2045 Clarksville Urbanized Area

CHAPTER 1

1.0 | Introduction

The 2045 Metropolitan Transportation Plan (MTP) is the long-range transportation plan for the Clarksville Metropolitan Planning Area (MPA) and replaces the 2040 MTP. The 2045 MTP sets a regional vision and course of action for addressing the transportation needs of the Clarksville MPA over the next twenty-seven years.

The recommendations of the 2045 MTP are the result of activities conducted through:

- **public input,**
- **technical analysis,**
- **close coordination between local municipalities and counties,**
- **the Clarksville Transit System,**
- **the Tennessee Department of Transportation (TDOT),**
- **the Kentucky Transportation Cabinet (KYTC), and**
- **other members of the Clarksville Urbanized Area Metropolitan Planning Organization (CUAMPO).**

THE 2045 MTP SETS A REGIONAL VISION AND COURSE OF ACTION FOR ADDRESSING THE TRANSPORTATION NEEDS OF THE CLARKSVILLE MPA OVER THE NEXT TWENTY-SEVEN YEARS.

The 2045 MTP utilizes a performance-based approach to metropolitan transportation planning. This approach is described in detail in Chapter 2: Plan Development Process.

1.1 | The Metropolitan Planning Organization (MPO)

Purpose and Primary Functions

A Metropolitan Planning Organization (MPO) is a federally mandated transportation policy-making body that is made up of representatives from local governments and transportation agencies who have authority and responsibility within the MPAs.

With the passage of the Federal-Aid Highway Act of 1962, Congress made metropolitan transportation planning a condition for the receipt of federal funds for transportation projects in urban areas with a population of 50,000 or greater. That legislation, and those that have followed, encouraged a continuing, cooperative, and comprehensive (3-C) transportation planning process. This 3-C process is conducted between MPOs, states, and public transit providers in these urban areas.

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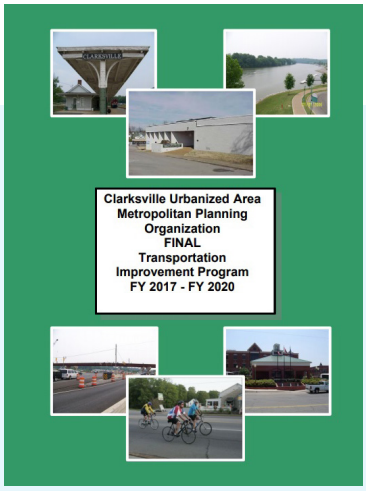
According to the Federal Highway Administration (FHWA) report The Transportation Planning Process: Key Issues, there are six core functions of an MPO:



1. **Establish a Setting for Effective Decision-Making:** Establish and manage a fair and impartial setting for effective regional decision-making in the metropolitan area.

2. **Identify and Evaluate Transportation Improvement Options:** Develop transportation improvement options and use data and planning methods to evaluate whether those options support criteria and system performance targets. Planning studies and evaluations are included in the Unified Planning Work Program (UPWP)

3. **Prepare and Maintain a Metropolitan Transportation Plan:** Develop and update a long-range transportation plan for the metropolitan area covering a planning horizon of at least 20 years. The MPOs must prepare MTPs using performance measures and associated targets.

4. **Develop a Transportation Improvement Program (TIP):** Develop a short-range, four-year program of priority transportation improvements drawn from the MTP. The MPO creates the TIP with spending, regulating, operating, management, and financial tools. The TIP represents immediate priority actions used to achieve the area's goals and associated system performance targets.

5. **Identify Performance Measure Targets and Monitor Whether Implemented Projects are Achieving Targets:** The MPOs coordinate with state and public transportation operators to establish performance targets that address performance measures. These targets, as required by federal law, are related to surface transportation and public transportation. The MPOs prepare plans that include performance targets addressing performance measures and standards. When updating the plan, the MPOs must also prepare a System Performance Report that tracks progress in meeting performance targets. In addition to the federally required performance measures, the MPOs may identify additional, locally significant, performance indicators that support decision-making.

6. **Involve the Public:** Involve the general public and other affected constituencies related to the essential decision-making elements listed above.

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Federal Designation

The Census Bureau defines urban areas after each decennial census, with all other areas being classified as rural. After identifying the urban areas, the Census Bureau classifies them as either an urbanized area or an urban cluster. Urbanized areas must have at least 50,000 people, while urban clusters are the remaining urban areas, or those with a population ranging from 2,500 to 49,999.

The MPOs have authority within an area referred to as the MPA, or Metropolitan Planning Area. The MPAs are established around urbanized areas, with formalized agreements between the affected jurisdictions and the governor(s) of the affected state(s). Typically, the MPA includes the smoothed urban area, and all areas expected to be urbanized within the next 20 years. The MPA boundary may also be influenced by jurisdictional lines, physical features of the landscape, or major roadways.

After the 2010 Census, urban areas were redefined. The first step in identifying the extent of urban areas was to identify a densely settled core of census tracts and/or census blocks that met the minimum population density requirements, as well as any adjacent territory containing non-residential urban land uses. Then, additional densely settled areas were added to the core based on their proximity. Finally, the area identified by Census Bureau criteria had to encompass at least 2,500 people. At least 1,500 of those people had to reside outside of institutional group quarters.

Following the 2010 Census, the Census Bureau identified just over 450 urbanized areas in the United States. Figure 1.1 shows the location of urban clusters and urbanized areas near the Clarksville Urbanized Area. Figure 1.2 displays the Clarksville Urbanized Area.

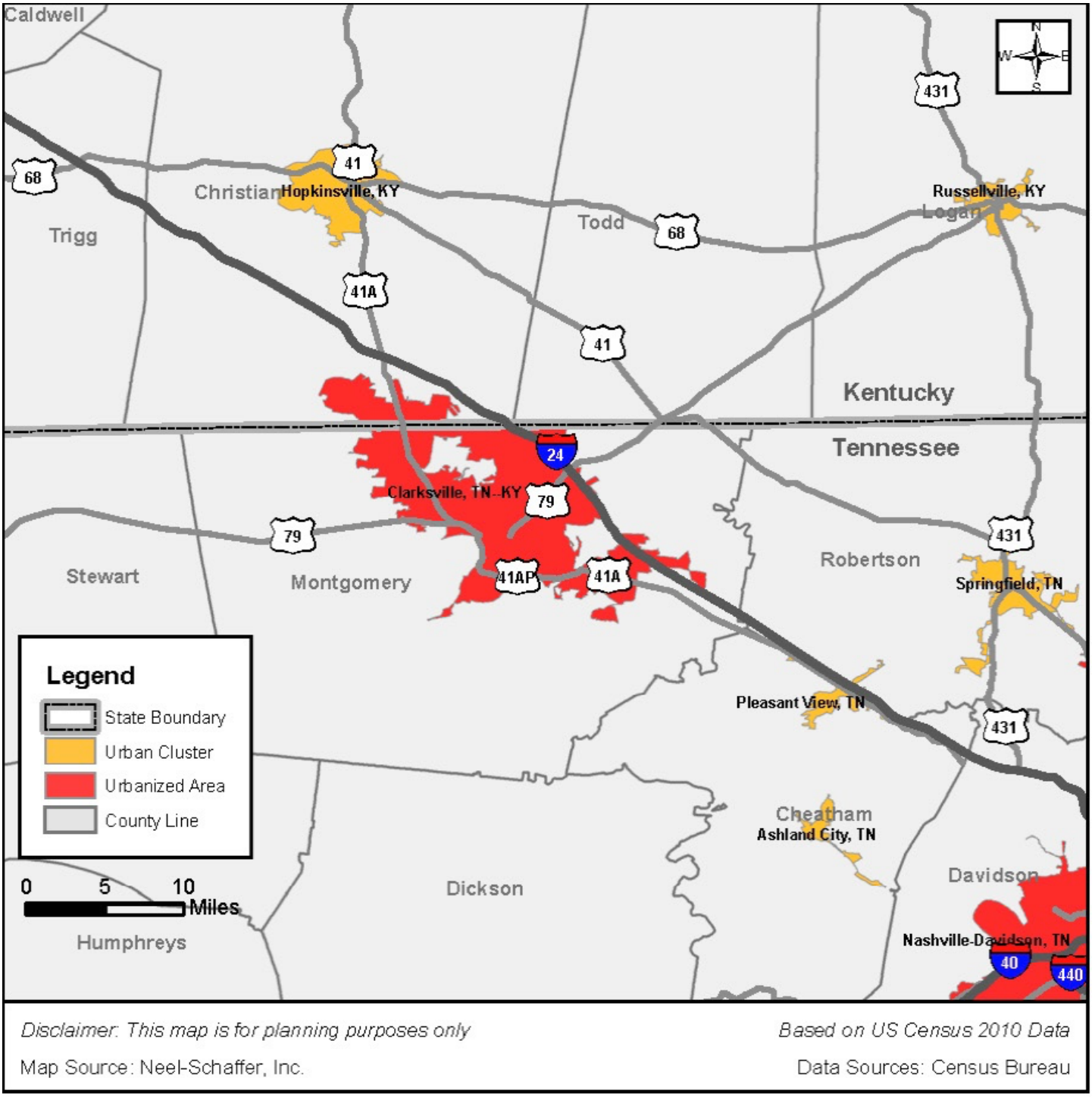


FIGURE 1.1 NEARBY URBAN AREAS

2045 Clarksville Urbanized Area

CHAPTER 1

About CUAMPO

The CUAMPO was formed in 1977 to provide the 3-C approach to transportation planning for the Clarksville metropolitan area. Since the creation of the MPO, the City of Clarksville has become the fifth largest city in the State of Tennessee. The region is also home to a large military installation, Fort Campbell, and the Austin-Peay State University.

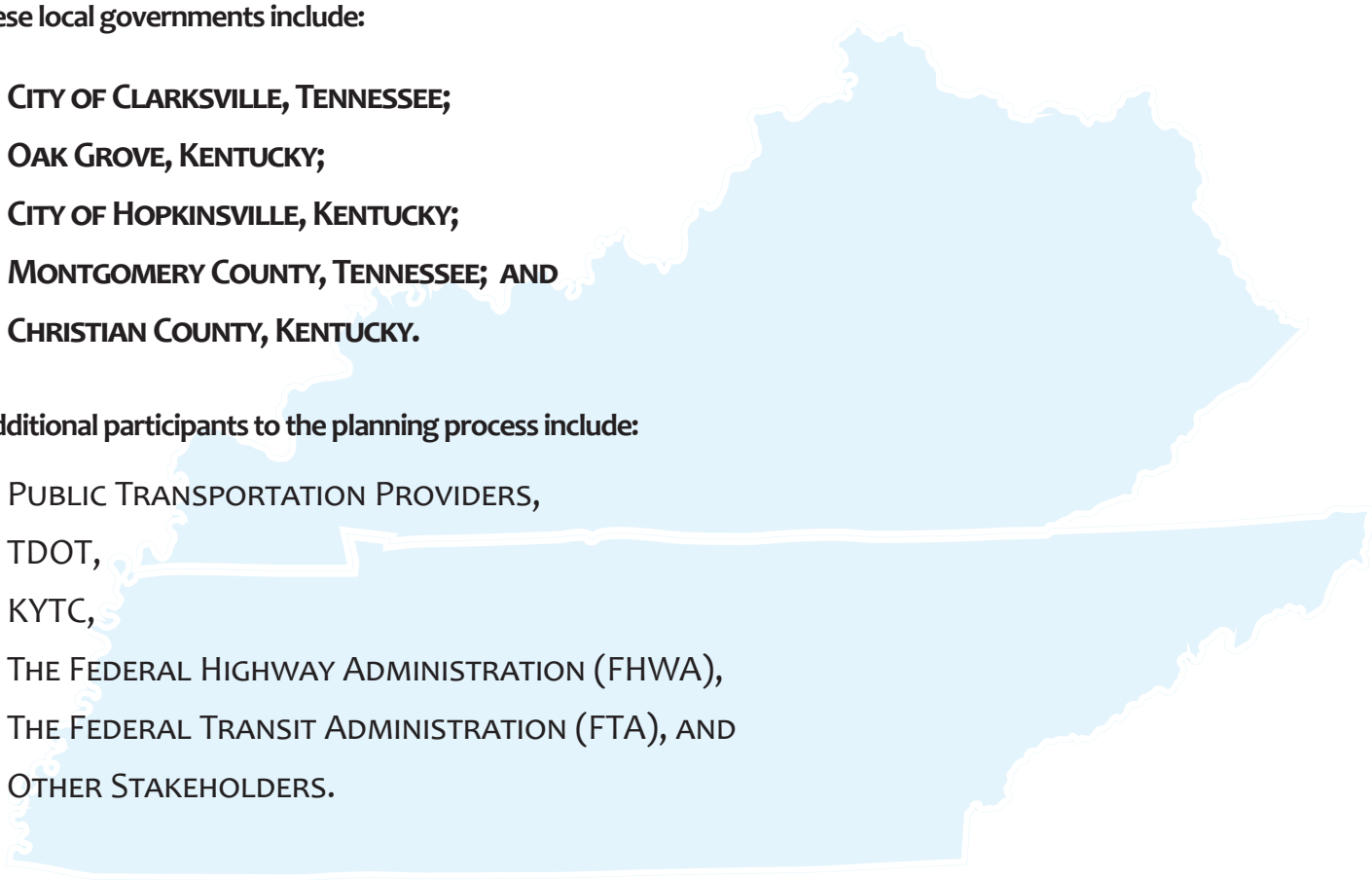
The Clarksville MPA encompasses almost the entirety of the Travel Demand Model area, as well as Fort Campbell in both Tennessee and Kentucky. Since Fort Campbell is responsible for its own planning, it has been excluded from the Travel Demand Model area. However, its impact on travel and roadway needs is taken into account by including the travel at the access gates as external stations. **For security reasons, socioeconomic, roadway, land use, and travel data for Fort Campbell are not included in the MTP tables and figures.**

These local governments include:

- **City of Clarksville, Tennessee;**
- **Oak Grove, Kentucky;**
- **City of Hopkinsville, Kentucky;**
- **Montgomery County, Tennessee; and**
- **Christian County, Kentucky.**

Additional participants to the planning process include:

- Public Transportation Providers,
- TDOT,
- KYTC,
- The Federal Highway Administration (FHWA),
- The Federal Transit Administration (FTA), and
- Other Stakeholders.



