improvements over Rock Quarry Road due to its higher level of development and business activity.
- Broadway through downtown be improved to support pedestrians and cyclists, with less emphasis on parking.
- Better connections should made from northwest to southeast, and safer, more accessible crossings of major highways (63 and 70) for families with strollers and cyclists.

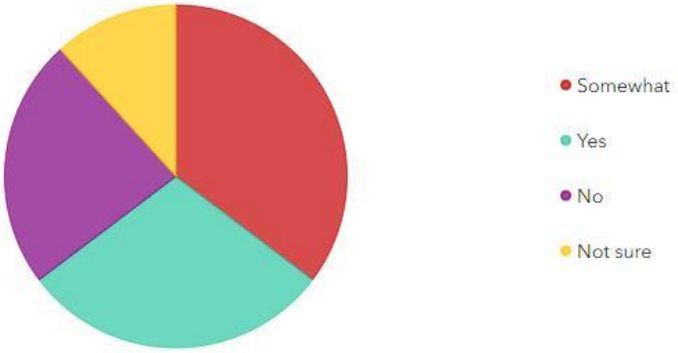
6. Do you have any general comments about the Bicycle and Pedestrian Network Plan DRAFT?

Below is a summary of responses gathered:

- The plan should improve connections between the trails and the wider pedestrian and bicycle network in southern Columbia.
- There is support for wide shared-use paths (at least 14 feet) along major roads like Stadium, Broadway, College, Business Loop, and Providence to support biking and walking.
- There is support for separated/protected bike lanes with wide sidewalks on key routes.
- Climate impacts, preservation of natural habitats, and the use of climate-friendly materials should be considered with the plan.

7. CATSO is considering conducting the list of studies below based on identified needs. Do you feel the DRAFT proposed studies will address the needs of the CATSO region over the next 30 years?
    - *Westside Transportation Study*
    - *Regional Wayfinding Plan*
    - *Mo-740 Extension Study*
    - *Road Safety Audits*
    - *Sidewalk Maintenance Plan Study*
    - *Regional Transit and Connectivity Study*
    - *Public Facing Mobility App*
    - *Regional Freight and Delivery Plan*
    - *Regional Smart Parking Plan*
    - *Regional Electric Transportation Charging Study*
    - *COLT Railroad Corridor Study*

CATSO is considering conducting the above list of studies based on identified needs. Do you... *Column Bar Pie Map



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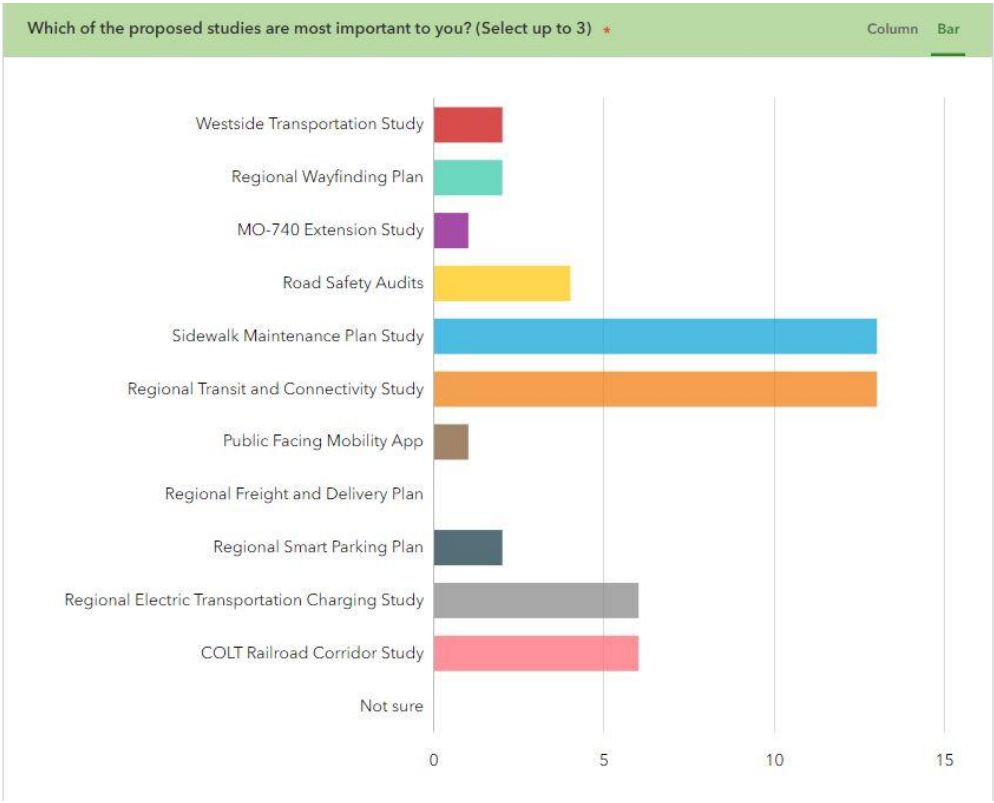
Answers	Count	Percentage
Somewhat	6	35.29%
Yes	5	29.41%
No	4	23.53%
Not sure	2	11.76%

