Thomas Jefferson Planning District Commission

Charlottesville/Albemarle MPO

CA-Metropolitan Planning Organization Policy Board
Wednesday, January 25, 2023 at 4 pm
In-Person Meeting

AGENDA

Join Zoom Meeting
https://us02web.zoom.us/j/83543174168?pwd=aTBQVnpENTQ4Yi94TnJ5dE9RQkkwdz09 *(for Remote Participation in Compliance with Adopted Remote Meeting Policy, Guest Speakers, and Members of Public)*
Meeting ID: 835 4317 4168 Passcode: 639970 Dial in: 1-646-558-8656

Item	Time†	Description
1	4:00 – 4:05	**Call to Order & Attendance**
2	4:05-4:10	**Matters from the Public:** limit of 3 minutes per speaker Public are welcome to provide comment on any transportation-related topic, including the items listed on this agenda, and/or comment during items marked with an *
3	4:10-4:20	**General Administration * -** Sandy Shackelford, CA-MPO • Introductions – CTB Member, FHWA Member, New Staff • Review and Acceptance of the Agenda* • Approval of December 6, 2022 Meeting Minutes*
4	4:20-4:25	**Officer Elections* –** CA-MPO Nominating Committee • Nominating Committee Recommendation • Nominations from the floor ○ Chair & Vice Chair
5	4:25-4:30	**Meeting Schedule for 2022* –** Sandy Shackelford, CA-MPO January 25, 2023 March 22, 2023 May 24, 2023 July 26, 2023 August 23, 2023 September 27, 2023 October 25, 2023 December 5, 2023 *(First Tuesday of the month to accommodate Thanksgiving)*
6	4:30-4:45	**Letter of Support for Section 5310 Mobility Management Grant Application* –** Lucinda Shannon, CA-MPO • Letter of Support *The MPO Technical Advisory Committee recommended approval of the resolution.*
7	4:45-5:00	**Resolution of Support for Rivanna River Bicycle and Pedestrian Bridge RAISE Grant Application* –** Sandy Shackelford, CA-MPO • Resolution
8	5:00-5:15	**Approval of Performance Targets* -** Sandy Shackelford, CA-MPO • Safety • Infrastructure Conditions • System Performance • Transit Asset Management
9	5:15-5:30	**SMART Scale –** Sandy Shackelford, CA-MPO & VDOT Staff • Review of staff-recommended scenarios presented to the CTB
10	5:30-5:40	**Staff updates** • Moving Toward 2050 - Project Prioritization Technical Memo – Sandy Shackelford, CA-MPO • Moving Toward 2050 – Demographic Data – Ryan Mickles, CA-MPO • Regional Transit Partnership/Transit Grants – Lucinda Shannon, CA-MPO • RideShare/Afton Express – Sara Penningston, RideShare
11	5:40-5:55	**Roundtable Discussion** • 2022 VDOT Culpeper District Transportation Update
12	5:55-5:57	**Items Added to the Agenda**
13	5:57-6:00	**Additional Matters from the Public** Members of the Public are welcome to provide comment (limit of 3 minutes per speaker)
14	6:00pm	Adjourn

† Times are approximate ** Requires a vote of the Board*

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Wednesday, January 25, 2023 at 4 pm
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VOTING MEMBERS
Ann Mallek, Albemarle
Ned Gallaway, Albemarle
Brian Pinkston, Charlottesville
Lloyd Snook, Charlottesville
Sean Nelson, VDOT
Stacy Londrey, VDOT (alternate)
NON-VOTING MEMBERS
Ted Rieck, Jaunt
Julia Monteith, UVA
Garland Williams, CAT
Wood Hudson, DRPT
Steven Minor, FHWA
Ryan Long, FTA
Lee Kondor, CTAC
Christine Jacobs, TJPDC

Thomas Jefferson Planning District Commission

Regional Vision ▪ Collaborative Leadership ▪ Professional Service

MPO Policy Board Meeting

Minutes, December 6, 2022

DRAFT

Video of the meeting can be found here:

https://www.youtube.com/watch?v=oIBhFfo9-kI

VOTING MEMBERS & ALTERNATES		STAFF	
Ann Mallek, Albemarle	x	Lucinda Shannon, TJPDC	x
Ned Gallaway, Albemarle	x	Gretchen Thomas, TJPDC	x
Brian Pinkston, Charlottesville	x	Christine Jacobs, TJPDC	x
Lloyd Snook, Charlottesville	x	Sara Pennington, Rideshare	x
Sean Nelson, VDOT	x	Ryan Mickles, TJPDC	x
Stacy Londrey, VDOT (alternate)	x		
NON-VOTING MEMBERS		**GUESTS/PUBLIC**	
Ted Rieck, Jaunt	x	Neil Williamson *	x
Sandy Shackelford, TJPDC	x	Sean Tubbs *	x
Julia Monteith, UVA	x	James Freas	x
Garland Williams, CAT *	x	Jessica Hersh-Ballering	x
Wood Hudson, DRPT *	x	Brennen Duncan *	x
Richard Duran, FHWA			
Ryan Long, FTA			
Lee Kondor, CTAC *	x		
Chuck Proctor, VDOT *	x		
Michael Barnes, VDOT (alternate)	x		

** attended online via Zoom*

1. CALL TO ORDER (MINUTE 0:00)

The MPO Policy Board, Chair, Mr. Ned Gallaway, presided and called the meeting to order at 4:00 p.m.

2. MATTERS FROM THE PUBLIC (MINUTE :25)

a. Comments by the Public: Peter Krebs, Piedmont Environmental Council, addressed the board about Smart Scale. He is concerned about the cost of the projects for Smart Scale in the Charlottesville Albemarle MPO area, some nearly doubling in estimated costs. He understands that inflation is a factor as are other contingency factors. He thinks that these numbers are on the high side. He said perhaps there could be a reformulation of the projects or some sort of positive hedge. He looks forward to hearing how the board moves forward. He thanked the board for their steadfast work to make the community better for everyone.

b. Comments provided via email, online, web site, etc.: None.

401 East Water Street ▪ Post Office Box 1505 ▪ Charlottesville, Virginia 22902-1505
Telephone (434) 979-7310 ▪ **Fax** (434) 979 1597 ▪ **Virginia Relay Users:** 711 (TDD) ▪ **email:** info@tjpdc.org ▪ **web:** www.tjpdc.org

3. GENERAL ADMINISTRATION* (MINUTE 4:20)

Review and Acceptance of the Agenda* (Minute 4:28)
Sandy Shackelford noted that the Darrell Byers with VDOT's Culpeper District will not be available today to be introduced. He has a meeting with the CTB today, but will be at the January meeting.

Motion/Action: Supervisor Mallek made a motion to accept the agenda as amended. Mayor Snook seconded the motion and it passed unanimously.

Approval of the September 28, 2022 Meeting Minutes (Minute 5:06)

Motion/Action: Councilman Pinkston made a motion to approve the September 28, 2022 minutes. Mayor Snook seconded the motion and the motion passed unanimously.

4. APPOINTMENT OF OFFICER NOMINATION COMMITTEE (MINUTE 5:35)

Ms. Shackelford noted that Ted Reick, Julia Monteith, and Sean Nelson will be on the nominating committee.

Mr. Gallaway asked Sandy Shackelford to officially call roll.

5. TITLE VI PLAN (MINUTE 8:34)

Lucinda Shannon gave an overview of Title VI and noted that the new name is TJPDC Title VI Implementation plan. She presented a timeline on how the TJPDC will implement the plan. She noted that the plan was offered to the public in numerous ways and areas with no comment.

Motion/Action: Councilman Pinkston made a motion to approve the use of the updated TJPDC Title VI Implementation plan for the Charlottesville Albemarle Metropolitan Planning Organization. Supervisor Mallek seconded the motion and it passed unanimously.

6. REGIONAL TRANSIT VISION PLAN & GOVERNANCE STUDY (MINUTE 13:54)

Ms. Shannon presented the board with the update on the Regional Transit Vision plan. The Regional Transit Governance Study for Region 10 was based on the recommendations from the Regional Transit Vision plan. Ms. Shannon presented the board with the background, the study goal, approach, the stakeholders and the extensive engagement plan planned. She continued with how the study will create consensus.

Ms. Mallek noted that this is something that was undertaken in 2005 and said that there was no consensus on which jurisdictions would take on the different responsibilities.

7. LONG RANGE TRANSPORTATION PLAN 2050 (MINUTE 22:39)

Ms. Shackelford gave an overall update on the LRTP including work completed to date and work still in progress.

She noted that the document was been renamed to “Moving Toward 2050” to make it more engaging and seem less technical.

She reported on the public and extensive stakeholder engagement process.

She discussed the public engagement strategy in Phase I will include stakeholder meetings with key community members of targeted populations in ongoing plan development. These discussion groups will provide feedback on goals and objectives that were drafted by staff/MPO committees.

Ned Gallaway noted that it will be important that these public stakeholders be aware of what each one of the organizations is and how the process works.

Ms. Shackelford noted that in Phase II, the engagement strategies will include public meetings, public intercepts and surveys. This will help to prioritize goals and obtain public feedback on transportation improvement needs. There was a discussion about how best to reach neighborhoods and other geographic boundaries through Community Action Committees, Homeowners Associations and others.

Julia Monteith suggested explaining what the value is of the LRTP to the community members. That may help to demystify the plan and the process.

Ms. Shackelford continued by describing Phase III including public meetings, public intercepts and public comments. The last phase will include a public hearing.

She went onto describe the proposed stakeholder discussion groups and how to best organize them and asked the board for feedback. She has the groups broken into four categories: business, safety professionals, equity priority communities, and special interests.

Mr. Gallaway noted that it was most important to hear from everyone from these groups not that they be in certain groups.

There were suggestions made on who to involve in the process including representatives from CAAR; Livable Cville; local police; fire chiefs; JABA; Southwood; UVA, City, and County Economic Development departments; Region 10; and Rev. Dr. Alvin Edwards of Mt. Zion First African Baptist Church.

Ms. Shackelford reviewed the draft goals and objectives and metrics.

Supervisor Gallaway said it will be important to inform the stakeholders with the budget numbers so they can make decisions about their priorities.

Ms. Shackelford presented the immediate next steps including scheduling stakeholder discussion group meetings and review previous public engagement related to transportation system improvements.

8. SMART SCALE PROJECT REVIEW (MINUTE 1:17:40)

Ms. Shackelford reviewed the final project cost estimates for Round 5 of Smart Scale. She noted that the costs were initially base-cost estimates, and with inflation, these cost estimates have increased dramatically. She noted that because they are so high, there is the expectation that most of the projects will not be funded.

There was discussion about how to mitigate this issue in the future.

9. ROUNDTABLE UPDATES (MINUTE 1:42:40)

UVA: Julia Monteith had nothing to reported for UVA.

TJPDC: Christine Jacobs did not have any update for TJPDC.

Albemarle County: Jessica Hersh-Ballering noted that the County just submitted a grant application with FHWA and will find out the award in January or February. They are also working on roadway conceptualization projects as well. She also reported that they are wrapping up Phase I of their Comp Plan and will be moving into Phase II in January.

City of Charlottesville: Ben Chambers introduced himself to the board as the new Transportation Planner for the City.

VDOT: Sean Nelson shared that the 250/151 roundabout is open with no issue. The DDI is in for final configuration in Pantops. He noted that as soon as there is window to pave at night, it will be completed. The "Hydraulic bundle" meeting will begin next week.

Jaunt: Ted Rieck did not have anything to report for Jaunt.

CAT: Garland Williams has nothing more to share as an update.

CTAC: Lee Kondor had nothing more to update.

DRPT: Wood Hudson said the DRPT grant season opened on December 1. The Transit Asset Management Plan is available online. MPOs should be working with transit agencies on identifying transit projects for updated TIPs.

10. ITEMS ADDED TO THE AGENDA

None.

11. ADDITIONAL MATTERS FROM THE PUBLIC

None.

Mr. Gallaway reported the next meeting date will be January 25, 2023.

ADJOURNMENT: Mr. Gallaway moved to adjourn the meeting at 5:49 p.m. Mr. Pinkston seconded the and the motion was passed unanimously.

Committee materials and meeting recording may be found at https://campo.tjpdc.org/committees/policy-board/

Thomas Jefferson Planning District Commission

Charlottesville/Albemarle MPO

Jennifer DeBruhl, Director
Virginia Department of Rail and Public Transportation
600 East Main Street, Suite 2102
Richmond, VA 23219

Dear Director DeBruhl,

Please accept this letter of support for the Thomas Jefferson Planning District Commission's (TJPDC) application to the FTA 5310 Program to implement a mobility management program. The addition of an informational and referral program will enhance our current transit services and meet the requirements of growing senior and disabled populations who need transportation services.

As a regional planning agency, the TJPDC is uniquely qualified to develop and host a regional mobility management program. Working with jurisdictions and service providers, the TJPDC has fostered multiple partnerships and coordination efforts, including the Regional Transit Partnership and the Charlottesville Community Alliance who will both be active partners in the proposed mobility management program.

The Regional Transit Partnership (RTP) serves as an official advisory board to the TJPDC, created by the City of Charlottesville, Albemarle County, UVA, and JAUNT, in Partnership with the Virginia Department of Rail and Public Transportation to provide recommendations to decision-makers on transit-related matters. Because of the goodwill built among the members of the RTP, and recent successful transit planning projects, to include the Regional Transit Vision Plan, the TJPDC is uniquely qualified to continue efforts to enhance transit and coordination among services.

In addition to staffing and guiding the RTP, TJPDC helped develop the Charlottesville Community Alliance, a group of aging service providers and volunteers working towards an age friendly community. TJPDC staff plays an active role in CAA's transportation working group, assisting on AARP grant projects to help jurisdictions plan for transit and walkable developments and acting as CAA's secretary.

The Charlottesville Albemarle Metropolitan Planning Organization enthusiastically supports TJPDC's application and the addition of much needed mobility management services.

Sincerely,

TBD, Chair
Charlottesville-Albemarle Metropolitan Planning Organization

Thomas Jefferson Planning District Commission
POB 1505, 401 E. Water Street, Charlottesville, VA 22902 www.tjpdc.org
(434) 979-7310 phone ● info@tjpdc.org email

RESOLUTION

SUPPORTING RAISE GRANTAPPLICATION TO FUND PRELIMINARY ENGINEERING PHASE FOR THE RIVANNA RIVER BICYCLE AND PEDESTRIAN BRIDGE

WHEREAS, the US Department of Transportation released an amended Notice of Funding Opportunity, on January 5, 2023 for the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) discretionary grant program – formerly Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants; and

WHEREAS, the proposed Rivanna River Bicycle and Pedestrian Bridge between Pantops and Woolen Mills has been identified as a high-priority regional project in multiple planning documents prepared by the City of Charlottesville, Albemarle County, the Charlottesville-Albemarle Metropolitan Planning Organization (CA-MPO), and the Thomas Jefferson Planning District Commission (TJPDC); and

WHEREAS, substantial effort has been invested through collaboration among the TJPDC, the CA-MPO, the City of Charlottesville, Albemarle County, the Virginia Department of Transportation, and the general public to evaluate potential bridge locations and select a preferred alignment; and

WHEREAS, the unknown risks associated with construction costs for the bridge have resulted in significant contingencies that need to be applied to baseline project costs in any funding application through existing state funding programs; and

WHEREAS, the completion of the preliminary engineering phase would result in better project understanding to develop more accurate estimates of the project construction costs; and

WHEREAS, TJPDC staff will submit a 2023 grant application to complete the preliminary engineering phase of the project to reduce the contingencies and identify opportunities for project constructions;

THEREFORE, BE IT RESOLVED, that the Charlottesville-Albemarle Metropolitan Planning Organization Policy Board is in full support and endorses the RAISE planning grant funding application for the Rivanna River Bicycle and Pedestrian Crossing Preliminary Engineering Phase.

_____
CA-MPO Policy Board Chair

_____
Date

Thomas Jefferson Planning District Commission
Charlottesville/Albemarle MPO

Charlottesville-Albemarle Metropolitan Planning Organization
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Memorandum

To: MPO Committee Members
From: Sandy Shackelford, Director of Planning & Transportation
Date: January 18, 2023
Reference: Charlottesville-Albemarle MPO Performance Targets

Purpose:

The Moving Ahead for Progress in the 21st Century Act, MAP-21, signed into law in 2012, established requirements for states to develop performance measures that would align with nationally established performance goals and be used to direct resources in projects that support the achievement of the national goals, which are listed below.

Table 1. National Performance Goals

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 U.S. Secretary of Transportation, in consultation with States, MPOs and other stakeholders, establishes performance measures in the following areas:

- Pavement condition on the Interstate System and on remainder of the National Highway System (NHS)
- Performance of the Interstate System and the remainder of the NHS
- Bridge condition on the NHS

- Fatalities and serious injuries—both number and rate per vehicle mile traveled--on all public roads
- Traffic congestion
- On-road mobile source emissions
- Freight movement on the Interstate System

Within one year of the DOT final rule on the established performance measures, States must establish their performance targets in support of those measures. Within 180 days of the States' establishment of their targets, MPOs are required to also establish performance targets that support the State and National targets where applicable.

Background:

In establishing the MPO's performance targets, the MPO is committing to pursuing projects and objectives that support the adopted targets. Because VDOT maintains the majority of the transportation infrastructure and sets priorities for ongoing infrastructure maintenance and repair and establishes the prioritization process for approving new transportation infrastructure, the MPO has historically adopted the state's targets. The targets are developed using a data-driven process.

Safety Performance Targets

The safety targets are established annually. Based on the projected safety outcomes developed using the state's model-based approach, the targets that the state has set indicate that the number of fatalities will continue to increase and that the number of serious injuries will show a very minor decline, reflecting almost stagnant change from previous years.

In response to these anticipated outcomes, the Commonwealth Transportation Board has adopted aspirational performance goals reflecting the stated goals of the 2022-2026 Strategic Highway Safety Plan of reducing fatalities and serious injuries by two percent per year and directing the Office of Intermodal Planning & Investment, VDOT, and the Department of Motor Vehicles to evaluate and identify actionable strategies to improve safety performance and evaluate how such strategies will help to achieve the aspirational safety performance goals.

VDOT has provided a workbook to assist the MPOs in understanding the local trends in developing and establishing safety targets. Regardless of the safety target that is adopted for the Charlottesville-Albemarle MPO area, prioritizing projects that promote safe travel has been and will continue to be of the utmost importance. The MPO continues to pursue projects that will promote safe travel through our regional network, and is actively seeking resources to establish local strategies to establish a more comprehensive approach in improving safety outcomes such as the submission of a Safe Streets and

Roads for All Grant and through coordination with the state's Highway Safety Improvement Program to better understand and respond to factors that contribute to unsafe outcomes.

Table 2. Safety Performance Targets showing difference in expected outcomes between existing local trends and statewide trends.

Safety Performance Targets	Adopted 2-year State Targets (2023)	CA-MPO 2023 Projections Based on Trends	CA-MPO 2023 Projections with State Targets
Percentage change fatalities	3.69%	-0.30%	3.69%
Number of fatalities	1012	**9**	**10**
Fatality rate	1.216	**0.76**	**0.854**
Percentage change serious injuries	-0.52%	-5.80%	-0.52%
Number of serious injuries	7465	**108**	**121**
Serious injury rate	8.971	9.204	10.265
Percentage change non-motorized fatalities + serious injuries		-1.20%	-0.86%
Number of non-motorized fatalities + serious injuries		**13**	**13**
Numbers in **red** indicate the actual targets that would be adopted based on the MPO adopting the state's established safety performance targets. Numbers in **green** indicate the actual targets that would be adopted based on the MPO adopting safety performance targets that reflect more localized trends.			

Infrastructure Condition and System Performance Targets

The Infrastructure Condition and System Performance targets are established for a four-year performance period and includes bridge and pavement condition, as well as highway and freight reliability. Because the Charlottesville-Albemarle MPO is not in a non-containment area, the air quality and traffic congestion measures are not currently applicable to us.

Table 3. Asset and System Condition Targets

Asset and System Conditions Targets	CA-MPO 2021 Actual	Adopted 4-year State Targets (2025)	Proposed CA-MPO Targets
Percentage of deck area of bridges in good condition (NBI on NHS)	10.8	25.1	25.1
Percentage of deck area of bridges in poor condition (NBI on NHS)	7.8	3.6	3.6
Percentage of pavement in good condition (Interstate)	73.5	45	45
Percentage of pavement in poor condition (Interstate)	0	3	3

Percentage of pavement in good condition (NHS)	28.7	25	25
Percentage of pavement in poor condition (NHS)	0.1	5	5
Percentage of person-miles traveled that are reliable (Interstate)	100	85	85
Percentage of person-miles traveled that are reliable (Non-Interstate NHS)	90.7	88	88
Truck travel time reliability index (Interstate)	1.15	1.64	1.64

Transit Asset Management Targets

The Department of Rail and Public Transportation (DRPT) has provided guidance on the establishment of Transit Asset Management performance targets, and you can refer to the background information included in your packet for additional information. For smaller transit agencies such as the ones operating in the CA-MPO area, DRPT sponsors a Tier II Asset Management Plan that establishes statewide performance measures in the required categories explained in Table 4.

Table 4. TAM Performance Measures by Asset Category

Asset Category	Relevant Assets	Measure	Measure Type	Desired Direction
Equipment	Service support, maintenance, and other non-revenue vehicles	Percentage of vehicles that have met or exceeded their ULB	Age-based	Minimize percentage
Rolling Stock	Buses, vans, and sedans; light and heavy rail cars; commuter rail cars and locomotives; ferry boats	Percentage of revenue vehicles that have met or exceeded their ULB	Age-based	Minimize percentage
Infrastructure	Fixed guideway track	Percentage of track segments with performance (speed) restrictions, by mode	Performance-based	Minimize percentage
Facilities	Passenger stations, parking facilities, administration and maintenance facilities	Percentage of assets with condition rating lower than 3.0 on FTA TERM Scale	Condition-based	Minimize percentage

The Tier II Group Plan targets are listed in Table 5.

Table 5. TAM Targets for rolling stock and facilties: Percentage of Revenue Vehicles that have met or exceeded their ULB by Asset Type

Asset Category - Performance Measure	Asset Class	FFY2022
Revenue Vehicles		
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	AB - Articulated Bus	5%
	BU - Bus	15%
	CU - Cutaway	10%
	MV-Minivan	20%
	BR - Over-the-Road Bus	15%
	VN - Van	20%
Equipment		
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue/Service Automobile	30%
	Trucks and other Rubber Tire Vehicles	30%
Facilities		
Condition - % of facilities with a condition rating below 3.0 on the FTA TERM Scale	Administrative Facilities	10%
	Maintenance Facility	10%
	Passenger Facilities	15%
	Parking Facilities	10%

Recommendation:

It is the staff recommendation that the CA-MPO Policy Board adopts the state performance targets in all categories to include Safety, Infrastructure Condition and System Performance, and Transit Asset Management.

The MPO Technical Committee recommended adoption of the state-established targets for Infrastructure Condition, System Performance, and Transit Asset Management, and recommended adopting Safety Performance Targets based on regional trends as shown in green text on Table 2, understanding that the regional initiatives are still largely driven by the statewide approach to addressing safety factors.

If there are any questions or comments, please contact Sandy Shackelford at sshackelford@tjpdc.org.

Directions:
View data in tables and graphs. Set goal percent changes and resulting targets in ***yellow cells*** .

Click here for more information.

Historical Crash Data	Crash Year	FARS Fatal People	FARS Non-Motorist Fatal People	A People	B People	C People	Persons Injured	K Crash	A Crash	B Crash	C Crash	PDO Crash	Injury Crashes	VMT (100 Million)
	2006	4	0	175	127	489	791	6	123	93	332	1,356	548	10.4
	2007	13	1	212	124	427	763	12	147	92	294	1,220	533	10.5
	2008	10	1	235	207	706	1,148	9	184	156	475	1,704	815	10.6
	2009	7	2	138	217	627	982	5	116	171	409	1,311	696	10.3
	2010	10	2	143	209	598	950	11	121	168	397	1,418	686	10.4
	2011	12	1	96	222	612	930	9	78	184	385	1,512	647	10.2
	2012	6	1	93	505	350	948	7	80	369	227	1,607	676	10.4
	2013	6	2	94	650	242	986	7	72	477	124	1,623	673	10.2
	2014	8	1	57	673	211	941	6	51	481	55	1,571	587	10.3
	2015	8	0	74	713	189	976	9	56	513	40	1,570	609	11.0
	2016	9	2	81	664	155	900	8	68	495	40	1,626	603	11.4
	2017	7	0	93	630	181	904	5	80	482	46	1,542	608	11.6
	2018	7	0	127	251	745	1,123	8	113	202	514	1,401	829	11.4
	2019	14	2	143	259	829	1,231	13	128	213	543	1,455	884	11.6
	2020	16	4	165	186	818	1,169	13	149	154	515	946	818	9.6
	2021	--	--	121	237	993	1,351	14	111	198	585	1,069	894	11.6

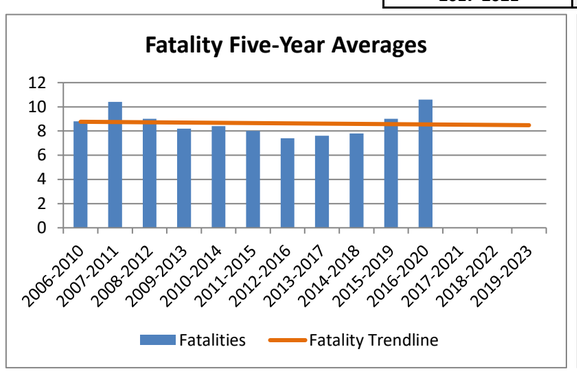
Notes:
The Fatality Analysis Reporting System (FARS), created by the National Highway Traffic Safety Administration (NHTSA), is used to report fatalities. FARS data is available through 2020.

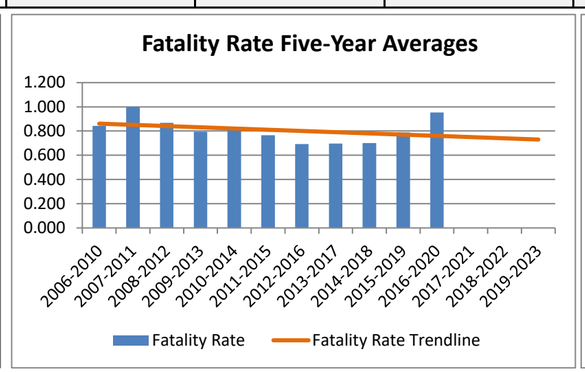
The Department of Motor Vehicles (DMV) crash data is used to report injury (Types A, B, and C) and property damage only (PDO) crashes. DMV data is available through 2021.

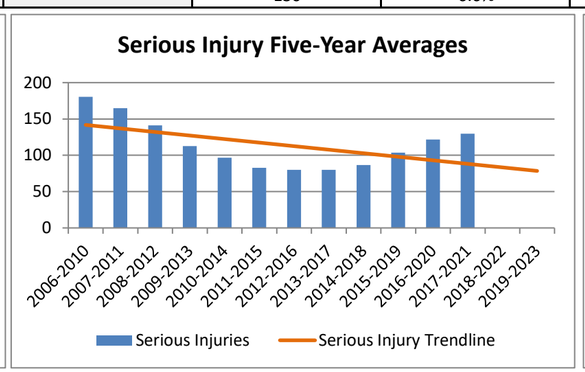
All fatality and injury totals are based on the most recent MPO boundary.

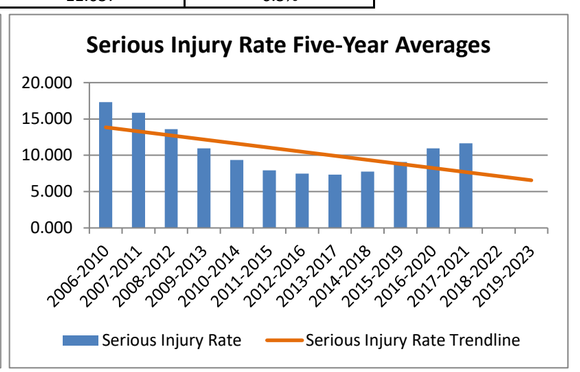
Calculated Five-Year Averages	Five-Year Period	Fatalities	% Change	Fatality Rate	% Change	Serious Injuries	% Change	Serious Injury Rate	% Change
	2006-2010	9	--	0.843	--	181	--	17.299	--
	2007-2011	10	18.2%	1.000	18.6%	165	-8.7%	15.843	-8.4%
	2008-2012	9	-13.5%	0.867	-13.3%	141	-14.4%	13.582	-14.3%
	2009-2013	8	-8.9%	0.795	-8.3%	113	-20.0%	10.942	-19.4%
	2010-2014	8	2.4%	0.814	2.4%	97	-14.4%	9.364	-14.4%
	2011-2015	8	-4.8%	0.766	-5.9%	83	-14.3%	7.932	-15.3%
	2012-2016	7	-7.5%	0.693	-9.5%	80	-3.6%	7.477	-5.7%
	2013-2017	8	2.7%	0.697	0.5%	80	0.0%	7.319	-2.1%
	2014-2018	8	2.6%	0.700	0.4%	86	8.3%	7.754	5.9%
	2015-2019	9	15.4%	0.789	12.7%	104	19.9%	9.082	17.1%
	2016-2020	11	17.8%	0.953	20.8%	122	17.6%	10.952	20.6%
	2017-2021	--	--	--	--	130	6.6%	11.637	6.3%

Notes:
This table contains the five-year averages based on the historical crash data. Fatality data is available up through the 2016-2020 five-year period. Serious injury data is reported up through the 2017-2021 five-year period.









Projected Five-Year Average Based on Historical Trendline	Description	2021	2022	2023	Average Percent Change*
Notes: This table projects the five-year average for future years based on the historical trendline.	**Fatalities**	9	9	8	-0.3%
	Fatality Rate	0.750	0.740	0.730	-1.4%
	Serious Injuries	88	83	78	-5.8%
	Serious Injury Rate	7.682	7.121	6.561	-7.9%

*A positive value represents an increase and a negative value represents a reduction in five-year averages from 2021 to 2023

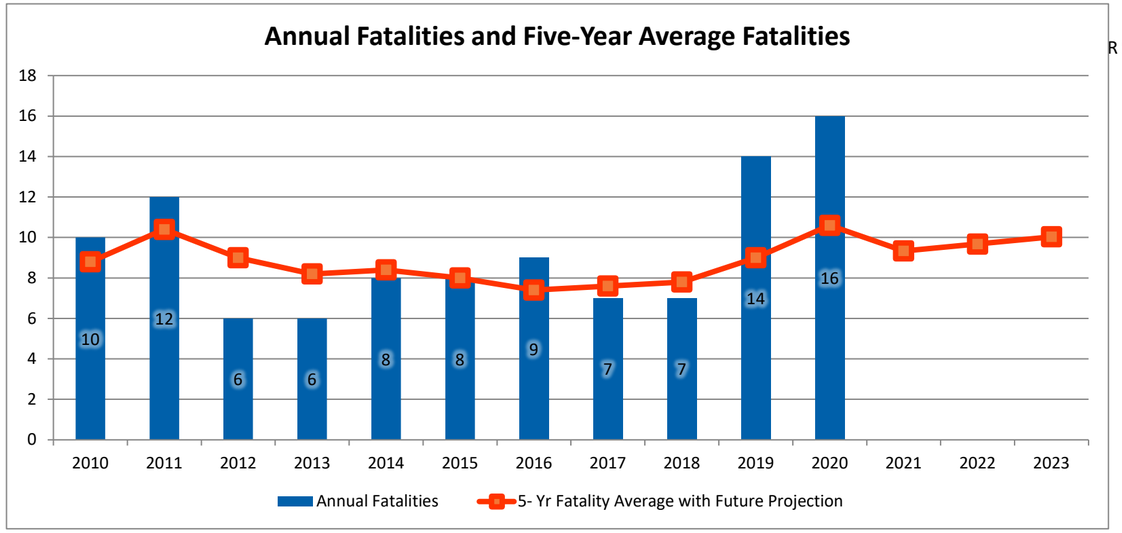
Goal Percent Changes	Description	Statewide Goal Percent Change	MPO Goal Percent Change
Instructions: Enter a goal percent change in the yellow cells. The goals will be used to develop the 2023 MPO safety targets in coordination with historical data in the table below. The statewide goal percent changes are provided for reference. The MPO may adopt the statewide goal percent changes if desired.	**Fatalities**	3.69%	**3.69%**
	Serious Injuries	-0.52%	**-0.52%**
	VMT	0.77%	**0.77%**

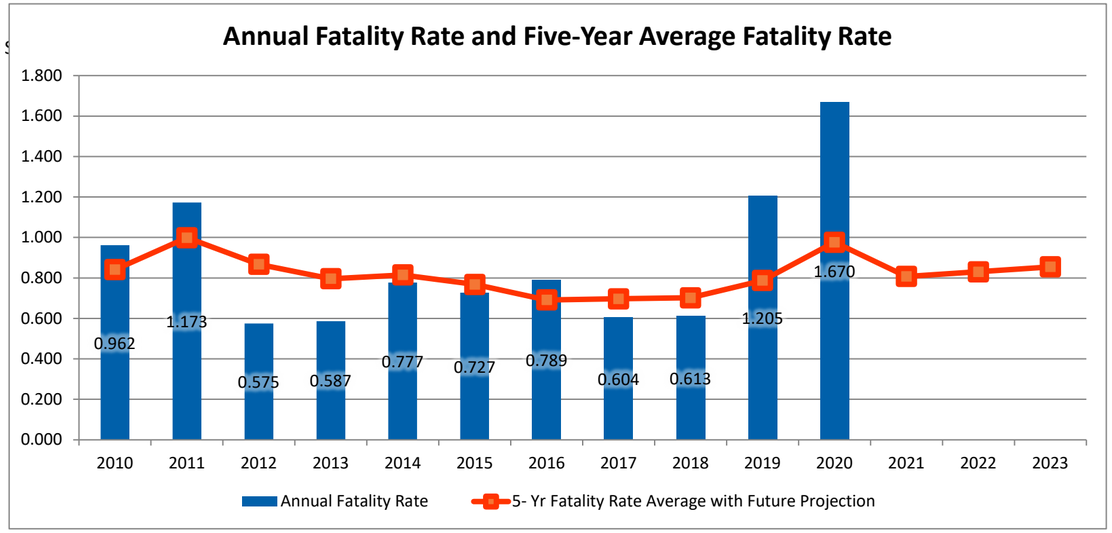
*A positive value represents an increase and a negative value represents a reduction in five-year averages from 2021 to 2023

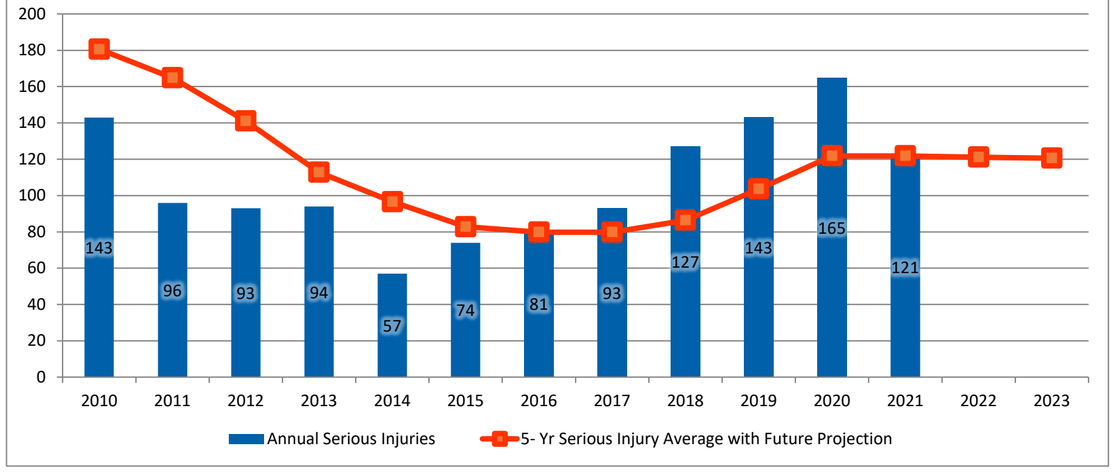
Projected Five-Year Average Based on Goal Percent Changes and Projected VMT Change	Description	2021	2022	2023
Instructions: This table projects the five-year average for future years based on the most recent five-year averages and the goal percent changes. Graphs for this data are shown in the *Graphs_Fatal_SI* tab.	**VMT (100 Million)***	11.56	11.65	11.74
	Fatalities	9	10	10
	Fatality Rate	0.807	0.830	0.854
	Serious Injuries*	122	121	121
	Serious Injury Rate*	10.952	10.398	10.265

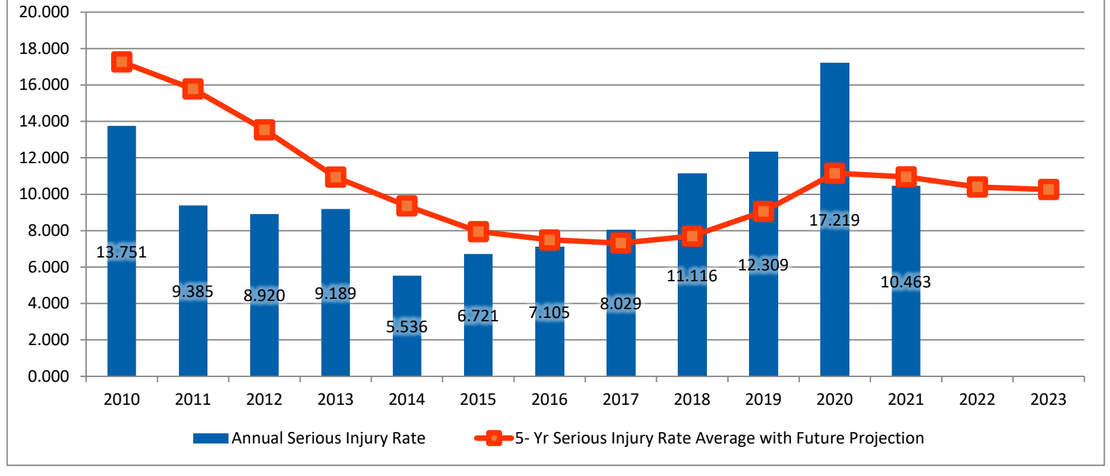
*Historical data provided for 2021. Projections reported for 2022-2023

2023 MPO Targets	Description	2023
Instructions: Once goal percent changes have been agreed upon, enter the resulting 2023 five-year average target values (from the table above).	**Fatalities**	**10**
	Fatality Rate	**0.854**
	Serious Injuries	**121**
	Serious Injury Rate	**10.265**


Annual Fatalities and Five-Year Average Fatalities
18
16
14
12
10
8
6
4
2
0
10
12
6
6
8
8
9
7
7
14
16
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Annual Fatalities
5- Yr Fatality Average with Future Projection


Annual Fatality Rate and Five-Year Average Fatality Rate
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
0.962
1.173
0.575
0.587
0.777
0.727
0.789
0.604
0.613
1.205
1.670
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Annual Fatality Rate
5- Yr Fatality Rate Average with Future Projection


Annual Serious Injuries and Five-Year Average Serious Injuries
200
180
160
140
120
100
80
60
40
20
0
143
96
93
94
57
74
81
93
127
143
165
121
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Annual Serious Injuries
5- Yr Serious Injury Average with Future Projection


Annual Serious Injury Rate and Five-Year Average Serious Injury Rate
20.000
18.000
16.000
14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000
13.751
9.385
8.920
9.189
5.536
6.721
7.105
8.029
11.116
12.309
17.219
10.463
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Annual Serious Injury Rate
5- Yr Serious Injury Rate Average with Future Projection

Directions:
View data in tables and graphs. Set goal percent changes and resulting targets in ***yellow cells.***

Click here for more information.

Historical Crash Data

Crash Year	FARS Fatal People	FARS Non-Motorist Fatal People	Non-Motorist A People	Non-Motorist B People	Non-Motorist C People	Non-Motorist Persons Injured	Non-Motorist K Crash	Non-Motorist A Crash	Non-Motorist B Crash	Non-Motorist C Crash	Non-Motorist PDO Crash	Non-Motorist Injury Crashes	VMT (100 Million)	K+A Non-Motorist People
2006	4	0	3	6	1	10	1	3	5	1	0	9	10.4	3
2007	13	1	9	6	1	16	1	9	5	1	1	15	10.5	10
2008	10	1	20	19	18	57	1	19	19	15	0	53	10.6	21
2009	7	2	10	15	19	44	2	11	15	14	0	40	10.3	12
2010	10	2	16	32	24	72	2	16	31	24	0	71	10.4	18
2011	12	1	14	38	21	73	1	14	38	20	0	72	10.2	15
2012	6	1	18	41	21	80	1	19	40	16	1	75	10.4	19
2013	6	2	13	48	9	70	2	12	48	8	0	68	10.2	15
2014	8	1	10	54	4	68	1	10	50	4	1	64	10.3	11
2015	8	0	6	49	2	57	1	6	49	2	2	57	11.0	6
2016	9	2	13	34	4	51	2	11	30	4	1	45	11.4	15
2017	7	0	11	47	4	62	0	11	45	3	2	59	11.6	11
2018	7	0	16	17	24	57	0	16	17	24	0	57	11.4	16
2019	14	2	17	25	11	53	2	17	25	11	0	53	11.6	19
2020	16	4	15	16	11	42	4	15	16	11	0	42	9.6	19
2021	--	--	12	12	12	36	4	12	12	10	0	34	11.6	--

Notes:
The Fatality Analysis Reporting System (FARS), created by the National Highway Traffic Safety Administration (NHTSA), is used to report fatalities. FARS data is available through 2020.

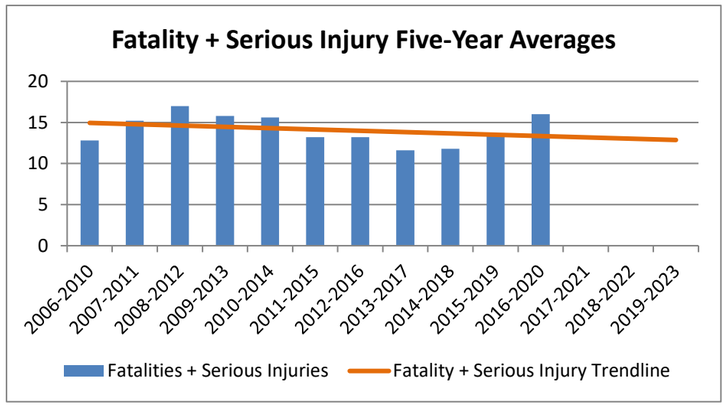
The Department of Motor Vehicles (DMV) crash data is used to report injury (Types A, B, and C) and property damage only (PDO) crashes. DMV data is available through 2021.

All fatality and injury totals are based on the most recent MPO boundary.

Calculated Five-Year Averages

Five-Year Period	Fatalities	% Change	Serious Injuries	% Change	Fatalities + Serious Injuries	% Change
2006-2010	1	--	12	--	13	--
2007-2011	1	16.7%	14	19.0%	15	18.8%
2008-2012	1	0.0%	16	13.0%	17	11.8%
2009-2013	2	14.3%	14	-9.0%	16	-7.1%
2010-2014	1	-12.5%	14	0.0%	16	-1.3%
2011-2015	1	-28.6%	12	-14.1%	13	-15.4%
2012-2016	1	20.0%	12	-1.6%	13	0.0%
2013-2017	1	-16.7%	11	-11.7%	12	-12.1%
2014-2018	1	-40.0%	11	5.7%	12	1.7%
2015-2019	1	33.3%	13	12.5%	13	13.6%
2016-2020	2	100.0%	14	14.3%	16	19.4%
2017-2021	--	--	14	-1.4%	--	--

Notes:
This table contains the five-year averages based on the historical crash data. Fatality data is available up through the 2016-2020 five-year period. Serious injury data is reported up through the 2017-2021 five-year period.



Projected Five-Year Average Based on Historical Trendline	Description	2021	2022	2023	Average Percent Change
Notes: This table projects the five-year average for future years based on the historical trendline.	**Non-Motorized Fatalities + Serious Injuries**	13	13	13	-1.2%

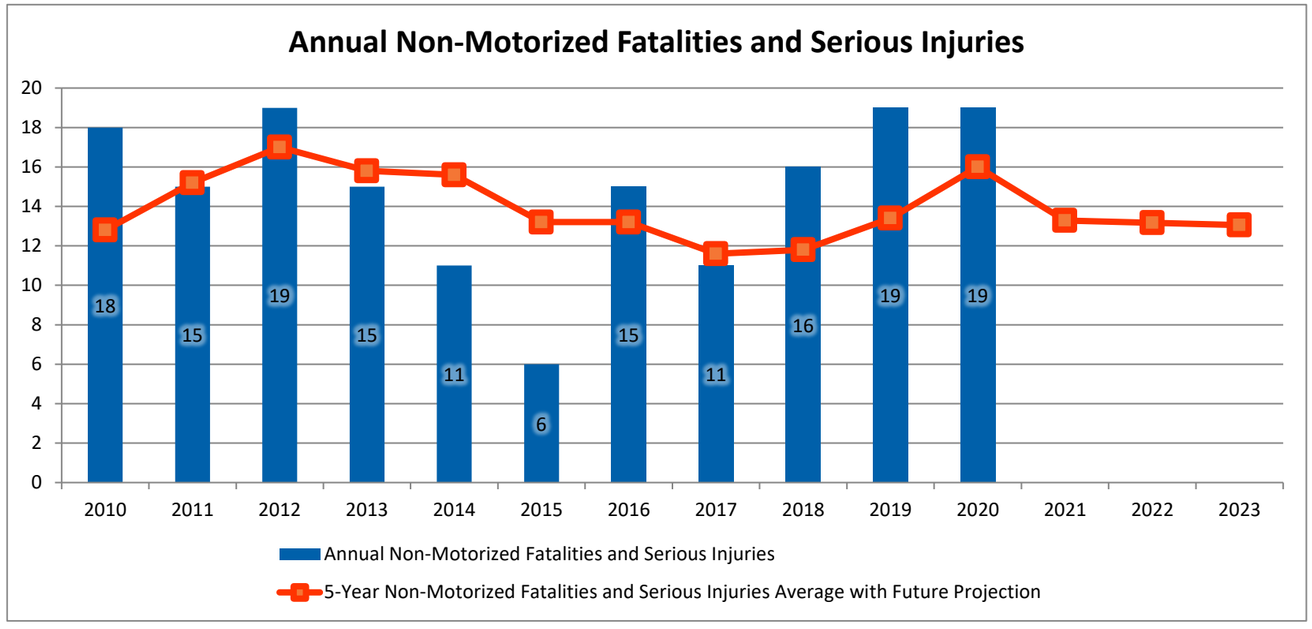
*A positive value represents an increase and a negative value represents a reduction in five-year averages from 2021 to 2023

Goal Percent Change	Description	Statewide Percent Change	Goal Percent Change*
Instructions: Enter a goal percent change in the yellow cells. The goals will be used to develop the 2023 MPO safety targets in coordination with historical data in the table below. The statewide percent changes are provided for reference. The MPO may adopt the statewide goal percent changes if desired.	**Non-Motorized Fatalities + Serious Injuries**	-0.86%	**-0.86%**

*A positive value represents an increase and a negative value represents a reduction in five-year averages from 2021 to 2023

Projected Five-Year Average Based on Goal Percent Change and Projected VMT Change	Description	2021	2022	2023
Instructions: This table projects the five-year average for future years based on the most recent five-year averages and the goal percent changes. Graphs for this data are shown in the *Graphs_Bike_Ped* tab.	**Non-Motorized Fatalities + Serious Injuries**	13	13	13

2023 MPO Targets	Description	2023
Instructions: Once goal percent changes have been agreed upon, enter the resulting 2023 five-year average target values (from the table above).	**Non-Motorized Fatalities + Serious Injuries**	**13**


Annual Non-Motorized Fatalities and Serious Injuries
20
18
16
14
12
10
8
6
4
2
0
18
15
19
15
11
6
15
11
16
19
19
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Annual Non-Motorized Fatalities and Serious Injuries
5-Year Non-Motorized Fatalities and Serious Injuries Average with Future Projection

KABCO Scale: A functional measure of the injury severity for any person involved as determined by law enforcement at the scene of the crash.

