



2016-2040 Columbus Area Metropolitan Transportation Plan



Mid-Ohio Regional
Planning Commission

May 2016

This page intentionally left blank.



Officers and Members of the MORPC Policy Committee

OFFICERS

Matt Greeson, Chair, City of Worthington
Rory McGuiness, Vice Chair, City of Columbus
Karen J. Angelou, Secretary, City of Gahanna

MEMBERS

Gary Merrell, Delaware County
Pat Blayney, Delaware County
Glenn Marzluf, Delaware County
Marilyn Brown, Franklin County
Derrick Clay, Franklin County
Richard Lehmath, Franklin County
Dean Ringle, Delaware County Eng.
William Dorman, Bexley
Trudy Bartley, Columbus
Steve Campbell, Columbus
Bill LaFayette, Columbus
Pam Hykes O'Grady, Columbus
Elissa Schneider, Columbus
Kent Shafer, Delaware
Tim Lecklider, Dublin
Anthony Jones, Gahanna
Richard "Ike" Stage, Grove City
Don Schonhardt, Hilliard
Benjamin King, Pataskala
Steve Lutz, Powell
Dan Havener, Reynoldsburg
Larry Jenkins, Westerville
Zachary Woodruff, Whitehall
Amy Evans, Brice
Ted Simon, Lithopolis
Lynn Eisentrout, Minerva Park
Patrick Monahan, Shawnee Hills
Bryan Rhoads, Blendon Township
Rob Platte, Etna Township
Matt Huffman, Liberty Township
Nancy White, Mifflin Township
Tracy Hatmaker, Prairie Township
John Eisel, Violet Township
Tory Richardson, CRAA
Jerry Newton, LCATS
Thom Slack, ODOT District 6

Jeff Benton, Delaware County
Ronald Bullard, Delaware County
Chris Bauserman, Delaware County Eng.
John O'Grady, Franklin County
Marian Harris, Delaware County
Greg Lestini, Franklin County
Eric Richter, Union County
Ben Kessler, Bexley
Randall Bowman, Columbus
Tracie Davies, Columbus
Rory McGuiness, Columbus
Vacant, Columbus
Ashley Senn, Columbus
R. Thomas Homan, Delaware
Megan O'Callaghan, Dublin
Steve Gladman, Grandview Heights
Marsha Hall, Groveport
Joe Stefanov, New Albany
Scott Tourville, Pickerington
Brian Lorenz, Powell
Theodore Staton, Upper Arlington
Karl Craven, Westerville
Matt Greeson, Worthington
David Simmons, Galena
Christie Ward, Lockbourne
Stacey Boumis, Obetz
Scott Weatherby, Sunbury
Anne Darling Cyphert, Bloom Township
Ronald Rhodes, Jerome Township
Susan Brobst, Madison Township
Robert Myers, Perry Township
Steve Kennedy, Prairie Township
David Paul, CAC
Dennis Schooley, DATABus
Cathy Sheets, LCTB
Mike Maleski, OEPA

Barb Lewis, Delaware County
Jenna Jackson, Delaware County
Paula Brooks, Franklin County
Herbert Asher, Franklin County
Erik Janas, Franklin County
James Schimmer, Franklin County
Steve Stolte, Union County
Michael Ebert, Canal Winchester
Brandi Braun, Columbus
Cristina Villacinda-Farr, Columbus
Erin Miller, Columbus
Hannah Reed, Columbus
Ellen Moss Williams, Columbus
Dana McDaniel, Dublin
Karen Angelou, Gahanna
Laura Lanese, Grove City
Nathan Painter, Hilliard
Mike Compton, Pataskala
Bill Vance, Pickerington
Brad McCloud, Reynoldsburg
Mike Schadek, Upper Arlington
Kim Maggard, Whitehall
Bonnie Michael, Worthington
Michael Lytle, Harrisburg
Kent Studebaker, Marble Cliff
Eric MacGilvray, Riverlea
Joseph Barnes, Sr., Urbancrest
Carl Reardon, Clinton Township
Shyra Eichhorn, Liberty Township
Victor Paini, Madison Township
Ben Collins, Plain Township
Greg Butcher, Violet Township
Curtis Stitt, COTA
Carrie Woody, LPTS
Holly Mattei, FCRPC