Answered: 17 Skipped: 0

8. Which of the proposed studies are most important to you? (Select up to 3)



Answers	Count	Percentage
Westside Transportation Study	2	11.76%
Regional Wayfinding Plan	2	11.76%
MO-740 Extension Study	1	5.88%
Road Safety Audits	4	23.53%
Sidewalk Maintenance Plan Study	13	76.47%
Regional Transit and Connectivity Study	13	76.47%
Public Facing Mobility App	1	5.88%
Regional Freight and Delivery Plan	0	0%
Regional Smart Parking Plan	2	11.76%
Regional Electric Transportation Charging Study	6	35.29%
COLT Railroad Corridor Study	6	35.29%

Answered: 17 Skipped: 0

9. Are there any additional studies you think should be conducted? If yes, please list below.

Below is a summary of responses gathered:

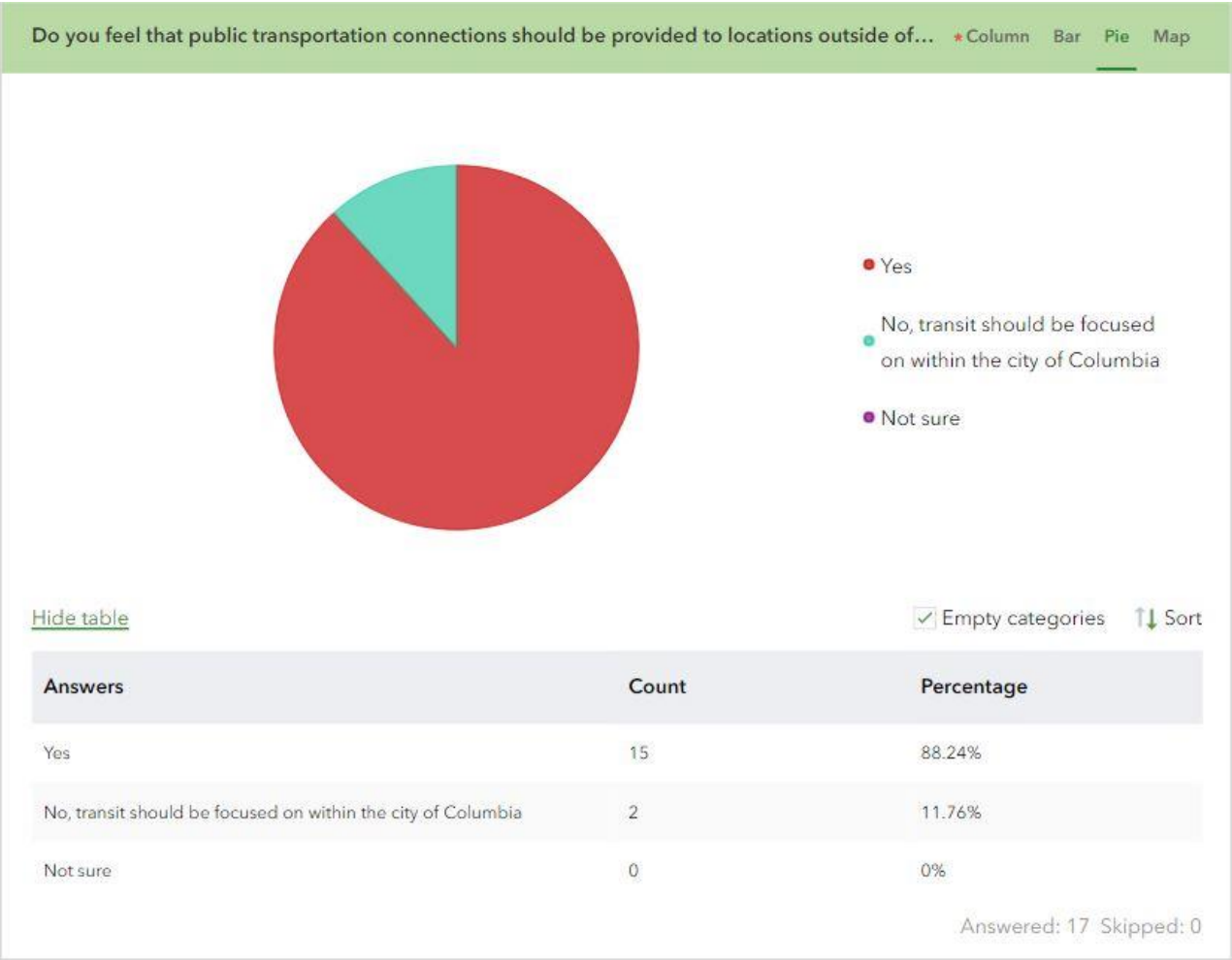
- A study is needed to identify which roads in central Columbia could benefit from "road diets" to reduce excess lanes, including sections of Providence, Broadway, Walnut, Ash, Stadium, and the I-70 Business Loop.
- A study is needed to find the best locations to use roundabouts to improve safety and traffic flow.
- Resilience studies are needed to plan for climate change-related events and their impacts on infrastructure, as well as ongoing research into reducing climate impacts.
- Respondents would like to see the continued study of GoComo transit services.

