Route 28 – Yorkshire: Multimodal Corridor Study

Final Report and Recommendations

Acknowledgements

The project team thanks the following organizations for their participation in this project:

- City of Manassas
- City of Manassas Park
- Metropolitan Washington Council of Governments (MWCOG)
- Potomac and Rappahannock Transportation Commission (PRTC) OmniRide
- Prince William County Board of County Supervisors
- Prince William County Department of Economic Development and Tourism
- Prince William County Department of Parks and Recreation
- Prince William County Department of Planning
- Prince William County Department of Transportation
- Prince William County Trails and Blueway Council
- Virginia Department of Transportation (VDOT)

About Metropolitan Washington Council of Governments

Overview

The Metropolitan Washington Council of Governments (MWCOG or COG) is an independent, nonprofit association, with a membership of 300 elected officials from 24 local governments, the Maryland and Virginia state legislatures, and U.S. Congress. Every month, more than 1,500 officials and experts connect through COG to develop solutions to the region's major challenges and plan for the future. The Board of Directors is COG's governing body and is responsible for its overall policies. In addition, a wide network of city and county managers, police and fire chiefs, housing and planning directors, environmental officials, chief equity officers, public health officials, transportation planners, and more, coordinate through COG's committees, partnerships, and working groups.

About the Transportation Planning Board

The Council of Governments ensures a well-managed and maintained transportation system through its support of the National Capital Region Transportation Planning Board (TPB), the federally designated metropolitan planning organization (MPO) for metropolitan Washington. The TPB, which is staffed by COG, conducts the federally mandated transportation planning process for the region and ensures the uninterrupted flow of federal transportation funds that area jurisdictions receive.

MPOs like the TPB are federally required to produce certain documents, including a Long-Range Transportation Plan (LRTP), the Transportation Improvement Program (TIP), and the Unified Planning Work Program (UPWP). In addition to these requirements, the TPB administers several programs, including the Transportation Land-Use Connections (TLC) Program.

About the Transportation-Land Use Connections Program

The TPB's TLC Program provides short-term consultant services to local jurisdictions for small planning projects that promote mixed-use, walkable communities and support a variety of transportation alternatives. The program offers consultant assistance up to $80,000 for planning projects and up to $100,000 for design or preliminary engineering projects. The TLC program has funded 177 planning projects to date, totaling more than $8.1 million in local technical assistance. This includes the most recent round of FY 2024 projects.

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1. Introduction

About Yorkshire

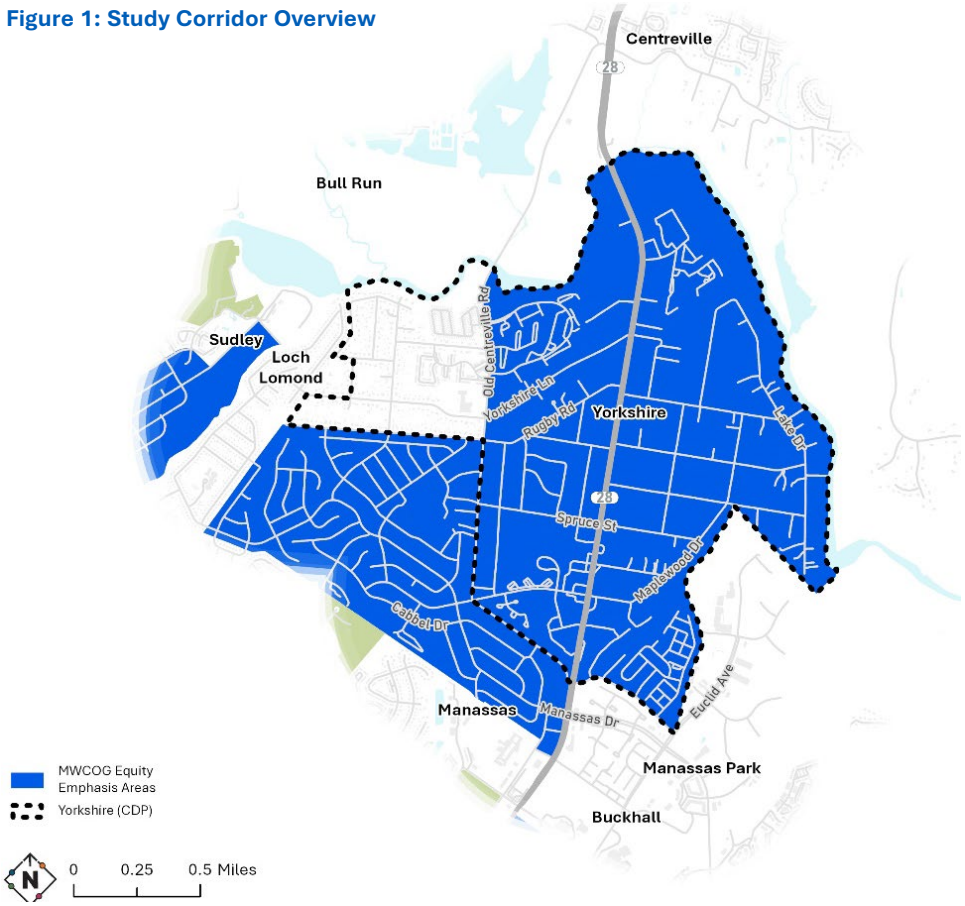
Yorkshire is a census designated place (CDP) in Prince William County, bordering Fairfax County, the City of Manassas, and the City of Manassas Park, and is a key gateway between each of these jurisdictions. Yorkshire is primarily a low-density residential community. Yorkshire is designated as an Activity Center by MWCOG and a Special Planning Area within Prince William County. As an Activity Center, the area is intended to help accommodate future regional growth and development. Yorkshire also has two census tracts that are considered Equity Emphasis Areas (EEAs) by MWCOG.

What is a Census Designated Place?

Census designated places (CDPs) are statistical equivalents of incorporated places and represent unincorporated communities that do not have a legally defined boundary or an active, functioning governmental structure. The purpose of CDPs is to provide meaningful statistics for well-known, unincorporated communities such as planned communities, military installments, university towns, and resort towns.

About Equity Emphasis Areas: TPB is responsible for producing the required documentation for an MPO and administering various programs to address significant issues like equity. To that end, the COG Board of Directors adopted Equity Emphasis Areas (EEAs) as a regional planning concept to elevate equity and inform future growth and investment decisions. EEAs are tracts with high concentrations of low-income individuals and/or traditionally disadvantaged racial and ethnic population groups. EEAs comprise 364 of the region's more than 1,300 census tracts (28 percent).

Figure 1: Study Corridor Overview



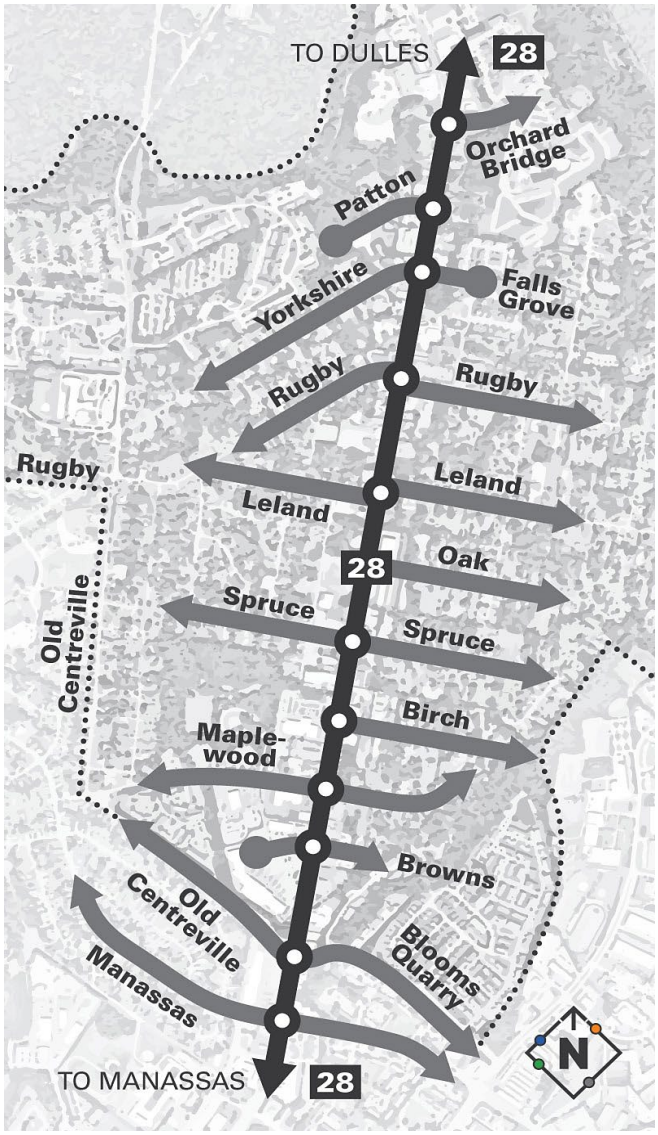
Study Background and Purpose

The Yorkshire Multimodal Corridor Study explores how Route 28 and connecting roadways in Yorkshire can be reimagined to create more vibrant public spaces that better meet the needs of people walking, biking, and taking transit. In 2023, Prince William County applied for and successfully obtained funding through MWCOG's TLC Program for consultant support to provide actionable recommendations to build off existing planned improvements to make Route 28 a more walkable, transit-oriented corridor.

Figure 3: Study Location

Route 28 is a major arterial road in northern Virginia, connecting Fairfax County, Prince William County and the cities of Manassas and Manassas Park. Route 28 through Yorkshire is an auto-oriented arterial that prioritizes through-traffic over creating an inviting, accessible, and vibrant main street for the community. Many segments of the roadway lack basic amenities like sidewalks and crosswalks.

Figure 2: Study Corridor Overview



Improving Route 28 through Yorkshire is important for Prince William County for a variety of reasons. The lack of safe and comfortable multi-modal facilities impedes investment along the corridor, notably the type of mixed-use and walkable development promoted across the county. Much of Yorkshire falls within MWCOG's Equity Emphasis Areas, reflecting the concentration of low-income and/or historically disadvantaged socio-demographic groups in Yorkshire. Today the community faces physical isolation and reduced roadway safety due to the conditions on Route 28 and connecting streets.

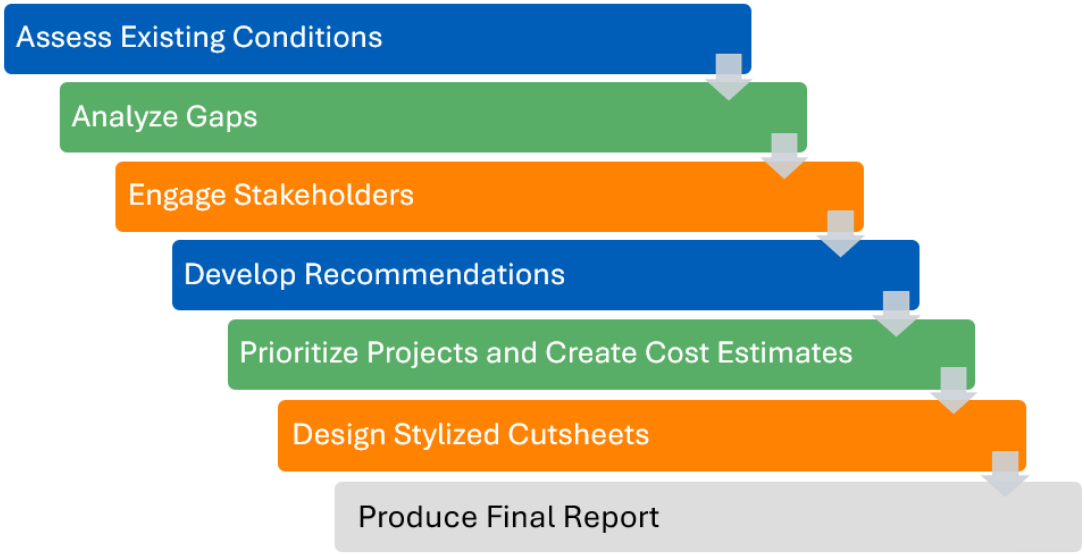
This report crafts a blueprint for local decision-makers and elected officials on how to enhance Route 28 and connecting linkages throughout Yorkshire. Prince William County is exploring the construction of a bypass to Route 28 that would be located west of Yorkshire. The purpose of the bypass is to alleviate congestion along Route 28, as well as the through traffic in residential neighborhoods in Yorkshire. The potential to alleviate congestion along Route 28 provides an opportunity for reimagining the Route 28 corridor for multimodal travel.

Study Process

To make informed recommendations for a more walkable and livable Route 28, the project team:

- Assessed existing conditions.
- Identified gaps in the multimodal network, including analyzing demand, risk, and equity.
- Conducted a corridor or "windshield" audit.
- Developed context-specific recommendations.
- Defined a project prioritization framework.
- Determined planning-level cost estimates for priority projects.
- Created stylized cutsheets with supporting visualizations.
- Packaged the final document and support appendices.

Figure 4: Simplified Study Process Graphic



Each of these components is summarized in the following chapters and detailed in the corresponding appendices.

Study Outcomes

This study provides Yorkshire, Prince William County, MWCOG, VDOT and other key partners and stakeholders with technical guidance that achieves several outcomes, including:

- Identifying needs and planning for multi-modal infrastructure.
- Identifying location-specific multi-modal improvements through performance- and value-driven planning.
- Identifying next steps to continue the corridor transformation beyond the life of this study.

2. What We Learned

Summary of Existing Conditions

The existing conditions assessment contains two core components – a literature review and an inventory of the study area with a particular emphasis on multi-modal infrastructure, transit service, and key destinations. This section highlights the main takeaways from these two core components. For additional details, see the accompanying appendices.

Literature Review Summary

Review of previous and current plans shows that Prince William County prioritizes the reduction of single-occupancy vehicle (SOV) trips and invests in projects that support this goal. Decreasing SOV trips is a primary focus. Secondary focus areas include investing in active transportation infrastructure such as sidewalks, shared-use paths, and bike lanes, and investing in public transportation services. Capital investments that typically encourage driving, like road widening projects or parking garage construction, incorporate investments that complement active transportation trips or transit trips.

Of all the plans reviewed, VDOT's Strategically Targeted Affordable Roadway Solutions (STARS) study has the most direct and immediate impact relative to this effort. In particular, the STARS study recommends a new median, a continuous sidewalk connection, select signalized crosswalks, and select restricted crossing U-turn (RCUT) intersections. Part of the project team's goal is to build upon and augment the planning work that has already been done with a special emphasis on walkability, bikeability, and livability.

Study Area Inventory Summary

The inventory of existing active transportation infrastructure within a quarter mile of Yorkshire's boundaries shows a disconnected sidewalk network and minimal bicycling infrastructure. Sidewalks are mainly concentrated in the residential neighborhoods with limited sidewalks located along Route 28. Some bicycle lanes and trails connect to local parks outside of Yorkshire. Future plans for active transportation infrastructure include the construction of additional shared-use paths and bicycle lanes in and around Yorkshire. **Figure 5** displays the existing active transportation infrastructure, along with key local points of interest and transit services. **Figure 6** displays the same points of interest with planned active transportation infrastructure overlaid.

Figure 5: Existing Active Transportation Infrastructure

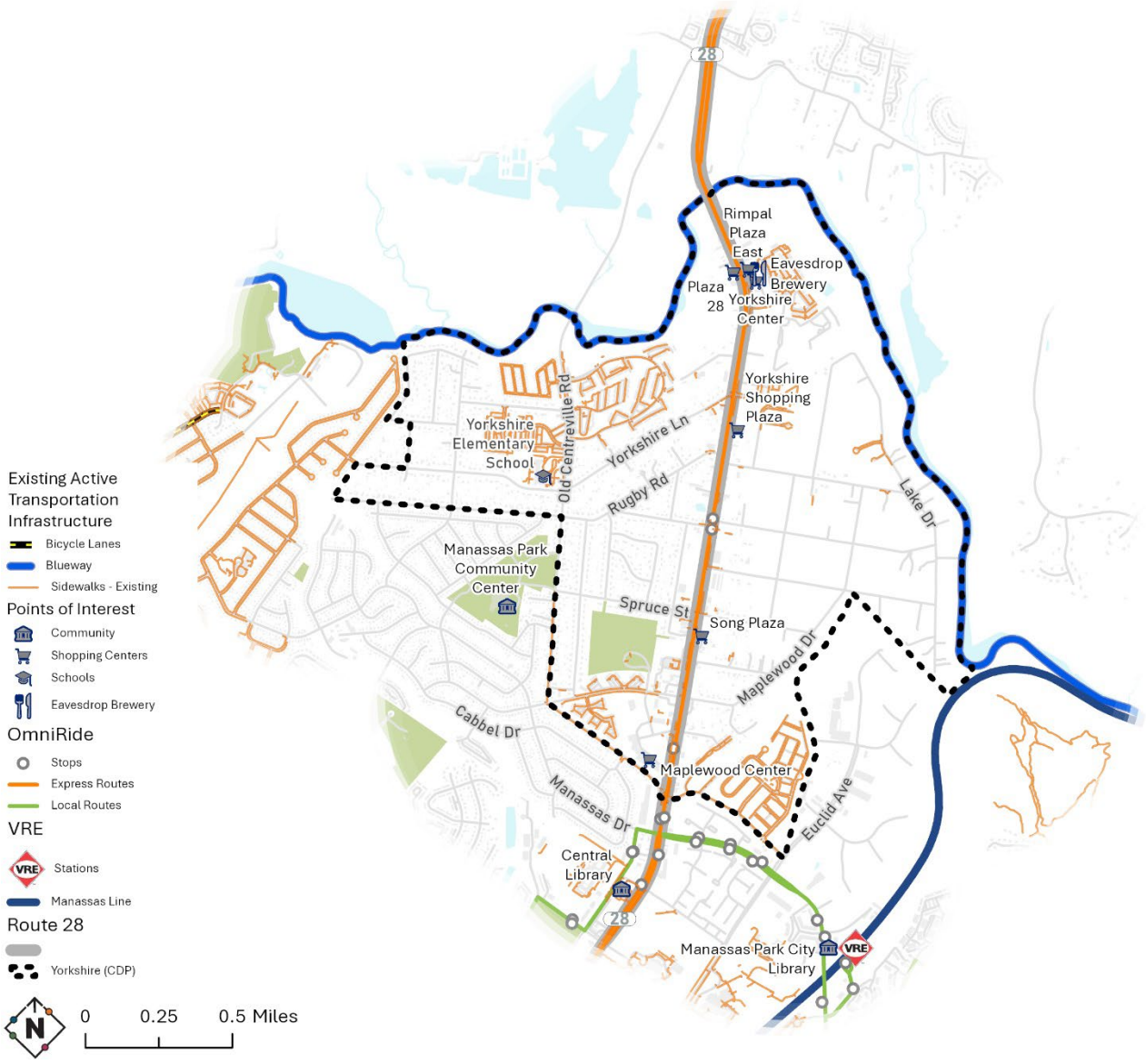


Figure 6: Planned Active Transportation Infrastructure

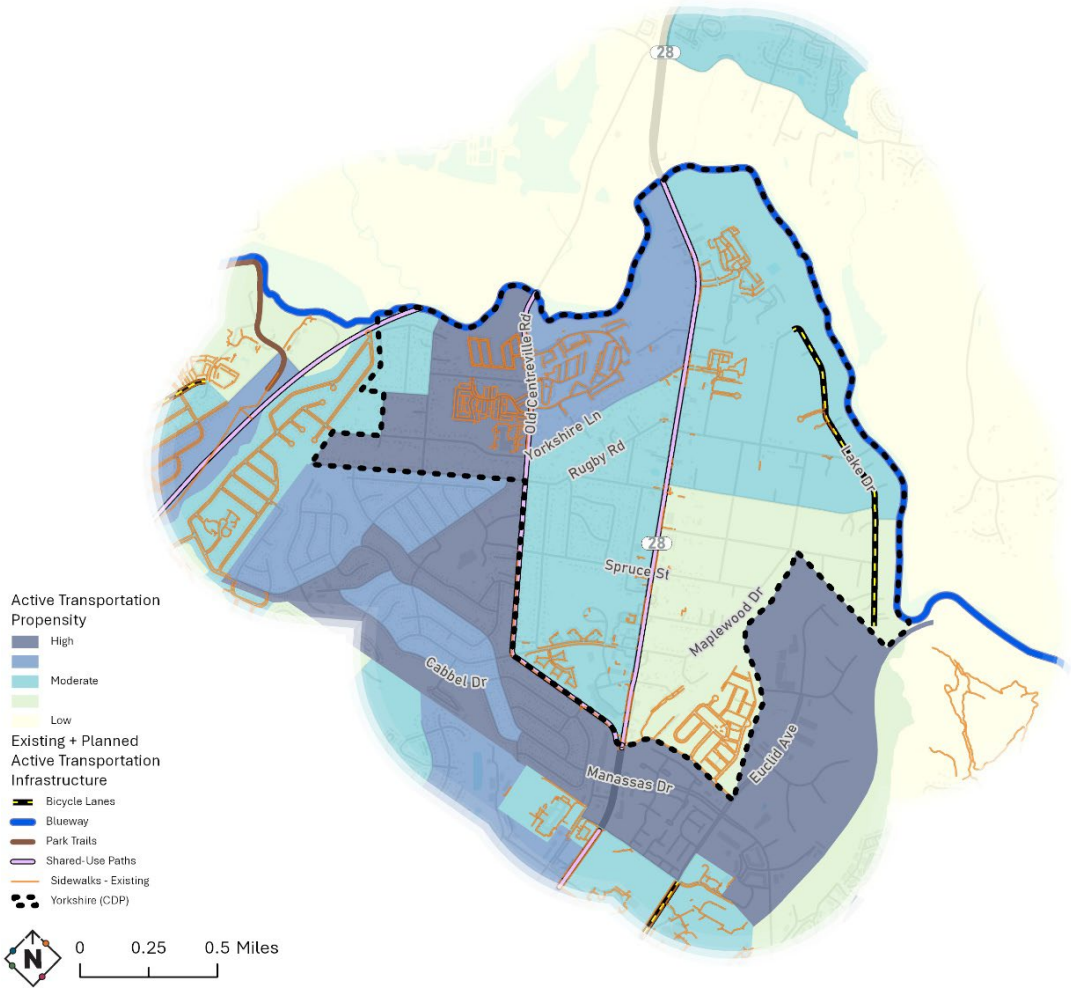
Summary of Demand, Travel Patterns, Risk, and Equity Analyses

Building off the existing conditions assessment, the project team analyzed demand, travel patterns, risk, and equity to identify gaps.

Demand Analysis

To understand the demand for active transportation trips in the study area, the project team created an index that evaluated the geographic density of key demographic groups with a higher propensity to take active transportation trips, as well as transit trips. Block groups with the greatest likelihood of generating multimodal transportation trips score highest on the index. **Figure 7** identifies census block groups most likely to generate walking, bicycling, and rolling trips within the study area. Rolling trips include trips made by wheelchair and scooter. In addition to modeled travel flows, this index recognizes that population density, and particularly, the density of non-white, older/younger, low-income, disabled, and/or carless individuals are strong predictors of multimodal trip generation.

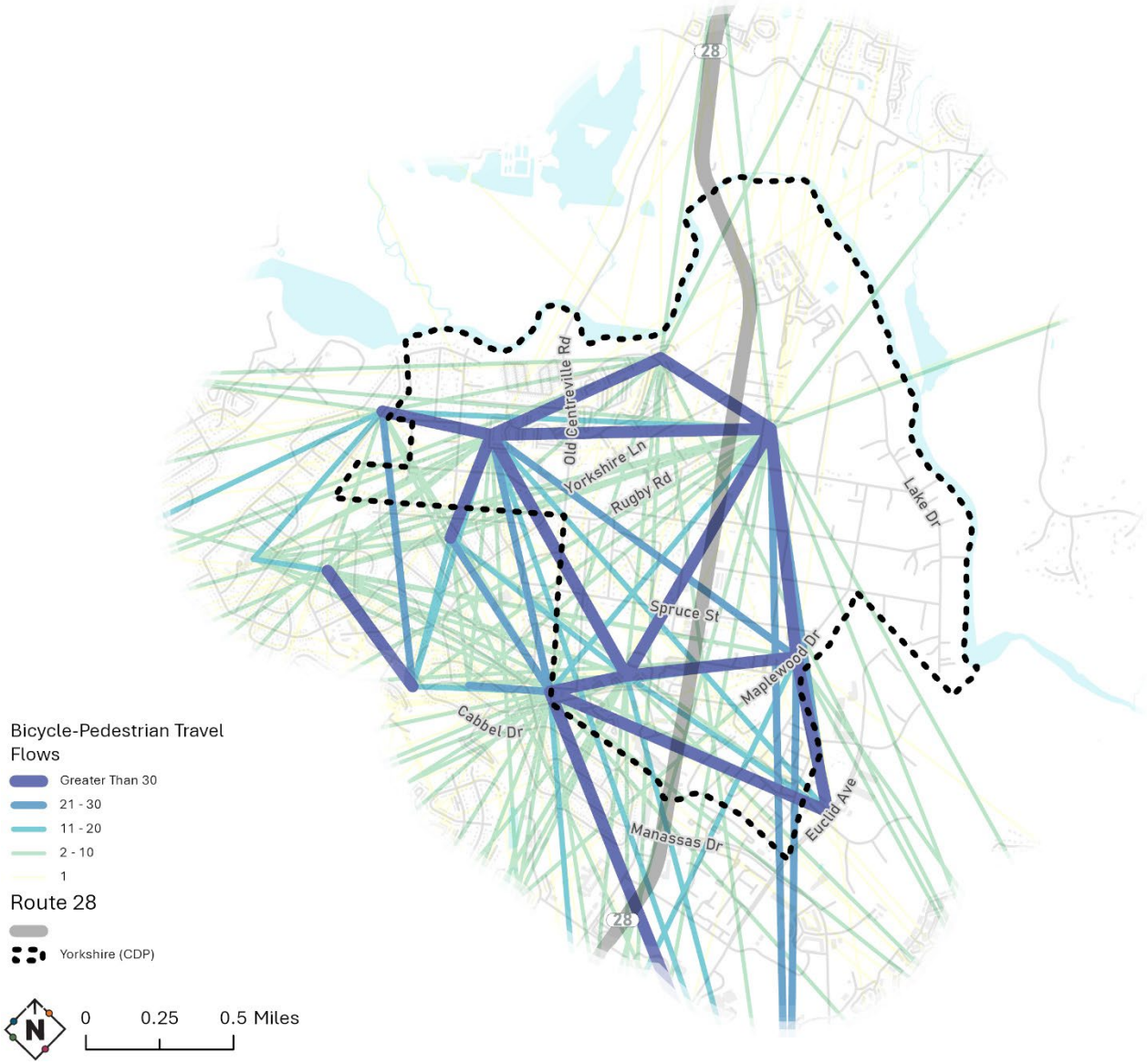
Figure 7: Active Transportation Propensity Index



Travel Flows via Active Modes

Active transportation travel flows show travel patterns between residential neighborhoods, parks, and shopping centers. Walking is the most popular active mode of travel in Yorkshire. As travel flow data indicates, there is demand for active transportation infrastructure that facilitates trips to residential neighborhoods, specifically between Somerset Lane and Somersworth Drive. There are also strong travel flows to Joseph D. Reading Park, stores along Route 28, and the commercial and industrial corridor on Euclid Avenue. The proposed bicycle lanes on Lake Drive are a starting point from which the county can begin to build cycling infrastructure in Yorkshire.

Figure 8: Bicycle-Pedestrian Travel Flows



Risk

Analysis of vehicle crash locations was conducted to evaluate the risk associated with active transportation trips in Yorkshire. Crash data points and the density of crashes from 2018 to 2023 were mapped in order to analyze roadways most dangerous to active travelers.

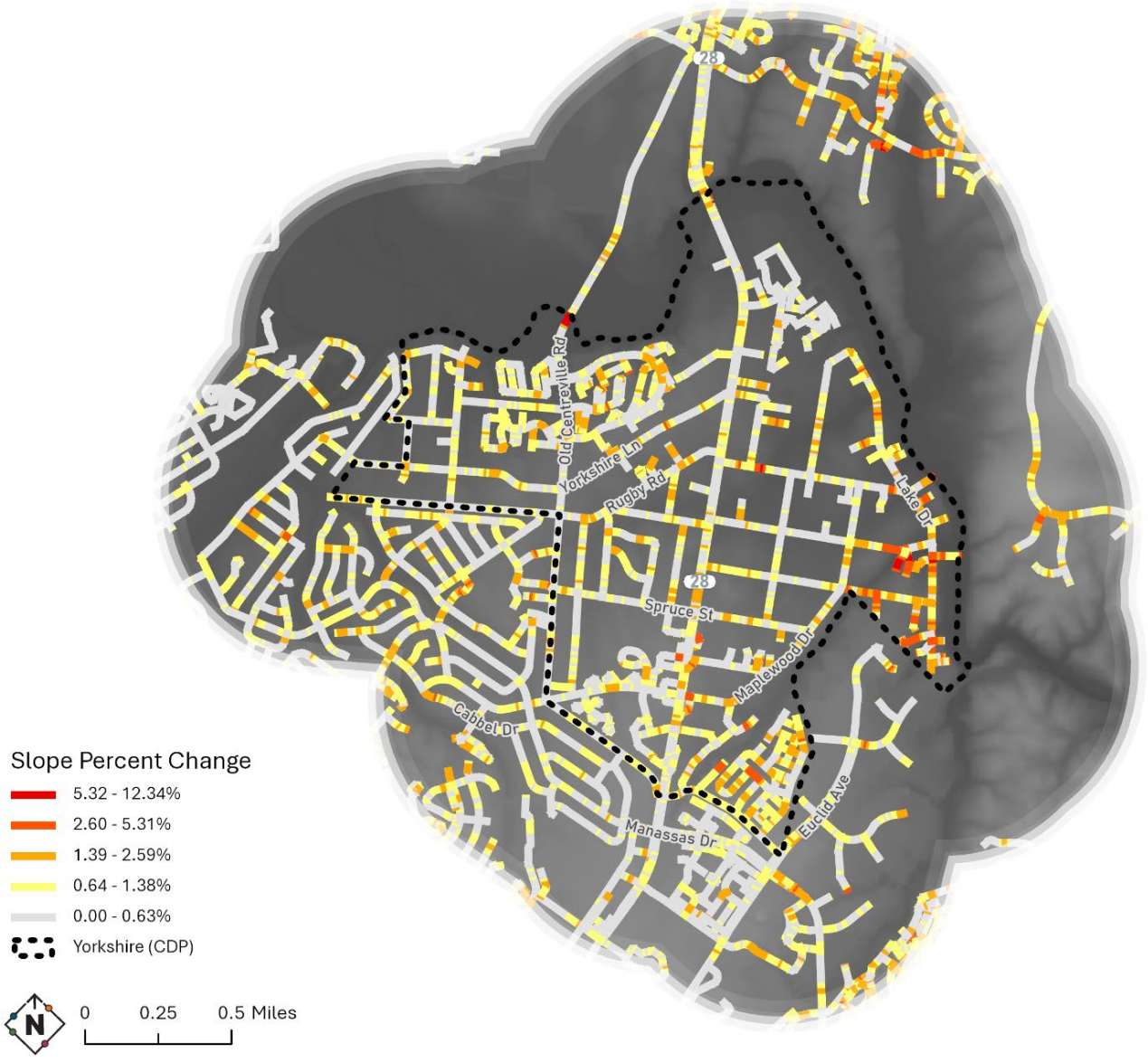
Crashes provide a lagging indicator of risk, which can be used to identify locations where safety needs do not adequately address human factors (e.g., distraction, response time, fatigue, impairment). In other words, crashes suggest locations where streets, sidewalks, and associated infrastructure could possibly be improved to mitigate unsafe behavior. Based on data from the Virginia Traffic Records Electronic Data System (TREDS), 997 crashes occurred within a quarter mile of the Yorkshire study area from 2019 to 2023. **Figure 9** maps the density of crashes with existing OmniRide stops.

Figure 9: Crash Density Analysis

Equity

Promoting active transportation in Yorkshire is one way to serve equity needs in the community. Yorkshire has two census tracts that are designated as Equity Emphasis Areas by MWCOG. Investments in active transportation infrastructure support the mobility needs of historically vulnerable populations that may not be able to complete daily trips in single-occupancy vehicles. An analysis of roadway slope was also conducted to find areas of Yorkshire with the highest percent change in slope. Steep changes in roadway slope pose additional challenges for people taking rolling trips in a wheelchair and can discourage active transportation trips. Understanding the degree to which roadway slope changes provides context for active transportation potential, as well as compliance with Americans with Disabilities Act (ADA) regulations. While the vast majority of Yorkshire is relatively flat with limited changes in roadway slope, some small areas, like Lake Drive on the eastern edge of Yorkshire, have higher changes in slope. The lived experience of a person walking, cycling, or rolling may differ from the results of the slope analysis. **Figure 10** shows the results of the roadway slope analysis.

Figure 10: Roadway Slope Analysis



Summary of Corridor Audit

Figure 11: Corridor Audit Team on OmniRide Bus

The project team led a corridor or "windshield" audit via an OmniRide bus, stopping at key locations along the Route 28 corridor, to get a first-hand sense of what it means to walk or bike in the area. Stakeholders from several Prince William County departments attended, as well as Prince William County Board Chair-At-Large Deshundra Jefferson, and Prince William County Supervisor Yesli Vega, representing the Coles District located in Yorkshire. Stakeholders from other jurisdictions and agencies also joined, including the City of Manassas, the City of Manassas Park, VDOT, and Potomac and Rappahannock Transportation Commission (PRTC) OmniRide. The locations observed were chosen for a variety of reasons, including difficult geometry or legibility, a greater density of crashes, and a lack of active transportation infrastructure. Attendees identified challenges and opportunities to improve roadway safety and promoting active transportation infrastructure in Yorkshire. Several patterns emerged when visiting the various intersections.

Corridor Audit Key Findings

The prevailing takeaway from stakeholders was that Route 28 is a hostile environment especially for people who are walking and bicycling. There is a lack of transportation infrastructure outside of infrastructure for vehicles. Numerous intersections lack basic treatments like crosswalks, signalization, pedestrian signal heads, and ADA compliance. Where sidewalks existed, they were often disconnected and in short, fragmented spans. There were noticeable desire paths in the grass and dirt where sidewalks abruptly ended, and people needed to reach their destinations.

The proximity to fast moving cars and noisy heavy vehicle traffic also makes the corridor unpleasant for people walking and bicycling. In a similar vein, the overall car-centric design of the corridor made it difficult to envision a multimodal future. The current businesses and development patterns, such as gas stations, auto body shops, and drive-throughs – largely with frequent curb cuts and large driveways – represent an incremental change, rather than a single infrastructure investment, that will need to take place over time and with intentionality, particularly as it relates to site plan review practices. This study presents an opportunity for Prince William County to take initial steps in reimagining Route 28 as a multimodal corridor.

Another critical safety issue cited during the corridor audit was visibility. The placement of crosswalks, combined with changes in slope contributed to a lack of visibility for people driving and thus a risk for anyone is not seen by people driving. The lack of pedestrian-scaled lighting also makes traveling at dawn, dusk, and night even more perilous for people walking, bicycling, and rolling.

Lastly, corridor audit participants commented that the corridor lacks a sense of place or identity, despite a strong community culture and history. Empty public and private spaces, as well as underused parking lots, contributed to a feeling of emptiness and inactivity. Leveraging these places can spur vibrancy and future investment.

Key Findings Photo Glossary

The following series of photos captures the prevailing challenges encountered during the corridor audit and helps to contextualize the opportunities for improvement that exist. Although the photos were taken at specific points along Route 28, they represent pervasive issues seen throughout the corridor.

