



Long Range Transportation Plan 2050

MAY 2021

Executive Summary



MIAMI VALLEY
Regional Planning Commission

MVRPC'S MISSION

MVRPC promotes collaboration among communities, stakeholders, and residents to advance regional priorities. MVRPC is a forum and resource where the Board of Directors identifies priorities and develops public policy and collaborative strategies to improve quality of life throughout the Miami Valley Region.

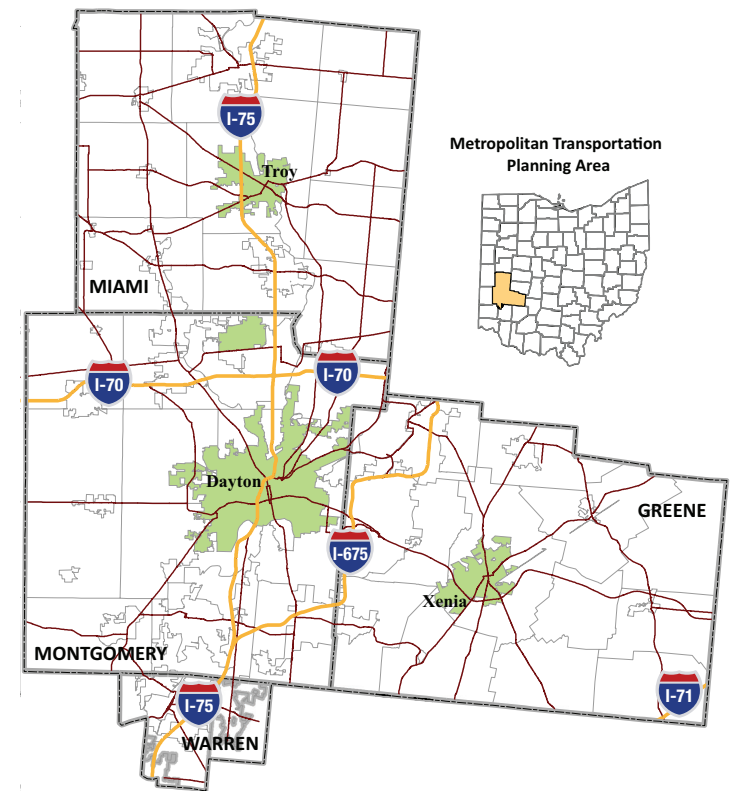
TRANSPORTATION SYSTEM GOALS

- **REGIONAL STEWARDSHIP**
 - Develop Regional Priorities
- **VIBRANT COMMUNITIES**
 - Transportation Choices
 - Transportation System Management
 - Transportation and Land Use
- **VIGOROUS ECONOMY**
 - Transportation Support
- **SUSTAINABLE SOLUTIONS**
 - Clean Air

The Miami Valley Regional Planning Commission (MVRPC) is a voluntary association of local governments and non-governmental organizations serving as the Regional Planning Commission for Darke, Greene, Miami, Montgomery, and Preble Counties.

MVRPC is also the Metropolitan Planning Organization (MPO) for Greene, Miami, and Montgomery Counties and the Cities of Carlisle, Franklin and Springboro and Franklin Township in Warren County. As the MPO, MVRPC conducts transportation planning activities that are designed to enhance the Region's competitive position, promote regional growth, improve personal mobility, and preserve the environment.

The Board of Directors, comprised of local elected officials, serves as the policy-making body for the MPO. Corporate and civic leaders, the Ohio Department of Transportation (ODOT), and



Regional Transit Agencies are also represented. The Board of Directors is served by the Technical Advisory Committee (TAC), other special purpose committees, and MVRPC technical staff.

LONG RANGE TRANSPORTATION PLAN 2050 – SUMMARY

The 2050 Long Range Transportation Plan (LRTP or Plan) includes multimodal strategies and projects to guide the effective investment of public funds in future transportation facilities. The LRTP is updated every five years and was adopted by the MVRPC Board of Directors on May 6, 2021. The LRTP provides the context from which the Region's Transportation Improvement Program (TIP), the short-term capital improvement program for implementing highway, transit, and other multimodal projects, is drawn.

FISCAL CONSTRAINT

In order to demonstrate fiscal constraint, the costs of the 2021 through 2050 Plan projects are balanced against projected revenues and, following the FAST Act requirements,

are expressed in year of expenditure dollars. The fiscal constraint for each transportation mode is summarized below.

AIR QUALITY CONFORMITY

The Dayton-Springfield Air Quality Region currently meets all applicable air quality standards and is no longer required to conduct a quantitative regional emissions analysis. A qualitative assessment indicates that the transportation programs in the Dayton/Springfield and northern Warren County areas conform to applicable air quality standards and the Plan contains no goals, directives, recommendations, or projects which contradict any requirements or commitments of Ohio's State Implementation (Air Quality) Plan.