Injury Type	Common Identification	Full Definition
K	Fatal Injury	A fatal injury is an injury that results in death within 30 days after the motor vehicle crash in which the injury occurred.
A	Incapacitating Injury	Injury = Suspected Serious Injury which is any injury other than fatal, resulting in one or more of the following: a. Severe laceration resulting in exposure of underlying tissues, muscle, organs, or resulting in significant loss of blood b. Broken or distorted extremity (arm or leg) c. Crush injuries d. Suspected skull, chest, or abdominal injury other than bruises or minor lacerations e. Significant burns (second and third degree burns over 10 percent or more of the body) f. Unconsciousness when taken from the crash scene g. Paralysis
B	Non-incapacitating Injury	Minor/Possible Injury = Other Visible Injury, as Bruises, Abrasions, Swelling, Limping, etc.
C	Possible Injury	No Apparent Injury = No Visible Injury, But Complaint of Pain, or Momentary Unconsciousness
PDO Crash	Property Damage Only	Crash resulting in property damage of at least $1500 to the motor vehicle or other property but without injury to any occupants or non-motorists. The damage amount prior to 2009 is $1,000.

2022 TIER II GROUP TRANSIT ASSET MANAGEMENT PLAN

MPO PERFORMANCE MEASURES GUIDANCE

Background

The National Transit Asset Management System Final Rule (49 U.S.C. 625) requires transit agencies that receive federal financial assistance under 49 U.S.C. Chapter 53 and own, operate, or manage capital assets used in the provision of public transportation create a Transit Asset Management (TAM) plan. Transit agencies can fulfill this requirement through an individual or group plan. A group plan is designed to collect TAM information about groups (typically smaller sub-recipients of 5311 or 5307 federal grant programs).

TAM requirements and eligibility is split into two tiers based on the size of a transit agency's vehicle fleet. The criteria for each tier are shown in Figure 1.

Figure 1. Tier I and Tier II Agency Providers

Tier I	Tier II
Operates rail **OR** ≥ 101 vehicles across all fixed route modes **OR** ≥ 101 vehicles in one non-fixed route mode	Subrecipient of 5311 funds **OR** American Indian Tribe **OR** ≤ 100 vehicles across all fixed route modes **OR** ≤ 100 vehicles in one non-fixed route mode

Important Dates
TAM Adoption Date: 10/1/ 2022
MPOs update TIP/CLRP: 3/30/2023

In Virginia, the Department of Rail and Public Transportation (DRPT) sponsors a Tier II Group TAM Plan that covers 33 transit agencies in Virginia (see Attachment 1 for a list of participating agencies).

The following larger agencies maintain their own Tier I TAM Plans:

- Hampton Roads Transit (HRT)
- Greater Richmond Transit Company (GRTC)
- Potomac and Rappahannock Transportation Commission (PRTC)
- Virginia Railway Express (VRE)

DRPT published a new FFY22 Virginia Group Tier II Transit Asset Management Plan on October 1, 2022, after The Plan was adopted by the 33 transit agencies who were eligible to participate in the plan.
The plan includes a detailed inventory of capital transit assets (vehicles and facilities). A condition assessment of these inventoried assets along with a discussion of decision support tools and investment prioritization.

The TAM plan was developed from asset information provided by each participating transit agency. To facilitate the TAM planning process transit agencies are required to maintain asset inventory data statewide TransAM database. Information in the database is required to be updated twice annually (July 15 and January 15).

DRPT prioritizes State capital assistance provided to transit agencies via the MERIT Capital Assistance Program. The MERIT program is guided by a project prioritization process for capital needs that allows DRPT to allocate and assign limited resources to projects and investments identified as the most critical. The prioritization process is designed to favor projects that:

- Achieve the statewide policy objective of maintaining a state of good repair of existing assets and;
- Have the greatest impact on the provision of public transportation services throughout the state.

Over the plans, the 4-year planning horizon DRPT will provide MPOs with revised TAM performance Targets after October 1 of each calendar year. Each year MPOs will need to update the TAM performance Target table(s) in the TIP/CLRP to reflect the new targets.

TAM Plan Data

In addition to the plan, DRPT is making TAM inventory data available through the DRPT Open Data Portal. The TAM section allows MPOs to review TAM Plan inventor data by MPO area or transit agency. The Open data portal provides access to current TAM Plan performance targets by asset type and asset class.

MPO Role in TAM

1. Background

With the publication of the FFY22 Tier II Group TAM Plan on October 1, 2022, MPOs have 180-days (from October 1, 2022) to update their planning documents to reflect the newly published TAM performance targets (Figure 1).

MPOs can use the targets developed for the Group TAM Plan or develop their own regionally specific targets. DRPT is providing MPOs with the Group TAM Plan targets and template language to facilitate the TIP/CLRP update process.

DRPT is providing a form letter that MPOs should use to notify DRPT of their intent to adopt the Statewide Tier II TAM targets.

When adopting the TAM targets MPOs should review their Public Participation Plan to determine the exact procedures for modifying the TIP. MPOs may be able to update targets and TAM language using the TIP modification procedures versus a full TIP amendment

Note: DRPT only provides the statewide targets for agencies participating in the Tier II Group Plan. Large, Tier I transit agencies are responsible for developing their own TAM Plans. If an MPO has a Tier I transit agency within its MPO area coordination should happen between the MPO and the transit agency.

2. TAM Target Setting

An MPO may use the language below in their TIP. Replace the appropriate highlighted text with relevant references.

The National Transit Asset Management System Final Rule (49 U.S.C 625) specifies four performance measures, which apply to four TAM asset categories: equipment, rolling stock, infrastructure, and facilities. Figure A describes each of these measures.

Figure A: TAM Performance Measures by Asset Category

Asset Category	Relevant Assets	Measure	Measure Type	Desired Direction
Equipment	Service support, maintenance, and other non-revenue vehicles	Percentage of vehicles that have met or exceeded their ULB	Age-based	Minimize percentage
Rolling Stock	Buses, vans, and sedans; light and heavy rail cars; commuter rail cars and locomotives; ferry boats	Percentage of revenue vehicles that have met or exceeded their ULB	Age-based	Minimize percentage
Infrastructure	Fixed guideway track	Percentage of track segments with performance (speed) restrictions, by mode	Performance-based	Minimize percentage
Facilities	Passenger stations, parking facilities, administration and maintenance facilities	Percentage of assets with condition rating lower than 3.0 on FTA TERM Scale	Condition-based	Minimize percentage

FTA = Federal Transit Administration. TAM = Transit Asset Management. TERM = Transit Economic Requirements Model. ULB = Useful Life Benchmark.

Two definitions apply to these performance measures:

- **Useful Life Benchmark (ULB)**—"The expected lifecycle of a capital asset for a particular transit provider's operating environment, or the acceptable period of use in service for a particular transit provider's operating environment." For example, FTA's default ULB of a bus is 14 years.
- **FTA Transit Economic Requirements Model (TERM) Scale**—A rating system used in FTA's TERM to describe asset conditions. The scale values are 1 (poor), 2 (marginal), 3 (adequate), 4 (good), and 5 (excellent).

The National Transit Asset Management System Final Rule (49 U.S.C. 625) requires that all transit agencies that receive federal financial assistance under 49 U.S.C. Chapter 53 and own, operate, or manage capital assets used in the provision of public transportation create a TAM plan. Agencies are required to fulfill this requirement through an individual or group plan. The TAM rule provides two tiers of requirements for transit agencies based on size and operating characteristics:

- A Tier I agency operates rail, OR has 101 vehicles or more all fixed route modes, Or has 101 vehicles or more in one non-fixed route mode.

- A Tier II agency is a subrecipient of FTA 5311 funds, or is an American Indian Tribe, or has 100 or fewer vehicles across all fixed route modes, or has 100 vehicles or less in 1 non-fixed route mode.

Tier I Language (Optional for MPOs with Tier I agencies only) do not include if you only have a Tier II agency participating in the Group Plan.

For Tier I providers, any Transportation Improvement Program (TIP) or Metropolitan Transportation Plan (MTP) adopted after October 1, 2018, will comply with the TAM Plans developed by the Tier I transit providers within the MPO as well as the regional performance measures adopted by the MPO as a whole. The performance measurements and targets for Tier I plans can be found in each agency's individual TAM plan. Within the MPO NAME the TRANSPORTATION AGENCY NAME is a Tier 1 provider, as such TRANSPORTATION AGENCY NAME is responsible for the development of its TAM Plan. TRANSPORTATION AGENCY NAME TAM Plan was completed on DATE. It can be found here: LINK and is included in the Table below. The MPOs planning process integrates the goals, objectives, performance measures, and targets described in the plan into its planning and programming process.

Table: Insert Tier 1 Measures and targets by asset class.

Tier II Group Plan language
The Department of Rail and Public Transportation (DRPT) is the sponsor for the Statewide Tier II Group Plan. The MPO NAME programs federal transportation funds for TRANSPORTATION AGENCY NAME(S). TRANSPORTATION AGENCY NAME(s) is a Tier II agency participating in the DRPT-sponsored group TAM Plan. The MPO has integrated the goals, measures, and targets described in the Federal Fiscal Year 2022-2025 Virginia Group Tier II Transit Asset Management Plan into the MPO's planning and programming process. Performance targets for the Tier II Group TAM Plan are included in the table below.

Table1: TAM Targets for rolling stock and facilities: Percentage of Revenue Vehicles that have met or exceeded their ULB by Asset Type.

Asset Category - Performance Measure	Asset Class	FFY2022
Revenue Vehicles		
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	AB - Articulated Bus	5%
	BU - Bus	15%
	CU - Cutaway	10%
	MV-Minivan	20%
	BR - Over-the-Road Bus	15%
	VN - Van	20%
Equipment		
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue/Service Automobile	30%
	Trucks and other Rubber Tire Vehicles	30%

Facilities		
Condition - % of facilities with a condition rating below 3.0 on the FTA TERM Scale	Administrative Facilities	10%
	Maintenance Facility	10%
	Passenger Facilities	15%
	Parking Facilities	10%

Attachment 1: Tier II Group Plan Participants 2022

Transit Service	MPO area (if any)
AASC/Four County Transit	
Bay Aging/Bay Transit	HRTPO
CSPDC/BRITE Transit Service	SAWMPO
City of Bristol/Bristol Virginia Transit	Bristol TN/VA MPO
Charlottesville Area Transit	CAMPO
City of Harrisonburg	HRMPO
City of Petersburg/Petersburg Area Transit	Tri Cities
City of Radford/Radford Transit	NRVMPO
City of Suffolk/Suffolk Transit	HRTPO
City of Winchester/Win Tran	WinFred
Danville Transit System	
District Three Public Transit/Mountain Lynx Transit	Bristol TN/VA MPO
Farmville Area Bus	
Fredericksburg Regional Transit	FRED
Greater Lynchburg Transit Company	CVMPO
Greater Roanoke Transit Company/Valley Metro	RVTPO
Greensville-Emporia Transit	
JAUNT, Inc.	CAMPO
Lake Country Area Agency on Aging	
Loudoun County Transit	TPB
Mountain Empire Older Citizens, Inc.	
NVTC- Arlington County/Arlington Transit	TPB
NVTC- City of Alexandria/Alexandria Transit Company (DASH)	TPB
Pulaski Area Transit	
RADAR/Unified Human Services Transportation Systems, Inc.	RVTPO
STAR Transit	
Town of Altavista	
Town of Blacksburg	NRVMPO
Blackstone Areas Bus System	
Town of Bluefield/Graham Transit	
Town of Chincoteague/Pony Express	
Virginia Regional Transit	
Williamsburg Area Transit Authority	HRTPO

Information and Resources

Additional information and guidance is available on FTAs Transit Asset Management website: https://www.transit.dot.gov/TAM

FTA TAM planning factsheet: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/Planning%20for%20TAM%20fact%20sheet.pdf

DRPT TAM page: https://drpt.virginia.gov/guidelines-and-requirements/transit-asset-management-plan/
DRPT TAM Open Data Portal Site: https://data.drpt.virginia.gov/stories/s/FY2022-2025-TAM-Plan/h9nh-b94p

Culpeper District:

Round 5 SMART Scale Projects Recommended for Funding:

Application ID	Project	Organization	SMART SCALE Request	SMART SCALE Score	Step Funded
9137	Rt. 3, Rt. 669 Intersection Improvement (Partial R-Cut)	Culpeper County	$4,686,393	11.63	1
9178	Avon Street Multimodal Improvements	Charlottesville-Albemarle MPO	$15,807,317	8.46	2
9171	Route 230 & Route 687 Intersection Improvements	Madison County	$11,320,633	7.89	1
8942	Orange Rd / Fredericksburg Rd Roundabout	Culpeper Town	$12,796,616	7.66	1
9284	Old Brandy Road Sidewalk Extension	Culpeper Town	$8,292,885	7.11	1
9272	Route 28 & Station Drive - Roundabout	Fauquier County	$9,254,511	6.63	1
9289	Orange Road Sidewalk Extension	Culpeper Town	$8,592,462	6.40	1
9331	US250/Peter Jeff. Pkwy Intersection Imprvmnts &Access Mngmnt	Thomas Jefferson PDC	$20,546,717	6.02	2
9124	Rt. 229 and Rt. 621 Roundabout	Culpeper County	$10,042,765	5.94	1
9158	W Lee/US17BusN/Winchester Intersection Improvement	Warrenton Town	$14,890,760	5.44	1
9159	Pipeline Project Lee Hwy/Blackwell Road Safety Improvement	Warrenton Town	$14,066,640	5.26	1
9144	Belvedere Boulevard and Rio Road Intersection Improvements	Albemarle County	$4,890,328	4.58	1
9059	Route 3 / Route 20 Intersection Improvements	Orange County	$16,980,924	4.25	1
	Total Staff Recommended - 13	**Total**	**$152,168,951**		

CHARLOTTESVILLE-ALBEMARLE MPO PERFORMANCE-BASED PLANNING PROCESS

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Prepared for Charlottesville-Albemarle MPO

DRAFT JANUARY 2023

CHARLOTTESVILLE-ALBEMARLE MPO PERFORMANCE-BASED PLANNING PROCESS

Process for Identification of Needs and Process for Project Prioritization

ACKNOWLEDGMENTS

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ABOUT GAP-TA

Visit vtrans.org/about/GAP-TA for information about the Growth and Accessibility Planning Technical Assistance program.
OIPI will provide a blurb describing the GAP-TA program

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CONTENTS

LIST OF FIGURES, TABLES, ETC.

GLOSSARY OR LIST OF ACRONYMS

CTB	Glossary item or acronym
DRPT	
EEA	Equity Emphasis Area
FIPS	Federal Information Processing Standards
GAP	Growth and Accessibility Program
GIS	Geographic Information System
ITRM	
LRTP	Long Range Transportation Plan
MPO	Metropolitan Planning Organization
NPMRDS	National Performange Management Research Data Set
OIPI	Office of Intermodal Planning and Investment
PDC	Planning District Commission
SDE	
SYIP	Six-Year Improvement Program
TDM	Travel Demand Management
UDA	
UPC	
VDOT	Virginia Department of Transportation
VEDP	Virginia Economic Development Partnership

1 - INTRODUCTION

In 2021, the Charlottesville-Albemarle Metropolitan Planning Organization (CAMPO) was awarded a grant through the Virginia Office of Intermodal Planning and Investment (OIPI) Growth and Accessibility Planning (GAP) Technical Assistance program to develop a performance-based planning process that identifies transportation needs and prioritizes transportation projects for its Long Range Transportation Plan. Additionally, this process is intended to be managed and maintained over time within the constraints of CAMPO's limited staffing resources. The process resulting from this study is transparent, repeatable, and flexible to accommodate additional measures, new or updated data sources, and alternative analysis parameters, such as needs thresholds and weighting schemes. This data-driven performance-based planning process includes two parts:

1. Process for the Identification of Transportation Needs – This process involves a system evaluation of needs based on performance measures that address goals and objectives in the CAMPO's long range plan including safety, access and equity, mobility and system efficiency, and economic development.

2. Process for the Prioritization of Transportation Projects – This process involves a project-level evaluation of the benefits and costs associated with projects. Project benefits are evaluated based on each project's expected improvements related to safety, accessibility, congestion mitigation, environmental impacts, and economic development. While the prioritization of transportation projects is closely related to the identification of needs and there is a common set of metrics used by both, the analytical processes and combinations of metrics may differ between project prioritization and needs analyses. For example, an important difference is that while needs analysis focuses on existing or forecasted system-level conditions, project prioritization considers a particular project's impacts in its specific location.

This report is divided into four chapters, including this introduction explaining the purpose and organization of the report. Chapter 2 starts by outlining the dimensions of transportation needs indicated in CAMPO's policies and ongoing planning activities. These inform the metrics included in the needs analysis and project prioritization processes. As CAMPO's policies evolve, the performance-based planning process can be updated, extended, or modified accordingly. In addition to presenting the overall process for identifying transportation needs, Chapter 3 discusses the methodologies applied to evaluating needs for each performance measure and the steps for weighting and aggregating across need categories. Chapter 4 presents the process for the prioritization of transportation projects, including the methodologies for evaluating the benefits of all surface transportation improvements, including highway and roadway, transit, active transportation, and transportation demand management (TDM) projects. Chapter 4 also presents the methodology for normalizing benefit scores across measures, assessing the costs of projects, and developing a single project score that can be used to rank projects across project types. These methodologies were tested on a variety of project types including roadway widenings, bicycle and pedestrian improvements, and transit projects.

2 - CAMPO'S PLANNING PRIORITIES

Through coordination with CAMPO staff and the CAMPO Technical Committee, the technical work group developed metrics that focus on five need categories: Safety, Accessibility and Equity, Mobility and System Efficiency, Environment, and Economic Development. These five need categories align with CAMPO's 2045 Long Range Transportation Plan (LRTP) vision, goals, and objectives while providing sufficient nuance in supportive measures to evaluate a project's competitiveness for a variety of funding opportunities including SMART SCALE, Congestion Mitigation and Air Quality (CMAQ), and the Regional Surface Transportation Program (RSTP).

The five need categories include:

Safety –the aim of the safety category is to identify intersections and segments where safety improvements are needed and prioritize projects that can reduce crashes and/or exposure to risk.

Accessibility and Equity – the aim of the accessibility and equity category is to identify areas where the design and/or performance of the transportation system degrades travelers' ability to reach key destinations, like jobs, especially for disadvantaged users; and prioritize projects that are likely to enhance accessibility through improved connectivity, reduction in delay, more frequent transit services, and/or improved bicycle and pedestrian facilities.

Mobility and System Efficiency – the aim of the mobility and system efficiency category is to identify segments where congestion-related delay degrades travel time and travel time reliability for automobiles and transit vehicles and to prioritize projects that will alleviate delay and/or enhance person throughput throughout the region. This category also includes a measure which considers the on-time performance of the bus system.

Environmental – the aim of the environmental category is to identify resiliency needs, especially where infrastructure is exposed to inland flooding and to prioritize projects that pose no environmental impacts, mitigate impacts, or offer environmental services.

Land Use and Economic Development – the aim of the land use and economic development category is to identify areas where there is access to non-work destinations to stimulate local economic activity or to create transportation choices for disadvantaged people and to prioritize projects that connect to areas of local economic development activity.

The technical team for the study conducted an internal capacity assessment to establish the technologies and staff capabilities available to CAMPO for the implementation and maintenance of this process in diverse planning applications. That assessment is summarized in detail in Appendix A. It informed the development of the needs analysis and project prioritization processes by focusing on measures that are supported by readily available data and implementable in commonly used software, like Microsoft Excel or ArcMap, with no specialized expertise required. The measures described in the remaining chapters of this report are, therefore, accompanied by step-by-step instructions for their production in the appropriate software.

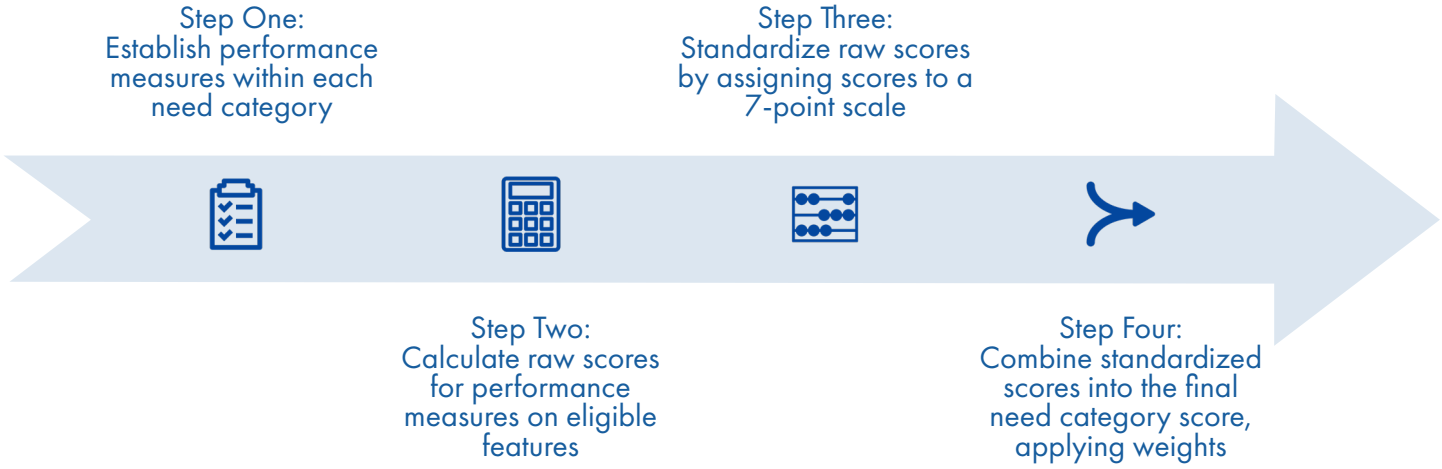
3 – PROCESS FOR THE IDENTIFICATION OF TRANSPORTATION NEEDS

A critical component of the transportation planning process is the identification of needs for future transportation improvements. Traditional needs assessments have focused on evaluating highway system performance including standard infrastructure condition deficiencies, crash hot spots, and network operational performance. Needs analysis methods have relied on these performance measures due to inadequate data for transit and active transportation modes. This process expands the needs analysis to consider transit and active transportation as part of a holistic multimodal needs assessment.

Figure 1 illustrates the general process for the identification of needs. The first step of this process is establishing the need categories and performance measures that align the scoring factors with the MPO's goals and objectives. The needs addressed in the process developed for this study are organized into the planning priorities described above. A total of 11 performance measures are defined with each measure assigned to one of the four factors, meaning some factors are defined by combinations of several metrics. For example, safety needs are identified through three metrics: PSI ranking, EPDO crash frequency, and pedestrian safety. The confluence of PSI segments and segments with high crash density and segments with high pedestrian safety priorities will have the highest overall safety need.

The first part of step two is the identification of needs. This step screens the full street network to determine segments that are eligible for scoring. Eligibility is determined by using one of the two threshold options discussed in the following sections within each need category. After eligibility is determined, raw scores are calculated for all performance measures within each need category. The specific steps in calculating metrics are often complex, involving multiple input datasets, spatial analysis, computation, summarization, etc. When describing the metrics used in the needs analysis and project prioritization processes, follow the step-by-step instructions for transparency and replicability. However, most metrics can also be processed using automated procedures developed for this study, usually in custom geoprocessors that can be run in ArcGIS or Microsoft Excel spreadsheet tools.

Figure 1 *Process for the identification of needs*



3 – PROCESS FOR THE IDENTIFICATION OF TRANSPORTATION NEEDS

Since each factor is composed of several performance measures, the measures need to be standardized and combined. In Step 3, all measures are expressed on a consistent seven-point scale, with a value of 1 indicating "Very Low" relative need and a value of 7 indicating "Very High" relative need. As shown by Table 1, raw metric values are translated into the seven-point scale based on thresholds that organize similar values into bins reflecting similar levels of need.

Table1 Process for the identification of needs

Need Category	Need Score
Very Low	1
Low	2
Medium Low	3
Medium	4
Medium High	5
High	6
Very High	7

need score for the need category they support (Step 4). In the combination step, all standardized values are summarized into a single score through a weighted-average score. For example, roadway safety needs may be given greater or lower weight than pedestrian safety needs in the safety analysis. This process allows different weights to be assigned to each metric in the scoring process for each factor. The result is that need category scores are combined into an aggregate needs score that reflects total need based on all five need categories. An example of how scores are combined across all needs categories is provided in Table 2.

Since project location is a critical component of environmental impacts, the Environment and Sustainability need category is applied after aggregating need scores. An environmental factor is applied to the overall score as an adjustment to roadway segments that are exposed to projected sea level rise, storm surge, or inland/riverine flooding and whether the segment is within an economically distressed community.

Table 2 - Example of aggregate needs score based on combinedcategory scores

Need Category	Performance Measure	Weight	Need Score	Weighted Need Score
Safety (30%)	Roadway Safety	15%	4	0.6
	Pedestrian Safety	15%	6	0.9
Accessibility and Equity (30%)	Bicycle Access to Jobs	8%	6	0.48
	Transit Access to Jobs	8%	4	0.32
	Automobile Access to Jobs	6%	6	0.36
	Access to Jobs by Disadvantaged Populations	8%	5	0.4
Mobility and System Efficiency (20%)	Congestion Mitigation	5%	0	0
	Travel Time Reliability	5%	0	0
	Bus Transit On-Time Performance	10%	1	0.1
Land Use & Economic Development (20%)	Access to Non-Work Destinations	10%	5	0.5
	Access to Non-Work Destinations by Disadvantaged Populations	10%	5	0.5
Overall		100%	-	4.16 (Medium)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Details of each need category and supporting measures are provided in the sections the follow. The measures presented are applicable to all roadway segments. This process does not identify priorities for recreational trails that are not aligned with a public street, although the impacts of these facilities are accounted for in the bicycle access to jobs metric supporting the Accessibility and Equity need category. Similarly, segments where bicycles and pedestrians are not permitted, such as Interstates and other limited access facilities, are excluded from the bicycle access to jobs and pedestrian safety needs measures.

Need Category: Safety

The aim of the safety category is to identify intersections and segments where safety improvements are needed and prioritize projects that can reduce crashes and/or exposure to risk. Safety needs are assessed based on three supporting measures. Two measures: Potential for Safety Improvement (PSI) ranking, and equivalent property damage only (EPDO) crash frequency are blended into a roadway safety score. This is complemented by a pedestrian safety score based on VDOT's current Pedestrian Safety Action Plan.

Roadway Safety

Roadway safety needs are evaluated based on the combination of two separate performance measures: Potential for Safety Improvement (PSI) ranking and equivalent property damage only (EPDO) crash frequency. The analysis of EPDO crash frequency is limited to segments that are eligible for scoring based on PSI ranking criteria.

PSI is identified by a data-driven safety analysis by VDOT for its Highway Safety Improve Plan (HSIP) that ranks locations by their potential for safety improvement. Locations are ranked within VDOT Construction Districts and statewide. A location's PSI ranking is an estimate of the extent to which the number of crashes observed at an intersection or along a segment is higher than would be expected based on the facility type, traffic volume, and other factors. The PSI ranking is determined by its excess expected crash frequency, which is the number of observed or "expected" crashes modified by the Empirical Bayes (EB) adjustment method minus the number of typical or "predicted" crashes for the location based on state-specific safety performance functions (SPF). EB accounts for yearly variations and regression to the mean (RTM). SPFs are a mathematical relationship between the frequency of crashes and causal characteristics for a specific highway, including roadway facility type and traffic volume. A positive PSI value indicates a segment or intersection where the number of expected crashes exceeds the number of predicted crashes. Locations with a greater number of excess expected crashes receive a higher ranking.

The PSI ranking is used to determine segments that are eligible for roadway safety scoring, including the EPDO crash frequency analysis. Segments that do not meet the PSI-based criteria are deemed to have no safety needs, while those that do qualify are differentiated based on their PSI ranking and/or their EPDO crash frequency. The following threshold options were tested to determine scoring eligibility:

- All PSI Intersections and PSI Segments with three or more crashes in a five-year analysis period.
- Top ten miles of PSI Segments and top twenty PSI intersections within CAMPO boundaries.

If the first threshold is selected, any feature that has a potential for safety improvement according to VDOT's PSI analysis is eligible for *roadway safety* scoring. Alternatively, if the second option is selected, features eligible for scoring are limited to the top ranked segments PSI locations in the study area.

The EPDO crash frequency performance measure identifies locations that have a combined greater severity and frequency of crashes than other locations. It assigns weighting factors to fatal and injury crashes relative to PDO crashes, giving more weight to locations where more severe crashes have occurred. The weighting factors in Table 3 are used for the identification of roadway safety needs. These values are based on VDOT's crash costs by severity used for SMART SCALE.

Table 3 *Crash value conversion table*

Crash Severity	Rounded Value	Weight
Fatal (F) + Severe Injury (A)	$2,200,000	160
Moderate Injury	$260,000	20
Minor Injury	$140,000	10

Source: VDOT EPDO Crash Value Conversion Table (SMART SCALE Technical Guide, 2022)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for evaluating the level of roadway safety needs by segments:

1. Assign District-level PSI rankings to segments that are eligible for roadway safety scoring.
   - Create route events for PSI segments based on the direction indicated in the PSI segment tabular data. If the direction of the PSI segment applies to both sides of a divided roadway, ensure that route events are created for the opposite route name (WB and SB) in addition the route events created for the prime direction (NB and EB). Use the stated direction only for PSI segments where directionality is limited to eastbound, northbound, southbound, or westbound.
   - Convert PSI Intersections to segments using tabular data to identify the routes that approach PSI intersections. Assign node-based district PSI rankings to segments within a 250 feet influence area around the intersections.
   - Merge segments identified in steps 1a and 1b above into a single collection of segment features with PSI ranking values. If the merged segments needs layer contains both segment-based and intersection-based rankings, retain the higher of the two district PSI rankings.
2. Calculate EPDO crash frequency for segments that are eligible for roadway safety scoring.
   - Assign EPDO weighting factors (Table 2) to all crashes for the most recent five-year analysis period.
   - Assign crash events to segments using a spatial join and sum EPDO-weighted crashes along each segment.

Scoring of Roadway Safety Needs

Roadway safety is assessed as each segment's average standardized score from the PSI ranking and EPDO crash frequency analyses described above. District PSI ranking standardization thresholds are shown in Table 4. EPDO crash frequency standardization is based on the distribution of raw results over the entire collection of segments scored, as shown in Table 5. This requires sorting segments based on their EPDO crash frequency in descending order, then assigning the need score based on the percentile ranking (in terms of total scored mileage) of each segment. For example, the segments representing the top five percent of scored mileage have "very high" need, while segments representing the bottom fifty percent of scored mileage have "very low" need.

Need Category	Need Score	District PSI Rank
Very High	7	Rank <= 20
High	6	40 >= Rank > 20
Medium High	5	60 >= Rank > 40
Medium	4	80 >= Rank > 60
Medium Low	3	100 >= Rank > 80
Low	2	150 >= Rank > 100
Very Low	1	Rank > 150

Table 4 *Roadway safety need scores applied to District PSI ranks*

Need Category	Need Score	Percent of Total Mileage
Very High	7	0% to 5%
High	6	5.001% to 10%
Medium High	5	10.001% to 15%
Medium	4	15.001% to 20%
Medium Low	3	20.001% to 25%
Low	2	25.001% to 50%
Very Low	1	50.001% to 100%

Table 5 *Roadway safety need scores applied to District PSI ranks*

Finally, calculate the overall roadway safety need score by averaging the PSI ranking and the EPDO crash frequency standardized scores. Recall that segments that are not ranked in terms of PSI are assumed not to be roadway safety needs, regardless of underlying EPDO crash frequency. Therefore, they are not part of the target layer that is joined with crashes for calculating EPDO crash frequency. Accordingly, although certain segments may have recorded crashes during a five-year period, the overall score may be zero because they are unranked in terms of district PSI ranking.

Data Requirements

- PSI Locations (source: 2016-2020 Top Potential Safety Improvement Segments and Intersections Web Map)
- 5 year crash data (source: InteractVTrans Map Explorer)
- VDOT Linear Reference System (LRS) Overlap Routes (source: VDOT)
- ArcGIS Geoprocessing Tools

Geoprocessing Tool Overview

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Pedestrian Safety

Pedestrian safety needs are evaluated based on VDOT's Pedestrian Safety Action Plan (PSAP) priority corridors. The PSAP corridors indicate locations where facility design, operations, context, performance, or other issues are likely to lead to pedestrian crashes. Priority corridors are identified through a systematic analysis of statewide data that includes crash history, design speed, number of lanes, traffic volume, demographics and land uses in the vicinity, and other factors. The PSAP process relies on these factors because pedestrian crash events are relatively rare, and the conditions that elevate pedestrian crash risk may be present on numerous facilities even if pedestrian crashes have not been observed in recent years. The PSAP process generates a score for highway segments across the state. The top scoring segments are mapped and made available for download via a web map (source: https://vdot.maps.arcgis.com/apps/webappviewer/index.html?id=02a155fedefa4e71bdb8c0cf524b636f)

Eligibility for pedestrian safety scoring may be determined by one of the following threshold options, based on a segment's PSAP score relative to other segments in the region:

1. Regional (District) Top 1% Corridors

2. Regional (District) Top 5% Corridor

The above threshold options reflect the available collections of segments generated by the PSAP process (i.e., scores for all segments are not available for download, and other percentile thresholds would require coordination with VDOT to obtain). The top 1% of corridors tend to emphasize major highways, while the top 5% also includes more local roads and may be more appropriate for MPO-scale applications.

Calculation Steps

The following steps outline the process for prioritization within the pedestrian safety need category.

1. Download the most recent PSAP Priority Corridors to identify segments eligible for pedestrian safety scoring, selecting the top 1% or top 5%. The PSAP analysis is conducted approximately every three years.

2. Identify the PSAP Score in the PSAP Priority Corridors. In VDOT's Pedestrian Safety Action Plan 3.0, segments' PSAP Scores are in the "MAX_TOT_SCORE" field.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Scoring of Pedestrian Safety Needs

Sort the raw pedestrian safety need score (i.e., PSAP Score) in descending order. Then, using Table 6, assign the need score based on the segments' cumulative length percentage of the combined mileage of all segments that have a need for pedestrian safety.

Table 6 *Pedestrian safety need scores applied to segments by pedestrian crash rate*

Need Category	Need Score	Percent of Total Mileage
Very High	7	0% to 5%
High	6	5.001% to 10%
Medium High	5	10.001% to 15%
Medium	4	15.001% to 20%
Medium Low	3	20.001% to 25%
Low	2	25.001% to 50%
Very Low	1	50.001% to 100%

Data Requirements

The following steps outline the process for prioritization within the *pedestrian safety* need category.

- PSAP 3.0 Regional Priorities (source: VDOT Pedestrian Safety Action Plan Map Viewer)
- ArcGIS Geoprocessing Tools

Geoprocessing Tool Overview

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

The aim of the accessibility and equity category is to identify areas where the design and/or performance of the transportation system degrades travelers' ability to reach key destinations, like jobs, especially for disadvantaged users; and prioritize projects that are likely to enhance accessibility through improved connectivity, reduction in delay, more frequent transit services, and/or improved bicycle and pedestrian facilities. Accessibility and equity needs are assessed based on four supporting measures: bicycle access to jobs, transit access to jobs, automobile access to jobs, and access to jobs by disadvantaged populations. These measures combine to provide a holistic, multimodal assessment of needs that accounts for different needs and abilities among travelers throughout the region.

Many of these supporting measures rely on several key concepts, described in general terms here and applied with specific parameters for each measure. Broadly, accessibility is analyzed on a zone basis and describes the ease with which destinations in other zones can be reached from each origin zone. Accessibility scores can be sensitive to the connectivity provided by the current network, its design and performance, traveler characteristics/preferences, and the number of activities (jobs, e.g.) in destination zones. Maps of accessibility scores show which zones can get to the higher or lower levels of activity in other zones. Since the scores derive from activities in other zones, projects to enhance accessibility may be displaced from the zone where need is indicated, as long as the project enhances the connectivity from the zone having the need to one or more other zones where activities are concentrated.

In this process, the identification of accessibility needs by mode is based on the "potential for accessibility improvement" (PAI), which is estimated as the difference between the "current" accessibility offered and a "reference" condition. The "current" condition refers to the cumulative number of activities (jobs in the case of all metrics generated in this process) accessible from a given location applying parameters, such as level of traffic stress (LTS) or average travel speed, that influence the estimated travel times among zones. The "reference" condition refers to the cumulative number of jobs accessible from the same location but with hypothetical parameters that yield an estimated maximum level of job accessibility. Details regarding the current and reference conditions for each mode are discussed in the subsequent sections on mode-specific accessibility performance measures.

The concepts of "maximum travel time" and "decay function" also determine the cumulative number of jobs that are accessible from a given location. In this analysis, maximum travel time defines the maximum amount of time for traveling from an origin census block to a destination census block. This maximum travel time parameter may reflect, for example, the idea that walking trips longer than 30 minutes are uncommon. Under this assumption, activities in blocks beyond a 30-minute walk would be ignored in a pedestrian accessibility analysis. Decay functions are commonly used in accessibility analyses to provide more weight to jobs that are closer to origin census blocks than jobs that are located further away. Decay functions are applied in the Access Across America data used in the accessibility metrics described below to reflect the tendency for travelers to choose destinations that are nearby, all else being equal.

The accessibility measures described below also employ the concept of a "catchment area." This refers to the area around a zone that is likely to contribute most substantially to its accessibility score, based on the maximum travel time associated with the mode of travel being analyzed. Catchment areas are included in this analysis primarily because project opportunities to enhance accessibility can be displaced from the zone of need and because the Access Across America data that support the analysis do not include underlying data (such as block-to-block travel time estimates) but only the current and reference accessibility conditions. Thus, the catchment area is used to calculate areawide PAI averages around street segments to rank segments according to the PAI in its surrounding travel shed.

Lastly, functional classification is used to scale the weighted average PAI for each segment by the volume of trips the street is expected to carry. Functional classification refers to the grouping of streets and highways into various classes based on the services they provide. This analysis assumes higher classified streets are more heavily utilized than lower classified streets. Therefore, road segments with a higher functional classification are weighted higher than road segments with a lower function classification as opportunities to provide accessibility enhancements.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Bicycle Access to Jobs

Bicycle access to jobs needs are based on the Access Across America study by the Accessibility Observatory at the University of Minnesota Center for Transportation Studies. This study estimates the number of destinations reachable by bicycle within a given travel time for all census blocks in the United States. In brief, the accessibility calculations performed in the Access Across America study are as follows:

- Calculate travel times by biking from each census block to all other blocks within 20 km using detailed bicycling and walking networks based on OpenStreetMap (OSM) data.
- Calculate cumulative opportunity accessibility to jobs for each block and Level of Traffic Stress score using travel time thresholds of five minutes to one hour. A destination decay function is used to weight the number of jobs reachable such that nearby jobs contribute more to the access score than jobs that are farther away.

Level of Traffic Stress (LTS) is a metric used to evaluate the perception of safety by quantifying the level of discomfort people feel when they bicycle next to traffic. The LTS process assigns numerical values to segments based on OSM tags that indicate the presence or absence of bicycle facilities, number of lanes, and posted roadway posted, and assigns a numerical value of 1 (lowest stress) to 4 (highest stress) to street segments based on these characteristics. For the purposes of applying LTS parameters to the estimation of travel times by biking, LTS values determine segments' traversability. In this case, the tolerance is set to the maximal LTS value. For example, the LTS 3 analysis allows bike trips along facilities classified as LTS 1, 2, or 3, while the LTS 1 analysis only allows bike trips along the LTS 1 facilities. These tolerances reflect the preferences and abilities of different types of users, where LTS 1 is the most inclusive of all users while LTS 4 represents avid cyclists who may tolerate conditions (heavy mixed traffic, e.g.) that are deemed intolerable by other cyclists.

The Access Across America analysis calculates bicycle travel times using an assumed travel speed of 18 kph (approximately 11 mph), while travel times associated with walking portions of trip, including initial access time to reach the nearest network link by foot, barrier-crossing time for segments with a higher stress level than the trip's maximal LRS tolerance, and destination access time, take place at a speed of 5 kph (approximately 3 mph). While bicycle travel time on a network without bicycle infrastructure would be negatively impacted by automobile congestion, this analysis is not sensitive to congestion effects at certain times of the day. The data generated by the study are estimates for each census block of the number of jobs reachable by cycling.

In this analysis, the "current condition" is access to jobs by bicycle along low stress (LTS1) segments and the "reference condition" is access to jobs by bicycling along high stress (LTS4) segments. The reference condition approximates the jobs accessible by cycling assuming all facilities were comfortable for all users rather than only the most avid and experienced cyclists (i.e., how many jobs could be reached by cycling if all facilities were LTS1 facilities?). The deficit that results from subtracting the current condition from the reference condition is the potential accessibility increase (PAI).

The zone (block) data from Access Across America are intersected with 3-mile buffers defining each segment's catchment area. Within each catchment area, the population weighted average PAI is calculated, and the result is multiplied by the segment's functional classification weight. This elevates facilities that are likely to carry relatively high volumes of person trips and that are in areas where bicycle access to jobs could be improved. The segments identified in this process do not necessarily lack suitable facilities for cyclists, so the results should be compared with available inventories of bicycle facilities to determine what projects or investments may be appropriate to enhance bicycle accessibility.

Eligibility for bicycle access to jobs scoring is determined by population weighted PAI for each segment and may be determined by one of the following optional thresholds:

1. All segments where population weighted PAI is greater than zero.

2. All segments where population weighted PAI is greater than the region's median population weighted PAI.

The first option acknowledges all opportunities for potential accessibility enhancements while the second option focuses on the most acute needs. Note that functional class weightings apply after eligibility is determined.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for prioritization within the *access to jobs by bicycle need* category.

1. Obtain the Access Across America datasets given the following parameters:
   - Current Condition: Bicycle LTS 1 (Lowest Stress)
   - Reference Condition: Bicycle LTS 4 (Highest Stress)
   - Maximum Travel Time: 20 minutes
   - Maximum Travel Distanace: 3 miles

2. For each census block, calculate PAI as the difference between the reference condition and current condition, or the accessibility deficit between the current condition and the reference condition.

$$PAI_{Bike} = Reference - Current$$

3. Calculate the population weighted PAI for each census block by multiplying PAI by the population of the census block in which the segment is located.

$$Population\ Weighted\ PAI = Population \times PAI$$

4. Sum the population weighted PAI and total population in the catchment area around each segment. Next, divide the summed population-weighted PAI by the total population in the catchment area to yield the population-weighted average PAI.

$$Weighted\ Average\ PAI = \frac{\sum_{i=1}^{n} Population\ Weighted\ PAI_i}{\sum_{i=1}^{n} Population_i}$$

5. Calculate the *bicycle access to jobs* performance measure
   - Assign a functional class (FC) score to all road segments. Segments where cyclists are not permitted such as Interstates and other limited-access facilities are ignored (receive a score of zero) since they are not relevant to bicycle accessibility.
   - Calculate the raw score for bicycle access to jobs performance measure by multiplying segments' weighted average accessibility improvement by its FC score (see **Table 7**).

$$Raw\ Need\ Score = Weighted\ Average\ PAI \times FC\ Score$$

Table 7 *Bicycle access to jobs functional class score standardization*

Functional Class	FC Score
Other Principal Arterial	7
Minor Arterial	5
Major Collector	3
Minor Collector	1
Local	0.25
Interstates, Other Freeways & Expressways	0

Scoring of Bicycle Access to Jobs Needs

Sort the raw bicycle need score in descending order for all eligible segments. Then, using **Table 8** assign the need score based on the segments' cumulative length percentage of the combined mileage of all segments that have a need for *bicycle access to jobs*.

Table 8 *Bicycle access to jobs need scores applied to segments by average PAI*

Need Category	Need Score	Percent of Total Mileage
Very High	7	0% to 5%
High	6	5.001% to 10%
Medium High	5	10.001% to 15%
Medium	4	15.001% to 20%
Medium Low	3	20.001% to 25%
Low	2	25.001% to 50%
Very Low	1	50.001% to 100%

Data Requirements

- Block-Level Access to Jobs (source: Access Across America analysis by the Accessibility Observatory)
- Roadway Functional Classification (source: InteractVTrans Map Explorer)
- ArcGIS Geoprocessing Tools

Geoprocessing Tool Overview

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Transit Access to Jobs

Transit access to jobs needs are based on the Access Across America study by the Accessibility Observatory at the University of Minnesota Center for Transportation Studies. This study estimates the number of destinations reachable by transit and by automobile (see Automobile Access to Jobs) within a given travel time for all census blocks in the United States. In brief, the accessibility calculations performed in the Access Across America study are as follows:

- Calculate travel times by transit from each census block to all other blocks within 60km using transit schedules for the 7:00 – 9:00 AM period and detailed walking networks based on OpenStreetMap (OSM) data.
- Calculate cumulative opportunity accessibility to jobs for each block and departure time using travel time thresholds of five minutes to one hour. A destination decay function is used to weight the number of jobs reachable such that nearby jobs contribute more to the access score than jobs that are farther away

In the Access Across America data, the time cost of travel by transit includes all components of a transit journey, including initial access time, initial wait time, on-vehicle time, transfer access time, transfer wait time, and destination access time. On-vehicle travel time, which is derived from GTFS transit schedules, accounts for variations in service frequency by time of day. Access and egress components of trips (i.e., initial, transfer, and access) are assumed to be made by walking at a speed of 5 kph (3 mph). There is no constraint on the number of transfers required, and it is possible for a block-to-block path to be found that does not use a transit vehicle (i.e., the shortest path from an origin block to a destination block requires walking only).

In the Access Across America data, the time cost of travel by transit includes all components of a transit journey, including initial access time, initial wait time, on-vehicle time, transfer access time, transfer wait time, and destination access time. On-vehicle travel time, which is derived from GTFS transit schedules, accounts for variations in service frequency by time of day. Access and egress components of trips (i.e., initial, transfer, and access) are assumed to be made by walking at a speed of 5 kph (3 mph). There is no constraint on the number of transfers required, and it is possible for a block-to-block path to be found that does not use a transit vehicle (i.e., the shortest path from an origin block to a destination block requires walking only).

In the CAMPO needs analysis, the magnitude of need arising from transit access to jobs performance is determined by the difference in block-level access to jobs between the current condition and the reference condition. The current condition is access to jobs by transit during the 7:00 – 9:00 AM period and the reference condition is access to jobs by automobile during 8:00 – 9:00 AM period. This elevates areas where jobs access by car is significantly higher than by transit, suggesting an opportunity to enhance transit service to make it more competitive with driving. The deficit that results from subtracting the current condition from the reference condition is the potential accessibility increase (PAI).

The zone (block) data from Access Across America are intersected with 5-mile buffers defining each segment's catchment area. Within each catchment area, the population weighted average PAI is calculated, and the result is multiplied by the segment's functional classification weight. This elevates facilities that are likely to carry relatively high volumes of person trips and that are in areas where transit access to jobs could be improved. The segments identified in this process do not necessarily lack existing transit service, so the results should be compared with current transit routes and schedules to determine what projects or investments may be appropriate to enhance transit accessibility.

Eligibility for transit access to jobs scoring is determined by population weighted PAI for each segment and may be determined by one of the following optional thresholds:

1. All segments where population weighted PAI is greater than zero.

2. All segments where population weighted PAI is greater than the region's median population weighted PAI.

The first option acknowledges all opportunities for potential accessibility enhancements while the second option focuses on the most acute needs. Note that functional class weightings apply after eligibility is determined.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for estimating the magnitude of need under the *access to jobs by transit score*:

1. Obtain the Access Across America datasets given the following parameters:
   - Current Condition: Transit
   - Reference Condition: Automobile (8 AM)
   - Maximum Travel Time: 45 minutes
   - Maximum Travel Distanace: 5 miles

2. For each census block, calculate PAI as the difference between the reference condition and current condition, or the accessibility deficit between the current condition and the reference condition.

$$PAI_{Transit} = Reference - Current$$

3. Calculate the population weighted PAI for each census block by multiplying PAI by the population of the census block in which the segment is located.

$$Population\ Weighted\ PAI = Population \bullet PAI$$

4. Sum the population weighted PAI and total population in the catchment area around each segment. Next, divide the summed population-weighted PAI by the total population in the catchment area to yield the population-weighted average PAI.

$$Weighted\ Average\ PAI = \frac{\Sigma_{i=1}^{n}\ Population\ Weighted\ PAI_i}{\Sigma_{i=1}^{n}\ Population_i}$$

5. Calculate the *transit access to jobs* performance measure
   - Assign a functional class (FC) score to all road segments.
   - Calculate the raw score for *transit access to jobs* performance measure by multiplying segments' weighted average accessibility improvement by its FC score (see **Table 9**).

$$Raw\ Need\ Score = Weighted\ Average\ PAI \times FC\ Score$$

***Table 9** Transit access to jobs functional class score standardization*

Functional Class	FC Score
Interstates, Other Freeways & Express, and Other Principal Arterial	7
Minor Arterial	5
Major Collector	3
Minor Collector	1
Local	0.25

Scoring of Transit Access to Jobs Needs

Sort the raw transit need score in descending order. Then, using **Table 10**, assign the need score based on the segments' cumulative length percentage of the combined mileage of all segments that have a need for *transit access to jobs*.