Sparse Crossings


Frequent Driveways


Sidewalk Gaps

Slope Issues


Missing Crosswalks

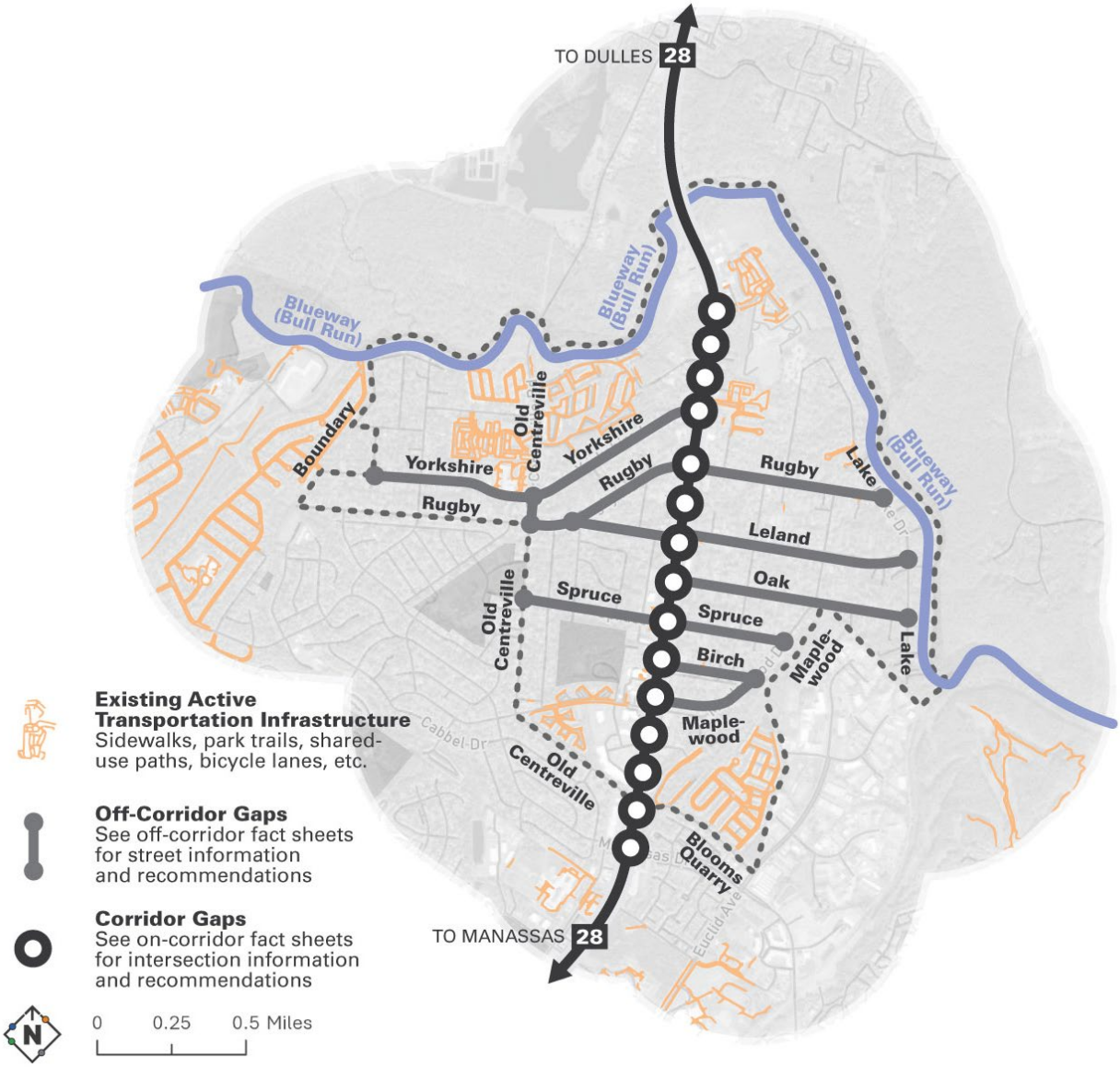

Complex Intersections

Summary of Gaps

The existing conditions assessment, data-driven analyses related to demand, travel flows, risk, and equity, as well as the in-person corridor audit allowed the study team to identify gaps in the walking and bicycling network that act as barriers to people making trips via active modes in and around Yorkshire. Mitigating these gaps will help establish an interconnected grid of walkable and bikeable routes, laying the foundation for a more walkable and human-scaled Route 28 and Yorkshire.

Figure 12 illustrates gaps both on-corridor and off-corridor (connecting to Route 28) alongside existing bicycle and pedestrian infrastructure. In the following chapters, these gaps are discussed individually to explore which improvements may be effective in reducing the barriers to walking and cycling. The gaps are then prioritized for improvements to determine where resources should be dedicated first.

Figure 12: On-Corridor and Off-Corridor Gaps



3. What We Recommend

Toolbox of Recommendations

After the site visit, the project team analyzed the Route 28 corridor to identify improvements that could be made at each intersection along Route 28. The team drafted recommendations based on its analysis of existing conditions and corridor audit findings. Recommendations include corridor-wide changes, meant to be applied throughout Route 28 in Yorkshire, as well as intersection-specific recommendations that address a specific active transportation challenge at a given intersection.

The project team drew inspiration from other auto-oriented communities that successfully implemented active transportation infrastructure treatments to improve accessibility for active travelers. The city of Carmel, Indiana created a model for walkable developments in suburban communities. Carmel constructed a wide network of sidewalks and bicycle paths for active travelers with small plazas for placemaking. Carmel has promoted roadway safety by incorporating traffic circles into its roadway network, which reduce vehicle speeds. Locally, Fredericksburg, Virginia successfully implemented active transportation infrastructure to Lafayette Boulevard by widening the road, fronting the roadway with landscaping and a multi-use path. The redesign of Lafayette Boulevard also included new pedestrian medians and a traffic circle.

Summary of Corridor-Wide Recommendations

Corridor-wide improvements aim to address mobility concerns noted throughout the site visit. These treatments will improve connections to active transportation infrastructure, promote visibility, and foster a sense of place. The icons next to each tool appear in the project fact sheets. Each icon is color-coded based on the type of project. Orange icons represent on-street and multimodal infrastructure, blue icons represent amenities, and green icons represent off-street infrastructure. The full range of corridor-wide recommendations are on the following pages.

High-Visibility Crosswalks

- High-visibility crosswalks ensure that people walking know the safest location to cross, and alert people driving to the former's presence in the roadway.
- Pedestrians are generally willing to spend up to three minutes navigating to a crossing (i.e., walking to a crosswalk, waiting for a crossing signal, and crossing); crosswalk spacing and signal timing should reflect this.[1]
- Midblock crossings provide safe crossings where intersections do not align with existing infrastructure and/or pedestrian needs.

High-visibility crosswalks in Alexandria, VA (Google Earth)

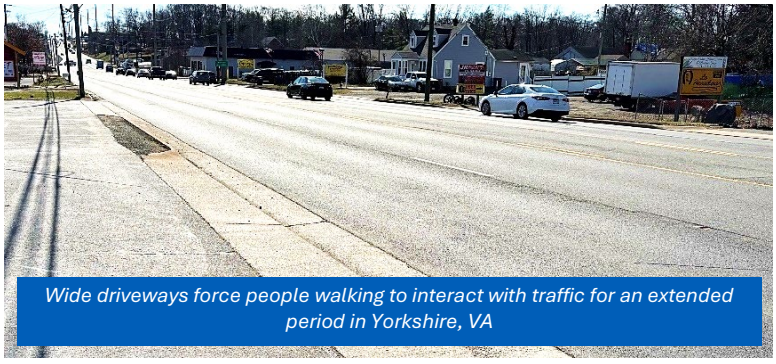
Sidewalks

- Sidewalks provide a level surface on which pedestrians of all abilities can safely and comfortably travel.
- Sidewalks should be scaled in accordance with the areas they are serving (e.g., sidewalks adjacent to vehicular traffic should incorporate a buffer of at least two feet) and designed to a minimum five-foot width to meet ADA requirements.

Sidewalk buffered from arterial roadway in Falmouth, VA (Google Earth)

Driveway Consolidation

- Driveway consolidation minimizes the number of interaction points between people driving and people engaging in active transportation.
- This creates a more hospitable environment for active transportation, and increases predictability of driver behavior, enhancing safety for all road users.



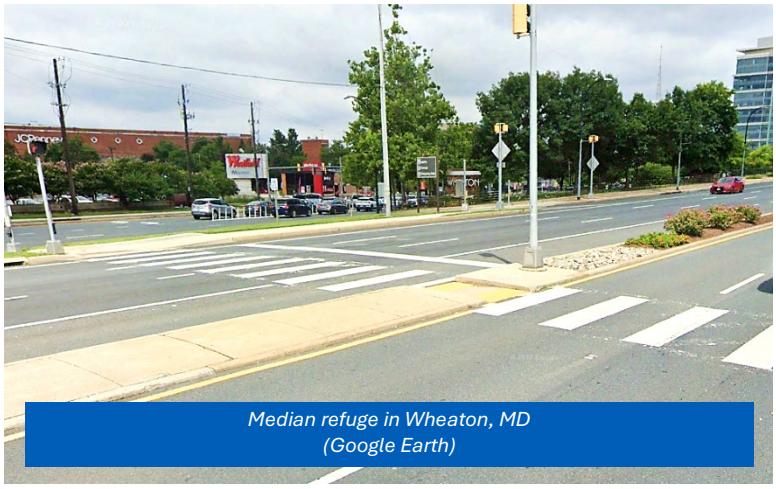
Wide driveways force people walking to interact with traffic for an extended period in Yorkshire, VA

[1] *Urban Street Design Guide.* National Association of City Transportation Officials, 2013.

Recommendations were also made for each individual intersection along the Route 28 corridor. Differences in land use and the roadway network design mean that some treatments may be more suitable for one intersection than another. The following treatments are included in the list of intersection-specific recommendations:

Refuge Medians

- Refuge medians reduce vehicular exposure during longer crossings.
- This infrastructure provides a place for people to wait for another crossing cycle and/or rest.



Median refuge in Wheaton, MD (Google Earth)

Tighter Curbs and Curb Extensions

- Tighter curb radii force turning cars to slow down, increasing the probability that drivers will notice pedestrians in the intersection and reducing the risk and severity of pedestrian injury.
- Curb extensions slow traffic by narrowing the roadway and decreasing vehicular turning radii.
- Curb extensions can also be deployed at bus stops to allow buses to pick up or drop off passengers without exiting the flow of traffic.

Curb extensions in Towson, MD (Google Earth)

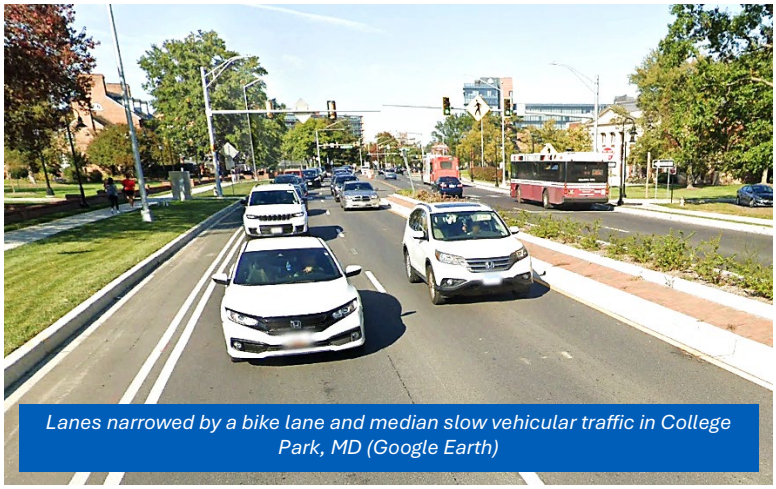
Pedestrian Crossing Signals

- Pedestrian signals may either indicate that it is safe to cross and/or highlight the presence of people to drivers. These signals may be implemented as timed signals or warning beacons activated on-demand.
- Leading pedestrian intervals further increase safety by giving pedestrians a head start before vehicles get the green light at an intersection.
- Active warning beacons alert drivers to the presence of people crossing at locations without other traffic control devices.
- Rectangular rapid flashing beacons (RRFBs) are an example of pedestrian crossing signals. RRFBs use single or dual-sided light bars with high intensity amber lights to notify vehicles from afar that they are approaching active travelers in the right-of-way.

Pedestrian signal in Arlington, VA (Google Earth)

Traffic Calming

- Traffic calming measures slow vehicular travel by reducing curb radii at intersections, narrowing lanes, extending curbs, adding medians, and realigning roadways.
- Slower vehicular traffic creates a more hospitable environment for people to engage in active transportation and promotes safe travel for everyone.



Lanes narrowed by a bike lane and median slow vehicular traffic in College Park, MD (Google Earth)

Roadway Realignments and Truncations

- Roadway reconfigurations recommended include the realignment of roads to create less-complicated intersections, the replacement of center turning lanes with dedicated left turn lanes, and roadway truncations.
- These reconfigurations seek to simplify interactions between road users by eliminating ambiguity and limiting interactions between modes.
- Roadway truncations close off streets to automobiles, discouraging through traffic and providing opportunities to promote active travel.

Dedicated left turn lane in Prince William County, VA (Google Earth)

Off-corridor improvements aim to improve connections between Route 28 and the surrounding communities. These treatments build upon specific recommendations for locations along the corridor, ensuring residents can safely and comfortably travel throughout Yorkshire, regardless of mode choice. The full list of off-corridor recommendations includes:

Pedestrian Infrastructure

- Where possible, sidewalks provide a level surface, separated from vehicle traffic, for people to walk along.
- Due to cost constraints and right-of-way constraints, sidewalks cannot be added along all roads.
- Along streets with limited traffic, road shoulders provide a cost-effective means of providing space for active transportation, including walking. Design should prioritize a level surface, four feet in width, and visually separated from vehicular traffic.
- Pedestrian infrastructure is a general term referring to sidewalk alternatives, including treatments like advisory shoulders and yield roadways.
- Shoulders do not necessarily provide a low-stress environment for active transportation.

Advisory shoulder in Pulaski, VA (FHWA STAR Guide)

Street Furnishings

- Elements including pedestrian scale lighting, bus shelters, planters, bicycle racks, gateway signage, wayfinding, and seating all dramatically improve the experience of people traveling along the corridor, particularly those engaging in active transportation.
- These furnishings promote a vibrant streetscape and both support and encourage walking and rolling trips.
- Street furnishings located in the right-of-require coordination and approval by VDOT. However, Prince William County can encourage street furnishings outside of the right-of-way as a part of development applications.

Historic markers, benches, and planters in Falls Church, VA (Google Earth)

Placemaking

- Placemaking aims to transform forgotten and underutilized spaces into vibrant places for people.
- Placemaking can take many forms, from street furniture and dining spaces to murals and painted pavement. It can also include things like bus stop improvements, painted signal cabinets, and community gardens.
- The best kinds of placemaking are those that are community-driven and locally supported.
- Placemaking treatments can be “pop-up” or temporary in nature, or they can be long-term, permanent installations.

Dale City Farmer’s Market in Woodbridge, VA (Prince William County)

Bus Stop Amenities

- Amenities like shelters, benches, schedules, and receptacles provide comfort and transit system information for transit riders waiting for the bus.
- Bus stop amenities provide a clear visual marker for where the bus will stop.
- Murals and artwork added to bus stops contribute to placemaking efforts.

OmniRide Bus Stop Amenities at Graham Park Drive in Prince William County, VA (OmniRide)

Shared-Use Paths

- Shared-use paths provide a space for people to engage in active transportation.
- Shared-use paths are grade-separated from the right-of-way.
- Shared-use paths offer adequate space for people walking, cycling, or rolling as an alternative means to driving.
- Shared-use paths can also facilitate connections to trails and parks, further encouraging active transportation trips.
- Along high-speed roads, shared-use paths may present the only opportunity to create infrastructure for low-stress active transportation.

Shared-use path at Linton Hall Road in Prince William County, VA (Google Earth)

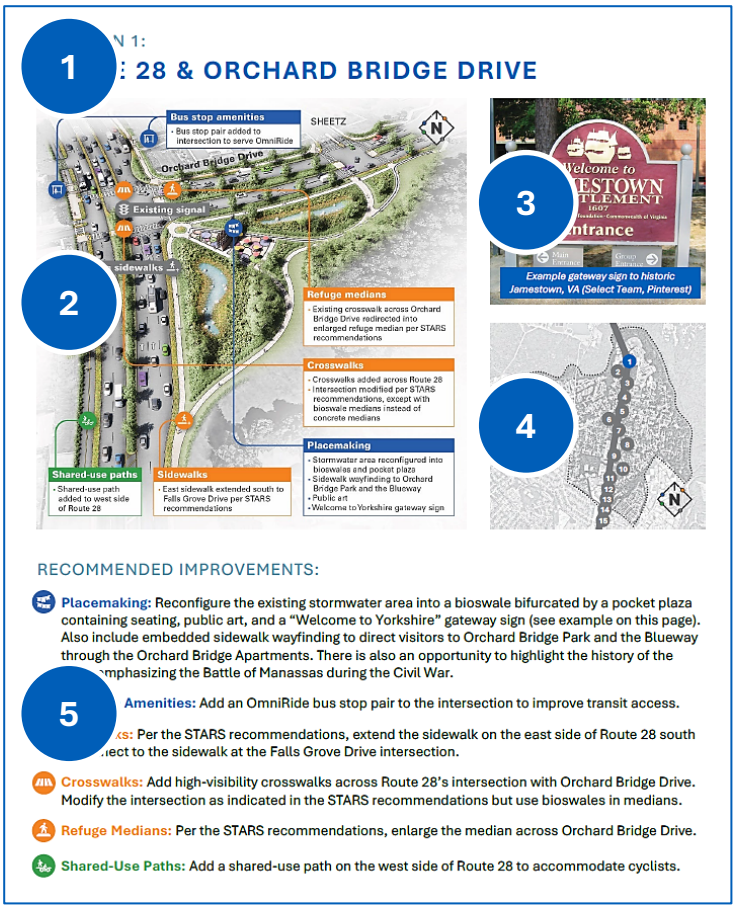
Project Fact Sheets – On-Corridor

The proposed improvements to each intersection along Route 28 are detailed in individual fact sheets. Each fact sheet includes a visualization of the intersection with its proposed improvements, a picture of a proposed improvement from which the team drew inspiration, and a map of the Route 28 corridor orienting the viewer to where the improvement will be placed. Each recommended improvement is briefly detailed, along with any plans that may impact the intersection. Project fact sheets begin at the northern end of the Route 28 corridor at Orchard Bridge Drive and follow in sequential order to the end of the corridor at the intersection of Route 28 and Manassas Drive.

1. **Intersection:** The project location.
2. **Rendering, Diagram, or Map of Recommended Improvements:** An annotated illustration of a typical portion of the project location, showing all the recommendations.
3. **Best Practice Example of Improvements:** Example treatments that have been successfully implemented.
4. **Corridor Context Map:** Overview map of the project location to orient the reader along the corridor.
5. **Recommended Improvements and Considerations:** A list of recommended improvements as well as planned or ongoing projects that should be taken into consideration or that may impact the final design.

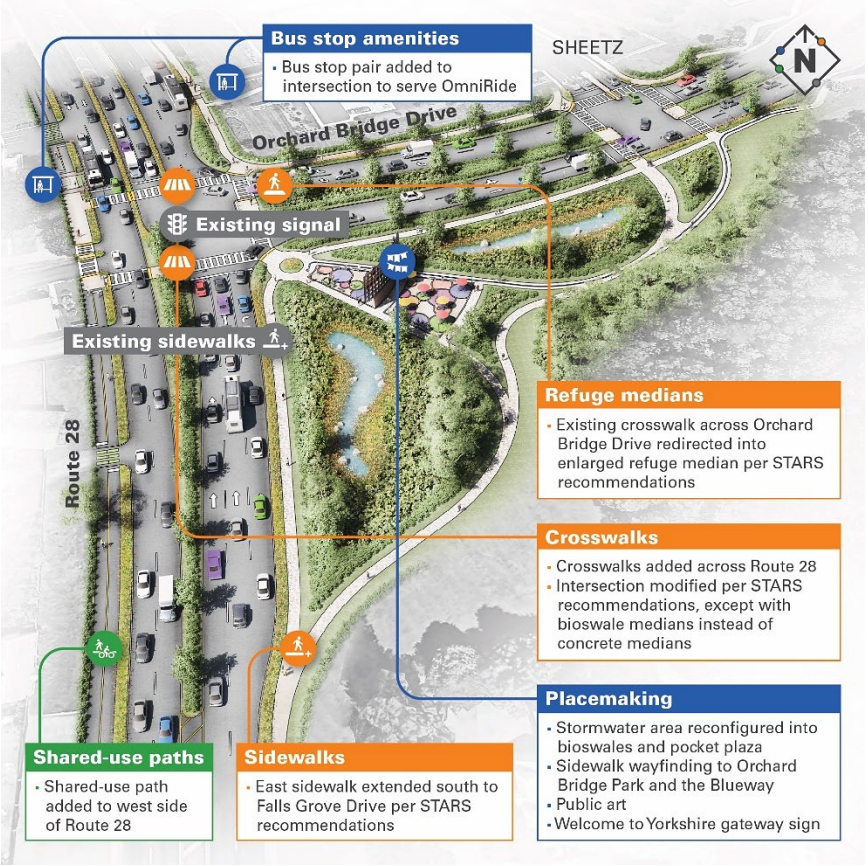
   Recommended improvements are color-coded blue for placemaking and bus stop amenities, green for shared-use paths, and orange for on-street and multimodal improvements.

Figure 13: Project Fact Sheet Reader Guide



LOCATION 1:

ROUTE 28 & ORCHARD BRIDGE DRIVE



Example gateway sign to historic Jamestown, VA (Select Team, Pinterest)

RECOMMENDED IMPROVEMENTS:

Placemaking: Reconfigure the existing stormwater area into a bioswale bifurcated by a pocket plaza containing seating, public art, and a "Welcome to Yorkshire" gateway sign (see example on this page). Also include embedded sidewalk wayfinding to direct visitors to Orchard Bridge Park and the Blueway through the Orchard Bridge Apartments. There is also an opportunity to highlight the history of the area, emphasizing the Battle of Manassas during the Civil War.

Bus Stop Amenities: Add an OmniRide bus stop pair to the intersection to improve transit access.

Sidewalks: Per the STARS recommendations, extend the sidewalk on the east side of Route 28 south to connect to the sidewalk at the Falls Grove Drive intersection.

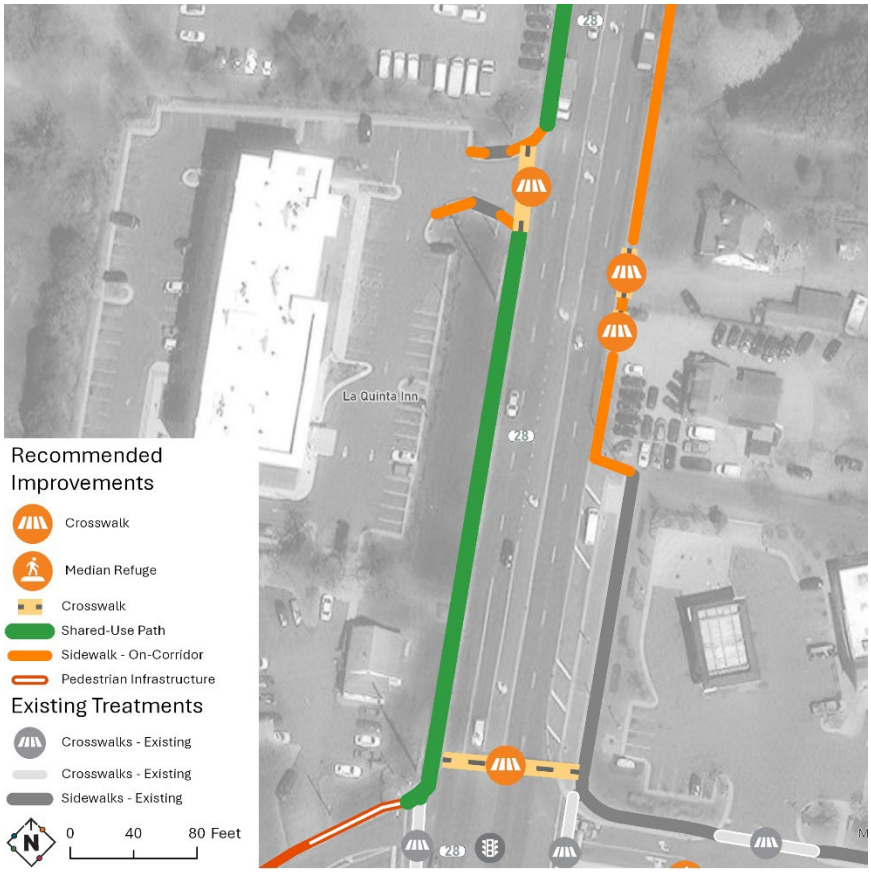
Crosswalks: Add high-visibility crosswalks across Route 28's intersection with Orchard Bridge Drive. Modify the intersection as indicated in the STARS recommendations but use bioswales in medians.

Refuge Medians: Per the STARS recommendations, enlarge the median across Orchard Bridge Drive.

Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

LOCATION 2:

ROUTE 28 & PATTON LANE



Example artistic high-visibility crosswalk in Baltimore (Graham Coreil-Allen)

RECOMMENDED IMPROVEMENTS:

Sidewalks: Building upon the STARS recommendations, extend the sidewalk network on the east side of Route 28.

Crosswalks: Add a high-visibility crosswalk on the north side of Route 28's intersection with Patton Lane, as well as high-visibility crosswalks across the entrance to the La Quinta Inn and other fronting businesses (see example on this page). The first crosswalk would be complemented by the signal recommended below.

Traffic Signals: Per the STARS recommendations, add a signal at the intersection with Patton Lane. In addition to serving traffic movements, this signal would serve the crosswalks recommended above.

Pedestrian Infrastructure: Add pedestrian infrastructure along Patton Lane and the other roadways connecting to Route 28.

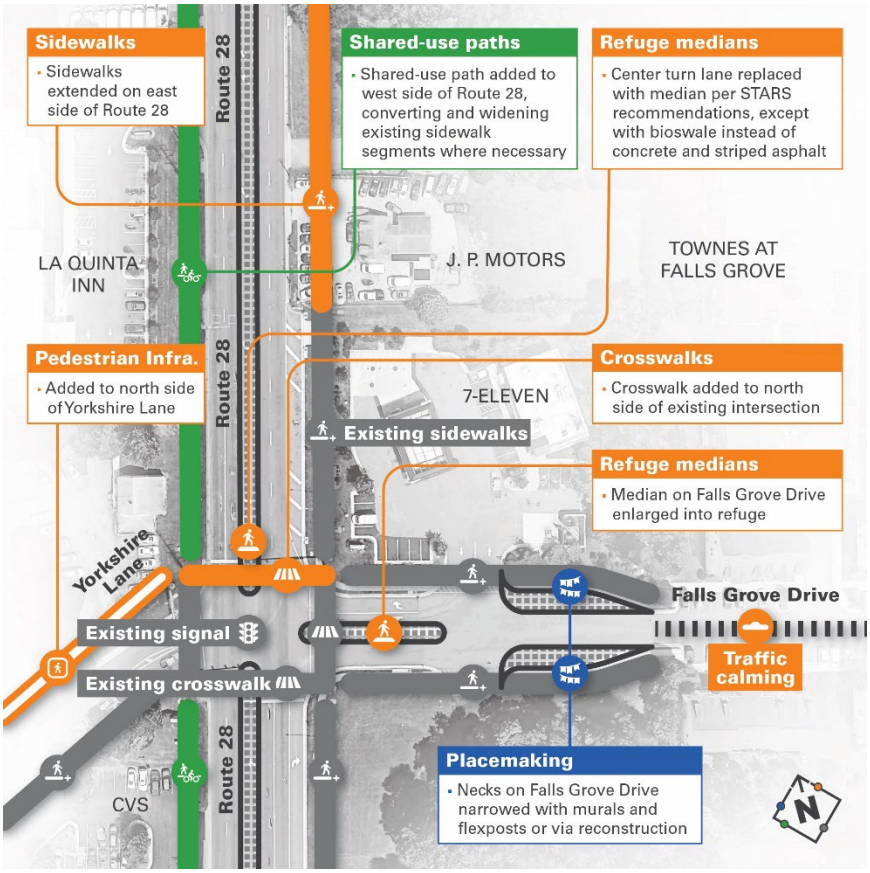
Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose minor changes to this intersection in the form of a sidewalk extension on the east side of the roadway. The recommendations above complement these changes.

LOCATION 3:

ROUTE 28 & FALLS GROVE DRIVE



Example painted bulb outs in Baltimore (Graham Coreil-Allen)

RECOMMENDED IMPROVEMENTS:

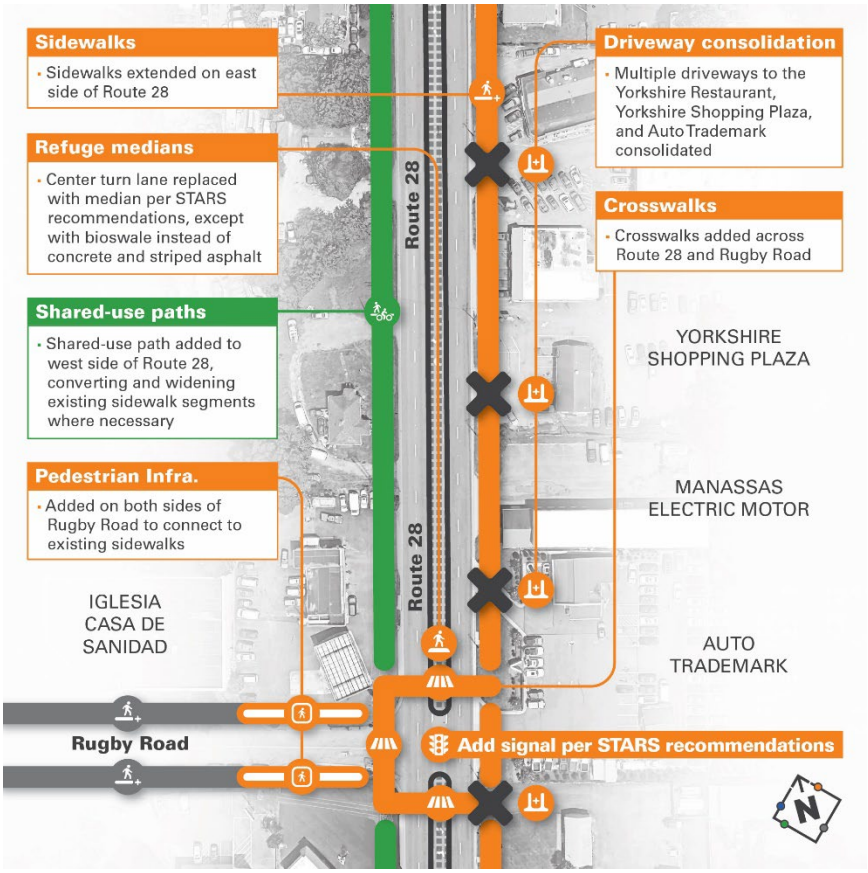
- **Placemaking:** Narrow the neck of Falls Grove Drive at the Townes at Falls Grove entrance by painting the pavement and adding flexposts (see example on this page), or by rebuilding the roadway neck.
- **Sidewalks and Pedestrian Infrastructure:** Per the STARS recommendations, extend the sidewalks on the east side of Route 28; also add pedestrian infrastructure to the north side of Yorkshire Lane.
- **Crosswalks:** Add a high-visibility crosswalk on the north side of Route 28's intersection with Falls Grove Drive.
- **Refuge Medians:** Per the STARS recommendations, replace the center turn lane with a median, but use bioswales instead of concrete and striped asphalt. Also enlarge the median on Falls Grove Drive into a refuge and redirect the existing crosswalk through it.
- **Shared-Use Paths:** Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose significant changes to this intersection in terms of median and lane reconfigurations, and the recommendations above complement these changes. Most significantly, the study team recommends using bioswales for new medians instead of concrete and striped asphalt.

LOCATION 4:

ROUTE 28 & NORTH OF RUGBY ROAD



Example median bioswale in Arlington, VA (Arlington County, VA)

RECOMMENDED IMPROVEMENTS:

Sidewalks and Pedestrian Infrastructure: Per the STARS recommendations, extend the sidewalks on the east side of Route 28; also add pedestrian infrastructure on Rugby Road.

Crosswalks: Add high-visibility crosswalks at Route 28's intersection with Rugby Road. These crosswalks would be complemented by the signal recommended below.

Refuge Medians: Per the STARS recommendations, replace the center turn lane with a median, but use bioswales instead of concrete and striped asphalt (see example on this page).

Traffic Signals: Per the STARS recommendations, add a signal at the intersection with Rugby Road. In addition to serving traffic movements, this signal would serve the crosswalks recommended above.

Driveway Consolidation: Close multiple secondary driveways along the east side of Route 28.

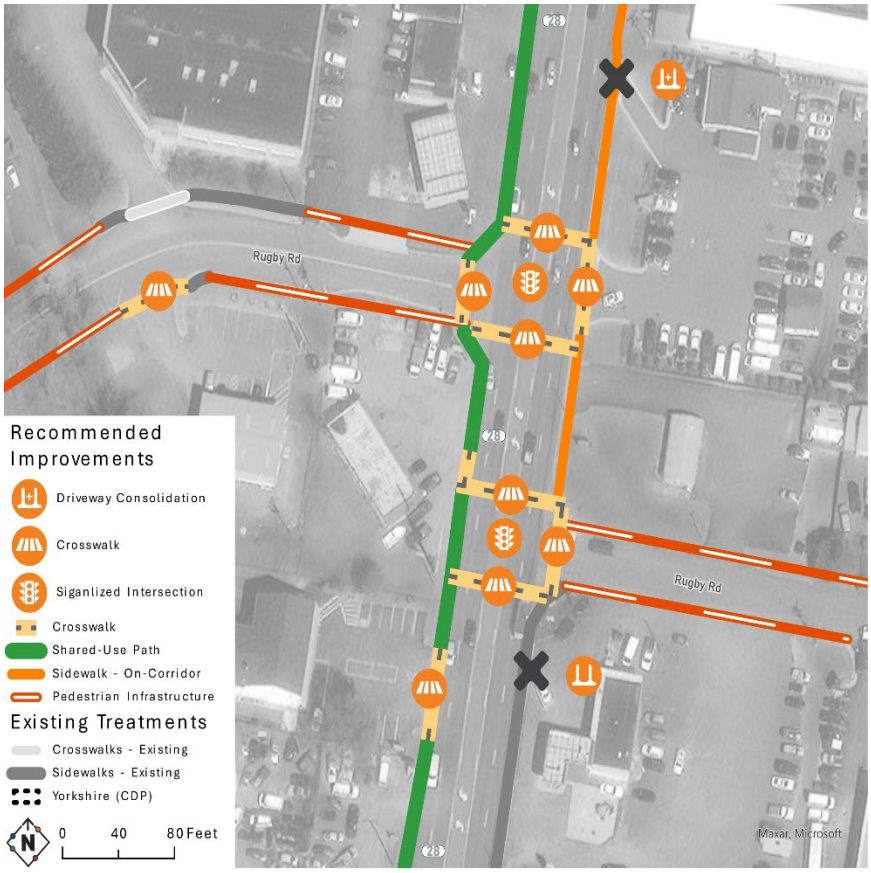
Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose replacing the center turn lane with a median in this section of Route 28. The recommendations above complement this change, but the study team recommends using bioswales for the new median instead of concrete and striped asphalt.

LOCATION 5:

ROUTE 28 & RUGBY ROAD



Example sidewalk addition near Hampton Roads, VA (New Generation Building, LLC)

RECOMMENDED IMPROVEMENTS:

Sidewalks: Connect the existing sidewalk network by adding/infilling sidewalks on the east side of Route 28 (see example on this page).

Crosswalks: Add high-visibility crosswalks on all four sides of Route 28's intersection with upper Rugby Road, as well as on all three sides of Route 28's intersection with lower Rugby Road. These crosswalks would be complemented by the signal recommended below.

Traffic Signals: Add signals at the two intersections with Rugby Road. In addition to serving traffic movements, signals would serve the crosswalks recommended above.

Pedestrian Infrastructure: Add pedestrian infrastructure along Rugby Road connecting to Route 28.

Driveway Consolidation: Close two driveways on the east side of Route 28 that lie to the immediate north and south of Route 28's intersection with Rugby Road (see map).