Source: http://www.cuampo.com/files/UPWP2016-17.jpg

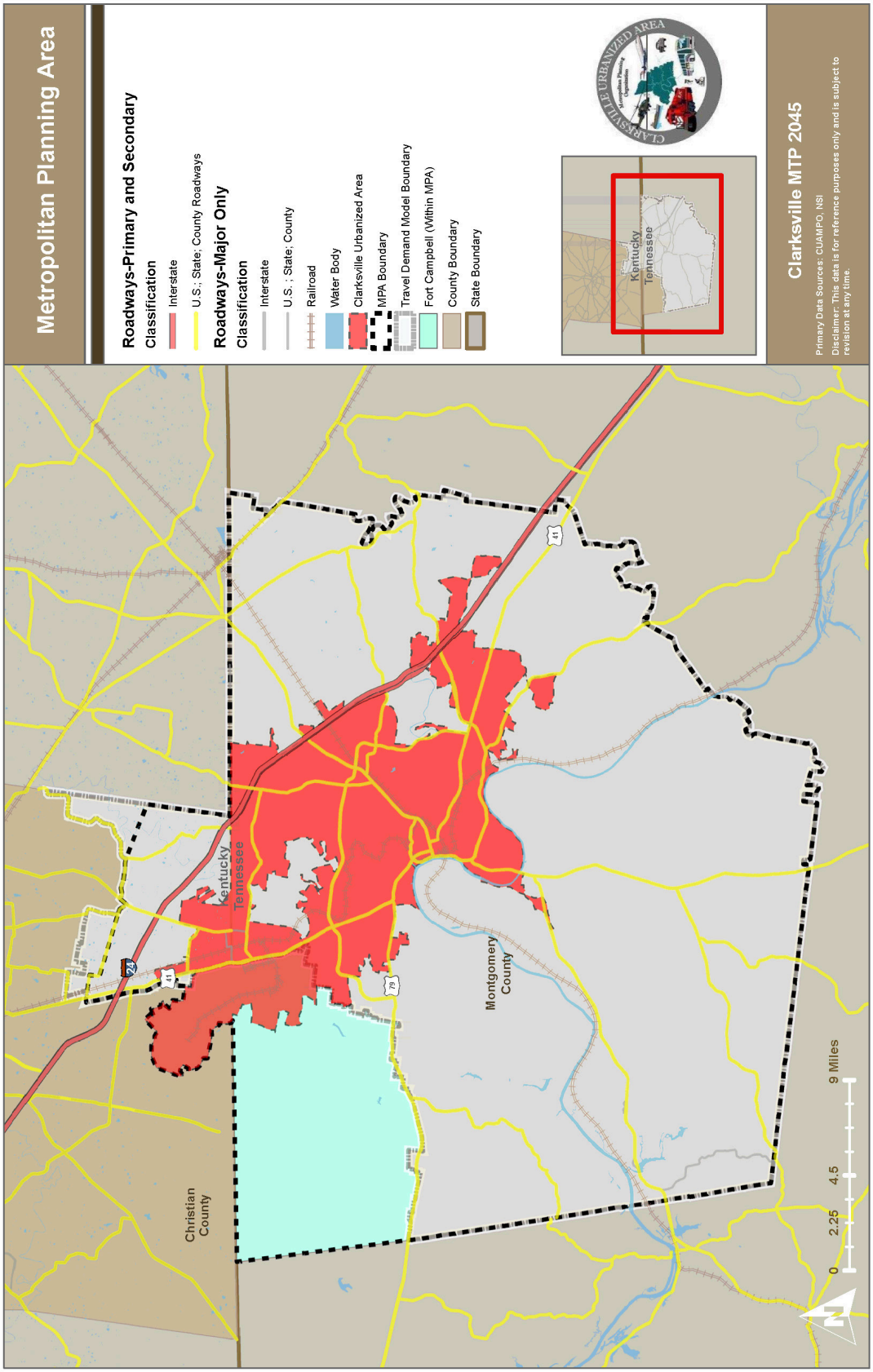


FIGURE 1.2 Metropolitan Planning Area

Organizational Structure and Committees

Two bodies shape the decision-making process of the MPO. The first of these bodies is the Executive Board, which is the official decision-making body and policy board of the MPO. The second is the Technical Coordinating Committee, which provides recommendations to the Executive Board. The CUAMPO also maintains a professional staff.

Executive Board

The Executive Board reviews the recommendations from the Technical Coordinating Committee. It also makes the final decisions regarding all documents and products produced by the MPO. These items include, but are not limited to:

- the Unified Planning Work Program (UPWP),
- MTP,
- Public Participation Plan (PPP), and
- the TIP.

The Executive Board membership is comprised of nine elected and appointed officials from several state and local governments within the MPO. Representatives from the FHWA and FTA also participate as non-voting members. The members of the Executive Board include:

- Mayor, City of Clarksville, TN;
- Mayor, Montgomery County, TN;
- Mayor, City of Oak Grove, KY;
- Mayor, City of Hopkinsville, KY;
- County Executive, Christian County, KY;
- Director, Clarksville Transit System;
- Director, Greater Nashville Regional Council;
- Secretary, KYTC;
- Commissioner, TDOT;
- FHWA -TN;
- FHWA-KY; and
- FTA-Region 4.

Technical Coordinating Committee

The Technical Coordinating Committee (TCC) serves as an advisory committee that makes recommendations to the Executive Board regarding the documents and products produced by the MPO. The committee is a group of transportation professionals comprised of:

- engineers;
- transportation and land use planners from federal, state, and local agencies; and
- representatives for transit, air, bicycle/pedestrian, and rail travel.

Like the Executive Board, the TCC also has representatives from the FHWA and FTA who participate as non-voting members. Organizations represented on the TCC include professional staff from:

- Christian County, Kentucky;
- City of Clarksville, Tennessee;
- City of Oak Grove, Kentucky;
- Clarksville Transit System;
- Clarksville-Montgomery County Regional Planning Commission;
- Fort Campbell Military Installation;
- Greater Nashville Regional Council;
- Hopkinsville-Christian County Planning Commission;
- Clarksville Regional Airport (John F. Outlaw Field);
- Kentucky Department for Environmental Protection;
- KYTC;
- Mid-Cumberland Human Resource Agency;
- Montgomery County Administration and Development;
- Pennyrile Area Development District;
- R.J. Corman Railroad Company;
- Tennessee Department of Environment and Conservation;
- TDOT; and
- U.S. Environmental Protection Agency.

CUAMPO STAFF

The CUAMPO staff is housed at the Clarksville-Montgomery County Regional Planning Commission and are responsible for the MPO's planning and administrative functions. The staff also serve as a bridge of communication between the:

- MPO's Committees,
- KYTC,
- TDOT,
- Federal Partners,
- Local Governments, and
- Other Groups and Individuals Interested in Transportation Issues Within the CUAMPO Planning Area.

1.2 | The Metropolitan Transportation Plan

Purpose and Authority of Plan

Beginning with the 1962 Federal-Aid Highway Act, federal legislation has required metropolitan transportation plans for urban areas with a population of at least 50,000 in order to receive surface transportation funds. Today, metropolitan transportation plans are governed by Public Law 114-94, the FAST Act (23 CFR 450, Subpart C).

According to the FHWA's website at https://www.fhwa.dot.gov/planning/processes/metropolitan/

"Metropolitan transportation planning is the process of examining travel and transportation issues and needs in metropolitan areas. It includes a demographic analysis of the community in question, as well as an examination of travel patterns and trends. The planning process includes an analysis of alternatives to meet projected future demands, and for providing a safe and efficient transportation system that meets mobility while not creating adverse impacts to the environment."

The primary purpose of metropolitan transportation planning is to ensure that transportation planning in urbanized areas is carried out through a 3-C planning process.

This 3-C process ensures that transportation planning is:

- **BASED ON THE MOST CURRENT INFORMATION,**
- **REFLECTS REGIONAL NEEDS AND PRIORITIES THAT ARE CONSISTENT WITH THOSE OF THE STATE,**
- **TAKES INTO ACCOUNT ALL MODES OF TRANSPORTATION, AND**
- **IS CONSISTENT WITH OTHER PLANNING EFFORTS.**

Adoption of the MTP is the first step towards the implementation of any transportation project using federal funds. It is also required for any regionally significant transportation project, regardless of funding source. Following the formal adoption of the plan, a project can be programmed in the TIP for design, right-of-way acquisition, or construction. The TIP is used to identify funding sources, fiscal year(s) of implementation, and the estimated amount of funding to be used.

Federal Requirements

As required by federal law, every MPO must prepare and update a transportation plan for its MPA. Aside from ensuring that the metropolitan transportation planning process is a 3-C process, the MTP must provide for consideration and implementation of projects, strategies, and services that will address 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 the 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.**

MTP Development and Content

The MTP must utilize the most recently available, valid information and assumptions to provide long- and short-range strategies and actions for the MPA. The MTP must preserve and enhance the multimodal transportation system, and facilitate the safe and efficient movement of people and goods. The 2045 MTP follows the requirements established in 23 CFR 450.324.

Federal regulations require the MTP to include:

- Projections of future demand of people and goods over the period of the plan (at least 20 years);
- Inventory of existing and proposed transportation facilities, with an emphasis on nationally and regionally significant facilities;
- Operational and management strategies that improve the efficiency and safety of the existing transportation system;
- Capital investment and other strategies to preserve the existing and future transportation system and improve multimodal capacity based on regional priorities and needs;
- Evaluation of environmental impacts and potential mitigation activities;
- Pedestrian and bicycle transportation facilities;
- Transportation and transit enhancement activities;
- A financial plan that demonstrates that the plan is fiscally constrained;
- Comparison of the transportation plan with state and local conservation plans and maps and natural and historic resource inventories, if available;
- A safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects for the MPA contained in the state's Strategic Highway Safety Plan;
- Reasonable opportunity for the public and all relevant parties to review the transportation plan and to provide comments;
- Consideration of the results of a Transportation Management Area's Congestion Management Process;
- Current and projected transportation demand of people and goods; and
- A system performance report evaluating the condition and performance of the transportation system.

Transportation Management Areas and The Congestion Management Process

Urbanized areas with populations that exceed 200,000 typically have more complex transportation systems and associated challenges than smaller regions. Accordingly, these large urbanized areas, designated as Transportation Management Areas (TMAs,) have additional planning responsibilities.

The major MTP-related requirement for TMAs is the development of a Congestion Management Process (CMP). The CMP is intended to address congestion through a process that provides for effective transportation system management and operations. A CMP is also based on cooperatively developed travel demand reduction and operational management strategies. The CMP establishes a systematic method to identify and evaluate transportation improvement strategies, including operations and capital projects.

Projects and strategies from the CMP should be considered for inclusion in the MTP and subsequently, the TIP.

The Clarksville urbanized area is not listed as a TMA as of the results of the 2010 Census. However, the population of the Clarksville Urbanized Area, is approximately 176,696 as of the base year, and will likely be designated as a TMA with the 2020 Census.

Air Quality Attainment

Areas exceeding air quality standards for transportation-related pollutants are designated as either an air quality nonattainment area or maintenance area. If an MPO includes nonattainment or maintenance areas, it must ensure that it's MTP, TIP, and federally funded projects conform to the purpose of the state's air quality plan, known as the State Implementation Plan (SIP).

Areas that are designated as air quality nonattainment areas must also update their plans every four years as opposed to every five years.

Even though Montgomery and Christian counties are in attainment for air quality standards, the area is expected to continue to perform transportation conformity as an anti-backsliding measure. This is required since the region is a former maintenance area for the 1997 Ozone NAAQS.

However, the U.S. Environmental Protection Agency (EPA) periodically updates the air quality standards. In the future, the MPO could become a non-attainment area if standards are made more stringent or pollution becomes worse in the region. In particular, the CUAMPO must monitor 8-hour Ozone and PM 2.5.

Consistency with Other Plans

A major federal requirement of the MTP is that it is consistent with other plans. This consistency with other plans extends to:

- the Statewide Transportation Planning Process,
- the State's Strategic Highway Safety Plan,
- other safety and security plans,
- the STIP, and
- the TIP.

Before any changes can be made to the MPO's TIP or the state's STIP, they must be made in the MTP.
The MTP should also be developed to be consistent with:

- the Coordinated Public Transit Human Services Transportation Plan (Section 5310 Program of the FTA),
- the Regional Intelligent Transportation Systems (ITS) architecture, and
- locally adopted planning documents.

The MTP was developed by reviewing the relevant plans and including projects and recommendations from them where possible. Roadway projects included in the TIP and state plans were analyzed during the MTP development process.

Planning Horizon and Update Cycle

The MTP must have a planning horizon of at least 20 years from its effective date and at least every five years in air quality attainment areas. This requirement ensures that transportation plans remain valid and consistent with current and forecasted transportation and land use conditions.

In between the five-year update cycle, the MPO may make amendments and modifications to the MTP at any time, without a requirement to extend the horizon year. However, these revisions must be approved by the MPO under the requirements set forth in the PPP and as described later in this chapter.

According to the FHWA document The Transportation Planning Process Briefing Book:

"Transportation Equity refers to the way in which the needs of all transportation system users, in particular the needs of those traditionally underserved by existing transportation systems, such as low-income and minority households, older adults, and individuals with disabilities, are reflected in the transportation planning and decision making process and its services and products. Transportation Equity means that transportation decisions deliver equitable benefits to a variety of users and that any associated burdens are avoided, minimized, or mitigated so as not to disproportionately impact disadvantaged populations."