***Table 10** Transit access to jobs need scores applied to segments by average PAI*

Need Category	Need Score	Percent of Total Mileage
Very High	7	0% to 5%
High	6	5.001% to 10%
Medium High	5	10.001% to 15%
Medium	4	15.001% to 20%
Medium Low	3	20.001% to 25%
Low	2	25.001% to 50%
Very Low	1	50.001% to 100%

Data Requirements

- Block-Level Access to Jobs (source: Access Across America analysis by the Accessibility Observatory)
- Roadway Functional Classification (source: InteractVTrans Map Explorer)
- ArcGIS Geoprocessing Tools

Geoprocessing Tool Overview

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Automobile Access to Jobs

Automobile access to jobs needs are based on the Access Across America study by the Accessibility Observatory at the University of Minnesota Center for Transportation Studies. This study estimates the number of destinations reachable by automobile within a given travel time for all census blocks in the United States. In brief, the accessibility calculations performed in the Access Across America study are as follows:

- Calculate travel times by car from each census block to all other blocks within 120km for each departure time at 1-hour intervals over the 24-hour period. Block-Level Access to Jobs (source: Access Across America
- Calculate cumulative opportunity accessibility to jobs for each block and departure time using travel time thresholds of five minutes to one hour. A destination decay function is used to weight the number of jobs reachable such that nearby jobs contribute more to the access score than jobs that are farther away.

In the Access Across America data, the time cost of travel by automobile is evaluated by time of day with average link speeds estimated from TomTom, which reports typical speeds based on data collected from GPS devices. Average speed data reflect conditions on Wednesdays (representing a typical weekday) during the June 2017 to June 2019 period.

In the CAMPO needs analysis, the magnitude of need arising from automobile access to jobs performance is determined by the difference in block-level access to jobs between the current condition and the reference condition. The current condition is access to jobs by automobile during the 8:00 – 9:00 AM period and the reference condition is access to jobs by automobile during the 12:00 – 1:00 AM period. This elevates areas where jobs access by car is significantly lower during the morning commute period than it would be under a free flow condition, suggesting an opportunity to enhance highway operations and/or capacity to offer greater access to destinations when highway demand is highest. The deficit that results from subtracting the current condition from the reference condition is the potential accessibility increase (PAI).

The zone (block) data from Access Across America are intersected with 10-mile buffers defining each segment's catchment area. Within each catchment area, the population weighted average PAI is calculated, and the result is multiplied by the segment's functional classification weight. This elevates facilities that are likely to carry relatively high volumes of person trips and that are in areas where automobile access to jobs could be improved. The segments identified in this process do not necessarily experience acute congestion-related delays, so the results should be compared with measures of delay and reliability to determine what projects or investments may be appropriate to enhance automobile accessibility.

Eligibility for automobile access to jobs scoring is determined by population weighted PAI for each segment and may be determined by one of the following optional thresholds:

1. All segments where PAI deficit is greater than zero

2. All segments where PAI deficit is greater than the region's median PAI deficit

The first option acknowledges all opportunities for potential accessibility enhancements while the second option focuses on the most acute needs. Note that functional class weightings apply after eligibility is determined.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for estimating the magnitude of need under the *access to jobs by automobile* score:

1. Obtain the Access Across America datasets given the following parameters:
   - Current Condition: Auto (8 AM - 9AM, Peak Period)
   - Reference Condition: Automobile (12 AM - 1 AM, Off Peak Period)
   - Maximum Travel Time: 45 minutesMaximum Travel Distanace: 10 miles

2. For each census block, calculate PAI as the difference between the reference condition and current condition, or the accessibility deficit between the current condition and the reference condition.

$$PAI_{Auto} = Reference - Current$$

3. Calculate the population weighted PAI for each census block by multiplying PAI by the population of the census block in which the segment is located.

$$Population\ Weighted\ PAI = Population \bullet PAI$$

4. Sum the population weighted PAI and total population in the catchment area around each segment. Next, divide the summed population-weighted PAI by the total population in the catchment area to yield the population-weighted average PAI.

$$Weighted\ Average\ PAI = \frac{\sum_{i=1}^{n} Population\ Weighted\ PAI_i}{\sum_{i=1}^{n} Population_i}$$

5. Calculate the *automobile access to jobs* performance measure
   - Assign a functional class (FC) score to all road segments.
   - Calculate the raw score for automobile access to jobs performance measure by multiplying segments' weighted average accessibility improvement by its FC score (see **Table 11**).

Table 11 Automobile access to jobs functional class score standardization

Functional Class	FC Score
Interstates, Other Freeways & Express, and Other Principal Arterial	7
Minor Arterial	5
Major Collector	3
Minor Collector	1
Local	0.25

Scoring of Automobile Access to Jobs Needs

Sort the raw automobile need score in descending order. Then, using **Table 12**, assign the need score based on the segments' cumulative length percentage of the combined mileage of all segments that have a need for *automobile access to jobs*.

Table 12 Transit access to jobs need scores applied to segments by average PAI

Need Category	Need Score	Percent of Total Mileage
Very High	7	0% to 5%
High	6	5.001% to 10%
Medium High	5	10.001% to 15%
Medium	4	15.001% to 20%
Medium Low	3	20.001% to 25%
Low	2	25.001% to 50%
Very Low	1	50.001% to 100%

Data Requirements

- Block-Level Access to Jobs (source: datasets from the Access Across America analysis by the Accessibility Observatory. Obtained via VTRC through pooled fund study)
- Roadway Functional Classification (source: VDOT via InteractVTrans Map Explorer)
- ArcGIS Geoprocessing Tools

Geoprocessing Tool Overview

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Access to Jobs by Disadvantaged Populations

Access to jobs by disadvantaged populations needs are based on the analysis of transit access to jobs. However, *transit access to jobs* results are filtered to segments within areas that are identified as Equity Emphasis Areas (EEA) that are considered transit-viable. EEA is an existing dataset provided by OIPI, so no additional calculations are necessary. While an outline of the process is discussed below, the full process and data needs are discussed in the Technical Guide for the Identification and Prioritization of the VTrans Mid-Term Needs.

OIPI defines EEA as block groups with high concentrations of low-income individuals, disadvantaged racial and ethnic groups, elderly, disabled, and limited-English proficiency population. Since disability data is not available at the census block group level, the share of residents with a disability is determined by multiplying the share of residents with a disability in the census tract by the block group's populations. Next, convert the count of residents in each category to population shares by dividing by the block group population. Then, calculate the regional average concentration for each category. Once the block group level data has been assembled, calculate the ratios of concentration (ROC) for each category by dividing the block group's share by the regional concentration. Finally, sum the six individual ROC are into an index by converting all ROCs above 3 to 3, low-income ROCs below 1 to 0, and ROCs for the other categories below 1.5 to 0. A block group is flagged as an EEA if the index is greater than 2or the ROC for low-income or disability is greater than or equal to 1. An EEA is considered transit viable if the population density of the block group is greater than the 10th percentile density of areas in the region that are currently served by transit. The latter is defined by block groups centroids within ¼ mile of an existing transit stop.

In the CAMPO needs analysis, the magnitude of need arising from access to job for disadvantaged populations is assessed in the same way that transit access to jobs needs are assessed, except that the population weighting is based on populations in EEAs only.

Eligibility for access to jobs for disadvantaged populations scoring is limited to segments within EEAs and determined by population weighted PAI for each segment and may be determined by one of the following optional thresholds:

- All segments in transit viable EEAs where PAI is greater than zero.
- All segments in EEAs where population weighted PAI is greater than the region's median population weighted PAI. of five minutes to one hour. A destination decay function is used to weight the number of jobs reachable such that nearby jobs contribute more to the access score than jobs that are farther away.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for prioritization within the *Access to Jobs by Disadvantaged Populations* need category:

1. Obtain the NAE datasets given the following parameters:
   - Current Condition: Transit
   - Reference Condition: Automobile (8 AM)
   - Maximum Travel Time: 45 minutes
   - Maximum Travel Distance: 5 miles
2. For each census block, calculate PAI as the difference between the reference condition and current condition, or the accessibility deficit between the current condition and the reference condition.

$$PAI_{Transit} = Reference - Current$$

3. Calculate the population weighted PAI for each census block by multiplying PAI by the disadvantaged population of the census block in which the segment is located.

$$Population\ Weighted\ PAI = Disagvantatged\ Population \bullet PAI$$

4. Sum the population weighted PAI and total disadvantaged population in the catchment area around each segment. Next, divide the summed population-weighted PAI by the total population in the catchment area to yield the population-weighted average PAI.Assign a functional class (FC) score to all road segments.

$$Weighted\ Average\ PAI = \frac{\sum_{i=1}^{n} Population\ Weighted\ PAI_i}{\sum_{i=1}^{n} Population_i}$$

5. Calculate the *transit access to jobs* performance measure
   - Assign a functional class (FC) score to all road segments.
   - Calculate the raw score for transit access to jobs performance measure by multiplying segments' weighted average accessibility improvement by its FC score (see **Table 13**).

$$Raw\ Need\ Score = Weighted\ Average\ PAI \times FC\ Score$$

Table 13 *Access to jobs for disadvantaged populations functional class score standardization*

Functional Class	FC Score
Interstates, Other Freeways & Express, and Other Principal Arterial	7
Minor Arterial	5
Major Collector	3
Minor Collector	1
Local	0.25

Scoring of Access to Jobs by Disadvantaged Populations Needs

Sort the raw automobile need score in descending order. Then, using **Table 14**, assign the need score based on the segments' cumulative length percentage of the combined mileage of all segments that have a need for *Access to Jobs by Disadvantaged Populations.*

Table 14 *Access to jobs by disadvantaged populations need scores applied to segments by average PAI*

Need Category	Need Score	Percent of Total Mileage
Very High	7	0% to 5%
High	6	5.001% to 10%
Medium High	5	10.001% to 15%
Medium	4	15.001% to 20%
Medium Low	3	20.001% to 25%
Low	2	25.001% to 50%
Very Low	1	50.001% to 100%

Data Requirements

- Block-Level Access to Jobs (source: datasets from the Access Across America analysis by the Accessibility Observatory. Obtained via VTRC through pooled fund study)
- Equity Emphasis Areas (source: OIPI via InteractVTrans Map Explorer)
- Roadway Functional Classification (source: VDOT via InteractVTrans Map Explorer)
- ArcGIS Geoprocessing Tools

Geoprocessing Tool Overview

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Need Category: Mobility and System Efficiency

The aim of the mobility and system efficiency category is to identify segments where congestion-related delay degrades travel time and travel time reliability for automobiles and transit vehicles and to prioritize projects that will alleviate delay and/or enhance person throughput throughout the region. Mobility needs are assessed using two measures: *congestion mitigation* and *travel time reliability*. Both measures compare congested travel conditions to free flow conditions, assessing the severity of congestion under typical and extreme conditions, respectively.

Congestion Mitigation

Congestion mitigation needs are identified through Travel Time Index (TTI), which is the ratio of a segment's typical travel time during an observed period (such as the morning or evening peak commuting period) to the time required to travel the same distance in a reference period (under free-flow conditions, e.g.). A TTI value greater than one indicates there is delay during the observation period, and higher numbers indicate increasingly severe delay due to congestion. TTI is usually measured at a segment level. For example, a TTI of 1.3 indicates typical travel times along a particular segment are 30% longer. If it would take 2 minutes to traverse the segment under free-flow conditions, the TTI of 1.3 would imply it typically takes 2 minutes and 40 seconds during congested conditions.

The dataset used for this analysis contains TTI measures by segment that cover a 14-hour period from 6 AM to 8 PM on weekdays and weekends for multiple years (i.e., TTI for weekdays and weekends in 2018, 2019, 2020, and 2021 for each hour from 6 AM to 8 PM). The TTI measures, which are calculated by OIPI using INRIX TMC data from the Regional Integrated Transportation System (RITIS), can be obtained from the InteractVTrans Map Explorer, and reflect the ratio of the 50th percentile travel time to the estimated free flow time.

The identification of qualifying segments requires that a given segment at any time in the previous four years exceeds the congestion mitigation need threshold discussed in the following sections.

The following steps outline the process for identifying congestion mitigation needs. In this process the focus is on weekday and weekend TTI from 6 AM to 8 PM analysis periods.

1. For each segment and each year, calculate the weeklong average TTI for each hour in the analysis period by combining the separate estimates of weekday TTI and weekend TTI as follows:
   - Multiply weekday TTI values by 5/7 (five of seven days)
   - Multiply weekend TTI values by 2/7 (two of seven days)
   - Sum the results of 1a and 1b to obtain weeklong average TTI
2. For each segment, tally the number of hours in the analysis period where the weeklong average TTI in any year is above the eligibility threshold. Select eligible segments where the thresholds are satisfied.

Eligibility for congestion mitigation scoring may be determined by one of the following alternative thresholds:

- Average weeklong TTI in any year is greater than 1.3 for three or more hours or average weeklong TTI is greater than 1.5 for one or more hours.
- Average weeklong TTI in any year is greater than 1.5 for three or more hours or average weeklong TTI is greater than 1.7 for one more hours.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for assessing the magnitude of the *congestion mitigation* need:

1. Calculate the daily cumulative TTI values from 6 AM to 8 PM. This step accumulates over all qualifying hours in a single year to a calculate a "daily cumulative TTI" value.

$$\text{Daily cumulative TTI} = \frac{5}{7}\left(\sum_{\text{Weekday TTI} \geq T} \text{Weekday TTI}\right) + \frac{2}{7}\left(\sum \text{Weekend TTI}\right)$$

Where:
T = TTI threshold (1.3, 1.5, 1.7, e.g.)

2. Adjust for magnitude of congestion by multiplying cumulative congested hours by traffic volume using length weighted Annual Average Daily Traffic (AADT)

$$\text{Normalized TTI\_AADT} = \frac{TTI\_AADT_i - TTI\_AADT_{min}}{TTI\_AADT_{max} - TTI\_AADT_{min}}$$

Where:
TTI_AADTi = Cumulative TTI × AADT for segment i
TTI_AADT_{min} = Minimum Cumulative TTI × AADT for all segments
TTI_AADT_{max} = Maximum Cumulative TTI × AADT for all segments

Scoring of Congestion Mitigation Needs

Using **Table 15**, assign need scores based on segments' normalized volume adjusted weekly average TTI.

Table 15 *Congestion mitigation need scores by the normalized volume adjusted weekly average TTI*

Need Category	Need Score	Normalized Congestion Need Score
Very High	7	0.95 to 1
High	6	0.9 to 0.95
Medium High	5	0.85 to 0.9
Medium	4	0.8 to 0.85
Medium Low	3	0.75 to 0.8
Low	2	0.5 to 0.75
Very Low	1	0 to 0.5

Data Requirements

- Travel Time Index (source: INRIX provided by RITIS via InteractVTrans Map Explorer)
- AADT (source: InteractVTrans Map Explorer)

Geoprocessing Tool Overview

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Travel Time Reliability

Travel time reliability needs are identified through Planning Time Index (PTI), which is the ratio of a segment's 95th percentile travel time compared to the time needed to travel the same distance in a reference period (free-flow traffic, e.g.). PTI refers to the total planned duration of travel (expected delay plus unexpected delay) that is required for an on-time arrival for 95% of trips on a given segment. For example, a PTI of 1.5 at a given time indicates that a trip that normally takes 10 minutes in uncongested conditions should be planned to take 15 minutes to ensure that 95% of trips arrive on time. PTI is a measure of travel time reliability because it measures the extent of unexpected delay against free flow traffic and measures the consistency or dependability in travel times across different times of day.

The dataset used for this analysis contains PTI measures that cover a 14-hour period from 6 AM to 8 PM on weekdays and weekends for multiple years (i.e., PTI for weekdays and weekends in 2018, 2019, 2020, and 2021 for each hour from 6 AM to 8 PM). The PTI measures, which are calculated by OIPI using INRIX TMC data from the Regional Integrated Transportation System (RITIS), can be obtained from the InteractVTrans Map Explorer and reflect the ratio of the 95th percentile travel time to the estimated free flow time.

The identification of qualifying segments requires that a given segment at any time in the previous four years exceeds the congestion mitigation need threshold discussed in the following sections.

The following steps outline the process for identifying *travel time reliability* needs. In this process the focus is on weekday and weekend PTI from 6 AM to 8 PM analysis periods.

1. For each segment and each year, calculate the PTI for each hour in the analysis period by combining the separate estimates of weekday PTI and weekend PTI as follows:
   - Multiply weekday PTI values by 5/7 (five of seven days)
   - Multiply weekend PTI values by 2/7 (two of seven days)
   - Sum the results of 1a and 1b to obtain weeklong average PTI
2. For each segment, tally the number of hours in the analysis period where the weeklong average PTI in any year is above the eligibility threshold. Select eligible segments where the thresholds are satisfied.

Eligibility for *travel time reliability* scoring may be determined by one of the following alternative thresholds::

- Average weekday and weekend PTI is greater than 1.3 for three hours or greater than 1.5 for one hour.
- Average weekday and weekend PTI is greater than 1.5 for three hours or greater than 1.7 for one hour.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for assessing the magnitude of the congestion mitigation need:

1. Calculate the daily cumulative PTI values from 6 AM to 8 PM. This step accumulates over all qualifying hours in a single year to a calculate a "daily cumulative PTI" value.

$$\text{Daily cumulative PTI} = \frac{5}{7}\left(\sum_{\text{Weekday PTI} \geq T} \text{Weekday PTI}\right) + \frac{2}{7}\left(\sum_{\text{Weekday PTI} \geq T} \text{Weekend PTI}\right)$$

Where:
T = TTI threshold (1.3, 1.5, 1.7, e.g.)

2. Adjust for magnitude of congestion by multiplying cumulative congested hours by traffic volume using length weighted Annual Average Daily Traffic (AADT)

3. Repeat steps 1 and 2 for all years available in the PTI dataset to calculate AADT-weighted daily cumulative PTI for each year. Retain the maximum result across all years for each segment.

4. Normalize the AADT adjusted PTI for all years available in the dataset using the following equation. Normalization results in values ranging from 0.0 to 1.0, with the segment that has the lowest volume adjusted PTI receiving a score of 0.0 and the segment that has the highest volume adjusted PTI receiving a score of 1.0.

$$\text{Normalized PTI\_AADT} = \frac{PTI\_AADT_i - PTI\_AADT_{min}}{PTI\_AADT_{max} - PTI\_AADT_{min}}$$

Where:
PTI_AADTi = Cumulative PTI × AADT for segment i
PTI_AADT_{min} = Minimum Cumulative PTI × AADT for all segments
PTI_AADT_{max} = Maximum Cumulative PTI × AADT for all segments

Scoring of Travel Time Reliability Needs

Using **Table 16**, assign need scores based on segments' normalized volume adjusted weekly average PTI.

Table 16 Travel time reliability need scores by normalized volume adjusted weekly average PTI

Need Category	Need Score	Normalized Congestion Need Score
Very High	7	0.95 to 1
High	6	0.9 to 0.95
Medium High	5	0.85 to 0.9
Medium	4	0.8 to 0.85
Medium Low	3	0.75 to 0.8
Low	2	0.5 to 0.75
Very Low	1	0 to 0.5

Data Requirements

- Planning Time Index (source: INRIX provided by RITIS via InteractVTrans Map Explorer)
- AADT (source: InteractVTrans Map Explorer)

Geoprocessing Tool Overview

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF TRANSPORTATION NEEDS

Bus Transit On-Time Performance

While there are multiple factors that influence people's decisions to use public transportation, one of the most important decision-making factors in low-frequency bus systems such as Charlottesville Area Transit (CAT) is passenger waiting time, which is influenced by the reliability of the transit service and adherence to published schedules. When buses regularly depart from stops at the scheduled time, passengers can time their arrival at the stop to minimize wait time. However, if the bus is not usually on time, passengers can face unpredictable wait times. Accordingly, one of the most common measures of the effectiveness of the bus transportation system is on-time performance (OTP).

For the purpose of this analysis, OTP measures how well transit vehicles adhere to the published schedule within an acceptable level of deviation measured in time and serves as an indicator of the attractiveness of bus transit as a travel option. OTP is expressed as a percentage and is calculated by the count of bus timepoint departures that are on time divided by the count of total departures multiplied by 100. Buses are considered "on-time" if they are no more than 30 seconds early and no more than 5 minutes late to the major stops on the route schedule.

Since OTP data is only collected at stops where departure times are scheduled (i.e., timepoints), this analysis does not include intermediate stops with scheduled departure times. Since stop locations may include bus stops for more than one route, the term "timepoint" refers to bus stops associated with a specific route (i.e., there may be multiple timepoint features at a single stop location). Additionally, this analysis does not consider reliability in terms of service consistency or the change in reliability over time. For example, a bus that is consistently six minutes late is not on time but is reliable. Furthermore, the analysis of OTP does not provide reasons for poor performance including predictable events such as traffic congestion, passenger loads, and delays due to at-grade railroad crossings or unexpected events like crashes, disabled buses, temporary detours, weather, and issues related to labor.

The following threshold options were tested to determine scoring eligibility:

- Stops where OTP is less than the systemwide weekly average OTP from the previous year.
- Stops where OTP is less than 85% or an alternative target value in accordance with CAMPO's transit performance goals.

Calculate OTP for all timepoints in the analysis period for weekdays and weekends separately.

1. Calculate OTP in two steps:

   - Find the percentage of on-time departures by dividing the sum of on-time departures by the sum of total departures, then multiply by 100.
   - Subtract the result from 100 to obtain the share of departures that are not on time.

2. Multiply timepoints' weekday OTP values by 5/7 (five of seven days)
3. Multiply timepoints' weekend OTP values by 2/7 (two of seven days)
4. Sum the results of step 2 and step 3 to obtain weeklong average OTP by timepoint

OTP is used in the identification of needs to determine if stops are eligible for bus transit on-time performance scoring. The first threshold option determines eligibility if OTP at a timepoint is worse than the systemwide weekly average OTP from the previous year or analysis period. Alternatively, if the second threshold option is selected, timepoints are eligible for scoring if OTP is less than a target value set by CAMPO (e.g., 85%). The second threshold option does not require computation of an average weeklong average OTP.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for assessing the magnitude of the *congestion mitigation* need:

1. Calculate the daily cumulative PTI values from 6 AM to 8 PM. This step accumulates over all qualifying hours in a single year to a calculate a "daily cumulative PTI" value.

$$Weeklong\ OTP = \frac{5}{7}\left(\sum_{Weekday\ OTP > T} Weekday\ OTP\right) + \frac{2}{7}\left(\sum_{Weekend\ OTP > T} Weekend\ OTP\right)$$

Where:
Weeklong OTP = Average OTP for each stop by route
T = OTP threshold (83%, 85%, 90%, e.g.)

2. Adjust Weeklong OTP by subtracting the on-time rate from 100%. This will ensure that the timepoints with greater needs receive a higher value. For example, a timepoint with an OTP of 80% will become 20%, while a timepoint with an OTP of 60% will become 40%.

3. Account for the magnitude of needs by multiplying the adjusted weeklong OTP by the number of daily boardings and alightings at each timepoint (boardings and alightings are treated as a proxy for ridership in this analysis).

$$OTP\_Ridership_i = Ridership_i \times \text{Adjusted Weeklong OTP}_i$$

Where,
$OTP\_Ridership_i$ = Ridership Adjusted OTP at timepoint i
$Ridership_i$ = Daily Ridership at timepoint i
$Weeklong\ OTP_i$ = Adjusted Weeklong OTP at timepoint i

4. Normalize ridership adjusted OTP.

$$Normalized\ OTP\_Ridership_i = \frac{OTP\_Ridership_i - OTP\_Ridership_{min}}{OTP\_Ridership_i - OTP\_Ridership_{max}}$$

Where:
$OTP\_Ridership_{min}$ = Minimum ridership adjusted OTP across all timepoints
$OTP\_Ridership_{max}$ = Maximum ridership adjusted OTP across all timepoints

Scoring of Bus On Time Performance Needs

Using **Table 17**, assign need scores based on segments' normalized volume adjusted weekly average PTI.

Table 17 *Bus Transit On-Time Performance need scores by normalized ridership adjusted weekly average OTP*

Need Category	Need Score	Normalized Reliability Need Score
Very High	7	0.95 to 1
High	6	0.9 to 0.95
Medium High	5	0.85 to 0.9
Medium	4	0.8 to 0.85
Medium Low	3	0.75 to 0.8
Low	2	0.5 to 0.75
Very Low	1	0 to 0.5

Data Requirements

- Charlottesville Area Transit On-Time Performance (source: CAT)
- Charlottesville Area Transit Daily Ridership (source: CAT)

Geoprocessing Tool Overview

(forthcoming)

Need Category: Land Use and Economic Development

The aim of the land use and economic development category is to identify areas where there is access to non-work destinations to stimulate local economic activity or to create transportation choices for disadvantaged people and to prioritize projects that connect to areas of local economic development activity. Land use needs are assessed using two measures: walk access to *non-work destinations* and *walk access to non-work destinations by disadvantaged populations*. Both measures rely on WalkScore and BikeScore indices, focusing on the general population and disadvantaged populations, respectively.

Walk Access to Non-Work Destinations

The need for walk access to non-work destinations is determined by a segment's maximum of WalkScore and BikeScore and its future population and employment level (i.e., activity level). WalkScore3 measures walkability through measures of access to non-work destinations (cultural, restaurants, groceries, parks, errands) and roadway connectivity such as intersection density and average block length. In this needs assessment process, the maximum WalkScore or BikeScore is weighted by future activity level from the regional travel demand model. This performance measure shows locations that are in close proximity to non-work destinations, population and employment. Through the WalkScore component, the performance measures indicates where there is high network connectivity. However, these locations may have barriers to walking not accounted for in the WalkScore methodology including lack of sidewalks or crosswalks along existing facilities. Therefore, the walk *access to non-work destinations* performance measures indicates where investments in pedestrian improvements would likely yield the greatest benefits.

Segment eligibility for walk access to non-work destinations scoring may be determined by one of the following optional thresholds:

- All segments in the City of Charlottesville and in Albemarle County Development Areas
- All segments in "somewhat walkable" census tracts (i.e., WalkScores greater than 49)

If the first threshold option is selected, all segments in the City of Charlottesville or in one of Albemarle County's five Development Areas are eligible for *walk access to non-work destinations* scoring. Development areas, which are defined by the County's Comprehensive Plan, are intended "to focus development into the urban areas to create quality living areas, avoid sprawl, improve access to services, and protect the natural and agricultural resources and uses of the rural areas." Development areas include Crozet, Pantops, the US-29 corridor from Hydraulic Road to north of the airport, the Southern and Western neighborhoods adjacent to Charlottesville, and the Village of Rivanna. The effect of selecting this threshold option is that needs will be considered for all areas regardless of the current WalkScore.

Alternatively, if the second threshold option is selected, segments are eligible for *walk access to non-work destinations* scoring if they are in "somewhat walkable" census tracts which is defined by WalkScores that are greater than 49. The result of selecting this threshold option is that needs will be considered for all areas regardless of its designation as a Development Area (for Albemarle County only). However, given that WalkScores are higher in more urban areas due to better network connectivity and shorter distances to amenities, the more realistic outcome is that needs will be identified in areas within Development Areas where there is the greatest potential for improving access to non-work destinations.

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Calculation Steps

The following steps outline the process for assessing the magnitude of the *walk access to non-work destinations* need:

1. Calculate segments' average WalkScore by performing a spatial join of segments that intersect the WalkScore feature layer.
2. Calculate segments' average activity level by performing a spatial join of segments that intersect the regional travel demand model's Traffic Analysis Zones (TAZ) layer that contains total population and all employment. Summarize the average activity level for segments that span two or more TAZs.
3. Calculate segments' activity weighted WalkScore by multiplying average WalkScore by average future activity level.

$$\textit{Weighted Walk Score} = \textit{Walk Score} \bullet (\textit{Average Population} + \textit{Average Jobs})$$

Normalize the weighted WalkScore using the following equation:

$$\textit{Normalized WalkScore} = \frac{\textit{Weighted WalkScore}_i - \textit{Weighted WalkScore}_{min}}{\textit{Weighted WalkScore}_{max} - \textit{Weighted WalkScore}_{min}}$$

Where:
Weighted $WalkScore_i$ = WalkScore • Activity level for Segment i
Weighted $WalkScore_{min}$ = Minimum (WalkScore • Activity level) for all segments
Weighted $WalkScore_{max}$ = Maximum (WalkScore • Activity level) for all segments

Scoring of Walk Access to Non-Work Destinations Needs

Sort the normalized average WalkScore weighted by average activity level. Then, using **Table 18**, assign the need score based on the segments' cumulative length percentage of the combined mileage of all segments that have a need for *walk access to non-work destinations.*

Table 18 *Walk access to non-work destinations need scores applied to segments by population weighted WalkScore*

Need Category	Need Score	Percent of Total Mileage
Very High	7	0% to 5%
High	6	5.001% to 10%
Medium High	5	10.001% to 15%
Medium	4	15.001% to 20%
Medium Low	3	20.001% to 25%
Low	2	25.001% to 50%
Very Low	1	50.001% to 100%

Data Requirements

- WalkScore and BikeScore (source: InteractVTrans Map Explorer)
- Future population and employment (source: Charlottesville-Albemarle Regional Model)

Geoprocessing Tool Overview

(forthcoming)

Walk Access to Non-Work Destinations by Disadvantaged Populations

The need for w*alk access to non-work destinations by disadvantaged populations is* similar to the performance measure described in the previous section but the combined WalkScore and BikeScore is weighted by disadvantaged population from Equity Emphasis Areas in the InteractVTrans Map Explorer instead of future activity level. Like *walk access to non-work destinations*, this performance measure shows locations that are in close proximity to non-work destinations and disadvantaged populations and where there is high network connectivity. However, these locations may still have barriers to walking not accounted for in the WalkScore methodology including lack of sidewalks or crosswalks along existing facilities. Therefore, the *walk access to non-work destinations by disadvantaged populations* performance measure indicates where investments in pedestrian improvements would likely yield the greatest benefits for disadvantaged residents.

Segment eligibility for *walk access to non-work destinations for disadvantaged populations* scoring may be determined by one of the following optional thresholds:

- All segments in transit viable EEAs
- All segments in transit viable EEA that are also in "somewhat walkable" census tracts (i.e., WalkScores of 50 or higher)

The implication of selecting all segments in transit EEAs for walk access to non-work destinations scoring is that the current WalkScore does not affect which segments are scored for walk access to jobs by disadvantaged populations. Conversely, the effect of choosing the threshold option that limits scoring to segments in "somewhat walkable" locations is that "car-dependent" EEAs which have a combined WalkScore and BikeScore of less than 50 will not be considered for scoring.

Calculation Steps

The following steps outline the process for assessing the magnitude of the *walk access to non-work destinations* need:

1. Calculate segments' average WalkScore by performing a spatial join of segments that intersect the WalkScore feature layer.

2. Calculate segments' disadvantaged population by performing a spatial join of segments that intersect the Equity Emphasis Areas (EEA) Census tract layer. Sum the low-income population, age 75-plus population, disabled population, limited English proficiency population, minority population, and Hispanic population for each segment.

3. Calculate segments' weighted WalkScore by multiplying average WalkScore by average disadvantaged populations in intersecting zones.

$$\textit{Weighted Walk Score} = \textit{Walk Score} \bullet \textit{Segment disadvantaged population}$$

4. Normalize the weighted WalkScore using the following equation:

$$\textit{Normalized WalkScore} = \frac{\textit{Weighted WalkScore}_i - \textit{Weighted WalkScore}_{min}}{\textit{Weighted WalkScore}_{max} - \textit{Weighted WalkScore}_{min}}$$

Where:

Weighted WalkScore*i* = WalkScore • Activity level for Segment i

Weighted WalkScoremin = Minimum (WalkScore • Activity level) for all segments

Weighted WalkScoremax = Maximum (WalkScore • Activity level) for all segments

Scoring of Walk Access to Non-Work Destinations Needs

Sort the normalized average WalkScore weighted by disadvantaged population. Then, using **Table 19**, assign the need score based on the segments' cumulative length percentage of the combined mileage of all segments that have a need for walk access to non-work destinations.

Table 19 *Walk access to non-work destinations need scores applied to segments by disadvantaged population weighted WalkScore*

Need Category	Need Score	Percent of Total Mileage
Very High	7	0% to 5%
High	6	5.001% to 10%
Medium High	5	10.001% to 15%
Medium	4	15.001% to 20%
Medium Low	3	20.001% to 25%
Low	2	25.001% to 50%
Very Low	1	50.001% to 100%

Data Requirements

- WalkScore and BikeScore
- (source: InteractVTrans Map Explorer)
- Equity Emphasis Areas (source: OIPI via InteractVTrans Map Explorer)

Geoprocessing Tool Overview (forthcoming)

(forthcoming)

3 – PROCESS FOR THE IDENTIFICATION OF NEEDS

Need Category: Environment and Resiliency

The aim of the environmental category is to identify resiliency needs, especially where infrastructure is exposed to inland flooding and to prioritize projects that pose no environmental impacts, mitigate impacts, or offer environmental services.

Exposure to Projected Sea Level Rise, Storm Surge, or Historical Inland/Riverine Flooding

Environmental and Resiliency needs are accounted for as an adjustment to combined needs scores for segments that are exposed to sea level rise, storm surge, or historical flooding and are within an Economically Distressed Community. This metric adjusts the aggregate scores of all roadway segments with a need based on Flooding Risk Assessment and the Distressed Communities Index (DCI).

OIPI's Flooding Risk Assessment is a system level analysis of the system's assets' (i.e., roads and bridges) vulnerability to climate change, including sea level rise, storm surge, and inland flooding. The components of vulnerability as defined by the Federal Highway Administration (FHWA) include exposure, sensitivity, and adaptive capacity. For the purposes of CAMPO's environmental needs analysis, only system exposure to inland flooding is considered. The following definitions, which are taken from the VTrans Vulnerability Assessment Tech Memo, reflect the components of vulnerability as defined by FHWA.

- *Exposure* determines whether the asset is experiencing the direct effects of climate change
- *Sensitivity* determines how well the system fares when exposed to climatic events
- *Adaptive Capacity* determines the system's ability to adjust with future climate impacts

The Distressed Communities Index (DCI), which derives data from the American Community Survey (ACS), sorts zip codes into quintiles of economic well-being: prosperous, comfortable, mid-tier, at risk, and distressed. The seven components of DCI is the share of residents who are 25 or older who do not have a high school diploma or equivalent, housing vacancy rate, unemployment rate for working-age adults (25-54), the share of the population living under the poverty line, median household income as a percent of metro area/state median household income, the percent change in employment from 2016 to 2020, and the percent change in the number of business establishments from 2016 to 2020. **Table 20** lists zip codes in the Charlottesville-Albemarle MPO area by DCI.

Table 20 *Distressed Communities Index for Zip Codes in the Charlottesville-Albemarle Area*

Zip Code	Post Office	Distressed Communities Index	Population (2021)
22901	Charlottesville	35.6 (Comfortable)	36,964
22902	Charlottesville	38.5 (Comfortable)	24,018
22903	Charlottesville	62.9 (At Risk)	44,101
22904[4]	Charlottesville	n/a	3,119
22911	Charlottesville	7.4 (Prosperous)	18,627
22923	Barboursville	9.4 (Prosperous)	6,004
22932	Crozet	15.3 (Prosperous)	10,102
22936	Earlysville	15.4 (Prosperous)	5,186
22947	Keswick	47.4 (Mid-Tier)	5,150
22959	North Garden	60.7 (At Risk)	1,932
22968	Ruckersville	21.9 (Comfortable)	11,239
22974	22974	34.5 (Comfortable)	5,441

Calculation Steps

Since project location is a critical component of environmental impacts, the *Environment and Sustainability* need category is applied after aggregating need scores across the other metrics described in previous sections. The adjustment factors apply to aggregate scores for road segments that are exposed to projected sea level rise, storm surge, or inland/riverine flooding and to segments in economically distressed communities.

- 5% adjustment for segments exposed to historical flooding in a 100-year flood zone
- Adjustments for economically distressed communities
  - 5.0% adjustment applied to aggregate score of road segments in a zip code that has a DCI index of 80 to 100 (i.e., distressed)
  - 3.5% adjustment applied to aggregate score of road segment in a zip code that has a DCI rating of 60 to 80 (i.e., at risk)
  - Additional 2.0% if a roadway segment falls within a zip code that has a DCI rating of 40 to 60 (i.e., mid-tier)

Data Requirements

- VTrans Flood Risk Assessment (source: OIPI via InteractVTrans Map Explorer)
- Distressed Communities Index (source: Economic Innovation Group)[5]

Community Profile

American Community Survey Comparisons (2015 & 2021)

ACS 5-Year Estimates, Graphics:
-Household Characteristics
-Industry
-Travel Time to Work, Means to Work
-Median Age
-Median Income
-Language
-Poverty
-Disability
-Race and more

Charlottesville/Albemarle MPO
MOVING TOWARD 2050
LONG RANGE TRANSPORTATION PLAN

Demographics - Race

American Community Survey 5-Year Estimates	Albemarle (2021)	Charlottesville (2021)	Albemarle & Charlottesville (2021)	Albemarle (2015)	Charlottesville (2015)	Albemarle & Charlottesville (2015)	Albemarle Percent Change (2015-2021)	Charlottesville Percent Change (2015-2021)	Albemarle & Charlottesville % Change (2015-2021)
Total:	111,438	46,597	158,035	103,108	45,084	148,192	8%	3%	7%
Not Hispanic or Latino:	104,901	43,947	148,848	97,257	42,847	140,104	8%	3%	6%
White alone	85,123	30,485	115,608	79,817	29,944	109,761	7%	2%	5%
Black or African American alone	9,712	8,348	18,060	9,539	8,664	18,203	2%	-4%	-1%
American Indian & Alaska Native alone	324	76	400	187	74	261	73%	3%	53%
Asian alone	6,174	3,257	9,431	4,578	2,983	7,561	35%	9%	25%
Native Hawaiian and Other Pacific Islar	61	5	66	15	71	86	307%	-93%	-23%
Some other race alone	213	251	464	303	20	323	-30%	1155%	44%
Two or more races:	3,294	1,525	4,819	2,818	1,091	3,909	17%	40%	23%
Two races including Some other race	535	170	705	59	35	94	807%	386%	650%
Two races excluding Some other race, and three or more races	2,759	1,355	4,114	2,759	1,056	3,815	0%	28%	8%
Hispanic or Latino:	6,537	2,650	9,187	5,851	2,237	8,088	12%	18%	14%
White alone	3,951	1,987	5,938	4,242	1,943	6,185	-7%	2%	-4%
Black or African American alone	39	56	95	119	9	128	-67%	522%	-26%
American Indian and Alaska Native alone	47	0	47	71	14	85	-34%	-100%	-45%
Asian alone	30	0	30	0	21	21	-	-100%	43%
Native Hawaiian and Other Pacific Islander alone	0	0	0	0	0	0	-	0%	0%
Some other race alone	1,031	168	1,199	1,086	120	1,206	-5%	40%	-1%
Two or more races:	1,439	439	1,878	333	130	463	332%	238%	306%
Two races including Some other race	1,237	324	1,561	187	68	255	561%	376%	512%
Two races excluding Some other race, and three or more races	202	115	317	146	62	208	38%	85%	52%

Demographics – Vehicles Available

American Community Survey 5-Year Estimates	Albemarle (2021)	Charlottesville (2021)	Albemarle & Charlottesville (2021)	Albemarle (2015)	Charlottesville (2015)	Albemarle & Charlottesville (2015)	Albemarle Percent Change (2015-2021)	Charlottesville Percent Change (2015-2021)	Albemarle & Charlottesville % Change (2015-2021)
Total:	43,066	19,312	62,378	38,853	17,752	56,605	11%	9%	10%
No vehicle available	1,984	2,097	4,081	1,706	1,846	3,552	16%	14%	15%
1 vehicle available	12,957	7,848	20,805	12,420	7,632	20,052	4%	3%	4%
2 vehicles available	17,470	6,627	24,097	15,313	5,895	21,208	14%	12%	14%
3 vehicles available	7,578	1,832	9,410	6,414	1,692	8,106	18%	8%	16%
4 or more vehicles available	3,077	908	3,985	3,000	687	3,687	3%	32%	8%

Demographics – Poverty Rate by Education

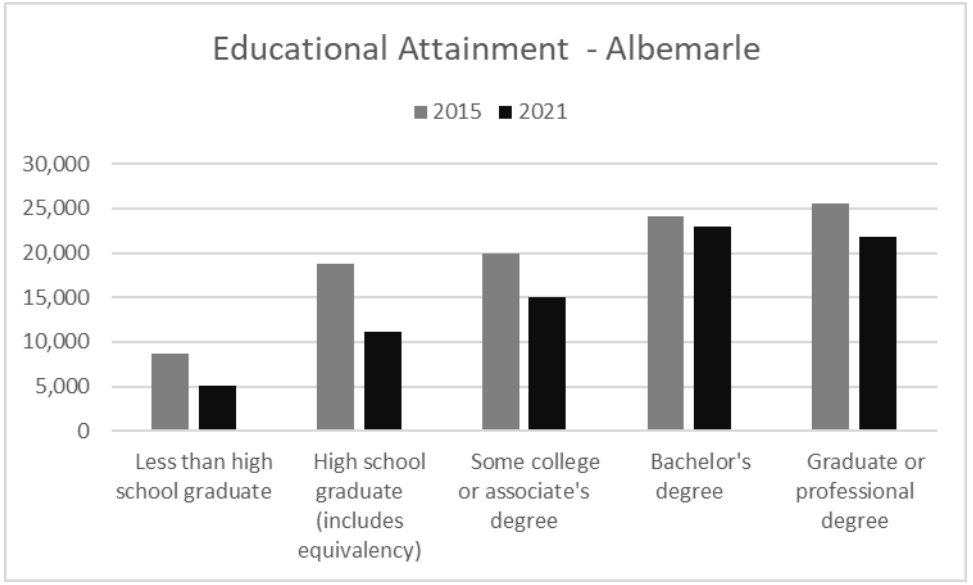
American Community Survey 5-Year Estimates	Albemarle (2021)	Charlottesville (2021)	Albemarle & Charlottesville (2021)	Albemarle (2015)	Charlottesville (2015)	Albemarle & Charlottesville (2015)	Albemarle Percent Change (2015-2021)	Charlottesville Percent Change (2015-2021)	Albemarle & Charlottesville % Change (2015-2021)
Total:	74,750	29,806	104,556	67,705	27,518	95,223	10%	8%	10%
Income in the past 12 months below poverty level:	4,299	3,564	7,863	5,638	4,205	9,843	-24%	-15%	-20%
Less than high school graduate	805	627	1,432	1,134	770	1,904	-29%	-19%	-25%
High school graduate (includes equivalency)	981	937	1,918	1,375	1,252	2,627	-29%	-25%	-27%
Some college, associate's degree	1,290	772	2,062	1,405	864	2,269	-8%	-11%	-9%
Bachelor's degree or higher	1,223	1,228	2,451	1,724	1,319	3,043	-29%	-7%	-19%

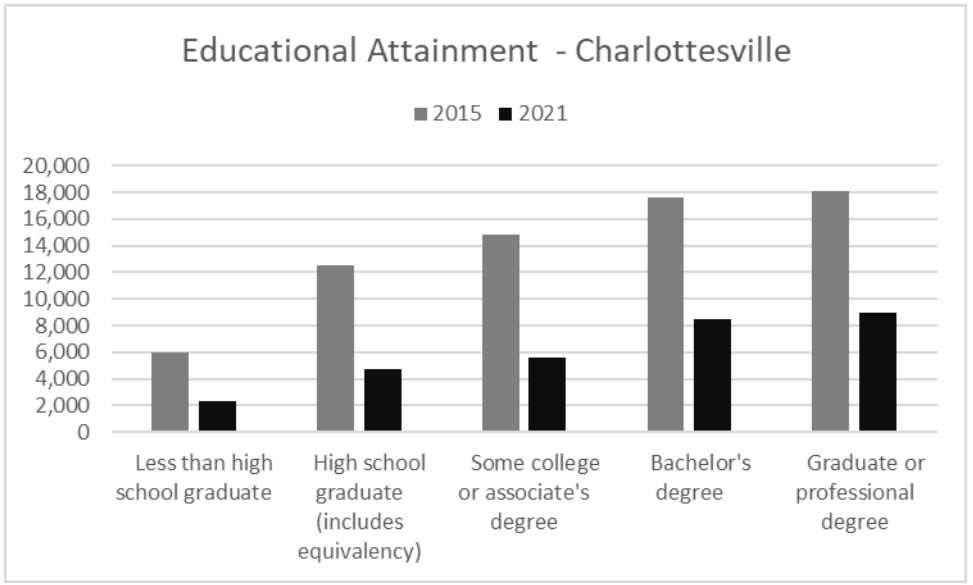
Demographics – Household Income

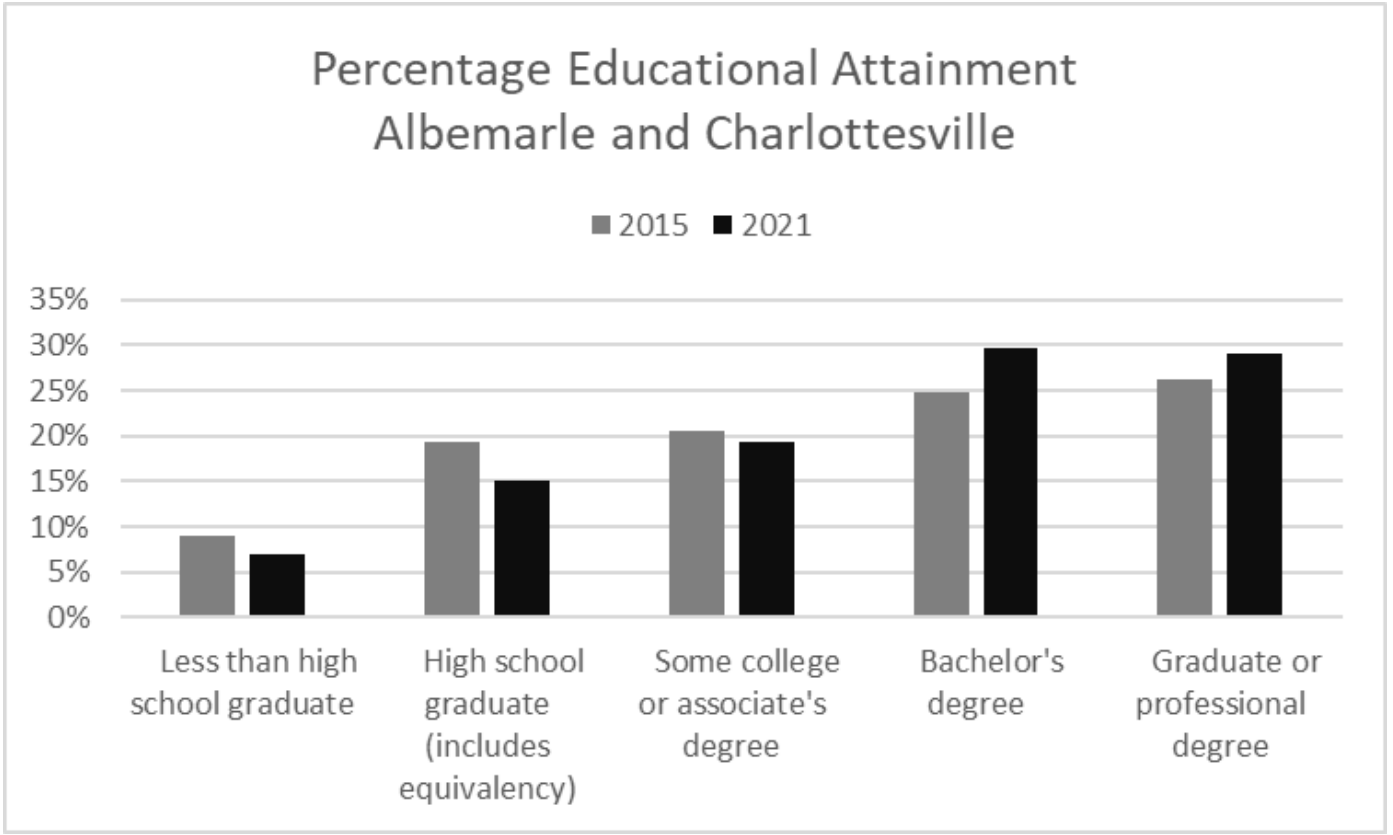
American Community Survey 5-Year Estimates	Albemarle (2021)	Charlottesville (2021)	Albemarle & Charlottesville (2021)	Albemarle (2015)	Charlottesville (2015)	Albemarle & Charlottesville (2015)	Albemarle Percent Change (2015-2021)	Charlottesville Percent Change (2015-2021)	Albemarle & Charlottesville % Change (2015-2021)
Total:	43,066	19,312	62,378	38,853	17,752	56,605	11%	9%	10%
$24.9k and less	4,618	4,420	9,038	6,252	4,982	11,234	-26%	-11%	-20%
$25k - $49.9k	7,012	2,919	9,931	8,041	3,920	11,961	-13%	-26%	-17%
$50k - $74.9k	6,593	3,118	9,711	6,907	2,753	9,660	-5%	13%	1%
$75K - $99.9k	5,488	2,910	8,398	4,838	1,786	6,624	13%	63%	27%
$100k - $149.9k	7,829	2,740	10,569	6,018	2,402	8,420	30%	14%	26%
$150k - $199.9k	5,286	2,941	8,227	2,884	804	3,688	83%	266%	123%
$200k and more	6,240	3,279	9519	3913	1105	5018	59%	197%	90%