FISCAL CONSTRAINT OF THE 2050 LRTP PROJECTS (IN MILLIONS OF YEAR OF EXPENDITURE DOLLARS)

PROJECT TYPE	TOTAL REVENUES	TOTAL COST	TOTAL REVENUES – TOTAL COST
Highway Maintenance/ Reconstruction	\$4,240.00	\$4,240.00	0.00 (Fiscally Constrained)
Highway Operational/ Safety/Capacity	\$2,959.46	\$2,326.89	+\$632.57 (Fiscally Constrained)
Transit	\$3,810.45	\$3,810.45	0.00 (Fiscally Constrained)
Ridesharing/Air Quality	\$27.18	\$27.18	0.00 (Fiscally Constrained)
Bikeway/Pedestrian	\$20.25	\$20.25	0.00 (Fiscally Constrained)



VISIT [MVRPC.ORG/LONG-RANGE](https://mvrpc.org/long-range)
FOR MORE INFORMATION

PUBLIC PARTICIPATION EFFORTS

Owing to the COVID-19 pandemic, MVRPC had to make appropriate modifications to its Plan development process by shifting all consultation and coordination processes, including public participation meetings, to the virtual environment. Zoom meetings, emails, and the Plan website were utilized to communicate with stakeholders. At the same time, suitable accommodations were also made for non-internet users.

COMMENT OPPORTUNITIES

- Transportation System Satisfaction Survey
- Virtual Public Meetings
- Postage Paid Comment Cards
- Online Comment Card
- Online Comment Map
- Email or Call MVRPC Staff
- Social Media Comments
- In-Person Comments at MVRPC's Offices

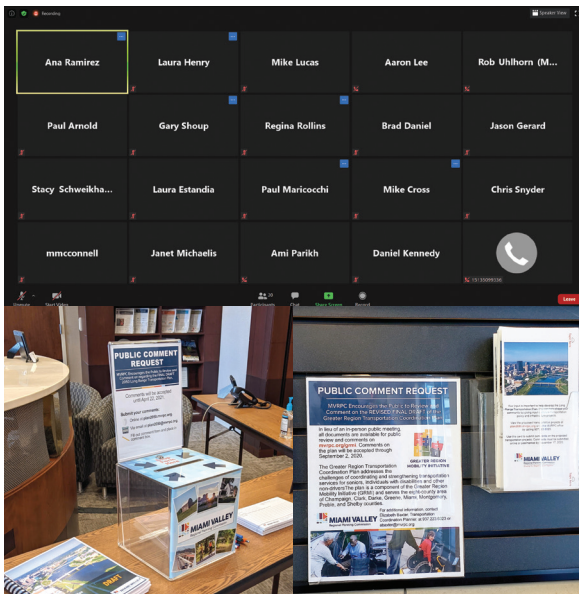
COMMENT THEMES

- 1 More Bicycling and Pedestrian Options
- 2 Better Accessibility to Transit Services
- 3 Improved Access to Regional Bikeways
- 4 Safety
- 5 Roadway Maintenance Needs
- 6 Congestion on Major Roadways
- 7 New Technologies



PLAN2050.MVRPC.ORG

A website dedicated to the update effort was created early in the Plan process. It served as the primary means of communication with the project sponsors, stakeholders, and the public. The website was updated throughout the process with information pertinent to the various steps in the Plan update. It included visualization techniques such as an interactive map that allowed the public to view and submit comments about the Plan projects and it also included accessibility features, such as a Spanish translation tool.



Plan 2050 Outreach Documents Comments Q

Plan 2050

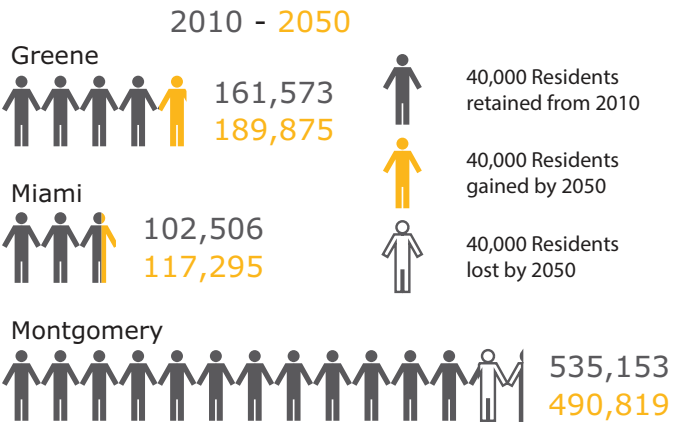
MVRPC, the Metropolitan Planning Organization (MPO) for the Miami Valley, develops a Transportation Plan every 4 to 5 years to guide the effective investment of public funds in the regional transportation system. The Plan is “long-range” and supports all modes of transportation in the Region – roadway, freight, transit, bicycle, and pedestrian. The Plan is developed through a collaborative process and it lists projects that reflect the shared values from various regional stakeholders, including elected officials, planners, engineers, businesses, special interest groups, and the public.

Due to the Covid-19 crisis it is highly likely that public participation for the transportation plan update will occur virtually through at least the end of calendar year 2020 but there will be plenty of opportunities for the public to provide input and interact with MVRPC's transportation planning staff.