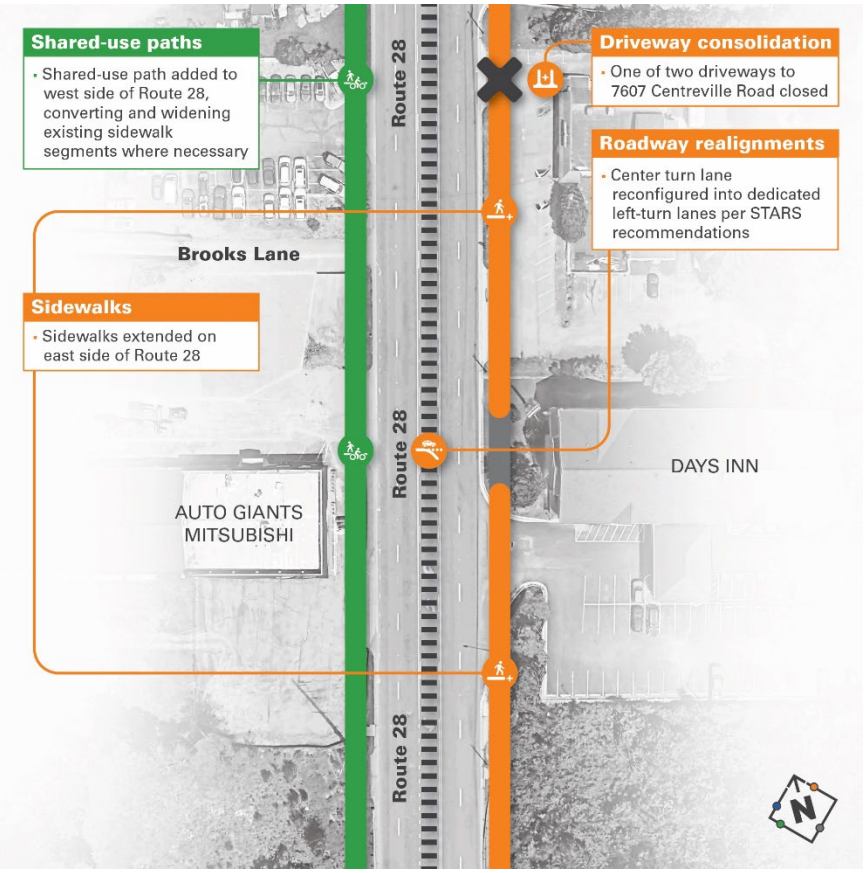
Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose significant changes to this intersection in terms of a single signalization as well as median and lane reconfigurations. The recommendations above partially conflict with these changes. Most significantly, the study team recommends a complete set of crosswalks at both intersections as well as signalizing both intersections.

LOCATION 6:

ROUTE 28 & BROOKS LANE



Example shared (consolidated) business driveway in Annapolis, MD (LoopNet)

RECOMMENDED IMPROVEMENTS:

Sidewalks: Per the STARS recommendations, extend the sidewalks on the east side of Route 28.

Driveway Consolidation: Close a secondary driveway to 7607 Centreville Road (on the east side of Route 28) to improve sidewalk continuity and pedestrian safety (see example on this page).

Roadway Realignments: Per the STARS recommendations, replace the center turn lane with dedicated left-turn lanes.

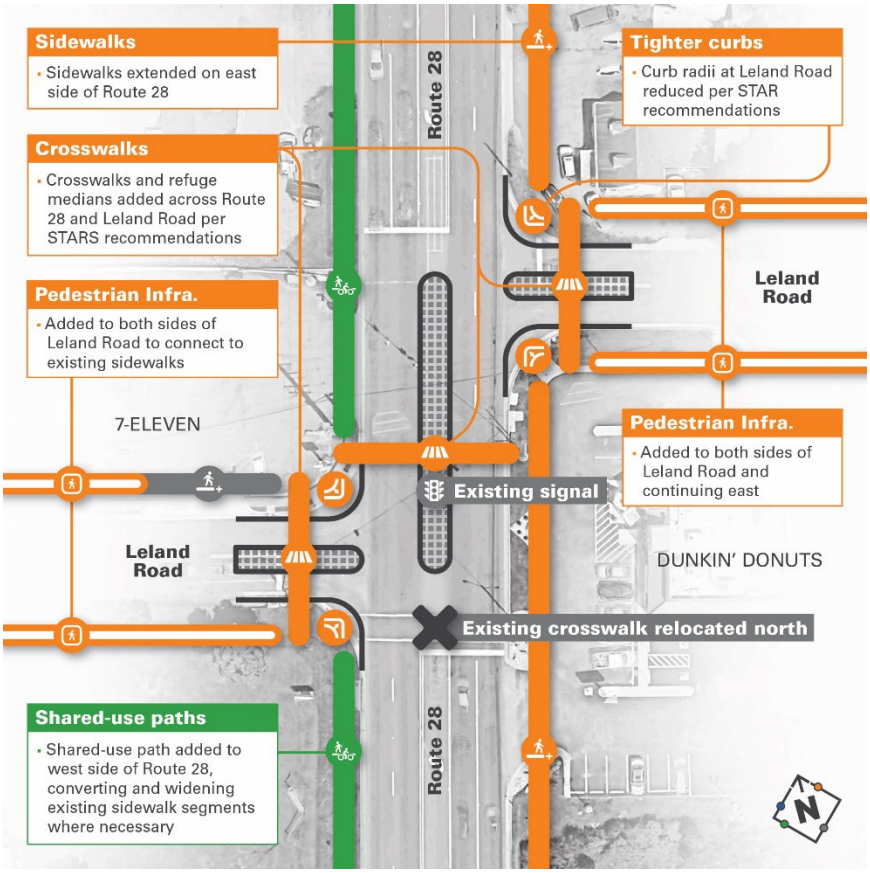
Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose minor changes to this section of Route 28 by reconfiguring the center turn lane into dedicated left-turn lanes. The recommendations above complement these changes.

LOCATION 7:

ROUTE 28 & LELAND ROAD



Example refuge median on Catharpin Road in Gainesville, VA (Google Earth)

RECOMMENDED IMPROVEMENTS:

Sidewalks and Pedestrian Infrastructure: Per the STARS recommendations, extend the sidewalks on the east side of Route 28. Also add pedestrian infrastructure to Leland Road.

Crosswalks: Per the STARS recommendations, add high-visibility crosswalks at Route 28's intersection with Leland Road. Relocate the existing crosswalk across Route 28 slightly north to fall between the two staggered entrances to Leland Road.

Refuge Medians: Per the STARS recommendations, add a refuge median to Route 28 at its intersection with Leland Road. Also add refuge medians to Leland Road and ensure that all three crosswalks pass through these medians (see example on this page).

Tighter Curbs: Per the STARS recommendations, reduce the curb radii at Route 28's intersection with Leland Road.

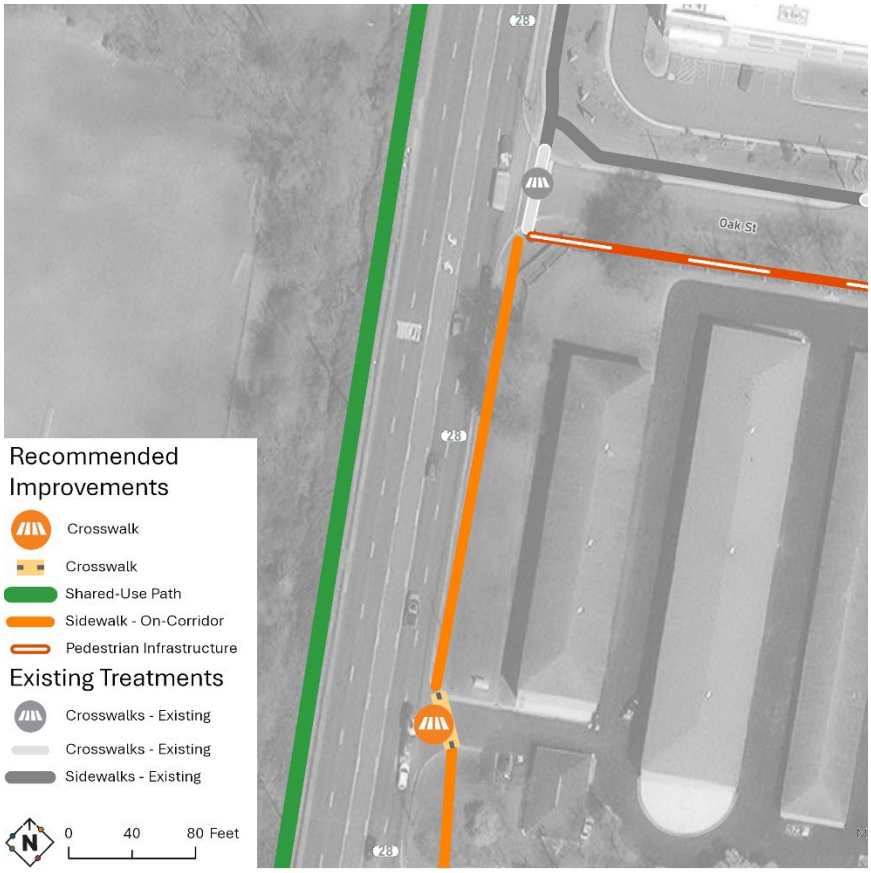
Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose significant changes to this intersection in terms of median and lane reconfigurations, and the recommendations above complement these changes.

LOCATION 8:

ROUTE 28 & OAK STREET



Example pedestrian improvements in Richmond, VA (M&F Construction)

RECOMMENDED IMPROVEMENTS:

Sidewalks: Add sidewalks along the east side of Route 28 to connect to the existing sidewalk network (see example on this page).

Crosswalks: Add a high-visibility crosswalk across the entrance to 7901 Centreville Road.

Pedestrian Infrastructure: Incorporate pedestrian infrastructure along Oak Street connecting to Route 28.

Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

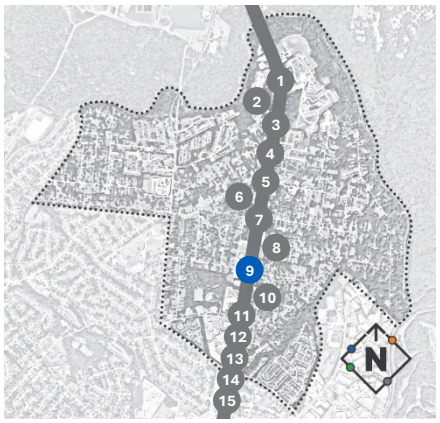
OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose moderate changes to this intersection in the form of adding a planted median to Route 28, and the recommendations above complement these changes.

LOCATION 9:

ROUTE 28 & SPRUCE STREET

Example four-way crosswalk in New York State (Village of Croton-on-Hudson)



RECOMMENDED IMPROVEMENTS:

Sidewalks: Add sidewalks along the east side of Route 28 to connect to the existing sidewalks north of Route 28's intersection with Spruce Street.

Crosswalks: Add high-visibility crosswalks with pedestrian crossing signals across all sides of Route 28's intersection with Spruce Street; also add a high-visibility crosswalks across the business drive just to the east of the intersection (see example on this page).

Pedestrian Infrastructure: Incorporate pedestrian infrastructure along both sides of Spruce Street connecting to Route 28 from the east and west.

Traffic Signals: Add a signal at the intersection with Spruce Street. In addition to serving traffic movements, this signal would serve the recommended crosswalks.

Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose significant changes to this intersection in terms of signalization, and median and lane reconfigurations. The recommendations above partially conflict with these changes.

LOCATION 10:

ROUTE 28 & BIRCH STREET

Example pedestrian improvements in Houston, TX (Texas DOT)

RECOMMENDED IMPROVEMENTS:

Sidewalks: Add sidewalks along the east side of Route 28 to connect to the existing sidewalk network.

Crosswalks: Add a high-visibility crosswalk at Route 28's intersection with Birch Street as well as across the business driveways along Route 28 and Birch Street.

Pedestrian Infrastructure: Incorporate pedestrian infrastructure along both sides of Birch Street connecting to Route 28 (see example on this page).

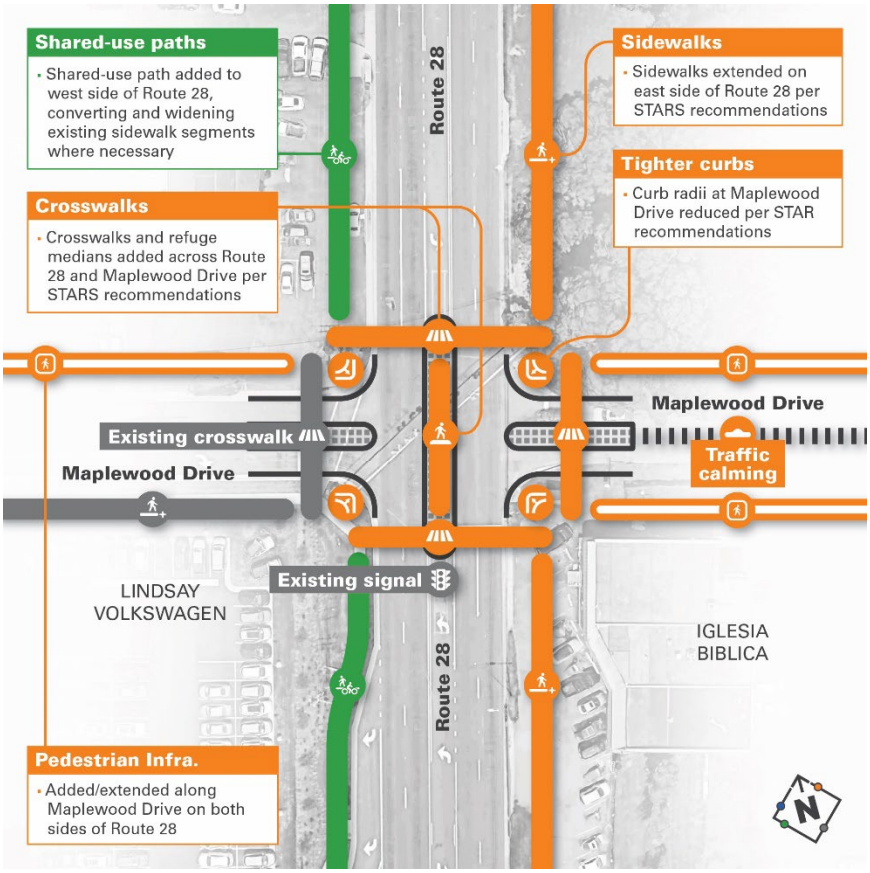
Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

- The STARS recommendations propose moderate changes to this intersection in terms of lane reconfigurations, and the recommendations above complement these changes.

LOCATION 11:

ROUTE 28 & MAPLEWOOD DRIVE



Example traffic calming in the form of a chicane on a residential street (NACTO)

RECOMMENDED IMPROVEMENTS:

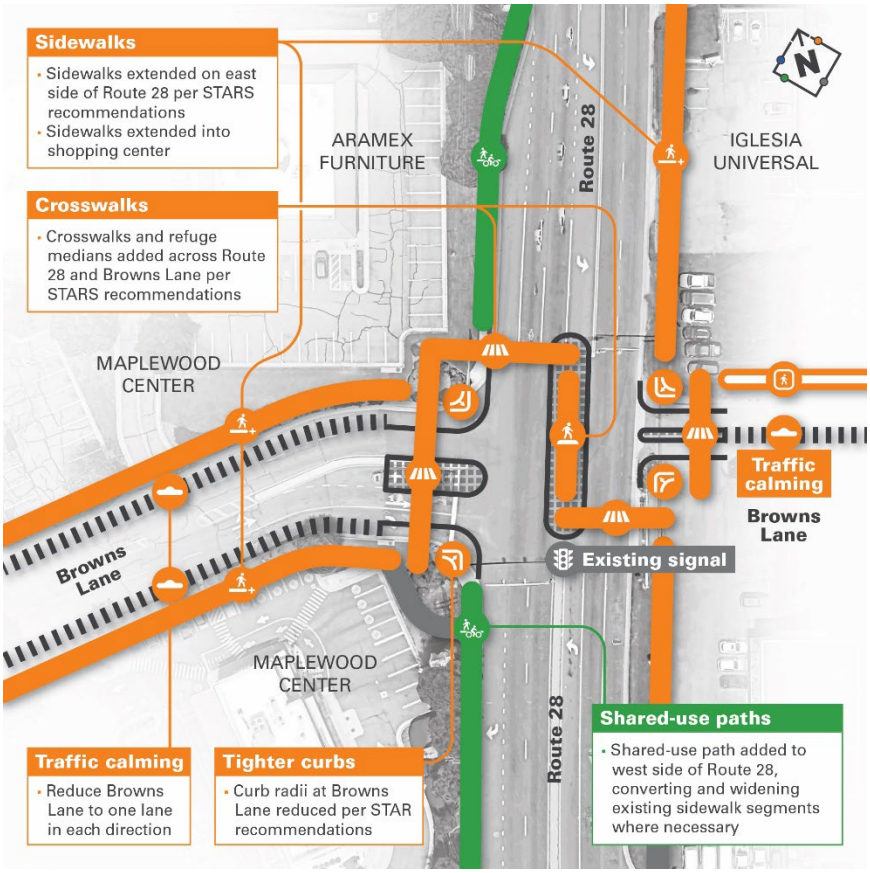
- **Sidewalks and Pedestrian Infrastructure:** Per the STARS recommendations, extend the sidewalks on the east side of Route 28. Also add pedestrian infrastructure to Maplewood Drive.
- **Crosswalks:** Per the STARS recommendations, add high-visibility crosswalks at Route 28's intersection with Maplewood Drive, modifying them slightly from STARS to form an "H" crossing.
- **Refuge Medians:** Per the STARS recommendations, add a refuge median to Route 28 at its intersection with Maplewood Drive. Also add refuge medians to Maplewood Drive and ensure that all four crosswalks pass through these medians.
- **Tighter Curbs:** Per the STARS recommendations, reduce the curb radii at Route 28's intersection with Maplewood Drive.
- **Traffic Calming:** Apply traffic calming tools to Maplewood Drive east of Route 28 to discourage cut-through traffic (see example on this page).
- **Shared-Use Paths:** Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose significant changes to this intersection in terms of median and lane reconfigurations, and the recommendations above complement these changes.

LOCATION 12:

ROUTE 28 & BROWNS LANE



Example curb radius reduction on a commercial corridor (Steven Vance)

RECOMMENDED IMPROVEMENTS:

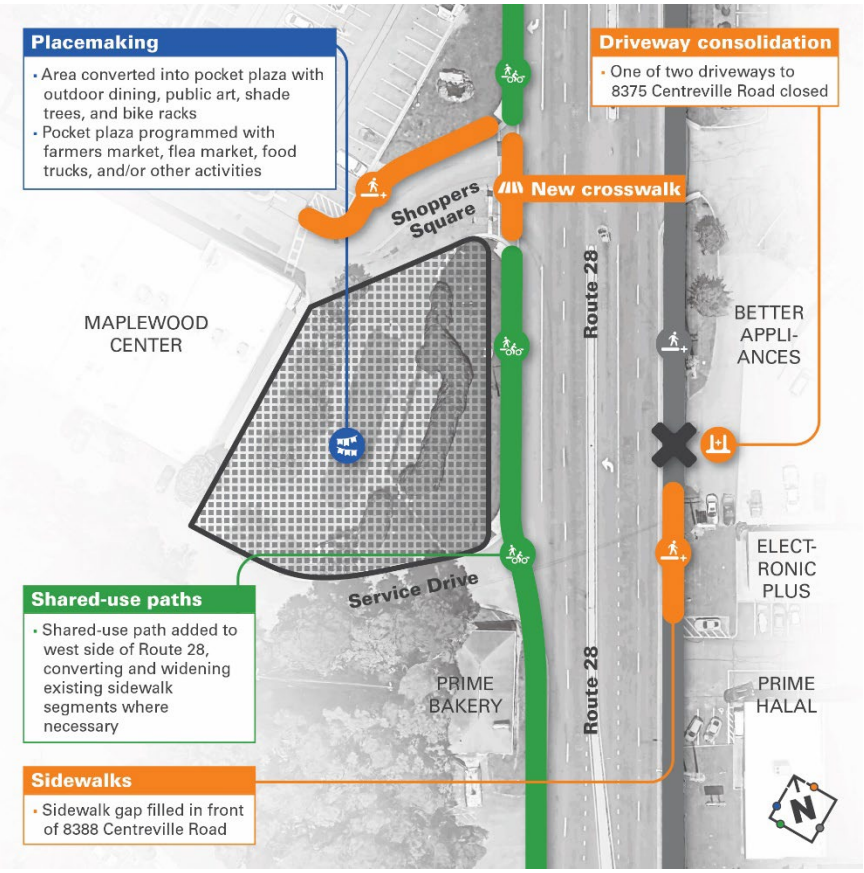
- **Sidewalks:** Per the STARS recommendations, extend the sidewalks on the east side of Route 28. Also add sidewalks to Browns Lane all the way into Maplewood Center by using reclaimed lane space.
- **Crosswalks:** Per the STARS recommendations, add high-visibility crosswalks at Route 28's intersection with Browns Lane.
- **Refuge Medians:** Per the STARS recommendations, add a refuge median to Route 28 at its intersection with Browns Lane. Also add refuge medians to Browns Lane and ensure that all four crosswalks pass through these medians.
- **Tighter Curbs:** Per the STARS recommendations, reduce the curb radii at Route 28's intersection with Browns Lane (see example on this page).
- **Traffic Calming:** Apply traffic calming tools to Browns Lane east of Route 28 to discourage cut-through traffic. Also downsize Browns Lane west of Route 28 to one lane in each direction.
- **Shared-Use Paths:** Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose significant changes to this intersection in terms of median and lane reconfigurations, and the recommendations above complement these changes.

LOCATION 13:

ROUTE 28 & SHOPPERS SQUARE



Example farmers market parking lot in Oconomowoc, WI (Oconomowoc COC)

RECOMMENDED IMPROVEMENTS:

Placemaking: Convert the old driveway/staging area on the west side of Maplewood Center into a pocket plaza containing seating, public art, shade trees, and bike racks. This plaza can host farmers and flea markets, food trucks, and other activities (see example on this page). Placemaking efforts like this will require community and property owner cooperation.

Sidewalks: Per the STARS recommendations, fill in the sidewalk gaps along this section of Route 28.

Crosswalks: Add a high-visibility crosswalk across Shoppers Square's intersection with Route 28.

Driveway Consolidation: Close a secondary driveway to 8375 Centreville Road (on the east side of Route 28) to improve sidewalk continuity and pedestrian safety.

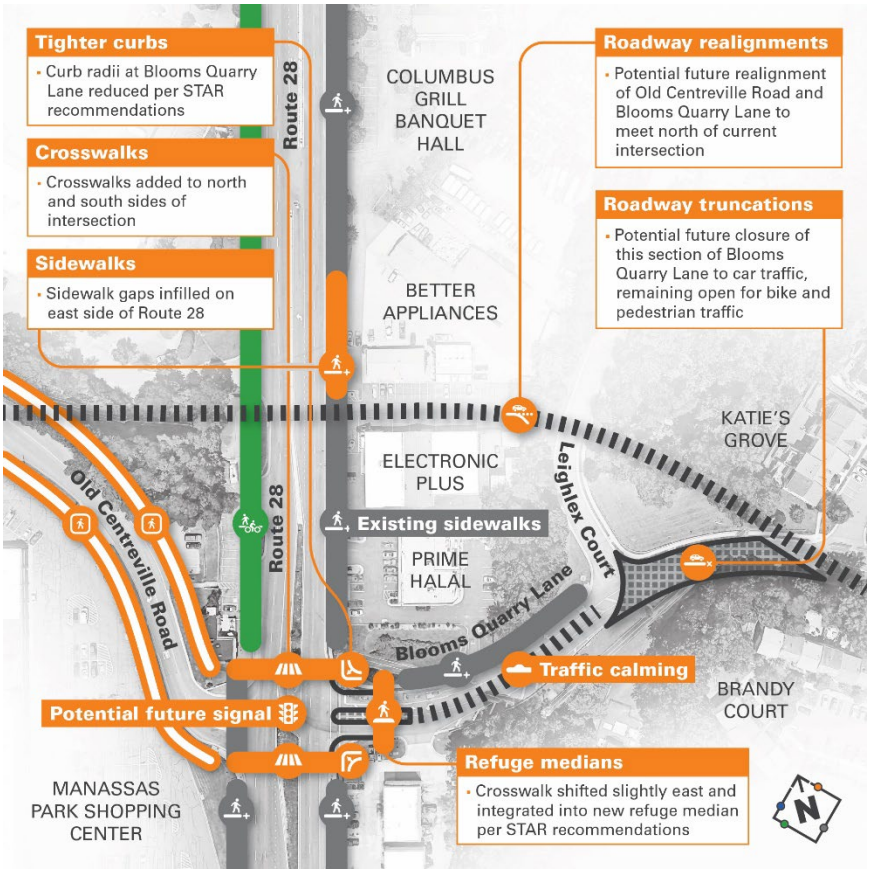
Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

OTHER PROJECTS AFFECTING THIS LOCATION:

The STARS recommendations propose minor changes in this section of Route 28 in the form of a small reconfiguration of the left-turn lanes. The recommendations above complement these changes.

LOCATION 14:

ROUTE 28 & BLOOMS QUARRY LANE



Example RRFB crosswalk in Osceola County, FL (Bike/Walk Central Florida)

RECOMMENDED IMPROVEMENTS:

Crosswalks: Add high-visibility crosswalks at the intersection with Blooms Quarry Lane and Old Centreville Road. These would be contingent on the future addition of a signal (see below).

Tighter Curbs: Per the STARS recommendations, reduce the curb radii at Route 28's intersection with Blooms Quarry Lane and Old Centreville Road.

Traffic Calming: Apply traffic calming tools to Blooms Quarry Lane to discourage cut-through traffic.

Traffic Signals: Explore a future signal at the intersection with Blooms Quarry Lane and Old Centreville Road. In addition to serving traffic movements, this signal would serve the crosswalks above.

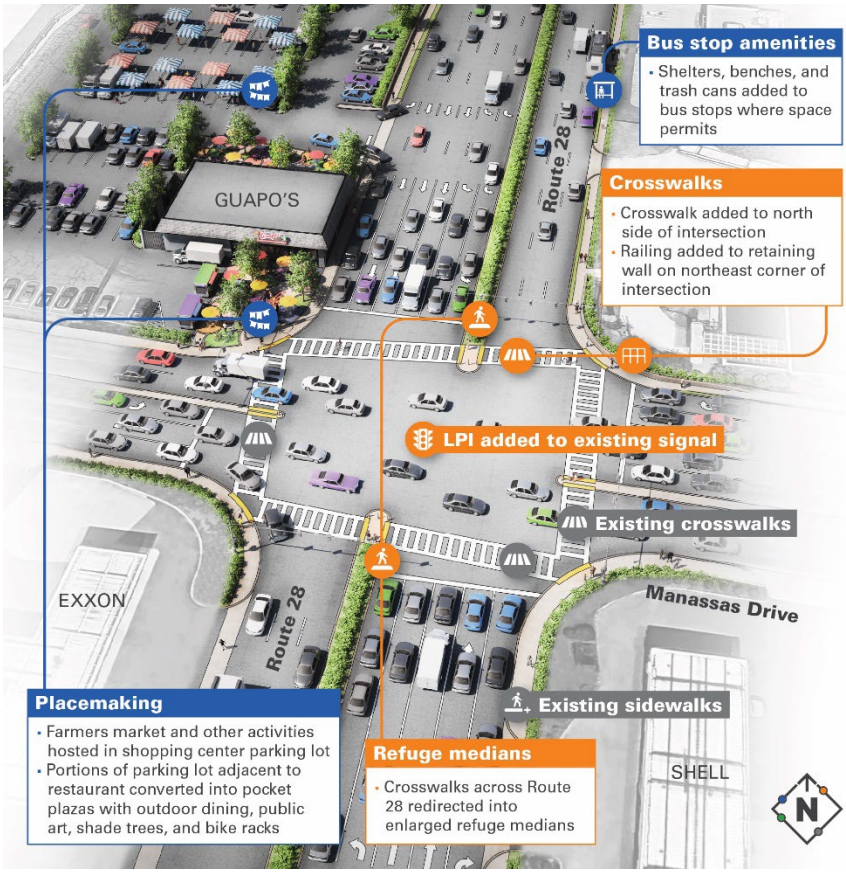
Roadway Realignments: In the future, explore realigning Blooms Quarry Lane and Old Centreville Road so they intersect with Route 28 north of the current intersection. While this would require property acquisition, it would create more space between the Manassas Drive and Blooms Quarry Lane/Old Centreville Road intersections to allow the latter to be signalized in the future.

Roadway Truncations: In the future, explore closing the section of Blooms Quarry Lane after Leighlex Court to cars and other vehicles, keeping it open for bike and pedestrian traffic. By eliminating Blooms Quarry Lane as a connector between Route 28 and Euclid Avenue, this truncation would discourage through traffic and allow Blooms Quarry Lane to become a quieter neighborhood street.

Shared-Use Paths: Add a shared-use path on the west side of Route 28 to accommodate cyclists.

LOCATION 15:

ROUTE 28 & MANASSAS DRIVE



Example bus stop with amenities in Los Angeles (Tolar Manufacturing)

RECOMMENDED IMPROVEMENTS:

Placemaking: Convert portions of the Manassas Park Shopping Center's parking lot adjacent to the restaurant into pocket plazas containing seating, public art, shade trees, and bike racks. The parking lot can also host farmers and flea markets, food trucks and vendors, and other activities.

Bus Stop Amenities: Where space permits, add shelters, benches, and trash cans to the OmniRide bus stops along Route 28 (see example on this page).

Crosswalks: Add a high-visibility crosswalk on the north side of Route 28's intersection with Manassas Drive and add a railing to the retaining wall on the northeast corner of the intersection.

Refuge Medians: Enlarge the medians along Route 28 and direct both crosswalks through them.

Traffic Signals: Add a leading pedestrian interval (LPI) to the existing signal at the intersection.

OTHER PROJECTS AFFECTING THIS LOCATION:

- The STARS recommendations propose minor changes in this section of Route 28 in the form of reconstructing the crosswalk curb cuts. The recommendations above complement these changes.

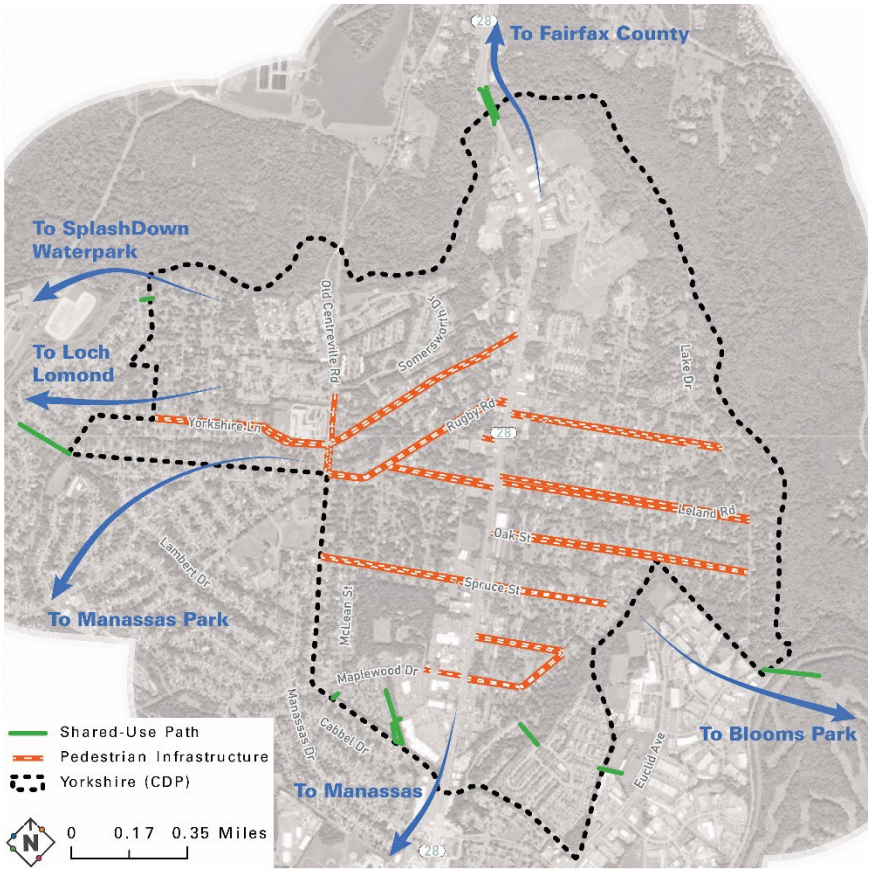
Project Fact Sheets – Off-Corridor

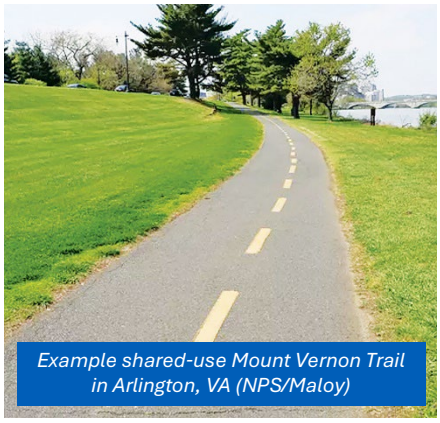
Off-corridor improvements will improve mobility outside of the Route 28 corridor, encouraging active travel to key points of interest in Yorkshire. These recommendations aim to improve safety for active travelers and promote connectivity from residential areas to Route 28. Pedestrian infrastructure is recommended on key roads leading to Route 28. Pedestrian infrastructure recommendations include alternative treatments like advisory shoulders. The list of off-corridor improvements includes the following treatments:

- A fully connected sidewalk network around Yorkshire Elementary School, a central node from which bicycle-pedestrian improvements can be built throughout Yorkshire.
- Bicycle-pedestrian infrastructure on arterial roads connecting to Route 28.
- Shared-use paths improving connections to other residential areas, local parks, and shopping centers.

OFF-CORRIDOR 1:

CONNECTIONS TO ROUTE 28 AND BEYOND





Example shared-use Mount Vernon Trail in Arlington, VA (NPS/Maloy)

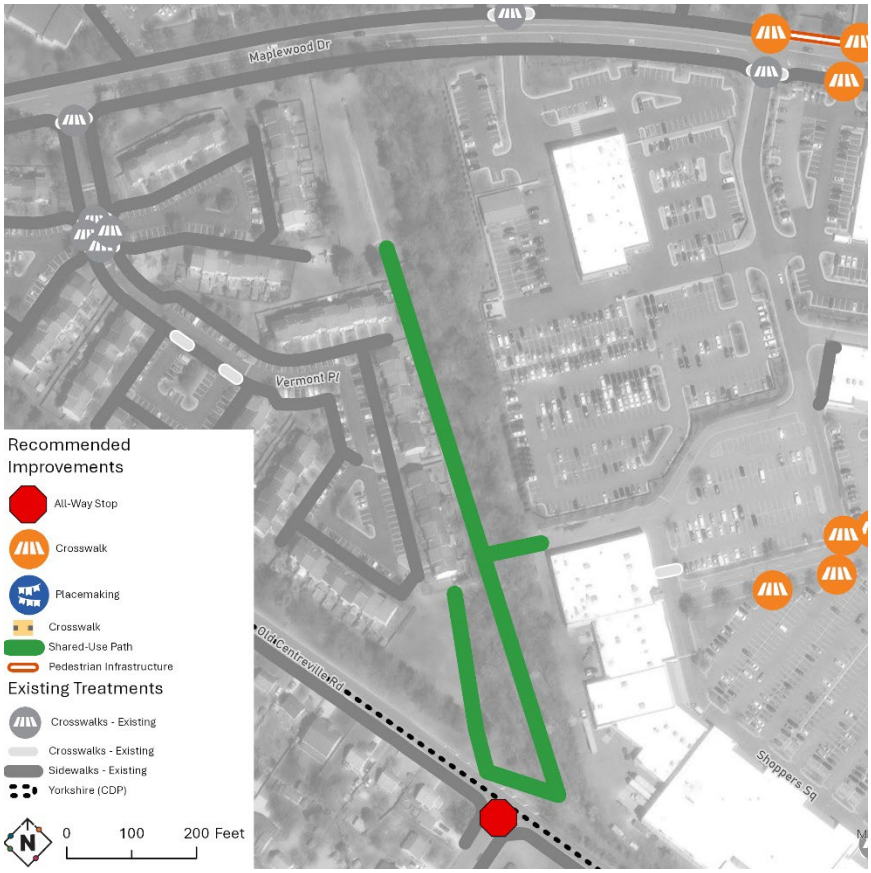
RECOMMENDED IMPROVEMENTS:

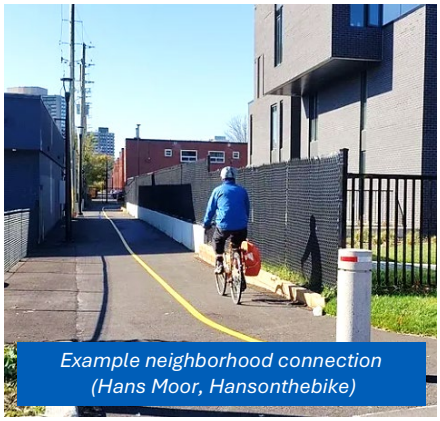
Shared-Use Paths: Build shared-use paths across the study area to improve connections between Yorkshire and the surrounding communities and parks (see map and example on this page).