Demographics – Educational Attainment

**data reported Fall 2022*

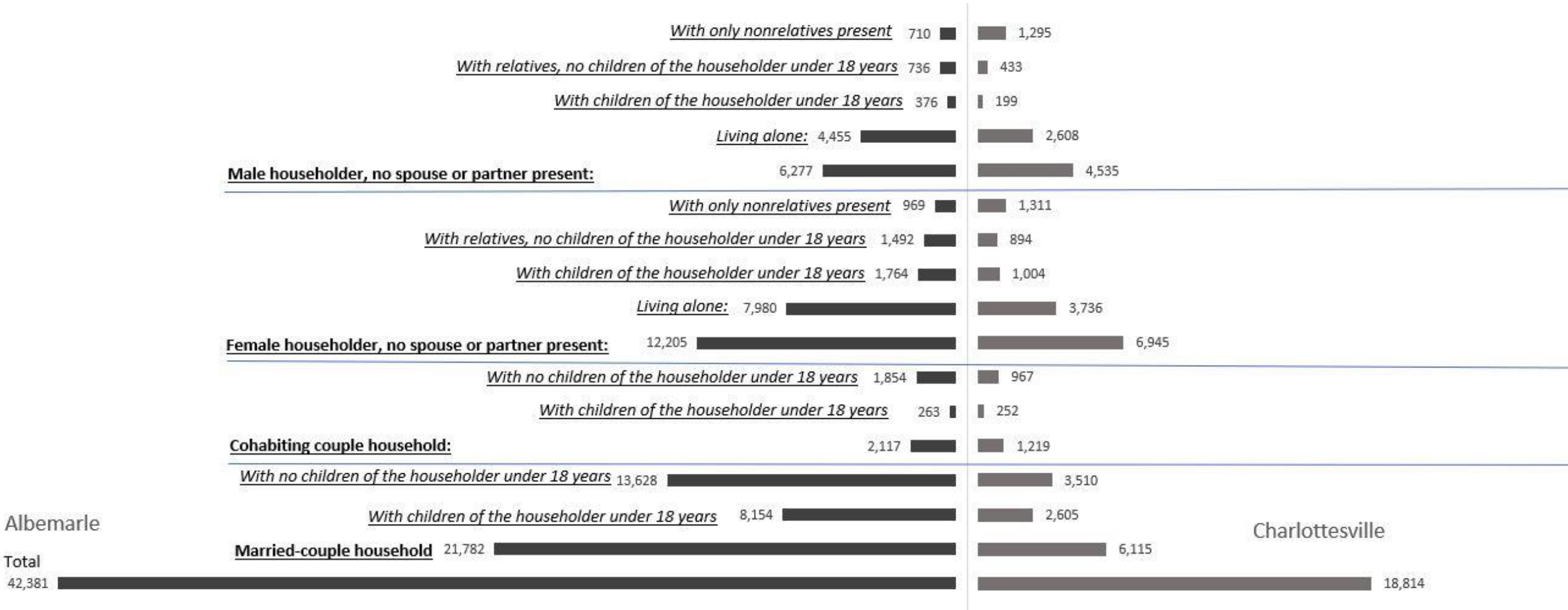






Household Characteristics

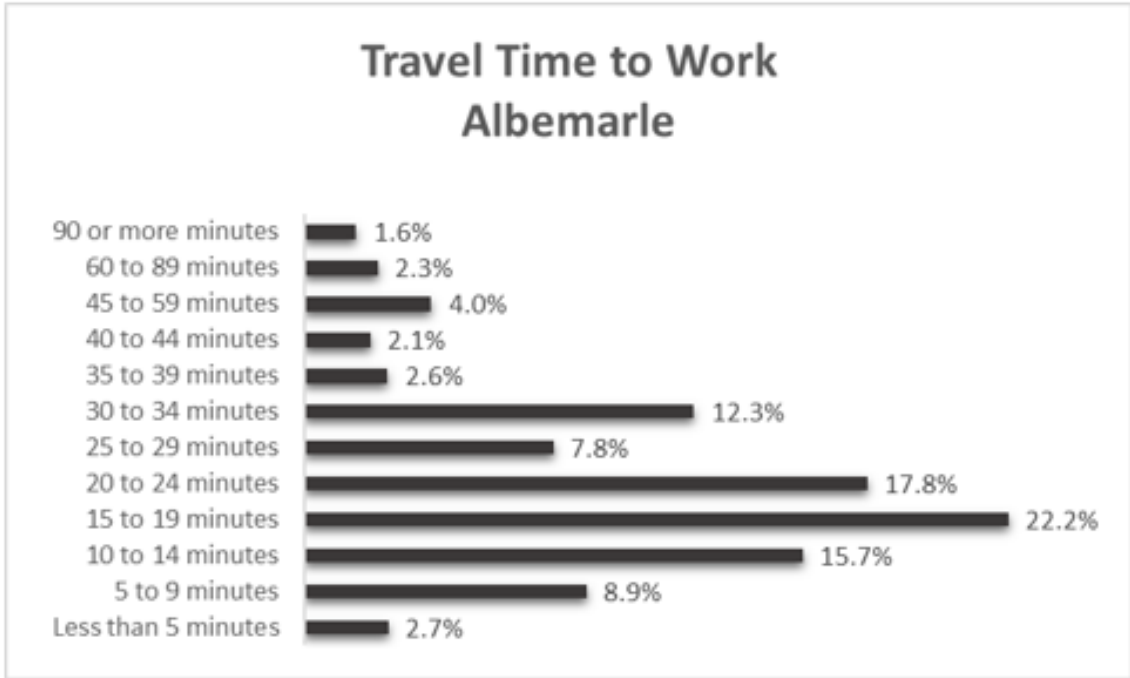
**data reported Fall 2022*

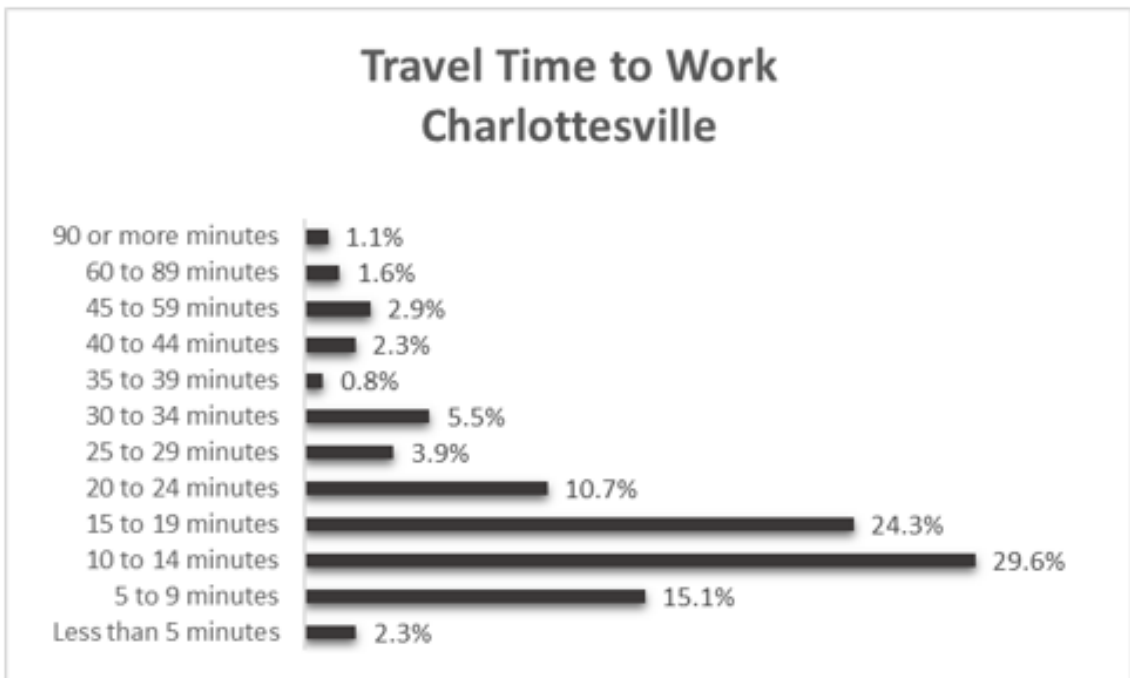


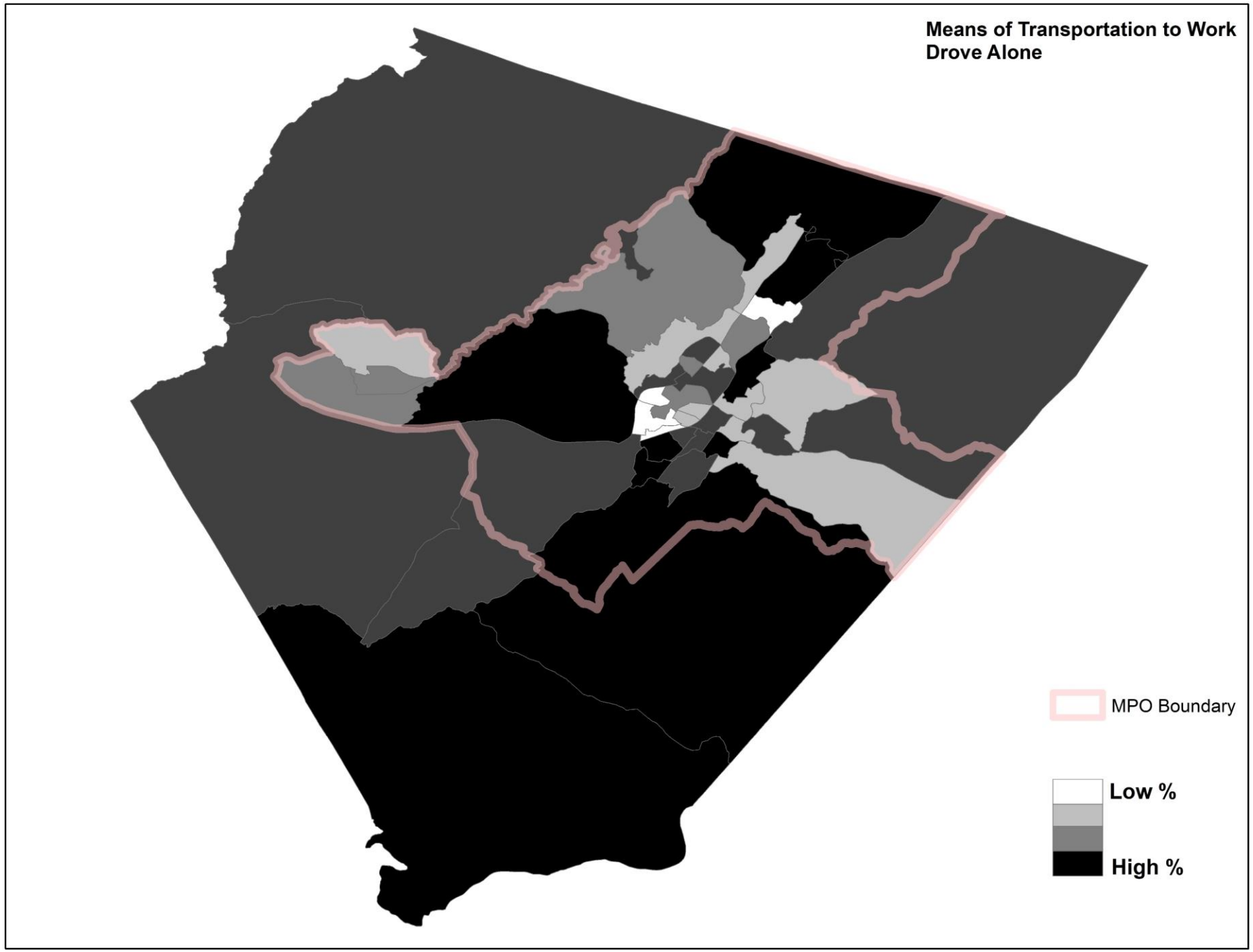
Industry Characteristics

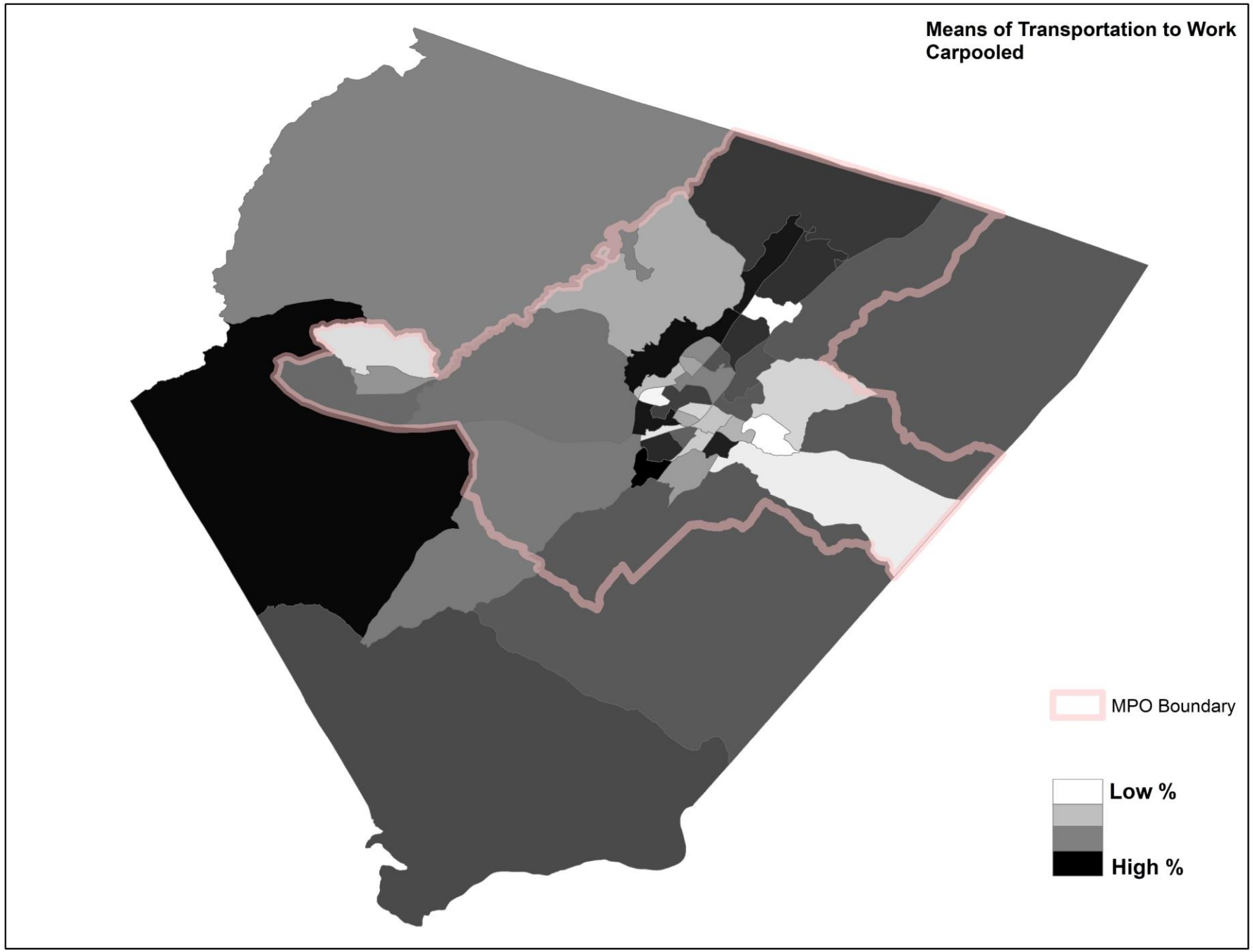
**data reported Fall 2022*

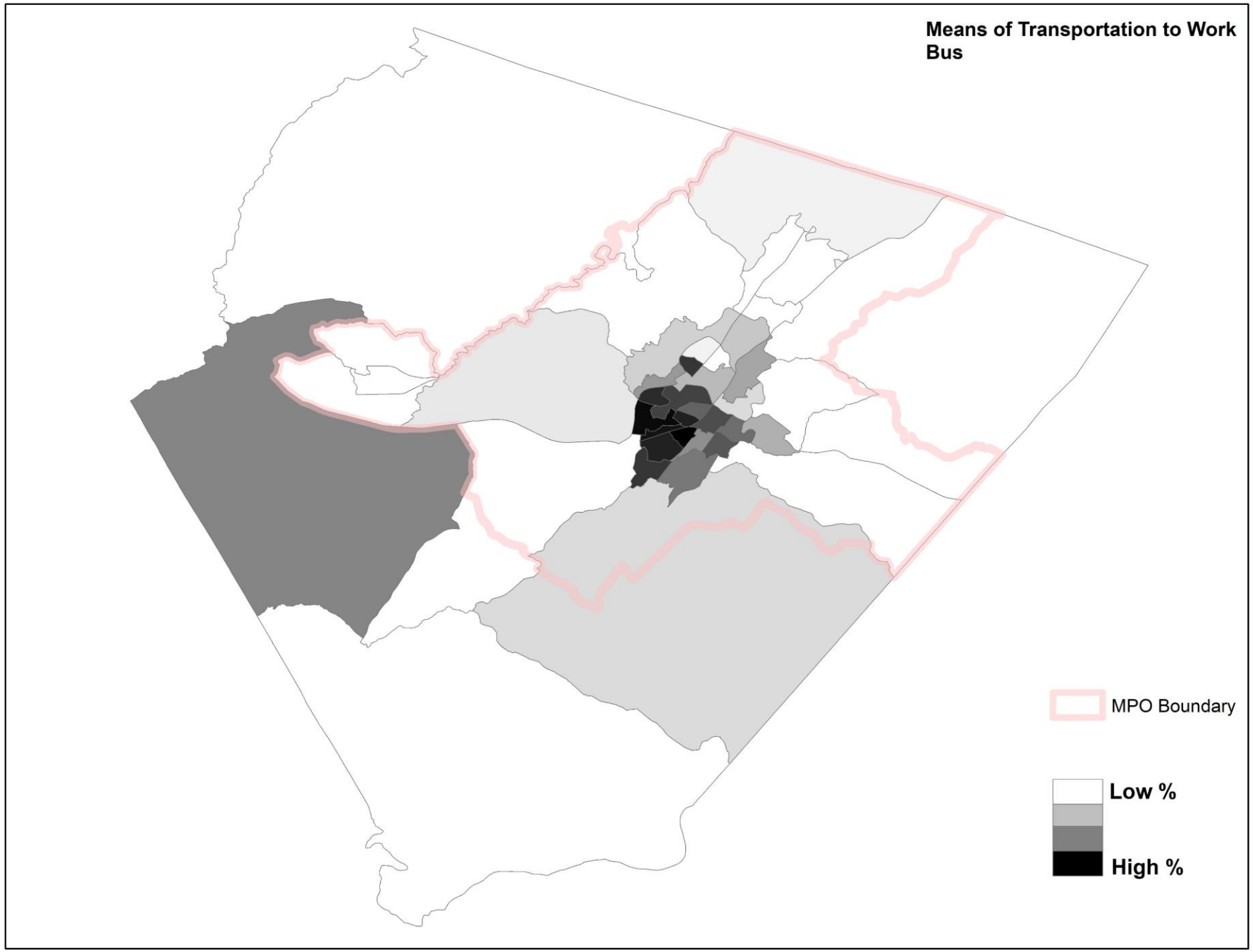
Travel Time to Work
**data reported Fall 2022*

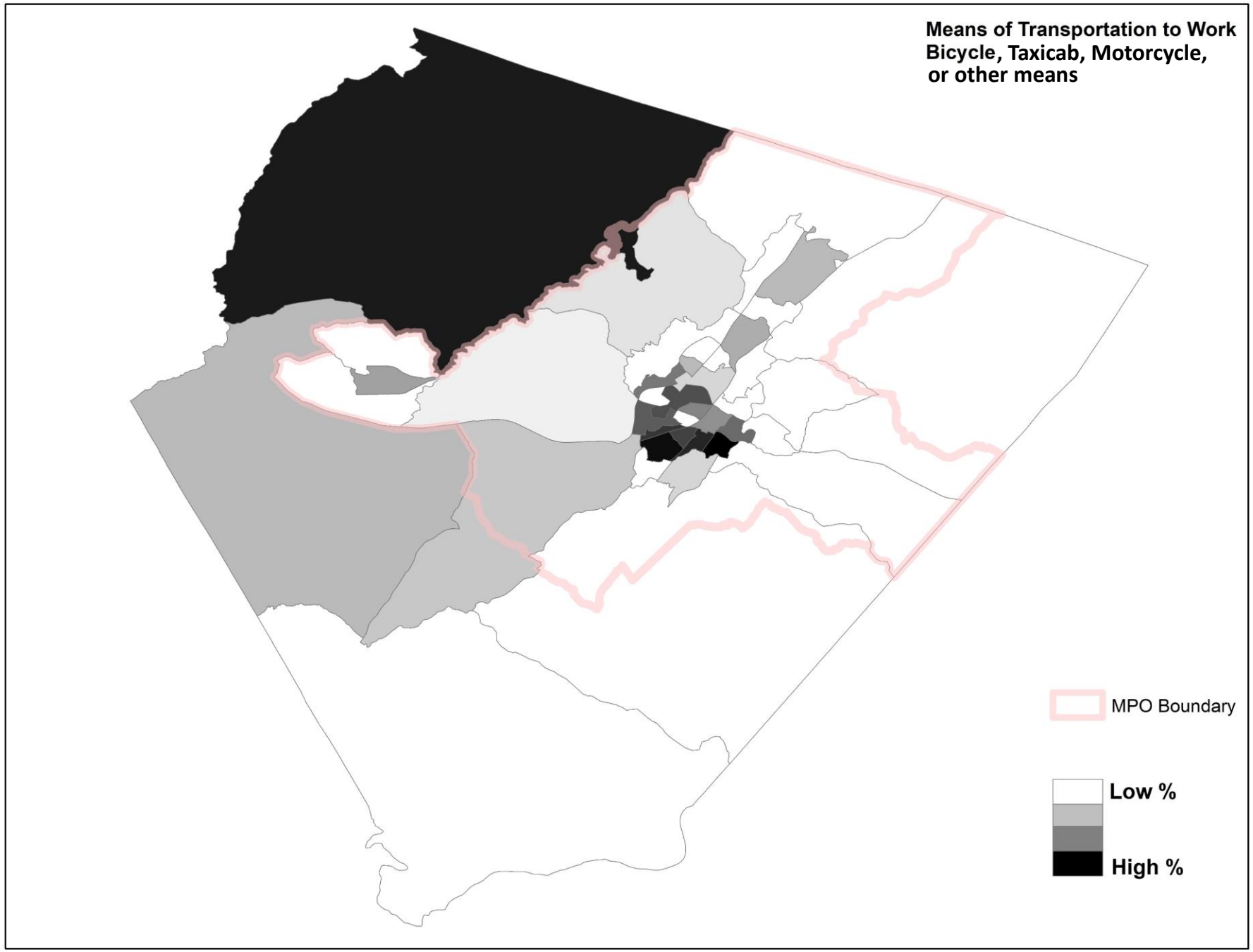


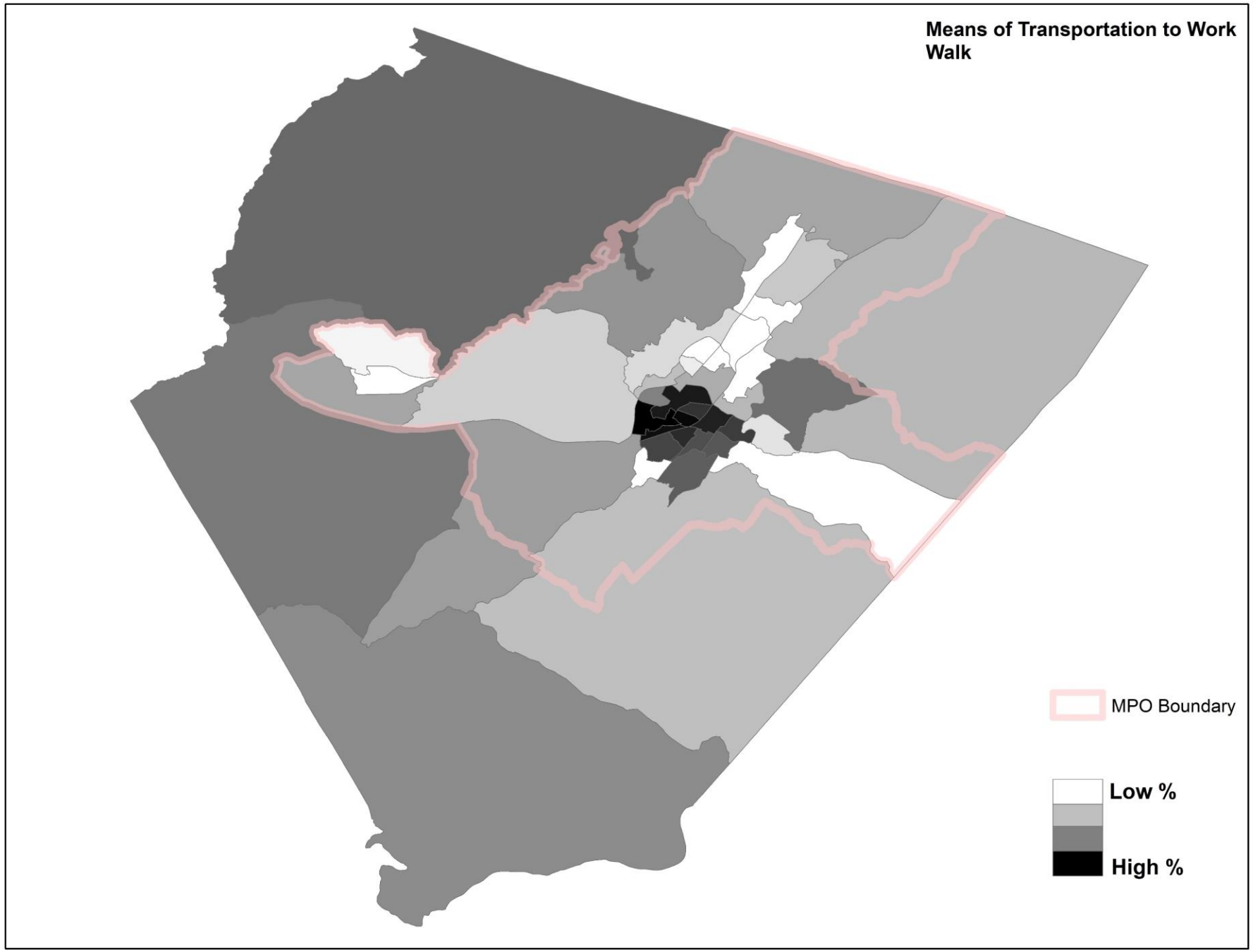


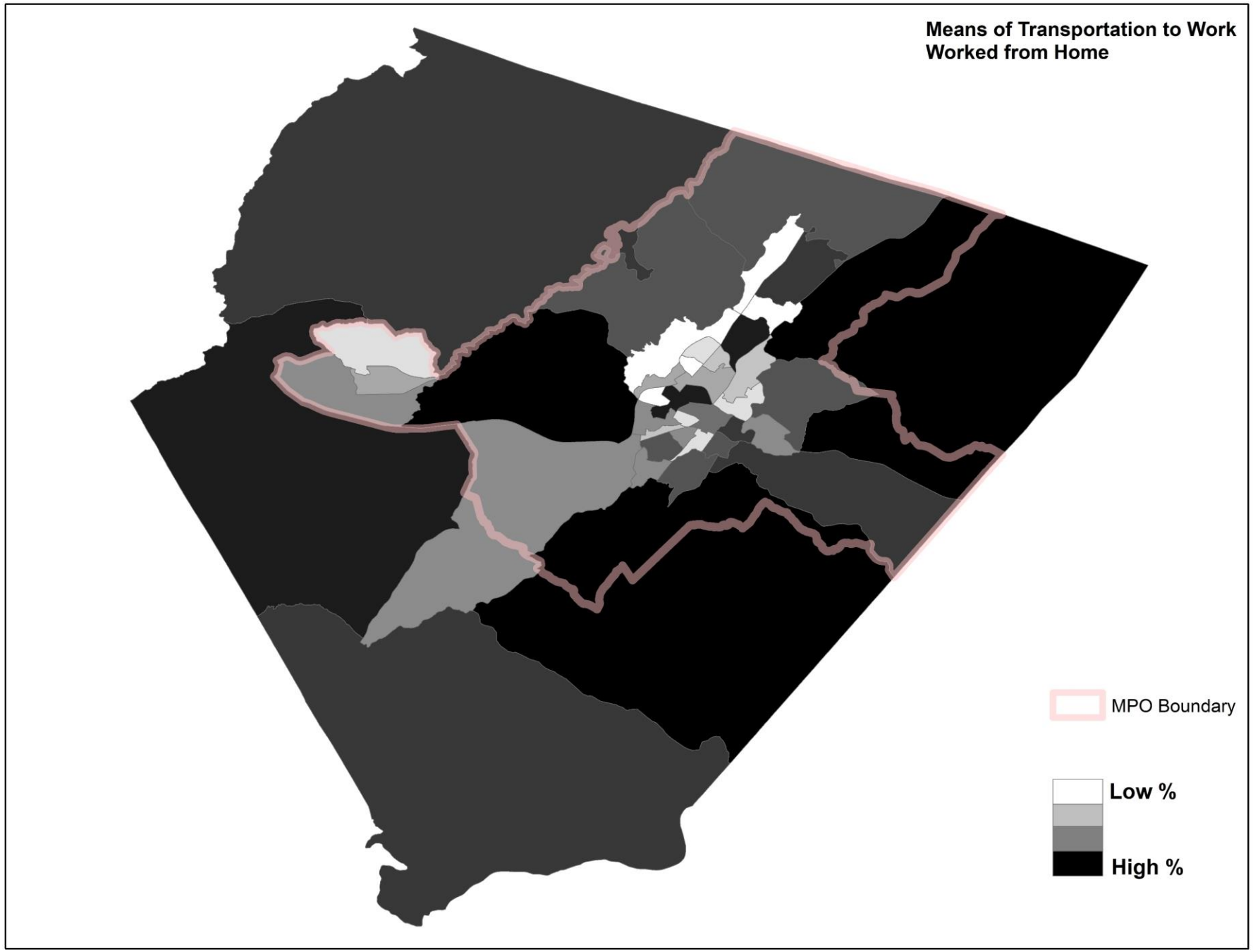

Means of Transportation to Work
Drove Alone
MPO Boundary
Low %
High %


Means of Transportation to Work
Carpooled
MPO Boundary
Low %
High %

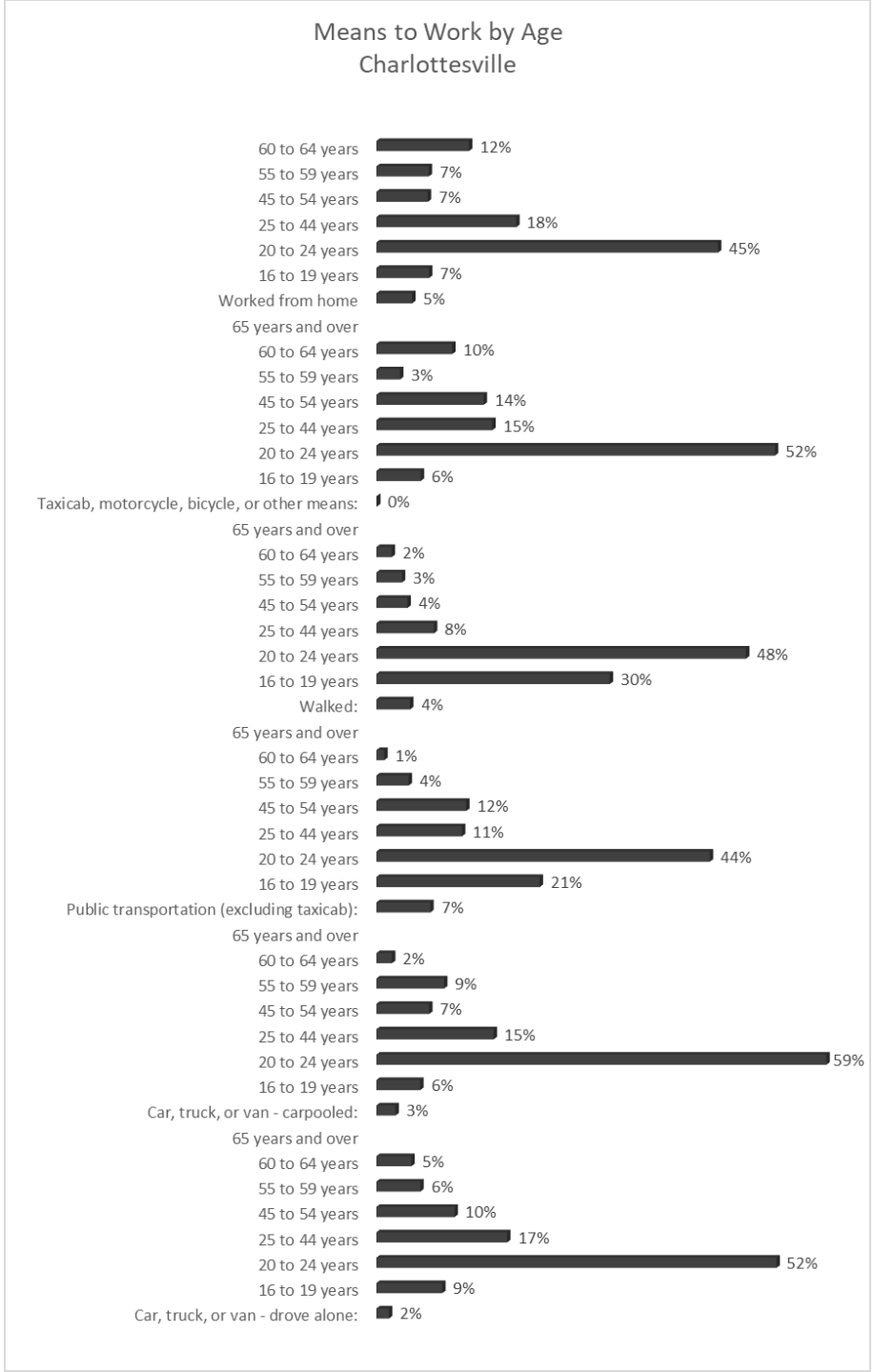

Means of Transportation to Work
Bus
MPO Boundary
Low %
High %

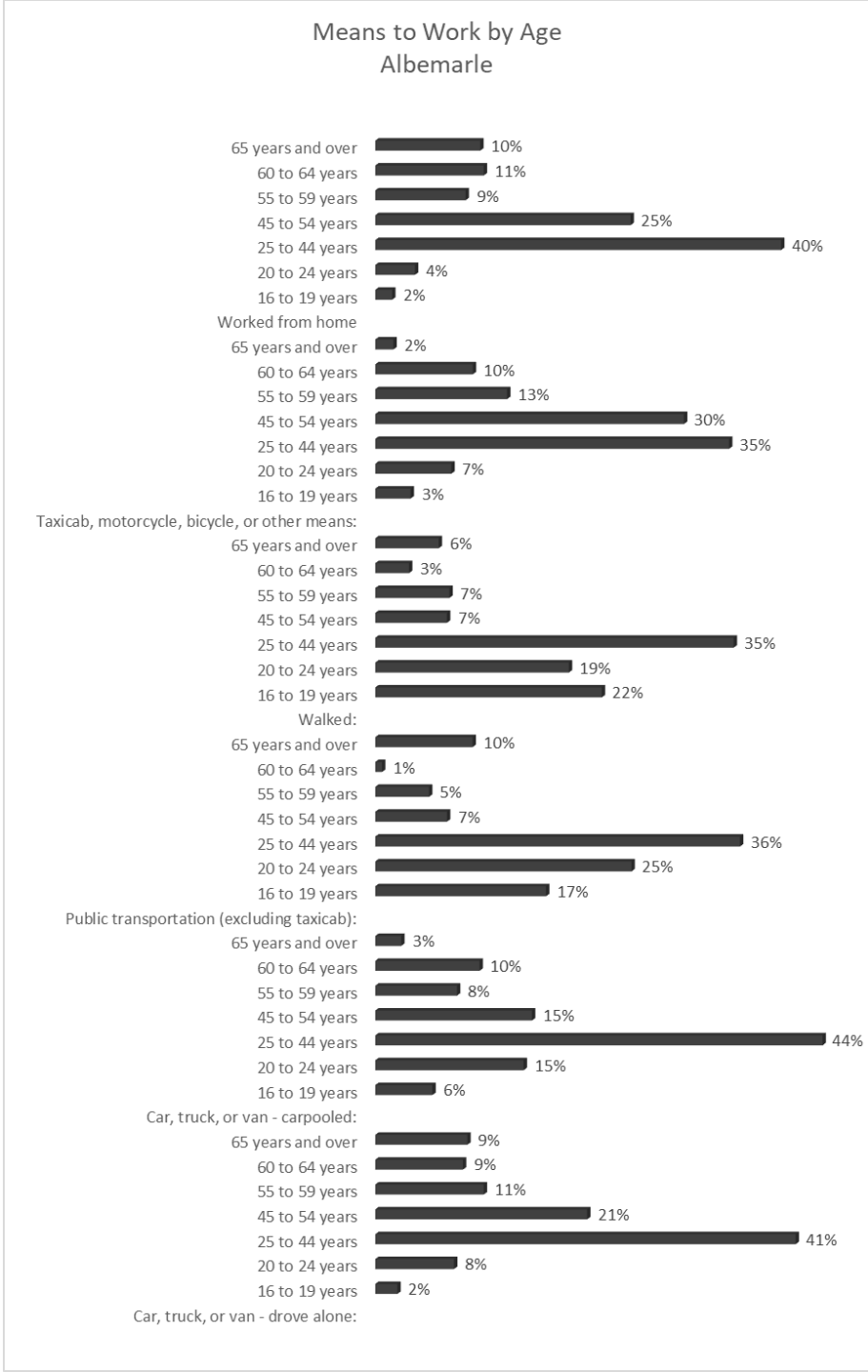

Means of Transportation to Work
Bicycle, Taxicab, Motorcycle,
or other means
MPO Boundary
Low %
High %


Means of Transportation to Work
Walk
MPO Boundary
Low %
High %

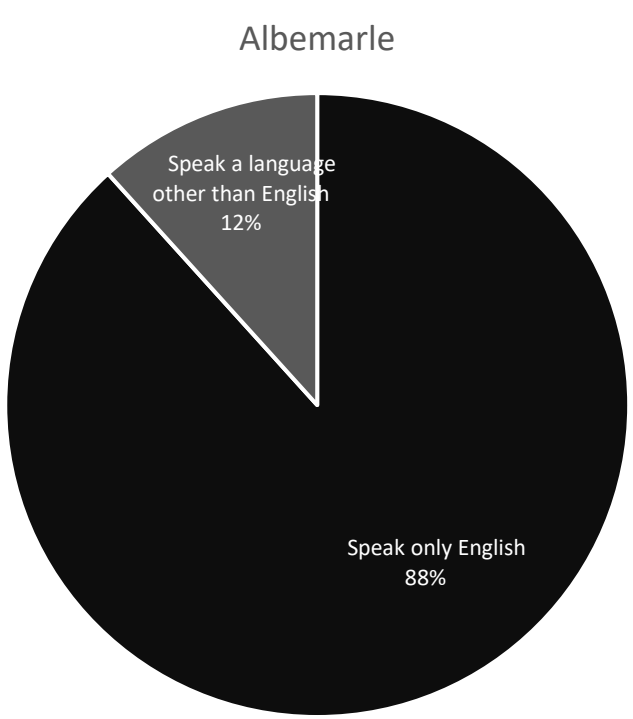

Means of Transportation to Work
Worked from Home
MPO Boundary
Low %
High %

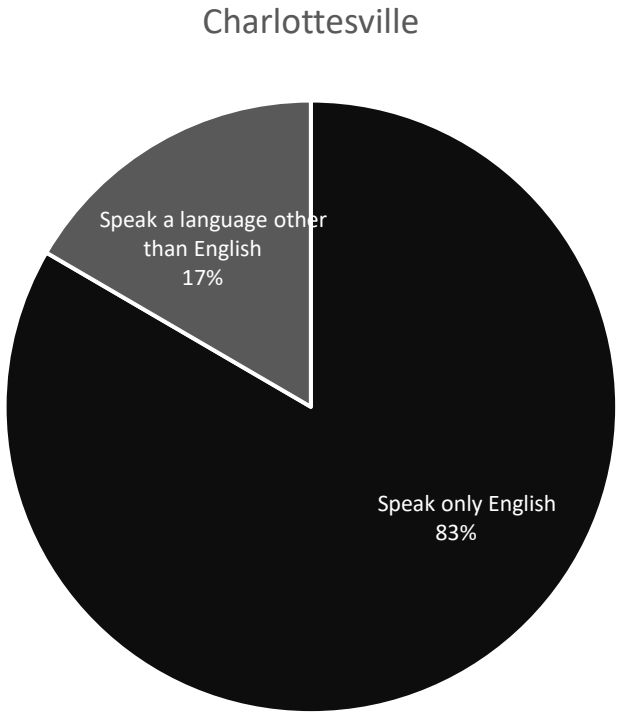
Means to Work by Age
**data reported Fall 2022*



