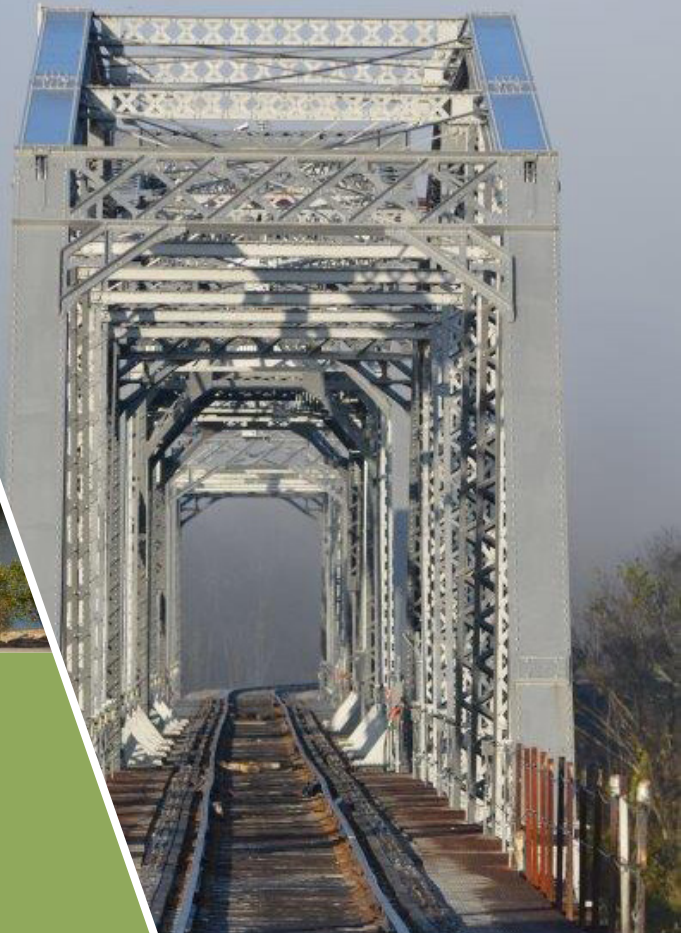
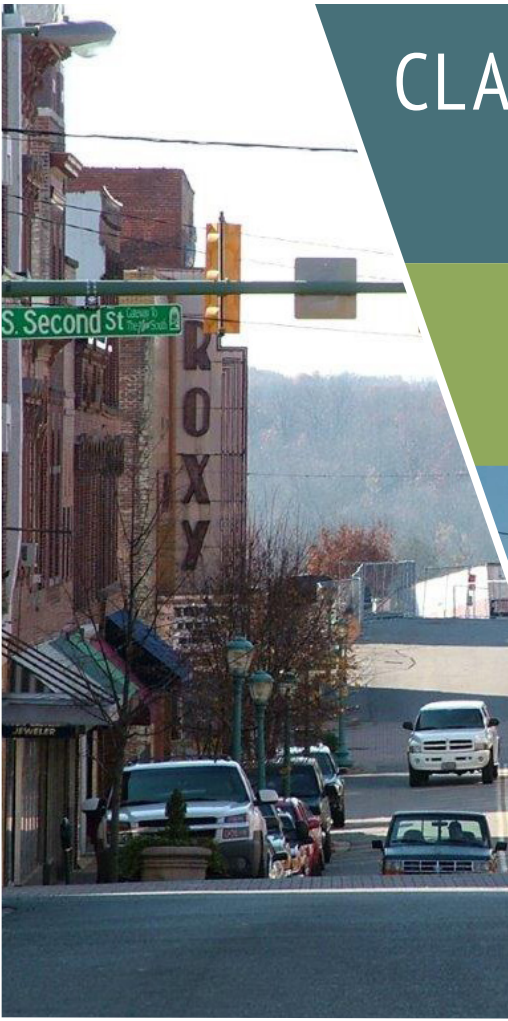


CLARKSVILLE URBANIZED AREA

2045

Clarksville Metropolitan Planning Area 2045 Metropolitan Transportation Plan



January 2019

Clarksville Urbanized Area MTP 2045 Final Report

Clarksville Urbanized Area MPO Metropolitan Transportation Plan 2045

Metropolitan Transportation Plan

Prepared By:



In Cooperation With:



