

CITY OF DANVILLE

2045 LONG RANGE TRANSPORTATION PLAN

SHAPING OUR REGION'S FUTURE, TOGETHER

Month, Day, 2020



Danville MPO 2045 Long Range Transportation Plan



Acknowledgements

The 2045 Transportation Planning Process spanned eighteen months, from spring 2019 to summer of 2020. During that time, numerous local and regional officials, state agencies, stakeholders and members of the public were involved in this process. The Danville Metropolitan Planning Organization expresses its gratitude to those who guided, staffed and influenced the development of this 2045 Long Range Transportation Plan.

MPO Staff

David Hoback, *Executive Director*
Leah Manndin, *Deputy Director*
Joe Bonanno, *Regional Planner*

MPO Policy Board

Voting Members

Ronald S. Searce, *Pittsylvania County*
Lee Vogler, *City of Danville*
Fred Shanks, *City of Danville*
Ken Larking, *City of Danville*
Charles Miller, *Pittsylvania County*
Joe B. Davis, *Pittsylvania County*
Chris Winstead, *VDOT Lynchburg*

Alternative Members

David Cooke, *VDOT Lynchburg*
Greg Sides, *Pittsylvania County*
Richard Drazenovich, *City of Danville*
Ken Gillie, *City of Danville*
Brian Dunevant, *City of Danville*

Non-Voting Members

Kevin Jones, *FHWA Richmond*
Marc Adelman, *City of Danville*
Kent Shelton, *City of Danville*
Sharon White, *VDOT Lynchburg*
P. Clifford Burnette, *VDOT Richmond*
Emily Delross, *DRPT*

Consultant Team

EPR, P.C.

Bill Wuensch, *Principal*
Will Cockrell, *Project Manager*
Phil White, *Deputy Project Manager*
Marissa Sperry, *Project Staff*

Kimley-Horn

Tim Padgett, *Travel Demand Modeler*

Disclaimer

This report has been prepared in cooperation with and financed in part by the U.S. Department of Transportation - Federal Highway Administration, the Federal Transit Administration, the Virginia Department of Transportation, and the Virginia Department of Rail and Public Transportation. The contents of this report reflect the views of the West Piedmont Planning District Commission (WPPDC) and Danville Metropolitan Planning Organization (DMPO), which are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration, Federal Transit Administration, the Virginia Department of Transportation, or the Virginia Department of Rail and Public Transportation. This report is not a legal document, and does not constitute a standard, specification, or regulation. Although much care was taken to ensure the accuracy of information presented in this document, WPPDC does not guarantee the accuracy of this information.

Acceptance of this report as evidence of fulfillment of the objectives of this planning study does not constitute endorsement/approval of the need for any recommended improvement, nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

Non-Discriminatory Statement

The Danville Metropolitan Planning Organization fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. For more information, or to obtain a Discrimination Complaint Form, see www.wppdc.org or call (276) 638-2987.

Additional copies of this document may be obtained by contacting:

Dave Hoback, Executive Director
1100 Madison Street
P.O. Box 5268
Martinsville, VA 24115
dhoback@wppdc.org

List of Acronyms

AADT: Annual Average Daily Traffic

ADA: Americans with Disabilities Act

ADAAG: Americans with Disabilities Act Accessibility Guidelines

CAC: Customer Advisory Committee

CLT: Charlotte Douglass International Airport

CoSS: Corridors of Statewide Significance

CTAF: Common Traffic Advisory Frequency

CTB: Commonwealth Transportation Board

DAN: Danville Regional Airport

DMPO: Danville Metropolitan Planning Organization

DRPT: Department of Rail and Public Transportation

DT: Danville Transit

FAA: Federal Aviation Administration

FTA: Federal Transit Administration

GLTC: Greater Lynchburg Transit Company

LODES: Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics

LOS: Level of Service

LRTAG: Lynchburg Regional Transportation Advocacy Group

LRTP: Long Range Transportation Plan

LYH: Lynchburg Regional Airport

MPA: Metropolitan Planning Area

MPO: Metropolitan Planning Organization

OIPO: Office of Intermodal Planning and Investment

PSI: Potential for Safety Improvements

PTI: Piedmont Triad International

ROA: Roanoke-Blacksburg Regional Airport

RLRP: Rural Long Range Plan

SPS: Statewide Planning System

TAC: Transportation Advisory Committee

TDM: Travel Demand Management

TDM: Travel Demand Model

TDP: Transit Development Plan

VDOT: Virginia Department of Transportation

VMT: Vehicle Miles Traveled

VOC: Volume to Capacity Ratio

WPPDC: West Piedmont Planning District Commission

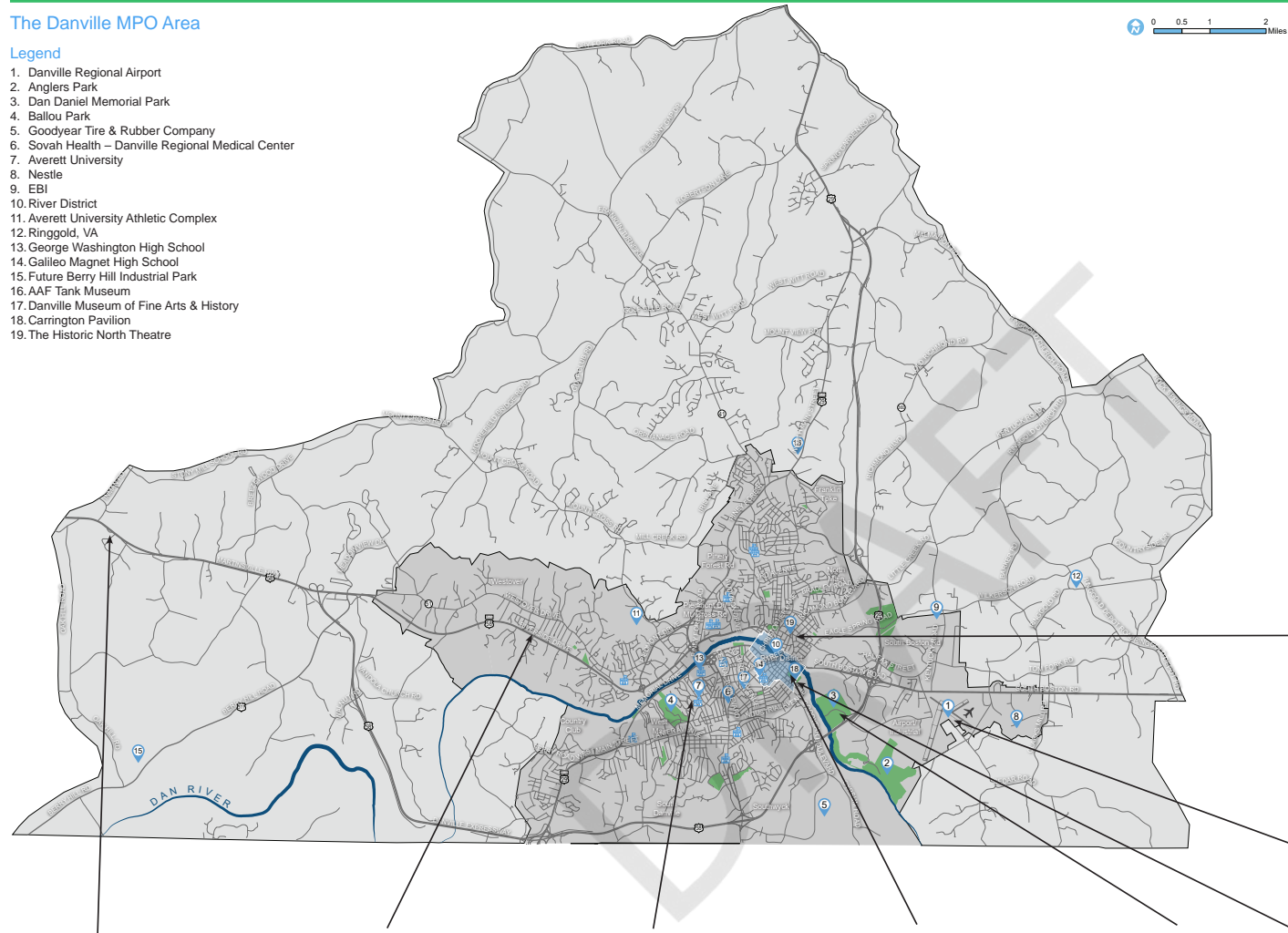
Regional Map

Danville MPO 2045 Long Range Transportation Plan

The Danville MPO Area

Legend

1. Danville Regional Airport
2. Anglers Park
3. Dan Daniel Memorial Park
4. Ballou Park
5. Goodyear Tire & Rubber Company
6. Sovah Health – Danville Regional Medical Center
7. Averett University
8. Nestle
9. EBI
10. River District
11. Averett University Athletic Complex
12. Ringgold, VA
13. George Washington High School
14. Galileo Magnet High School
15. Future Berry Hill Industrial Park
16. AAF Tank Museum
17. Danville Museum of Fine Arts & History
18. Carrington Pavilion
19. The Historic North Theatre



Regional Connections

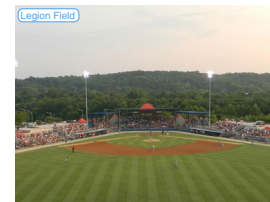
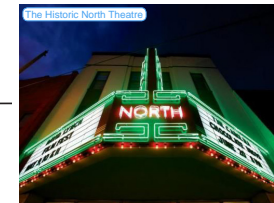
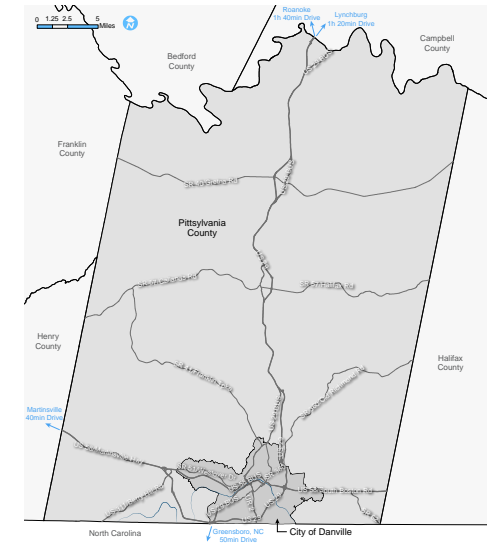


Table of Contents

7	Executive Summary
13	Introduction
20	Public and Stakeholder Engagement
28	2020 State of the System
62	Demographic and Land Use Trends
76	2045 State of the System
87	2045 Goals & Performance Measures
97	2045 Performance-Based Process
102	Transportation Priority Areas
113	2045 Project Lists



Executive Summary

Long Range Transportation Plans or LRTPs, are regional transportation documents that are central functions of Metropolitan Planning Organizations. These plans examine transportation trends and concerns, providing a list of future construction projects that will address the region's movement of people, goods, and services. LRTPs may be amended at any time, based on changes in federal guidance or evolving transportation needs, as well as changes in federal, state, and local funding. The LRTP provides the framework and vision for an urbanized region's transportation program.

Danville MPO

The Danville Metropolitan Planning Organization (D-MPO) is the official transportation planning agency for the City of Danville and urbanized areas of Pittsylvania County – this boundary also encompasses areas that are anticipated to become urbanized in the coming decades. MPO's are required by federal law, guiding transportation decisions in urbanized areas of at least 50,000 residents. These organizations qualify transportation projects for federal funding on highways, transit, bike and pedestrian, and multimodal capital investments.

The West Piedmont Planning District Commission (WPPDC) houses D-MPO, staffing the MPO Policy Board, the policymaking body for the MPO. D-MPO is the forum for continuing, cooperative and comprehensive transportation planning, referred to the Federal Code as the 3-C's.

Long Range Transportation Plans

One of the recurrent responsibilities of D-MPO is maintenance of a Long Range Transportation Plan. This document is a federally

WHAT MPO'S DO



Metropolitan planning organizations (MPOs) are responsible for development of regional long-range transportation plans for the regions they represent in accordance with federal regulation.

"Each such long-range plan shall include a fiscally constrained list of all multi-modal transportation projects, including those managed at the statewide level either by the Department of Transportation or the Department of Rail and Public Transportation. The purpose of the regional long-range transportation plan is to comply with federal regulations and provide the MPOs and the region a source of candidate projects for use by the MPOs in developing regional Transportation Improvement Programs (TIPs) and serving as an input to assist the Commonwealth with the development of the Statewide Transportation Plan (VTrans)."

Code of Virginia: § 33.2-3201. Transportation planning duties and responsibilities of Metropolitan planning organizations.

mandated plan that outlines the region's priority transportation improvements for the ensuing decades. For the MPO area, also called the Metropolitan Planning Area (MPA), the LRTP is a fundamental and critical document that unlocks federal funding for the region's transportation investments. Without the LRTP, these federal funds would be unavailable, causing most transportation projects to be too expensive for local or even state coffers.

A Constrained Plan

The LRTP is a constrained plan, which means that the MPO anticipates how much transportation funding it may receive over the next two decades. The MPO calculates the cost of transportation improvements and lists those projects that fit within the budget of anticipated funding. Any projects that cannot fit in the long range budget are moved to an unconstrained Visioning List. Review CHAPTER IX for the constrained list of projects, referred to as the Constrained Long Range Plan (CLRP).

A Collective Transportation Vision

The LRTP sets a collective vision for the region's future transportation system, then identifies projects that are intended to achieve regional goals and objectives. Federal Code requires that the plan consider all modes of transportation, including private vehicles, public transit, bicycle and pedestrian improvements, and other modes. LRTPs can also address issues such as bridge maintenance and air travel. Per federal mandate, the LRTP must be updated every five years. This document is the five-year update for the horizon year 2045.

The 2040 LRTP

In the previous version of the LRTP, D-MPO approved the 2040 LRTP in October 2015 (Figure 1). This plan anticipated transportation needs through the year 2040. A performance-based project evaluation process was a core element that resulted in a Constrained List of ten roadway projects and a Visioning List of twenty-nine transportation projects. The plan also included typical roadway section, discussions on transit service, considerations for aviation service, and an evaluation of alternative transportation modes. In that plan, D-MPO organized projects and policies by the eight Federal Planning Factors listed under MAP-21 legislation, discussed more in CHAPTER I. A unique aspect of the 2040 plan was a performance-based process that considered funding programs. Virginia had recently established House Bill 2 (HB2), which set a data-driven process for selecting the most cost-effective transportation solutions across the Commonwealth. That program, now known as SMART SCALE, was a key consideration in the 2045 plan, as well.

The 2045 Plan

In the 2045 update of the LRTP, D-MPO has built on successful elements of the previous plan, then introduced various new features that are intended to address new challenges faced by the region and Commonwealth. In this process, the EPR, P.C. consulting team identified common shortfalls with LRTP documents, based on an analysis of all fifteen plans in Virginia (for the fifteen Virginia

Figure 1 The Danville MPO 2040 LRTP



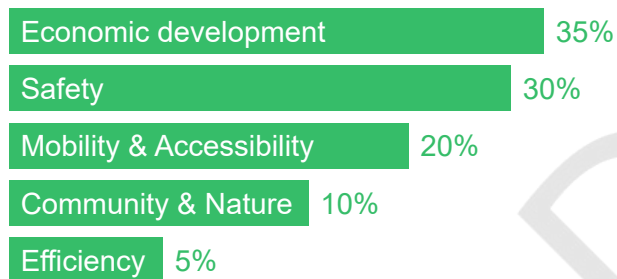
MPOs) and other MPOs across the country. The team designed new approaches to bring greater value to the MPO area and even the surrounding region. Below are some of the innovations found in the 2045 process and this document.

Note: D-MPO secured the consulting services of EPR, P.C. to develop the 2045 LRTP. Kimley-Horn was the subconsultant and provided modeling serves with the Travel Demand Model (TDM). This document refers to the consulting firms by name or by simply denoting them as the “consultants.”

Goals and Enhanced Performance Measures

The 2040 LRTP included performance measures but lacked overarching goals that guided transportation decision-making. In this update, D-MPO approved five 2045 goals (**Figure 2**) supported by fifteen performance measures. The measures served as project scoring sheets that offered a more sophisticated project evaluation process that aligned with funding processes, federal guidelines, and

Figure 2 2045 Goals and weights for scoring projects



local policies. With these tools, the MPO determined the degree to which various transportation improvements accomplished the region’s vision, goals, and objectives. Learn more about the goals, measures, and Project Evaluation Tool in CHAPTER VI.

A Focus on Implementation

There was a renewed focus on project implementation which grew out of the necessity to confront declines in state and federal transportation funds. Knowing that there will be increased competition for these

scarce resources, EPR, P.C. developed a three-fold approach to increasing the success of securing transportation funds for the Danville/Pittsylvania region.

1. **Project Evaluation:** The project evaluation phase included performance measures that mimicked state funding programs. This allowed the MPO to identify high-priority projects that needed further refining, serving as a “test run” for funding applications, such as SMART SCALE.
2. **Funding Selection:** The 2045 LRTP took an unprecedented approach by pairing projects with potential funding sources, then detailing next steps for preparing projects for future applications.
3. **Strategic Planning:** The plan incorporates an entirely new concept of a Short Range Transportation Plan (SRTP) or D-MPO Strategic Planning. While the project evaluation process scores projects, the plan sets a schedule for when projects will be submitted to various funding processes. The plan also includes information that MPO staff can enter directly into funding applications. If there are any missing elements to a potential funding submittal, the plan sets a schedule of next steps to prepare projects for application.

Interconnectedness

Rather than assessing the benefits of individual projects in an isolated manner, proposed projects were combined into scenarios, tested as a system, and compared with other project groupings through a method of performance measure analysis.

Detail and Guidance on Projects

LRTP project lists are traditionally vague. These plans consist of a list of deficiencies or improvements with general project costs assumed. Since Virginia’s funding programs now require more detailed project descriptions and accurate cost estimates, the 2045 plan includes extensive details for all recommended projects. This resulted in a higher level of confidence with anticipated costs and greater clarity on project descriptions.

Functional Visioning Lists

Typically, the Visioning List is a catchall for all projects and concepts not included in the Constrained List (CLRP). Consequently, Visioning Lists are rarely organized in a meaningful way. These “runner up” projects also include unvetted concepts with varying degrees of feasibility. The 2045 Plan gave additional attention to the Visioning List, since those projects can qualify for funding under Virginia’s SMART SCALE process. The non-constrained projects are organized into meaningful categories. The non-constrained lists also offer guidance for MPO officials on next steps, maintenance of the plan, cost estimates, ties to the Unified Planning Work Program (UPWP) and other useful direction. Rather than an after-thought, the 2045 Visioning Lists are a central component to the plan. Refer to CHAPTER IX.

A Strategic Elements and Direction

A new element to the plan that is thought to be unique to this LRTP is a Short Range Transportation Plan (SRTP) that serves as a strategic plan for project implementation. The SRTP details strategies, timing, schedules, and guidance on how to advance projects through funding processes. This new element plans funding-related activities for a three-year period and should be updated annually. Refer to APPENDIX ____.

Typical Road Sections and Modal Emphasis

Continuing from the 2040 LRTP, this update depicts typical road sections to help guide roadway design and modal split of key transportation corridors. The LRTP illustrates this information with an MPO-wide map that shows desired modal emphasis by corridor. Refer to CHAPTER VIII.

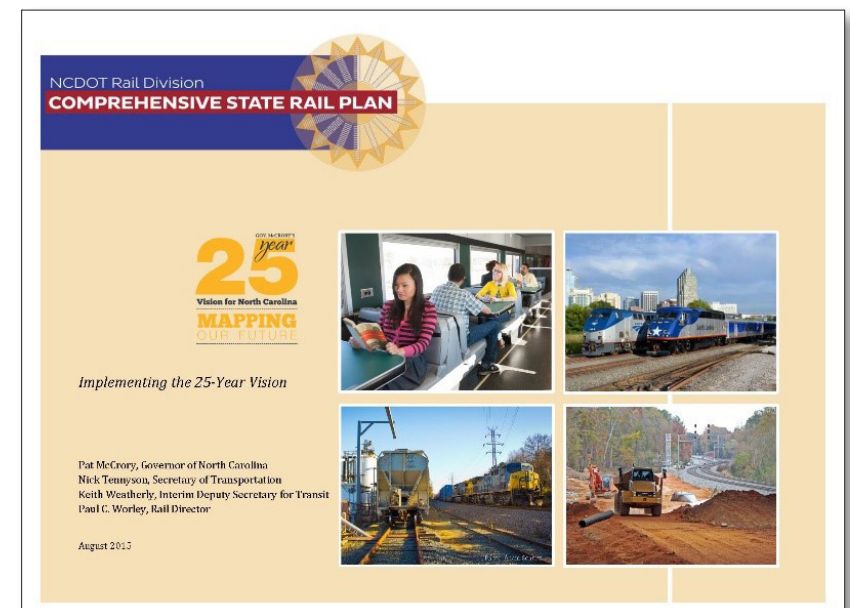
Considerations Beyond MPO Boundaries

Another shortfall of LRTPs is a “tunnel vision” focus on the MPA. Most plans include a map of the MPO boundaries that ignores anything beyond the urbanized area, as if the metropolitan transportation network were a closed system. In reality, Rural Transportation Programs can greatly influence MPOs, as rural and metropolitan areas are intrinsically linked. In response, the 2045 LRTP incorporates elements of the recently approved Rural Long Range Plan (2045

Figure 3 The Danville MPO 2040 RLTP



Figure 4 Considerations for transportation plans in North Carolina



RLRP) (Figure 3). Most notably, the Visioning List of projects includes a category of rural recommendations that could directly influence the MPO. The Visioning List also recommends joint rural-MPO studies. The LRTP also incorporates considerations from across the state line (Figure 4), since the region has strong ties to North Carolina.

Enhanced Economic Considerations

Callout boxes and sidebars reference the region's Comprehensive Economic Development Strategies (CEDs) Plan. Recommendations

User-Friendly Format

The 2045 Plan embraces the way people use LRTPs. Rarely does anyone read a Long Range Transportation Plan from cover to cover. Also, as a public document that is critical to the region, the MPO emphasized that this plan should be easy to read and navigate. To accomplish this, the plan includes guidance on how to use this document as a resource. Callout boxes reference other documents and define important terms. Hyperlinks (for electronic versions) and

Figure 5 Color-coded call out boxes

THE WEST PIEDMONT ECONOMIC DEVELOPMENT DISTRICT, COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGIES (2019)

"The Economic Development Administration Reform Act of 1998 identifies a CEDS as a requirement to apply for assistance under the EDA Public Works and Economic Adjustment Programs... The purpose of the CEDS is to establish a process that will help create jobs, foster more stable and diversified economies, and improve living conditions. It is a continuous planning process that addresses the economic problems and potentials of an area, providing a blueprint to strengthen economies through regional strategies which focus on economic and workforce development, quality of life, transportation and other vital infrastructure."

CEDS Goals
Goal 2: Improve infrastructure needed to grow the regional economy... 2.4 Improve regional multimodal transportation infrastructure; provide adequate transportation services; preserve, promote, and enhance transit systems

\$

INFORMATION BOXES

Blue information boxes provide detail to inform the reader. As there are various degrees of transportation knowledge for readers, these boxes help to keep the main text streamlined. The information icon denotes this content.

i

QUESTION BOXES

Gray question boxes answer Frequently Asked Questions that arise when reading an LRTP. The boxes may direct the reader to other documents, provide guidance to MPtO officials, or provide hyperlinks/page references of where to find answers.

?

ECONOMIC DEVELOPMENT BOXES

Green boxes pull quotes and recommendations from the region's Comprehensive Economic Development Strategies (CEDS) document. These boxes also include other economic development considerations throughout the plan.

\$

from the CEDs are incorporated throughout this document, communicating the importance of Economic Development in this part of Virginia, and linking plans.

page references direct readers to sections and chapters that would provide answers to their questions. The plan also limits jargon, as much as possible.

As part of the user-friendly format, color-coded callout boxes navigate readers through the plan. Each color and icon represent different topics that may be important to the reader (Figure 5).

A Streamlined Document

Most LRTPs include long narratives that can distract readers from important information. A central goal of the 2045 document was to remove any unnecessary information. This plan also attempts to better emphasize and detail the sections that readers typically use, the project list chapter. As a result, the LRTP narrative is shorter than is common and the information on projects is more extensive.

Public Engagement

Public engagement was a challenge in the 2040 Long Range Planning process. For 2045, the process included new approaches, such as public intercepts, comment postcards, and a MetroQuest survey. This public input played an important role in all aspects of the process, from validating the goals and performance measures to project selection. Refer to CHAPTER II.



Chapter I

Introduction

In this chapter, the reader will find:

- **Background information** on the 2045 Long Range
- **Transportation Plan**
- **Basic knowledge** of the MPO, the transportation planning process and what LRTPs are
- **Guidance** on how to best use this document

14	Danville Metropolitan Planning Organization
14	Long Range Transportation Plans
15	The 2040 LRTP
16	Since the 2040 LRTP
17	The 2045 LRTP

The Long Range Transportation Plan, or LRTP, is a blueprint for creating a more efficient, connected, and environmentally-sensitive transportation system in the Danville region over the next 25 years. The region's Metropolitan Planning Organization (MPO) is the entity responsible for preparing this plan, which builds on the most recent update, adopted in 2015.

The MPO developed this plan by learning about the concerns of residents, employers, elected officials, and other contributors. These conversations helped the MPO better understand how people want the transportation system to function in the future. The plan is also shaped by transportation trends, data on the system's performance, and regional economic plans and desires.

The MPO took into consideration this constellation of perspectives and data points to evaluate all possible transportation improvements and ultimately select a set of specific projects for improving the transportation system. These projects meet the MPO's goal of enhancing the quality and interconnectivity of the transportation system.

Danville Metropolitan Planning Organization

Federal law requires all American metropolitan areas with more than 50,000 inhabitants to establish a Metropolitan Planning Organization. MPOs ensure that current and future expenditures for transportation programs and projects are based on a continuing, cooperative, and comprehensive planning ("3-C") planning process.

Danville MPO (D-MPO) is the official transportation planning agency for the City of Danville and the urbanized areas of Pittsylvania County. The MPO collaborates with various agencies, facilitates public input, and conducts its own research and analysis to develop forward-thinking solutions for the region's transportation system.

D-MPO develops plans and programs that are subject to approval by federal transportation agencies in order for federal transportation aid to flow to the region. The most recent national transportation law, FAST Act (Fixing America's Surface Transportation), requires MPOs to develop and maintain a Long-Range Transportation Plan (LRTP) and a short-range Transportation Improvement Program (TIP). The agency

also develops a Unified Planning Work Program (UPWP) on an annual basis to outline planning activities, such as the work required to prepare this plan, and the funding required to undertake them. This plan effectively serves as both the MPO's budget and work program.

Long Range Transportation Plans

HOW IS THE MPO AREA DETERMINED?



Several federal agencies are involved in defining the MPO's service area, including the Census Bureau, Office of Management and Budget, and the Federal Highway Administration/U.S. Department of Transportation. In the early 1980s it was recognized that an urbanized area of 50,000 population existed within Danville and portions of Pittsylvania County, and so steps were taken to establish the MPO and establish an initial boundary. Since then the study area boundary also has been established at a distance outside of the Urbanized Area boundary. Following the 2000 Census, these boundaries were changed again to a limited extent.

The LRTP is a federally-mandated plan that outlines the region's priority transportation improvements over the coming decades. It is a fundamental plan that articulates a vision for the future of the region's transportation system, and identifies projects to implement over the next 25 years. The LRTP considers all modes of transportation including private vehicles, public transit, bicycles, pedestrians, and air; and covers other transportation issues such as bridge maintenance and safety improvements.

Per federal mandate, the Danville MPO's LRTP must be updated every five years. The preceding version, approved by the MPO Policy Board in October 2015, was named the 2040 Long Range Transportation Plan (2040 LRTP). The updated plan presented in this document has been named the 2045 Long Range Transportation Plan (2045 LRTP).



The 2040 LRTP

The MPO's 2040 LRTP, which this plan replaces, was developed as both federal and state policies were evolving to take a more performance-based approach in selecting transportation priorities. This approach means that transportation projects should be selected based on how well they can address transportation deficiencies and advance the MPO's goals. It requires the MPO to collect and make sense of qualitative and quantitative data for each transportation mode, and understand the values of the public and other stakeholders.

The MPO's needs assessment for the 2040 LRTP showed few deficiencies causing congestion, but several needs for improving safety and increasing the region's economic development. These priorities of the region aligned well with the state's Smart Scale transportation funding program, which also heavily emphasized safety and economic development when it was introduced around the time the MPO was developing the 2040 LRTP. The MPO also evaluated projects for their contributions toward the other three Smart Scale priorities of improving access, mitigating congestion, and environmental sensitivity. The MPO then developed a score for each proposed transportation project based on the five evaluation factors.

The MPO also used a pair of improvement alternatives to help identify its highest priorities. The first alternative, consistent with the MPO's emphasis on economic development, was titled "Berry Hill Industrial Park Access." This alternative included a set of projects that would be needed to develop the Berry Hill Industrial Park in southwest Pittsylvania County. The second alternative was titled "operations and safety focus." This alternative focused on addressing congestion and safety issues on key corridors and at intersections in the region.

This process yielded a set of 10 projects and four programs, listed in **Figure 6**, to provide funding for MPO priorities in the areas of safety, transportation enhancements such as bicycle and pedestrian improvements, rail crossing safety, and bridge reconstruction and replacement.

The 2040 LRTP also demonstrated how these projects and programs advance the eight "planning factors," which federal law requires all

FAST ACT



The MPO developed this plan in accordance with the latest federal transportation law, Fixing America's Surface Transportation (FAST) Act. Among the law's many requirements for this plan are the following:

- "The metropolitan transportation planning process shall include the development of a transportation plan addressing no less than a 20-year planning horizon as of the effective date."
- "The transportation plan shall include both long-range and short-range strategies/actions that provide for the development of an integrated multimodal transportation system"
- "In updating the transportation plan, the MPO shall base the update on the latest available estimates and assumptions for population, land use, travel, employment, congestion, and economic activity."
- "The metropolitan transportation planning process shall provide for the establishment and use of a performance-based approach to transportation decision-making to support the national goals described in 23 U.S.C. 150(b) and the general purposes described in 49 U.S.C. 5301(c)."

The Federal Highway Administration provides access to the rules governing metropolitan transportation planning, including LRTPs, at the following webpage:
<https://www.fhwa.dot.gov/fastact/guidance.cfm>.

long-range transportation plans nationwide to address. These factors are intended to ensure that transportation plans are developed to consider all transportation modes, the environmental and social impacts of transportation projects, and better plan for the future through such actions as early preservation of transportation rights of way. The factors defined by the previous transportation law – MAP-21 – were economic vitality, increase safety, increase security, increase

Figure 6 Projects and programs selected for the 2040 Plan

2040 Map ID (1)	Project Description (From/To)	Locality	Description	Proposed Typical Section (2)	Estimated Cost at Year of Expenditure (3)	Estimated Cost - Prior Allocation (4)	Year of Expenditure	Previous Allocation (Prior to 2016)	Fund Allocation in LRTP (2016-2040)
1	Route 58 Business & Berry Hill Road (US 311) Intersection Improvements	Pittsylvania County	Add eastbound and northbound turn lanes. Modify signal	R4D	\$3,290,000	\$3,290,000	2018	\$0	\$3,290,000
2	Kentuck Road (VA Rte 729) Improvements	Pittsylvania County/City of Danville	Improvements at 3 locations	R2	\$7,213,000	\$7,213,000	2030	\$0	\$7,213,000
3	Sandy Creek Bridge Replacement (Rt. 730)	Pittsylvania County	Replace Bridge	R2	\$2,061,000	\$2,061,000	2030	\$0	\$2,061,000
4	Mt. Cross Road (Rt. 750) - City Line to Old Mt. Cross (Phase 1 & 2)	City of Danville	Widen to 4 Lanes with two-way center left turn lane	U5D	\$17,279,000	\$12,563,000	2020	\$4,716,000	\$12,563,000
5	Airport Dr. at Stinson Dr.	City of Danville	Geometric improvements.	U2	\$840,000	\$840,000	2030	\$0	\$840,000
6	Moorefield Bridge Road Improvements	Pittsylvania County/City of Danville	Improvements at 3 locations	RD	\$4,844,000	\$4,844,000	2035	\$0	\$1,000,000
7	US 29 (Central Boulevard) at VA 413 (Memorial Drive)	City of Danville	Improve alignment of southbound to westbound ramp	U4D	\$1,616,000	\$1,616,000	2035	\$0	\$1,616,000
8	Piney Forest Road (US 29 Bus.) at North Main Street (VA 293)	City of Danville	Upgrade and signalize intersection, modify circulation patterns (including re-alignment of Seminole Drive)	U4D	\$2,949,000	\$2,949,000	2035	\$0	\$1,000,000
9	Piney Forest Road and Central Boulevard (US 29 Bus.) - Piney Forest Road to Parker Road	City of Danville	Intersection and circulation improvements (includes shift of Piney Forest Road connection to opposite Parker Road).	U4D	\$10,704,000	\$10,704,000	2040	\$0	\$10,704,000
10	Berry Hill Road (US 311) from Route 58 Business to Industrial Park	Pittsylvania County	Improve pavement section to 24 feet in width	R2	\$20,269,000	\$20,269,000	2018	\$0	\$1,000,000
N/A	Safety/ITS/Operational Improvements (CN)	N/A	Various Improvements	N/A	\$4,500,000	\$4,500,000			\$4,500,000
N/A	Transportation Enhancements/Byway/ Other Non-traditional Transportation Projects (CN)	N/A	Various Improvements	N/A	\$284,348	\$284,348			\$284,348
N/A	Rail Crossing Safety (CN)	N/A	Various Improvements	N/A	\$40,582	\$40,582			\$40,582
N/A	Bridge Rehabilitation/Replacement/ Reconstruction (CN)	N/A	Various Improvements	N/A	\$8,090,896	\$8,090,896			\$8,090,896
Total - Improvements					\$83,980,826	\$79,264,826		\$4,716,000	\$54,202,916
Total - Maintenance: Preventative Maintenance and System Preservation, Preventative Maintenance for Bridges, and Traffic and Safety Operation (MPO Wide)									\$851,748,315 (5)

accessibility and mobility, environmental enhancement and quality of life, enhance intermodal connectivity, system management, and preserve existing transportation system. Refer to CHAPTER VI for more information about the Federal Planning Factors.

The MPO reviewed these proposed alternatives and projects with the public, key stakeholders, and decision makers before settling on the final plan. The 2040 LRTP is an important reflection of the MPO's priorities at that time, and the jumping off point for the 2045 update.

Finally, the federal government requires MPOs to demonstrate "fiscal constraint" in their long-range transportation plans. This means that only projects that can be afforded within the anticipated revenue over the next 25 years can be included in a plan. As a result, several important projects could not be included in the 2040 LRTP for funding. A total of 29 projects were instead included in a "Visioning List." They may be implemented after the 2040 timeframe of the plan, or constructed if additional funds become available, or considered for funding in the 2045 plan. The Visioning List provides a starting point for identifying and evaluating projects for the 2045 plan.

Since the 2040 LRTP

Several developments since October 2015 have influenced the 2045 LRTP. There were several changes on the federal, state, regional and local levels that reshaped the project evaluation approach and methodology. Refer to CHAPTER VI for additional detail.

Smart Scale

Smart Scale is Virginia's method for selecting transportation projects to ensure the best use of limited tax dollars. The Commonwealth launched

Smart Scale in 2014 with House Bill 2. Smart Scale uses a transparent and data-driven approach to select projects that best achieve the state's desired performance for the transportation system. Since Smart Scale has become an important source of funding for

WHAT IS THE ROLE OF VISIONING PROJECTS?

Projects in the Visioning List are still part of the LRTP, even if those projects are not included in the Constrained List of Projects. For instance, under SMART SCALE a project from the Visioning List may qualify and receive funding. Generally, Constrained Projects are higher priority investments and vetted with further study.



transportation projects in Virginia, the 2045 LRTP reflects those scoring approaches. Doing so sets the region up for success in getting its priorities funded at the state level.

FAST Act

Congress adopted the nation's latest transportation funding law - Fixing America's Surface Transportation Act (FAST Act), in 2015. The FAST Act built on the prior law's (MAP-21) emphasis on performance based planning and project selection, while increasing the emphasis and funding for freight related planning and projects.

VTrans

VTrans is the statewide multimodal transportation plan. The latest version, called VTrans 2040, was completed in January of 2018. The plan establishes a framework to guide the state's investment decisions and is strongly connected to the Smart Scale scoring process. The latest version represented a significant step forward in the state's pivot towards a performance-based planning approach.

State and MPO Performance Targets and Measures

A shift towards a performance-based planning and project selection is one of the most significant developments in transportation nationally over the last decade. The state's Office of Intermodal Planning and Investment (OIPI) is responsible for developing transportation performance measures and targets in accordance with the FAST Act. The state, through VTrans, established five goals and 39 performance measures that allow it to track progress towards the goals. The state's goals are:

1. Economic Competitiveness and Prosperity

2. Accessible and Connected Places
3. Safety for All Users
4. Proactive System Management
5. Healthy Communities and Sustainable Transportation Communities

Plans and Studies

Local and regional plans were critical inputs for the 2045 transportation planning process. The West Piedmont Economic Development District's Comprehensive Economic Development Strategies Plan was a central consideration. That document is integrated throughout the LRTP, to sync economic development and transportation efforts. Local comprehensive plans helped to determine the 2045 goals, performance measures, and project lists. Any City of Danville or Pittsylvania County studies that involved transportation fed into the project evaluation process. A list of all known transportation recommendations in the region formed a Candidate List of Projects that eventually developed into the Constrained and Visioning Lists. Over forty local and regional planning documents influenced the 2045 process. APPENDIX __ lists those documents with a summary of the most important.

The 2045 LRTP

With the development of the 2045 LRTP, the Danville MPO continues and enhances the process for identifying and evaluating transportation projects that it used for the 2040 version. The plan consists of nine chapters, as outlined below. Refer to the following to find information on the topic of interest.

CHAPTER II: PUBLIC AND STAKEHOLDER ENGAGEMENT

Five engagement goals guided interactions with the public and stakeholders. A toolkit of strategies supported those goals, resulting in an engagement process that far exceeded the 2040 effort. Refer to this CHAPTER TO find information about the engagement process and to APPENDIX __ for full documentation of results.

CHAPTER III: 2020 STATE OF THE SYSTEM REPORT

This State of the System Report serves as the existing conditions element of the 2045 LRTP. Conclusions from CHAPTER III provide a baseline for CHAPTER V: 2045 STATE OF THE SYSTEM, which forecasts future needs, using additional data sources and results from the Travel Demand Model (TDM). The State of the System Report also identifies new project recommendations for the Candidate List of Projects and feeds into final project selection.

CHAPTER IV: DEMOGRAPHICS AND LAND USE TRENDS

This chapter examines the demographics and land use trends of the region in the context of the performance of the transportation system. The distribution of people and jobs across the MPO area plays a crucial role in the functioning of the transportation system.

Chapter V: 2045 State of the System Report

The 2045 State of the System Report explores anticipated transportation needs for the horizon year. The transportation model used in this process predicted future needs for roadways, calculating anticipated traffic counts and congestion.

CHAPTER VI: GOALS AND PERFORMANCE MEASURES

Goals and performance measures are central to the 2045 LRTP. D-MPO developed five goals and fifteen performance measures to evaluate projects and determine the Constrained List of Projects, as well as the Visioning List. CHAPTER VI describes what federal, state, and local considerations influenced the development of the 2045 goals and measures. This chapter also explains the Project Evaluation Tool, which was used to score and prioritize project recommendations.

CHAPTER VII: 2045 PERFORMANCE-BASED PROCESS

The 2045 process involved multiple phases of project evaluation, using the Project Evaluation Tool described in CHAPTER VI. CHAPTER VII documents the project evaluation results and illustrates how the project consultants identified, developed, and scored projects. While APPENDIX __ documents this process in more technical detail, Chapter 7 is a general overview.

CHAPTER VIII: TRANSPORTATION PRIORITY AREAS

CEDS TRANSPORTATION PROJECT PRIORITIES

“An area’s transportation accessibility serves as the framework wherein its communities grow. The adequacy of the transportation system has shaped and will continue to exert significant influence on economic growth within the West Piedmont Planning District. Transportation is a primary economic growth-forming factor because it makes land, labor, and resources both accessible and competitive interregionally and intraregionally. Local transportation modes, for the same reason, impact the growth--or lack of growth--of specific areas within the region by making some areas relatively more accessible than others. The region needs an efficient transportation system because local firms are competing globally with other firms. The consumer, through the retailer, is requiring an approximation of just-in-time delivery.

The highway network is the major element in the Planning District’s transportation system. Five federal highways and twenty state primary highways provide the localities of the region with access to each other and the rest of the nation...

Top regional priorities for infrastructure improvements for regional access are based on completion of construction of the I-73, I785, U.S. Route 58, and U.S. Route 29 corridors. The projects are essential and the timeframe for their construction is critical to the recovery of the regional economy and directly and indirectly affect the potential success of all other projects identified in the strategy. These transportation projects will have a significant economic impact on the region. Additional information on these and other projects follow.



The 2045 process set transportation priority areas, involving project categories, multi-modal retrofits to existing corridors, and interregional freight movement. This chapter details additional vision statements that are intended to guide D-MPO’s operations with the Unified Planning Work Program (UPWP) and other decision-making processes. This chapter also integrates transportation-related policies from the 2019 CEDS plan, to ensure that economic development and

transportation policies support each other.

CHAPTER IX: 2045 PROJECT LISTS

All chapters are intended to support and guide project selection, found in CHAPTER IX. This chapter includes the Constrained List of Projects and Visioning List. For the Constrained List, project profile sheets communicate all relevant information and guide decision-makers on next steps for implementation. The Visioning List consists of multiple project categories, including recommendations for the WPPDC Rural Transportation Program area, along with guidance on maturing listed projects.

Appendix

The appendix comprises the Technical Report version of the 2045 LRTP. These appendices document the process, store technical evaluations of project selection, record public and stakeholder comments, and details other aspect of the 2045 process not included in the chapters. Throughout the 2045 LRTP, there are references to the appendix, where readers can obtain additional detail on any given topic.

2045 GOALS



D-MPO adopted a set of five regional goals with 15 associated performance measures used to evaluate LRTP projects. The D-MPO Policy Board also set weights on these goals and performance measures that formed a project evaluation tool, described in the next section. D-MPO's official 2045 goals and performance measures include the follow:

- Economy: Retain and increase business and employment opportunities.
- Safety: Provide a safe and secure transportation system.
- Mobility and Accessibility: Provide a transportation system that facilitates the efficient movement of people and goods.
- Community and Nature: Improve the quality of life and protect the environment.
- Operational Efficiency: Preserve the existing transportation system and promote efficient system management.

Chapter II

Public and Stakeholder Engagement

In this chapter, the reader should find:

- **Background information** on what engagement efforts were required for the 2045 process
- **An overview** of engagement results
- **Clarity** on how public and stakeholder engagement influenced the 2045 process

21	Public Engagement Goals
22	Public Engagement Strategies
24	COVID 19 Pandemic
25	Engagement Calendar
25	Documentation
26	Themes of Engagement Results

Public and Stakeholder Engagement

In the first month of the 2045 LRTP process, Danville MPO's consultants developed a Public Involvement Plan to guide public and stakeholder engagement activities. This charter document was consistent with the MPO's Public Involvement Participation Plan and Title VI Plan, to uphold MPO policies and federal requirements. This engagement plan entailed detailed goals, strategies, and documentation of results. Despite the COVID 19 pandemic, which interfered with in-person strategies, the 2045 process surpassed the 2040 process in terms of number of comments collected and resources spent on public involvement. This chapter describes the engagement process, which spanned fourteen months, while the attached appendix documents results, and all comments received.