Pedestrian Infrastructure: Add pedestrian infrastructure on major arterial roads connecting to Route 28 to promote active transportation from residential areas to destinations along and across the corridor.

OFF-CORRIDOR 2:

MAPLEWOOD CENTER SHARED-USE PATHS





Example neighborhood connection (Hans Moor, Hansonthebike)

RECOMMENDED IMPROVEMENTS:

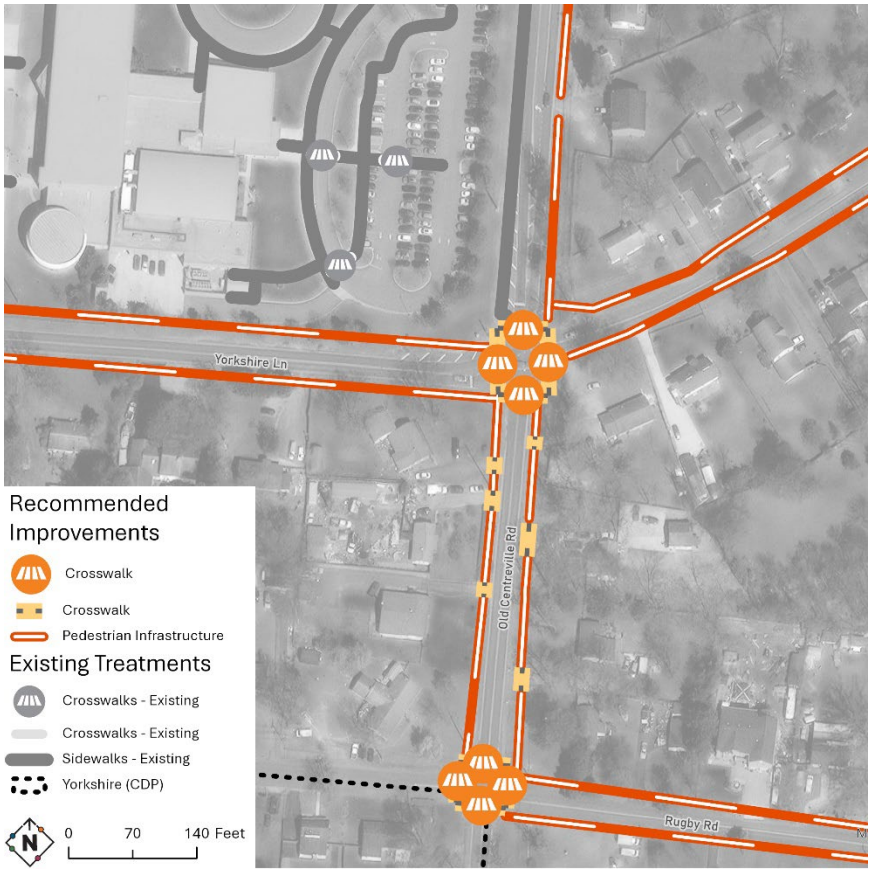
Shared-Use Paths: Build shared-use paths along the desire lines behind Maplewood Center to improve connectivity between the shopping center and its surrounding neighborhoods (see example on this page).

Crosswalks: Add high-visibility crosswalks across Maplewood Drive and across the entrances to Maplewood Center.

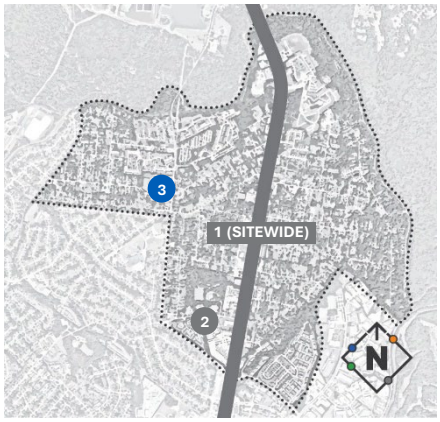
All-Way Stop Signs: Add an all-way stop sign at Cabbel Drive and Old Centreville Road as a traffic calming measure to protect pedestrians using the new shared-used paths.

OFF-CORRIDOR 3:

YORKSHIRE ELEMENTARY SCHOOL



Example Safe Routes to School route in Elyria, OH (Lorain County Public Health)



RECOMMENDED IMPROVEMENTS:

Pedestrian Infrastructure: Build out the sidewalk network around Yorkshire Elementary School to improve pedestrian safety to/from school, and to serve as a central node from which to expand pedestrian infrastructure beyond Route 28 itself (see example on this page).

Crosswalks: Complementing the sidewalk network around Yorkshire Elementary School, build out the high-visibility crosswalk network to support pedestrian safety across the road network around the school. For all pedestrian infrastructure, including high-visibility crosswalks, pay particular attention to improving common walking routes to/from school, including walking routes to/from any "third places" and recreational facilities (e.g., the Manassas Park Community Center and Costello Park) that children and parents may be frequenting before/after school.

Prioritizing Gaps

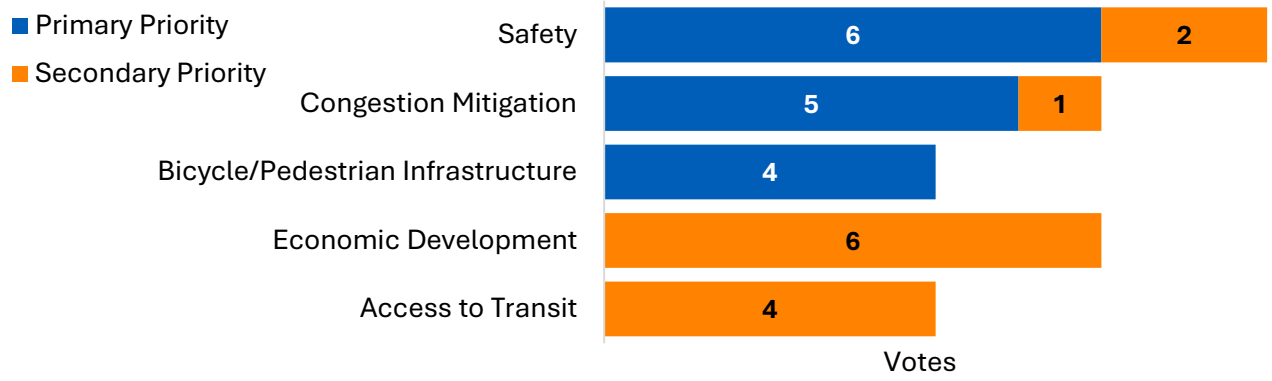
Recognizing that improvements proposed in this plan cannot be implemented simultaneously, the project team developed a framework for evaluating the urgency of addressing identified network gaps. This framework provides a location-based sequence for implementing recommendations, based on stakeholder priorities.

Stakeholder Priorities

To align the prioritization framework with local priorities, the project team hosted a corridor audit to brief stakeholders on recommendations, gather their feedback, and ask for their opinions on the most important interventions along the corridor. This corridor audit, which took place on February 15th and 16th, 2024, included Prince William County officials, the consultant team, and stakeholders; see the Summary of Corridor Audit for more details on this process.

During the corridor audit, stakeholders discussed their opinions on each location's multimodal infrastructure, considering the perspectives of a person walking, cycling, rolling, and driving. Subsequently, the consultant team presented findings from its analysis of existing conditions, and prompted stakeholders to identify what they deem the most important and second most important goals for investments along the corridor. Stakeholders identified safety, congestion mitigation, and bicycle/pedestrian infrastructure as primary priorities; secondary priorities identified included safety, congestion mitigation, access to transit, and economic development. **Figure 14** depicts the results of this prioritization exercise.

Figure 14: Stakeholder Priorities

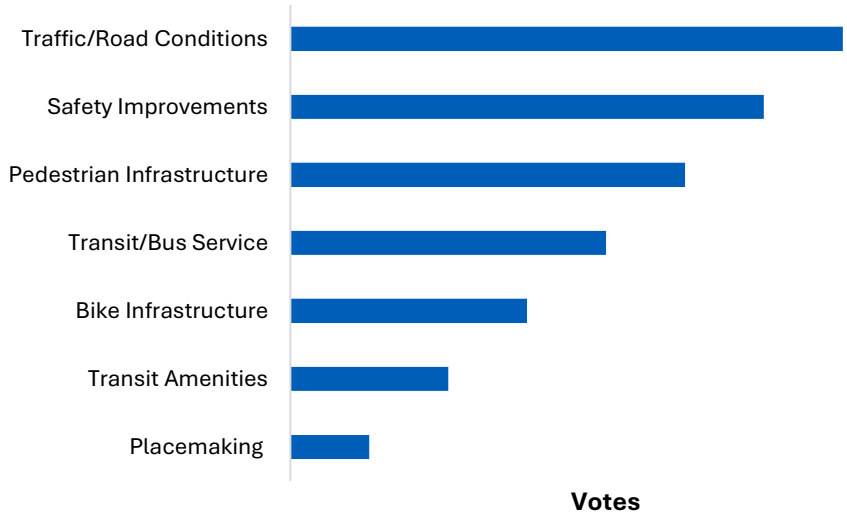


A plurality of stakeholders indicated their primary priority for corridor interventions is safety. Congestion management and bicycle/pedestrian infrastructure were also voted primary priorities. While no stakeholders identified it as a primary priority, a plurality named economic development their secondary priority. Access to transit also received no primary priority votes, but four stakeholders identified it as their secondary priority.

Community Priorities

Prince William County also conducted an engagement survey to county residents to learn more about how they travel on Route 28 and asking for their opinions about improvements to the Route 28 corridor. The survey received responses from 143 respondents. **Figure 15** shows the results of the survey:

Figure 15: Community Survey Priorities



The most important priorities for improvements to Route 28 largely align between Prince William County's stakeholders and residents. Residents prioritize improvements that would alleviate traffic congestion, improve safety conditions and promote walkability.

Prioritization Methodology

The project team developed a two-step methodology that prioritizes locations and off-corridor recommendations for investments based on the priorities expressed by stakeholders:

- The first step determines whether plans for each location/off-corridor recommendation address safety, congestion mitigation, bicycle/pedestrian infrastructure, economic development, and/or access to transit goals.
- The second step assigns two points to each location and off-corridor recommendation for every primary priority vote that a goal received, and one point to each location for every secondary priority vote that a goal received. Put differently, if planned investments would improve safety, that project received 12 primary priority points and two secondary priority points.

Critically, the prioritization framework evaluates projects exclusively based on stakeholder priorities without consideration for implementation cost, feasibility, or timeline. Based on these prioritization scores, high, medium, and low priority interventions are identified. **Table 1** summarizes this scoring methodology.

Table 1: Prioritization Scoring

	Prioritization Points
Safety	15
Congestion Mitigation	11
Bicycle/Pedestrian Infrastructure	8
Economic Development	6
Access to Transit	4

Findings and Results

Table 2 summarizes the results of this prioritization process. The recommendations at the intersections of Route 28 and Blooms Quarry, Manassas Drive, and Falls Grove Drive are expected to result in the greatest improvements based on stakeholder priorities. Additionally, off-corridor recommendations related to sidewalks, paved shoulders, and other treatments best address stakeholder priorities. Top priorities are not an indication of timeline, however. Additional planning, including public support and ability to secure funding, will drive implementation. This list is designed to be opportunistic and flexible based on public support, political will, funding availability, and alignment with other construction projects.

Table 2: Prioritization Results

Locations	Safety	Congestion Mitigation	Bike/Ped Infrastructure	Access to Transit	Economic Development	Prioritization Score	
Route 28 & Blooms Quarry	15	11	8	4	6	44	High Priority
Route 28 & Manassas Drive	15	11	8	4	6	44	
Route 28 & Falls Grove Drive	15	11	8	-	6	40	
Route 28 & Leland Road	15	11	8	4	-	38	
Route 28 & Browns Lane	15	11	8	4		38	
Route 28 & Brooks Lane	15	11	8	-	-	34	Medium Priority
Route 28 & North of Rugby Road	15	11	8	-	-	34	
Route 28 & Oak Street	15	11	8	-	-	34	
Route 28 & Patton Lane	15	11	8	-	-	34	
Route 28 & Rugby Road	15	11	8	-	-	34	
Route 28 & Spruce Street	15	11	8	-	-	34	
Route 28 & Orchard Bridge Drive	15	-	8	-	6	29	Low Priority
Route 28 & Shoppers Square	15	-	8	-	6	29	
Route 28 & Birch Street	15	-	8	-	-	23	
Route 28 & Maplewood Drive	15	-	-	-	-	15	
Off-Corridor Recommendations							
Sidewalks, Paved Shoulders, and Other Treatments on Corridors Approaching Route 28	15	11	8	-	-	34	Medium Priority
Sidewalks, Paved Shoulders, and other Treatments around Yorkshire Elementary and Old Centerville Road	15	11	8	-	-	34	
Maplewood Center Pedestrian-only Paths	15	-	8	-	-	23	Low Priority
Connections to Corridor Recommendations	-	11	-	-	-	11	
Connections Outside of Yorkshire	-	11	-	-	-	11	

Estimated Cost of Priority Recommendations

The study team prepared scale-of-magnitude cost estimates for each proposed project. As these projects have not gone through design, there are considerable unknowns regarding each project's final scope and cost. Cost estimates are intended to inform decisionmakers on the relative scale and complexity of each project.

Methodology

Improvement costs were estimated using VDOT's Project Estimating Spreadsheet (Staunton Estimating Tool), Similar Project Estimates by Cost Category (SPECC), and Traffic Calming Guide for Neighborhood Streets, where possible. It should be noted, however, that costs are extremely variable depending on right-of-way (ROW) acquisition needs, feasibility studies, construction costs, labor market fluctuations, and economic conditions. For this reason, low estimates and high estimates are provided to capture some of the anticipated variability. Additionally, to account for project unknowns, the team assigned a moderate (20 percent) contingency onto the project cost. As proposed projects progress in their planning and design, more precise cost estimates would be developed with lower assumed contingencies. Base cost assumptions or the higher estimates (excluding contingency) are included in **Table 3**.

Table 3: Base Cost Assumptions

IMPROVEMENT TYPE	COST
Signalized Intersection	$400,000 per signal
High Visibility Crosswalks and Ramps	$8 per linear foot, $1,800 per ramp
6' Median Refuge Island	$6,000 per island
Curb Radius Reduction	$2,000 per corner
Traffic Calming	$20,000 per site
Placemaking	$20,000 per site
Bus Stop Amenities	$18,000 per stop
Leading Pedestrian Interval (LPI)	$4,000 per signal
5' Concrete Sidewalk	$75 per linear foot
10' Shared Use Path	$340 per linear foot

Note that these are preliminary planning level cost estimates. No surveying was completed to identify potential additional cost escalation factors such as utility relocation, specific drainage, topography, or right-of-way acquisitions.

Findings and Results

The following tables detail planning level cost estimates for the priority projects along Route 28 at Blooms Quarry Lane, Manassas Drive, and Falls Grove Drive. Relative to other improvement costs, key low-cost improvements include median refuge islands, high visibility crosswalks, curb radius reductions, and traffic calming. The highest improvement costs are adding sidewalks and RRFBs. It is worth noting that on-corridor recommendations could be bundled or accounted for as part of the larger STARS infrastructure project for Route 28.

Table 4: Route 28 & Blooms Quarry Lane (Short-Term Recommendations)

IMPROVEMENT TYPE	UNIT	LOW ESTIMATE	HIGH ESTIMATE
Traffic Signal	4	$800,000	$1,600,000
High Visibility Crosswalks	3	$13,000	$15,000
6’ Median Refuge Island	1	$6,000	$9,000
Curb Radius Reduction	2	$2,000	$20,000
10’ Shared Use Path	600 LF	$72,000	$204,000
5’ Concrete Sidewalk	155 LF	$12,000	$26,000
Traffic Calming	2	$30,000	$40,000
Base Cost		$935,000	$1,914,000
Contingency		$187,000	$383,000
Total Cost		**$1,122,000**	**$2,297,000**

Table 5: Route 28 & Mannassas Drive

IMPROVEMENT TYPE	UNIT	LOW ESTIMATE	HIGH ESTIMATE
Placemaking	1	$5,000	$20,000
Bus Stop Amenities	1	$10,000	$18,000
High Visibility Crosswalk	1	$3,000	$4,000
6’ Refuge Median	2	$12,000	$18,000
Leading Pedestrian Interval (LPI)	4	$8,000	$16,000
Handrail	1	$24,000	$48,000
Base Cost		$62,000	$124,000
Contingency		$13,000	$25,000
Total Cost		**$75,000**	**$149,000**

Table 6: Route 28 & Falls Grove Drive

IMPROVEMENT TYPE	UNIT	LOW ESTIMATE	HIGH ESTIMATE
5’ Concrete Sidewalk	220 LF	$17,000	$37,000
Traffic Calming	2	$30,000	$40,000
6’ Median Refuge Island	2	$12,000	$18,000
High Visibility Crosswalk	1	$3,000	$4,000
10’ Shared Use Path	1200 LF	$255,000	$408,000
Base Cost		$317,000	$507,000
Contingency		$63,000	$101,000
Total Cost		**$380,000**	**$608,000**

Conclusion and Next Steps

Yorkshire, and Route 28 more specifically, will experience congestion and population growth pressures as Prince William County continues to attract businesses and residents. This study identified specific projects the County and its partners can pursue to help mitigate congestion, back multi-modal travel options, and take advantage of the unique spots in Yorkshire that could better serve the community and welcome visitors.

The future of Route 28 does not need to match its history as an auto-centric corridor, especially considering a potential future bypass which could transform not only how people move about the area, but also how people conceive of Yorkshire. While many of the specific infrastructure recommendations are dependent on the bypass coming to fruition, the tenets of community placemaking and safety for all roadway users on Route 28 transcends any one project or investment.

Key Takeaways and Findings

The Route 28 TLC study explores how Yorkshire, Prince William County, MWCOG, VDOT, and other essential partners can better provide new and enhanced infrastructure to meet the growing demand for safe travel and convenient travel. The key takeaways and findings can be summarized as follows:

- **Existing Conditions:** The existing conditions analysis of Route 28 and Yorkshire included a literature review and inventory of infrastructure that supports walking, bicycling, and rolling. The findings of the literature review identified the STARS recommendations as the leading set of recommendations guiding future roadway design decisions on the corridor.
- **Corridor Audit and Gap Analysis**: Using findings from the study team's existing conditions analysis, the study team identified major barriers to walking, bicycling, and rolling on Route 28. The existing conditions analysis combined with a first-hand experience of the area culminated in 15 discrete on-corridor intersection and segment locations, which formed the basis for identifying recommendations. An additional 3 off-corridor intersection and segment locations were also identified, forming the basis for recommendations to connect people to Route 28 not just along Route 28.
- **Recommended Improvements**: Recommendations were developed using strategies outlined in the Recommendations Toolbox, which details industry standards and best practices for multi-modal infrastructure, safety countermeasures, and placemaking.
- **Prioritization and Costs**: The steering committee drove the development of a project prioritization framework focused on improving safety for people walking, bicycling, rolling, and accessing transit, as well as relieving congestion. Applying this framework, the project team distilled three top priorities – Route 28 and Falls Grove, Route 28 and Blooms Quarry Lane, and Route 28 and Manassas Drive. These recommendations compliment and build upon the STARS study and should be accounted for in design and budget within the larger infrastructure project.

What's Needed Next

This study was one of a number of actions and investments needed to transform Route 28 into a place that people not only traverse through, but also a place people want to spend time. To fully realize the potential of the place, there are five main next actions that should be undertaken:

Outreach to the Neighborhood: Yorkshire residents and visitors need to be engaged to define the character and identity of their community. Meaningful and intentional engagement opportunities can help to identify issues this study may have overlooked or prioritized differently. Three aspects to bring to the forefront of Yorkshire neighborhood outreach include: meeting people where they are to maximize involvement, listening, and connecting with the Spanish-speaking community.

Conduct a Small Area Plan: Yorkshire needs a small area plan, part of the Comprehensive Plan, to guide future growth and development as it relates to both the natural and the built environment, including land use, mobility options, cultural resources, and environmental assets. At the heart of a small area plan purpose is championing a discrete place's unique character and vision. In particular, the small area plan should emphasize creating a distinct sense of place resonate with local community members.

Integrate Safety Recommendations into Ongoing Efforts: The recommendations contained herein do not exist in a silo. Instead, the recommendations relate to and support other ongoing efforts, including the County's Safety Action Plan and VDOT's STARS study. Both the on-corridor and off-corridor recommendations should align with and build upon the results of these efforts, as well as the long-range transportation plan and other pertinent plans.

Identify and Securing Funding: The Bipartisan Infrastructure Law (BIL) established a once-in-a-generation opportunity to fund projects that prevent roadway deaths and serious injuries. The safety-focused recommendations of this study, plus the Safety Action Plan, can come to fruition with funding from the Safe Streets and Roads for All (SS4A) Grant Program, specifically the Implementation Grants. There are also funding opportunities outside of SS4A and discretionary grants, including but not limited to Transportation Alternatives Program (TAP), Congestion Mitigation and Air Quality (CMAQ), the Active Transportation Infrastructure Improvement Program (ATIIP) and the Virginia Highway Safety Improvement Program (VHSIP).

Partner with Arts Community: The placemaking recommendations within Yorkshire represent an opportunity for local artists to work with communities to enhance the public realm. Local artists can work


Guapo's

Appendix

Route 28 – Yorkshire: Transportation & Land Use Connections Study

Task 2: Literature Review

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Tables and Figures

OVERVIEW

Review of current and previous plans produced by Prince William County and other government agencies provides additional context to the Route 28 – Yorkshire: Transportation & Land Use Connections Study. Documents reviewed include the county's current strategic plan, previous strategic plans, capital improvement plans and projects, and projects related to bicycle, pedestrian, and transit infrastructure improvements.

The Study area is contained within one of the 212 Opportunity Zones designated by the U.S Department of Treasury as a part of the Opportunity Zone and Opportunity Fund programs. These programs allow investors to receive tax incentives for investing in low-income areas. Another relevant federal program, the Justice 40 initiative, requires that 40% of federal investments in certain quality of life areas, like affordable housing and transit, go to disadvantaged communities. The Opportunity Zone designation plus the Justice 40 initiative represent two funding opportunities for the study area as the project moves from literature review to recommendations to implementation.

The review of plans clarifies community goals and guiding principles for the planning process and describes the allocation of resources dedicated to achieving those goals. The review of recently completed and relevant plans also reveals gaps in planning efforts, notably a relevant bicycle, pedestrian, and trails master plan, as well as similar small area and transit access planning efforts.

FY2024 – 2029 CAPITAL IMPROVEMENT PLAN

Prince William County's FY2024 – 2029 Capital Improvement Plan (CIP) details the capital planning process, which is completed by each county agency annually and covers a five-year period. The capital budget is appropriated each year and is included in each annual adopted budget. The CIP categorizes projects into six areas: Community Development, Human Services, General Government, Public Safety, Technology Improvement, and Transportation. Sources of funding for each project are also included, as well as debt service costs. Transportation is the largest expenditure category, accounting for over $877.8 million, which totals 63.7% of expenditures from FY2024 through FY2029.

New project submissions for capital funding are evaluated by several county department staff, including Executive Management, Finance, Information Technology, Management & Budget, Planning, Public Works, and Transportation. Funding for projects is prioritized by relation to community sentiment and goals laid out in the most recently adopted comprehensive plan and strategic plan, completion status of current projects, and mandated improvements to infrastructure in the county. Once projects are prioritized, they are balanced against available levels of funding. After evaluation, recommendations are reviewed, updated, and approved by the County Executive. The CIP also includes updates to current, ongoing, and future projects to begin during the specified time period. Some of the projects listed below are located outside of the study area, however completeness was prioritized over geographic proximity. Improvements to bicycle, pedestrian, and transit infrastructure are detailed in the Transportation section of the CIP and are listed below in **Table 1**.

Table 1: FY2024 - 2029 Bicycle, Pedestrian, and Transit Infrastructure Projects

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT MILESTONES	PROJECT DESCRIPTION
Dove Landing Park	Bicycle and Pedestrian	Design began in FY23; Construction scheduled to begin FY24	Park will be expanded from 204 acres to 306 acres with additional trails, boardwalks, a fishing pier, a kayak and canoe launch, and additional parking spaces.
Ellicott Street Sidewalk	Pedestrian	Design began in FY23; Right-of-way scheduled for FY24; Construction scheduled to begin FY27	Sidewalk will be expanded to 140 feet, with an additional 330 feet of sidewalk constructed to connect to Occoquan Greenway, including ADA ramps and crossings between Poplar Alley and Union Street.
James Madison Highway	Pedestrian	To Be Determined	A pedestrian bridge will be constructed across James Madison Highway (Route 15) at the intersection of Dominion Valley Drive and Graduation Drive.
Neabsco Mills Road	Bicycle and Pedestrian	Design completed in FY21; Right-of-way completed in FY21; Construction began in FY23	The road will be widened from two lanes to four lanes from Route 1 to Dale Boulevard. Intersection improvements are being constructed, in addition to bicycle and pedestrian facilities, and curbs and gutters.

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT MILESTONES	PROJECT DESCRIPTION
North Woodbridge – Annapolis Way	Bicycle and Pedestrian	Design completed in FY23; Right-of-way began in FY23; Construction scheduled to begin FY24	A two-lane roadway spanning approximately 0.28 miles will be constructed to connect Annapolis Way to Marina Way. Bicycle and pedestrian facilities will be constructed on both sides of the roadway.
North Woodbridge – Marina Way	Pedestrian	Design began in FY23; Right-of-way scheduled to begin in FY26; Construction scheduled to begin FY28	Marina Way will be extended as a four-lane roadway by approximately 0.26 miles from Gordon Boulevard to Annapolis Way. The extension will include five-foot-wide sidewalks, turning lanes, and signal modifications.
Old Bridge Road – Occoquan Intersection	Pedestrian	Preliminary Engineering began in FY22; Right of Way scheduled for completion in FY25; Construction scheduled to begin in FY26	A pedestrian crosswalk will be installed across the westbound approach of Old Bridge Road. The intersection will be realigned by constructing a right turning lane on the southbound approach on Occoquan Road.
Old Bridge Road – Prince William Parkway Intersection	Pedestrian	Preliminary engineering began in FY24; Right of way scheduled to begin FY23; Construction scheduled to begin FY26	Prince William Parkway (Route 294) will be realigned as a six-lane roadway that will make Prince William Parkway the main flow for traffic. Old Bridge Road will be realigned as a four-lane roadway that will create a T-configuration alignment to Prince William Parkway. Touchstone Circle will be converted to an unsignalized right-in/right-out traffic flow. A five-foot-wide sidewalk on the south side of the intersection and a 10-foot-wide trail on the north side of the intersection will be constructed with pedestrian crossings. Additionally, stormwater management facilities will be improved per engineering analysis and design recommendations.
Old Bridge Road	Pedestrian	Construction is scheduled for completion in FY24	Funding has been allocated to design and construct a sidewalk connecting Oakwood Drive and Forest Hills Road.

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT MILESTONES	PROJECT DESCRIPTION
Potomac/Neabasco Mills Commuter Garage	Transit	Conceptual design and transportation impact analysis completed in FY17; Location study completed in FY19; Land acquisition completed in FY19; Preliminary design completed in FY20; Final design and construction began in FY22 and scheduled for completion in FY24	A garage with 1,400 parking spaces will be constructed as a park and ride lot for commuters in order to relieve capacity at the Route 1 and Route 234 park and ride lots. The garage will be constructed near Potomac Town Center and the Neabsco Mills Road widening project.
Route 1 – Brady's Hill Road to Route 234	Bicycle and Pedestrian	Design started in FY22 and scheduled for completion in FY24; Right-of-way scheduled for completion in FY25; Construction scheduled to begin FY26	The road is being widened to a six-lane facility in the northbound direction through Dumfries and will include sidewalks and bike lanes. The southbound alignment will be converted into a two-way roadway for local traffic.
Route 1 – Featherstone Road to Marys Way	Bicycle and Pedestrian	Design completed in FY20; Right-of-way completed in FY19; Utility duct bank construction completed in FY20; Construction began in FY21 and is scheduled for completion in FY24	Route 1 will be widened from a four-lane undivided highway to a six-lane divided highway from Featherstone Road to Marys Way, approximately 1.3 miles. A multi-use trail and five-foot-wide sidewalk were constructed, and pedestrian improvements were made at the signalized intersection.
Sudley Manor Drive	Pedestrian	Construction scheduled for completion in FY24	Funding has been allocated to design and construct 1,165 linear feet of five-foot-wide asphalt sidewalk along Sudley Manor Drive north of Linton Hall Road to approximately 750 feet south of Victory Lakes Loop.
University Boulevard	Bicycle and Pedestrian	Procurement scheduled to begin FY24; Design and construction scheduled to begin in FY24 and end in FY30	University Boulevard will be extended from its current terminus at Devlin Road to Wellington Road by approximately 2.5 miles. The extension will be a four-lane roadway. A ten-foot wide shared-use path will be constructed, including a five-foot sidewalk.

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT MILESTONES	PROJECT DESCRIPTION
Howison Park	Pedestrian	Design scheduled for completion in FY23; Permitting and construction bidding scheduled to begin in FY24; Construction scheduled to begin in FY24	Improvements to the park will include ADA-compliant pathways, parking lot lights, and expanded restrooms. A soccer complex with a seating capacity of 2,500 seats will be constructed.
Occoquan Greenway	Bicycle and Pedestrian	Design of segments five and six began in FY23; Construction of segments five and six scheduled for completion in FY24	The completed trail will connect the town of Occoquan to the McCoart Government Complex for use by hikers, cyclists, and equestrians. Trail segments three and four were completed during FY23, while segments five and six are scheduled to be completed during FY24.
Neabsco Greenway	Bicycle and Pedestrian	Design scheduled for completion in FY24; Right-of-way scheduled for FY24; Construction is scheduled for FY26	The trail connects communities from Andrew Leitch Park to the Sharron Baucom Dale City Recreation Center. The trail will be used by cyclists, pedestrians, and equestrians, and will provide an alternative transportation route between parks and school sites.
Open Space and Accessibility Projects	Pedestrian	Land acquisition is ongoing; Stabilization repairs for the Williams-Dawe House were completed in FY23	The County plans to purchase land to create public open space, and complete accessibility projects at parks throughout the County.
Potomac Heritage National Scenic Trail	Bicycle and Pedestrian	Featherstone Refuge segment: Construction scheduled to begin FY24; Neabsco Creek Wetland Preserve Boardwalk segment: construction scheduled to begin in FY23	This project builds three major segments of a large multi-use trail that links the Potomac and the Ohio River Basins and provides segments for cyclists and pedestrians. Future trail segments will extend the trail network from the Woodbridge Magisterial District to the Potomac Magisterial District to the Stafford County line.
Powells Creek Crossing	Bicycle and Pedestrian	Design scheduled for completion in FY24; Construction scheduled to begin in FY25	A segment of the future Potomac Heritage National Scenic Trail will be constructed to link the Potomac and the Ohio River Basins. The trail will include dedicated segments for cyclists and pedestrians.

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT MILESTONES	PROJECT DESCRIPTION
Devlin Road	Bicycle and Pedestrian	Design of northern segment completed in FY23; Design of southern segment scheduled for completion in FY24; Right-of-way of northern segment scheduled for completion in FY24; Right-of-way for southern section scheduled to begin in FY24; Construction of northern segment scheduled to begin FY24, Construction of southern segment scheduled to begin FY26.	The addition of two more lanes on Devlin Road from Linton Hall Road and Wellington Road/relocated Balls Ford Road will expand the roadway from two to four lanes. The extension is approximately 1.8 miles and will connect Balls Ford Road/Route 234 (Prince William Parkway) Interchange, improving access to the Route 234 and Interstate 66 corridors. The extension also includes bicycle and pedestrian facilities.

Larger-scale projects, like the ones listed in **Table 1,** each have their own dedicated project pages in the CIP. Project pages include a description, impact of the service, sources of funding, project milestones, and a detailed view of revenue, expenditures, and operating impacts. Nearly all projects listed in the CIP include a site photo and nearby geography for context.

Figure 1 displays a typical site photo on a project page from the Potomac/Neabsco Mills Commuter Garage Site project.

Figure 1: Potomac/Neabsco Mills Commuter Garage Site

Improvements to bicycle and pedestrian infrastructure are a priority for the FY2024 – 2029 CIP. In addition to the projects described above, a number of improvements to existing parks to promote walking and bicycling are also included. Small-scale accessibility and safety improvements are also detailed, including ADA ramp upgrades, design and construction of sidewalks, filling in gaps in the sidewalk network, modification of pavement markings, trail upgrades, and installation of speed displays, signage, and street lighting. Smaller-scale projects like these do not have dedicated project pages in the CIP.

2021-2024 STRATEGIC PLAN

The following section details the current and past strategic plans of Prince William's County. A strategic plan is a visioning document outlines goals and objectives for the future of the County. Strategic plans are four-year plans built upon the foundation set by the County Comprehensive Plan. The strategic plan also guides decision-making about resource allocation in the County's yearly budgeting process.

In order to create a plan that accurately captures the priorities of residents, the plan development team conducted a 100% virtual engagement plan during the June to September of 2020. Public engagement also included public review period and listening session during May and June 2021.

The initial community engagement used to create plan focus areas, and priorities within each focus area. The online survey and conversations resulted in the creation of seven focus areas in this plan. The number of focus areas is not concrete; they can and do change according to the needs and priorities of the residents.

Within each priority group, the County has organized the document as such:

- **Goal Statement** – states what the focus/goal area expects to accomplish,
- **Objectives** – state what the county/community must do well to be successful,
- **Action Strategies** – state action steps to achieve the goal,
- **Key Performance Indicators/Measures (KPI)** – meaningful indicators that assess progress towards the goal.

The public engagement portion included:

- Online survey with over 2,700 responses,
- 12 virtual community conversations,
- Two focus groups, one of which focused on people experiencing homelessness, and
- Public review and comment period of draft plan.

The Strategic Plan contains seven areas of concentration:

- Health, Wellbeing, & Human Services
- Safe & Secure Community
- Resilient Economy
- Quality Education & Workforce Development
- Environmental Conservation
- Sustainable Growth
- Transportation & Mobility

The authors created KPIs to measure the County's progress on the strategic plan's goals. The Transportation and Mobility Section has listed 11 KPIs. However, no specific targets have been set yet. The establishment of baselines and targets is the job of the Reporting Committee, which will be established after the adoption of the strategic plan.

The Transportation and Mobility section of the plan is the most relevant to the corridor study. A summary of the relevant goal, objective, and action strategies can be found in **Table 2**.

Table 2: Summary of Relevant Strategic Plan Elements

TRANSPORTATION AND MOBILITY				
Goal: Provide an accessible, comprehensive, multimodal network of transportation infrastructure that improves local and regional mobility. Prince William County government will seek to prioritize providing equitable access to multimodal transportation options in the community.				
Objective TM-1: Adapt to changing mobility trends				
Action Strategy A	**Action Strategy B**	**Action Strategy C**		
Evaluate and monitor short-term and long-term mobility trends impacted by the pandemic.	Create policies that allow the county to anticipate and respond to emerging technologies.	Enhance local, state, regional, and federal partnerships to identify resources and leverage funding for mobility projects and initiatives.		
Objective TM-2: Improve multimodal options				
Action Strategy A	**Action Strategy B**	**Action Strategy C**	**Action Strategy D**	**Action Strategy E**
Improve connectivity of sidewalks and trails (paved and unpaved) for pedestrians and cyclists.	Improve intra-county bus system connecting activity centers.	Explore adding bus service to Metro on weekends.	Implement strategies and plans to reduce mobility related fatalities and injuries.	Increase access to mobility services by removing barriers of physical ability, geographic location, financial constraints, and digital literacy.
Objective TM-3: Increase public transportation utilization				
Action Strategy A	**Action Strategy B**	**Action Strategy C**		
Increase access to public transportation by providing subsidies to residents in need of financial assistance.	Initiate a public information campaign to increase awareness of transportation options.	Identify and prioritize infrastructure projects that improve accessibility and connection to transit.		