10. Do you have any general comments about the DRAFT list of proposed studies?

Below is a summary of responses gathered:

- Some survey respondents feel that the MO-740 Extension and aspects of the Westside Transportation Study are unnecessary. A specific comment stated that the MO-740 extension could negatively impact Grindstone Creek and would likely just increase traffic on other roads like Stadium Blvd and 63, without benefiting the community. Another comment states that I-70 already serves the west side of Columbia well and that a Westside Transportation Study is unnecessary for that reason.
- Respondents feel that the parking plan should focus on eliminating free parking and setting rates at or above market value to discourage driving and reduce traffic congestion, with subsidies directed towards public transit.

11. Do you feel that public transportation connections should be provided to locations outside of the city of Columbia? (for example- Columbia Regional Airport, Midway Greyhound station, Amtrak stations in Jefferson City and LaPlata, Jefferson City, Moberly, Boonville, etc.?)



Hide table

Empty categories Sort

Answers	Count	Percentage
Yes	15	88.24%
No, transit should be focused on within the city of Columbia	2	11.76%
Not sure	0	0%

Answered: 17 Skipped: 0

12. If yes, which locations outside of the city of Columbia would you like to see transit connect to?

Below is a summary of responses gathered:

- Improved connectivity between Columbia, neighboring communities like Jefferson City and La Plata, and larger cities like Kansas City and St. Louis.
- Transit connections to the Amtrak station in Jefferson City, the Columbia Regional Airport, and to Greyhound stations would be especially beneficial for non-drivers, as it would make travel more accessible and easier, particularly for personal or medical reasons.
- Transit connections to Jefferson City because it would allow better access to the state government offices there.
- Some specific proposals raised by respondents include a COLT railroad connection to Hallsville and a train running from Moberly to Jefferson City with stops in Columbia and Ashland.
- The importance of including public transportation options for outdoor recreation areas is also emphasized among survey respondents, ensuring that people without cars can access these spaces.

13. Do you have any other comments about the 2055 Metropolitan Transportation Plan's DRAFT recommendations?

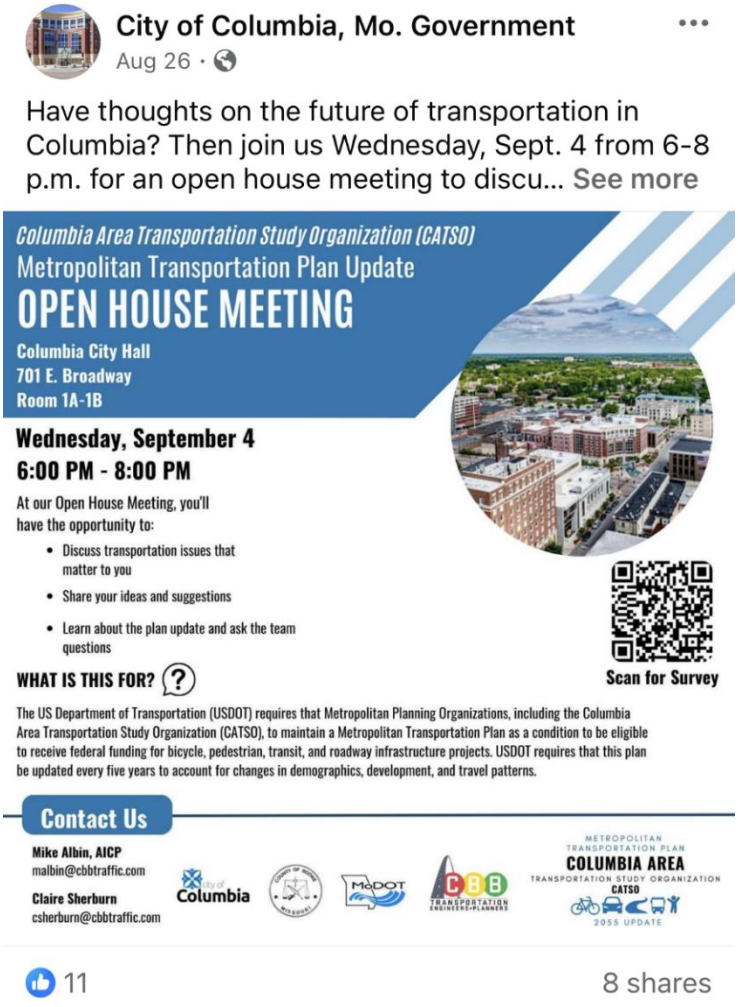
Below is a summary of responses gathered:

- There is a need for a significant investment in non-motorized transportation, including micromobility, bike/pedestrian infrastructure, and public transit, as this will promote density and sustainability.
- There is a suggestion for a cost comparison to be made between non-motorized and transit expansion costs versus highway expansion costs, particularly considering the benefits for people who cannot drive or should not drive.
- It is suggested that West Ash be designated a neighborhood collector street, rather than a major collector street.