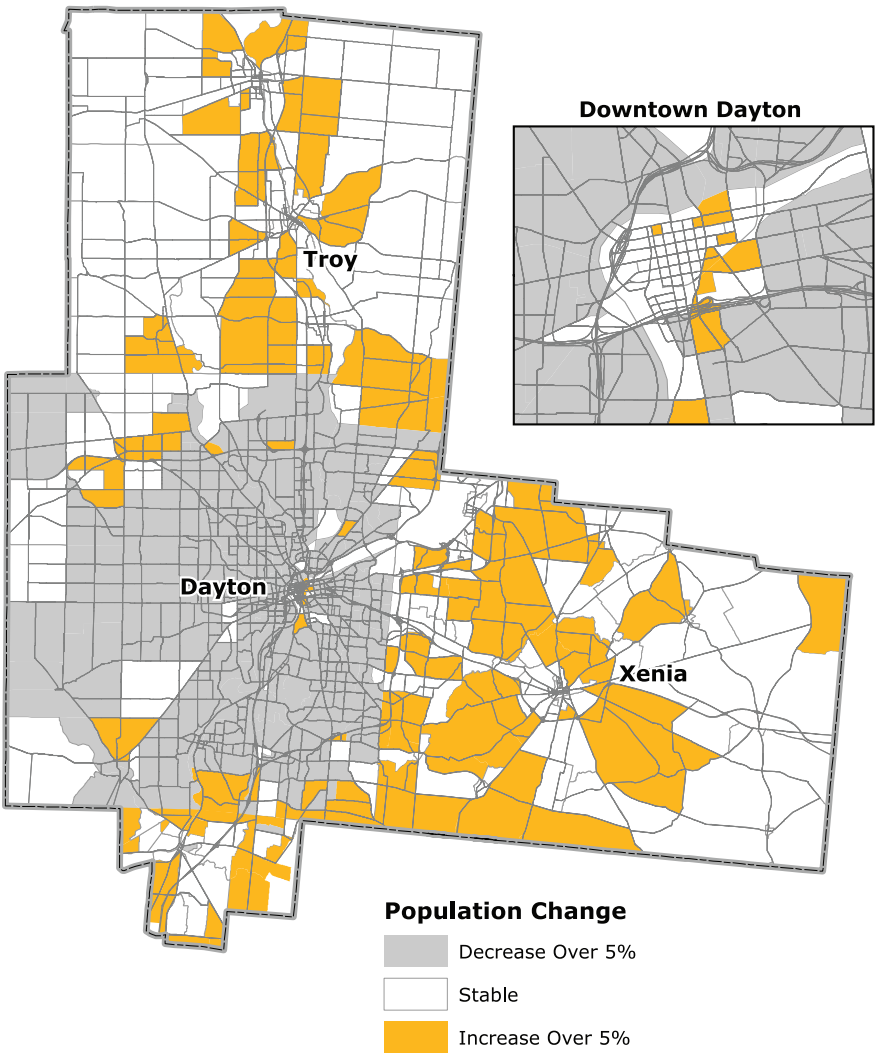


From 2010 to 2050, the Region's population is expected to stay steady, slightly decreasing in the three core counties from 799,232 to 797,989. In contrast, the number of households is forecasted to grow 2.7% from 327,630 to 336,552. Household sizes are expected to shrink, accounting for this discrepancy. The average number of persons per household was 2.37 in 2010 and is expected to decrease to 2.29 by 2050.