TRANSPORTATION AND MOBILITY				
Objective TM-4: Decrease congestion and fossil fuel usage, and improve travel time reliability				
Action Strategy A	**Action Strategy B**	**Action Strategy C**	**Action Strategy D**	**Action Strategy E**
Continue and expand telework options for County Employees.	Provide infrastructure to encourage telework options in the County for all residents.	Explore ways to incentivize remote work centers, including secure facilities.	Prioritize critical infrastructure projects that expand roadway capacity through the construction of new roadways or widenings, and new interchanges that support both local and regional mobility and sustainable growth	Focus on cost effective and innovative transportation designs that improve traffic flow to reduce congestion and reduce the need for future roadway widening.

In September of 2023, the committee issued the second annual update on the County's progress. Related to Transportation and Mobility, the County has:

- Executed an agreement with the U.S. Department of Transportation (USDOT) to develop a Comprehensive Traffic Safety Action Plan to reduce mobility-related fatalities.
- Adopted the Mobility Comprehensive Plan, which will provide an accessible, safe, comprehensive, multimodal transportation network.
- Approved approximately 33 projects in the design or construction phases that will decrease congestion, improve walkability, and prevent fatalities.

The County has also reported improvement in five of the Transportation and Mobility KPIs (#1, 2, 9,10, and 11). KPIs #4 and #5 remained the same since the previous year and #6 through #8 did not have data available for comparison at the time of writing.

PREVIOUS STRATEGIC PLANS

Prince William County's strategic plans from previous years provide additional context for the development of bicycle, pedestrian, and transit infrastructure in the county from 2013 to 2020. These plans describe priorities in several broad categories, as well as geographic areas of emphasis for the county in their respective time periods. Strategic plans also describe the evolution of the strategic planning process and the development of priority areas and goals. Review of these plans provides insight into the county's planning vision and priority areas. The county also publishes annual updates to each strategic plan, detailing progress on specific goals in relation to their targets.

2017 – 2020 STRATEGIC PLAN

The 2017 – 2020 Strategic Plan laid out five main strategic goal areas: Mobility, Quality Education & Workforce Development, Robust Economy, Safe & Secure Community, and Wellbeing. The purpose of the plan was to guide decision-making for the County Board and staff, rather than dictating specific tactics to be implemented. The plan prioritizes quality of life as a guiding principle of the plan.

Within the Mobility goal area, three strategic outcomes were specified, each with a set of nested, relevant goals. The outcomes and goals are detailed below in **Table 3**. As of the Strategic Plan Update – Year Three (2019), one goal of nine was progressing on target, seven goals of nine were below their target, and data was not available for the remaining goal.

Table 3: 2017 - 2020 Strategic Plan Mobility Outcomes and Goals

STRATEGIC OUTCOMES	GOALS
Decrease percentage of residents commuting out of the county	1. Decrease percentage of the Prince William County workforce commuting to other localities for employment from 69%.
Decrease congestion and travel time	2. Improve I-66 Corridor (Rt. 234 to Sycamore Street) position on the INRIX Traffic Scorecard from 47/356. 3. Improve I-95 Corridor (Opitz Blvd. to Rt. 123) position on the INRIX Traffic Scorecard from 194/356. 4. Decrease average travel time to work for County residents from 39.3 minutes.
Increase use of buses, vanpools, slugging, telecommuting, and other single occupancy vehicle alternatives to get to work	5. Increase percentage of County commuter trips using public transit or carpools from 19.2%. 6. Increase number of County commuter trips on Virginia Rail Express (VRE) from 1.54 million commuter trips. 7. Increase number of County commuter trips on OmniRide and OmniLink from 2.48 million commuter trips. 8. Increase number of County commuter trips on vanpools from 374,42 commuter trips. 9. Increase number of commuters using park & ride lots from 11.83 million commuters.

2013 – 2016 STRATEGIC PLAN

The 2013 – 2016 Strategic Plan also included five main strategic areas: Economic Development, Education, Human Services, Public Safety, and Transportation. Within the Transportation section, five main outcomes were identified, and 10 strategies were created in order to achieve the broader outcomes. Strategies in the 2013 – 2016 Strategic Plan were not explicitly tied to broader outcomes in the way that they were in the 2017 – 2020 Strategic Plan. The outcomes are listed below in **Table 4**, while the strategies are described in **Table 5**. As of the plan's Year Four Update (2016), two outcomes had met or exceeded

their goals, one outcome ended worse than its baseline, and data was not available for the remaining two outcomes.

Table 4: 2013 - 2016 Strategic Plan Transportation Outcomes

STRATEGIC OUTCOMES
1. By 2016 the number of multimodal rider trips, to include OmniRide, VRE, slugging, carpooling and vanpooling, will increase from 8.72 million to 9.16 million.
2. Through 2016 the percentage of positive responses to the statement, "I can easily get around Prince William County by car," will remain at or above the baseline of 84%.
3. By 2016 the percentage of 2006 Road Bond projects either completed or under construction will increase from 54% to 92%.
4. By 2016, 15 cumulative miles of pedestrian trails and sidewalks will be constructed and added to the County's Comprehensive Plan roads.
5. By 2016, the percentage of County residents telecommuting will increase from 22% to 23%, as defined and reported by the Metropolitan Washington Council of Government State of the Commute Survey.

Table 5: 2013 - 2016 Strategic Plan Transportation Strategies

STRATEGIES
1. Pursue Federal, State, and private funding to complete the 2006 Road Bond program, specifically Minnieville Road, Route 1 and Route 28 (Supports Outcomes Two and Three)
2. Collaborate with the Potomac Rappahannock Transportation Commission (PRTC) and the Virginia Railway Express (VRE) on funding pursuits to enable service expansion and additional infrastructure (parking, platforms, shelters) as envisioned by the adopted PRTC and VRE strategic plans (Supports Outcome One)
3. Work with Virginia Department of Transportation (VDOT) to pursue funding and construct additional commuter parking lots, and parking structures that include pedestrian and transit accommodations (Supports Outcome One and Four)
4. Work with VRE and its other member governments on the prospective adoption of a station access policy that encourages carpooling and other shared-ride modes of access to VRE to lessen the dependency on single occupancy vehicles as a mean of improving access and decreasing the demand for parking (Supports Outcome One)
5. Take the leadership role to build the Route 234 North Bypass (the "Road to Dulles"), a key connector road for the region, linking major economic development centers in Prince William County to Dulles International Airport (Supports Outcome Two)

STRATEGIES
6. Work with VDOT, PRTC, VRE, the Department of Parks and Recreation, and the Trails and Blueways Council to pursue and identify funding for existing pedestrian needs around the County (Supports Outcome Four)
7. Coordinate the County's organizational initiatives on teleworking, flexible schedules, and other means of reducing commuter trips with the State legislative agenda (Supports Outcome Five)
8. Support and endorse Federal, State, regional and local telecommuting efforts (Supports Outcome Five)
9. Work with Metropolitan Washington Council of Governments (MWCOG) to represent the County's priorities with regard to regional transportation improvements in the Region Forward report (Supports Outcome Two)
10. Expand OmniLink service (Supports Outcome One)

2040 COMPREHENSIVE PLAN

A Comprehensive Plan is the county's long-term (typically 20 years into the future) guide for land use in the county. Virginia state law requires that the Comprehensive Plan be reviewed and amended as necessary every five years. The process establishes the vision, goals, and priority areas for the county. In this case: Land Use (which includes specific plans and goals for smaller regions within the county), Mobility, Housing Development, Parks, Recreation & Tourism (although the Department overseeing this section has renamed itself to the Department of Parks and Recreation), Environmental Conservation, and Utilities. Prince Williams County approved their Comprehensive Plan in December 2022. Since 2022, several sections, including Land Use, Mobility, and Housing, have been updated.

The Comprehensive Plan also guides the development of many other important documents such as the Zoning Ordinance, Strategic Plan, Capital Improvement Plan, and the annual budget. The elements that directly mention the study area are summarized in **Table 6.** Additionally, Virginia state law also mandates Comprehensive Plans to provide for transit-oriented development (TOD) as detailed below.

TRANSIT-ORIENTED DEVELOPMEN IN VIRGINIA LAW

Section 15.2-2223.4 of the Code of Virginia states that each county with a population greater than 100,000 should consider strategies to promote transit-oriented development (TOD). The four strategies included in the Code are as follows:

i. Locating new housing development, including low-income, affordable housing, in closer proximity to public transit options,
ii. Prioritizing transit options with reduced overall carbon emissions,
iii. Increasing development density in certain areas, and
iv. Reducing, modifying, or waiving local parking requirements or ratios

The current land use map for the area that surrounds the study area is shown in **Figure 2**. The study area has been identified as an Activity Center, or Multimodal Center, by the Comprehensive Plan. Multimodal Centers are defined as smaller areas within the County that provide a moderate level of connectivity between different transportation modes. The consist of localized centers of activity, a mix of different land usage, and connection to existing or planned public transit. Detailed guidance on how Multimodal Centers are determined can be found in "A Guide to Preparing a Multimodal System" published by the Virginia Department of Rail and Public Transportation (DRPT).

Table 6: Summary of Relevant Comprehensive Plan Elements

COMPREHENSIVE PLAN ELEMENT	SUMMARY
Land Use	The relevant mobility policy for the Yorkshire Activity Center states: Improve pedestrian and bicycle connectivity and infrastructure throughout the study area, with particular attention to pedestrian access and safety improvements along Centreville Road/Route 28, including addressing sidewalk gaps and upgrading infrastructure for compliance with the Americans with Disabilities Act. This policy is then translated into the following four specific action strategies: 1) Incorporate a shared use path as part of the planned Old Centreville Road expansion to connect proposed trails in the area, 2) Construct crosswalks with pedestrian hybrid beacons along Centreville Road/Route 28 and Well Street, 3) Improve connections to the Manassas and Manassas Park VRE Stations and work with OmniRide to explore the potential to bring transit services to the Yorkshire area, 4) Accommodate traffic demand on Route 28 through improved pedestrian, bicycle, and transit opportunities as well as through exploration of enhancements to existing road networks and provision of additional roadway connections.
Mobility	The County has classified Route 28 as a principal arterial category. Principal arterial characteristics include a maximum design speed of 60 miles per hour and a width of four to eight lanes. This section proposes a reclassification of Route 28 to a minor arterial category, meaning a reduced design speed, a total of four travel lanes, and a smaller right of way. The section also identifies Route 28 as a potential corridor for high-capacity transit. The County adheres to the multimodal system design guidelines created by VDOT. In this system, fixed route service is best for an area with 10 to 25 people and jobs per acre. If there are 25 to 60 people and jobs per acre, then the area is ideal for Express bus service. Bus Rapid Transit (BRT) would be a good fit for places with 60 to 100 jobs and people per acre. The section alludes to cultural resources along Old Centreville Road, and a potential active transportation route that would connect to Manassas Park, an area just south of the study area. The Countywide Trails Plan indicates that a shared use path has been planned for the length of the study area as shown in Figure 3.

COMPREHENSIVE PLAN ELEMENT	SUMMARY
Environment	The 100-year floodplain intersects with the study area mostly near the border of Fairfax County (which also contains part of the Bull Run open space area). The floodplain also intersects Route 28 near Leland Road and Manassas Drive. The floodplain is show in **Figure 3.**
Cultural Resources	The area adjacent to the Fairfax County is considered a Historic High-Sensitivity area. This designation means that the presence of historic sites is suspected but not yet confirmed.

Figure 2: Yorkshire Area Land Use Map

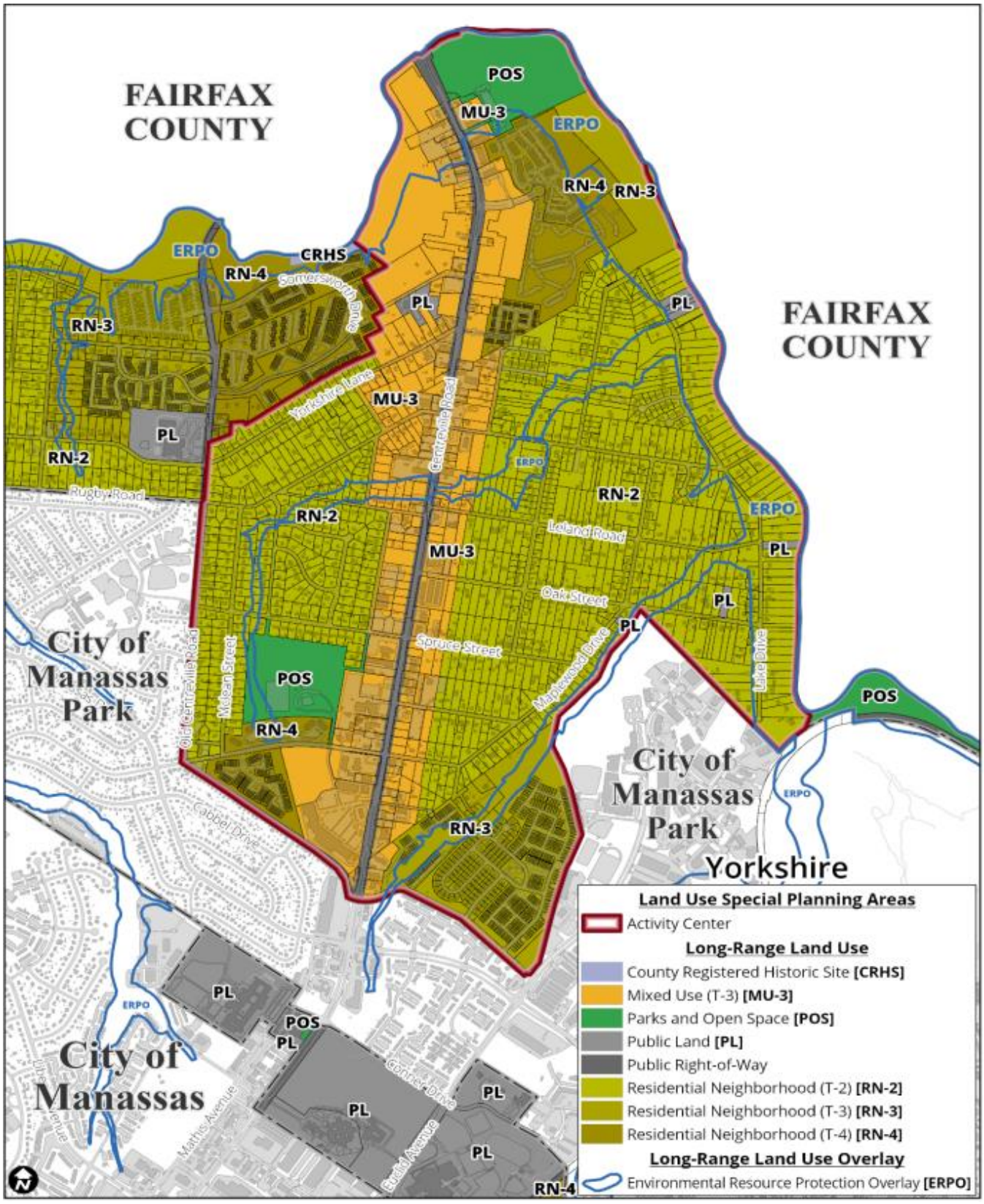


Figure 3: Wetlands and Floodplains within Study Area

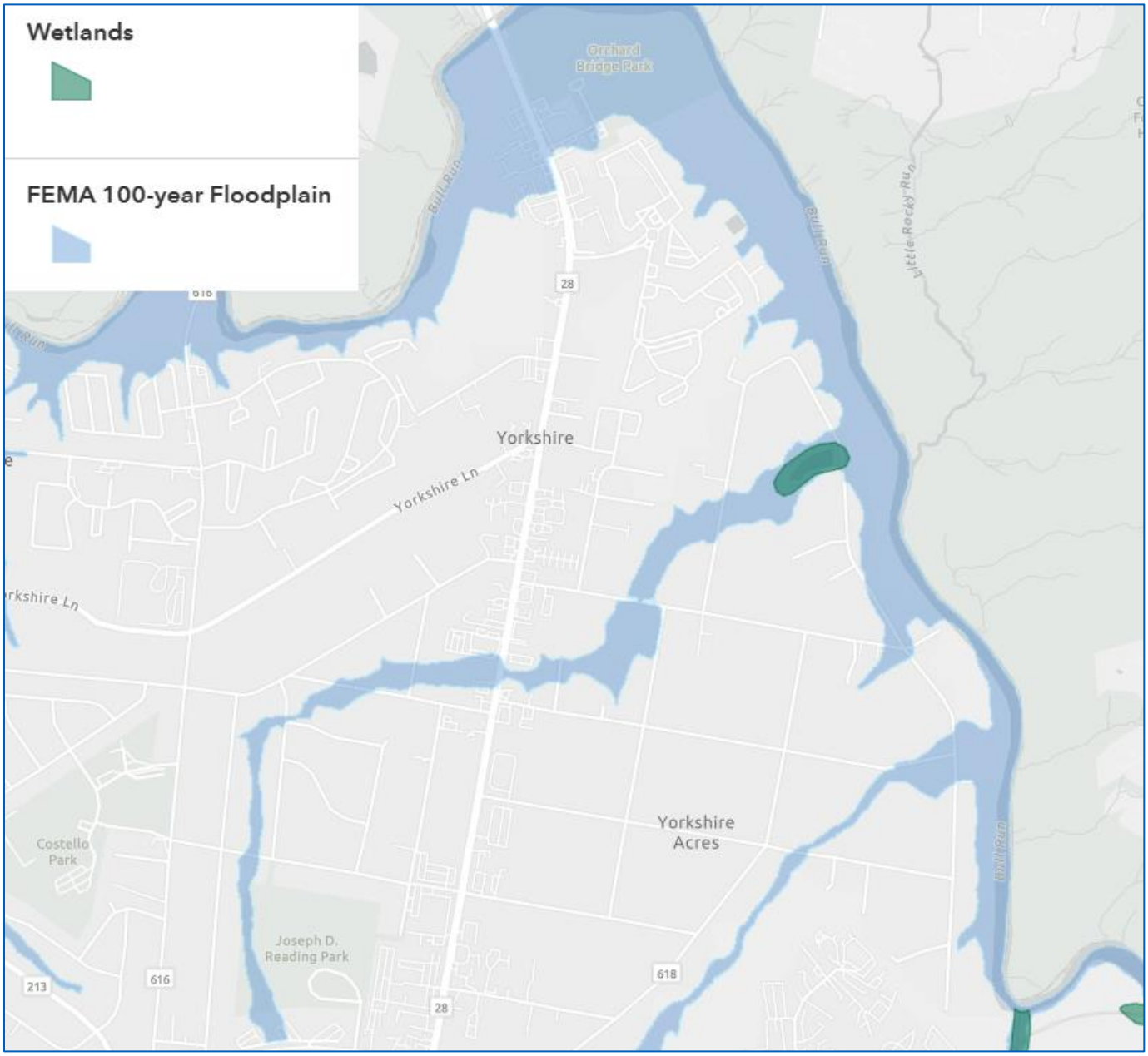
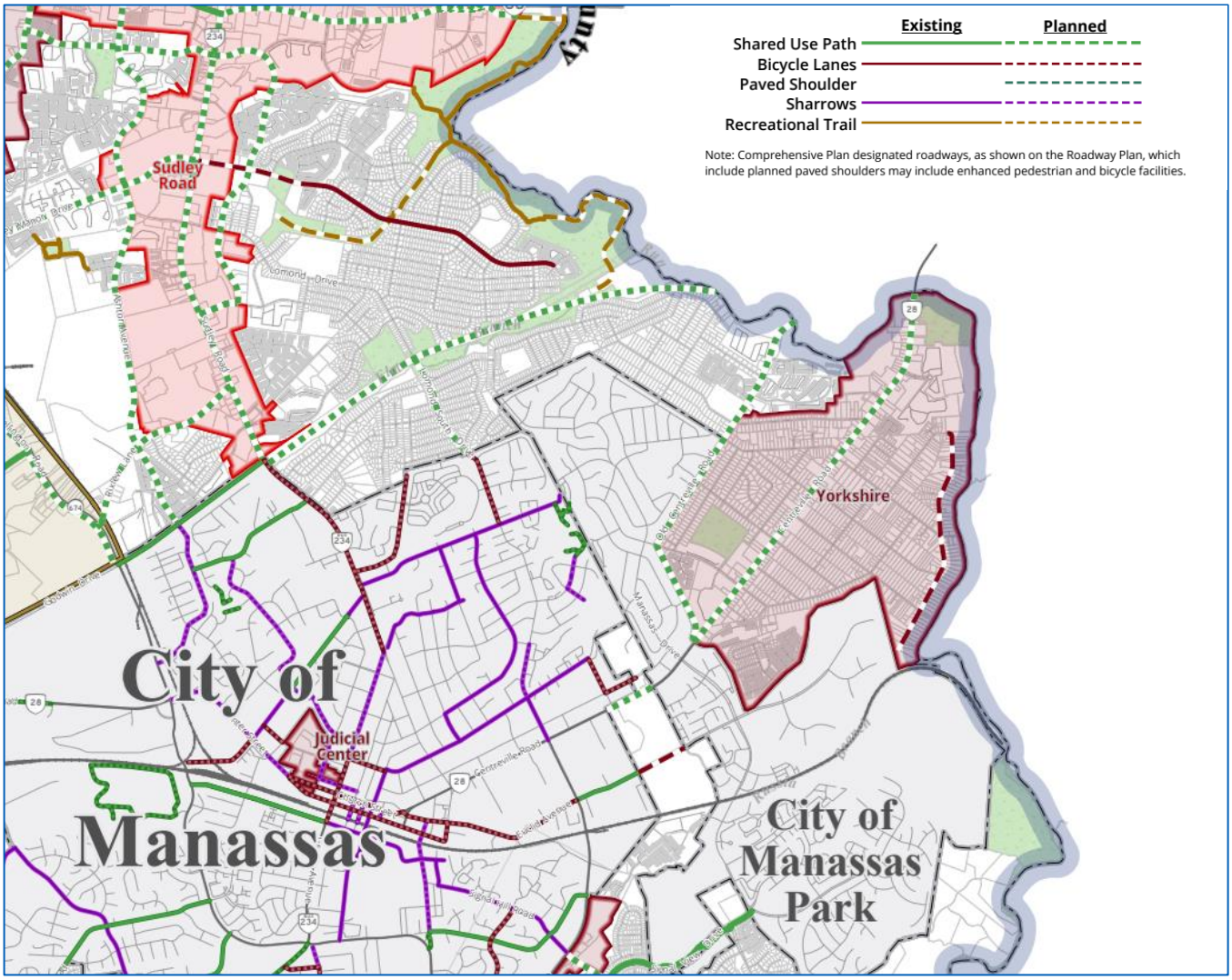


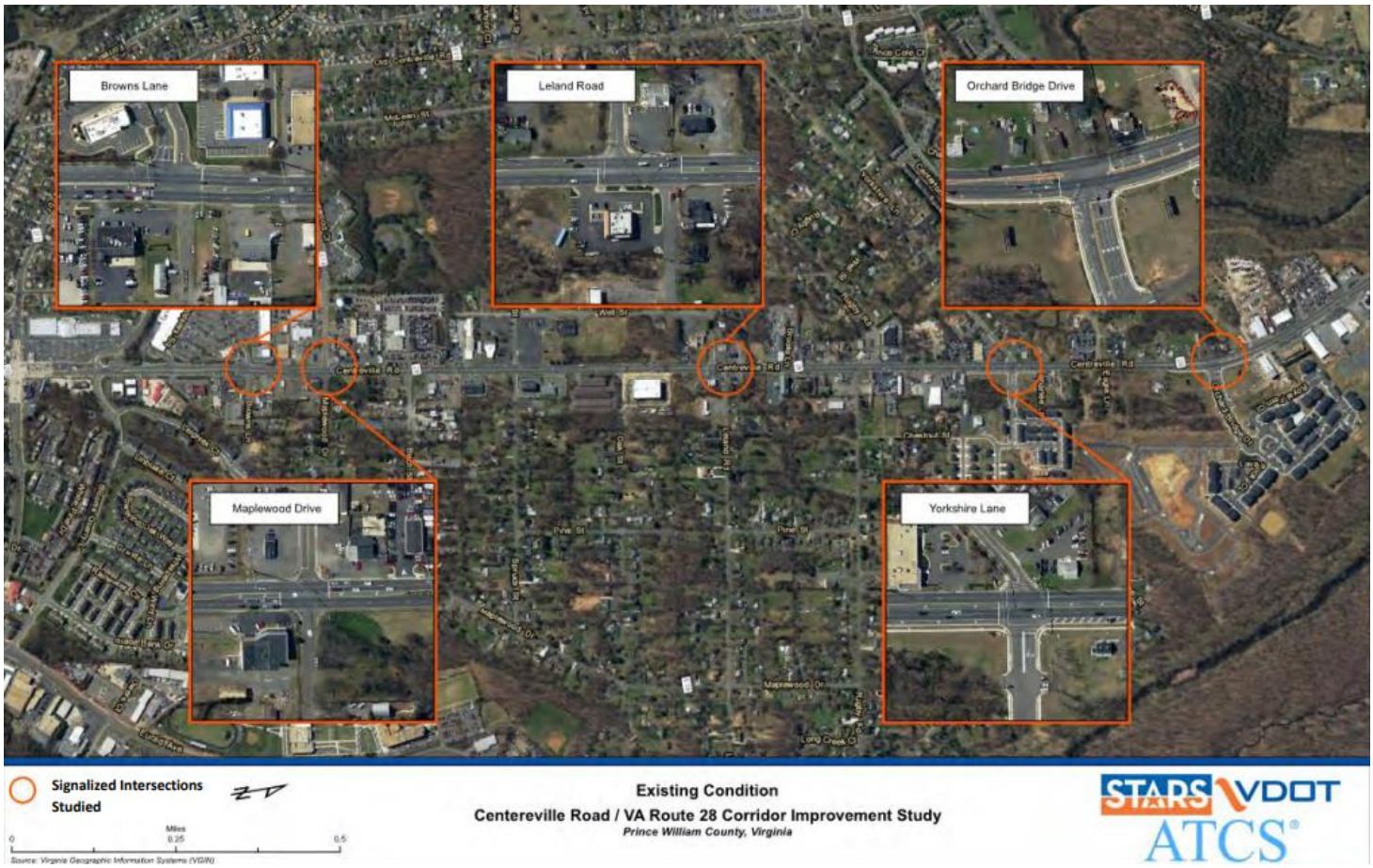
Figure 4: Subset of County Trails Plan



STARS REPORT ON ROUTE 28

The VDOT Traffic and Mobility Planning Division published the Route 28 Safety and Operational Improvements study in May 2020 as a part of their STARS (Strategically Targeted Affordable Roadway Solutions) program. The goal of the report was to identify throughput and safety issues as well as possible solutions within the study area. This study includes the 2.1-mile-long corridor of Route 28 from the Fairfax County line to the Manassas Park Line. The authors also investigated vehicle crash activity within 250 feet of five major intersections along the corridor: Browns Lane/Maplewood Shopping Center, Maplewood Drive, Leland Drive, Yorkshire Lane, and Orchard Bridge Drive. The study area is displayed below in **Figure 5**.

Figure 5: Corridor and Intersections Subject to Study



The report proposed two project recommendations that are directly relevant and proximate to this TLC Study. Fairfax County plans to add lanes to Route 28 which will start at the border between Prince Williams County and Fairfax County, as shown in **Figure 6**. The southern boundary of the road widening project shares a border with this study area, which may affect southbound traffic within the study area.

During a previous feasibility study, the Prince Williams County Board of County Supervisors (BOCS) favored Alternative 2B for the Route 28 Bypass Project, which is represented by the pink line in **Figure 7.** This choice would mean that the bypass project would take place entirely outside of the study area. However, the BOCS is also considering Alternative 2B, represented by the orange line in **Figure 7.** Alternative 2A would mean that the northern end of the study area would be subject to road widening and has the potential to undermine improvements to traffic safety and planned sidewalk construction.

Figure 6: Fairfax County Road Widening Study Area

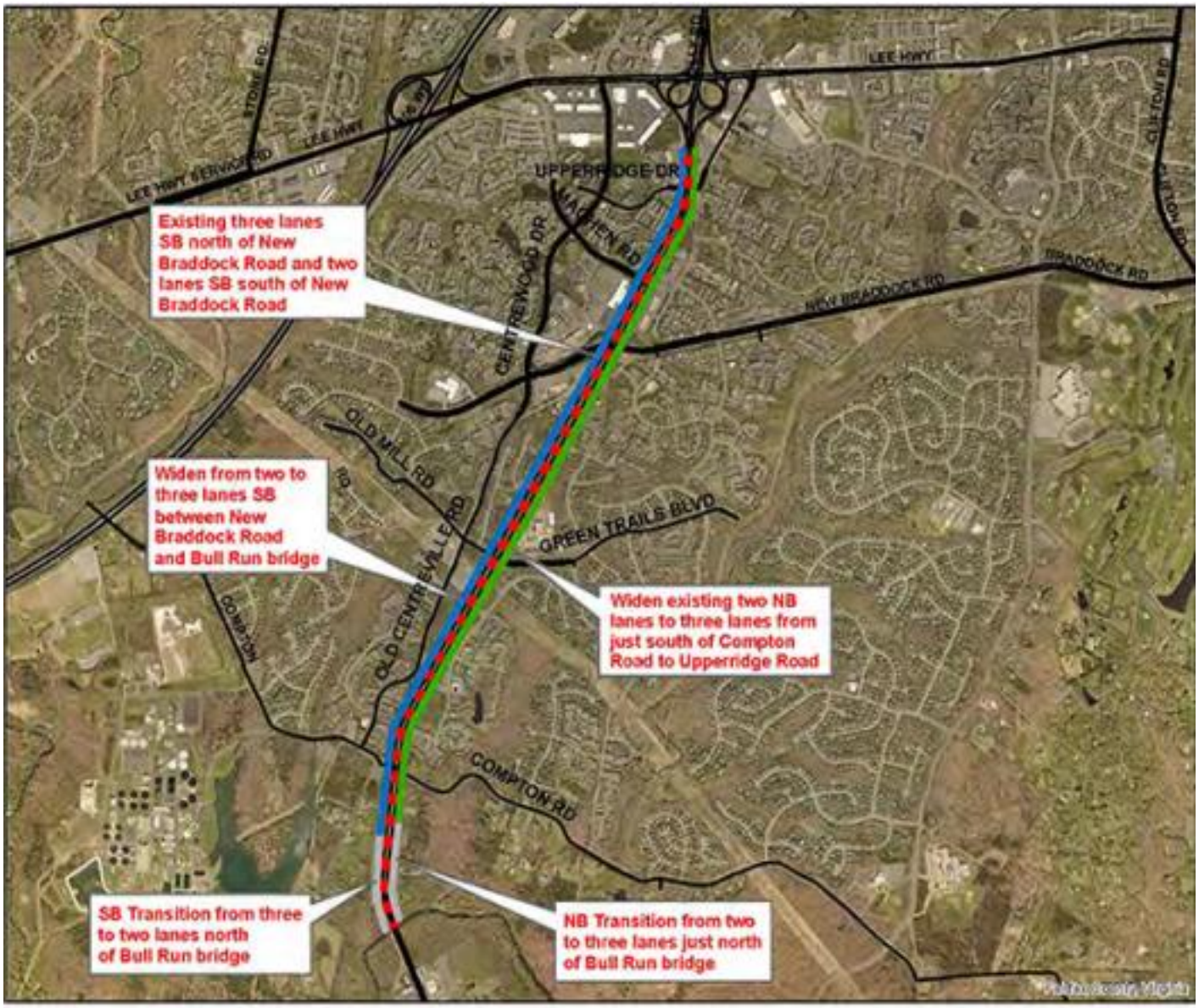
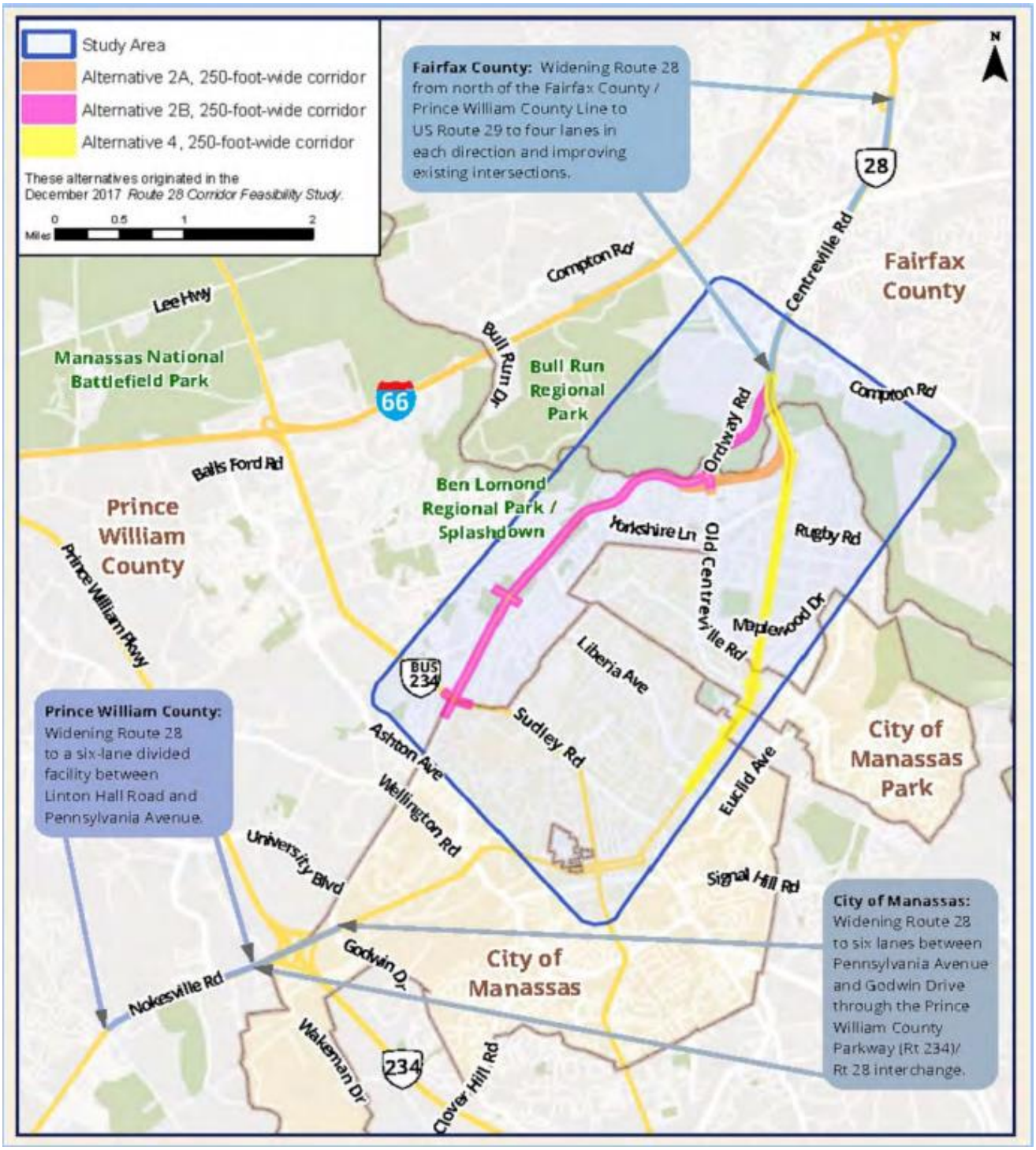
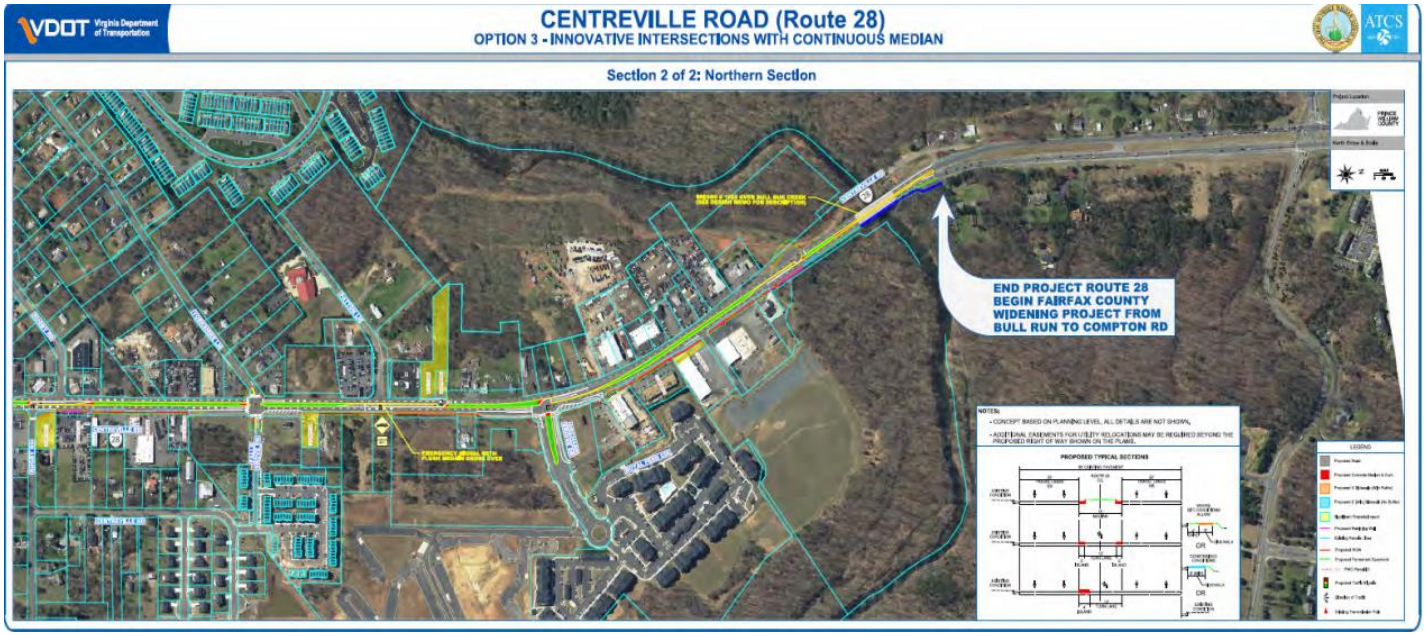