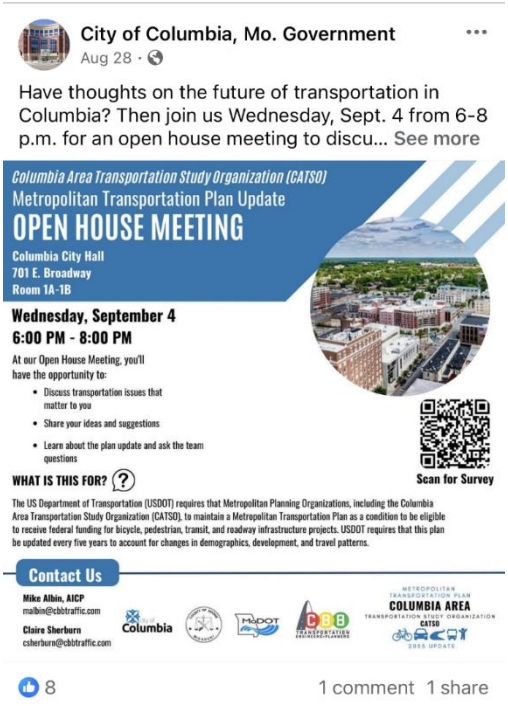
Social Media

Social media's unique power to reach a large audience in a short amount of time was utilized to increase the levels of engagement of the 2055 CATSO MTP update. Several social media posts about the 2055 CATSO MTP Update were made to the City of Columbia's Facebook page, which has around 12,000 followers. A total of 6 posts were made advertising opportunities for Columbia area residents to provide their input on the MTP Update. Facebook posts were made advertising the BeHeard site, the first public open house, the first survey, and the second survey. These posts also included educational information about the purpose and importance of the 2055 CATSO MTP Update. These posts may be found below in this appendix.

8/26/2024 City of Columbia Facebook Post for the First Public Open House



8/28/2024 City of Columbia Facebook Post for the First Public Open House



8/30/2024 City of Columbia Facebook Post for the 2055 MTP Update BeHeard Site

8/31/2024 City of Columbia Facebook Post for the First Public Open House

9/4/2024 City of Columbia Facebook Post for the First Public Open House

10/11/2024 City of Columbia Facebook Post for the Second Survey

Additional Outreach

Public Transit Advisory Commission Meeting

On Tuesday, September 17th, 2024, at 5:30 PM, a member of the 2055 CATSO MTP Update project team spoke with the Public Transit Advisory Commission at their monthly meeting about the plan update. The Public Transit Advisory Commission advises the City on issues of transit policy that affect the city of Columbia. The team member gave a presentation about the purpose of the plan, how the plan is being formed, and the direction in which the plan is going, including the proposed recommendations that would be included in the plan. The presentation also showed how projects are done using the plan. The presentation shown at the meeting may be found below in this appendix. Meeting minutes for the Public Transit Advisory Commission's meetings may be found at https://www.como.gov/boards/public-transit-advisory-commission/.

WELCOME

CATSO Metropolitan Transportation Plan (MTP) 2055 Update

Public Transit Advisory Commission

September 19, 2024

METROPOLITAN TRANSPORTATION PLAN

COLUMBIA AREA

TRANSPORTATION STUDY ORGANIZATION

CATSO

2055 UPDATE

1 What is CATSO and MTP?

Columbia Area Transportation Study Organization

- Collaboration among City of Columbia, Boone County, and MoDOT to carry out transportation planning
- MTP updated every 5 years. Required to receive federal transportation funding (typically $40M-$50M annually)
- CATSO is strictly a planning organization – it does not design or build any projects

BOONE COUNTY GOVERNMENT

city of Columbia

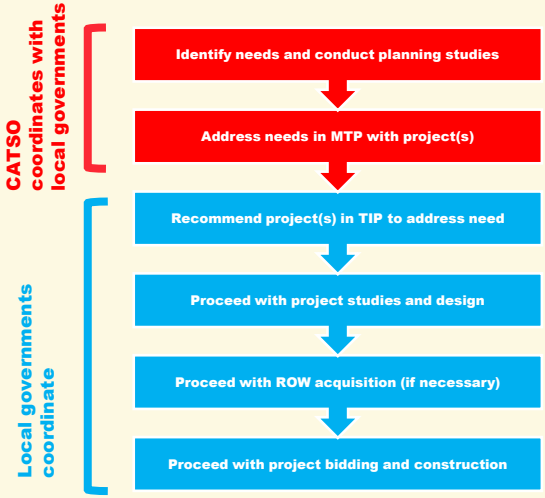
MoDOT

2 Projects Funded Through MTP

Programmed TIP Projects (2023-2026)