Public Engagement Goals

Five engagement goals were central to the 2045 Public Involvement Plan. The MPO adopted an engagement process, designed to accomplish these goals. Each engagement strategy accomplished at least one goal. Each stage of the planning process would emphasize one or more goals at a time, based on the need for primary data collection from engagement.

Goal A: Educate and Inform

This goal applied to all phases of the planning process. Throughout the 2045 update, there was an emphasis on communicating the importance of the LRTP and participating in the process. Main engagement strategies included the project website: www.danvillempo2045.com, newsletter materials, press releases, and public intercepts.

Goal B: Needs and Opportunities

In the initial phases of the process, engagement strategies were intended to identify transportation needs and opportunities. This

TITLE VI PLAN - ENVIRONMENTAL JUSTICE AND LIMITED ENGLISH PROFICIENCIES



MPO Policy Statement and Authorities

"The Danville MPO further assures that every effort will be made to ensure nondiscrimination in all of its programs and activities, whether those programs and activities are federally funded or not. In the event the Danville MPO distributes federal-aid funds to another government entity, the Danville MPO will include Title VI language in all written agreements and will monitor for compliance. The Danville MPO Administrator is responsible for ensuring implementation of the organization's Title VI Plan, and is responsible for the overall administration of the Title VI Plan and assurances. The authorities that provide guidance on Title VI and related nondiscrimination laws, regulations, and executive orders can be found in the 'Title VI and Other nondiscrimination Laws' section of this document."

engagement comprised of more open-ended questions, to identify areas of concern and perceived transportation deficiencies. One objective was to attain a local knowledge of the community and its transportation system. Engagement tools included a comments page on the 2045 website: www.danvillempo2045.com, comment postcards, the first open house event, and interviews with stakeholders.

Goal C: Goals and Measures

In the second phase of the 2045 process, public and stakeholder involvement helped to determine a system of goals and performance measures to evaluate projects for the Constrained Long Range Plan (CLRP). Engagement tools included online surveys and public intercept strategies.

Goal D: Project Selection

In the next phase, the MPO evaluated new and existing transportation recommendations with the approved set of performance measures from Phase II. Public engagement focused on collecting feedback on

the prioritized list of recommendations. Engagement tools included online comment options on the site: www.danvillempo2045.com, a virtual open house, and a final round of review with MPO and local officials.

Goal E: Draft and Final Plan

The MPO posted draft versions of the plan at public locations and online. Review of the plan included a public hearing at the August 2020 meeting.

Public Engagement Strategies

Per the MPO's PPP and the federal code, the 2045 process involved a diverse assortment of engagement strategies. The MPO's consultants tailored these approaches to the needs of each stage in the process and to the defined engagement goals.

MPO Meetings

The MPO Policy Board, consisting of local and state officials, serves as the governing body of the Danville MPO. Its membership consists of three members from the Pittsylvania County Board of Supervisors, two members from the Danville City Council, the Danville City Manager, and a member from the Virginia Department of Transportation (VDOT). With non-voting members that represent localities and state agencies, the board meetings double as Technical Committee meetings.

Meeting Schedule

The MPO Policy Board met eight times throughout the process, allowing for public comments at each meeting.

- **Meeting #1 (April 18, 2019):** The first meeting was an official kickoff for the process, as the Board reviewed the project schedule and scope of work.
- **Meeting #2 (July 19, 2019):** Project consultants presented a "State of the System" report that explored existing conditions throughout the MPO area.
- **Meeting #3 (October 9, 2019):** The Policy Board discussed an initial framework of goals, measures, and targets.

D-MPO PROCESS DOCUMENTS



Two MPO documents guided the 2045 Public Involvement Plan and subsequent engagement efforts. The MPO's Public Involvement Participation Plan and the Title VI Plan are federally required documents that establish equitable engagement approaches for all MPO processes, including updates to the LRTP. See Appendix ___ for documentation on how the 2045 process complied with these documents.

Public Involvement Participation Plan

The Public Involvement Participation Plan, sometimes referred to as the Public Participation Plan or PPP, is intended to facilitate reasonable opportunities for the public to be informed and involved in Danville MPO's transportation planning processes for the urbanized area. The plan detailed strategies for engaging the public and identified stakeholders to help identify highway, transit, pedestrian, bike, and other transportation needs in the Metropolitan Planning Area (MPA).

Title VI Plan: Environmental Justice and Limited English Proficiency

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have a longstanding policy to actively ensure nondiscrimination under Title VI of the 1964 Civil Rights Act in federally funded activities. The Danville MPO, as a sub-recipient of federal assistance, is required to comply with Title VI and subsequent nondiscrimination laws, as well as to provide an overview of how the Danville MPO addresses Executive Order 12898 on Environmental Justice and Executive Order 13166 on Limited English Proficiency (LEP). The purpose of this Title VI Plan is to describe the measures taken by the Danville MPO to assure compliance with the rules and regulations associated with Title VI and subsequent nondiscrimination laws, Environmental Justice, and LEP.

- **Meeting #4 (December 18, 2019):** The Board approved the 2045 goals and performance measures, along with the

weighted values that would be applied to project evaluation.

- **Meeting #5 (March 18, 2020):** The consultant team presented a candidate list of projects that would be evaluated with the approved 2045 performance measures.
- **Meeting #6 (June 24, 2020):** The MPO Policy Board reviewed the draft project lists and initial draft of the 2045 LRTP document.
- **Meeting #7 (July __, 2020):** The project consultants presented a second draft of the 2045 LRTP document, with the Policy Board making additional edits and tweaks.
- **Meeting #8 (August __, 2020):** The Danville MPO advertised for a public hearing, where the Policy Board formally adopted the 2045 LRTP.

Project Website

The MPO's consultants developed a project website that provided information on the 2045 LRTP update (**Figure 7**). The website included a public comment box to allow for general comments online. In later stages of the 2045 update, the website offered further review of the draft list of projects and the draft plan. EPR, P.C. inserted the required notices per the Title VI Plan.

Newsletters and Press Releases

Staff shared project information in MPO newsletters and press releases. These notices included staff phone numbers and addresses that allowed the public to forward comments to the MPO. Per the Public Involvement Participation Plan and Notification Procedures Manual, the notices included proper language.

Surveys

The MPO's consultants developed two community survey instruments. The first collected feedback on Goals and Performance Measures, in late 2019. There were no recorded responses to this first round, but over 50 participants responded to the second survey that collected information on specific transportation needs through an online map. The second survey occurred in the spring of 2020. Consultants developed heatmaps of public comments and overlaid those with projects to correlate public feedback with project selection.

NOTICES PROVIDED



Title VI Plan: Environmental Justice and Limited English Proficiency

NOTICE TO THE PUBLIC

"In order to comply with 49 CFR Section 21.9(d), the Danville MPO shall provide information to the public regarding their Title VI obligations and apprise members of the public for the protections against discrimination afforded to them by Title VI. The paragraph below will be inserted into all significant publications that are distributed to the public, such as future versions, and updates of the Long-Range Transportation Plan..."

"The Danville Metropolitan Planning Organization fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. For more information, or to obtain a Discrimination Complaint Form, see www.wppdc.org or call (276) 638-2987."

Postcards

The consultants developed comment postcards and distributed them to stakeholder groups. These cards allowed individuals to send comments directly to the consultant team and allowed input from those that lack internet access. Through this strategy, staff received six responses, including feedback from visually impaired and senior residents in the region. These comments are documented in the appendix.

Stakeholder Interviews

EPR, P.C. conducted stakeholder interviews before the first open house event early in the process. These interviews were intended to identify perceived transportation needs and deficiencies. During the 2045 process, Virginia's Office of Intermodal Planning and Investment (OIPI) began its update of the Statewide Transportation Plan, VTrans. As sub-consultant in that process, EPR, P.C. facilitated a half-day workshop with stakeholders from around the Danville MPO region. While this engagement served to provide input to VTrans, the event doubled as a stakeholder session with the 2045 process.

Documentation of the VTrans event is in APPENDIX ___. A final round of stakeholder interviews, in the last phase of the process, vetted the draft project lists.

Public Intercepts

The MPO's consultants planned a series of public intercept events that displayed 2045 materials at existing community events such as festivals and other public gatherings. Weather resulted in the cancelation of the first event, the annual "Market Monster Mash" on Halloween night. EPR, P.C. and MPO staff attended a "Food Truck Rodeo" event on November 2, 2019. In 2020, the MPO began preparations for a new series of intercepts but those plans were canceled due to the COVID 19 pandemic.

Open House Events

The MPO hosted a public open house event on June 27, 2019, to present the existing conditions analysis of the region's transportation system. This report resulted in CHAPTER III: STATE OF THE SYSTEM. EPR, P.C. contacted over 70 stakeholder groups from the PPP and Title VI Plan. Consultants also posted flyers in public spaces throughout the region. Despite the intensive outreach effort and an accessible location, there was limited attendance at the event. Due to the COVID 19 pandemic, the second public open house occurred online. APPENDIX ___ documents of both events.

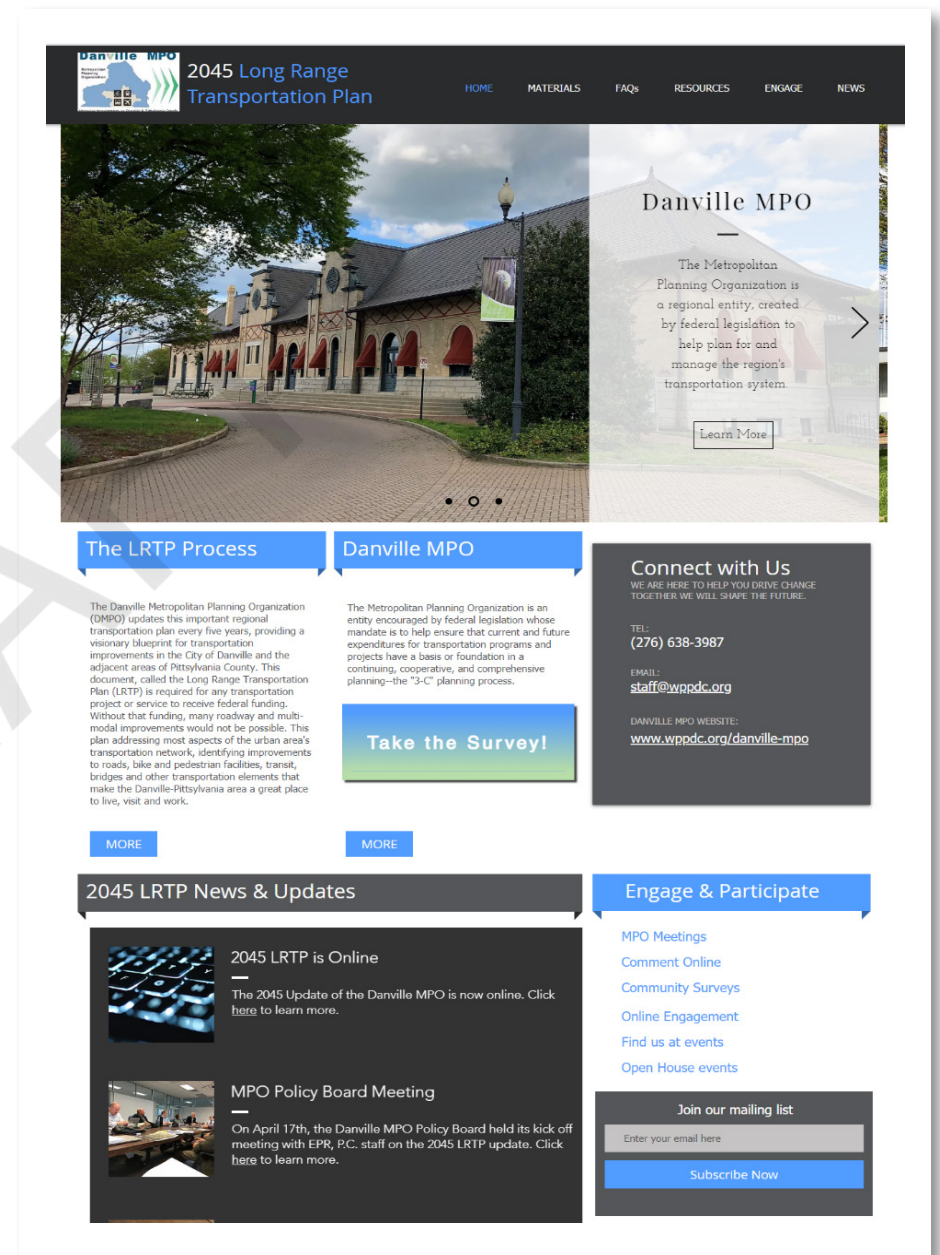
Public Viewing

Prior to adoption, the MPO posted electronic and physical copies of the plan at least 30 days prior to the public hearing. Notices for public viewing complied with the MPO's engagement guidelines.

COVID 19 Pandemic

The 2045 Public Involvement Plan called for public intercepts and two public open house events. In March, just as MPO staff and consultant prepared to ramp up engagement efforts, the COVID-19 pandemic led to cancelations of public events and resulted in social distancing protocols across the nation. The June 27, 2019 event met the FHWA requirement as a "public meeting." The MPO's PPP requires an open house after the LRTP is drafted. A virtual event served to meet this

Figure 7 D-MPO's LRTP website



requirement while maintaining public safety.

Engagement Calendar

The engagement calendar included the following dates:

Calendar Year 2019

- **April 17, 2019:** MPO Policy Board Meeting
- **June 2019:** Public Comment Postcards
- **June 2019:** Project Website goes Live
- **June 27, 2019:** Stakeholder Interviews
- **June 27, 2019:** Public Open House Event
- **July 19, 2019:** MPO Policy Board Meeting
- **August 1, 2019:** VTrans Stakeholder Workshop
- **Fall 2019:** Initial Survey goes Live
- **October 9, 2019:** MPO Policy Board Meeting
- **October 31, 2019:** Public Intercept, Market Monster Mash (Canceled due to weather)
- **November 2, 2019:** Public Intercept, Bridge Street Food Truck Rodeo
- **December 18, 2019:** MPO Policy Board Meeting

Calendar Year 2020

- **March 18, 2020:** MPO Policy Board Meeting
- **May 11, 2020:** Second Survey goes Live
- **June 24, 2020:** MPO Policy Board Meeting
- **July 2020:** Virtual Public Open House
- **July 2020:** MPO Policy Board Meeting
- **July 2020:** Public Display of Draft Plan
- **August 2020:** MPO Policy Board Meeting

Documentation

Staff tracked all public engagement efforts and comments throughout the 2045 process. A Matrix of comments records feedback from the public and stakeholders. This Matrix also documents how each comment influenced the process. Appendix ___ also details strategies and results from the survey, open house events, VTrans workshop and all other engagement efforts.

TITLE VI PLAN - ENVIRONMENTAL JUSTICE AND LIMITED ENGLISH PROFICIENCY



"In addition to meetings and written communication as part of its efforts to reach out to low-income and minority communities, the MPO will utilize alternative methods of outreach, such as personal interviews, audio/video recording, and other feasible forms of communication."

Public Involvement Participation Plan and Notification Procedures Manual

"As the transportation plan is developed, the Danville MPO shall consult, as appropriate, with agencies and officials responsible for other planning activities in the planning area affected by transportation to coordinate planning functions to the maximum extent practicable."

"The implementation of the Danville MPO Public Involvement Participation Plan will be coordinated with the statewide transportation planning public involvement and consultation processes developed, as appropriate, with agencies and officials responsible for other planning activities within the MPO urban transportation planning study area that is affected by transportation."

Matrix of Public and Stakeholder Comments

To document the public and stakeholder engagement, Appendix ___ includes a matrix of all comments collected during the update process. This matrix consists of six columns that record the following:

- **Comment ID:** Each public and stakeholder comment received a numeric ID for easy reference.
- **Name:** The Matrix recorded the name of the individual who made the comment. If the individual did not include a name or asked for his/her name to be excluded from the record, staff recoded those entries as anonymous. Most comments fell under this category.
- **Comment:** The 2045 LRTP records every comment received

in this process. These comments are direct quotes unless otherwise noted.

- **Source:** The Matrix record the source for each comment. Sources include the various strategies and platforms for engagement, such as the public open houses, postcard, website, interviews, etc.
- **How was this addressed:** The final column records how the 2045 LRTP addressed each comment. Some comments directly influenced the structure of this plan. Other comments helped validate project selection. Others were considered but did not directly influence the process due to various reasons that are listed.

Themes of Engagement Results

The Matrix of Public and Stakeholder Comments highlights two main themes. First, participants in the process wanted to see bike and pedestrian accommodations. These comments centered on a desire for improved on-road facilities, such as new sidewalks, bike lanes, and safer crosswalks across major roadways. Respondents also asked for off-road facilities, such as extensions of the Riverwalk Trail. Finally, responses included comments on improved bike and pedestrian connections to important destinations, such as the train station. The second major theme was inter-regional transportation. Comments included greater connection to the North Carolina Research Triangle, inter-regional bus service, improved Amtrak service, and a shuttle to Halifax.

In response to the two main themes identified above, the 2045 LRTP contains the following features:

Bike and Pedestrian Connections

Bike and Pedestrian Prioritization

The Constrained List of Projects and Visioning List incorporates a list of bike and pedestrian projects, prioritized with the ActiveTrans Priority Tool (ATP). The Transportation Research Board (TRB) developed this tool and methodology, as described in NCHRP 803. The TRB describes ActiveTrans as “a flexible, data-driven methodology for prioritizing bicycle and pedestrian improvements along existing

PUBLIC INVOLVEMENT PARTICIPATION PLAN AND NOTIFICATION PROCEDURES MANUAL

“Public meetings sponsored by the Danville MPO will be held at convenient and accessible locations and times. A citizen information forum period will be provided during each regular Policy Board meeting.”

“A meeting notice will be provided in printed form and electronically, where practicable, to local news media, one week in advance of each regular Policy Board meeting. Reasonable access to available information about Danville MPO sponsored transportation studies in the urban planning study area will also be provided.”

“Public notices advising citizens in the MPO urban planning study area of the availability of draft transportation plans and transportation improvement programs in local public libraries and public offices will be continued in addition to website availability.”

“Public notices advising citizens in the MPO urban planning study area of the availability of draft transportation plans and transportation improvement programs in local public libraries and public offices will be continued in addition to website availability.”

Title VI Plan: Environmental Justice and Limited English Proficiency

“Include the Title VI Notice to the Public (see Appendix 2) in relevant press releases and on the West Piedmont Planning District Commission website.”

roads.” See Appendix ___ for more detail on the APT.

Inclusion of Bike and Pedestrian Features

For all other transportation projects listed in the Constrained and Visioning lists, the consultant team determined if there were any bike and pedestrian improvements included in the project descriptions. The project scoring process consisted of fifteen performance measures,

including a measure for alternative forms of transportation. This methodology awarded points to all LRTP projects that included these features.

Road Diets and Modal Focus

The 2045 process involved an analysis of existing roadways to determine opportunities for road diets. The associated map illustrated modal focus, where existing roadways could be retrofitted with improved bike and pedestrian amenities.

MPO Guidance

CHAPTER IX provides guidance to MPO officials on further bike and pedestrian studies. This guidance details strategies for developing Strategic, Measurable, Achievable, Realistic, and Timely recommendations that can feed into the 2050 LRTP update.

Inter-Regional Accessibility

Park and Ride Lots

The 2045 LRTP emphasized development of park and ride lots in CHAPTER IX. The Visioning List incorporates recommendations for further developing locations that better serve intra- and inter-regional transportation.

Regional Bus Service

CHAPTER IX discusses regional transit service to Halifax and other locations in southside Virginia.

Inter-Regional Bus Service

CHAPTER IX discusses maintenance of the new Virginia Breeze service coming to Danville. This section offers local and regional actions for tracking success of this service and encouraging ridership. CHAPTER IX also calls for the study of shuttle service or vanpooling to the research triangle in North Carolina.

Amtrak Service

The 2045 LRTP defines a clear set of goals for improving Amtrak service, offering improved hours of operation. With the Schoolfield Mill site and Mega Park developments, the region will require additional inter-regional service that will support those uses.

PUBLIC INVOLVEMENT PARTICIPATION PLAN AND NOTIFICATION PROCEDURES MANUAL



“When significant comments are received on the draft Danville MPO long-range transportation plan as a result of the Public Involvement Participation Plan a report on the disposition of comments shall be made a part of the final Danville MPO long-range transportation plan record.”

Chapter III

2020 State of the System

In this chapter, the reader will find:

- **An understanding** of the region's existing transportation network
- **Clarity** on existing transportation needs
- **Knowledge** of how this analysis feeds into development of goals, performance measures, and projectst

29	State of Roads
37	State of Roadway Safety
41	State of Bike & Pedestrian Infrastructure
47	State of Transit
52	State of Intercity Bus & Rail
56	State of Air Travel
58	State of Bridges & Culverts
61	Needs & Conclusions

State of Roads

The Danville MPO has an extensive roadway network of 845 linear miles that provides excess capacity for current travel demand. Approximately 47 percent (393 road miles) are within the City of Danville's municipal boundaries. The remaining network (452 road miles) are in the MPO portion of Pittsylvania County. As would be expected, the City maintains a denser system of streets than the County. City streets generally have lower travel speeds and are designed with more emphasis on access versus mobility.

Facilities

For a Metropolitan Planning Organization (MPO) of Danville's size and population, there is an abundance of highway capacity. While no interstates pass through the region – the closest being I-40 in North Carolina – an expressway and US routes serve the role of facilitating intercity travel. An extensive network of arterials and collectors serve the MPO, as well, connecting to local roads. **Figure 8** shows the National Highway system routes that pass through the MPO.

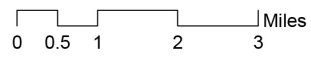
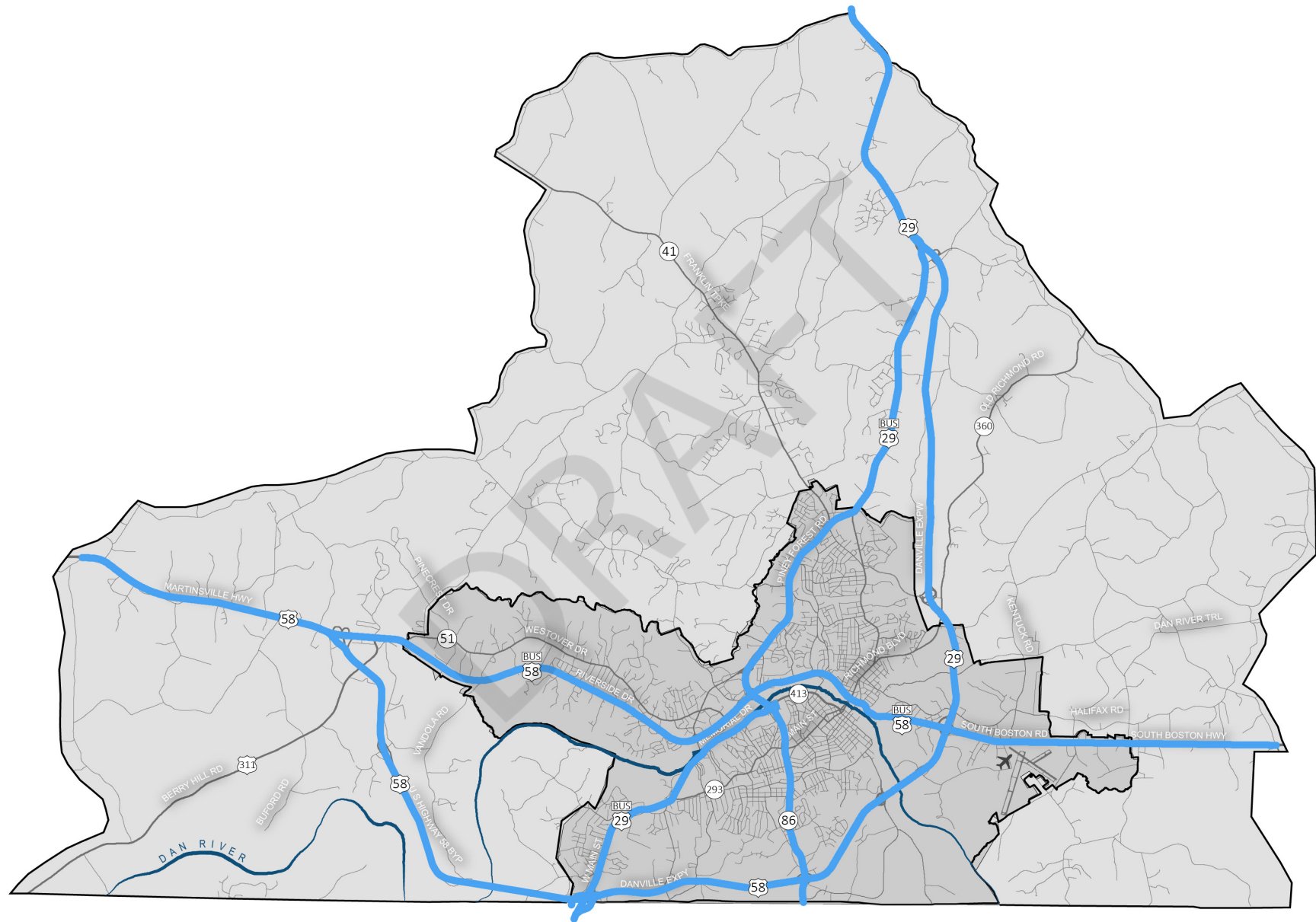
Expressway

The Danville Expressway creates a semi-circle that bypasses Danville's downtown area. Built at interstate standards, this facility diverts freight and other vehicular traffic from U.S. 29 Business, through the region and to industrial centers along the corridor. As a relatively new facility, completed in the early 2000s, it significantly relieved traffic volumes throughout the roadway network and resolved many of the region's capacity issues. The Expressway accounts for nearly 30 miles of the regional road network.

The construction of I-785 will have a significant impact on the area's transportation network. The new interstate will be built on the existing alignment of US 29 between the Danville Expressway and I-840, northeast of Greensboro. The new highway will facilitate interstate traffic between the two cities, including making commuting to Greensboro more viable than it currently is.



Figure 8 National Highway System Routes in the MPO.
Source: VDOT

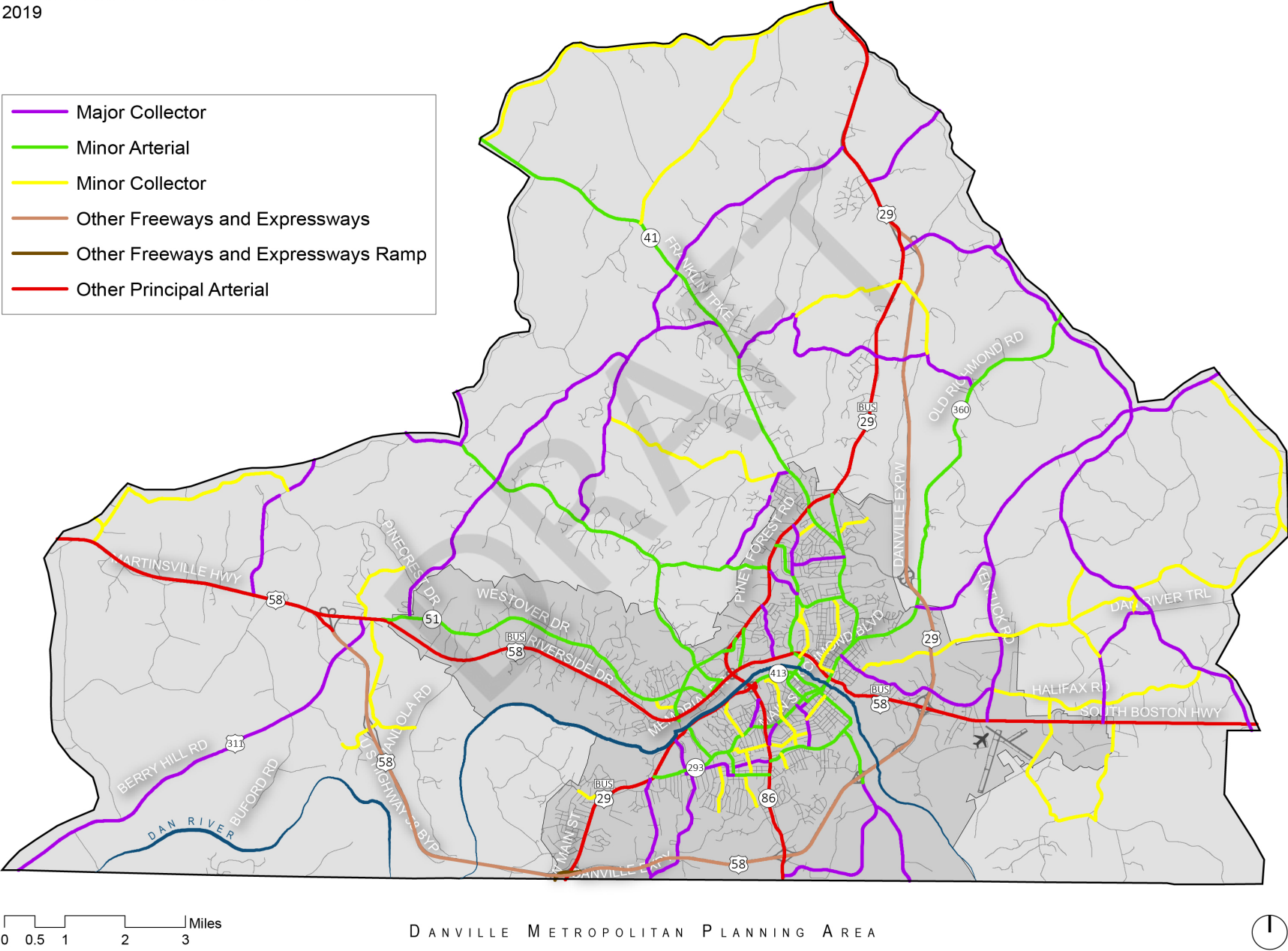


DANVILLE METROPOLITAN PLANNING AREA



Figure 9 VDOT Functional Classification
Source: VDOT

Functional Classification
2019



Arterials

Principal Arterials serve major activity centers in the Danville MPO, carrying intra- and inter-city travel. Three Corridors of Statewide Significance (CoSS) traverse the West Piedmont Region. The U.S. 29 (Seminole Corridor) and U.S. 58 (Southside Corridor) cross paths in the MPO. West of the Danville MPO, the U.S. 220 (North Carolina to West Virginia Corridor) is a critical linkage in the West Piedmont Region, as well. U.S. 86 (South Main Street) is another principal arterial, serving the southside of Danville proper. Principal Arterials account for over 70 miles of the regional road network within the MPO.

Within VDOT's Functional Classification system, Minor Arterials generally receive reduced funding support, even though these facilities still tend to carry relatively high traffic levels. In the Danville MPO, Minor Arterials serve activity and employment centers along the Franklin Turnpike, Mount Cross Road, Westover Drive, North Main Street, Goodyear Boulevard and other corridors. According to the Travel Demand Model, some of these facilities experience the greatest congestion, with travel volume nearing at capacity. Minor Arterials equate to nearly 80 miles of highways.

Collectors

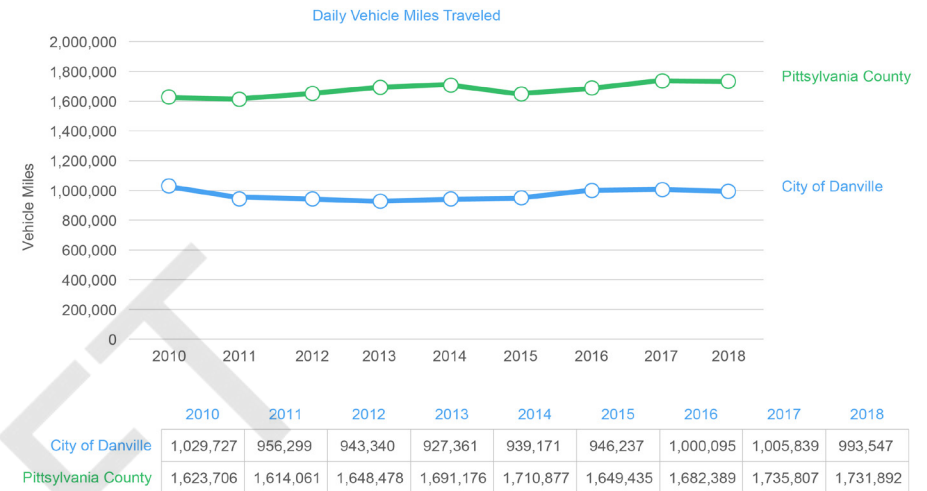
Minor and Major Collectors make up much of the MPO road network. Major Collectors include Holland Road, Gypsum Road, Goodyear Boulevard (south of the Expressway), Kentuck Road, Ringgold Church Road and other similar highways. There are 130 miles of Major Collectors in the Danville MPO. Minor Collectors include Wilkerson Road, Barker Road, Clarks Mill Road, Orphanage Road, E. Witt Road and others. Nearly 90 miles of Minor Collectors weave through the regional network.

Local Roads

Local roads generally account for the largest percentage of road miles, with 450 miles. LRTPs generally focus on regional networks, rather than local streets, though these facilities are important for providing access to the higher-order facilities.

Figure 10 VMT for 2010-2018

Source: VDOT



Traffic Volumes

In the Danville MPO, VDOT's travel data and daily vehicle miles traveled (VMT) statistics show that usage is steady. Both localities experienced a slight drop in VMT between 2017 and 2018, the most recent data available. **Figure 10** shows the VMT for each locality.

Figure 12 illustrates the average annual daily traffic (AADT) recorded for the MPO in 2017. Per their Functional Classification, Principal Arterials and the Expressway carry the most traffic. U.S. 29 Business still shows the highest AADT, despite the Expressway's design to divert traffic. Between the Franklin Turnpike and Dan River, 29 Business is the most traveled corridor, showing counts between 25,000 to 32,000 AADT. The east/west CoSS (U.S. 58) shows the second highest counts. U.S. 58 (South Boston Road) carries over 27,000 AADT, the second most traveled corridor. Counts on the western portion of U.S. 58 (Riverside Drive) are less than half (14,200 AADT) of the eastern counts. According to the travel data, most of the Expressway traffic occurs between South Boston Road and U.S. 86 (South Main Street), with just over 20,000 AADT, the third most traveled roadway. This distribution suggests that the Expressway is heavily used for east/west traffic, between U.S. 58 (South Boston

Road) and North Carolina, as opposed to strictly north/south traffic along the U.S. 29 corridor.

Congestion

Level of Service

Across the regional road network, VDOT's Level of Service (LOS) data suggests that traffic flow is well managed in the Danville MPO. In 2017, approximately 77% of regional road miles received a LOS A or B. The data indicates only a handful of segments with LOS D. This includes Mount Cross Road, between the City Limits and Mill Creek Road. A segment of Central Boulevard, between the Dan River and Piedmont Drive, shows a LOS D. Arnett Boulevard, between Riverside Drive and Wendell Scott Drive, also shows high-density flow. A segment of Clarks Mill Road appears as LOS E, but this is likely an error in the dataset, as there is no evidence of an unstable flow.

Figure 13 shows the LOS values for the regional network.

Volume to Capacity Ratios

Volume to Capacity Ratios (V/C) measures the vehicle volumes that a road segment experiences as a percentage of its vehicle volume capacity. **Figure 14** shows the V/C adjusted for peak hour volumes. The VDOT SPS data suggests that every road is currently under capacity, except for a small segment of Mount Cross Road at the City Limits. The vast majority of the region's roads have at least 50% of their capacity remaining. If AADT were to double on these segments, roadways would still retain under capacity. Portions of Franklin Turnpike and U.S. 29 Business are currently at nearly 80% capacity, though the model does not indicate significant increases in AADT by 2045.

Roadway Needs and Conclusions

Within the Danville MPO, data for the 845 linear road miles, described above, informs the following conclusions. These conclusions, in turn, help to define MPO Goals, Performance Measures and Targets, described in CHAPTER VI. The following also aids with the evaluation of roadway projects, performed in CHAPTER VII, as

projects prove to serve an existing and future need.

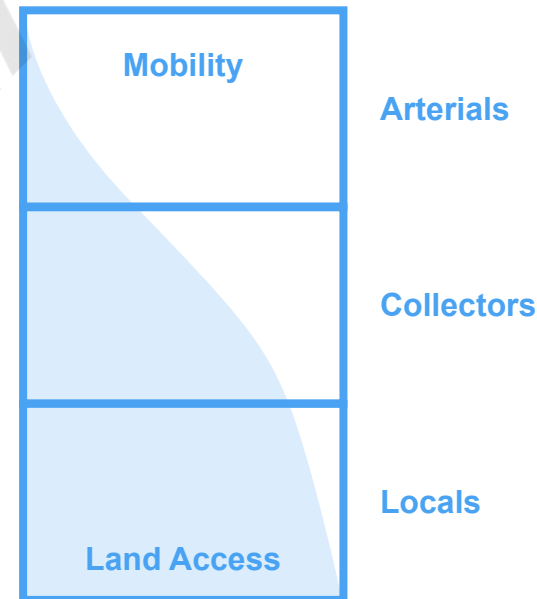
Excess Capacity

Every road segment in the MPO is under capacity, in some instances by a significant margin. As seen in Chapter V, there is no indication of significant increases in traffic volumes by 2045, according to the Travel Demand Model. Even if there were significant increases in AADT, which is not anticipated, existing facilities would likely remain under capacity. With lane miles going unused, the MPO could explore road projects that repurpose right-of-way for multi-use facilities, such as bike lanes, sidewalks or even transit lanes. These Road Diets could improve quality of life, stimulate reinvestment and serve the needs of those with limited mobility.

Steady Traffic Volumes

The VMT data shows steady traffic volumes over time. There are no dramatic changes in VMT that could indicate great need for additional lane miles.

Figure 11 Proportion of Service



Reevaluation of 2040 Projects

Danville MPO's 2040 LRTP included several expensive capacity-building road projects. This included construction of new lane miles and parkways, especially in the western half of the MPO. Given the current condition of roadways, capacity should be less of an emphasis for project evaluation in the 2045 plan.