Figure 7: Route 28 Bypass Project Map



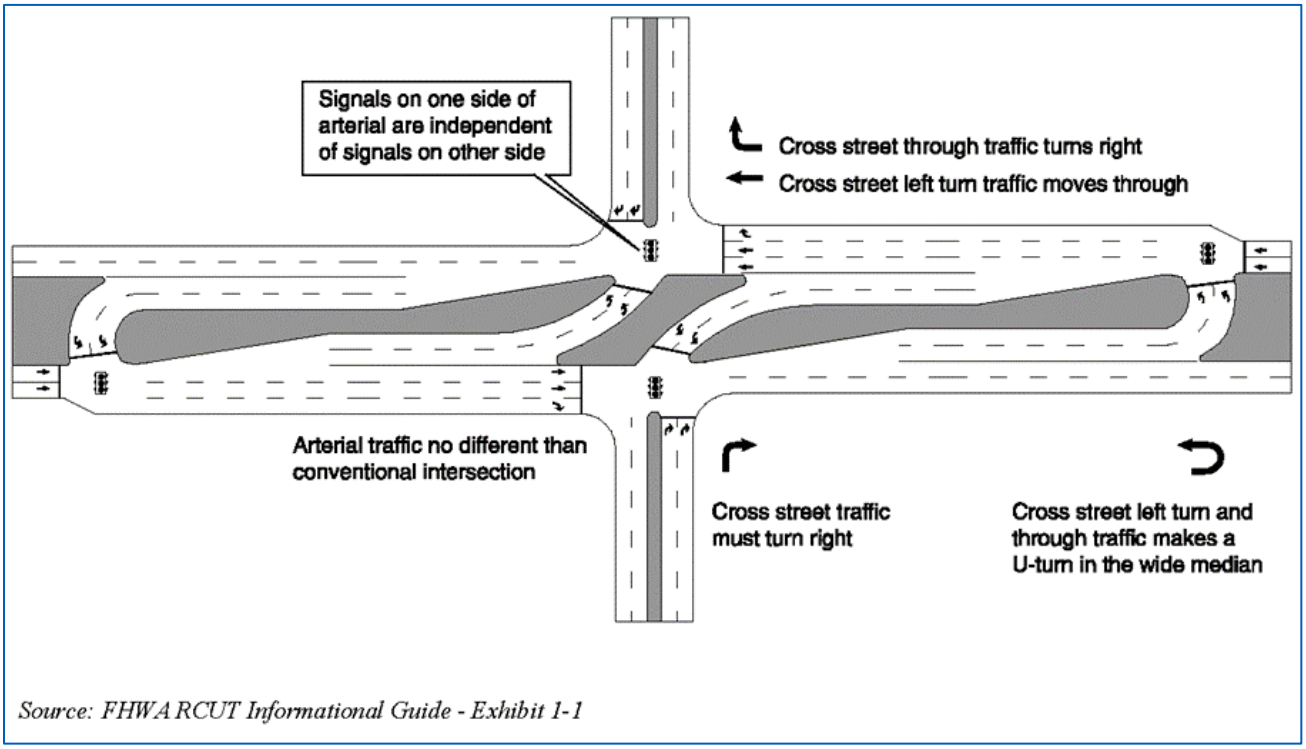
The Route 28 corridor has an average crash rate that is between 50% to 88% higher than the state average. The existing conditions section of the report also mentioned the road widening project, which will is planned for just north of the study area, in Fairfax County. The map that displays the preferred solution for the corridor also highlights the location of the road widening project in **Figure 8**.

Figure 8: Map of Preferred Option for Study Area, including Location of Road Widening Project



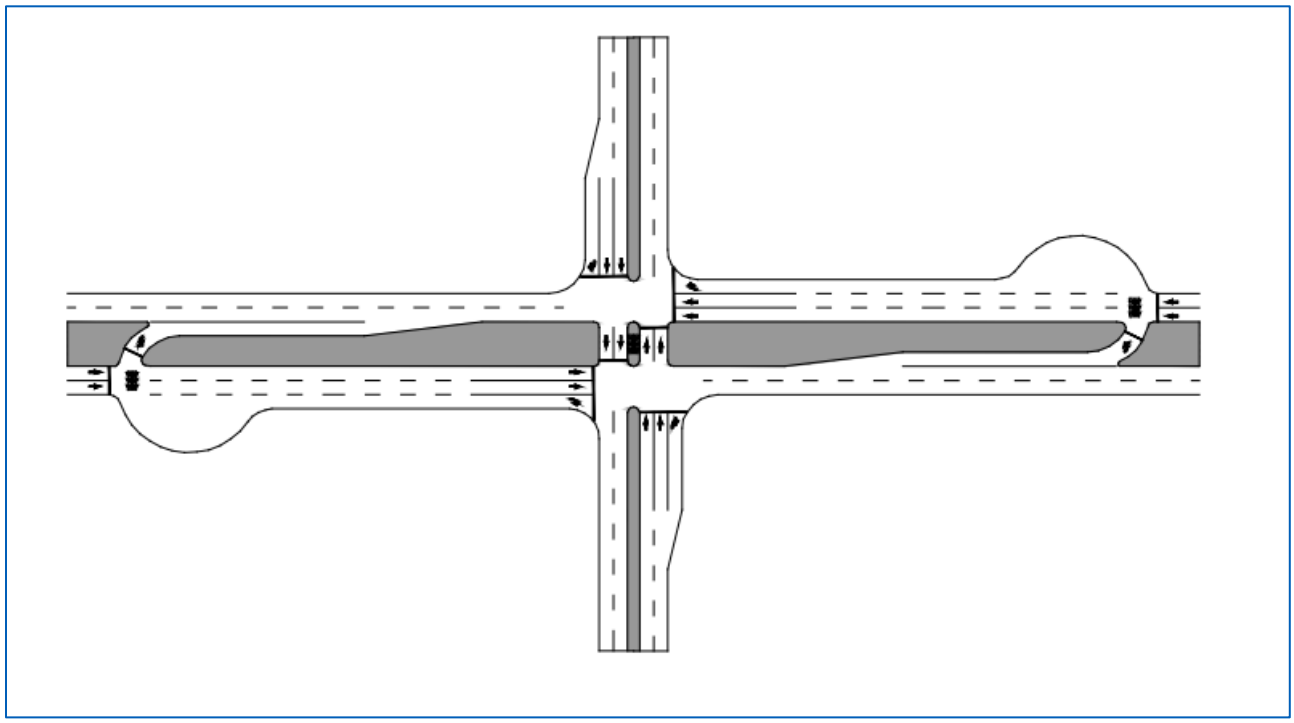
After analyzing four possible design options, the preferred option includes several factors that are intended to reduce the number of crashes. The first change is a continuous raised median throughout the entire corridor. Pedestrian changes include the construction of a 10-foot multi-use path along the northbound side of Route 28. Some of the studied intersections will be turned into Restricted Crossing U-Turn Intersections. This intersection design, also called a J-turn or superstreet intersection, prohibits a typical left turn at an intersection. Instead, drivers will make a right turn onto the corridor, and a U-turn at a one-way opening about 400-1,000 feet after the intersection. The elimination of the left turn typically results in a reduction in travel time and vehicle crashes. An illustration of this concept from the FHWA information guide is shown in **Figure 9**. Other intersections would include the Median U-turn, which accomplishes the same goals as a Restricted Crossing U-turn, but with the addition of a continuous median. An example from the FHWA 2014 median U-turn guide is shown in **Figure 10**.

Figure 9: Illustration of a Restricted Crossing U-Turn



Source: FHWA RCUT Informational Guide - Exhibit 1-1

Figure 10: Illustration of a Median U-Turn



CURRENT MOBILITY PROJECTS

JOINT TRANSPORTATION MOBILITY REPORT – OCTOBER 2023

The Joint Transportation Mobility Report was published in October 2023 and details ongoing active mobility projects, as well as projects that have recently been completed. The report also lists the status of federal, state, regional, and local grant funding for mobility projects within the past 12 months. Grant funding tracking includes projects that have been selected for grant funding, project applications which are currently under review for grant funding, and projects that have not been selected for grant funding. Grant funding tracking also includes which grant program a project has applied to, the grant funding type, the requested funding and matching amounts, and the approved level of funding if an application was successful. Forthcoming grant opportunities are also mentioned in the report.

Recently completed transportation projects are also described. The only recently completed project listed was the construction of the Old Carolina Road sidewalk, which connected a missing stretch of 680 feet of sidewalk. Current projects with a focus on bicycle, pedestrian, and transit infrastructure are listed below by project sponsor in **Table 7, Table 8, and Table 9**.

Table 7: OmniRide Projects

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT DESCRIPTION
Dumfries/Triangle/Quantico	Transit	OmniRide began operating a new demand-responsive microtransit service in the Dumfries/Triangle/Quantico area in June 2023. The service provides same-day travel from 5:00 a.m. to 11:00 p.m. on weekdays and 5:00 a.m. to 8:00 p.m. on weekends based on availability. The service operates near existing high ridership fixed-routes and provides service to Fortuna Plaza. Passengers can book trips within the service's defined zone, which includes service to the nearest fixed-route bus stop. The service will combine resources with paratransit operations in the spring of 2024.
Minnieville Road/Route 234/Prince William Parkway	Transit	OmniRide has updated eastern local service to improve accessibility and introduce new service near Minnieville Road, Route 234, and Prince William Parkway, which is a major corridor for travel and activity. Outreach will take place in the fall and winter of 2023.
OmniRide Systemwide Project	Transit	OmniRide has streamlined its services to better match rider demand and improve service. Specific improvements include making clock-face schedules and consolidating some commuter services.
OmniRide Systemwide Project	Transit	OmniRide launched a pilot for mobile ticketing in October 2022 which has continued and will expand to the entire fleet in fall of 2023.
OmniRide Systemwide Project	Transit	OmniRide has continued community engagement via its Mobility Councils, which are a forum for public input and information dissemination.

Table 8: VRE Projects

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT DESCRIPTION
Broad Run Station	Transit	The Broad Run VRE station will be expanded and train storage capacity will be increased.
Quantico Station	Transit	Station improvements are being constructed, including a pedestrian bridge, concrete platform, and retaining wall.
VRE Systemwide Project	Transit	VRE is offering promotional $5.00 fares for Zones one through three. VRE offered free fares on Fridays in order to increase ridership. This offer ended on September 1st, 2023.

Table 9: VDOT Projects

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT DESCRIPTION
Northern Virginia	Transit	The VDOT I-66/Transform 66 Project is constructing express lanes for VRE. Other projects include a construction of park and ride lots at Balls Ford Road and Beltway-University Boulevard.
Various Magesterial Districts	Pedestrian	Sidewalks are being constructed at Redwing, Lindendale, and Blue Pool.
Various Magesterial Districts	Pedestrian	Streetlighting projects have been approved for the Route 1 Widening project and Marumsco Pedestrian
Route 28 (Centreville Road)	Pedestrian	Safety improvements, and pedestrian accessibility and mobility improvements are being designed.
Horner Road	Transit	The park and ride lot at Horner Road and I-95 exit 158 is being designed to include about 170 additional parking spaces.
Potomac/Neabsco Mills	Transit	A commuter garage is in the design phase on Opitz Boulevard east of I-95. The garage will hold 1,414 spaces.
Dumfries Road	Transit	The park and ride lot at I-95 exit 152 is being designed for expansion of 65 additional spaces.
Old Bridge Road-Oakwood Drive to Forest Hills	Pedestrian	A sidewalk will be constructed from Old Bridge Road – Oakwood Drive to Forest Hills Road.

PROJECT LOCATION	PROJECT FOCUS AREAS	PROJECT DESCRIPTION
Sudley Manor Drive-Linton Hall Road to Victory Lakes Loop	Pedestrian	A sidewalk will be constructed from Sudley Manor Drive-Linton Hall Road to Victory Lakes Loop.
Prince William Parkway	Pedestrian	A sidewalk will be constructed on Prince William Parkway over I-95.
Token Forest Drive	Pedestrian	A sidewalk will be constructed on Token Forest Drive.

2006 ROAD BOND REFERENDUM INFORMATION

The 2006 Road Bond Referendum Information publication details the bond funding process and describes projects funded through bonds between 1988 and 2006 in Prince William County. Under Virginia state law, counties are required to obtain voter approval to issue general obligation (GO) bonds. GO bonds are important because they are used to fund major infrastructure projects. They are structured to account for the projected rate of inflation and provide flexibility for the county in the event that the tax rate changes. This publication answers frequently asked questions about bond financing. The ballot questions from this referendum are included, as well as information for voting.

2019 ROAD BOND REFERENDUM INFORMATION

In order to achieve mobility goals outlined in the 2017-2020 Strategic Plan, the Prince William County Department of Transportation (PWCDOT) held work sessions with the Board of County Supervisors (BOCS) to clarify mobility goals and sources of funding. A list of all projects that were prioritized for mobility funding or had submitted for mobility funding was developed. This list was revised by the BOCS and staff in February 2019. The BOCS hosted a town hall in May 2019 to inform the public of the list of potential projects that could be funded by the referendum. The finalized list of projects was approved by the BOCS in June 2019 to be included on the November 5th, 2019 general election. The 2019 Road Bond Referendum included a list of five mobility bond projects: the Devlin Road Widening, the Route 28 (Bypass/Widening), the Minnieville Road at Prince William Parkway Interchange, the Old Bridge Road at Gordon Boulevard Intersection Improvements project, and the Summit School Road Extension/Telegraph Road Widening (Minniville Road to Caton Hill Road) project. The funding for the 2019 Road Bond Referendum was $355 million. The referendum was approved by voters on November 5th, 2019.

BICYCLE, PEDESTRIAN, AND TRAIL PLANS

The Countywide Trails plan within the Mobility section of the 2040 Comprehensive Plan serves as the main element addressing bicycle, pedestrian, and trail planning needs. The Mobility element of the 2040 Comprehensive Plan lists 12 broad Mobility Policies, several of which directly impact active transportation and trails. The policies are listed below:

- Mobility Policy 1: Ensure that the County's transportation network prioritizes safety for all mode users, including motorists, transit riders, pedestrians, including students, and bicyclists.
- Mobility Policy 2: Prioritize equity and access when planning for mobility projects.

- Mobility Policy 3: Promote sustainability and resiliency when proposing new infrastructure or upgrading existing facilities that impact environmental and cultural resources.
- Mobility Policy 4: Maximize cost effectiveness of all multimodal projects through strategic project planning, programming, procurement, and delivery.
- Mobility Policy 5: Enhance and expand the transit network and supporting infrastructure.
- Mobility Policy 6: Adapt to changing and emerging mobility trends. (This section elaborates to include increased demand in active transportation as one of the emerging mobility trend.)
- Mobility Policy 7: Align mobility priorities with land use to increase mobility options, minimize projected trip demand and improve quality of life for County residents.
- Mobility Policy 8: Meet demand through capacity enhancements and innovative operational improvements.
- Mobility Policy 9: Continue to enhance and expand recreational trail opportunities throughout the County by providing a diverse mix of trail types and experiences to and within the County's parks, and greenway and blueway corridors.
- Mobility Policy 10: Encourage resident, stakeholder, and inter-jurisdictional participation in the planning and design of the County's recreational trails, and greenway and blueway corridors, to promote a greater sense of community and to enhance regional connectivity.
- Mobility Policy 11: Balance recreational trail development and maintenance projects to ensure system-wide quality.
- Mobility Policy 12: Consider access, mobility and impacts on the transportation system within this region while protecting the character of the County's communities.

More specifically, the Countywide Trails Plan Map indicates that the County plans to construct a shared use path along the length of the study area.

Additionally, on a regional level, the Bicycle and Pedestrian Plan for the National Capitol Region from the Metropolitan Washington Council of Governments (MWCOG) intersects the study area. However, Route 28 is not discussed in great detail in this document. According to MWCOG's Plan, funding for active transportation projects in the region's Transportation Improvement Plan (TIP) has increased sevenfold between the 2013-2018 TIP and the 2021-2024 TIP. The plan also references active transportation plans for areas that are adjacent to the Route 28 study area, such as Fairfax County and the City of Manassas.

TRANSIT PLANS

The Transit section of the Comprehensive Plan's Mobility element contains two maps: the Transit Connectivity Map and the Future Transit Alternatives Map. The Transit Connectivity Map is intended to guide the development of potential transit routes to be implemented by 2040. The Future Transit Alternatives Map identifies potential transit options that may or may not be implemented by 2040, and may need additional analysis before implementation.

The Transit Connectivity Map indicates the study area already contains an existing bus route and a potential high-capacity transit line. The Future Transit Alternatives Map also indicates that the study area is a potential candidate for high-capacity transit.

OmniRide, a service provided by the Potomac Rappahannock Transportation Commission (PRTC), is the regional transit provider for Prince Williams County, as well as five other jurisdictions. OmniRide's most recent transit strategic plan was completed in 2020. While few of the proposed service changes are within the study area, chapter two mentions that there may be opportunities in the future to connect Centreville and Manassas, two cities that are located on the north and south of the study area, respectively. **Figure 2**, the land use map, also includes the relative location of these two cities.

OmniRide currently provides on-demand bus services to the City of Manassas as a replacement for the Local bus route 68. However, on-demand service is not mentioned in OmniRide's most recent transit strategic plan.

MICROMOBILITY PLANS

None of the available documents contained robust planning efforts addressing the travel needs of micromobility vehicles within the study area. These include e-bikes, e-scooters, both shared and personal, and other lightweight electric vehicles that may serve as a first mile/last mile transportation solution.

ADVOCACY PLANS

Active Prince William is a community-based organization that advocates for active transportation in Prince William County, the City of Manassas, and the City of Manassas Park. Active Prince William participates in community engagement through comments on local and regional plans. In 2020, Active Prince William and five other advocacy groups submitted a letter to the Prince William County Board of County Supervisors with detailed recommendations for the county's chosen alternative plan for the Route 28 corridor. Active Prince William and its partner organizations proposed the name Well Street Extended and recommended a two-phase approach for developing the corridor.

The plan recommended an eight-lane multimodal concept for the northern part of the corridor in phase one, an area which includes Orchard Bridge Drive to Compton Road and the Bull Run Crossing. The phase one recommendations also included a proposal to widen the Route 28 bridge across Bull Run and include bicycle and pedestrian facilities as part of the bridge widening. The proposal noted that the increased capacity of the bridge should qualify the project for funding from the Northern Virginia Transportation Authority (NVTA).

Phase two of the proposal would encompass integrated economic, land use, and transportation planning in the southern part of the corridor from Manassas Drive to Orchard Bridge Drive. Specifically, the proposal recommends consideration of bus and high-occupancy vehicle (HOV) lanes that could make the corridor more transit-oriented. Land use planning and placemaking would occur during the proposed phase two of the project.

SUMMARY

Based on the review of this set of previous technical efforts, Prince Williams County invests in and prioritizes the reduction of SOV trips, and albeit to a lesser extent, the use of public transit and active transportation. Even road widening projects – efforts considered at odds with walkability and transit-supportive – often include an element of active transportation infrastructure. Additionally, where parking lots or garages are proposed, these are most often leveraged as park and ride facilities near transit.

The Route 28 – Yorkshire study can function as a model planning effort for moving the County's vision, goals, and strategic actions, specifically those planning efforts designed to support people on foot, rolling, and taking transit, from imagination to implementation.

Route 28 – Yorkshire: Multimodal Corridor Study

Task 3: Demand, Equity, and Risk Analysis

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Figures

Overview

The Route 28 – Yorkshire Multimodal Corridor Study is funded through the Metropolitan Washington Council of Governments (MWCOG) TLC Program. The program was created in 2007 to provide short-term planning consultant services to local jurisdictions for small-scale planning projects focused on mixed-use, walkable developments, and transportation alternatives. The TLC program has provided over $8.1 million in funding for 177 projects since its inception through FY 2024. The Route 28 – Yorkshire Multimodal Corridor Study was selected for funding as part of the FY 2024 application period.

Study Area

Yorkshire is a census-designated place within Prince William County, Virginia. Yorkshire is primarily a low-density residential community. Yorkshire is designated as an Activity Center by MWCOG and a Special Planning Area within Prince William County. Priority growth areas, traditional towns, transit hubs, and urban centers are examples of Activity Centers. Activity Centers are intended to accommodate growth in the MWCOG region in order to goals related to accessibility, livability, prosperity, and sustainability.

Route 28 is the main arterial roadway in Yorkshire, running north to south with commercial strip areas on both sides. The Route 28 corridor is a four lane, suburban, auto-oriented corridor that prioritizes high-speed auto traffic over the needs of pedestrians and cyclists. The corridor has limited transit service and few marked crosswalks for people walking at its busiest intersections, design features which are known to increase risk for people walking and bicycling. Due to the high volume of traffic, concerns about roadway safety, and the county's goal to promote walking and cycling travel, a proposal is being considered to construct a bypass for Route 28, diverting traffic west of Yorkshire. By diverting automobile traffic away from Route 28, the Route 28 bypass presents an opportunity to reimagine the Route 28 corridor and repurpose space in the right-of-way for people walking, bicycling, or taking transit trips. The Virginia Department of Transportation (VDOT) is also addressing safety and operations concerns as part of their _ project.

The challenges for Prince William County are to meet community needs and mobility needs and attract people to the Route 28 corridor by making it a destination, rather than a roadway that takes travelers to their destination. To that end, and to align with Prince William County's 2021-2024 Strategic Plan goals for transportation and mobility, the Route 28 corridor is being studied for active transportation improvements that will promote walking, cycling, micromobility, and transit travel. Analyzing existing and planned multimodal transportation infrastructure, travel patterns, travel demand, roadway safety, and equity contextualizes where investments in infrastructure are most needed and provide the most benefit to all residents. **Figure 1** displays the study area with local points of interest (i.e., potential trip origin/destination locations), as well as transit service routes and stops for OmniRide and Virginia Railway Express (VRE). The key points of interest shown are the Central Community Library, the Manassas Park City Library, the Manassas Park Community Center, and Eavesdrop Brewery. Local schools function as employment centers, community meeting sites, and recreation areas for children. Yorkshire Elementary School is located within the study area, and several schools are within close proximity in Manassas Park.

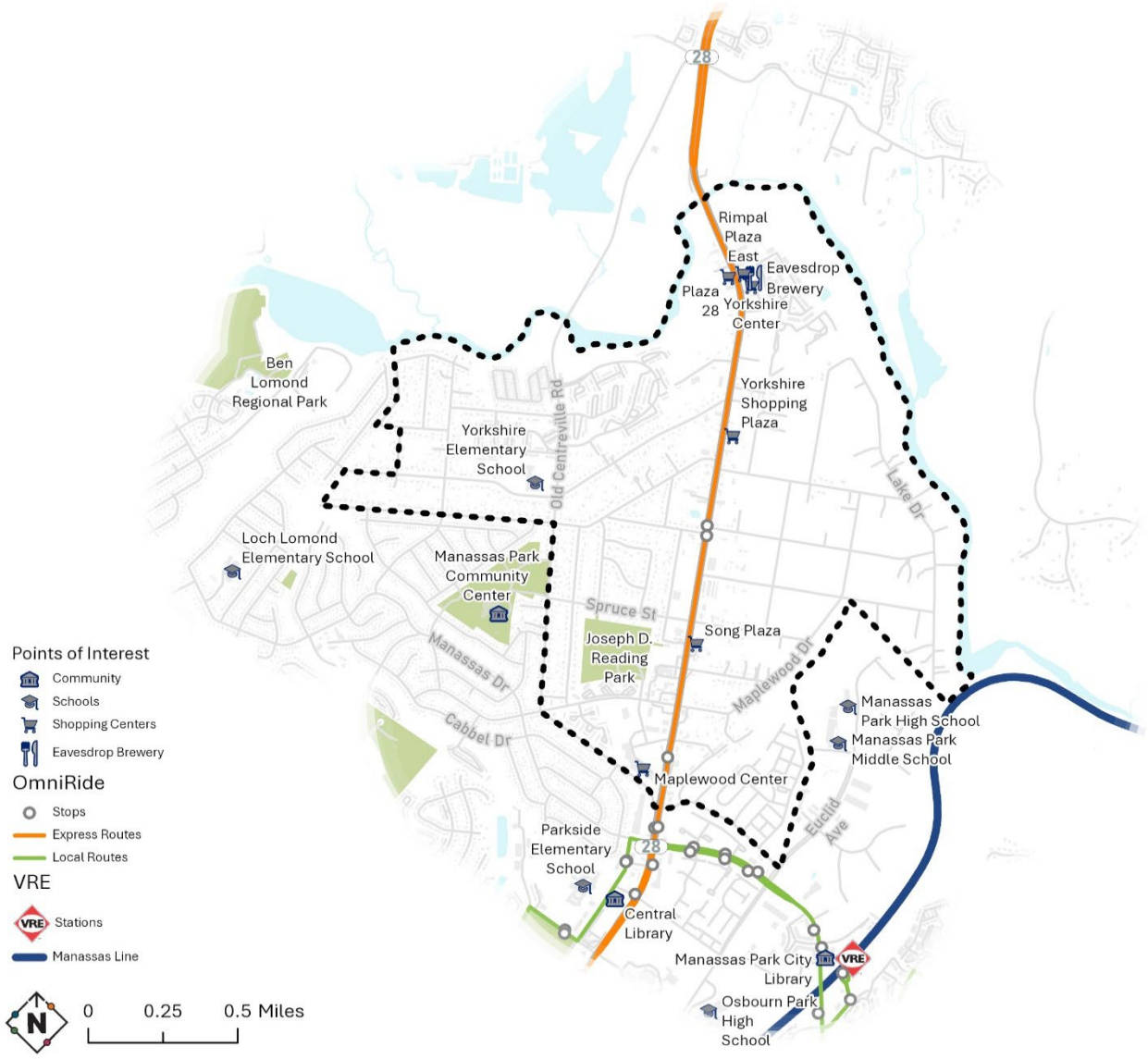
OmniRide operates bus service throughout Prince William County, including one local bus route and one express bus route on Route 28 within Yorkshire. OmniRide provides service to nine stops from Yorkshire to Tysons Corner via its Manassas Metro Express route. OmniRide also provides local service to nine stops

through its Manassas South to Manassas Park route. VRE operates commuter rail transit service from Northern Virginia to Union Station in Washington D.C. The VRE Manassas Line serves 10 stops and operates near Yorkshire with two nearby stations, Manassas and Manassas Park. **Table 1** visualizes OmniRide and VRE's service in the Yorkshire area, including service span and ridership.

Table 1: OmniRide and VRE Service and Ridership

ROUTE	AGENCY	SPAN	TOTAL RIDERSHIP
Manassas South to Manassas Park	OmniRide	Weekdays – 5:13 a.m. –to 8:13 p.m Weekends – 6:48 a.m. to 8:18 p.m.	92,950
Manassas Metro Express	OmniRide	Weekdays - 3:58 a.m. to 10:38 p.m.	9,162
Manassas Line	VRE	Weekdays – 5:01 a.m. to 8:13 p.m.	Manassas – 101,539 Manassas Park – 89,457

Figure 1: Yorkshire Study Area



Points of Interest Source: Google Maps

Existing Infrastructure

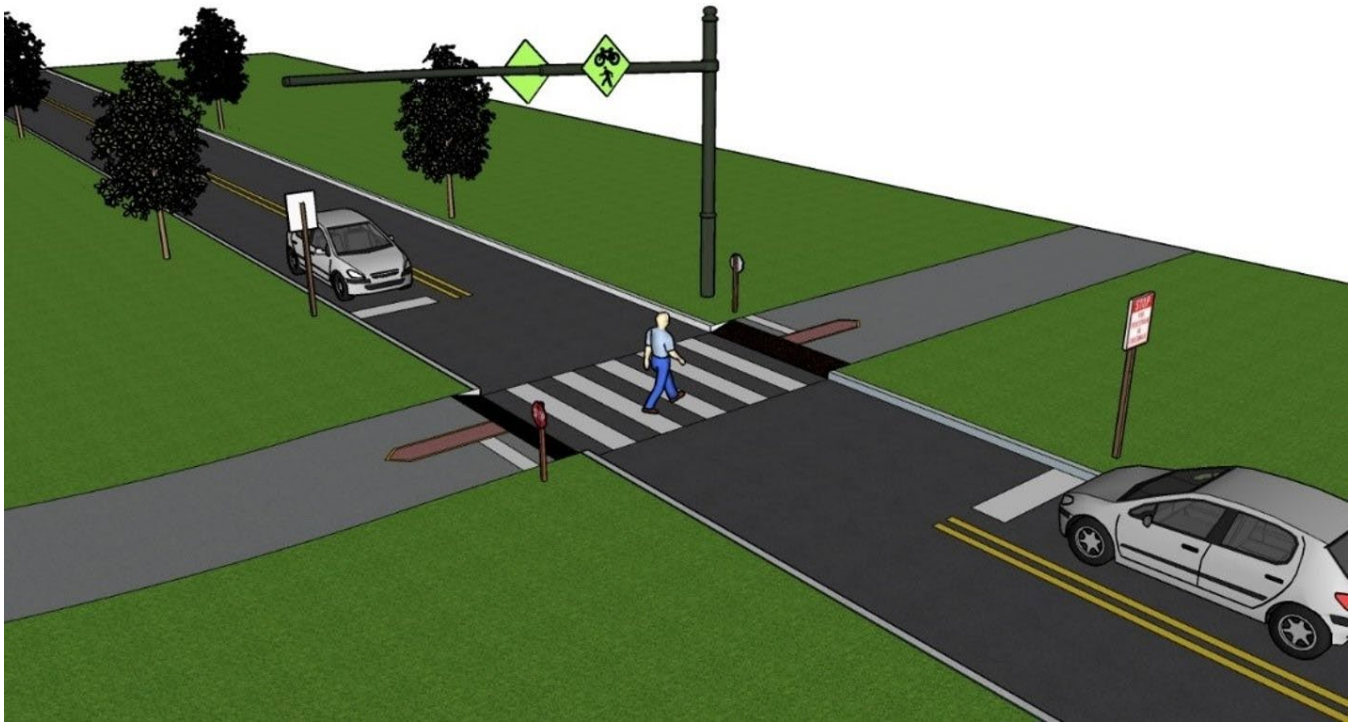
The study team inventoried existing infrastructure to understand where there are gaps in the existing bicycle and pedestrian network. **Figure 2** visualizes existing multimodal infrastructure in Yorkshire, including sidewalks, bikeways, and blueways or "river paths" for people kayaking and canoeing.

Sidewalks are dispersed throughout the study area, but do not form a fully connected sidewalk network. In total, there are 20.08 miles of sidewalks within Yorkshire and they are primarily concentrated in residential areas, making these neighborhoods more suitable for walking. Of the total 20.08 miles of sidewalks within Yorkshire, only 1.03 miles run along Route 28, equaling 5.1 percent of the study area's sidewalks. However, many of the roads approaching Route 28 do not have sidewalks, which poses mobility and safety concerns for people walking and encourages automobile trips throughout Yorkshire. Although there is some bicycle infrastructure to the west of Yorkshire, Yorkshire does not currently have bicycle lanes, which limits connectivity, convenience, and accessibility for people riding bicycles. The Occoquan Water Trail is a blueway, a recreational water trail on the Bull Run tributary spanning from Gum Spring Road to the Occoquan River. Yorkshire, specifically the Route 28 bridge, serves as an access point to the blueway.

Route 28 itself presents transportation challenges for non-automobile travelers. The corridor effectively bisects Yorkshire. The existing roadway and land use designs encourage automobile travel and dispersed development, as well as discourage multimodal trips. The lack of existing bicycle infrastructure within Yorkshire means that persons cycling must either ride within high-speed travel lanes or attempt to traverse the sidewalk network. The disconnected network of sidewalks and crosswalks make it difficult for people walking to travel to either side of Route 28. Additionally, people walking and cycling must also contend with automobiles turning in or out of the frequent driveway curb cuts for commercial establishments along the corridor.

The Virginia Department of Transportation (VDOT) provides policy and design guidelines for multimodal infrastructure, as well as information about the benefits provided by each type of multimodal infrastructure. VDOT works with municipalities and local jurisdictions to incorporate design treatments into new multimodal infrastructure developments. Shared-use paths are typically located near natural areas and can be adjacent or separated from roadways. Shared-use paths are at least 10 feet wide, and are designed for walking, biking, and rolling trips, which include travel via wheelchair. Shared-use paths can be constructed from asphalt, boardwalk, concrete, or crushed stone. Bicycle lanes are located on roadways, providing defined space for people riding a bicycle and increasing the predictability of their positioning. Bicycle lanes are most suitable on roads with speed limits at 30 miles per hour or less and with daily traffic counts less than 3,000. **Figure 2** depicts an example of a shared-use path from, while **Figure 3** visualizes a bicycle lane. Sidewalks are five-foot wide paths located adjacent or separated from roadways, shopping centers or open spaces. Sidewalks are typically constructed from concrete and suitable for walking, jogging, and rolling trips. **Figure 4** visualizes a sidewalk.