TIP category	Total Projects	New Projects	Total Project Costs	Total Costs – New Projects	Total Federal Funds
MoDOT Construction	42	24	$243,413,300	$25,164,200	$194,170,500
MoDOT Scoping	7	6	$502,000	$501,000	$165,000
Boone County Roads	1	1	$677,000	$677,000	$541,600
Columbia Streets	6	5	$15,696,381	$13,096,381	$250,000
Columbia Sidewalks	6	6	$4,223,340	$4,223,340	$910,938
Rail/Highway	1	1	$862,000	$612,000	$200,000
Transit	13	3	$23,159,710	$13,138,228	$15,328,728
Totals	**76**	**46**	**$288,533,731**	**$57,412,149**	**$211,566,766**

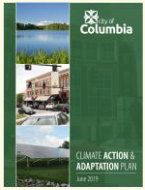
3 How Do Projects In The MTP Get Done?



- The MTP provides a long-term transportation vision.
- The Transportation Improvement Program (TIP) lists projects to be implemented in near term.
- Local agencies (Boone County, City of Columbia, and MoDOT) implement the projects.

4 Key Plans Considered

- Boone County Master Plan
  in development
- GoCOMO Comprehensive Transit Study
  in development
- MoDOT STIP
- City of Columbia's Comprehensive Plan
- City of Columbia Sidewalk Master Plan
- City of Columbia Climate Action and Adaptation Plan
- City of Columbia Park Master Plan
- University of Missouri Campus Master Plan
  in development



Columbia Imagined
The Plan for How We Live & Grow

Our Boone County
OUR COMMUNITY. OUR FUTURE. BOONE COUNTY MASTER PLAN

University of Missouri
Campus Master Plan 2024

GoCOMO Columbia's Public Transit **Comprehensive Transit Study**

5 MTP Update Engagement Plan

Be Heard Website

- https://beheard.como.gov/catso-metropolitan-transportation-plan-update

Stakeholder Meetings Round 1

- *Late August*
- *Invite only*

Stakeholder Meetings Round 2

- *Held 9/3/24 - 9/4/24*
- *Invite only*

Survey 1

- *327 responses*

Public Meeting 1

- *You are here!*

Survey 2

- *Coming in September!*
- *Look for posting on BeHeard*

Public Meeting 2

- *9/30/24, 6-8 pm*
- *801 E Walnut St*

Stakeholder Meeting Round 3

- *9/30/24, 2-4 pm*
- *Invite only*

6 Who We've Talked To

- Bike and Ped Commission
- Boone County Family Resources
- Boone County Fire Protection District
- Cambio Center
- Catholic Charities of Central and Northern Missouri
- City of Columbia Office of Sustainability
- City of Refuge
- Climate and Environment Commission
- Central Missouri Community Action
- COLT Railroad
- Columbia Board of Realtors
- Columbia College
- Columbia Housing Authority
- Columbia Police Department
- Columbia Public School District
- First Last Mile
- GoCOMO
- Homebuilders Association
- Local Motion
- OATS Transit
- Powerhouse
- Regional Economic Development Inc.
- Scheppers Distributing
- Sierra Club
- Services for Independent Living
- Disabilities Commission
- The District
- The Loop
- Transportation and Infrastructure Committee
- United Community Builders
- University of Missouri
- West Ash Neighborhood

7 What We Have Heard So Far

Pedestrian and Bicycle

- There are gaps in the sidewalk system, some sidewalks not well-maintained
- Bike infrastructure is not well-connected and needs to be better protected
- There needs to be safer opportunities for crossing the street
- Walking at night feels unsafe in some areas due to the lack of streetlights or streetlights being out of order
- Traffic calming measures would create safer areas for walking and biking

Transit

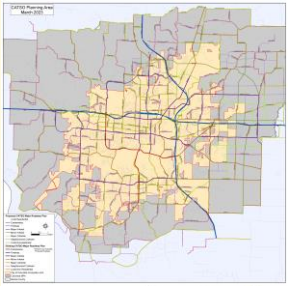
- Free bus fares are appreciated
- Wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Bus routes need to be expanded so that more locations can be reached
- The bus system needs to be easier to understand, especially for non-native English speakers
- Transit needs to be more accessible for those with disabilities