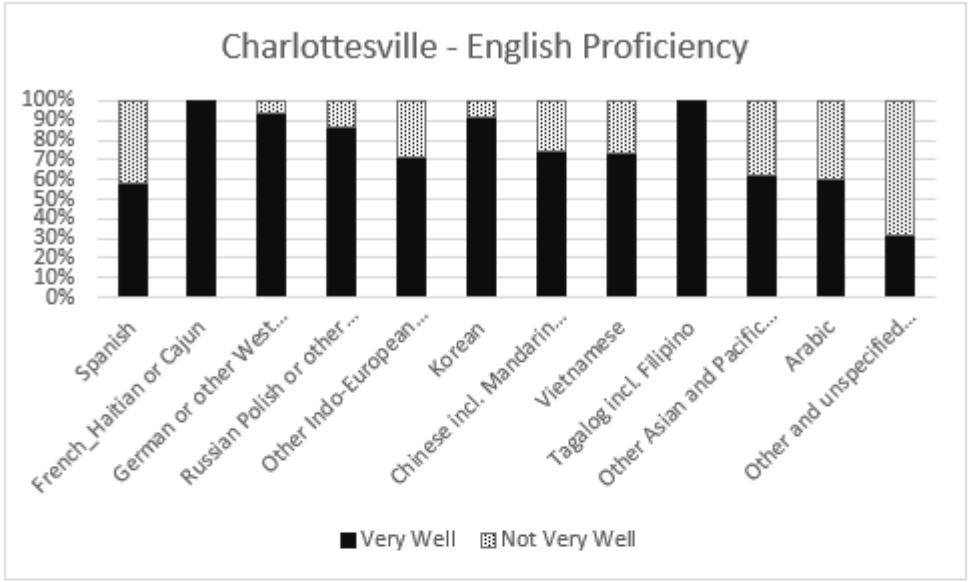


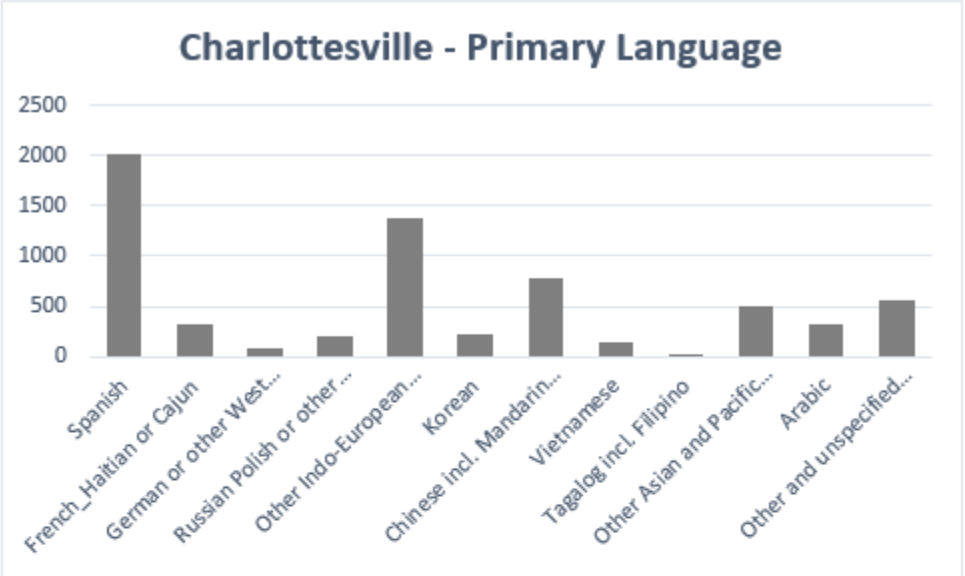
Speak Only English

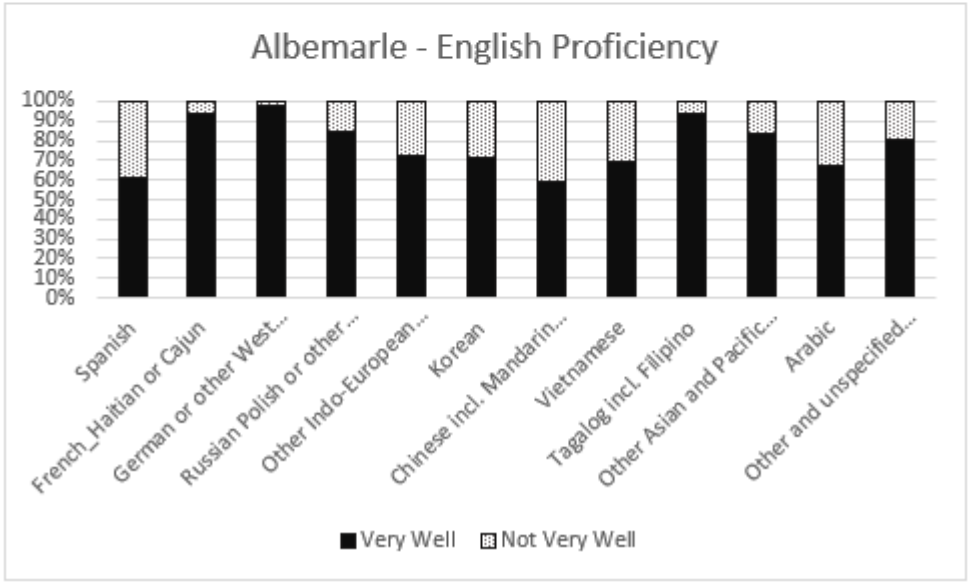


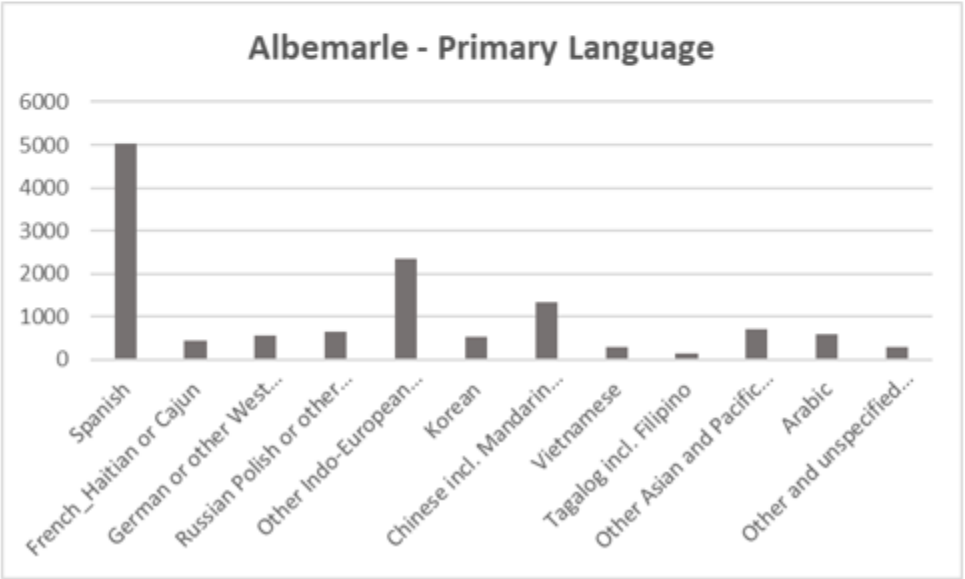


Language Characteristics
**data reported Fall 2022*







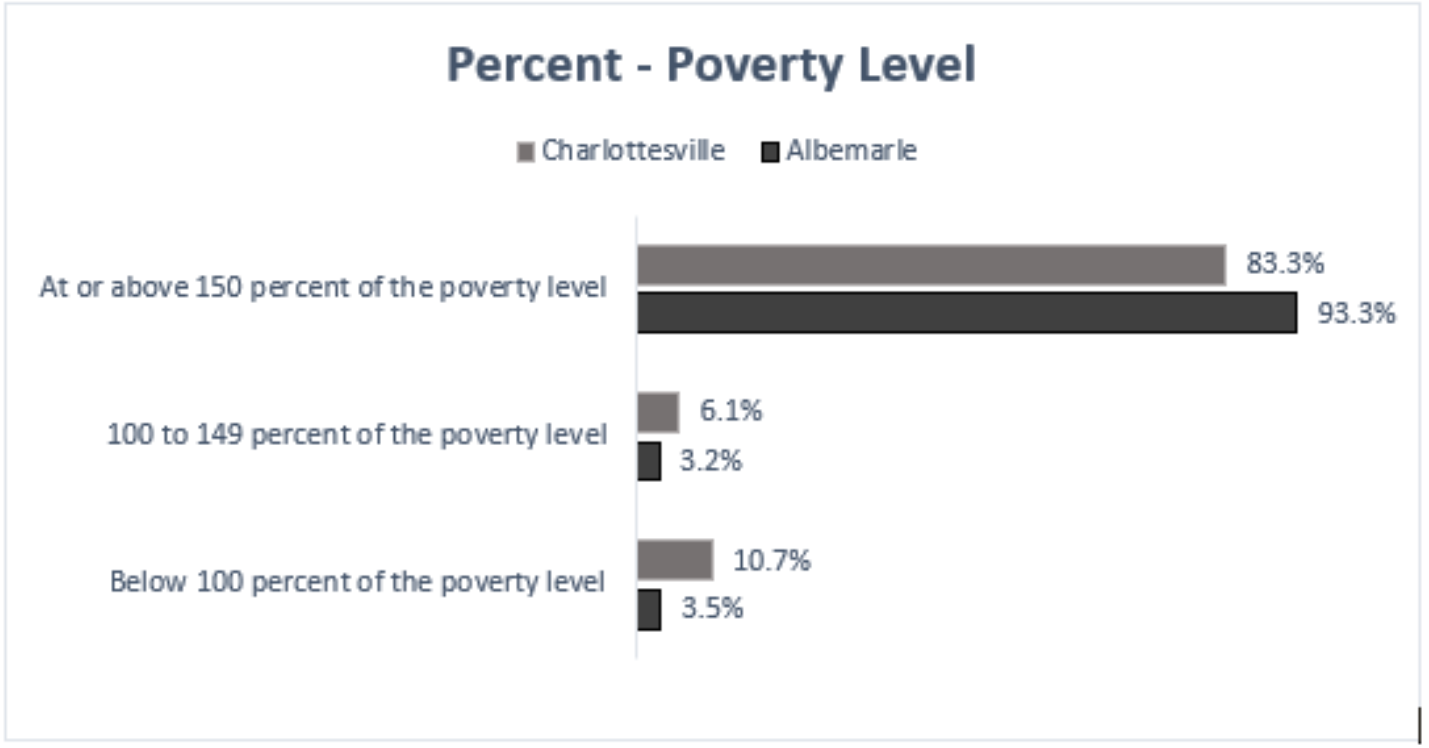


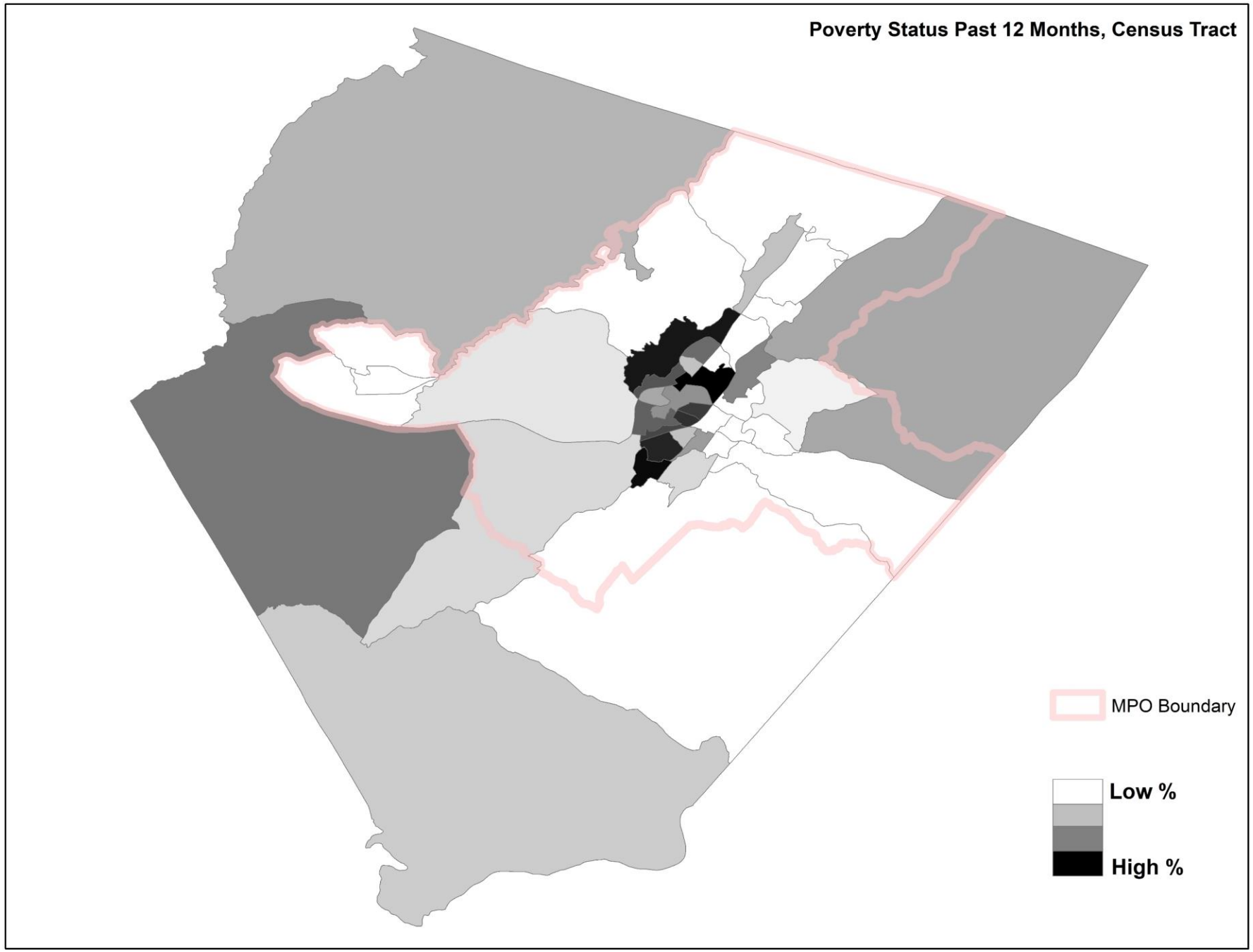
Language Spoken at Home
**data reported Fall 2022*

C16001: Language Spoken at Home (5-yr Est. 2020 American Community Survey, age: 5yrs +)	Albemarle County, Virginia		Charlottesville city, Virginia		Charlottessville-Albemarle	
Label	Estimate	Percent of Total	Estimate	Percent of Total	Estimate	Percent of Total
Total:	102,895		44,737		147,632	
Speak only English	90,054	87.52%	38,196	85.38%	128,250	86.87%
Spanish:	5,030	4.89%	2,018	4.51%	7,048	4.77%
Speak English "very well"	3,075	2.99%	1,180	2.64%	4,255	2.88%
Speak English less than "very	1,955	1.90%	838	1.87%	2,793	1.89%
French, Haitian, or Cajun:	439	0.43%	328	0.73%	767	0.52%
Speak English "very well"	410	0.40%	328	0.73%	738	0.50%
Speak English less than "very	29	0.03%	0	0.00%	29	0.02%
German or other West Germanic	542	0.53%	75	0.17%	617	0.42%
Speak English "very well"	533	0.52%	70	0.16%	603	0.41%
Speak English less than "very	9	0.01%	5	0.01%	14	0.01%
Russian, Polish, or other Slavic	642	0.62%	205	0.46%	847	0.57%
Speak English "very well"	546	0.53%	177	0.40%	723	0.49%
Speak English less than "very	96	0.09%	28	0.06%	124	0.08%
Other Indo-European languages:	2,356	2.29%	1,373	3.07%	3,729	2.53%
Speak English "very well"	1,713	1.66%	986	2.20%	2,699	1.83%
Speak English less than "very	643	0.62%	387	0.87%	1,030	0.70%
Korean:	515	0.50%	223	0.50%	738	0.50%
Speak English "very well"	366	0.36%	205	0.46%	571	0.39%
Speak English less than "very	149	0.14%	18	0.04%	167	0.11%
Chinese (incl. Mandarin,	1,318	1.28%	785	1.75%	2,103	1.42%
Speak English "very well"	784	0.76%	586	1.31%	1,370	0.93%
Speak English less than "very	534	0.52%	199	0.44%	733	0.50%
Vietnamese:	294	0.29%	134	0.30%	428	0.29%
Speak English "very well"	203	0.20%	99	0.22%	302	0.20%
Speak English less than "very	91	0.09%	35	0.08%	126	0.09%
Tagalog (incl. Filipino):	122	0.12%	11	0.02%	133	0.09%
Speak English "very well"	114	0.11%	11	0.02%	125	0.08%
Speak English less than "very	8	0.01%	0	0.00%	8	0.01%
Other Asian and Pacific Island	709	0.69%	502	1.12%	1,211	0.82%
Speak English "very well"	590	0.57%	312	0.70%	902	0.61%
Speak English less than "very	119	0.12%	190	0.42%	309	0.21%
Arabic:	590	0.57%	322	0.72%	912	0.62%

Poverty Status

**data reported Fall 2022*

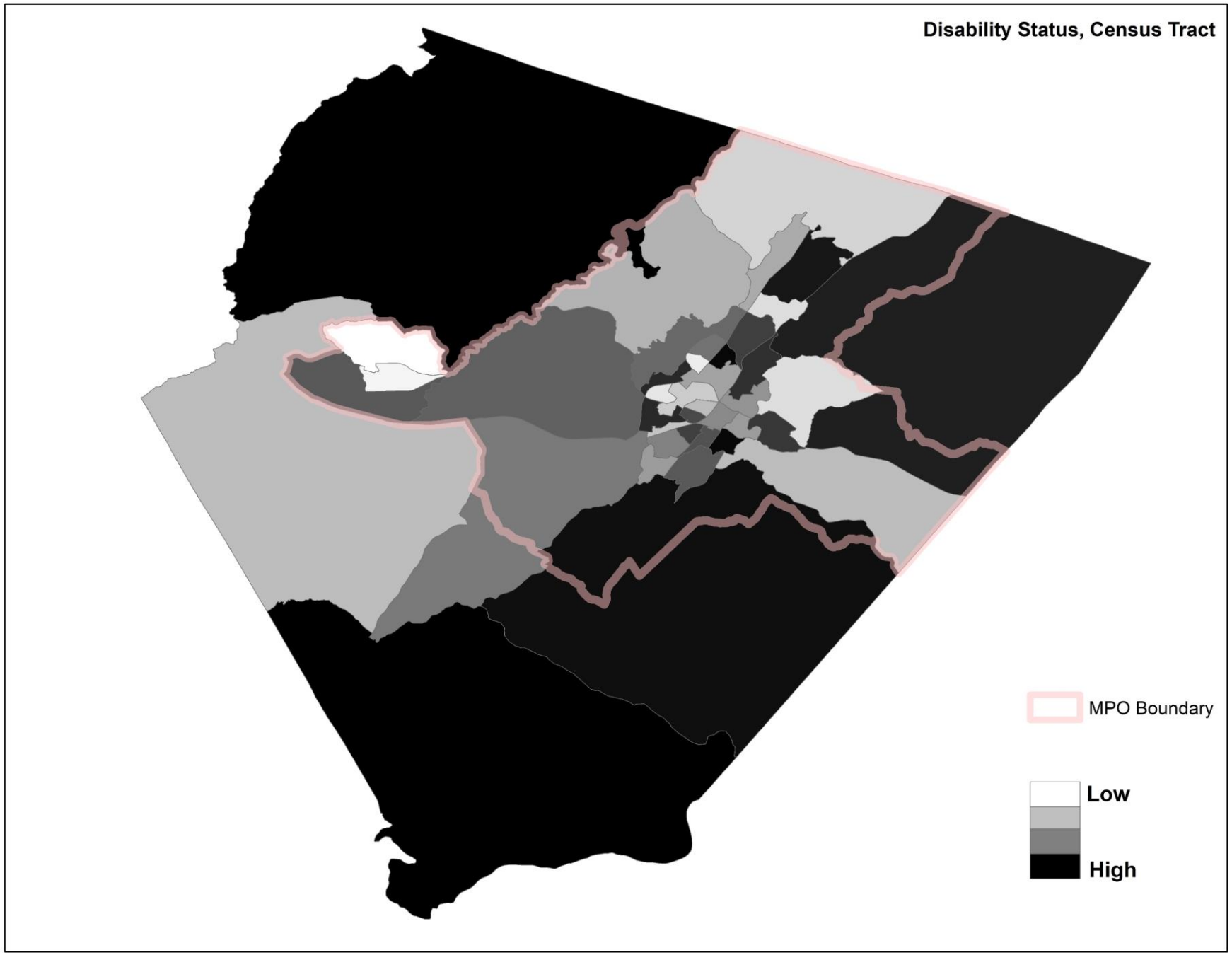


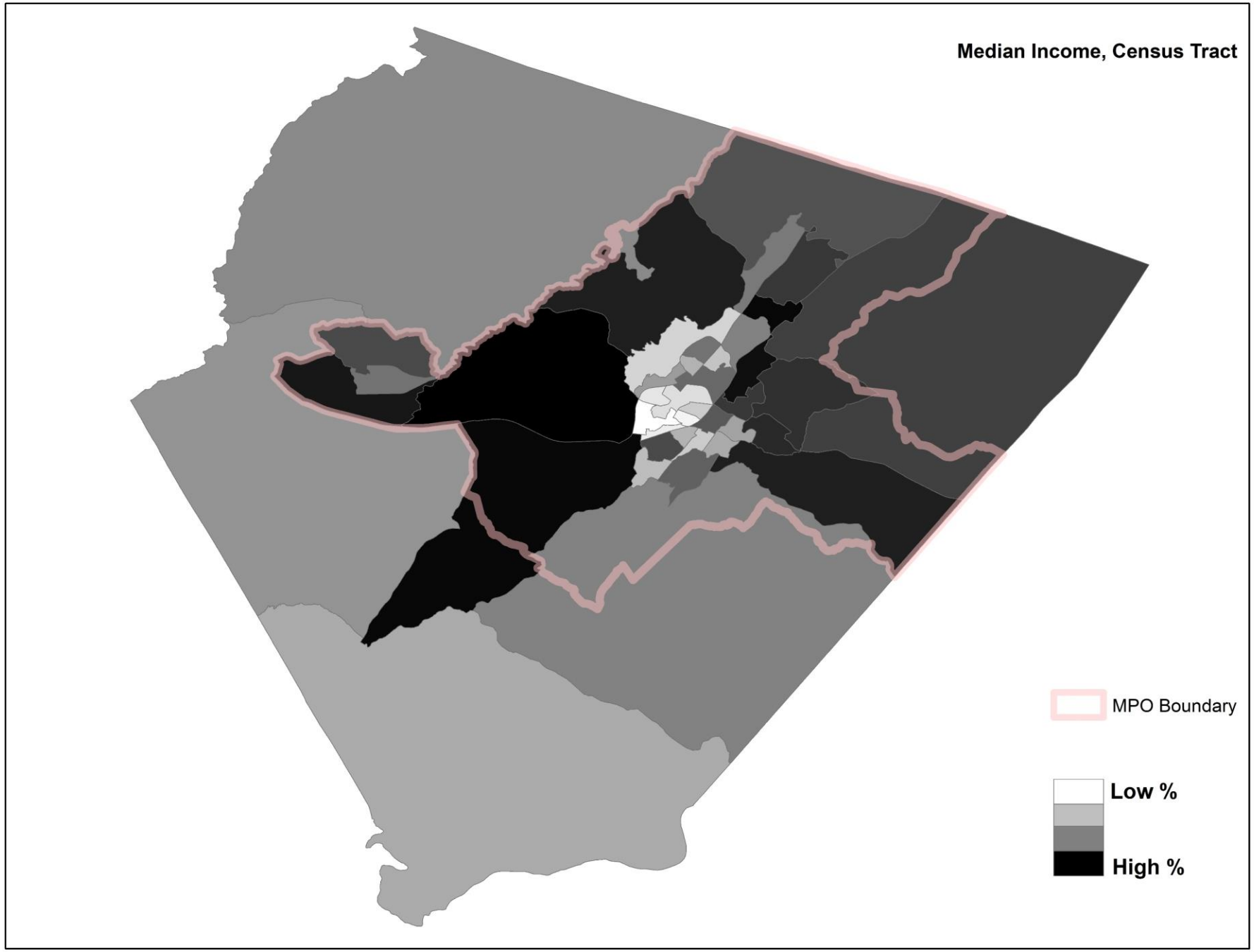

Poverty Status Past 12 Months, Census Tract
MPO Boundary
Low %
High %

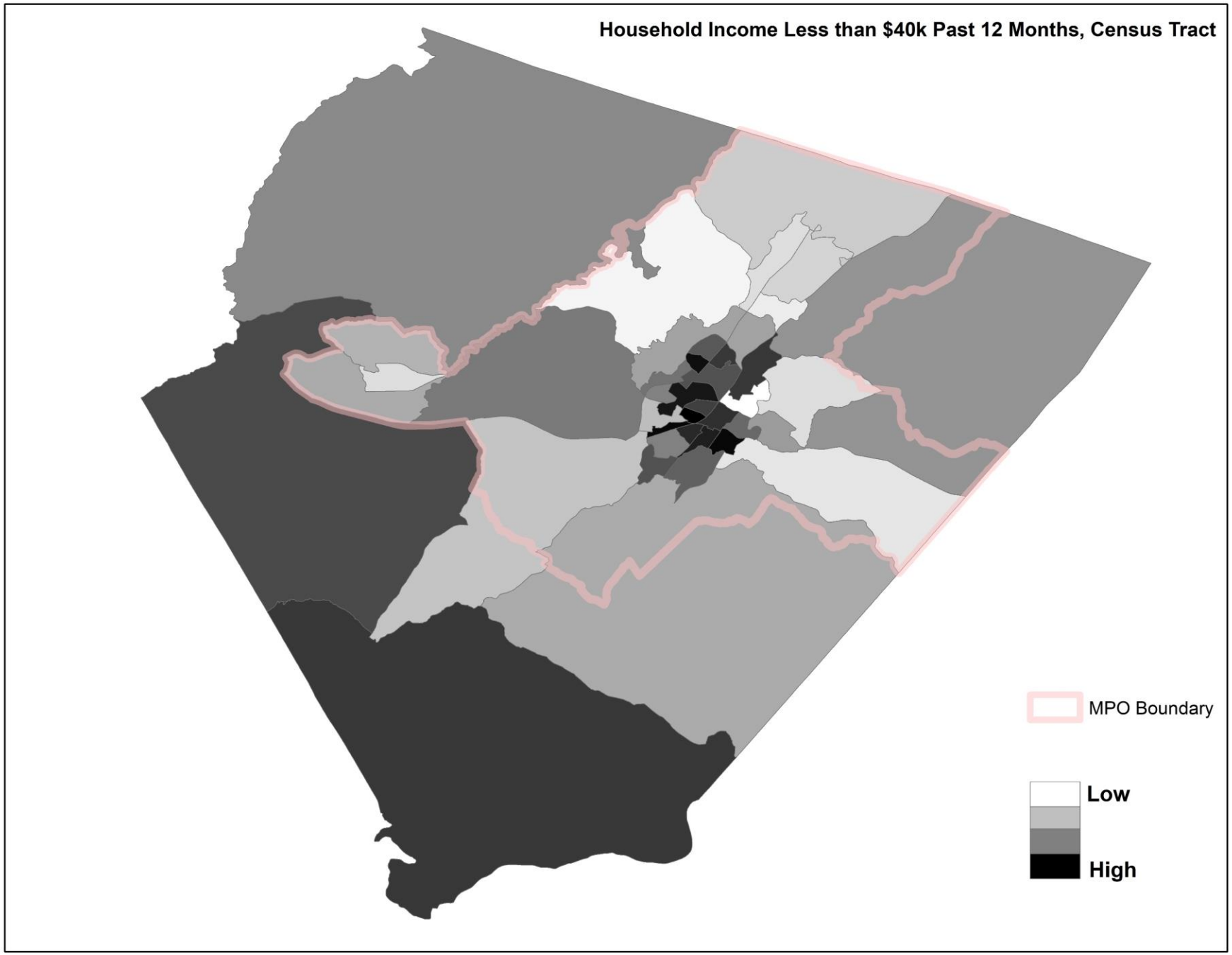
Disability Characteristics

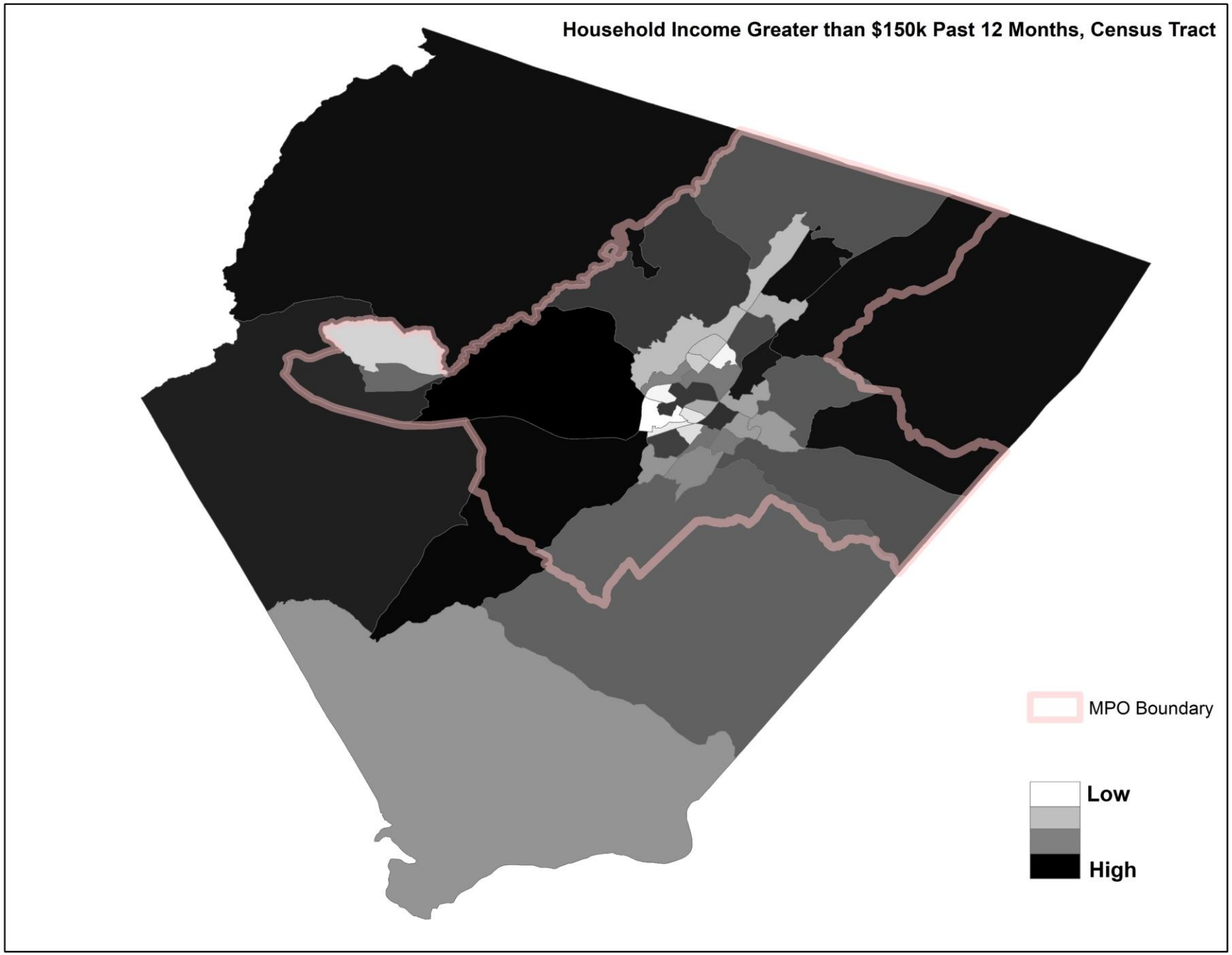
**data reported Fall 2022*

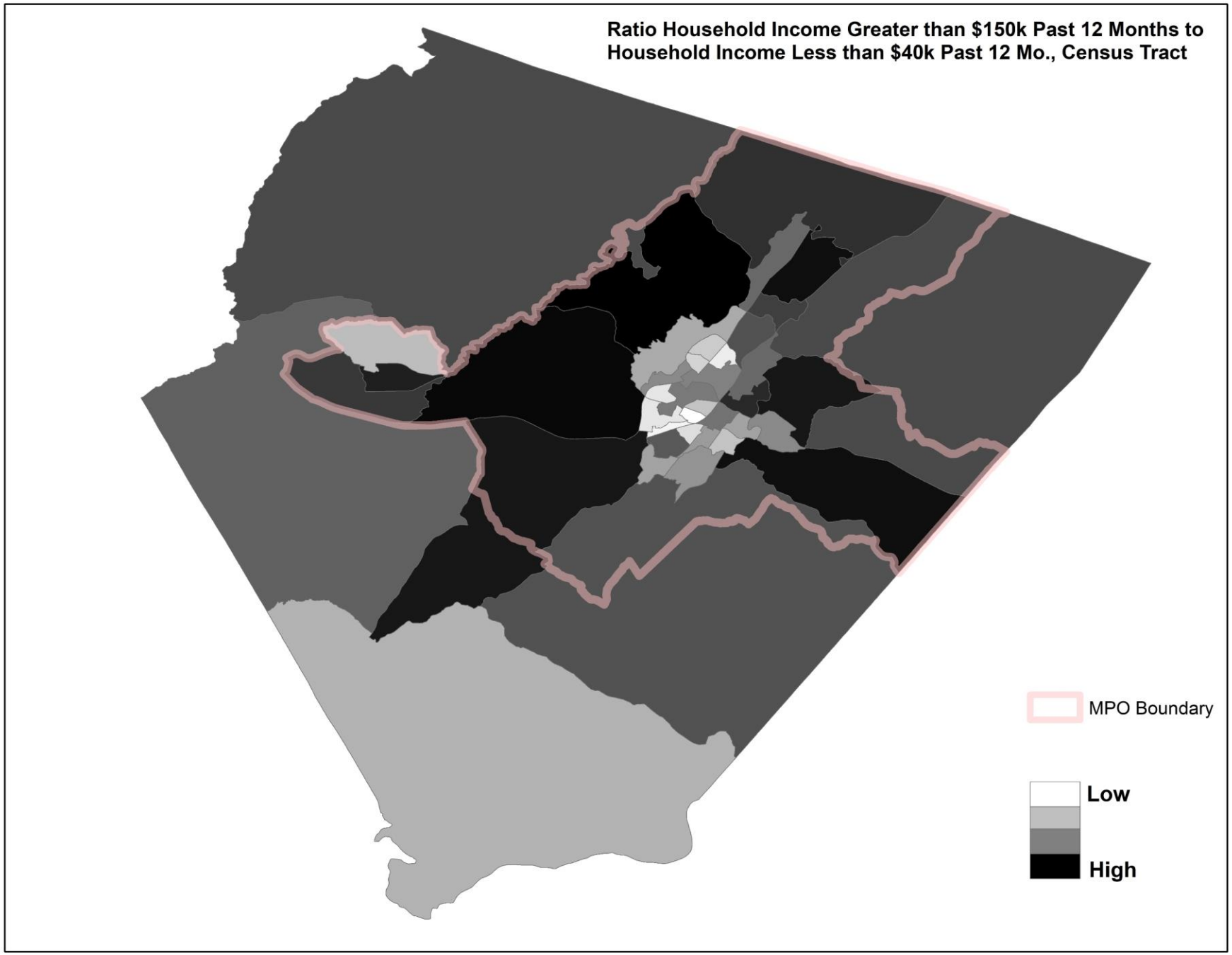
S1810 Disability Characteristics (5-yr Est. 2020 American Community Survey)	Albemarle County, Virginia			Charlottesville city, Virginia			Charlottesville-Albemarle		
	Total	With a disability	Percent with a disability	Total	With a disability	Percent with a disability	Total	With a disabiltiy	Percent with a disability
Label	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
Total civilian noninstitutionalized	107,475	9,638	9.0%	46,830	4,036	8.6%	154,305	13674	8.9%
SEX									
Male	51,009	4,654	9.1%	22,395	1,683	7.5%	73,404	6337	4.1%
Female	56,466	4,984	8.8%	24,435	2,353	9.6%	80,901	7337	4.8%
RACE AND HISPANIC OR LATINO ORIGIN									0.0%
White alone	87,000	8,119	9.3%	32,793	2,586	7.9%	119,793	10705	6.9%
Black or African American alone	9,564	880	9.2%	8,666	1,193	13.8%	18,230	2073	1.3%
American Indian and Alaska Native alone	314	20	6.4%	147	43	29.3%	461	63	0.0%
Asian alone	5,979	232	3.9%	3,306	92	2.8%	9,285	324	0.2%
Native Hawaiian and Other Pacific Islander alone	48	21	43.8%	5	0	0.0%	53	21	0.0%
Some other race alone	989	101	10.2%	306	0	0.0%	1,295	101	0.1%
Two or more races	3,581	265	7.4%	1,607	122	7.6%	5,188	387	0.3%
White alone, not Hispanic or Latino	82,590	7,880	9.5%	30,744	2,565	8.3%	113,334	10445	6.8%
Hispanic or Latino (of any race)	6,201	371	6.0%	2,565	26	1.0%	8,766	397	0.3%
AGE									
Under 5 years	5,921	35	0.6%	2,480	0	0.0%	8,401	35	0.0%
5 to 17 years	15,902	577	3.6%	4,811	148	3.1%	20,713	725	0.5%
18 to 34 years	26,425	1,185	4.5%	18,747	540	2.9%	45,172	1725	1.1%
35 to 64 years	39,443	2,762	7.0%	15,416	1,494	9.7%	54,859	4256	2.8%
65 to 74 years	11,435	1,528	13.4%	3,412	941	27.6%	14,847	2469	1.6%
75 years and over	8,349	3,551	42.5%	1,964	913	46.5%	10,313	4464	2.9%
DISABILITY TYPE BY DETAILED AGE									
With a hearing difficulty	(X)	3,156	2.9%	(X)	767	1.6%	-	3923	2.5%
With a vision difficulty	(X)	1,859	1.7%	(X)	763	1.6%	-	2622	1.7%
With a cognitive difficulty	(X)	3,269	3.2%	(X)	1,480	3.3%	-	4749	3.1%
With an ambulatory difficulty	(X)	4,450	4.4%	(X)	2,198	5.0%	-	6648	4.3%
With a self-care difficulty	(X)	2,153	2.1%	(X)	812	1.8%	-	2965	1.9%
With an independent living difficulty	(X)	3,614	4.2%	(X)	1,668	4.2%	-	5282	3.4%

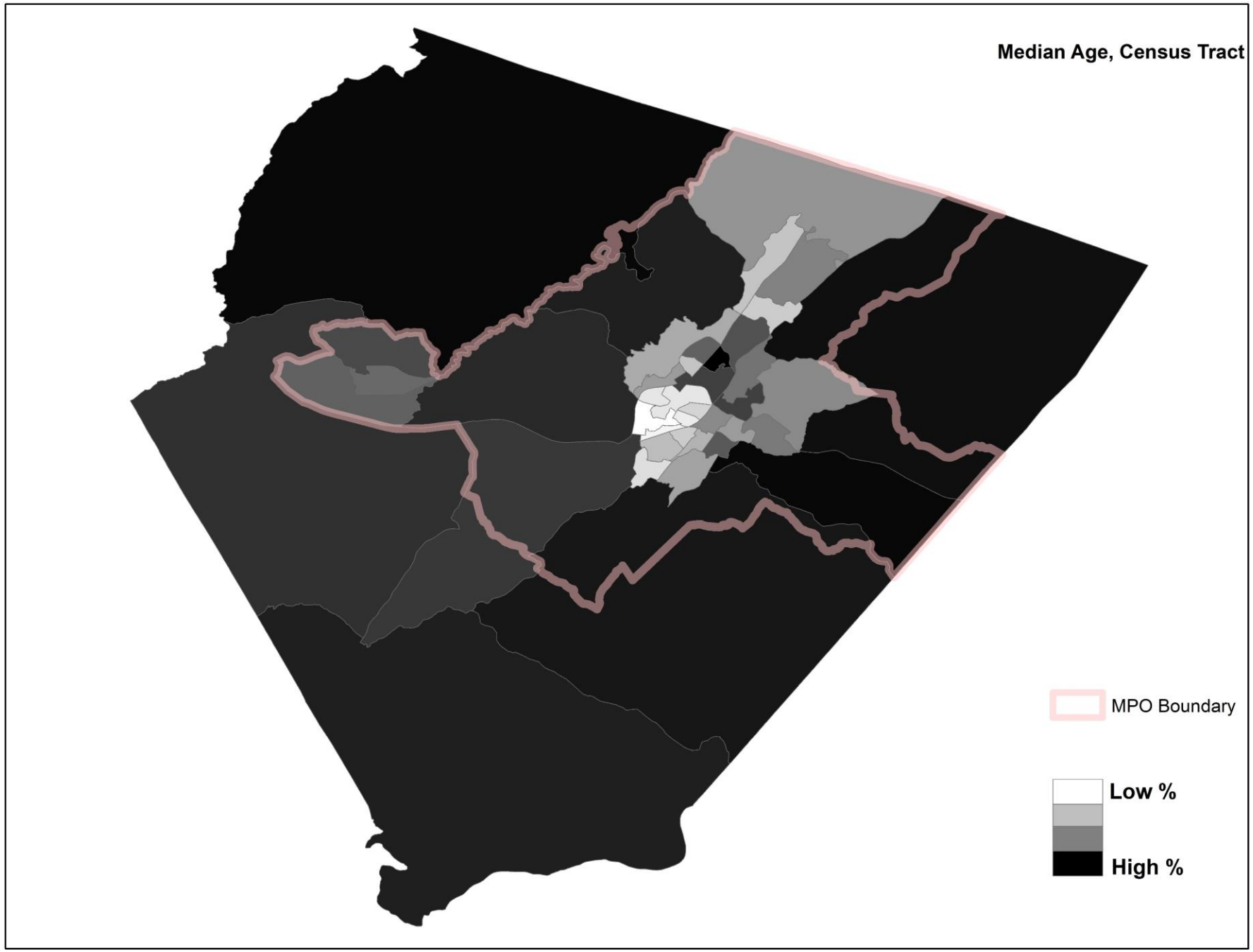

Disability Status, Census Tract
MPO Boundary
Low
High


Median Income, Census Tract
MPO Boundary
Low %
High %

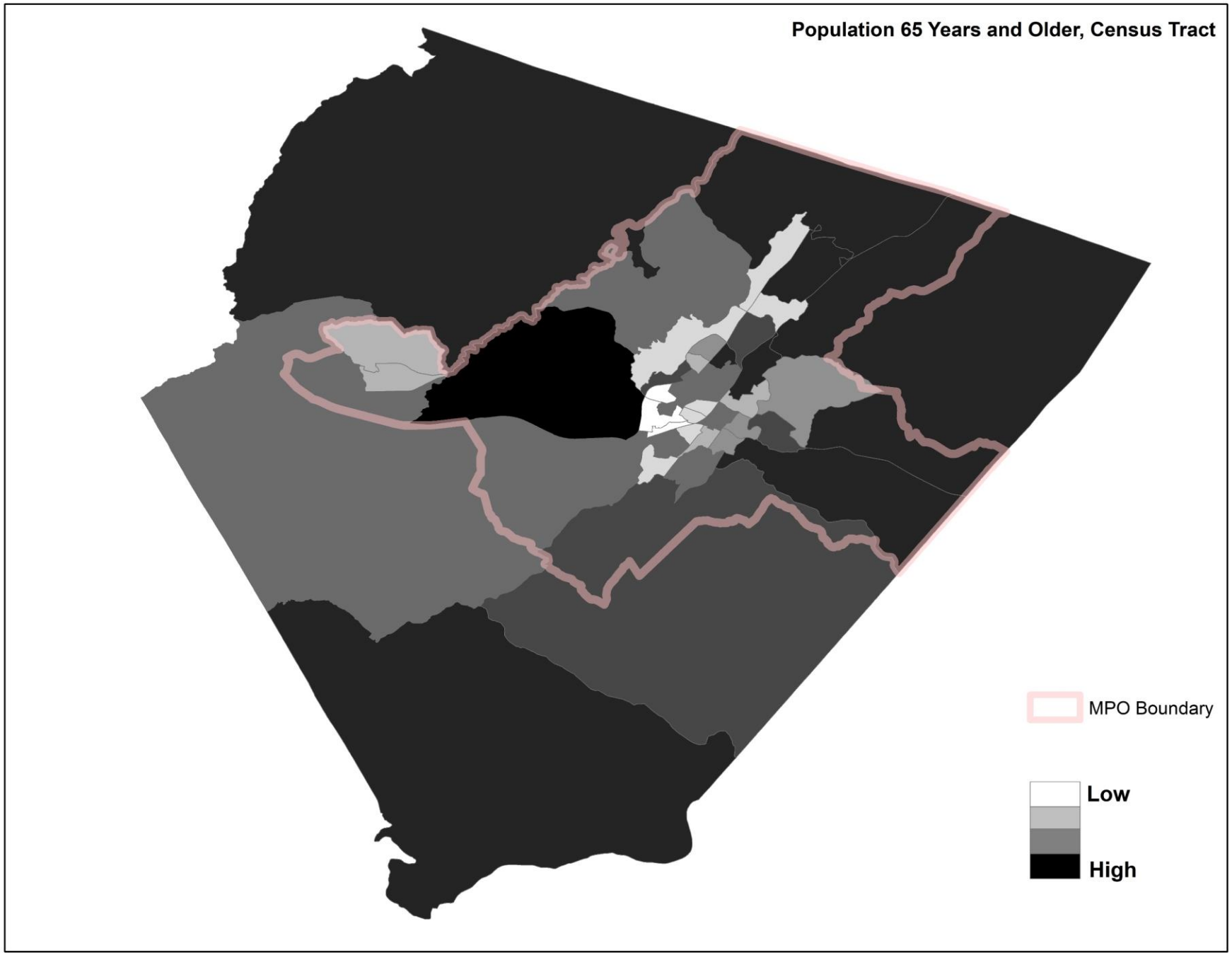

Household Income Less than $40k Past 12 Months, Census Tract
MPO Boundary
Low
High

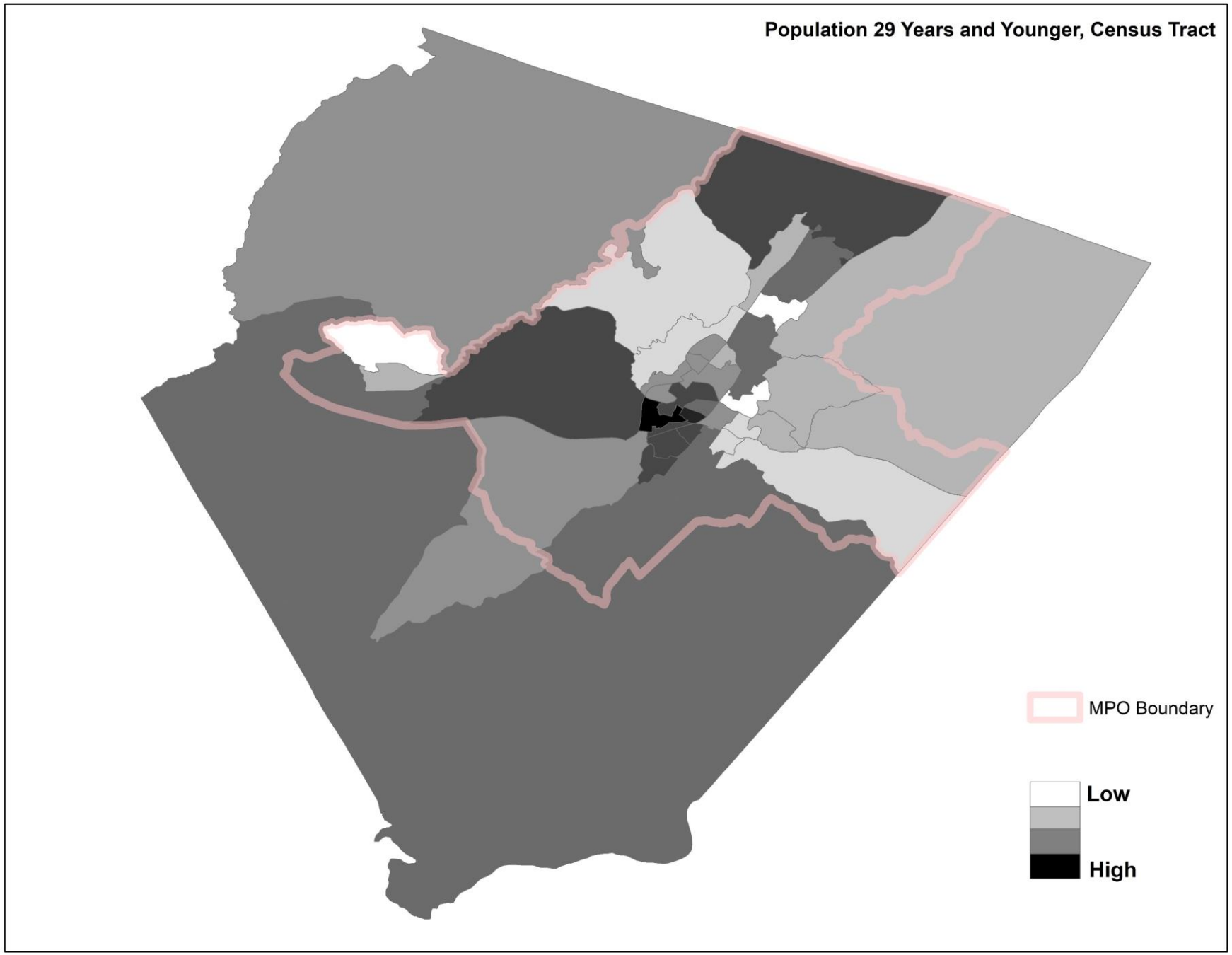

Household Income Greater than $150k Past 12 Months, Census Tract
MPO Boundary
Low
High

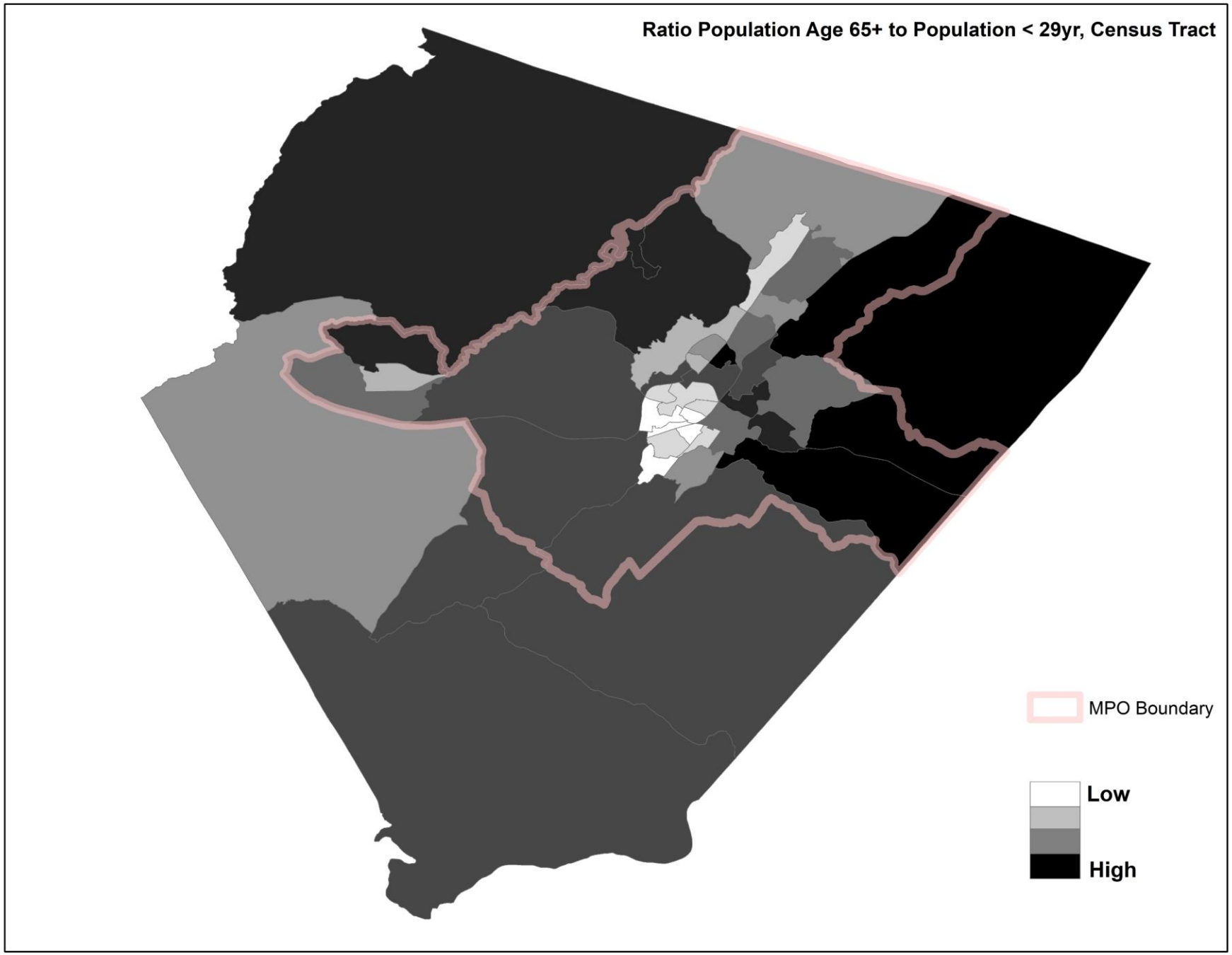

Ratio Household Income Greater than $150k Past 12 Months to Household Income Less than $40k Past 12 Mo., Census Tract
MPO Boundary
Low
High