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List of Acronyms

3-C	Continuine, Cooperative, and Comprehensive Planning Process
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AFV	Alternative Fuel Vehicle
AVL	Automatic Vehicle Locator
BEA	Bureau of Economic Analysis
BLOS	Bicycle Level of Service
CAAA	Clean Air Act Amendments
CAFE	Corporate Average Fuel Economy
CCTV	Closed-Circuit Television
CERCLA	Comprehensive Environmental Response, Compensations, and Liability Act
CIG	Capital Investment Grants
CTL	Center Turn Lane
CMAQ	Congestion Mitigation and Air Quality
CMCSS	Clarksville-Montgomery County School System
CMP	Congestion Management Process
CNG	Compressed Natural Gas
COA	Comprehensive Operations Analysis
CSXT	CSX Transportation
CTS	Clarksville Transit System
CUAMPO	Clarksville Urbanized Area Metropolitan Planning Organization
DOT	Department of Transportation
E+C	Existing Plus Committed
EE	External-External
EI	External-Internal
EJ	Environmental Justice
EPA	Environmental Protection Agency
EPDO	Equivalent Property Damage Only
ESA	Endangered Species Act
FAF	Freight Analysis Framework
FARS	Fatality Analysis Reporting System
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GDOT	Georgian Department of Transportation
GHG	Greenhouse Gas
HPMS	Highway Performance Monitoring System
HSIP	Highway Safety Improvement Program
IRI	International Roughness Index

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ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation Systems
JARC	Job Access and Reverse Commute
KBNA	Nashville International Airport
KOHS	Kentucky Office of Highway Safety
KYTC	Kentucky Transportation Cabinet
LEP	Limited English Proficiency
LNG	Liquified Natural Gas
LOS	Level of Service
LOTTR	Level of Travel Time Reliability
MAP-21	Moving Ahead for Progress in the 21st Century Act
MCHRA	Mid-Cumberland Human Resource Agency
MO	Maintenance and Operations
MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MTP	Metropolitan Transportation Plan
MUTCD	Manual on Uniform Traffic Control Devices
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NBI	National Bridge Inventory
NEPA	National Environmental Policy Act
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHPP	National Highway Performance Program
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NPFN	National Primary Freight Network
NPL	National Priorities List
NPMRDS	National Performance Management Research Data Set
NRHP	National Register of Historic Places
OMB	Office of Management and Budget
P3	Public-Private Partnerships
PACS	Pennyrile Allied Community Services
PBPP	Performance-Based Planning and Programming
PDO	Property Damage Only
ppm	Parts Per Million
PPP	Public Participation Plan
PRB	Population Reference Bureau

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PUD	Planned Unit Developments
RCUT	Restricted Crossing U-Turn
RJCM	R.J. Corman Railroad Company
ROI	Return on Investment
RTA	Regional Transit Authority
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SGR	State of Good Repair
SHPO	State Historic Preservation Office
SHSP	Strategic Highway Safety Plan
SIP	State Implementation Plan
SMS	Safety Management System
STBGP	Surface Transportation Block Group Program
STP	Surface Transportation Program
STRAHNET	Strategic Highway Network
SUSMP	Standard Urban Stormwater Mitigation Program
TAM	Transit Asset Management
TAP	Transportation Alternatives Program
TAZ	Traffic Analysis Zone
TCC	Technical Coordinating Committee
TDM	Transportation Demand Management
TDOT	Tennessee Department of Transportation
TEMA	Tennessee Emergency Management Agency
TERM	Transit Economic Requirements Model
THSO	Tennessee Highway Safety Office
TIF	Tax-Increment Financing
TIP	Transportation Improvement Program
TITAN	Tennessee's Integrated Traffic Analysis Network
TMA	Transportation Management Area
TSM	Transportation System Management
TTTR	Truck Travel Time Reliability
TWLTL	Two-Way Left Turn Lane
TWRA	Tennessee Wildlife Resources Agency
ULB	Useful Life Benchmark
UPWP	Unified Planning Work Program
USDOT	United States Department of Transportation
V/C	Volume/Capacity Ratio
VHD	Vehicle Hours of Delay
VHT	Vehicle Hours Travelled
VMT	Vehicle Miles Travelled
VOC	Volatile Organic Compounds
ZERO	Zero Emission Research Opportunity

Executive Summary

ES.1 | Introduction

THE 2045 CLARKSVILLE METROPOLITAN TRANSPORTATION PLAN (MTP) IS THE MULTIMODAL, LONG RANGE TRANSPORTATION PLAN FOR THE CLARKSVILLE METROPOLITAN PLANNING AREA (MPA).