Figure 12 Annual Average Daily Traffic Counts
Source: VDOT

Vehicle Volumes
2017

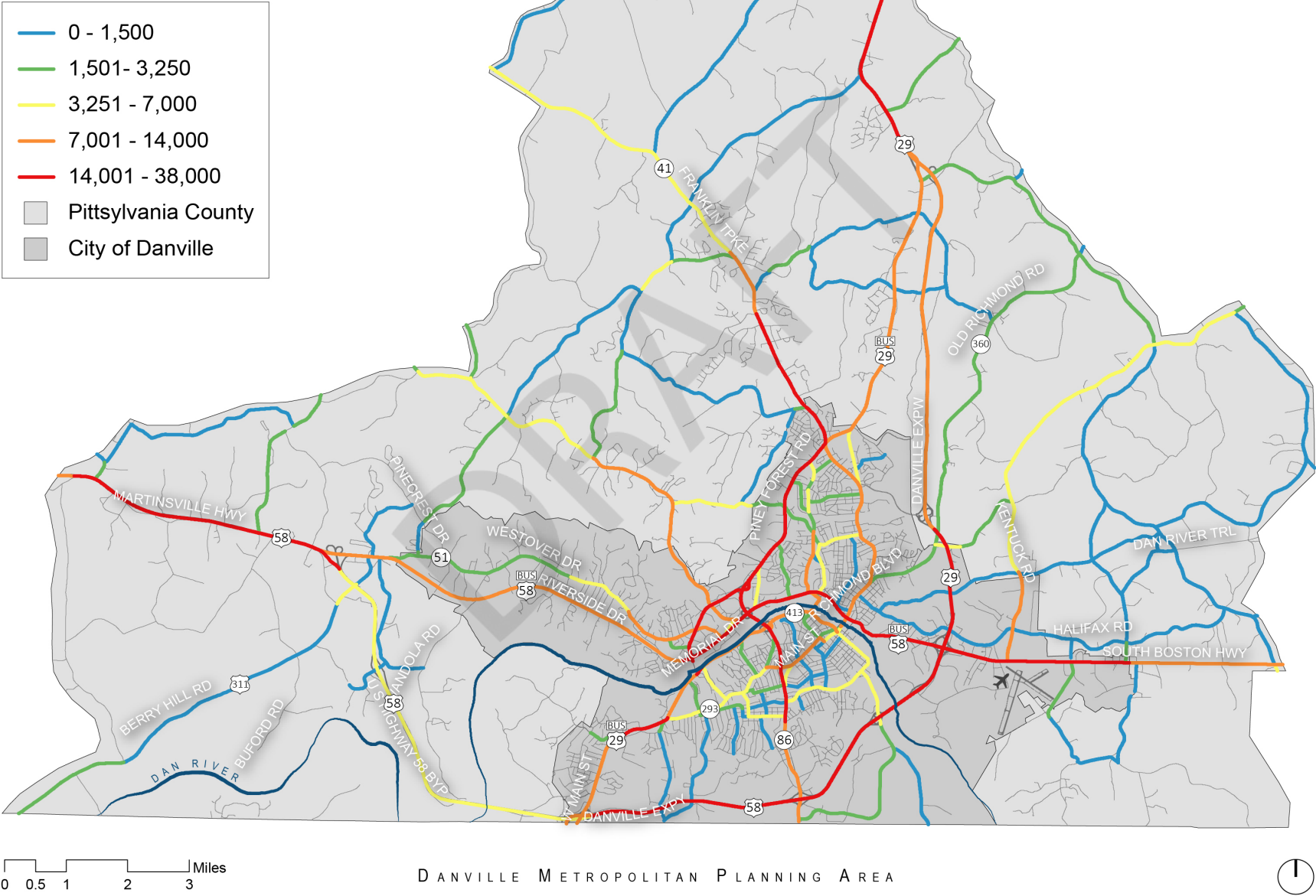


Figure 13 LOS in 2017
Source: VDOT

Level of Service
2017

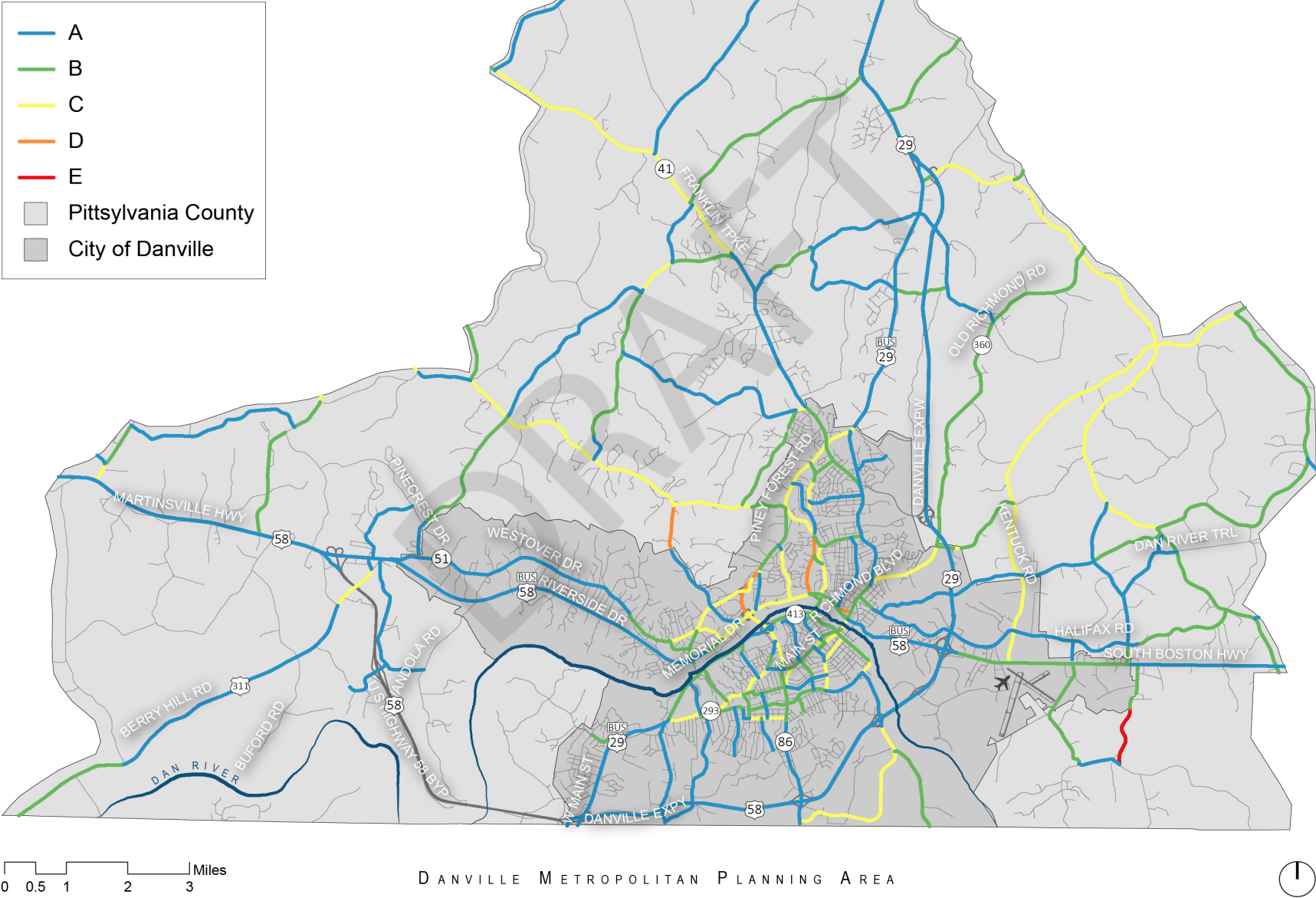
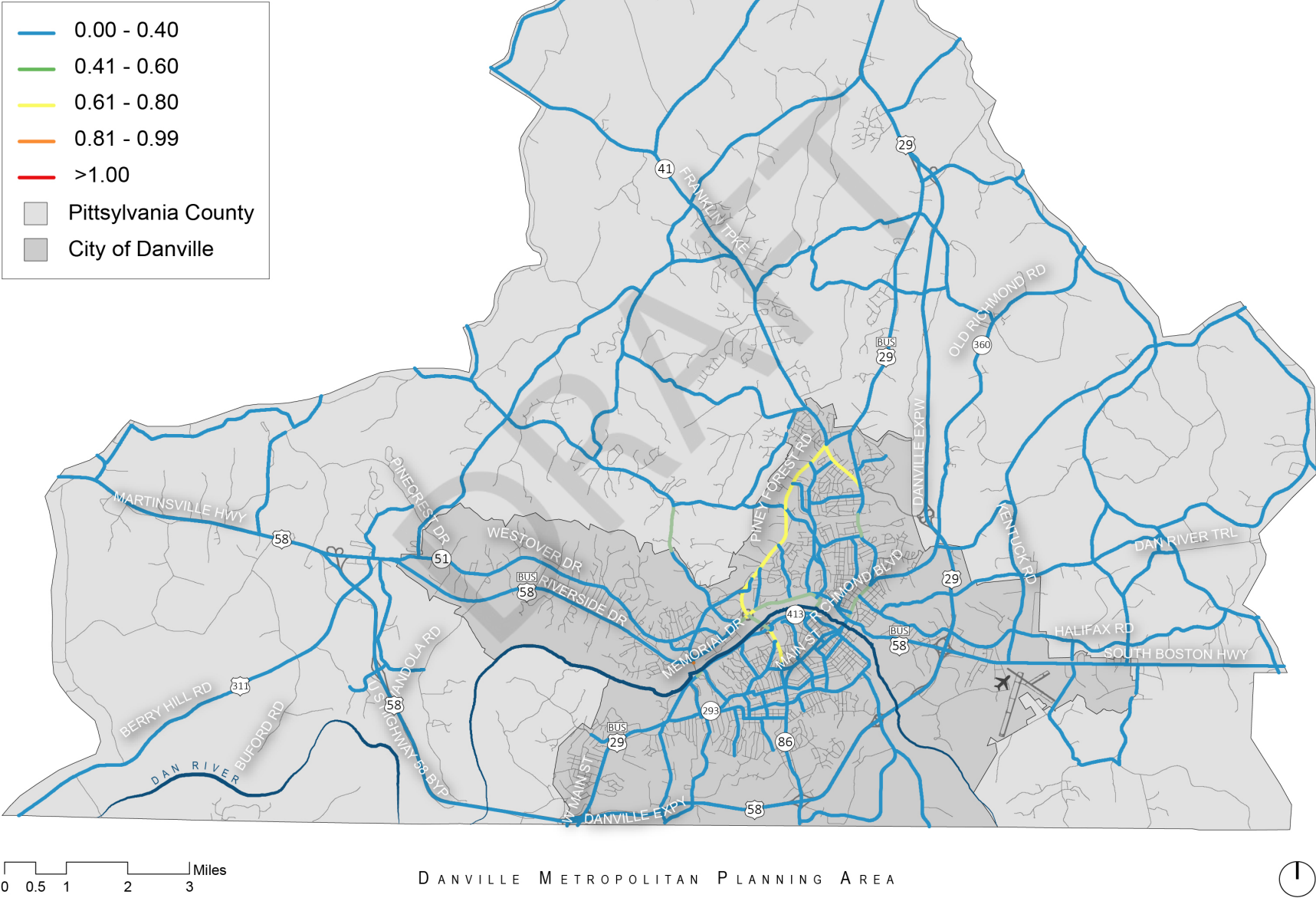


Figure 14 V/C in 2017
Source: VDOT

Volume-to-Capacity
2017



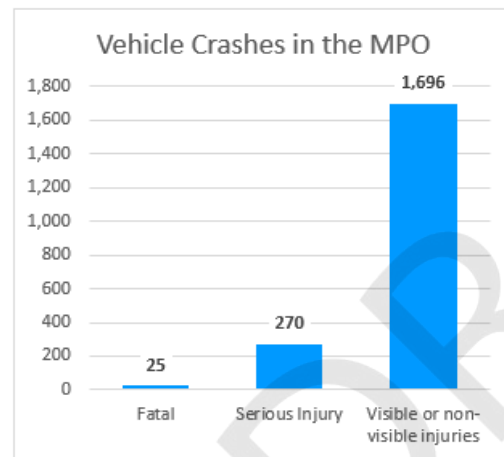
State of Roadway Safety

In the existing conditions evaluation, safety is the second element of the Danville MPO roadway network. While State of the Roads highlights travel, traffic flow and congestion, this section examines crash data. Since existing data does not indicate capacity issues, safety could receive greater emphasis for 2045 transportation projects.

Crashes Overview

Between 2014 and 2019 VDOT reported nearly 2,000 vehicular crashes in the MPO. **Figure 15** shows the number of crashes by severity. While there is no geographical pattern to the fatal collisions, all occurred on roads with posted speed limits of 40 miles per hour or higher. **Figure 16** illustrates MPO crash data by severity.

Figure 15 MPO Crashes
Source: VDOT Crash Analysis Tool



Potential for Safety Improvements (PSI)

A PSI score is the number of crashes minus the predicted number for that type of intersection/roadway and the given traffic volumes. It is a statewide catalog of crash hot spots calculated over a three-year period of crash data. PSI locations are more likely to receive funding for implementation and are emphasized in the Statewide Transportation Plan (VTrans). Given this importance, PSI locations should be a focus of LRTP assessments.

In the Danville MPO, VDOT designated 152 PSI locations, as seen



in **Figure 17**. Of these locations, 40 occur at intersections and 152 occur on road segments. The following is a selection of the top PSI locations, according to VDOT rankings. PSI locations are ranked, with the number representing the ranking within the Lynchburg District, which spans from Danville to Nelson County. PSI 4 would be the ranked fourth in the district, according to the number and severity of crashes.

Top Intersection Locations

All intersection PSI locations occur within the City of Danville and within the northern and western Planning Areas, as defined in the City's current Comprehensive Plan. *Refer to the Danville Comprehensive Plan for additional information on these areas.* Danville MPO's 2040 LRTP does not identify improvements at any of the top PSI locations.

The top five ranked PSI intersections in the Danville MPO are:

1. PSI 2 Piney Forest Road & Nelson Avenue/Nor-Dan Road
2. PSI 4 North Main Street & Franklin Turnpike/East Franklin Turnpike
3. PSI 6 Piedmont Drive & Westover Drive
4. PSI 10 Piedmont Drive & Mount Cross Road
5. PSI 11 Riverside Drive & Mount Cross Road

Top Road Segment Locations

As with intersections, all road segment PSI locations occur within the City of Danville. Of the top five sites, four occurred in the City's Planning Areas 2 or 11. One PSI segment, adjoining the Danville Regional Airport, is the only top PSI location, intersection or segment, that occurred on the eastern side of the City. *Refer to the Danville Comprehensive Plan for additional information on these areas.* Danville MPO's 2040 LRTP does not identify improvements at any of these PSI locations.

The top five ranked PSI road segments in the Danville MPO are:

6. PSI 4 Piedmont Drive from Westover Drive to Executive Drive/Sandy Court
7. PSI 9 Central Boulevard from 105' south of Parker Road to Parker Road
8. PSI 10 Riverside Drive from 290' southwest of Riverview Drive to 475' southwest of Westover Drive
9. PSI 13 South Boston Road from 330' west of Crestview Drive to 320' west of the Sleep Inn entrance
10. PSI 16 Riverside Drive from Piedmont Drive Northbound On-Ramp to 365' northeast of Park Avenue

Safety Needs and Conclusions

Current roadway data suggests that congestion and traffic flow are not threats to the MPO's regional network. In fact, every roadway is shown to be under capacity. Consequently, the 2045 LRTP may focus greater attention to safety issues in CHAPTER VI: Goals, Objectives and Targets. Currently, the primary safety needs and conclusions are listed below.

Unresolved Safety Hotspots

Currently, safety hotspots in the Danville MPO lack corresponding recommendations for reducing crash frequency and severity. In response, the 2045 LRTP process will include new project recommendations for the PSI intersections and road segments. Those projects are included in the Project Pool, seen in CHAPTER VII: Performance Based Planning Process.

Clustering of PSI Locations

Currently, all PSI locations are within the City of Danville, predominately in the northern and western Planning Areas. The 2040 LRTP tends to focus attention on capacity-building road projects in Pittsylvania County. The 2045 LRTP provides additional emphasis to the safety hotspots towards the center of the MPO.

Figure 16 Crashes from 2014 to 2018
Source: VDOT

Crashes
2014 - 2018

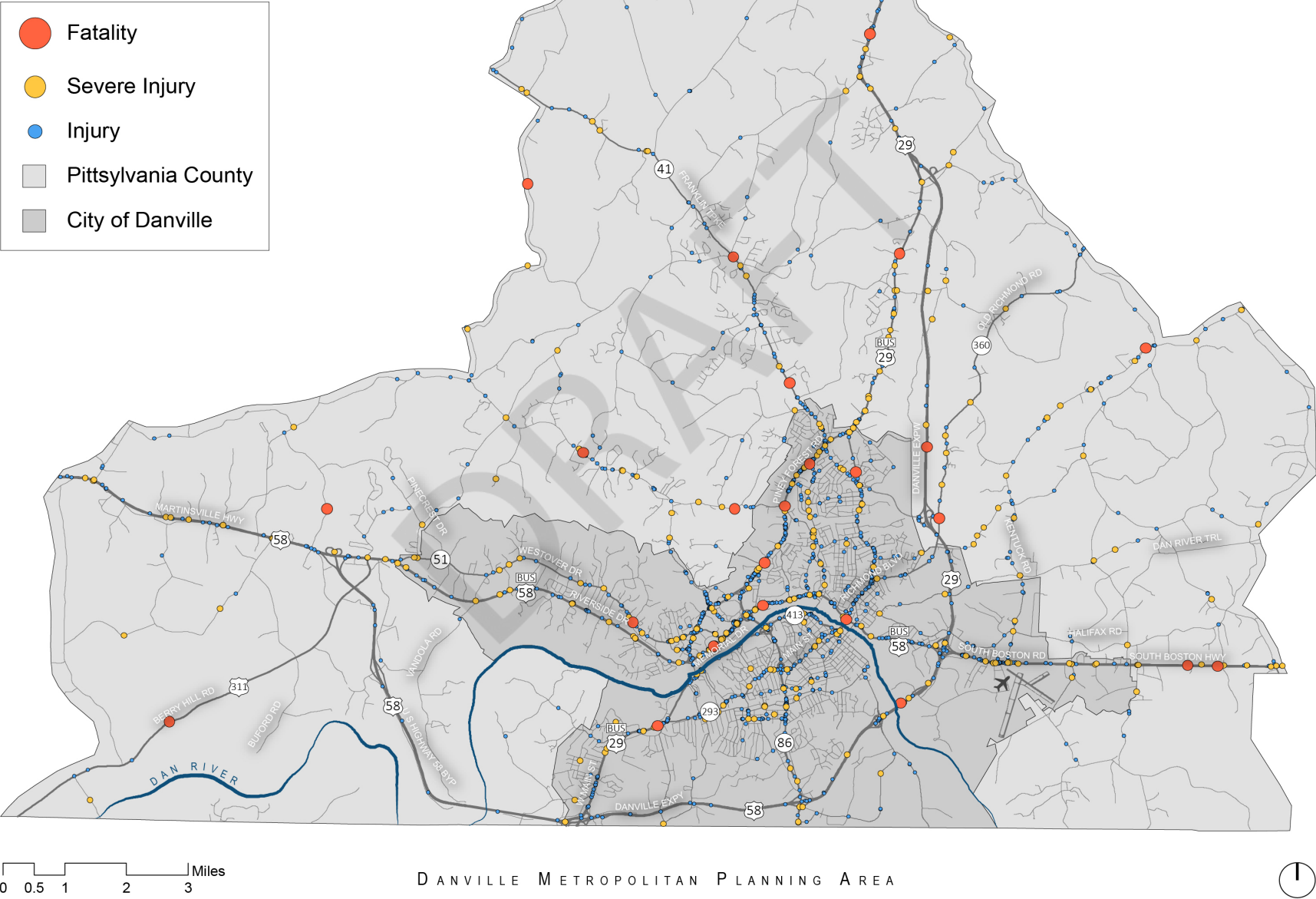
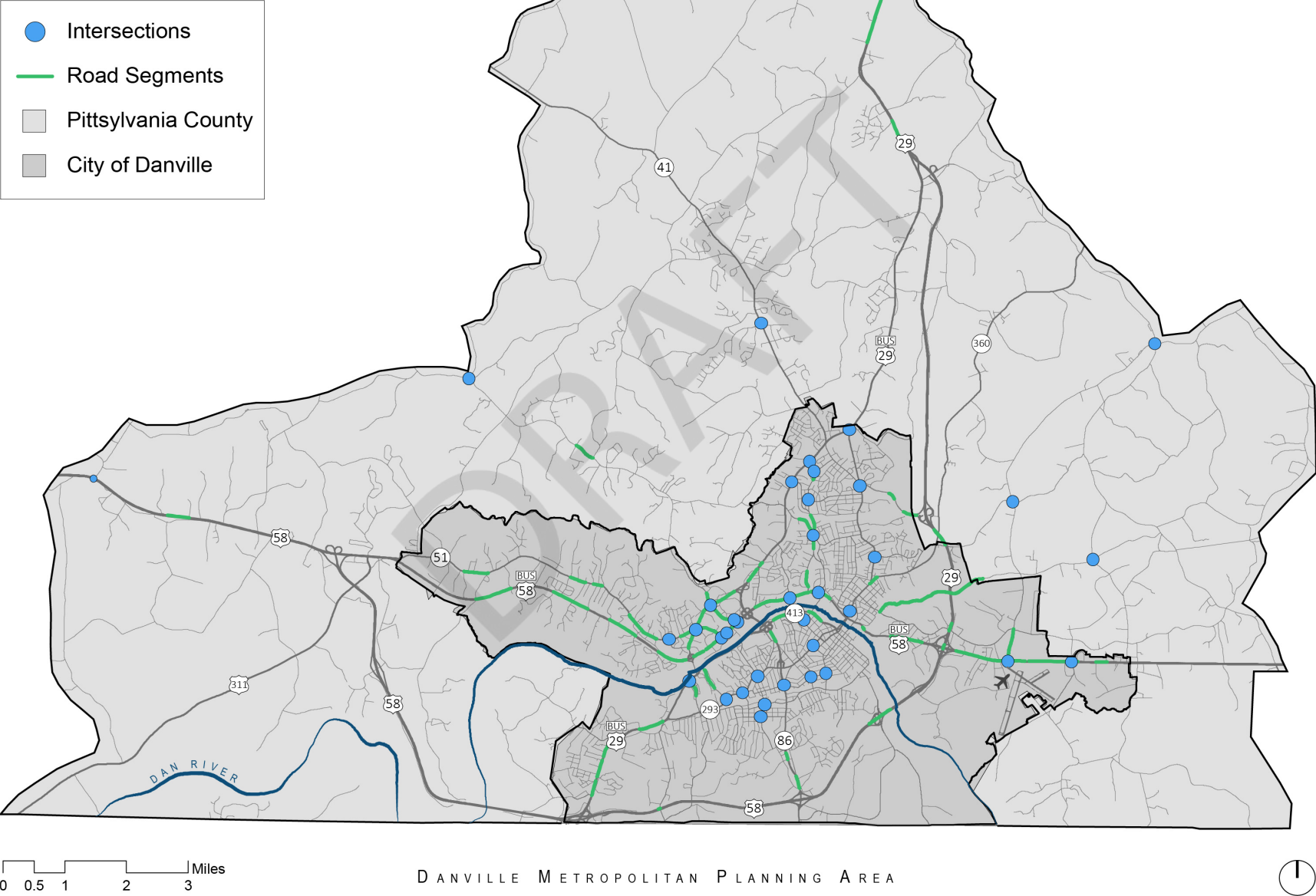


Figure 17 PSI Segments and Intersections from 2013 to 2017
Source: VDOT

Potential for Safety Improvements
Intersections and Road Segments
2014 - 2018



State of Bike & Pedestrian Infrastructure

While the Danville MPO has an extensive roadway network, bike and pedestrian facilities are relatively limited. There is one central gem to the system, the Riverwalk Trail, a mostly recreational facility that serves the Dan River Corridor.

Facilities

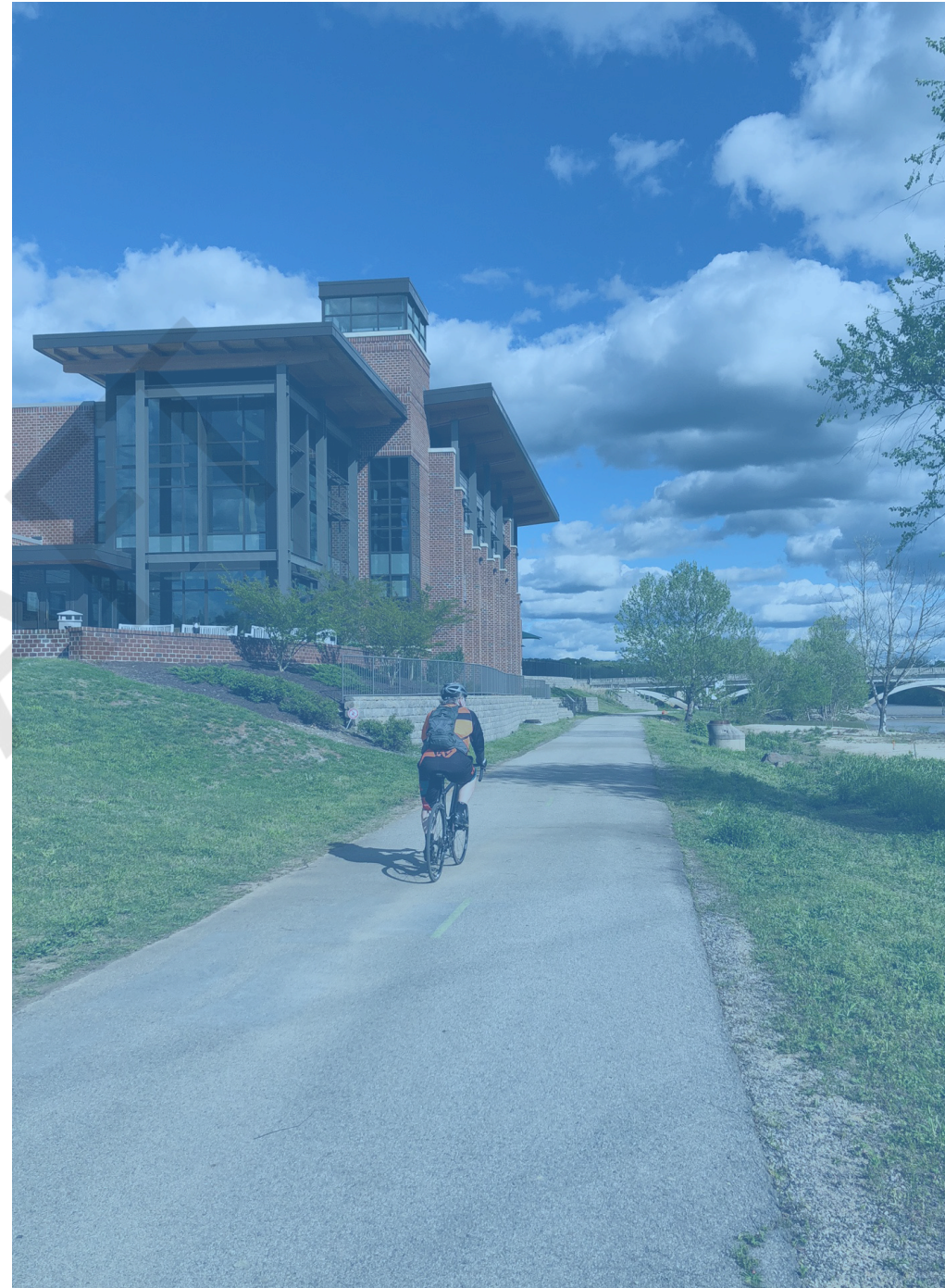
The four categories of bike and pedestrian infrastructure include on-road facilities (sidewalks, bike lanes, bike sharrows) and off-road facilities (trails). Most of these facilities are concentrated in the downtown area of Danville, mostly in the City's Planning Area 6 (River District), as defined in the Comprehensive Plan.

Sidewalks

The MPO transportation network includes over 100 miles of sidewalks with a variation of concrete, brick and river rock paving. There are only 28.5 miles of sidewalks within a quarter-mile radius of the area's public and private schools, while there are 159 miles of roads in the same area. Within walking distance to schools, there are only 9.2 miles of bike lanes. The 2045 LRTP Appendix__ includes a Safe Routes to School, Danville MPO Report. As part of the LRTP, the Report may also serve as a standalone document for improving pedestrian connections in these areas. VDOT's Safe Routes to School Program funds construction of new bike lanes and sidewalks around schools, to meet the deficiency of those facilities compared to auto-oriented infrastructure.

Bike Lanes

The MPO has nearly 23 miles of designated or separated bike lanes. These lanes tend to be in the same areas of sidewalks, in the downtown area of the City. Compared with the 845 linear miles of roadway, cyclists are significantly underserved in the region. Existing plans recommend nearly four miles of additional bike lanes.



Sharrows

Because of their lower relative costs, localities have used sharrows to address deficiencies in their bike lane networks. Sharrows have been proven to be far less effective than conventional bike lanes in increasing ridership and reducing collisions with cars. Due to their ineffectiveness, sharrows should be reserved for roads with very low vehicle volumes and speeds where more robust bike lane types are not feasible.

Trails

The Danville MPO includes two off-road trail facilities. The Dan River Trail is a mixed-use facility in the eastern edge of the MPO Boundaries. The most extensive trail network is the Riverwalk Trail, providing a mixed-use facility for the river corridor. Hidden Hollow Trail and Eagle Scout Trail are designated for off-road biking, specifically mountain biking.

Riverwalk Trail

The Riverwalk Trail occupies a central space in the MPO, both physically and historically. The trail meanders along the banks of the Dan River where the City's mills and factories sprouted up after the industrial revolution. As industry has departed from the city, the riverfront opened to new uses. The trail reconnects area residents to the riparian spine that spurred the city's growth.

The Riverwalk Trail includes 11.8 miles of paved trails along the Dan River in the center of the city. The trail connects Ballou Park in the West to Anglers Park in the East, largely following the north bank of the river. The City has planned for the construction of an additional 5.7 miles of the trail to connect fragmented parts on the north bank and to create new trails on the south bank of the river.

Danville Rides Bike Share

The bike sharing company Zagster offers a bike sharing service in Danville. The bikes are docked at 5 locations along the river in the central part of the city. The first hour of each bike share ride is free, making this a viable mode to travel along the riverfront area.

Safety

Between 2018 and 2019, there were 45 vehicular crashes that involved pedestrians and 7 crashes that involved cyclists in the MPO. **Figure 20** maps those crashes. Of the pedestrian crashes, one involved a fatal injury, 13 severe injuries and 31 injuries. 54% of the pedestrian injuries occurred on road segments with no sidewalks on the side of the road on which the accident occurred. Of the bike crashes, there was one fatal injury and 6 injuries. 67% of the bike crashes occurred where there was no bike lane present on either side of the road, including the fatal injury.

There are higher rates of bike or pedestrian crashes in block groups with higher proportions of minority populations than in the rest of the city. The relative abundance of safety issues could be explained by a lack of safe accommodations or relatively high reliance on bike and pedestrian mobility. Consequently, these areas should be considered for future studies to increase the safety for residents who choose to walk or bike to their destinations. The 2045 LRTP focuses on Title VI issues, to invest in projects that create safer environments to walk and cycle in these areas. **Figure 21** shows the occurrence of bike and pedestrian accidents overlaid on the distribution of the city's minority population.

Bike and Pedestrian Conclusions

Part of the eastern portion of the trail ends about a quarter of a mile from the runway of the Danville Regional Airport. Extending this portion of the trail could create bike/ped access to the airport and thereby increase the multimodal resilience of the MPO's transportation system. Additional improvements could be made to better connect the neighborhoods East and West of Ballou Park. These areas have inconsistent sidewalk coverage. Investments should be made to increase access to the trail in these neighborhoods by constructing more sidewalks in the area.

Figure 18 Bikes Lanes
Source: City of Danville

Bike Lane

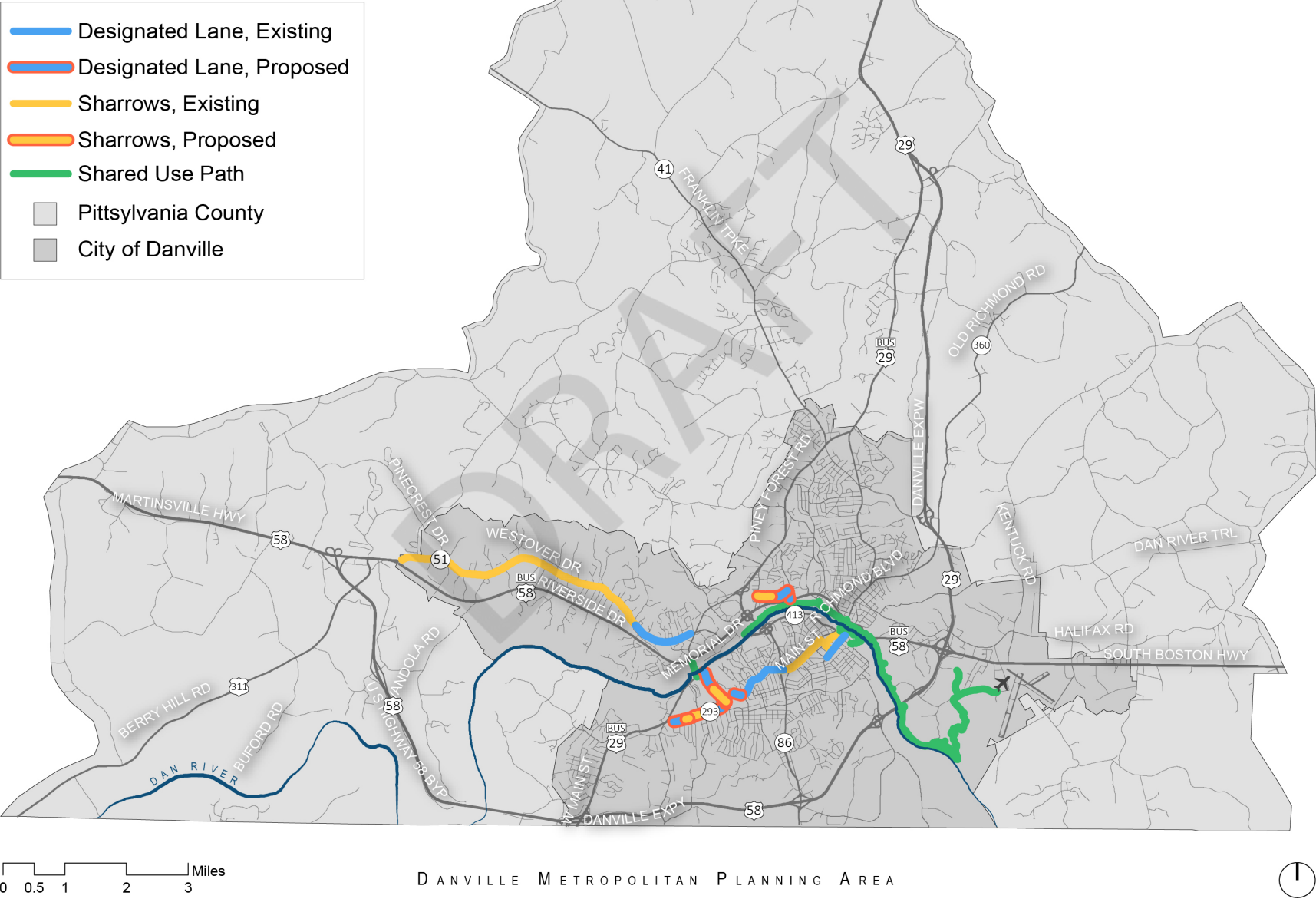


Figure 19 Trails
Source: City of Danville, Pittsylvania County

Trails

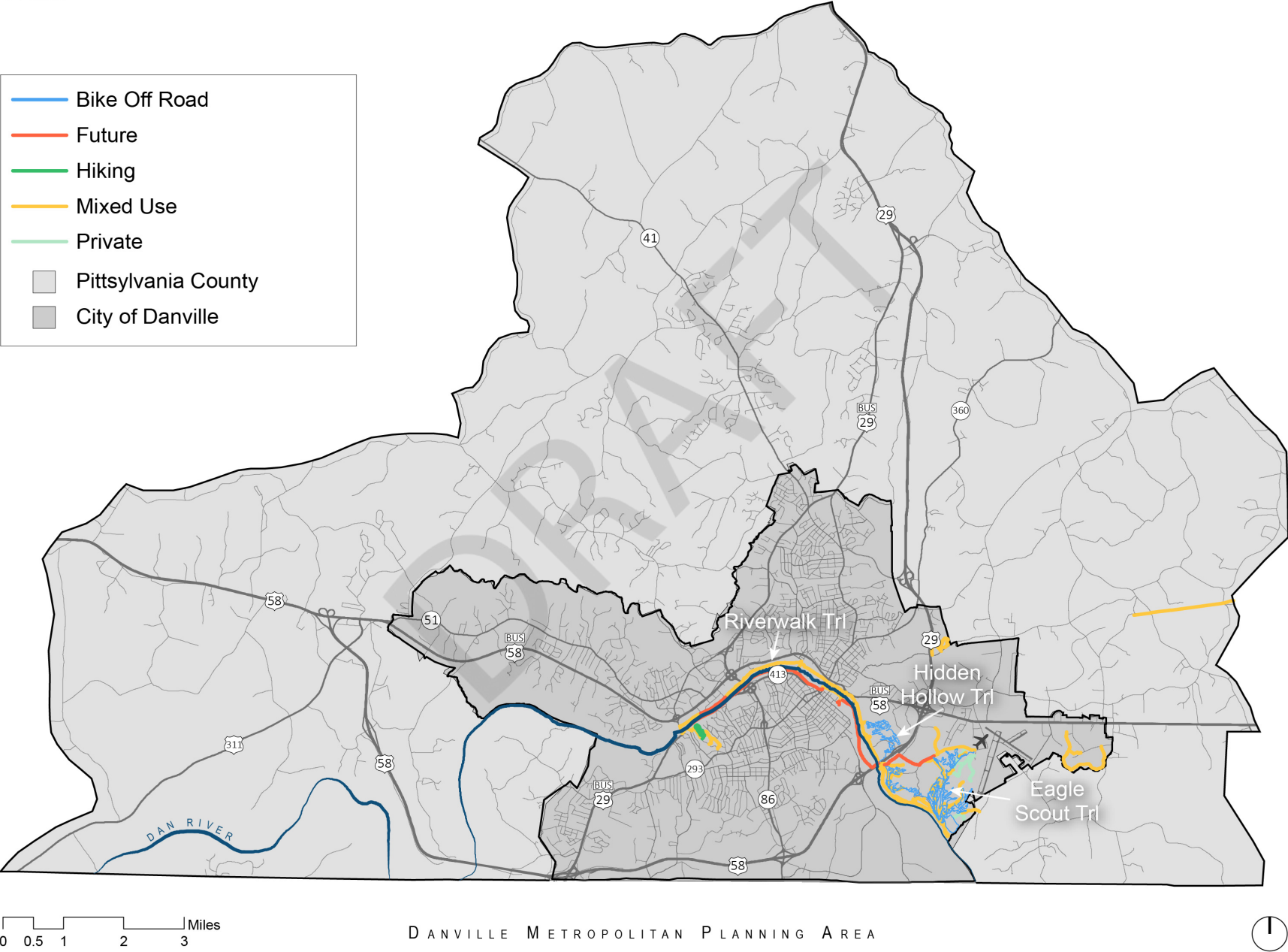


Figure 20 Bike and Pedestrian Crashes from 2013 to 2017
Source: VDOT

Bike or Pedestrian Crashes
2014 to 2018

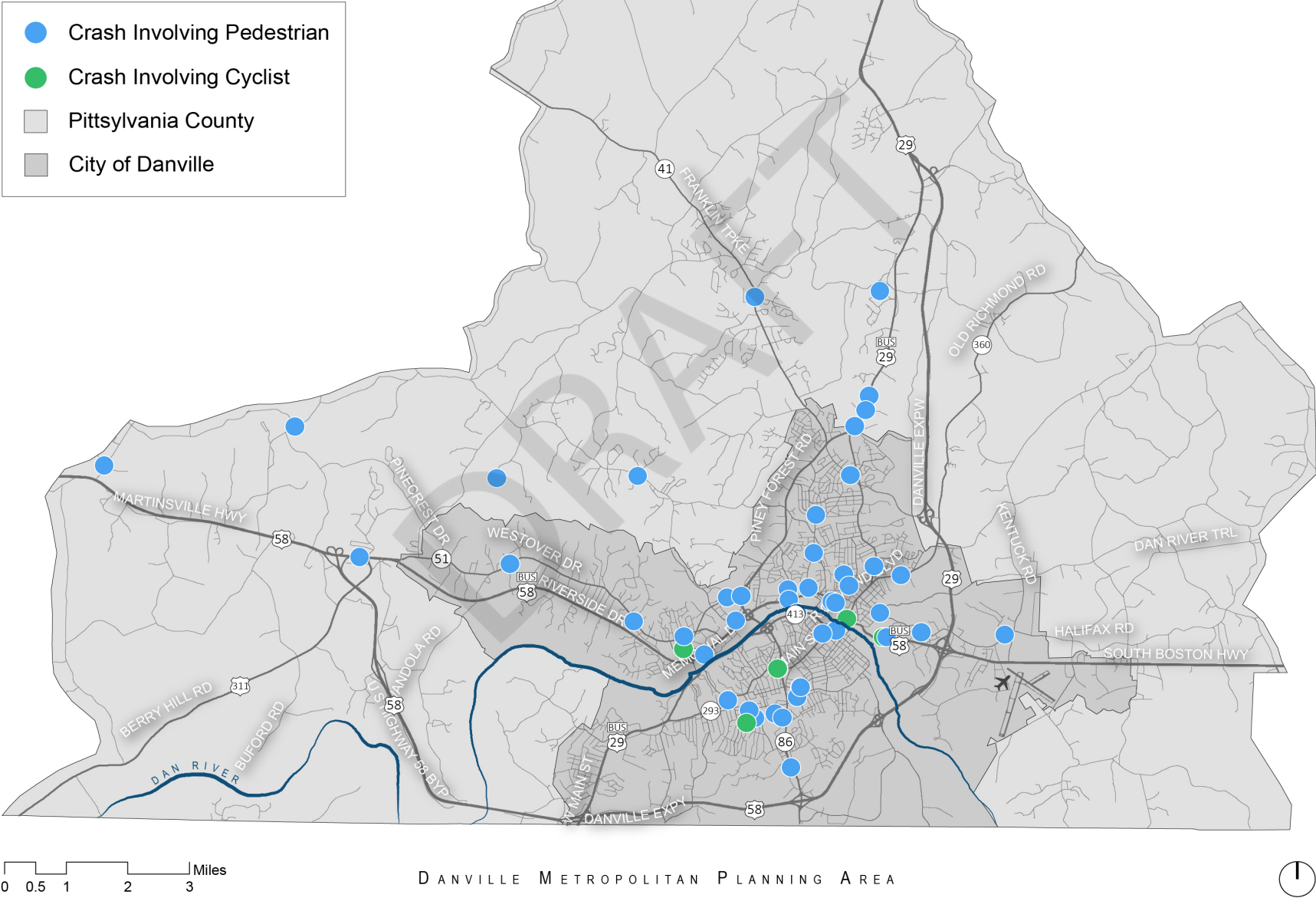
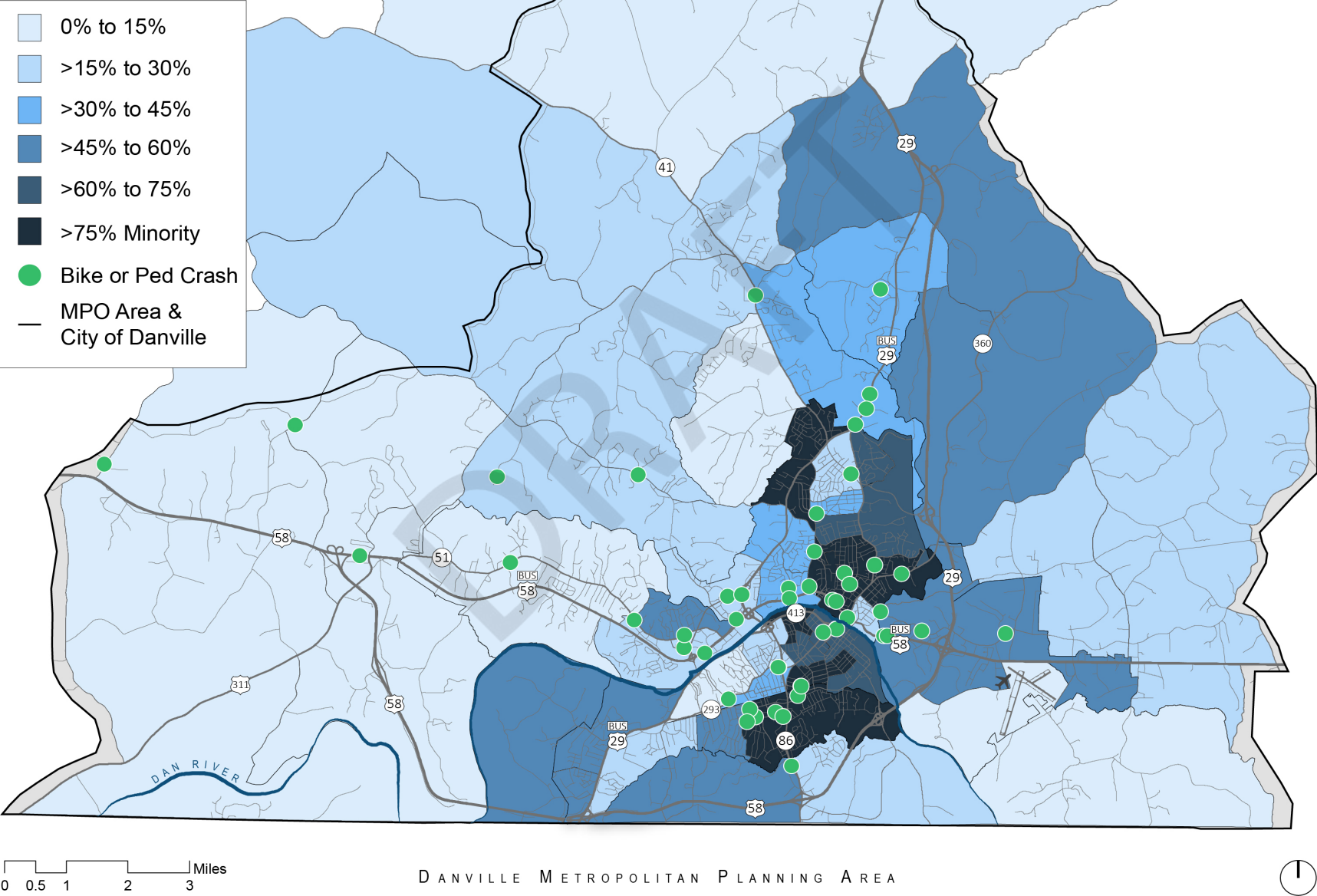


Figure 21 Bike and Pedestrian Crashes and Minority Population
Source: VDOT

Minority Population & Bike/Ped Crash



State of Transit

Danville Transit is the only transit provider in the Danville MPO. As a City Department, Danville Transit (DT) is under the city's transportation department, directed by a Transportation Advisory Committee (TAC) that consists of seven members, including the City Manager and a City Council Member. In 2015, the City and DRPT developed an updated Transit Development Plan (TDP), calling on KFH Group for consultant assistance. This six-year planning document is required in order to receive state transit funds. While the TDP is a short-range plan, focused on the subsequent six years, it is integrated into the MPO's 2045 Long Range Transportation Plan.

In the City's TDP, Danville states its overall transit mission:

1. To facilitate safe, reliable, convenient and economical operations that support economic development; and,
2. To provide reliable fixed route and demand responsive service that is safe and convenient which facilitates cost effective transportation access.

Transit Capital and Rolling Stock

The TDP provides a detailed inventory of existing capital assets and rolling stock. Capital includes buildings, the downtown transfer center, bus stops, loading areas and other physical improvements. DT's rolling stock consists of a twenty-eight-vehicle fleet.

Transit Capital

DT's central offices are in the Danville Regional Airport's Terminal Building. The administrative and maintenance areas are part of Danville's Public Works Complex, which is home to management offices, fuel and maintenance facilities, storage of the entire transit fleet and storage of the school system's buses.

In its downtown, along Spring Street, the City built a 2,000 square foot intermodal bus facility in 2017. Referred to as the "HUB," the transfer center connects the transit system routes and services. There are bus



bays, outdoor shelters, an indoor waiting area, restrooms, vending machines and an information office (2015 TDP). Across the street, the City built a 24-space parking area for the transfer center, which serves as the system's demand response loading area.

Finally, DT maintains bus stops throughout the City. Only twelve include passenger shelters that provide cover from the sun and inclement weather. The TDP recommends investments in bus stop amenities, such as shelters, benches, bicycle racks and trash receptacles. All newly improved stops must meet Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Transit Fleet

In terms of rolling stock, the transit fleet includes twenty-one revenue and four non-revenue vehicles. There are two trolleybus vehicles, four maintenance vehicles, nine twenty-seat buses, two twenty-six-seat buses and five twenty-eight-seat businesses. In recent years, DT installed new fareboxes in its fleet.

Transit Services

DT provides a wide variety of services, including fixed-route, Handivan, Reserve-A-Ride, and Senior Transportation Services. Since Fiscal Year 2014, these services totaled 300,000 annual passengers. As demographic and economic conditions change, DT has evolved and adjusted its services to meet community needs.