Transportation Equity

Federal legislation and executive orders prohibit discrimination and/or exclusion from participation in any program or activity receiving federal financial assistance on the basis of race, color, national origin, disability, income, minority-status, or limited-English Proficiency. The MPO's PPP specifies the manner in which the MPO prevents discrimination and accommodates these populations. The PPP is discussed further in Chapter 2: Plan Development Process.

Title VI of the Civil Rights Act of 1964 ensures that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, or national origin.

The Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 encourages the participation of people with disabilities in the development of transportation and paratransit plans and services.

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, was signed by President Clinton in 1994. There are three fundamental Environmental Justice (EJ) principles:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Executive Order 13166: Improving Access to Services for Persons with limited English Proficiency was signed by President Clinton in 2000. Along with Title VI of the Civil Rights Act of 1964, the federal government requires federal agencies to:

- examine the services they provide,
- identify any need for service to those with limited English proficiency (LEP), and
- develop and implement a system to provide those services so LEP persons can have meaningful access to them.

For recipients of federal financial assistance, such as MPOs, the federal government requires provision of meaningful access to their LEP applicants and beneficiaries.

Performance-Based Planning

According to the FHWA report Performance Based Planning and Programming Guidebook:

"Performance-Based Planning and Programming (PBPP) refers to the application of performance management within the planning and programming processes of transportation agencies to achieve desired performance outcomes for the multimodal transportation system. PBPP attempts to ensure that transportation investment decisions are made - both in long-term planning and short-term programming of projects - based on their ability to meet established goals."

The most recent transportation legislation, the FAST Act, was enacted by Congress in 2015. This act largely continued the provisions of the Moving Ahead for Progress in the 21st Century Act (MAP-21), with some additions. One of MAP-21's most significant changes to the metropolitan transportation planning process is that it mandates performance-based planning for all MPOs.

The CUAMPO is working with its regional, State, and federal partners in order to meet the federal requirements. This plan integrates the performance measures required by the FAST Act.

THE UNITED STATES DEPARTMENT OF TRANSPORTATION (USDOT), THROUGH THE FHWA, HAS DEVELOPED PERFORMANCE-BASED PLANNING REGULATIONS.

In general, MTPs and TIPs are required to be developed through a performance-driven, outcome-based approach that supports the national goals that were developed through MAP-21. The performance goals are illustrated in Table 1.1.

TABLE 1.1 MAP-21 National Performance Goals

Source: FHWA

GOAL AREA	NATIONAL GOAL
Safety	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
Infrastructure condition	To maintain the highway infrastructure asset system in a state of good repair
Congestion reduction	To achieve a significant reduction in congestion on the National Highway System
System reliability	To improve the efficiency of the surface transportation system
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
Environmental sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment
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

The MPOs are required to monitor the national Transportation Performance Measures (TPMs) and track them over time. The MPOs are required to establish their own targets in relation to these measures, or support the state targets. The MPOs report their progress on the performance measures within their MPA to the state, and the states report their progress on performance measures within their MPA to the USDOT.

The states have a year after a TPM's effective date to set their targets. The MPOs have 180 days after their state sets its relevant targets to set its own targets, or adopt the state's target. Table 1.2 displays the timeline of the developed TPM categories. The TPMs that were developed by USDOT are shown in Table 1.3.

As the CUAMPO is an attainment area, the CMAQ TPM category does not apply to this MTP. The MPO may elect to track more performance measures than USDOT requires.

Further performance measures from the FTA require the local transit service, Clarksville Transit System, to maintain a Transit Asset Management (TAM) Plan. The MPO and transit provider must work together to set targets for and monitor performance. These needs are further discussed in Chapter 6: The Existing Transportation System.

Table 1.2 National Transportation Performance Measure Categories Source: FHWA

PERFORMANCE MEASURE	FHWA Effective Date	State Target Required Date
Highway Safety Improvement Program	4/14/2016	4/14/2017
Safety Performance Management	4/14/2016	4/14/2017
Pavement Condition	5/20/2017	5/20/2018
Bridge Condition	5/20/2017	5/20/2018
Freight	5/20/2017	5/20/2018
CMAQ	5/20/2017	5/20/2018
System Performance	5/20/2017	5/20/2018

TABLE 1.3 National Transportation Performance Measures and Metrics

CATEGORY	PERFORMANCE	NOTE	TIMING OF TARGETS
HSIP (PM1)	N/A	All states must now have a HSIP in place and safety performance management performance measure targets are established and reported within the HSIP	HSIP documents are required every year.
Safety Performance Management (PM1)	Number of fatalities	Metric is number of fatalities during a calendar year. Target is all public roads in the study area. Based on a five-year rolling average. Recommended data source is FARS for fatalities.	Safety Performance Management targets are required to be established each year.
	Rate of fatalities	Metric is rate of fatalities per 100 million VMT during a calendar year. Target is all public roads in the study area. Based on a five-year rolling average. Recommended data source is FARS, and HPMS for VMT or the MPO if possible.	
	Number of serious injuries	Metric is number of serious injurites during a calendar year. Target is all public roads in the study area. Based on a five-year rolling average. Recommended data source is state motor vehicle crash database, doesn't specify if other data sets can be used.	
	Rate of serious injuries	Metric is rate of serious injuries per 100 million VMT during a calendar year. Target is all public roads in the study area. Based on a five-year rolling average. Recommended data source is state motor vehicle crash database, and HPFM for VMT or MPO if possible.	
	Number of non-motorized fatalities and non-motorized serious injuries.	Metric is number of non-motorized fatalities and serious injuries during a calendar year. Target is all public roads in the study area. Based on a five-year rolling average. Recommended data source is FARS and state motor vehicle crash database.	

continued

Table 1.3 National Transportation Performance Measures and Metrics

CATEGORY	PERFORMANCE	NOTE	TIMING OF TARGETS
Pavement Condition (PM2)	Percentage of pavements of the Interstate System in Good condition	Metric is percentage of Interstate in good condition. Target is the Interstate in the study area. No data source listed, however, the HPMS can be used to get this data.	Pavement Condition targets are reported every four years. States are required to establish 2-year and 4-year targets for these performance measures. MPOs must support the state's 4-year target or establish their own.
	Percentage of pavements of the Interstate System in in Poor condition	Metric is percentage of Interstate in poor condition. Target is the Interstate in the study area. No data source listed, however, the HPMS can be used to get this data.	
	Percentage of pavements of the non-Interstate NHS in Good condition	Metric is percentage of non-Interstate NHS in good condition. Target is non-Interstate NHS roads in the study area. No data source listed, however, the HPMS can be used to get this data.	
	Percentage of pavements of the non-Interstate NHS in Poor condition	Metric is percentage of non-Interstate NHS in poor condition. Target is non-Interstate NHS roads in the study area. No data source listed, however, the HPMS can be used to get this data.	
Bridge Condition (PM2)	Percentage of NHS bridges classified as in Good condition	Metric is percentage of bridges in good condition. Data is determined using the National Bridge Inventory methodology.	Bridge Condition targets are reported every four years. States are required to establish 2-year and 4-year targets for these performance measures. MPOs must support the state's 4-year target or establish their own.
	Percentage of NHS bridges classified as in Poor condition	Metric is percentage of bridges in poor condition. Data is determined using the National Bridge Inventory methodology.	
Freight (PM3)	Truck Travel Time Reliability (TTTR) Index on Inter-state System	TTTR data is needed for three peak periods, a weekend period, and overnight period. Calculations are specified. Data available through FHWA National Performance Management Research Dataset. States and MPOs can use own data if prefered.	The Freight target is reported every four years. States are required to establish 2-year and 4-year targets for the performance measure. MPOs must support the state's 4-year target or establish their own.

continued

Table 1.3 National Transportation Performance Measures and Metrics

CATEGORY	PERFORMANCE	NOTE	TIMING OF TARGETS
CMAQ (PM3)*	Annual Hours of Peak-Hour Excessive Delay per Capita	Metric is total peak-hour excessive delay person-hours. Target applicability is mainline of NHS in urbanized areas with a population over 1M, eventually changing to >200k, in nonattainment or maintenance for any of the criteria pollutants under the CMAQ program. Data available through FHWA National Performance Management Research Dataset.	The Annual Hours of Peak-Hour Excessive Delay per Capita targets are reported in the Baseline Performance Report in each reporting period. States and MPOs are required to collectively establish 4-year targets for each urbanized area for the 2018 report. With the first mid performance period progress report, due October 1, 2020, 4-year targets may be adjusted, and 2-year condition/performance will be reported as baselines. The Percent of Non-Single Occupancy Vehicle Travel targets are reported in the Baseline Performance Report in each reporting period. States and MPOs are required to collectively establish 2-year and 4-year targets for each urbanized area. Total Emission Reductions targets are reported in each state Baseline Performance Report. States are required to establish 2-year and 4-year targets for this performance measures. MPOs with a population of less than one million people must support the state's 4-year target or establish their own. MPOs with a population greater than one million people must also support the state's 2-year target or establish their own.
	Percent of Non-Single Occupancy Vehicle Travel	Metric is the percentage of non-SOV travel. Target applicability is mainline of NHS in urbanized areas with a population over 1M, eventually changing to >200k, in nonattainment or maintenance for any of the criteria pollutants under the CMAQ program. Data sources include ACS Journey to Work, local surveys and counts, etc.	
	Total Emission Reductions	Metric is on-road mobile source emissions. Target is all urbanized areas in nonattainment or maintenance under CMAQ. The CMAQ Public Access System is listed as the data source. The TPM is based on an assessment of the Congestion Mitigation and Air Quality Improvement (CMAQ) Program through measurement of total emissions reduction of on-road mobile source emissions. Total emissions reduction is calculated by summing 2-and 4-year totals of emissions reductions of applicable criteria pollutant and precursor, in kilograms per day, for all projects funded with CMAQ funds.	

continued

Table 1.3 National Transportation Performance Measures and Metrics

CATEGORY	PERFORMANCE	NOTE	TIMING OF TARGETS
System Performance (PM3	Percent of Person-Miles Traveled on the Interstate That Are Reliable	Metric is Level of Travel Time Reliability. Target is all Interstate routes in the study area. Calculations are specified. Data available through FHWA National Performance Management Research Dataset.	System Performance targets are reported every four years. States are required to establish 2-year and 4-year targets for these performance measures. For the first reporting period, a 2-year target for non-Interstate NHS routes is not required. MPOs must support the state's 4-year target or establish their own.
	Metric is Level of Travel Time Reliability. Target is all Interstate routes in the study area. Calculations are specified. Data available through FHWA National Performance Management Research Dataset.	Metric is Level of Travel Time Reliability. Target is non-Interstate NHS routes in the study area. Calculations are specified. Data available through FHWA National Performance Management Research Dataset.	

***** NOTE: CMAQ Performance Measures do not apply to the Clarksville MPA.

1.3 | Current Trends Affecting Transportation Planning

Changing Socio-Demographics

There are many national social and demographic trends affecting travel demand and transportation in general. The United States is projected to grow more slowly, age more rapidly, and become more ethnically diverse in the future. The country is also expected to experience more growth in central urban areas and suburban areas. The Clarksville MPA has followed this trend with rapid growth that is more than four (4) times that of the national growth rate.

The U.S. Census Bureau projects that the U.S. population will grow from 310 million in 2010 to 380 million by 2040. While substantial in absolute terms, the rate of growth during this period is slower than in recent decades. Most of this slowdown is attributed to lower fertility rates amongst U.S. women and lower rates of immigration. Despite lower rates of immigration, the majority of population growth over the next 25 years is anticipated to come from immigrants and their descendants.

The increase in ethnic diversity in the U.S. population will likely have a short-term effect that increases carpooling, transit ridership, walking, and biking. This change in transportation will decrease the Vehicle Miles Traveled (VMT) per capita. However, as immigrants adapt to American culture, they are anticipated to adopt travel patterns similar to those of native residents. This means a possible increase in VMT per capita for immigrants and their descendants in later decades.

The American workforce is also changing, largely mirroring demographic changes. As the population ages, the overall labor force participation rate will decrease as a lower proportion of the population will be in the prime working-age group. While some of this decrease in labor force participation may be made up by retiree-age workers seeking part-time employment, there is an anticipated drop in overall employment by

2050. Since commute trips are a major contributing factor to peak period congestion, structural workforce trends will have a major impact on transportation.

Though population and employment growth is anticipated to slow down, growth will likely continue to be uneven throughout the United States. The migration patterns from rural to urban and from Northeast and Midwest to the Southeast and Western part of the country are likely to continue. However, growth within metropolitan areas is expected to change slightly.

Suburban population and employment growth is anticipated to continue to outpace that of central urban areas, but growth in central urban areas is expected to occur at a faster rate than in recent decades. Both changes have the potential to decrease VMT per capita as urban residents are more likely to use transit, walk, or bike. The suburban areas will have the opportunity to develop more walkable and transit-oriented areas. However, there is also the potential for increases in VMT per capita, if urban sprawl continues within metropolitan regions. This impact can be reduced if transit services can effectively serve these areas and provide an attractive alternative to driving.

Changing Technology

The actual impact of technological improvements on transportation is difficult to predict. However, there are many current technological trends that are influencing travel demand.

Telecommuting has been around for several decades now, and its use has increased at a rapid rate within that time frame. However, it continues to represent a small percentage of the overall workforce. Advancement in communications and incentives provided by local governments implementing Transportation Demand Management (TDM) programs may cause this workplace trend to continue to grow. This would help to reduce the demand for peak period travel.

According to the USDOT, ITS technologies:

"improve transportation safety and mobility, reduce environmental impacts, and enhance productivity through the integration of advanced communications-based information and electronic technologies into the transportation infrastructure and vehicles."

Technology is also being used to improve operations on existing and new transportation infrastructure by allowing for improved Intelligent Transportation Systems (ITS).

ITS technologies that are likely to have a major impact on future transportation include connected vehicles, automated vehicles, and live data collection and dissemination. These technologies will enable new ITS solutions and improve existing ones such as:

- traffic signal coordination,
- reversible lane systems,
- traffic monitoring,
- demand-based roadway and parking pricing, and
- real-time travel information.