It 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 public input, technical analysis, and close coordination between local municipalities, counties, 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 Clarksville MPA, comprised of the Clarksville, TN urbanized area and nearby areas expected to urbanize in the next twenty years, is federally required to maintain an MTP with a minimum twenty-year time horizon. The 2045 MTP serves this purpose for the next five years; at which point it must again be updated.

SCOPE OF THE PLANNING PROCESS

THE MTP ADDRESSES THE FOLLOWING TEN PLANNING FACTORS AS SPECIFIED IN THE MOST RECENT FEDERAL TRANSPORTATION LEGISLATION, THE FIXING AMERICA'S SURFACE TRANSPORTATION (FAST) ACT:

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.

ES.2 | Plan Development Process

In order to develop a truly effective transportation plan that addresses the needs of all system users, it is necessary to obtain meaningful input from the public and all stakeholders to ensure that no person is denied an opportunity to participate in the planning process on the basis of race, ethnicity, disability, or language barriers. To this end, the MPO followed the public involvement procedures spelled out in its Public Participation Plan.

Several opportunities for public and stakeholder participation and input were provided. Input received from the public and stakeholders provided valuable insight on current and future transportation needs and ultimately led to the development of a regional vision.

THIS VISION LAID THE GROUNDWORK FOR THE MTP'S PERFORMANCE-BASED APPROACH TO METROPOLITAN TRANSPORTATION PLANNING. THE GENERALIZED APPROACH IS SUMMARIZED BELOW:

1. Set Regional Vision
2. Define Goals and Objectives
3. Establish System Performance Measures
4. Assess Baseline System Performance
5. Identify Desired System Performance
6. Forecast Future Conditions and Need
7. Develop Implementation Strategy

ES.3 | Setting and Achieving the Vision

As mentioned, a regional vision was synthesized from public and stakeholder input. From this vision, goals and objectives were developed that support achievement of the stated vision.

FEDERALLY REQUIRED PERFORMANCE MEASURES ARE ALSO INCLUDED IN THE MTP. FOLLOWING THE ESTABLISHED FEDERAL GUIDANCE, THE MPO ESTABLISHED PERFORMANCE MEASURE TARGETS AND WILL PERIODICALLY REPORT ON PROGRESS, ALL IN COORDINATION WITH THE KYTC AND TDOT.

VISION

“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.”

GOALS

1. Provide a safe transportation system.
2. Provide a well-maintained transportation system.
3. Provide a multimodal transportation system.
4. Provide a reliable transportation system by reducing travel delay times and improving mobility.
5. Develop an economically and environmentally sustainable transportation system that provides equitable participation and benefits across the diversity of the MPA.

ES.4 | Assessing Current Performance and Forecasting Future Needs

The 2045 MTP analyzes current environmental, land use, travel, and socioeconomic patterns to better understand the existing demand for transportation. It then assesses existing conditions of all transportation modes by means of an asset inventory, technical analysis, and input received from the public and stakeholders. This analysis provides a snapshot of current performance and a baseline for performance monitoring.

To forecast future transportation needs, the 2045 MTP developed future population and employment forecasts for 2026, 2036, and 2045 for small geographic areas called Traffic Analysis Zones (TAZs). The forecast data was developed by the CUAMPO through local consultation and analysis of third party county forecasts.

TABLE ES.1 CLARKSVILLE MPA DEMOGRAPHIC DATA FORECAST

YEAR	POPULATION	EMPLOYMENT
2016	196,758	68,326
2026	250,249	92,611
2036	295,483	111,007
2045	339,954	129,119

ROADWAYS

In general, there is a lack of widespread congestion in the Clarksville Metropolitan Planning Area in the base year.

CONGESTION IS MOSTLY FOUND NEAR MAJOR INTERSECTIONS WITHIN THE MPA.

Maintenance needs are also somewhat limited in nature. Less than one (1) percent of the MPA’s National Highway System (NHS) roadways are in poor condition. The worst pavement conditions within the MPA are on US 79 to US 79/College St/Wilma Rudolph Blvd from McClure Street to Rossview Road. Conditions on US 41A/Fort Campbell Blvd from US 79/Dover Rd to the Tennessee/Kentucky State Line should also be monitored. Of the 15 bridges in poor condition within the MPA, none are on the NHS.