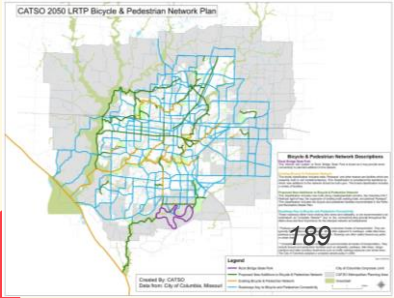
Cars and Roads

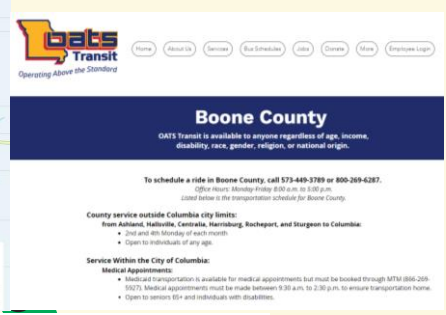
- Traffic congestion is very well managed compared to many urban areas
- Roadways need to accommodate larger vehicles used for emergency response and deliveries
- Parking is generally available in the region, but can be difficult downtown
- More electric vehicle charging stations are needed

9 Proposed MTP Recommendations

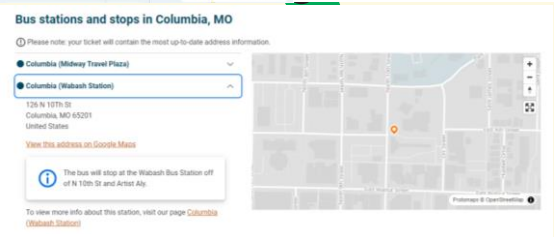
- Transportation Improvement Plan (TIP)
- Major Roadway Plan
- Bicycle and Pedestrian Network Plan
- Regional Transit Map
- Special Studies
  - **Regional Transit and Connectivity Study**
  - Westside Transportation Study
  - Regional Wayfinding Plan
  - MO-740 Extension Study
  - Road Safety Audits
  - Regional Freight and Delivery Plan
  - Regional Smart Parking Plan
  - Regional EV Charging Study
  - COLT Railroad Corridor Study







Regional Transit and Connectivity Study



Missouri Amtrak Stations

- Hermann, MO (HEM)
- Independence, MO (IDP)
- Jefferson City, MO (JEF)
- Kansas City, MO – Union Station (KCY)
- Kirkwood, MO (KWD)
- La Plata, MO (LAP)
- Lee's Summit, MO (LEE)
- Sedalia, MO (SED)
- St. Louis, MO – Gateway Station (STL)
- Warrensburg, MO (WAR)
- Washington, MO (WAH)

THANK YOU

To learn more, visit the BeHeard website page that can be reached here:
https://beheard.como.gov/catso-metropolitan-transportation-plan-update

CONTACT

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515-451-9782

Mitch Skov
mitch.skov@como.gov
573-874-7243

BeHeard Page

Survey

Bicycle and Pedestrian Advisory Commission Meeting

On Wednesday, September 18th, 2024, at 7:00 PM, a member of the 2055 CATSO MTP Update project team spoke with the Bicycle and Pedestrian Advisory Commission at their monthly meeting about the plan update. The Bicycle and Pedestrian Advisory Commission works with the City of Columbia to improve the bicyclist and pedestrian experience in Columbia. The team member gave a presentation about the purpose of the plan, how the plan is being formed, and the direction in which the plan is going, including the proposed recommendations that would be included in the plan. The presentation also showed how projects are done using the plan. The presentation shown at the meeting may be found below in this appendix. Meeting minutes for the Bicycle and Pedestrian Advisory Commission's meetings may be found at https://www.como.gov/boards/bicycle-pedestrian-commission/.

WELCOME

CATSO Metropolitan Transportation Plan (MTP) 2055 Update

Bicycle & Pedestrian

September 18, 2024

METROPOLITAN TRANSPORTATION PLAN
COLUMBIA AREA
TRANSPORTATION STUDY ORGANIZATION
CATSO
2055 UPDATE

1 What is CATSO and MTP?

Columbia Area Transportation Study Organization

- Collaboration among City of Columbia, Boone County, and MoDOT to carry out transportation planning
- MTP updated every 5 years. Required to receive federal transportation funding (typically $40M-$50M annually)
- CATSO is strictly a planning organization – it does not design or build any projects

BOONE COUNTY GOVERNMENT

city of Columbia

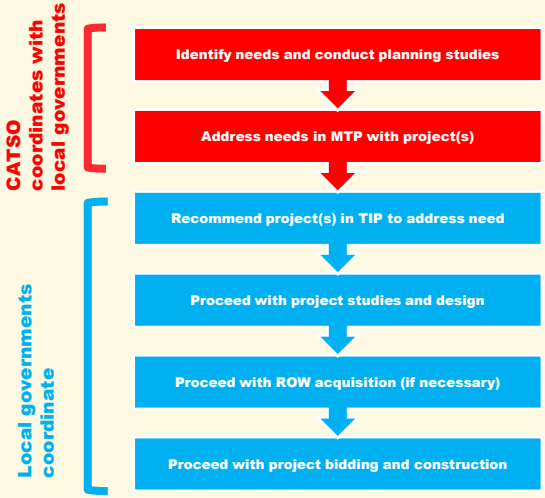
MoDOT

2 Projects Funded Through MTP

Programmed TIP Projects (2023-2026)