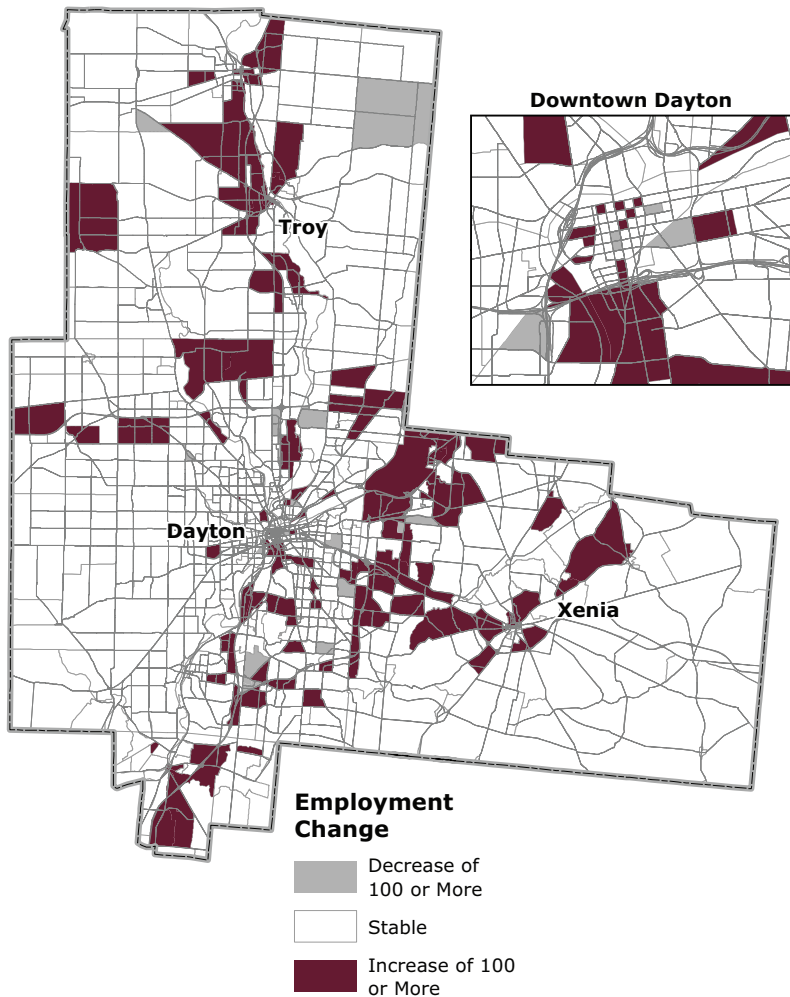
Population Projection By County



2010-2050 POPULATION CHANGE



2010-2050 EMPLOYMENT CHANGE



Employment Projection By County

2010 - 2050

Greene
97,406
131,034

Miami
49,607
64,023

Montgomery
298,018
328,273

25,000 Employees retained from 2010

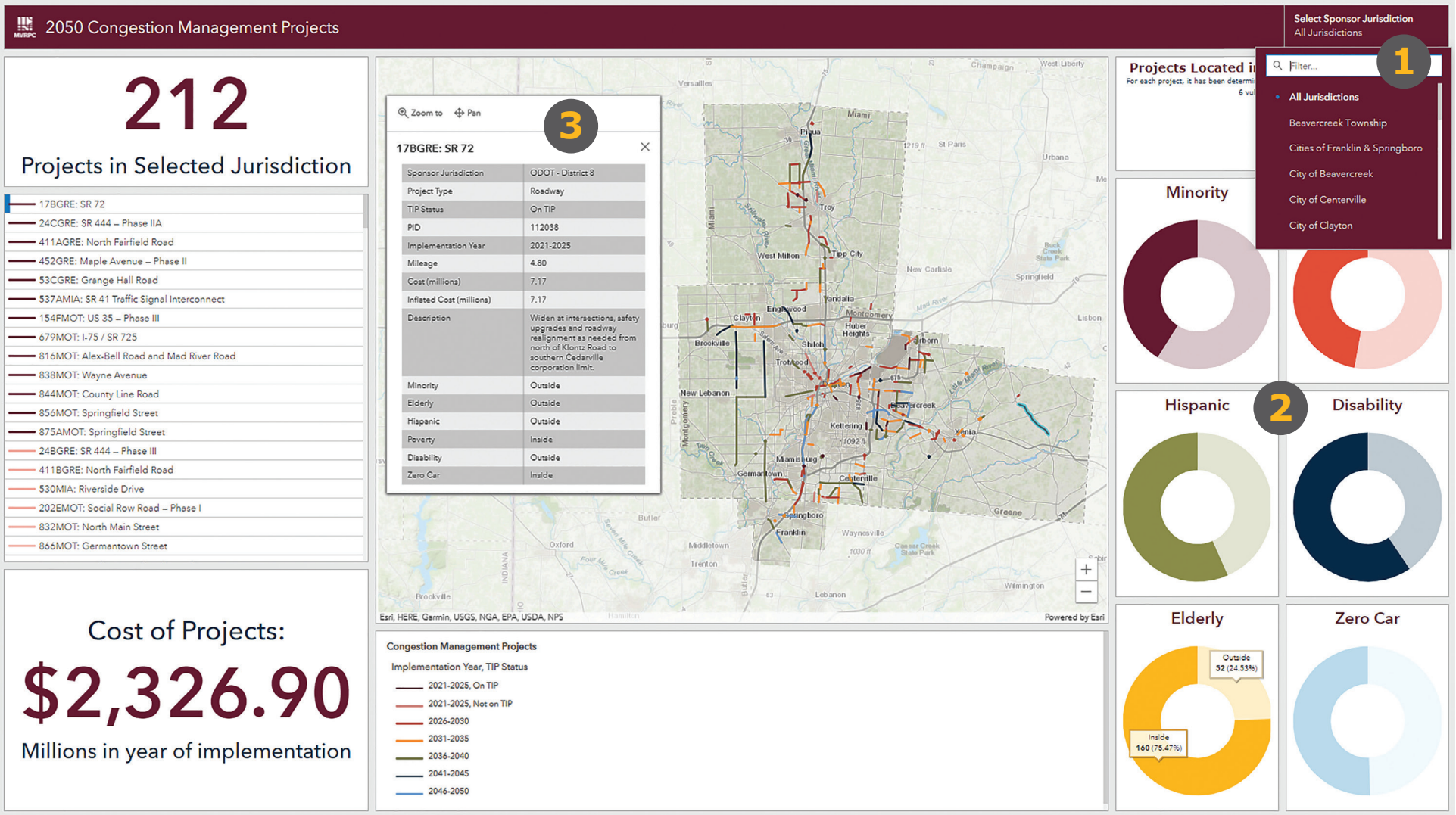
25,000 Employees gained by 2050

2020 DECENNIAL CENSUS RESULTS

Since the LRTP was published, some 2020 U.S. Census data has been released. Notably, a slight increase was seen in Montgomery County residents. This may indicate a new direction for the next round of forecasts.

2010 Population	799,232
2020 Population	814,049
Percent Change	↑ 1.85%
2010 Households (HH)	327,630
2020 Households (HH)	339,453
Percent Change	↑ 3.61%
2010 Persons per HH	2.37
2020 Persons per HH	2.33
Percent Change	↓ -1.43%

Employment is expected to grow by approximately 18% in the core counties, from 445,031 to 523,330. New jobs are expected in urban, suburban, and rural areas, with the highest concentrations along major road corridors. The areas around Dayton International Airport and Wright-Patterson Air Force Base are expected to experience the most robust growth.



The 2050 Congestion Management Projects dashboard is a new interactive tool for looking up details about congestion management projects included in the LRTP and is accessible from the LRTP website mvrpc.org/current-long-range-transportation-plan.

Available details include the location, project description, cost estimates, funding status, timeframe for construction, and location in relation to one of six vulnerable communities.