Fixed-Route Service

DT operates eleven fixed-route transit lines, with the HUB as the central transfer location. These routes offer services during the week, with limited operations on Saturday. There is no Sunday or evening fixed-route service. Routes include:

- #1 North Main, #1 Kemper Road – DCC
- #2 Riverside
- #2 Third Avenue – NorDan
- #3 Danville Estates – NorDan
- #3 Edgewood – Stokesland

Figure 22 Danville Transit Total Ridership from 2014 to 2018

Source: Danville Transit

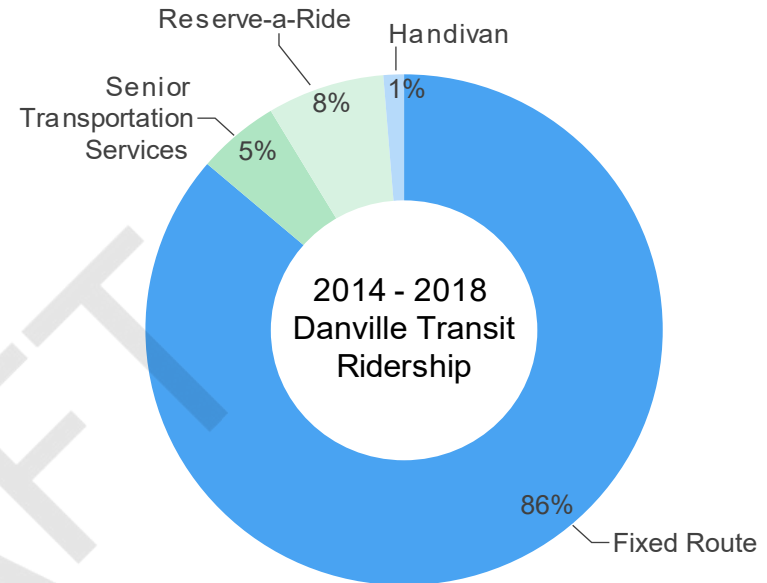
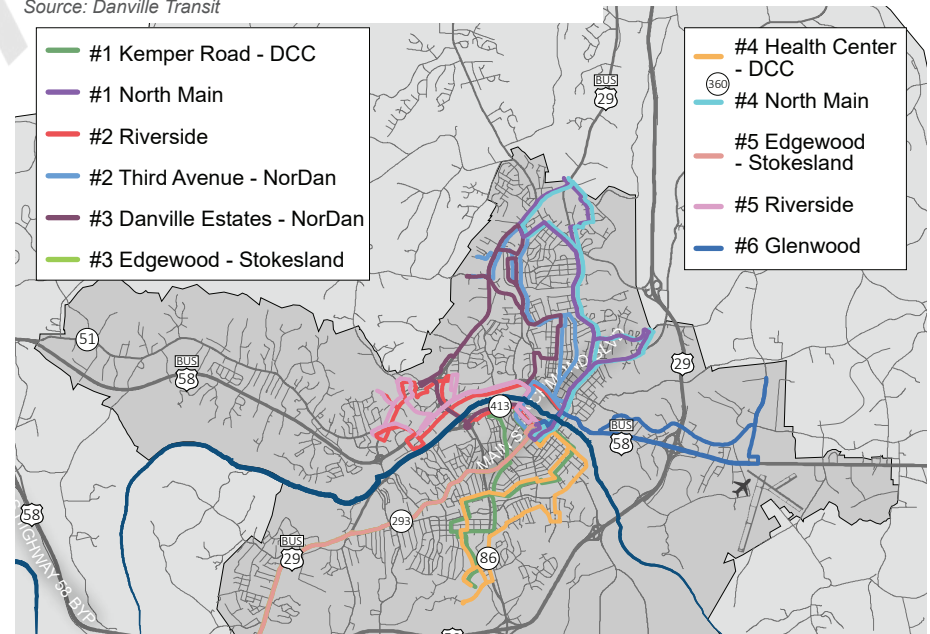


Figure 23 Danville Transit Bus Route Map

Source: Danville Transit



- #4 Health Center – DCC
- #4 North Main
- #5 Edgewood – Stokesland
- #5 Riverside
- #6 Glenwood

Additionally, Danville Transit has created two new routes to provide service in Pittsylvania and Halifax counties. One will run from Danville to Hurt, with stops in Chatham and Gretna. The second route will run along US 58, connecting large employers such as the Sentara Halifax Regional Hospital and the Southern Virginia Higher Education Center.

Reserve-A-Ride

In addition to fixed-routes, DT provides Reserve-a-Ride service that is available for use by all city residents. Reserve-a-Ride is designed to provide transportation options to Danville residents when fixed route service is not available and where fixed-route service is not available. Reserve-a-Ride takes riders to and from any location within the city limits of Danville, as well as the Cane Creek Centre Industrial Park. In 2001, this service was a response to the transitioning economy, providing flexibility to meet the new level of transit demand.

Handivan Service

Handivan is the third type of service offered by Danville Transit. Riders must be pre-qualified and unable to use fixed-route service. Advanced reservations are required the day before a trip. Handivan service is provided anywhere within the City limits.

Senior Transportation Service

DT operates the Senior Transportation Service, previously operated under Danville’s Park and Recreation Department. Parks and Recreation continues to manage the trip scheduling process and customer satisfaction phone line. Senior Transportation riders must be at least 60 years of age and a resident of Danville. The service provides trips to and from medical appointments, grocery shopping and other errands. An advanced reservation is required for this service. FTA’s New Freedom program, which is now part of FTA’s Section 5310 grant, funds the program.

Figure 24 2018 Fixed Route Ridership
Source: Danville Transit

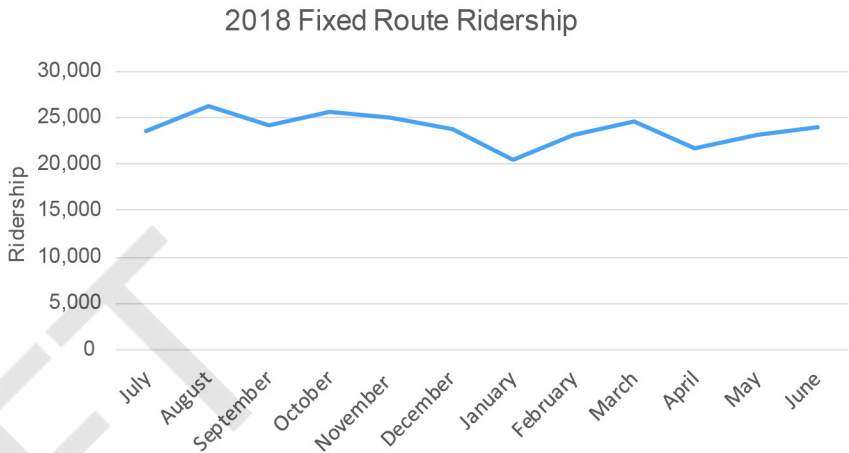
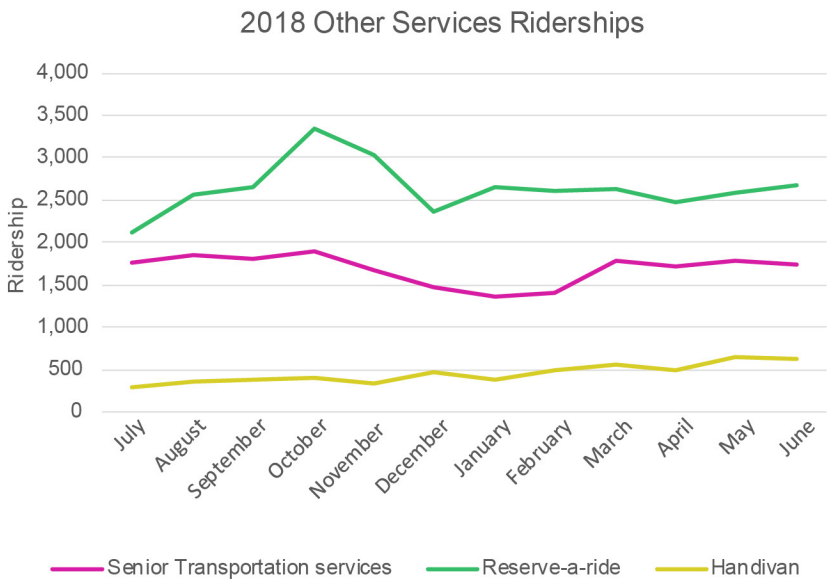


Figure 25 2018 Other Services Riderships
Source: Danville Transit



Needs and Conclusions

The Danville MPO faces several challenges that will increase the importance of transit as a viable travel option for residents. As the population continues to age, there will be more dependence on DT services. Yet, as the River District continues to grow, there may also be increased demand from younger riders.

Funding Challenges

Continued population declines resulted in the re-classification of the Danville service area from urbanized to non-urbanized. The re-classification is significant, as DT is no longer eligible for FTA's Section 5307 program, a larger funding source. Instead, the system will rely on Section 5311 non-urbanized program funds.

Staffing Challenges

Bus driver shortages present a major hurdle to expanding the service the of Danville Transit bus network. Key personnel at Danville Transit indicated that new routes have received funding but cannot begin service because the organization cannot find drivers.

Bus Stop Amenities

Most bus stops lack basic amenities. **Figure 28** shows the amenities that each bus stop currently has. Especially for choice riders, those amenities will be central to attracting new passengers. For those that depend on transit, shelters and other conveniences will serve those that are most vulnerable.

Demand response Challenges and Issues

The TDP indicated that ridership for demand response service, Reserve-A-Ride, continues to grow. Approximately 20% of the growth is due to the incorporation of the Senior Transportation Service program. This demand adds strain to the current level of resources.

Figure 26 early Fixed Route Ridership
Source: Danville Transit

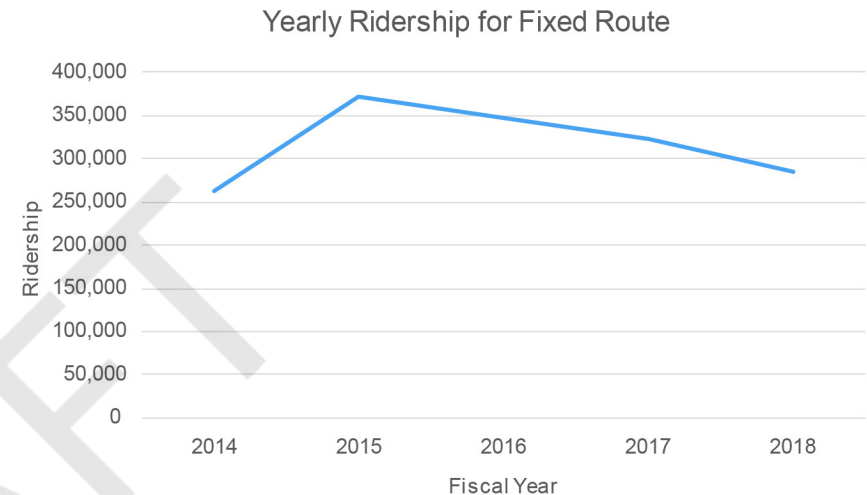
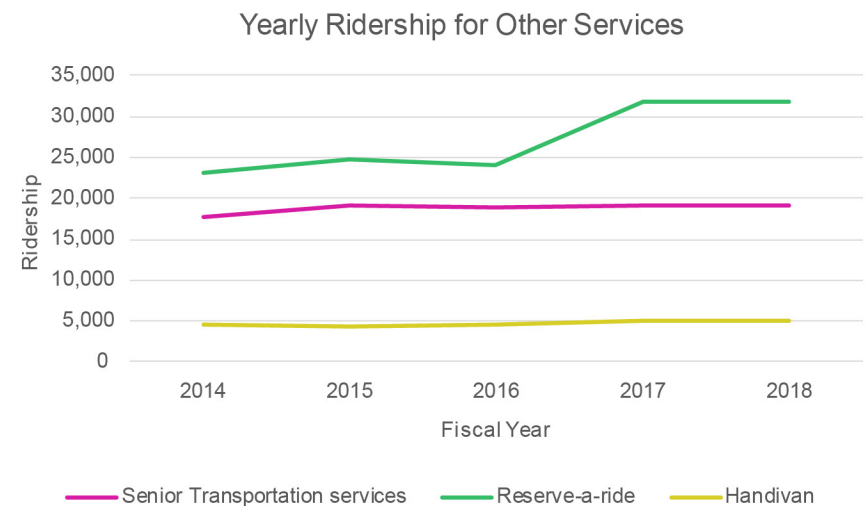


Figure 27 Yearly Other Services Riderships
Source: Danville Transit



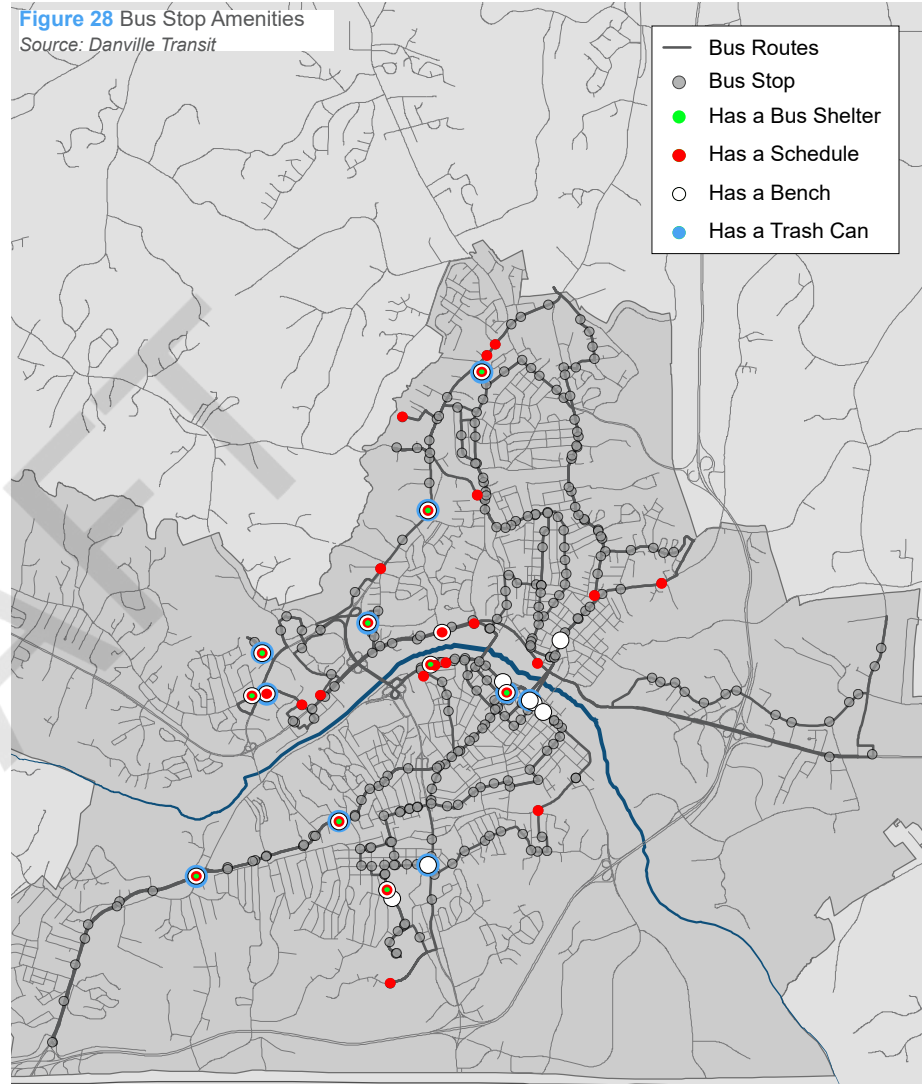
Vehicle Maintenance Issues

Vehicle maintenance is generally unreliable, due to limited staffing and facilities. There is no dedicated maintenance staff under the direction of transit services. Warranty work may be limited to areas, such as Roanoke, outside of the region. There are other environmental requirements that limit maintenance and repairs.


Specific Service Gap Challenges and Issues

There are no transit services in Pittsylvania County, despite an identified need. With no evening services, riders have limited travel options in PM hours. There is no fixed-route access to many critical destinations, especially employment and training centers.


The 2015 TDP provides a more thorough list of needs and recommendations, which is integrated into the LRTP process, where applicable.



 **6%**
of bus stops
have benches

 **3%**
of bus stops
have trash cans

 **3%**
of bus stops
have shelters

 **9%**
of bus stops
have schedules

State of Intercity Bus & Rail

Intercity travel options, aside from personal vehicles, are limited in the Danville area. There is one Amtrak line, the Crescent, that stops in Danville. The only intercity bus service, Greyhound, ceased service to Danville in 2016 due to low demand. The Danville Regional Airport is not equipped to fill this role, leaving the region only one option: Amtrak. With the morning train departing at approximately 4am and the evening train arriving after 11pm, few riders willingly choose this option.

Rail Infrastructure

Freight Rail

Norfolk Southern owns and operates the majority of railroads east of the Mississippi. The MPO area is situated in Norfolk Southern's Crescent Corridor, shown in **Figure 29**. The Crescent Corridor is a major intermodal freight corridor that connects New York with the Mississippi River at Memphis, Tennessee, and the Gulf Coast at New Orleans, Louisiana.

Passenger Rail

Danville is served by Amtrak's Crescent Line which runs through the Crescent Corridor along Norfolk Southern's rail lines, see **Figure 30**. The 2,500-mile Crescent Line spans eleven states, from New York to Louisiana. There are approximately 20 linear miles of passenger rail within the Danville MPO. The City of Danville owns and operates the historic Danville Southern Railway Passenger Depot, including the parking lot and platform. Constructed in 1899, the City relocated the building in 1915, due to a track expansion project.

In Fiscal Year 2017, there were 6,575 boardings and alightings at the Danville station, an 8.8% decrease from the 7,209 in 2016. This figure is consistent with DRPT's 2017 Virginia Statewide Rail Plan. The State predicted a ridership decline for Clifton Forge (East-West



Corridor), Danville (Seminole Corridor), and Petersburg (Washington, D.C. to North Carolina Corridor) as a result of projected negative population growth trends near these stations.

Bus Service

For three decades, Danville was part of the Greyhound Lines, Inc. service area. In recent years, the Transit Transfer Center HUB housed a bus ticket and package office. Greyhound's Richmond, Charlotte and Atlanta Routes providing twice daily service through Danville. In 2016, the bus company announced that it would end service to the region, due to low demand that resulted in operating costs exceeding revenue. Without the Danville service, the next closest Greyhound stop is in Greensboro, North Carolina.

DRPT is currently assessing the viability of expanding the Virginia Breeze bus service to include service in Danville. DRPT is considering adding two new routes. One route will run from Martinsville to Richmond, stopping in Danville and the other will run from Danville to Washington D.C. The new routes would open up inter-city travel to a number of destinations for Danville residents, including the state and national capitals.

Needs and Conclusions

Closure of the Greyhound service, coupled with one daily Amtrak round trip, isolates Danville for those without access to a vehicle. The expansion of the Virginia Breeze bus service could provide a viable alternative for inter-city for residents without vehicle access. The viability of the Crescent line to serve as an inter-city alternative remains doubtful, as DRPT anticipates that 2040 annual boardings and alightings will decline to 5,685, representing a 21.92% decrease from 2016. State rail officials predict a ridership decrease of -0.98% per year. DRPT also reported poor on-time performance of the Crescent Line service. The poor on-time performance creates a perception of unreliability, which likely depresses the demand for inter-city rail travel. To provide intercity services, there will need to be public investment in rail or bus service.

Figure 29 Amtrak Crescent Corridor
Source: Norfolk Southern

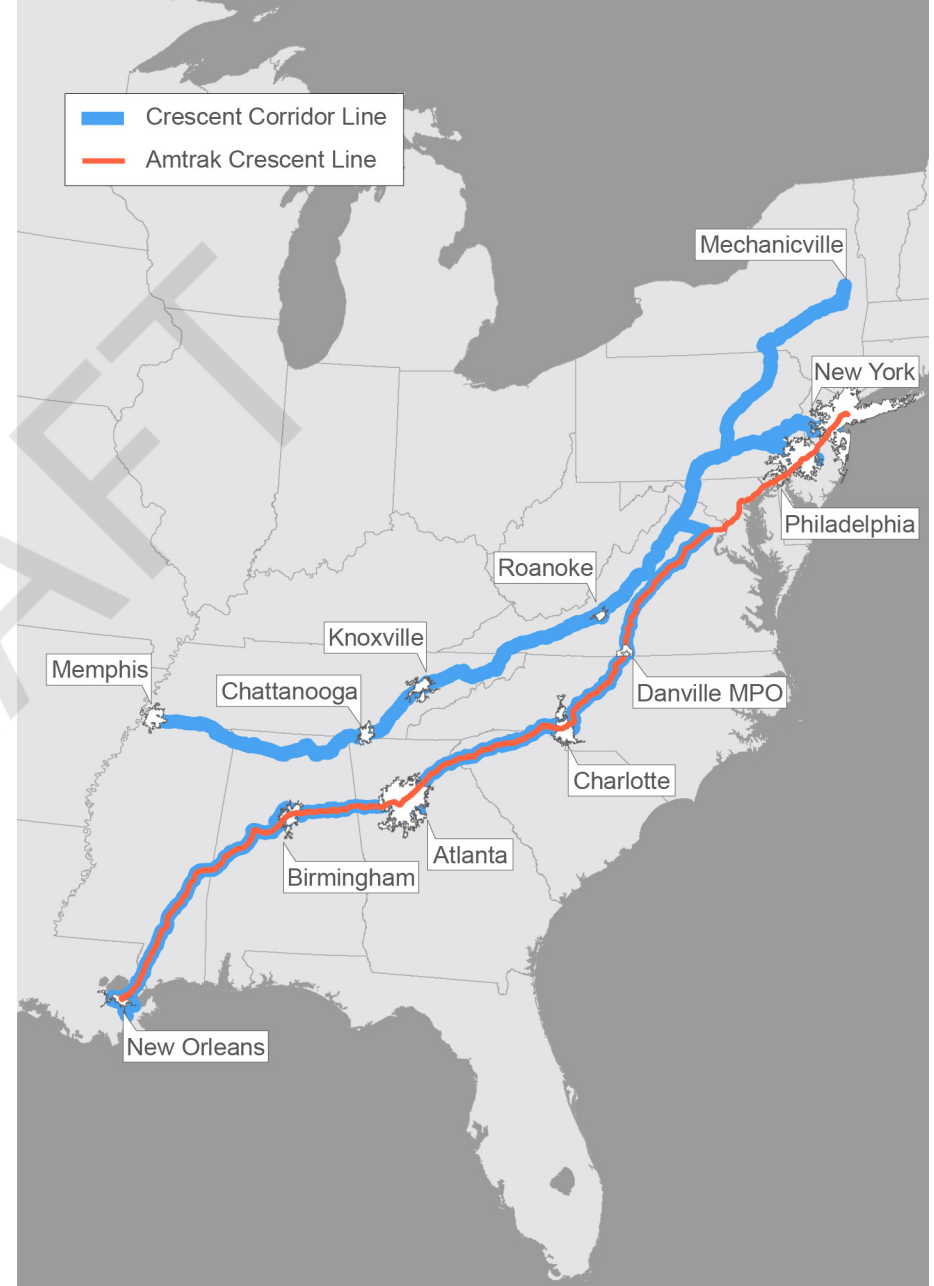


Figure 30 MPO Area Railroads
Source: Bureau of Transportation Statistics

Rail

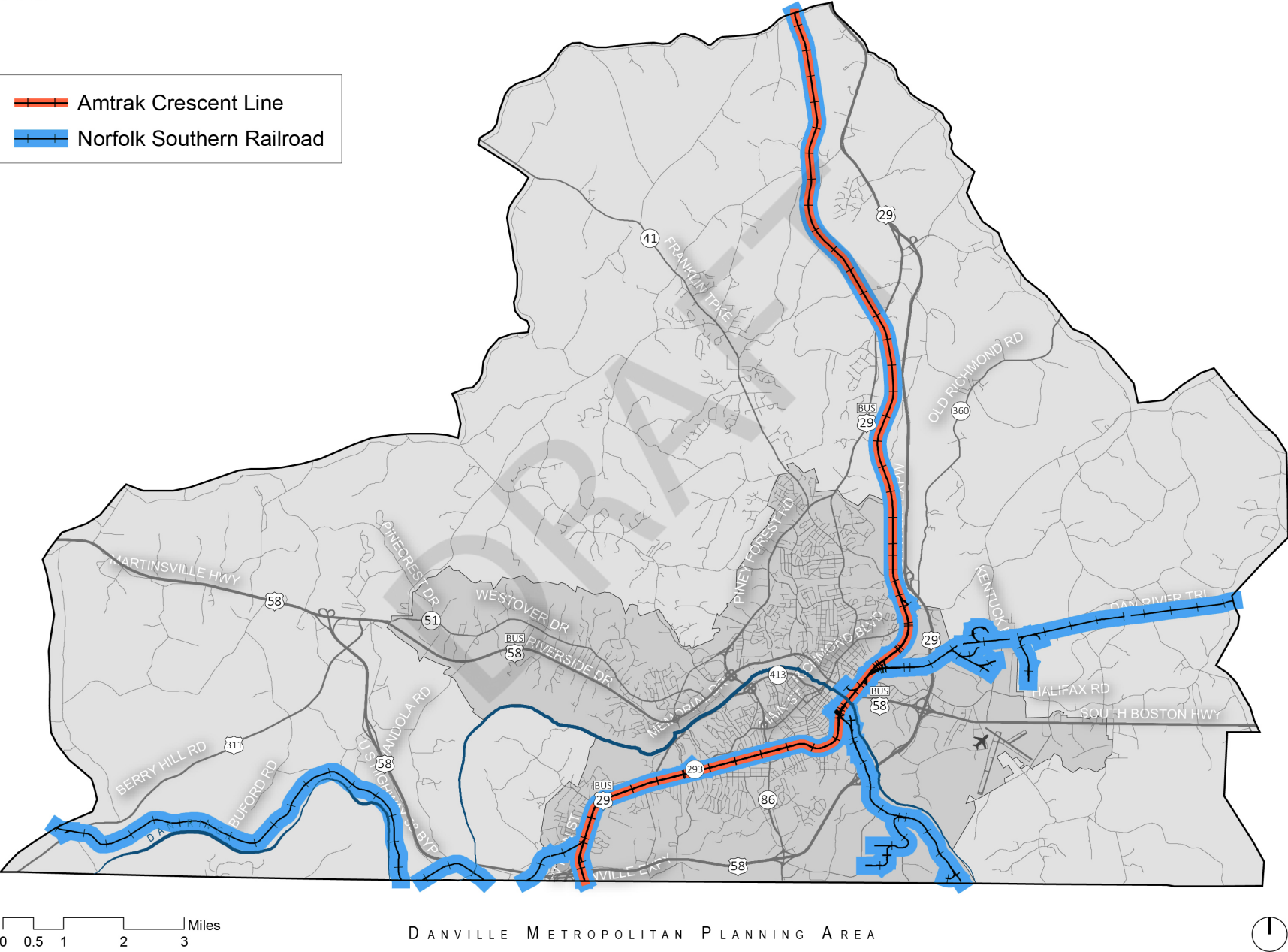
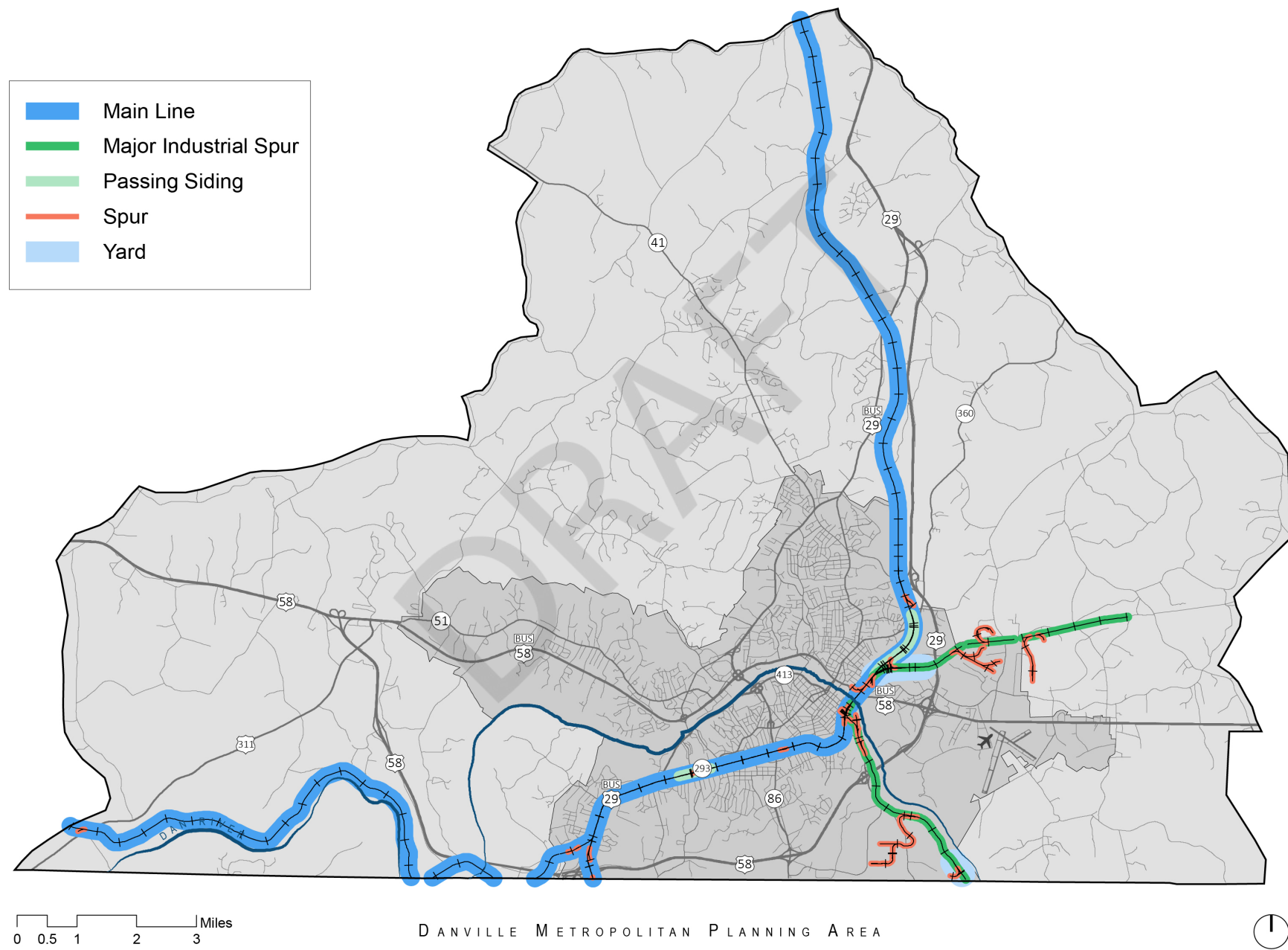


Figure 31 MPO Rail Facilities
Source: Bureau of Transportation Statistics



State of Air Service

The Danville MPO is home to the Danville Regional Airport (DAN). While most area residents travel to surrounding regions for air service, DAN is still a component of the MPO transportation network that is worth considering. This section provides an overview for the existing State of Air Service in the Danville MPO.

Existing Infrastructure

Danville Regional Airport first became operational in October 1937. It currently has two operating runways, runway 2/20 and 13/31. Runway 2/20 has the dimension of 5900 x 100 ft with a grooved asphalt surface in good condition. Runway 13/31 has the dimensions of 3910 x 100 ft with an asphalt surface in poor condition. The airport is only meant to be operational during daylight hours. The airport is publicly owned by the City of Danville. The FAA categorized the Danville airport as regional general aviation facility between 2017 – 2021 as part of the national part of integrated airport systems (NPIAS).

In January 2017, the City Council of Danville approved a \$3.1 million project to rebuild taxiway Alpha to narrow it to 35 ft. There are several airplanes based at the DAN, including: 31 single-engine airplanes, 3 multi-engine airplanes, and 2 jet airplanes. Approximately 50% of flights are for transient general aviation. Approximately 50% are local, general aviation and less than 1% are for military purposes. The fixed based operator is General Aviation Incorporated. They provide services to the aircraft that land at DAN and flight training for the surrounding community. The airport does not have a control tower. Instead the Airport uses a common traffic advisory frequency (CTAF).

Surrounding Air Service

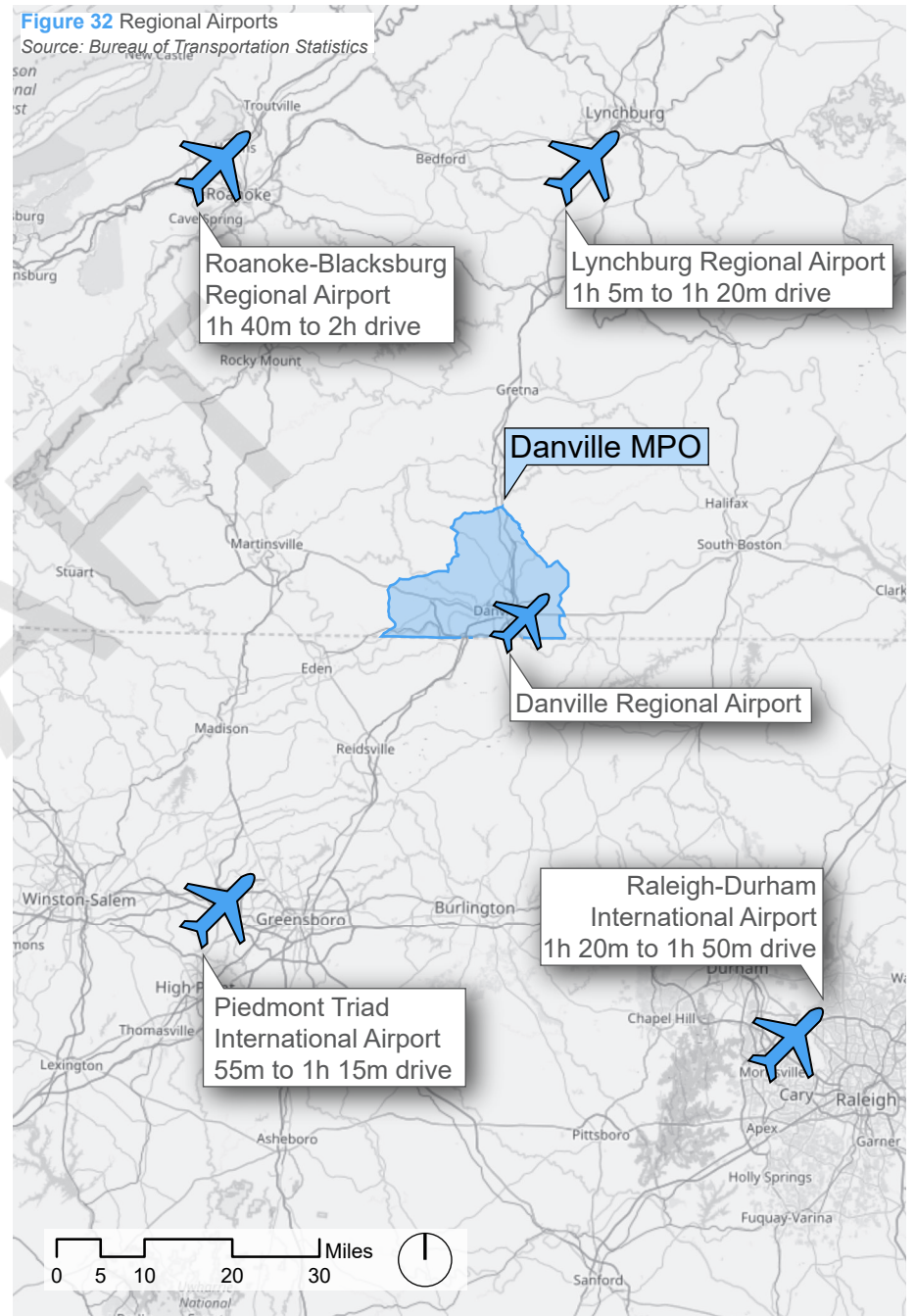
According to anecdotal knowledge with stakeholders, most Danville residents travel to surrounding regions for air service and travel needs. Piedmont Triad International Airport (PTI) is less than 60 miles from Danville, down the US 29 corridor. From Greensboro,



North Carolina, PTI offers direct flights to major US cities, ranging from Chicago and Dallas/Fort Worth to New York and Miami, as well as domestic destinations in between. Roanoke-Blacksburg Regional Airport (ROA) is just under 80-miles to the northwest of Danville, with approximately 40 scheduled flights per day. Carriers take travelers to eight major US cities, overlapping with PTI. The less frequently used airport is Lynchburg Regional Airport (LYH), which is 60 miles up the US 29 corridor from the Danville MPO. This airport provides approximately 12 scheduled flights per day. The largest airport in the larger Virginia/North Carolina regions is Charlotte Douglas International Airport (CLT), which is 140 Miles from Danville.

Averett University Flight School

Averett University operates an FAA-approved Part 141 flight school that offers a number of pilot licenses and certifications in addition to a Bachelor of Science in Aerospace Management. The flight school recently partnered with the Danville Regional Airport to augment its training services.



State of Bridges & Culverts

There are 97 bridges and 57 culverts within Danville MPO. The City encompasses 50 of those bridges. The oldest bridge, VA-293 N, dates to 1927 but was reconstructed in 2005. The majority of the bridges and culverts have a General Condition Rating of “Good”.

Bridges and Culvert Conclusions

The bridges and culverts in the Danville MPO are in relatively good condition, aside from a handful of structures that are highlighted above. The Main Street bridges over the Dan River are in poor condition but are closely monitored by the City of Danville. The main threat is an aging infrastructure over time. By the year 2045, many of the existing bridges and culverts will be reaching critical periods in their structural life-cycle. Given trends in public funds, there may be fewer resources for restoring, rehabilitating or rebuilding those structures.