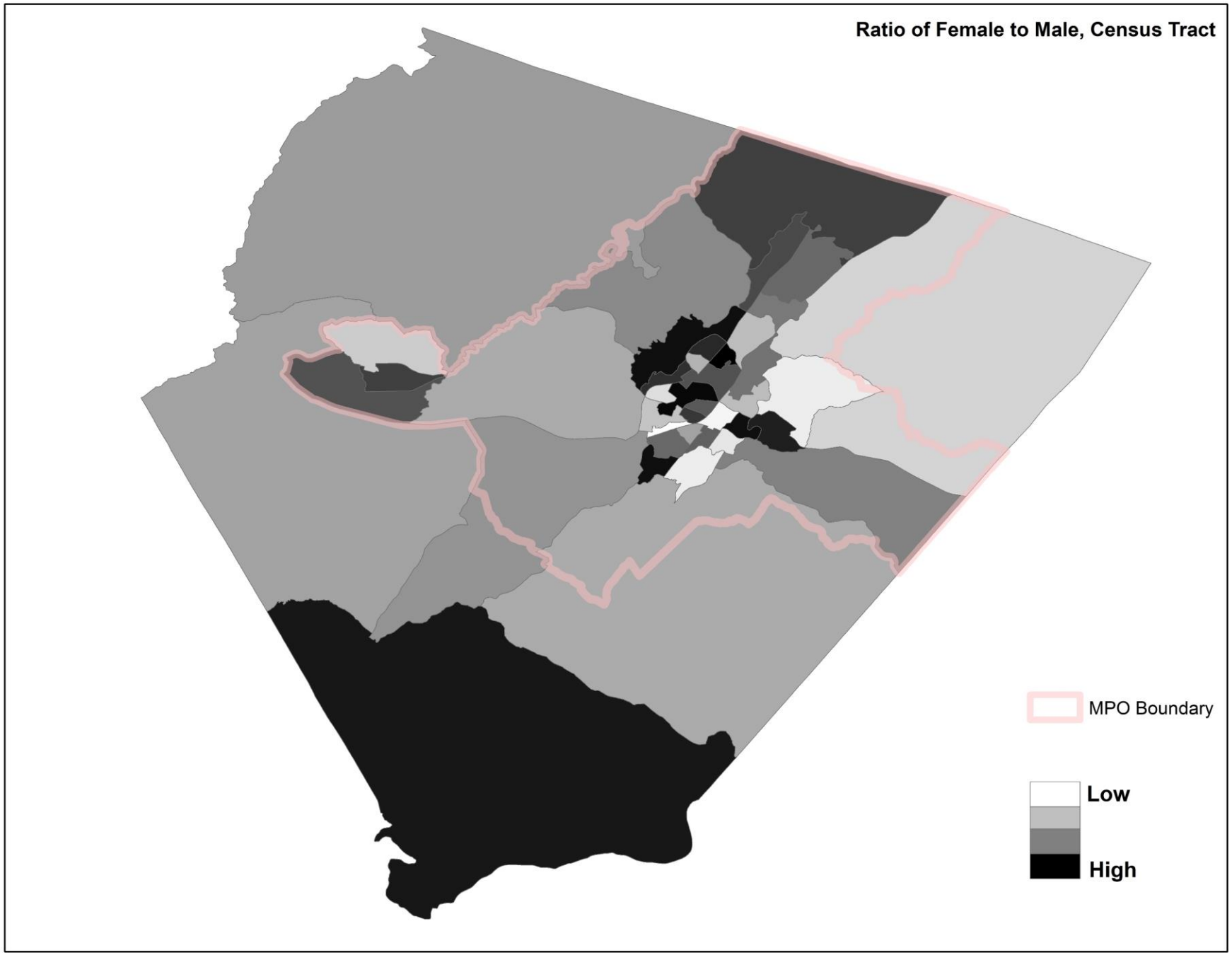


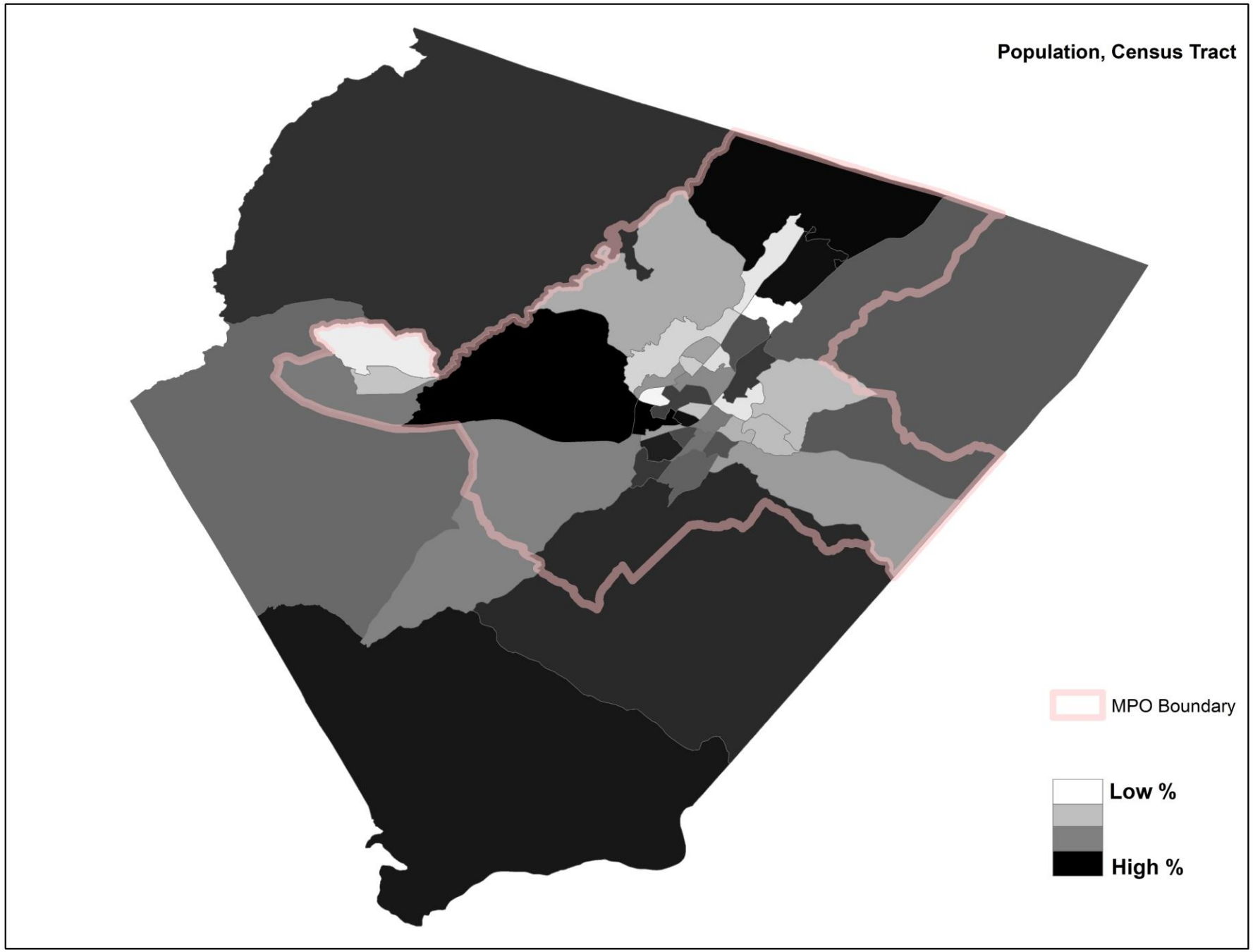
	Albemarle County, Virginia	Charlottesville city, Virginia
Label	Estimate	Estimate
Median age --		
Total:	39.3	32.5
Male	38.0	32.0
Female	40.3	33.2

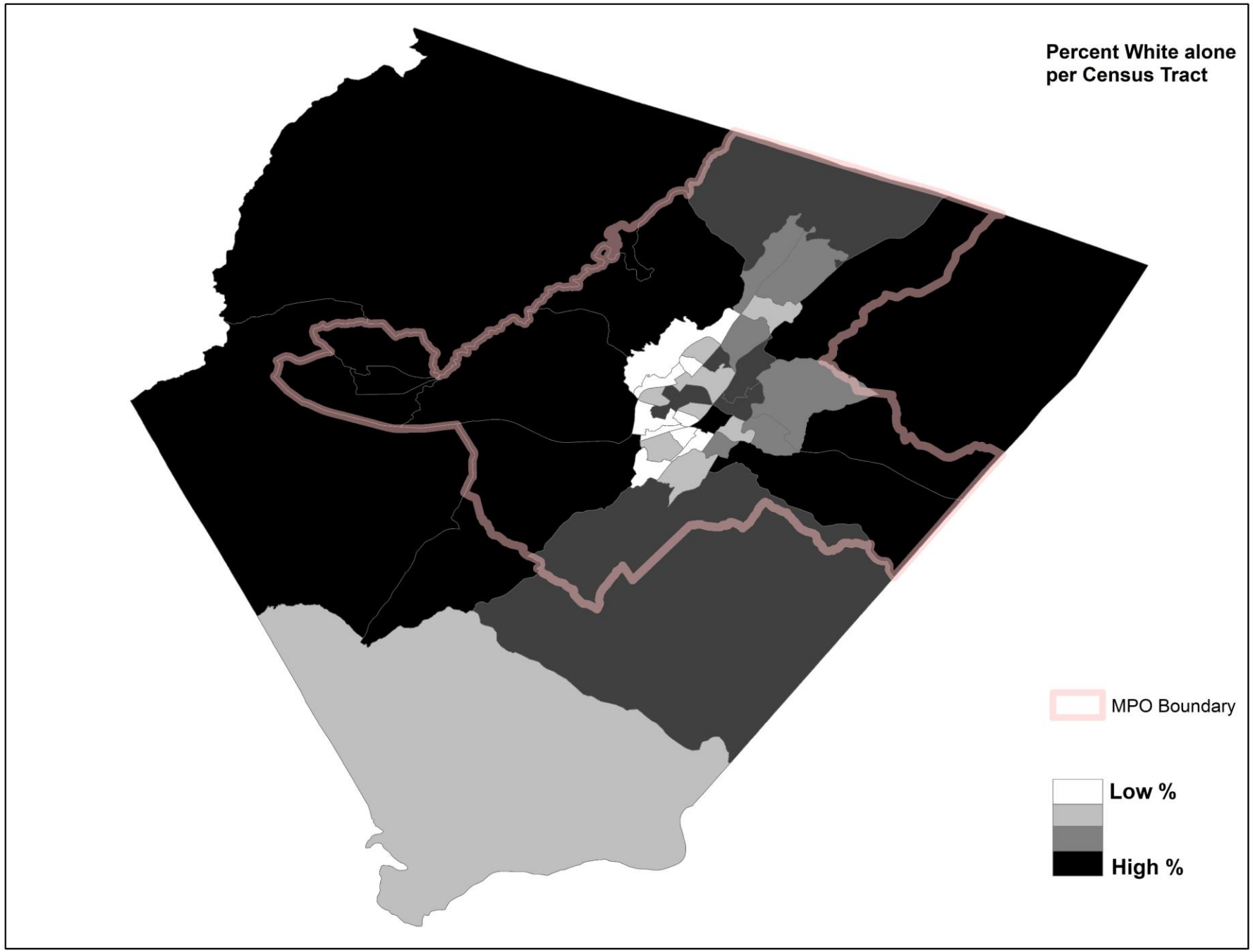

Population 65 Years and Older, Census Tract
MPO Boundary
Low
High

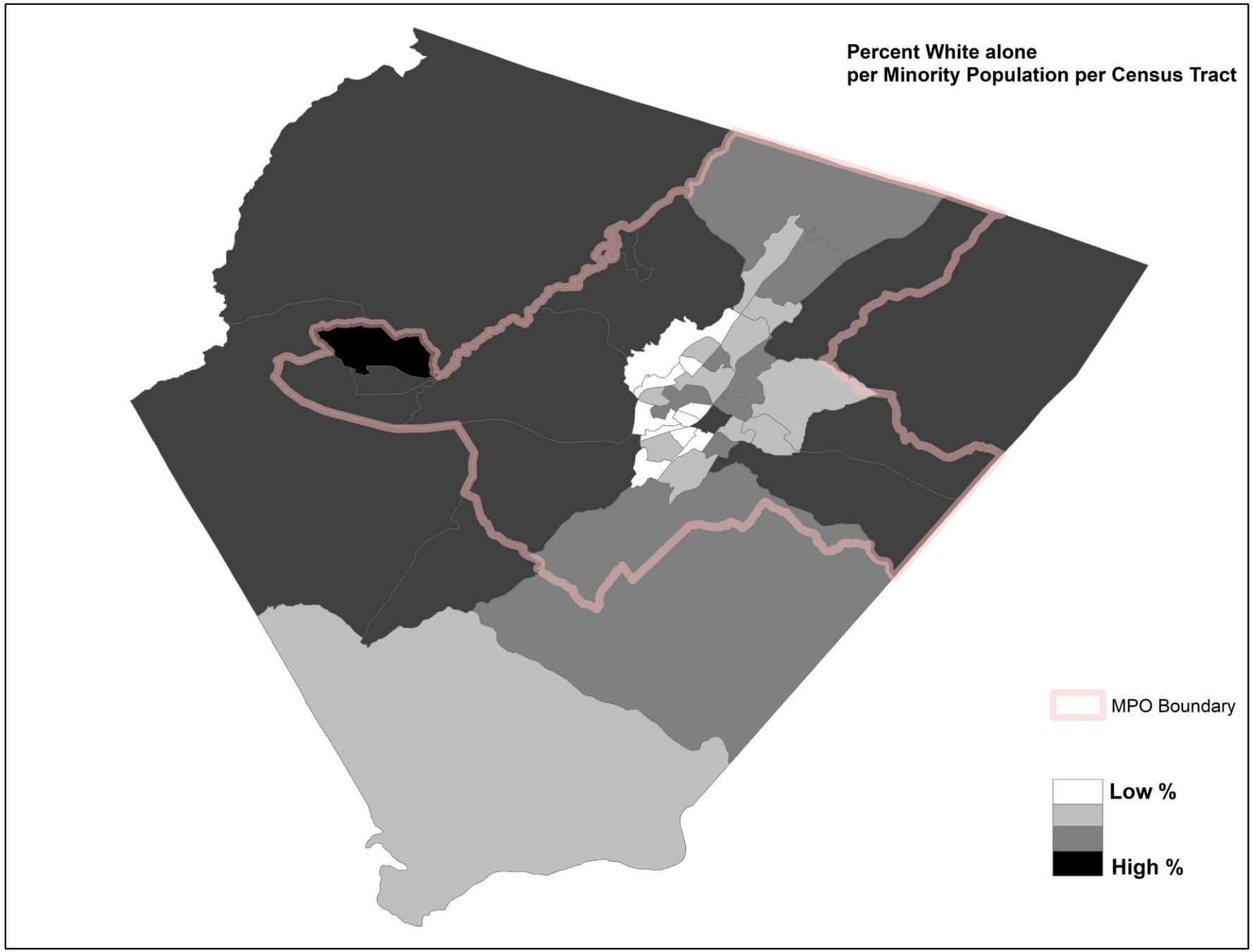

Population 29 Years and Younger, Census Tract
MPO Boundary
Low
High

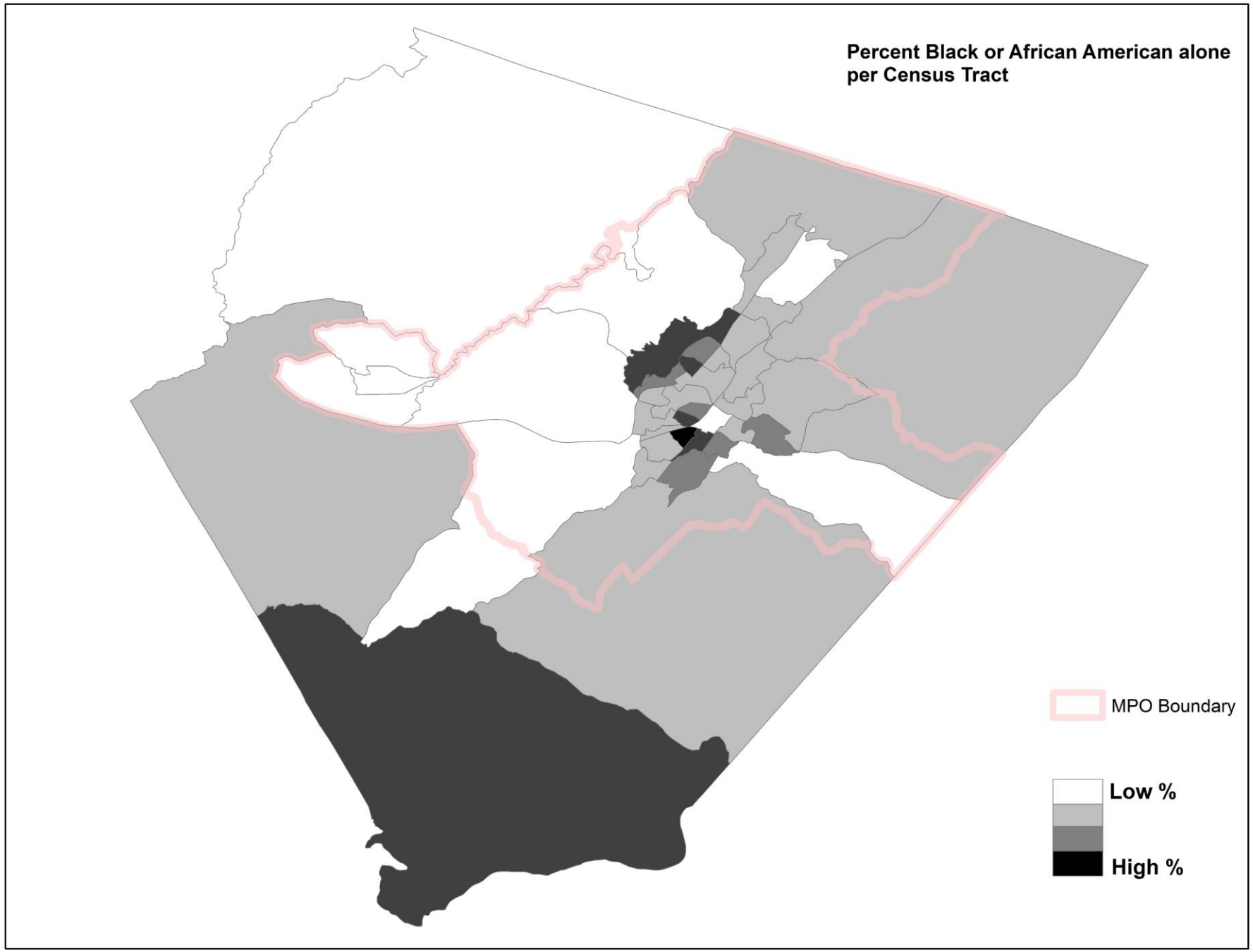

Ratio Population Age 65+ to Population < 29yr, Census Tract
MPO Boundary
Low
High

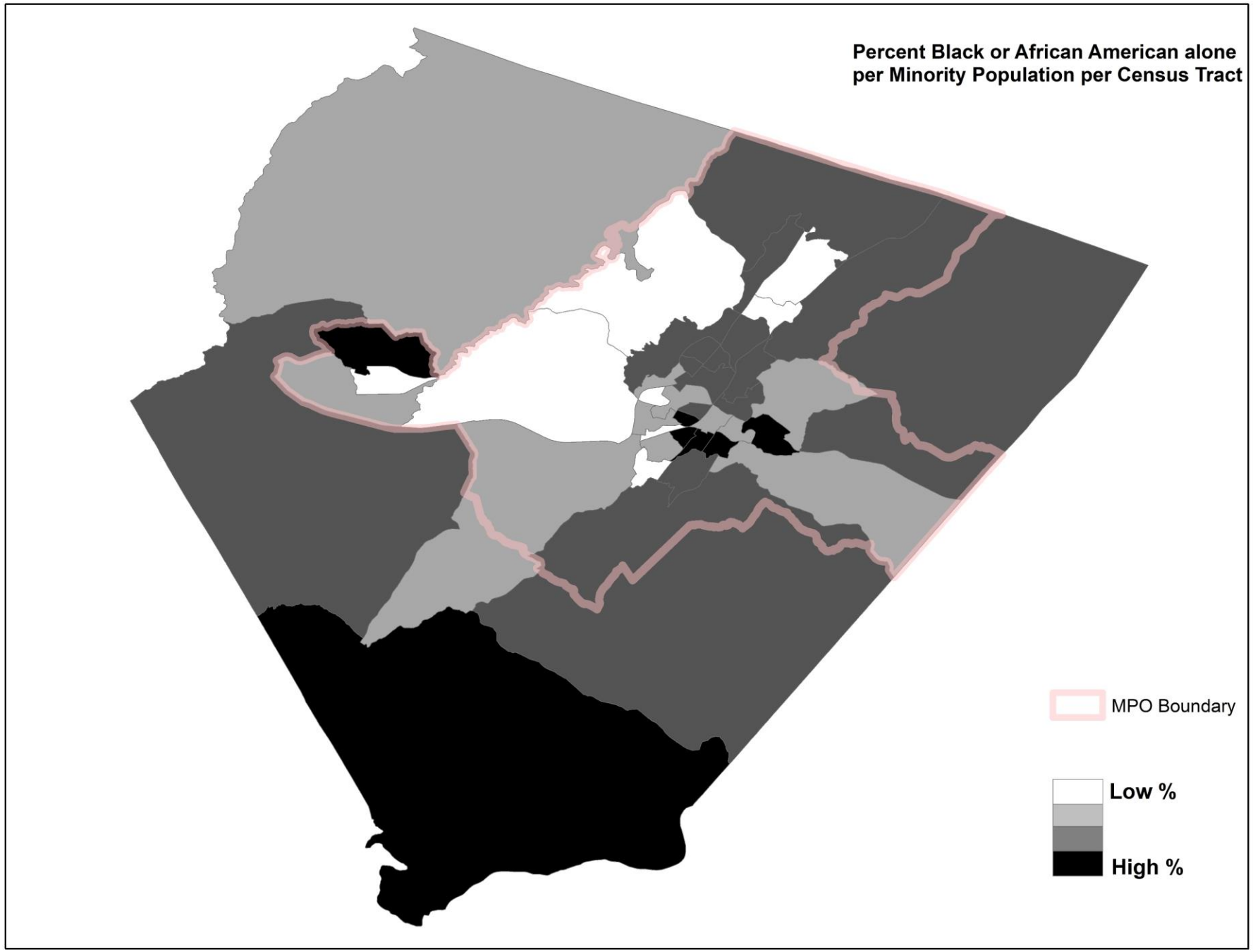

Ratio of Female to Male, Census Tract
MPO Boundary
Low
High

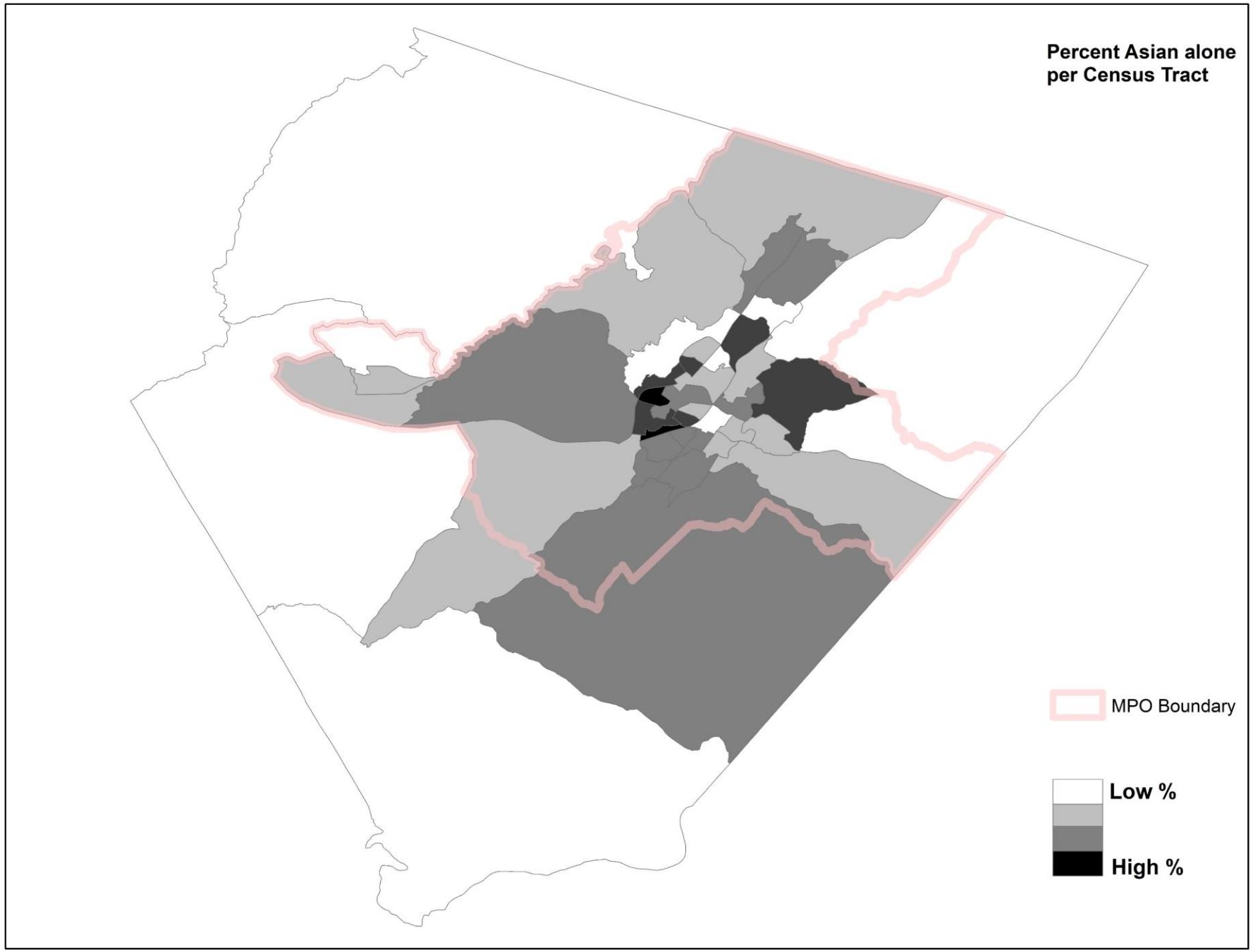

Population, Census Tract
MPO Boundary
Low %
High %

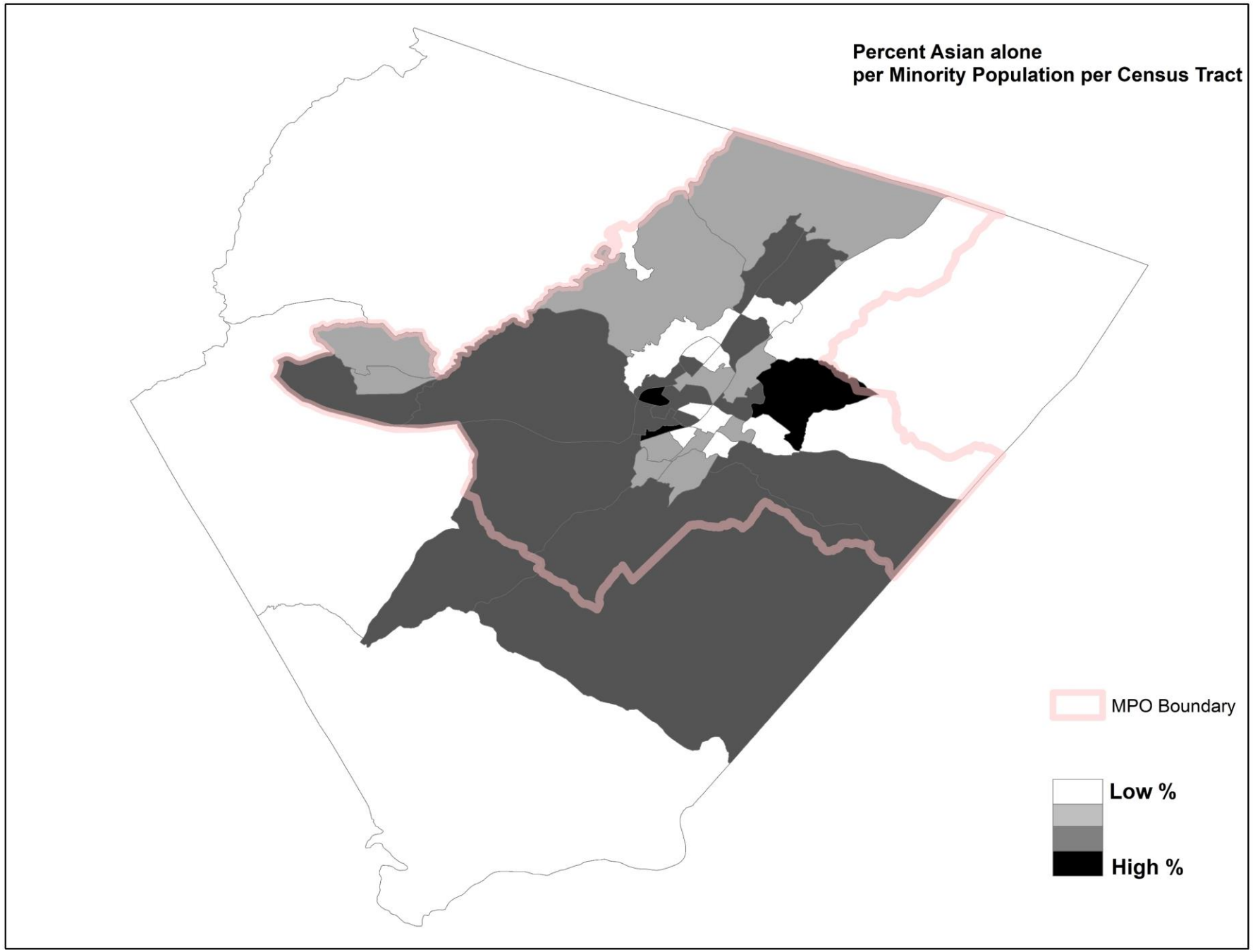

Percent White alone
per Census Tract
MPO Boundary
Low %
High %

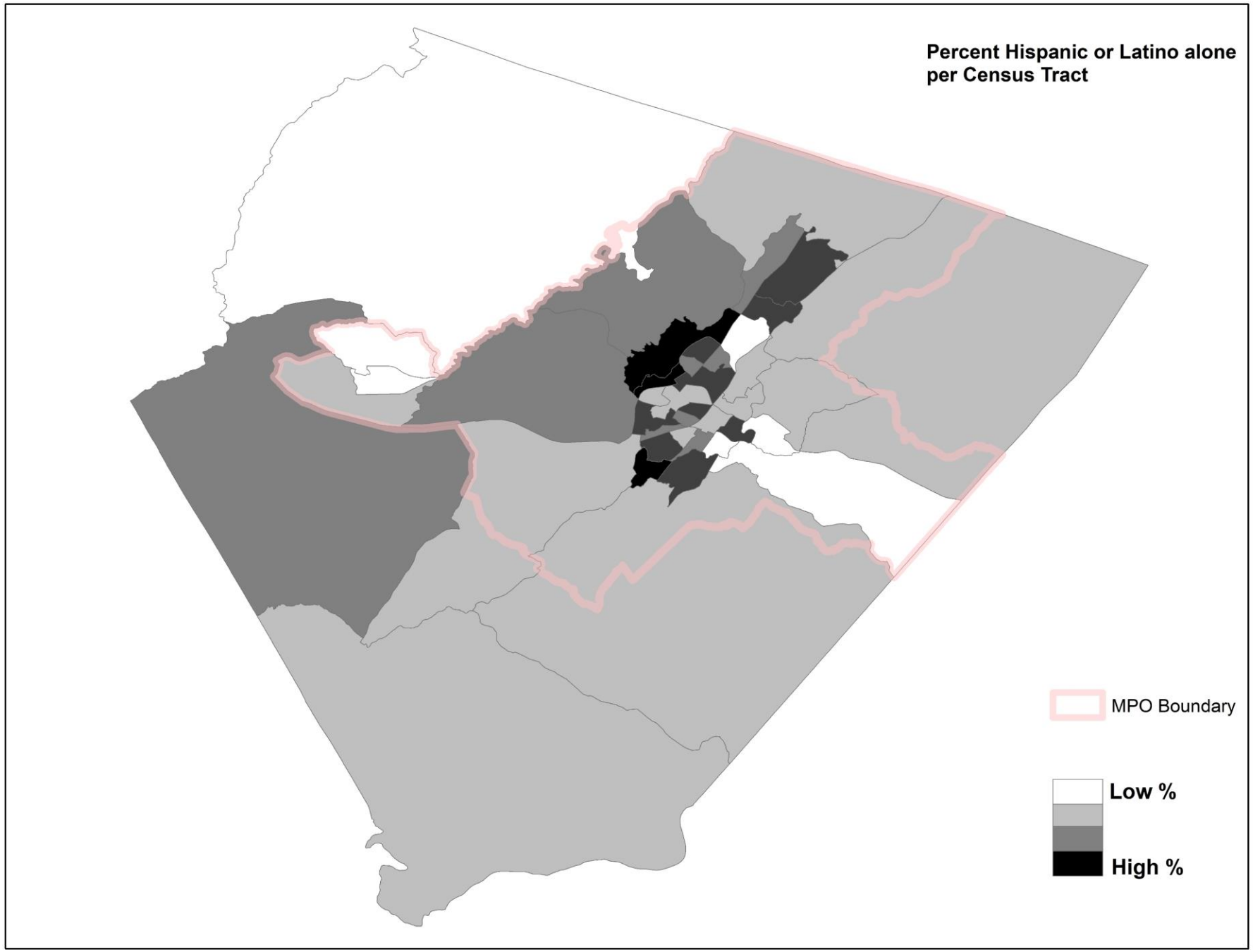

Percent White alone
per Minority Population per Census Tract
MPO Boundary
Low %
High %

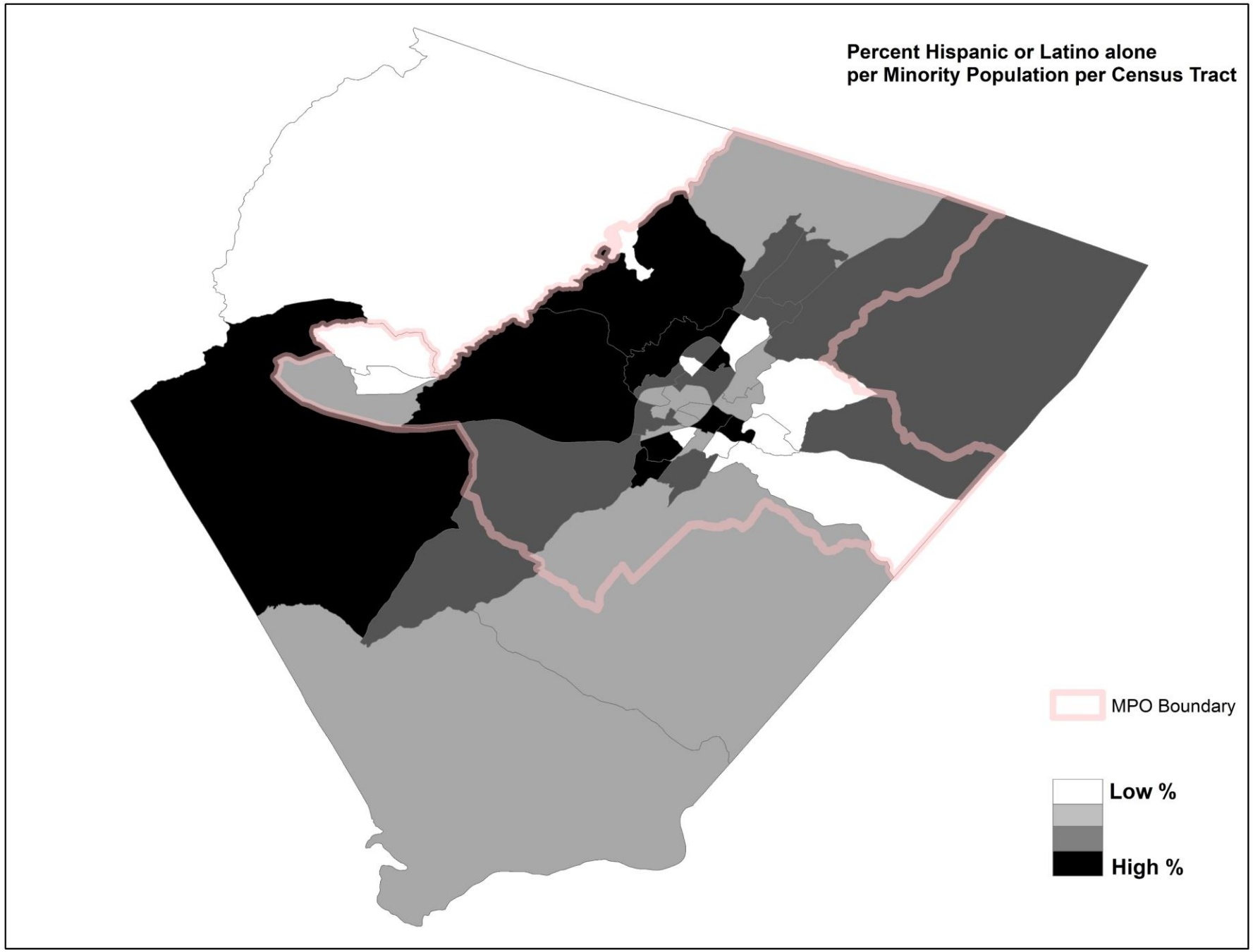

Percent Black or African American alone per Census Tract
MPO Boundary
Low %
High %


Percent Black or African American alone
per Minority Population per Census Tract
MPO Boundary
Low %
High %


Percent Asian alone
per Census Tract
MPO Boundary
Low %
High %


Percent Asian alone
per Minority Population per Census Tract
MPO Boundary
Low %
High %


Percent Hispanic or Latino alone
per Census Tract
MPO Boundary
Low %
High %


Percent Hispanic or Latino alone
per Minority Population per Census Tract
MPO Boundary
Low %
High %

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Virginia Department of Transportation

2022 Culpeper District Transportation Update

From the District Engineer:

This past year has brought transition and growth to the Culpeper District. One transition that we are all grateful for is the return to normal business practices, with our offices open to the public and staff available to meet with customers.

The district is preparing for a major increase in the number of highway improvements that will move through design and into construction in the next several years. Action by the 2020 General Assembly provided $87 million in revenue from certain taxes and fees collected within the district. That allocation provided funding for 19 additional improvement projects, which are now in the preliminary engineering phase.

Those projects include long-awaited improvements to the U.S. 29 corridor and adjacent roads at the north end of Charlottesville, safety enhancements at high-crash locations in Albemarle, Culpeper and Fauquier counties, and several roundabouts in rural areas where increasing traffic volumes have made the current stop-sign controlled intersections less safe for motorists. Also advancing toward construction are several multi-modal improvement projects, including a shared-use path just south of Charlottesville along the Fifth Street corridor and a Park-and-Ride lot off Interstate 64 near Crozet.

The district continues its focus on maintaining the condition of our current assets. Our bridge condition remains above the statewide goal thanks to the efforts of our Structure and Bridge staff and their dedicated bridge inspectors and maintenance crews. The district's pavement condition is good, with focus on maintaining that condition to minimize costly major rehabilitations of our pavements.

Despite those positive results, during the past year the district's performance in other areas, notably project development and delivery, has been below the agency's targets. We are renewing our focus on meeting those targets through several initiatives. These include engaging additional outside resources to assist with design work and providing technical assistance to our local government partners to assist them in developing and delivering locally managed projects on time and on budget.

While we are all focused on meeting the targets established for these performance measures I have made clear my expectation that we will not sacrifice quality or safety to meet a benchmark. I expect that we will always make the right decisions for the right reasons to ensure that we continue to design, construct, operate and maintain a safe and efficient transportation network in Culpeper District.

Finally, a word about safety. Earlier this year the district updated our safety program with a renewed focus on the critical role it plays in every activity at VDOT. The initiative started with a request for safety messages from the district's employees. That generated more than 50 ideas, which were voted on by the district. From those results the winner was selected.

Building on the district's core values of Trust, Integrity and Respect, the updated safety program is driven from the district's leadership to all employees. Whether they work at an area headquarters, a residency office or in a support position at the district office, every employee is responsible for their safety as well as for those around them. To that end the message "Safety Takes No Days Off" applies to everyone, regardless of what activity they are engaged in on any given day.

I hope you find the review of the district's activities in this Transportation Update informing and useful. On behalf of our district staff, thank you for your support and we look forward to continuing to work with you to Keep Culpeper District, and Virginia, Moving.

CULPEPER DISTRICT
SAFETY TAKES NO DAYS OFF

Sean Nelson, P.E.
Culpeper District Engineer

Unless noted otherwise, the information in this document covers the 2022 fiscal year, which ran from July 2021 through June 2022.

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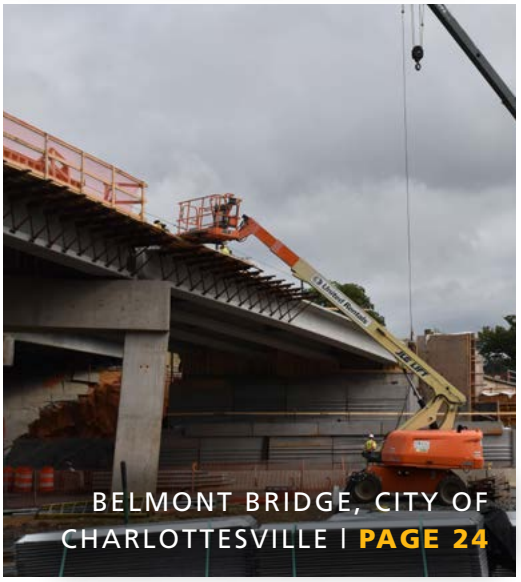
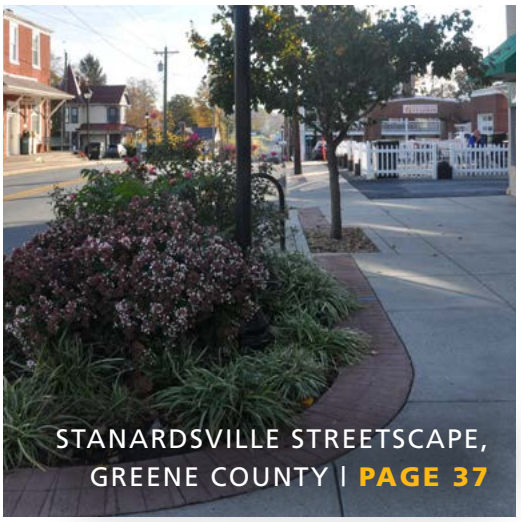
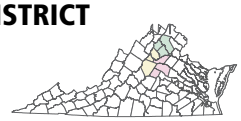




VDOT
Virginia Department of Transportation

CULPEPER DISTRICT



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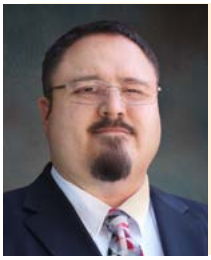

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FY 2022 District Performance

VDOT's commitment to transparency is reflected on the agency's public-facing Dashboard, which measures the agency's performance compared with targets set each year by VDOT's leadership. VDOT was a pioneer in this area when it debuted the first Dashboard back in 2003. Since that first version, which tracked on-time and on-budget project delivery, the Dashboard has expanded several times to track performance in additional areas, including Safety and Operations.

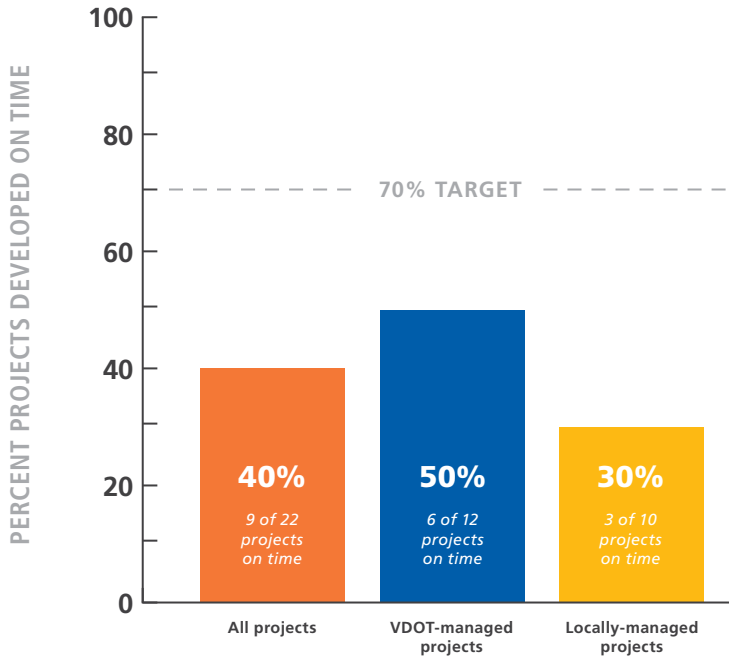
The Project Development metric measures the progress of projects through design, right-of-way acquisition and advertisement for construction. Of the 12 projects administered by VDOT in FY 2022, nine of 12 (75 percent) were on budget. Six of 12 projects were advertised on time, five are in progress but behind scheduled milestones.

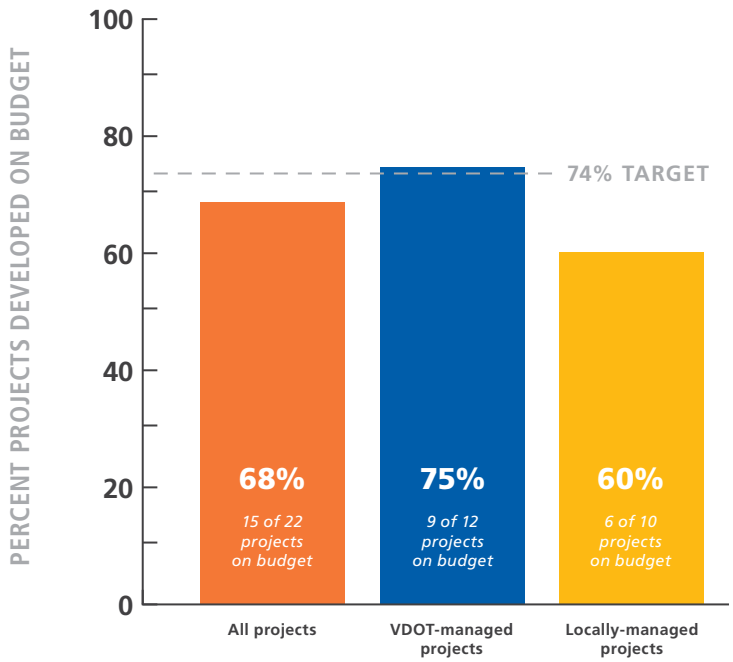
Of the 10 projects administered by local governments (city of Charlottesville, Albemarle County, town of Louisa), six of 10 (60 percent) were on budget, three of ten were advertised on time, and seven are still in progress, but behind schedule.

Project Delivery measures performance during the construction phase of the projects. During FY22, nine of the 11 projects administered by VDOT were completed on time and on budget. The on-time performance of 81 percent was above the 77 percent agency target; the on-budget performance of 81 percent was slightly below the 85 percent target.

The six locally administered projects were below both construction targets. On-time performance was 66 percent (four of six projects) measured against the 77 percent goal; the 83 percent on-budget performance (five of six projects) was slightly below the 85 percent target.

PROJECT DEVELOPMENT





FY 2022 Performance, Continued

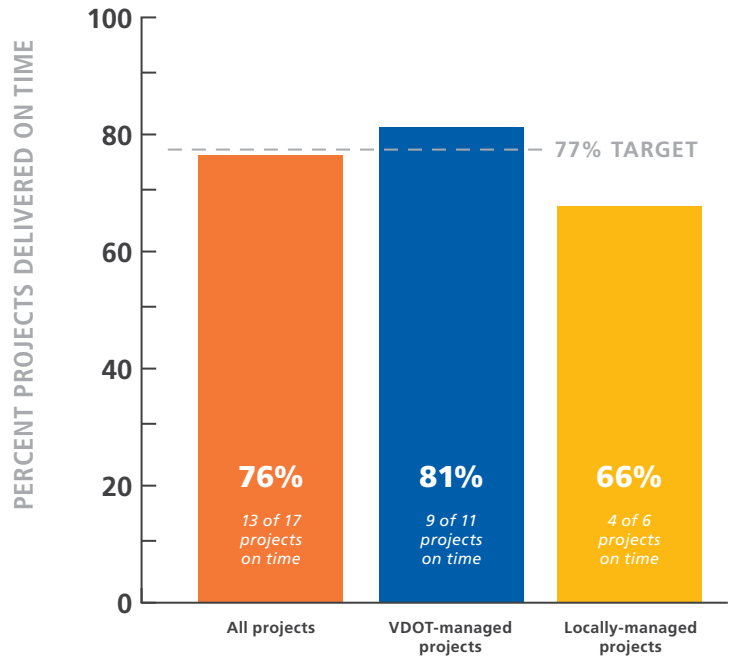
As in past years, Culpeper District's score on the Construction Quality Inspection Program continues to be high with an average CQIP score of 97 percent. This program measures all aspects of a project during construction, from documentation to field work, and is an important measure of the quality of the project.