Based on the travel demand model results, congestion in the MPA is forecast to become more intense and more widespread. This congestion is expected to spread beyond the intersections and affect large areas of the MPA on the whole.

BICYCLE AND PEDESTRIAN

For bicycle and pedestrian needs, a regional demand analysis, facility inventory, and crash analysis were undertaken to better understand current performance and future needs. While there are many areas with relatively high demand for bicycle and pedestrian infrastructure, most places in the MPA lack sufficient sidewalks or any bicycle accommodations. As the MPA continues to grow, demand will increase in high-growth areas. Bicycle and pedestrian improvements will need to be provided in tandem with new roadway projects.

PUBLIC TRANSIT

For public transit, the MTP evaluates the fixed-route service provided by Clarksville Transit System (CTS), as well as other services offered within the MPA. Current performance and future needs were assessed primarily by means of the Comprehensive Operation Analysis conducted by CTS, as well as the service's Strategic Plan.

THESE ANALYSES INDICATE THAT THE CTS MEETS THE NEEDS OF THE CURRENT DEMOGRAPHICS WITHIN THE MPA. FUTURE CONSIDERATION WILL NEED TO BE GIVEN TO THE ANTICIPATED INCREASE IN ELDERLY PERSONS AS WELL AS THE 18-34 YEAR-OLD RIDERS DUE TO FORT CAMPBELL'S PRESENCE.

FREIGHT

For freight, an inventory of the existing freight network and facilities was conducted as well as an analysis of existing freight movement, capacity, traffic, and safety. Future freight volumes were also projected.

The growth in freight shipped to and from the Clarksville MPA by truck is projected to increase by nearly 79 percent. The growth in freight shipped to and from the MPA by rail is projected to lag the truck freight, but still grow by nearly 23 percent.

ES.5 | Prioritizing Roadway Capacity Projects to Achieve the Vision

The MTP prioritized roadway capacity projects that were identified by the public, stakeholders, MPO staff, and the previous MTP.

The first step in prioritization was developing project costs, which were estimated based on typical costs, or project-specific costs if such figures were available.

The MTP prioritization process utilized multiple criteria to evaluate projects for their potential to help achieve the regional vision, goals, and objectives.

TABLE ES.2 ROADWAY CAPACITY PROJECT PRIORITIZATION CRITERIA

CRITERIA	RATIONALE	MAXIMUM POINTS
Reduce Congestion	Prioritize projects with congestion reduction.	20
Improve Safety	Unsafe areas should receive priority over other areas.	20
Minimize Impacts on Natural Environment, Preserve Air Quality	Avoid negative and costly environmental impacts.	15
Balance Benefit vs Cost	Projects with benefits (annual dollars saved from reduced delay) exceeding construction costs should be considered first, and maximize limited federal funds.	10
Potential Impact to Minority and Low-Income Population*	Avoid disproportionately high and adverse impacts to Environmental Justice (EJ) groups.	10
Provide Pedestrian and Bicycle Facilities	Encourage projects that have the potential to improve bicycle and pedestrian conditions.	10
Improve Freight Movement, Support Economic Development	Encourage projects that benefit the movement of people and goods. Encourage projects that may result in the growth of economic corridors.	10
Plan Consistency	Encourage projects that have been vetted in locally-adopted plans or existing studies or plans.	5

*If a roadway project going through an Environmental Justice area receives support from its minority and low-income community, a project will receive maximum points for this criterion.

ES.6 | Staged Improvement Plan and Other Recommended Strategies

The MTP provides a fiscally-constrained staged improvement plan of projects and programs for roadway and public transit modes through 2045. It also recommends several short-term and long-term strategic actions that the MPO and its partner agencies should undertake in order to improve conditions for bicyclists, pedestrians, public transit users, and freight. Strategies to improve regional air quality are also recommended.

The fiscally-constrained list of roadway projects is provided in Table ES.3 and illustrated in Figure ES.1. In addition to these roadway projects, the fiscally constrained plan includes sufficient funding to continue operating transit at its current level of service. Roadway projects, which went through the prioritization process but could not be programmed due to a projected lack of available funding, are included in a separate list of projects called the visionary roadway capacity projects. While not currently programmed in the MTP, they may be added if funding becomes available.