Figure 33 Bridges and Culverts Condition Ratings
Source: VDOT

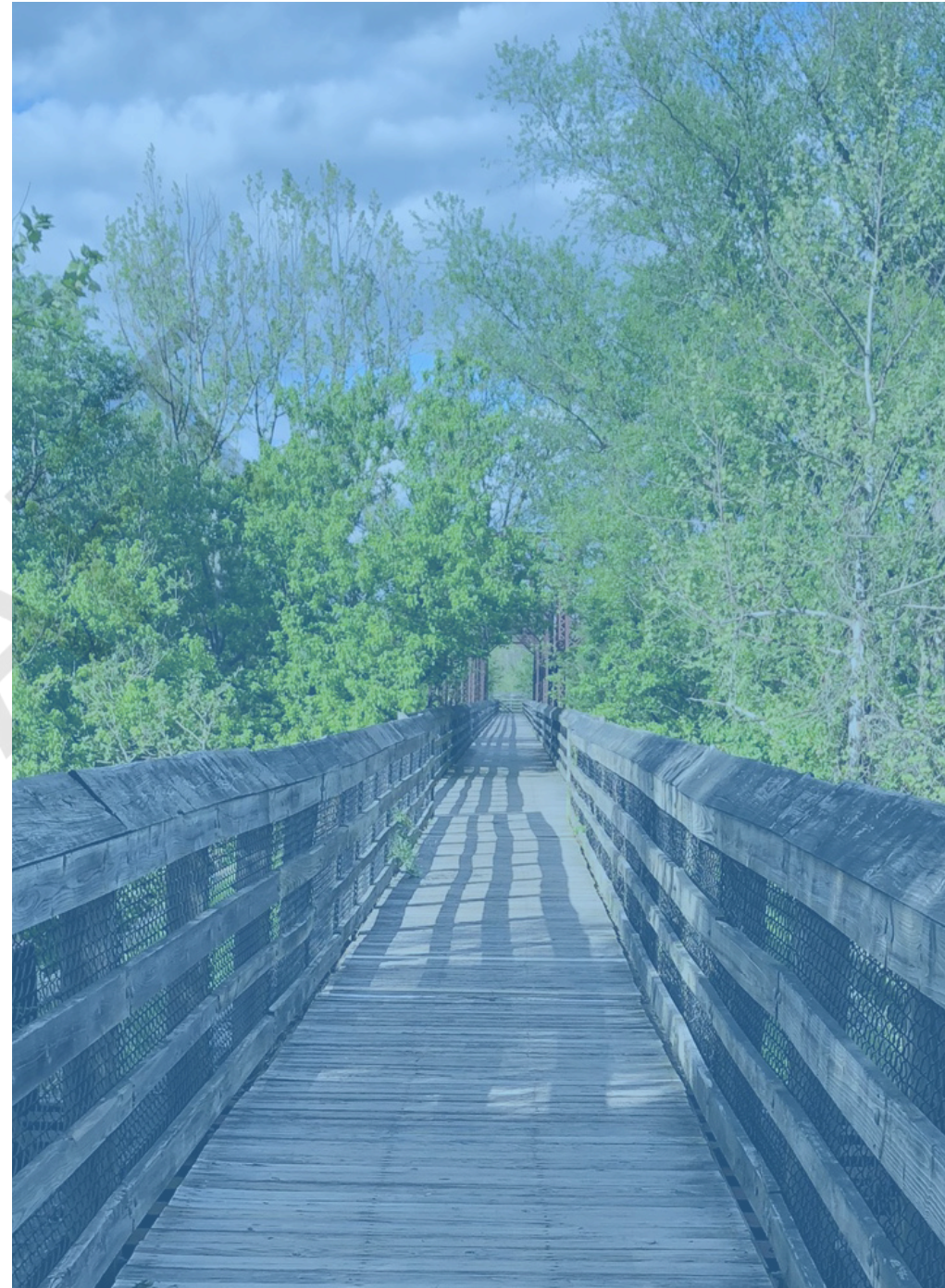
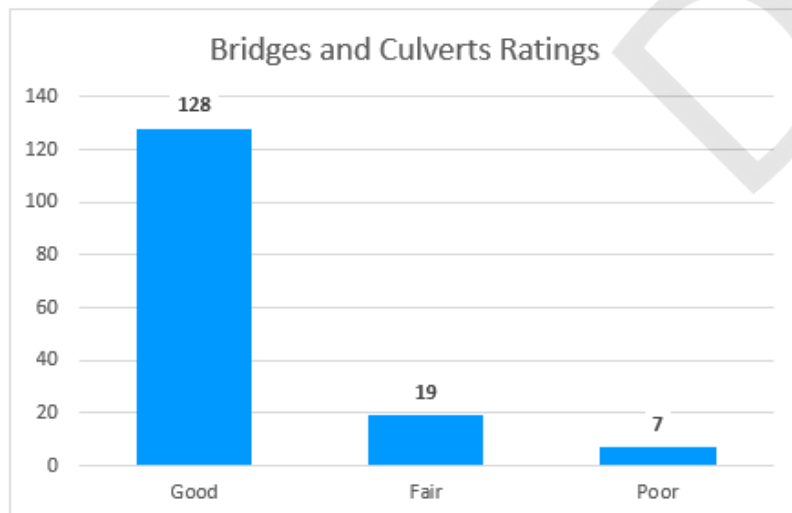


Figure 34 General Condition Rating
Source: VDOT

General Condition Rating

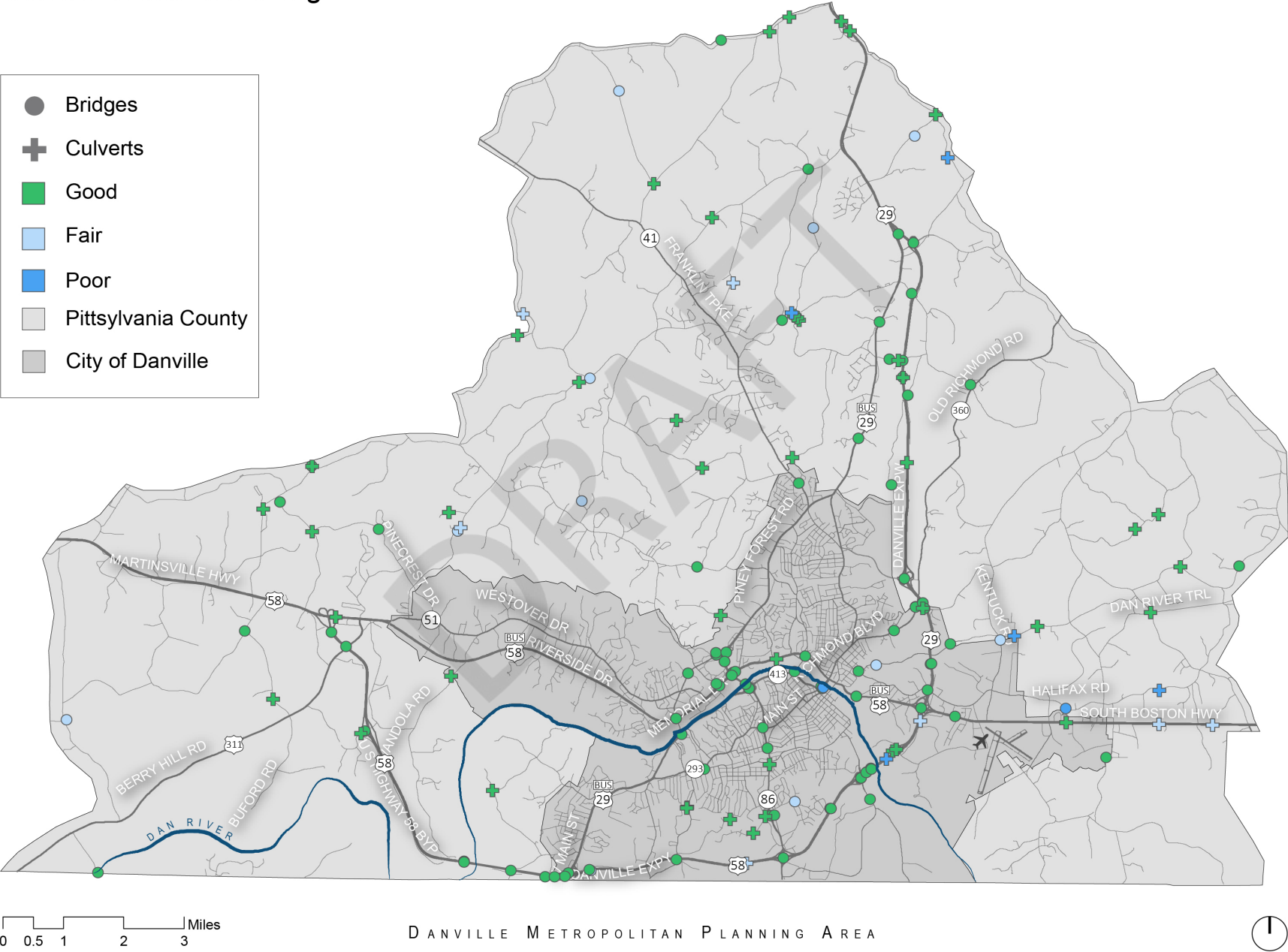
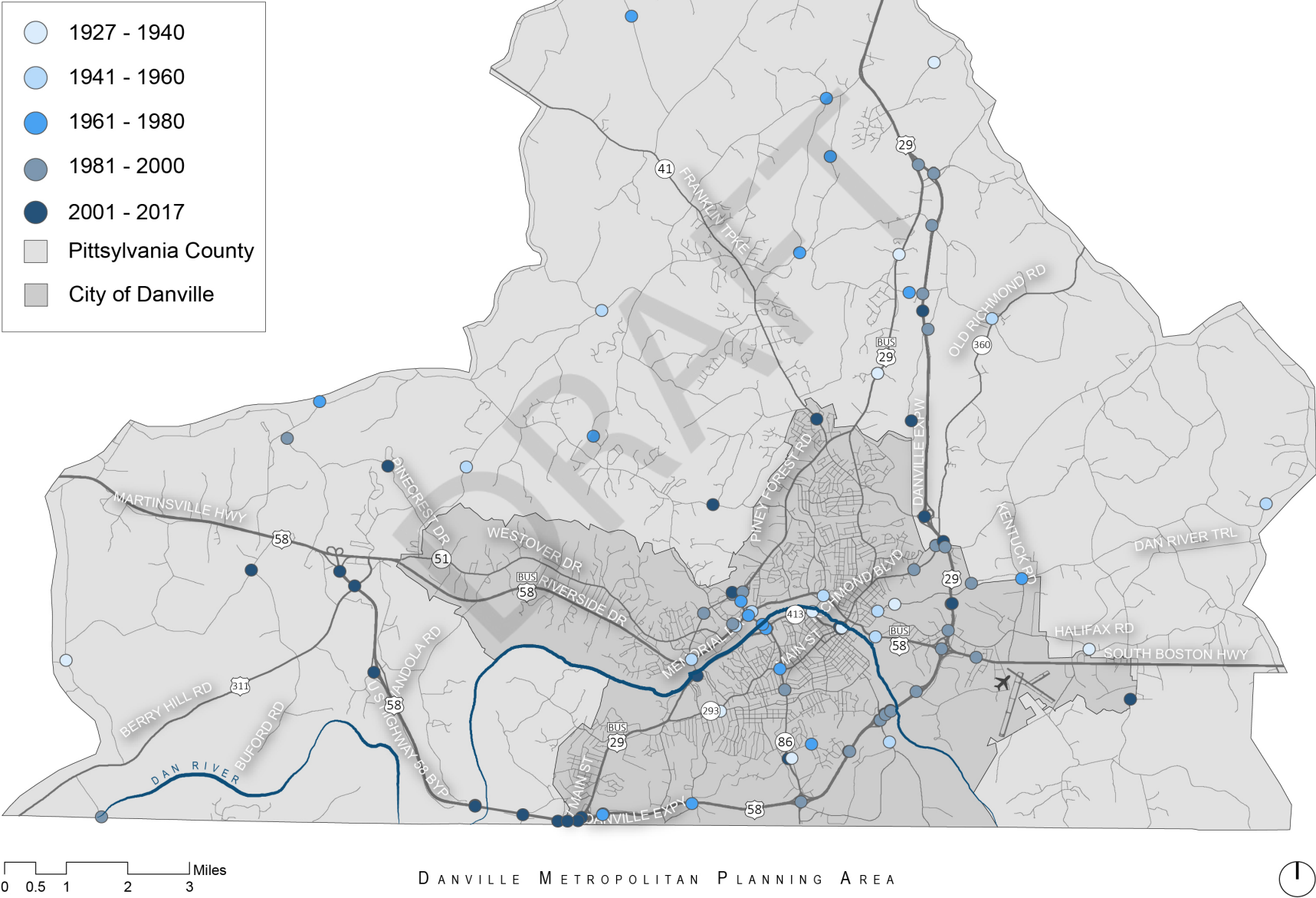


Figure 35 Year Built
Source: VDOT

Year Built



Needs & Conclusions

The State of the System chapter influences other elements of the 2045 LRTP. With a detailed understanding of existing conditions, the following conclusions help to develop subsequent chapters. Those conclusions include the following.

Chapter V: 2045 State of the System

The Travel Demand Model does not indicate increases in AADT for MPO roadways over the next twenty-five years. Given that existing traffic volumes utilize a fraction of existing capacity, the 2045 LRTP should focus less attention on new capacity-building projects.

CHAPTER VI: GOALS, OBJECTIVES AND TARGETS

2045 Performance Measures and Goals should highlight safety, as opposed to congestion. The Prioritization Tool, used to evaluate transportation projects, should also emphasize multi-modal travel options, such as bike, pedestrian, transit and intercity services.

CHAPTER VII: PERFORMANCE BASED PLANNING PROCESS

Given the excess capacity of existing and future roadway facilities, 2045 projects should include Road Diet strategies for introducing multi-modal travel options. Additionally, the top 5 PSI intersections and top 5 PSI road segments should be addressed in the Project Pool.

CHAPTER IX: 2045 TRANSPORTATION PROJECT LISTS

The final list of projects should reflect existing and future needs, as are defined in this chapter and within the 2045 State of the System.



Chapter IV

Demographic and Land Use Trends

In this chapter, the reader will find:

- **An understanding** of the region's existing transportation network
- **Clarity** on existing transportation needs
- **Knowledge** of how this analysis feeds into development of goals, performance measures, and projectst

63	Introduction
63	Population and Demographic Trends
68	Employment and Commuting Snapshot
72	Existing and Future Land Use Policies
75	Conclusions

Introduction

This chapter examines the demographics and land use trends of the region in the context of the performance of the transportation system. The distribution of people and jobs across the MPO area plays a crucial role in the functioning of the transportation system. How close or far people live to or from each other and their jobs and other destinations largely determines the traffic patterns throughout the region. Because land use patterns inform the spread of people and activity centers throughout the region, existing and future land use trends are also analyzed in this chapter. The demographic data and land use policies inform conclusions about needs in the transportation system.

Population and Demographic Trends

The Demographics of the MPO

Population

As of 2016, 64,584 people live in the MPO area. **Table 1** shows the population change from the last Decennial Census year (2010) to 2016 along with the projected change in population from the Danville Travel Demand Model (TDM). The change from the 2010 to the 2045 projection indicates a downward trend in population size for the MPO. However, as seen in **Figure 37**, the population change has been uneven across the region. Approximately one-third of the census block groups that comprise the region experienced a population increase from 2010 to 2017. The area around Mountain Hill saw the largest uptick, followed by areas in the Westover, River District and Franklin Turnpike Planning Areas.

As seen in **Figure 38**, the areas of the highest residential densities in the MPO are largely concentrated in the River District, North Main,

Table 1 Population Change from 2010 to 2045

Source: Danville Travel Demand Model

2010 Population	2016 Population	2045 Population	Population Change 2016-2045	Percent Change 2016-2045
65,689	64,584	53,417	-11,167	-17%

Piney Forest Road and Franklin Turnpike Planning Areas. The amount of people and their spatial distribution has significant effects on the transportation system, since the majority of trips will originate from those areas. Residential density is also a critical aspect in the viability transit service.

Age

The MPO is getting older, as seen in **Figure 36**. The largest age cohort in the MPO in 2010 was 50 to 54, whereas that cohort was 60 to 64 in 2017. **Figure 39** shows the median age of each census block group in the region, while **Figure 40** shows the changes in median ages for the same geography from 2010 to 2017. While the area as a whole is getting older, some areas saw influxes of younger residents in the seven year period. Age is an important factor in analyzing the transportation system, as residents below the legal driving age and

Figure 36 Age Pyramids for the MPO in 2010-2017

Source: ACS 2013-2017 5-Year Estimates

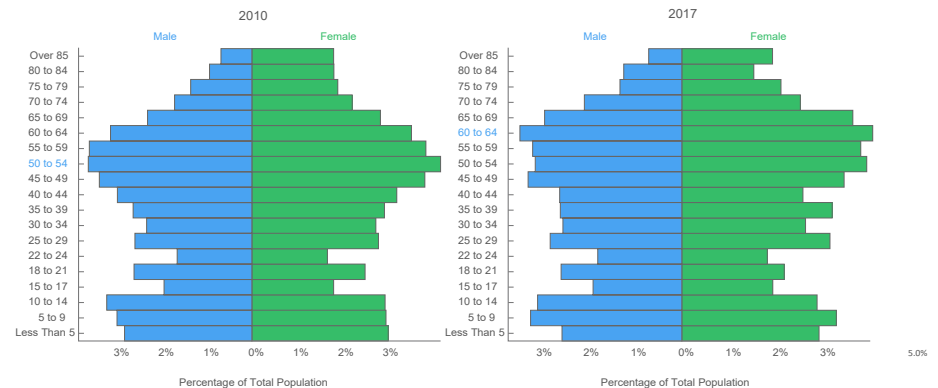


Figure 37 Population Change, 2010-2017
Source: ACS 2013-2017 5-Year Estimates

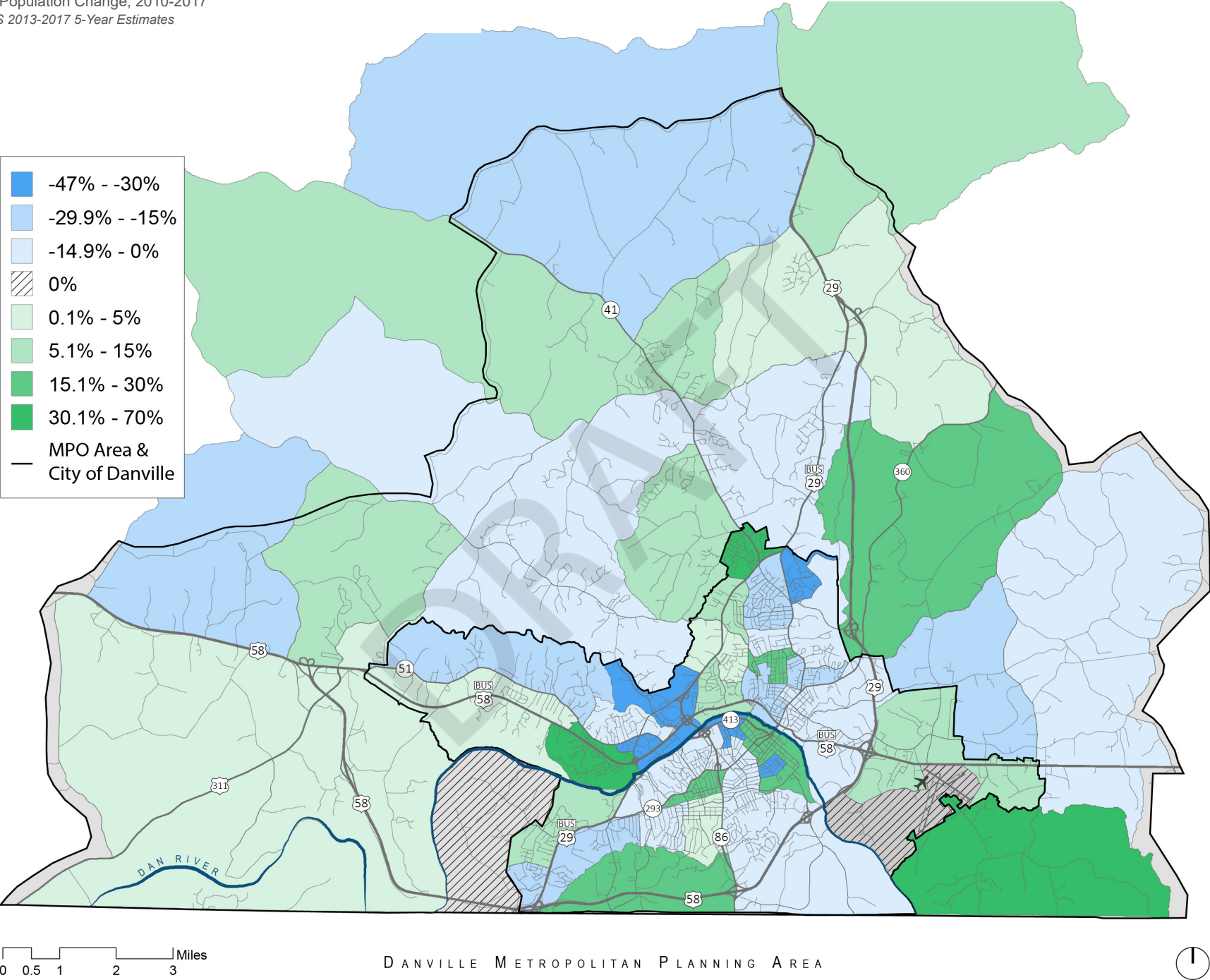


Figure 38 Population Density in 2017
Source: ACS 2013-2017 5-Year Estimates

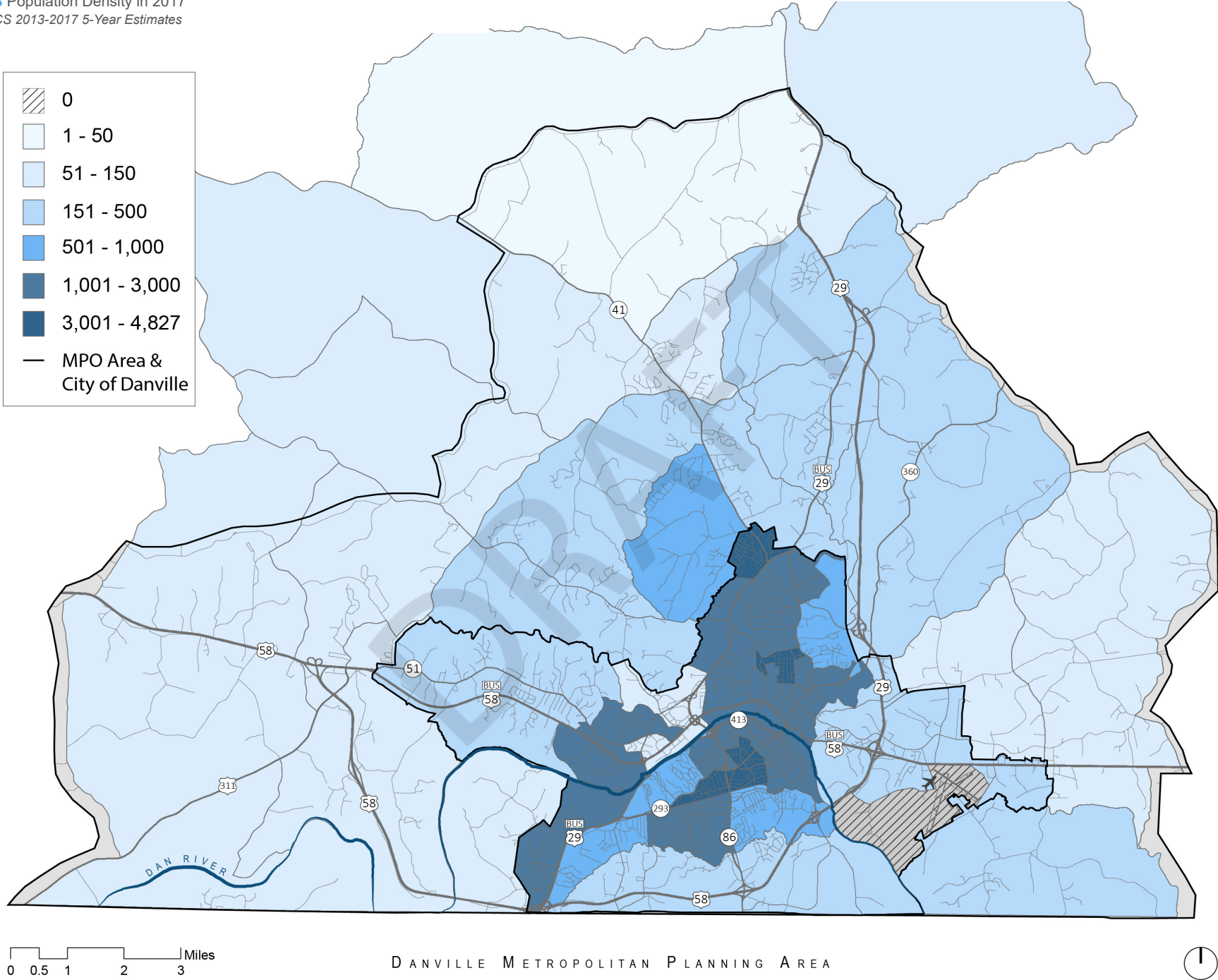


Figure 39 Median Age in 2017
Source: ACS 2013-2017 5-Year Estimates

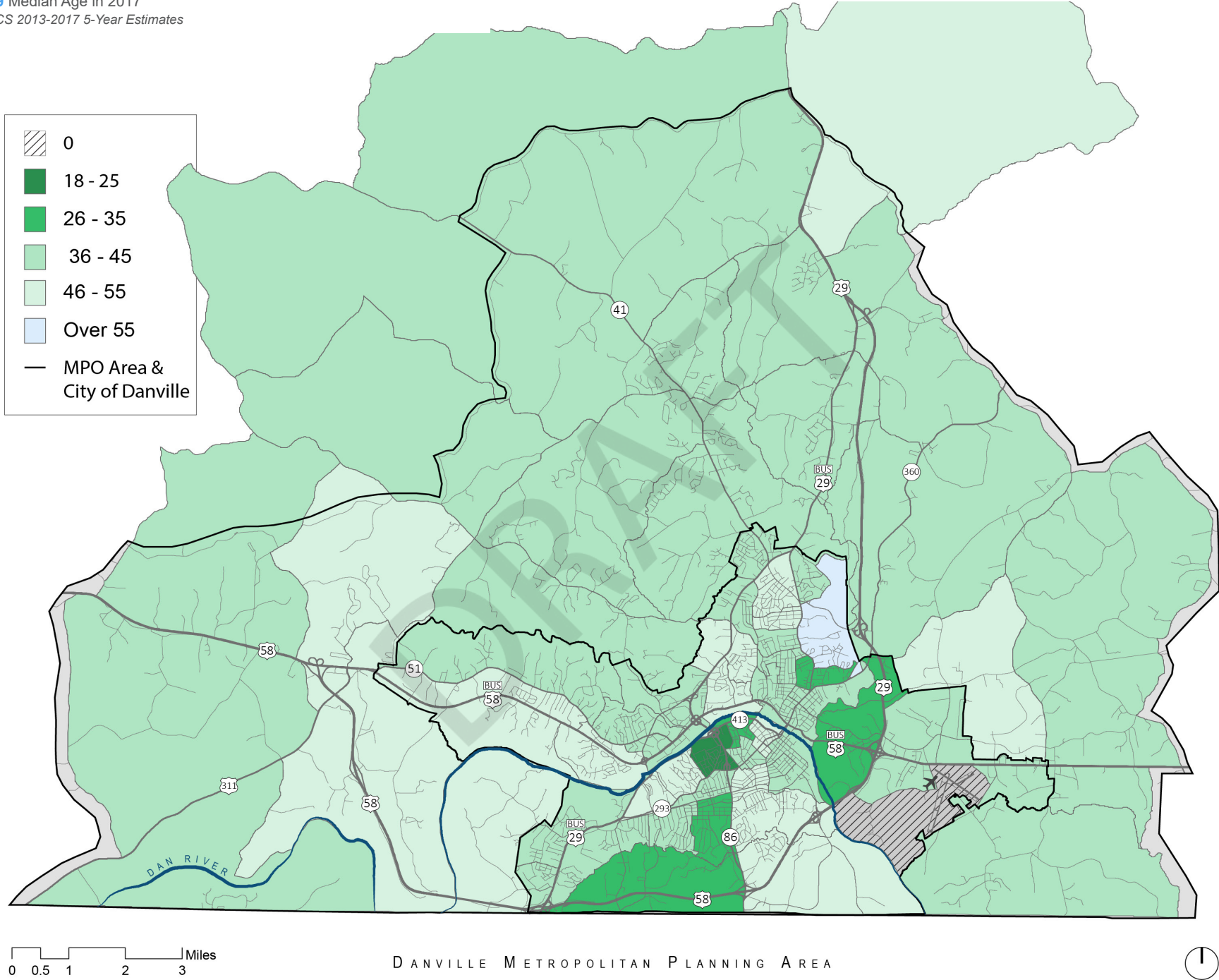
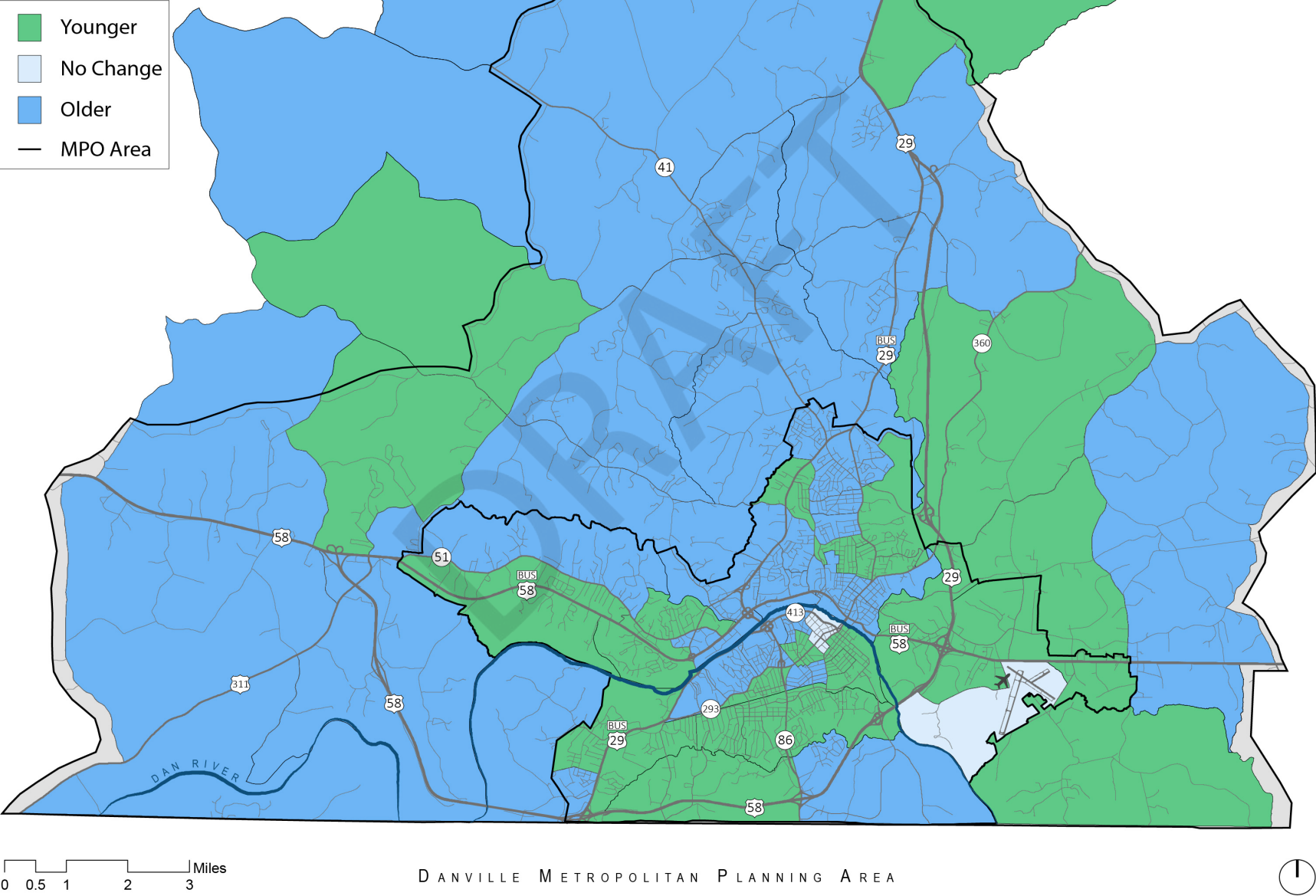


Figure 40 Change in Median Age from 2010 to 2017
Source: ACS 2013-2017 5-Year Estimates

Change in Median Age
between 2010 and 2017
by Block Group



elderly residents do not necessarily have access to cars, making other modes, such as transit crucial for those cohorts.

Employment and Commuting Trends

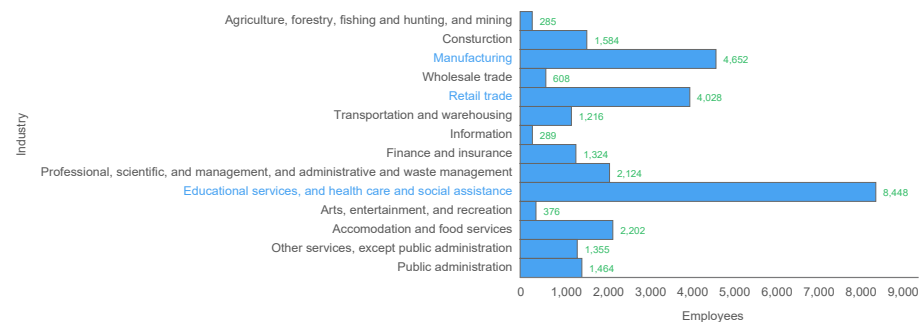
Employment in the MPO

Jobs in the MPO are largely concentrated along US Route 29 Business/Piney Forest Road and in the River District and Airport/Industrial Planning Areas. **Figure 43** shows the employment density in the MPO. **Figure 44** shows the largest employers in the MPO area. In terms of employee size, the top five employers in the MPO are:

1. Goodyear Tire & Rubber Company
2. Pittsylvania County School System
3. Southern Virginia Regional Health System - Danville
4. Danville Public Schools
5. Nestle

The largest employers of the area roughly reflects the breakdown of employment by industry, which can be seen in **Figure 41** on the

Figure 41 Employment by Industry 2017
Source: ACS 2013-2017 5-Year Estimates



following page. It should be noted that the Ikea plant, which employs around 300 workers, is set to close at the end of 2019.

The distribution of employers and employment areas constitutes significant activity centers throughout the region. The activity centers attract a large share of daily trips. According to the 2017 National Household Travel Survey, trips to and from work are the second most common type of trips made in the U.S. Consequently, the area's employment centers are an important data point in the development of the recommendations of this plan.

Commuting Trends

Commuting in the MPO Today

MPO area commuters are overwhelmingly dependent on private automobiles for their commutes. As seen in **Figure 42**, approximately 83% of area commuters drove to work alone in 2017. **Figure 45** shows the breakdown of commute times for area residents. The commute times suggest that most MPO residents live quite far from their places of work, given that about two-thirds of commute times are over 15 minutes.

Figure 42 Means of Transportation to Work 2017
Source: ACS 2013-2017 5-Year Estimates

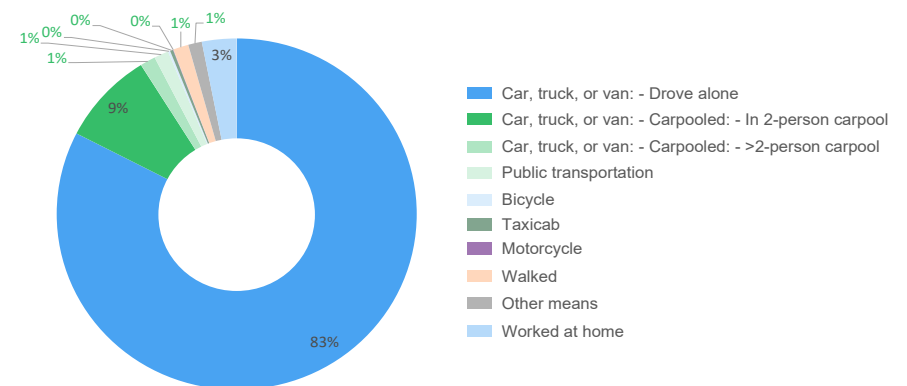


Figure 43 Employment Density 2017
Source: LODES 2017

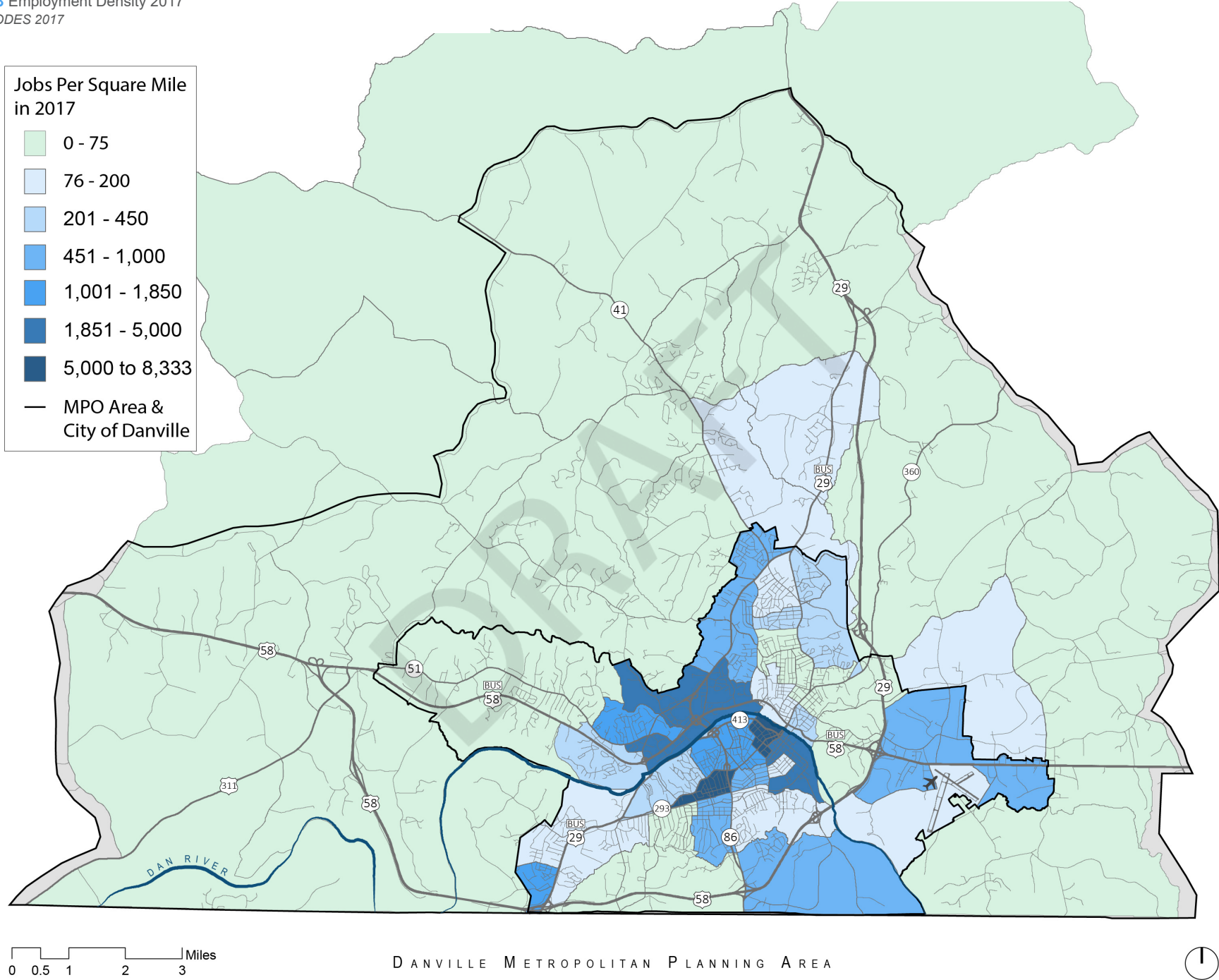


Figure 44 Top Employers in 2018
Source: Danville Area Chamber of Commerce,
Danville Pittsylvania Chamber of Commerce

Top Employers

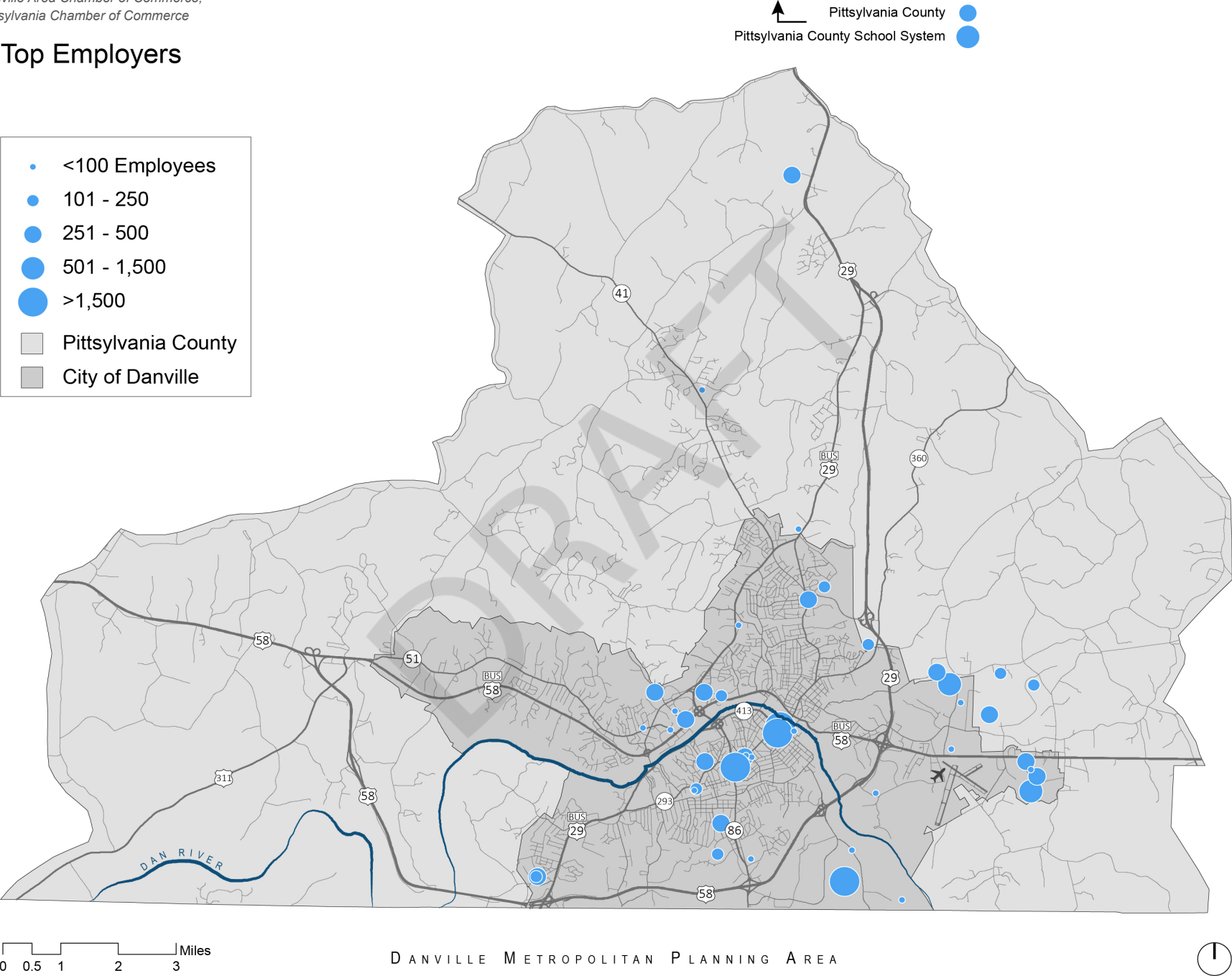
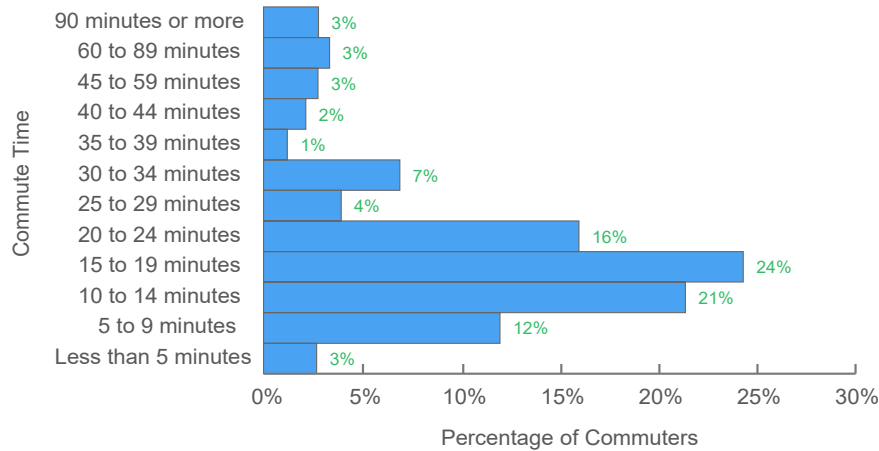


Figure 45 Commute Time to Work 2017

Source: ACS 2013-2017 5-Year Estimates



Commuting Trends in the MPO

Figures 46 & 47 show the trends in commuting in the region between 2010 and 2015. The maps depict the origins and destinations of workers in the MPO in 2010 and 2015, along with a summary of the workers employed in the MPO and the workers who live in the MPO for each year. The maps reveal two important trends. First, the area has gained commuters who live outside the region. The share of people who work in the MPO, but live elsewhere has increased by about 12%. The largest increases include workers who live in the nearby areas of Mount Hermon, Martinsville and Blairs, but the area also gained commuters from Lynchburg and Greensboro, NC. The second trend is an increase in the amount people who live and work in the region. The share of people who both live and work in the MPO increased by about 14% between 2010 and 2015.