Bikesharing, carsharing, and ridesharing are all relatively new technologies that are impacting travel demand, especially in urban areas. These technologies are constantly improving with technological advances. Bikesharing and carsharing are both essentially rental services whereby a person pays for temporary use of a vehicle (bike or automobile, respectively). There are many variations of each service, but the intent is to provide convenience when one does not have access to a private vehicle. In urban areas where many trips can be made by walking, biking, or public transit, bikesharing and carsharing are filling in the gaps for destinations that are not easily accessible by these modes. In this manner, these rental services are making car ownership less important for urban residents. If these services become more widespread, VMT per capita, and potentially regional VMT, would decline in many urban areas.

Ridesharing, according to the Victoria Transport Policy Institute, is "carpooling or vanpooling service in which the vehicle carries additional passengers when making a trip, with minimal additional mileage." It is offered by multiple providers, such as public transit agencies, private taxis, vanpools, and carpools. The continued growth of smartphones and advancement in GPS and mobile technology are constantly improving ridesharing services. As with bikesharing and carsharing, ridesharing offers an affordable alternative to vehicle ownership in walkable areas or to traditional taxis in all areas.

Declining Transportation Revenues

Gasoline taxes are the primary revenue source for both federal and state transportation funds. Despite the fact that transportation project construction costs have increased over the last twenty years, the last increase in the federal gasoline tax was in 1993. The State of Tennessee passed an increased gas and diesel tax that went into effect on July 1, 2017. The State of Kentucky has a gasoline tax that is subject to change based on wholesale fuel prices. While the State of Kentucky has a minimum gas tax, this fluctuating value makes it hard to anticipate the available state funding for roadway projects. Furthermore, no significant new revenue streams have emerged to fill these funding gaps.

The Federal Highway Trust Fund, the primary source of funding for highway and transit projects, has been on the brink of insolvency many times in recent years. The USDOT, state DOTs, and local agencies have taken a variety of approaches to deal with declining and uncertain transportation revenue. For instance, in order to maximize its shrinking revenues, the FHWA encourages innovative financing strategies for transportation projects through its Innovative Program Delivery program.

At the local level, many local governments have begun to look at the Return on Investment (ROI) of their capital improvement projects, especially transportation projects. They have also raised new transportation revenue through temporary bonds, tax increases, special assessment districts, and other means.
At all levels, it is becoming increasingly important to prioritize transportation projects based on some measure of cost-effectiveness. It will also be necessary to seek innovative and alternative means of financing and funding transportation. There are many successful examples of local and state agencies utilizing public-private partnerships, privatization, Tax-Increment Financing (TIF), and other innovative financing structures to overcome funding shortfalls.

1.4 | Plan Adoption and Amendment Process

Plan Adoption

The development of the MTP is a time-consuming process that requires a large amount of data and information. The process provides several opportunities for the general public and the stakeholders within the area to participate and shape the plan and determine its needs and priorities. Chapter 2 describes the activities undertaken to involve the public and stakeholders. Chapter 3 displays how the results of the public outreach process guided the development of the MPA's vision, goals, and objectives.

The plan process also includes a formal review of the draft MTP and air quality conformity analysis. The draft MTP is provided to the general public and contains a 30-day public review and commenting period. After the public review process on the draft MTP, there are one or more advertised public meetings to review and obtain final comments from the public. Following this stage, the comments are considered and addressed. The MPO will then endorse or adopt the plan for approval, where it is then sent to the appropriate federal agencies for determination of compliance with the federal planning requirements. Once it has been determined that the MTP is compliant, the plan becomes an approved document.

Amending and Adjusting the MTP

Between five-year updates, the need may arise for revisions to the MTP which significantly alter the scope or budget of the plan. This situation typically occurs when existing projects are modified or removed, or new projects are added. This could also occur due to changes in project schedules, development changes, or additional roadway needs that arise over time. Since federally funded projects included in the short-range TIP for the MPO area must be consistent with the fiscally constrained MTP, these revisions would require a formal amendment.

When an amendment is made to the plan, the CUAMPO requires a 14-day public commenting period that is advertised through the local media. In addition, during the public commenting period for the amendment, it is available on the CUAMPO website and at the physical office.

THE CUAMPO DEFINES THE EXACT SITUATIONS AND PROCEDURES FOR WHEN A FORMAL AMENDMENT WOULD BE APPROPRIATE. 23 CFR 450.104 PROVIDES THE FOLLOWING DEFINITION:

"Amendment means a revision to a long-range statewide or metropolitan transportation plan, TIP, or STIP that involves a major change to a project included in a metropolitan transportation plan, TIP, or STIP, including the addition or deletion of a project or a major change in project cost, project/project phase initiation dates, or a major change in design concept or design scope (e.g., changing project termini or the number of through traffic lanes or changing the number of stations in the case of fixed guideway transit projects). Changes to projects that are included only for illustrative purposes do not require an amendment. An amendment is a revision that requires public review and comment and a redemonstration of fiscal constraint. If an amendment involves "non-exempt" projects in nonattainment and maintenance areas, a conformity determination is required."

1.5 | Plan Implementation

Implementation of the MTP occurs through the programming of transportation projects through the TIP. The TIP is a document that contains a four-year implementation program (updated every three years) for all modes of transportation within the MPA. The document covers projects that are to receive federal or state funding, or those that are regionally significant. It is developed by the CUAMPO, who consults with the appropriate city, county, and state transportation agencies in determining which projects from the MTP should be placed in the TIP. The document also covers smaller scale transportation improvements such as intersection improvements, safety projects, and more. In order to receive federal funding, projects in the TIP must come from the MTP.

2.0 | Plan Development Process

2.1 | Performance-based Planning Approach

Performance based planning and programming (PBPP) is the application of performance management - a strategic approach to decision-making that is based on the development, application, and monitoring of performance data - to the long-range planning and programming process. PBPP makes use of data derived indicators about the current and desired transportation system. These indicators are used to set strategic directions to analyze how funds are invested and programmed. The indicators are also used to evaluate program outcomes. Figure 2.1 displays the framework for PBPP, as shown by the FHWA in their Performance Based Planning and Programming Guidebook, September 2013.

FIGURE 2.1

THE 2045 MTP UTILIZES A PERFORMANCE-BASED PLANNING APPROACH THAT FOLLOWS FEDERAL RULE-MAKING AND GUIDANCE ON NATIONAL PERFORMANCE MEASURE MONITORING.

The MAP-21 legislation introduced requirements for performance-based planning in statewide and metropolitan planning. It required the USDOT to establish the performance measures that will enable the states and MPOs to track their performance in addressing the national goals set forth in MAP-21, as described in Chapter 1: Introduction. **THOSE REQUIREMENTS HAVE CONTINUED UNDER THE FAST ACT.** Since all of the performance measures have an effective date established by the FHWA, the states and MPOs are required to adopt state and metropolitan targets, respectively, for each measure.

The general planning process below illustrates how the 2045 MTP incorporates an outcome-oriented, performance-based planning approach:

1. **Set Regional Vision:** A regional vision is developed based on previous plans and public input.
2. **Define Goals and Objectives**: Goals are developed that address desired outcomes consistent with the regional vision and national goals set forth in MAP-21 and the FAST Act. Then, objectives that are specific and measurable are established to support achievement of the stated goals.
3. **Establish System Performance Measures:** Targets, set for the performance measures to monitor, are selected and are consistent with the MTP's stated goals and objectives; as well as with available guidance on federal performance measures. Monitoring these measures over time will allow the MPO to be responsive to unintended or unforeseen changes.
4. **Assess Baseline System Performance:** Existing conditions of the transportation system are assessed from an asset inventory, technical analysis, and input received from the public and stakeholders.
5. **Identify Desired System Performance:** As performance measure targets are in the earliest stages, the 2045 MTP focuses on the preferred overall trend of performance measures, establishing the initial targets, and placing a monitoring system for the targets in place.
6. **Forecast Future Conditions and Need:** Future growth in population and employment from 2016 to 2045 is forecasted. The impacts of the forecasted change in land use and demographic patterns were then modeled using the existing transportation network and committed projects. Future projects were then evaluated both individually and as part of larger packages of projects.
7. **Develop Implementation Strategy:** A prioritization methodology is developed to rank future transportation projects that are consistent with the stated goals and objectives, as well as public and stakeholder input. The projects that most effectively balance future demand with performance measure targets are then included in the fiscally constrained project list, as long as there is no preliminary concern of significant environmental impact or disproportionately adverse effects to environmental justice populations.

2.2 | Title VI in Development of the Metropolitan Transportation Plan

THE CUAMPO IS COMMITTED TO ENSURING PUBLIC PARTICIPATION IN THE DEVELOPMENT OF ALL TRANSPORTATION PLANS AND PROGRAMS.

It is the overall goal of the MPO that the transportation planning process be open, accessible, transparent, inclusive, and responsive. As a continuing effort by the MPO to provide public access and the means by which to engage in the planning process, the MTP development process is compliant with and follows all Title VI laws, processes, and programs, including the following:

- **Civil Rights Act of 1964, 42 USC 2000d, et seq. prohibits exclusion from participation in any federal program on the basis of race, color, sex, or national origin.**
- **Rehabilitation Act of 1973, 29 USC 701 Section 504, prohibits discrimination on the basis of a disability, and in terms of access to the transportation planning process.**
- **Americans with Disabilities Act of 1990 prohibits discrimination based solely on disability. ADA encourages the participation of people with disabilities in the development of transportation and paratransit plans and services. In accordance with ADA guidelines, all MTP meetings take place in locations which are accessible by persons with mobility limitations or other impairments.**
- **Executive Order 12898 or referred to as Environmental Justice, requires that federal programs, policies and activities affecting human health or the environment will identify and avoid disproportionately high and adverse effects on minority or low-income populations. The intent is to ensure that no racial, ethnic, or socioeconomic group bears a disproportionate share of negative environmental consequences resulting from government programs and policies.**
- **Limited English Proficiency (LEP) Plan which is required by Title VI of the Civil Rights Act of 1964, Executive Order 13166, and FTA Circular C 4702.1B, October 2012.**

The MPO's Public Participation Plan (PPP) supports Title VI compliance by enabling and encouraging all members of the public to actively participate in the development of the MTP. Details on the public involvement process for the MTP are discussed in the next section.

2.3 | Public Involvement Process

Public involvement is the cornerstone of metropolitan transportation planning. Successfully engaging the public throughout the planning process provides decision-makers with the information necessary to ensure that the needs and concerns of the public are adequately addressed.

Federal Requirements

Federal regulation (23 CFR 450.316) requires that each MPO develop and use a documented participation plan that defines a process for providing citizens with reasonable opportunities to be involved in the metropolitan transportation planning process. This PPP is required to address the following:

- Adequate public notice of activities and time for public review and comment.
- Timely notice and access to information.
- Employment of visualization techniques to describe plans and programs.
- Make information available electronically and on the internet.
- Hold meetings at convenient times and easily accessible venues.
- Demonstrating explicit consideration and response to public input received during the development of the metropolitan transportation plan and the TIP in a timely fashion.
- Seek out and consider the needs of the traditionally underserved in the community, such as low-income and minority populations.
- Provide additional opportunity for public comment on all plans, and changes to plans, following initial agency and public reviews during development, especially the MTP and TIP.
- Coordination with statewide public involvement and consultation processes.
- Periodically review procedures and effectiveness of plan strategies.
- Provide a summary of public comments on the draft for the MTP and TIP and include those in the final documents.
- Provide a minimum of a 45-day public comment period before finalization of a PPP or an update of an existing PPP.

FEDERAL LEGISLATION AND EXECUTIVE ORDERS ALSO PROHIBIT DISCRIMINATION AND/OR EXCLUSION FROM PARTICIPATION IN ANY PROGRAM OR ACTIVITY RECEIVING FEDERAL FINANCIAL ASSISTANCE ON THE BASIS OF RACE, COLOR, NATIONAL ORIGIN, OR DISABILITY. SPECIAL ACCOMMODATIONS MUST ALSO BE MADE FOR MINORITY, LOW-INCOME, AND LIMITED ENGLISH PROFICIENCY (LEP) POPULATIONS.

Public Participation Plan Requirements

The MPO's PPP addresses all the federal requirements and was amended in 2013. The 2045 MTP public involvement process follows the procedures outlined in the PPP.

Beyond the requirements for the MTP, all MPO activities must accommodate persons with disabilities and LEP persons. All MPO meetings were required to take place in locations which are accessible by persons with mobility limitations or other impairments. The MPO provided notice of the availability of language assistance to LEP persons. The MPO also made the effort to engage Environmental Justice populations, LEP populations, low-mobility populations, and other populations that are typically underrepresented or have unique needs.

THE CLARKSVILLE URBANIZED AREA
METROPOLITAN PLANNING ORGANIZATION

AMENDED PUBLIC PARTICIPATION PLAN

Prepared By:

Clarksville Urbanized Area Metropolitan Planning Organization

In Cooperation with:

Tennessee Department of Transportation,
Kentucky Transportation Cabinet,
Federal Highway Administration,
Federal Transit Administration
Clarksville Transit System

Adopted December 12, 2013

Metropolitan Transportation Plan

The following steps detail the MPO's policy for the adoption of the MTP:

1. **The draft of the MTP is submitted to TDOT and KYTC for review and comments that are related to federal planning requirements.**
2. **The CUAMPO staff revises the MTP based on the comments received from TDOT or KYTC.**
3. **The updated draft of the MTP and conformity analysis report are reviewed by other resource agencies for comment.**
4. **The updated draft MTP and conformity analysis report are submitted for review by FHWA and FTA.**
5. **The CUAMPO staff makes any appropriate changes before releasing the draft MTP and conformity analysis report for public review and comments.**
6. **The final draft of the MTP is created and then reviewed at a joint meeting of the Executive Board and TCC.**
   6a) This meeting includes a final public hearing to provide any last public comments.
7. **The TCC recommends the final draft of the MTP to the Executive Board, who votes on the MTP's adoption.**
8. **Once adopted by the Executive Board, copies of the MTP are sent to the involved state, federal and local officials.**
   8a) The adopted MTP is also published on the CUAMPO website and made available as necessary at the MPO office.