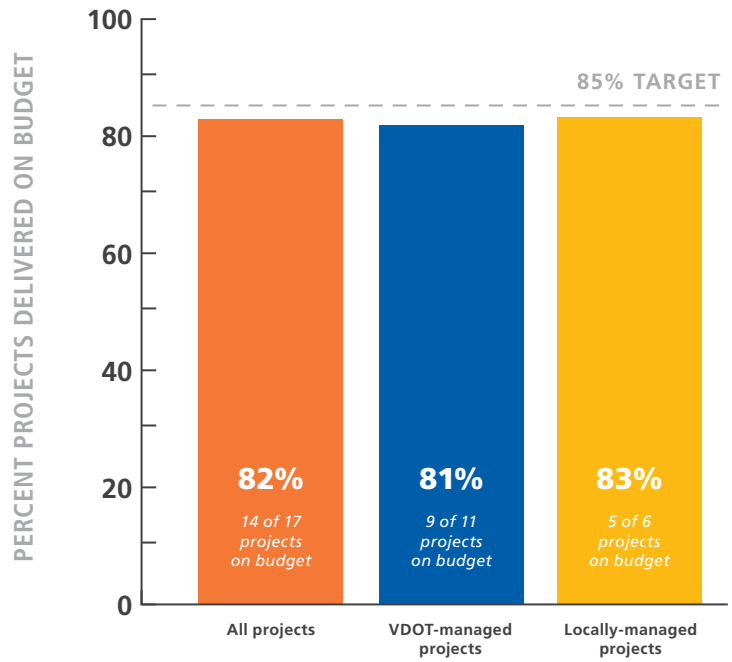
During the past fiscal year, and going forward, VDOT is working closely with our local government partners who are administering their own projects. VDOT is providing technical assistance and resources to assist the localities in delivering their projects on time and on budget with a high degree of quality.

Inflation is impacting VDOT much as it has affected other areas of the economy. There have been significant increases in project cost estimates due to higher market costs for labor, materials and right-of-way acquisition, as well as some supply-chain issues with availability of necessary materials.

According to VDOT Chief Engineer Bart Thrasher, "VDOT transportation maintenance and infrastructure costs are increasing. Many project estimates and corresponding budgets were established during times of lower cost and lower inflation. As an agency we are taking deliberate and purposeful action to adjust our estimates and review our budgets to account for the anticipated increased costs of delivering future projects."

PROJECT DELIVERY





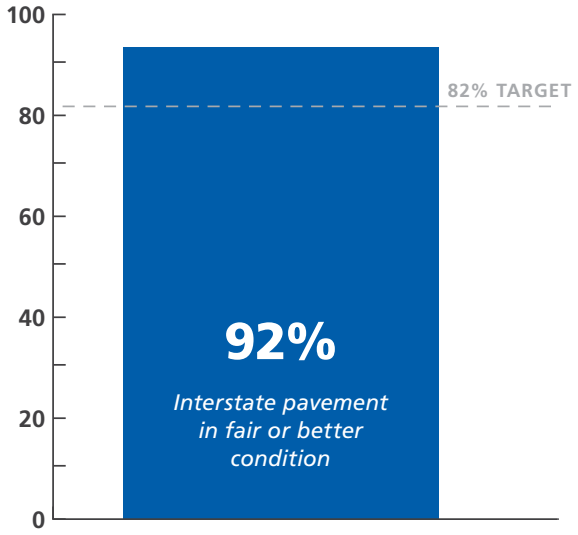
Pavement Condition and Maintenance

Virginia has the third-largest state-maintained roadway network in the nation, behind only Texas and North Carolina. That's almost 58,000 miles of pavement that VDOT is responsible to maintain. Keeping that pavement in good condition is one of VDOT's core missions, and every day the motorists who travel the state's highways evaluate how well VDOT is fulfilling that mission.

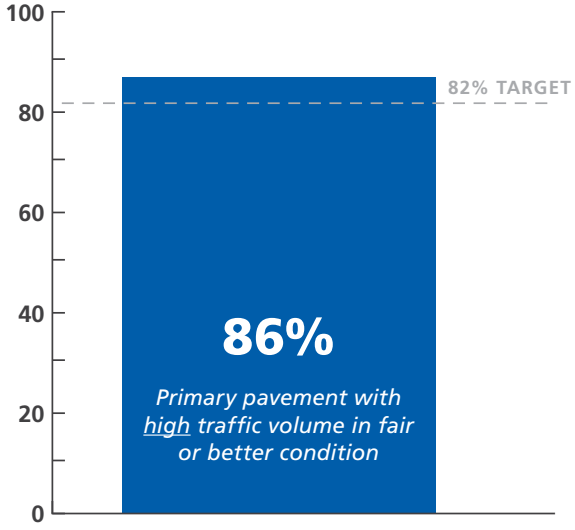
VDOT is responsible for maintenance of nearly all the roads within the Commonwealth of Virginia. The exceptions are independent cities, many incorporated towns and the counties of Arlington and Henrico as well as private roads within some neighborhoods. Newly constructed roads must meet VDOT specifications to be accepted into the state highway system.

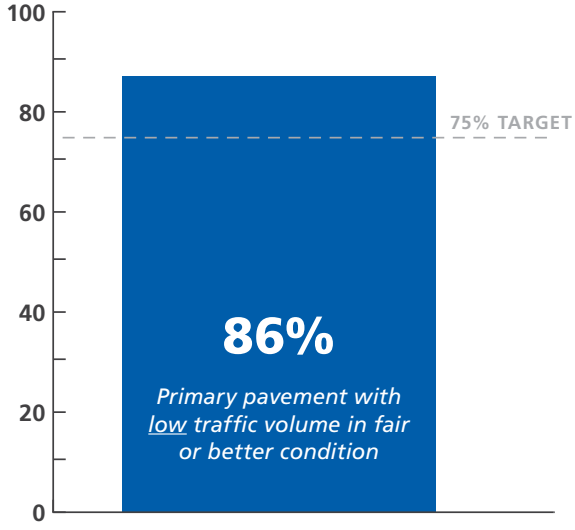
VDOT uses sophisticated electronic measuring devices and video equipment in mobile units to monitor and document pavement condition and identify deteriorating sections. Using the analysis produced by those mobile units VDOT engineers determine where pavement resurfacing or major rehabilitation is needed. The type of resurfacing selected is based on the roadway type, traffic volumes, current pavement condition and other factors.

INTERSTATE PAVEMENT CONDITION



PRIMARY ROAD PAVEMENT CONDITION





In the graphs above, "low traffic volume" roads carry 3,500 vehicles or less per day and "high traffic volume" roads see 3,500 vehicles or more per day.

Pavement, continued

In 2020, VDOT adjusted the criteria for pavement evaluations of primary and secondary highways, classifying them into two categories: those that carry more than 3,500 vehicles per day and those carrying fewer than 3,500 vehicles per day.

This additional category of classification differentiates the roadway segments with higher average daily traffic volumes. The change enables infrastructure staff, who are responsible for identifying deficient pavement, to prioritize the roads carrying more traffic and more heavy vehicles such as commercial trucks.

The reclassification ensures that VDOT's paving program focuses on the most highly traveled roads which carry the most traffic and deteriorate most rapidly, and that the program remains sustainable into the future.

District Pavement

In Culpeper District, VDOT staff at the district office and our 16 area headquarters work closely with our contractor partners to maintain the nearly 10,620 lane-miles of state roads in the district's nine counties. These roads include multi-lane divided interstates, primary highways that connect population centers and secondary roads that provide access to residential and commercial areas. In rural areas some of those roads are unpaved, and VDOT maintains those gravel surfaces too.

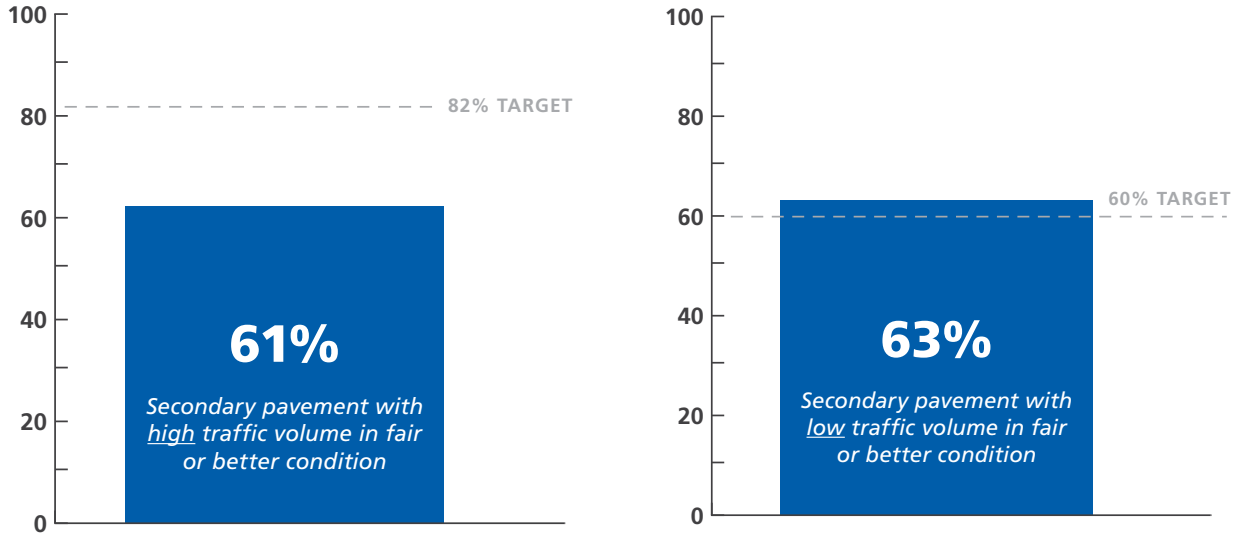
Pavement Condition Ratings

Culpeper District continues to exceed the statewide goals for pavement condition in nearly all categories. The district's interstate pavement condition rating, at 92 percent, is well above the established goal of 82 percent sufficient. The district's primary roads, both those carrying high and low traffic volumes, are also above the agency's sufficiency targets.

2022 Paving Program

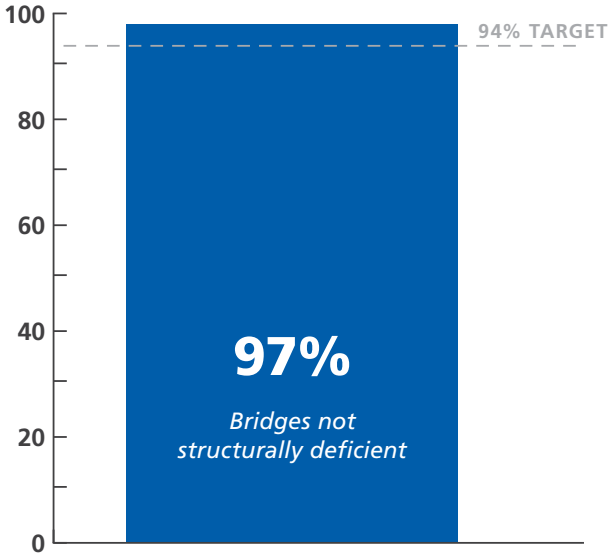
Information about the district's paving program this year, including a map depicting planned paving locations, is available at virginiadot.org/projects/culpeper/22culpeperdistrictpaving.asp. A map of VDOT's 2022 Statewide Paving Program is available at virginiaroads.org/maps/VDOT::statewide-paving-status-map-public-2022.

SECONDARY ROAD PAVEMENT CONDITION



In the graphs above, "low traffic volume" roads carry 3,500 vehicles or less per day and "high traffic volume" roads see 3,500 vehicles or more per day.

Bridge Condition



Culpeper District has more than 1,700 bridges and structures, and the maintenance, repair and replacement of these structures is the responsibility of the district's Structure and Bridge section. In addition to maintenance crews the section staff includes engineers, designers and inspectors. Each of the district's three residencies has a dedicated bridge crew, while a fourth bridge crew is based at the district headquarters office in Culpeper.

In 2022, nine structures in the district were rehabilitated or replaced. Again this year the district's overall rating for structures not in poor condition was 97 percent, well above VDOT's target of 94 percent. Structures in poor condition have a minimum general condition rating of 4 or less (on a scale of 0 to 10), which does not suggest a safety concern, but poor structures typically require repair and eventual rehabilitation to address deficiencies.

The district's four bridge crews are responsible for delivering the district's small bridge replacement program. Culpeper is one of a handful of VDOT districts with this program, which uses the state force bridge crews to replace small bridges on secondary roads that are in deficient condition. Using state forces allows the projects to be designed and construction completed more quickly and at lower cost than if the project were bid to an outside construction contractor.

The program has been successful in maintaining the district's bridge condition at a level well above the agency's target. But over the years, as the district's overall bridge condition rating improved, it has become more difficult to maintain that rating. As the remaining deficient structures age the rehabilitation is more complex, more extensive and thus more expensive. That means the projects take longer to complete and require more specialized resources to construct.

Even with those challenges, however, Culpeper's small bridge replacement program and its four district bridge crews remain critical to the district's continued ability to keep its structures in good condition and above the agency's condition target. Find more Virginia bridge information on VDOT's webpage: Bridges in Virginia.

STRUCTURES REHABILITATED IN 2022

ALBEMARLE COUNTY

- Route 240 over Lickinghole Creek
- Route 810 over Muddy Run
- Route 810 over Rocky Bar Branch

FAUQUIER COUNTY

- Route 735 over Buck Run

FLUVANNA COUNTY

- Route 639 over South Fork Cunningham Creek

GREENE COUNTY

- Route 634 over Swift Run

LOUISA COUNTY

- Route 640 over Foster Creek

MADISON COUNTY

- Route 607 over Beautiful Run

ORANGE COUNTY

- Route 614 over Keyser Run

STRUCTURE WORK STARTING SOON

- Route 689 over Stockton Creek, Albemarle County
- Route 627 over Branch Hardware River, Albemarle County
- Route 717 over Camp Creek, Louisa County
- Route 631 over East Fork Kent Branch, Fluvanna County

38 Projects Proposed for Round 5 SMART SCALE Funding

Localities and regional planning organizations in the Culpeper District submitted 38 projects during the fifth round of applications for SMART SCALE funding. (SMART SCALE is an acronym for System Management and Allocation of Resources for Transportation: Safety, Congestion, Accessibility, Land Use, Economic Development, and Environment.)

The purpose of SMART SCALE is to fund the right transportation projects using a prioritization process that evaluates each project's merits using key factors, including improvements to safety, congestion reduction, accessibility, land use, economic development, and the environment. The evaluation focuses on the degree to which a project addresses a problem or need relative to the requested funding for the project.

SMART SCALE requires the Commonwealth Transportation Board to develop and implement a quantifiable and transparent prioritization process for making funding decisions for capacity-enhancing projects within the Six-Year Improvement Program. The ultimate goal in implementing SMART SCALE is investing limited tax dollars in the right projects that meet the most critical transportation needs in Virginia.

Transparency and accountability are crucial aspects of delivering a process that project sponsors and the public will support. Each SMART SCALE project is evaluated based on a uniform set of applicable statewide measures while recognizing that factors should be valued differently based on regional priorities.

SMART SCALE *Funding the Right Transportation Projects in Virginia*

The evaluation process for Round 5 applications will move forward through the fall and winter. In early 2023 the CTB will be presented with staff recommendations for funding projects based on the evaluation results. Public hearings will be held in the spring in each VDOT district to provide the public an opportunity to comment on the recommended SMART SCALE projects as well as other transportation activities across Virginia. Next June the CTB will approve the annual update to the Six-Year Improvement Program, including the addition of Round 5 SMART SCALE projects.

Throughout the *Transportation Update*, look for this icon, which identifies projects funded through the SMART SCALE prioritization process. For more information, visit smartscale.org.

Albemarle County

Belvedere Boulevard and Rio Road Intersection Improvements

This project would install a signalized continuous Green-T intersection to replace the current stop-sign controlled "T" intersection. The project would include an at-grade pedestrian crossing of Belvedere Boulevard.

Estimated cost: $4,890,328

Fifth Street Extended Bicycle and Pedestrian Improvements

This project would extend a planned 10-foot-wide shared-use path to the north and south to create a continuous facility on the west side of Fifth Street/Old Lynchburg Road from Ambrose Commons to Old Lynchburg Road and from Wahoo Way to Afton Pond Court (Stagecoach Road).

Estimated cost: $18,686,732

SMART SCALE, continued

Avon Street Bicycle and Pedestrian Improvements
This project would construct a 10-foot-wide shared-use path approximately 1,900 feet long adjacent to Avon Street on the west side of the road from Mill Creek Drive to Peregoy Lane. This project includes the construction of two transit shelters and a pedestrian crossing south of Wood Duck Place.

Estimated cost: $11,436,481

Old Trail Drive and U.S. 250 West Intersection Improvements
This project would construct a hybrid roundabout at the Old Trail Drive/U.S. 250 intersection with pedestrian accommodations, particularly for the pedestrian movement across U.S. 250.

Estimated cost: $13,960,947

Rivanna River Bicycle and Pedestrian Bridge Crossing
The project would provide a 3,100-linear-foot, 10-foot-wide shared-use path and a bicycle and pedestrian bridge (14-foot width beam or truss bridge) across the Rivanna River at East Market Street in Woolen Mills, connecting two important development areas on either side of the river.

This project is submitted by the Charlottesville-Albemarle Metropolitan Planning Organization.

Estimated cost: $42,115,788

District Avenue Roundabout at Hydraulic Road
This project converts the existing intersection to a single/double-lane hybrid roundabout at the intersection with Hydraulic Road/Cedar Hill Road, with full access on to Cedar Hill Road.

Submitted by the Charlottesville-Albemarle Metropolitan Planning Organization.

Estimated cost: $20,051,997

U.S. 250/Rolkin Road Pedestrian Improvements
The project would be composed of two main elements:

1) An at-grade pedestrian crossing for the northern, eastern, and southern legs of the U.S. 250/Rolkin Road intersection; and 2) Continuation of the 800-foot-long sidewalk on the southern side of U.S. 250 to State Farm Boulevard. Submitted by the Thomas Jefferson Planning District Commission.

Estimated Cost: $11,927,213

U.S. 250/Route 22 (Louisa Road) Intersection Improvements
The project would result in a signalized displaced left-turn for traffic traveling east on U.S. 250 and turning north onto Route 22 (Louisa Road). Existing traffic signals would be modified.

Submitted by the Thomas Jefferson Planning District Commission.

Estimated cost: $10,986,125

U.S. 250/Milton Road Intersection Improvements
The project would construct a single-lane, 150-foot diameter roundabout at this intersection.

Submitted by the Thomas Jefferson Planning District Commission.

Estimated cost: $9,757,582

U.S. 250/Peter Jefferson Parkway Intersection Improvements and Access Management
The project would have four elements:

1) Add a right-turn lane for eastbound traffic on U.S. 250; 2) Implement a "thru-cut" at the U.S. 250/Peter Jefferson Parkway intersection; 3) Construct a new 50-space park and ride lot; and 4) Complete/close the existing median cut between Worrell Drive/Pantops Mountain Road and Peter Jefferson Parkway.

Submitted by the Thomas Jefferson Planning District Commission.

Estimated cost: $20,546,717

Charlottesville City

Fifth Street Extended Multimodal Improvements
The project is an eight-foot-wide sidewalk on both sides of Fifth Street from the Albemarle County line to Harris Road. The project eliminates northbound left turns on Fifth Street and eastbound left turns from the shopping center, and adds a directional left-turn crossover into the northern shopping center entrance.

SMART SCALE, continued

Submitted by the Charlottesville-Albemarle Metropolitan Planning Organization.

Estimated cost: $22,788,588

Avon Street Multimodal Improvements

The project adds a shared-use path on the east side of Avon Street from Avon Court to Palentine Drive, including a new pedestrian bridge across Moores Creek and sidewalk on the west side of Avon Street. It would also add bike lanes on both sides of Avon Street from Palentine Drive to Druid Avenue.

Submitted by the Charlottesville-Albemarle Metropolitan Planning Organization.

Estimated cost: $15,807,317

Culpeper County

Route 229/Route 694 Roundabout

The project would improve and replace a four-way signalized intersection with a single/double-lane hybrid roundabout.

Estimated cost: $15,592,264

Route 229/Route 621 Roundabout

Convert the existing intersection to a single-lane roundabout at the intersection of Route 229 (Rixeyville Road) and Route 621 (Colvin Road).

Estimated cost: $10,042,765

U.S. 29/Route 633 Intersection Improvement

Construct a Median U-Turn intersection at this location. This project would help improve safety by eliminating certain turning movements at the current median crossover location.

Estimated cost: $8,383,105

Route 3/Route 669 Intersection Improvement

This project would construct a partial Restricted Crossing U-Turn (R-CUT) with a right-turn splitter island on the southbound approach and improvements to the adjacent crossover to the west for U-turns.

Estimated cost: $4,686,393

Fauquier County

Route 28 and Route 667 Roundabout

The project would convert the existing signalized intersection of Route 28 (Catlett Road) and Route 667 (Old Dumfries Road) / Route 806 (Elk Run Road) into a single-lane roundabout.

Estimated cost: $13,796,091

Route 605 and Route 603 Roundabout

The project would convert the intersection of Route 605 (Dumfries Road) and Route 603 (Greenwich Road) into a single-lane roundabout.

Estimated cost: $9,239,056

Route 28 and Station Drive Roundabout

The project would convert the existing signalized intersection of Route 28 (Catlett Road) and Route 852 (Station Drive)/Bengu Gerek Avenue (formally Independence Avenue) into a single-lane roundabout.

Estimated cost: $9,254,511

Fluvanna County

Route 631 and U.S. 15 Intersection

The project would add a left-turn lane on northbound U.S. 15 onto Route 631 (Troy Road) and a right-turn lane eastbound from Route 631 onto U.S. 15. The project would also realign the intersection to address the sight distance and vertical curve issue.

Estimated cost: $14,515,666

Route 1015 and Route 53 Roundabout

This project constructs a single-lane roundabout at the existing three-leg intersection of Route 53 (Thomas Jefferson Parkway) and Route 1015 (Turkeysag Trail) as well as a shared-use path in Fluvanna County.

Estimated cost: $10,974,414

Route 53 and Route 618 Intersection Improvements

The project would construct a westbound left-turn lane on Route 53 for vehicles turning onto Route 618 (Martin Kings Road) and realign the driveway on the north side

SMART SCALE, continued

connecting to the intersection.

Estimated cost: $6,548,650

Greene County

U.S. 29/Route 616/Commerce Drive Improvements

This project would include modification of a 0.73 mile section of U.S. 29 (Seminole Trail) with existing median crossings into a Superstreet, as recommended in a safety and operation study to facilitate safer movements crossing U.S. 29. The improvements would include the intersections of Route 616 (Carpenters Mill Road) and Commerce Drive.

Estimated cost: $18,033,492

U.S. 33 – Route 743 and Route 1050 Intersections

The safety improvement project would modify a 0.4 mile corridor on U.S. 33 (Spotswood Trail) by closing existing median crossovers at Route 743 (Advance Mills Road) and at Route 1050 (Greencroft Drive) and adjust the existing crossover just west of Advance Mills Road. It also adds a new directional crossover just east of Greencroft Road for the relocated U-Turn movements.

Estimated cost: $9,951,087

Louisa County

Spring Creek/Camp Creek/U.S. 15 Intersection Improvements

The project converts the intersection and the adjacent intersection on either side of U.S. 15 into a bowtie intersection configuration. It includes a hybrid roundabout at Camp Creek and Main Street intersection and another at Wood Ridge Terrace and Spring Creek Parkway. The proposed project also includes expansion of the adjacent Park and Ride Lot and shared-use paths next to the improvements.

Estimated Cost: $42,567,228

U.S. 250 and U.S. 15 Intersection Improvement

This project would convert the existing signal-controlled intersection of U.S. 250 (Three Notch Road) and U.S. 15 (James Madison Highway) to a single/double-lane hybrid roundabout to include a shared-use path.

Estimated cost: $14,149,386

Route 208 and U.S. 250 Intersection Improvement

This project would convert the intersection of Route 208 (Courthouse Road) and U.S. 250 (Three Notch Road) to a single-lane roundabout. This project would include a Park and Ride lot on the parcel to the northeast of the intersection.

Estimated cost: $13,288,364

Madison County

Route 230 and Route 687 Intersection Improvements

This project would convert the current stop-sign controlled intersection of Route 230 (Orange Road) and Route 687 (Fairground Road) to a single-lane roundabout.

Estimated cost: $11,320,633

Orange County

Route 3 and Post Office Intersection Improvements

This project converts a four-leg intersection at Route 3 and the private road to the post office in Orange County into an unsignalized R-CUT Intersection.

Estimated cost: $9,869,320

Route 3 and Goodwin Drive Improvement

This project converts a four-leg, signal-controlled intersection between Route 3 and Lake of the Woods/ Goodwin Drive into a signalized R-CUT Intersection.

Estimated cost: $14,106,511

Route 3 and Route 20 Intersection Improvements

This project converts a four-leg, signal-controlled intersection between two primary highways in Orange County (Route 3 / Germanna Highway and Route 20 / Constitution Highway) into a continuous Green-T intersection.

Estimated cost: $16,980,924

Route 20 and Route 601 Intersection Improvement

This project converts the signalized intersection of Route 20 (Constitution Highway) and Route 601 (Flat Run Road) into a single-lane roundabout.

Estimated cost: $9,930,009

SMART SCALE, continued

Town Of Culpeper

Orange Road/Fredericksburg Road Roundabout
The project converts the Orange Road/Fredericksburg Road signalized intersection to a single-lane roundabout. The project includes adding pedestrian crosswalks and sidewalks on each approaching roadway.

Estimated cost: $12,636,129

Old Brandy Road Sidewalk Extension
The Old Brandy Road sidewalk extension project proposes approximately 2,800 feet of five-foot-wide sidewalk along the north side of Old Brandy Road from the existing sidewalk infrastructure near Wine Street Memorial Park to James Madison Highway and adjacent commercial development.

Estimated cost: $8,292,885

Orange Road Sidewalk Extension
This project proposes construction of approximately 2,500 linear feet of five-foot-wide sidewalk along the east side of Orange Road from Standpipe Road and just south of the Orange Road/Fredericksburg Road intersection.

Estimated cost: $8,592,462

Town Of Warrenton

Business U.S. 17/Broadview Avenue/Shopping Center Intersection Improvement
This project would convert the existing intersection into a peanut-shaped hybrid roundabout and includes bicycle/pedestrian facilities and crosswalks.

Estimated cost: $14,890,760

West Lee Street/U.S. 17 Business/Winchester Street Intersection Improvement
This project would convert an existing intersection to a single/double-lane hybrid roundabout and includes a shared-use path, sidewalks, crosswalks and bike lanes.

Estimated cost: $15,128,120

Lee Highway/Blackwell Road Safety Improvement
The project would convert an existing intersection to a single/double-lane hybrid roundabout and includes a shared-use path, sidewalks, crosswalks and replacement of the box culvert on Blackwell Road.

Estimated cost: $14,066,640

SMART SCALE Round 5

38 Culpeper District project applications

$541,688,348 total value

Project Funding Programs

Revenue Sharing

The Revenue Sharing Program provides additional funding for use by a county, city, or town to construct, reconstruct, improve or maintain the highway systems within such county, city, or town and for eligible rural additions in certain counties of the Commonwealth.

Locality funds are matched, dollar for dollar, with state funds, with statutory and Commonwealth Transportation Board Policy limitations on the amount of state funds authorized per locality.

Rural Additions

At the request of the county Board of Supervisors, routes meeting certain criteria may be added to the state system of secondary highways and improved to current standards with rural addition funds or funds appropriated for that use by the local government.

Rural Rustic Roads

Through VDOT's Rural Rustic Roads program, low-volume gravel roads are improved with minimal, context-sensitive engineering and reconstruction for drainage, sight distance and grading, followed by surface treatment. Local governments must meet certain conditions for a road to be considered for this program.

State of Good Repair

The State of Good Repair (SGR) program provides funding for deteriorated pavements and Poor Condition — otherwise known as structurally deficient — bridges owned or maintained by VDOT and or localities, as approved by the Commonwealth Transportation Board.

Transportation Alternatives

The federally funded Transportation Alternatives Program helps local sponsors fund community-based projects for non-vehicular travel and improves the cultural, historical and environmental aspects of the transportation infrastructure.

Virginia Highway Safety Improvement Program

The Virginia Highway Safety Improvement Program (VHSIP) is guided by our Strategic Highway Safety Plan and receives federal and state safety funding to implement safety improvements across the roadway network in Virginia. The program, authorized by Fixing America's Surface Transportation (FAST) Act, requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on safety performance. VDOT advances highway safety improvement projects that have the greatest potential to reduce the roadway fatalities and serious injuries.

The Virginia 2022-2026 Strategic Highway Safety Plan

Virginia's Strategic Highway Safety Plan is the guiding five-year plan for road safety efforts in the Commonwealth. The plan's theme — "Arrive Alive" — provides direction and focus to the programs and projects that will provide a transportation system for residents and visitors to arrive safely at their destinations. The plan sets forth a vision and mission that link directly to Virginia's Toward Zero Deaths initiative that is supported by the Federal Highway Administration, National Highway Traffic Safety Administration and other national organizations.

Meet Your CTB Members

The Commonwealth Transportation Board (CTB) consists of 17 members appointed by the governor and chaired by the Secretary of Transportation. Each of the nine VDOT districts has a representative, plus additional at-large members who represent the state's rural and urban interests. The VDOT Commissioner and the Director of the Virginia Department of Rail and Public Transportation also serve on the CTB.

The board is responsible for managing the third-largest state-maintained highway system in the nation, behind Texas and North Carolina, as well as the other state agencies under the Secretary of Transportation: DRPT, Virginia Port Authority, Department of Aviation, Virginia Commercial Space Flight Authority, Department of Motor Vehicles and the Motor Vehicles Dealer Board.

The CTB oversees transportation projects and initiatives for the Commonwealth of Virginia, including the SMART SCALE selection process. This is the award-winning, performance-based approach used to select highway improvement projects that will generate the most benefit for tax dollars invested.

The board usually meets in Richmond on the third Tuesday and Wednesday of the month. The CTB also occasionally travels through the state to hold its regular meetings within one of VDOT's nine districts. Its meetings are live-streamed and can be accessed from the CTB website.

Captain Darrell Byers,

District CTB Representative

Darrell R. Byers, of Palmyra, is a police captain with the Albemarle County Police Department.

Byers is assigned to the Professional Standards Division, where he is accountable for all activity relating to internal affairs, recruiting and training, accreditation, information requests and support specialists.

Capt. Byers was appointed to the CTB in July of this year by Governor Glenn Youngkin. His four-year term will expire June 30, 2026.

He previously served as an officer with the University of Virginia Police Department.

Byers attended the National Criminal Justice Command College. A graduate of Liberty University, Byers has received the Chief's Award, a Bureau Commendation and a professionalism award.

Contact Capt. Byers: Darrell.Byers@CTB.Virginia.gov

Greg Yates,

At-Large Rural CTB Representative

Greg Yates founded Yates Properties, LC in 1987. He serves as Principal Broker for the firm, which owns and manages more than 300 commercial and residential properties and self-storage facilities across Central Virginia. Mr. Yates is also the owner of Deer Ridge Development Inc., a real estate development company.

In 2016 Mr. Yates was appointed to the CTB as an at-large rural representative by Governor Terry McAuliffe and reappointed in 2020 by Governor Ralph Northam. His current term will expire June 30, 2024.

Mr. Yates graduated from the University of Richmond with a Bachelor of Arts in Economics. He has long been active in the Culpeper community, having been elected to the Culpeper County Board of Supervisors and also served on its Planning Commission. He is a former trustee of Wakefield School and St. Luke's School. He is also the past Chair of the Shenandoah National Park Trust.

Greg and his wife Liz live in Culpeper County. They are excited to have two new grandsons, one each from their son Cameron, and their daughter, Jessica, and a granddaughter. Much of his leisure time is spent hiking, playing tennis, and traveling with his family.

Contact Mr.Yates: Greg.Yates@CTB.Virginia.gov

PROJECT UPDATES

ALBEMARLE COUNTY

The roundabout at U.S. 250 and Route 151 at Afton is entering the final phase of construction, with traffic switched to the final configuration in mid-November.

Design-Build Projects

CONTRACTOR: Curtis Contracting, Inc. of West Point | **CONTRACT AMOUNT:** $28.5 million | **COMPLETION DATE:** February 2023

VDOT is in the final stages of completing its design-build bundle, a combination of six projects funded through SMART SCALE or the Highway Safety Improvement Program (HSIP). In 2022, the contractor completed modifications to the I-64 Interchange at Exit 118, Fontaine Avenue ramp improvements and the Rio Mills Road/Berkmar Drive Connection. The roundabout at Routes 20/649 was completed in October 2022 and the contractor is on pace to finish the remaining two projects on time in February 2023.

Recently Completed

Route 20 at Route 649 Roundabout

This project eliminated the two-way, stop sign-controlled intersection at Route 20 (Stony

Point Road) and Route 649 (Proffit Road). The one-lane roundabout calms traffic and removes high-impact conflict points, thereby improving safety. Drivers moved into the final configuration in May 2022 and all permanent signage is in place.

Under Construction

Interstate 64 at Exit 124 Interchange Improvements

Construction began in December 2020 on a project to build a diverging diamond interchange (DDI) on U.S. 250 and make other low-cost improvements for safety and congestion relief.

This innovative intersection design reduces left turns dramatically, decreasing high-impact conflict points and increasing safety. Traffic flows faster with fewer signalized intersections, adding more "green time" for drivers. The project also includes ramp improvements, drainage improvements and utility relocations. Virginia's first DDI opened in 2014 at the I-64/U.S. 15 interchange in Zion Crossroads in Louisa County.

U.S. 250 at Route 151 Roundabout

Funded by SMART SCALE and HSIP, this project will reconstruct the intersection of U.S. 250 (Rockfish Gap Turnpike) and Route 151 (Critzers Shop Road) in Afton, near the Nelson County line, as a roundabout.

A roundabout replaced the stop-sign controlled intersection at Route 20 and Route 649 north of Charlottesville. The roundabout will improve safety and movement at the intersection during high-volume periods.

This intersection has a high crash rate history. In 2017, VDOT installed temporary traffic calming measures to improve safety, but the larger scope project will improve operations and safety at the busy intersection while managing traffic speeds and correcting geometrical deficiencies that contribute to the high crash rate.

Recently Completed

Rehabilitation of Route 240 Bridge

A project to rehabilitate the bridge on Route 240 over Lickinghole Creek south of Crozet, finished in July 2022. The project replaced a deteriorating superstructure, including the beams and deck that were originally built in 1921. The new superstructure has a pre-stressed concrete slab with a reinforced concrete deck and continues to accommodate two lanes of traffic. Work began to restore the structure in November 2021. Clearwater Construction Inc. completed the work under the $1.13 million construction contract.

Rehabilitation of Route 810 Bridge over Rocky Bar Branch

Work began in May 2022 to replace the superstructure and repair the substructure of the bridge over Rocky Bar Branch in Crozet, which was originally built in 1932. During work, crews maintained a pedestrian bridge for walkers, runners, and bicyclists. State forces completed the project in early August 2022.

In Design

Park and Ride Lot at I-64 Exit 107 at Crozet

VDOT will design and construct a park and ride lot in the Crozet area at I-64 Exit 107. This $3.3 million SMART SCALE project will include two dozen parking spaces with a bus pull through, bike racks and a shelter for bus passengers, and improvements at the intersection of Route 250 (Rockfish Gap Turnpike) and Patterson Mill Lane. The project will also extend the westbound left turn lane on U.S. 250. Construction advertisement is expected in October 2024.

I-64 Afton Mountain Congestion Warning System

This $2 million Innovation and Technology Transportation Fund project will install a congestion detection system on Interstate 64 west on Afton Mountain along with additional message boards to alert drivers about slow traffic ahead. The system will detect vehicle speeds and automatically post an alert on the message boards when the majority of traffic is traveling below a certain speed. The advanced warning system will better prepare motorists for travel conditions between Crozet and the top of Afton Mountain at mile marker 99. Construction advertisement is expected February 2023.

Interchange Lighting on I-64 at Exit 99

Preliminary work is under way on this $2 million project to install upgraded lighting on Interstate 64 at mile marker 99, at the top of Afton Mountain. The lights will improve visibility for motorists with a combination of full-pole mounted, bridge-mounted and wall-mounted fixtures. VDOT is working with the National Park Service on the final design. Construction advertisement is expected December 2023.

Pedestrian Crossings on U.S. 29 at Routes 866 and 1417

The Highway Safety Improvement Program (HSIP) will fund this $600,000 project to install signalized pedestrian crossings on U.S. 29 (Seminole Trail) at Route 866

Design-Build Roundabouts Bundle

VDOT is combining the following three roundabout projects into one design-build bundle procurement, funded by SMART SCALE and a $5 million county contribution. VDOT anticipates advertising for the bundle in spring 2023.

In Design

1 Route 20/53 Intersection Roundabout

This $9.5 million project will improve safety and pedestrian connectivity at the intersection of Route 20 (Scottsville Road) and Route 53 (Thomas Jefferson Parkway) by replacing the existing signalized intersection with a two-lane roundabout and sidewalks. It will also improve bicycle access along Bike Route 76.

2 Rio Road and John Warner Parkway Roundabout

This $10.1 million project will be built at the intersection of Route 2500 (John Warner Parkway) and Route 631 (Rio Road East). The goal is to improve traffic flow by replacing the existing signalized intersection with a two-lane roundabout. This configuration has the additional benefit of eliminating pattern crashes associated with signalized intersections.

3 Old Lynchburg Road/5th Street Extension Roundabout

This $7.2 million project will improve safety and pedestrian connectivity with a roundabout at the intersection of Route 631 (Rio Road) and Route 780 (Old Lynchburg Road). The project includes sidewalks and marked crosswalks.

(Greenbrier Drive) and Route 1417 (Woodbrook Drive). The project will enhance pedestrian access and safety at these two intersections. Currently in design with construction anticipated to begin spring 2023.

U.S. 29 and Fontaine Avenue Interchange Improvement

SMART SCALE funding will improve traffic flow by separating conflicting movements and reducing conflict points through the U.S. 29/Fontaine Avenue intersection. This will accommodate tractor trailers making a U-turn from northbound to southbound U.S. 29 at this interchange. This movement provides an alternative to the existing direct left turn onto U.S. 29 which currently is over capacity. The displaced left design proposed accomplishes both goals. The $12.3 million project is currently in design.

U.S. 29 Shared-Use Path

VDOT will design and construct a shared-use path along U.S. 29 (Seminole Trail) between Route 854 (Carrsbrook Drive) and Seminole Lane to include ADA ramps and crosswalks at the entrances and side street connections. This $3.5 million SMART SCALE project will include signal modifications at the intersection of Route 1488 (Hilton Heights) and U.S. 29. Construction advertisement anticipated winter 2025.

Construction of Roundabout at Route 240 and U.S. 250

Preliminary engineering is under way on a project to construct a roundabout at the intersection of U.S. 250 and Routes 240 and 680 in Crozet. The $4.1 million project will be funded through High-Risk Rural Road dollars, Open Container funds and the Highway Safety Improvement Program. This location has a strong prevalence of angle, or turning-related crashes with high traffic volumes, poor sight distance and speed as contributing factors. The roundabout will improve safety and traffic flow by creating gaps in U.S. 250 traffic that will allow vehicles on Routes 240 and 680 to merge more easily. A design public hearing was held in June 2019. The project will be advertised in fall 2023.

Intersection and Roadway Improvements Bundle at U.S. 250/Route 20

Two SMART SCALE projects are joining in a bundle to improve the intersection of U.S. 250 (Richmond Road) and Route 20 (Stony Point Road), and reconstruct a segment of U.S. 250 between Route 20 and Rolkin Road in Pantops.

The $14.7 million project bundle will include pedestrian improvements, additional turn lanes, right of way, medians and new traffic signals to enhance safety and operations. VDOT expects to hold a public hearing for this project in 2023.

Hydraulic Road and U.S. 29 Improvements

This $24 million design-build project consists of four elements, focused on the intersection of Route 743 (Hydraulic Road) and U.S. 29 (Emmet Street North). Several studies have identified the intersection and surrounding road network as a high priority for improvements to enhance safety and reduce congestion on U.S. 29, Hydraulic Road and the U.S. 250 Bypass.

The city of Charlottesville, Albemarle County and local businesses are among the stakeholders. Funding is through a combination of leftover money from the Route 29 Solutions program and SMART SCALE.

VDOT proposes the following:

- Construct a pedestrian bridge over U.S. 29 with bus stops and shelters near Zan Road
- Construct a signalized pedestrian crossing and reconfigured traffic movements at the Hydraulic Road and U.S. 29 intersection
- Reconstruct the Hillsdale and Hydraulic Road intersection as a roundabout
- Improve access management the Hydraulic Road/ Brandywine Drive and Hydraulic Road/Michie Drive intersections

Fifth Street Hub and Trails

Construction is scheduled to start on this $9.8 million SMART SCALE project in spring 2026. VDOT will design and construct a shared-use path from the development on 5th Street along Moores Creek to 5th Street Station Parkway and north of the fork of Moores Creek/Biscuit Run, crossing to the east side of the creek to the 5th Street Station parking lot.

Berkmar Drive Connector Road

VDOT is administering this $11 million revenue-sharing project to construct a 0.4 mile road to extend Berkmar Drive to Route 649 (Airport Road). When complete, Berkmar Drive will serve as an alternate route to U.S. 29 between the Charlottesville Albemarle Airport and Rio Road. Construction advertisement is expected December 2024.

Rehabilitation of Route 667 Bridge

This winter, VDOT will advertise a project to replace the existing Route 667 (Catterton Road) bridge over Piney Creek with a slightly wider aluminum structural arch culvert with an asphalt riding surface. The existing bridge was built in 1932 and is considered in "poor" condition. During construction, Route 667 will close to through traffic near Route 665 (Buck Mountain Road) with a posted detour. When complete, the new bridge will open to all legal weight vehicles. This rehabilitation project will be funded through the State of Good Repair program.

Rehabilitation of Route 708 Bridge

In spring 2023, VDOT will advertise a project to rehabilitate the substandard Route 708 (Red Hill Road) bridge over North Fork Hardware River. The existing steel girder with concrete deck bridge was built in 1959, and the new superstructure will contain similar steel girders with a concrete deck riding surface.

During construction, Route 708 will be reduced to one lane controlled by a temporary traffic signal at each end of the bridge. This rehabilitation project will be funded through the State of Good Repair program.

Rehabilitation of Route 702 Bridge

This past summer, VDOT advertised a $3.5 million project to replace the Route 702 (Fontaine Avenue Extended) bridge over Morey Creek, but the bidding process was unsuccessful. The project is now being re-evaluated in order to better determine the appropriate structure type to replace the existing structurally deficient concrete slab bridge.

Eastern Avenue South Connection

Preliminary engineering is set to begin on this $16.2 million revenue-sharing project with Albemarle County in winter of 2024. This project will extend Eastern Avenue over Lickinghole Creek to U.S. 250 (Rockfish Gap Turnpike) at Cory Farm Road to improve connectivity around Crozet. Construction advertisement should begin in 2029.

Locally Administered

Berkmar Drive Bicycle and Pedestrian Improvements

Albemarle County and VDOT are working together on this $2.6 million revenue-sharing project to construct a shared-use path or enhanced sidewalk from Route 631 (Rio Road) to Route 1433 (Hilton Heights Road) in order to connect with the new shared-use path on Route 1403 (Berkmar Extended).

The path would be about 1.1 miles long. The project is currently in design, with anticipated construction advertisment in spring 2023.

Crozet Square/Oak Street Improvements

This $1.5 million revenue-sharing project with Albemarle County will reconstruct Route 1217 (Crozet Square) and Oak Street to connect Route 867 (Library Avenue) to improve the street network.

Crozet Square will become a one-way road with angled parking and improved drainage and pedestrian accommodations. The project is in the right of way stage and design is 60 percent complete. Construction advertisement is scheduled for spring 2023.

Commonwealth Drive/Dominion Drive Sidewalks

VDOT and Albemarle County are working together on this $3.3 million revenue-sharing project designed to improve walkability from Route 743 (Hydraulic Road) to U.S. 29 (Seminole Trail). It includes sidewalk improvements and installations along Route 852 (Commonwealth Drive) and Route 851 (Dominion Drive). The project is now in design and construction advertisment is scheduled for spring 2025.

Library Avenue Extension to Parkside Village

This $4.9 million revenue-sharing project with Crozet will construct the extension of Route 867 (Library Avenue) east to connect Route 1204 (High Street) with two roundabouts. It will continue east to Route 1014 (Hilltop Street) and include pedestrian and bicycle facilities. A consultant is now working on the design which is about 60 percent complete. The next step is to procure right of way.

Transportation Alternatives

Learn more about this program on page 16.

Mountain View, Greer and Jack Jouett Elementary Schools Bicycle and Pedestrian Improvements

Albemarle County is constructing new bicycle and pedestrian accommodations near three elementary schools. Construction near Mountain View (formerly known as Cale) Elementary is complete, and pedestrian and bicycle improvements near Greer Elementary/Jack Jouett are under way.

Scottsville Pedestrian Improvements

Design work is under way on a project to improve safety by adding sidewalk along Route 1301 (Bird Street) between Route 1303 (Page Street) and Route 1304 (Harrison Street). VDOT will also make Americans with Disabilities Act improvements at the intersection of Bird Street and Harrison Street, and at Bird Street and Page Street, with access to the library. Construction advertisement is anticipated in early 2026.

Two SMART SCALE projects are being bundled to reconstruct a segment of U.S. 250 (Richmond Road) between Route 20 (Stony Point Road) and Rolkin Road at Pantops.

Rural Rustic Roads

Learn more about this program on page 16.

This season, Rural Rustic Road projects were completed on:

- Route 702 (Reservoir Road) from the end of state maintenance to 0.9 mile east of the end of state maintenance.
- Route 712 (Coles Rolling Road) from 1.1 miles east of Route 713 (Glendower Road) to 2.7 miles east.
- Route 784 (Burnt Mill Road) from Route 1009 (Cindy Lane) to Route 734 (Watts Passage Road).
- Route 720 (Harris Creek Road) from Route 20 (Scottsville Road) to the end of state maintenance.
- Route 760 (Red Hill School Road) from U.S. 29 (Monacan Trail) to Route 712 (North Garden).

A project is under way on:

- Route 612 (Hammocks Gap Road) from Route 20 (Stony Point Road) to 0.6 mile east.

Projects are under development on:

- Route 633 (Cove Garden PH 1) from 1.5 miles east of U.S. 29 to 3 miles east of U.S. 29.
- Route 633 (Cove Garden PH 2) from 3 miles east of U.S. 29 to Route 712.

CITY OF CHARLOTTESVILLE

The aging Belmont Bridge in Charlottesville is being replaced through a $35.4 million project. Construction is under way; completion is scheduled by January 2024.

In Design

U.S. 250 Bypass and Hydraulic Road Turn Lane Extension

VDOT is working with the city of Charlottesville on this revenue-sharing project to improve traffic operations at the intersection of Route 743 (Hydraulic Road) and U.S. 250. This will extend the turn lane for drivers headed north on Hydraulic from U.S. 250 east. This project has been added to the Hydraulic Road/U.S. 29 improvement bundle, and will be administered by VDOT.

Locally Administered

Replacement of Belmont Bridge

Construction is advancing on a $35.4 million project, administered by the City of Charlottesville, to replace the aging Belmont Bridge. Built in 1962, it carries Route 20 (Avon Street) over the Buckingham Branch Railroad, connecting the downtown area with Belmont and other neighborhoods south of the railroad. Traffic is anticipated to begin using the new northbound bridge by the middle of December 2022. At that time, the southbound bridge will be closed and demolition will begin in preparation for constructing that new bridge. Construction is anticipated to be complete by January 2024.

East High Street Streetscape Improvements

Design work is under way on this $9.6 million project to add bike lanes, rebuild sidewalks, and complete roadway reconfigurations, or "road diets." Construction advertisement for this SMART SCALE project is expected in early 2023.

Emmet Street Bicycle and Pedestrian Improvements

This proposed $20.4 million SMART SCALE project provides bicycle and pedestrian accommodations along

Emmet Street between Arlington Boulevard and Barracks Road to include a shared-use path on the east side of Emmet Street and on-road bicycle facilities along both sides of the road. The city of Charlottesville anticipates design work to begin mid-2026.

Emmet Street Corridor Streetscape Improvements

This $12.1 million SMART SCALE project will enhance bicycle and pedestrian accommodations along Emmet Street from the intersection of University Avenue/ Ivy Road to Arlington Boulevard. The scope includes a shared-use path, improved bike lanes, landscaping and improved pedestrian crossings at intersections along Emmet Street. The city anticipates construction advertisement late November 2023.

Ridge Street Safety Improvements

The city expects to start planning for this $8.7 million project. SMART SCALE project in fiscal year 2026. The goal is to create improvements to reduce congestion, improve safety and accommodate bicyclists, pedestrians, and transit along the Ridge Street corridor.

Design work is set to start mid-2026 on a project to construct multi-modal improvements along the Ridge Street Corridor. Those include sidewalk and curb ramp upgrades, signal improvements at Monticello, curb extensions on Ridge Street at Dice Street, and Oak Street, including bicycle lanes.

The intersection of Emmet Street and Barracks Road will be reconfigured to include additional turn lanes and a multi-use sidewalk along Emmet Street.

Fontaine Avenue Streetscape Improvements

The Commonwealth Transportation Board approved a budget increase to $17.9 million on this SMART SCALE project in October, and the city is working with VDOT on right-of-way issues as the design phase moves forward. The project will improve safety and traffic flow on Fontaine Avenue from Maury/Jefferson Park Avenue to the city line.