Figure 2: Shared-Use Path Graphic



Source: VDOT – Bicycle and Pedestrian Treatments

Figure 3: Bicycle Lane Graphic

Source: VDOT Bicycle and Pedestrian Treatments

Figure 4: Sidewalk Graphic

Source: Google Images

Figure 5: Existing Active Transportation Infrastructure

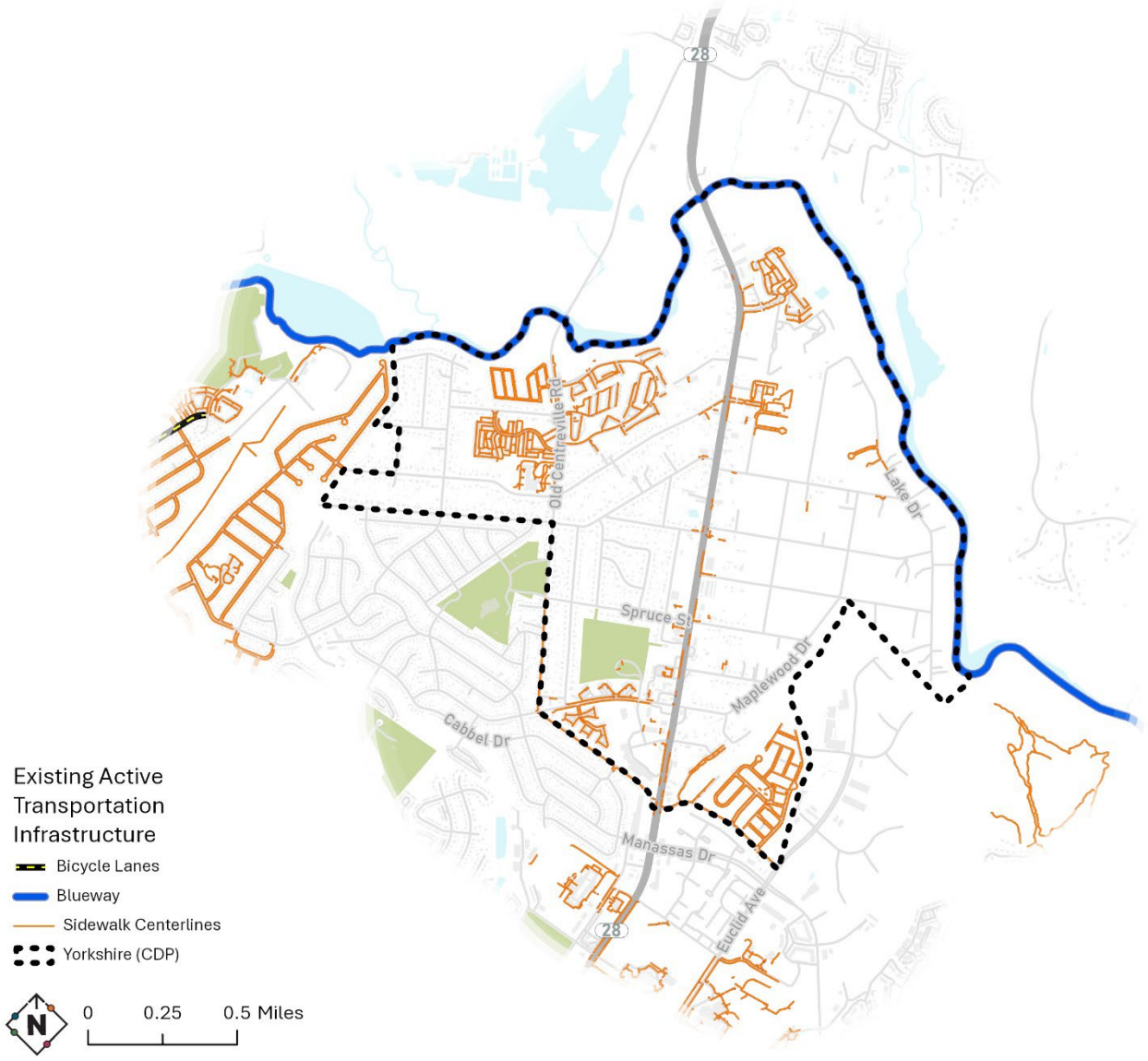


Figure 6 shows proposed plans for additional multimodal infrastructure in Yorkshire. Planned paths and trails align with the County's strategic plan vision to promote multimodal travel. Shared-use paths are planned for Route 28 and the planned Route 28 Bypass, as well as within Ben Lomond Regional Park. Bicycle lanes are also planned in the eastern part of Yorkshire on Lake Drive from Pine Street to its dead-end terminus. Lake Drive is narrow residential road that currently lacks traffic lanes and sidewalks. Blooms Park is a former golf course that was converted to a passive park in 2019. The park is located in Manassas Park near the Blooms Crossing subdivision. The park's proximity to Lake Drive presents an opportunity to connect the park to the planned bicycle lane on Lake Drive, improving multimodal connectivity between Yorkshire and Manassas Park.

The planned shared-use path along Route 28 addresses the lack of walking and cycling infrastructure along Yorkshire's main arterial road and commercial corridor. However, the lack of existing or planned sidewalk infrastructure and bicycle lanes approaching the corridor still pose mobility and connectivity concerns, chiefly safety, for people walking and cycling to and from Yorkshire's residential areas and the Route 28 commercial corridor. There is also a gap in the planned shared-use path on Route 28 at the Manassas Drive intersection, which has a high density of vehicle crashes. The shared-use paths on Old Centreville Road and the planned Route 28 Bypass provide connections to the existing sidewalk network. The planned trail in Ben Lomond Regional Park will connect to the Occoquan Water Trail and the Route 28 Bypass shared-use path. The planned bicycle lane in the eastern part of Yorkshire increases the amount of multimodal infrastructure within Yorkshire but provides limited connections to other multimodal infrastructure.

In total, planned multimodal infrastructure in the vicinity of the Yorkshire study area will add 11.37 miles of local trails and bicycle lanes to Yorkshire's existing 20.08 miles of sidewalks. **Table 2** displays existing and planned multimodal infrastructure in the vicinity of the Yorkshire study area.

Table 2: Existing and Planned Multimodal Infrastructure Mileage

MULTIMODAL INFRASTRUCTURE	TYPE	EXISTING/PLANNED	JURISDICTION	LENGTH (MILES)
Sudley Manor Drive Bicycle Lanes	Bicycle Lanes	Existing	Prince William County	1.29
Euclid Avenue Bicycle Lanes	Bicycle Lanes	Planned	Manassas Park / Prince William County	0.27
Lake Drive Bicycle Lanes	Bicycle Lanes	Planned	Prince William County	1.18
				Total: 3.16
Ben Lomond Regional Park Trail	Shared-Use Path	Planned	Prince William County	1.05
Blooms Park Trail	Shared-Use Path	Existing	Manassas Park	4.25
Route 28 Shared-Use Path	Shared-Use Path	Planned	Manassas / Prince William County	2.10
Old Centreville Road Shared-Use Path	Shared-Use Path	Planned	Prince William County	1.86
Route 28 Bypass Shared-Use Path	Shared-Use Path	Planned	Prince William County	2.47
				Total: 12.56
Sidewalks	Sidewalk	Existing	Prince William County	20.08
				Total: 20.08

Figure 6: Planned Active Transportation Infrastructure

Demand

Active Transportation Propensity Calculation and Composite Results

Based on demographic data[1] and travel patterns[2], a multimodal propensity index (**Figure 7**) identifies census block groups most likely to generate walking, bicycling, and rolling trips within the study area. In addition to modeled travel flows, this index recognizes that population density, and in particular the density of non-white, older/younger, low-income, disabled, and/or carless individuals are strong predictors of multimodal trip generation. **Table 3** summarizes the weighting of these variables to create an index.

Table 3: Multimodal Propensity Index Methodology

VARIABLE	DATASET	WEIGHT
Population	Population Density	10
	Non-white Population Density	10
Age	Older Adult Population Density (Age 65 and Older)	5
	Young Adult Population Density (Ages 18-24)	5
Income	Low-Income Household Density (Income Less Than 150% of the Poverty Line)	15
Vehicle Ownership	One-Car Household Density	10
	Zero-Car Household Density	15
Disability Status	Population with Disability Density	10
Trip Generation	Multimodal Trips (Replica)	20

Block groups with the greatest likelihood of generating multimodal transportation trips score highest on the index and are depicted in **Figure 7**, while **Figure 8** displays the index with existing and planned multimodal infrastructure. Within the Yorkshire study area, the area of highest propensity is located west of Old Centreville Road. The area along the Route 28 corridor has moderate-high to low-moderate propensity. Active transportation propensity is slightly higher in the two block groups to the west of Route 28 than the two block groups to the east of the road.

PREDICTING DEMAND FOR ACTIVE TRANSPORTATION

Population

- Higher population densities predict multimodal trips.
- To promote equitable planning, it's critical to understand where non-white individuals reside; these populations are also more likely to be reliant on modes of transportation other than a personal vehicle.

Age

- Older adults may choose not to or be unable to drive, resulting in a reliance on other modes of transportation.
- Younger individuals who cannot drive are also more likely to depend on other mobility options.

Income

- Low-income individuals are more likely to rely on cycling, walking, and transit (which typically begins and ends with a cycling and/or walking trip), because income is proportional to the ability to afford a private vehicle.
- Ensuring that cycling and walking provide a safe means of accessing jobs and services is critical to promoting transportation equity.

Vehicle Ownership

- Individuals living in households that do not have access to an automobile have limited mobility and are more reliant on transit service and multimodal transportation to take trips.

Disability

- Individuals living with disabilities are often unable to drive, limiting their mobility and increasing their reliance on multimodal infrastructure.

[1] Figures retrieved from the US Census American Community Survey 2022 Five-year Estimates.
[2] Travel flows derived from Replica's simulation of Spring 2023 weekday activity.

The area surrounding the corridor to the north is categorized by low active transportation propensity and the block groups surrounding the southern portion of the study area are categorized by high active transportation propensity. Improving multimodal infrastructure within Yorkshire may increase active trips taken from these block groups.

The higher propensity areas of Yorkshire are mainly limited to residential neighborhoods which have compact clusters of sidewalks but limited connections to the broader sidewalk network. The study area is mainly served by walking infrastructure in the form of sidewalks, meaning that people biking or people interested in biking within higher propensity areas are limited in their ability to safely bicycle due to the lack of comfortable, accessible infrastructure.

The planned multimodal infrastructure will help meet some of the demand for multimodal trips within Yorkshire. The planned shared-use path along Old Centreville Road will connect persons walking and cycling in the nearby residential area to the Manassas Park Community Center and its surrounding parks, as well as the Bull Run Blueway to the north. The planned Route 28 shared-use path will also provide access and connectivity to areas of moderate to moderate-high propensity on either side of the corridor. The nearby Route 28 Bypass shared-use path will enable trips to be taken to and from Yorkshire in the western side of the study area, which is characterized by moderate propensity. The planned bicycle lane on Lake Drive in eastern Yorkshire will link an area of low-moderate propensity to moderate-high propensity.

Figure 7: Active Transportation Propensity

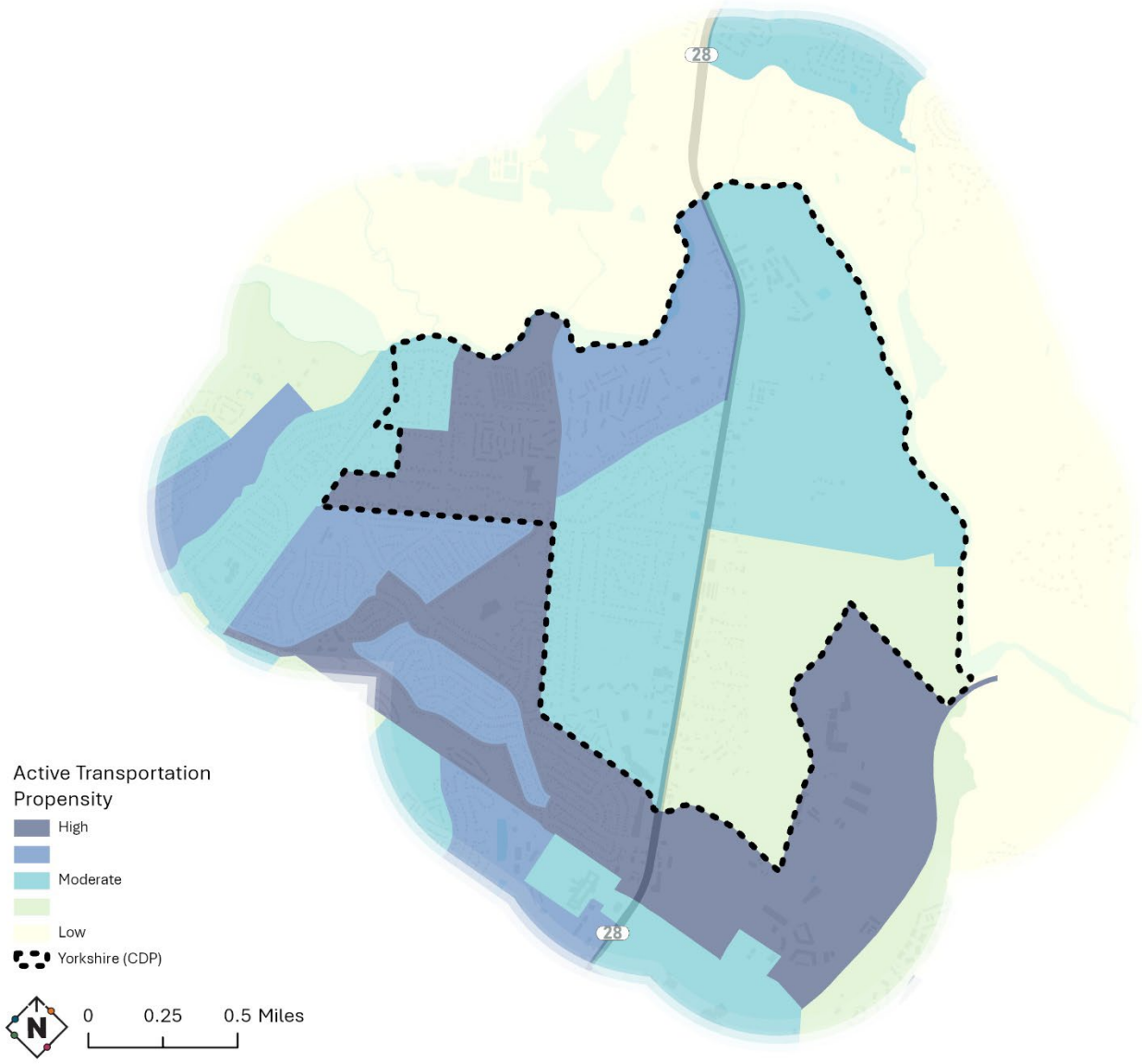
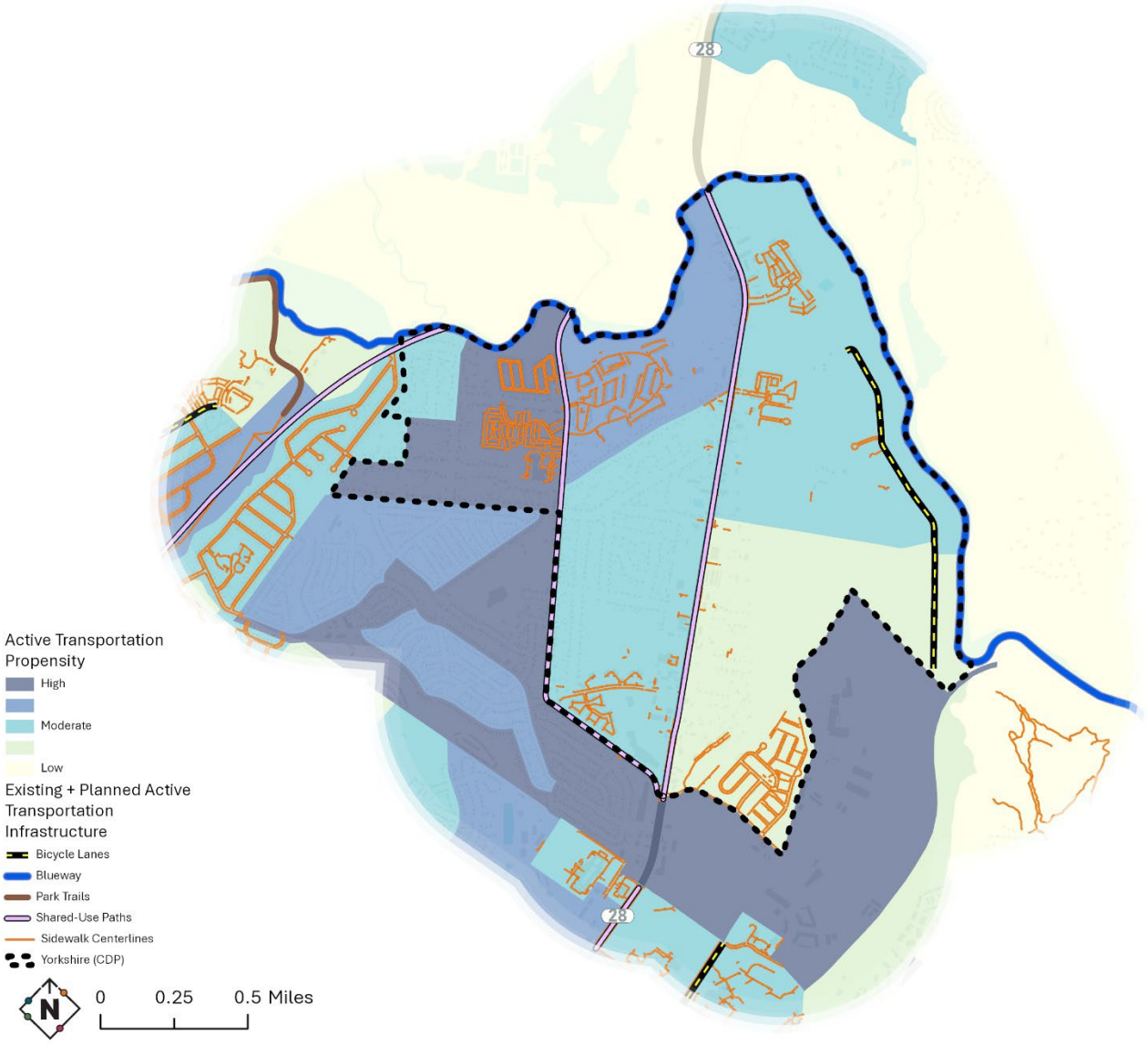


Figure 8: Active Transportation Propensity with Existing + Planned Active Transportation Infrastructure



Travel Patterns

Figure 9 depicts all-day travel flows for trips originating in block groups within three miles of the Yorkshire study area.[3] The greatest travel flow spans from the southwest corner of Yorkshire and extends southeast outside of the study area to a commercial and industrial area on Euclid Avenue. One of the moderate-high flows spans from the residential area east of Route 28 to this same commercial and industrial area, further highlighting the southeast part of Yorkshire as an important destination for shopping and dining trips, work trips, and freight. Other moderate-high travel flow patterns span from the residential area east of Route 28 further south to residential neighborhoods and commercial areas in the City of Manassas. Moderate travel flows extend west outside of the study area to a commercial corridor on Route 234 near Manassas Mall and north to Centreville, as well as within Yorkshire between the northeast residential community and southwest residential community.

Of the highest travel flows mentioned above, travel data indicates that the majority of trips are taken by single-occupancy vehicles (SOVs). One exception is a moderate travel flow of walking trips in northwest Yorkshire between residential communities. The prevalence of SOV trips underscores the autocentric nature of Yorkshire. However, the moderate travel flow of walking trips in northwest Yorkshire indicates that people either desire to walk or have to walk.

[3] To focus on the most prevalent travel patterns, travel flows with under 50 trips were excluded.

Figure 9: Travel Flows – All Modes

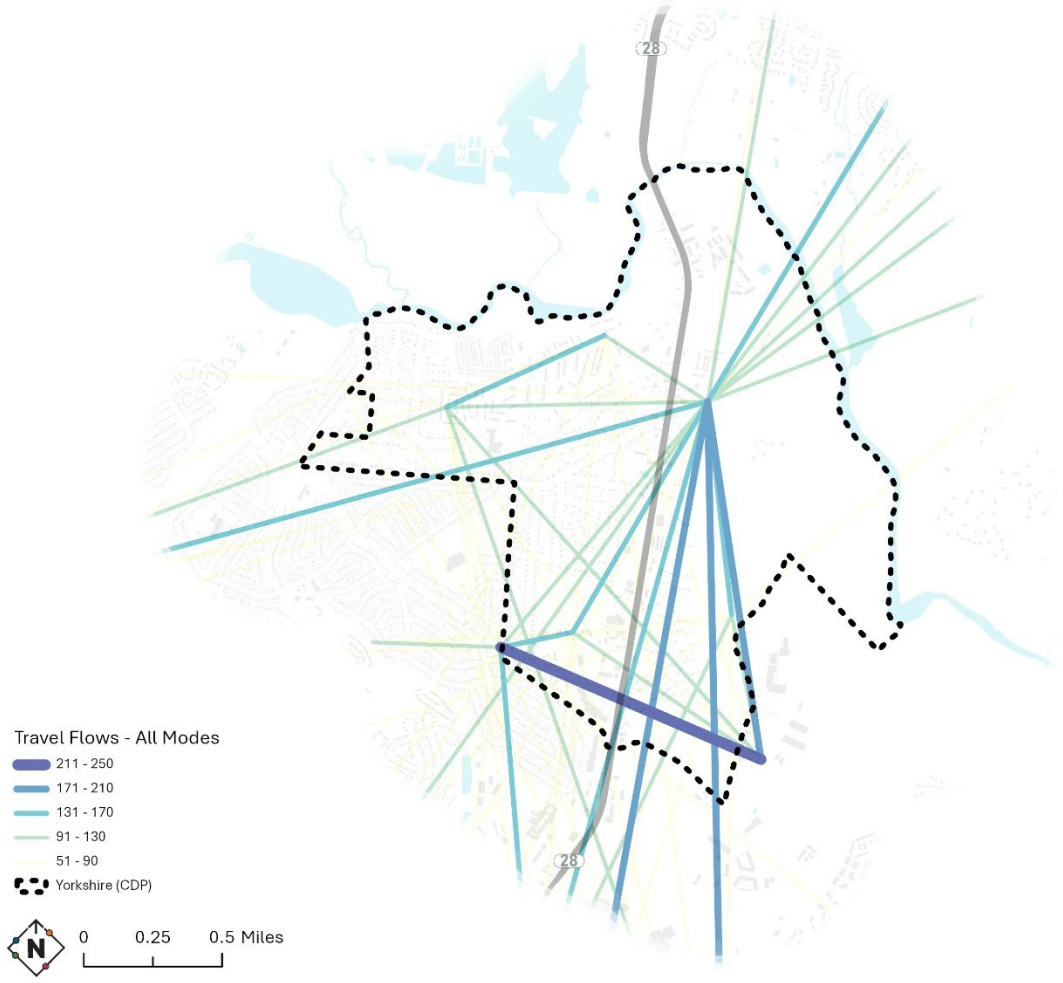
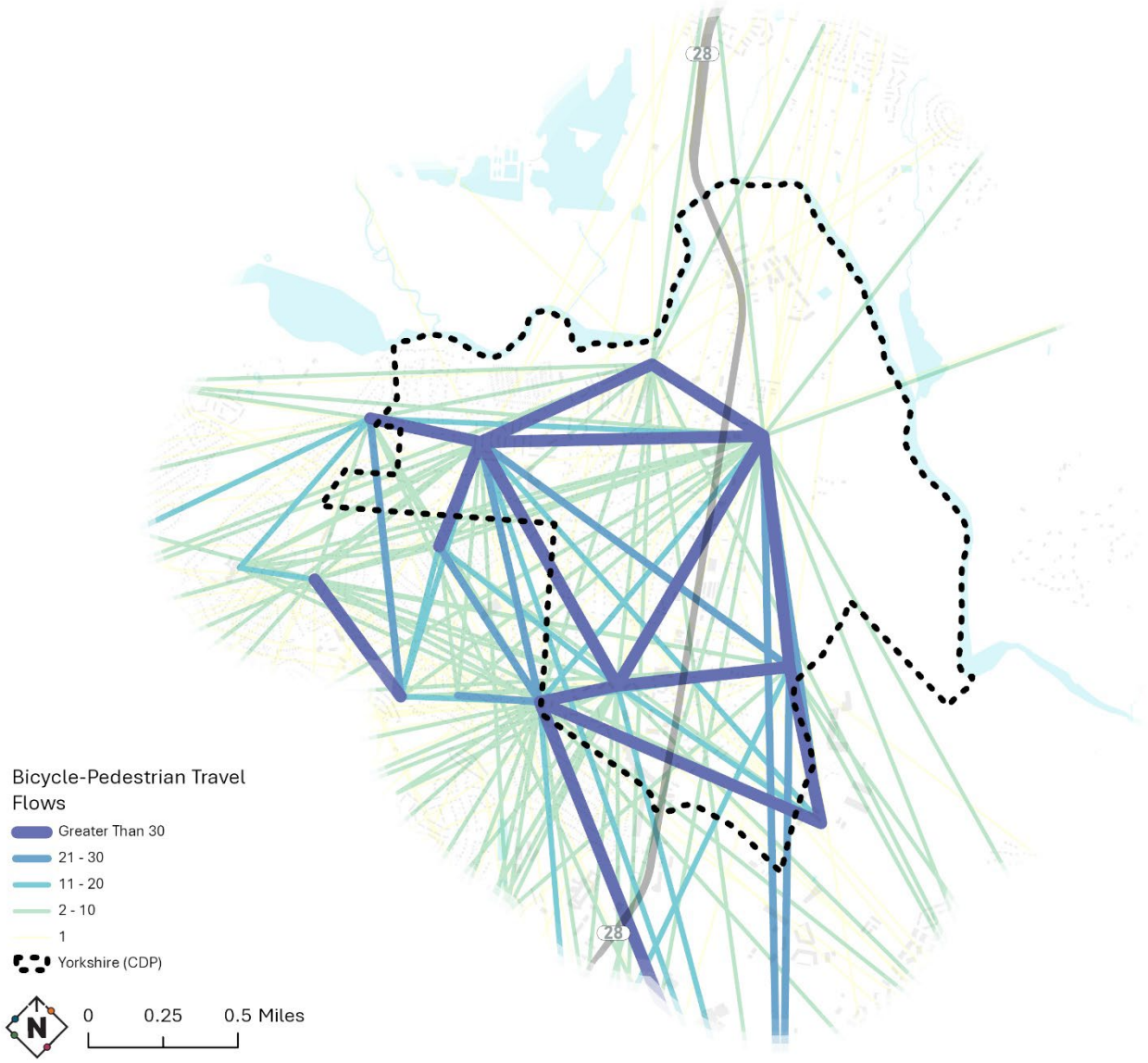


Figure 10 depicts the subset of travel flows for walking and cycling trips originating in block groups within three miles of the Yorkshire study area. This smaller volume of walking and bicycling travel flows further contextualizes where there is demand for multimodal infrastructure. The strongest travel flows in the three highest categories are made by walking trips; the highest travel flow for bicycling trips is in the low-moderate category. As noted, sidewalks are some of the only existing multimodal infrastructure within Yorkshire, which may explain more trips and stronger trip flows from walking rather than cycling. The strongest walking and cycling travel flows mainly span between residential communities within Yorkshire. The travel flow between Somerset Lane and Somersworth Drive is the strongest. The second-highest travel flow is between the residential area in southeast Yorkshire to the commercial and industrial corridor outside of the study area. There are also several strong travel flows from residential communities to Joseph D. Redding Park, some of which cross Route 28.

Figure 10: Bicycle-Pedestrian Travel Flows



Individual Calculation Inputs

Figure 11 shows population density within the Yorkshire study area. Yorkshire has low to low-moderate population density in its southern and eastern sections, but there is moderate-high density in the western part of the study area. Moderate to high density areas are located to the southwest of Yorkshire, while there is low-moderate to low density to the southeast. Note that population density, and all other individual demographic densities, are calculated based on a block group's surroundings regardless of land use, which can include green spaces and parks. Within Yorkshire, Joseph D. Reading Park accounts for approximately 17 percent of its block group's area in square miles.

Figure 11: Population Density

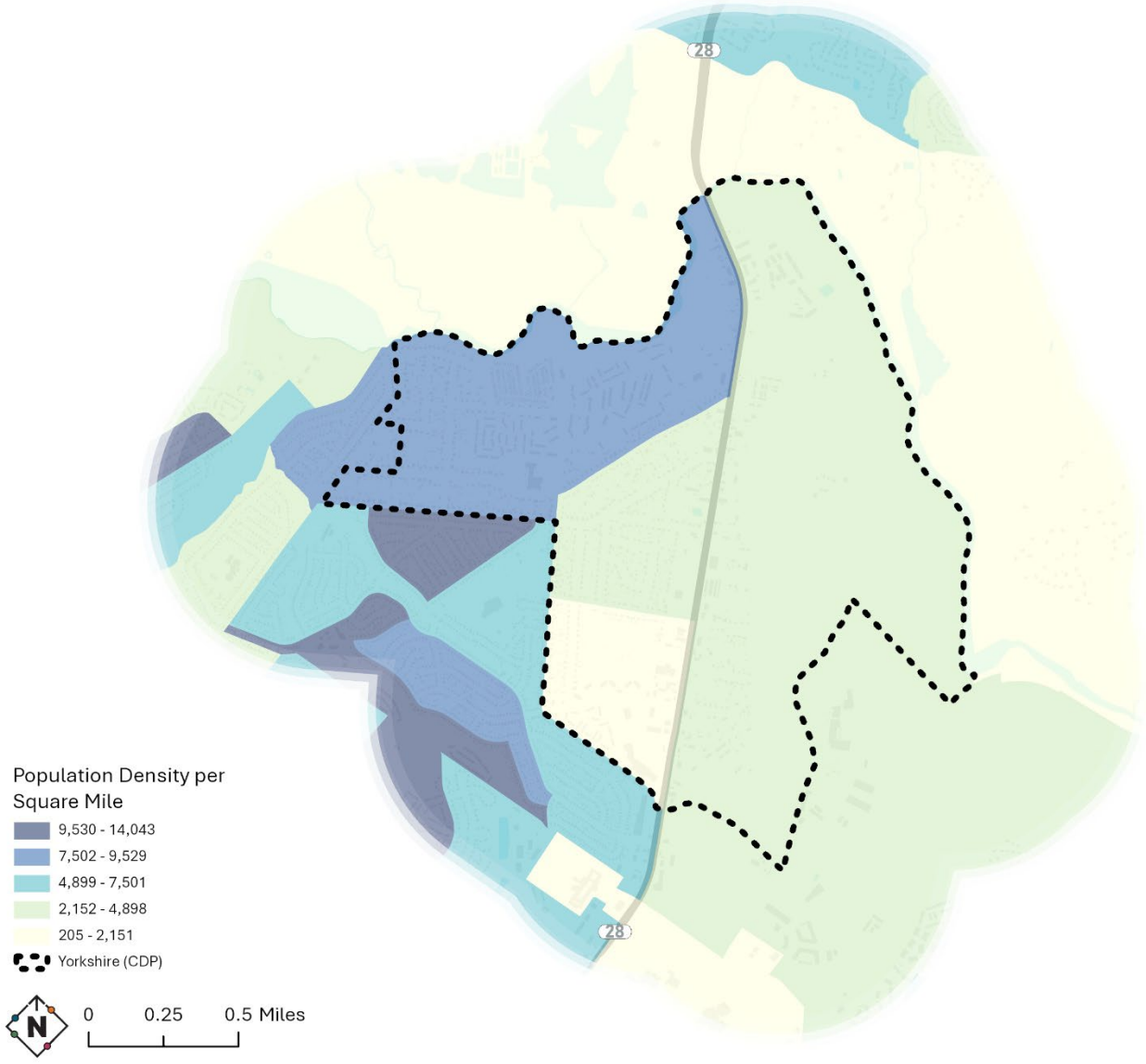


Figure 12 displays the density of low-income households within Yorkshire. Households with income less than 150% of the poverty line were analyzed for this study. The block group in the southeast is characterized by a low density of low-income households, while the adjacent block groups have a moderate density of low-income households, as well as the block group in the northwest corner of the study area. Two block groups west of Route 28 have a moderate-high density of low-income households.

Figure 12: Low-Income Household Density

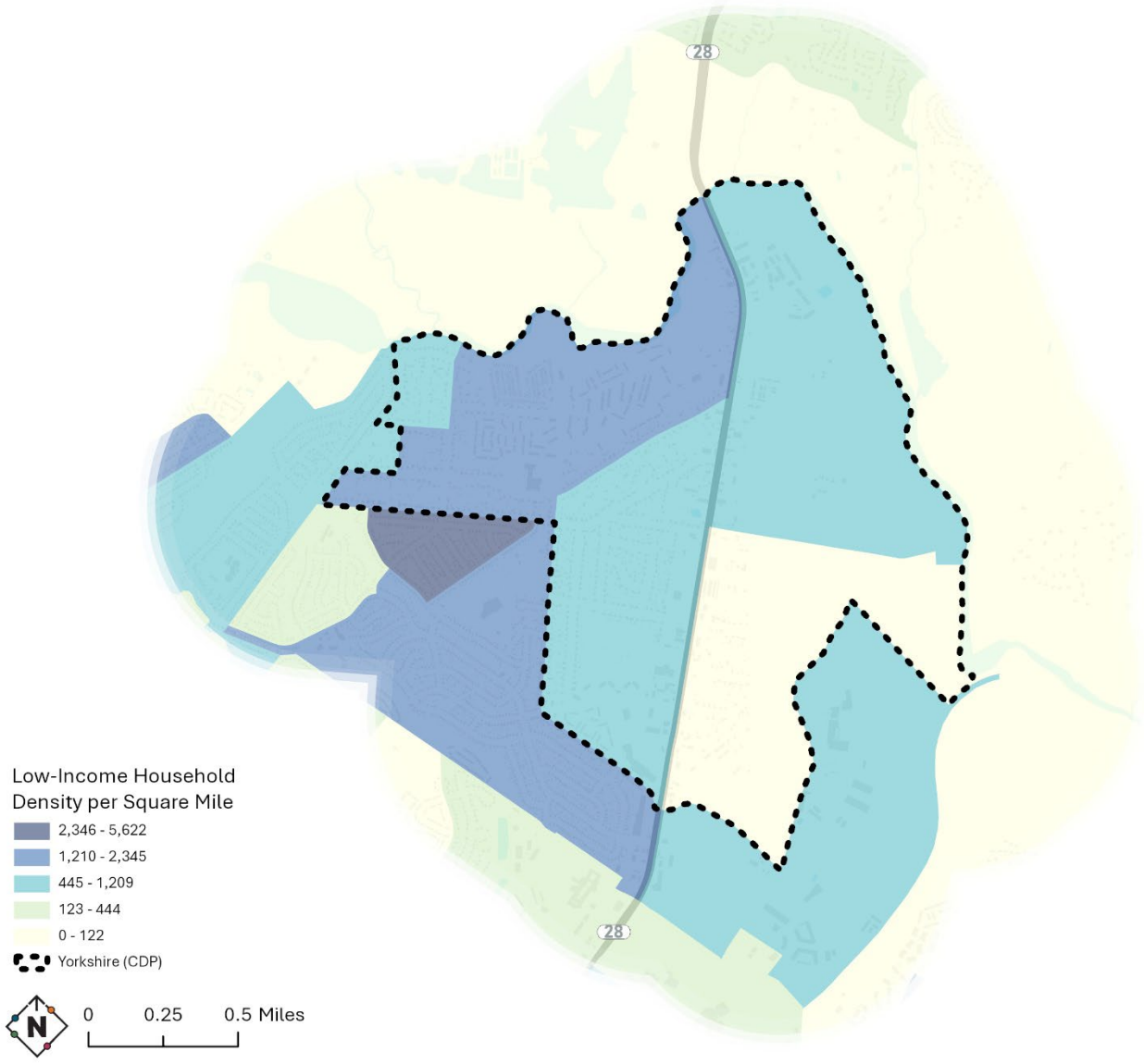


Figure 13 visualizes the density of the minority population in Yorkshire. The western block groups are characterized by a moderate-high to high minority population density. Areas surrounding Yorkshire are characterized by a moderate to high density of minority populations. There is a low density of minority populations in eastern and southern Yorkshire.