Table ES.4 shows the travel impacts of implementing the fiscally-constrained capacity projects versus a “no-build” scenario. The “no-build” scenario includes only the existing and committed projects that are described in Chapter 7: Forecasting Future Travel Demand. This table indicates that the fiscally-constrained program of projects will reduce the hours of vehicle delay by 46 percent and the vehicle hours travelled by 31 percent, while the reduction in vehicle miles traveled will be less significant.

TABLE ES.3 FISCALLY CONSTRAINED ROADWAY PROJECTS

STAGE	MAP ID	ROUTE	LOCATION	IMPROVEMENT	PROJECT COST (000's)
Stage I (2018 to 2026)	1	SR-374 Ext	Dotsonville Rd to US 79/SR 6 (Dover Rd)	New 4 Lane Roadway	\$45,400
	2	SR-374 Ext/SR-149	Dotsonville Rd to SR-149; SR-374 to River Rd	New 4 Lane Roadway & Bridge, Widen to 5 Lanes	\$120,375
	3	SR-237 (Rossvie Rd) & Dunbar Cave Rd	I-24 to 400 ft. west of Keysburg Rd	Widen from 2 to 3/5 Lanes & Realignment	\$13,300
	4	KY-911 (Thompsonville Rd)	US 41A to KY-115 (Pembroke Rd)	Widen from 2 to 3 Lanes	\$14,810
	7	SR-48 (Trenton Rd)	SR-374 to I-24	Widen from 2 to 5 Lanes	\$35,700

continued

TABLE ES.3 FISCALLY CONSTRAINED ROADWAY PROJECTS

STAGE	MAP ID	ROUTE	LOCATION	IMPROVEMENT	PROJECT COST (000's)
Stage I (2018 to 2026)	101	US 79/SR 13 (Guthrie Hwy)	Cracker Barrel Dr to International Blvd	Widen from 2/3 to 5 Lanes	Under Construction
	102	SR 149/SR 13	River Rd to Zinc Plant Rd	Widen from 2/3 to 5 Lanes	Under Construction
	103	SR 374 (Warfield Blvd)	Dunbar Cave Rd to Stokes Rd	Widen from 2 to 5 Lanes	Under Construction
	104	North-East Connector Phase 1	Ted Crozier Blvd to Wilma Rudolf Blvd to Trenton Rd	New 4/5 Lane Roadway	\$39,522
	106	Lafayette Rd	Walnut Grove Rd through Ft Campbell Gate	Widen from 2 to 5 Lanes	\$2,438
	107	SR-48 (Trenton Rd)	Needmore Rd	Intersection Improvement	Completed
	108	KY-400 (State Line Rd)	US 41A (Ft Campbell Blvd) to KY-115 (Pembroke-Oak Grove Rd)	Reconstruct with CTL	\$5,486
	109	KY-115 (Pembroke-Oak Grove Rd)	KY-400 (State Line Rd) to I-24	Reconstruct with CTL	\$11,364
	110	KY-115 (Pembroke)	I-24 to KY-1453 (Barker's Mill Rd)	Reconstruct with CTL	\$7,446
	Stage II (2027 to 2036)	105	Jack Miller Blvd Ext	Tobacco Rd to Peachers Mill Rd	New 4 Lane Roadway
201		SR-374 (Warfield Blvd)	Memorial Dr to Dunbar Cave Rd	Widen from 2 to 4 Lanes	\$22,629
203		North-East Connector Phase 2	SR-48 (Trenton Rd) to Peachers Mill Rd	New 4 Lane Roadway	\$76,673
204		Peachers Mill Rd	Pine Mountain Rd to Stonecrossing Dr	Widen from 3 to 4 Lanes	\$4,310
207		KY-117	US 41A (Ft Campbell Blvd) to KY-115 (Pembroke-Oak Grove Rd)	New 5 Lane Roadway	\$71,523