MTP ADOPTION

Public Involvement Activities

Public involvement activities were conducted to develop a transportation plan that effectively meets the needs of the public and is consistent with local values. Members of the general public participated by:

- clarifying a regional vision by expressing their opinions about current transportation system conditions,
- identifying future transportation projects to be evaluated in the MTP,
- communicating their ideal transportation investment strategies, and
- providing feedback on draft versions of the MTP.

Various outreach methods were used to inform the public about the update process and the public involvement activities. After building a database of stakeholders, local elected officials, and community organizations, outreach methods included the following:

- engaging transportation partners and stakeholders, such as state and federal government agencies;
- reaching out to all agencies, businesses, associations and others on the MPO's contact list database;
- using social media (Facebook/Twitter/websites);
- issuing a press release to media representatives; and
- posting fliers in local businesses, libraries, and schools.

Documentation of the advertising and survey used in the public participation process is located in the Appendix.

2.4 | Stakeholder Consultation and Coordination

TO DEVELOP AN EFFECTIVE TRANSPORTATION PLAN THAT ADDRESSES THE NEEDS OF ALL SYSTEM USERS, IT IS NECESSARY TO OBTAIN INPUT FROM ALL STAKEHOLDERS. For this reason, all stakeholders were contacted by the MPO to participate in the public participation process described earlier. This is so that they may be adequately represented in the MTP planning process. Where necessary, the stakeholders were also asked for any information they had about future projects or plans that could be used to develop the MTP.

Federal Requirements

As with public involvement for citizens, Federal regulations (23 CFR 450.316) require MPOs to develop and use a documented participation plan that defines a process for providing transportation-related stakeholders with reasonable opportunities to be involved in the metropolitan transportation planning process. These stakeholders include:

- affected public agencies,
- representatives of public transportation employees,
- freight shippers,
- providers of freight transportation services,
- private providers of transportation,
- representatives of users of public transportation,
- representatives of users of pedestrian walkways and bicycle transportation facilities,
- representatives of the disabled, and
- other interested parties.

Federal regulations also encourage MPOs to consult with agencies and officials responsible for other planning activities within the MPA that are affected by transportation. Beyond this, MTPs are required to give due consideration of other related planning activities within the MPA and to include transportation services and projects within the MPA that are provided by other agencies that receive federal funding, such as public transit systems or national parks.

The metropolitan planning process requires that where a MPA includes federal public lands and/or Indian Tribal lands, the affected federal agencies and Indian Tribal governments shall be involved appropriately in the development of transportation plans and programs.

Consultation Activities

Beyond the opportunities provided to the general public described previously, the MPO's PPP provides a list of agencies for consultation. This list includes:

- Elected Officials
- Local Government Staff
- Transportation Agencies (Airports, Transit, Freight Services, etc.)
- Local Media (TV, Radio, Print, etc.)
- Special Interest Groups
- Libraries (For Public Display)
- Consultation with federal, state, and local agencies responsible for land use management, natural resources, environmental protection, conservation and historic preservation, and other environmental issues
- Consultation with parties that would have an interest in the planning and development of the transportation network including affected public agencies in the metropolitan planning area
- Private Freight Shippers
- Representatives of Public Transportation Employees
- Providers of Freight Transportation Services
- Private Providers of Transportation
- Representatives of Users of Public Transportation
- Bicycle and Walking Clubs
- Representatives of Pedestrian/Bicycle Facilities Users
- Representatives of the Disabled
- Representatives of Minority Agencies and Groups

Coordination Activities

In addition to consulting stakeholders throughout the development of the MTP, the MPO and the consultant team (Neel-Schaffer) coordinated with stakeholder groups to obtain relevant data (e.g., inventories of natural, historic, and community resources). This process also allowed for the review of existing plans, maps, and other information for consistency with the MTP.

2.5 Visioning Activities and Results

To gather public input for the development of the MTP, the MPO conducted an online survey, which could optionally be printed and submitted to the MPO, during the plan update process. This survey was intended to gain insight into the public's desired future of transportation in the Clarksville MPA. Using the survey, stakeholders and members of the general public shared their concerns, ideas, values, and visions regarding the state of both the current transportation system and future transportation needs for the region.
The following sections describe the visioning activities and its outcomes. In particular, the results suggest several major themes within the MPA:

- **INCREASED EMPHASIS ON ROADWAY MAINTENANCE AND PRESERVATION, PARTICULARLY ROADWAY SURFACE CONDITION;**
- **REDUCING CONGESTION WITH A COMBINATION OF CAPACITY IMPROVEMENTS, SIGNAL RE-TIMINGS, AND ACCESS CONTROL;**
- **INCREASED EMPHASIS ON PROJECTS AND PROGRAMS IMPROVING CONDITIONS FOR PEDESTRIANS, BICYCLISTS, AND TRANSIT RIDERS; AND**
- **INCREASED EMPHASIS ON REDUCING SPEEDING AND POOR DRIVER BEHAVIOR.**

Comments received outside of these activities can be found in the Appendix.

Survey Distribution

From February 19, 2018, through March 23, 2018, the CUAMPO conducted a community-wide survey for the MTP 2045. This survey captured the opinions of the general public and stakeholders regarding the current transportation system in the Clarksville Urbanized Area. The survey is shown in the Appendix and was conducted using SurveyMonkey. The MPO distributed announcements about the survey through:

- County websites,
- the City of Clarksville website,
- city and county Facebook pages,

- local news media,
- fliers sent to local libraries, community centers, stores, etc.,
- the Clarksville Area Chamber of Commerce, and
- the MPO website.

E-mails containing the survey flier were sent to several organizations to be shared with their staff. These organizations were also encouraged to post the flier on their website or a public location within their building. These organizations are:

- the CUAMPO Executive Board,
- the CUAMPO TCC,
- the APSU African American Culture Center,
- the APSU Hispanic Culture Center,
- the APSU "Gov Says" daily announcement,
- Fort Campbell,
- the City of Oak Grove, and
- the City of Hopkinsville.

Copies of the information distributed for the survey are included in the Appendix.

Survey Results

Notable survey findings are outlined below and shown in Figures 2.2 through 2.8. During the survey, respondents were encouraged to express how their concerns with the transportation system could be addressed. Through these comments, additional test projects, shown in Table 2.1 were analyzed in the MTP. These projects are shown in Figure 2.9 and represent test projects that were not analyzed in the previous MTP or the TIP.

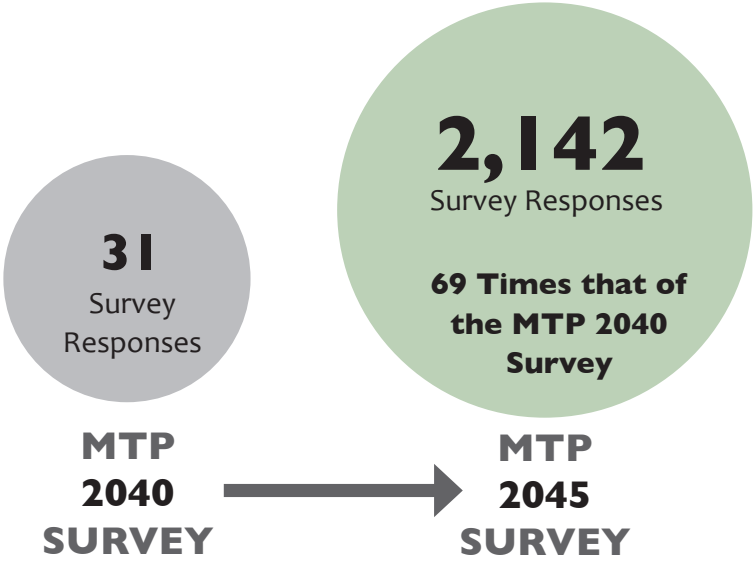


TABLE 2.1- MTP TEST PROJECTS FROM THE PUBLIC SURVEY

Location	Project Limits	Improvement
College St (SR 48)	N 2nd St (US 41A) to Kraft St	Widen to 6 Lanes
Cumberland Dr	Ashland City Rd (SR 12) to Madison St (SR 76)	Widen to 4 Lanes
Dunbar Cave Road	Wilma Rudolph Rd (US 79) to Rossview Rd (SR 37)	Widen to 4 Lanes
SR 13/48	River Road to Old Highway 48	Center Turn Lane
College St (SR 48)	Riverside Dr to N 2nd St (US 41A)	Widen to 4 Lanes
Providence Blvd (US 79)	US 41 to Red River Providence	Widen to 6 Lanes
I-24	@ Dixie Bee Road	New interchange
I-24	@ Exit 8 WB Off Ramp	Widen to 2 Lanes
Madison Street	10th Streetreet to Pageant Lane	Widen to 4 Lanes
Needmore Road	Wilma Rudolph Road to Trenton Road	Widen to 4 Lanes
Riverside Drive	Providence Blvd to Cumberland Dr	Road Diet
Rossview Road	Wilma Rudolpf Blvd (US 79) to Dunbar Cave Rd	Widen to 5 Lanes
Tiny Town Road	US 41A to Trenton Rd	Widen to 6 Lanes
Tylertown Road	Trenton Rd to Oakland Rd	Widen to 4 Lanes
Wilma Rudolph Boulevard	Kraft St to SR 374	Widen to 6 Lanes

Primary Means of Travel

- Nearly 97 percent of residents and workers in the MPA use a personal vehicle to travel.
- About 1.5 percent of residents and workers bike, walk, or use public transit for travel.
- Nearly 2 percent of Clarksville residents walk or bike for recreational and/or health purposes.
- Almost 40% of the school or work trips in the MPA take 16-30 minutes to complete.

These trends are similar to the findings of the 2010 Census, with exception to the percentage of residents and workers who walk, which is lower than the Census.

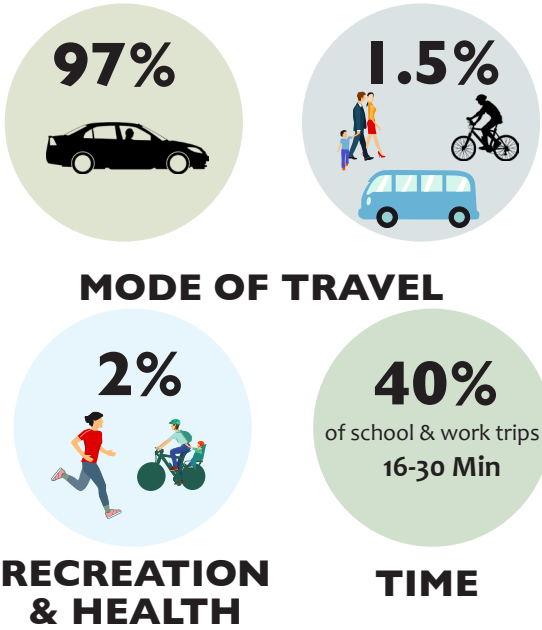


FIGURE 2.2 PRIMARY METHOD OF TRANSPORTATION

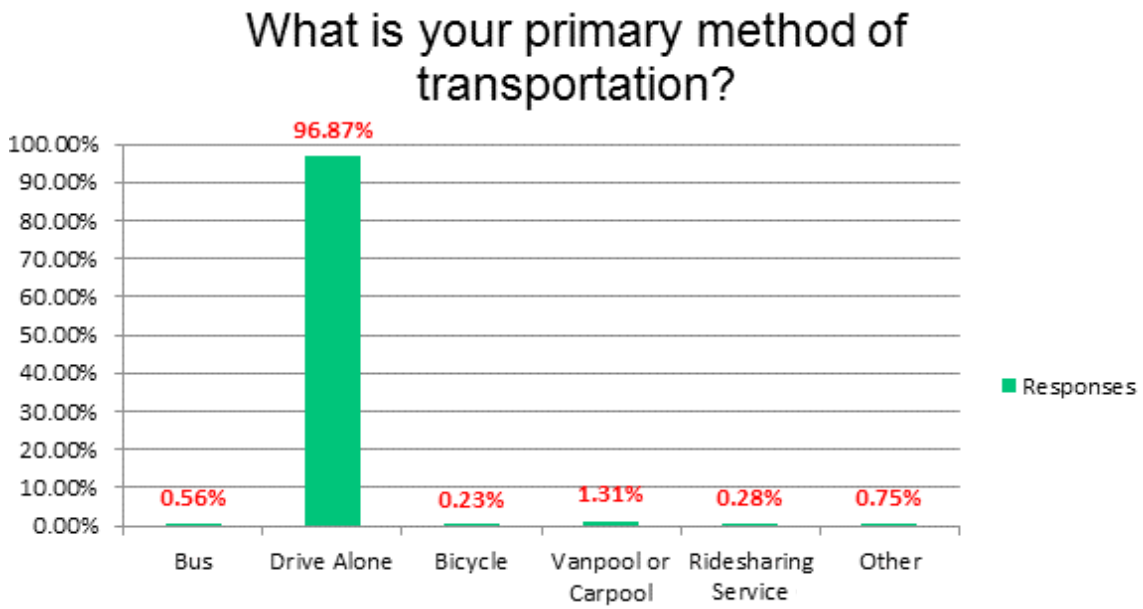
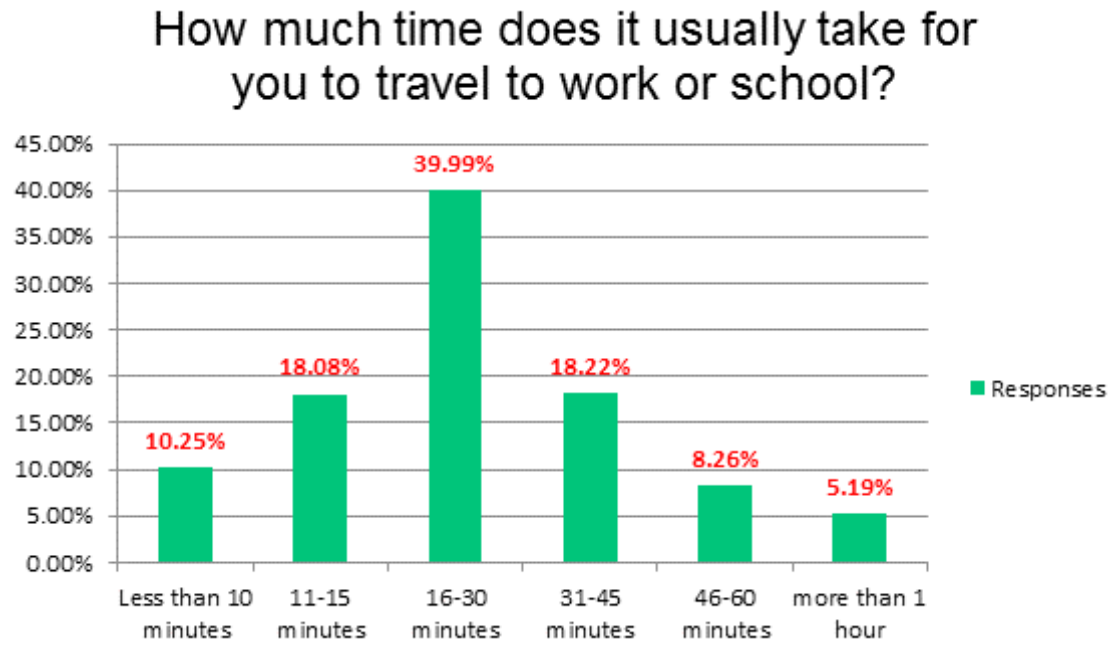