Information displayed can be filtered by sponsor jurisdiction, dynamically changing the display of

the project count, cost, proportion of projects in vulnerable communities, project list, and projects displayed in the map to reflect only projects sponsored by the selected jurisdiction.

- 1 SELECT JURISDICTION:** Use the drop-down menu to select a sponsor jurisdiction. This will filter the projects displayed on the map and update the numbers, list, and pie charts displayed on the left and right side of the dashboard to reflect only the projects in the selected jurisdiction.
- 2 VULNERABLE COMMUNITY CHARTS:** Hover over the dark or light portions of one of the pie charts to see the number and percentage of projects located in areas with concentrations of vulnerable populations higher than the county average.
- 3 PROJECT DETAILS:** Select a project, either by clicking on its name in the list or its shape within the map. An attribute box will pop up with information including a project description, funding status, and cost. At the top of the box are buttons to zoom or pan to the selected project.

For the Region to prosper it must have a comprehensive transportation system that meets the needs of all users. Transit services provide mobility options for all residents but in particular those users with mobility limitations. Additional benefits include reduced congestion and improved air pollution.



MIAMI COUNTY PUBLIC TRANSIT

- 44,000 passenger trips/year
- Demand responsive transit services
- Fleet of 18
- Operates 6 days a week

2050 FINANCIAL ASSUMPTIONS

- Capital Projects: \$9.57 million
- Operations: \$55.63 million



GREATER DAYTON REGIONAL TRANSIT AUTHORITY (GDRTA)

- 9,129,000 passenger trips/year
- Operates 28 fixed-routes connecting 30 communities in MOT CO along with WSU and WPAFB.
- Fleet of 260

2050 FINANCIAL ASSUMPTIONS

- Capital Projects: \$685.15 million
- Operations: \$2,903.25 million

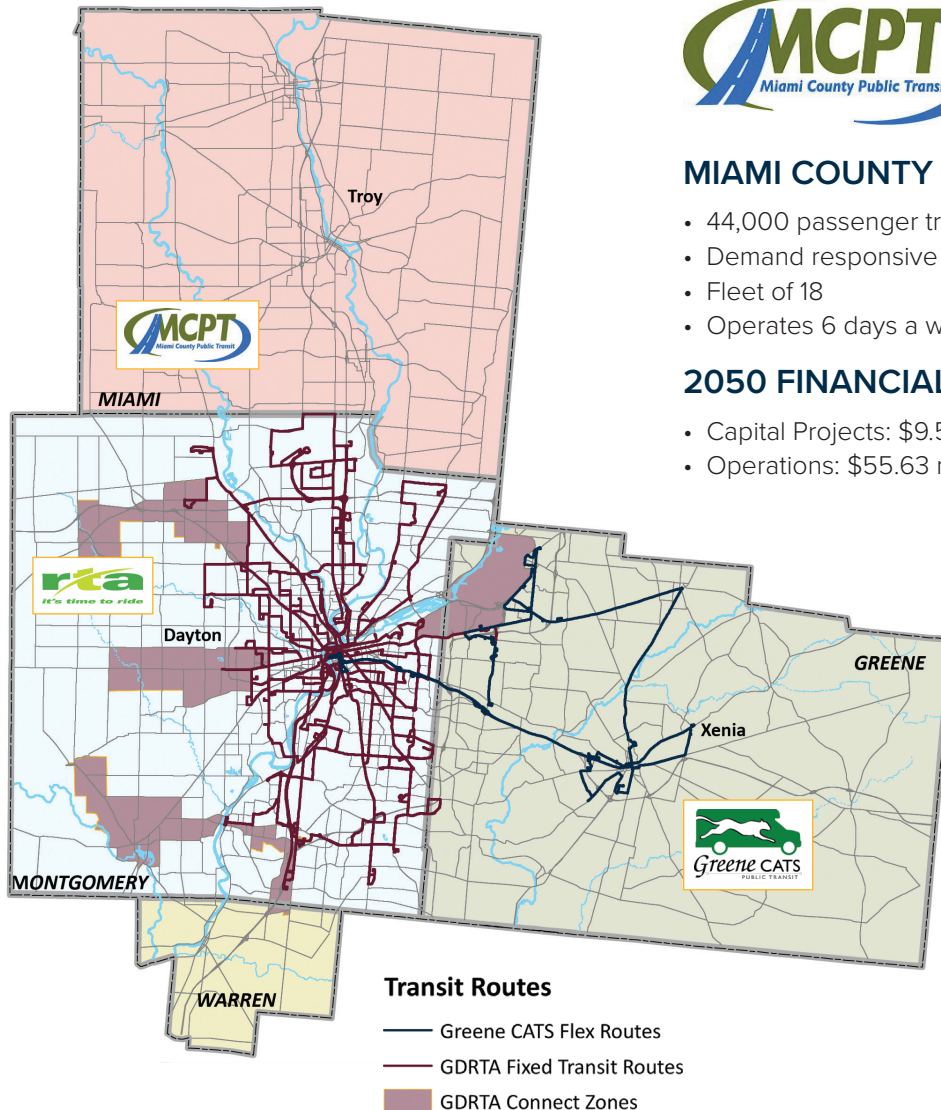


GREENE CATS PUBLIC TRANSIT

- 181,000 passenger trips/year
- Combination of traditional demand responsive and flex services with a fleet of 45
- Operates approximately 945,000 annual vehicle-miles and 54,000 annual vehicle-hours