Fontaine Avenue will be reconstructed to three lanes with a tree-lined median, dedicated left-turn lanes, bike lanes, walking paths, enhanced pedestrian crossings and street lighting. The city is expecting to advertise the project late next year.

Barracks Road and Emmet Street Intersection

The city is working to acquire right of way for this $8.6 million SMART SCALE project, which will add right-turn lanes to northbound Emmet Street and westbound Barracks Road. The project also includes a multi-use sidewalk along Emmet Street to connect to a future trail network that will extend down Meadowbrook Road.

5th Street SW Corridor Improvements

This proposed $6.1 million project would reduce congestion, improve safety, and accommodate bicyclists, pedestrians, and transit at the intersection of Ridge Street, Cherry Avenue, and Elliot Avenue. The city is planning to focus on this project in 2024.

Hillcrest Multi-Use Path

The city is currently reviewing right-of-way plans for this project to improve pedestrian access along McIntire Road. Funding from the Highway Safety Improvement Program (HSIP) will go to improve pedestrian and bicyclist visibility at two intersections along Monticello Avenue.

Sidewalk will be added on Hillcrest Road, and wind south

to the end of the road to connect via the stairway at the McIntire/Harris Street intersection. Americans with Disabilities Act (ADA) improvements will also be made at the following intersections: Birdwood Road/Edge Hill Road, Birdwood Court/Edge Hill Road, and Edge Hill Road/Hillcrest Road. The city plans to begin construction in late 2023.

Washington Park/Madison Avenue Bicycle Connector Trail

The final design is set for this Charlottesville Parks Department project, and it is currently being advertised. Funding from the Highway Safety Improvement Program will improve bicycle and pedestrian connections near Booker T. Washington Park. The project includes an eight-foot-wide paved trail connecting the park to Madison Avenue. The new path will begin at the parking lot off Preston Avenue near the basketball court and connect to the existing sidewalk and bike lanes on Madison Avenue. The city plans to award the contract in early 2023.

Pedestrian Improvements at Preston Avenue/Harris Street

Authorization for preliminary engineering is under way for this project which will utilize funding from the Highway Safety Improvement Program. The city of Charlottesville is now searching for a consultant to design a crosswalk for the intersection of Preston Avenue and Harris Street. The city anticipates awarding a construction contract in mid-2025.

The City of Charlottesville and the University of Virginia are collaborating on the design for Emmet Street as it approaches the UVa Grounds. Bike lanes and a multi-use path are included in the concept.

A concept drawing for the re-envisioned Emmet Street corridor.

Monticello Avenue and 2nd Street Pedestrian Improvements

Highway Safety Improvement Program (HSIP) funds together with revenue sharing will fund this project to construct curb extensions at the intersection. This will increase pedestrian visibility and reduce the crossing distance. It includes a new bus stop, constructed to encourage passengers getting on and off to cross behind the bus allowing it to safely enter the travel stream. This project is combined with a federal project to build new sidewalks, trails, and improvements following the Americans with Disabilities Act (ADA) guidelines, across Charlottesville. The city anticipates construction advertisement in spring 2023.

Pedestrian Improvement at Ridge Street and Cherry Avenue

This project is not yet funded, but the city of Charlottesville is proposing that the Highway Safety Improvement Program invest in improving the pedestrian facilities at this intersection. VDOT is working with the city to focus on this area in fall 2024.

Dairy Road over U.S. 250 Bridge Replacement

This federally funded State of Good Repair (SGR) project will replace the bridge that carries Dairy Road over the

U.S. 250 Bypass.The city asked for bids to design the $7.2 million project earlier this year. Bids were received in late October and are under review.

Transportation Alternatives

More about this program is on page 16.

Meadow Creek Valley Trail

The Charlottesville Parks Department is overseeing this project to design and construct a bicycle and pedestrian bridge over Meadow Creek to complete the multi-use trail system in the northwest area of Charlottesville. This federally-funded project will utilize Transportation Alternatives funds and it is now in the design phase. The city anticipates construction to begin in the fall of 2023.

Rugby Avenue Shared-Use Path

Funds are available and design work is complete on this project to construct a paved shared-use path along Rugby Avenue from McIntire Park to the U.S. 250 Bypass Commuter Trail. VDOT is now working with the city to get federal approval to move into the right of way phase.

Safe Routes to School

Transportation Alternatives will fund the next two years of the city's Safe Routes to School program for eight K-8 grade public schools and two private schools, reaching 3,500 students. The $183,843 in TA funds will be matched by a $45,960 local match and $50,150 in additional funding. The program includes a SRTS coordinator, resources and materials and outreach to the schools.

CHARLOTTESVILLE CANCELS FOUR CITY PROJECTS

Earlier this year the city of Charlottesville cancelled four previously funded transportation improvement projects. The action was taken by the City Council to right-size their program. The council also authorized the reimbursement of any state funds already expended on the projects and termination of any agreements related to the projects. Where feasible, unexpended funds will be reallocated to other transportation improvement projects within the city.

Preston Avenue and Grady Avenue Intersection Improvements

The project involved multimodal, community-focused improvements to increase safety and enhance operations for all users at the intersection of Preston Avenue, Grady Avenue and 10th Street. It was determined that some elements of this project are included in another city project.

West Main Streetscape

There were three phases to this multi-modal improvement plan, stretching from Jefferson Park Avenue to Ridge Street. The plan included reconfiguring the street to address increased travel demand/capacity by converting on-street parking to bicyclist/ pedestrian facilities, adding bus shelters and improving pedestrian crossings to meet ADA standards.

Emmet Street Traffic Signal Coordination

This project would have upgraded the traffic signals along the Emmet Street corridor at the north end of the city to allow monitoring and adjustment of the signals in real time and provide connectivity and coordination with the VDOT-maintained signals on the U.S. 29 corridor from Hydraulic Road north through Albemarle County. VDOT and the city plan to review overall traffic operations along the Emmet Street corridor in both Charlottesville and Albemarle County.

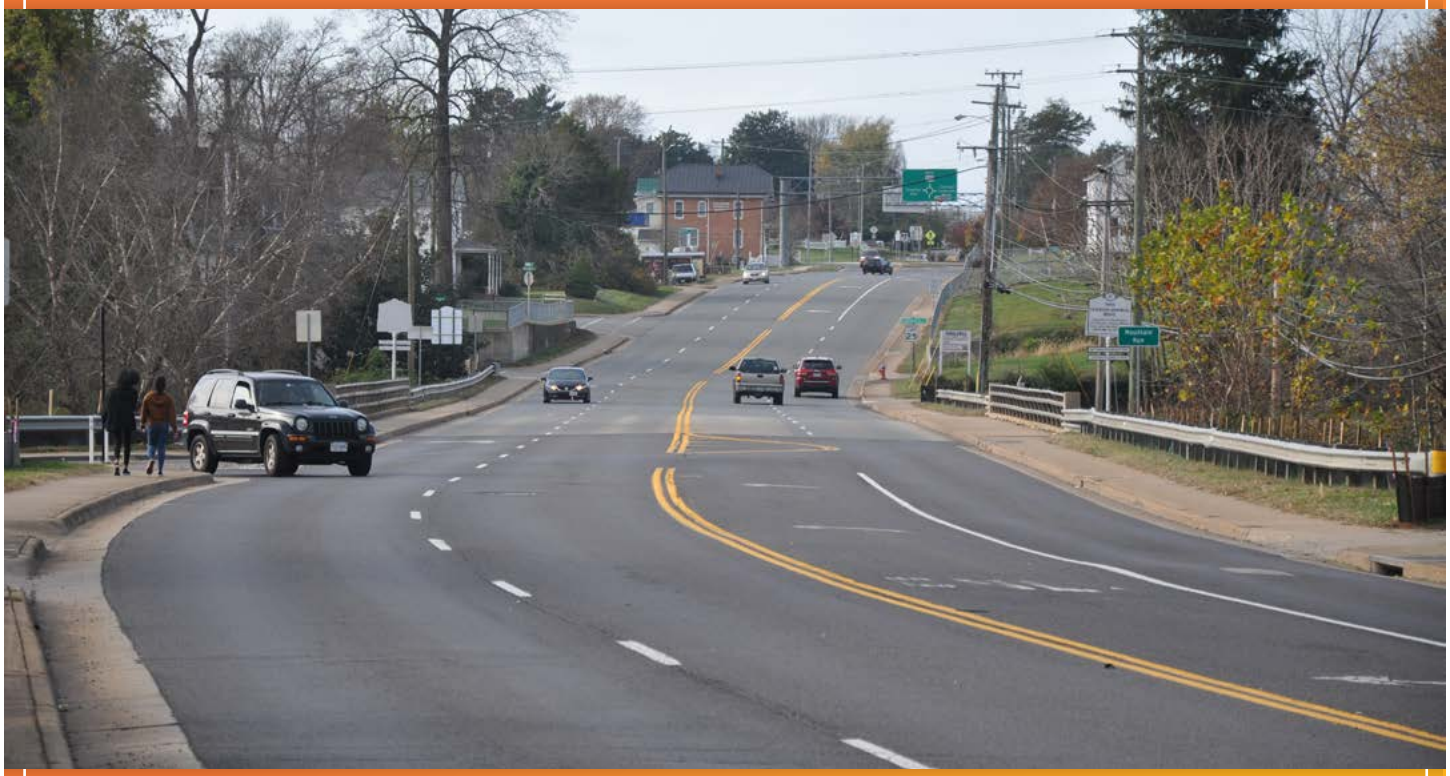
Monticello Avenue/Ridge Street Pedestrian Improvements

This project would have reconfigured the intersection and approaches to provide a dedicated bike lane and a "bike box" at the intersection to improve safety and mobility for bicyclists. The project would have also rebuilt the sidewalks at the intersection to improve pedestrian access and safety.

This graphic depicts the locations of four elements that are part of the Hydraulic Road and U.S. 29 Improvements project to enhance safety and reduce congestion at the intersection of Route 743 (Hydraulic Road) and U.S. 29 (Emmet Street North).

Preliminary engineering work continues on the locally administered project to replace the Dairy Road bridge over the U.S. 250 Bypass. To the right is the recently completed pedestrian bridge over the U.S. 250 Bypass.

CULPEPER COUNTY



U.S. 522 (Sperryville Pike) will be subject to a "road diet" from North West Street west. The project includes a mini-roundabout at Blue Ridge Avenue, in the foreground.

In Design

Roundabout at Route 3 and McDevitt Drive

A public hearing held in April 2022 focused on this $6.2 million SMART SCALE project to construct a single-lane roundabout at Route 3 (Germanna Highway) and Route 799 (McDevitt Drive) in the town of Culpeper.

With a history of crashes at the intersection, this project aims to improve safety by slowing vehicle speeds and reducing conflict points that result from turning movements. Construction advertisement is expected fall 2024.

Locally Administered

U.S. 522 Road Diet

Construction will begin by the end of the year on a project to improve bike and pedestrian accommodations on U.S. 522 (Sperryville Pike) from the intersection at North West Street to 0.8 mile west. A mini-roundabout will be constructed at the intersection of Blue Ridge Avenue and U.S. 522.

Called a "road diet," this project strategy converts a travel lane to another element, such as a turn lane or multi-use path, to help reduce speeding and improve bicycle and pedestrian safety. Road diets are also shown to reduce rear-end and turning-related crashes.

Transportation Alternatives

Learn more about this program on page 16.

Sperryville Pike Sidewalk Extension

VDOT is working with the town of Culpeper to create a pedestrian connection with 1,300 feet of five-foot-wide sidewalk along the north shoulder of U.S. 522 (Sperryville Pike). The walkway will connect Yowell Elementary School. This includes proposed crosswalks at Virginia Avenue and Blossom Tree Road. Construction advertisment anticipated fall 2024.

North Blue Ridge Avenue Sidewalk Extension

This proposed project in the town of Culpeper will improve walkability on North Blue Ridge Avenue by adding about 700 feet of five-foot wide sidewalk along the west side of the avenue. The extension would connect with the sidewalk that ends mid-block near West Culpeper Street to the front of Yowell Meadow Park.

Construction advertisement is expected winter 2027.

Rural Rustic Roads

Learn more about this program on page 16.

This season, Rural Rustic Road projects are under way on:

- Route 730 (Indian Run Road) from Route 639 (Holly Springs Road) to 0.8 mile north of Route 639.
- Route 626 (Black Hill Road) Phase 1, from Route 1170 (Quail Ridge Drive) about 0.8 mile west to One Lane Bridge.

Projects are under development on:

- Route 626 (Black Hill Road) Phase 2, from One Lane Bridge about 1.1 miles west to Route 624 (Sheads Mountain Road).
- Route 721 (White Oak Road) from U.S. 15 (North James Madison Highway) about 1.1 miles south to U.S. 15 (North James Madison Highway).
- Route 1162 (Wayland Road) from Route 612 (Wayland Road) about 0.2 mile south to end of state maintenance.
- Route 629 (Settle School Road) Phase 2 from Route 628 (Hazel River Road) about 0.6 mile south on Route 629.
- Route 629 (Settle School Road) Phase 3 from Route 632 (Dutch Hollow Road) to about 0.9 mile south on Route 629.

This image shows the current conditions along Route 3 at McDevitt Drive, where a roundabout project will be constructed in the town of Culpeper.

PROJECT UPDATES

FAUQUIER COUNTY

Replacement of the Route 647 bridge over the East Branch Thumb Run was completed Nov. 9.

Recently Completed

Reconstruction of Route 602

On Aug. 15, work was completed on this project to reconstruct Route 602 (Rogues Road) from Academic Avenue at Kettle Run High School to 0.4 mile north. Drivers now have a northbound left-turn lane between Route 602 and Route 652 (Kennedy Road). The improvements also include signal modifications to provide a pedestrian crossing at Academic Drive and a 10-foot-wide shared use path from Grapewood Drive to Kennedy Road.

Extension of Salem Avenue

Construction finished in September 2021 on this $2 million project to extend Route 1006 (Salem Avenue) from its current terminus to connect with Route 55 (West Main Street) in Marshall.

Replacement of Route 647 Bridge Over East Branch Thumb Run

This project to replace the Route 647 (Crest Hill Road) bridge over East Branch Thumb Run, southwest of Marshall, was completed and the road re-opened to traffic on Nov. 9.

Warrenton Branch Greenway and Palmer Trail Extension

Construction finished in October 2021 on this project to expand Warrenton's network of mixed-use trails. This includes the one-mile Palmer Extension, which is part of the Warrenton Branch Greenway, and now runs along the old Orange and Alexandria Railway.

Crews pour concrete for the new deck of the U.S. 17 Southbound bridge over Norfolk Southern Railroad and Route 805.

Under Construction

Rehabilitation of U.S. 17 Southbound Bridge over Norfolk Southern Railroad and Route 805

CONTRACTOR: Caton Construction Group, Inc. of Charlottesville
CONTRACT AMOUNT: $4.9 million
COMPLETION DATE: Dec. 8, 2022

A VDOT contractor is replacing the superstructure, including the deck and railings, of the U.S. 17 (Marsh Road) southbound bridge that spans the Norfolk Southern Railroad and Route 805 (Bealeton Road). The existing bridge was built in 1948.

The new bridge will have two 12-foot travel lanes with improved shoulders; the deck will be 38 feet wide from rail to rail. Southbound traffic is restricted to one 12-foot travel lane for the majority of the project with a reduced speed limit of 35 miles per hour through the work zone.

In Design

Safety Improvements at I-66 Exit 31

Design work is underway on this $1.1 million project to improve safety on Interstate 66 at exit 31. VDOT will make improvements to address recurring crashes at this location on the interstate. Interstate Corridor funds will be used and advertising for construction begins July 2024.

I-66 Sequential Dynamic Chevrons

Preliminary engineering is under way for this safety project on Interstate 66 west at mile marker 22 in Marshall.

This project, which uses Interstate Corridor funds, will install LED chevrons to alert drivers to the upcoming exit 28. Construction anticipated to begin February 2025.

I-66 CCTV Cameras

VDOT will use Interstate Corridor funds to install cameras on Interstate 66 exit 23. These cameras provide more traffic monitoring for the Traffic Operations Center, and will be part of the VA511 system of cameras. Construction anticipated to begin July 2024.

I-66 Changeable Message Signs (CMS)

With this project, VDOT will install changeable message signs on westbound Interstate 66 just east of exits 28 and 29. CMS provides information that supports quick and appropriate decisions by motorists in response to abnormal roadway, traffic, weather or security conditions. Construction anticipated to begin July 2024.

Interstate 66/U.S. 17 Safety Improvements

Design work began early this year on this $16.4 million SMART SCALE project to improve safety, increase visibility, and reduce congestion. It will restructure the way drivers navigate the exits and combines several alternative intersections to improve safety. VDOT expects to advertise this project in the winter of 2026.

Intersection Improvements at U.S. 15/29 and Vint Hill Road

Advertisement for construction is complete for this $3.3 million SMART SCALE project. This project has been recommended for award; the apparent low bidder is Chemung Contracting Corp., of Mitchells. Construction will begin in early 2023. The project focuses on the intersection of U.S. 29 (Lee Highway) and Route 215 (Vint Hill Road), just west of the Prince William County line, and will include the construction of intersection and signal improvements.

U.S. 17 and Covingtons Corner Road R-CUT

This $7.8 million project converts the intersection of U.S. 17 (Marsh Road) and Route 663 (Covingtons Corner Road) into a restricted crossing U-turn (R-CUT) intersection. Design work began in late 2022 and it will advertise for construction beginning in late 2024.

U.S. 29/Broad Run Church Road Improvements

SMART SCALE funding will add an additional left turn lane at the Route 600 (Broad Run Church Road) approach to U.S. 29 (Lee Highway) north of the town of Warrenton, along with traffic signal modifications. The cost is $3.2 million and advertising for construction will begin early 2025.

U.S. 29 and Lees Mill Road Intersection R-CUT

Preliminary engineering begins on this restricted crossing U-turn (R-CUT) at the intersection of Route 651 (Lees Mill Road) and U.S. 29 (James Madison Highway) in November 2025. Using priority transportation funding, VDOT will design and construct the R-CUT south of Warrenton, in the Opal area.

Route 55/709 Roundabout

VDOT will begin preliminary engineering of this $10.3 million roundabout at the intersection of Route 55 (Zulla Road) and Route 709 (John Marshall Highway). This SMART SCALE project will convert the intersection into a roundabout with crosswalks along all four lanes of the intersection. Advertisement for construction should begin in winter 2025.

Broadview Avenue Access Management and Frost Avenue Intersection Improvements

Right of way acquisition is moving forward for two SMART SCALE projects totaling $10.2 million in the town of Warrenton. VDOT will make safety improvements along U.S. 211 (Frost Avenue) including:

- Reconstruction of the intersection of Frost Avenue and Broadview Avenue
- Signal modifications
- Installation of short medians to improve safety and manage access
- Crosswalk and sidewalk upgrades
- 5-foot bike lanes on both sides of the road

VDOT expects to advertise for construction in September 2023. Construction will take about 18 to 24 months.

A project planned along Broadview Avenue in the town of Warrenton will address pedestrian and motorist safety through a number of improvements.

Whiting Road Railroad Crossing Upgrades

Design work is in progress on this $2 million project to construct a segment of Route 622 (Whiting Road) across the Norfolk Southern Railroad for access to U.S. 17 (Winchester Road) / Interstate 66 Industrial Park. VDOT is coordinating with the railroad company regarding right of way, with work anticipated in mid 2023.

Locally Administered

Town of Marshall Streetscape Project

This $6.8 million streetscape project along Main Street in Marshall is currently under construction. The project includes undergrounding utility lines, improving the sidewalks, crosswalks and marked parking, new signage, as well as adding trees/plantings, and additional street lighting. Storm drainage will also be improved near and along Frost Street.

Main Street Pedestrian Improvements

This $1.4 million revenue-sharing project with the town of Warrenton will include pedestrian crossings, sidewalks, and traffic calming measures between Waterloo Street and North Calhoun Street. VDOT is currently preparing a project agreement for the town to review. Warrenton anticipates to advertise for a design consultant in summer 2027.

Transportation Alternatives

Learn more about this program on page 16.

Safe Routes to School (SRTS) Improvements at Grace Miller Elementary School

This project includes a new sidewalk beginning at the existing sidewalk just south of Route 28 (Catlett Road). This project will continue from the north side of Catlett Road on Independence Avenue to Grace Miller Elementary, and continue to Liberty High. This project includes a crosswalk and pedestrian signal heads at Catlett Road and Route 853 (Station Drive). Fauquier County is in the process of finalizing a design consultant for this Bealeton area project.

Town of Remington Railway Depot

The town of Remington is planning to renovate its railway depot, which was relocated in spring 2015. The project, which is on the verge of being advertised for construction, will make extensive renovations to the outside of the building, originally built in 1919.

Timber Fence Trail

The first segment of the Timber Fence Trail is complete and the second segment's design is nearly complete. The project consists of a 10-foot-wide paved trail near Fauquier High School. The 1,458-foot-long portion will run along Waterloo Road from the bus parking lot to the edge of the school's athletic fields.

Rural Rustic Roads

Learn more about this program on page 16.

This season, a Rural Rustic Road project is under way on:

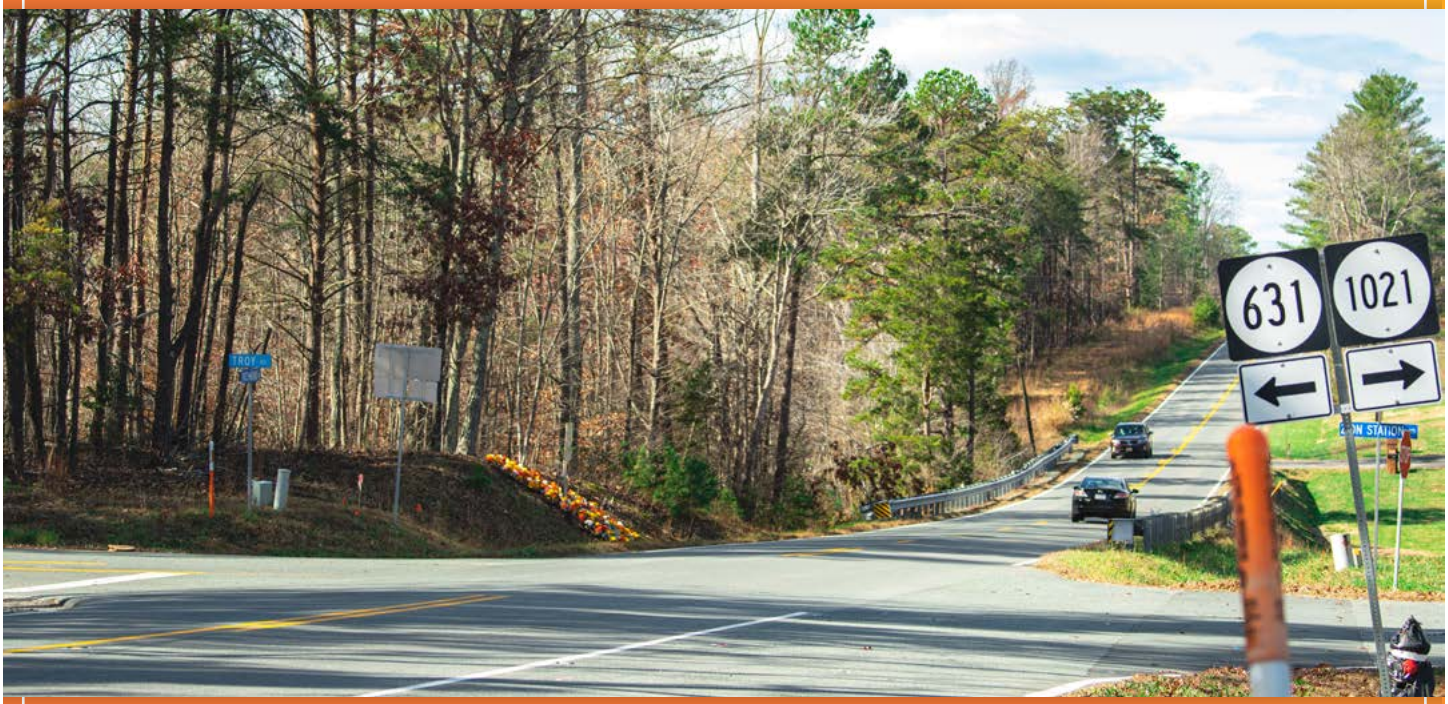
- Route 803 (Curtis Mount Ephraim Road) from about 1.1 miles south of Route 615 to end of state maintenance.

Projects are under development on:

- Route 664 (Grace Church Lane) from Route 602 Rogues Road, about 0.3 mile north to end of state maintenance.
- Route 834 (Old Morgansburg Road) from Route 841 (Elk Marsh Road) about 0.3 mile north to end of state maintenance.

PROJECT UPDATES

FLUVANNA COUNTY



VDOT will construct a roundabout at the intersection of U.S. 250 and Route 631 in Troy.

In Design

Roundabout at U.S. 250 and Route 631

SMART SCALE will fund this $9.2 million project to design and construct a roundabout at the existing four-leg intersection of U.S. 250 (Richmond Road) and Route 631 (Troy Road) in the Troy community. The project is scheduled to advertise for construction in September 2025 and on track to break ground in spring 2026.

Route 600/618 Intersection Improvements

This $3.9 million SMART SCALE project at the intersection of Route 600 (South Boston Road) and Route 618 (Lake Monticello Road) will add a left-turn lane to address the angle and rear end crash pattern at the intersection. It is slated for construction advertisement in fall 2025, and breaking ground in spring 2026.

Transportation Alternatives

Palmyra Sidewalk Improvements

Preliminary engineering starts on this $1.2 million project in December 2022. VDOT will construct five-feet-wide sidewalks, crosswalks, and curb ramps to provide pedestrian connectivity to the historic Pleasant Grove park, from Route 1001 (Main Street) and Route 1004 (Stone Jail Street) as well as Court Square in the Fluvanna County seat of Palmyra.

The project will also close off travel through the park and turn that area into green space. VDOT plans to advertise for construction in January 2026.

GREENE COUNTY

Construction for the road improvements at U.S. 33 and U.S. 29 in Ruckersville is under way, with anticipated project completion in July 2023.

Under Construction

U.S. 33 Road Improvement at U.S. 29 Intersection

CONTRACTOR: All Construction of Mount Storm, WV
CONTRACT AMOUNT: $4.5 million
COMPLETION DATE: July 27, 2023

Construction is in progress on this SMART SCALE project to improve safety and traffic flow at the intersection of U.S. 33 (Spotswood Trail) and U.S. 29 (Seminole Trail) in Ruckersville.

The project will address capacity and access management issues and includes a raised median with crossovers and additional lanes at the U.S. 29 intersection. Some modifications to the project design were made to reduce impacts to residential properties on the east side of U.S. 29. Moore Road at U.S. 33 will be constructed as presented at the public hearing. The alternative right-in, right-out concept was not chosen as part of this project based on public feedback.

In Design

Rehabilitation of Route 638 Bridge Over South River

Early next year, VDOT will advertise the a project to replace the existing Route 638 (Turkey Ridge Road) bridge over South River in Greene County with a wider concrete slab bridge with an asphalt riding surface.

The existing bridge was built in 1932 and is considered in "poor" condition. During construction, Route 638 will be closed to through traffic near Route 637 (South River Road) with a posted detour.

Route 638 bridge over South River

Route 670 Connector Road

Using $5.4 million of SMART SCALE funding, this project will construct a connector road between U.S. 29 (Seminole Trail) and Route 670 (Preddy Creek Road). The proposed roadway will be two lanes, one in each direction, with four-foot paved shoulders on each side.

A location public hearing was held in spring 2019 to present three options to the public. Greene County approved Alternative B.

Design is in progress and the new two-lane roadway will intersect U.S. 29 approximately 1,250 feet south of the signalized intersection of Route 607 (Matthew Mill Road).

Transportation Alternatives

Learn more about this program on page 16.

Stanardsville Main Street Pedestrian Improvements

In September, several townspeople gathered to watch the final piece of this project settle into place as contractor crews lowered a pedestrian bridge over Mitchell Creek on U.S. 33 (Main Street Business). The Thomas Jefferson Planning District Commission, along with Greene County and the town of Stanardsville worked together to build new sidewalks and Americans with Disabilities Act compliant curb ramps on Main Street. Construction began in November 2021. This was the final phase of a multi-year streetscape improvement project in the historic town.

Rural Rustic Roads

Learn more about this program on page 16.

A project is under way on:

- Route 603 (Bingham Mountain Road) from Route 633 (Amicus Road) to Route 612 (March Road).

A project is under development on:

- Route 628 (Simmons Gap) from Route 614 (Brokenback Mountain Road) to Route 601 (Mission Home Road).

The Main Street Streetscape project in Stanardsville was completed in September.

PROJECT UPDATES

LOUISA COUNTY

Construction of the roundabout at U.S. 250 and U.S. 522 in Gum Spring was completed in August.

Recently Completed

Relocation of School Bus Road to Chalklevel Road

Chemung Contracting Corp. of Mitchells completed this $7.5 million SMART SCALE project in February. The project relocated Route 767 (School Bus Road) to align with Route 625 (Chalklevel Road) across Route 22/208 and added turn lanes to improve the intersection.

Construction of Roundabout at U.S. 250 and U.S. 522

Construction wrapped up in August on this $3.1 million Highway Safety Improvement Program (HSIP) project to construct a single-lane roundabout at U.S. 250 (Broad Street Road) and U.S. 522 (Cross County Road) in Gum Spring.

In Design

Construction of Roundabout at U.S. 522 and U.S. 208

Right of way acquisition is under way on this $5.4 million project to improve safety at the intersection of U.S. 522 (Zachary Taylor Highway) and Route 208 (New Bridge Road) at Wares Crossroads. VDOT expects to advertise the project in fall 2023.

The intersection has been studied multiple times over

The existing intersection of U.S. 522 and U.S. 208 will be reconstructed as a roundabout.

the last several years and results have shown that the intersection does not meet the required warrants for a traffic signal.

A roundabout will improve the safety and efficiency of the intersection. Roundabouts are safer than traffic signals and conventional stop-controlled intersections because traffic can continually and efficiently flow through the intersection and vehicle operating speeds are lower. Additionally, roundabouts help reduce air pollution and fuel use due to reduced idling.

Rehabilitation of Route 701 Bridge over Little River

In the spring of 2023, VDOT will advertise a project to rehabilitate the substandard Route 701 (Belle Meade Road) bridge over Little River in Louisa County. The existing concrete span bridge was built in 1985, and the new superstructure will be concrete slabs with an asphalt riding surface.

During construction, Route 701 will be reduced to one lane controlled by a temporary traffic signal at each end of the bridge. Once work is completed, the bridge will be open to all legal weight vehicles.

This rehabilitation project will be funded through the State of Good Repair program.

Transportation Alternatives

Learn more about this program on page 16.

West Main Street Pedestrian Improvements

This $1.4 million project is now in the design phase. VDOT is working with the town of Louisa to install 1,680 feet of new sidewalk compliant with the Americans with Disabilities Act (ADA). The project will also replace about 18 feet of sidewalk, which is not ADA compliant, along West Main Street.

Rural Rustic Roads

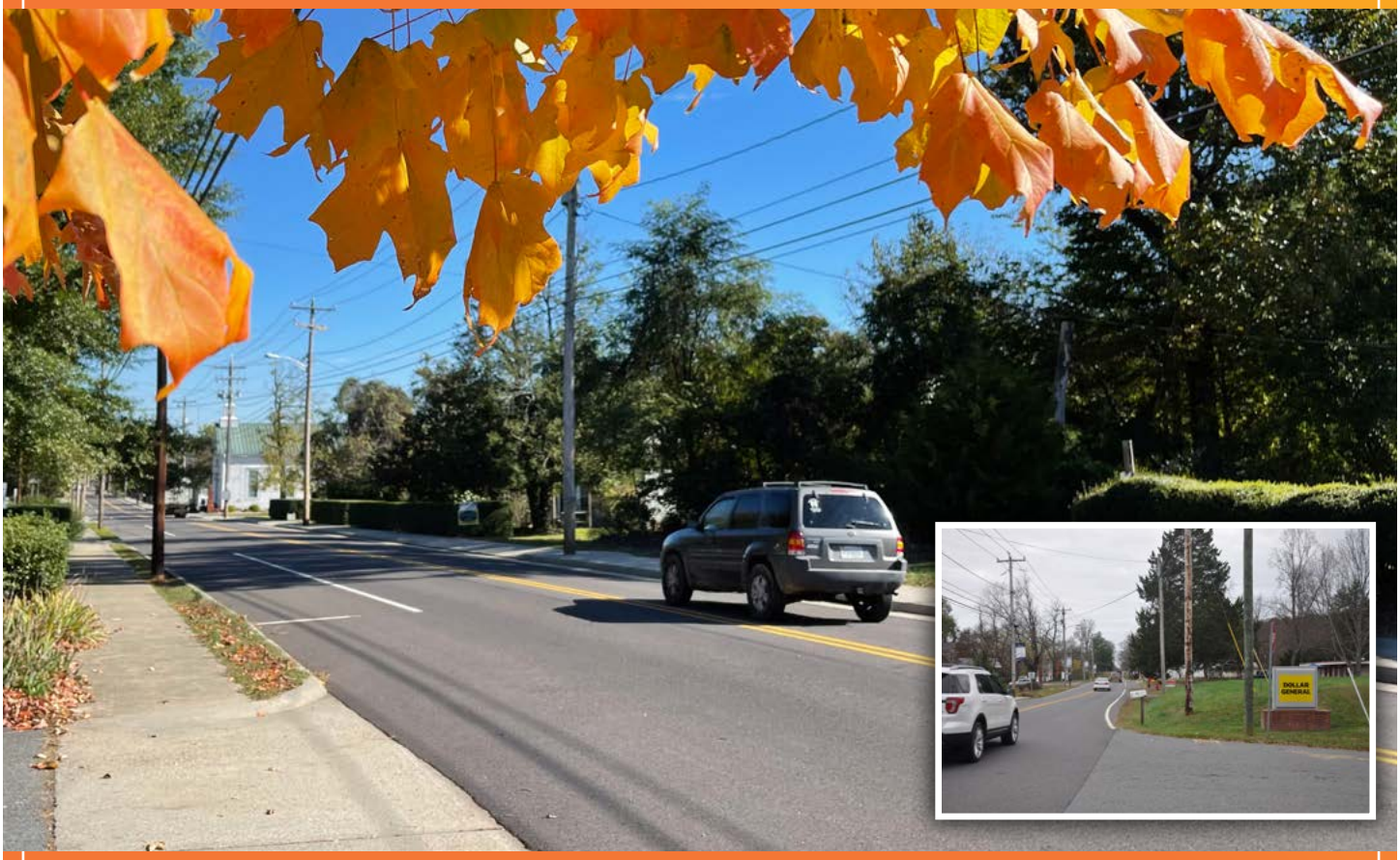
Learn more about this program on page 16.

This season, a Rural Rustic Road project was completed on:

- Route 698 (Rolling Path Road), from Route 606 (Waltons Store Road) to Route 640 (East Old Mountain Road).

PROJECT UPDATES

MADISON COUNTY



A sidewalk extension project on South Main Street in the town of Madison will enhance pedestrian access just as the color-changing leaves enhance the street's beauty each fall.

In Design

Restricted Crossing U-Turn at U.S. 29 and Route 662

This $4.7 million project will use funding from SMART SCALE and the Highway Safety Improvement Program (HSIP) to reconstruct the the intersection of U.S. 29 (Seminole Trail) and Route 662 (Shelby Road) as a restricted crossing U-turn (R-CUT) intersection.

R-CUT intersections reduce the probability of angle crashes and conflict points. A public hearing was held in October 2021 and VDOT anticipates advertising for construction in fall 2023.

Transportation Alternatives

Learn more about this program on page 16.

South Main Street Sidewalk

Preliminary engineering begins in spring 2023 on this $1.4 million project. This project in the town of Madison involves adding sidewalk to extend the existing sidewalk south along the west side of South Main Street, beginning in front of the Dollar General store. Construction advertisement expected in spring 2026.

Rural Rustic Roads

Learn more about this program on page 16.

This season, a Rural Rustic Road project was completed on:

- Route 671 (Forest Drive) from U.S. 15 (James Madison Highway) to the end of state maintenance.

A project is under way on:

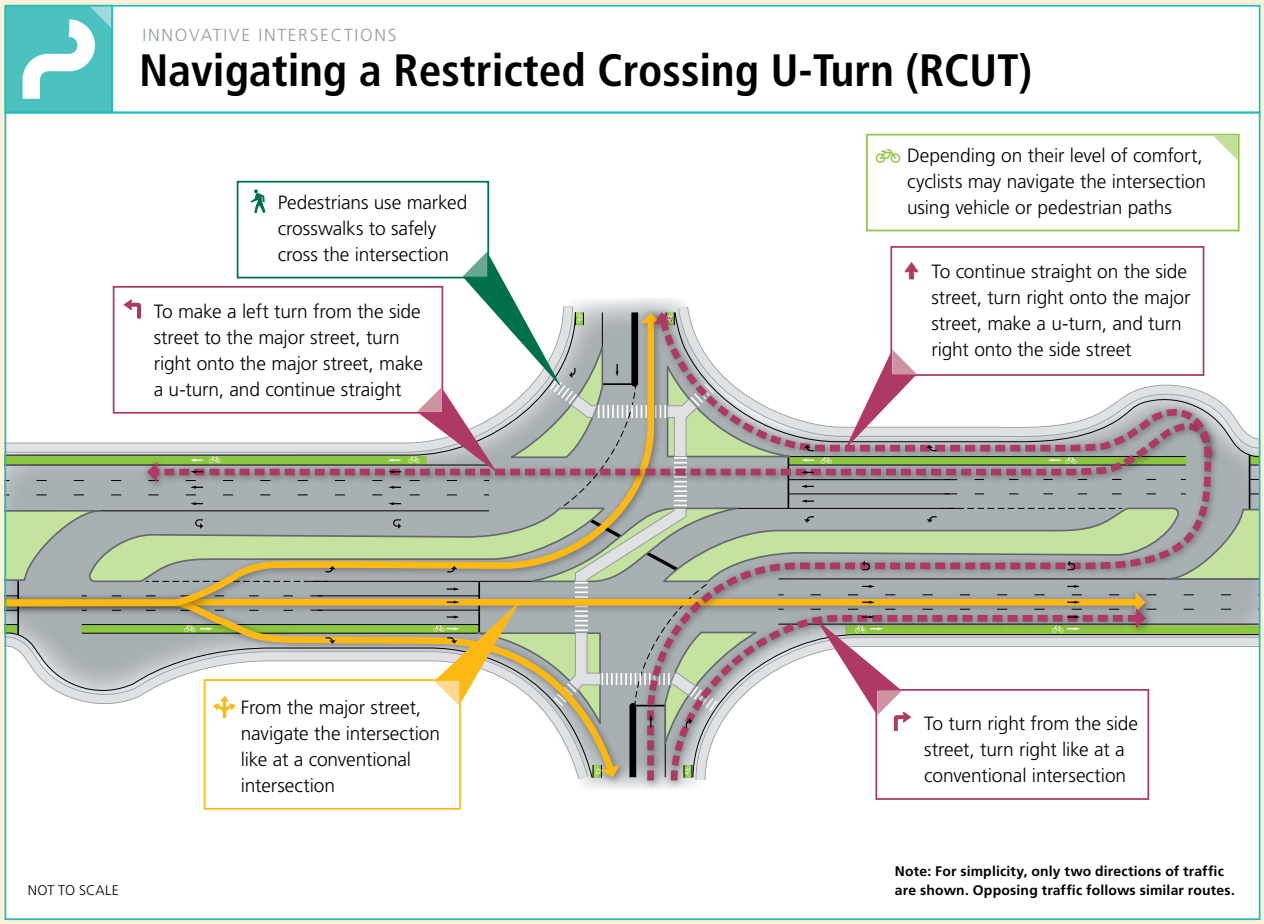
- Route 666 (Pea Ridge Road) from Route 230 (Wolftown-Hood Road) to the end of state maintenance.

A project is under development on:

- Route 606 (Desert Road) from Route 609 (West Hoover Road) to 1.26 miles north of Route 609 (Hoover Road).

WHAT ARE RESTRICTED CROSSING U-TURN (R-CUT) INTERSECTIONS?

R-CUT intersections are a cost-effective design that improves safety and increases overall intersection capacity. In an R-CUT, all side street movements begin with a right turn. Side street left-turn and through vehicles turn right and make a U-turn at a dedicated downstream median opening to complete the desired movement. Main intersection and median U-turns can be designed as signalized, stop controlled, or yield controlled.



PROJECT UPDATES

ORANGE COUNTY

In recent years, the town of Gordonsville has leveraged Transportation Alternative program funds to help transform the area's functionality and curb appeal, the latter of which is further enhanced by their lights and decorations displayed during the holidays.

In Design

Construction of Roundabout at U.S. 33 and Route 20

Preliminary engineering is under way on a $5.5 million SMART SCALE project to construct a single-lane roundabout at the eastern intersection of U.S. 33 (Spotswood Trail) and Route 20 (Constitution Highway) in Barboursville. A directional median is also proposed at the intersection of U.S. 33 and Route 738 (Old Barboursville Road). The directional median restricts various left-turn movements at this intersection to improve safety. VDOT held a public hearing in February 2022 and right-of-way acquisition is anticipated to begin in spring 2023. Construction advertisement for this project is expected in fall 2024.

Route 20/U.S. 522 Roundabout

Funded by Virginia's Priority Transportation Fund, this $10.9 million project will reconfigure the intersection of U.S. 522 (Zachary Taylor Highway) and Route 20 (Constitution Highway) in Unionville into a roundabout. Preliminary engineering is expected to begin winter 2025.

Construction of Roundabout at Route 231 and High Street

Preliminary engineering is under way for this $7.7 million SMART SCALE project to design and construct a single lane roundabout at Route 231 (West Gordon Avenue) and Route 1006 (High Street) in Gordonsville. With this project, crosswalks will be constructed to improve pedestrian accommodations.

Route 601 Low-Speed Curve Mitigation

This $1.4 million SMART SCALE project on Route 601 (Flat Run Road) in Locust Grove is designed to mitigate crash rates at a sharp curve just north of Back Gate Lane. It will add flashing signs to warn drivers, shoulder widening and surface treatment to help drivers stop. It will include tree removal near the roadway to reduce the possibility of injury for drivers who leave the roadway. VDOT expects to advertise for construction in spring 2026.

Locally Administered

Town of Orange Traffic Signal and Pedestrian Improvements

This Highway Safety Improvement Program (HSIP) project administered by the town of Orange will upgrade several signal locations along U.S. 15 (South Madison Road) between Route 20 (Berry Hill Road) and Route 842 (East Main Street). The improvements will improve safety for pedestrians and motorists. Construction advertisement is expected in the spring of 2023 and design work is nearly complete.

Town of Orange Milling and Paving

The town of Orange is currently reviewing a revenue sharing project with VDOT to mill, pave and reconstruct several streets, including U.S. 15 (Caroline Street), Jefferson Street, East Washington Street, Dabney Street, Route 633 (Spicers Mill Road) and Harper Drive.

Transportation Alternatives

Learn more about this program on page 16.

Gordon-Barbour Access Improvements

This project is in the design phase and will improve bicycle and pedestrian connections to existing infrastructure serving Gordon-Barbour Elementary School in the town of Gordonsville. VDOT expects to advertise for construction in December 2025.

Rural Rustic Roads

Learn more about this program on page 16.

This season, Rural Rustic Road projects are under way on on:

- Route 630 (Matthews Mill Road) from Route 629 (Lahore Road) to Route 677 (Piney Woods Road).
- Route 602 (Old Office Road) from 0.48 mile west Route 692 (Burr HIll Road) to Route 622 (Old Office Road).

Rural Additions

Learn more about this program on page 16.

This season, a Rural Addition project is under way on:

- Route 689 (Harbor Drive) from 0.25 mile west of Route 600 (Kendall Road) to 0.95 mile west of Route 600 (Kendall Road).

A Continuous Green-T (CGT) intersection improvement is proposed in SMART SCALE Round 5 for the current four-way signalized intersection at Routes 3 and 20 in Locust Grove.

PROJECT UPDATES

RAPPAHANNOCK COUNTY

The Rural Rustic Road Program is a practical approach to paving Virginia's low-volume roads. It aims to keep traditional rural lane ambience, while improving the road surface within the current right-of-way. A Rural Rustic Road project is in progress for this segment of Route 614.

Rural Rustic Roads

Learn more about this program on page 16.

This season, a Rural Rustic Road project is under way on:

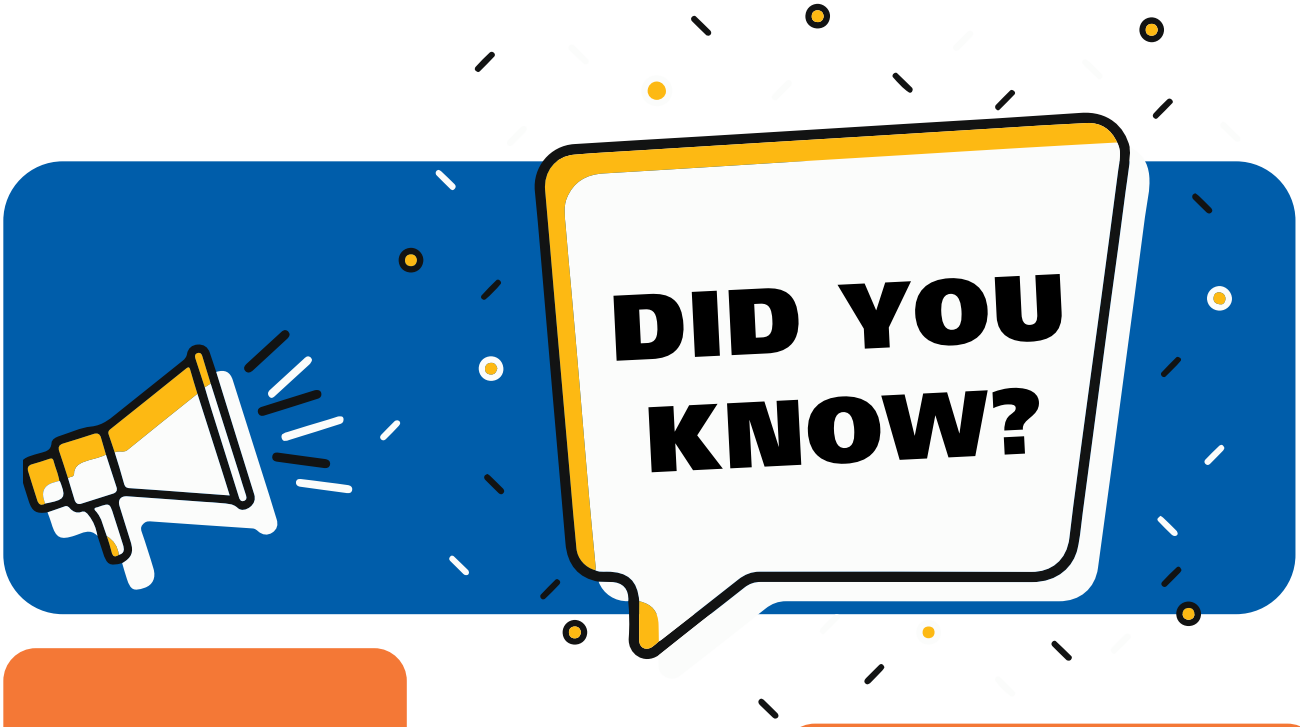
- Route 614 (Keyser Run Road) from Route 623 (Pullins Bluff Road) to about 0.29 mile north.

TROUT STREAM RESTORATION

VDOT, in coordination with and with funds from the Piedmont Environmental Council, replaced a stream crossing in Rappahannock to allow for better passage of native brook trout and aquatic organisms.

The project, completed in August 2021, replaced the culvert carrying Bolton Branch under Route 631 (Mill Hill Road).

The project replaced the old corrugated metal pipes and low-water slab crossing with two larger culverts, countersunk to provide a more natural stream bottom.



VDOT is prepared for weather this winter with more than 6,800 pieces of equipment at the ready.

A total of 334 lane miles were repaved in the district in 2021.

Culpeper District employs approximately 494 maintenance operators and supervisors, inspectors, engineers, specialty crew members and support staff.

In calendar year 2021 the Culpeper District accepted 17.23 lane miles into the district's secondary road system. There are now almost 10,620 lane-miles of state-maintained roads in the district.

More than $43 million of $101.7 million total discretionary spending, was awarded to SWAM vendors (Small, Women and Minority) by the district in FY 2022.

District employees contribute thousands of dollars each year to the Combined Virginia Campaign, which benefits local and regional charitable organizations.

VDOT
Virginia Department of Transportation

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All images courtesy of VDOT.