Existing and Future Land Use Policies

Existing Land Uses

Figure 46 Origin of Workers in 2017

Source: LODES 2015

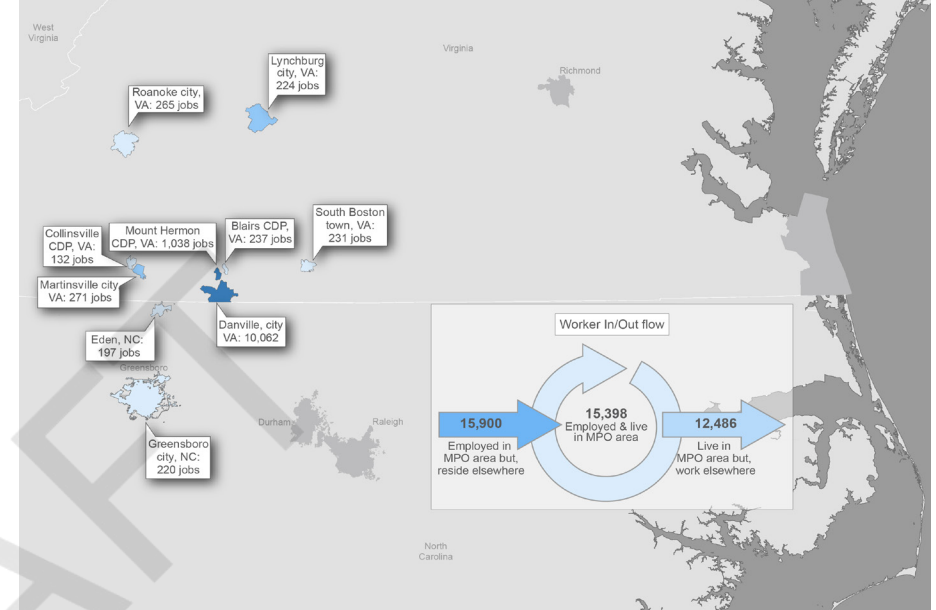


Figure 47 Desintation of Workers in 2017

Source: LODES 2015

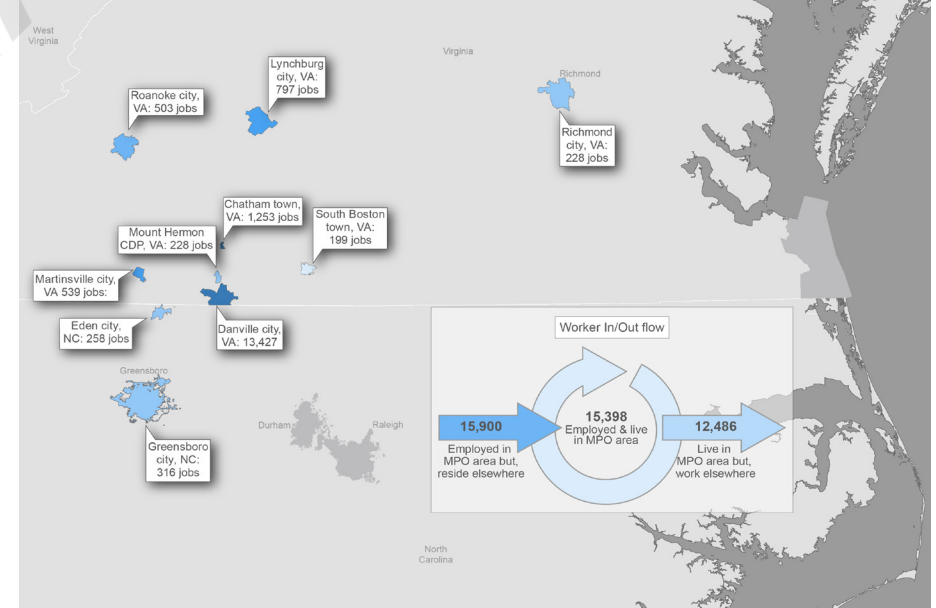


Figure 48 Generalized Existing Land Use Map
Source: City of Danville, Pittsylvania County

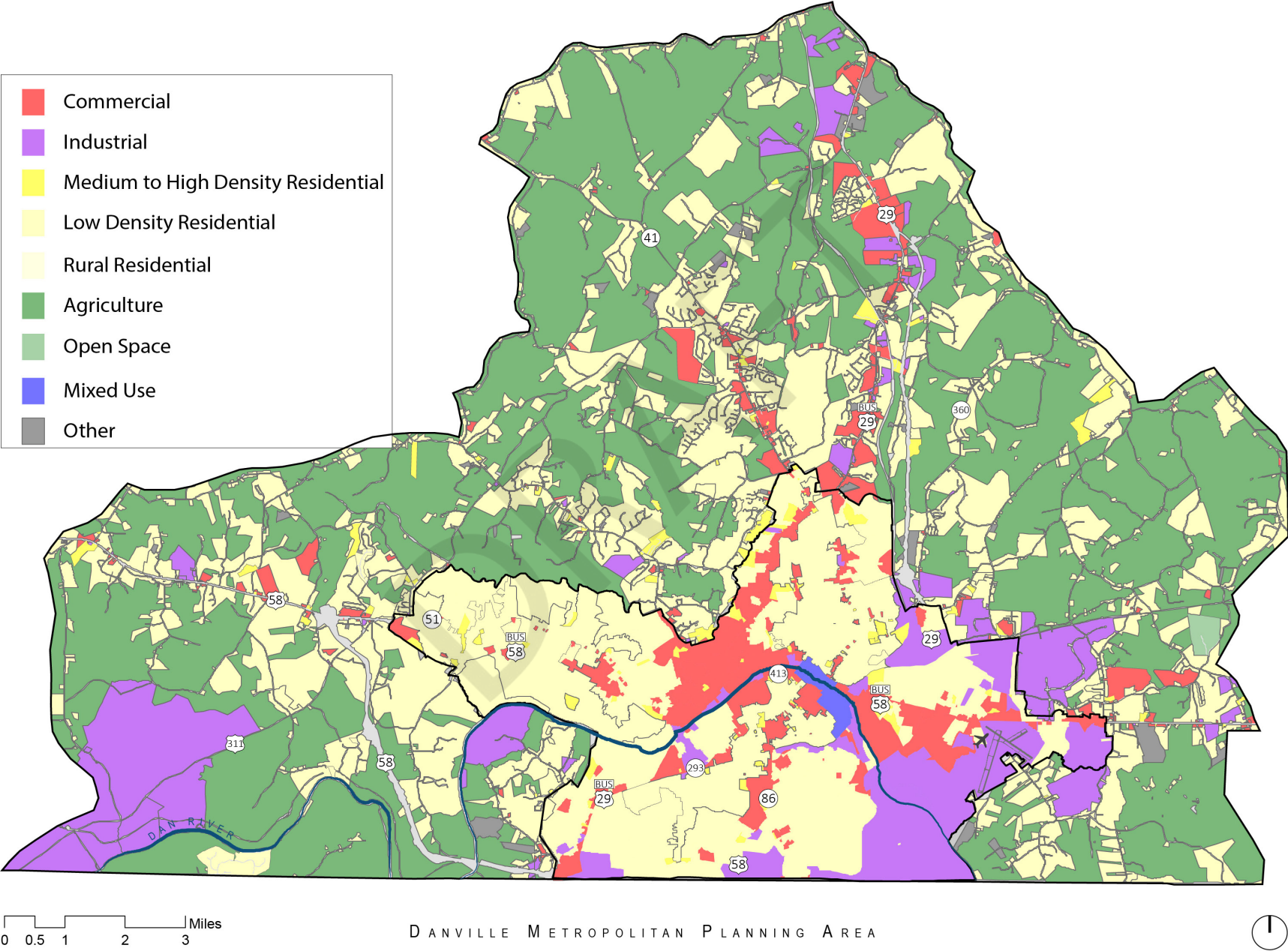
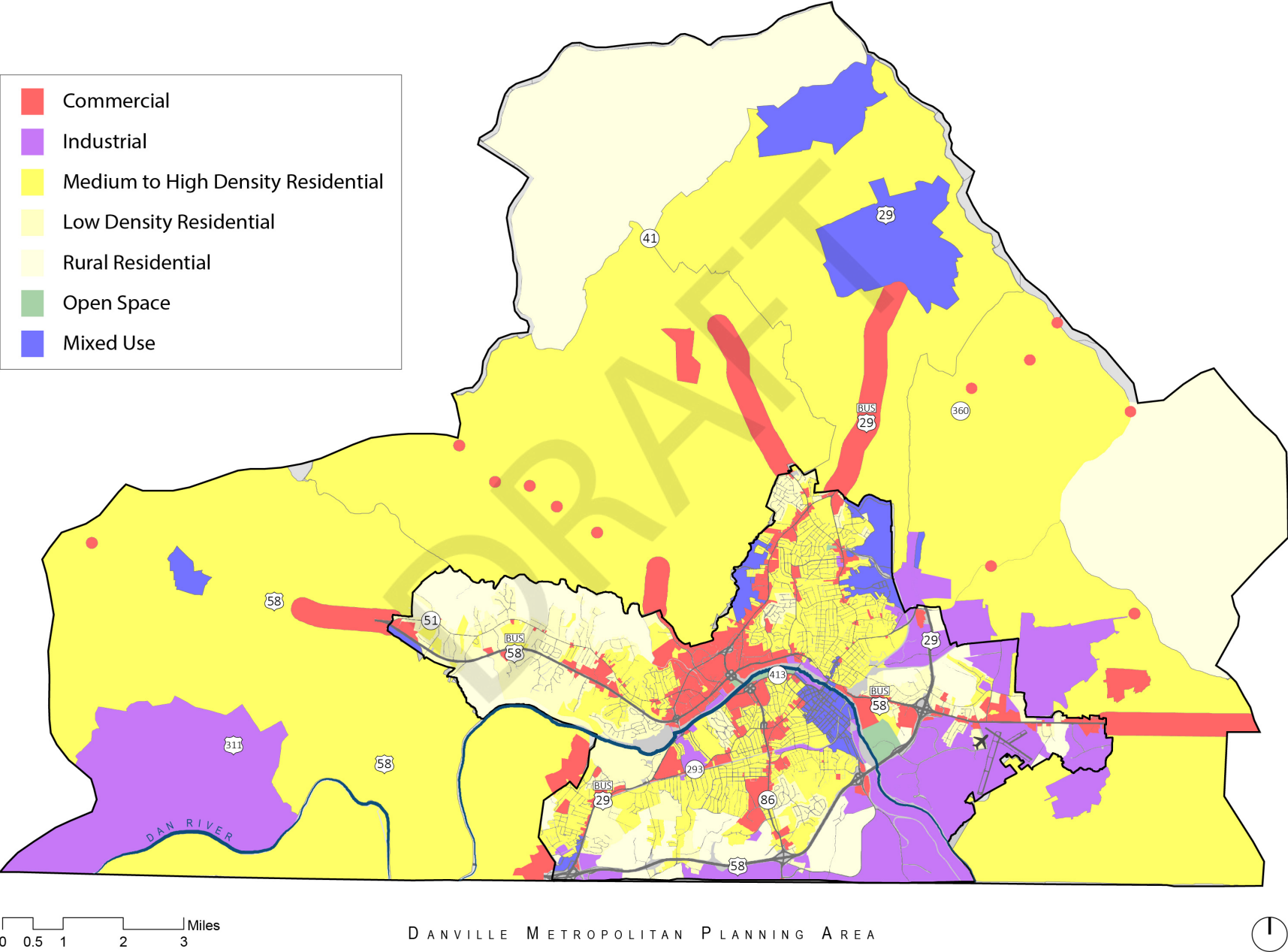


Figure 49 Generalized Future Land Use Map
Source: City of Danville, Pittsylvania County



The land use regulations of the City of Danville and Pittsylvania County in the MPO exert a significant impact on the transportation system. **Figure 48** shows a generalized land use map based on the existing zoning ordinances of the two localities. The existing land use regulations in the MPO create large swathes of generally homogenous activities. For the most part, employment centers are concentrated in the Piedmont Drive/Mt. Cross Road, Piney Forest Road, South Boston Road and Airport/Industrial Planning Areas. Beyond those concentrated areas, employers are largely distributed along several corridors of US Route 58/Westover Drive, State Route 41/Franklin Turnpike and US Route 29 Business/Piney Forest Road.

Future Land Uses

Figure 49 shows a generalized map of the future land uses in the MPO. Both jurisdictions envision an increase in medium to high density residential and mixed-use uses. The policies for future land uses in the region comprise an important factor when considering which transportation projects should be submitted for funding.

Conclusions

The MPO is undergoing a significant change in demographics. The data displayed in the previous pages reveals population decline and aging in the MPO in the coming decades. However, some areas, such as the River District Planning Area have experienced gains in younger residents in recent years. Additionally, the region saw increases in people commuting into the region and people who both live and work in the region.

The decrease in population creates the opportunity to redesign key elements of the transportation system. The population decline is the likeliest cause of the lack of over-capacity facilities in the network. As will be seen in the following chapter, the abundance of roadway capacity is likely to persist into 2045. Given the surplus of roadway capacity, the region has the opportunity to reallocate space on its roads for alternative transportation modes.



Chapter V

2045 State of the System

In this chapter, the reader will find:

- **An understanding** of trends that will influence the MPO transportation network in the future
- **A vision** for emerging mobility in the region to guide MPO and local decision-making related to transportation
- **Clarity** on unknowns and how the 2045 addressed an uncertain future

76	2045 No Build Forecasts
77	2045 No Build Alternative System Deficiencies
77	Growth Pattern Analysis
79	A Regional Concept of Emerging Mobility
85	Future Uncertainties

2045 State of the System

2045 recommendations respond to existing and projected transportation needs across all modes of travel. CHAPTER III explores existing conditions of the region's transportation network, whereas the following described future needs. The Travel Demand Model (TDM) produced 2045 forecasts that help to identify roadway needs. This model combines a digital network of roadways with forecasts of population and employment to develop estimated traffic volumes along major corridors of the region's road network. These estimated traffic volumes are then compared with the capacity of the roads in a volume-to-capacity (VC) ratio to identify potential roadway deficiencies.

CHAPTER V also explores a Regional Concept of Emerging Mobility for the Danville MPO. During the 2045 process, the Central Virginia and Danville MPOs held a joint workshop on emerging mobility, hosted by FHWA. The following documents findings from that joint discussion. These considerations are intended to guide MPO activities with the study of future transportation projects and development of policies.

Finally, this chapter acknowledges certain unknowns about future transportation needs. Changes in technology, demographics, and economic trends create uncertainties for a planning horizon that spans over twenty years. The intent of this section is to recognize unknowns and guide MPO officials with decision-making in times of uncertainty.

2045 No Build Forecasts (E+C)

The analysis starts by evaluating the forecasted year 2045 population and employment levels on model results for the network, which includes existing and programmed improvements – the No Build Network. The No-Build roadway network is the existing roadway system plus projects that are committed to be constructed based on available funding (existing + committed). Projects added to the existing network to comprise the No-Build network are typically those included in the VDOT Six-Year Improvement Program (SYIP). Since improvements are included in the travel demand model network, the programmed improvements that are included are limited to those that add capacity to the roadway system, such as additional lanes to existing roadways or roadways on new alignments.

As part of the Update to the Danville-Pittsylvania Long Range

2045 TRAVEL DEMAND MODEL



The Danville Model is a fully functional, fully calibrated model that appears to validate well at the regional level. The model is appropriate for use at all planning levels for items such as long-range plan development, corridor studies and other macro level uses.

The Danville Model is a 3-step model encompassing the trip generation, trip distribution and highway assignment steps. A Model Users' Guide provides information on folder layout, model steps and model execution.

The model was set up and run for both the 2016 base year and the 2045 future year. No issues were encountered and all output made reasonable sense.

Table 2 2045 TDM Forecasted Figures

Source: Danville Travel Demand Model

Data Point	2016	2045
Population	64,584	53,417
Households	27,957	22,973
Total Employment	29,364	34,647

Transportation Plan, consultants developed forecasts of population and employment. Forecasts fed into the initial calibration of the TDM. Due to the decline of population in the Danville-Pittsylvania urbanized area in recent decades, the forecasts used in initial application of the travel demand model were as follows (year 2016 baseline estimates

shown for comparison purposes):

2045 No Build Alternative System Deficiencies

Figure 50 shows the location of deficiencies forecasted to occur on the No Build Alternative network. As the exhibit shows, very few links in the road network are forecast to experience any significant level of congestion in 2045. Moderate congestion ($VC = 0.5$ to 0.8), which is typically regarded as an acceptable level of road operation, is expected along a few of the primary corridors in the MPO. Notable examples include:

- Mount Cross Rd (Rt 750): between Womack Dr and Golf Club Rd
- Piney Forest Rd (US 29 Bus): between Piedmont Dr and Franklin Turnpike
- Richmond Blvd (US 360): between Main St and the Danville Expressway
- Franklin Turnpike (Rt 41): between Orphanage Rd and Golf Club Rd
- Berry Hill Rd (US 311): between Martinsville Hwy (US 58 Bus) and Loomfixer Lake Rd
- US 29: north of the Danville Expressway—US 29 Business interchange

Heavy congestion ($VC > 0.8$) is only expected near the intersection of Mount Cross Rd (Rt 750) and Dimon Dr, as well as one isolated link of Mount Cross Rd leading to its intersection with Riverside Dr. Considering the scale of the modeling process, the localized links exhibiting deficient capacity by themselves do not indicate a systems level need for corridor improvements. A system level need would be indicated if a corridor (comprised on several links) were to exhibit deficient service. Instead, analysis of operations in the vicinity of each deficient link would be an appropriate methodology for determining if improvements are needed.

Growth Pattern Analysis

The TDM model suggests that the existing transportation

WHAT IS VOLUME TO CAPACITY RATIO?



V/C measures the number of vehicles a road segment carries compared to how many vehicles it could carry based on its design. V/C is expressed as a ratio. For example, a road with a VC of 1.0 would be a road that carries as many vehicles as it is designed to carry, whereas a VC ratio of 0.50 would mean that half as many vehicles move on that road as it could carry.

The Project Evaluation Tool, described in CHAPTER VI, categorized V/C according to the following thresholds:

- High Congestion: V/C greater than 1.1
- Medium Congestion: V/C between .8 and 1.1
- Low Congestion: V/C less than .08

infrastructure will be sufficient to facilitate traffic movement without significant congestion in 2045. This finding offers the Danville MPO a unique and important opportunity to be proactive, rather than reactive, in its selection of proposed projects. While many MPOs must direct all their available resources to responding to deficiencies in their existing network, the Danville MPO can instead direct these resources to new projects and infrastructure that will help generate new opportunities.

One strategy that can be used in this approach is to identify specific areas or locations within the MPO that are expected to help revitalize the city and the region. Two prominent examples in the Danville MPO are the downtown River District and the Southern Virginia Megasite at Berry Hill.

Danville River District

The model used to assess future transportation needs predicts that most areas within the City of Danville will either experience no growth or lose population between 2020 and 2045. Nearly all the areas that are expected to experience growth, however, are in the downtown River District and the surrounding historic neighborhoods. This growth reflects significant investments that the city and local developers have made in this area in recent years, such as the conversion of warehouses into loft apartments, the reconstruction of the Main Street

Figure 50 Forecasted deficiencies in the No Build Alternative
Danville MPO Travel Demand Model

Volume-to-Capacity
2045

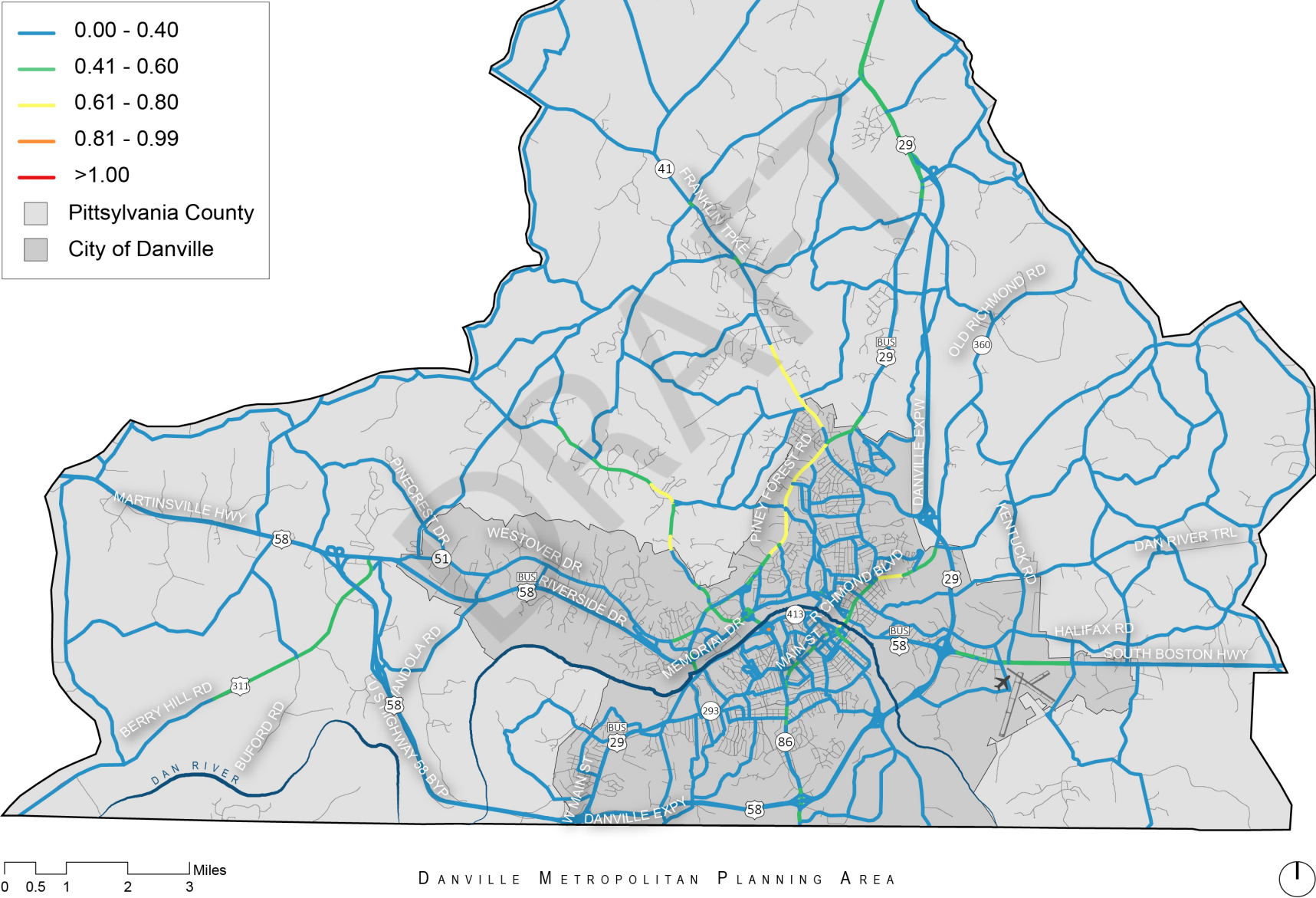
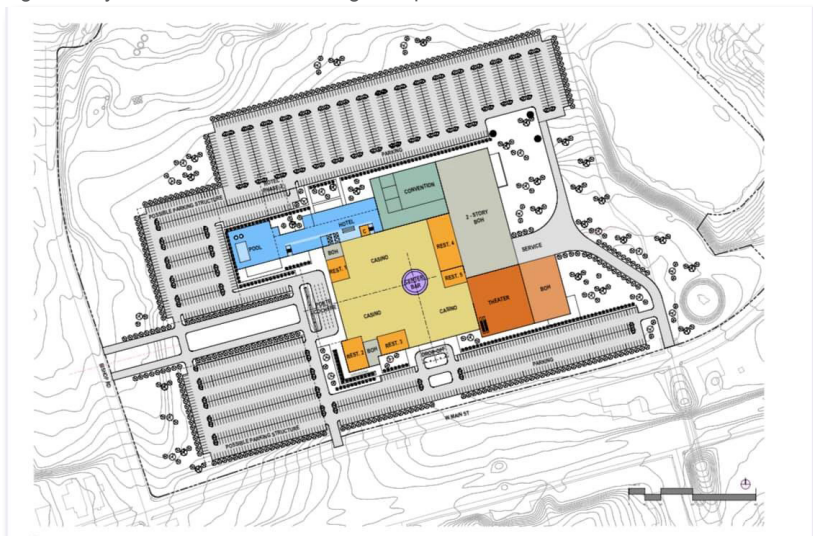


Figure 51 Casino Development at the Schoolfield Site on West Main Street could significantly influence the surrounding transportation network.



Plaza, the development of attractions like the Carrington Pavilion, the Danville Science Center, and Farmer's Market building, and the creation of the Riverwalk Trail system. The MPO can continue to support growth in these areas by providing new and improved facilities and accommodations for urban transportation modes such as biking, walking, and transit.

Another key consideration for the future of this area is the possible development of a casino in Danville. In 2019, the Virginia General Assembly passed SB 1126, which permits casino gaming in selected areas of the state, including Danville. Sites such as the Schoolfield property on West Main St and the Dan River Mills building on Memorial Dr have been proposed as possible locations for a casino (**Figure 51**). The MPO may not only need to invest in improvements to provide access to these sites if they are developed, but should also consider improvements that will allow visitors to easily travel between the casinos and other businesses and attractions in the River District.

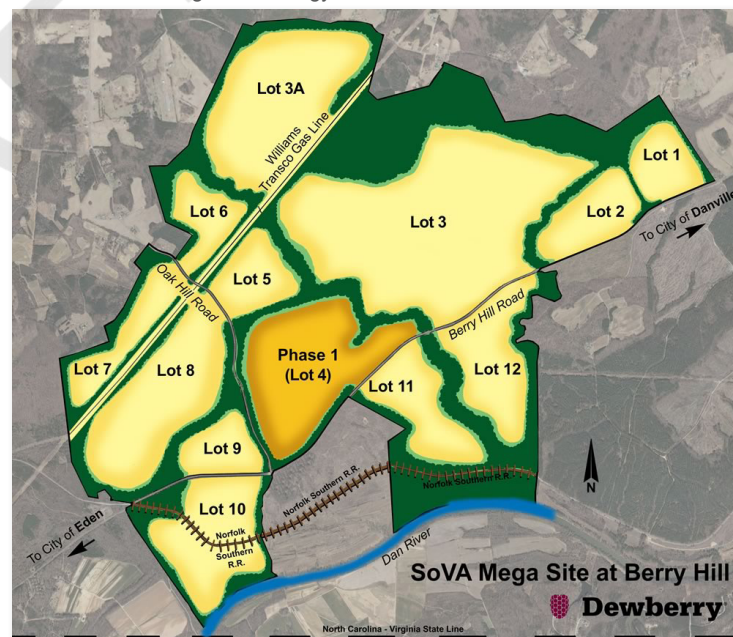
Southern Virginia Mega Site at Berry Hill

Another new development strongly supported by leaders in the region is the Southern Virginia Megasite at Berry Hill, a large industrial park

that would be built adjacent to Berry Hill Rd (US 311) near Oak Hill Rd (Rt 862), approximately 15 miles west of downtown Danville (**Figure 52**). The Danville MPO has the possibility of making investments that would establish this as a truly intermodal site—facilitating the movement of freight through enhanced connections between highway, air, and train travel, as well as connecting the park to Danville through modes such as transit to increase accessibility for local residents who would work there.

A Regional Concept of Emerging Mobility

Figure 52 Transportation Improvements for the SoVA Mega Site at Berry Hill received the highest economic development score in the state for Virginia's Smart Scale funding methodology



Public comments received during the LRTP study effort indicate that Danville residents support the continued enhancement of alternative modes of transportation such as biking, walking, and transit. These improvements may include new sidewalks, bike lanes, and transit

stops in the city's neighborhoods and business districts, especially in areas such as the River District and its surrounding neighborhoods. Improvements might also include the continued improvement and extension of off-road trails and paths such as the Riverwalk Trail.

Emerging Mobility

Support for alternative transportation modes such as these are included within a broader discussion currently taking place in transportation planning around the subject of "emerging mobility." Emerging mobility commonly refers to innovative mobility options such as bike/scooter share, public transit, and its innovations, rideshare services such as Uber and Lyft, carpool/vanpool, and pedestrian and bicycle infrastructure. On March 5, 2020, the Danville MPO collaborated with the Lynchburg Area MPO to participate in a workshop facilitated by the Federal Highway Administration (FHWA), and that agency's consultant, ICF, for guidance on how to integrate emerging mobility with Transportation Demand Management (TDM).

Transportation Demand Management essentially refers to managing demand of the existing transportation system by intentionally shifting user trips from one mode to another, such as from the single-occupancy automobile to public transit or carpool; by reducing modal travel demand at certain time periods using strategies which include dynamic tolling, congestion pricing, or staggered work schedules; and eliminating commuter trips entirely via telework.

FHWA Mobility Workshop

In addition to MPO staff and the FHWA facilitators, the workshop was attended by representatives of Danville Transit and Greater Lynchburg Transit Company (GLTC), the City of Danville, The Health Collaborative, RIDE Solutions TDM organization, FHWA division office staff, EPR consultants, the Virginia Department of Transportation (VDOT), and the Central Virginia Alliance for Community Living, Inc.

The facilitators presented to the group the principles of combining emerging mobility with TDM, the goal of this process being the development of a Regional Concept of Emerging Mobility (RCEM) by the Danville and Lynchburg MPOs. RCEM is a blueprint for how to promote mobility within a defined area by leveraging existing resources. Two main foundations of an effective RCEM include the

following:

- 1. Existing Assets:** Making the most efficient use of existing assets and resources, such as transportation infrastructure and organizational programs.
- 2. Coordination:** Numerous entities within a region often operate within a "silo" meaning that they operate independently of one another. This can result in inefficiencies, since similar entities may be duplicating efforts toward achieving certain goals when these agencies could be coordinating their individual efforts, thereby making wiser use of existing resources. For instance, in a large metro area, multiple service-related organizations serving older individuals and/or those with disabilities may operate their own vehicles and serve their own clients within the same neighborhood. If they all coordinated their activities and possibly involved the local or regional transit agency, they may be able to serve a greater number of clients utilizing the same amount of resources.

During the workshop, representatives broke out into groups according to region to create basic RCEM outlines for their respective regions. Throughout this session, the Danville group developed an RCEM outline for two aspects of the regional transportation system: more effectively integrating Danville Transit with other services and enhancing the active transportation (bicycling/pedestrian) network. The following recommendations expand on these outlines.

Vision

The Danville Metropolitan Planning Area (MPA) will evolve into a region having an interconnected multimodal transportation system to enable residents and visitors to travel within and outside of the region via various means and modes to improve the quality of life while improving the prospects to attract future residents and businesses.

Goal of Integration

Integrate multiple transportation alternatives (examples: Danville Transit's fixed-route service, Dial-a-Ride, Handivan service, and Pittsylvania/Halifax County commuter service, the new Virginia Breeze routes) to develop a coordinated, user-friendly regional and statewide

transportation system. Additionally, expand on the region's efforts to promote active transportation, integrating this infrastructure with public transit, intercity services, and other modes.

Strategy 1: Approach

- **Technology:** Develop a combined smart phone/PC app which displays all coordinated transportation options including layover durations and cost per segment/mode to enable users to seamlessly plan travel within and outside of the region from trip origin to destination point. As resources permit, enhance Danville Transit's Bus Locator System to be used as a smart phone app and to show estimated arrival times of transit vehicles. Work with DRPT to encourage that agency to develop a similar system to integrate with Danville Transit.
- **Centers of Transit:** Closely align scheduled service (fixed transit routes, Virginia Breeze) to arrive at a central location (Danville Transit Center) to maximize the ease of route/mode transfer. Additionally, if Amtrak adds service more convenient to the traveling public, Danville Transit is encouraged to establish a shuttle or appropriately time an existing transit route to link the Danville Transit Center with the Danville Amtrak station (FIGURE V-3).

Strategy 2: Physical Improvements

- **Park & Rides:** Danville Transit and the City of Danville are encouraged to work with Pittsylvania County and VDOT for installation of Park & Ride facilities at or in close proximity to the towns of Chatham, Gretna, and Hurt, as well as U.S. Route 29, so as to establish central locations for Danville Transit Pittsylvania County commuter service pick-up and drop-off. The construction of such facilities is consistent with the VTrans 2045 identified need of TDM along the U.S. Route 29 corridor.
- **The River District Bicycle and Pedestrian Study:** Adopted by the Danville Metropolitan Planning Organization (MPO) in May 2017, this study recommends the installation of bicycle commuter stations at key destinations of Danville's River District (FIGURE V-5). Danville Transit is encouraged to work with the City of Danville Departments of Public Works and Community Development to install a bicycle commuter station

Figure 53 Sheltered Bus Stop Adjacent to Amtrak Station



at or near the Danville Transit Center, as recommended within the Study. Additionally, the Study also recommends that a bicycle commuter station should be installed at the Danville Community Market; this should be seriously considered especially if Amtrak expands passenger rail service to include times that are more convenient for the traveling public. Furthermore, bicycle commuter stations should be located at Park & Ride lots in the towns of Chatham, Gretna, and Hurt if constructed to facilitate multimodal transportation.

- **Wayfinding & Signage:** Install and/or improve signage at strategic locations to effectively communicate to locations for accessing various transportation modes/alternatives. If Park & Ride lots are constructed in the towns of Chatham, Gretna, and Hurt, RIDE Solutions is encouraged to install “Try Carpooling” signage at these locations to promote carpooling. Such signage is consistent with the VTrans 2045 identified need for TDM along the U.S. Route 29 corridor.
- **Transit Stop Improvements:** Danville Transit and the City of Danville are encouraged to install seating and shelters at bus stops, particularly those which are heavily used and located in disadvantaged communities to a) provide safe, comfortable waiting areas for transit users, and b) to further encourage use of the transit system.
- **Multimodal Focus:** The City of Danville and the urbanized portion of Pittsylvania County are encouraged to fully integrate the bicycle and pedestrian network together with transit and other modes.
- **Riverside Drive Studies:** Utilize the Riverside Drive Corridor Improvement Study as a basis to install sidewalks and bus bays along the corridor. This can be complemented with other transit improvements such as public bus shelters and seating at busy stops.
- **Westover Drive Study:** The City of Danville is encouraged to implement recommendations from the Westover Drive Road Diet Feasibility Assessment and explore opportunities to connect/extend bicycle infrastructure from this corridor to surrounding neighborhoods and roadways.
- **Riverwalk Trail Improvements:** Implement recommendations

within the updated City of Danville Trails Plan to link the trail with surrounding neighborhoods and activity centers. This effort will be critical to establishing the Danville Riverwalk Trail as a transportation asset in addition to a recreational resource (FIGURE V-6). Efforts are being made by the City to obtain funding to provide pedestrian infrastructure in the Piedmont Drive shopping area; the City is also encouraged to link this retail-intensive location to the Danville Riverwalk Trail via a trail spur.

- **Bike Signage:** “Beaches to Bluegrass Trail” and/or “Share the Road” signage is recommended to be placed on the Beaches to Bluegrass Trail/Priority Corridor through western Danville and Pittsylvania County to promote utilization of the network via active transportation. Additionally, efforts should be made to connect this corridor with the developing Southern Virginia Mega Site at Berry Hill (traversing the northern fringe of the site), to promote access for active transportation to the site.

Figure 54 Desired Bicycle and Pedestrian Destinations Identified in the River District Bicycle and Pedestrian Study



Furthermore, efforts should be made to link the Beaches to Bluegrass Trail/Priority Corridor to industrial parks in eastern Danville and western Pittsylvania County to provide additional commuter options to employees. VTrans 2045 has identified Transportation Demand Management (TDM) as a need at and in the vicinity of these industrial parks. The Riverview Industrial Park is currently served by the Danville Riverwalk Trail, which also serves as the Beaches to Bluegrass Trail/Priority Corridor.

- **Connector Trail:** As resources permit, implementation of a connector trail linking the Danville Riverwalk Trail with the Ringgold Depot Trail should take place as recommended by the Trail Connector Study Dan River to Ringgold adopted June 2012. These two trails comprise the Beaches to Bluegrass Priority Corridor as established in the West Piedmont Regional Bicycle Plan adopted February 2018.
- **Safe Routes to School:** The City of Danville and Pittsylvania County are encouraged to utilize the sidewalk inventories in vicinity of schools conducted by EPR consultants, working on behalf of the Danville MPO to update the MPO Long Range Transportation Plan (located within this Plan) to identify needs and opportunities to improve pedestrian infrastructure. Efforts should also be made to coordinate transit stops with sidewalks using this inventory.

Strategy 3: Relationships and Procedures:

- **Stakeholder Group:** A regional entity should be established in the Danville-Pittsylvania County region, meeting periodically, to identify community needs as well as community/organizational initiatives and resources, to plan holistically for a comprehensive transportation system while minimizing duplicative efforts. Members should constitute a broad cross-section of the region and include:
 - » Staff of the City of Danville and Pittsylvania County (Community Development/Planning, Public Works, Transit, Social Services, and Parks & Recreation)
 - » Health care (Centra Health, SOVAH-Danville, Danville-Pittsylvania Community Services, and The Health Collaborative)

Figure 55 Riverwalk Trail at the YMCA Building



- » The Virginia Department of Transportation (VDOT)
 - The Altavista Community Transit System
 - WPPDC/Danville MPO
 - Representatives of primary and secondary education, as well as those of institutions of higher learning
 - The private sector, such as major regional employers
 - Transit, bicycle, and pedestrian advocates
 - Staff of prominent and influential regional organizations such as Danville Regional Foundation (DRF) and the Danville River District Association.
 - A member of the Danville-Pittsylvania Regional Industrial Facilities Authority (RIFA).
- **Passenger Rail:** The City of Danville, Danville Transit, VDOT, and DRPT should work closely with Amtrak to encourage additional passenger rail service at times convenient to the traveling public, as resources permit. This initiative is referenced in Chapter 3 of the Virginia Statewide Rail Plan, adopted December 2017.
- **Virginia Breeze:** Danville Transit is encouraged to work closely with DRPT to coordinate Virginia Breeze intercity bus routes with Danville Transit fixed routes, as well as with future Pittsylvania/Halifax County commuter routes.
- **Regional Service:** Danville Transit is encouraged to work with Altavista Community Transit System to establish a connection from the Danville Transit Pittsylvania County commuter service to this transit system.
- **Carpool Signage:** RIDE Solutions is encouraged to work with RIFA to place “Try Carpooling” signs in industrial parks within the MPO. Furthermore, RIDE Solutions will continue to reach out to employers in industrial parks and other areas of the MPO to promote carpooling and vanpooling among employers and their associates.

Strategy 4: Resource Arrangement

- **Job Training:** Danville Transit is encouraged to continue working with the Adult Education Center to prepare individuals to work as transit drivers while exploring collaborative relationships with other job training entities for this purpose.
- **Active Transportation:** The City of Danville and Pittsylvania

County, along with their respective parks and recreation departments, are encouraged to identify City or County-owned properties, easements, and rights-of-way, as well as easily attainable private properties as means to expand and interconnect active transportation infrastructure at minimum cost. Additionally, opportunities to utilize City and County public works staff to implement various elements of this infrastructure are encouraged to be explored and identified.

- **Local Efforts:** The City of Danville and Pittsylvania County are encouraged to include/expand on policies to promote multimodal transportation and Transportation Demand Management (TDM) as part of their comprehensive plan updates and amendments. Additionally, the City of Danville is encouraged to consult its Complete Streets policy when preparing for road maintenance and construction projects to determine if elements of Complete Streets can be included, some of which can be implemented at little to no cost.
- **RCEM Stakeholder Group:** A regional entity created to promote and coordinate the recommendations within this RCEM (as noted above, under Strategy 3) can work with schools and regional health care establishments to promote alternative modes of transportation – particularly walking and bicycling – as forms of mobility that can promote healthy, active lifestyles.
- **Bike and Pedestrian Inventories:** The City of Danville and Pittsylvania County are encouraged to take inventory of bicycle and pedestrian infrastructure, and then work with Danville Transit to create a digital map of transit routes and stops overlaying the bike/pedestrian network so as to more effectively link bus stops with the active transportation network.
- **Coordination of Planning Efforts:** Reference other regional plans, where relevant, including DRPT’s Human Resources Mobility Plan, the West Piedmont Regional Bicycle Plan, and the West Piedmont Planning District 2045 Rural Long Range Transportation Plan as guidance to implement recommendations within this RCEM.

Future Uncertainties

Any attempt to forecast future traffic conditions must acknowledge some level of uncertainty. New trends in the economy or developments that are unforeseeable today could result in significant changes to the region's population and workforce. In turn, these new conditions could change where people will be traveling and how many vehicles will be using the network. In addition to these traditional variables, however, modern transportation planning must also account for a new uncertainty that could transform urban transportation networks: the autonomous vehicle.

Autonomous Vehicles

The term "autonomous vehicle" (AV) refers to a wide range of automotive technologies ranging from driver assistance features like adaptive cruise control to fully automated vehicles that do not even contain a steering wheel. Private companies have been developing these technologies for years, and many modern vehicles now offer some form of automated driving assistance. By 2045, most people expect AV to comprise a significant portion of the vehicles being used on the road.

As of today, though, it is impossible to know exactly what proportion of vehicles will use these features in 2045 or how advanced the technology will be. Transportation planners, however, have already begun to consider some of the potential impacts that AVs will have on their transportation networks. Some notable possibilities include:

- Increased road capacity resulting from the ability of AVs to safely travel more closely to one another than human-operated vehicles.
- Decreased lane and road widths, also resulting from the ability of AVs to safely travel more closely to one another than human-operated vehicles.
- Growth of higher-density neighborhoods and business districts resulting from the ability of users to be dropped off and picked up directly in front of their destinations, eliminating the need for stores and businesses to offer large parking lots in front of their establishments.
- The eventual elimination of traffic control features like

stoplights and stop signs at intersections, resulting from the ability of AVs to communicate with one another and coordinate their movements through intersections to avoid collisions.

While it remains too early to change traffic volume and congestion projections based on these possibilities, the MPO will continue to closely monitor the development of these technologies and will be prepared to adapt future plans and strategies to respond to this new emerging reality.

Chapter VI

2045 Goals & Performance Measures

In this chapter, the reader will find:

- **Background** on formation of the D-MPO's Goals and Performance Measures
- **An understanding** of those 2045 Goals, Performance Measures, and the Project Evaluation Tool
- **Clarity** on how goals and measures guided project selection

87	Federal Framework
88	State Framework
88	Regional Framework
89	Local Framework
90	2045 Goals
90	Project Scoring Sheets and Performance Measures

2045 Goals and Performance Measures

The Federal Code calls for performance-based processes in the MPO transportation planning process. To evaluate transportation improvements in the LRTP, clear goals and performance measures were needed. In the 2045 process, D-MPO adopted a new set of performance measures, resulting from a thorough review of local, state, and federal transportation frameworks. Specifically, the 2045 performance measures arose from:

- Guidance from the Federal Code
- State funding criteria
- Statewide plans and identified needs
- Regional transportation goals
- MPO Transportation Targets
- Local Policy Documents

This chapter summarizes federal, state, regional, and local transportation frameworks that resulted in the 2045 goals and performance measures. This chapter also describes the project evaluation tool developed for this LRTP update to measure and rank projects in the Danville MPO region.

Federal Framework

The MPO receives money for its transportation improvement projects primarily through state and federal transportation funding programs. In 2012, the FHWA's Federal Surface Transportation Program established a performance and outcome-based approach under a law entitled "Moving Ahead for Progress in the 21st Century Act"—also known as "MAP 21." One of the key requirements set forth by MAP 21 was that MPOs must incorporate performance goals, measures, and targets into their process of identifying and selecting proposed transportation improvements in their LRTPs. The law established a list of national performance goals to guide this process, which included economic development, safety, infrastructure repair, congestion

10 FEDERAL PLANNING FACTORS



The metropolitan transportation planning process shall be continuous, cooperative, and comprehensive, and provide for consideration and implementation of projects, strategies, and services that will address the following factors:

Economic: Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency

Safety: Increase the safety of the transportation system for motorized and non-motorized users

Infrastructure Repair: Increase the security of the transportation system for motorized and non-motorized users

Congestion Reduction: Increase accessibility and mobility of people and freight

Environmental Protection: Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns

Connectivity: Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

Efficiency: Promote efficient system management and operation

Maintenance: Emphasize the preservation of the existing transportation system

Resiliency: Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation

Tourism: Enhance travel and tourism

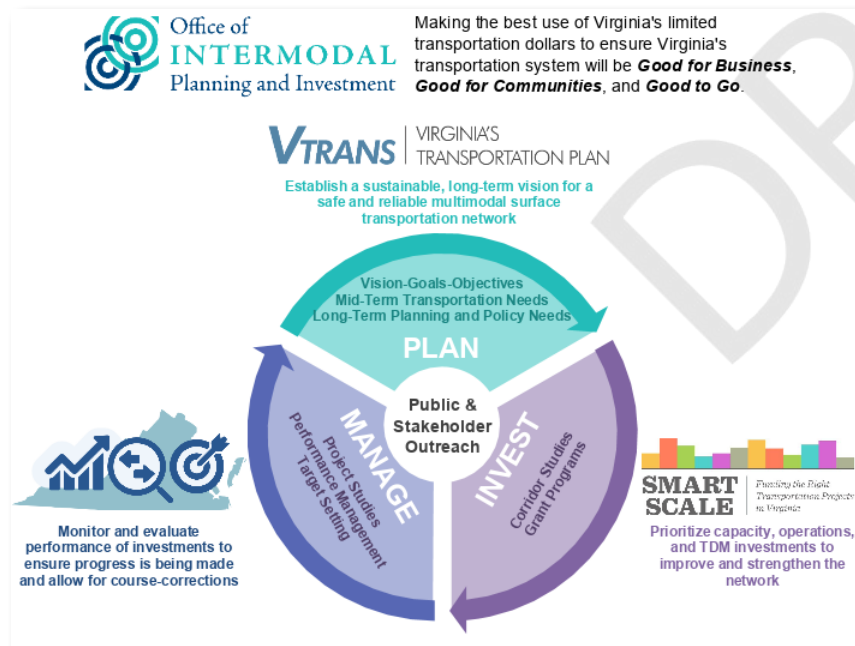
§ 450.306 *Scope of the metropolitan transportation planning process*

reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. In 2015, Congress passed the FAST Act, “Fixing America’s Surface Transportation Act,” which added two new planning factors: resilience and tourism.

State Framework

EPR, P.C. evaluated statewide funding processes and identified needs from Virginia’s multimodal transportation plan, VTrans (FIGURE VI-1). Virginia’s Commonwealth Transportation Board (CTB) is responsible for funding transportation projects in the Commonwealth. In response, the 2045 LRTP consists of performance measures (project evaluation methods) that are consistent with the CTB’s decision-making process. This approach is intended to improve the success of D-MPO’s funding applications.

Figure 56 Considerations for Virginia’s statewide funding processes.