MORPC STAFF RESPONSIBLE FOR THE METROPOLITAN TRANSPORTATION PLAN

William Murdock, Executive Director

Thea Walsh, Director, Transportation Systems & Funding

Nancy Reger, Director, Data & Mapping

Kerstin Carr, Director, Planning & Environment

Nicholas Gill, Assistant Director, Transportation Systems & Funding

Maria Schaper, Planner, Transportation Systems & Funding

The Metropolitan Transportation Plan was prepared by the Mid-Ohio Regional Planning Commission (MORPC), 111 Liberty St., Columbus, OH 43215, 614-228-2663, with funding from the Federal Highway Administration, Federal Transit Administration, Ohio Department of Transportation, and Delaware, Fairfield, Franklin, Licking, and Union counties. The contents of this report reflect the views of MORPC, which is solely responsible for the information presented herein.

In accordance with requirements of the US Department of Transportation (USDOT), MORPC does not discriminate on the basis of race, color, national origin, gender, or disability in employment practices or in programs or activities. More information on non-discrimination resources and related MORPC policies is available at www.morpc.org.



Table of Contents

Executive Summary	ES-1
1. Plan Purpose and Development	1-1
1.1 Introduction.....	1-2
1.2 Planning Process & Public Involvement	1-4
1.3 Regional Goals.....	1-8
1.4 Plan Objectives and Targets.....	1-10
1.5 Strategies	1-14
1.6 Document Organization	1-15
2. Regional Trends.....	2-1
2.1 Transportation and Development Patterns.....	2-2
2.2 Projections	2-2
2.3 Socio-Economic Conditions that Impact Future Growth	2-14
2.4 Natural Landscape	2-25
2.5 Travel Patterns	2-31
2.6 Growth & Development Strategies and Projects	2-35
3. The Transportation System.....	3-1
3.1 Roadway System.....	3-2
3.2 Transit Systems.....	3-7
3.3 Bicycle and Pedestrian System.....	3-17
3.4 Intermodal Freight & Aviation	3-21
4. System Management.....	4-1
4.1 System Preservation & Maintenance	4-2
4.2 Intelligent Transportation Systems	4-8
4.3 Transportation Safety	4-14
4.4 Transportation Security	4-22
5. Demand Management.....	5-1
6. System Development.....	6-1
6.1 Roadway System.....	6-2
6.2 Transit Systems.....	6-7
6.3 Bicycle and Pedestrian System.....	6-14
6.4 Intermodal Freight & Aviation	6-20



Table of Contents, continued

7. Project Evaluation & Fiscal Constraint	7-1
7.1 Project Cost Estimates	7-2
7.2 Financial Plan and Constraints.....	7-4
7.3 Additional Funding Options.....	7-14
7.4 Project Evaluation and Selection Process	7-16
7.5 Fiscal Constraint Summary.....	7-18
8. Summary of Strategies and Projects	8-1
8.1 Strategies	8-2
8.2 List and Map of Projects	8-4
8.3 Impact Summary	8-25
9. Plan Implementation & Monitoring	9-1
9.1 Performance Measures	9-2
9.2 Plan Implementation.....	9-6
Appendix A—Future Land Use Assumptions	
Appendix B—Project Evaluation	
Appendix C—Air Quality Conformity	
Appendix D—Environmental Justice Technical Analysis	
Appendix E—Environmental Mitigation	
Appendix F—Active Transportation Plan	
Appendix G—Public Involvement	