2050 FINANCIAL ASSUMPTIONS

- Capital Projects: \$11.12 million
- Operations: \$116.71 million

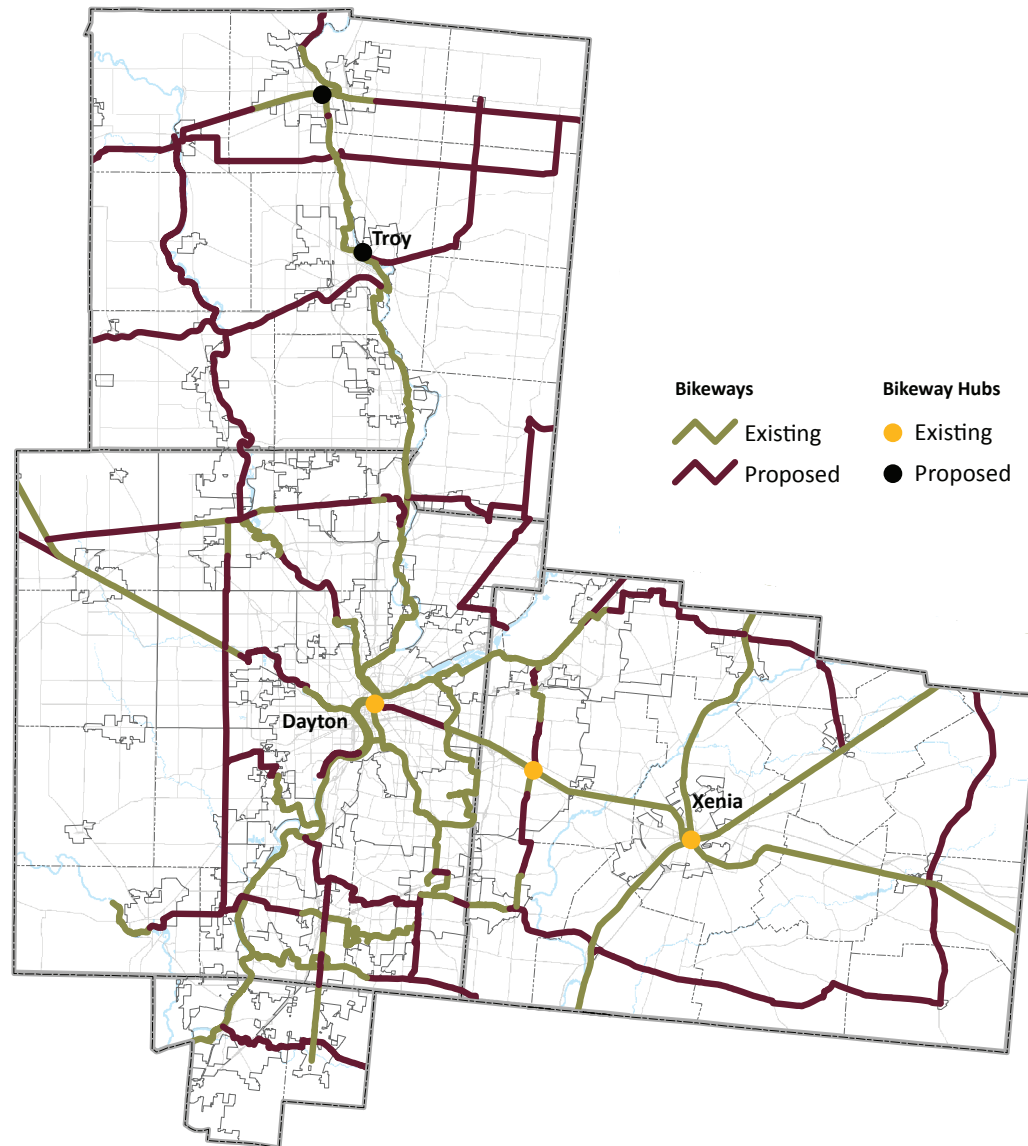


REGIONAL BIKEWAY AND PEDESTRIAN NETWORK

It is essential to plan a transportation system that serves travelers using all modes of transportation, including bicycling and walking. The 2050 Plan contains both projects with funds already committed for implementation, and future proposed projects. Approximately \$20.25 million has been committed, with an additional \$91.85 million for proposed projects. These projects will extend the regional bikeway and pedestrian network.



The Bicycle Counting Program was created in 2013 to better measure bicycling in the Region. Bike and trail user counts are available on the online traffic and trail count viewer as well as printable maps. Most counts are collected from partnering trail management agencies, which have permanent trail counters installed at numerous locations on the regional bikeway network. Additionally, short-term studies are performed with automatic bicycle counters installed at strategic locations for seven-day periods to measure bicycle traffic.



As part of the Dayton Regional Safety Initiative crash data is analyzed every three years to identify trends and locations with high frequency and severity of crashes. These analyses are the first step toward understanding roadway safety conditions in the Miami Valley Region. The latest analysis examines crashes occurring from 2017 through 2019. In those three years, approximately 61,600 crashes were reported. Of that total, 224 were fatal, and 15,790 were injury-causing crashes where 1,134 led to serious injuries. Between 2010 and 2019, total reported crashes increased by 8%.