Figure 13: Minority Population Density

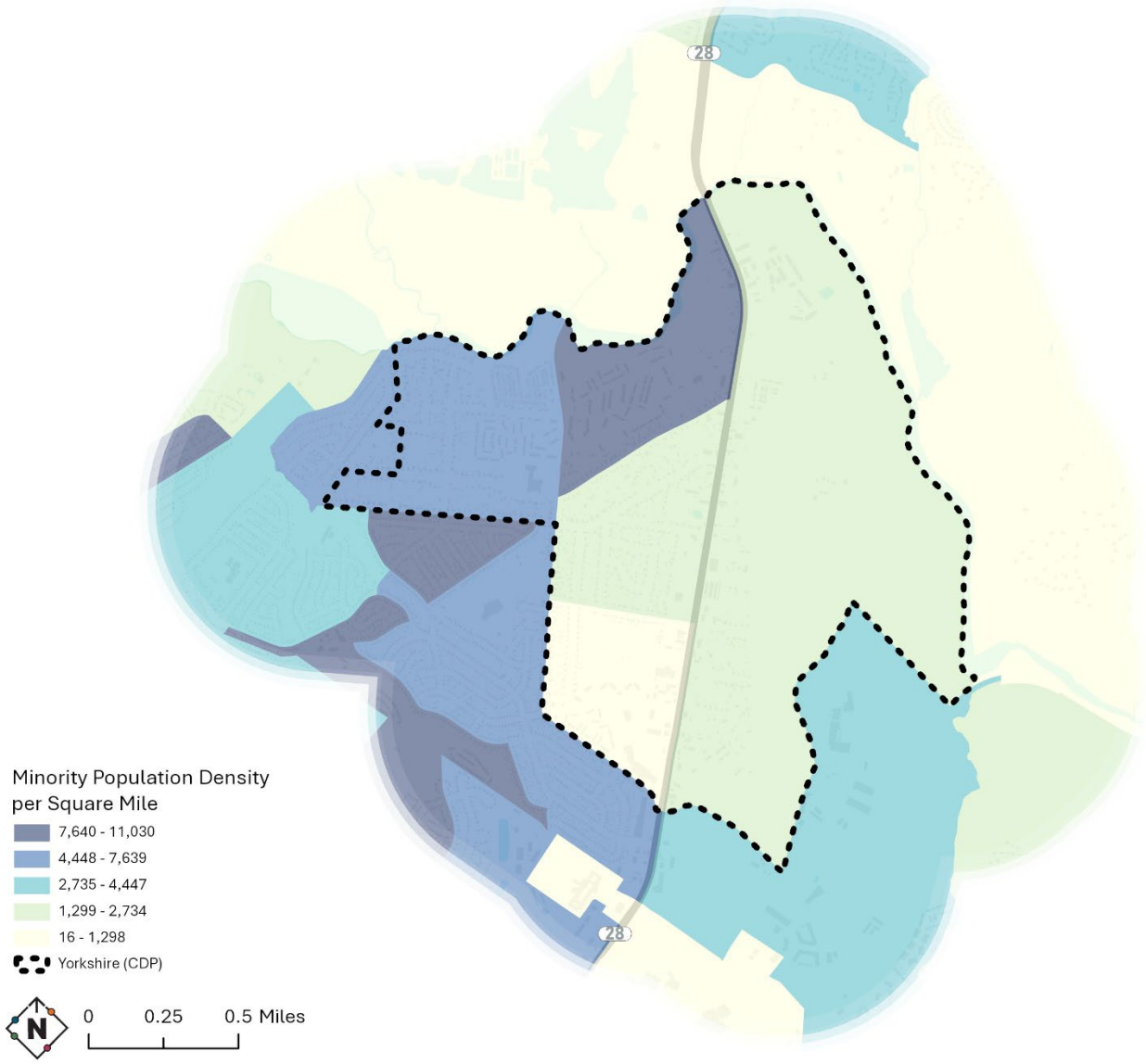


Figure 14 shows the density of households with one car in Yorkshire. Most of Yorkshire has a low to low-moderate density of households with one car. However, the two block groups to the northwest and west have a moderate to high density of households with one car. Block groups surrounding Yorkshire range from a low-moderate to moderate-high density of one car households.

Figure 14: One Car Household Density

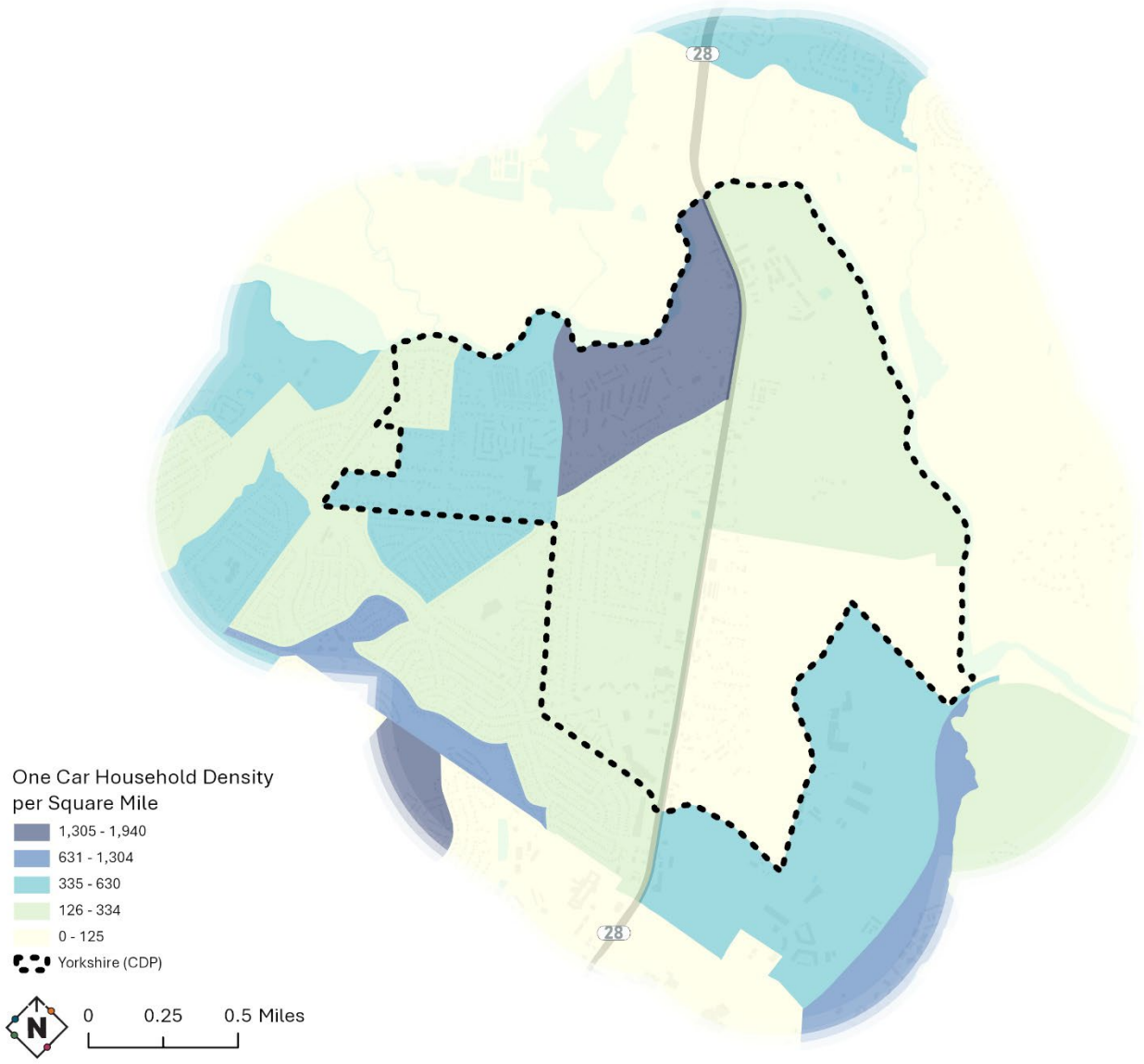


Figure 15 maps the density of households without a car. Few households in Yorkshire are without a car. The highest concentration of car-free households is located in the western part of Yorkshire.

Figure 15: Zero Car Household Density

Figure 16 depicts the population density of persons with disabilities. The western block groups are characterized by moderate-high to high density of persons with disabilities, as do the block groups that surround the study area. The block groups adjacent to Route 28 have a low to moderate density of persons with disabilities.

Figure 16: Population with Disabilities Density

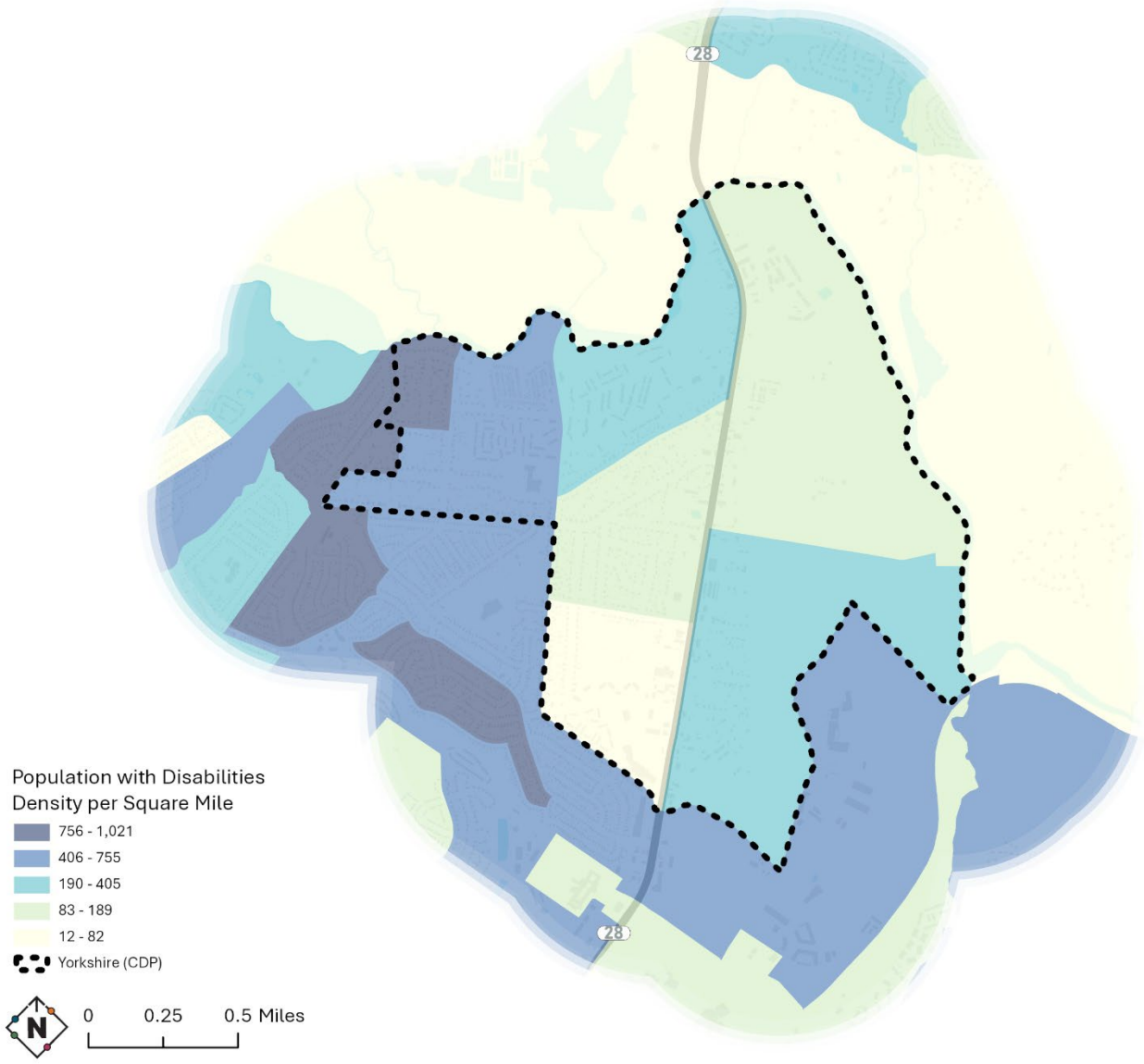


Figure 17 maps the density of seniors, age 65 and older. There is some moderate density in the southeast and northwest portions of Yorkshire. Block groups to the northeast and southwest of Route 28 have a low density of seniors. Outside of Yorkshire, there is a moderate to high density of seniors to the southwest.

Figure 17: Senior Density

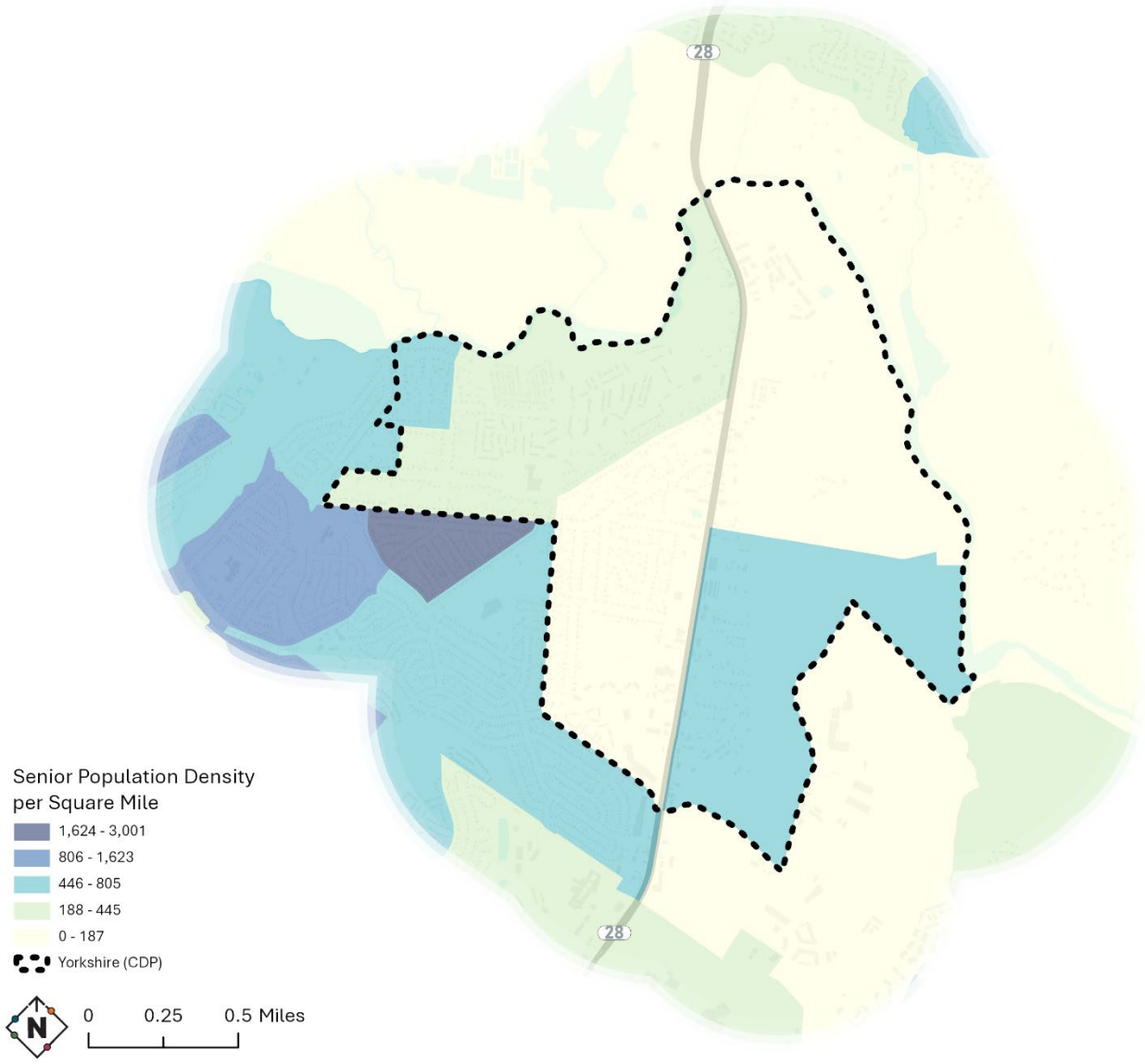
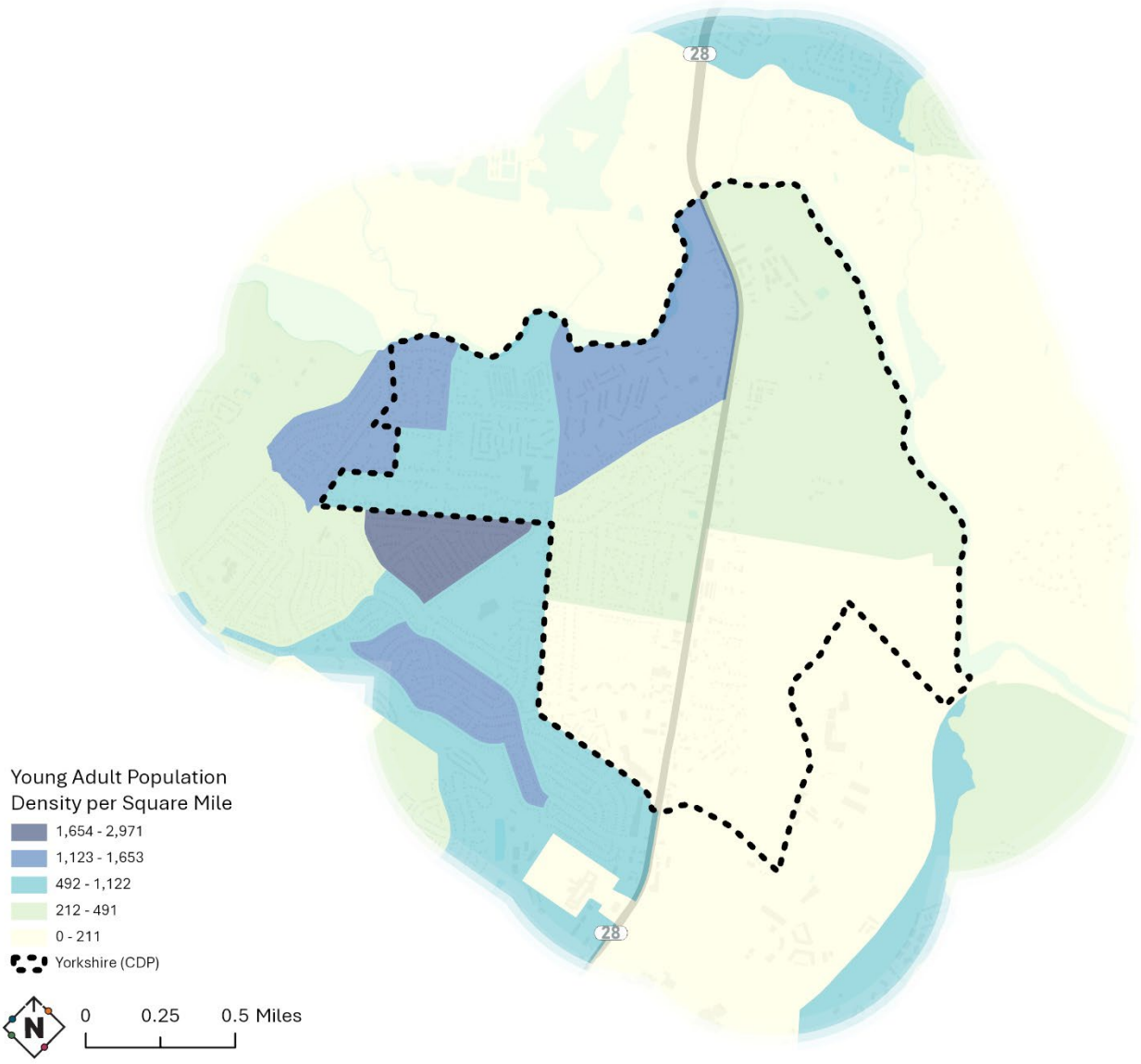


Figure 18 shows the density of the young adult population aged 18 to 24. This age range was chosen because this demographic group has a strong propensity to take transit trips and active trips. While the southern portions of Yorkshire have a low density of young adults, the western block groups have a moderate to moderate-high young adult population density.

Figure 18: Young Adult Population Density



Risk

Crashes

Crashes provide a lagging indicator of risk, that can be used to identify locations where safety needs do not adequately address human factors (e.g., distraction, response time, fatigue, impairment, etc.) . In other words, crashes suggest locations where streets, sidewalks, and associated infrastructure could possibly be improved to mitigate unsafe behavior.

Based on data from the Virginia Traffic Records Electronic Data System (TREDS), 997 crashes occurred within a quarter-mile of the Yorkshire study area from 2019 to 2023; **Figure 19** depicts these crashes as points; **Figure 20** displays crashes where injuries were sustained and fatalities occurred. **Figure 21** maps the density of crashes with existing OmniRide stops. Note that these maps depict only the total number of crashes and are not normalized by vehicle miles traveled.

Route 28 has a high number of crashes, highlights the need foradditional safety improvements . Crashes also concentrate along Old Centreville Road, Rugby Road, and Yorkshire Road in the western part of the study area, as well as Maplewood Drive in the southern part of the study area. All these roads share have high vehicular volumes, high speeds, frequent entrances, and limited safety countermeasures,

Just outside of the study area, the intersection of Route 28 and Manassas Drive in the City of Manassass Park has the highest density of crash points within a quarter-mile of the study area. This area has the highest active transportation propensity, further highlighting the need for infrastructure to meet the needs of people walking, biking, and rolling in this part of the county. Improving multimodal infrastructure and roadway safety is critical given that residents in this area have a higher propensity to take walking and cycling trips. The potential benefits of reducing crashes at this location are high due to the higher demand for multimodal trips in this part of the Route 28 corridor.

Of the 997 crashes that occurred within a quarter mile of Yorkshire, 342 led to injuries, equaling 34 percent of crashes. The 18 crashes involving people walking or bicycling comprised only two percent of all crashes. However, 17 of those 18 crashes led to injuries, a rate of 94 percent. The other walking-cycling crash was the lone crash fatality in this time period. The density of crashes displayed in **Figure 21** pose additional risks for transit riders given that all transit trips begin and end with some form of active transportation. Transit riders and potential transit riders may be discouraged from taking transit trips due safety concerns posed by high traffic areas with high vehicle speeds, a history of crashes, and a glaring sense of risk.

Figure 19: All Vehicular Crashes within ¼ Mile of Yorkshire (CDP) – 2019-2023

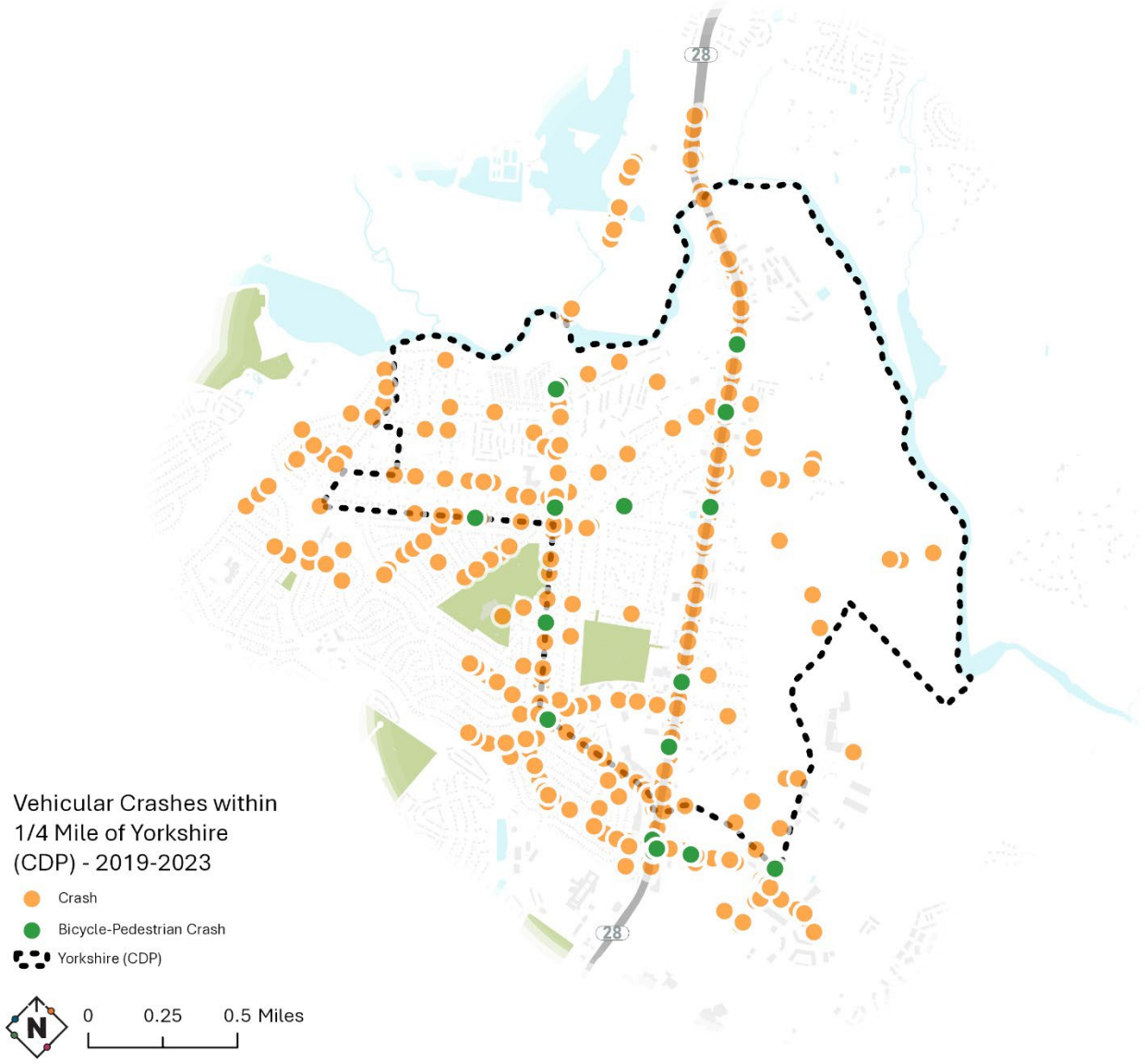


Figure 20: Only Vehicular Crashes Resulting in Injury or Fatality

Density of Crashes + Transit

Although certain areas of Yorkshire have a higher density of crashes, crashes can occur anywhere on a roadway network. Past crash locations are not always strong predictors of future crashes. New roadway infrastructure, multimodal infrastructure, lower speed limits, and improved public transit service are examples of countermeasures that can improve roadway safety and reduce vehicle crashes.

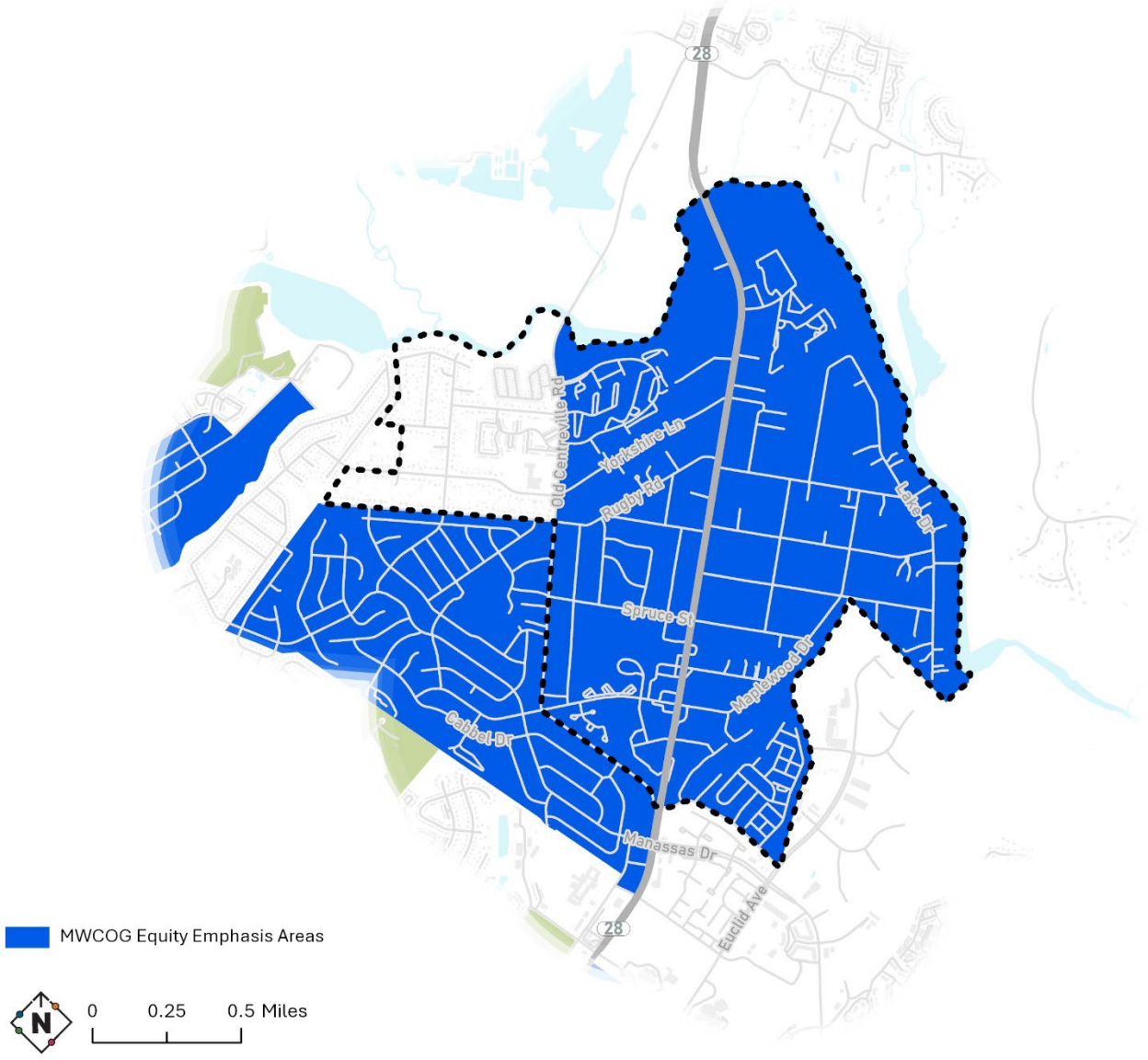
Figure 21: Crash Per Square Mile and OmniRide Stops

Equity

Equity Emphasis Areas and Slope

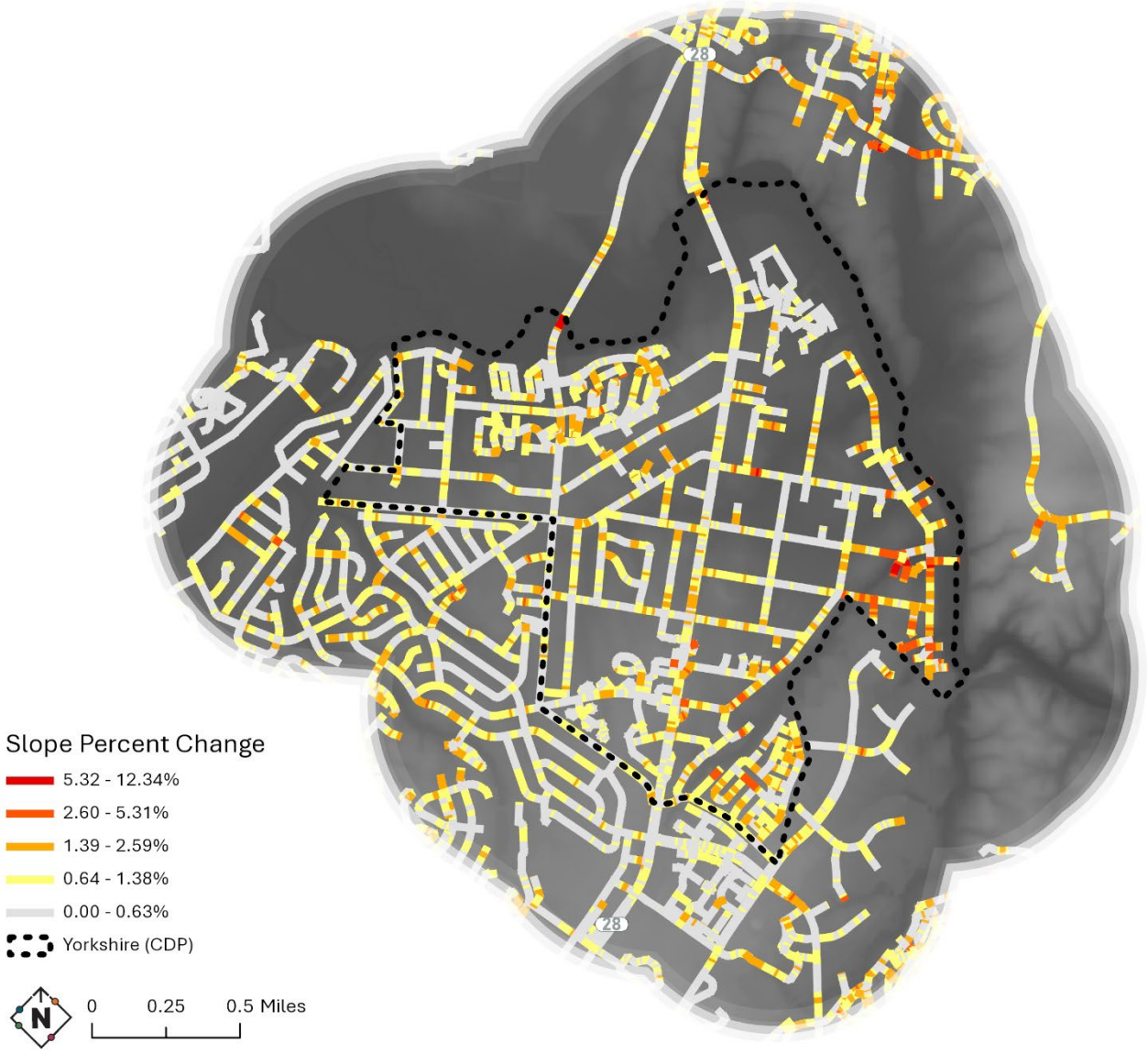
To promote equity in the planning process, MWCOG created the Equity Emphasis Areas (EEAs) tool which identifies census tracts with high concentrations of low-income populations and traditionally disadvantaged racial and ethnic populations. Of the more than 1,300 census tracts in the MWCOG region, EEAs account for 364 of these census tracts. EEAs also have a higher percent of households that rent, as well as higher percent of individuals with disabilities and workers without a telecommute option. **Figure 22** displays the EEAs near the Yorkshire study area. One census tract within the Yorkshire study area is designated as an EAA, while two other EEA tracts are located adjacent to or nearby the study area. Improving roadway safety within the study area creates opportunity to advance equitable outcomes for all Prince William County residents, particularly residents within EEAs who may already experience other hardships.

Figure 22: MWCOG Equity Emphasis Areas



Analyzing the change in roadway slope using a digital elevation model (DEM) provides additional context for walkability and bicycling potential within Yorkshire, including compliance with the Americans with Disabilities Act (ADA). Slope is an important consideration for multimodal infrastructure, as higher slopes can discourage people from taking active trips. **Figure 23** displays the change in slope percent for the Yorkshire study area in 30-foot roadway segments. The majority of 30-foot roadway segments are categorized in the lowest two slope categories. The data indicates that Yorkshire is relatively flat with minimal change in slope which should encourage or at a minimum not impede active transportation trips. Slopes increase in the eastern part of Yorkshire near Lake Drive, where the planned bicycle lane will be added. While slope data shows that most segments in Yorkshire are flatter, the lived experience of a person walking or cycling may differ.

Figure 23: Slope Percent Change



Key Findings

The lack of multimodal infrastructure is one of the biggest barriers to access and mobility in Yorkshire. Though clusters of sidewalks are found in residential neighborhoods/subdivisions, the sidewalk network is disconnected overall. There are also large sidewalk gaps along Route 28, the principal thoroughfare connecting Yorkshire internally and externally to other communities, as well as along the roads that connect to Route 28. This ultimately undermines residents' ability to safely and conveniently travel on foot, by bicycle, or via transit to key destinations and perpetuates a reliance on vehicles. Improving multimodal infrastructure and roadway safety can also promote equity within Yorkshire given that there are multiple EEAs in the vicinity of the study area. Multimodal infrastructure near bus stops along Route 28 could improve access to bus transit and improve safety for transit riders walking, cycling, or rolling to and from bus stops, thus providing a greater potential return for equity investment.

Among active transportation travel flows, walking trips comprised all trips in the three highest categories. This may indicate a preference for walking over bicycling, or it may indicate that walking trips are taken because the infrastructure is already in place for walking trips to be taken. Similarly, the lack of bicycle facilities contributes to diminished mobility options and access. The proposed bicycle facilities are a starting point for supporting short trips by bicycle. However, a robust, interconnected, and comfortable network of bicycle facilities is needed to truly meet current and future travel demand.

Subdivisions in Yorkshire will benefit from improved multimodal connectivity that enables people to walk or ride their bicycle for personal and recreational trips. The youth and young adult populations are vulnerable demographic groups that can benefit greatly from neighborhood connectivity improvements. Improving sidewalks and crosswalks on Route 28 will facilitate safer multimodal trips across Yorkshire and along the corridor.

The Manassas Drive intersection is a safety concern for multimodal infrastructure and should be studied further. This intersection should be studied further for roadway improvements that can reduce speeds and minimize the risk of vehicle crashes. With multiple transit stops in the area, this intersection is dangerous for people walking and cycling in order to access the transit system.