List of Figures

Figure 1.1 Transportation Planning Area	1-3
Figure 1.2 MTP Development	1-5
Figure 2.1 Population, Households, and Jobs in the MPO, 2015 and 2040	2-3
Figure 2.2 Existing Land Use, 2015	2-6
Figure 2.3 Future Land Use, 2040	2-7
Figure 2.4 Development Hot Spots	2-8
Figure 2.5 2015-2040 Forecasted Land Consumption	2-9
Figure 2.6 Residential Projections: Changes in Densities of Housing Units per Acre	2-10
Figure 2.7 Percentage of New Housing Projected Between 2015 and 2040 by Density	2-10
Figure 2.8 Households by Residential Acre Density, 2015-2040	2-11
Figure 2.9 Commercial/Office Employment Density, 2015-2040	2-12
Figure 2.10 Industrial Employment Density, 2015-2040	2-13
Figure 2.11 Change in Population by Age Cohort in the MPO, 2010-2014	2-14
Figure 2.12 Percent of 2014 Population by Race: US, Great Lakes, Ohio, MPO	2-15
Figure 2.13 Percent of Total Population by Race Compared to Share of Increase in the MPO, 2010-2014	2-15
Figure 2.14 Population Moving to the MPO from Other Parts of the World, 2010-2014	2-16
Figure 2.15 Share of Population by Language from Which English is Not Spoken “Very Well”	2-16
Figure 2.16 Mean Household Income, 2009-2014, US, Great Lakes, Ohio, MPO	2-17
Figure 2.17 Per Capita Income for Minority Populations compared to Total Population	2-17
Figure 2.18 Percent of People in poverty: 2010-2014	2-18
Figure 2.19 Percent of Population in Poverty by Race, 2014	2-18
Figure 2.20 Percentages of Owner and Renter Occupied Housing Units, 2014	2-19
Figure 2.21 Single Family and Multifamily Housing Units Built Between 2010-2014	2-20
Figure 2.22 Mode of Travel All Commuters, 2014	2-21
Figure 2.23 Mode of Travel for Commuters Not Driving Alone or Working at Home, 2014	2-21
Figure 2.24 2014 Education Levels in the MPO, Population Over 18	2-22
Figure 2.25 Labor Force by Age, 2014	2-23
Figure 2.26 Unemployment Rate by Race, 2014	2-23
Figure 2.27 employment of Industrial Sector, 2014	2-24
Figure 2.28 Water Features	2-26
Figure 2.29 Floodplains	2-27
Figure 2.30 Potential Wetlands	2-28
Figure 2.31 Trip End Density, 2015	2-32
Figure 2.32 Trip End Density, 2040	2-33
Figure 3.1 2015 Lane Miles by Facility Type	3-2
Figure 3.2 Daily VMT by Roadway Classification in the MPO Area, 2005 to 2014	3-3
Figure 3.3 Level of Congestion, 2015	3-4
Figure 3.4 VMT by Congestion Level in MPO, 2015	3-5
Figure 3.5 Travel Time Uncertainty Index, Peak Periods, 2010-2014	3-6
Figure 3.6 Public Transit Systems	3-9
Figure 3.7 COTA Transit Service	3-12
Figure 3.8 COTA Park and Ride Facilities	3-13
Figure 3.9 DATABus Transit Service	3-15



List of Figures, continued

Figure 3.10 Bicycle Facilities, 2015	3-18
Figure 3.11 Sidewalk Inventory, 2015	3-20
Figure 3.12 Freight Facilities	3-23
Figure 4.1 Pavement Condition Ratings	4-3
Figure 4.2 Bridge General Appraisal Ratings	4-5
Figure 4.3 Interstates, Freeways, & Expressways Employment ITS Technologies	4-10
Figure 4.4 Principal Arterials Employing ITS Technologies	4-11
Figure 4.5 Top 40 Regional High-Crash Locations.....	4-19
Figure 4.7 Video Surveillance of the Roadway System	4-25
Figure 6.1 VMT by Congestion Level, 2040	6-2
Figure 6.2 Congestion Levels, 2040.....	6-3
Figure 6.3 High Capacity Transit Corridors for Further Study.....	6-12
Figure 7.1 Forecast of all Non-TRAC ODOT Funds	7-7
Figure 7.2 Summary of Forecast of Other Funds.....	7-12
Figure 7.3 Summary of Forecast of Transportation System Funds	7-13