SMART SCALE

On the state level, federal transportation funding is combined with state revenue sources to create Virginia’s Commonwealth Transportation Fund. Some of the money in the Commonwealth Transportation Fund is distributed proportionally among the commonwealth’s MPOs to support general maintenance and infrastructure rehabilitation. Funding for new or enhanced infrastructure, however, is discretionary and is awarded to MPOs on a project-by-project basis through a program known as SMART SCALE. MPOs can nominate projects for SMART SCALE funding if they are considered to hold regional or statewide significance. Nominated projects are evaluated using a standardized and objective scoring system that considers each project’s impact on safety, congestion mitigation, accessibility, environmental quality, and economic management. The resulting score is used to rank each project against other proposed projects around the state and ultimately determines which projects will receive funding.

VTrans

The CTB updates its multimodal transportation plan, VTrans, every four years. VTrans lays out the overarching Vision and Goals for transportation in the Commonwealth, identifies transportation investment priorities, and provides direction on implementation strategies and programs to the CTB and to transportation agencies such as Virginia Department of Transportation (VDOT) and Virginia Department of Rail and Public Transportation (DRPT), as well as regional Metropolitan Planning Organizations (MPOs). During the 2045 LRTP update, the CTB was also in the midst of a VTrans update. D-MPO considered preliminary direction from the VTrans process but had to rely on the current version of that document through the planning process.

Regional Framework

D-MPO also considered policy statements and goals from regional plans, to create consistency between the LRTP and those other approved documents. For example, the West Piedmont Regional Bicycle Plan aims to “provide safe routes for travel via bicycle...”

[and]... Increase length and number of bike paths.” Danville Transit’s Transit Development Plan (TDP) sets a goal to “facilitate safe, reliable, convenient and economical operations that support economic development... [and]... provide reliable fixed route and demand responsive service that is safe and convenient which facilitates cost effective transportation access.” The region’s Coordinated Human Services Mobility Plan (CHSP) increases “the mobility and access to transportation for seniors and those with disabilities.” D-MPO’s 2040 LRTP set a goal to “provide citizens in the urbanized areas of Danville and Pittsylvania with enhanced mobility to support a more prosperous economy and a better quality of life.”

Local Framework

EPR, P.C. also affirmed that 2045 goals and performance measures were consistent with local goals and policies. Danville’s 2030 Comprehensive Plan set several applicable policy statements, including:

- **Transportation:** Ensure that the location, character, and capacity of the City’s existing and future transportation facilities (including thoroughfares, arterial highways, local streets, parking facilities, and the airport) are compatible with the Future Land Use Plan, are supportive of sustainable growth, and enhance the City’s livability and economic vitality.
- **Corridors & Gateways:** Enhance the major transportation corridors and entrance gateways into the City in order to instill a sense of pride among residents, create a good impression to occasional and regular travelers through the City, and communicate clearly that Danville is a desirable place to live, work, and play.
- **Historic and Cultural Resources:** Promote historic and cultural resources by preventing deterioration, promoting rehabilitation and reuse, and promoting heritage tourism in the City.
- **Economic Development:** Support and promote the City’s existing economic base while actively recruiting other economic development opportunities in the areas of basic industry; advanced manufacturing; technology; sustainable/

SMART SCALE PLANNING FACTORS

The following are planning factors and associated performance measures used to score proposed transportation improvements through Virginia’s SMART SCALE evaluation process.

Safety Planning Factor

- Equivalent property damage only (EPDO) of Fatal and Injury Crashes (70% of score)
- EPDO Rate of Fatal and Injury Crashes (30% of score)

Congestion Mitigation Planning Factor

- Person throughput (50% of score)
- Person Hours of Delay (50% of score)

Accessibility Planning Factor

- Access to jobs (60% of score)
- Access to jobs for disadvantaged persons (20% of score)
- Access to multimodal choices (20% of score)

Environmental quality Planning Factors

- Air quality and environmental effect (100% of score)
- Impact to natural and cultural resources (point deductions)

Economic development

- Project support for economic development (60% of score)
- Intermodal access and efficiency (20% of score)
- Travel time reliability (20% of score)

green energy, automotive, and aerospace research, development, and production; and tourism in order to strengthen and expand the economy.

The Pittsylvania County Comprehensive Plan contains a transportation chapter that sets three goal areas. Under each goal are objectives and strategies. D-MPO’s consultants analyzed these goals to affirm consistency with the 2045 process, as well.

- **Goal 1:** To develop and maintain a safe and efficient transportation system.

- » *Objective 1-1:* To establish and maintain a level of service of “C” or better for all secondary and primary highway intersections in the County.
- **Goal 2:** To encourage a balanced efficient transportation system.
 - » *Objective 2-1:* Promote transit and van pool ridership in Pittsylvania County.
 - » *Objective 2-2:* Develop a minimum of ten miles of bike lanes or off-road bike paths within the County within the next ten years.
 - » *Objective 2-3:* Support all rail opportunities within the County.
- **Goal 3:** Plan for the County’s future highway needs.
 - » *Objective 3-1:* Identify and protect new highway corridors needed to serve the long term needs of the County.

2045 Goals

Considering these frameworks, D-MPO adopted a set of five regional

CEDS REGIONAL VISION



As a region, we envision a diverse, business-friendly environment to encourage new and expanding businesses; to promote an entrepreneurial ecosystem; to ensure a well-educated, highly skilled workforce; and to provide an all- encompassing infrastructure to facilitate development including transportation, water and sewer services, utilities, and state-of-the-art telecommunications. We advocate regional collaboration to create significant partnerships building upon regional strengths and opportunities. We treasure our natural resources and cultural heritage and welcome a robust tourism market to share these precious assets. We support vibrant communities and an enhanced quality of life. We serve to highlight the positive attributes of the region, defining our image as an extraordinary place to live, learn, work, play, invest, and do business.

goals with 15 associated performance measures used to evaluate LRTP projects. The D-MPO Policy Board also set weights on these goals and performance measures that formed a project evaluation tool described in the next section. D-MPO’s official 2045 goals and performance measures include the follow:

- **Economy:** Retain and increase business and employment opportunities.
- **Safety:** Provide a safe and secure transportation system.
- **Mobility and Accessibility:** Provide a transportation system that facilitates the efficient movement of people and goods.
- **Community and Nature:** Improve the quality of life and protect the environment.
- **Operational Efficiency:** Preserve the existing transportation system and promote efficient system management.

Project Scoring Sheets and Performance Measures

Using the five 2045 goals, D-MPO’s consultants developed a project evaluation tool to assign scores to the regions’ proposed improvement

VTRANS NEEDS IN THE DANVILLE MPO AREA

Regional Needs:

- US 29 Corridor Reliability
- Expand Modal Choices
- US 58 Corridor Reliability
- Walkable/Bikeable Places
- Western Pittsylvania Network Connectivity
- Southern Danville Freight and Interstate Network Connectivity

Safety Needs:

- PSI Locations

UDA Needs:

- City of Danville
- Pittsylvania County UDA



projects. This tool shares a basic structure and approach as the state's SMART SCALE evaluation program and allows the region to gain a greater sense of how well its projects will score relative to other proposed projects in the region. The prioritization process also served as an incubation period for projects, identifying ways to enhance transportation improvements that are important to the region and its localities.

The 2045 LRTP project evaluation tool considers 15 standardized and objective performance measurements related to each proposed project. Performance measurements supported D-MPO's five goals. The tool allowed leaders and specialists from the Danville region to adjust the relative importance or weight of each transportation goal area so that the final rankings can more closely reflect the region's priorities. A description of each goal, as well as a description of the performance measures used within each, is provided below.

HOW EXACTLY DO THESE POLICIES, GOALS AND MEASURES COME TOGETHER?

D-MPO's consultants cross-reference the various goals, factors, policies, and funding processes through a series of matrices. Staff created a set of tables to identify themes, then created a matrix that compared the draft 2045 goals and performance measures with federal, state, region, and local frameworks (policies, goals, etc.). Refer to Appendix ___ to find the matrix comparisons.

Economy: Weighting and Performance Measures

Among the five goal categories, regional leaders decided that the goal of "Economy" should be the most important consideration. 35% of a project's score was determined by its impact on the region's economy. This evaluation included three performance measures: placemaking, surrounding employment density, and freight volume.

Placemaking

The "Placemaking" performance measure considered whether the project proposal includes streetscaping or corridor beautification

features. This measure favored projects that improve the aesthetic beauty of the region, which economic development studies suggest is an important consideration for many white-collar industries and their employees when deciding where to locate and invest. Scoring was determined as follows:

- **High:** Includes specific streetscape improvement plans
- **Medium:** Includes features like sidewalks, medians, or roundabouts that could potentially include streetscaping elements
- **Low:** Does not include streetscape elements or improvements

Surrounding Employment Density

The "Surrounding Employment Density" performance measure considered the density of jobs in the area surrounding the project corridor or intersection. This measure favored projects that directly serve areas that support a high concentration of jobs such as downtown districts and business parks. Data for this measurement was provided by the US Census' 2017 Employment Data. Scoring was determined as follows:

- **High:** Surrounding employment density of more than 4 jobs per acre
- **Medium:** Surrounding employment density of 1-4 jobs per acre
- **Low:** Surrounding employment density of less than 1 job per acre

Freight

The "Freight" performance measure considered the volume of heavy trucks using the corridor or intersection, measured as a percentage of total traffic. This measure favored projects that improve the operations of major freight corridors that support the fast and reliable movement of goods and resources in and out of the region. Data for this measurement was provided by VDOT's 2017 SPS data. Scoring was determined as follows:

- **High:** Improves traffic operations on a road with more than 5% truck volume
- **Medium:** Improves traffic operations on a road with 2% to 4.99% truck volume
- **Low:** Improves traffic operations on a road with less than 2% truck volume, or does not improve traffic operations

Safety: Weighting and Performance Measures

The second highest weighted goal category in the evaluation tool was “Safety.” 30% of a project’s score was determined by its impact on transportation safety. This evaluation included two performance measures: Fatal and Injury Crash Rate, and PSI locations.

Fatal and Injury Crash Rate

The “Fatal and Injury Crash Rate” performance measure considered the rate of traffic accidents in the project corridor or intersection that resulted in fatalities or serious injuries during the past 5 years, as measured by accidents per 1 million vehicle miles traveled (VMT). This measure favored projects that improve the safety of corridors and intersections that experience a high frequency of life-threatening accidents. Data for this measurement was provided by the VDOT’s Crash Analysis Tool. Scoring was determined as follows:

- **High:** Over 3.86 fatal and serious injury crashes per 1 million VMT
- **Medium:** 0.81 to 3.85 fatal and serious injury crashes per 1 million VMT
- **Low:** 0 to 0.81 fatal and serious injury crashes per 1 million VMT

PSI Locations

The “PSI Locations” performance measure considered whether the project addressed a PSI (Potential for Safety Improvement) location, as identified and ranked by the state of Virginia. This measure favored projects that improve the safety of corridors and intersections that have been identified by the state as priority locations for safety improvements. Data for this measurement was provided by the VDOT’s PSI list for the years 2014-2018. Scoring was determined as follows:

- **High:** Includes a Top 20 PSI location
- **Medium:** Includes a PSI location not ranked in the Top 20
- **Low:** Does not include a PSI location

Mobility and Accessibility: Weighting and Performance Measures

The next highest weighted goal category in the evaluation tool was “Mobility and Accessibility.” 20% of a project’s score was determined

Figure 57 Example of the Project Evaluation Tool data entry with the 15 performance measures

Project Number	41	Category		Project List	
Jurisdiction	Route Name	Route Number	From	To	Length (mi)
City of Danville	Riverside Dr	58 Bus	Westover Dr (Rt 51)	Mount Cross Rd (Rt 750)	0.38
Proposed Improvement	Access Management			Est. Cost	\$15,944,400
Project Benefit Score	83.5	Project Benefit-Cost Rating	0	Project Readiness Rating	0
Benefit Score Calculation					
Goal: Mobility and Accessibility					
Performance Measure	Result	Rating	Points	Weight	Score
Existing Congestion	0.38	Low	33.3	20%	6.7
Future Congestion	0.4	Low	33.3	20%	6.7
Existing Traffic Volume	914	High	100	20%	20.0
Future Traffic Volume	924	High	100	20%	20.0
Alternative Transportation Facilities	Two or more facilities	High	100	20%	20.0
Total Mobility and Accessibility Score					73.3
Goal: Safety					
Performance Measure	Result	Rating	Points	Weight	Score
Fatal and Injury Crash Rate	1.42	Medium	66.7	50%	33.4
PSI Locations	Top 20 PSI location present	High	100	50%	50.0
Total Safety Score					83.4
Goal: Economy					
Performance Measure	Result	Rating	Points	Weight	Score
Placemaking	May accommodate placemaking	Medium	66.7	33%	22.2
Surrounding Employment Density	5.29	High	100	33%	33.3
Freight Volume (%)	6	High	100	33%	33.3
Total Economy Score					88.8
Goal: Community and Nature					
Performance Measure	Result	Rating	Points	Weight	Score
Social Resources	No impact	High	100	50%	50.0
Environmental Resources	Some impact	Medium	66.7	50%	33.4
Total Community and Nature Score					83.4
Goal: Operational Efficiency					
Performance Measure	Result	Rating	Points	Weight	Score
Right-of-Way Sufficiency	Requires no ROW	High	100	33%	33.3
Plan Coordination	One plan	Medium	66.7	33%	22.2
Distribution of Benefits	Significant regional benefits	High	100	33%	33.3
Total Operational Efficiency Score					88.9
Total Benefit Score					
		Vision Theme	Points	Weight	Score
		Mobility and Accessibility	73.3	20%	14.7
		Safety	83.4	30%	25.0
		Economy	88.8	35%	31.1
		Community and Nature	83.4	10%	8.3
		Operational Efficiency	88.9	5%	4.4
Total Project Benefit Score					83.5
Benefit-Cost Calculation	Benefit Score	83.5	Readiness Calculation	NEPA Screening	
	Estimated Cost	\$15,944,400		Right of Way Acquisition	
	Estimated Users	24629		Ongoing Project	
	Benefit-Cost Score	129.03		Readiness Score	0
	Benefit-Cost Rating			Readiness Rating	

by its impact on user mobility and accessibility in the region. This evaluation included five performance measures: Existing Congestion, Future Congestion, Existing Traffic Volume, Future Traffic Volume, and Alternative Transportation Facilities.

Existing Congestion

The “Existing Congestion” performance measure considered existing peak-hour congestion levels for the project corridor or intersection, as measured by a volume-to-capacity (VC) ratio. This measure favored projects that increase the traffic capacity of locations in the transportation network that currently experience high levels of congestion. Data for this measurement was provided by the 2017 VDOT SPS dataset. Scoring was determined as follows:

- **High:** VC is greater than 1.1 and the project increases road capacity
- **Medium:** VC is between 0.8 and 1.09, and the project increases road capacity

- **Low:** VC is less than 0.8, or the project does not increase road capacity

Future Congestion

The “Future Congestion” performance measure considered the peak-hour congestion levels that are projected for the project corridor or intersection in 2045, as measured by a volume-to-capacity (VC) ratio. This measure favored projects that increase the traffic capacity of locations in the transportation network that are expected to experience congestion in the future. Future traffic projections were calculated using both the overall growth of the region, as well as anticipated developments that are expected to generate large amounts of traffic. Data for this measurement was provided by the 2017 VDOT SPS dataset. Scoring was determined as follows:

- **High:** Projected VC is greater than 1.1 and the project increases road capacity
- **Medium:** Projected VC is between 0.8 and 1.09, and the project increases road capacity
- **Low:** Projected VC is less than 0.8, or the project does not increase road capacity

Existing Traffic Volume

The “Existing Traffic Volume” performance measure considered the existing volume of traffic that uses the project corridor or location, as measured by Weighted Traffic Flow (calculated as the average number of vehicles per lane, per hour). This measure favored projects that improve corridors that currently feature high volumes of traffic. Data for this measurement was provided by the 2017 VDOT SPS database. Scoring was determined as follows:

- **High:** Weighted Traffic Flow is greater than 300 vehicles
- **Medium:** Weighted Traffic Flow is between 150 and 299 vehicles
- **Low:** Weighted Traffic Flow less than 150 vehicles

Future Traffic Volume

The “Future Traffic Volume” performance measure considered the volume of traffic that is projected to use the project corridor or location in 2045, as measured by Weighted Traffic Flow (calculated as the average number of vehicles per lane, per hour). This measure favored projects that improve corridors that are expected to handle

HOW DID THE MPO DETERMINE WEIGHTING OF THE GOALS AND PERFORMANCE MEASURES?

DMPO’s consultants identified a weighting of goals and performance measures that is based on Virginia’s scoring methodology for funding transportation projects. See the section on SMART SCALE (page VI-4). Since the 2045 process served a secondary benefit of refining projects for the state’s funding processes, the MPO saw a need for consistency between regional and state scoring. The MPO Policy Board held two meetings to discuss goals and performance measures. Consultants also presented the goals at a community event in November 2019, to confirm how projects should be scored.

Consultants inserted the goals, performance measures, and weighted values into the Project Evaluation Tool. DMPO used this tool to score projects, ranking recommendations by benefit. With costs included, the process identified the most cost-effective approach to meeting the region’s needs.

high volumes of traffic in the future. Future traffic projections were calculated using both the overall growth of the region, as well as anticipated developments that are expected to generate large amounts of traffic. Data for this measurement was provided by the 2017 VDOT SPS database. Scoring was determined as follows:

- **High:** Projected Weighted Traffic Flow is greater than 300 vehicles
- **Medium:** Projected Weighted Traffic Flow is between 150 and 299 vehicles
- **Low:** Projected Weighted Traffic Flow less than 150 vehicles

Alternative Transportation Facilities

The “Alternative Transportation Facilities” performance measure considered the estimated number of non-automotive modes (transit, bicycle, or pedestrian) that would be served by the proposed improvements. This measure favored projects that expand the region’s transportation options and increase the mobility of those who do not have access to an automobile. Scoring was determined as follows:

- **High:** Includes facilities for two or more alternative modes of Transportation
- **Medium:** Includes facilities for one alternative mode of transportation
- **Low:** Does not include facilities for alternative modes of transportation

Community and Nature: Weighting and Performance Measures

The next highest weighted goal category in the evaluation tool was “Community and Nature.” 10% of a project’s score was determined by its impact on the region’s social and environmental resources. This evaluation included two performance measures: Social Resources and Environmental Resources.

Social Resources

The “Social Resources” performance measure considered the project’s impact on cultural and historic sites that have been identified by localities. This measure favored projects that do not negatively affect the region’s important civic structures or sites. Data for this

measurement included the location of National Register of Historic Places properties, schools, churches, libraries, and local points of interest. Scoring was determined as follows:

- **High:** Little or no potential impact on sensitive historic and cultural resources
- **Medium:** Moderate potential impact on sensitive historic and cultural resources
- **Low:** Major potential impact on sensitive historic and cultural resources

Environmental Resources

The “Environmental Resources” performance measure considered the project’s impact on important environmental features in the region. This measure favored projects that do not disrupt environmental resources that provide aesthetic, ecological, recreational, and functional benefits to the region. Data for this measurement included the location of wetlands, rivers, streams, parks, and Virginia Outdoor Foundation easements. Scoring was determined as follows:

- **High:** Little or no potential impact on sensitive environmental resources
- **Medium:** Moderate potential impact on sensitive environmental resources
- **Low:** Major potential impact on sensitive environmental resources

Efficiency: Weighting and Performance Measures

The final goal category used in the evaluation tool was “Efficiency.” 5% of a project’s score was determined by the efficiency of its use of the region’s resources and transportation funding. This evaluation included three performance measures: Right of Way Sufficiency, Plan Coordination, and Distribution of Benefits.

Right of Way Sufficiency

The “Right of Way Sufficiency” performance measure considered the sufficiency of the existing public right of way for accommodating the proposed project facilities. This measure favored projects that require little or no new land easements to be purchased by the state to be completed. Scoring was determined as follows:

- **High:** Does not require any additional right of way

- **Medium:** Will require a minor acquisition of additional right of way
- **Low:** Will require a major acquisition of addition right of way

Plan Coordination

The “Plan Coordination” performance measure considered the number of previously conducted plans that identified the proposed project as a study recommendation. This measure favored projects that have been supported and recommended by planning studies other than the region’s LRTP. Data for this measurement was provided by regional and local government agencies. Scoring was determined as follows:

- **High:** Project is recommended by two or more existing plans
- **Medium:** Project is recommended by one existing plan
- **Low:** Project is not recommended by other existing plans

Distribution of Benefits

The “Distribution of Benefits” performance measure considered the projected geographic distribution of benefits provided by a project. This measure favored projects that offer significant benefits to multiple jurisdictions in the region. Scoring was determined as follows:

- **High:** Significant benefits projected for three or more localities
- **Medium:** Significant benefits projected for two localities
- **Low:** Significant benefits projected for one locality



Chapter VII

2045 Performance- Based Process

In this chapter, the reader will find:

- **Background** on performance-based processes
- **An understanding** of how D-MPO and its consultant scored and evaluated projects for the 2045 process
- **Detail** on how why certain projects advanced into 2045 Constrained List and why others produced the Visioning List

97	Overview of the Performance-Based Process
97	Project Evaluation Steps
100	Candidate List of Projects

2045 Performance-Based Process

A Candidate Project List acted as a starting point for the 2045 evaluation and scoring process that resulted in the Constrained List of Projects and Visioning List. The Project Evaluation Tool described in CHAPTER VI, structured around the 2045 Goals and Performance Measures, determined the most cost-effective investments for meeting the travel needs of the Danville-Pittsylvania region.

Overview of the Performance-Based Process

The 2045 project evaluation process featured elements new to D-MPO. Project selection centered on finding the most cost-effective transportation solutions for the MPO area. The process, structured around state funding processes, also helped to prepare potential projects for state funding applications. Other features included:

- **Updated performance measures** Accounting for the FAST Act and Smart Scale Planning Factors, D-MPO's adopted a new set of LRTP performance measures described in CHAPTER VI.
- **Multiple Phases of Evaluation** Project selection entailed multiple rounds of evaluation allowing the MPO to adjust projects descriptions and costs to better prepare for Smart Scale and Other Funding Sources. In each round, consultants finetuned project descriptions and costs. As a result, the Constrained List of Projects and Visioning List presents greater detail and guidance than the typically LRTPs.
- **Screening step** D-MPO started the selection process with a Candidate List of Projects, which consisted of all known transportation recommendations in the region. A screening phase filtered any projects that failed to address an identified need or that was otherwise inconsistent with certain standards described below.
- **Scenario of Projects** The region's transportation system

FEDERAL CODE ON PERFORMANCE-BASE APPROACH



(a) To accomplish the objectives in § 450.300 and § 450.306(b), metropolitan planning organizations designated under § 450.310, in cooperation with the State and public transportation operators, shall develop long-range transportation plans and TIPs through a performance-driven, outcome-based approach to planning for metropolitan areas of the State.

(d) Performance-based approach.

1. The metropolitan transportation planning process shall provide for the establishment and use of a performance-based approach to transportation decision-making to support the national goals described in 23 U.S.C. 150(b) and the general purposes described in 49 U.S.C. 5301(c).
2. Establishment of performance targets by metropolitan planning organizations.

§ 450.306 Scope of the metropolitan transportation planning process.

is connected, where each LRTP project can influence other recommendations on the list. As a result, the selection process evaluated projects as a set, rather than as individual, independent recommendations.

- **Project Categories** Project evaluations occurred within categories, based on mode and project type. This allowed for an apples-to-apples comparison of projects and ensured that certain travel modes would be included in the Constrained List.

Project Evaluation Steps

Project evaluation consisted of six phases, from pre-evaluation to approval of the Constrained and Visioning List of Projects.

Phase I: Pre-Evaluation

A constellation of factors influenced the 2045 project evaluation process. Before project scoring began in earnest, the following steps laid the groundwork for subsequent efforts. At this stage of the process, D-MPO's consultants identified transportation deficiencies, developed goals and performance measures, created the Project Evaluation Tool, and assembled the initial Candidate List of Projects.

- **Step 1: Deficiencies:** EPR, P.C. identified existing (CHAPTER III) and future (CHAPTER V) transportation deficiencies that should be addressed, according to D-MPO's priority areas. Consultants overlapped known deficiencies with existing transportation recommendations. Any deficiencies not addressed by an existing study are listed in the Visioning List for further study.
- **Step 2: Goals and Performance Measures** D-MPO adopted five goals and 15 performance measures that would form the Project Evaluation Tool and its scoring sheets, described in CHAPTER VI.
- **Step 3: Project Evaluation Tool** Consultants developed

SOURCE OF PROJECTS

- 2040 LRTP Constrained and Visioning Lists
- 2019 WPEDD CEDS
- WPPD Park and Ride Facilities Report
- US Route 29 Access Management Plan
- Route 58 West Access Management Study and Plan
- US Route 58 (Riverside Dr) Corridor Access Management Plan
- Riverside Drive (US 58 Business) Corridor Improvement Study
- SoVA Mega Site at Berry Hill Transportation Update
- Moorefield Bridge Road, Planning Level Study
- Kentuck Road, Planning Level Study
- Mount Cross Road Corridor Analysis
- US 58 /Berry Hill Rd (Route 311) Interchange Phasing Analysis

the Project Evaluation Tool with 15 data inputs that calculate results for the approved performance measures. APPENDIX ___ documents the scoring sheets and results.

- **Step 4: Candidate List of Projects Consultants** reviewed local, regional, state, and federal documents to identify all known transportation recommendations for the D-MPO region. Public comments also helped identify potential projects, which were recorded mostly in the Visioning List.

Screening Phase

Not all transportation projects qualify for inclusion in the Long Range Plan. Projects may not meet defined needs or may not be defined as regional in nature. Projects that were "screened out" of the evaluation process automatically populated the Visioning List of Projects for consideration in later updates of the LRTP. The Visioning List also stored non-LRTP projects to document the screening process.

Screening involved the following standards:

- **Regional Nature:** Local streets are not considered to be part of the regional network and do not qualify for federal transportation funds. Any local facilities, per the functional classification system, moved directly into the Visioning List for documentation. Collectors could be screened to the Visioning List if not tied to a regional need.
- **Environmental Justice:** Any projects that present a clear and unresolvable environmental justice issue would be screened out and even excluded from the plan entirely. No identified projects presented environmental justice concerns.
- **Identified Need:** The process aimed to screen out any project recommendations that were not tied to an identified need. Commonly, projects from existing plans and reports addressed a predetermined need.
- **Project Concepts:** Virginia's transportation funding processes require detailed project descriptions and reliable cost estimates. Any projects that lacked these requirements moved to the Visioning List to be studied further. These projects may be ideal for the VDOT STARS program or some other transportation study.

Round One Project Evaluation Steps

With the Candidate List of Projects in hand, D-MPO's consultants (EPR, P.C.) conducted a detailed examination of existing project recommendations. This task was the most time-intensive effort in the evaluation process, as engineers and planners examined over 70 projects. Steps included:

- **Step 1: Project Descriptions and Cost Estimates**
Consultants examined every project from the Candidate List to confirm descriptions and cost estimates. Engineers revised any costs that appeared to be inaccurate or too general. Planners determined if any recommendations contradicted or overlapped each other. Any projects that lacked enough detail moved to the Visioning List for further study.
- **Step 2: Review by VDOT and MPO Staff** Staff from the VDOT Lynchburg District and D-MPO office reviewed the initial list of remaining projects. Staff identified any projects that required further review or reexamining.
- **Step 3: Entry into the Project Evaluation Tool** After vetting the Candidate List of Projects, EPR, P.C. entered those recommendations into the Project Evaluation Tool's scoring sheets (FIGURE VII-1). This step involved entry of nearly 1,000 data inputs and subsequent quality assurance/quality control efforts.

Round Two Project Evaluation Steps

The second round of project evaluation involved a calculation of Benefit Scores. Data inputs from the 15 performance measures resulted in a Benefit Score from 0 to 100 that represents the total benefit to the regional transportation system according to the approved 2045 Goals. Consultants ranked all scored projects by Benefit Score.

- **Step 1: Calculate the Project Benefit Scores** After entering project data into the scoring sheets, EPR, P.C. calculated and ranked projects by Benefit Score. The top 30 projects received additional attention and review by engineers and planners.
- **Step 2: Additional Updates to Descriptions and Costs** Consultants continued to vet projects on the Candidate List, focusing on the top 30. Any projects with limited descriptions and unreliable cost estimates moved to the Visioning List.

- **Step 3: Review by VDOT and MPO Staff** Staff conducted a review of Benefit Scores to verify results and ranking.

Round Three Project Evaluation Steps

The third round resulted in a review of Benefit-Cost scores, the main determining factor for assigning projects to the Constrained and Visioning Lists. The MPO Technical Committee and Policy Board examined results, focusing on the top 30 projects.

- **Step 1: Calculate the Project Benefit-Cost Scores** With detailed project descriptions and reliable cost estimates, EPR, P.C. calculated Benefit-Cost scores (Benefit Score divided by estimated cost).
- **Step 2: Additional Updates to Descriptions and Costs** Consultants continued to vet projects on the Candidate List, focusing on the top 30, by Benefit-Cost. Any projects with limited descriptions and unreliable cost estimates moved to the Visioning List.
- **Step 3: Review by VDOT and MPO Staff** Staff conducted additional review of Benefit-Cost scores to verify results and ranking.
- **Step 4: MPO Committee Review** In June 2020, the MPO Technical Committee and Policy Board reviewed the Benefit-Cost scores, highlighting any high priority projects that received unexpectedly low scores.
- **Step 5: Reevaluation of Projects** EPR, P.C. noted any projects flagged by the MPO or VDOT staff for reevaluation. Consultants redefined any highly desired projects that received a low score.

Round Four Project Evaluation Steps

In the final round of evaluation, the MPO made additional tweaks to the Candidate List of Projects. VDOT determined the Constrained Budget – the amount of transportation funding that the MPO can anticipate by 2045. EPR, P.C. assembled different scenarios of projects lists, confined to the Constrained Budget, to develop the Constrained Long Range Plan seen in CHAPTER IX.

Step 1: MPO Review

The MPO Technical Committee and Policy Board examined revisions to the ranked list of projects, identifying further tweaks to project descriptions.

Step 2: Constrained Budget

VDOT used historic funding trends and recent budget decisions to determine how much funding D-MPO can expect to receive by 2045. Consultants applied this budget to the Candidate List of Projects to develop the draft Constrained Long Range Plan (CRLP).

Step 3: Public Review

D-MPO held a virtual Town Hall event in early July. An online presentation directed the public to a project website to provide feedback on project selection.

Step 4: Scenario Lists

Using public feedback, consultants assembled various options for funding a Constrained Project List. Different scenarios of projects explored how projects may influence the overall system and each other.

Step 5: Final Adoption

EPR, P.C. coordinated with MPO officials to finalize a set of project recommendations for the Constrained and Visioning Lists.

Candidate List of Projects

The 2045 Candidate List began with 71 projects from existing plans and studies. Most projects arose from the 2040 LRTP. Initial project descriptions were less defined, with more general cost estimates.



Chapter VIII

Transportation Priority Areas

In this chapter, the reader will find:

- **An understanding** of critical transportation issues throughout the 2045 process
- **Standards and considerations** for development of transportation projects and recommendations
- **Guidance** to MPO officials on annual development of the UPWP
- **Linkages** with the West Piedmont Development District's Comprehensive Economic Development Strategy Plan

102 Connections to The Port of Virginia

104 Comprehensive Economic Development Strategies

107 Typical Roadway Sections & Complete Streets Conversions

Transportation Priority Areas

This chapter identifies other transportation-related priorities that influences the 2045 process. Another function of this chapter is to guide development of future transportation projects. As the MPO and VDOT study recommendations from the Visioning List (see CHAPTER IX), the following should guide the design of those projects. D-MPO staff should refer to these last two chapters on an annual basis to help develop the Unified Planning Work Program (UPWP). While CHAPTER IX guides project selection for funding submittals, CHAPTER VIII guide operations of further studies in the MPO and its member governments.

The following should guide future transportation studies conducted by the MPO, VDOT, and member governments:

- **Connections to The Port of Virginia:** The Danville-Pittsylvania region should incorporate considerations for The Port of Virginia and its expansion plans
- **CEDS:** Future transportation studies should be tied to the CEDS plan vision, goals, and recommendations, to support economic development efforts in the region.
- **Complete Street:** Any future transportation studies should consider multi-modal approaches and consider complete street designs, where applicable. Future transportation studies should also emphasize placemaking in areas dedicated to revitalization and reinvestment.

Connections to the Port of Virginia

During the 2045 LRTP process a representative from The Port of Virginia met with the MPO's staff and consultants. The presentation explored The Port of Virginia's expansion plans and how those investments can stimulate economic growth throughout the Commonwealth. The full presentation is in APPENDIX ____.

Profile of The Port of Virginia

WEST PIEDMONT DEVELOPMENT DISTRICT'S COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY PLAN:

The CEDS element of this plan is a direct excerpt from Chapter 4 of the 2019 CEDS plan. This overlap between plans is intended to link the LRTP and CEDS documents, given the region's dedication to fostering economic health and resiliency.

Refer to Page VIII-4 for the transportation section of the CEDS implementation chapter, called the "Implementation Plan."

This plan "includes a Regional Vision for the West Piedmont Economic Development District. It also describes a short-term implementation plan for the actions set by the CEDS Committee for the next one to two years. This section precedes the Region's Project Priority List for initiatives to be implemented in the next five years or so. Following that is a list of Transportation Priorities for each locality and the Region.

Other CEDS Considerations:

- **Agriculture:** With the current national economic situation, farmers across the region are caught in a money squeeze with the cost of fertilizer, chemicals, and transportation services.
- **Multi-Modal:** Improve regional multimodal transportation infrastructure; provide adequate transportation services; preserve, promote, and enhance transit systems
- **Resiliency:** Resiliency brings together many areas of
- **community** which often operate independently... the built environment, ecosystem services and the natural environment, energy production, food and water security, emergency preparedness, economic risk management, health services, transportation, communication, and education.

The Port of Virginia is the third largest port on the east coast. The growth at the port will grow freight throughout the entire transportation system in the Commonwealth. By including The Port of Virginia within the updated LRTP, D-MPO can address the needs of freight in the region and better prepare for economic growth.

The Port of Virginia is an asset of the Commonwealth that promotes economic growth within the MPO and across the state. The region's freight transportation system is dependent on an interconnected system of rail, highways, and local roads for the movement of goods.

The Port of Virginia has experienced vast growth in annual container volumes. The construction projects at Virginia International Gateway and Norfolk International Terminals will add an additional 1 million annual TEU (Twenty Foot Equivalent Unit) capacity to the terminals, and therefore, on the transportation system across the Commonwealth (**Figure 59**). Expansions at the Virginia Inland Port in Front Royal and projected growth of Richmond Marine Terminal will also add more freight to the transportation system. The freight fluidity within the transportation system is crucial for the economic growth of the region as well as the projected growth of The Port of Virginia and other private terminals in the Commonwealth.

Figure 58 Increases in freight volume at The Port of Virginia since FY2015.

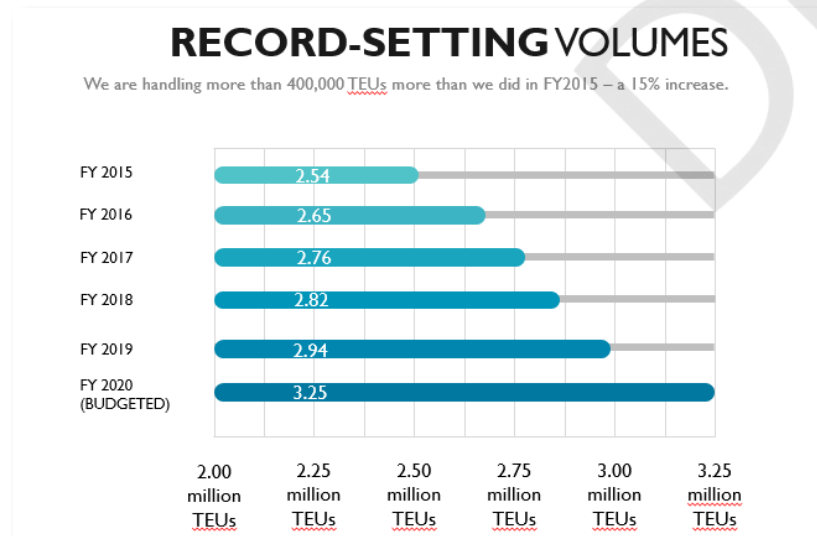


Figure 59 Economic Impacts and The Port of Virginia



It is important to consider the growth of freight within the transportation system for long-range planning of the region due to the positive contribution to the communities. Economic growth is paramount for a thriving region; however, addressing externalities of freight movements, including consideration of the health impacts of air pollution, noise, and vibration impacts of heavy trucks and trains must be part of the planning process.

Port Considers for the Danville/Pittsylvania Region:

Freight fluidity on the transportation system has many factors. Below are some areas for D-MPO to consider through the annual update of the UPWP. Although The Port of Virginia has some knowledge of direct port activity, D-MPO can provide the best information available, studying these areas in coordination with The Port of Virginia.

- **Motor Carriers:** Designated Truck Routes, Major Trucking Areas, Truck Stops
- **Rail Network:** Industrial Rail Access, Marshalling Yards, Rail Capacity, Commuter Rail Growth
- **Economic Development Sites:** VEDP Site Tiers, Future Growth, Brown Sites, Green Sites

Comprehensive Economic Development Strategies

As noted by EDA, “The CEDS is a strategy-driven plan for regional economic development. It is a key component in establishing and maintaining a robust economic ecosystem by helping to build regional capacity (through hard and soft infrastructure) that contributes to individual, firm, and community success. The CEDS provides a vehicle for individuals, organizations, local governments, institutes of learning, and private industry to engage in a meaningful conversation and debate about what capacity building efforts would best serve economic development in the region.”

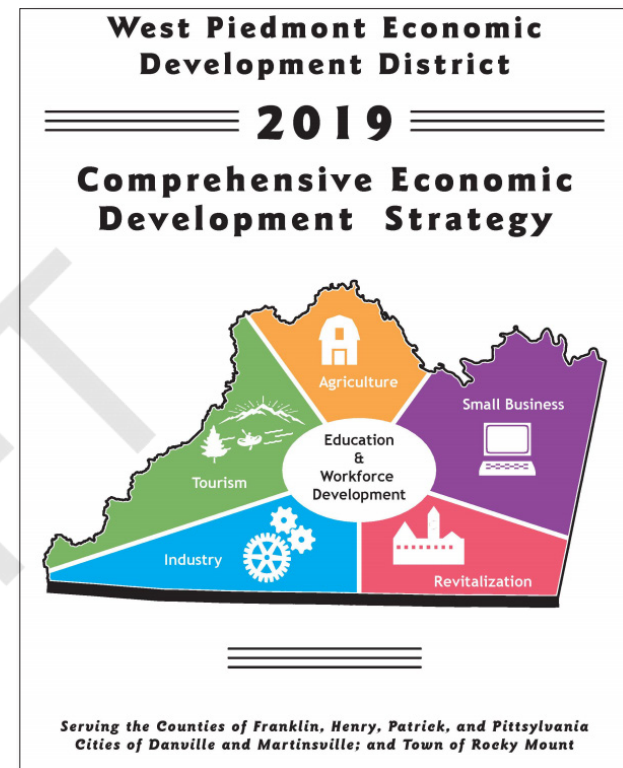
CEDS Implementation Plan

An area’s transportation accessibility serves as the framework wherein its communities grow. The adequacy of the transportation system has shaped and will continue to exert significant influence on economic growth within the West Piedmont Planning District. Transportation is a primary economic growth-forming factor because it makes land, labor, and resources both accessible and competitive inter-regionally and intra-regionally. Local transportation modes, for the same reason, impact the growth--or lack of growth--of specific areas within the region by making some areas relatively more accessible than others. The region needs an efficient transportation system because local firms are competing globally with other firms. The consumer, through the retailer, is requiring an approximation of just-in-time delivery.

The highway network is the major element in the Planning District’s transportation system. Five federal highways and twenty state primary highways provide the localities of the region with access to each other and the rest of the nation. There are numerous state secondary roads connecting to these larger highways. Over 471 miles of federal and state primary highways and 3,714 miles of state secondary roads are located within the Planning District; urban system mileage totals 397.5 miles.

VTrans 2040, Virginia’s multi-modal transportation guidance and planning document, serves as an update to the Year 2035 State

Figure 60 Excerpt from the 2019 CEDS Plan



Highway Plan. This document provides guidance as to which transportation projects across the Commonwealth should be funded based on identified needs. It serves as a basis for new state transportation legislation, Smart Scale, formerly House Bill 2, which is designed to be a ranking mechanism to further identify projects for funding at a time when many projects are competing for fewer monetary resources.

Top regional priorities for infrastructure improvements for regional access are based on completion of construction of the I-73, I785, U.S. Route 58, and U.S. Route 29 corridors. The projects are essential and the timeframe for their construction is critical to the recovery of the regional economy and directly and indirectly affect the potential success of all other projects identified in the strategy. These

transportation projects will have a significant economic impact on the region. Additional information on these and other projects follow.

Regional Priorities

- **U.S. Route 58 Corridor Improvement Program:** The U.S. Route 58 Corridor Improvement Program was initiated by the Virginia General Assembly in 1989 to enhance the nearly 680-mile long, mostly two-lane winding and hilly roadway which serves as the major transportation conduit across southern Virginia, extending from Virginia Beach in the eastern part of the state to the Cumberland Gap in eastern Tennessee, just west of the Virginia State Line. As of 2018, all but 10.8 miles of this roadway had been widened to at least four lanes, leaving the section between Meadows of Dan and the Town of Stuart as the last remaining segment. This project is currently listed in Virginia Department of Transportation's Six-Year Improvement Program (SYIP), and construction is scheduled to begin in Fiscal Year 2021.
- **U.S. Route 29 Upgrades:** U.S. Route 29 is a major transportation corridor connecting Virginia to the Mid-Atlantic and Southeast regions. Upgrades to this roadway in Danville and Pittsylvania County would have a positive impact on the area. In 1996, a group of government and business leaders in Danville and Greensboro, North Carolina formed the Interstate Connection Committee, a coalition to re-designate U.S. Route 29 as an interstate highway. In 1998, the future designation for U.S. Route 29 as I-785 was included in a \$204 billion federal transportation bill passed by Congress. The I-785 initiative fits with an overall effort to eventually see U.S. Route 29 become a 65 mph, limited access highway from Danville north to Washington, D.C. Until that time, spot improvements including access management, the addition of turn lanes and bays, opening and closing of median crossovers to promote the safe and efficient movement of traffic, and new and reconstructed interchanges should be pursued to improve safety and preserve roadway capacity. Because of a number of serious and fatal injury crashes at the intersection of Route 642 (Shula Drive) and U.S. Route 29 in recent years and

following input from VDOT, Pittsylvania County decided to close the existing western access point of this intersection and re-open it further south along U.S. Route 29, thereby creating an offset T-intersection. The County submitted a Smart Scale application in 2018 to request funding for this project.

Other Regional Projects

- **Route 863 (Moorefield Bridge Road) from Westover Drive to Mount Cross Road (City of Danville/Pittsylvania County):** Spot improvements in three (3) locations, as noted in the Moorefield Bridge Road Planning Level Study, June 28, 2013
- **Route 729 (Kentuck Road) between U.S. 58 and Little Creek Road (City of Danville/Pittsylvania County):** Spot improvements in three (3) locations, as described in the Kentuck Road Planning Level Study, June 28, 2013. In 2018, Pittsylvania County submitted a Smart Scale application to request funding to implement intersection and access improvements in the vicinity of the Ringgold West Industrial Park to address increasing traffic volumes resulting from an expanded distribution center. However, funding was not approved.