Bicycle and pedestrian crashes accounted for only 1.5% of overall crashes but were the most severe. 14% of bicycle crashes and 27% of pedestrian crashes led to a serious injury or fatality compared to 2% of motor vehicle crashes that led to a serious injury or fatality.

BICYCLE AND PEDESTRIAN CRASHES

People in Pedestrian Crashes



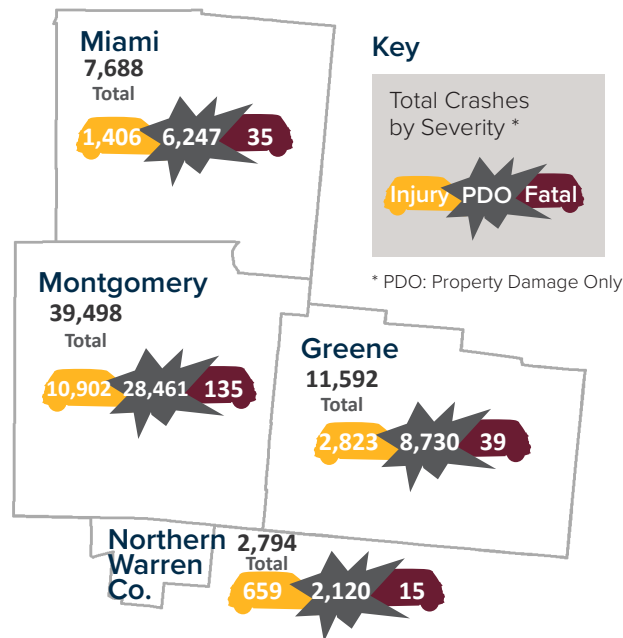
People in Bicycle Crashes



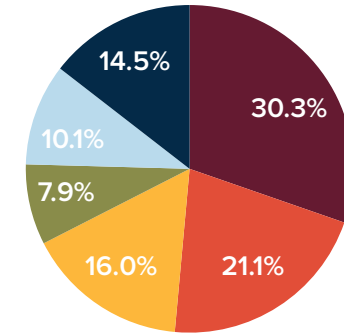
People in Motor Vehicle Crashes



TOTAL CRASHES BY COUNTY: 2017 TO 2019

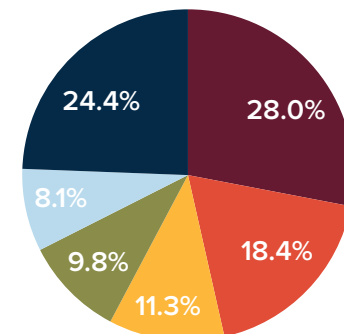


TOTAL CRASHES BY CRASH TYPE



- Rear-end
- Angle
- Fixed-Object
- Sideswipe-Passing
- Left Turn
- Other








FATAL AND SERIOUS INJURY CRASHES BY CRASH TYPE



- Fixed Object
- Angle
- Rear End
- Pedestrian
- Left Turn
- Other

SCENARIO PLANNING

MVRPC constructed two alternative scenarios assuming a 50% and 100% Connected and Autonomous Vehicles (CAVs) fleet by 2050, and used its travel demand model to generate travel and congestion metrics for them as well as the traditional 2050 Existing+Committed (E+C) and 2050 Plan scenarios*. All scenario impacts were measured against the 2050 Base E+C network. CAVs provide significant improvement in road capacity metrics driven by technology enabled safety gap and harmonized speeds. However, some of these gains are offset by increases in demand for road use directly attributable to CAV generation of entirely new trips (empty trips), and also because CAVs are likely to introduce a trip multiplier.

Vehicle Person Trips	Percentage SOV**	Percentage CAV Empty Trips	Vehicle Miles Traveled (VMT)
			
2,675,638 O	67.3% O	0.0% O	24,357,850 O
2,675,541 O	67.3% O	0.0% O	24,315,890 O
2,830,858 -	73.0% -	2.5% -	25,319,184 -
2,897,174 --	77.6% --	4.7% --	26,056,938 --
Lane Miles	Peak Hour VMT Exceeding Congestion Threshold-Percentage	Hours Of Congestion Delay	Legend
			
5,832 O	28.9% O	30,768 O	2050 E+C
6,063 -	26.2% +	27,109 +	2050 Plan
5,832 O	17.6% ++	18,313 ++	2050 E+C (50% CAV)
5,832 O	5.0% +++	8,034 +++	2050 E+C (100% CAV)
			O : Neutral Impact
			+/+ +/+ +/+ : Degree of Positive Impact
			-/- -/- : Degree of Negative Impact

* The 2050 E+C scenario includes only projects that are funded in the SFY 2021-2024 Transportation Improvement Program (TIP) while the 2050 Plan scenario includes all projects in the LRTP. Both the 50% CAV and 100% CAV scenarios utilize the E+C network.