FIGURE 2.3 TRAVEL TIME TO WORK AND SCHOOL



Alternative Means of Transportation

- Fifteen percent of respondents don't use public transit, citing a lack of service to/from their destinations.
- Twenty percent of the responses stated that transit service is unsafe, unreliable, or inconvenient.
- Less than two percent of Clarksville travelers use transit more than once a week.
- Twenty percent of respondents don't walk or bicycle for travel due to the distance to/from their destinations.
- Forty-three percent are concerned about the lack of infrastructure and/or safety in walking/biking to their destinations.
- Less than eight percent of Clarksville travelers walk or bike more than once a week.

PUBLIC TRANSPORTATION

15% DO NOT USE PUBLIC TRANSPORT *CITING LACK OF SERVICE*

20% *CITE* UNSAFE UNRELIABLE INCONVENIENT

WALKING & BICYCLING

20% DO NOT WALK OR BIKE *CITING DISTANCE TO DESTINATIONS*

43% *CITE* LACK OF INFRASTRUCTURE & SAFETY

State of the Transportation System

- Most respondents feel that Clarksville's air quality is fair to good.
- Crash frequency, bicycle lane availability, sidewalk availability, access to rail service for freight, and congestion were rated poor or worse by more than two-thirds of respondents.
- The major concerns for traffic safety are distracted driving, congestion, and inadequate sidewalks.
- Increased law enforcement was commonly cited as a means to combat distracted driving and speeding.
- More than one-third of respondents stated that Wilma Rudolph Boulevard is the most congested roadway in the MPA.
- Twenty-nine percent of respondents expressed that Wilma Rudolph Boulevard is the roadway of greatest safety concern.
- There is interest in the addition of lighting and traffic signals for the I-24 Ramps at Exit 4.

FIGURE 2.4 RATING OF CLARKSVILLE REGIONAL TRANSPORTATION SYSTEM

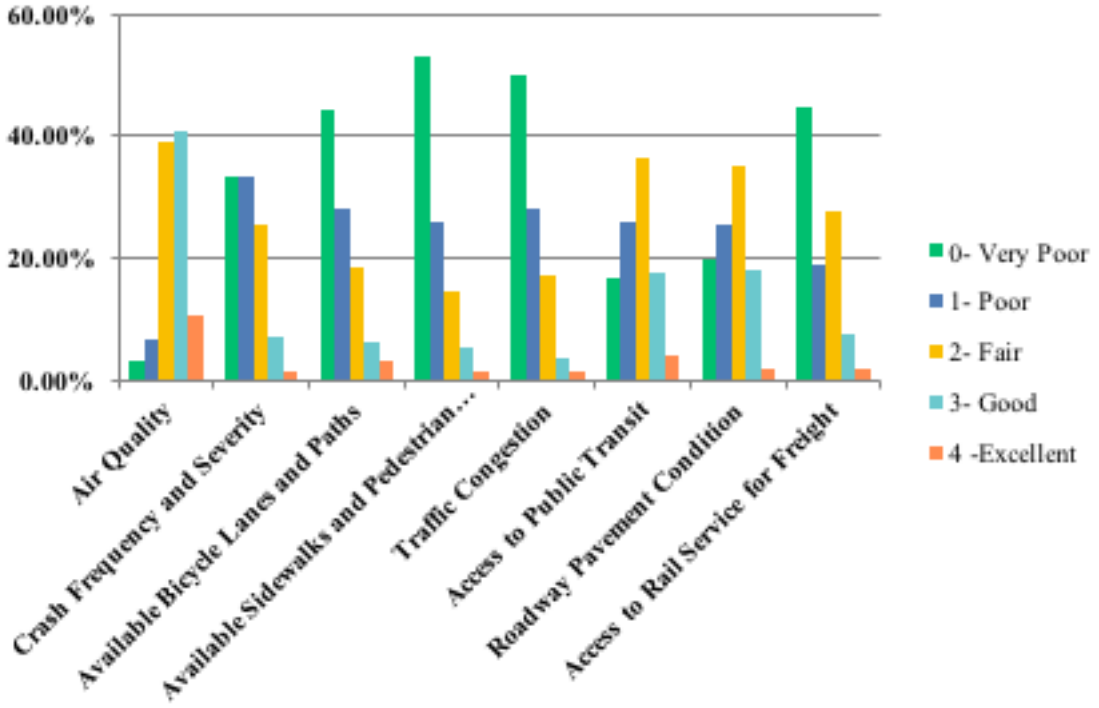


FIGURE 2.5 RATING OF CLARKSVILLE SAFETY CONCERNS

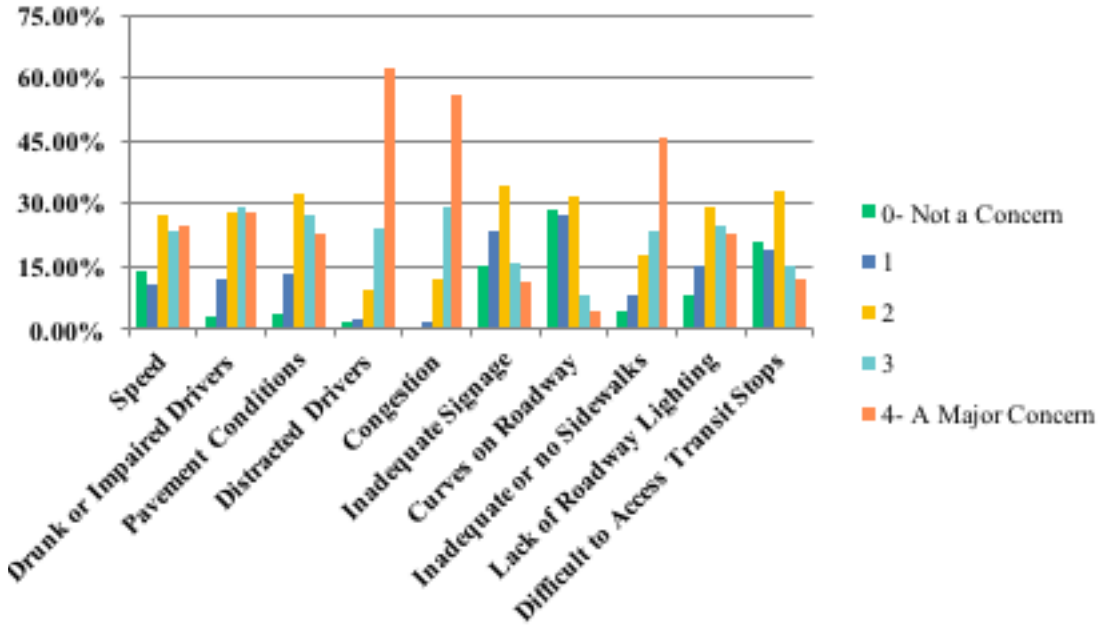


TABLE 2.2 PRIORITY ROAD NEEDS IDENTIFIED BY SURVEY RESPONDENTS

ROADWAY	PERCENTAGE OF RESPONDENTS	
	CONGESTION	SAFETY
Wilma Rudolph Boulevard	38.1%	28.9%
Trenton Road	11.6%	13.6%
Warfield Boulevard	10.9%	5.9%
Tiny Town Road	8.5%	7.3%
Madison Avenue	5.7%	4.5%
Fort Campbell Boulevard	4.8%	5.8%
Riverside Drive	4.8%	2.7%
US 41A Bypass	3.0%	2.9%
Needmore Road	1.9%	2.7%
I-24	1.7%	2.0%

WILMA RUDOLPH BLVD.

!

38.1%
CONGESTION

28.9%
SAFETY

Investment and Funding

- Participants were given a theoretical 100 dollars for transportation improvements and indicated that over a quarter of funding should be used to add lanes to existing roadways in the future.
- The respondents also indicated that nearly 19 percent of funding should be allocated to sidewalk infrastructure.
- Respondents do not support efforts that would keep transportation project funding at current levels.
- Increased hotel/motel, car rental, and/or business and excise taxes would be supported to increase transportation project revenue.
- Respondents ranked the reduction of congestion and traffic crashes as their top priorities for future roadway projects.