TIP category	Total Projects	New Projects	Total Project Costs	Total Costs – New Projects	Total Federal Funds
MoDOT Construction	42	24	$243,413,300	$25,164,200	$194,170,500
MoDOT Scoping	7	6	$502,000	$501,000	$165,000
Boone County Roads	1	1	$677,000	$677,000	$541,600
Columbia Streets	6	5	$15,696,381	$13,096,381	$250,000
Columbia Sidewalks	6	6	$4,223,340	$4,223,340	$910,938
Rail/Highway	1	1	$862,000	$612,000	$200,000
Transit	13	3	$23,159,710	$13,138,228	$15,328,728
Totals	**76**	**46**	**$288,533,731**	**$57,412,149**	**$211,566,766**

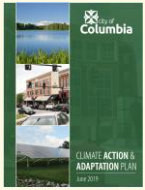
3 How Do Projects In The MTP Get Done?



- The MTP provides a long-term transportation vision.
- The Transportation Improvement Program (TIP) lists projects to be implemented in near term.
- Local agencies (Boone County, City of Columbia, and MoDOT) implement the projects.

4 Key Plans Considered

- Boone County Master Plan
  in development
- GoCOMO Comprehensive Transit Study
  in development
- MoDOT STIP
- City of Columbia's Comprehensive Plan
- City of Columbia Sidewalk Master Plan
- City of Columbia Climate Action and Adaptation Plan
- City of Columbia Park Master Plan
- University of Missouri Campus Master Plan
  in development



Columbia Imagined
The Plan for How We Live & Grow

Our Boone County
OUR COMMUNITY. OUR FUTURE. BOONE COUNTY MASTER PLAN

University of Missouri
Campus Master Plan 2024

GoCOMO Columbia's Public Transit **Comprehensive Transit Study**

5 MTP Update Engagement Plan

Be Heard Website

- https://beheard.como.gov/catso-metropolitan-transportation-plan-update

Stakeholder Meetings Round 1

- *Late August*
- *Invite only*

Stakeholder Meetings Round 2

- *Held 9/3/24 - 9/4/24*
- *Invite only*

Survey 1

- *327 responses*

Public Meeting 1

- *You are here!*

Survey 2

- *Coming in September!*
- *Look for posting on BeHeard*

Public Meeting 2

- *9/30/24, 4-8 pm*
- *801 E Walnut St*

Stakeholder Meeting Round 3

- *9/30/24, 2-4 pm*
- *Invite only*

6 Who We've Talked To

- Bike and Ped Commission
- Boone County Family Resources
- Boone County Fire Protection District
- Cambio Center
- Catholic Charities of Central and Northern Missouri
- City of Columbia Office of Sustainability
- City of Refuge
- Climate and Environment Commission
- Central Missouri Community Action
- COLT Railroad
- Columbia Board of Realtors
- Columbia College
- Columbia Housing Authority
- Columbia Police Department
- Columbia Public School District
- First Last Mile
- GoCOMO
- Homebuilders Association
- Local Motion
- OATS Transit
- Powerhouse
- Regional Economic Development Inc.
- Scheppers Distributing
- Sierra Club
- Services for Independent Living
- Disabilities Commission
- The District
- The Loop
- Transportation and Infrastructure Committee
- United Community Builders
- University of Missouri
- West Ash Neighborhood

7 What We Have Heard So Far

Pedestrian and Bicycle

- There are gaps in the sidewalk system, some sidewalks not well-maintained
- Bike infrastructure is not well-connected and needs to be better protected
- There needs to be safer opportunities for crossing the street
- Walking at night feels unsafe in some areas due to the lack of streetlights or streetlights being out of order
- Traffic calming measures would create safer areas for walking and biking