List of Tables

Table 1.1 Relationship of MTP Goals to Federal and State Transportation Planning Goals	1-9
Table 1.2 Objectives & Targets.....	1-11
Table 2.1 Average Trip Lengths	2-31
Table 2.2 Average Trip Travel Time	2-34
Table 3.1 Transit System Trip Statistics.....	3-8
Table 3.2 MPO Area Airports	3-25
Table 4.1 Pavement Condition Ratings.....	4-4
Table 4.2 Top 40 Regional High-Crash Locations	4-17
Table 5.1 RideSolutions Vanpool Program Impact.....	5-3
Table 7.1 Annual Inflation Rates	7-3
Table 7.2 Forecast of TRAC Funding (millions).....	7-6
Table 7.3 Forecast of ODOT Safety Funds	7-6
Table 7.4 Forecast of ODOT Arterial Widening Funds	7-6
Table 7.5 Forecast of ODOT non-TRAC Freeway Widening Funds	7-7
Table 7.6 Forecast of ODOT Management and Operations Funds	7-7
Table 7.7 Forecast of STP-M Funds	7-8
Table 7.8 Forecast of CMAQ-M Funds.....	7-8
Table 7.9 Forecast of TAP-M Funds	7-9
Table 7.10 Forecast of CEAO Funds.....	7-9
Table 7.11 Forecast of OPWC Funds	7-10
Table 7.12 Forecast of Local Public Funds.....	7-10
Table 7.13 Forecast of Private Funds	7-11
Table 7.14 Forecast of Other Funds	7-11
Table 7.15 Forecast of SRTS Funds.....	7-11
Table 7.16 Forecast of COTF Funds	7-12
Table 7.17 Forecast of RTP Funds	7-12
Table 7.18 Forecast of Transit Funds	7-13
Table 7.19 Summary of Forecast of Transportation System Funds	7-13
Table 7.20 Estimated Costs by Project Type	7-19
Table 8.1 Summary of Strategies.....	8-2
Table 9.1 Objectives & Targets.....	9-3



Glossary of Acronyms

ACAMS – Automated Critical Asset Management System	MORPC – Mid-Ohio Regional Planning Commission
ADA – Americans with Disabilities Act	MPO – metropolitan planning organization
ADT – average daily traffic	MSA – metropolitan statistical area
APC – automatic passenger counter	MTP – metropolitan transportation plan
ATIS – advance traveler information system	NHS – National Highway System
AVL – automated vehicle locator	NHTSA – National Highway Traffic Safety Administration
BR – Bridge Replacement and Rehabilitation	NPIAS – National Plan of Integrated Airport Systems
BRT – bus rapid transit	NS – Norfolk Southern
CAC – MORPC Citizen Advisory Committee	OARC – Ohio Association of Regional Councils
CAFR – comprehensive annual financial report	ODNR – Ohio Department of Natural Resources
CEAO – County Engineers Association of Ohio	ODOD – Ohio Department of Development
CEPAC – Chemical Emergency Preparedness Advisory Council	ODOT – Ohio Department of Transportation
CFR – Code of Federal Regulations	ODPS – Ohio Department of Public Safety
CHSP – Comprehensive Highway Safety Plan	OPWC – Ohio Public Works Commission
CIP – capital improvement program C	ORC – Ohio Revised Code
IR – capital improvement report	ORDC – Ohio Rail Development Commission
CMAQ – Congestion Mitigation/Air Quality	OSR – Office of Strategic Research
CMP – congestion management process	OSU – The Ohio State University
CNG – compressed natural gas	P3 – public-private partnership
COTA – Central Ohio Transit Authority	PART – Pickaway Area Rural Transit
COTF – Clean Ohio Trails Fund	PBIC – Pedestrian and Bicycle Information Center
CRAA – Columbus Regional Airport Authority	PCR – pavement condition rating PM – particulate matter
CSA – combined statistical area	PWP – Planning Work Program
CTSS – Columbus Traffic Signal System	QOS – quality of service
DATA – Delaware Area Transit Agency	
DHS – United States Department of Homeland Security	
EMA – emergency management agency	
EPA – Environmental Protection Agency	
FCEM&HS – Franklin County Emergency Management & Homeland Security	
FAA – Federal Aviation Administration	
FFY – federal fiscal year	
FHWA – Federal Highway Administration	
FMS – freeway management system	
TA – Federal Transit Administration	
FY – fiscal year	
GASB – General Accounting Standards Board	
GIS – geographic information system	
GRH – Guaranteed Ride Home	
HOV – high-occupancy vehicle	
HSIP – Highway Safety Improvement Program	
ISTEA – Intermodal Surface Transportation Efficiency Act	
ITS – intelligent transportation system	
JARC – Job Access and Reverse Commute	
LAB – League of American Bicyclists L	
BRS – location-based response system	
LCATS – Licking County Area Transportation Study	
LCT – Licking County Transit	
LEPC – local emergency planning committee	
LOS – level of service	
LPTS – Lancaster Public Transit System	
LTIP – Local Transportation Improvement Program	
M&O – management and operations	