FIGURE 2.6 DESIRED FUNDING ALLOCATION

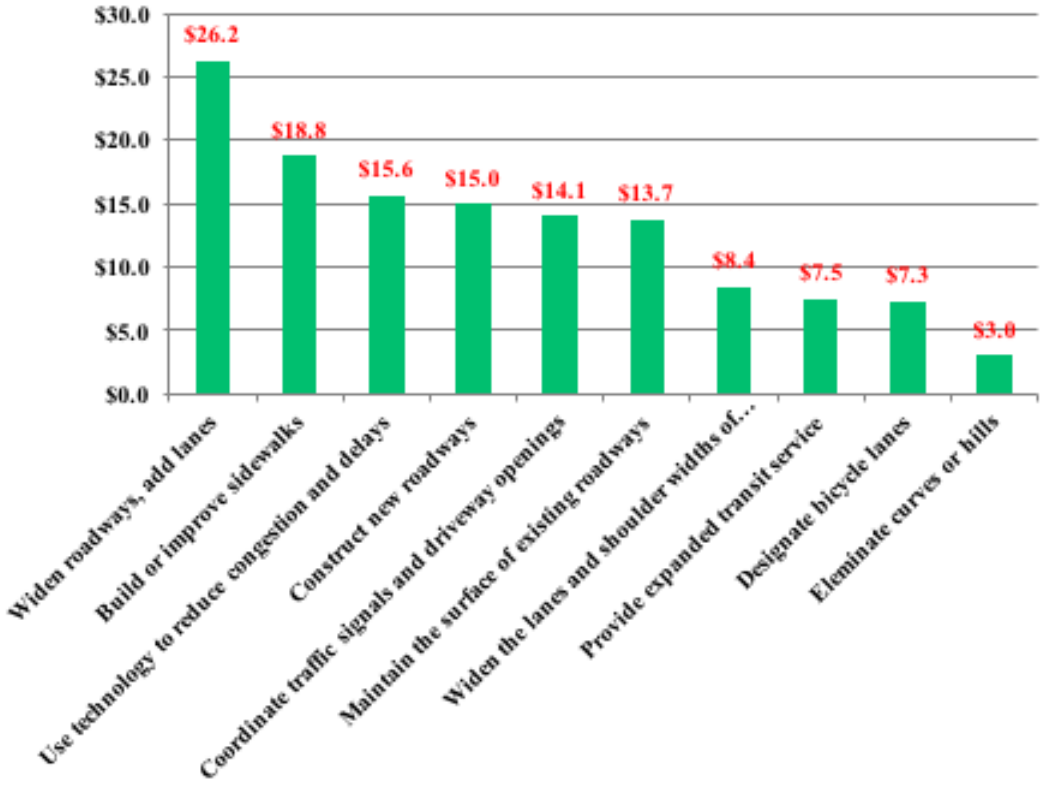


FIGURE 2.7 SUPPORT FOR INCREASE IN TRANSPORTATION REVENUE BY SOURCE

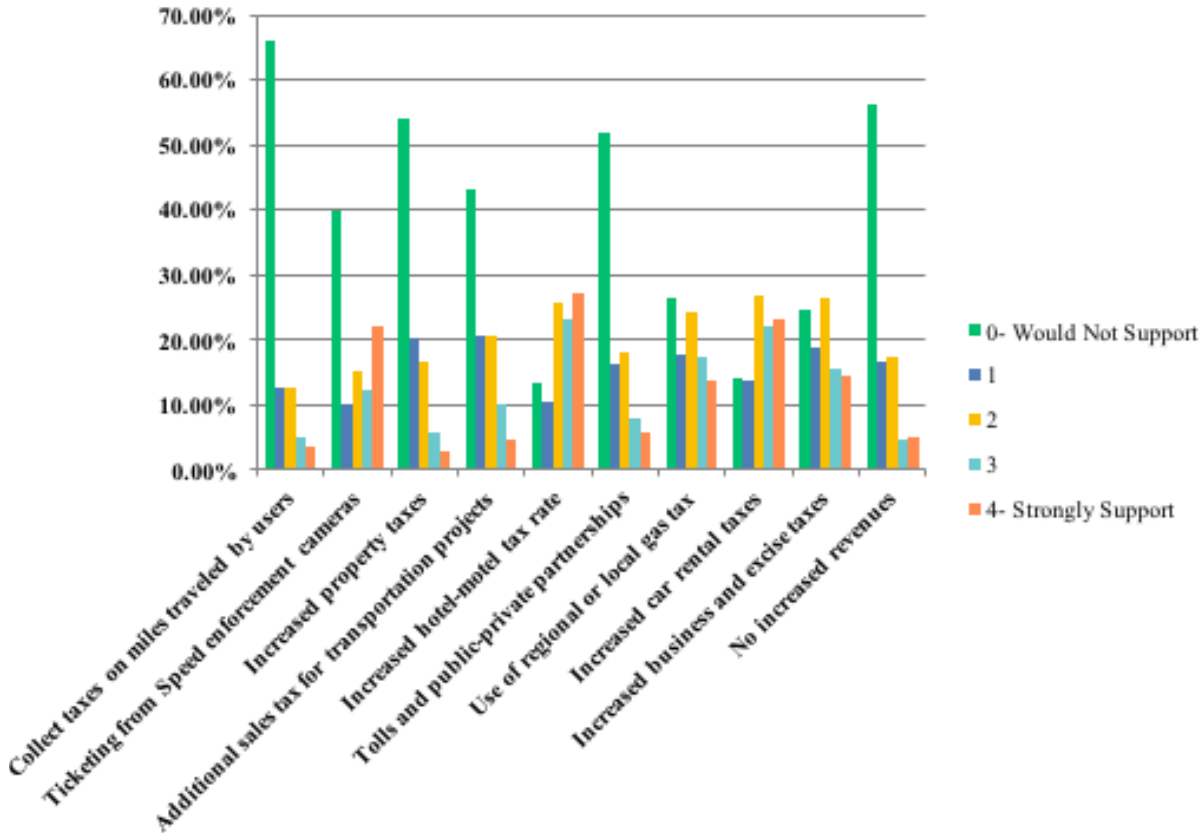
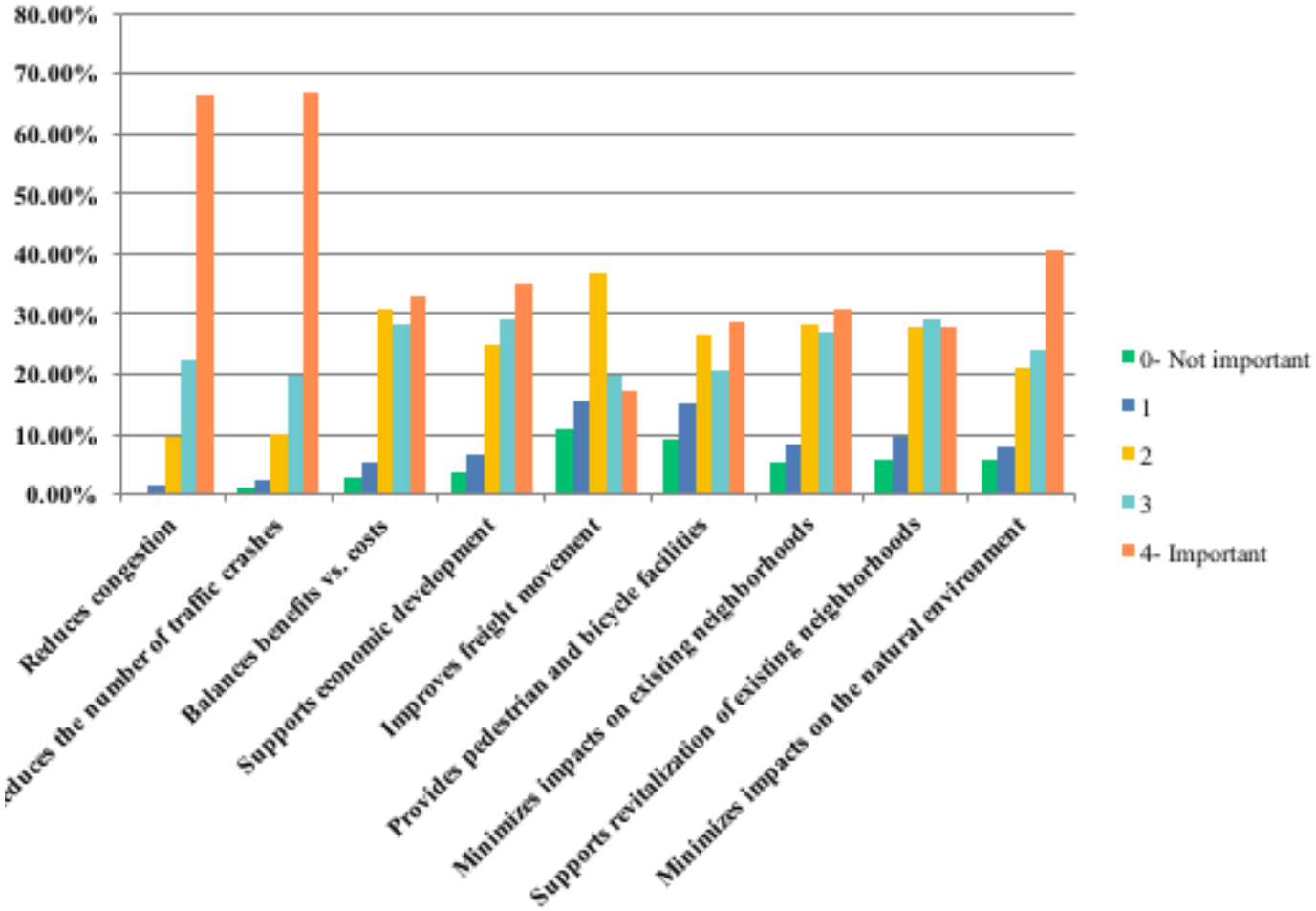


FIGURE 2.8 RANKING OF TRANSPORTATION PRIORITIES



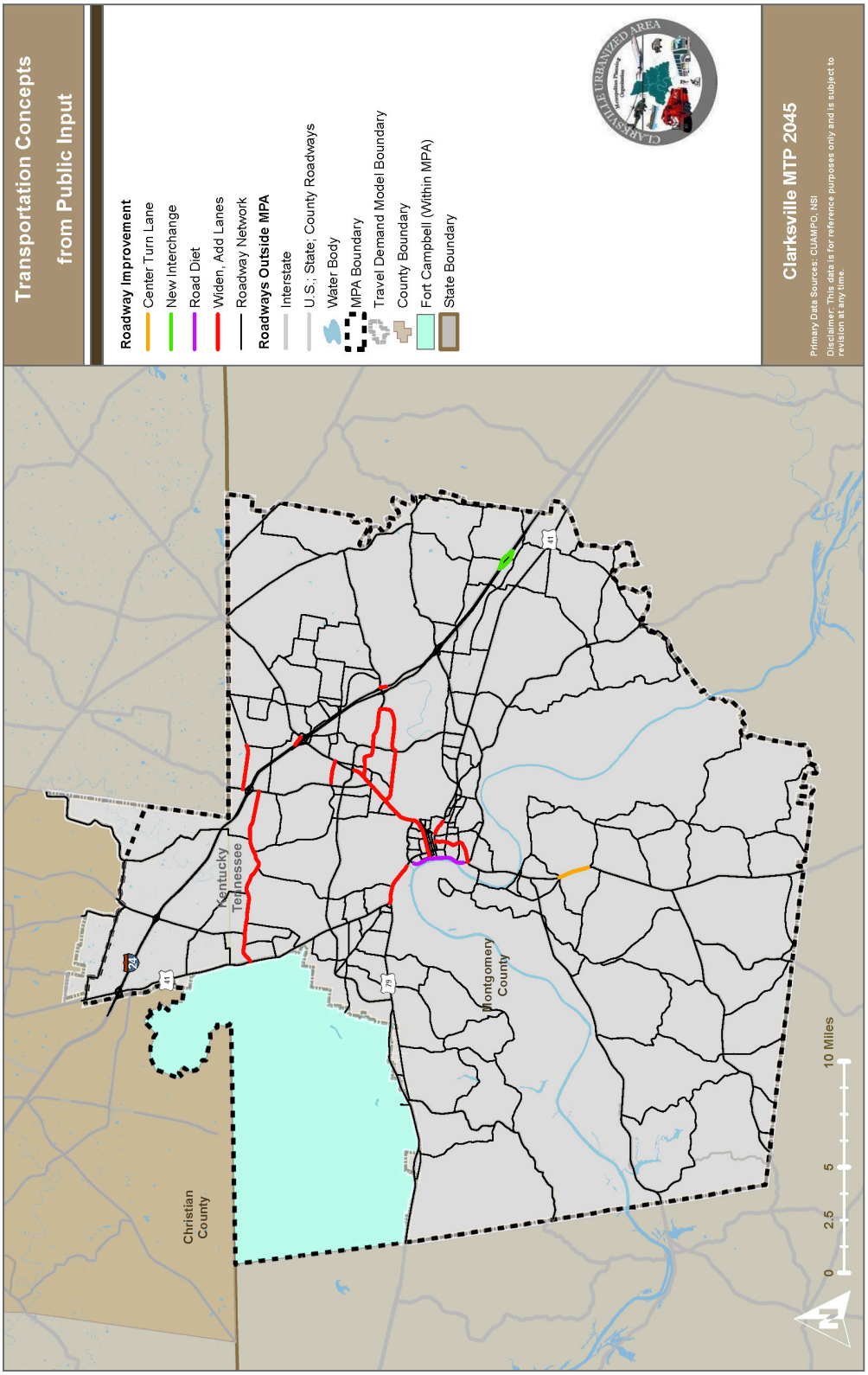


FIGURE 2.9 TRANSPORTATION PROJECTS FROM PUBLIC INPUT

2.6 Public Comments

The draft MTP was released to the general public for commenting and review on November 30th, 2018. The release of the draft MTP followed the MPO's PPP and allowed for a 30-day calendar period to provide comments and review.

3.0 | Visioning and Performance Measures

3.1 | Public Vision

Results from the public outreach survey, which include the stakeholders within the MPA, indicate a need for a more balanced transportation system that provides viable alternatives to driving alone or carpooling.

THE SURVEY HAS SHOWN DESIRE WITHIN THE REGION FOR BIKE AND PEDESTRIAN OPPORTUNITIES TO INCREASE CONNECTIVITY AND SAFETY.

These needs are reflected in the Vision Statement below. This statement guided the development of the MTP's goals and objectives.

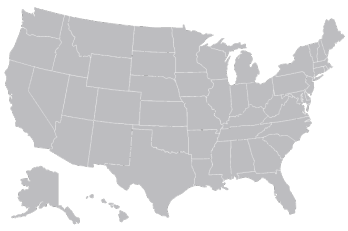
VISION STATEMENT

In 2045, the residents and workers of the Clarksville Urbanized Area will be able to travel within a safe, well-maintained, and multimodal transportation system. This sustainable system will provide reliable transportation, with multiple travel options, that support a higher quality of life.

3.2 | Goals and Objectives

National Emphasis

The FAST Act is the federal law that governs national transportation planning. It also provides guidance on transportation decision-making for metropolitan areas. The national emphasis is defined by the ten planning factors listed in Chapter 1, Section 1.2. These planning factors, and the need to meet federal performance measures, form the basis of the regional goals and objectives developed for the MTP 2045.



Local Emphasis

The development of goals and objectives are often discussed simultaneously in transportation planning. However, it is important to make a critical distinction between goals and objectives.

A goal is a broad statement that describes a desired end state. Goals should be consistent with the stated Vision. They should form the basis for selecting investments and activities that will effectively bring about that Vision. The MTP 2045's goals are to provide a transportation system that is:

SAFE	WELL-MAINTAINED	MULTIMODAL	SUSTAINABLE	RELIABLE

An objective is a specific, measurable statement that supports achievement of a goal. A good objective should result in a performance measure, or in meeting the established FAST Act performance measures and targets. Objectives can be broken down into outcome, output, and activity-based objectives, as explained in Table 3.1. Outcome-based objectives are preferred for long-range planning since they are the most likely to address public concerns. Output and activity-based objectives should support the outcome-based objectives.

The MTP 2045 goals and objectives are consistent with public/stakeholder input, the national transportation goals, and the planning factors specified in the FAST Act.

Table 3.1 Outcome, Output, and Activity-based Objectives

TYPE	DESCRIPTION	EXAMPLE
Outcome	Reflect concerns of the public, customers, or stakeholders; these objectives are often the most meaningful to the public and relate most directly to system goals; however, they may be influenced by a range of factors beyond the control of transportation agencies.	Reduce hours of incident-based delay experienced by travelers.
Output	Reflect quantity of activities that affect outcomes and may be more directly influenced by a transportation agency (although they also may not be entirely in the control of the agency).	Reduce the clearance time for traffic incidents.
Activity	Reflect actions that are taken by transportation agencies. These are less directly tied to the outcome, and often directly relate to a strategy being implemented.	Increase the number of cameras tracking system conditions.

Source: FHWA and FTA, "Advancing Metropolitan Planning for Operations: The Building Blocks of a Model Transportation Plan Incorporating Operations - A Desk Reference," April 2010.

GOAL #1: Provide a Safe Transportation System

Objectives:

1.1 Pursue state and federal funding for transportation improvements that can reduce the number of vehicle crashes resulting in fatalities or serious injuries for roadway users (including cyclists, pedestrians, and transit riders) and the respective rates per 100 million vehicle miles traveled.

1.2 Cooperate with local and state police agencies to continue, and improve, the management and analysis of crash records to identify focus areas for engineering, education, enforcement, and emergency response efforts.

1.3 Increase the redundancy and diversity of the transportation network by increasing the number of emergency evacuation alternatives for multiple modes of transportation.

1.4 Improve the ability to provide timely traveler information and emergency response support concerning incidents within the transportation system by increasing the number of intersections and corridors managed by Intelligent Transportation Systems.

GOAL #2: Provide a Well-maintained Transportation System

Objectives:

2.1 Reduce the percentage of roadway miles functionally classified as interstates, arterials, and collectors with a pavement condition of "Poor" or worse.