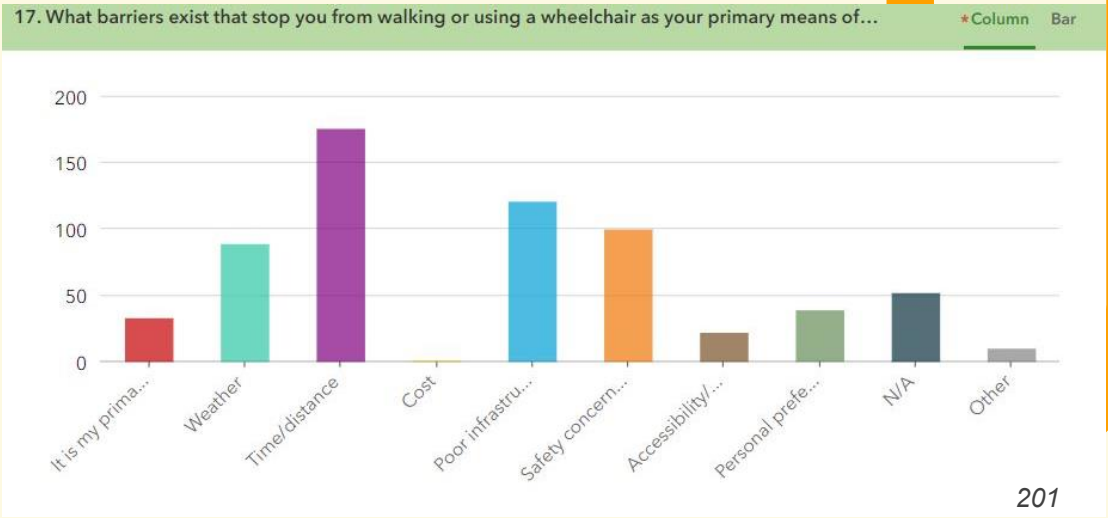
Transit

- Free bus fares are appreciated
- Wait times between buses are too long and the service hours do not work for those who work or need to go out in the evenings.
- Bus routes need to be expanded so that more locations can be reached
- The bus system needs to be easier to understand, especially for non-native English speakers
- Transit needs to be more accessible for those with disabilities

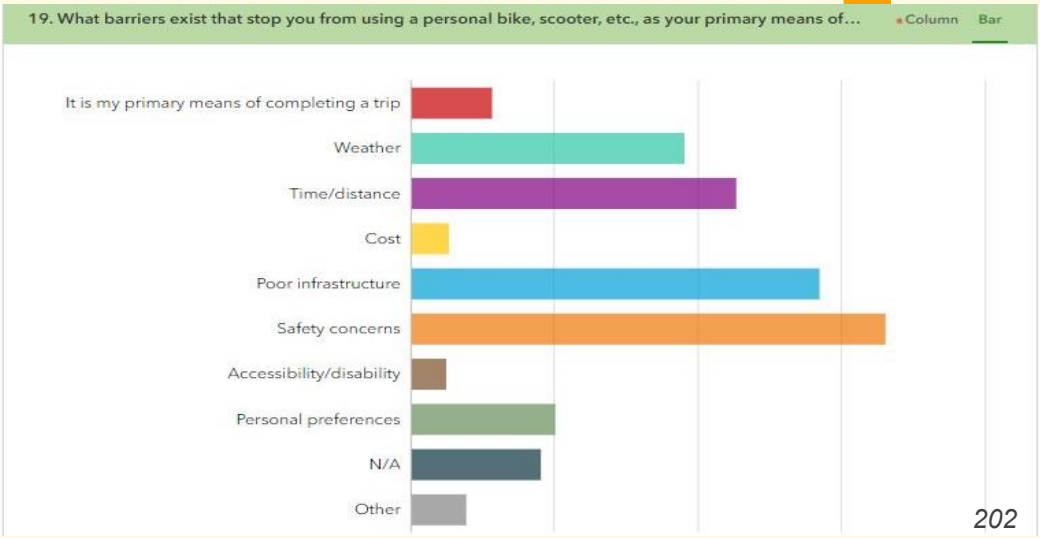
Cars and Roads

- Traffic congestion is very well managed compared to many urban areas
- Roadways need to accommodate larger vehicles used for emergency response and deliveries
- Parking is generally available in the region, but can be difficult downtown
- More electric vehicle charging stations are needed

8 Walking Barriers from Survey

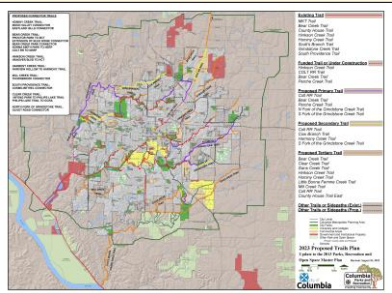


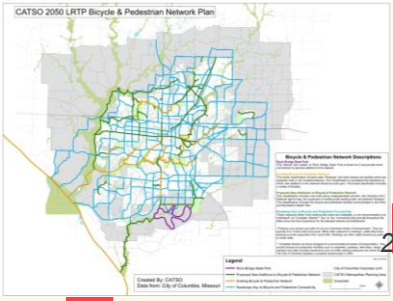
9 Bicycle Barriers from Survey



10 Proposed MTP Recommendations

- Transportation Improvement Plan (TIP)
- **Bicycle and Pedestrian Network Plan**
- Major Roadway Plan
- Regional Transit Map
- Special Studies
  - Regional Transit and Connectivity Study
  - Westside Transportation Study
  - Regional Wayfinding Plan
  - MO-740 Extension Study
  - Road Safety Audits
  - Regional Freight and Delivery Plan
  - Regional Smart Parking Plan
  - Regional EV Charging Study
  - COLT Railroad Corridor Study





THANK YOU

To learn more, visit the BeHeard website page that can be reached here:
https://beheard.como.gov/catso-metropolitan-transportation-plan-update

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BeHeard Page

Survey