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TABLE ES.3 FISCALLY CONSTRAINED ROADWAY PROJECTS

STAGE	MAP ID	ROUTE	LOCATION	IMPROVEMENT	PROJECT COST (000's)
Stage II (2027 to 2036)	209	KY-109 (Bradshaw Rd)	KY-1453 (Elmo Rd) to Bradshaw-Fidelio Rd	Reconstruct with CTL	\$5,687
	304	SR-48 (Trenton Rd)	SR-13/US79 (Wilma Rudolph Blvd) to SR-374	Widen from 2 to 5 Lanes	\$10,776
	401	New Roadway	Fair Brook Place to Needmore Rd	New 3 Lane Roadway	\$11,190
	402	Professional Park Dr Ext	Extension to Cardinal Ln	New 2 Lane Roadway	\$9,325
	403	International Blvd Ext	SR-237 (Rossvie Rd) to SR-76 to Trough Springs Rd	New 2 Lane Roadway	\$34,503
	405	SR-374 (Richview Rd) Ext	SR-12 (Madison St) to US 41A Bypass	New 4 Lane Roadway	\$20,723
	406	Kennedy Ln Ext	Extension to Meriwether Rd	New 2 Lane Roadway	\$8,393
	409	8th St connector	Needmore Rd to Peterson Ln	New 2 Lane Roadway	\$17,718
	411	SR-374 (Richview Rd)	Memorial Dr to US 41A (Madison St)	Widen from 3 to 5 Lanes	\$8,621
	504	SR 13/48	River Road to Old Highway 48	Center Turn Lane	\$6,426
	508	I-24	@ Exit 8 EB Off Ramp	Widen to 2 Lanes	\$9,106
514	Tylertown Road	Trenton Rd to Oakland Rd	Widen to 4 Lanes	\$18,319	
Stage III (2037 to 2045)	111	Oatts-Riggins Rd	KY-400 (State Line Rd) to KY-911 (Thompsonville Ln)	New 3 Lane Roadway	\$23,355
	112	KY-1453 (Elmo Rd)	US 41A (Ft Campbell Blvd) to KY-115 (Pembroke-Oak Grove Rd)	Reconstruct with CTL	\$33,837

continued

TABLE ES.3 FISCALLY CONSTRAINED ROADWAY PROJECTS

STAGE	MAP ID	ROUTE	LOCATION	IMPROVEMENT	PROJECT COST (000's)
Stage III (2037 to 2045)	202	US 41A Bypass (Ashland City Rd)	US 41A/SR-112 to SR-13	Widen from 2/3 to 5 Lanes	\$78,494
	205	Ft Campbell Gate 5 Ext	KY-911 (Thompsonville Ln) to Allen Rd	Reconstruction	\$10,920
	208	Ft Campbell Gate 5 Ext	US 41A (Ft Campbell Blvd) to KY-115 (Pembroke-Oak Grove Rd)	New 2 Lane Roadway	\$23,355
	303	Whitfield Rd/	Hazelwood Rd to SR-236 (Tiny Town Rd)	Reconstruct with CTL	\$5,892
	305	Old Trenton Rd	Needmore Rd to SR-374	Reconstruct with CTL	\$1,309
	404	Dixie Bee Rd Ext	Sango Rd to US 41A	New 2 Lane Roadway	\$8,645
	407	SR-236 (Tiny Town Rd) Ext	Extension to Meriwether Rd	New 2 Lane Roadway	\$8,645
	408	New Roadway	9th St to 10th St	New 2 Lane Roadway	\$1,235
	412	Hazelwood Rd	Trenton Rd to Needmore	Widen from 2 to 5 Lanes	\$28,543
	502	Cumberland Dr	Ashland City Rd (SR 12) to Madison St (SR 76)	Widen to 4 Lanes	\$25,689
	503	Dunbar Cave Road	Wilma Rudolph Rd (US 79/SR 13) to Rossvie Rd (SR 237)	Widen to 4 Lanes	\$57,087
	507	I-24	@ Dixie Bee Road	New interchange	\$68,614
	510	Needmore Road	Wilma Rudolph Road to Trenton Road	Widen to 4 Lanes	\$12,844
	512	Rossvie Road	SR 374 to Dunbar Cave Rd	Widen to 5 Lanes	\$21,407
	515	Wilma Rudolph Boulevard	Kraft St to SR 374	Widen to 6 Lanes	\$42,815

TABLE ES.4 TRAVEL IMPACTS OF FISCALLY-CONSTRAINED 2045 MTP ROADWAY CAPACITY PROJECTS

MEASURE	2045 EXISTING AND COMMITTED	2045 FISCALLY CONSTRAINED MTP	DIFFERENCE	PERCENT DIFFERENCE
Daily Vehicle Miles Traveled	6,923,236	6,954,406	31,170	0.5%
Daily Vehicle Hours Traveled	522,963	345,200	-177,763	-34.0%
Daily Hours of Delay	375,722	198,147	-177,575	-47.3%