2.2 Decrease the number of bridges on public roads that are classified as Structurally Deficient or Functionally Obsolete.

2.3 Ensure that all transit facilities and vehicles are in a State of Good Repair, as required by the Federal Transit Administration.

2.4 Reduce the length of sidewalk and crosswalk infrastructure along arterials and collectors that require replacement or rehabilitation.

2.5 Reduce the length of bicycle facility and multi-use path infrastructure that require replacement or rehabilitation.

2.6 Ensure that airport equipment, facilities, and pavement on runways, taxiways, and aprons are in good condition.

2.7 Ensure that active railroad infrastructure is in good condition; especially tracks, vehicles, bridges, and roadway crossings.

GOAL #3: Provide a Multimodal Transportation System

Objectives:

3.1 Emphasize transportation improvements that enable a regional network of bicycle and pedestrian facilities that connect residents to activity centers throughout the MPA in accordance with the Greenway and Blueway Master Plan and Clarksville Urbanized Area sidewalk plan.

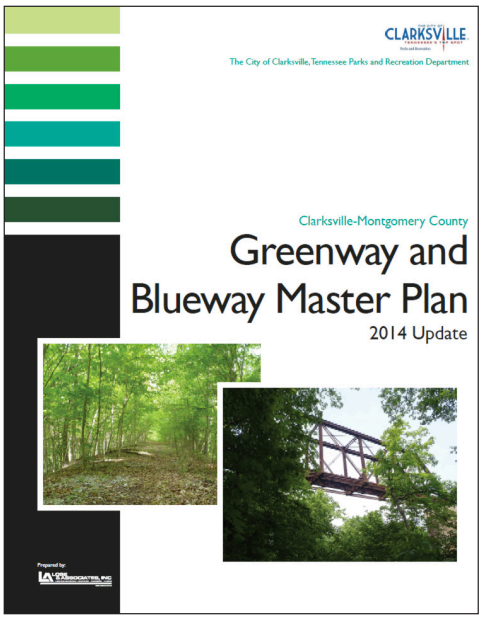
3.2 Increase the percentage of population and employment within a half mile of marked bicycle facilities.

3.3 Increase the percentage of collector and arterial roadway centerline miles in urban areas with sidewalk on both sides.

3.4 Increase the percentage of the population and employment, including job centers in suburban areas, within a half mile of a transit route.

3.5 Increase amenities at major transit stops and improve on-time performance to increase transit service convenience, safety, and security for all transit users.

3.6 Continue the use of strategic plans, operational analyses, and public hearings and surveys to aid in route and service planning for transit.



Blueways are also known as water trails. They allow access to waterways for non-motorized boats and sometimes motorized vessels, innertubes, and other craft.

3.7 Increase the use of incentives and programs that help local businesses encourage their employees to use transit.

3.8 Increase transit service connectivity to locations that the public deems desirable.

3.9 Increase fixed route and paratransit/demand response transit passenger trips while reducing the operating cost per passenger trip.

3.10 Analyze and revise transit routes as the population and destinations change.

3.11 When economically feasible or demand requires, expand fixed-route and paratransit/demand response transit service hours on weekdays, and add weekend service.

3.12 Increase the percentage of para-transit/demand-response trips that pick up passengers within two hours of request.

3.13 Promote the collaborative development of public intermodal facilities that complement the existing private intermodal facilities.

3.14 Support the development of commercial flights to and from the Clarksville Regional Airport.

3.15 Continue to monitor opportunities to be involved in the development of high-speed passenger rail service.

GOAL #4:
Provide a Reliable Transportation System by Reducing Travel Delay Times and Improving Mobility

Objectives:

4.1 Encourage the coordination of land use and transportation planning to ensure that industrial, commercial, service center, and housing concentrations have adequate roadway connections while preserving quality of life.

4.2 Emphasize transportation improvements that can increase the percentage of the population with an average in-vehicle travel time of 20 minutes or less for all trips during peak hours.

4.3 Emphasize transportation improvements which can reduce annual vehicle miles traveled per capita and vehicle hours traveled per capita, including Transportation Demand Management strategies and Intelligent Transportation Systems.

4.4 Promote and implement an integrated roadway network of arterials and collectors that creates efficient travel and reduces the inappropriate use of residential streets to avoid congestion.

4.5 Minimize railroad freight delay by improving operations and infrastructure that reduce railroad/roadway and land use conflicts.

4.6 Maintain a minimum average speed of 55 mph on Interstate facilities and other regional freight corridors for efficient freight travel.

4.7 Emphasize roadway improvements that increase travel time reliability on major freight corridors, including accommodations for anticipated truck volumes, weights, and connectivity to other freight modes.

GOAL #5:
Develop an Economically and Environmentally Sustainable Transportation System that Provides Equitable Participation and Benefits across the Diversity of the MPA

Objectives:

5.1 Avoid transportation projects in environmentally sensitive areas, flood plains, karst areas, natural or scenic vistas, and other natural wildlife or forested areas where a feasible and prudent alternative exists.

5.2 Ensure that no programmed transportation project has a significantly adverse impact to historic sites or park and recreation areas where a feasible and prudent alternative exists.

5.3 Ensure that no programmed transportation project has a significantly adverse impact to Environmental Justice communities or those who have been traditionally transportation disadvantaged.

5.4 Provide support for improvements that benefit communities that have been underserved by the existing transportation network within the MPA.

5.5 Pursue transportation improvements such as signal coordination, roundabouts, and programs such as ridesharing or transit incentives that result in a decrease in vehicle emissions.

5.6 Reduce the number of days of poor air quality in the region.

5.7 Ensure the appropriate design of new or reconstructed transportation facilities to protect water quality in the region.

5.8 Promote transportation improvements that include enhancements to the natural environment and the MPA's sense of place such as landscaping, public art, and design elements in context with the affected neighborhoods.

5.9 Encourage mixed use and infill development within the MPA's future land use to reduce urban sprawl and longer trips.

5.10 Ensure that projected revenues through 2045 are greater than or equal to the projected cost of all programmed projects and maintenance.

5.11 Ensure that the majority of programmed projects demonstrate a high benefit-cost ratio, regardless of mode.

5.12 Provide meaningful participation in the transportation decision-making process that is inclusive in such a way as to ensure that the socioeconomic composition of public participants resembles that of the MPA and includes representation from a variety of urban, suburban, and rural communities.

Through MAP-21 and the FAST Act, the FHWA and FTA have created a data driven and accountable transportation planning process. Planning projects must be feasible and benefit the citizens they are meant to serve.

EACH OF THE GOALS OUTLINED ABOVE ADDRESS THE MPA'S VISION AND RELATE TO THE REQUIRED FEDERAL PERFORMANCE MEASURES.

Table 3.2 displays how the MTP's goals and objectives address the federal performance measures.

TABLE 3.2 RELATIONSHIP OF MTP 2045 GOALS TO FAST ACT TPMS

CATEGORY	PERFORMANCE MEASURE	ADDRESSED BY:
Transit	Percent of revenue vehicles exceeding ULB (Useful Life Benchmark). This is the percentage of vehicles that exceed the ULB by age. The classes of rolling stock are defined by the National Transit Database. Each mode/ class/asset type must have its own target.	Objective 2.3
	Percent of non-revenue service vehicles exceeding ULB. This is the percentage of vehicles that exceed the ULB by age.	Objective 2.3
	Percent of facilities rated under 3.0 on the TERM (Transit Economic Requirements Model) Scale. Of the four types of facilities reported to the National Transit Database, only the Administrative and Maintenance and Passenger and Parking types are applied to target setting.	Objective 2.3
	Percent of track segments under performance restriction. A performance restriction is defined as a segment of guideway track miles where the maximum permissible speed of transit vehicles is set to a value that is below the guideway's full service speed. Each mode must be tracked separately and have its own target. The BRT and Ferry modes are excluded from this TPM. The NTD lists 9 different modes.	Objective 2.1
Safety Performance Management	Number of fatalities	Objectives 1.1 and 1.2
	Rate of fatalities	Objectives 1.1 and 1.2
	Number of serious injuries	Objectives 1.1 and 1.2
	Rate of serious injuries	Objectives 1.1 and 1.2
	Number of non-motorized fatalities and non-motorized serious injuries	Objectives 1.1, 1.2, and 3.1
Pavement Condition	Percentage of pavements of the Interstate System in Good condition	Objective 2.1
	Percentage of pavements of the Interstate System in Poor condition	Objective 2.1
	Percentage of pavements of the non-Interstate NHS in Good condition	Objective 2.1
	Percentage of pavements of the non-Interstate NHS in Poor condition	Objective 2.1

Source: CUAMPO, NSI

continued

Table 3.2 Relationship of MTP 2045 Goals to FAST Act TPMs

CATEGORY	PERFORMANCE MEASURE	ADDRESSED BY:
Bridge Condition	Percentage of NHS bridges classified as in Good condition	Objective 2.2
	Percentage of NHS bridges classified as in Poor condition	Objective 2.2
Freight	Truck Travel Time Reliability (TTTR) Index on Interstate System	Objectives 4.1, 4.3, 4.6, and 4.7
System Performance	Percent of Person-Miles Traveled on the Interstate That Are Reliable	Objectives 4.1, 4.2, 4.3, and 4.4
	Percent of Person-Miles Traveled on the Non-Interstate NHS That Are Reliable	Objectives 4.1, 4.2, 4.3, and 4.4

Source: CUAMPO, NSI

3.3 | System Performance Measures

The USDOT, through the FHWA, has finalized the national performance measures required by MAP-21 and the FAST Act. The state DOTs were required to set state targets for these measures within a year of their effective date. The MPOs were required to set their own regional targets, or support state targets, within 180 days of the state targets being set.

FOR THE MTP 2045, THE CUAMPO WILL SUPPORT THE KYTC AND TDOT TARGETS.

The FHWA provided the minimum performance measures and metrics required for transportation planning, as shown in Chapter 1, Table 1.3. The targets for each of the established transportation performance measures are discussed later in the report. The MPO may add additional performance measures, or adjust the performance measure targets in the future, if desired.

The FTA has also provided performance measures and metrics for transit agencies to report during the transportation planning process. The CTS maintains a Transit Asset Management Plan that contains the assets of the service, their current state of repair, and a prioritized list of investments. The CTS plan's approach to monitor and manage the agency's assets is defined in the Management Approach.

"Management's approach to transit asset management and investment prioritization is characterized by mitigating safety risks, ensuring accessibility, providing a pleasant/productive work environment, and increasing ridership through improvements in riders' experience and providing a reliable/timely service. This approach drives investment decisions through the entire lifecycle of assets- from identification of need, procurement, maintaining assets, to eventual disposal/disposition. Safety strategies focus on reducing risk for both passengers and transit system employees. Accessibility considerations occur in all asset procurement and maintenance decisions. Taking care of our employees, our greatest asset, consistently influences procurement decisions. Finally, improving and enhancing passengers' experience remains at the forefront of investment decisions as our passengers are exposed to every aspect of the transit system's assets during their journey- from bus stop to rolling stock to transit center condition and available amenities."

The MTP 2045 includes a baseline analysis of the established metrics, which will be monitored over time by the MPO through reports submitted to the state. Future versions of the MTP must report the MPO's progress on their performance measures and targets.

Figure 3.1 displays the support tools used by CTS evaluate and monitor the condition of the transportation system.

DECISION SUPPORT TOOLS	
The table below describes analytical processes and tools used to support investment decision-making. These processes and tools are composed of written procedures, plans, reports, best practices, spreadsheets and software programs that enable management to apply data analysis to asset lifecycle decision making.	
Processes and Tools	**Description**
Fleet Maintenance Plan	The Fleet Maintenance Plan establishes the maintenance department's guidelines, goals and objectives in maintaining rolling stock throughout the lifecycle process. It establishes preventative maintenance standards, warranty management requirements, mid-life overhaul practices, maintenance campaigns, predictive maintenance guidelines, maintenance standards for accessibility components, parts inventory controls, and quality assurance.
Facility and Equipment Maintrenance Plan	The Facilities and Equipment Maintenance Plan establishes the maintenance department's guidelines, goals and objectives in maintaining facilities, shop equipment, and amenities.
Fleet PM Inspection Report	A monthly report detailing compliance with rolling stock preventative maintenance requirements
Amenities Quality Assurance Inspections	The Quality Assurance Program establishes condition standards, inspection procedures and condition reporting of fixed route passenger amenities. This report drives maintenance employee work tasks and purchasing requirements needed to maintain fixed route passenger amenities to published standards.
Monthly Facility Inspection Checklist	A checklist used by the Facilities Staff to identify facility condition deficiencies. This checklist is used to identify areas of need.
Shop Equipment Inspection Tags	Visible indication that equipment has been inspected and is in proper working order.
Shop OSHA Compliance Inspections	Periodic, consultant or City Risk Management staff performed inspections resulting in a report identifying required corrective actions and needed investments for OSHA safety program compliance.
5-Year Transit System Strategic Plan	A five-year transit system plan. This plan focuses on the full-spectrum of investment needs to effectively support improved and/or expanded transit service to achieve increased ridership.
Clarksville Transit System Procurement Policies and Procedures	This document provides policies and procedures for all aspects of procurements and how to keep them compliant with federal requirements, state law, and local procurement code.
RTA Maintenance Software	RTA is the Maintenance Department's maintenance management software. This system enables the maintenance department to track, schedule, and record all vehicle and equipment maintenance activities throughout each asset's life cycle. The system also contains a robust parts inventory module that assists in maintaining accountability of each line item, determine reordering requirements, and provide detailed parts usage and ordering histories.
MUNIS ERP Software	MUNIS is CTS' accounting, payroll, and asset management software system. Some details of an asset's procurement, life, and disposition are contained here.
Leadership Meetings	Periodic meetings held by executive level staff from which recommendations to the CEO are made for decisions on funding allocations for major projects and other projects requiring leadership team involvement.

FIGURE 3.1 - DECISION SUPPORT TOOLS