**Single Occupancy Vehicle

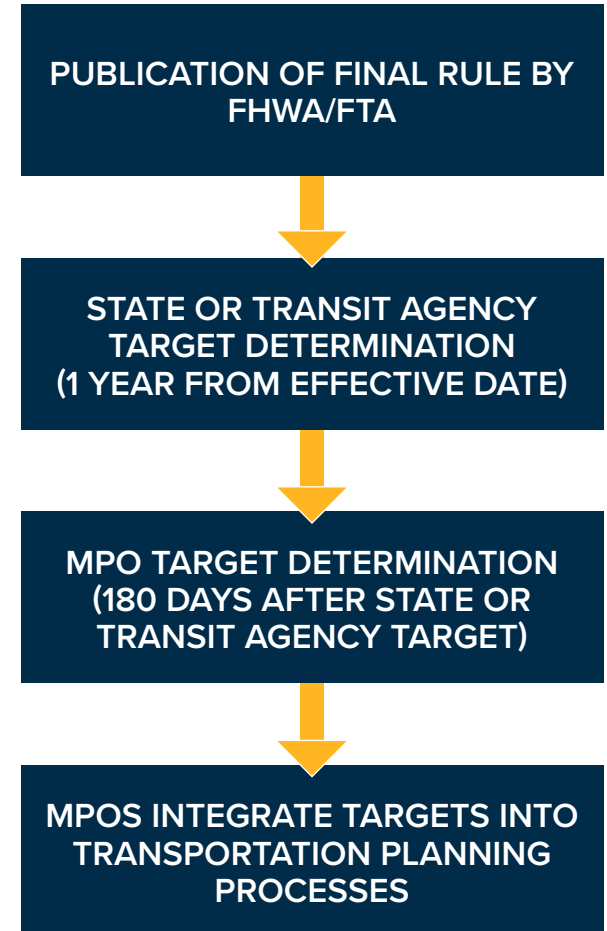
TRANSPORTATION PERFORMANCE MANAGEMENT (TPM)

TPM is a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. The FAST Act requires state DOTs, regional transit agencies, and MPOs to conduct performance-based planning by establishing targets for performance measures that are identified in various planning rules developed by the Federal Highway Administration (FHWA) and the Federal

Transit Administration (FTA). MPOs can either determine their own targets or support state DOT/transit agency targets. To date, MVRPC has decided to support all applicable performance targets established by ODOT and the regional transit agencies. These performance targets are integrated into the various MPO planning processes.



FHWA / FTA PLANNING RULE FRAMEWORK



SUMMARY OF MVRPC SUPPORTED ODOT/TRANSIT AGENCY PERFORMANCE TARGETS

	TARGET AREAS	HOW WE MEASURE	STATE/TRANSIT AGENCY ADOPTED TARGET	DOES MVRPC AREA MEET TARGET?
PM1	Safety	Number of Fatalities	1,084	✗
		Rate of Fatalities	0.93	✗
		Number of Serious Injuries	8,101	✓
		Rate of Serious Injuries	6.97	✓
		Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	811	Progress
PM2	Pavement Condition	Percentage Interstate System in Good Condition	50%	✓
		Percentage Interstate System in Poor Condition	1%	✓
		Percentage Non-Interstate System in Good Condition	35%	✗
		Percentage Non-Interstate System in Poor Condition	3%	✓
	Bridge Condition	Percentage of NHS bridges by deck area in Good condition	50%	✓
		Percentage of NHS bridges by deck area in Poor condition	5%	✓
PM3	NHS Travel Time Reliability	Percent of Person-Miles Traveled on the Interstate System that are Reliable	85%	✓
		Percent of Person-Miles Traveled on the Non-Interstate System that are Reliable	80%	✓
	Freight	Truck Travel Time Reliability (TTTR) Index	<1.5	✓
	Total CMAQ Emissions	Total CMAQ Project Reductions for CO, VOC, NOx, PM2.5 & PM10	VOC: 69 kg/day NOx: 537 kg/day	State Only
TRANSIT	Transit Asset Management Plan	Transit – Capital State of Good Repair	For specific targets see: https://www.mvrpc.org/sites/default/files/transit_asset_management_2017.pdf	✓
	Public Transportation Agency Safety Plan	Fatalities	For specific targets see: https://www.mvrpc.org/sites/default/files/ptasp_targets_2020.pdf	N/A
		Injuries		
		Safety Events		
		System Reliability (State of Good Repair)		

MVRPC BOARD OF DIRECTORS – MPO MEMBERS

BATH TOWNSHIP	CITY OF OAKWOOD	GREENE COUNTY	MUNICIPALITY OF NEW LEBANON
BEAVERCREEK TOWNSHIP	CITY OF PIQUA	GREENE COUNTY ENGINEER	ODOT DISTRICT 7
BETHEL TOWNSHIP	CITY OF RIVERSIDE	GREENE COUNTY TRANSIT BOARD	ODOT DISTRICT 8
CITY OF BEAVERCREEK	CITY OF SPRINGBORO	HARRISON TOWNSHIP	SOUTH METRO CHAMBER OF COMMERCE
CITY OF BELLBROOK	CITY OF TIPP CITY	JEFFERSON TOWNSHIP	SUGARCREEK TOWNSHIP
CITY OF BROOKVILLE	CITY OF TROTWOOD	MIAMI CONSERVANCY DISTRICT	VILLAGE OF COVINGTON
CITY OF CENTERVILLE	CITY OF TROY	MIAMI COUNTY	VILLAGE OF FARMERSVILLE
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CITY OF DAYTON	CITY OF VANDALIA	MIAMI COUNTY ENGINEER	VILLAGE OF NEW LEBANON
CITY OF ENGLEWOOD	CITY OF WEST CARROLLTON	MIAMI TOWNSHIP, GREENE COUNTY	VILLAGE OF WEST MILTON
CITY OF FAIRBORN	CITY OF XENIA	MIAMI TOWNSHIP, MONTGOMERY CO.	VILLAGE OF YELLOW SPRINGS
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