Source: Clarksville Travel Demand Model, NSI

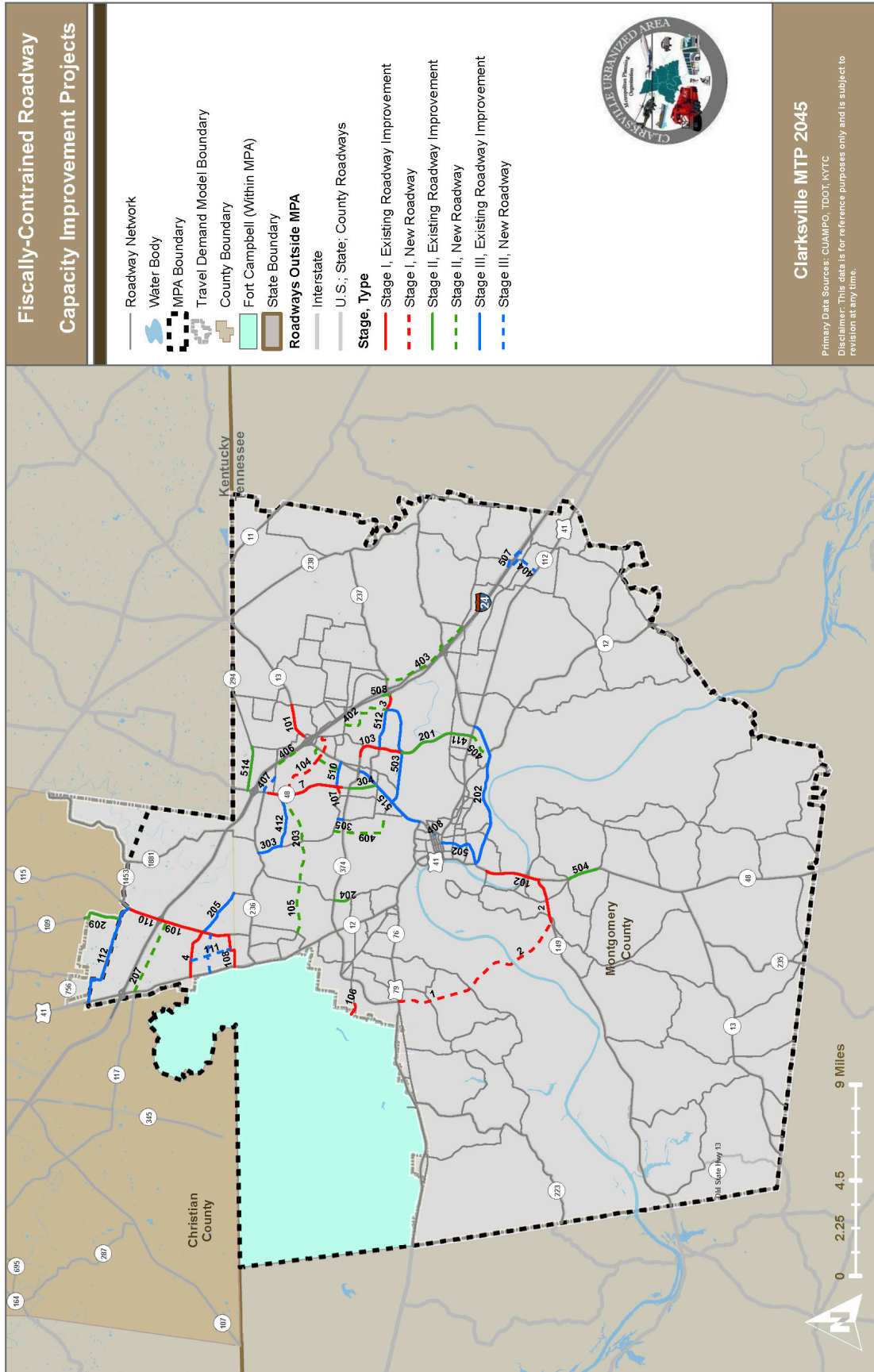


FIGURE ES.1 FISCALLY-CONSTRAINED ROADWAY CAPACITY IMPROVEMENT PROJECTS