Pittsylvania County Priorities

- **Proposed U.S. Route 29/58 Bypass Interchange and Enhancements to U.S. Route 311 (Berry Hill Road) and U.S. Route 58:** Pittsylvania County, with the help of a Strategically Targeted Affordable Roadway Solutions (STARS) II study, conducted by VDOT at a cost of nearly \$1.8 million, evaluated a potential interchange to be constructed at the intersection of U.S. Route 311 (Berry Hill Road) and U.S. Route 29/58 (Danville Expressway) as a means to establish more direct access from the expressway to the Berry Hill Industrial Park. An alternative proposal, the Berry Hill Connector Road – Oak Ridge Farms Interchange (with U.S. 58 Bypass) to Berry Hill Road will help promote development of the Berry Hill Industrial Park. Improvements to more than five miles of U.S. Route 311 are planned to take place once funding is secured. In 2017, the Danville Metropolitan Planning

Organization (MPO), staffed by the West Piedmont Planning District Commission, retained the services of Dewberry consultants to update a study that firm conducted in 2010 to evaluate the feasibility of the Berry Hill Connector Road as a more cost-effective alternative to an interchange at the intersection of Berry Hill Road and the Danville Expressway. The updated study was completed in 2018 and served as the basis for the submission of a Smart Scale application for the Connector Road, which is proposed to extend from Berry Hill Road east to the Danville Expressway. The MPO assisted with this study by providing mapping and conducting a crash analysis. This project was recommended for funding.

Other Pittsylvania County Projects

- **U.S. 58 from Route 855 to Route 708 East:** Safety and geometric improvements to address deficiencies
- In 2018, Pittsylvania County submitted a Smart Scale application to fund various improvements at the intersection of Route 40 and McBride Lane in the Town of Gretna because of recent and anticipated non-residential development which includes the opening several years ago of the Centra Gretna Medical Center along McBride Lane. This project was not approved for funding.
- **VA 41 (from Route 844 to Route 703 West):** Improvements to address safety and geometric deficiencies
- **U.S. 29 in Pittsylvania County:** Improvements for safety and geometric deficiencies.

City of Danville Priorities

- **Riverside Drive (U.S. 58 Business) Corridor Improvement Study:** In 2018, VDOT, EPR consultants, the Danville MPO, and the City of Danville collaboratively kicked off the Riverside Drive (U.S. 58 Business) Corridor Improvement Study to evaluate needs and formulate recommendations along a three-mile segment of Riverside Drive in the City of Danville between Piedmont Drive and Main Street. A VTrans 2040 safety needs analysis determined that numerous intersections and segments within this study area exhibited higher than predicted crash rates for their respected roadway geometry

types. Therefore, Strategically Targeted Affordable Roadway Solutions (STARS) funding has been allocated for the study team to evaluate this corridor and formulate recommendations to improve safety and efficiency within the study area. The study is anticipated to be completed in June 2019, with the expectation of a future Smart Scale submission to implement suggested improvements.

- **U.S. 58 West Access Management Study:** An update of the previous 2012 study, just west of Piedmont Drive in Danville to Long Circle, which will include spot improvements and safety measures.

Other City of Danville Projects

- **U.S. 58 (South Boston Road) West Bound Third Lane Extension:** Extension of the recently completed third west bound lane on South Boston Road from Airport Drive to 600 feet east of Kentuck Road. In 2018, the City of Danville submitted a Smart Scale application to request funding for this project.
- In 2018, the City of Danville submitted a Smart Scale application to fund pedestrian circulation and safety improvements in the vicinity of the Danville Mall to include the implementation of sidewalks, crosswalks, and pedestrian signalization.
- **Mount Cross Road Improvements Phase II:** Continuation of Mount Cross Road Improvements Phase I with added highway capacity and improved alignment from Dimon Drive north to the Danville City limits; preliminary estimated cost of \$15 million.
- Additionally, a roundabout is proposed at the intersection of Mount Cross Road and the Averett University's North Campus entrance. Preliminary estimated cost is \$3.3 million, which will greatly improve intersection safety and efficiency. The City of Danville submitted a Smart Scale application in 2018 to request funding for this project; however, funding was not approved.

Typical Roadway Sections & Complete Streets Conversions

WPPDC, which houses the staff to the MPO, has been actively encouraging the development of complete streets throughout the region. Complete streets are streets that are built to accommodate all users – pedestrians, vehicles, bicycles, and buses – and are a key building block towards building economically viable places where people want to live and work. Complete streets conversions entail reallocating some roadway space from vehicles to other elements such as wider sidewalks, shared use paths, or bicycle facilities, where the traffic volumes and capacity merit such reconfigurations. The following outlines a strategy to develop a network of complete streets that connect residents with activity centers in the MPO.

A network of complete streets is proposed that would provide multimodal connectivity between employment activity centers along Riverside Dr, Piney Forest Rd and Downtown and the neighborhoods to the north and south. THE 2018 WEST PIEDMONT REGIONAL BICYCLE PLAN served as the guiding document for these considerations. **Figure 63** shows the regional road network segments that were highlighted in the bike plan as having potential for new bike lanes. A handful of north-south roads that were identified based on traffic volumes and road widths to serve as the primary routes of the new network. These routes connect many neighborhoods to the activity centers. Recognizing the popularity and geographical centrality Riverwalk trail, the trail could serve as the spine of the network, allowing for east-west travel between the activity centers. **Figure 64** shows the proposed network overlaid on the employment density of the MPO. Once the primary routes have been converted to complete streets, the secondary routes could be converted to thicken the network. Several examples of complete streets conversions are outlined below to serve as a guide for the development of the network.

North Main St

North Main St is a Minor Arterial road that connects Downtown with the Danville Expressway (via Richmond Blvd), Franklin Tpke, and Piney Forest Rd. The southern half is a two-lane road that runs through residential areas, while the north half opens to four-lanes

and serves commercial land uses in addition to residential uses. A typical cross section of the southern portion of North Main St has about 38' of pavement curb to curb. Both sides of the street are used for parking, with one section that includes marked parking spaces. While North Main St has sidewalks on both sides, it lacks bike

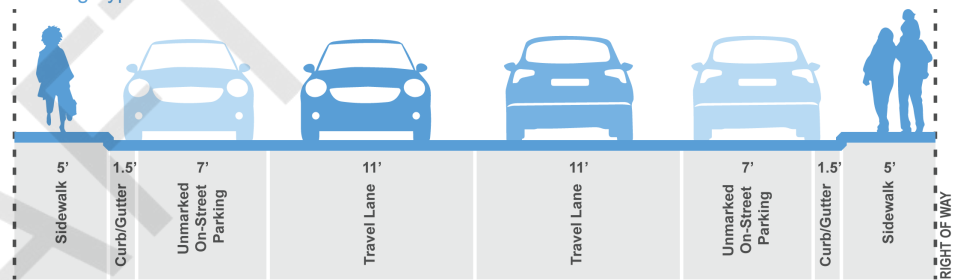
Figure 61 Two streetscapes alternatives that would accommodate cyclists on North Main St

North Main St Typical Sections

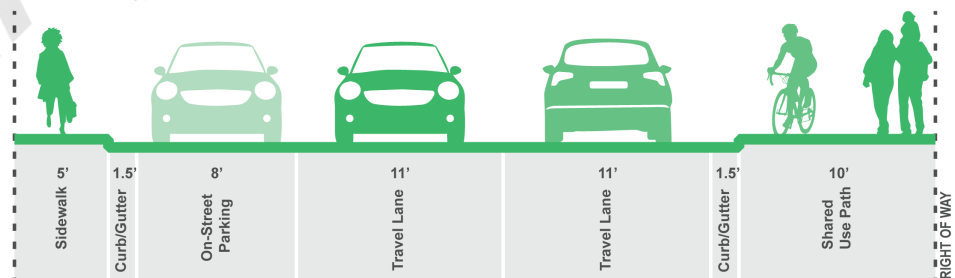
CURB TO CURB: 38'

TOTAL ROW: 48'

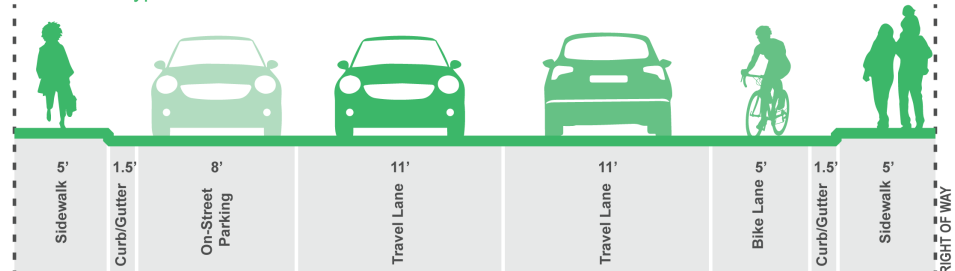
Existing Typical Cross Section



Alternative Typical Cross Section 1



Alternative Typical Cross Section 2



lanes. **Figure 61** depicts two streetscapes alternatives that would accommodate cyclists on North Main St.

Arnett Blvd

Arnett Blvd is a Minor Arterial road that connects Riverside Dr (US Route 58 Business) with Piney Forest Rd (US Route 29 Business). It is primarily a two-lane road the serves residential land uses with a four-lane section in the middle that serves small commercial establishments, along with Johnson Elementary School and Northside Preschool. A typical cross section of the residential portions of Arnett Blvd has about 53 feet of right-of-way. Both sides of the road are used as on-street parking, although there are markings only on one side. Arnett Blvd has no bike lanes and aside from the four-lane section has no sidewalks. **Figure 62** shows two alternative streetscapes that could accommodate bike and pedestrian travel.

Figure 62 Two alternative streetscapes that could accommodate bike and pedestrian travel

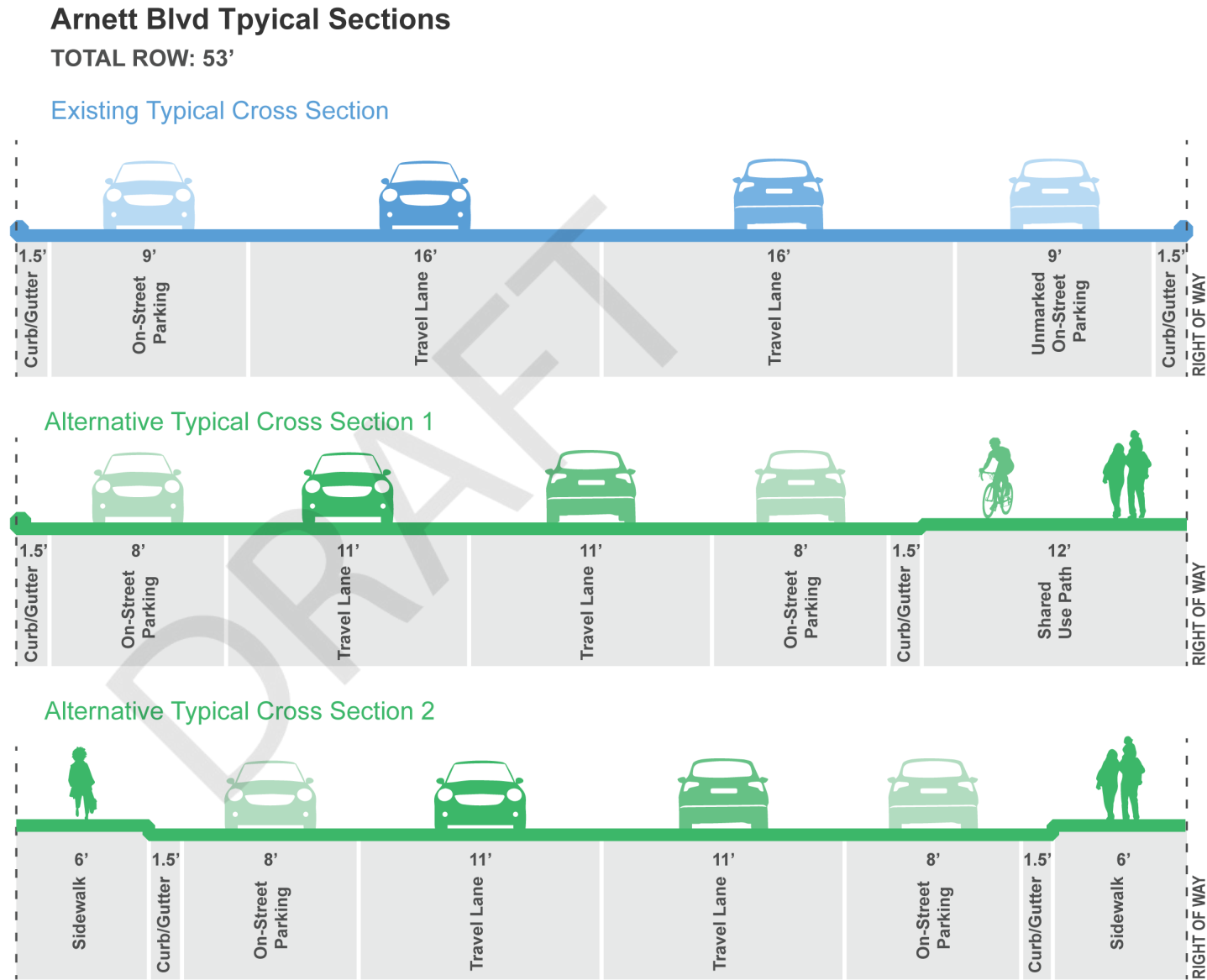
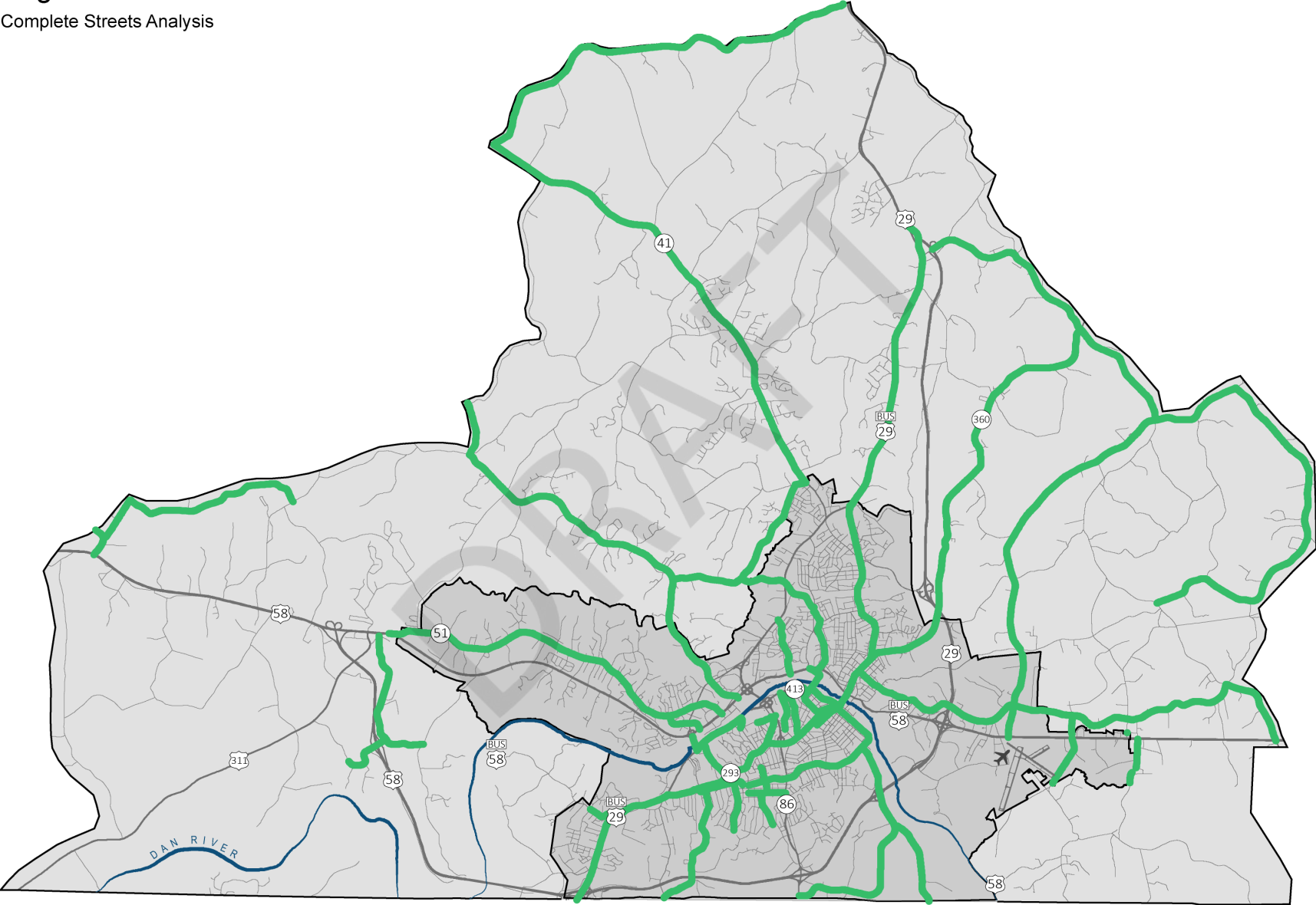


Figure 63 Regional road network segments that were highlighted in the bike plan

Segments identified in the 2018 PDC Bike Plan

Complete Streets Analysis



0 0.5 1 2 3 Miles

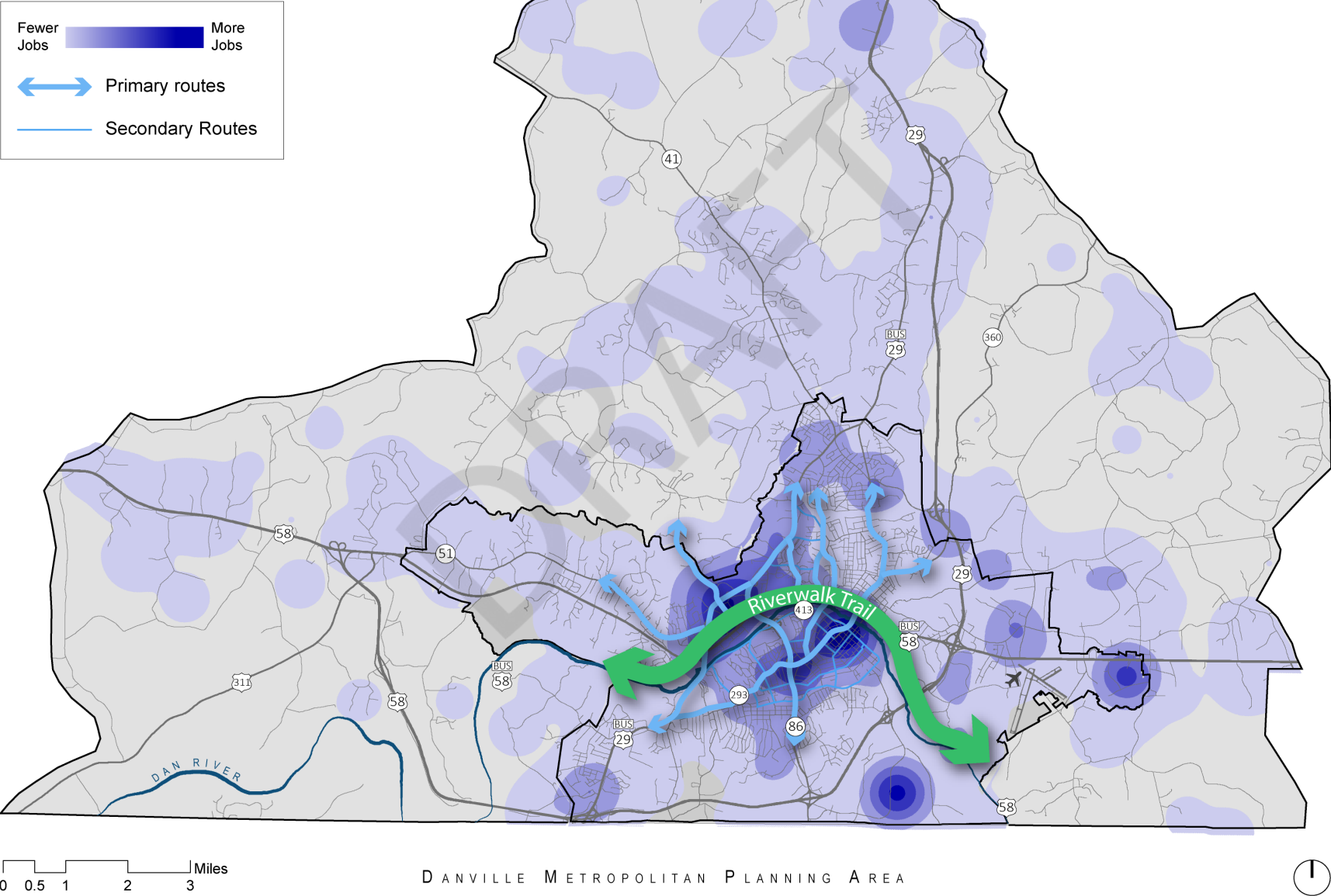
DANVILLE METROPOLITAN PLANNING AREA



Figure 64 Proposed network overlaid on the employment density of the MPO

Complete Streets Network Concept

Complete Streets Analysis



Chapter IX

2045 Project Lists

In this chapter, the reader will find:

- **2045 Rural Project** from the Rural Long Range Transportation Plan that are surrounding the Danville MPO Area
- **The 2045 Vision List** of all unconstrained projects
- **The Constrained List** of all funded projects within the MPO area

112 2045 Constrained Long Range Plan (CLRP)

112 2045 Vision List

118 Further Evaluation Needed

118 Future Studies

118 Bike and Pedestrian List

118 Transit Projects List

2045 Project Lists.

2045 Constrained Long Range Plan (CLRP)

The financially constrained transportation improvement project list is limited by a reasonable estimation of future state and local transportation funding sources through year 2045. Once the total amount of anticipated funding has been allocated, the LRTP is established, and remaining projects fall into the unconstrained, or vision, list. **Table 3** details the projects that make up the Constrained Long-Range Plan (CLRP).

LRTP projects that fall within the first six years of the plan are part of the VDOT's six-year improvement program (SYIP) and represent the MPO's greatest transportation improvement needs. These projects were chosen prior to the Danville MPO planning process and thus were not analyzed using its evaluation program.

The projects included in the current FY 2021 SYIP will not all be completed at the end of this six year period in 2026. The outstanding balance of these projects beyond 2026 is expected to be approximately _____. This amount effectively utilizes all

funding that is projected to be available for construction projects in the MPO through year 2045. As such, given the current funding situation the Danville MPO is unable to add any projects to its Constrained List beyond those identified on the FY 2021 SYIP.

2045 Vision List

The Vision List is an unconstrained list of projects. Each project in the list was ranked using the project prioritization process discussed in CHAPTER VII. The Vision List provides a prioritized list of projects that can feed into the CLRP for the next update or can be advanced if additional funding becomes available before then. **Table 4** shows the Vision List.

Table 3 Constrained Long Range Plan project list

Danville 2045 Long Range Transportation Plan DRAFT Constrained List									
ROUTE	JURISDICTION	Name	DESCRIPTION	Estimated Cost	Previous Spending	FY20	FY21-25	Remaining Balance	
58	Danville	Route 58-Route 311 Intersection Improvement	Upgrade the intersection of Berry Hill Road (Route 311) and US Route 58 Business to enable the roadway network to accommodate traffic for the nearby Berry Hill Industrial Park.	\$ 3,330,611	\$ 952,018	\$ 1,741,434	\$ 700,000	\$ -	
58	Danville	Route 58 WBL from Airport Dr to Kentuck Rd	This work includes the addition of a third lane on Route 58 (South Boston Road) west bound. The work includes grading, asphalt paving, curb & gutter, storm drainage, traffic signal relocation, signage and commercial entrances.	\$ 3,453,896	\$ -	\$ -	\$ 3,453,896	\$ -	
750	Pittsylvania County	Mt. Cross Rd./Whitmell School Rd. Intersection Improvements	The project involves safety improvements at the intersection of Mt Cross Rd (Rt 750/Rt 844) and Whitmell School Rd (Rt 750) to include the construction of a right-turn lane along WB Mt Cross Rd and implementation of access management strategies.	\$ 1,083,903	\$ -	\$ 158,850	\$ 925,053	\$ -	
0	Danville	Mount Cross Road Widening Phase 1	Improve and widen Mount Cross Road by widening the existing 3-lane curb-and-gutter road from Old Mt. Cross Road to Parker Road to 4-lane with median and improving 5-lane roadway section with two-way left turn lane.	\$ 6,513,411	\$ 6,513,411	\$ -	\$ -	\$ -	
9999	Danville	Arnett Boulevard Improvements	Arnett Boulevard Improvements to address pedestrian and cyclist traffic and lack of safe route to GLH Johnson Elementary School issues	\$ 500,588	\$ -	\$ 50,000	\$ 450,588	\$ -	

Table 4 Vision List projects

Danville 2045 Long Range Transportation Plan Vision List Projects							
No.	Locality	Road Name	From	To	Project Description	Cost	Priority Ranking
42	City of Danville	Riverside Dr	Mount Cross Rd (Rt 750)	Piney Forest Dr	Construct sidewalks, realign ramp, pedestrian safety features	\$ 3,442,260	1
I-21	City of Danville	Piney Forest Rd	North Main St (Rt 293)	-	Intersection improvements and alternative design considerations	\$ 3,400,000	2
19	City of Danville	South Boston Rd	Danville Expressway (Rt 29)	ECL Danville	Safety and access management	\$ 8,500,000	3
44	City of Danville	Riverside Dr	Audubon Dr	Arnett Blvd	RCUT, construct new sidewalks, median opening modifications, access management	\$ 5,041,000	4
I-15	City of Danville	Piney Forest Road and Central Boulevard (US 29 Bus.) – Piney Forest Road to Parker Road	Parker Rd (Rt 1529)	-	Intersection and circulation improvements	\$ 12,400,000	5
I-3	City of Danville	Kentuck Rd	Halifax Rd (Rt 655)	-	Construction of single lane roundabout	\$ 3,500,000	6
41	City of Danville	Riverside Dr	Westover Dr (Rt 51)	Mount Cross Rd (Rt 750)	RCUT, construct new sidewalks, median opening modifications, access management	\$ 15,653,000	7
40	City of Danville	Riverside Dr	Park Avenue	Westover Dr (Rt 51)	Two RCUTs, construct sidewalks, access management	\$ 10,272,000	8
13	Both Localities	Riverside Dr	Westover Dr (Rt 51)	Parkway Dr	Install right turn lanes, extend left turn lanes	\$ 2,400,000	9
I-1	Pittsylvania County	Moorefield Bridge Rd	Mount Cross Rd (Rt 750)	-	Intersection improvements and alternative design considerations	\$ 2,400,000	10
14	City of Danville	Riverside Dr	Parkway Dr	Church Ave	Extend turn lanes, median closure, install turn lane	\$ 2,700,000	11
I-4	Pittsylvania County	Kentuck Rd	Eagle Springs Rd (Rt 730)	-	Remove northbound channelization; install right turn lanes	\$ 1,100,000	12
I-7	Pittsylvania County	Berry Hill Rd	Vandola Church Rd (Rt 872)	-	Construct new intersection	\$ 1,800,000	13
20	Both Localities	South Boston Rd	ECL Danville	Ringgold Depot Rd (Rt 726)	Safety and access management	\$ 6,500,000	14
43	City of Danville	Riverside Dr	Piney Forest Rd	Audubon Dr	Median opening modifications, construct sidewalks, access management	\$ 16,013,000	15
I-11	City of Danville	Danville Expressway	US 29 Business	-	Create park and ride location for future I-785 corridor	\$ 3,500,000	16
I-5	Pittsylvania County	Kentuck Rd	Little Creek Rd/Fall Creek Rd (Rt 732)	-	Intersection improvements and alternative design considerations	\$ 4,700,000	17
28	City of Danville	South Boston Rd	Danville Expressway (Rt 29)	Kentuck Rd (Rt 729)	Widen to six lanes	\$ 33,503,021	18
I-12	City of Danville	Mount Cross Rd	Dimon Dr	-	Construct roundabout, add pedestrian features/sidewalks	\$ 7,392,448	19
2	City of Danville	Mount Cross Rd	Dimon Dr.	Danville City Limits	Improvement Phase II: Improved alignment; additional capacity	\$ 16,000,000	20
45	City of Danville	Riverside Dr	Arnett Blvd	Main St	Median opening modifications, construct sidewalks, access management	\$ 12,611,000	21
I-9	Pittsylvania County	US 29 Business	Malmaison Rd (Rt 726)	-	Short-term: Reconfigure WB approach	\$ 442,900	22
I-2	City of Danville	Moorefield Bridge Rd	Westover Dr (Rt 51)	-	Addition of southbound left turn lane	\$ 700,000	23
12	Pittsylvania County	US 29	Dry Fork Rd/Snakepath Rd (Rt 718)	Malmaison Rd (Rt 726)	Modify median openings, install turn lanes, extend turn lanes	\$ 21,800,000	24
I-18	Pittsylvania County	Martinsville Hwy	Berry Hill Rd (Rt 311)	-	Add eastbound and northbound turn lanes; modify signal	\$ 3,800,000	25
I-27	Pittsylvania County	US Route 29	Lawless Creek Road	-	Long term: roundabout	\$ 4,604,100	26

Danville 2045 Long Range Transportation Plan Vision List Projects							
No.	Locality	Road Name	From	To	Project Description	Cost	Priority Ranking
17	City of Danville	Piney Forest Rd	Audubon Dr	Beaver Mill Rd (Rt 724)	Intersection and circulation improvements	\$ 23,300,000	27
39	Pittsylvania County	US 29	E Witt Rd	Dry Fork Rd	Modify median openings, install turn lanes, extend turn lanes	\$ 19,080,000	28
I-22	City of Danville	Riverside Dr	Cambridge Rd	-	Restricted Crossing U-Turn	\$ 7,003,000	29
51	City of Danville	Riverside Dr	Avalon Dr	Kayewood Ln	Restricted crossing u-turns, access management	\$ 9,450,000	30
I-10	Pittsylvania County	US 29	Toy Ln	-	Access management with potential intersection redesign	\$ 7,000,000	31
32	Both Localities	Kentuck Rd	South Boston Rd (Rt 58)	Eagle Springs Rd (Rt 730)	Widen to four lanes	\$ 34,778,222	32
I-23	City of Danville	Riverside Dr	James St	-	Restricted Crossing U-Turn	\$ 7,767,000	33
I-16	Pittsylvania County	Danville Expressway	Oak Ridge Farms Rd (Rt 1260)	-	Interchange improvements	\$ 17,000,000	34
I-26	Pittsylvania County	US Route 29	Malmaison Rd (Rt 726)	-	Short term: Restricted Crossing U-Turn	\$ 6,449,300	35
I-17	City of Danville	Central Blvd	Riverside Dr (US 58 Bus)	-	Reconstruct Interchange	\$ 98,000,000	36
I-24	City of Danville	Riverside Dr	Barrett St	-	Restricted Crossing U-Turn	\$ 10,242,000	37
1	Pittsylvania County	Moorefield Bridge Rd	River Ridge Rd/Pinecrest Dr (Rt 873)	Red Bud Ln	Add shoulders; Install chevron warnings	\$ 3,300,000	38
9	Pittsylvania County	Martinsville Hwy	Long Circle Rd east (Rt 708)	Grays Park Rd west	Median modifications, median closures, install turn lanes	\$ 35,100,000	39
I-25	Pittsylvania County	US 29 Business	Malmaison Rd (Rt 726)	-	Long term: roundabout	\$ 4,624,700	40
I-20	City of Danville	Central Blvd	Memorial Dr (Rt 413)	-	Improve alignment of southbound to westbound ramp	\$ 19,000,000	41
15	City of Danville	Riverside Dr	Church Ave	Radio Ln	Modify median openings, install turn lanes, extend turn lanes	\$ 11,150,000	42
52	Pittsylvania County	Kentuck Rd	Eagle Springs Rd (Rt 730)	0.46 miles north	Widen existing lanes, add shoulders and add turn lanes at intersection with Ringgold Dr	\$ 7,428,972	43
18	Pittsylvania County	VA 41 Extension	0.4 miles west of Kentuck Rd (Rt 729)	Danville Expressway (Rt 29)	Construct roadway on new alignment	\$ 32,000,000	44
I-13	Pittsylvania County	Danville Expressway	Berry Hill Rd (Rt 311)	-	Interchange Proposal	\$ 60,710,000	45
35	City of Danville	Elizabeth St/Edgewood Dr	Danville Expressway (Rt 58/29)	West Main St (Rt 29 Bus)	Improve 2 lane facility	\$ 16,925,401	46
23	Pittsylvania County	Moorefield Bridge Rd	US 58	0.8 mi south of Rt 750	Construct roadway on new alignment	\$ 9,200,000	47
50	Pittsylvania County	Berry Hill Rd	Oak Hill	NC State Line	Geometric improvements on existing 2 lane road	\$ 52,000,000	48
22	Both Localities	Piney Forest Parkway	Mount Cross Rd (Rt 750)	Central Blvd (Rt 29 Bus)	Construct 4-lane parkway on new alignment	\$ 175,000,000	49
24	Both Localities	Mount Cross Pkwy	Rt 863	US 29 Business	Construct 2-lane parkway on new alignment (in 4 lane ROW)	\$ 165,000,000	50
49	Pittsylvania County	Berry Hill Rd	New Connector Rd	Oak Hill	Capacity improvements, 2 new lanes	\$ 54,000,000	51
34	Pittsylvania County	Berry Hill Rd	NC State Line	Martinsville Hwy (Rt 58 Bus)	Improve 2 lane facility	\$ 35,241,932	52
I-19	Pittsylvania County	Countryside Dr	Sandy Creek	-	Replace bridge	\$ 2,400,000	53
26	Pittsylvania County	Old Richmond Rd	CL Danville	Franklin Turnpike (Rt 41 Extension)	Widen to four lanes	\$ 19,700,000	54
36	Pittsylvania County	Robertson Ln/Golf Club Dr	Franklin Turnpike (Rt 41)	0.5 mi south Golf Club Rd (Rt 719)	Construct roadway on new alignment	\$ 17,505,039	55
29	Pittsylvania County	Franklin Turnpike	Golf Club Rd (Rt 719 West)	R and L Smith Rd (Rt 863)	Widen from 2 to 5 lanes	\$ 52,515,116	56
38	Pittsylvania County	Kentuck Church Rd	0.7 mi north Kentuck Rd (Rt 729)	Old Richmond Rd (Rt 360)	Improve 2 lane facility	\$ 27,358,868	57
25	Pittsylvania County	R and L Smith Rd	Franklin Turnpike (Rt 41)	US 29	Improve 2 lane facility	\$ 36,000,000	58

Danville 2045 Long Range Transportation Plan Vision List Projects							
No.	Locality	Road Name	From	To	Project Description	Cost	Priority Ranking
31	Pittsylvania County	Ringgold Depot Rd	South Boston Hwy (Rt 58)	Tom Fork Rd/Shawnee Rd (Rt 655)	Improve 2 lane facility	\$ 14,606,853	59
37	Pittsylvania County	Moorefield Bridge Rd/Laniers Mill Rd	0.8 mi south Mount Cross Rd (Rt 750)	0.5 mi south Golf Club Rd (Rt 719)	Improve 2 lane facility	\$ 42,777,213	60
33	Pittsylvania County	Mount Cross Rd	Moorefield Bridge Rd (Rt 863)	Campview Rd (Rt 883)	Widen to four lanes	\$ 20,866,933	61
I-8	Pittsylvania County	Vandola Rd	Vandola Church Rd (Rt 872)	-	Improve horizontal alignment; improve intersection	\$ 1,750,000	62
27	Pittsylvania County	Barker Rd	Rt 41 Extension	0.1 mi south of railroad tracks on Rt 733	Reconstruct to current two-lane standards; improve intersection at Rt 730	\$ 32,343,747	63
6	Pittsylvania County	Vandola Church Rd	0.2 mi south of Target Dr (F645)	0.2 mi south of Target Dr (F645)	Improve horizontal alignment	\$ 4,000,000	64
7	Pittsylvania County	Vandola Church Rd	Davis Farm Rd	Oak Ridge Farms Rd (Rt 1260)	Improve horizontal alignment	\$ 4,000,000	65
8	Pittsylvania County	Vandola Church Rd	Oak Ridge Farms Rd (Rt 1260)	0.5 mi east of Oak Ridge Farms Rd (Rt 1260)	Improve horizontal alignment	\$ 3,300,000	66
30	Pittsylvania County	Old Richmond Rd	Franklin Turnpike (Rt 41 Extension)	Study area boundary	Improve 2 lane facility	\$ 64,107,856	67

Table 5 Projects that need to be elaborated to be prioritized

Danville 2045 Long Range Transportation Plan Further Evaluation Needed								
No.	Route	Locality	Road Name	From	To	Description	Source Document	Type
I-6	708	Pittsylvania County	Long Circle	Oak Hill Rd (Rt 862)		Improve horizontal alignment; realign existing intersection	SoVA Mega Site at Berry Hill Transportation Update (2017)	Intersection
I-14	989	City of Danville	Airport Rd	Stinson Dr		Geometric Improvements	Danville-Pittsylvania 2040 LRTP (2015)	Intersection
3	862	Pittsylvania County	Oak Hill Rd	Berry Hill Rd (Rt 311)	0.5 mi north of Berry Hill Rd (Rt 311)	Improve horizontal alignment	SoVA Mega Site at Berry Hill Transportation Update (2017)	Corridor
4	862	Pittsylvania County	Oak Hill Rd	Kyle Rd (Rt 962)	Huntington Trail (Rt 621)	Improve horizontal alignment	SoVA Mega Site at Berry Hill Transportation Update (2017)	Corridor
5	870	Both Localities	Vandola Dr	US 58 Bus	Vandola Church Rd (Rt 872)	Improve horizontal alignment	SoVA Mega Site at Berry Hill Transportation Update (2017)	Corridor

Table 6 Deficiencies for future studies

Danville 2045 Long Range Transportation Plan Safety Deficiencies					
Route	Road Name	From	To	Type	PSI Rank
29 Bus	Piney Forest Rd	Nor-Dan Dr		Intersection	2
	North Main St	Johnstons Body Shop entrance		Intersection	4
29 Bus	Piedmont Dr	Westover Dr	Executive Dr	Segment	4
29 Bus	Piedmont Dr	Westover Dr		Intersection	6
29 Bus	Piney Forest Rd	110' south of Parker Rd	Parked Rd	Segment	9
29 Bus	Piedmont Dr	Mount Cross Rd		Intersection	10
58 Bus	Riverside Dr	800' west of Riverside Dr	Subway sandwich shop	Segment	10
58 Bus	Riverside Dr	Mount Cross Rd		Intersection	11
58 Bus	Riverside Dr	Barter St		Intersection	12
58		Fastenal entrance	Food Lion entrance	Segment	13
29 Bus	Piney Forest Rd	Arnett Blvd		Intersection	14
58 Bus	Riverside Dr	Piedmont Dr NB on ramp	900' east of From location	Segment	16
58	South Boston Rd	29 NB entrance ramp		Segment	19
29 Bus	Central Blvd	190' south of Coleman Market Place entrance	300' north of Coleman Market Place entrance	Segment	20
29 Bus	Piedmont Dr	100' west of Lowes Dr	Bridge over Sandy Creek	Segment	22
86	Central Blvd	Memorial Dr SB off ramp	150' south of Christopher Ln	Segment	23
29 Bus	Piedmont Dr	115' west of Old Mt Cross Rd	100' west of Lowes Dr	Segment	24
58 Bus	Riverside Dr	Old Riverside Dr	Mount Cross Rd	Segment	31
58	South Boston Rd	Cane Creek Pkwy		Intersection	32
	Melrose Ave	Verne Blvd		Intersection	33
58	Martinsville Hwy	Whispering Pines Rd		Intersection	34
58 Bus	Riverside Dr	Piney Forest Rd	Audubon Dr	Segment	39
58 Bus	Riverside Dr	Farrar St	600' east of From location	Segment	40
29 Bus	Central Blvd	300' north of Coleman Market Place entrance	Holt Garrison Pkwy	Segment	42
29 Bus	West Main St	Ol Greensboro Rd	Old Greensboro Rd	Segment	43
51	Westover Dr	Park Ave		Intersection	45
41	Franklin Tpke	Jeanette Dr		Intersection	46
29 Bus	Piedmont Dr	Morris St	Westover Dr	Segment	46
58 Bus	Riverside Dr	Audubon Dr		Intersection	47
51	Westover Dr	Martin Ave	Piedmont Dr	Segment	50

Table 7 Bike and pedestrian projects

Danville 2045 Long Range Transportation Plan Bike & Pedestrian Projects									
No.	Route	Rd_Name	From_	To_	Descrip	Source Document	Locality	Cost	
21	-	-	Ringgold	Riverwalk Trail Connector	Multi-purpose multi-modal trail connecting existing trail systems	Danville-Pittsylvania 2040 LRTP (2015)	Both Localities	\$ 17,000,000	
16	58	Riverside Dr	Barrett St	Radio Ln	Addition of bicycle path/multiuse trail in utility easement	US Route 58 (Riverside Dr) Corridor Access Management Plan (2008)	City of Danville	N/A	

Table 8 Transit projects

Danville 2045 Long Range Transportation Plan Transit Projects		
Project	Column1	Description
Bus Installation of Bicycle Racks on Buses	Mid-Term Projects	It is recommended that DT begin installing bicycle racks on buses on select routes to extend the reach of its fixed route service. Commonly referred to as the first mile – last mile in the transit world, providing bicycle racks on buses can extend the range of a transit trip by a mile or more.
Consolidate the Schedules of Duplicative Routes	Mid-Term Projects	Danville Transit operates two North Main Routes (No. 1 and No.4) and two Edgewood-Stokesland Routes (No. 3 and No. 5); where each pair is essentially the same. The North Main and the Edgewood-Stokesland Routes both provide 40 minute headways. When referencing the schedule for Route #1 North Main, it appears that the route is on 80 minute headways. There is only a small note referencing Route #4 North Main on a later page. The same holds true for the Edgewood-Stokesland Routes. Combining the two North Main and the two Edgewood-Stokesland Routes would better illustrate the frequency of the routes and prevent the necessity of flipping between two different schedules for service along the same route
Eliminate Duplicative Route Numbers	Mid-Term Projects	This recommendation should be implemented in conjunction with consolidating the schedules of the #1 and #4 North Main and #3 and #5 Edgewood-Stokesland Routes. In this recommendation, DT will renumber the route numbers so that each route will have its own unique number. Routes currently share numbers to indicate which routes are interlined.
Install New and Improve Existing Bus Stop Amenities	Vision Projects	Danville Transit's bus stop amenities program currently maintains bus stop signs, shelters, benches and trash receptacles at dozens of high activity stops. This project focuses on installing new amenities throughout the system and improving those that currently exist as funds become available.
Re-Evaluate Feasibility for Fixed Route Service to the Institute for Advanced Learning and Research	Vision Projects	This recommendation is a component of the previous short-term effort to reduce the Reserve-A-Ride fare for all high school and college students. As previously mentioned, this recommendation specifically targets students needing transportation to the Regional Center for Applied Technology and Training and the Institute for Advanced Learning and Research. This fare reduction will be used as a pilot program to determine the feasibility of establishing regular fixed route service to these locations. After a few years following the implementation of the reduced fare for students, Danville should evaluate the viability of providing fixed route service to these facilities. If there is adequate demand for fixed route service, modifying the #6 Glenwood Route schedule and route may be an option.

Further Evaluation Needed

Some projects drawn from previous studies lacked enough information to go through the prioritization process. These projects will need to be studied further and elaborated before they can be prioritized and considered for funding. MPO staff can use this list to flesh out projects that are partially developed so that they can be primed for funding with less effort than conducting new studies. **Table 5** lists the projects that require further evaluation.

Future Studies

Part of the LRTP process entails identifying deficiencies in the transportation network to be studied in the future. The deficiencies listed in **Table 6** were identified using VDOT's PSI location database. PSI locations with a district-wide ranking of 50 or less were included as safety deficiencies. The list allows the MPO to identify safety hotspot areas in the region that have not yet been studied. MPO staff can draw from this list when funding becomes available for future studies.

Bike and Pedestrian List

Table 7 shows the exclusively bike and pedestrian projects identified in the 2045 process.

Transit Projects List

The transit projects listed in **Table 8** were drawn from the Transit Development Plan.

